



CRS Floodplain Management Plan Annual Report

2019

This report is a summary of the Floodplain Management Committee review of activities outlined in Step 8, of the Grand Prairie Floodplain Management Plan whose committee selected and specified those activities relative to the City’s resources, hazards, and risk. The City of Grand Prairie strives for a balanced program including preventative activities both to keep its flood problems from getting worse, and also to protect future development from effects of flooding and other natural hazards.

1. Preventative

The Stormwater Department shall continue to evaluate the current NFIP Floodplain Ordinance and higher regulatory standards for development in flood hazard areas as it pertains to storm water management and future development.

- **Action:** The Stormwater Department evaluates proposed project compliance on a project-by-project basis according to current regulations that include higher regulatory standards in high risk or flood-prone areas.
- **Summary of Implementation:** The Stormwater Department participates in the Development Review Committee (DRC). The DRC reviews all proposed developments that require a special use permit, a zoning change, platting, etc. The Stormwater Department reviews all engineering plans submitted to the City for floodplain compliance. The Stormwater Department reviews all building permit applications for new buildings within the City.

The Stormwater Department oversees the floodplain permitting process. From January 1, 2019 through July 31, 2019, 67 floodplain development permits (FDP) and 1 Corridor Development Certificate (CDC) permit was issued. FEMA approved 1 Conditional Letter of Map Revision (CLOMR) and 2 Letters of Map Revision (LOMRs).

Year	FDPs Issued	CDCs Issued	LOMRs Approved
2016	79	2	6
2017	125	2	5
2018	91	5	1
2019 (Jan-July)	67	1	2

No changes have been made to the Drainage Design Manual (DDM) since it was updated in January 2017.

The City updated its Stormwater Management Program (SWMP) and submitted the updated plan to TCEQ in July 2019.

The Stormwater Utility Fee (SWU) increased by approximately 10% in FY 2017, 5% in FY 2018 and 3% in FY 2019. City staff is requesting a 5% increase in the SWU fee for FY 2020, which will be considered at a public hearing during the City Council meeting on September 17, 2019.

- **Budget:** Operating Budget

2. Property Protection

The City will continue to work with the CRS Program for Public Information Committee and Floodplain Management Committee to review outreach projects to educate the public, area businesses, and all citizens about flood risk.

City staff will continue to evaluate and recommend improvements, as needed, to the City-Wide Drainage Master Plan. The Stormwater Department will work with other City departments to fund projects and implement improvements.

The City will continue to comply with CRS program to maintain the existing Class 5 rating.

- **Action:** The Stormwater Department works with other City departments to implement CRS outreach programs. The Stormwater Department works with other City departments to make drainage system improvements, including system maintenance, planning, elimination of structural flooding, and reduction of stormwater pollutants carried by stormwater runoff into creeks and streams.
- **Summary of Implementation:** The Stormwater Department works with Public Works, Building Inspections, Planning and Development, Office of Emergency Management, Environmental Services, Communications & Marketing, Library, Engineering, Transportation, and Information Technology to implement the City's CRS program. Other departments may also be involved in CRS activities depending on the specific need.

The Stormwater Department reviews building permit applications for new buildings within the City. Those proposed improvements that are within 200 feet of the floodplain are required to obtain the appropriate floodplain permits prior to receiving building permits.

The City's Stormwater Specialist reviews all of the Stormwater Pollution Prevention Plans for construction projects as part of the City's Municipal Separate Storm Sewer System (MS4) program. Two Stormwater Investigators proactively enforce the City's MS4 program requirements.

The updated Fish Creek and Cottonwood Creek City-Wide Drainage Master Plans were completed at the end of 2018. Letters of Map revisions (LOMRs) have been submitted to FEMA. Once FEMA approves the LOMRs, these plans will be taken to City Council for adoption.

The City is preparing a StormCAD Drainage Master Plan Update with the stormdrains for new developments. The plan should be completed by the end of 2019.

In 2019, no houses were purchased using Resolution 4812-2016, which established a voluntary buyout program for houses impacted by creek erosion.

City crews continue to maintain and repair the open drainage system. City staff established a contract to have on-call contractor assist with drainage maintenance projects for the open channel/bar ditch system with set unit prices. The first project completed in August 2019. Based on that experience, City staff intends to rebid the contract in 2020.

The Dalworth Creek Concrete Channel (Keith Heights) construction project was completed in August 2019. This project repaired failed weep holes that resulted in "sink holes" in several yards along the channel. The project also included replacing a stormdrain pipeline that was in disrepair.

The City purchased a table top flood model and an erosion flood trailer in 2019. The anticipated delivery date for both training tools is Fall 2019.

City staff is requesting funding for FY 2020 to develop a proactive open channel maintenance program.

The following stormwater-related Capital Improvement Projects (CIP) and their status are as follows:

- 20th St/Walnut Drainage Erosion (construction is complete and accepted by City)

- Marshall and Robinson @ Cottonwood Creek (Design is 100% complete. Waiting on USACE response regarding wetlands mitigation agreement amendment prior to bidding for construction.)
- Great Southwest Parkway @ Prairie Creek (Northbound bridge is complete. Southbound bridge is under construction.)
- Seeton Rd (Grand Peninsula to Day Mir) (Design is 95% complete.)
- Hot Spot Studies: Preliminary Neighborhood Flooding Study (Construction was completed August 2019.)
- Drainage improvements along Dalworth Street at Dalworth Creek (under construction – anticipated completion is December 2019)
- Acosta Street drainage improvements from Cober Street to Kennedy Middle School (Construction is complete.)
- Reclamation Plan for Beltline Rd in Partnership with Irving (waiting on Irving)
- Stormdrain Outfall Repairs: Walnut Street Outfall (in design)
- Vega Street Bar Ditch Improvements (Construction was completed Aug 2019.)
- Carrier Parkway Improvements Phase 1 from I-30 to HWY 161 (adding a storm drain system to the Eisenhower Elementary School area) (Design was completed in 2019. Construction began August 2019.)
- Cottonwood Creek Stream Stability from East of Carrier to FM 1382 (in design)
- Brent Court from W Marshall Dr to Crooks (in design)
- Fish Creek Stream Stability from Magna Carta to Carrier (in design)
- GPISD Bus Barn Drainage Improvements (construction complete)
- Dickey Rd Stormdrain Improvements Design West of SW 3rd (Indian Hills area) (in design)
- Design of drainage associated with Pavement Assessment/Priority Projects (in progress)
- Vineyard Bar Ditch Improvements (complete)
- Dorchester Pump Replacements and Electrical Upgrades (design complete; construction to begin Dec 2018)
- Rain/stream gauge expansion (1 gauge added with flashing lights; flood sirens in progress; conversion from ALERT to ALERT2 anticipated completion is Sept 2019)
- Flood forecasting tool (developed in 2017 and expanded in 2018 and 2019)
- Feasibility analysis to address erosion on Fish Creek north of King Harbor Ct (complete)
- Design and construct erosion solution for Fish Creek (proposed FY 2020 W/WW budget)
- Tyler Technologies Software upgrade (in progress)
- Design of Johnson Creek wall and floor repairs (proposed FY 2020 SWUT budget)

Since the May/June 2015 flood events, the City has continued working with FEMA’s Public Assistance (PA) Grant for two stormwater-related projects: Johnson Creek channel floor repair and concrete channel repair southeast of Arkansas and Forum. FEMA has prepared the Project Worksheets for each of these projects. The Johnson Creek project construction was completed in July 2018. The channel wall repair near Arkansas Lane and Forum Drive was completed in August 2017. Final FEMA reimbursements were received in Summer 2019. OEM is closing these projects.

In September and October 2018 and May 2019, the City of Grand Prairie experienced intense, localized flooding that resulted in the failure of a gabion wall and channel floor areas in the Johnson Creek project. The previous channel floor repairs held firm. The City provided required documentation in hopes of receiving a Presidential Disaster Declaration, but the damages did not reach the required threshold. Therefore, the City plans to design the repairs in FY 2020 with construction to follow in FY 2021.

- **Budget:** Operating Budget; Stormwater Utility fees

3. Natural Resource Protection

The City of Grand Prairie will continue to work with the University of North Texas to study and construct a wetland on property located between the City's landfill and the Trinity River. Mitigation efforts may include using standing vegetation and seed bank community structures in development of a natural and compensatory wetland.

- **Action:** No other activities are required to support natural resource protection at this time.
- **Summary of Implementation:** The planting is in maintenance mode now. In 2016, some additional plantings were made and the third basin had been excavated. No additional plantings have been accomplished this year. Potential future plantings may occur in FY 2020. In FY 2020, the City may have a micro vertebrate/hydrology/seed bank study performed as a comparison to the original baseline study.
- **Budget:** Staff time (Grants, Operating fees)

4. Emergency Services

Implement ongoing public education on warning systems and the actions that should be taken to prepare for hazards and disasters. Disaster-related public education materials are available through the City's Public Information Office. Public education materials relating to emergency management are available from www.fema.gov, www.redcross.org, www.ready.gov and knowwhat2do.com.

- **Action:** The City will continue to monitor and update emergency services as needed. Future work will include website refinements, software updates, and discharge versus stage rating curve development. The City upgraded its platform for monitoring its rain and stream gauges in 2017.
- **Summary of Implementation:**
Editorial updates have been made to portions of the Comprehensive Emergency Management Plan. No major changes have been made. The basic plan and annexes filed with the State are current. The plan and annexes are valid through 2021.

FEMA approved and City Council adopted the City's updated Hazard Mitigation Action Plan (HMAP) in August 2017. This plan is valid through August 2021.

FEMA approved the City's updated Debris Management Plan in March 2019 and has educated appropriate staff accordingly. This plan is valid through March 2024.

The City continues to maintain and repair its rain/stream gauge system, including the low water crossing (LWC) flashing lights. The City added automated low water crossing gates on Carrier Parkway near McFalls Park between Dickey Rd and Phillips Ct in early 2018. The City added a rain/stream gauge with flashing lights on East Jefferson in late 2018. (Additional information on the gates is included in Section 5 below.) In 2019, City staff took over the maintenance of the rain/stream gauge system. The system is in the process of being converted from ALERT to ALERT2 protocol, which should be completed by the end of 2019.

The Stormwater Department began working with a consultant in 2017 to develop a flood forecasting system that will provide more specific lead time for first responders to prepare for flood events at specific locations and to better answer the question, "If it rains X more inches, how high will the water get?" The flood forecasting tool was completed in Fall 2017. The tool was tested in February and July 2018 during localized events. The tool experienced a few glitches that have since been addressed. The tool performed well in the September and October 2018 storms. The third phase of the flood forecasting tool is in progress and includes analysis of potential Gauge Adjusted Rainfall Radar (GARR) options for the program.

The City continues to work with UTA and the CASA Radar program to support the development of additional flood-warning tools.

- **Budget:** Operating Budget; Stormwater Utility fees

5. Structural Projects

Based on discussions with the Floodplain Management Committee, the City continues to seek improvements to older areas of the City that are low-lying and areas of flat terrain that experience poor drainage and minor flooding. Areas include Sandra Lane and Beltline at Springdale Street, Willow Bend Mobile Home Park and Fox Hollow Apartments. Automated low-water crossing gates have been added along Carrier Parkway between Dickey Rd and Phillips Ct.

- **Action:** Drainage issues have been minimized through additional flood control measures or repairs and improvements to existing flood control structures. City staff will continue to review alternatives to drainage issues in low-lying areas of the City. City staff will pursue possible FEMA grants and other funding sources in order to buyout flood-prone structures and install electronic gates at low-water crossings.
- **Summary of Implementation:** The Drainage Design Manual was updated in January 2017 to include current iSWM criteria reflective of the City's silver rating.

City staff continues to respond to and investigate drainage, erosion and flooding calls.

Clearing and Grubbing/Earthwork permits are required prior to any dirt being moved on project sites.

The City submitted three Hazard Mitigation Grant Program (HMGP) grant applications in December 2015: flood gates/arms along Carrier Parkway, actuators for the gates at the Dorchester Levee and a permanent generator at the Dorchester Levee.

FEMA approved the grant request for the automated flood gates along Carrier Parkway at Cottonwood Creek near McFalls Park. The equipment cost more than the amount originally awarded in the grant. The City submitted a request to FEMA in Spring 2018 requesting financial assistance with a portion of the cost overrun. FEMA has been slow to respond to the request. In July 2018, the City requested a period of performance extension to allow FEMA additional time to make a decision. Although complete, the project must remain open in order to receive any additional funding that might be awarded. FEMA notified the City on August 17, 2018 that the agency will provide additional funding to assist with the cost overrun! Funding was transferred to the City. The project was inspected by the Texas Department of Emergency Management (TDEM) on May 24, 2019. TDEM is in the process of closing this project.

FEMA also approved the HMGP grant request for actuators at the Dorchester Levee. The motors were installed and tested in 2017. The project was closed in 2018.

As for the permanent generator at the Dorchester Levee, the City submitted its third HMGP grant request in July 2017 to FEMA. FEMA did not award this grant application. City staff submitted a notice of interest in the HMGP grant following the Presidential Disaster Declaration for Hurricane Harvey. However, the rules for generators awarded through this grant program have changed. City staff concluded that purchasing the generator without the grant was in the City's best interest and did not pursue the full grant application.

The City continues implementing its multi-year plan to expand the rain/stream gauge system. City staff reviewed and updated this plan in early 2018. Flood sirens and additional LWC flood flashing lights were approved in FY 2018 budget. Both of these projects involved the coordination of multiple City departments and vendors. City Council approved the contracts in July 2018. Equipment has been

ordered and received. The City has had issues obtaining an easement for one of the flood siren locations. The City is negotiating with the siren vendor to order a different pole that can accommodate the site conditions at the originally planned site. The timeframe to complete this project is unknown.

The City submitted a Texas Water Development Board grant to convert all of the rain/stream gauge system to ALERT2 protocol. The City did not receive the grant. However, City staff had requested FY 2019 budget for this conversion. The equipment has been ordered and is scheduled to be installed in October 2019.

- **Budget:** Operating Budget; CIP funding; FEMA grant funding; other grant opportunities

6. Public Information and Flood Information Assistance

The Public Information Office provides public information on disaster related materials; the Stormwater Department provides comprehensive flood information to the public. The Emergency Management Department provides disaster preparedness information to residents. The Public Works Department guides residents on protecting the City's waterways from household pollutants and contaminated runoff.

- **Action:** Twenty-three community outreach activities were identified in the Program for Public Information (PPI) Plan.
- **Summary of Implementation:** The CRS Program for Public Information Plan Annual Report provides a detailed description for each of these activities.
- **Budget:** Operating Budget; Volunteer Time/Labor by the Program for Public Information and Floodplain Management Committees

Table 3 Action Items, Goals

Action Item 1: Reduce Flood Losses and Increase Policy Count

Total flood insurance policy count continues to increase from year to year. When broken into flood zones, the number of policies has increased in Flood Zones AE and X. The number of policies in Flood Zone A has remained constant. The number of residential policies continues to increase each year.

Flood Zone	2015	2016	2017	2018	2019
Policies in Zone AE	49	58	67	74	67
Policies in Zone A	2	2	2	2	1
Policies in Zone X	225	228	234	264	307
Total	276	288	303	340	375
Occupancy					
Single Family Policies	231	242	250	275	302
2-4 Family Policies	1	1	1	2	3
Other Residential Policies	4	9	9	18	22
Non-Residential Policies	40	43	43	45	48
Total	276	295	303	340	375

Notes: 2016 as of June 30, 2017; 2017 as of May 31, 2017; 2018 as of February 28, 2018; 2019 as of May 31, 2019.

Action Item 2: Attend NFIP/CRS Users Group Meetings (City staff)

City staff participates in the CRS Users Group meetings held at NCTCOG (approximately every quarter).

Action Item 3: Establish City Disaster Response Team

The Office of Emergency Management has established the disaster response teams and activates them when needed. In addition, Barry participates in the Public Works Emergency Response Team (PWERT) that has agreements in place to provide and receive assistance from other communities within the North Central Texas Council of Governments (NCTCOG) area.

Action Item 4: Ensure Flood Insurance Rate Maps (FIRMs) are Updated

On March 21, 2019, FEMA issued new Floodplain Information Rating Maps (FIRMs) for the areas of Dallas and Tarrant Counties north of Joe Pool Lake. These maps have been uploaded into GIS. The City mailed letters to residents whose houses were now mapped within the floodplain.

Action Item 5: Acquire, Elevate, Relocate Structures in Floodprone Areas

In 2016, no structures were acquired, elevated or relocated by the City for flood-related reasons.

One property qualified in 2016 for the Voluntary Buyout Program due to creek erosion. The City purchased that property in May 2017. Demolition is complete.

No structures were acquired, elevated or relocated by the City for flood-related reasons in 2018 or 2019.

Action Item 6: Improve CRS Rating

The City received a letter dated May 13, 2017 from FEMA's consultant stating that the City's preliminary CRS score from the 2015 CRS recertification will remain a 5, which provides our residents with a 25 percent discount on flood insurance. Due to Hurricane Harvey, FEMA delayed the mailing of the City's formal letter from FEMA indicating the official, final score in September 2017 with an effective date of October 1, 2017. However, FEMA had updated the information on its website. The City received the formal letter confirming the CRS rating of 5 on November 17, 2017.

Action Item 7: Design, Construct, Maintain Drainage Improvement Projects

Capital Improvements Projects (CIPs) are included in the City's annual budget and continue to move forward. The City's Drainage Crew works to relieve drainage and erosion issues reported to the City on a complaint-based approach.