



CITY OF BRYAN
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Memorandum

To: Jayson Barfknecht, PE, PhD, Director of Public Works
CC: Kean Register, City Manager; Bryan City Council
From: Brett McCully, PE, Floodplain Administrator
Date: 9/26/2013
Re: Flood Mitigation Plan Annual Report

On April 10, 2007 the City of Bryan adopted a Flood Mitigation Plan to create a strategy for implementing flood mitigation measures for the community. The plan identified several items for floodplain planning that the city has worked on implementing. These items include:

- Minimize losses due to flooding and achieve a balance between natural open space and improvements for drainage
- Preserve and protect unique open spaces, river corridors, drainage corridors and green spaces within the City and its Extraterritorial Jurisdiction
- Develop a network of pedestrian and bicycle ways for hiking and cycling throughout Bryan

From late 2011 through 2012, the Public Works Department conducted an update process of the plan which included forming a Steering Committee comprised of city staff as well as local citizens, several public meetings, and evaluation and analysis of flooding impacts since the 2007 plan was adopted. The 2013 Flood Mitigation Plan was adopted by City Council on February 26, 2013.

Each year a progress report is prepared as part of the City's Community Rating System annual recertification process and copies of this report must be provided to the Bryan City Council and made available to the news media and the public. The reports are posted on the City's web page to facilitate this requirement.

The intent of this report is to give a brief update on the City's progress with respect to each of the plan items and to expand on the city's future activities. The goals and objectives listed below are from the Flood Mitigation Plan, with brief updates presented in bold italicized text after each item.

Goal #1: Minimize losses due to flooding and achieve a balance between natural open space and improvements for drainage.

Objective A: Address stormwater and drainage issues.

Action Statement 1 – Utilize the dedication of a buffer zone to reduce the loss of floodplains and to minimize flood damage caused by erosion.

On November 5, 2010, the City of Bryan adopted an updated Stormwater Ordinance, which among other things provided stronger protection for floodplains and floodways. Discussions have been taking place since that time with local stakeholders on more effective means of protecting the natural and beneficial states of floodplains, and to

reduce erosion-related impacts and damages. This process has joined with local water quality management processes and techniques being promoted by the Texas Commission on Environmental Quality (TCEQ), and combined planning and development proposals are being presented to both Bryan and College Station Planning and Zoning Commissions for discussion and consideration.

Action Statement 2 – Provide development incentives to assure the control and management of floodplains.

The Development Services staff continues to identify acceptable incentives to ensure the preservation and management of all existing floodplains. In addition to incentives, the Development staff is updating the City's Subdivision Ordinance to facilitate the protection of floodplains and floodways through green way preservation. As a result, several recent projects have been able to balance less development of floodplain areas with denser development on adjacent buildable property.

Action Statement 3 – Consider utilizing floodways and floodplains in order to assure proper drainage in a pleasing and accessible environment.

The current storm water regulations adopted by the City of Bryan are above the minimum regulations set forth by FEMA with regards to development in the floodplain. The Engineering Department continues to watch for opportunities to submit buy-out grant applications to buy properties that have experienced repetitive flooding throughout the years. These properties, once purchased, would be dedicated as park land. To date we have been unsuccessful in securing grant funds. These funds are only made available at certain times and we will continue to apply for them.

There are several Capital Improvement projects that are underway in design or construction which utilize less intense, and thus more aesthetic flood protection measures. Rock filled wire baskets called gabions are being used in many places to reduce hard concrete protection, and regional detention basins are being used instead of channel enlargement and lining.

Action Statement 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.

The Subdivision Ordinance currently requires parkland dedication and/or parkland dedication fees as part of the development process. Floodplain acreages are still acceptable for parkland in case by case situations where there is enough adjacent parkland located outside of the floodplain. Larger recent proposals, such as the Turkey Creek Trail system, have been able to foster more detailed discussions about the differences and similarities between the active parkland uses addressed by existing development fees and dedications, and the growth of interest in greenways, trails and other passive recreational areas.

Action Statement 5 – Develop and fund a comprehensive Capital Improvements Program from the recommended improvements identified in the Primary and Secondary Drainage Studies.

City Staff currently utilizes both a Storm Water Master Plan and a Capital Improvement Program. Using factors such as threats to structures, maintenance costs, and flooding potential, these projects were ranked in priority and will be incorporated into the capital project program as funding is available.

Action Statement 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.

The City of Bryan Unified Stormwater Design Guidelines currently require one lane in each direction to remain clear of water in the 100-yr storm event on arterial and parkway streets. This is the design guidelines for new streets. The Public Works Department staff has developed a response plan for assessing and marking existing emergency routes during large rain events. A facility's location on an emergency route also counted in the project ranking within the new Storm Water Master Plan so areas of limited access can be gradually eliminated. This year's comparable project is the replacement of the Still Creek Tributary Culvert under West 17th Street near the intersection with Boulevard Drive.. This crossing has been identified as a critical route for community on the north side of the creek, and is subject to overtopping in significant rain events. The goal of the new culvert will be to protect this route to the 100 year event without increasing any adjacent or flooding.

Objective B: Promote a regional stormwater detention system to assure coordination and lessen mutual impacts.

Action Statement 1 – 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.

The City of Bryan currently requires detention mitigation on development projects that impact more than an acre of land. Developers have begun to explore the alternatives to standard small detention basins as the value of land continues to increase within commercial developments. In several capital projects in Carters, Still, Burton and Briar Creeks, the Engineering Department continues to address local drainage issues using a regional detention facility approaches. Private developers have also begun to realize the benefits of such facilities as multi-phase and/or regional facilities have been constructed. An example of this process is an on-going discussion with the Developer of Austin's Colony for the development of multi-phase detention basins to be located in areas less suited for residential development.

Action Statement 2 – Explore reimbursement methods to help pay for regional detention facilities.

The Engineering Staff currently checks for funding opportunities through the Department of Emergency Management, FEMA, TWDB and others. As regional detention facility locations are identified, reimbursement regulations may be implemented such that developments taking advantage of the regional detention ponds

would pay fees to the City to reimburse for the cost of that facility. The current Still Creek Flood Protection Project has used Texas Water Development Board grant funds to study and develop a regional detention basin solution for significant repetitive flooding near the intersection of Old Hearne Road and Wilkes Street, and it is expected that this project will be highly ranked in consideration for a significant construction funding grant as well.

Goal #2 Reserved

Goal #3: Preserve and protect unique open spaces, river corridors, drainage corridors and green spaces with the city and its extraterritorial jurisdiction.

Objective B: Establish mechanisms to acquire and preserve key open space.

Action Statement 1 – Investigate other sources of revenue including matching grants for specific projects, capital improvement funding and other public and private sources.

The Engineering Department continues to investigate and pursue funding from several state and federal agencies. The development and upkeep of the Storm Water Master Plan will assist in the development of grant applications and the existence of the plan will help our projects rank higher.

Action Statement 2 – Review existing development regulations to consider incorporating open space and greenway dedication.

Development Services staff is currently working on rewriting a number of its ordinances including the Subdivision Regulations to allow more flexibility in protecting sensitive areas.

Goal #4: Develop a network of pedestrian and bicycle ways for hiking and cycling throughout Bryan.

Objective A: Preserve green-belt linkages throughout the City and the region.

Action Statement 1 – 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.

The City of Bryan's Comprehensive Plan addresses this item along with the Parks Department's Trail System Masterplan.

Action Statement 2 – 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.

During the plan review process city staff looks at existing greenways and encourages park development and preservation of those greenways whenever possible. This will also be considered when rewriting ordinances. The recent Dominion Oaks project is an example of a successful negotiation that preserved the floodplain within a new park and trail area. Select landowners in the Turkey Creek watershed have started a process using the National Park Service as a meeting facilitator to evaluate the plan to protect

485 acres of greenbelt for recreation and conservation in the floodplain of 7.8 miles of Turkey Creek from Downtown Bryan to the Brazos River.

Action Statement 3 – Examine subdivision and drainage regulations to include requirements for dedication and conservation.

City staff is currently working on rewriting its subdivision ordinance. There is in place an existing plan that requires parkland dedication fee-in-lieu of land for all subdivision submittals.

Action Statement 4 – 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.

The Park Hudson Trail System is a step in that direction. It is located along Hudson Creek which is a tributary to Carter Creek. Additionally the pond created recently with the Bryan Towncenter is located along Carters Creek and can be connected via a trail system to form the ultimate linear park envisioned above. Plans are also being drawn up to bridge a stream on the western end of this trail so we can connect to Veteran's Park in College Station. Staff has been in discussions with property owners in this area to acquire the needed easements for access. With the approaching approval of the updated floodplain maps along Carters and Still Creeks, staff will have better information on where flooding effects should be protected while still allowing and promoting joint passive uses.

Goal #5: Develop communication mechanisms to better inform developer, engineers, builders and the public about ways they can help prevent flood damage. (New for 2013)

Objective A: Create a communications outreach program for the public.

Action Statement 1: Create PSA's to inform public about self-imposed drainage problems (i.e. fences, flowerbeds). Utilize media tools such as Bryan public access channel, Bryan website, flyers or other distribution means.

City Staff has been gathering sample information and formats from other agencies in order to develop a message plan which will allow the larger flooding issue to be broken down into smaller, more media friendly, messages. City Staff has begun using pre-printed materials obtained from the Texas Floodplain Managers Association, as well as department newsletters to provide information to the public in general as well as the development community.

Action Statement 2: 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.

City Staff has begun the process of gathering existing information and processes from other agencies to first evaluate what has and has not worked in other areas.

Objective B: Develop design parameters for better roadway and lot drainage design.

Action Statement 1: 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.

City Staff has begun the process of gathering existing information and processes from other agencies to first evaluate what has and has not worked in other areas. Engineering and Drainage Maintenance Staff have also been working closely together during and after rainfall events to isolate causative factors which may need to be addressed.

Action Statement 2: Begin to develop and inform developers/engineers about new design methods regarding Low Impact Development (LID) design criteria and conservation subdivision design.

City Staff has worked closely with the local development community on non-typical drainage designs which can incorporate LID criteria and objectives, and at the same time help financial results on trial projects.

End of Report