



Drainage CIP Workshop



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Agenda

- Background
 - Master Drainage Plan
 - Past Prioritization Efforts
- Current Drainage Issues Map
- Projects Completed or In-Progress
- Approved 5-year Drainage CIP
- Other Projects for Consideration
- Discussion

Background



- Drainage Master Plan completed in 2018
- Stakeholder Committee
 - 5 workshops
 - 2 public surveys
 - 60 initial projects narrowed to 46 projects and prioritized
- Master Plan adopted by Council in 2019
 - Initial CIP projects identified
 - Drainage policy updated (UDC)



Background



- New issues continue to be identified
 - Storm intensity and frequency has increased
 - New developments create more impervious surface
 - 24 new issues added to date
- Some drainage improvements combined with Roadway CIP projects
 - Ammann Rd Low Water Crossing
 - Rolling Acres Trail Low Water Crossing
- Legal considerations regarding expenditure of public funds on private property



Background – Master Plan Prioritization



Item	Weight	Score
Estimated Cost		
Low	2	5
Medium		3
High		1
Source/Destination		
Public to Private	3	5
Public to Public		3
Private to Public		2
Private to Private		0
Public Infrastructure at Risk?		
Yes - Large Effect	3	5
Yes - Small Effect		2
No		0
Number of Homes Affected		
Number of Homes	1	n
Erosion Issue?		
Yes	0.5	5
No		0
Green Infrastructure Applicable?		
Yes	0.5	5
No		0
City Priority		
Score Range	3	-5 to +5

Scenario	Low End	High End
Low Cost Estimate	\$6,000	\$50,000
Medium Cost Estimate	\$50,000	\$125,000
High Cost Estimate	\$125,000	\$250,000

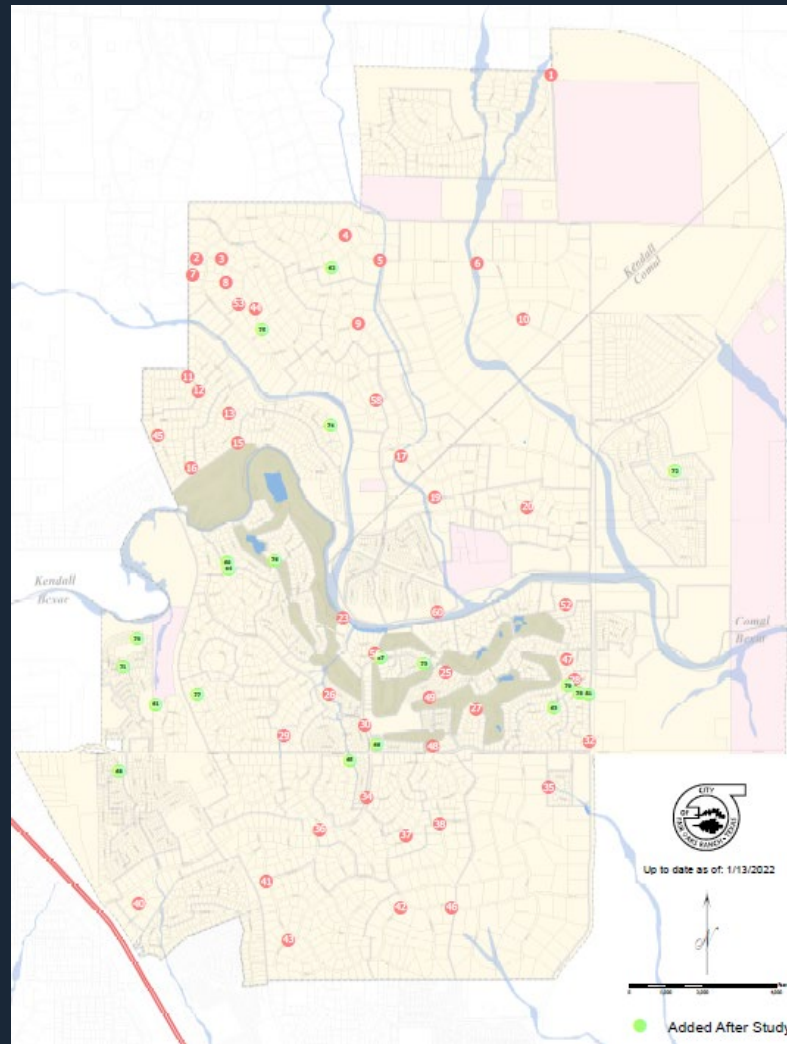
Example Project	
Item	Score
Estimated Cost	2
Source/Destination	6
Public Infrastructure at Risk	15
Number of Houses Impacted	4
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	29.5

Background – 5-Year CIP Prioritization



- “Must Do” Projects
 - Low Water Crossing impacts emergency vehicle access or response
 - Public Infrastructure (Road/Culvert/Utility) at risk of failure
 - Flows from public ROW enters homes and solution is contained within ROW
- “Should Do” Projects
 - Flows from public ROW impacts private property and solution is contained within ROW
 - Low Water Crossings with lower closure frequency
 - Undersized culverts resulting in overtopping of roadway
- “Nice to Do” Projects
 - Solution requires improvements on private property
 - Maintenance related issues

Current Drainage Issues Map*



* As of January 2022

Projects Completed or In-Progress



Turf Paradise - Complete



Silver Spur/Rock Oak Circle - Complete



Rolling Acres Trail LWC - Cash funded, contract awarded



Tivoli Way - Cash funded, in design

Approved 5-Year Drainage CIP



	2023	2024	2025	2026	2027	2028	2029	Total
Drainage 29010 Tivoli Way (Drainage CIP #34)	88,747	1,111,253	-	-	-	-	-	1,200,000
Drainage 7820 Rolling Acres Trail (Drainage CIP #5)	48,883	201,167	-	-	-	-	-	250,050
Drainage 28907 Chartwell Lane (CIP #35)	-	64,829	273,000	-	-	-	-	337,829
Drainage 8622 Delta Dawn (CIP# 15)	-	245,000	-	-	-	-	-	245,000
Drainage 8472 Rolling Acres Trail (CIP# 2)	-	-	68,250	157,500	-	-	-	225,750
Drainage 8040 Rolling Acres Trail (CIP# 4)	-	-	68,250	157,500	-	-	-	225,750
Drainage 7740 Pimlico Lane (CIP# 42)	-	-	114,938	-	-	-	-	114,938
Drainage 7420 Rolling Acres Trail (CIP#6)	-	-	-	114,310	114,310	535,500	535,500	1,299,621
Drainage 8426 Triple Crown (CIP# 41)	-	-	-	-	236,250	-	-	236,250
Drainage 8312 Triple Crown (CIP #43)	-	-	-	-	252,000	-	-	252,000
Drainage 29314 Sumpter Drive (CIP# 32)	-	-	-	-	-	64,920	167,300	232,220
Drainage 32030 Scarteen (CIP# 53)	-	-	-	-	-	64,920	167,300	232,220
Total Drainage	137,630	1,622,249	524,438	429,310	602,560	665,341	870,099	4,851,628

Cash Funded

Requires Debt Funding



Project 35 – 28907 Chartwell Lane

- Channel experiences erosive velocities during storm events. Past efforts to stabilize channel have failed and washed away.
- Plat states City and property owners are responsible for easement maintenance
- Criticality Score: 29.5
- “Must-Do” Project (homes impacted)
- Total Project Cost: \$337,829



Project 35	
Item	Score
Estimated Cost	2
Source/Destination	6
Public Infrastructure at Risk	15
Number of Houses Impacted	4
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	29.5



Project 15 – 8622 Delta Dawn

- Erosion has created a large ravine near the City's sewer lift station. The edge of the ravine is 14 feet away and gets closer after each storm event.
- Erosion Control / Channel Improvements
 - Reinforce channel using erosion control mats or concrete rip rap
 - Widen channel to reduce velocities
- Criticality Score: 29.5
- “Must-Do” Project (public infrastructure at risk)
- Total Project Cost: \$245,000



Project 15	
Item	Score
Estimated Cost	6
Source/Destination	6
Public Infrastructure at Risk	15
Number of Houses Impacted	0
Erosion Issue	2.5
Green Infrastructure Applicable	0
City Priority	0
Total Score	29.5



Project 2 – 8472 Rolling Acres Trail

- Undersized driveway culverts and silted-in bar ditches cause runoff to flow over driveways and across property toward Cibolo Creek
- Criticality Score: 29
- “Must-Do” Project (homes impacted)
- Total Project Cost: \$225,750



Project 2	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	3
Erosion Issue	2.5
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	29



Project 4 – 8040 Rolling Acres Trail

- Drainage does not have positive flow and backs up onto private property. Significant earthwork and channel construction needed to convey stormwater towards low water crossing.
- Criticality Score: 28
- “Must-Do” Project (home impacted)
- Total Project Cost: \$225,750



Project 4	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	6
Number of Houses Impacted	1
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	0
Total Score	28



Project 42 – 7740 Pimlico Lane

- Existing culvert is showing signs of degradation and requires repair or replacement. This location conveys a large amount of stormwater under Pimlico towards Vestal Park.
- Criticality Score: 27.5
- “Must-Do” Project (public infrastructure at risk)
- Total Project Cost: \$114,938



Project 42	
Item	Score
Estimated Cost	10
Source/Destination	9
Public Infrastructure at Risk	6
Number of Houses Impacted	0
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	27.5



Project 6 – 7420 Rolling Acres Trail

- This low water crossing is frequently closed during storm events. The existing culverts are undersized and the roadway is barely above the top of culverts.
- Should be executed in conjunction with the Rolling Acres Trail Reconstruction project
- Criticality Score: 17
- “Must-Do” Project (LWC impacts emergency response)
- Total Project Cost: \$1,299,621

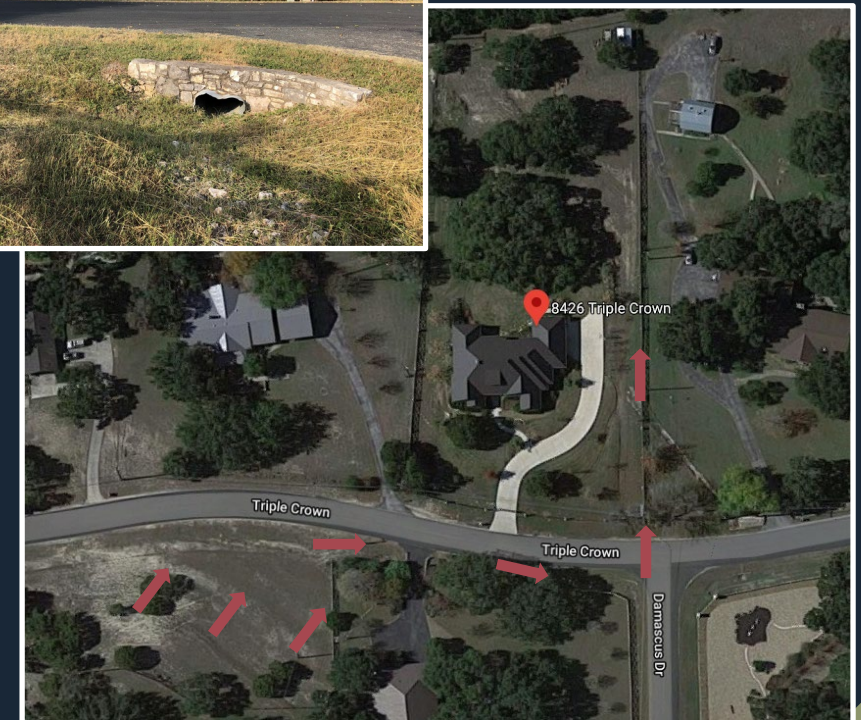


Project 6	
Item	Score
Estimated Cost	2
Source/Destination	15
Public Infrastructure at Risk	15
Number of Houses Impacted	0
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	-15
Total Score	17



Project 41 – 8426 Triple Crown

- Large amount of runoff flows down right-of-way and through a platted easement. Existing culvert is undersized and becomes obstructed and eventually backs up.
- Criticality Score: 22
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$236,250



Project 41	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	1
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	0
Total Score	22



Project 43 – 8312 Triple Crown

- Large amount of runoff moves down Rocking Horse Lane towards the south of the city. There is no channel or culvert to catch and convey stormwater before it enters private property.
- Criticality Score: 22
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$252,000



Project 43	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	1
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	0
Total Score	22



Project 32 – 29314 Sumpter Drive

- Runoff from Fischer's Store and commercial parking lot crosses FM3351 and floods the backyard of homes along Sumpter Drive.
- Future TxDOT road widening and drainage improvements (10+ years out) would eventually replace any City improvements
- TxDOT coordination and Municipal Maintenance Agreement (MMA) required
- Criticality Score: 40.5
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$232,220



Project 32	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	15
Number of Houses Impacted	2
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	40.5



Project 53 – 32030 Scarteen

- Undersized driveway culverts and silted-in bar ditches cause stormwater to back up and flow over driveways and across private property and has come close to entering the home.
- Criticality Score: 24.5
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$232,220



Project 53	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	1
Erosion Issue	2.5
Green Infrastructure Applicable	0
City Priority	0
Total Score	24.5

Other Projects for Consideration



	2023	2024	2025	2026	2027	2028	2029	Total
Drainage Ammann Road LWC (CIP#1)	-	58,039	58,039	532,237	532,237	-	-	1,180,551
Drainage 8402 Battle Intense LWC (CIP# 23)	-	909,148	2,342,872	-	-	-	-	3,252,020
Drainage 31988 Scarteen (CIP# 44)	-	-	-	-	-	-	-	100,000
Drainage 7644 Pimlico Lane (CIP# 46)	-	-	-	-	-	-	-	100,000
Drainage 8045 Flagstone Hill (CIP#63)	-	-	-	-	-	-	-	100,000
Other Recommended Projects								

All other identified drainage issues are “Nice to do” projects (require improvements on private property or in gated communities, or a maintenance related issue).



Project 1 – Ammann Rd LWC

- This project will replace the current undersized culvert with an elevated concrete bridge above the flood stage.
- Should be executed in conjunction with the Ammann Road Reconstruction project
- Criticality Score: 26
- “Must-Do” Project (LWC impacts emergency response)
- Total Project Cost: \$232,220



Project 1	
Item	Score
Estimated Cost	2
Source/Destination	9
Public Infrastructure at Risk	15
Number of Houses Impacted	0
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	0
Total Score	26



Project 23 – 8402 Battle Intense

- Battle Intense is often overtopped and shut down during large rain events. Debris collects and blocks the culverts which contributes to flooding. An elevated bridge structure is necessary to raise the road elevation and convey stormwater under the road.
- Criticality Score: 17
- “Must-Do” Project (LWC impacts emergency response)
- Total Project Cost: \$3,252,020



Project 23	
Item	Score
Estimated Cost	2
Source/Destination	15
Public Infrastructure at Risk	15
Number of Houses Impacted	0
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	-15
Total Score	17



Project 44 – 31988 Scarteen

- Runoff from Sky Blue Ridge runs down road and heads in direction of home. Channel improvements and regrading needed.
- Criticality Score: 28.5
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$100,000



Project 44	
Item	Score
Estimated Cost	10
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	1
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	28.5



Project 46 – 7644 Pimlico Lane

- Large amount of runoff flows over the road and through private property towards Salado Creek.
- Criticality Score: 28.5
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$100,000



Project 46	
Item	Score
Estimated Cost	10
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	1
Erosion Issue	0
Green Infrastructure Applicable	2.5
City Priority	0
Total Score	28.5



Project 63 – 8045 Flagstone Hill

- Water does not have a clear flow path along the street and makes it way through nearby yard. Regrading and culvert installation needed.
- Criticality Score: 21
- “Should-Do” Project (overtops roadway, impacts private property)
- Total Project Cost: \$100,000

Project 63	
Item	Score
Estimated Cost	6
Source/Destination	15
Public Infrastructure at Risk	0
Number of Houses Impacted	0
Erosion Issue	0
Green Infrastructure Applicable	0
City Priority	0
Total Score	21





Discussion

- Do you agree with the proposed projects?
 - Are there any projects to add or remove?
 - Is the timing logical?
 - Are the cost estimates reasonable?
 - Do you need additional info or analysis?
-
- Are you comfortable recommending these projects be included in the upcoming 2024 bond program?



Backup

Legal Considerations Regarding Private Property



- City has no obligation to address flooding or erosion hazards on private property
 - Property owners or HOAs are normally responsible for maintenance
 - The existence of drainage easements does not obligate the City
 - Any work done by the City on private property must be done for a public benefit
- Obtaining authority needs careful consideration
 - Requires written consent and waiver of liability, often from many property owners if drainage issue crosses multiple property lines
 - Some property owners have purposely filled in easements, or built gardens, sheds, fences or other obstructions in easements
 - May requires reimbursement of city's costs or cost-sharing arrangement