Innovative Public-Private Partnership for Removing Clean Water from Sanitary Sewers

Presented by:

Todd Danielson, Avon Lake Regional Water

Jerry Rouch, Ohio EPA Division of Environmental and Financial Assistance
Once upon a time…

City official setting goals as ‘stewards of the water’

Published: Friday, February 25, 2011

By MEGAN ROZSA
mrozsa@MorningJournal.com

AVON LAKE — Todd Danielson’s life revolves around water, so when he heard Avon Lake was looking for a new Municipal Utilities chief, Danielson jumped at the opportunity.

He joined the city in November, replacing former chief John Kniepper.

Danielson, a Maine native, spent the past 15 years living and working in Loudoun County, Virginia.
But life isn’t perfect...

Avon Lake to host sewer flooding meeting

Published: Thursday, March 24, 2011

ALMU removing storm water sources into sanitary sewers to prevent flooding
Filed by bwrotten May 8th, 2011 in News.

Pilot program offered in Avon Lake to disconnect foundation drains

Published: Thursday, September 15, 2011, 12:08 PM   Updated: Thursday, September 15, 2011, 3:47 PM

Officials: Sewers worked properly
Filed by bwrotten September 22nd, 2011 in News.

Meetings on flooding set in Avon Lake

Published: Friday, November 11, 2011, 12:25 PM

ALMU asking for homeowners’ help get storm water out of sanitary sewers
Filed by bwrotten December 8th, 2011 in News.
But we were determined...
But we were determined...

What's the definition of insanity?

Doing the same thing over and over and expecting different results.
But we were determined...

Quality of life + likelihood of success

\[ f(\text{types of Qs, } \angle \angle \angle \angle) \]
But we were determined...

Sunset Road Storm Water Source Survey
Rainfall Simulation Testing Services
Sunset Road

Introduction
The City of Avon Lake, like other Ohio communities experienced severe and intense rain events that contributed to the flooding of basements and properties in various areas of the city. The new state of Ohio annual rainfall record was officially established on Monday, at 4:53 p.m. on Dec. 5. The new record of 70.83 inches of rain/melted snow was recorded in Ohio. This breaks the previously record established 141 years ago. The old state record of 70.82 inches was measured in 1870. Since December 5th, moderate to severe rain events continue to inundate most communities and storm water runoff produces new flooding conditions that were not reported in past years.
And we learned...

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Sunset Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street:</td>
<td>Sunset Rd.</td>
</tr>
<tr>
<td>Date Tested:</td>
<td>10/31/2013</td>
</tr>
<tr>
<td>Leak Type:</td>
<td>Storm</td>
</tr>
<tr>
<td>Leak Scale 1-10</td>
<td># 7</td>
</tr>
<tr>
<td>Investigation Crew:</td>
<td>EK4/JH</td>
</tr>
<tr>
<td>Community:</td>
<td>Avon Lake</td>
</tr>
<tr>
<td>Address:</td>
<td>264</td>
</tr>
<tr>
<td>Test Type:</td>
<td>Rainfall Simulation</td>
</tr>
<tr>
<td>Project Task:</td>
<td>Residential</td>
</tr>
<tr>
<td>Leak Observed:</td>
<td>Lateral (cctv)</td>
</tr>
<tr>
<td>Site Location:</td>
<td>West side</td>
</tr>
</tbody>
</table>

Simulation Results:
- Downspout Type: Splashed
- Total DS Tested: 5
- Lateral Results: OK
- Area Drain: OK
- Overall Finding: FAILED TEST
- Leak Isolated: Footer
- CCTV Operator: Miller/Avon Lake
- Tributary Area: Residential

[Image: Project information and related images]
We embarked on a new path...
We embarked on a new path…

Opinions

Keeping the poop out of Lake Erie

Ever seen a piece of trash on the beach that’s so inappropriate, you can’t believe it’s sitting on a beach? Who would leave that there? Chances are, it wasn’t left there by a human. It washed up on the shore. That’s what can happen when sewers overflow, spilling wastewater flushed from homes straight into Lake Erie. “What?” you ask. “That happens?” Yes, it still happens today — here, and in cities all over the country — because we are all still living with outdated sewer lines that were built before modern sewer line construction and before the creation of the EPA.

The main reason sewers overflow in Avon Lake (and in many other cities) is, ironically, excessive clean water. Usually from rains, this water quickly fills the sanitary and/or combined sewers, causing them to overflow into a local water body — in this case, Lake Erie. Starting in the 1950s, the city of Avon Lake installed combined sewers to provide both sanitary and storm drainage. That’s just the way it was done then. The 1972 Clean Water Act changed everything and set the framework for the current standards. Since then, Avon Lake Municipal Utilities (ALMU) has been separating these combined sewers by building a new sanitary sewer beside the existing combined sewer, then converting the existing combined sewer into a storm sewer. We have been quite successful, having separated 12 of 17 basins to date. The remaining five will be separated by 2020 so that we may adhere to EPA requirements.

Originally, we’d hoped separating the sewers under the streets would be enough to end sewer overflows into Lake Erie. The rain events of the last few years have shown us more aggressive methods are needed to keep Lake Erie clean — and to help prevent your basement from serving as temporary storage for other people’s sewage.

During previous sewer separations, ALMU merely required residents to splash their downspouts and yard and driveway drains to reduce the amount of stormwater getting into the sewer system. ALMU did not require people to disconnect their foundation drains from their sanitary laterals, believing the drains were a minor source of flow. Recent testing proved that belief incorrect, and showed that ALMU must either change its requirements or address in other ways the massive quantities of clean water entering the sanitary sewer.

We determined that we could implement a holistic solution that would cost every ALMU customer thousands of dollars (paid through rates), or we could require the approximately 2,400 homes in Avon Lake that still have combined clean and dirty water entering sanitary or combined sewers to separate their clean and dirty water sources on their property. Doing this would achieve the same goal of virtually eradicating basement backups and overflows into Lake Erie. Though it wasn’t pleasant sending letters to 2,400 residents stating they may have to pay thousands of dollars to complete this work, it was better than raising rates to all customers and causing all to pay thousands of dollars more.

I am happy to say by choosing this alternative, we have found great money for income-qualified individuals and are offering $1,000 sewer bill rebates for others completing the work. We are also giving customers at least five years to complete the work. More information is available at http://alwr.us/NoPoopInLakeErie.

This bi-monthly piece is a wonderful opportunity to inform you, our customers. We welcome more interactive dialog, whether via telephone at 440-993-6226; e-mail to contact@avonlakewater.org; social media (Facebook/Twitter); or in person at 201 Miller Road. Be sure to follow us on Twitter or like our Facebook page for timely tips and updates and/or to provide feedback. We exist for one purpose: Healthy customers, healthy environment through sustainable water management.

- Todd Danielson, chief utilities executive for Avon Lake Municipal Utilities, writes a bi-monthly column for The Press.
And started making progress...

**Total Inspections Made**

<table>
<thead>
<tr>
<th>Date</th>
<th>Inspections</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/15/13</td>
<td>196</td>
</tr>
<tr>
<td>5/30/13</td>
<td>453</td>
</tr>
<tr>
<td>9/12/13</td>
<td>594</td>
</tr>
<tr>
<td>11/20/13</td>
<td>726</td>
</tr>
<tr>
<td>7/10/14</td>
<td>919</td>
</tr>
<tr>
<td>10/9/14</td>
<td>990</td>
</tr>
<tr>
<td>12/10/14</td>
<td>1,021</td>
</tr>
<tr>
<td>3/12/15</td>
<td>1,052</td>
</tr>
<tr>
<td>5/14/15</td>
<td>1,091</td>
</tr>
<tr>
<td>7/9/15</td>
<td>1,159</td>
</tr>
<tr>
<td>10/8/15</td>
<td>1,292</td>
</tr>
<tr>
<td>12/10/15</td>
<td>1,309</td>
</tr>
<tr>
<td>1/11/16</td>
<td>1,338</td>
</tr>
</tbody>
</table>

**No Further Action Needed**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/15/13</td>
<td>78</td>
</tr>
<tr>
<td>5/30/13</td>
<td>158</td>
</tr>
<tr>
<td>9/12/13</td>
<td>205</td>
</tr>
<tr>
<td>11/20/13</td>
<td>231</td>
</tr>
<tr>
<td>7/10/14</td>
<td>249</td>
</tr>
<tr>
<td>10/9/14</td>
<td>260</td>
</tr>
<tr>
<td>12/10/14</td>
<td>269</td>
</tr>
<tr>
<td>3/12/15</td>
<td>277</td>
</tr>
<tr>
<td>5/14/15</td>
<td>311</td>
</tr>
<tr>
<td>7/9/15</td>
<td>357</td>
</tr>
<tr>
<td>10/8/15</td>
<td>361</td>
</tr>
<tr>
<td>12/10/15</td>
<td>370</td>
</tr>
<tr>
<td>1/11/16</td>
<td>508</td>
</tr>
</tbody>
</table>
However…

### Total Inspections Made

- 3/15/13: 196
- 1/8/15: 1,033
- 1/11/16: 1,338
- 1/12/17: 1,796
- 1/11/18: 2,587

### No Further Action Needed

- 3/15/13: 28
- 1/8/15: 267
- 1/11/16: 359
- 1/12/17: 508
- 1/11/18: 707
- 1/1/19: 1,083
- 1/1/20: 870

Legend:
- Blue: Separate Prior To
- Red: Separate as Result
So, we searched...
Like a light shining from above...
Potential Solution - Working with Ohio EPA

• Some customers had been expressing that they could not afford to separate their laterals

• Other customers had no desire to expend their own money
Potential Solution – Working with Ohio EPA
The Obstacles you face are... mental barriers which can be broken by adopting a more positive approach.

Clarence Blasier
The Stars Aligned – Ohio EPA Perspective

“Public” Projects on Private Property
The Stars Aligned – Ohio EPA Perspective

Historical Funding Barriers

• Clean Water Act
• Local Legal Authority
• Availability of Funds
• Repayment of Funds
• Local Desire
High-Level Program Description

• Using the WPCLF, Ohio EPA is providing “conduit financing” to Avon Lake Regional Water

• Avon Lake Regional Water, in turn, loans this $ to its customers for lateral separations

• Customers repay Avon Lake Regional Water as part of the water/WW bill
High-Level Program Description

• Ohio EPA provides 0%-interest loan
• Avon Lake Regional Water provides 10-year, 2%-interest loan to customers
• Repaid with water/WW bill (1. interest, 2. principal, 3. wastewater, 4. water)
• Last loans may be issued thru 12/31/23
• Repayment to Ohio EPA begins 1/1/25
Benefits to Avon Lake
Benefits to Avon Lake

Combined Sewer Overflow; Photo credit: EPA
Benefits to Avon Lake

- Helps achieve compliance with LTC P
- Removes water without capital investment
- Contributors to problem pay to address
- Addresses other customer issues such as root intrusion
- Fights potential reputation as a city with (basement) flooding issues
Outcomes for Ohio EPA

- CSO reduction; CWA Compliance
- WQ Benefits to Lake Erie
- Stretch our thinking
- Create another WPCLF tool
- Carryover to other problems/programs
Future Opportunities – Ohio EPA

Potential to Establish Programs for:

• HSTS Abandonment
• Lateral Replacement/Lining
• Downspout/Foundation Drain Disconnect
• Lead Service Line Replacement
• Others?
Future Opportunities - Avon Lake

• Address other private property issues impacting collection system
  – Lateral renewal
  – Stormwater issues (yard drains, etc.)
  – Green infrastructure
  – ...
For the rest of the story…

Total Inspections Compared to Total Residences Affected

- 90+% Response

Inspected Homes

- 78% in Compliance
- Complete at Project Start *
- Complete w/Correction
- Outstanding Problems/Assumed Problems

Total Inspections: 3,200
Total Residences in Program: 2,800
For the rest of the story...

• 640,000 gal will be prevented from entering sanitary sewer (10-yr storm)
• Nearly $1,000,000 committed
• Almost $500,000 paid
For the rest of the story...

Since Loan Program Inception

- Residences Doing Something to Comply: 600
- Residences Separating Laterals: 260 (40+% increase)
- Residences Using Loan Program: 140 (50+% increase)
Thank You!

Todd Danielson
Chief Utilities Executive
tdanielson@avonlakewater.org

Jerry Rouch
Assistant Chief
Division of Environmental and Financial Assistance
Jerome.Rouch@epa.ohio.gov

Avon Lake Regional Water
Serving the region, protecting our resource.

Ohio Environmental Protection Agency
Detailed flow chart - email me

Lateral Inspection/Separation Process

- Customer calls for lateral inspection
  - ALRW inspects
    - Further inspection needed
      - Customer works with contractor to inspect
        - No further action required
          - Contractor calls ALRW to show separated
            - No further action required
              - Contractor determines lateral needs to be separated
                - Gravity lateral
                  - ALRW no-charge permit
                    - Contractor does work
                  - Pumped storm lateral or basin pump
                    - ALRW no-charge permit
                      - Bldg Dept no-charge permits*
                - Contractor determines work to be done
                  - ALRW can meet with customer and contractor to discuss
                  - Customer decides if want to apply for Lateral Loan

- Contractor calls ALRW and Building for final inspections
  - ALRW inspects/approves
    - Plumbing Approval
    - Electrical Approval
  - If loan, contractor submits bill to ALRW & homeowner signs off
    - Contractor paid by ALRW
      - Wastewater bill rebate applied
        - No further action required

* - The Building permit process is on next page

Prepared by Avon Lake Regional Water, in association with the Building Department, rev 2/21/18