City of Fort Worth
Master Drainage Planning
Public Works Roundup
May 23, 2018

Presented by:
Jennifer Dyke, CFM
Transportation & Public Works Dpt. / Stormwater Division, Sr. Planner
Agenda

• Program Background
• Drainage Master Planning
  • Master Plan Update
  • Prioritization Tools
Stormwater Program Background
Fort Worth Strategic Goals

• Be the Nation’s Safest City
• Improve Mobility and Air Quality
• Create and Maintain a Clean & Attractive City
• Strengthen Economic Base, Develop Workforce, Create Quality Jobs
• Promote Orderly and Sustainable Development
Stormwater Mission

Protect people and property from harmful stormwater runoff
What We Do

• **Maintain** system such as pipes, channels, etc.
• **Mitigate** hazards through capital projects
• **Warn** community of hazards
• **Review development** for compliance with City standards
Drainage Master Planning
Understanding Citywide Drainage Needs

• What does the community need?
  • City perspective
  • Community perspective

• How do we prioritize community needs?
Internal Assessment of Community Needs

• Stormwater Program Staff
  • Lessons learned & gaps/needs assessment
  • Evaluate current situation, roles & objectives
  • Identify major unknowns/drivers of change

• Other City Departments

• Perform internal assessment

• Look at what others are doing
Peer Community Review

• ~100 Questions
• Validated our internal assessment
• Learn from others
• Informed the planning process
Understanding Community Perspective

What Does the Community Want?
Master Plan Stakeholder Engagement

• Council Appointed (9 members)
• Ad Hoc Members (8 members)
• Formal Meetings with Polling Questions
• Informal Meetings
• Phone Calls
• Emails
Master Plan
Stakeholder Polling

Fort Worth should address issues of flooding risk in local floodplains.

60% Strongly Agree
30% Agree
10% Disagree
0% Strongly Disagree
0% Not Sure

Before this meeting, did you know the City of Fort Worth had a stormwater fee?

0% 1. No, unfamiliar with the fee
67% 2. Yes, but do not know the amount
33% 3. Yes, I know the exact fee that I pay

Fort Worth should have a voluntary buyout program for flood prone or erosion threatened properties.
Master Plan Public Engagement

- Open stakeholder meetings
- Verbal & written comments
- Website
- Notification via emails, electronic newsletters & NextDoor social media

http://fortworthtexas.gov/StormwaterMasterPlanUpdate/
Community Assessment

- ~2,000 completed surveys
- Stormwater is in the middle in terms of overall city service satisfaction
- Traffic, streets, & public safety (fire & police) are the most important city services
Master Plan Update
Major Outcomes

- Maintenance Program
- Mitigation Program
- Warning Program
- Development Review Program
- Policy Needs
Maintenance Program Major Outcome

- Increase emphasis on storm drain rehabilitation
Mitigation Program Major Outcomes

- Refine project prioritization
- Emphasize smaller project execution
- Seek partnerships and evaluate phaseability for larger projects

Multi-Use Detention Basin & Athletic Field at Eastern Hills Elementary School- Partnership with Fort Worth ISD
Warning Program Major Outcomes

• **Flood hazard warning**
  - Real-time and reliable warnings
  - Public awareness of flood threat
  - Timely information for response
  - Post-flood assessment
  - Refine our Standard Operating Procedure

• **Erosion hazard warning**
  - Educational tool to avoid highly erosive areas
Development Review Program
Major Outcomes

• Maintain the current level of review

• Evaluate potential regulation revisions for flood prone areas
Key Policy Needs

• Local Floodplains
• Private Property Channel Erosion
• Voluntary Buyout Program
• Level of Review for Private Development
Local Floodplain Policy

For flood hazards that exist beyond the limits of FEMA floodplains:

• Mapping
• Communication
• City’s regulatory stance
How Do We Prioritize Community Needs?
Documented Flooding Incidents Tool

- Rescue
- Structure Flooding
- Car Stalled
- Road Overtop
Citywide Areas of Potential High Water Tool

- **FEMA Floodplain**
- **Potential High Water**
Citywide Pipe Capacity Tool
 Infrastructure Criticality Tool

Consequence of Failure x Probability of Failure = Criticality
Drainage Area Prioritization Tool
Citywide Erosion Hazard Potential Tool

Higher Erosion Potential

Lower Erosion Potential

Erosion Potential in the Cottonwood Creek Watershed
Stream Crossing Inventory / Roadway Hazard Assessment Tool

~300 crossings reviewed
Capital Project Prioritization Tool

- Objective decision-making
- Transparent decision-making
- Risk-based metrics
- Database improves information access
**Maintenance Project Prioritization Tool**

### TPW Stormwater Channel Rating Form

**Channel Name:**

**Address:**

**Council District:**

**Mapsco:**

**Date:** 01/24/2017

**Inspected By:** Karla Morales

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>SCORING</th>
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<tbody>
<tr>
<td></td>
<td>LOW 1 2 3 4 5</td>
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<tr>
<td>Sedimentation</td>
<td></td>
</tr>
<tr>
<td>Sedimentation condition</td>
<td>2</td>
</tr>
<tr>
<td>Sediment movement</td>
<td>2</td>
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<tr>
<td>Blockage/Clogging</td>
<td>2</td>
</tr>
<tr>
<td>Trash/Debris</td>
<td>3</td>
</tr>
<tr>
<td>Erosion</td>
<td></td>
</tr>
<tr>
<td>Erosion Bank &amp; Channel stability</td>
<td>3</td>
</tr>
<tr>
<td>Bank cutting</td>
<td>4</td>
</tr>
<tr>
<td>Vegetation</td>
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<tr>
<td>Vegetation condition</td>
<td>2</td>
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<tr>
<td>Vegetative Bank protection</td>
<td>1</td>
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<tr>
<td>Property Damage</td>
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</tr>
<tr>
<td>Flooding roads</td>
<td>1</td>
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<tr>
<td>Flooding of Private structures</td>
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</tr>
<tr>
<td>Utility Asset Damage</td>
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<tr>
<td>Structural Components (Channel concrete condition)</td>
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**Scoring Total:** 28

### Channel Type

<table>
<thead>
<tr>
<th>CHANNEL TYPE</th>
<th>1.1</th>
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<tr>
<td>Earthen Maintained</td>
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<tr>
<td>Concrete</td>
<td>1.25</td>
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<tr>
<td>Earthen Unmaintained</td>
<td>1.6</td>
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### Location

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>1.1</th>
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<tbody>
<tr>
<td>Adjacent Property</td>
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### Priority Level Scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Priority Level</th>
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<tbody>
<tr>
<td>&gt; 50</td>
<td>High Priority Work Order</td>
</tr>
<tr>
<td>&gt;30 and &lt;50</td>
<td>Low Priority Work Order</td>
</tr>
<tr>
<td>&gt;28 and &lt;30</td>
<td>Reactive Maintenance</td>
</tr>
<tr>
<td>&lt;27</td>
<td>Routine Maintenance</td>
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### Condition Rating Scale

<table>
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<th>Condition Rating</th>
<th>Description</th>
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<tbody>
<tr>
<td>1 = Good</td>
<td></td>
</tr>
<tr>
<td>2 = Okay</td>
<td></td>
</tr>
<tr>
<td>3 = Fair/Degraded Condition</td>
<td></td>
</tr>
<tr>
<td>4 = Poor/In need of Attention</td>
<td></td>
</tr>
<tr>
<td>5 = Failure/Worst Condition</td>
<td></td>
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</table>
Wrap Up
Drainage Master Planning- Wrap Up

• Have an adopted/approved plan in place!

• Utilize Master Plan & Tools to Prioritize Decision Making
  • Planning, Projects, Initiatives

• Continue Community Engagement to Understand Community Wants
  • Stakeholder Group
  • Small Policy Implementation Working Groups

*Position the program to more effectively respond in the future*
Questions

For More Information:
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