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2023 RLAA Public Update

for the City of Tulsa
Community No. 405381

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2023 Repetitive Loss Area Analysis Update

Previously Mitigated RLAs

The City of Tulsa has 67 RLAs, many of which are mitigated. Previous to 2023, the following RLAs have been mitigated:

- RLA 6 – Fred Creek Drainage Improvements Phase 5
- RLA 14 – Upper Mill Creek – Mingo Creek Local Protection Project
- RLA 25 – City purchased and demolished RLs for the South Fork Joe Creek Project
- RLA 38 – This RLA had one RL that was on the 2018 data but was not included in the 2022 or 2023 data. The building was removed and replaced with a parking lot, so it has been mitigated.
- RLA 47 – The City purchased and demolished the RL property and others in the RLA using HMGP funds – closed out in 2022.
- RLA 53 - Upper Mill Creek – Mingo Creek Local Protection Project
- RLA 54 – City purchased and demolished these 2 RLs.
- RLA 60 – City purchased and demolished the RL in this RLA.

Current Mitigated RLAs

The City is requesting that RLs in the following RLAs have their status changed to Mitigated or Conditionally Mitigated. The latter status is for properties that are protected for greater than a 4% (25-year) AC Storm but less than a 1% (100-year) AC Storm. Explanations for the status change are included in the individual status update for each RL.

Mitigation of RLAs from Acquisition:

None for 2023.

Mitigation of RLAs from Structural Projects:

- RLA 3 –Current BFE is lower than the FFE for the RL property.
- RLA 4 –Drainage improvements that diverted overland flow away from the RL property during development of adjacent lot.
- RLA 5 - Jones Creek USACE stormwater detention facilities. Two stormwater detention facilities were later constructed upstream from this RLA. The 1st (upstream) cell and storm sewer improvements occurred prior to 1995. The 2nd cell (downstream) of the detention pond was completed between 1995 and 2002.
- RLA 8 – West Tributary Fred Creek – Vienna Woods Drainage Improvements recommended as part of the Fred Creek Master Drainage Plan (1989) completed in 2001.
- RLA 9 – Glen Eagles Stormwater Detention Facility was completed upstream of 61st St. The RL property is above the post-construction BFE.
- RLA 10 – I44 Improvements in 2010 included a buyout of an RL property for r/w and the two RLs and this RLA were mitigated due to drainage improvements in the I44 project.
- RLA 11 –Mitigated by USACE Mingo Creek Local Protection Project in 2000 with the addition of the Carol Williams Pond.
- RLA 12 - Pebble Creek Channel/Weir project in 2017 lowered water surface elevations at the RL property.

- RLA 18 – Mitigated by a City of Tulsa Maintenance project, between 2014 and 2015, that replaced a driveway and implemented a berm to mitigate flooding.
- RLA 19 – This RLA experienced flooding in 1979 and 1984, both extraordinary storms. Detention ponds upstream were constructed between 1978 and 1980 to protect the RLA from flooding events up to the 1% AC storm.
- RLA 21 - This RLA was flooded in 1980 and in 1981 from surface overflow. No claims have been made since that time. It is assumed that the grading has been corrected.
- RLA 22 – The RLA flooded in 1979 and 1984 and is well above the 1% AC Storm water surface elevation.
- RLA 23 - The two repetitive loss properties in the RLA have not flooded since the 53rd St. Drainage Improvements were constructed after 2010.
- RLA 27 – This RLA flooded several times between 1979 and 1997. The 71st Widening project in 2002 and 2003 constructed a stormwater detention facility immediately upstream that mitigated this flooding.
- RLA 30 – This RL property is not in a designated floodplain and has not submitted an NFIP flood claim since 1986. It assumed that the homeowners have made improvements to the drainage on the property that have minimized or eliminated the flooding.
- RLA 31 – This RL property is not in a designated floodplain and has not submitted an NFIP flood claim since 1984. It assumed that the homeowners have made improvements to the drainage on the property that have minimized or eliminated the flooding.
- RLA 32 – This RL property is not in a designated floodplain and has not submitted an NFIP flood claim since 1984. It assumed that the homeowners have made improvements to the drainage on the property that have minimized or eliminated the flooding.
- RLA 34 – The FFE is equal to the 2% (50-year) AC Storm water surface elevation. This RLA experienced flooding in 1983 and 1984. It should be considered conditionally mitigated.
- RLA 36 – The RL in this RLA does not appear in the 2022 or 2023 data.
- RLA 41 – This RLA experienced flooding in 1979 and 1984, both extraordinary floods. Both have FFE's above the 1% (100-year) AC Storm water surface elevation.
- RLA 42 – The owner of this RL property redeveloped the building and parking lot. These renovations have eliminated the flooding.
- RLA 50 – The RL property in this RLA is protected by a levee along Mingo Creek. The FFE is 613.2 NAVD. The 1% AC flood elevation is 610.7, 2.5 feet below the FFE. It appears to be mitigated for the 1% AC storm.
- RLA 51 – This RL property has been mitigated as a result of the ODOT I44 Widening Drainage Improvements in 2009-2010 and Perryman Ditch Drainage Improvements. These projects included increased storm sewer capacity and improved local drainage.
- RLA 58 – The upstream area is being developed for a school. The RLA will also benefit from a stormwater detention facility that is part of the stormwater runoff controls for the development and the City of Tulsa requirements for runoff control in general.
- RLA 63 – This RLA is flooded by overland/street flooding during extraordinary floods in 1979 and 1984.

Conditionally Mitigated RLAs:

- RLA 2 – 41st St. and Broken Arrow widening and storm sewer improvements under 41st St. and the Broken Arrow Expressway. One RL property is higher than the BFE and the other one is higher than the 2% water surface elevation.
- RLA 7 – In the period from 2015 to 2017, the City constructed the Gathering Place park, which included an 8 x 5' RCB connection to the existing undersized 48" to 54" RCP on Cincinnati Ave. to divert water away from the Cincinnati Ave. storm sewer.
- RLA 17 – Five RLs are protected against the 1% (100-year) AC Storm and the sixth RL has a FFE equal to the 2% (50-year) AC Storm water surface elevation as a result of the construction of the Little Joe Creek Channel. The RLA should be considered Conditionally Mitigated while 5 of the RL properties are considered mitigated.
- RLA 24 – This RLA experienced flooding in 1979 and 1980. The 71st & Harvard Intersections improvements in 1995 helped to mitigate the flooding. No flood claims or complaints have been noted since 1980 but it is unclear if the building still floods during the 1% storm, so the RLA should be considered conditionally mitigated.
- RLA 34- The RLA has not flooded since 1984. Current floodplain modelling shows the FFE to be a the 2% water surface elevation so the RLA should be considered conditionally mitigated.

RL Properties Not Included in RLAs

Seven other RL properties are shown as Not Mitigated, but, in fact, six have been mitigated. They are listed below and detailed in the status update following this discussion. They include:

- RL 38054
- RL 66507
- RL 66518
- RL 80183
- RL 286930
- RL 303108
- RL 303322

Of these, RL 303322 does not appear to be mitigated. RLA 67 has been prepared for this area and is included with this submittal.

We are requesting that many of the RL properties have their status changed to Mitigated (or Conditionally Mitigated) based on projects, buildings above the 1% AC elevation, updated infrastructure, building or grading to prevent flooding, flooding from extraordinary floods and one duplicate address. We have had numerous drainage projects completed that have resolved or reduced the flooding.

In addition, many of the other properties have not had NFIP flood claims for 30 to 40 years. Most filed NFIP flood claims for the 1984 and 1979 floods. Those floods were extraordinary. We have attempted to secure flood elevations where available to show where the risk actually exists.

Master Drainage Plan RLAA Recommendations

Following is the Update of the RLAA's in the City of Tulsa. The changes to the RL's and RLA's that are recommended are based on the data we have researched that is included in the individual appendices to this report.

Joe Creek MDP:

RLA 1 and *RLA 20* are named with the following recommendations:

1	Extend and/or improve storm sewer system to better collect stormwater runoff. (Most RLAs can be fixed with extension or improvement of the existing storm sewer system.)
2	Create overland flow path to drain pond water to the stream channel. (Only use this Solution if ponded water could be relieved with a swale to the channel.)
3	Create berms or swales to direct runoff away from residential properties. (Used to divert flowing water away from structures. Only used on City property or ROW)
4	Relocate residents & Acquire flood prone properties on a voluntary basis. (Only used for residential properties.)

RLA 26 – This RLA is named and located at the confluence of MDP Area 1 – Lower East Branch Joe Creek and MDP Area 1 – Lower West Branch Joe Creek, with large overflows. In approximately 2010, ODOT completed the I44-widening, including the new box culverts under Harvard (City of Tulsa) and under I44 (ODOT). These have contributed to lowered floodplain elevations and reduced risk, but this RLA is still subject to flooding from the 10% AC storm. The recommendations for this RLA include acquisition and relocation of residents and properties, and associated storm sewer and stormwater detention improvements.

RLA 59 – Currently there is a street rehabilitation project being designed for the streets adjacent to this house. The designers have been notified that this property (and others) could be mitigated by the project. This will be revisited following completion of the project. **The recommendations from the Joe Creek Master Drainage Plan that pertain to this RLA are listed below.**

1	Extend and/or improve storm sewer system to better collect stormwater runoff. (Most RLAs can be fixed with extension or improvement of the existing storm sewer system.)
4	Relocate residents & Acquire flood prone properties on a voluntary basis. (Only used for residential properties.)
8	Construct upstream detention to reduce the amount of stormwater runoff into the RLA. (Only used if there is a MDP Regional Detention pond upstream.)

RLA 33 – RLA 33 is named and located in MDP Area 4 - Mockingbird Lake portion of East Branch Joe Creek and a tributary. The large flows in the area and small storm sewer capacities required a recommendation of purchase of the residential structures as the only reasonable alternative.

RLA 16 – RLA 16 is named and located in Little Joe Creek Area 3 – Toledo Avenue/Place. The flooding occurs due to overflows from the creek. The recommended solution to this area is to provide upstream floodplain storage.

RLA 39 – RLA 39 is named and located in Area 8 – Little Joe Creek west of S. Sheridan Rd. Again, flooding is caused by overflow or Little Joe Creek. The recommendation is to acquire two properties and construct floodplain storage in the area on the west side of S. Sheridan Rd

RLA 55 – RLA 55 is named and located in Area 9 – Little Joe Creek east of S. Sheridan Road. The recommended solution for this area is to construct an open detention system within Explorer Park and Memorial Middle School open spaces to provide enough storage to reduce this flooding risk.

Bell Fulton MDP:

RLA 61 – This RLA has flood claims in 2012 and 2011. This was investigated by an engineering firm and was included as **Appendix F** in the *Bell Fulton Creeks Master Drainage Plan, November 2017*. The problem is that the storm sewer along the west side of the building is under capacity and backflows from the inlets at the building, causing flooding. Onsite drainage improvements were recommended but have not been implemented. This is not mitigated. **The status of this RLA is unchanged.**

Perryman Ditch MDP:

RLA 48 –The RLA experienced flooding in 2000, 1997 and 1994. While the recommendation in the MDP for a large storm sewer diversion would mitigate the RL, the only reasonable solution to the single house flooding is to purchase and demolish it. The larger project will mitigate other flooding in the area. **The status of this RL and the RLA is unchanged.**

RLA 51 – There is a recommendation for both RLA 48 and RLA 51 in the MDP that will provide flooding relief for a large number of houses. However, the improvements that have already been made show that the RLs with RLA 51 have been mitigated because the 1% AC water surface elevations are below the FFE’s. While the RLs and the RLA are effectively mitigated, there are still flooding concerns in the north part of the RLA that cannot be quantified at this time.

Northwest Areas MDP:

RLA 66 – RLA 66 is located in Problem Area 2, Upper Parkview Creek. The MDP recommended plan to alleviate flooding in RLA 66 is to increase the mainline storm sewer capacity throughout the reach, beginning at the intersection of West Haskell Street and North Xenophon Avenue and continuing all the way down stream to West Edison Street.

Summary Updates:

RLA #	Location	Status	Drainage Basin
1	57th & Birmingham	Not mitigated	Joe Creek, Mainstem
2	41st & 87th E Ave	Requested	Bell Creek
3	38th & Archer	Requested	Park View Creek
4	6th & 197th E Ave	Requested	Rolling Hills Creek

RLA #	Location	Status	Drainage Basin
5	13th & Memorial	Requested	Jones Creek
6	74th & Richmond	Mitigated	Fred Creek
7	28th & Detroit	Requested	Crow Creek
8	67th & Knoxville	Requested	Fred Creek
9	54th & 101st E Ave	Requested	Mingo Creek Mainstem MU
10	49th & Pittsburg	Requested	Little Joe Creek
11	7th and Mingo	Requested	Mingo Creek Mainstem LM
12	71st & Jamestown	Requested	Fred Creek
13	55th & Hudson	Not mitigated	Little Joe Creek
14	13th & Norwood	Mitigated	Upper Mill Creek
15	27th & Madison	Not mitigated	Dirty Butter
16	53rd & Toledo	Not mitigated	Little Joe Creek
17	54th & Urbana	Requested	Little Joe Creek, North Fork
18	33rd & Darlington	Requested	Joe Creek, East Branch
19	66th & Sheridan	Requested	Little Haikey Creek
20	59th & Birmingham	Not mitigated	Joe Creek, Mainstem
21	36th & Sheridan	Requested	Audubon Creek
22	58th & 72nd E Ave	Requested	Little Joe Creek
23	56th & Birmingham	Requested	Joe Creek, Mainstem
24	71st & Harvard	Requested	Fred Creek
25	59th & New Haven	Mitigated	South Fork Joe Creek
26	49th & Harvard	Not mitigated	Joe Creek, East Branch, West Branch, Mainstem
27	71st & Birmingham	Requested	Fred Creek
28	5th & Trenton	Not mitigated	Elm Creek
29	7th & Wheeling	Not mitigated	Elm Creek
30	75th & Jamestown	Requested	Fred Creek

RLA #	Location	Status	Drainage Basin
31	46th & 85th E Ave	Requested	Bell Creek
32	46th & Memorial	Requested	Bell Creek
33	37th & Sandusky	Not mitigated	Joe Creek, East Branch
34	26th & Yale	Requested	Joe Creek, East Branch
35	101st & 77th E Ave	Not mitigated	Fry Ditch No 2
36	21st & Sheridan	Requested	Jones Creek
37	51st & Columbia	Not mitigated	Flat Rock Creek
38	32nd & Memorial	Mitigated	Audubon Creek
39	53rd & Sheridan	Not mitigated	Little Joe Creek
40	Mitigated	Mitigated	Mingo Creek Mainstem LM
41	54th & Joplin	Requested	Little Joe Creek
42	49th & Darlington	Requested	Little Joe Creek, North Fork
43	Pine & Maplewood	Not mitigated	Coal Creek
44	7th & Sheridan	Not mitigated	Upper Mill Creek
45	31st & Florence	Not mitigated	Joe Creek, West Branch
46	46th Street North & Kenosha	Not mitigated	Valley View Creek
47	6th & 132nd E Ave	Mitigated	Cooley Creek
48	45th & Victor	Not mitigated	Perryman Ditch
49	81st & Elwood	Not mitigated	Hagar Creek, Arkansas River Local Drainage
50	Ute & 105th E Ave	Requested	Mingo Creek Mainstem LM
51	50th & Wheeling	Requested	Perryman Ditch
52	11th & 119th E Ave	Not mitigated	Tupelo Creek
53	15th & Joplin	Mitigated	Upper Mill Creek
54	5th & 90th E. Ave	Mitigated	Mingo Creek Mainstem LM
55	53rd & 67th E Ave	Not mitigated	Little Joe Creek
56	30th & Trenton	Not mitigated	Crow Creek

RLA #	Location	Status	Drainage Basin
57	74th & 77th E Ave	Not mitigated	Little Haikey Creek
58	98th & 69th E Ave	Requested	Fry Ditch No 2
59	49th & Columbia	Not mitigated	Joe Creek, Mainstem
60	12th and Lynn Lane	Mitigated	Center Creek
61	44th & 88th E Ave	Not mitigated	Bell Creek
62	77th & Quebec	Not mitigated	Vensel Creek
63	56th & Hudson	Requested	Little Joe Creek
64	W. 61st St. & S. 25th West Ave. Area	Not mitigated	Mooser Creek
65	West 53rd St. & South Union Ave. Area	Not mitigated	Mooser Creek
66	N. Yukon Ave. & W. Haskell Pl. Area	Not mitigated	Parkview Trib. LB1
67	N. Mingo Rd. & E. Pine St. Area	Not mitigated	Mingo Creek Mainstem LM