Memorandum

CITY OF DALLAS

DATE May 5, 2016

TO The Honorable Members of the Transportation and Trinity River Project Committee: Lee M. Kleinman (Chair), Deputy Mayor Pro Tem Erik Wilson (Vice-Chair), Sandy Greyson, Mayor Pro Tem Monica R. Alonzo, Adam Medrano, and Casey Thomas II

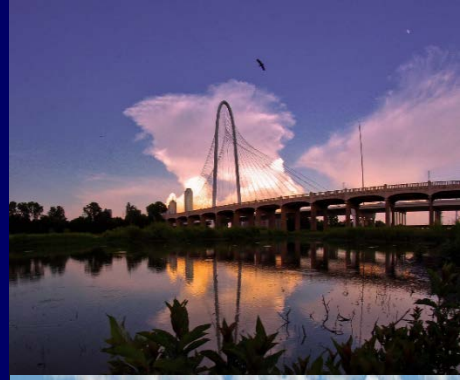
SUBJECT 2017 Bond Program Technical Criteria/Policy for Flood, Drainage, and Erosion Propositions

On Monday, May 9, 2016, you will be briefed on 2017 Bond Program Technical Criteria/Policy for Flood, Drainage and Erosion Propositions. The briefing materials are attached for your review.

Please feel free to contact me if you have any questions or concerns.

Mark McDaniel
Assistant City Manager

c: Honorable Mayor and Members of the City Council
A.C. Gonzalez, City Manager
Christopher D. Bowers, Interim City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Ryan S. Evans, First Assistant City Manager
Eric D. Campbell, Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Joey Zapata, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council



2017 Bond Program

Technical Criteria/Policy for Flood, Drainage and Erosion Propositions

Transportation and Trinity River Project Committee

May 9, 2016

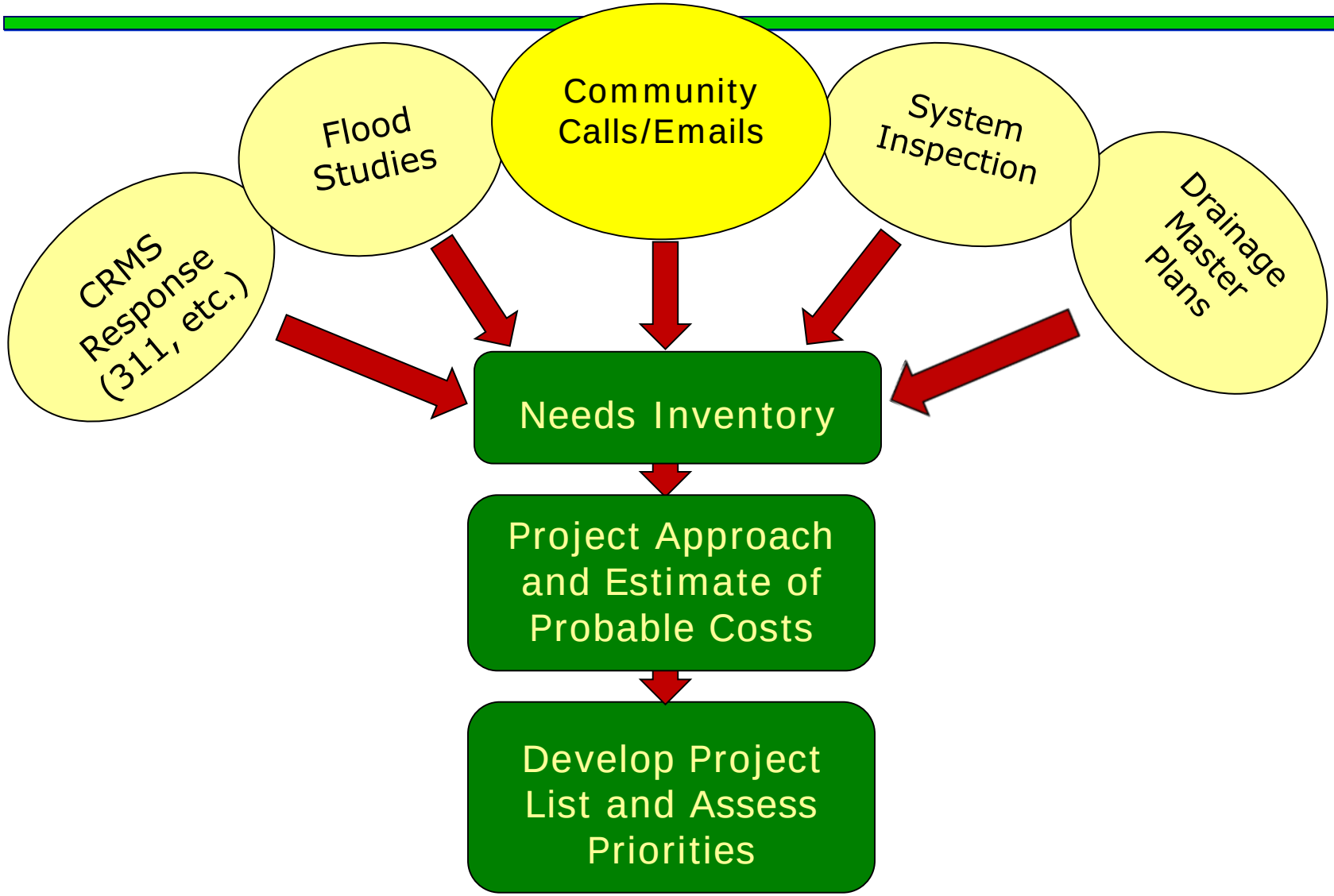
Key Focus Area

Economic Vibrancy

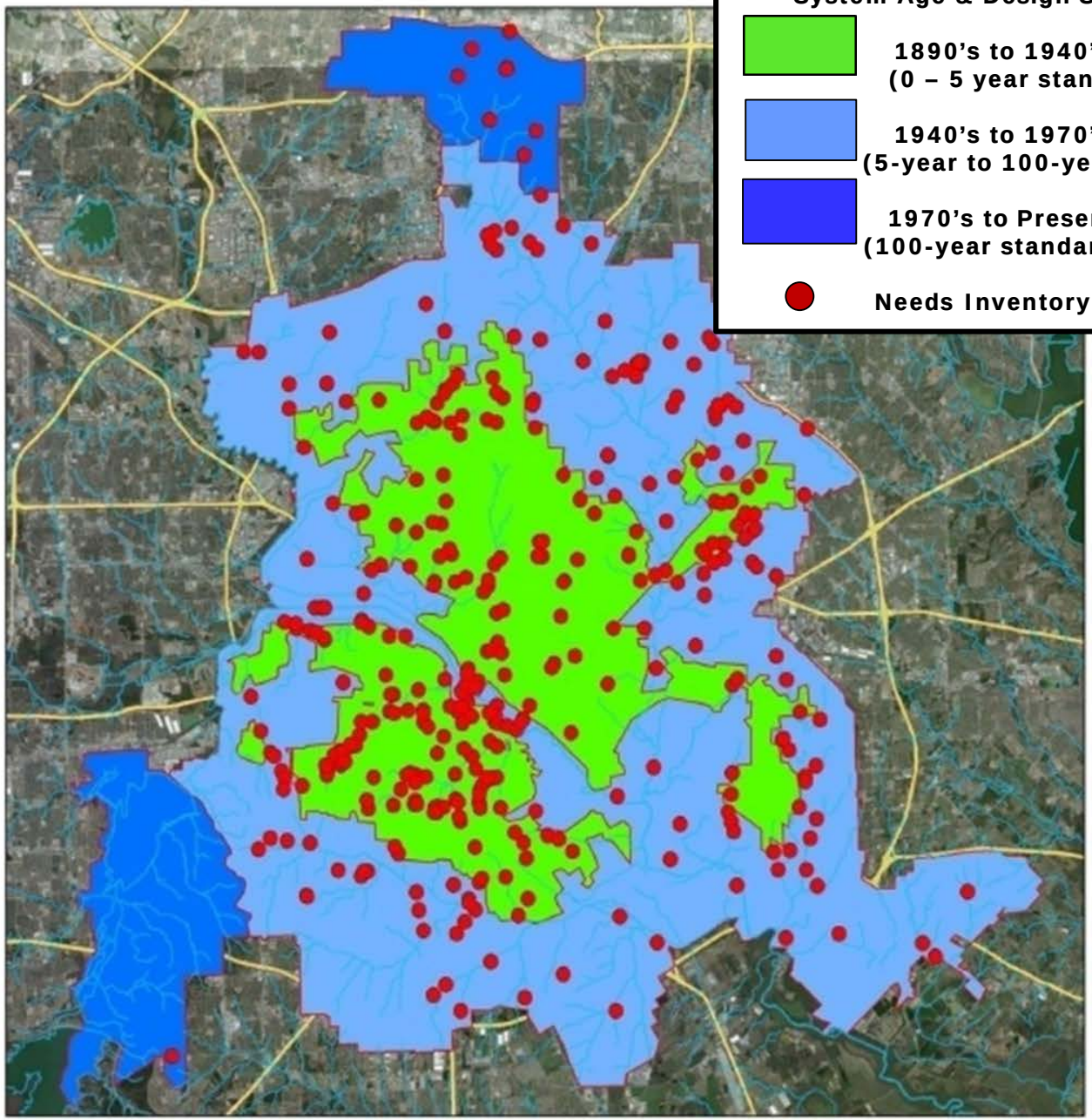
PURPOSE

- Provide overview of how projects are identified
- Seek feedback on priorities for Bond Program Improvements (Technical Selection Criteria)
- Confirm policy for drainage projects in the 2017 Bond Program

PROJECT IDENTIFICATION PROCESS



The majority of the needs in the City are associated with areas developed with inadequate standards



History of Urbanization in Dallas

POLICY AND TECHNICAL SELECTION CRITERIA

- Project selection should advance Council Objectives
- Technical Criteria used to initially rank each project
- Approval is needed for Technical Selection Criteria

TWO STEP EVALUATION PROCESS

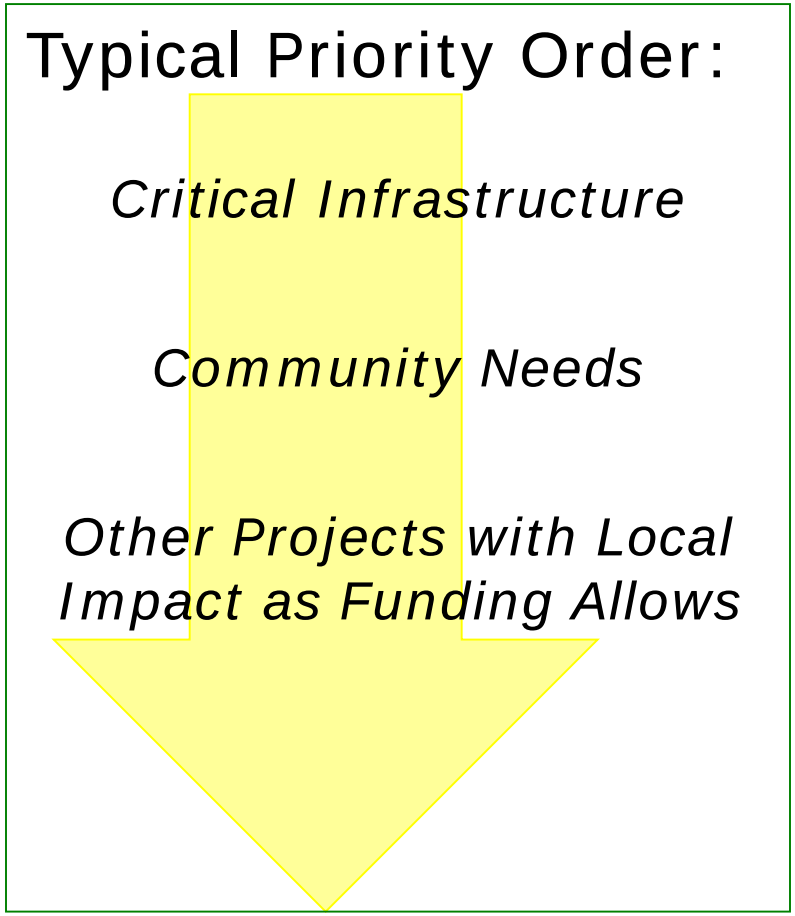
Technical Criteria

- ***Primary Focus: Public Safety!!***
- Project cost effectiveness
- Number of people and properties benefitted

Balancing Criteria:

- Supports Neighborhood Plus
- Supports Economic Development
- Provides enhanced Quality of Life
- Leverages matching funds, cost share agreements

Typical Priority Order:



DRAINAGE BOND CATEGORIES

- Flood Protection
- Storm Drainage Relief Systems
- Erosion Control

Pavaho Pump Station - 2006 Bond Program

CATEGORIES OF NEEDS: REGULATORY PROJECT COMPLIANCE

Drainage projects must comply with one or more:

- Applicable Local, State and Federal Law (in particular, Clean Water Act, Section 404)
- FEMA Floodplain Management Policy that requires minimum design to no less than 100-year flood elevation PLUS 2 to 3 feet freeboard
- City of Dallas Floodplain Ordinance (§ 51A.105)
- City of Dallas Drainage Criteria Manual (under revision as part of Urban Design Initiative)

CATEGORIES OF NEEDS: PROJECT PLANNING AND DEVELOPMENT

Drainage projects are implemented through project definition from one or more:

- East/West Interior Drainage Plans
- Watershed Master Plans and Drainage Studies
- Local Hydrologic and Hydraulic studies
- Steady and unsteady state computer modeling to reflect how water passes through an area

FLOOD PROTECTION CATEGORY

Implements recommendations from Floodplain Management Plans and Studies: bridges, channels, levees, pump stations and sump improvements, voluntary purchase of flood prone properties and major maintenance

Technical Ranking Criteria	Points
Frequency of flooding	Up to 25
Depth of flooding (100-year frequency event)	Up to 30
Depth x velocity of flow over bridges	Depth x velocity
Number of structures affected	3 points / structure
Ratio of project costs per protected structure	Up to 10

Total Points: Up to 500 points

(*See Appendix for Detailed Criteria*)

FLOOD PROTECTION: POLICY QUESTIONS

- Do you want majority of flood protection category to focus on City-wide projects?
- Do you prefer a neighborhood focus?
- Should we consider weighing the ability to match/leverage other funds?

STORM DRAINAGE RELIEF CATEGORY

Provides additional drainage systems for areas served by undersized drainage systems: upgrades and/or extensions of storm drain systems, also can include repetitive loss

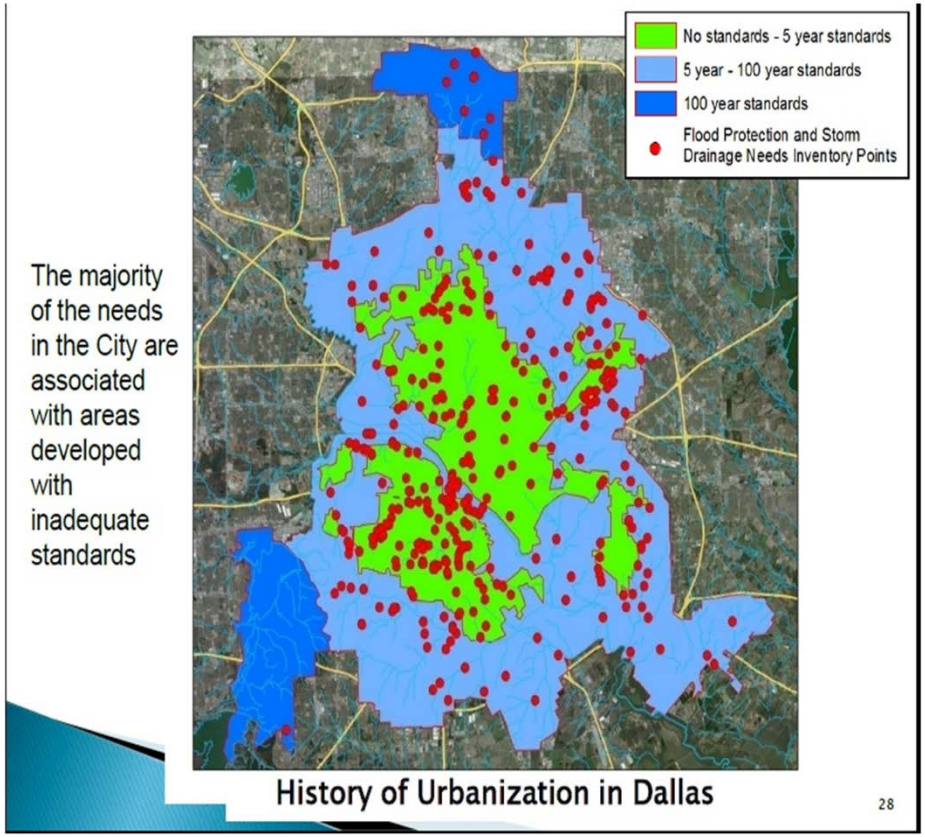
Technical Ranking Criteria	Points
Type/effects of flooding	Up to 20 points
Frequency of flooding	Up to 25 points
Depth of 100-year flooding	Up to 30 points
Number of affected structures	3 points per structure
Ratio of cost/affected structure	Up to 10 points

Total Points: Up to 500 points

(*See Appendix A for Detailed Criteria*)

STORM DRAINAGE RELIEF POLICY QUESTIONS:

- Do you want to apply any weight to projects that advance neighborhood initiatives?



EROSION CONTROL CATEGORY

Provides armoring and erosion control for public and private property along natural creeks: includes protection for streets, bridges, alleys and homes

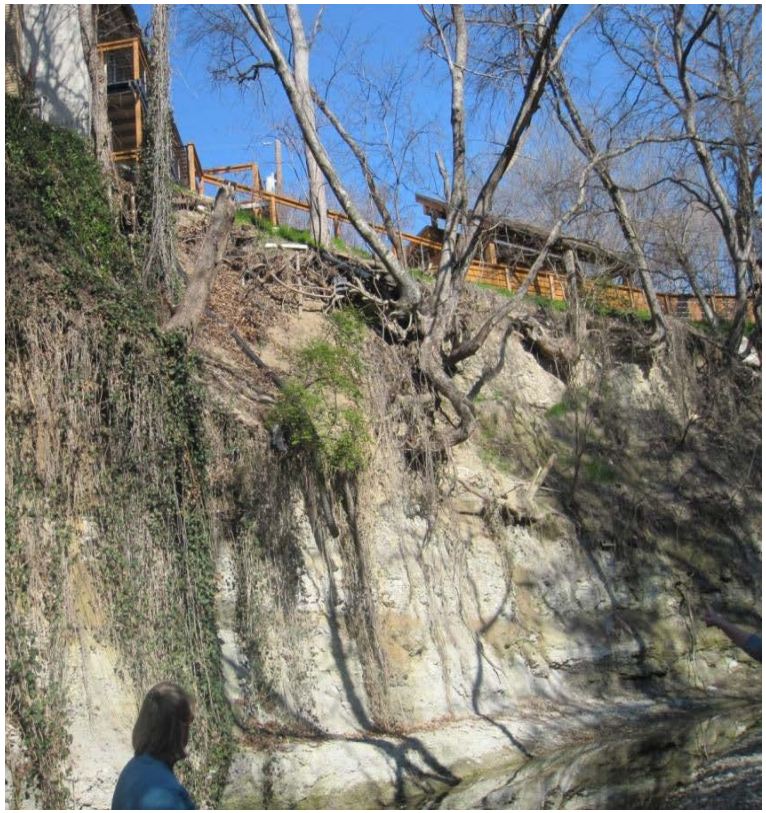
Technical Ranking Criteria	Points
Ratio of Distance to structure/depth of erosion	**Up to 40 points**
Rate of creek bank loss	**Up to 40 points**
Ratio of cost to number of structures protected	**Up to 20 points**
Type of threat: 1: Homes, garages, streets, alleys, bridges 2: Pools and other permanent structures 3: Fences, yards, privately owned retaining walls	 **Up to 15 points** **Up to 5 points** **0 points**

Total Points: Up to 115 points

(*See Appendix A for Detailed Criteria*)

EROSION CONTROL POLICY QUESTIONS:

- Do we want to continue to provide erosion control to private property?
- If so, should we consider implementing 50/50 cost share?



Meadowcliff Drive, 2015

ADDITIONAL POLICY QUESTIONS

Repetitive Loss Purchase of Flood Prone Properties:

- Should we purchase Flood Prone Properties?
- If so, should we strictly use FEMA guidelines of purchase of repetitive loss properties that have flood insurance only?
- If so, should we consider purchase of properties where the cost of related improvements exceeds the cost of purchase?

SUMMARY OF POLICY QUESTIONS

1. Do you want majority of flood protection category to focus on City-wide projects?
2. Do you prefer a neighborhood focus?
3. Should we consider weighing the ability to match/ leverage other funds?
4. Do you want to apply any weight to projects that advance neighborhood initiatives?
5. Do we want to continue to provide erosion control to private property?
6. If so, should we consider implementing an 50/50 cost share for erosion projects?

SUMMARY OF POLICY QUESTIONS (Continued)

7. Should we purchase flood prone properties?
8. If so, should we strictly use FEMA guidelines of purchase of repetitive loss properties that have flood insurance only?
9. If so, should we consider purchase of properties where the cost of related improvements exceeds the cost of purchase?

Questions?

APPENDIX A

CAPITAL IMPROVEMENT PROGRAM
PROJECT RATING FORM

CATEGORY: FLOOD MANAGEMENT[1]

This category includes sites for which channel improvements, levees, detention basins, or bridge or culvert replacements are necessary to reduce flooding; also included is the voluntary purchase of homes in the flood plain when no other viable alternative exists.

Project:		Date:
No.	Criteria	Points
1	Frequency of flooding	
2	Depth of flooding	
3	Depth X velocity over bridges	
4	Number of affected structures X 3	
5	Ratio of (cost/affected structures)	
	TOTAL POINTS	

Criteria: 1. Frequency of flooding

Frequency	Points
2-year or less	25
5-year	20
10-year	18
25-year	15
100-year	10

SCORE =

2. Depth of flooding (100-year)

Depth	Points
4 feet or more	30
2 to 4 feet	25
1 to 2 feet	15
Less than 1 foot	5

3. Depth and velocity of flow over bridges (100-year)

(depth of flow on roadway in feet) X (velocity in fps) = points

4. Number of affected structures

3 points per affected structure

5. Ratio of cost per affected structure

Value	Points
Less than 100,000	10
100,000 to 500,000	5
Greater than 500,000	1

[1] Revised 10/26/05

CAPITAL IMPROVEMENT PROGRAM
PROJECT RATING FORM

CATEGORY: STORM DRAINAGE RELIEF SYSTEMS[1]

This category includes additional drainage inlets and storm sewer pipe systems to optimize existing inadequate drainage systems in developed areas.

Project:		Date:
No.	Criteria	Points
1	Type/effect of flooding	
2	Frequency of flooding	
3	Depth of flooding	
4	Number of affected structures X 3	
5	Ratio of (cost/affected structure)	
	TOTAL POINTS:	

Criteria: 1. Type/effect of flooding

Type/effect	Points
Multiple structures	20
Single structure	10
Street only	5

SCORE =

2. Frequency of flooding

Frequency	Points
2-year or less	25
5-year	20
10-year	18
25-year	15
100-year	10

3. Depth of flooding (100-year)

Depth	Points
3 feet or more	30
1 to 3 feet	20
Less than 1 foot	5

2. Number of affected structures

3 points per affected structure

3. Ratio of cost per affected structure

Value	Points
Less than 50,000	10
50,000 to 500,000	5
Greater than 500,000	1

[1] Revised 10/28/05

CAPITAL IMPROVEMENT PROGRAM
PROJECT RATING FORM

CATEGORY: EROSION CONTROL[1]

This category would provide armoring of natural creek banks to protect soil against further erosion loss. Potential projects are classified by type as follows:

Type I: Threat to houses, attached garages, streets, alleys and bridges.
Type II: Threat to pools and other permanent structures not included in Type I.
Type III: Threat to fences, yards and private retaining walls.

Project:		Date:
No.	Criteria	Points
1	Ratio of (distance creek bank to structure/depth of creek)	
2	Rate of creek bank loss	
3	Ratio of (cost/number of structures protected)	
4	Type of threat	
	TOTAL POINTS	

Criteria:

1. Ratio of (distance to structure)/(depth)

Ratio value	Points
0 to 0.25	40
0.26 to 0.59	35
0.60 to 1.00	30
1.01 to 1.25	20
1.26 to 1.50	10
1.51 to 2.00	5
Greater than 2.00	0

2. Rate of creek bank loss

Rate	Points
Rapid	40
Moderately fast	30
Moderate	25
Moderately slow	20
Slow	10
Very slow	5

3. Ratio of (cost)/(number of structures protected)

Ratio	Points
0 to 50,000	20
50,001 to 150,000	15
Greater than 150,000	5

4. Type of threat

Type	Points
I	15
II	5
III	0

SCORE = (TOTAL POINTS X 0.8696) + (3 – Ratio Value)

SCORE =

[1] Revised 10/28/05

WHY ARE FLOOD CONTROL AND DRAINAGE CRITICAL?

RECENT DALLAS FLOOD HISTORY

May 1995 - Baylor Emergency Room, Fair Park, highway underpasses and drainage sumps flooded. Fourteen (14) high water related deaths in Dallas

July 2004 - Homes and businesses in Ricketts Branch area and various locations in southern Dallas flooded

March 2006 - Sumps on both side of Trinity flooded outside their banks, numerous homes and businesses in those vicinities flooded, some of Baylor's facilities flooded, street flooding occurred north of White Rock Lake

April 2006 - Numerous homes and businesses flooded in the middle part of Mill Creek watershed

Sept 2007 - Flooding of streets and some homes in M Streets (Mill Creek and Peaks Branch)

March 2008 - Numerous homes and businesses flooded in east Dallas, Water levels reached dangerously high levels in sumps,

June 2009 - Flooding of streets and some homes in north and west of Fair Park

Sept 2010 - Street flooding in far north and east Dallas

May/June 2015 – Street flooding in West Dallas and Loop 12 Closure; Street flooding in Elm Fork area near Northwest Highway

FLOOD PROTECTION AND DRAINAGE SAVES LIVES

Two lives at risk because of inadequate drainage infrastructure

FLOOD PROTECTION AND DRAINAGE SAVES LIVES

16 deaths blamed on storm

4 missing after floods; 100 hurt

By Randy Lee Loftis and Nora López
Staff Writers of The Dallas Morning News

The stunning violence of the latest spring storm to slam through the Dallas area became clear Saturday: At least 16 people were dead and as much as $450 million worth of property damaged after Friday night's rampage.

Among the victims of one of the area's deadliest, most destructive storms in history were five members of an Oak Cliff family who drowned when floodwaters washed away their car.

At least seven people drowned in other flooded areas. A lightning-caused fire killed a Dallas woman, and a lightning strike killed an Irving boy. Late Saturday, at least four people were missing and feared dead.

Late Saturday, searchers continued going through a

Please see 16 DEATHS on Page 29A.

911 response times criticized

By Nora López and Jason Sickles
Staff Writers of The Dallas Morning News

During Friday's devastating rains and hail, hundreds of motorists were stranded in city streets submerged under several feet of water. Roofs collapsed under the strain of heavy rain. Families watched in horror as loved ones were swept away in storm drains.

Nearly all turned to 911 for help. Many times, all they got was a busy signal.

City officials said the demand for city services was so great late Friday that the calls simply overloaded the 911 system, resulting in busy signals and delayed response times of up to an hour.

"We practice. We train. We study. And we prepare

Please see CALLERS on Page 28A.

The Dallas Morning News Michael Ainsworth

Paul Griffin on Saturday examines some of the damage inflicted on cars at Fair Park during Friday's storm.

Lives lost, families torn

Storm victims from all walks of life, neighborhoods

By Bill Minutaglio and Eric Garcia
Staff Writers of The Dallas Morning News

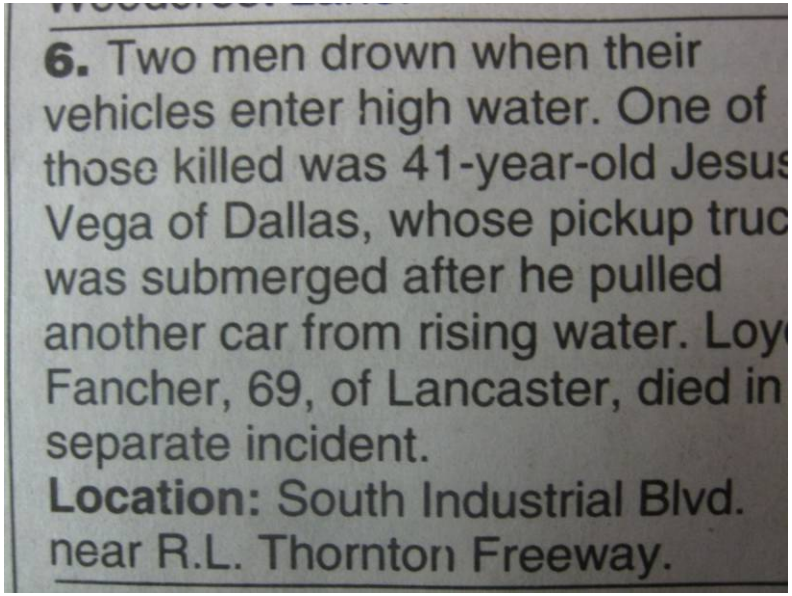
The marauding storm knew no boundaries when it claimed its victims.

There was the elderly woman who quietly cared for the animals in her neighborhood. The teacher who had proudly posed for a recent photo with her young students. The family of five swept away as they headed for a restaurant.

One woman was saved from the flooding — only to be engulfed

Please see VICTIMS on Page 30A.

NORTH TEXAS STORMS



6. Two men drown when their vehicles enter high water. One of those killed was 41-year-old Jesus Vega of Dallas, whose pickup truc was submerged after he pulled another car from rising water. Loy Fancher, 69, of Lancaster, died in separate incident.
Location: South Industrial Blvd. near R.L. Thornton Freeway.

Multiple flood deaths in Sump A drainage area on Industrial Blvd and several other locations after flash flooding during the evening of May 5, 1995

FLOOD PROTECTION AND DRAINAGE PROTECT CRITICAL FACILITIES

Flooding of part of Baylor Hospital facilities on March 19, 2006

FLOOD PROTECTION AND DRAINAGE PREVENTS PROPERTY LOSS

Car swept off road, July 29, 2004

Photo 3.10 - Market Hall Parking Lot, Hampton-Oak Lawn Sump Area - March 19, 2006 (source: Dallas Morning News)

FLOOD PROTECTION AND DRAINAGE PREVENTS COMMERCIAL LOSSES

Photo 3.11 - R.L. Thornton Freeway (IH30) "Canyon" at South St. Paul Street, Able Sump Area - March 19, 2006 (source: Dallas Morning News)

Photo 3.7 - Inwood Road at Stemmons Freeway (IH35E), Record Crossing Sump Area - March 19, 2006

FLOOD PROTECTION AND DRAINAGE REDUCES FLOOD INSURANCE COSTS FOR PROPERTY OWNERS

Vicinity of Market Hall

Townhomes on Caddo Street in Mill Creek