

To: Bryan City Secretary  
From: Councilmembers Southerland and Pena  
Subject: Agenda Item Titled:



## Flood Mitigation & Storm Water Master Plan

This agenda item placement is in accordance with the Bryan City Charter (j) (1) a. 2. (a) “Council agenda. 1.The City Council shall identify items to place on the City Council meeting agenda and shall establish the order of the agenda. 2.Any two City Council members desiring a particular item to be placed on the City Council agenda shall notify the City Secretary in writing. The item shall be placed on the agenda as requested. 3.This section of the charter supersedes any city Code of Ordinances with which it conflicts.”

Also the Texas Attorney General Opinion Number DM-228 (1993) states no policy can preclude a councilmember from placing an item on the agenda for public discussion.

*Therefore, any changes to this agenda item must be approved in writing by both under signs prior to posting to the agenda.*

Place the following item on the Bryan City Council Regular agenda of the Oct 11, 2016 meeting:

Discussion, consideration, and possible action to:

Direct the City Staff to take the necessary action(s) to move projects funded by the Drainage Utility Fee in years 2017 thru 2020 to FY 2017 with associated funding and construction.

Presentations: Councilmembers Pena and Southerland

Date: 10/04/2016

Rafael Pena, Councilmember District 2, [apena@bryantx.gov](mailto:apena@bryantx.gov), 979 402 9164

Date: 10/04/2016

Mike Southerland, Councilmember District 4, [msoutherland@bryantx.gov](mailto:msoutherland@bryantx.gov), 979 229 7805

Attachment: “City of Bryan Flood Mitigation Plan and Storm Water Master Plan”, dated Sep 13, 2016

BRYAN TX

# **City of Bryan Flood Mitigation Plan & Storm Water Master Plan**

**Bryan City Council Workshop  
September 13, 2016**

## **Flood Mitigation Plan**

1. Original Plan adopted with 2006 Comprehensive Plan, update started in 2011 and adopted in 2013 (update required every 5 years)
2. Required as part of Community Rating System participation due to large number of repetitive loss properties. (City is a Class 6 = 20% discount on insurance premiums)
3. Intent to create strategies for implementing flood mitigation measures for the community
4. Public meetings held and stakeholder committee
5. Identifies sources of flooding, critical facilities, and provides goals and objectives.

## Flood Mitigation Plan Goals

1. Minimize losses due to flooding and achieve a balance between natural open space and improvements for drainage.
  - a) Address storm water and drainage issues
  - b) Promote regional storm water detention system to assure coordination and lessen mutual impacts.
2. Preserve and protect unique open spaces, river corridors, drainage corridors and green spaces in the city and its ETJ.
  - a) Establish mechanisms to acquire and preserve key open space.
3. Develop a network of pedestrian and bicycle ways for hiking and cycling throughout Bryan (use the greenways)
  - a) Preserve green-belt linkages throughout the City and the region.
4. Develop communication mechanisms to better inform developers, engineers, builders and the public about ways they can help prevent flood damage.
  - a) Create a communications outreach program for the public
  - b) Develop design parameters for better roadway and lot drainage design

## Flood Mitigation Plan - Action Plan

1. Utilize the dedication of a buffer zone to reduce the loss of floodplains and to minimize flood damage caused by erosion.
2. Provide development incentives to assure the control and management of floodplains.
3. Consider utilizing floodways and floodplains in order to assure proper drainage in a pleasing and accessible environment.
4. 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.
5. Develop and fund a comprehensive Capital Improvements Program from the recommended improvements identified in the Primary and Secondary Drainage Studies.
6. Evaluate streets designated as emergency routes to identify where bridge or culvert size over creeks should be improved to assure access as evacuation or emergency services routes during major storm events.
7. Promote regional detention facilities and provide opportunities for their creation. Incorporate design guidelines encouraging the provision of regional detention facilities where they could be beneficial.
8. Explore reimbursement methods to help pay for regional detention facilities.
9. Investigate other sources of revenue including matching grants for specific projects, capital improvement funding and other public and private sources.
10. Review existing development regulations to consider incorporating open space and greenway dedication.
11. Continue the planning for acquisition and preservation of certain identified linear park corridors and greenbelts throughout the city using major greenbelts, creeks and drainage ways.

## Flood Mitigation Plan - Action Plan

12. Foster the development of parkways along greenbelts by developers as opposed to lots backing up to these green areas. Examine all mechanisms for accomplishing this including, but not limited to, dedication, donation, and conservation.
13. Examine subdivision and drainage regulations to include requirements for dedication and conservation.
14. Continue efforts to develop a linear park along Carter Creek and work with the City of College Station and Brazos County to provide for a regional park facility.
- ✓ 15. Create PSAs to inform public about self imposed drainage problems (ie, fences, flowerbeds). Utilize media tools such as Bryan public access channel, Bryan website, flyers or other distribution means.
16. Create information and / or inspection mechanisms to allow drainage information/decisions to be communicated between the developer – builder – homeowner. Often decisions regarding drainage design on the lot made by the developer/engineer are not known by homebuilders or the end user the homeowner. Driveway design/construction often eliminates gutter capacity and allows stormwater to enter the property at the driveway.
17. Develop drainage design criteria to help alleviate stormwater/flooding concerns at 90 degree turns and tee intersections. If not designed correctly, this is where stormwater tends to jump the curb into the lot at the bend or end of the roadway.
18. Begin to develop and inform developers/engineers about new design methods regarding Low Impact Development (LID) design criteria and conservation subdivision design.

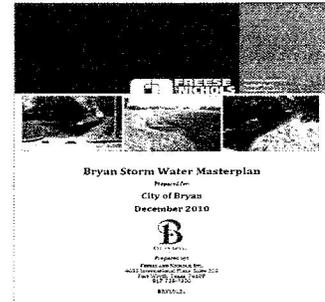
## Bryan Storm Water Master Plan

1. Created in 2010 on the coat tails of the current Capital Improvement Program to provide a technical ranking system and database for drainage projects
2. \$67 Million in projects, cost is really larger as many of those projects are studies to determine the full extent of problem and develop solutions – which are not counted in that cost.
3. Ranking criteria
  - Public Safety (Life Safety, Street Flooding, Infrastructure Damage, Structure Flooding, Frequency of Flooding)
  - Economic Impact (Project cost & Maintenance)
  - Project Timing (Funding Source & Right of Way Availability)

## Bryan Storm Water Master Plan

### Total Project Costs by Watershed

<u>Watershed</u>	<u>Cost (millions)</u>	
Briar Creek	\$6	
Burton Creek	\$27.3	← Willow Bend
Carters Creek	\$15.5	← Castle Heights
Cottonwood Branch	\$5.1	
Hudson Creek	\$2.1	
Still Creek	\$4	
Thompsons Branch	\$1.9	
Turkey Creek	\$5.1	
<b>TOTAL PROJECT COST</b>	<b>\$67</b>	



## Bryan Storm Water Master Plan

We have been using the plan as a guiding document when selecting projects for funding from the Drainage Utility Fee or CIP projects.

Top ranked projects:

1. Lynndale Acres (Old Hearne CIP Project FY16 plus future projects)
2. Willow Bend Drive Flooding (buyouts)
3. W. 17<sup>th</sup> Trib A – Culvert (in design – FY16)
4. Malvern/Staunton/Southside (West Fork Still Creek – Design)
5. 23<sup>rd</sup> Street Drainage (future CIP)
6. MLK Culvert (completed)

## Drainage Utility Fee

- Established Sept 23 1997, first collected in Nov 1997. \$1 per month per lot.
- Increased rate to \$2.40 per month on Sept 28, 2004
- Residential=\$2/mo and non-residential (small=\$7/mo, medium=\$12/mo and large \$30/mo) on Aug 1, 2005.
- Currently generates approximately \$900,000 per year
- \$1M on a storm sewer mapping project in 2001 to comply with federal mandate for non-point source pollution (stormwater quality)
- From 1998 to 2010 the City hired consultants for floodplain studies to accurately define the floodplains to prevent homes being constructed too low in the following watersheds:
  - Hudson, Briar, Burton, Turkey, Still Creek, Carter Creek, Thompson's Branch, Cottonwood Branch
  - Thompson Creek and Wixon Creek would be the next watersheds to study (currently outside City Limits)

## Previous Projects funded by Drainage Utility Fee

- 2003 - \$1,300,000 installing box culverts to put Burton Creek underground as it ran through Manor East Mall site to facilitate redevelopment of the Tejas Center.
- 2005 - \$35,000 drainage improvements on Somerford Street in Copperfield
- 2006 - \$45,000 of storm sewer improvements on Skrivanek to alleviate localized flooding issues.
- 2006 - \$400,000 of Storm Sewer Improvements south of Downtown to alleviate flooding that was occurring because of undersized storm sewers that new downtown improvements were draining into.
- 2007 - \$70,000 drainage improvements on Polk and 26<sup>th</sup> Street around St. Joseph Church and \$40,000 culvert improvements on Apple Creek Circle.
- 2009 - \$300,000 drainage improvements near Camelot in the Memorial Forest Subdivision and constructed a regional detention pond on Blinn's campus for \$500,000.

## Previous Projects funded by Drainage Utility Fee

- 2010 - Lee Street Drainage Improvements for \$1,200,000 which included large culverts to divert flow from a flooding area of residences on Commerce Street and a regional detention pond located off 28<sup>th</sup> Street.
- 2010 - \$110,000 on Meadowbrook Drive Creek Improvements in Wheeler Ridge Subdivision.
- 2011 - \$250,000 on miscellaneous drainage improvements around the City (Skrivanek, Apple Creek, Wayside, Williamson, Hummingbird).
- 2012 - \$460,000 of drainage improvements were made in the Windover Subdivision (Kent, Avon, Oxford).
- 2013 - MLK culvert on Still Creek was replaced costing \$370,000.
- 2015 - Yosemite Drainage Improvements were constructed for \$85,000 and \$185,000 culvert improvements were made to Villa Maria near Wellborn Road intersection.
- 2015-2016 - Briarcreek Court Alley Drainage Improvements were constructed for \$275,000.

## Upcoming Projects funded by Drainage Utility Fee

### 2016 Active Projects

- Apple Creek Circle Channel Improvements - \$200,000
- Old Hearne Storm Sewer Improvements - \$275,000
- Concrete Repairs to Burton & Still Creek - \$265,000
- Residential Buyout matching funds - \$225,000
- 2D Analysis – Citywide - \$69,630

### Upcoming 2017 Projects

- Kazmeier Drainage Improvements - \$400,000
- Partridge Circle Storm Sewer - \$200,000
- W 17<sup>th</sup> Culvert Replacement - \$630,000
- West Fork of Still Creek Improvements Ph 1 - \$800,000
- Cherry Creek Circle bank stabilization - \$250,000
- Creek Stabilization study on various segments of Briar Creek - \$150,000

## Upcoming Projects funded by Drainage Utility Fee

### 2018-2020 Projects

- West Fork of Still Creek Improvements Ph 2 & 3 - \$1,500,000
- Misc. Drainage Improvements - \$300,000
- Concrete Replacement of lower Burton Creek - \$800,000
- Acquisition of Regional Detention Pond land Lynndale Acres - \$200,000

2016	2017	2018	2019	2020
FY16 Current Fund Balance	FY17 Beginning Fund Balance	FY18 Beginning Fund Balance	FY19 Beginning Fund Balance	FY20 Beginning Fund Balance
\$2,184,518.96	\$1,106,540.01	\$688,292.45	\$20,044.89	\$51,797.33
FY16 Proposed Expenses	FY17 Proposed Expenses	FY18 Proposed Expenses	FY19 Proposed Expenses	FY20 Proposed Expenses
(\$1,488,877.56)	(\$1,318,247.56)	(\$1,568,247.56)	(\$868,247.56)	(\$868,247.56)
FY16 Annual Revenue	FY17 Annual Revenue	FY18 Annual Revenue	FY19 Annual Revenue	FY20 Annual Revenue
\$410,898.61	\$900,000.00	\$900,000.00	\$900,000.00	\$900,000.00
FY16 Ending Balance	FY17 Ending Balance	FY18 Ending Balance	FY19 Ending Balance	FY20 Ending Balance
\$1,106,540.01	\$688,292.45	\$20,044.89	\$51,797.33	\$83,549.77

## Questions and Direction?

Reminder Flash Flooding can affect us all.

### Turn Around, Don't Drown

While we don't have as severe a problem with flash floods as the Texas Hill Country, it is still a problem we can experience in Bryan.

Typical locations include low water crossings of creeks, culvert crossings, and floodplains.

