Briar Brach Watershed Improvements
A Series of Projects Reshaped by Atlas 14
March 10, 2022

Agenda
• Background: Briar Branch Area Flooding
• Problem Statement
• Original Project Solution
• Hurricane Harvey and Atlas 14
• Response: Solution Upgrades
• Questions

Background: Briar Branch Project Area
Background: Briar Branch Project Area

Location Map

Background: Briar Branch Area Flooding History

Rain Gauge Locations

Annual Exceedance Probability for Recent Storms

<table>
<thead>
<tr>
<th>Period</th>
<th>2-Year</th>
<th>5-Year</th>
<th>10-Year</th>
<th>25-Year</th>
<th>50-Year</th>
<th>100-Year</th>
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Solution
Concept
Channel Improvements to Lower WSEL in Channel

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Solution
Concept
Channel Improvements Construction to Lower WSEL in Channel
3 Key Project Components:

- Channel Improvements – Lower WSEL in Channel
- Detention Pond – Mitigate Downstream Flow Increases
- Conveyance Improvements – Better Storm Community

- Total Detention Volume: 68 Ac-Ft
  - Detention Basin: 44 Ac-Ft
  - Channel Enclosure: 24 Ac-Ft

- Targeted Level-Of-Service: 10-Year Pre-Atlas 14
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  • Detention Pond – Mitigate Downstream Flow Increases
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• Targeted Level Of Service: 10-Year Pre-Atlas 14

<table>
<thead>
<tr>
<th>Region</th>
<th>Hurricane Harvey</th>
<th>Pre-Atlas 14</th>
<th>Atlas 14</th>
<th>Change %</th>
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<tr>
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<td>5.1</td>
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<td>Clear Creek</td>
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<tr>
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• Hurricane Harvey
  • Relocated interest in additional improvements

• Atlas 14
  • Calculation Adjustment Cases
Response to Harvey and Atlas 14

- Policy Change: Owner Established Flood Mitigation
  - Owner to own flood mitigation
- Policy Change: Improve Project Area Level of Protection
  - Improve project area level of protection
- Policy Change: Pumped Detention an Option
  - Pumped detention as an option
**Solution Response**

**Pumped Detention**

- **Detention Basin Deepening**
  - Lowered Basin Floor: 10.6 feet
  - Original Basin Volume: 44 Ac-Ft
  - Added Basin Volume: 29 Ac-Ft
  - 66% Increase
  - New Detention Total: 73 Ac-Ft

**Pump Information:**
- Two - 3,270 GPM Submersible Pumps (9 cfs each)
- Drain basin only when Briar Branch is low enough to accept flows.

**Improved Conveyance**
• Significant and Frequent Flooding can Influence Public Policy
  • City of Houston Accepting Pumped Detention
  • TIRZ 17 Focus Shift from Mobility to Drainage
• It Pays to Plan Ahead for Future Conditions
  • Adjustable Weir
• Atlas 14 Impacts on Historical Project Benefits
QUESTIONS?

March 10, 2022

TFMA Briar Branch Watershed Improvements