

Memorandum



To: Bobby Gutierrez, Mayor
CC: Kean Register, City Manager; Bryan City Council
From: Sam J. Vernon, P.E., CFM – Floodplain Administrator
Date: 10/09/2023
Re: Flood Mitigation Plan Annual Report



On June 12, 2018 the City of Bryan adopted an updated Flood Mitigation Plan (FMP) in an effort to create a strategy for implementing flood mitigation measures for the community. The 2018 FMP was prepared as a 5-year update to the second FMP adopted with the 2013 City of Bryan Comprehensive Plan update. It is the intent that this plan educate and encourage support for projects that will prevent new flooding problems, reduce losses and protect the beneficial functions of our floodplains.

From late 2017 through March 2018, the Public Works Department conducted an update process of the plan which included forming a committee comprised of city staff and local citizens. With the exception of the kick-off meeting, these meetings were open to the public and agendas were posted publicly in accordance with the Texas Open Meetings Act. A review of the 2013 plan was conducted using experiences from flooding impacts since the 2013 plan was implemented. From that review, four goals were established:

1. Develop and improve outreach and public awareness
2. Protect and enhance natural floodplain and storm water resources
3. Provide fiscally responsible funding
4. Protect the health and safety of the public

An Action Plan was developed to track progress of these goals over the next five years. The current plan will expire in 2023 at which time it will need to be updated.

An annual progress report based upon this Action Plan has prepared and submitted with the annual Community Rating System (CRS) recertification. This report covers progress on the four goals set by the Flood Mitigation Plan along with other identified improvements to our floodplain management practices. A copy of this progress report is now provided to the Mayor and Council under this memo. This report will be published on the City website to make it available to the media and the public.

ITEM 510 FMP/RLAA
Table 2: Action Plan

Summary of Mitigation Actions							FMP Goals				Year 5 May 2022-2023
	Mitigation Action	Priority	Cost Range	Potential Funding Source	Timeframe for Completion from Plan Adoption	Responsible Department	Develop & Improve Outreach & Public Awareness	Protect / Enhance Natural FP & Stormwater Resources	Provide fiscally responsible funding	Protect health & safety of public	
ASAP											
1.3.f	Monitor and update statistical rainfall numbers as soon as available	High	0	General Fund	As soon as data is available	Engineering				x	Information has been incorporated into draft documents, but has not been approved due to development community concerns.
Ongoing/Range											
1.1.a	Maintain GIS inventory of stormwater assets	High	0	General Fund	Ongoing	Engineering		x		x	Ongoing action.
1.1.b	Using the potential areas of high water information (2D model and public information) to make better planning decisions	High	0	General Fund	Ongoing	Engineering		x		x	Ongoing action with development projects.
1.1.c	Development review	High	0	General Fund	Ongoing	Engineering / Building		x		x	Ongoing action.
1.2.b	Perform a channel inventory including type, condition, and include in maintenance program	Medium	<\$100k	General Fund / Drainage Utility Fund	Ongoing/Year 5	Transportation / Drainage		x	x	x	Not completed.
1.2.e	Annual review of detention ponds and require maintenance	High	<\$50k	General Fund	Ongoing	Transportation / Drainage		x		x	Detention ponds are inspected as time allows. COB is looking to allocate more resources, when identified.
1.3.a	Add to and improve stormwater inventory and GIS data	High	0	General Fund	Ongoing	Transportation / Engineering	x			x	Our GIS layers are updated as time allows. City acquired handheld GPS unit to more accurately locate stormwater infrastructure.
1.3.d	Review and update existing floodplain maps	High	<\$250k	Drainage Utility Fund	Ongoing	Engineering		x		x	Ongoing action.
1.4.a	Coordinate open space opportunities with flood control needs for new developments and repetitive loss areas	Medium	0	General Fund	Ongoing	Engineering		x	x	x	Ongoing action.
2.3.a	Develop a voluntary property acquisition plan and program for repetitive loss areas	High	<\$5M	Grants / Drainage Utility Fund / General Fund	Ongoing	Engineering			x	x	Ongoing efforts - official policy needs to be drafted and considered by Council. Current direction is to consider only RL and SRL properties through federal grant programs.
2.3.b	Pursue grants to complete property acquisition projects	High	0	General Fund	Ongoing	Engineering			x	x	Continue to review all grant opportunities and select those beneficial to the City long term
3.1.a	Continue to allow and promote the dedication of some floodplain acreage toward parkland. Work with Parks Board to establish guidelines for the consistent allowance of this type of dedication	High	<\$500k	General Fund / Park fees	Ongoing	Parks / Development Services / Engineering		x		x	See 5.5a
3.1.c	Continue the practice of requiring private drainage easements on all creeks	High	0	General Fund	Ongoing	Engineering		x		x	Ongoing action.
4.1.a	Continue programs to conduct pre and post rain event inspections on known areas of issues	High	0	General Fund	Ongoing	Transportation / Drainage		x		x	Ongoing action.
4.1.b	Continue to block streets that become flooded utilizing the flood prone streets list	High	0	General Fund	Ongoing	Transportation / Traffic		x		x	Ongoing action. Received grant to construct and install flood gauges (BFEWS). Construction is in progress.
4.1.c	Continue social media campaign through Twitter, Facebook, Next-door, City website to notify public of emergency situations	High	0	General Fund	Ongoing	Communication & Marketing	x			x	Ongoing action.
4.2.c	Create public information campaign to encourage participation in Code Red	High	<\$50k	General Fund	Ongoing	Fire	x			x	Engaged with Community Emergency Operations Center and are in the very early stages of development.
4.2.d	Explore installing "Street May Flood" signs to critical locations	High	<\$500k	General Fund	Ongoing	Engineering / Traffic / Streets & Drainage	x			x	Ongoing action. In coordination with 4.1b
4.3.a	Investigate grant funding available for emergency services	Low	0	Grant / General Fund	Ongoing	Fire			x	x	Ongoing action.
4.4.e	Review and assess the use of the Brazos Center and other shelters during flooding events	High	<\$50k	General Fund	Ongoing	Fire				x	Ongoing action.

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ASAP											
5.1.a	Continue to implement Stormwater Master Plan projects as funding allows	High	>\$5M	Drainage Utility Fund / Bonds / Grants	Ongoing	Engineering			x	x	Ongoing - some projects included in CIP.
5.2.a	Prioritize drainage studies and improvements to maximize flood risk reduction	High	0	General Fund	Ongoing	Engineering				x	Ongoing action. Studies are evaluated with development.
5.2.b	Design, construct and maintain drainage improvement projects per the studies in Appendix I.	High	>\$5M	Drainage Utility Fund / Bonds / Grants	Ongoing	Engineering				x	Various projects listed in Appendix I "Stormwater Masterplan" are included in the 5 year CIP program - examples are Wayside/Carter Creek Storm Sewer (in design), Bristol/Esther Storm Sewer (in design), and Hillside/Oaks Drainage (in construction).
5.3.b	Continue to construct local and regional stormwater detention facilities in flood prone areas	High	>\$5M	Drainage Utility Fund / Bonds	Ongoing	Engineering				x	As CIP projects allow we are considering Regional Detention Facilities. The S. College Regional Pond is under construction. The City is currently constructing a pond in conjunction with Travis Bryan park that will provide detention and help with issues downstream of the park.
5.4.b	Increase capacity of existing culverts and bridges on major thoroughfares (Old Reliance Rd., Broadmoor low water bridge, W. Villa Maria between Cavitt and Texas Avenue) and single access subdivisions (see 2D Report list) to allow passage during 100-year event	High	>\$5M	General Fund / Bonds / Drainage Utility Fund	Ongoing	Engineering				x	Briar Creek Channel, South College and Commerce St are an example of this type of project currently underway. Engineering modeling is used to evaluate the capacity of the proposed culverts to ensure passing of the large storm events. 100 year is the goal in key locations (such as single access roads) to lower events that comply with BCS Design Manual. Proposed improvements to the regional detention pond at Travis Bryan park will improve conditions along the major arterial, W. Villa Maria, downstream of the pond. The City is actively working with TxDOT on proposed improvements to the East bypass that will increase the size of several culverts. BFEWS will serve as an interim solution to the noted problem crossings.
5.5.a	Develop collaborative program between the stormwater and parks department to create opportunities for flood protection and recreation in open spaces	High	<\$1M	Parks / Drainage Utility Fund	Ongoing	Engineering/ Parks			x	x	Ongoing. Parks Dept is working with development community to construct trail in floodplains; with associated park infrastructure in nearby areas.
5.5.c	Continue to pursue partnerships with BISD to complete stormwater projects on school sites	Medium	<\$500k	Parks / General Fund	Ongoing	Engineering / Parks			x	x	Ongoing action.
5.5.d	Identify opportunities for public and private (developer) partnerships to complete needed storm improvements	Medium	<\$500k	Drainage Utility Fund / General Fund	Ongoing	Engineering / Development Services				x	Ongoing action with development projects.
6.2.a	Direct mail of FEMA flood protection information to targeted areas of high flood risk	Medium	<\$50k	General Fund	Ongoing	Engineering	x			x	Ongoing action.

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ASAP											
6.2.c	Educate realtors regarding real estate disclosure as relates to flooding	High	0	General Fund	Ongoing/Year 2	Engineering	x			x	Not completed.
6.2.d	Educate builders and landscape companies on how to properly grade new homes to protect from flood damage	High	0	General Fund	Ongoing/Year 2	Engineering / Building	x			x	Ongoing.
6.3.a	Participate in First Fridays with flood risk educational material	Medium	<\$50k	General Fund	Ongoing/Year 2	Engineering / Communications & Marketing	x			x	Ongoing. Last participated at the May 2023 First Friday event.
6.3.c	Hold a large community event dedicated to stormwater education annually (Earth Day)	High	<\$50k	General Fund	Ongoing/Year 3	Engineering / Streets & Drainage	x			x	Not completed.
6.3.e	Continue to hold public meetings during stormwater capital improvement projects	High	0	General Fund	Ongoing	Engineering	x				Ongoing action.
6.3.k	Provide technical assistance to the public on how to interpret flood data	Medium	0	General Fund	Ongoing	Engineering	x			x	Ongoing action.
Year 1											
3.2.a	Explore developing ordinances/criteria in the Drainage Design Guidelines that require erosion buffers along creeks	High	0	General Fund	Year 1	Engineering		x		x	Completed. No interest.
5.3.c	Perform study to determine if lowering the lake level at Regional Park would be beneficial to reduce flooding	High	<\$100k	Bonds	Year 1	Engineering					Task completed.
Year 2											
1.2.a	Add open channel inspections to regular maintenance programs	High	<\$100k	General Fund	Year 2	Transportation / Drainage			x	x	S&D has SOP for this activity.
1.2.c	Establish a CCTV program for pipe inspections	High	<\$250k	General Fund / Drainage Utility Fund	Year 2	Transportation / Drainage		x	x	x	Funding and workforce limitations do not currently allow for said program.
1.2.d	Codify and continue requirement of detention pond bottom markers	High	0	General Fund	Year 2	Engineering		x		x	No action in Year 5.
1.3.b	Create flood risk overlays for areas outside the FEMA floodplain that are subject to the flooding (using the 2D model) and develop local regulations for those areas	High	<\$250k	Drainage Utility Fund	Years 2-5	Engineering	x			x	Completed.
2.1.a	Perform a detailed review of flood insurance on city owned properties	Medium	0	General Fund	Year 2	Engineering / Risk Management				x	Risk Management has evaluated the risk versus the cost of premiums and decided.
4.2.a	Expand social media program during flood events	Medium	0	General Fund	Year 2	Communication & Marketing	x			x	Completed.
4.4.b	Update and maintain the City of Bryan Hazard Mitigation website with information promoting hazard mitigation and disaster awareness	High	<\$50k	General Fund	Year 2	Fire	x			x	Status is on-going.
5.2.c	Provide update of the Stormwater Masterplan including revisions to the ranking criteria every 5 years	High	<\$250k	General Fund	Year 2	Engineering				x	No action in Year 5.
5.3.a	Perform study to determine locations ideal for regional detention	High	<\$100k	Drainage Utility Fund	Year 2	Engineering				x	Completed.
5.4.c	Explore list of roads flooded during 2016/2017 rainfalls and research emergency access availability to residents given these flooded conditions	High	0	General Fund	Year 2	Engineering				x	On-going with BFEWS.
6.3.i	Develop and present citizen floodplain and flood insurance education programs	High	<\$50k	General Fund / Drainage Utility Fund	Year 2	Engineering	x				On-going with continued First Friday outreach.

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ASAP											
6.3.i	Create public information program to be used after flooding events that discusses the following: mold cleanup, hazards in the water, trash debris cleanup, mosquito/bug infestation, TADD, electrocution, and citizen safety	Medium	<\$50k	General Fund	Year 2	Communications & Marketing	x			x	Completed.
Year 3											
1.3.c	Improve flood study mapping available to the public online	Medium	<\$50k	General Fund	Year 3	Engineering	x			x	Applied for an FMA grant in January 2023. Awaiting notification of award.
3.1.b	Train staff on maintenance practices that facilitate natural preservations	High	<\$100k	General Fund	Year 3	Transportation / Drainage		x			Have reduced chemical treatment of banks to promote natural growth and erosion control.
3.2.b	Explore providing incentives to developers to preserve natural areas	Medium	0	General Fund	Year 3	Engineering	x	x			No action.
4.4.c	Develop a pre-disaster recovery plan for hazard/disaster events	Medium	<\$50k	General Fund	Year 3	Fire				x	Ongoing action.
4.4.d	Develop/review/update the debris management plan	Medium	<\$50k	General Fund / Solid Waste	Year 3	Solid Waste		x		x	City relies on FEMA plan currently, not specific to Bryan. Public Assistance Debris Management Guide (2007).
6.2.b	Develop a dam safety public education and evacuation plan for at-risk areas of the community, including routes, transportation, and housing	High	<\$100k	General Fund	Year 3	Engineering / Communications / Fire / Streets & Drainage	x			x	Coordination meeting held, GIS map drafted. Plan not yet complete.
6.3.b	Create Facebook group for stormwater	Medium	0	General Fund	Year 3	Communications & Marketing	x				Completed.
Year 4											
3.2.c	Explore the use of Natural Area Preserved zoning districts in Bryan	Medium	0	General Fund	Year 4	Planning		x		x	No action to date.
3.2.d	Explore developing guidelines/criteria for compensatory storage	Medium	0	General Fund	Year 4	Engineering		x		x	No action to date. Drainage design guidelines are scheduled for review in 2024.
4.1.d	Protect critical facilities and flood prone areas from debris by expanding the maintenance program to include trash pick-up (including bulk) prior to forecasted large events	Medium	<\$400k	General Fund / Stormwater	Year 4	Transportation / Drainage / Stormwater		x		x	Proactively clear, increase maintenance after events to protect in advance of next large event
4.4.a	Work with organizations serving functional/access needs populations (elderly, wheelchair-bound, deaf, blind, such as Brazos Valley Council on Independent Living) that may require special assistance, that tie in with 9-1-1, GIS Systems, etc. so that vulnerable citizens can be	High	<\$50k	General Fund	Year 4	Fire	x			x	No action to date.
6.3.g	Develop paid advertisements through public service announcements to educate the public about flood insurance and flood risk	Medium	<\$50k	General Fund	Year 4	Engineering / Communications & Marketing	x				No action to date.
6.3.h	Develop and improve communication regarding preparedness and mitigation actions to better inform developers, engineers, builders, and the public about ways they can avoid flood damage.	Medium	<\$50k	General Fund	Year 4	Engineering / Communications & Marketing	x				Communications produced a short video about flood mitigation. Engineering participated in First Friday in May to answer questions about topics such as these. Staff made radio and television appearances along with a newspaper interview to support the FMP update. In those interviews, Staff talked about mitigation measures.
Year 5											
1.3.e	Adopt and implement sustainable flood-management policies	High	<\$50k	General Fund / Drainage Utility Fund	Year 5	Engineering		x		x	No action to date.
2.3.c	Explore development of a program to assist property owners with elevation and relocation projects for residential structures	Medium	<\$50k	Drainage Utility Fund	Year 5	Engineering	x		x	x	No action to date.
4.2.b	Explore use of city wide 2D model to consolidate rainfall data and produce real-time flood warning/forecasting system to notify residents and city staff for emergency access.	Medium	<\$100k	General Fund / Drainage Utility Fund / Grant	Year 5	Police / Fire / Engineering / Traffic	x			x	BFEWS data will be utilized for this purpose.
5.4.a	Develop a plan to upgrade existing low water crossings to improve service levels	Low	<\$100k	General Fund / Bonds / Drainage Utility Fund	Year 5	Engineering				x	Received grant money through the TWDB for flood early warning system at 20 low water crossings. Construction of these are now underway.
5.5.b	Explore creating a system for development incentives for improving city storm water infrastructure	Low	<\$50k	General Fund	Year 5	Engineering / Development Services			x	x	No action to date.

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ASAP											
6.3.d	Create adopt-an-inlet and adopt-a-creek programs	Medium	<\$50k	General Fund	Year 5	Streets & Drainage	x	x		x	Maintenance creates an issue. May table this item for safety and access concerns. Per meeting 8/10/22. Re-evaluate incorporating in the next 5 year program. With new consultant, evaluate financial contributions/plaques as adoption, exclude maintenance.
6.3.f	Become more active in flood awareness week through additional social media outlets and community events	Low	<\$50k	General Fund	Year 5	Engineering / Communications & Marketing	x				Observed "Wear Blue Wednesday". Departmental photos showing support was posted in all of our social media platforms.
6.3.j	Create educational program for flood risk to schools and youth	Low	<\$50k	General Fund	Year 5	Engineering	x			x	Flood model was set up at First Friday in May of 2023. Kids were able to predict where the best place to build a house. Rain event was simulated both pre and post "detention pond" to test their guesses. Gave Staff a chance to talk about flooding, flood safety, and mitigation through the use of detention ponds.