



# Streambank Stabilization Program

City Council Meeting – March 28, 2022

Director of Engineering – Caleb Thornhill  
Engineer, Sr. – Russell Erskine  
Engineer, Sr. – Alison Smith

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# What is Streambank Stabilization Program?

- City streambank evaluations began – early 1990s
- Streambank Stabilization Manual – adopted 1998
- Purpose – reduce potential damage to public and private property and the environment



# Streambank Stabilization Evaluations

## Ranking Evaluation

- Citizen Reports of Erosion Concerns
- Site Evaluation/Selection:
  - Plat Language (Maintenance Resp.)
  - Near/outside of drainage easement
  - Total streambank height
  - Near major structures/utilities
  - Site Evaluation Score
- New CIP Erosion Control Project

<b>1. MAJOR STRUCTURE THREAT (MAX. 20 PTS.)*</b> <input type="checkbox"/> RESIDENCES AND/OR POOLS (0 TO 20) <input type="checkbox"/> EXISTING DRAINAGE FACILITIES (0 TO 20) <input type="checkbox"/> ROADWAYS OR BRIDGES (0 TO 15) <input type="checkbox"/> WATER & SEWER FACILITIES (0 TO 10)	---
<b>2. MINOR STRUCTURE THREAT (MAX. 15 PTS.)*</b> <input type="checkbox"/> DECKS OR RETAINING WALLS (0 TO 15) <input type="checkbox"/> FENCES OR HEADWALLS (0 TO 10)	---
<b>3. EROSION OUTSIDE EASEMENT (MAX. 20 PTS.)</b> <input type="checkbox"/> CURRENT (20) <input type="checkbox"/> HIGHLY LIKELY (15) <input type="checkbox"/> PROBABLE (10)	---
<b>4. TOP OF STREAMBANK TO EASEMENT (MAX. 10 PTS.)</b> <input type="checkbox"/> < 5 FEET (10) <input type="checkbox"/> 5 FEET TO 10 FEET (7) <input type="checkbox"/> 10 FEET TO 15 FEET (5) <input type="checkbox"/> > 15 FEET (0)	---
<b>5. EXISTING BANK STABILITY (MAX. 10 PTS.)</b> <input type="checkbox"/> STEEP WITHOUT VEGETATION (10) <input type="checkbox"/> MILD WITHOUT VEGETATION (7) <input type="checkbox"/> COMBINATION STEEP TO MILD WITH VEGETATION (5)	---
<b>6. CHANNEL ORIENTATION (MAX. 10 PTS.)</b> <input type="checkbox"/> OUTSIDE BEND (10) <input type="checkbox"/> UPSTREAM FACE OF CULVERT (8) <input type="checkbox"/> COMBINATION (8) <input type="checkbox"/> STRAIGHT (5) <input type="checkbox"/> INSIDE BEND (0)	---
<b>7. THREAT TO EXISTING TREES (MAX. 10 PTS.)</b> <input type="checkbox"/> MAJOR (10) <input type="checkbox"/> MINOR (5)	---
* NOTE IN CATAGORIES 1 AND 2, THAT THE POINT TOTALS VARY BASED UPON THE PROXIMITY OF THE STRUCTURE TO THE TOP OF STREAM BANK.	<b>TOTAL =</b> ---



# Streambank Stabilization Program

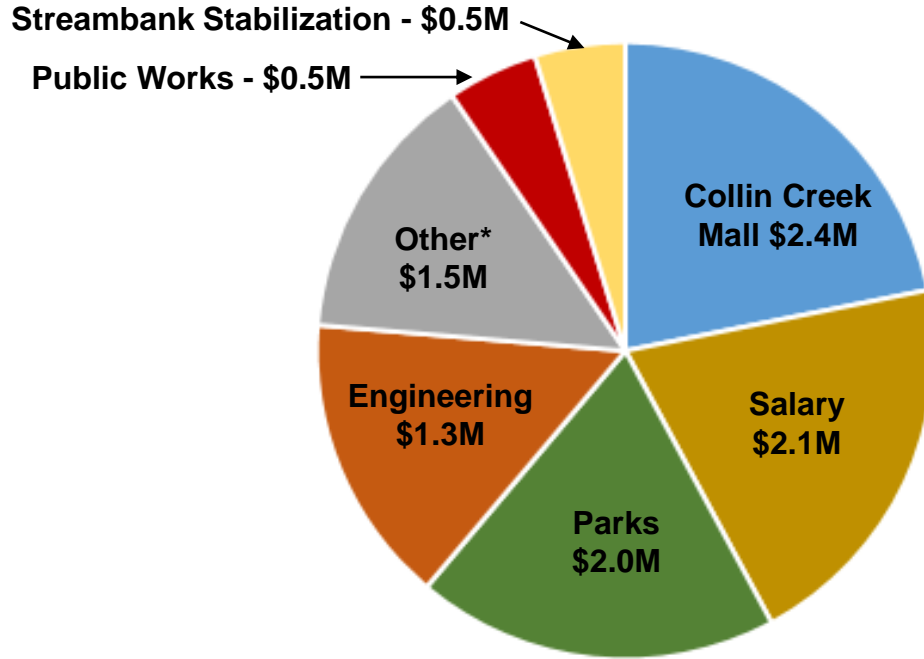
Current Monthly Drainage Fees		
Residential	Impervious Area	Monthly Fee
Tier 1	Less than 2500 sq. ft.	\$3.92
Tier 2	2500 to 4000 sq. ft.	\$5.27
Tier 3	4000 to 5500 sq. ft.	\$5.52
Tier 4	Greater than 5500 sq. ft.	\$7.08
Commercial	per 100 sq. ft.	\$0.115

Note: Fee adopted on November 9, 2020, by Ordinance No. 2020-11-7.

- Projected FY 21/22 Revenue from Drainage Fee – \$10.3 M



# Streambank Stabilization Program



**Annual CIP Streambank  
Stabilization Budget = \$500,000  
or 5% of Total Drainage Fee**



\*Other includes: Contractual, Materials/Supplies, Capital Outlay, Sundry and Technology fund.

# Streambank Stabilization Projects



Prairie Creek at Independence Pkwy.

# Streambank Stabilization Projects

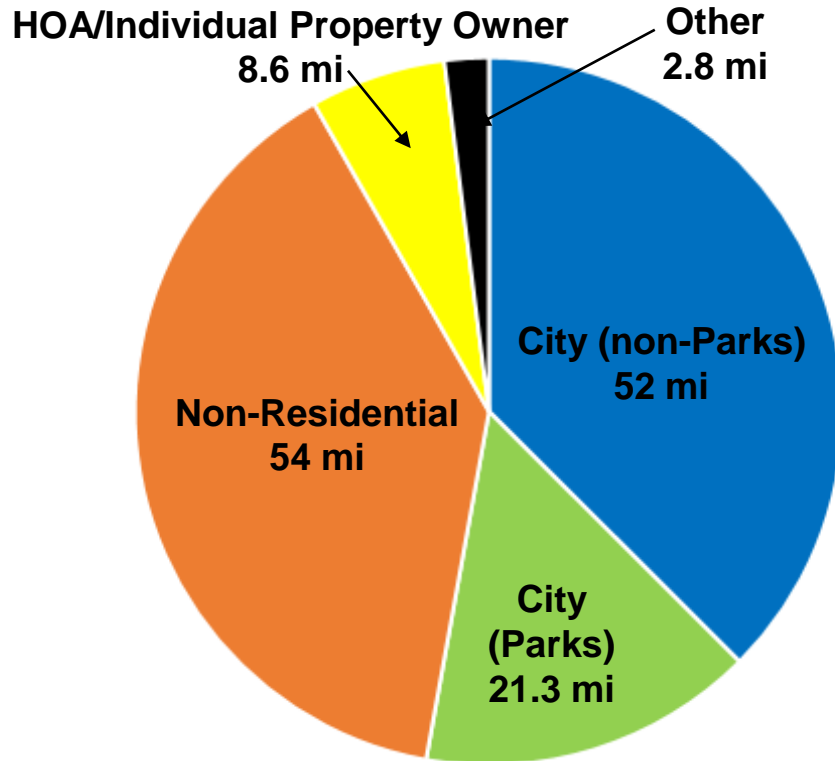


# Streambank Stabilization Projects





# Streambank Maintenance Responsibilities



## Plano Streams

- City (non-Parks)	52.0 mi
- Non-Residential	54.0 mi
- City (Parks)	21.3 mi
- HOA/Individual	8.6 mi
- <u>Other</u>	<u>2.8 mi</u>
<b>Total</b>	<b>138.7 mi</b>

# Streambank Maintenance Responsibility

- Citizen Reports increased by 50% since 2018
- 54 Site Visits in 2021
  - 75% City responsibility
  - 25% HOA/Individual Property Owner responsibility per plat



# Streambank Maintenance Responsibility

- Recorded Plat Language Examples

- Commercial
- HOA
- Individual Property

“...the existing creek or creeks....will be maintained by the Owners Association of the lot or lots that are...adjacent to the drainage courses...”

This plat is hereby adopted by the Owners Association and approved by the City of Plano, subject to the following conditions which shall be binding upon the Owners Association, their heirs, grantees, successors and assigns: The existing creek or creeks traversing along Lots 18 & 22, Blocks C & D within the limits of this addition will remain as an open channel at all times and will be maintained by the Owners Association of the lot or lots that are traversed by or adjacent to the drainage courses in Lots 18 & 22 Blocks C & D. The City of Plano will not be responsible for the maintenance and operation of said creek or creeks or for any damage to private property or person that results from the flow of water along said creek, or for the control of erosion. No obstruction to the natural flow or storm water run-off shall be permitted by construction of any type of building, fence, or other structure within the natural drainage channels, as hereinafter defined in Lots 18 & 22 Blocks C & D. Provided, however, it is understood that in the event it becomes necessary for the City of Plano to erect or consider erecting any type of drainage structure in order to improve the storm drainage that may be occasioned by the streets and alleys in or adjacent to the subdivision, then in such event, the City of Plano shall have the right to enter upon Lots 18 & 22 Block C & D at any point, or points, to investigate, survey, or to erect, construct and maintain any drainage facility deemed necessary for drainage purposes. The Owners Association shall keep the natural drainage channels traversing, clean and free of debris, silt, and any substance which would result in unsanitary conditions or obstruct the flow of water, and the City of Plano shall have the right to ingress and egress for the purpose of inspection and supervision of maintenance work by the Owners Association to alleviate any undesirable conditions which may occur. The natural drainage channels through Lots 18 & 22 Blocks C & D, as in the case of all natural channels, are subject to storm water overflow and natural bank erosion to an extent which cannot be definitely defined. The City of Plano shall not be held liable for any damages of any nature resulting from the occurrence of these natural phenomena, not resulting from the failure of any structure or structures, in the natural drainage channels within the limits of Lots 18 & 22 Blocks C & D. Building areas outside of and adjacent to the limits of Lots 18 & 22 Blocks C & D should be filled to a minimum elevation as shown on the plat. The minimum floor elevation for each lot shall be as shown on the plat.

- City Maintained “...Plano **will be** responsible for the maintenance and operation...”



# Streambank Maintenance Responsibility

## Home Owners Association



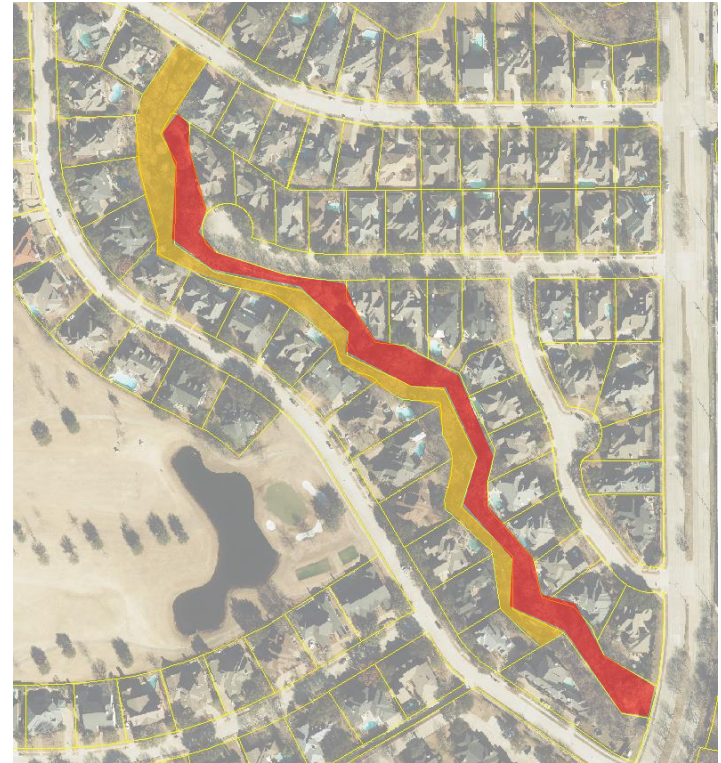
### Maintenance Responsibility



HOA west side



City east side



# Streambank Maintenance Responsibility

## Individual Property Owner



Maintenance Responsibility Per Plat – City of Plano not responsible.

# Streambank Maintenance Responsibility

## Commercial/Residential



### Maintenance Responsibility per Plat:

- Residential – 9 lots
  - None specified
- Commercial – 4 lots
  - Property owner

# Streambank Maintenance Responsibility

## Mandatory HOA



### Maintenance Responsibility per Plat:

- Developed 1978
- Mandatory HOA
- 1989 converted northernmost lake to Sedimentation Pond

# Streambank Stabilization Program

- City Council to consider policy change to provide assistance to Residential/HOA properties currently responsible for stream maintenance by plat
- Per City Council direction, Staff can analyze budgetary impacts to provide assistance
- Staff would present options and recommendations at a future meeting





# Streambank Stabilization Program

Questions!

B. Caleb Thornhill

Director of Engineering

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