

Public Works
STAFF REPORT



SUBJECT: Drainage and Stormwater Discussion
MEETING: Public Works Committee Meeting – 21 FEB 2023
DEPARTMENT: Public Works
STAFF CONTACT: Nick Williams

BACKGROUND:

City of Stephenville Drainage and Stormwater policies and criteria are found in Section 155.6.15. of the Subdivision Ordinance and Part IV of the Engineering Standards Manual (ESM).

A primary objective when developing the ESM was to “Establish and implement drainage policy and criteria to ensure new development does not create or increase flooding problems, cause erosion or pollute downstream water bodies.”

Stormwater and drainage principles in the ESM are based the Regional *integrated* Stormwater Management (iSWM™) Criteria Manual for Site Development and Construction, developed by the North Central Texas Council of Governments (NCTCOG), including Local Provision modifications, as a framework for protecting people and property by incorporating stormwater management into the site development and construction process.

DISCUSSION:

As part of development, drainage related plans and analysis are completed in accordance with iSWM Criteria. Drainage reviews are completed by an independent, third-party consultant as part of the civil plan review process to help ensure no unacceptable adverse impacts are created by the development or re-development of a property such as blocking the flow of water that was present prior to development or creating additional flows of water from the development.

To assist engineers working for developers, staff, as a policy, is assembling a checklist to summarize civil plan set and drainage analysis submittal requirements for development projects. In addition to a submittal checklist, a standard spreadsheet tool is being developed for use by developer’s engineers. The intent of the tool is to facilitate the comparison of pre-development and post-development conditions, including increases/decreases in imperviousness, stormwater discharge rates, and runoff velocities. The spreadsheet tool will create a consistent format for submittal resulting in decreased review times and will assist engineers as a check prior to submitting for review and approval.

The current Stormwater CIP Cost Summary, updated in 2022, has identified over \$53 million in short-term, intermediate, and long-term projects to address existing areas of drainage and flooding concern. Stormwater management criteria, incorporated into the site development process, helps keep this CIP cost from increasing significantly.

REFERENCES:

Subdivision Ordinance: Section 155.6.15. – Drainage and Storm Water

https://library.municode.com/tx/stephenville/codes/land_use_and_zoning?nodeId=TITXVLAUS_CH155SU_S6SUDEST_S155.6.15DRSTWA

Engineering Standards Manual: Part IV – Drainage

https://www.stephenvilletx.gov/sites/default/files/fileattachments/public_works/page/29169/engineering-standards-manual-2018_01-02-adopted.pdf



Table 3
Stormwater CIP Cost Summary
2022 Update



Project Ranking	Project Name	2021 Cost	June 2022 Cost ⁽¹⁾
Short-Term Projects			
1	Graham Ave Culverts	\$ 430,000	\$ 640,000
3	Moonlight Tr Drainage Improvements	\$ 230,000	\$ 350,000
3	Belknap Subbasin Channel Improvements	\$ 290,000	\$ 420,000
5	Rowland Ave / Frey St Drainage Improvements	\$ 1,670,000	\$ 2,520,000
6	Methodist Branch Storm Drain Extension Phase 1	\$ 1,440,000	\$ 2,190,000
8	Prairie Wind Channel Improvements	\$ 450,000	\$ 690,000
10	Spring Bouquet Drainage Improvements	\$ 1,670,000	\$ 1,870,000
13	Dale Ave Drainage Improvements	\$ 730,000	\$ 1,110,000
23	Swan St Culvert Improvements	\$ —	\$ —
Short-Term Total		\$ 6,910,000	\$ 9,790,000
Intermediate Projects			
2	Rowland Channel Improvements Option 1: Buyouts	\$ 1,580,000	\$ 2,450,000
7	Pecan St / Graham Ave Drainage Improvements Phase 1	\$ 2,100,000	\$ 3,190,000
9	Hyman St Alexander Rd Drainage Improvements	\$ 660,000	\$ 790,000
14	Northwest Loop Drainage Improvements	\$ 1,540,000	\$ 2,330,000
14	Elm St / Graham Ave Drainage Improvements Phase 1	\$ 1,920,000	\$ 2,920,000
16	Prairie Wind Culvert and Outfall Improvements	\$ 1,150,000	\$ 3,610,000
17	Old Hico Rd Drainage Improvements	\$ 660,000	\$ 992,500
18	Methodist Branch Storm Drain Extension Phase 2	\$ 1,690,000	\$ 2,560,000
Intermediate Total		\$ 11,300,000	\$ 18,842,500
Long-Term Projects			
11	Second Ave / Alexander Rd Drainage Improvements	\$ 3,890,000	\$ 2,410,000
11	Lingleville Rd Drainage Improvements	\$ 2,720,000	\$ 4,130,000
18	Pecan St / Graham Ave Drainage Improvements Phase 5	\$ 1,530,000	\$ 2,320,000
20	Crow St / Long St Drainage Improvements	\$ 650,000	\$ 980,000
21	Pecan St / Graham Ave Drainage Improvements Phase 4	\$ 1,080,000	\$ 1,620,000
21	Pecan St / Graham Ave Drainage Improvements Phase 3	\$ 1,350,000	\$ 2,050,000
24	Lockhart Rd Culvert Improvements	\$ 330,000	\$ 490,000
25	Pecan St / Graham Ave Drainage Improvements Phase 2	\$ 1,770,000	\$ 2,690,000
25	Tarleton St / Rowland Ave Drainage Improvements Phase 1	\$ 1,690,000	\$ 2,570,000
27	Tarleton St / Rowland Ave Drainage Improvements Phase 2	\$ 1,150,000	\$ 2,180,000
28	Elm St / Graham Ave Drainage Improvements Phase 2	\$ 2,110,000	\$ 3,180,000
Long-Term Total		\$ 18,270,000	\$ 24,620,000
Stormwater CIP Total		\$ 36,480,000	\$ 53,252,500

Note: The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided are based on the information known to the Engineer at this time and represent only the Engineer's judgment as a professional familiar with the industry. The Engineer cannot and does not guarantee the proposals, bids, or actual construction costs will not vary from its opinion of probable costs.

¹ Assumes a 114% increase in costs per ENR Building Cost Index (BCI) for 2021 and June 2022.