Success Story: City of London Whitley Branch Drainage Improvement Project

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City of London
The Problem

• Residences on North Mill Street around Sycamore Street were experiencing severe flooding
• Two houses were acquired & demolished by the City to eliminate repetitive flooding and black mold hazards
• Several area businesses had substantial losses during Whitley Branch flood events
• Sewer Plant on Lagoon Trail was designed to handle 15 million gallons of sewer waste and water. On a normal day the plant took in around 2.4 million gallons of sewage, but during a 2.0 inch rain event, the plant’s intake was over 12.4 million gallons of sewer and water
Severe Flooding at Sycamore and N. Mill St
Mill Street History

• The original drainage system along Whitley Branch was installed in the 1920’s when the railroad ran through London on what is now North and South Mill Street.

• After the decision to move the railroad to East London, blacktop was laid in place of the railroad and Mill Street was born.

• In the late 1970’s London started to rapidly expand, adding commercial buildings with blacktop or concrete parking lots and building more residences along Whitley Branch.
Location

• Whitley Branch is a relatively small stream that begins at its confluence with the Little Laurel River and ends near downtown London. Whitley Branch runs along Mill Street and also down Dixie Street and US 25 South to Commercial Drive and then goes under the CSX Culvert and connects with Little Laurel River.

• Whitley Branch is responsible for transporting the majority of surface water out of the City and into Little Laurel River. There are several conveyance structures within Whitley Branch such as culverts and small bridges.
According to NOAA’s Hydrometeorological Design Studies Center on Precipitation Frequency in Kentucky, the damages below were based on less than a 1 year flood (Average 1.5 to 2.0 inches per 24 hour period). During a 2, 5, 10 or 25 year flood event the town could be devastated by the flooding of Whitley Branch.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Damages</th>
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</thead>
<tbody>
<tr>
<td>July 1978</td>
<td>Southeastern Farm Supply</td>
<td>$14,100</td>
</tr>
<tr>
<td>June 1989</td>
<td>Southeastern Farm Supply</td>
<td>$25,000</td>
</tr>
<tr>
<td>August 2003</td>
<td>Southeastern Farm Supply</td>
<td>$38,500</td>
</tr>
<tr>
<td>November 2004</td>
<td>SEFS, ITB Company, Gilpin Construction</td>
<td>$216,543</td>
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<tr>
<td>August 2008</td>
<td>Acquisitions/Demolitions</td>
<td>$123,800</td>
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<tr>
<td>May 2009</td>
<td>SEFS, ITB</td>
<td>$66,300</td>
</tr>
<tr>
<td>Ongoing Up to 2011</td>
<td>Sewer Line Replacement</td>
<td>$571,910</td>
</tr>
<tr>
<td><strong>Total Damage History</strong></td>
<td></td>
<td><strong>$1,056,153</strong></td>
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The proposal was to work in four areas to alleviate the flooding:

Site 1 - Mill & McKee: Replace 36” RCP with (2) 42” HPB and poured in place junction boxes.
Site 2 - Mill & 5th: Replace 48” RCP with (2) 48” RCP
Site 3 - Dixie Street: Replace 2 60” CMP
Site 4 – Armory Street: Replace existing box culvert

Total Estimated Costs: $655,000
Proposal Revision

• While the application was under review at FEMA, the City mitigated sites 3 & 4, by replacing a small bridge that was causing water to back up. The cost of this bridge replacement at Nevada Street was $220,000.00.

• FEMA approved the request to allow the grant to be used solely at sites 1 & 2.
Before
Construction
After
Before
Before
Construction 5th and Mill Street
After
Before
Flow-able Fill
Construction 5th and Mill Street
Construction 5th and Mill Street
After
After
After
Site One Const.
Site One Const.
FLOOD to FLOW