SAVING GOODBYE TO THAT LAST SSO
FAIRFIELD BACKGROUND

- Established 1955
- Rapid Population Growth
  - 1960: 9,726
  - 1970: 14,680
  - 1980: 30,777
  - 1990: 39,729
  - 2000: 42,091
  - 2010: 42,510
WASTEWATER SYSTEM HISTORY

- New 2 MGD treatment plant and interceptors constructed in 1967
- Plant expansion to 5 MGD and additional interceptors constructed in 1977
- Minor plant improvements and expansion to 6 MGD – Late 1980s
- Plant expansion to 10 MGD constructed in mid 1990s

- WET WEATHER FLOW ISSUES BECOME SIGNIFICANT – Mid 1980s
WET WEATHER FLOW ISSUES

- Sanitary Sewer Overflows (SSOs)
- Sewer Line Surcharging
- Basement Flooding
- Bypass Flows at Wastewater Plant
- Illegal Connections
FAIRFIELD PRO-ACTIVE APPROACH

- Collection system I/I mitigation (late 1980s)
- Public awareness program – brochures and video
- Unauthorized connection program
- Sewer line cleaning
- Sewer line video inspection
- Annual sewer line rehab contracts
- GIS mapping and data collection
PLANNING TO MITIGATE WET WEATHER

- Flow monitoring studies 1990 and 1993
- Wastewater system expansion studies
- Alternatives analysis
  - Construct parallel interceptors, wet weather storage at plant
  - Construct wet weather relief interceptors, pump to plant, wet weather storage at plant
  - Construct parallel interceptors, in system wet weather storage and pumping
WET WEATHER PROGRAM DESIGN

- Wet weather relief sewers
  - 3.2 miles of sewers
- 25 MGD wet weather pumping station
  - Dry weather / low flow pumps and 16” force main
  - Wet weather pumps and 36” force main
  - 4.6 miles of force main
- 9 MG wet weather storage at WWTP – flow equalization

$25 Million Improvements
AND NOW THE LAST SSO
1. Review Existing Data
2. Flow Monitoring
3. Calibrate Hydraulic Model
4. Develop and Evaluate Alternatives
5. Select Best Alternative Solution
REVIEW EXISTING DATA
FLOW MONITORING

SSO
## Flow Monitoring

### Flow Monitoring Data Summary

<table>
<thead>
<tr>
<th>Monitor Location</th>
<th>Average Daily Dry Weather Flow (gpm)</th>
<th>Peak Hourly Wet Weather Flow (gpm)</th>
<th>Wet Weather Peaking Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor 1 – Ross</td>
<td>44</td>
<td>196</td>
<td>4.5</td>
</tr>
<tr>
<td>Monitor 2 – Devonian</td>
<td>11</td>
<td>60</td>
<td>5.5</td>
</tr>
<tr>
<td>Monitor 3 – Woodridge</td>
<td>132</td>
<td>219</td>
<td>1.7</td>
</tr>
</tbody>
</table>

### Rainfall Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Rainfall Amount (Inches)</th>
<th>Rainfall Duration (Hours)</th>
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<tbody>
<tr>
<td>March 31, 2016</td>
<td>0.63</td>
<td>24</td>
</tr>
<tr>
<td>April 11, 2016</td>
<td>1.11</td>
<td>12</td>
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<tr>
<td>April 22, 2016</td>
<td>0.65</td>
<td>1.5</td>
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<tr>
<td>May 2, 2016</td>
<td>0.31</td>
<td>6</td>
</tr>
<tr>
<td>June 15, 2016</td>
<td>0.95</td>
<td>1.5</td>
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</tbody>
</table>
CALIBRATE HYDRAULIC MODEL
DEVELOP AND EVALUATE ALTERNATIVES
1. Construct diversion manhole upstream of existing SSO

2. Dry weather flow to be diverted to Woodridge Boulevard

3. Wet weather flow to be split between Woodridge Boulevard and Ross Road sewers
DIVERSION MH (1) TO MH 2 – INCLUDING BORE & JACK
MH 3 TO MH 4 TO TIE-IN POINT – INCLUDING ROAD CROSSING
CONSTRUCTION
CONSTRUCTION
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Videos:
• Normal flow operation
• High flow operation
• November 5, 2017
  • Approximately 2.25-inches over 4.5 hours
• No reported issues
  February 20-25, 2018
COSTS & BENEFITS

- **Modeling; Alternative evaluation; Design; Permitting:**
  - $57,000

- **Construction:**
  - $215,000

- **Benefits:**
  - Elimination of last known SSO; protection of public health and the environment; demonstration of commitment to compliance