

CITY OF VICTORIA DRAINAGE MASTER PLAN UPDATE STAKEHOLDER PRESENTATION

January 12, 2021

CivilTech
Engineering, Inc.

Outline

- Team and Stakeholder Introductions
- History of Drainage Master Plan
- Proposed Study Update
- Scope of Work
 - Priority One: Independent Study Areas
 - Priority Two: Drainage Criteria Manual Update
 - Priority Three: Storm Sewer System Evaluation
 - Priority Four: Roadside Open Ditch Evaluation
 - Priority Five: Major Outfalls
- Sample of Preliminary Results
- Stakeholder Input

Introductions

- City of Victoria
 - Ken Gill, P.E., Director of Public Works/City Engineer
 - Jesús Garza, City Manager
 - Mike Etienne, Assistant City Manager
- Consultant Team
 - Melvin Spinks, P.E., Program Director, CivilTech Engineering, Inc.
 - Mike McGovern, P.E., Project Manager, CivilTech Engineering, Inc.
 - Ray Bridges, P.E., Deputy Project Manager, Urban Engineering, Inc.
- Stakeholders
 - Name, Company & Affiliation

History of Drainage Master Plan

- First Storm Drainage Master Plan in 1982 by Urban Engineering, Inc.
- Storm Drainage Master Plan and Drainage Criteria Manual in 1999 and 2007 (Updates) by PBS&J
 - Proposed Improvements to Reduce Flooding Complaints
 - Completed Major Drainage Projects
 - West Outfall Phase I and II
 - Lone Tree Creek Detention Basins
 - Lone Tree Creek Improvements
 - Northcrest Drainage Improvements

Proposed Study Update

- CivilTech Engineering, Inc. and Urban Engineering, Inc.
- Study Time: September 16, 2020 – April 30, 2021
- Scope of Work - Five Priorities
- Deliverables



Scope of Work – Priority One through Priority Five

Priority One – Independent Study Areas

- 1) Select up to 30 Parcels for Study (Drainage Needs)
 - Use 2020 Victoria Land Use Study (Verdunity Land Use and Fiscal Analysis) to identify parcels
- 2) Identify future land use, floodplain fill and detention needs for each parcel
- 3) Determine outfall drainage needs for each parcel
- 4) Prepare preliminary drainage design concepts and costs
- 5) Provide a technical document for each parcel

Priority Two – Drainage Criteria Manual Update

- 1) Update detention policy and detention design procedures in Drainage Criteria Manual
- 2) Review detention policies and design procedures for other Texas cities
- 3) Examine establishing new detention rates and design procedures based on development size
- 4) Provide an analysis to demonstrate new NOAA Atlas 14 (2018) precipitation values on peak runoff rates and detention storage requirements
- 5) Prepare a technical memorandum

Priority Three – Storm Sewer System Evaluation

- 1) Compute drainage flow paths and ponding depths using ArcHydro GIS modeling
- 2) Perform a 100-year sheet flow analysis using HEC-RAS 2D Rain-On-Grid
- 3) Perform a level of service analysis for the existing storm sewer systems in the City
- 4) Provide pipe capacity charts for full flow and partially block pipes ($\frac{1}{4}$ blocked, $\frac{1}{2}$ blocked, $\frac{3}{4}$ blocked)
- 5) Prepare cost estimates for storm sewer maintenance such as televising and cleaning storm sewers
- 6) Prepare cost estimates to replace all pipes under 18-inch diameter with 24-inch pipes
- 7) Prepare a technical memorandum

Priority Four – Roadside Open Ditch Evaluation

- 1) Identify miles of roadside ditches in residential areas and along arterial/collector streets in the City
- 2) Document examples of silt and its effects in roadside ditches
- 3) Provide ditch capacity charts for full flow and partially block ditch sections ($\frac{1}{4}$ blocked, $\frac{1}{2}$ blocked, $\frac{3}{4}$ blocked)
- 4) Prepare cost estimates for ditch maintenance such as reshaping and replacing driveway culverts

Priority Five – Major Outfall Channels

- 1) Identify miles of open channels and outfalls (grass and concrete lined)
- 2) Drone video channels to perform a condition assessment for maintenance needs such as de-silting and concrete lining failures
- 3) Identify on a GIS layer the proposed ROW requirements for the proposed channel improvements identified in the current Storm Drainage Master Plan
- 4) Evaluate channel reaches where channel improvements could reduce floodplain widths
- 5) Prepare cost estimates for channel maintenance such as cleaning or reshaping, concrete lining replacements
- 6) Prepare cost estimates for channel improvements

Jim Branch Outfall to N. Ben Jordan St.



2D 100-Year Storm Overland Flow Animation



Study Timeline

- **Priority One:** Independent Study Areas - Complete by 2/19/2021
- **Priority Two:** Drainage Criteria Manual Update – Complete by 2/26/2021
- **Priority Three:** Storm Sewer System Evaluation – Complete by 2/26/2021
- **Priority Four:** Roadside Open Ditch Evaluation – Complete by 2/19/2021
- **Priority Five:** Major Outfalls – Complete by 2/19/2021
- **Draft Report** - Complete by 3/26/2021
- **Final Report** – Complete by 4/30/2021

Stakeholder Input

- 1) Drainage Problem Areas
- 2) Detention Criteria
- 3) Drainage Improvement Needs
- 4) Other Issues

Send comments or questions:

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Future Updates

- City of Victoria Web Site
(<https://www.victoriatx.gov/754/Drainage-Master-Plan>)
- Next Stakeholder Meeting

DRAINAGE MASTER PLAN UPDATE

QUESTIONS

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