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Final Report

Trib 13 / Mill Brook Source Tracking Workshop

by Riverkeeper

December 12, 2018

Acknowledgements

We received considerable assistance from the Village of New Paltz to prepare this workshop. John Lawlor and Ethan Smith contributed digital information and personal knowledge that were critical to the workshop's success. We thank Town Supervisor Neil Bettez for making information available, and VIllage Mayor Tim for his support of this project, including village staff time and printing resources.

We are grateful to Don Kerr for helping plan the event and for donating funds to rent the meeting space.

Table of Contents

Introduction

Community scientists working with Riverkeeper have been testing Trib 13/Mill Brook for fecal contamination since 2012. We test for Enterococcus ("Entero"), a group of fecal indicator bacteria with well established protocols for measurement, and federal criteria that allow the data to be related to recreational water quality. While Entero are themselves not usually harmful, they indicate that disease-causing pathogens associated with fecal contamination are likely present. Sewage-related pathogens are the leading cause of illness from swimming and other recreational use of the water.[1]

Longterm monitoring results from our sampling site at the Route 32 bridge show that levels of Entero in Trib 13 are more than ten times higher than EPA's recommended threshold for swimming or child water play.[2] People involved with sampling, and other local residents, have expressed a desire to reduce contamination in the brook. Because Entero are not specific to humans, an appropriate step toward this goal is to identify sources of fecal contamination to the brook.

'Source tracking' is the process of investigating the fecal contamination sources that result in high fecal indicator bacteria counts. The field of source tracking includes many methods and tools, which vary in cost and complexity, and the outcomes range from knowledge that a particular group of animals is a source (e.g., human is present and cow is not), to knowledge that a specific location is contributing a specific type of fecal contamination (e.g., confirming that a septic system at a given address is releasing inadequately treated human waste).

Riverkeeper and community partners had done some source tracking in Trib 13, including a stream walk in October 2016, additional sampling upstream of the routine monitoring location, and DNA-based testing for specific contaminant sources. Results of these projects are summarized in the presentation (see agenda, below, for link). The projects were informative; however, the following factors limited progress: lack of fine-grained local knowledge of the watershed amongst Riverkeeper staff; need for better education of community members about the underlying science and existing data; and the need for outside knowledge, staff time and funding.

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[1] For more information about Riverkeeper's Community Science monitoring program, visit https://www.riverkeeper.org/water-quality/testing/water-quality-reports/.

[2] Data from this sampling site can be viewed at https://www.riverkeeper.org/water-quality/citizen-data/wallkill-river/new-paltz-stewarts-route-32-2/

To overcome these obstacles, Riverkeeper held a workshop with the goals of educating participants about the history and scientific basis of community science done in the watershed by Riverkeeper and partners to date, and helping the Mill Brook watershed community to define actionable next steps. This report summarizes the workshop objectives, activities and work products. This report is intended to be a tool that will to help the community continue making progress toward improving water quality.

Agenda

Mill Brook Source Tracking Workshop
Saturday, November 10, 2018, 1:00-5:00 PM
New Paltz Community Center

1:00pm	Welcome, introductions, review agenda
1:15pm	Presentation: Riverkeeper Entero monitoring at Mill Brook by Jen Epstein, Riverkeeper Water Quality Program Scientist, Q&A
2:00pm	Map review Goal: Make a list of features (with their locations) that are possible Entero sources to Mill Brook/Trib 13 *Examples: "Pump station at Plattekill Street," "Septic systems in Ridgeview Development," "Houses near Walden Avenue & Wallkill Street"* Topic 1: Sewer system Topic 2: Septic systems Topic 3: Stormwater system Topic 4: Land use
3:45pm	Break
4:00pm	Identify priorities Goal: Select the most important items from the list created during map review
4:30pm	Define action steps Goal: For each priority, clearly state the concern, and brainstorm possible actions
4:55pm	Wrap up
5:00pm	Adjourn
5:30pm	Happy hour at Huckleberry, 21 Church Street

Participants

Neil Bettez, Supervisor, Town of New Paltz

Rachel Logodka, Environmental Policy Board, Village of New Paltz

John Gotto, Wallkill River Watershed Alliance Science Working Group

Julie Seyfert-Lillis, Mill Brook Preserve, Inc.

Lynn Bowdery, Clean Water and Open Space Protection Commission, Town of New Paltz

Susan Wile, Environmental Conservation Board, Town of New Paltz

Thomas T (Ted) Nitza, PE, Environmental Conservation Board, Town of New Paltz & Environmental Policy Board, Village of New Paltz

Hope Nitza, New Paltz High School Student

Rebecca Martin, Riverkeeper

Jennifer Epstein, Riverkeeper

Sebastian Pillitteri, Riverkeeper

Map Review

The goal of the map review was to create a comprehensive list of features (with their locations) that could be possible Entero sources to Trib 13. We did not attempt to fully evaluate or verify every item listed. These lists (and the underlying maps) should be considered as starting points for future investigation, not lists of known fecal contamination sources.

The following information was included on watershed maps:

- Sampling sites
- Storm water lines
- Storm water outfalls (possible locations)
- Tax parcels, color-coded by septic/centralized wastewater treatment
- Publicly and privately owned sewer lift stations
- Sewage Pollution Right to Know (SPRTK) alert locations (all manholes)
- Wastewater treatment plants
- Sewer lines, some locations sketched, and some noted as needing replacement
- Village boundary (all other land is within the town)
- Wetlands mapped by Hudsonia
- Waterways mapped by NYS DEC
- Area of watershed that drains to the brook downstream of sampling site (i.e., areas that should not influence sampling results)

A map showing all the features can be accessed here:
https://drive.google.com/file/d/1dt_wmYItBh9iUlHJ1a7evJ9pUq7L0crc/view?usp=sharing

We conducted four rounds of map review, pertaining in turn to the centralized sewer system, septic systems, stormwater system and land use. For each round, participants were asked to use their personal knowledge and the information on the maps to identify locations where they thought fecal contamination could potentially originate.

Participants were encouraged to be expansive while listing potential sources, so that many ideas could be considered.

Each round began with participants using post-it notes to mark areas on the map for further inquiry. After labeling, we briefly discussed the ideas. Some items were excluded because they were outside of the scope of the workshop (e.g., general littering and dumping). Important questions were raised for several items and for overarching topics. These are recorded in the General Thoughts and Concerns section, below. The list of features for each topic is transcribed below.

Topic 1: Sewer System

- Stewart's lift station
- Moriello Pool at North Chestnut Street
- Duzine Elementary School WWTP
- 3 sewer lines needing replacement near DuBois Avenue
- SPRTK overflows @ DuBois pump
- Lift station at DuBois Avenue
- Woodland Pond system
- Force main from DuBois Avenue pump: Leaks from this location would be under pressure, would be raw sewage leak. This is not the same question as DuBois pump station function/leaks
- Force main from Stewart's
- Force main from Woodland Pond
- SPRTK overflows @ Prospect Street

Topic 2: Septic Systems

- Prospect Street - one home at dead end that was a former resort and is now an apartment building
- Mill Brook Terrace - 4 properties
- Mill Rock Road/North Manheim development
- Mill Brook Road - multiple homes
- Old Mill Road - older houses especially those with current high occupancy
- Duzine Road - many 1950s homes on hill, bedrock underneath
- Pinecrest Road - multiple 1950s-70s homes and high occupancy buildings
- Dense septics at North Putt Corners Road
- Dense septics at Ann Street/Sunset Ridge
- Dense septics at Hummel Road
- Dense septics at Old Kingston Road

Topic 3: Stormwater System

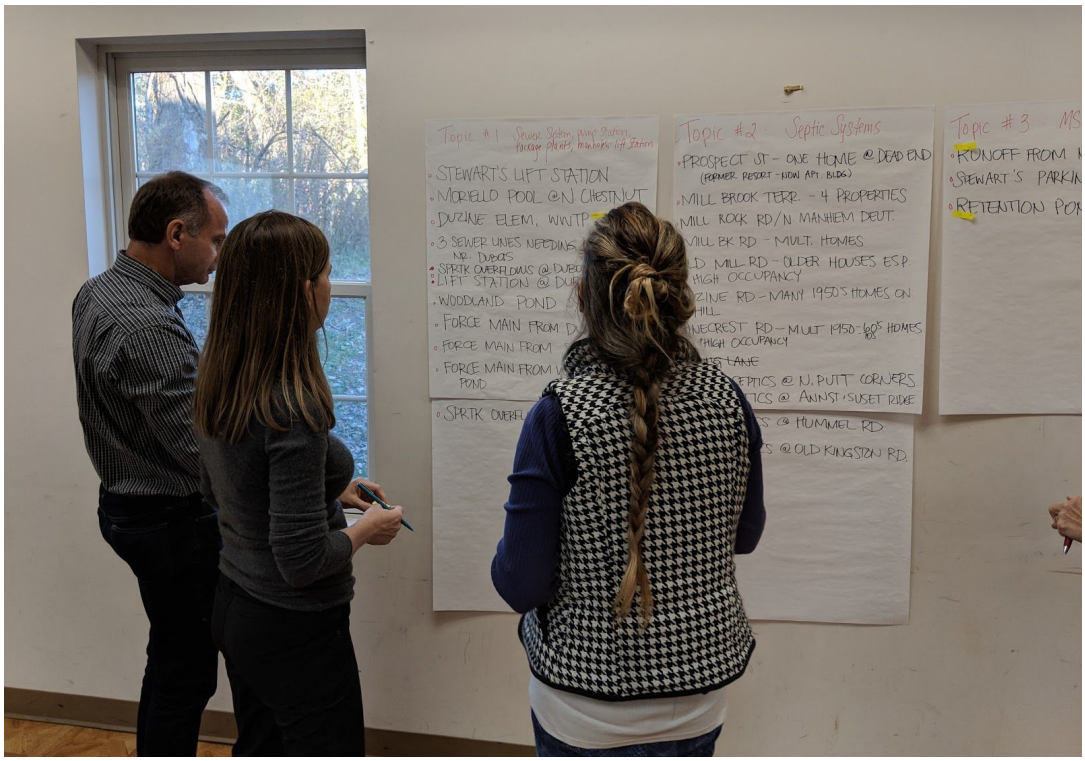
- Runoff from North Manheim Street
- Stewart's parking lot
- Retention pond at South Putt

Topic 4: Land Use

- Wildlife

Priorities & Action Steps

The latter half of the workshop focused on selecting the most important items from the lists created during map review and brainstorming possible actions for each item. We selected priorities by voting, with each participant allocating six votes, voting multiple times for a single topic if they wished.



During the discussion, some of the priorities were combined due to similarity (concerns about certain septic systems), and an additional issue was raised that the group agreed was a priority.

The group suggested additional Entero testing, to establish whether these particular locations are problem areas, for all of the priority issues. Other types of actions (dye testing, streamwalks) were mentioned in two cases. However, the majority of the possible actions brainstormed during the meeting involved research, either into the specific location mentioned, or into a general underlying issue.

The resulting priorities, their action items and possible actors for each item are:

1. **SPRTK overflows and odors at DuBois Avenue pump station (Village of New Paltz)**

Possible Actions:

- Documenting the problem- test for Entero at this site
- Talking to mayor about what's already been done in terms of testing and fixing, including methods (has been checked into and was not apparently a problem)
- Station was rebuilt post-2012ish, when Woodland Pond hooked in
- Look at overflow reports/records

2. Runoff from North Manheim Street (Town of New Paltz)

Possible Actions:

- Collect Entero data from swale that carries runoff from the street (this will be during rainy weather only)
- Talk to Town MS4 program about sampling that's been done here

3. Inadequate wastewater treatment at Duzine Elementary School WWTP (Town of New Paltz)

Possible Actions:

- Entero testing at this site to document the problem; Find out if/how this is affecting stream
- Contact school district to find out history of work that's been done
- DEC can request annual reports from these types of permitted facilities; Facility should be doing more frequent testing; Find out what reports DEC has
- Duzine Elementary WWTP was supposed to have been fixed 3-5 years ago

4. Concern about leaks from force main from DuBois Avenue pump station (Different from leaks from/functioning of DuBois pump station itself) (Village of New Paltz system; located in Town of New Paltz)

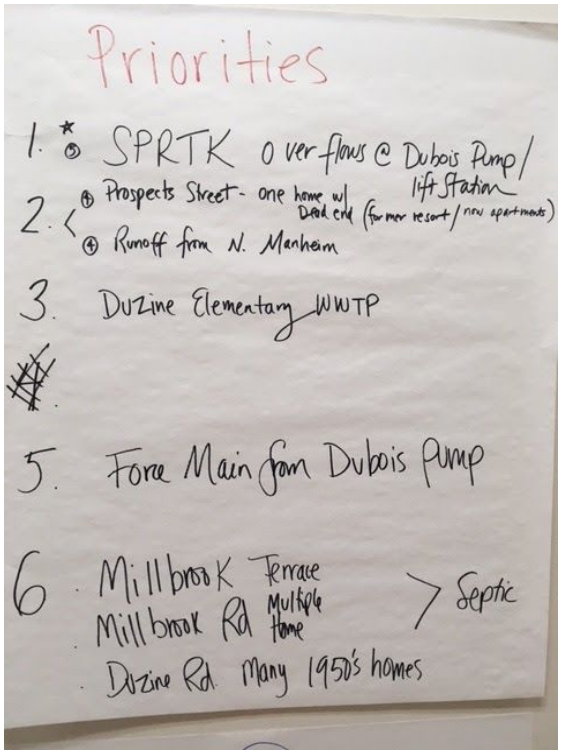
Possible Actions:

- Contact village to request dye testing at this location
- Walk the path of the force main to look for obvious signs of leakage (lift station to top of hill, north side of road)

5. Septic systems: Mill Brook Terrace (4 homes), Mill Brook Road (multiple homes), Duzine Road (many 1950s homes on hill, bedrock underneath), Prospect St (one home at dead end that was a former resort and is now an apartment building)

Possible Actions:

- Potentially, all streets that dead end at stream belong to this category
- Possible causes: age, overtaxing due to use change, or soil/rock characteristics
- Document the problem- test for Entero at the stream adjacent to the property
- Ask DOH if they have received complaints, inspection reports, etc. (DOH can't act without complaints)
- Does DOH have age of septic? Check with DOH to see how old system is.
- Check with Town Building Inspector: List of houses that have changed use from single-family to multiple units and may have overtaxed septic systems. What permissions would be needed? Are there records? Do we know the age of the conversion?
- Investigate as a general issue - other similar dwellings with potentially overtaxed septic systems
- Find out about what records are available, and when they started to be collected
- Test for Entero upstream/downstream of these blocks to see whether counts are lower upstream
- Look at rock/soil maps (Ulster County)- to see whether any of these systems are located on soils that are bad for septics
- Soil maps? To help know if failed septics would percolate



6. Potentially leaky sewer lines: Town/Village joint meetings include discussion of infrastructure as an issue

Possible Actions:

- Find out what made village/town determine which lines need replacement, e.g., find out what information came out of camera work
- Find out what the current list of needs is in Trib 13 watershed
- Find out what recent work/replacements have been done in Trib 13 watershed
- Manheim 2017 sewer lines replaced: Some? All?
- Village and town are concerned about sewer lines? Ask how they are searching for problems/defining areas

Potential actors for each item are identified here:

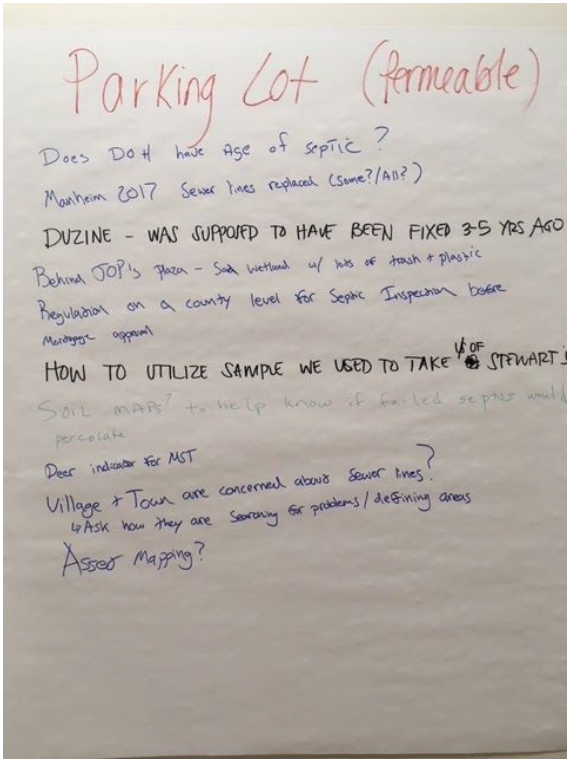
Action	Actor(s)
SPRTK overflows and odors at DuBois Avenue pump station (Village of New Paltz)	
• Documenting the problem- test for Entero at this site	Non-profit groups Municipalities Academic researchers
• Talking to mayor about what's already been done in terms of testing and fixing, including methods (has been checked into and was not apparently a problem)	Non-profit groups Individuals
• Look at overflow reports/records	Non-profit groups Individuals
Runoff from North Manheim Street (Town of New Paltz)	
• Collect Entero data from swale that carries runoff from the street (this will be during rainy weather only)	Non-profit groups Municipalities Academic researchers
• Talk to Town MS4 program about sampling that's been done here	Non-profit groups Individuals
Inadequate wastewater treatment at Duzine Elementary School WWTP (Town of New Paltz)	
• Entero testing at this site to document the problem; Find out if/how this is affecting stream	Non-profit groups Municipalities Academic researchers School district
• Contact school district to find out history of work that's been done	Non-profit groups Individuals Municipalities
• DEC can request annual reports from these types of permitted facilities; Facility	Non-profit groups Individuals Municipalities

should be doing more frequent testing; Find out what reports DEC has	
Concern about leaks from force main from DuBois Avenue pump station (Different from leaks from/functioning of DuBois pump station itself) (Village of New Paltz system; located in Town of New Paltz)	
• Contact village to request dye testing at this location	Non-profit groups Individuals
• Walk the path of the force main to look for obvious signs of leakage (lift station to top of hill, north side of road)	Non-profit groups Individuals Municipalities
Septic systems: Mill Brook Terrace (4 homes), Mill Brook Road (multiple homes), Duzine Road (many 1950s homes on hill, bedrock underneath), Prospect St (one home at dead end that was a former resort and is now an apartment building)	
• Document the problem- test for Entero at the stream adjacent to the property • Test for Entero upstream/downstream of these blocks to see whether counts are lower upstream	Non-profit groups Municipalities Academic researchers
• Ask DOH if they have received complaints, inspection reports, etc. (DOH can't act without complaints) • Does DOH have age of septic? Check with DOH to see how old system is.	Non-profit groups Municipalities Individuals
• Check with Town Building Inspector: List of houses that have changed use from single-family to multiple units and may have overtaxed septic systems. What permissions would be needed? Are there records? Do we know the age of the conversion?	Non-profit groups Individuals

• Find out about what records are available, and when they started to be collected	Non-profit groups Individuals
• Look at rock/soil maps (Ulster County)- to see whether any of these systems are located on soils that are bad for septics	Non-profit groups Individuals Municipalities
Potentially leaky sewer lines: Town/Village joint meetings include discussion of infrastructure as an issue	
• Find out what made village/town determine which lines need replacement, e.g., find out what information came out of camera work	Non-profit groups Individuals
• Find out what the current list of needs is in Trib 13 watershed	Non-profit groups Individuals
• Find out what recent work/replacements have been done in Trib 13 watershed • Manheim 2017 sewer lines replaced: Some? All?	Non-profit groups Individuals
• Village and town are concerned about sewer lines? Ask how they are searching for problems/defining areas	Non-profit groups Individuals

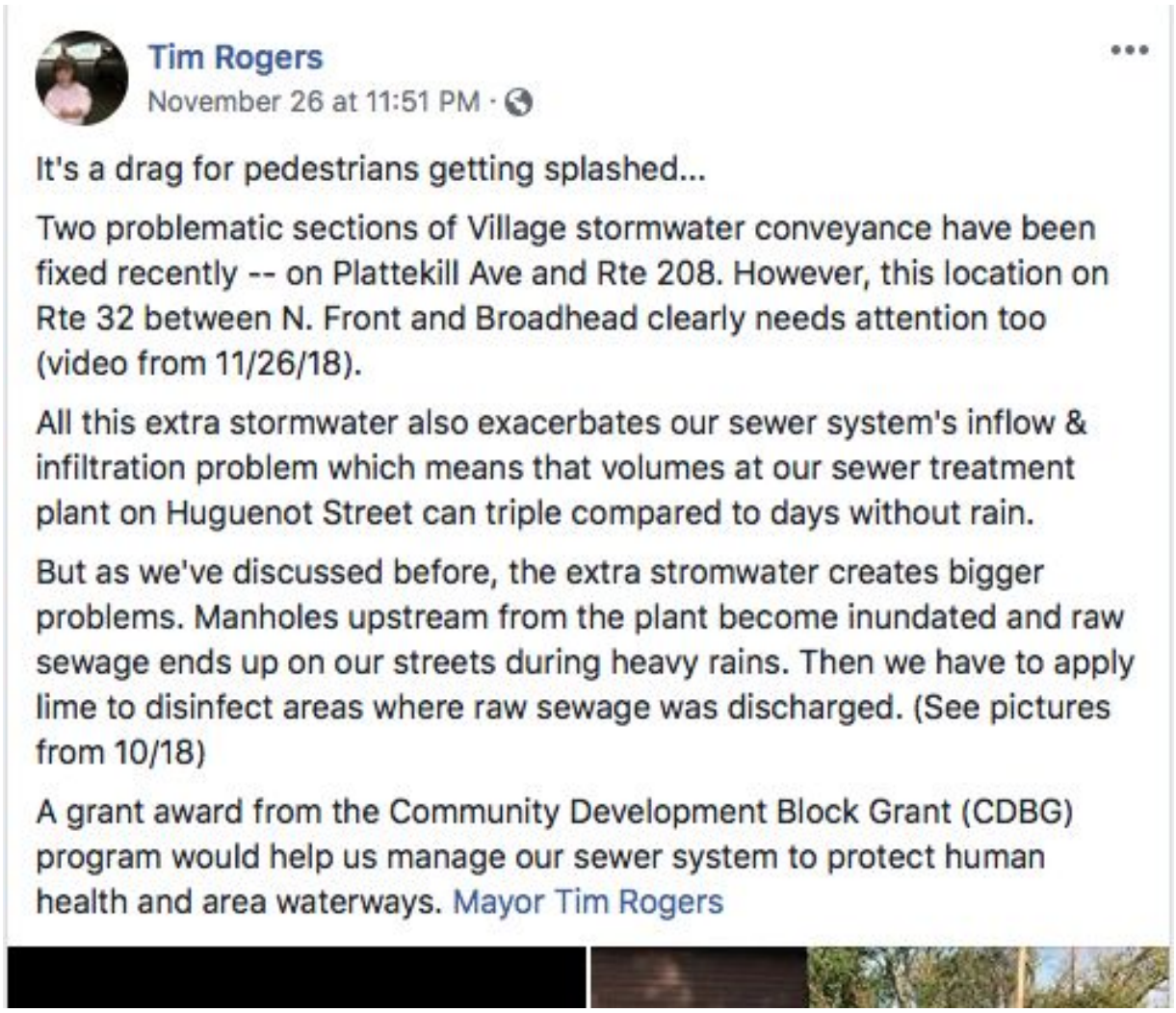
General Questions & Concerns

Throughout the day, several important questions were raised that didn't directly relate to the goals or topics currently at hand. These were recorded separately. Those that relate directly to priority issues were added to the brainstormed list, and the remainder are summarized here.



- Looking forward: Five Guys, CVS developments. Sewer hook-ups. Impacts on water quality.
- Sample at the location where children are likely to play.
- Overarching question about more testing: Michael Boms @ SUNY might be able to do testing.
- Behind Top's plaza - sad wetland with lots of trash and plastic
- Regulation on a county level for septic inspection before mortgage approval
- How to utilize sample we used to take upstream of Stewart's?
- Deer indicator for MST
- Asset mapping?

In the weeks after the meeting, Village of New Paltz Mayor Tim Rogers posted about two items about sewer infrastructure on Facebook. These posts contain information that is relevant to the priorities and research questions generated by the stakeholder group, and may help the group as it continues to formulate next steps.



It's a drag for pedestrians getting splashed… (November 26, 2019)

Tim Rogers is with John Lawlor and Thomas Theodore Nitza.
November 29 at 1:24 PM ·

Drones to identify failing infrastructure...

We're excited to be participating in a study with Walden Environmental Engineering and Harkin Aeriel. Drones with thermal cameras will be used to try to locate leaking underground water and sewer piping. We are looking to replicate a study performed in the UK. It's believed this will be one of the first studies of its kind in the US. There will be no cost to the Village.

Study from the UK: https://www.texodroneservices.co.uk/.../anglianwater_leakrepo...

Drones will be flown at 10 mph or less over municipal property, properties where we hold easements we hold, or public right of ways. Investigations will take approximately an hour and the project is expected to be done within a week this December.

The plan for our study includes 3 water mains, the reservoir on Mountain Rest Road, and one sewer force main.

The following locations have been selected as candidates because they are believed to be troubled areas or may be useful for benchmarking:

-- HWD pump station to N. Manheim (sewer force main on HWD)

-- Broadhead to Bonticou (sewer force main - southbound side of N. Chestnut)

-- Broadhead to Bonticou (water main - northbound side of N. Chestnut)

-- Main St (water main - east of N. Front to approximately Oakwood)

-- Prospect (water main - from Main St to HWD)

-- N. Manheim (water main - from Main St to HWD)

-- From Morning Star East across Canaan Road to our pump station at the aqueduct (12'' water main)

Mayor Tim Rogers

Drones to identify failing infrastructure… (November 29, 2018)

Conclusions

The goal of this workshop was to bring stakeholders together for an updated look at Trib 13 and to identify critical tasks in their own words. A positive next step would be to determine who could effectively do the work identified as important at the workshop. The stakeholder group should also devise a way to coordinate efforts (partly to avoid overly burdensome requests to municipalities and agencies), communicate regularly about progress and record information in a way that is accessible to all users.