

Task Force Report

Flood Protection & Storm Drainage Committee

**Michael Lunceford, Chair
Flood Protection & Storm Drainage
Subcommittee
2017 Bond Program
May 11, 2017**



City of Dallas

Presentation Overview

- *Summarize Committee efforts and guiding principles*
- *Provide Committee recommendations for \$80M Bond Program*
- *Provide additional projects for consideration in the event of a larger program (\$115M to \$160M range)*
- *Recommend policy discussion related to funding major maintenance and operational improvements through other sources*

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Flood Protection & Storm Drainage Committee

Chairman: Mr. Michael Lunceford

Co-Chair: Ms. Rose Rodriguez

Name	District	Name	District
Ms. Rose Rodriguez	CD 1	Ms. Vita Choice	CD 8
Mr. Oscar Monsibais	CD 2	Mr. Ken Montgomery	CD 9
Dr. Andrea Hilburn	CD 3	Mr. Colin Hildinger	CD 10
-	CD 4	Mr. Ramon Miguez	CD 11
Mr. Grant Galliford	CD 5	Mr. Robert Murphy	CD 12
Dr. Pat Stephens	CD 6	Mr. Joe Hollinshead	CD 13
Mr. Scott Henderson	CD 7	Ms. Julie Jones	CD 14

Sample Flood Protection & Storm Drainage Proposition Language

•**FLOOD MANAGEMENT:** Implements Floodplain Management Plans and Studies: **bridges, channels, levees, pump stations and sump improvements, voluntary purchase of flood prone properties and major maintenance** (Typically large projects/ \$\$\$)

•**STORM DRAINAGE RELIEF:** Provides additional drainage systems for areas served by undersized drainage: **upgrades and/or extensions of storm drain systems, also can include repetitive loss** (Typically moderate \$\$)

•**EROSION CONTROL:** Provides **armoring and erosion control** for public and private property along natural creeks: **includes protection for streets, bridges, alleys and homes** (Typically lower \$)



Over-Arching Principles

- *Prioritize projects based on:*
 - *Delivering the highest rate of return*
 - *Technical ranking*
 - *System-based thinking*
- *Leverage other funding as practicable*
- *Recognize neighborhood needs*
- *Verify neighborhood support for project*
- *Include repetitive flood loss allocation*
- *Consider other funding for major maintenance and rehabilitation*

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Alternative Proposal/Erosion Control Project Funding

Creek erosion control projects tend to be smaller in scope and cost than most other flood control and drainage improvement projects. They represent 2% of the total needs inventory in this proposition.

They can manifest themselves suddenly and unexpectedly. They can also grow if not attended in a timely fashion.

Because erosion typically only adversely affects a small number of residents, this category does not necessarily garner broad citizen support. And historically this category has not received much funding in past capital bond programs.

The city's current inventory of erosion control projects total some \$35M.

Alternative Proposal/Erosion Control Project Funding

Assuming a \$2M funding level, every few years in future bond programs; it could take. A modest fee increase of 8% would result in approximately \$3.75M per year (the majority of residential customers would see an increase of \$0.62 per month, or \$7.44 a year). This could allow the city to address these needs timely and have the entire inventory addressed within a reasonable period of time and as well as significantly reduce the impact of inflation on total cost of these projects.

Alternative Proposal/Erosion Control Project Funding

For the reasons stated above, the committee recommends that the City Council consider an alternative funding mechanism to address erosion control projects going forward. A modest fee increase in the drainage utility fee, which has not been raised since 2009, could be considered in order to raise funds for the specific purpose of addressing this type of major maintenance. A modest fee increase of 8% would result in approximately \$3.75M per year (the majority of residential customers would see an increase of \$0.62 per month, or \$7.44 a year). This could allow the city to address these needs timely and have the entire inventory addressed within a reasonable period of time and as well as significantly reduce the impact of inflation on total cost of these projects.

This approach would allow the city to react quickly and potentially perform some preventive work to ameliorate the impacts of this phenomenon.

Recommended \$80 Million Proposition

Category	Estimated Project Costs
Flood Protection	\$68.02 Million
Storm Drainage	\$10.30 Million
Erosion Control*	-
Voluntary Purchase of Repetitive Loss Properties	\$1.68 Million
TOTAL	\$80.00 Million



** Recommended to be funded as operational expense with increase in Stormwater fee to support capital project implementation*

Flood Protection: Trinity Portland Pump Station

- **Location:** Mexicana Drive in Eagle Ford
- **Project Cost:** \$65,000,000
- **Description:** New 256,000 gallon per minute pump station and sump in West Dallas
- **Watershed:** Turtle Creek - Trinity River (Eagle Ford/Trinity Portland Interior Drainage)
- **Drainage area served:** 8 square miles or 5,120 acres
- **Structures affected:** 93
- **Frequency of flooding:** 5 year
- **Impact:** Provides pumping capacity in area currently without protection; prevents repetitive flooding to 93 structures in neighborhoods, and Loop 12 (~100,000 VPD)



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Example of Storm Drainage Relief Projects



Ledbetter Storm Drainage Project
Upsizing a failed 48" Metal Pipe to 60" Reinforced Concrete Pipe (2016)

Storm Drainage: Vinemont Channel

- **Location:** East of Buckner Blvd and Lake Highlands Drive along Dixon Branch
- **Project Cost:** \$5,600,000
- **Watershed:** White Rock Creek-White Rock Lake
- **Drainage area served:** 0.52 square miles
- **Structures affected:** 16
- **Frequency of flooding:** 2 year
- **Description:** New storm drainage diversion system to reduce flooding from the existing undersized concrete-lined channel
- **Impact:** Relieves frequent flooding of 16 repetitive flood loss structures; homes remain in 100-year floodplain of Dixon Branch but would see less frequent flooding during 2- through 10-year floods



Storm Drainage: Guildhall-McCree Relief System

Location: Aldwick Drive from McCree Road to Shoreview Road. Shoreview Road from Aldwick Drive to Audelia Road.

Project Cost: \$4,700,000

Watershed: White Rock Creek-White Rock Lake

Drainage area served: 0.19 square miles

Structures affected: 9

Frequency of flooding: 2-5 year

Description: Upgrade existing storm drainage system to carry 100-year design flood from the existing undersized storm drainage system.

Impact: Relieves frequent flooding of 9 homes.



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Voluntary Repetitive Loss Purchases

Location: Various

Council District: City Wide

Project Type: Rehabilitation

Project Cost: \$2,516,500 out of \$13,200,000

Watershed: various

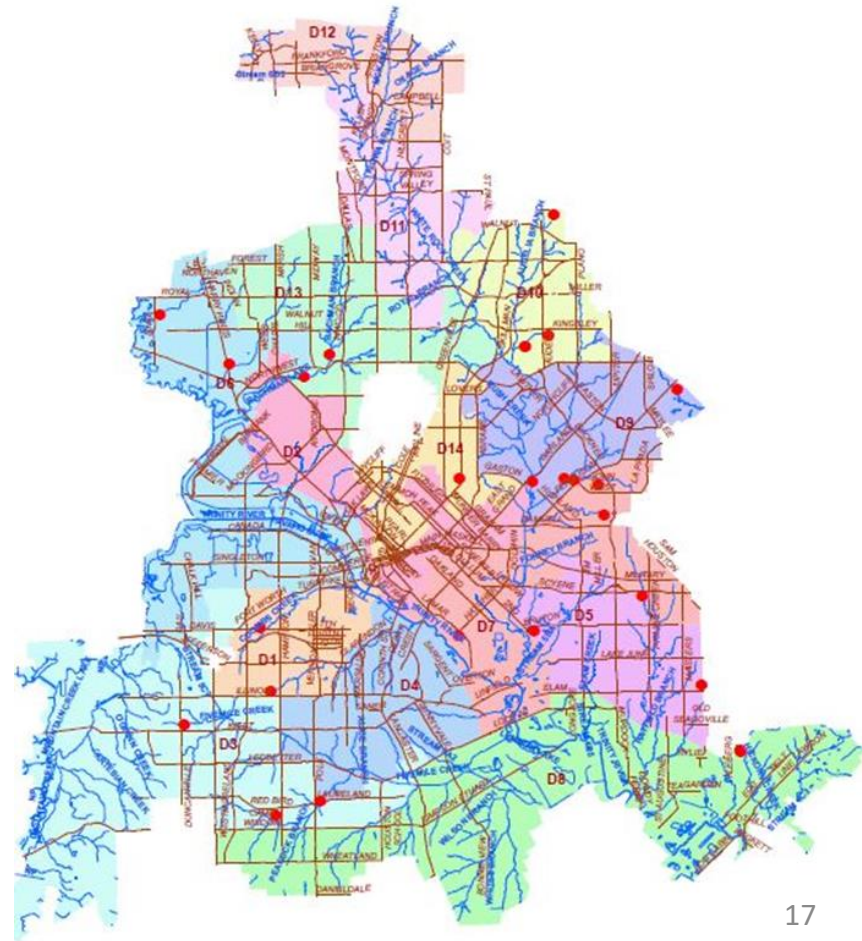
Drainage area served: N/A

Structures affected: 26 (total)

Frequency of flooding: 2 to 10 year

Description: Purchase properties identified by FEMA that are subject to repetitive flooding and for which the costs for drainage improvements would greatly exceed the end-property value

Impact: Decreases drainage infrastructure requirements.



Considerations for Additional Funding

Joes Creek - West Fork Channel and Culvert Improvements	Flood Protection and Storm Drainage	New	Flood Management	TWM	Channel improvements, relief system, added culvert at Denton Road, design and construction - relieves flooding of approximately 46 commercial and about 130 residential structures. Much of the concrete-lined channel is deteriorating or failed and further	6	166	\$25,602,000
Flood Control Operations Center	Flood Protection and Storm Drainage	New	Flood Management	TWM	Replace existing facility with a new 26,000 SF building. New building would meet City Code and the electrical/SCADA/ALERT systems will be removed from potential failure.	OW	130	\$10,000,000
							Repetative Loss	\$1,078,000
							Total	\$115,000,000

Considerations for Additional Funding

Woody Branch @ S Polk St	Flood Protection and Storm Drainage	Rehabilitation	Flood Management	TWM	Analysis, Design & Construction - Replacement of the S Polk St bridge to remove overtopping during 100-yr event and approx. 1000 LF of channel improvements.	3	131.17	\$4,805,000
Levee Drainage System - Westmoreland-Hampton Sump (Delta Pump Station Rehabilitation)	Flood Protection and Storm Drainage	Rehabilitation	Flood Management	TWM	Rehab existing Delta Pump Station	CW	130	\$9,000,000
Rexford Drive @ Shorecrest Drive	Flood Protection and Storm Drainage	New	Storm Drainage	TWM	Design and Construction - Drainage relief system at the Rexford Drive and Shorecrest Drive area. Note: In the Bachman Creek 100-yr floodplain.	13	84	\$160,000
Royal Lane 3162 (RL Area 7)	Flood Protection and Storm Drainage	Rehabilitation	Storm Drainage	TWM	Reconstruct about 600 LF of alley, add drainage system and inlets to prevent flooding of up to 14 structures within a repetitive loss area as designated by FEMA.	13	87	\$210,000
Woody Branch Floodplain Management Study	Flood Protection and Storm Drainage	New	Flood Management	TWM	Floodplain Management study of the Woody Branch Watershed to determine flood control and erosion control options.	CW	130	\$200,000
							Repetative Loss	\$1,703,000
							Total	\$130,000,000

Considerations for Additional Funding

Pensive Drive Channel/Walnut Hill Relief System	Flood Protection and Storm Drainage	New	Storm Drainage	TWM	Design and construction of a storm drainage relief system in Walnut Hill to prevent flooding of about 14 homes on Pensive, Goodyear, Ponder, Timberview and Dale Crest - about 7,000 LF of box culvert, from Pensive west along Walnut Hill to the West Fork o	6,13	90	\$10,500,000
Williamson Branch - FPMS Alt. 2	Flood Protection and Storm Drainage	New	Flood Management	TWM	Widen bridge openings at Norris, Alderson, and Saratoga; Construct 6,400 LF of 12x12 box culvert diversion structure from desl tation structure near Patrick to SPRA; Reduces flood risk to seven homes, eliminates flooding at six road crossings.	14	131	\$13,700,000
Highgrove Area Drainage Relief System	Flood Protection and Storm Drainage	Rehabilitation	Storm Drainage	TWM	Design and construction - Replace existing system from Clover Lane to Northwest Hwy, between Lakemont and Folkstone, with 100-year svstem.	6	85	\$3,400,000
Sanford Ave Relief System (Little Forest Hill)	Flood Protection and Storm Drainage	Rehabilitation	Storm Drainage	TWM	Design and Construction - 100-yr system along Sanford Ave, from Díceman to Eustis	9	80	\$4,000,000
							Repetative Loss	\$103,000
							Total	\$160,000,000