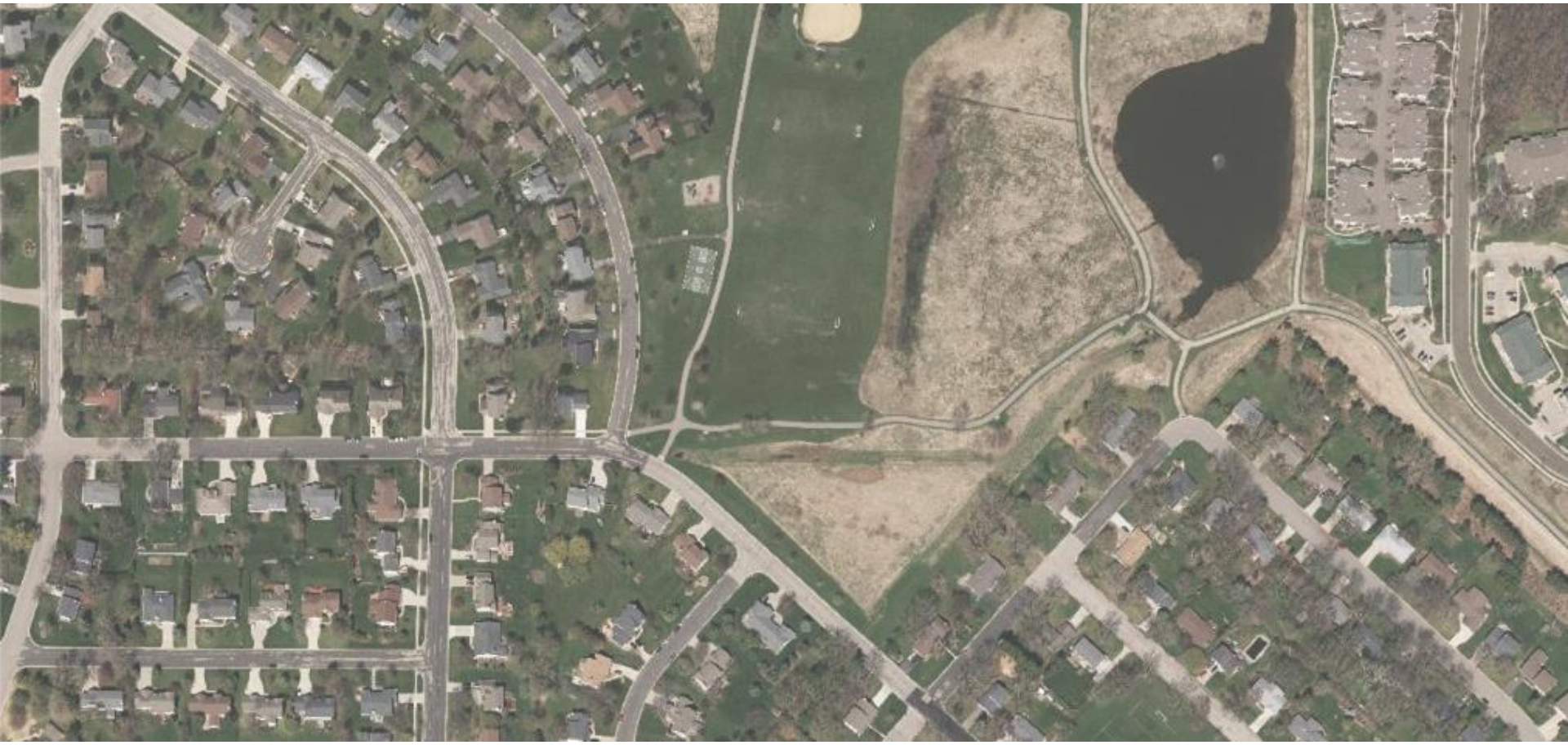
CHERYL DRIVE STORMWATER STUDY



Public Information Meeting #1 - June 3, 2021

EOR water ecology community

THE CITY OF Fitchburg WISCONSIN

INTRODUCTIONS

Claudia Guy, P.E., Environmental Engineer at the City of Fitchburg

Nick Hayden, P.E., Water Resources Engineer at Emmons & Olivier Resources

PRESENTATION OUTLINE

1. Project Overview
2. Task 1 – Cheryl Drive Flooding Feasibility Study
   - Background Information
   - Survey Results
   - Next Steps
3. Task 2 – Background Drainage Program Analysis
   - Background Information
   - Survey Results
   - Next Steps
4. Summary

HOUSEKEEPING – HOW TO ASK QUESTIONS

Attending via Zoom:

- Please type questions into the chat box. We will go through the chat at the end of the meeting and address as many questions as possible during our time.

Attending in Person:

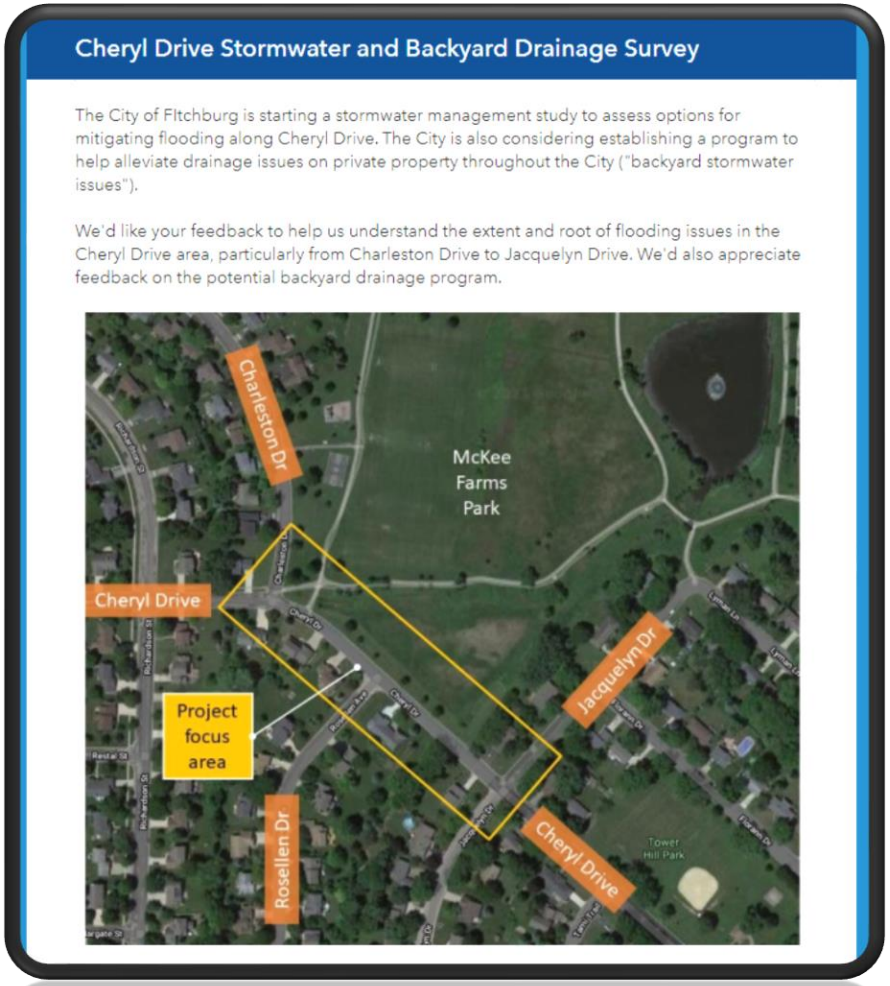
- Please save your questions to the end. We will ask for your questions at the end of this presentation.

After the meeting:

- Direct questions to Claudia at claudia.guy@fitchburgwi.gov or 608-270-4262.

CHERYL DRIVE RESIDENT SURVEY

- Survey123 distributed prior to this meeting https://arcg.is/1zCCLG
- 14 respondents (through June 2)
- Survey is still open, please participate by Friday, June 11 if you would like your input to be recorded



PROJECT OVERVIEW

STUDY BACKGROUND

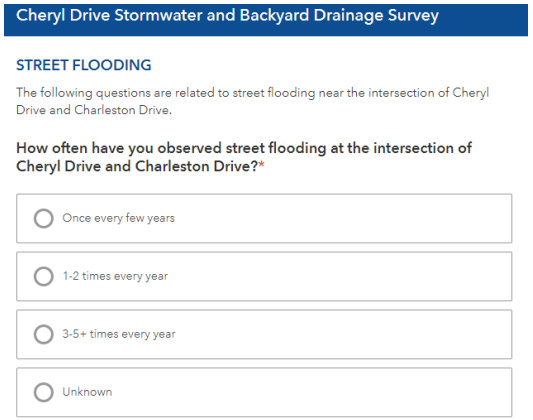
This project includes two distinct but related components:

Task 1 – Cheryl Drive Flooding Feasibility Study

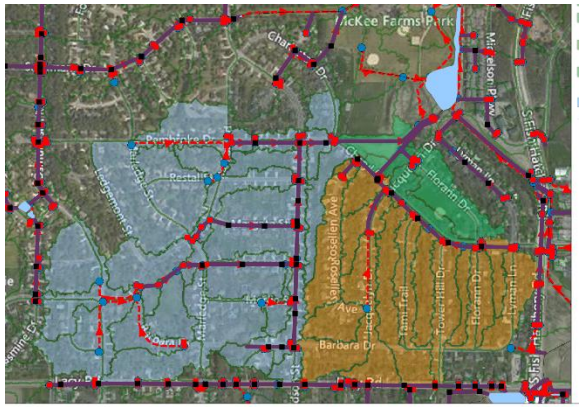
Task 2 – Backyard Drainage Program

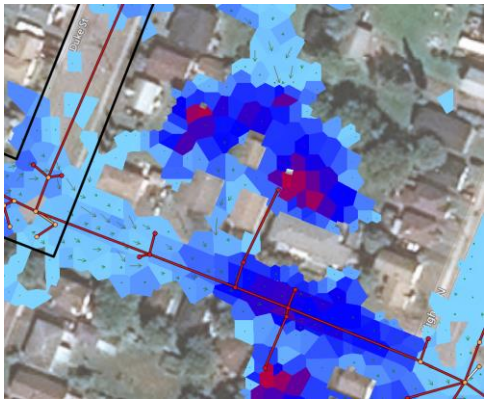
TASK 1 – CHERYL DRIVE FLOODING ANALYSIS

- Define extent of current flash flooding problem
- Develop a watershed and storm sewer model to determine what's causing flooding and identify potential solutions
- Determine feasibility of implementing potential solutions



Survey and field work





Modeling and design

EOR water ecology community

THE CITY OF Fitchburg WISCONSIN

TASK 2 – BACKYARD DRAINAGE PROGRAM ANALYSIS

- Research other regional community programs for backyard drainage problems
- Summarize policies, budgets, prioritization, and funding mechanisms from other communities and present to City
- If the City proceeds with establishing a backyard drainage program, create policy documents and application forms

Task 1

Cheryl Drive Flooding Analysis

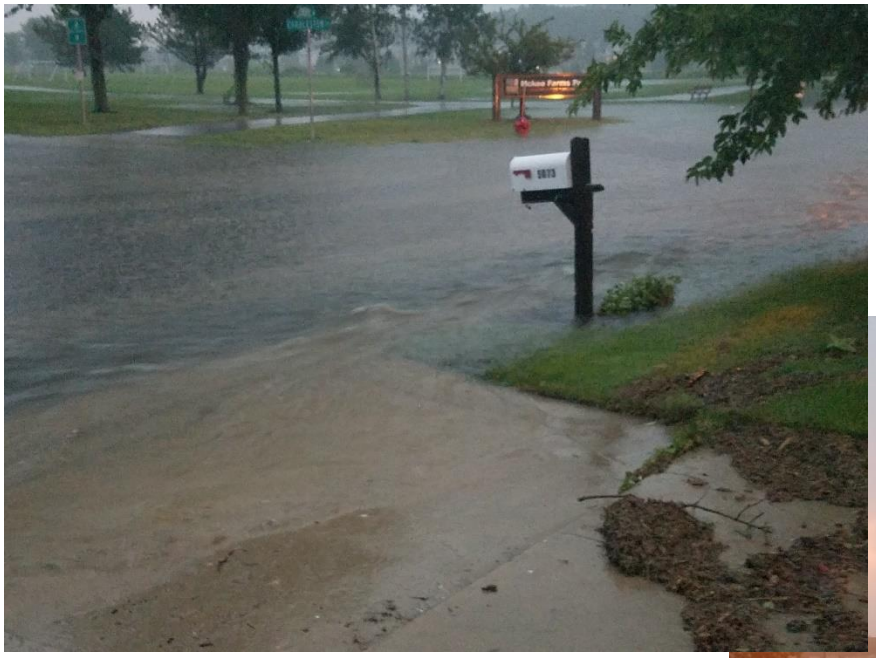
BACKGROUND INFORMATION

UNDERSTANDING ISSUES

- Cheryl – Charleston intersection is a topographic low point receiving runoff from several directions

CHERYL DRIVE FLOODING ISSUES

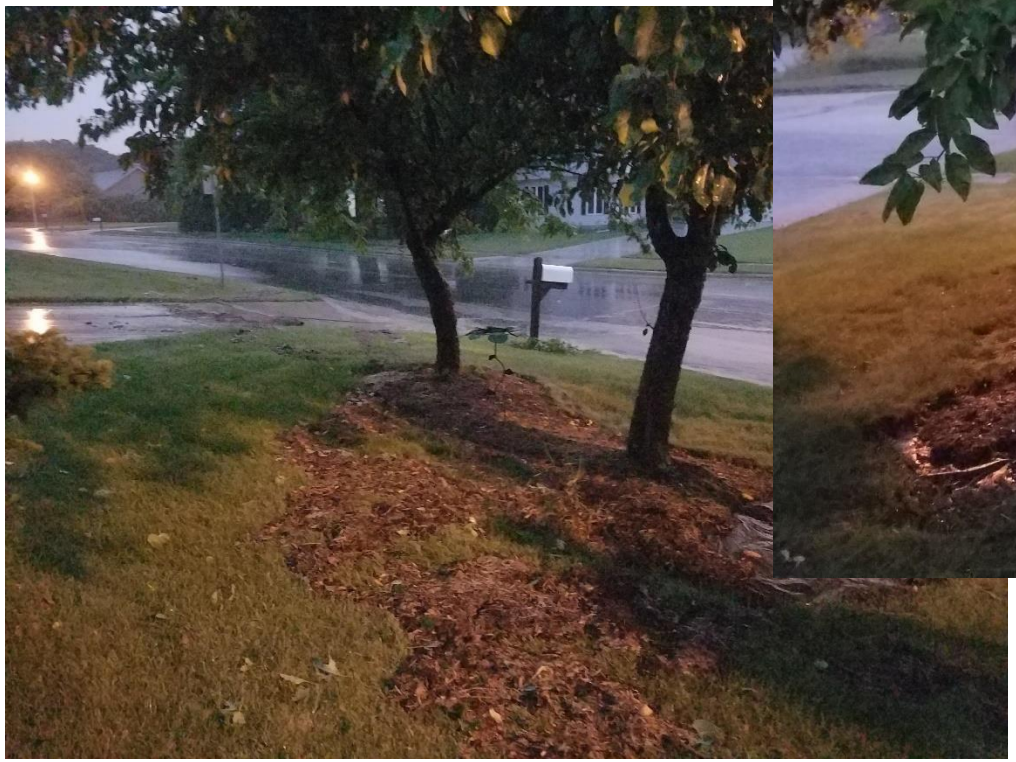
Photos from July 2016*



On July 21, 2016, 2.8" of rain fell at MSN in 2 hours (~25-yr event)

CHERYL DRIVE FLOODING ISSUES

Photos from July 2016



Debris line shows how high the water got.

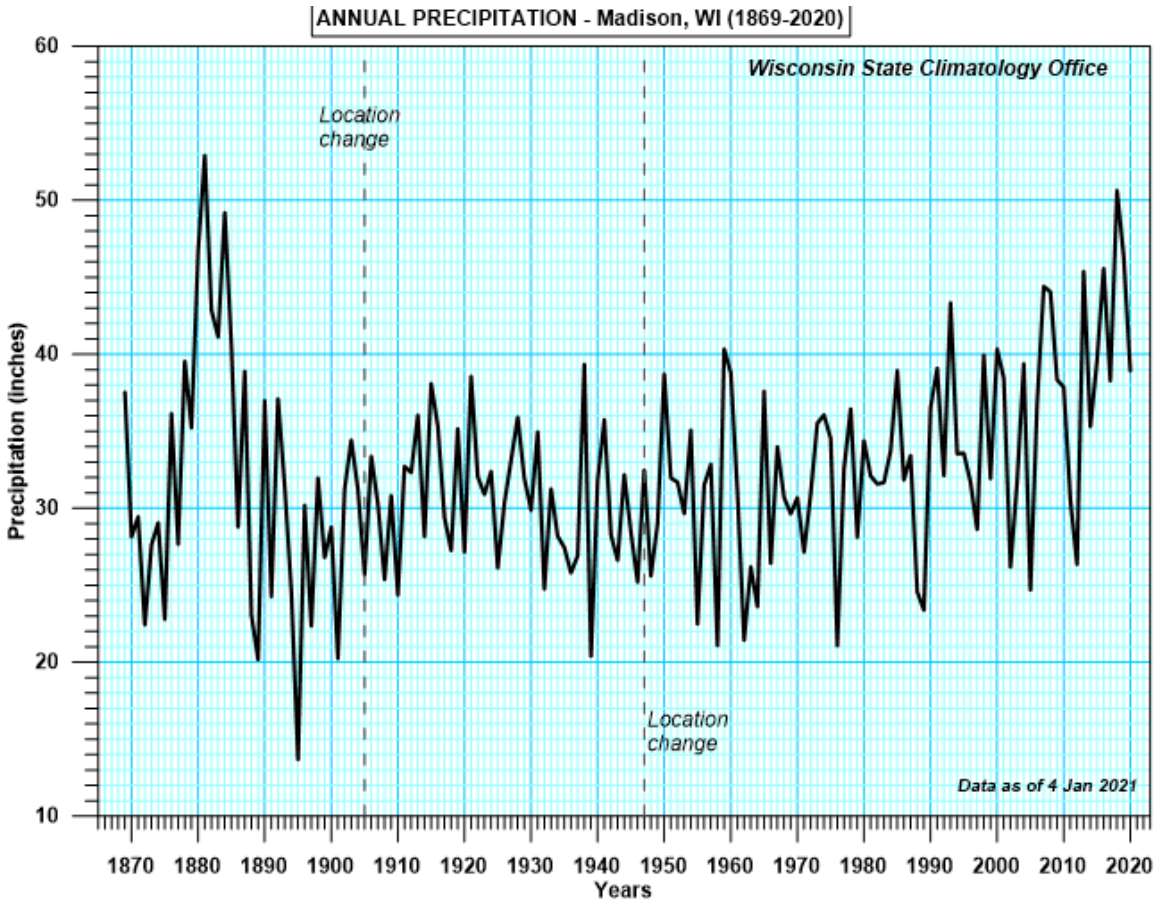
CHERYL DRIVE FLOODING ISSUES

Date Unknown

PRECIPITATION TRENDS

- Very wet recently (2017, 2018 and 2019 were very wet years, with 2019 being the wettest on record across WI)

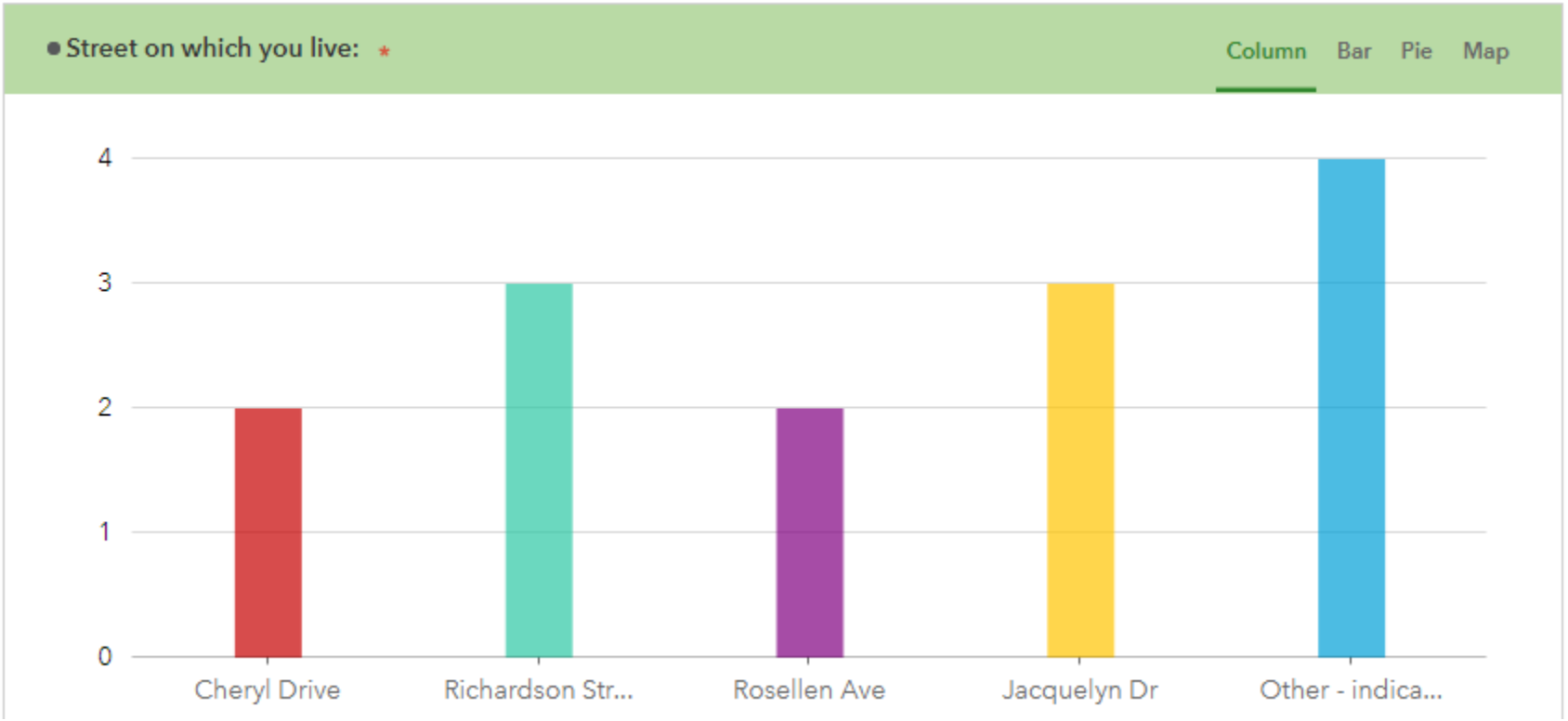
- Upwards shift in precipitation and streamflow has been observed across WI and the upper Midwest since the 1980s



PUBLIC INPUT

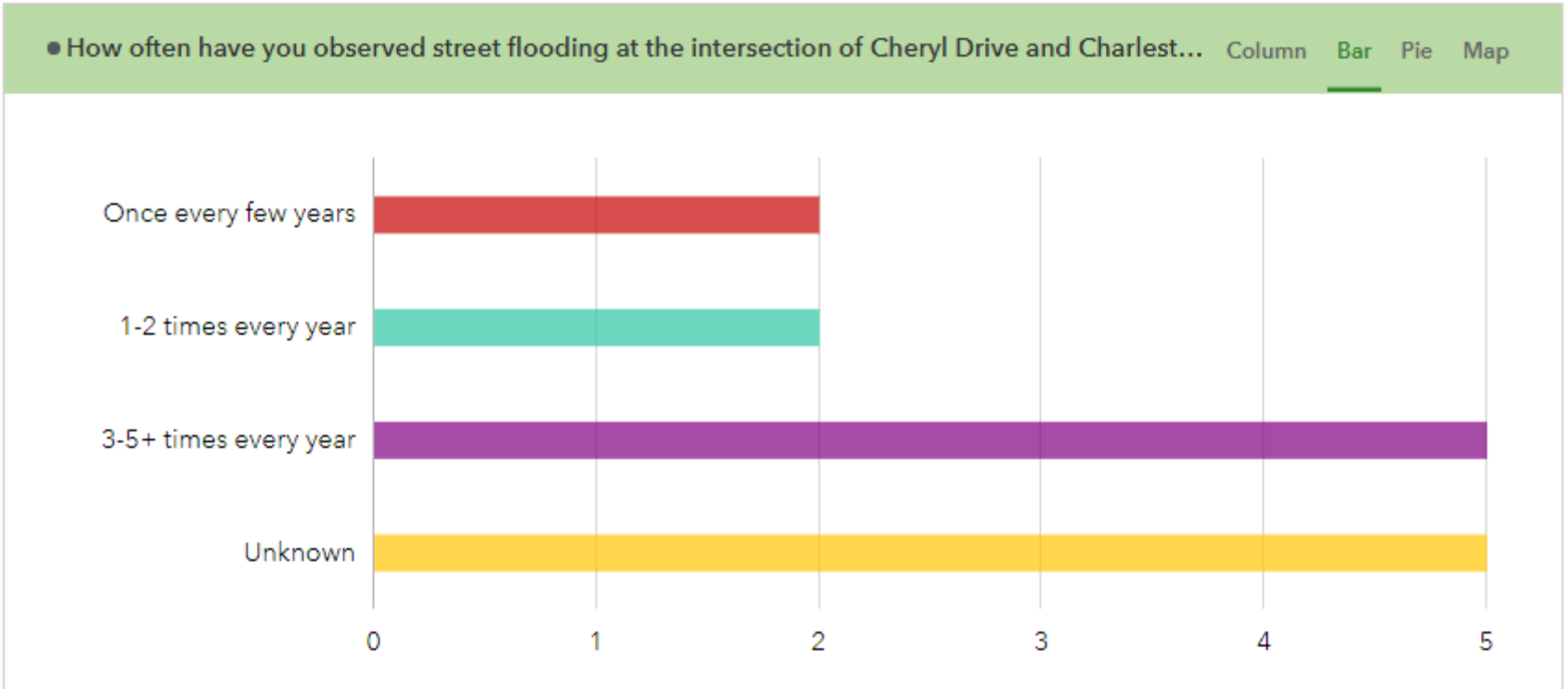
FROM SURVEY PROVIDED TO RESIDENTS IN ADVANCE OF THIS MEETING

SURVEY – RESPONDENT LOCATION

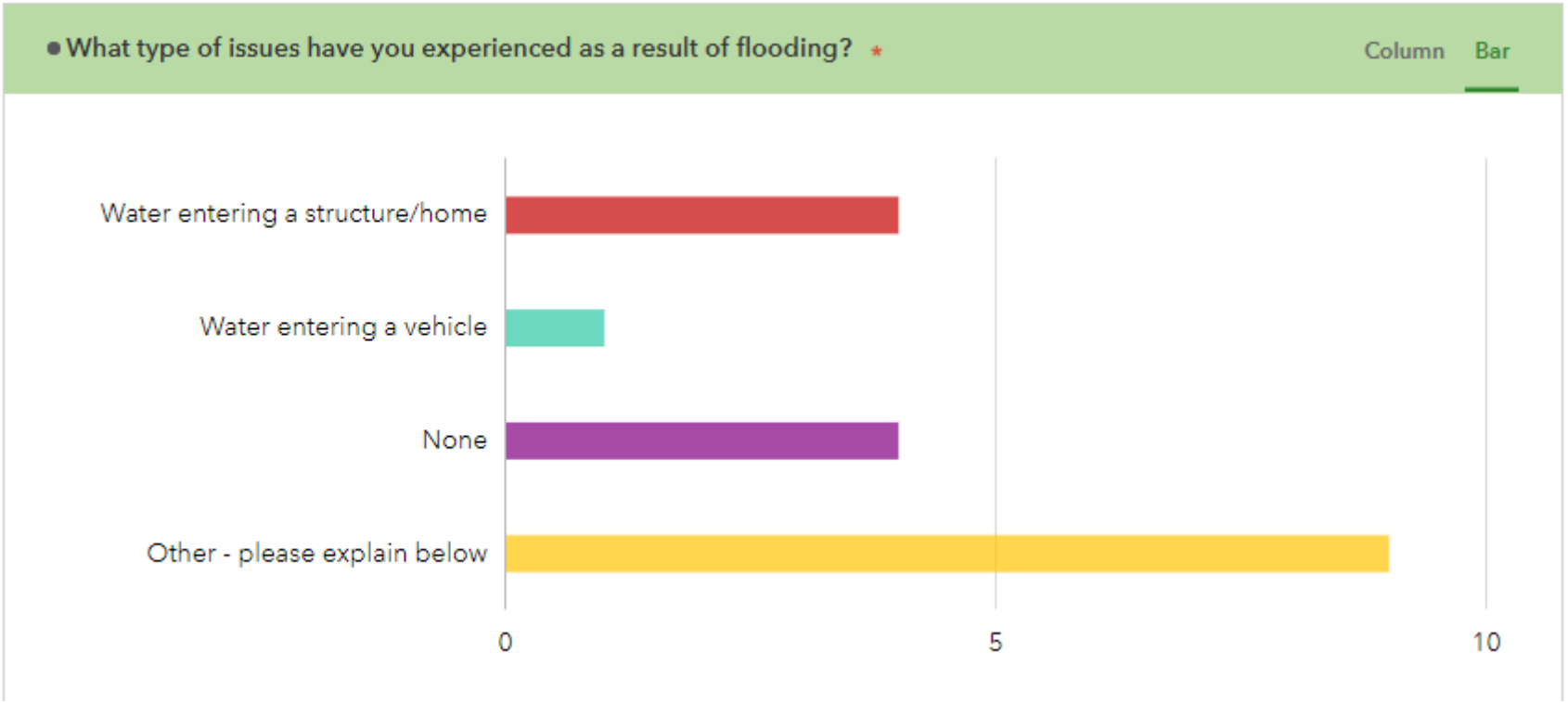


"Other" included three on Charleston Dr and one on Lyman Ln. Majority have lived in Tower Hill area for 15+ years.

STREET FLOODING OBSERVATIONS

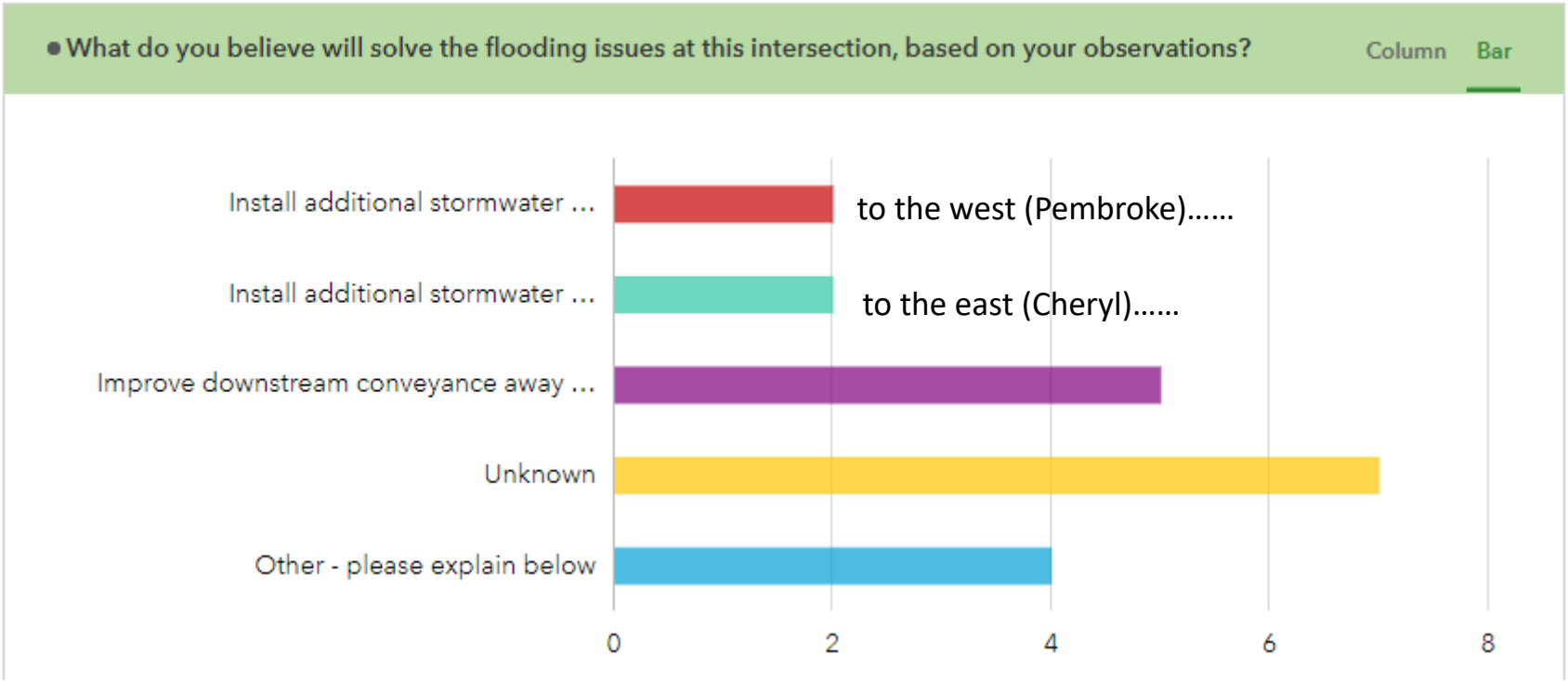


STREET FLOODING IMPACTS



"Other" included yard ponding, excessive sump pump use, and issues related to drainage from neighboring properties. Responses included issues away from Cheryl – Charleston; may reach out to clarify.

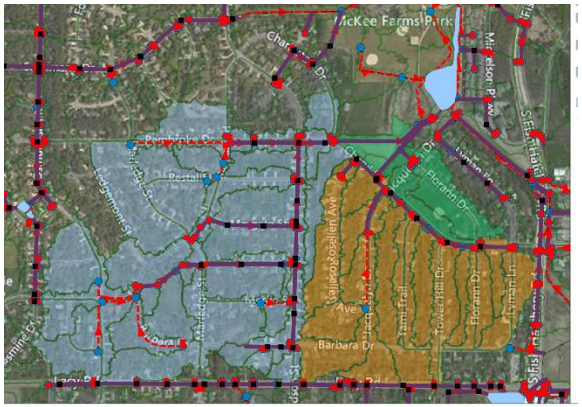
SOLUTIONS FOR INTERSECTION FLOODING

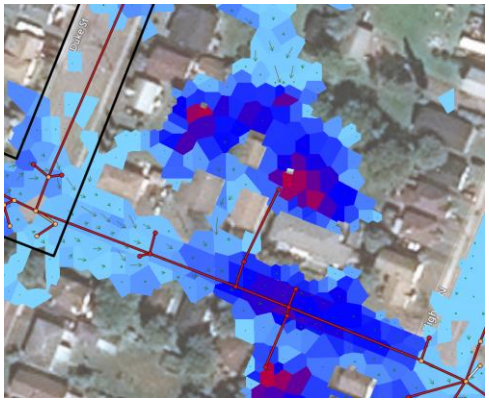


"Other" included additional infrastructure on Richardson and/or Charleston and on Cheryl between Charleston and Jacquelyn. Also addressing local low points (e.g. end of driveway)

NEXT STEPS

- Develop, Model and Test Conceptual Solutions
  - Evaluate storm sewer capacity upstream of the Pembroke/Cheryl intersection
  - Evaluate inlet spacing and capacity
  - Evaluate swale capacity
  - Other solutions may be evaluated as well
- Create preliminary figures and cost estimates
- Public meeting with results
- Prepare Report summarizing findings





Modeling and design

PROJECT TIMELINE

- Task 1 (Cheryl Drive)
  - June – July 2021: First public meeting, information gathering, and development of storm sewer models.
  - July – August: Develop and test conceptual solutions. Create preliminary figures and cost estimates for proposed solutions.
  - August – September: Final public meeting regarding Task 1.

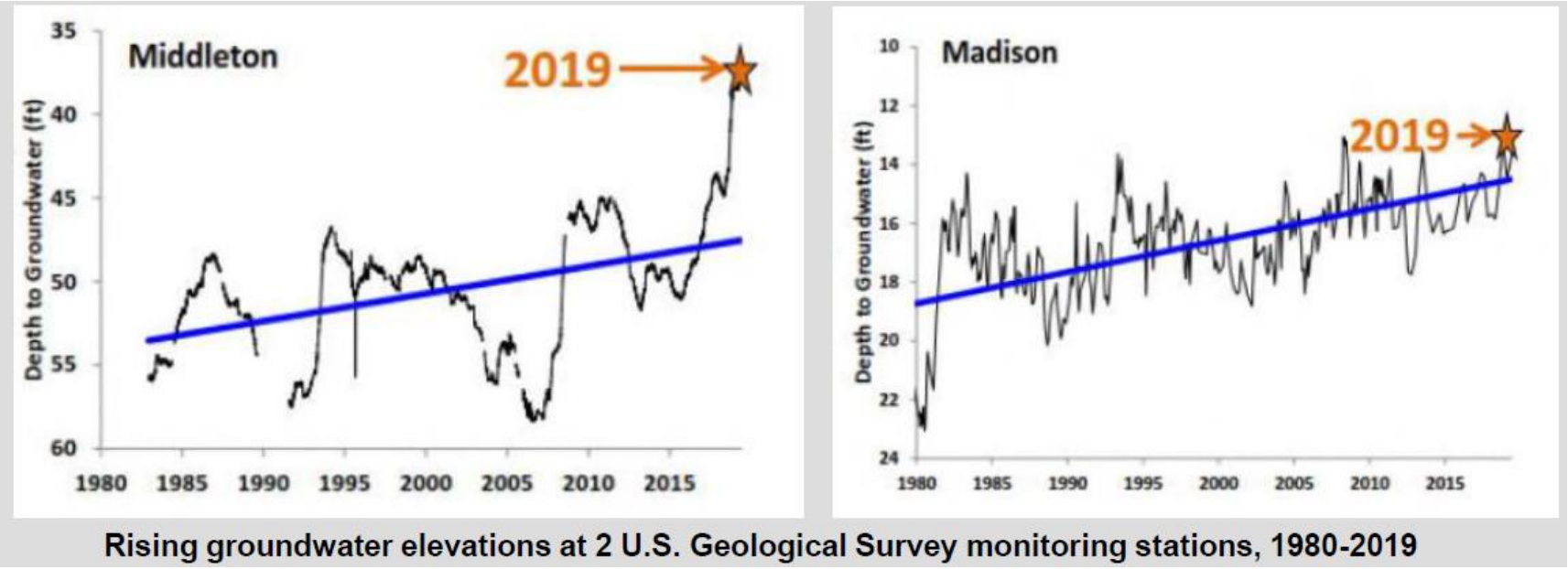
Task 2

Backyard Drainage Program Analysis

Background Information

GROUNDWATER TRENDS

- Wet weather has also raised groundwater elevations. Groundwater systems change slowly and have a long "memory" – these conditions may persist for years.

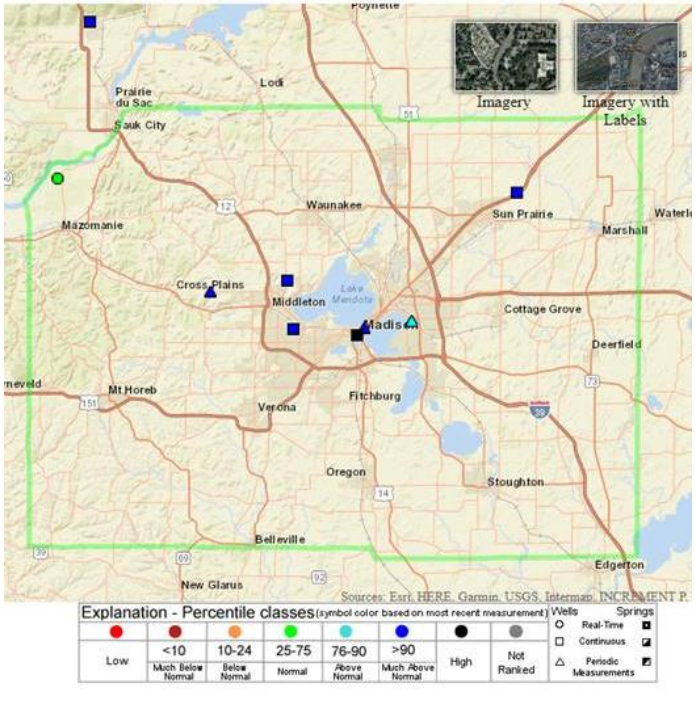


Rising groundwater elevations at 2 U.S. Geological Survey monitoring stations, 1980-2019

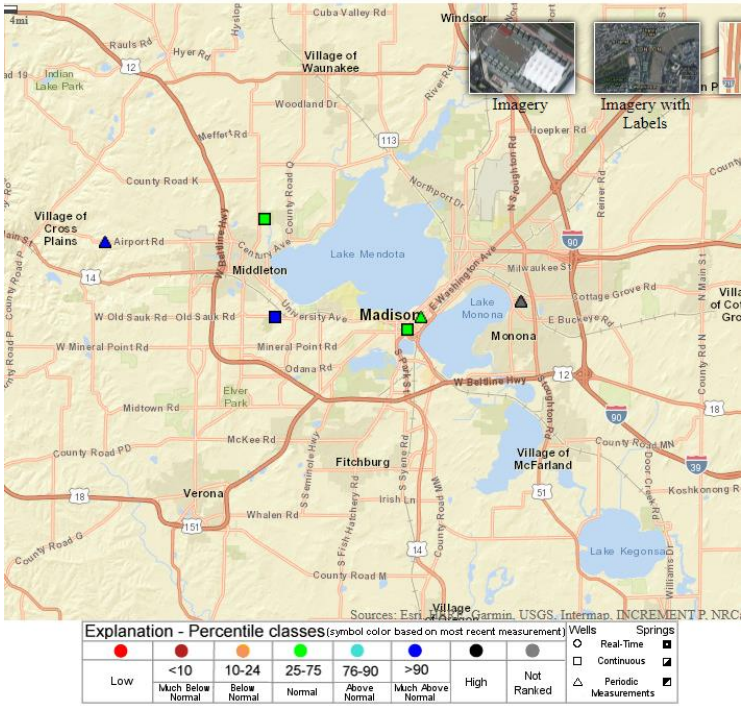
GROUNDWATER TRENDS

- Over the last five years, residents throughout Fitchburg have reported very high (sometimes constant) sump pump usage.

- Residents in the south of Fitchburg have reported groundwater tables 10 feet higher than normal in private wells.



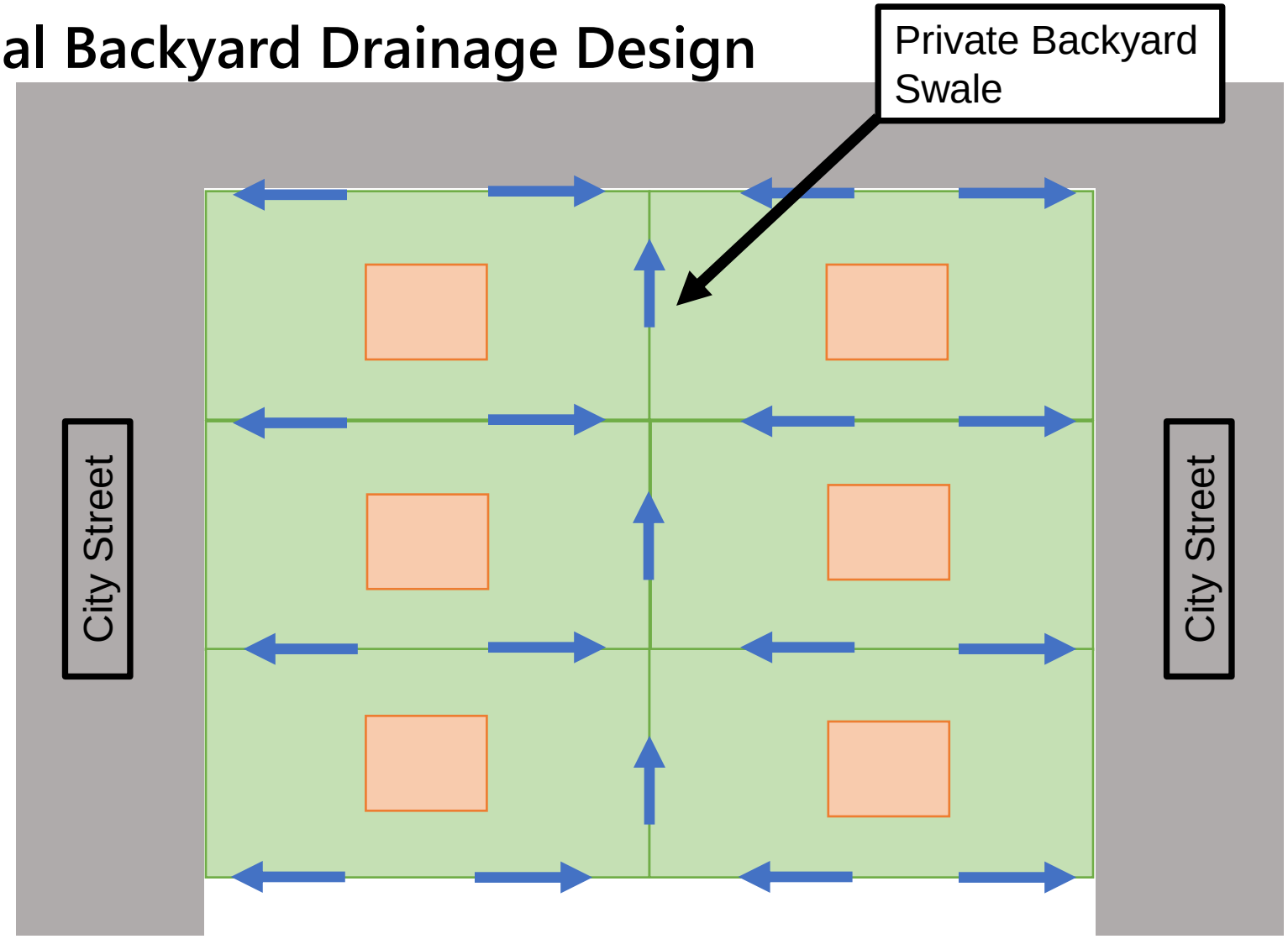
Source: USGS Groundwater Watch (screen shot 3/12/2019)



Source: USGS Groundwater Watch (screen shot 6/2/2021)

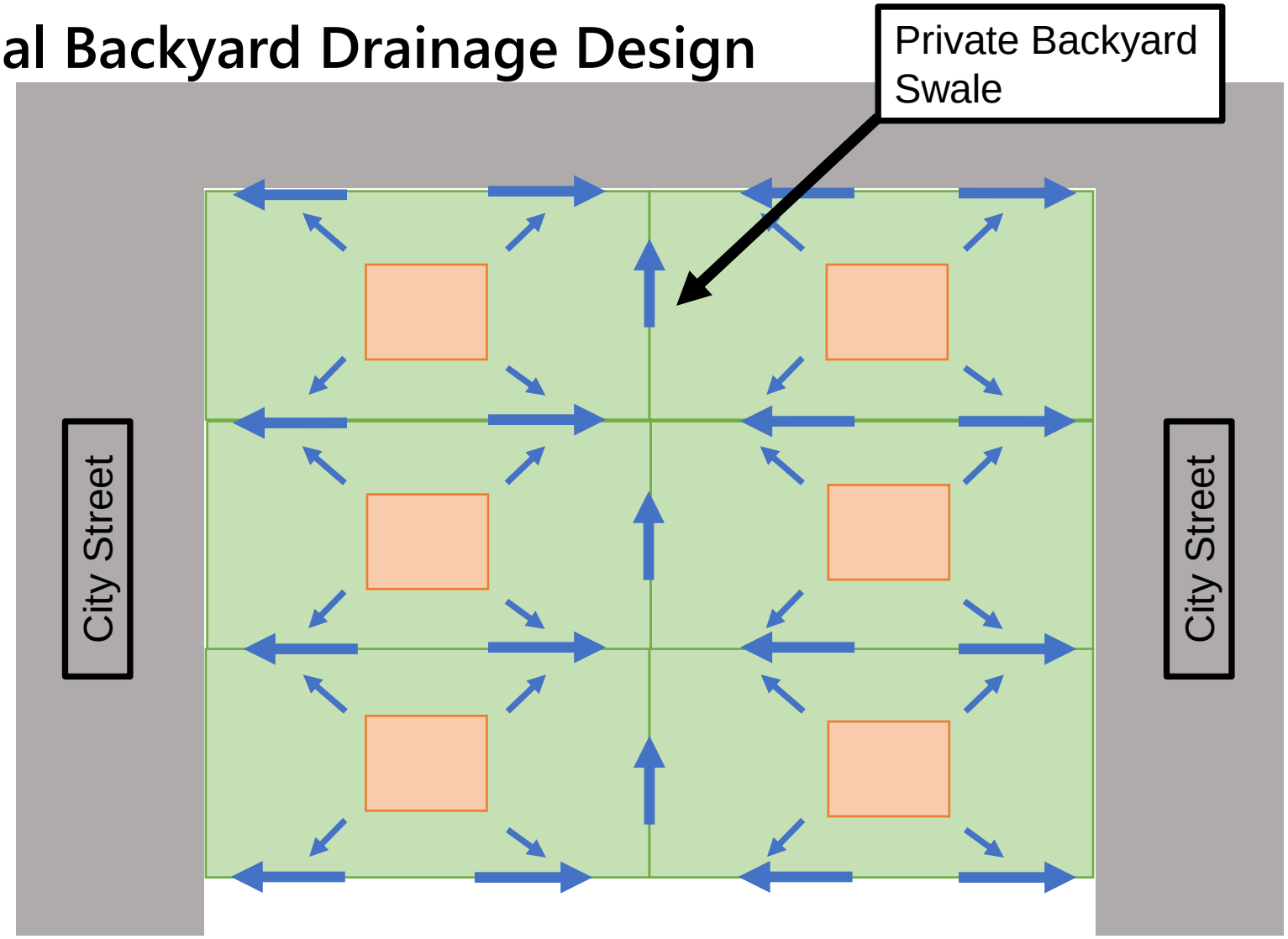
BACKGROUND INFORMATION

Typical Backyard Drainage Design



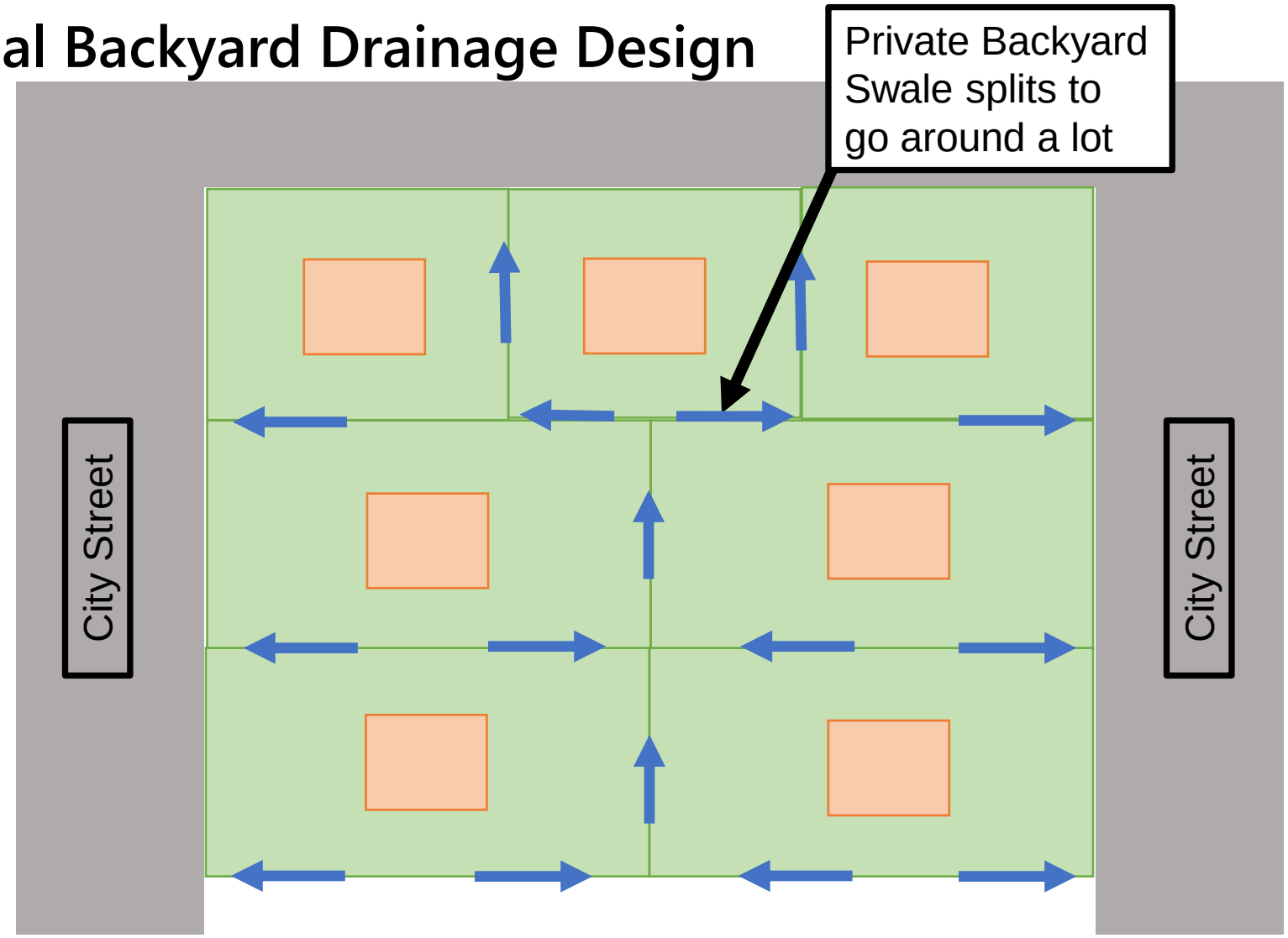
BACKGROUND INFORMATION

Typical Backyard Drainage Design



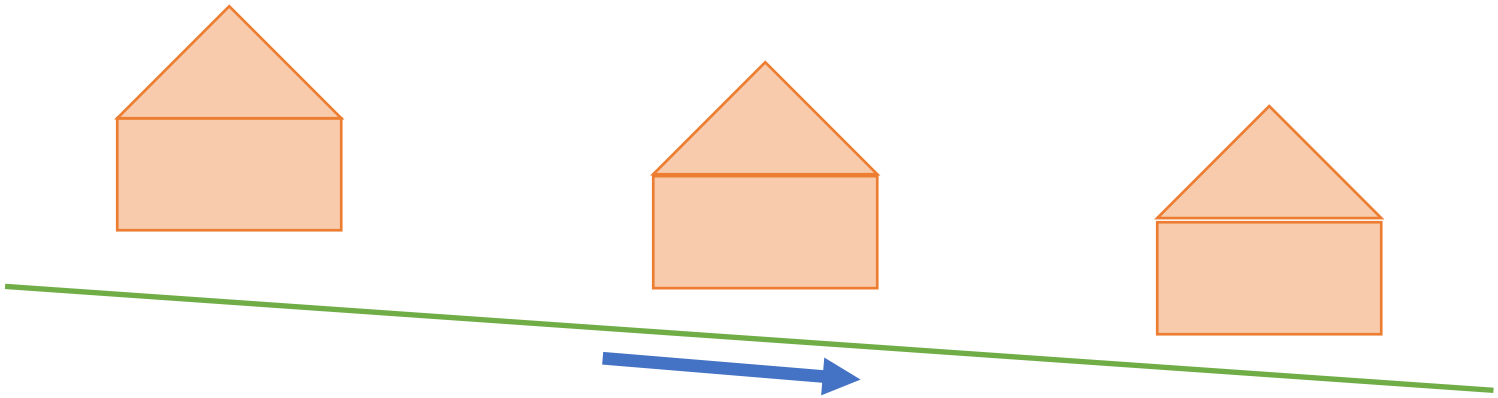
UNDERSTANDING BACKYARD ISSUES

Typical Backyard Drainage Design



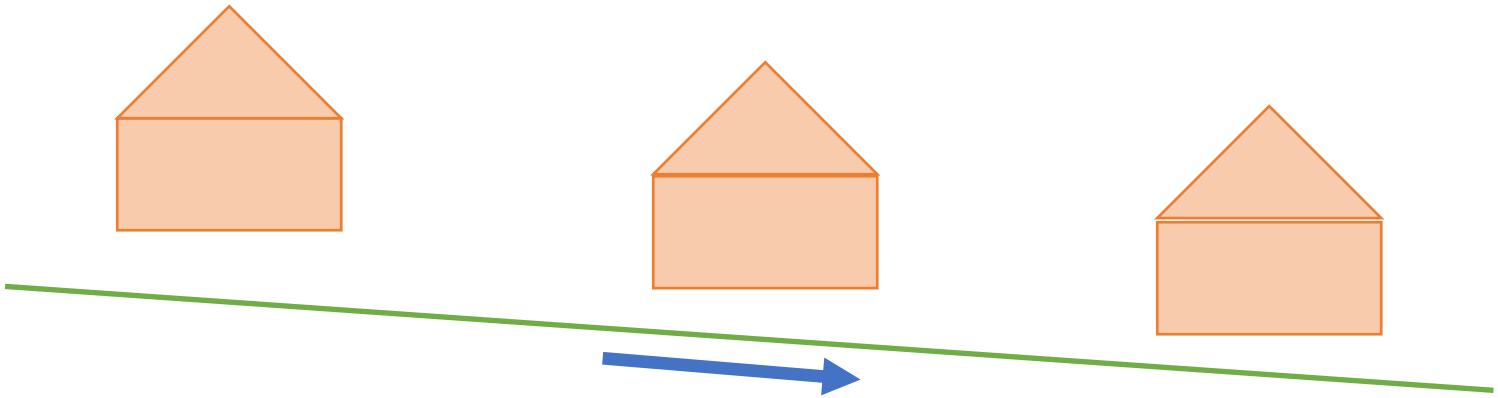
UNDERSTANDING BACKYARD ISSUES

As built

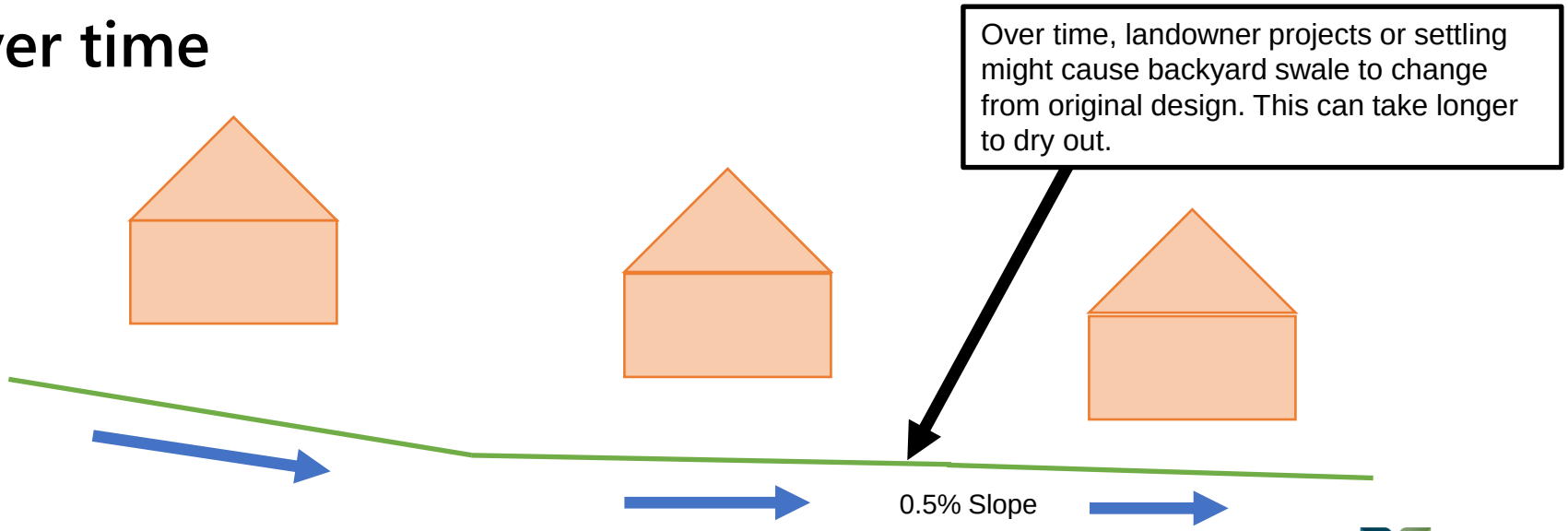


UNDERSTANDING BACKYARD ISSUES

As built



Over time



UNDERSTANDING BACKYARD ISSUES

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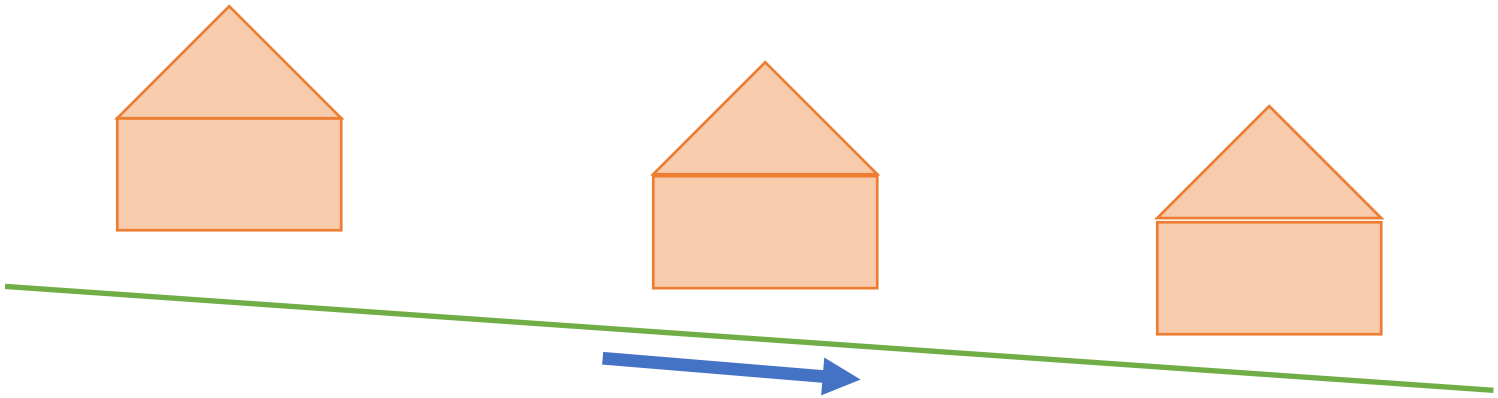

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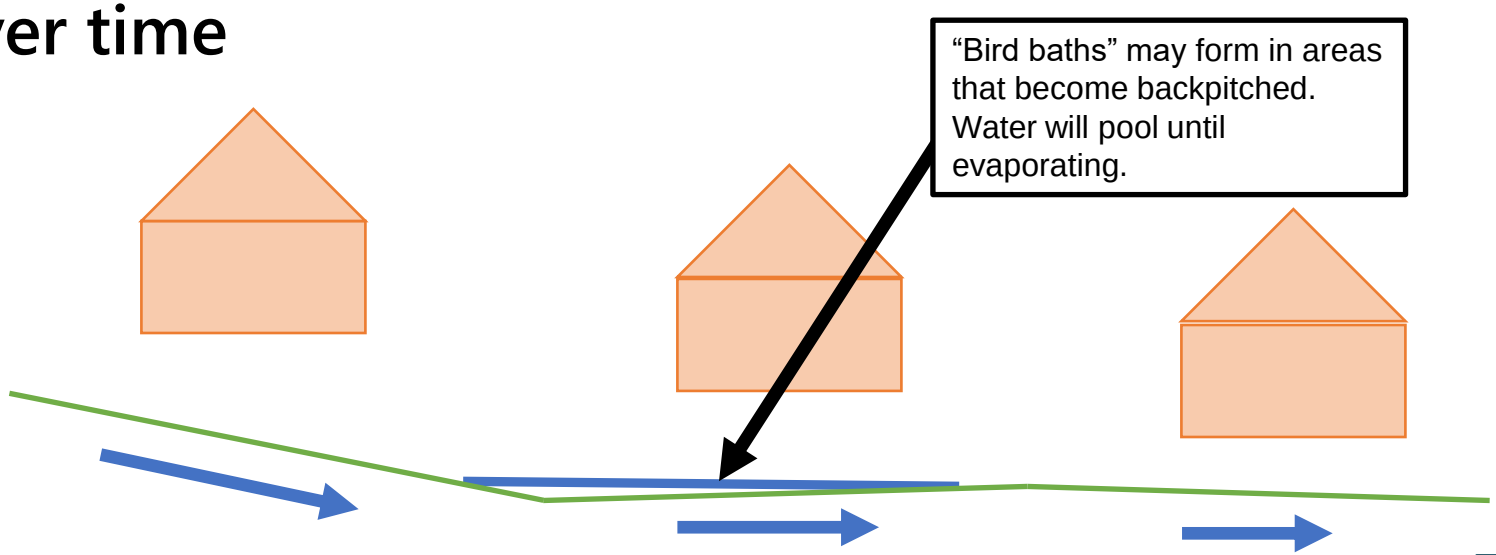
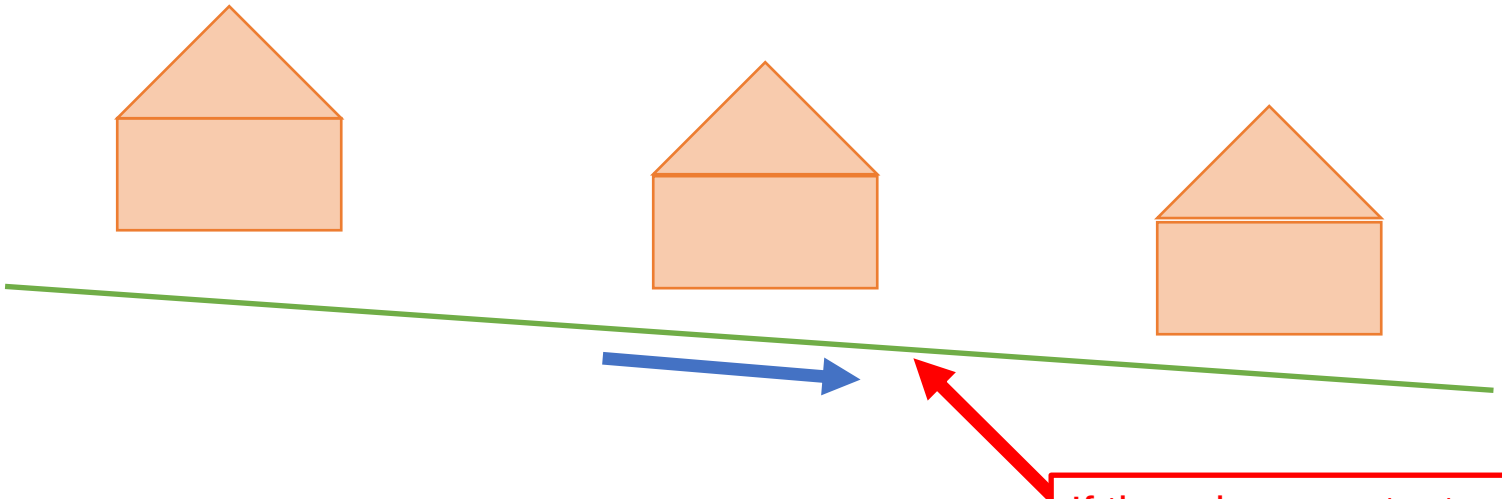


UNDERSTANDING BACKYARD ISSUES

As built

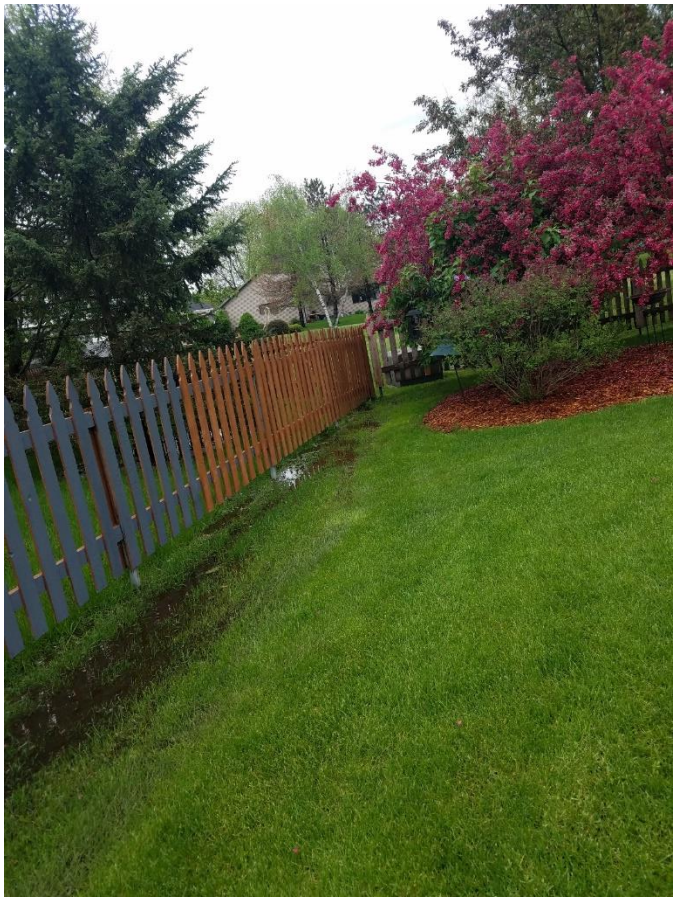


If there is a constant supply of water (such as a sump pump that runs constantly), the ground will get soft and unmanageable – even if there is appropriate slope. However, the problem will be exacerbated if the slope is near flat.

BACKYARD DRAINAGE ISSUES

Icy Backyard Swale

Cheryl Drive - Feb 2016



Soggy Backyard Swale

Cheryl Dr - May 2019

BACKYARD DRAINAGE ISSUES

Frozen "Bird Bath" along Backyard Swale

Cheryl Dr - May 2019

"Bird Baths" along Backyard Swale

Cheryl Dr - May 2019

BACKYARD DRAINAGE ISSUES

Water Pooling in Flat Area

Lyman Lane - 2013

Wet Swale

Lyman Lane - 2013

Public Input

SUMMARIZED FROM 9/28/21 NEIGHBORHOOD MEETING

PROBLEMS EXPERIENCED

- Sump pumps run continuously, causing:
  - Wet, unmanageable areas in back of yard (cannot mow or maintain)
  - Ice buildup in the street during the winter
  - If sump pump fails, basements have flooded (necessitated installing secondary, battery-operated sump pump)
- Settling of ground, causing
  - Very flat slopes or “bird bath” areas that do not drain well (exacerbated by sump pumps running continuously)
- Most severe towards the bottom of the hill, especially in areas where the backyard drainage ditch is very flat

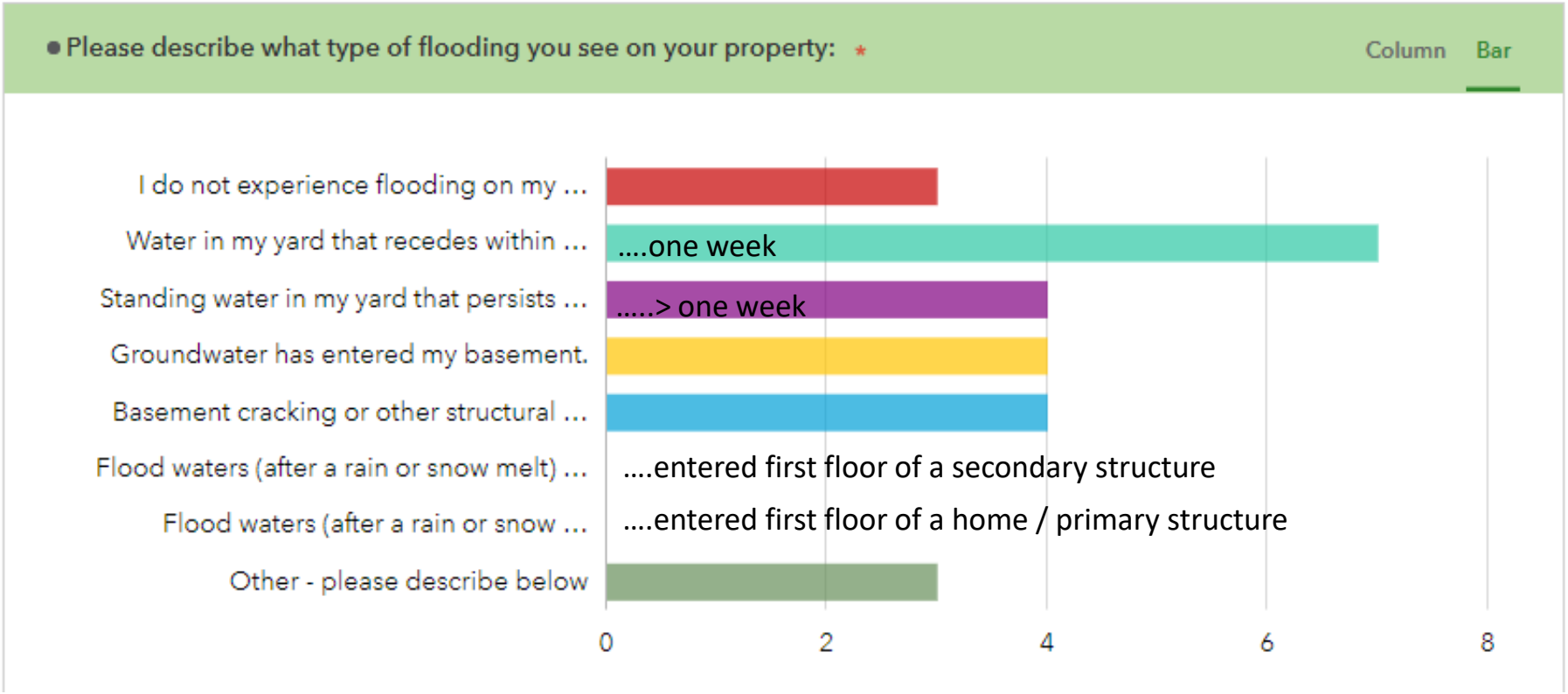
Public Input

FROM SURVEY PROVIDED TO RESIDENTS

IN ADVANCE OF THIS MEETING

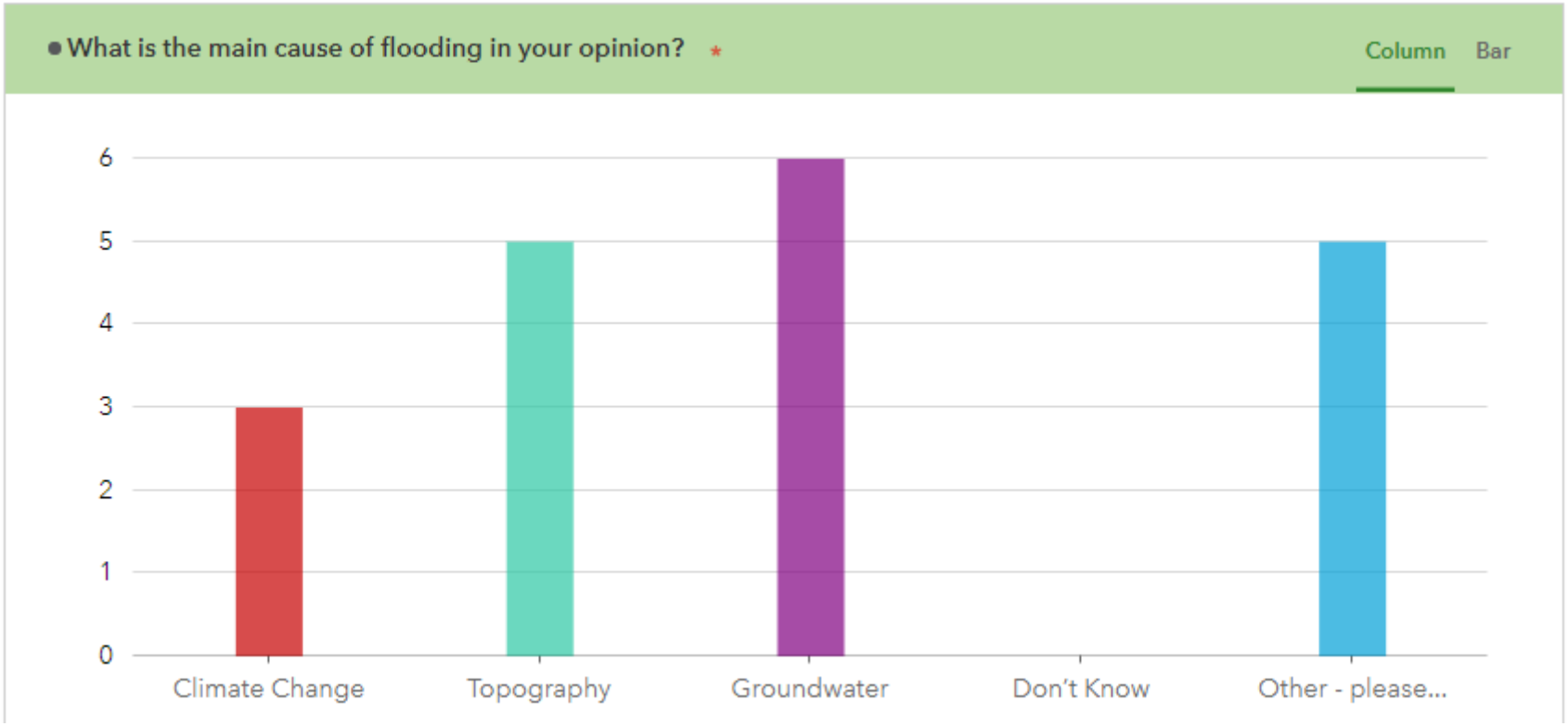
BACKYARD STORMWATER ISSUES

SURVEY RESULTS



"Other" included excessive sump pump usage and persistent standing water on a neighbor's property.

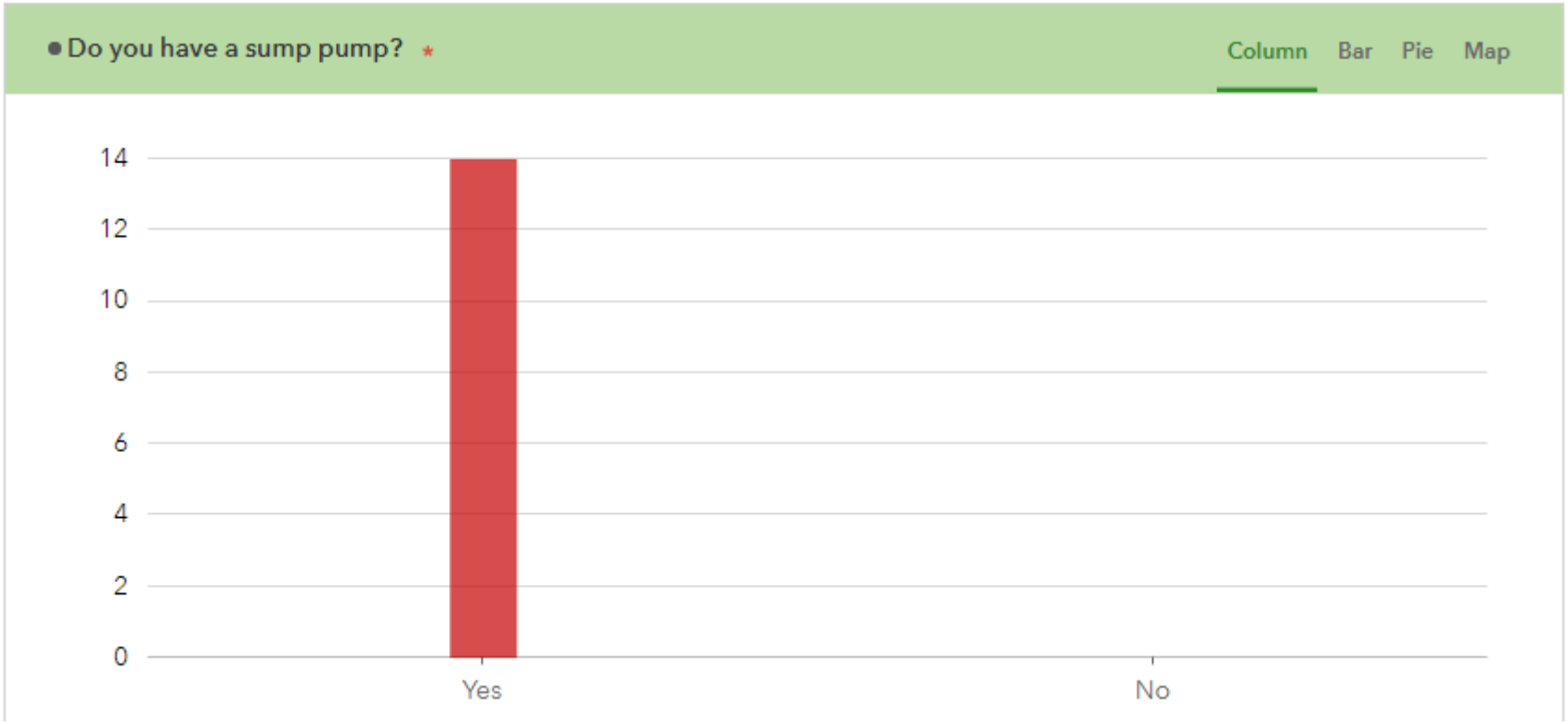
BACKYARD FLOODING CAUSES



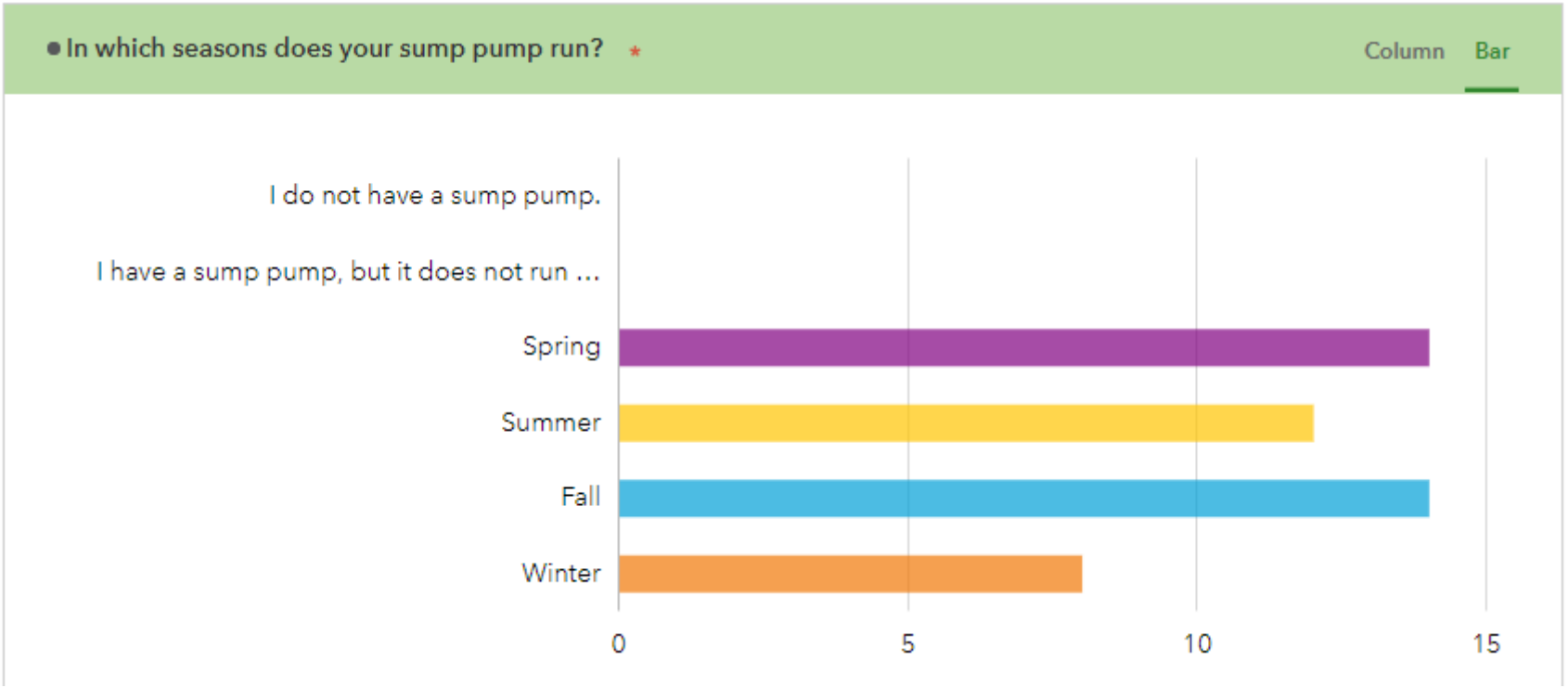
"Other" included inadequate neighborhood planning and infrastructure, exacerbated by development of surrounding / uphill areas. Also, heavy rains when ground in McKee Farms Park is already saturated.

BACKYARD FLOODING CONCERN

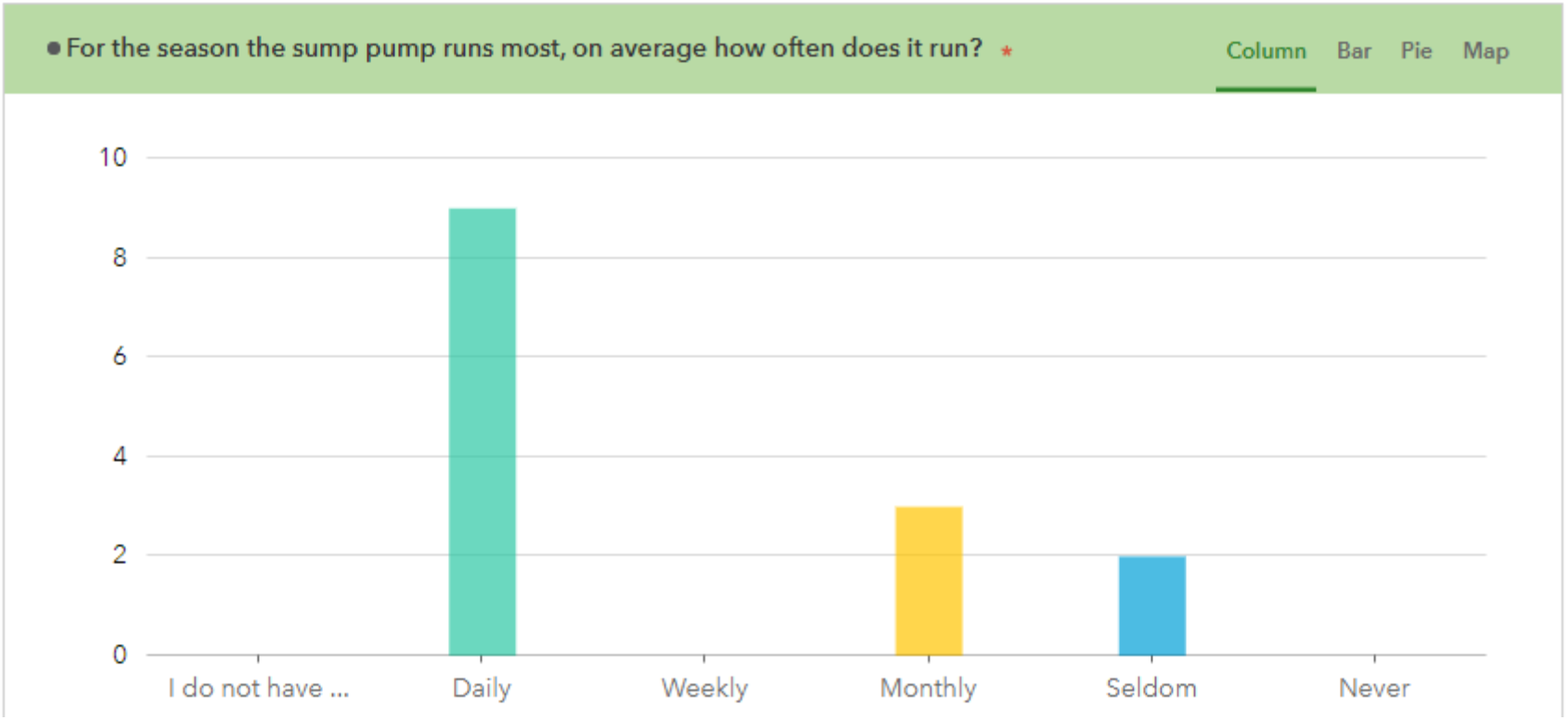
SUMP PUMP IN HOME



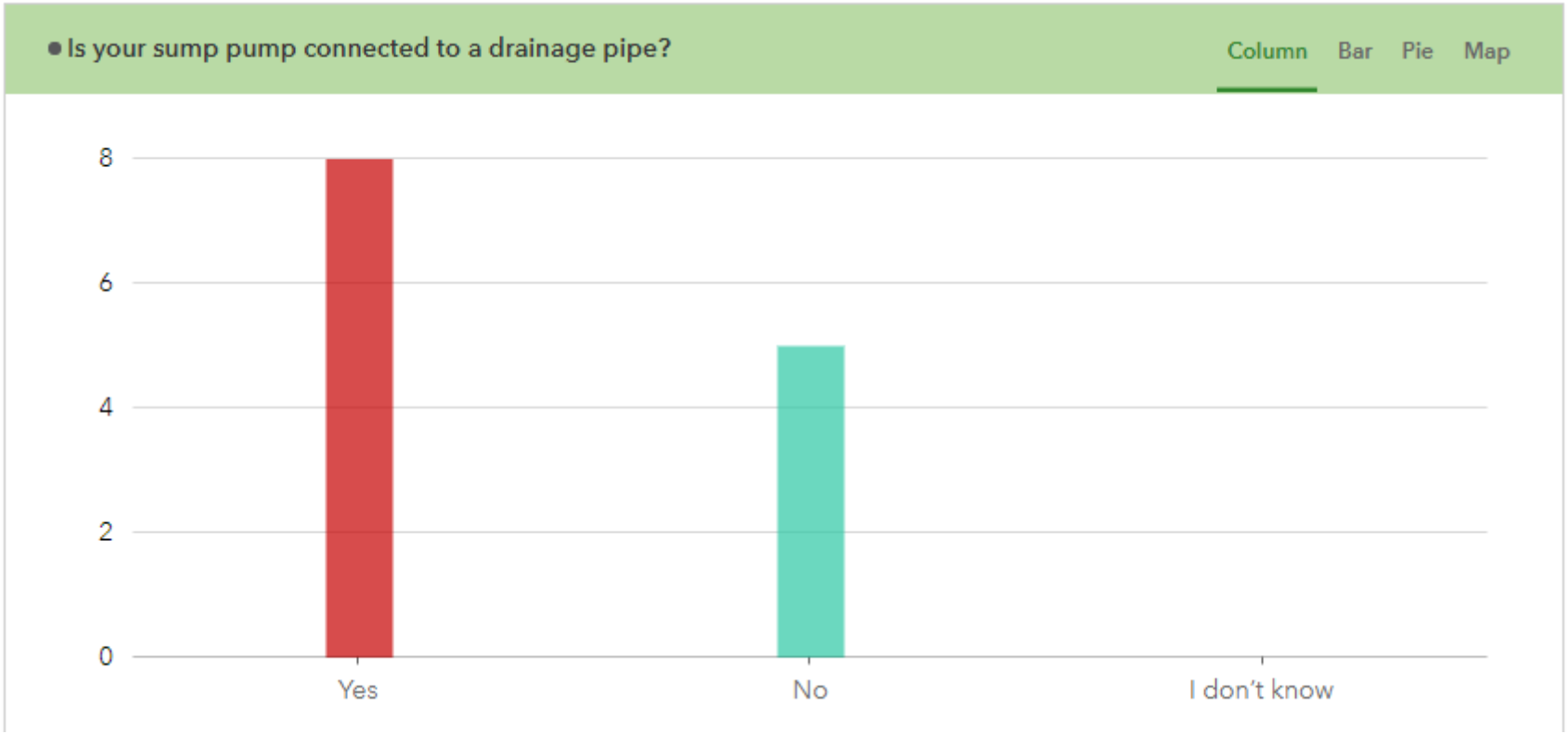
SUMP PUMP USE BY SEASON



SUMP PUMP USE FREQUENCY



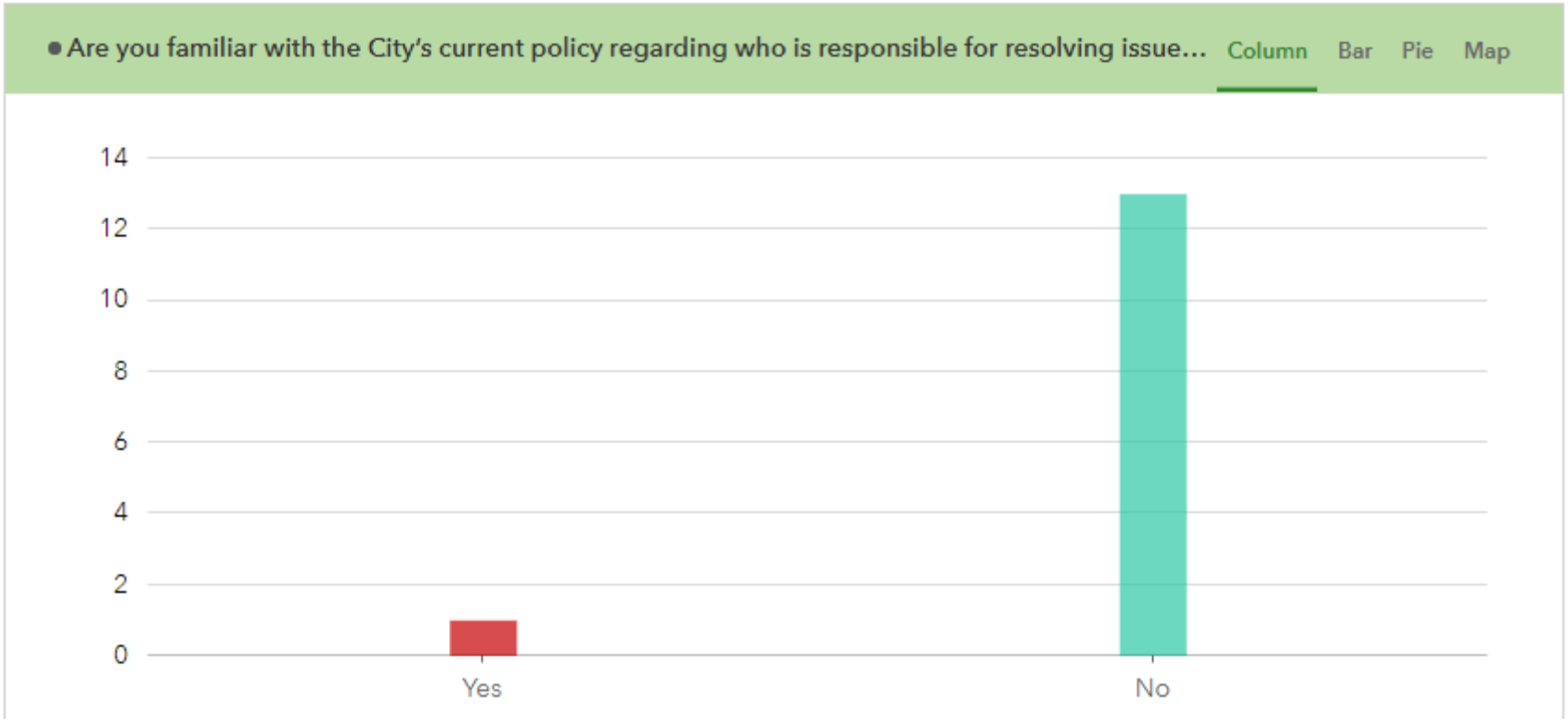
SUMP PUMP DRAINAGE PIPE



SOLUTIONS TO BACKYARD DRAINAGE PROBLEMS?

- Paraphrased responses:
  - Reworking backyard “drainage ditch”
  - Better outflow to and from the ponds in McKee Farms Park
  - Divert runoff from entering property
  - Improved drainage away from home / foundation
  - Provide an outlet for sump pump discharge (to storm sewer, not neighbor’s yards)
  - We don’t have a problem. PLEASE don’t try to fix something that isn’t broke.
  - It’s not a problem for us. Conversion of turf grass to perennial native plants has eliminated long durations of ponded water.

FAMILIARITY WITH CITY'S CURRENT POLICIES ON REGARDING PRIVATE DRAINAGE ISSUES?



SURVEY RESPONSES: WHAT SHOULD THE CITY'S ROLE BE IN PRIVATE DRAINAGE PROBLEMS?

- Paraphrased responses:
  - City approved the area development plan, they should at least identify solutions, if not fix directly. Private / public coordinated effort makes sense.
  - Make sure there aren't bottlenecks in City infrastructure (streets, parks)
  - Enable easy connection of sump discharge to storm sewers
  - Depends – if a landowner has modified their drainage from the original plans, they should be responsible. If issues are related to poor planning, lack of construction compliance enforcement, or upstream properties, the City may have a clearer role / responsibility.
  - Overall encouragement of landscaping and vegetation to reduce runoff, which may also solve minor issues in some yards. Drainage system for larger problems across contiguous yards.

OTHER COMMENTS

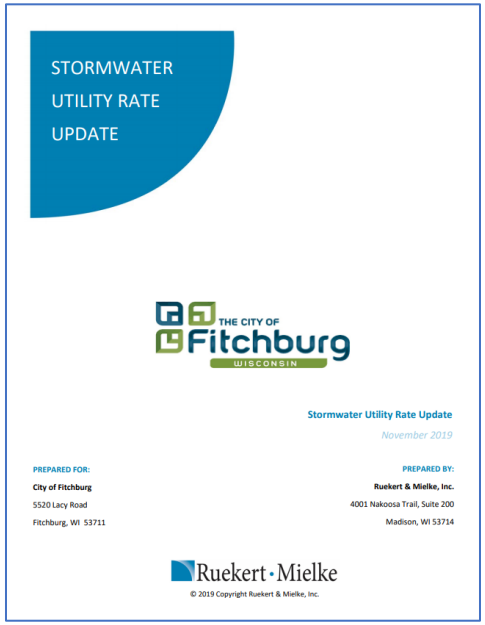
- Paraphrased responses:
  - Sump pump question should have had a "only after heavy rains" option – is not a seasonal or common issue at their home.
  - Several wanted to clarify that their "daily" response to sump pump usage meant more than once per day; often every 5-15 minutes
  - Standing water in yards and sump pump usage in all seasons has increased over past 20 years
  - Problem has gotten worse in last 20 years – have considered moving due to water issues.
  - Don't want a new back-yard drainage system to disturb successful landscape mitigation effort.
  - "Don't go crazy" with City efforts on private lands (digging up yards, etc.)

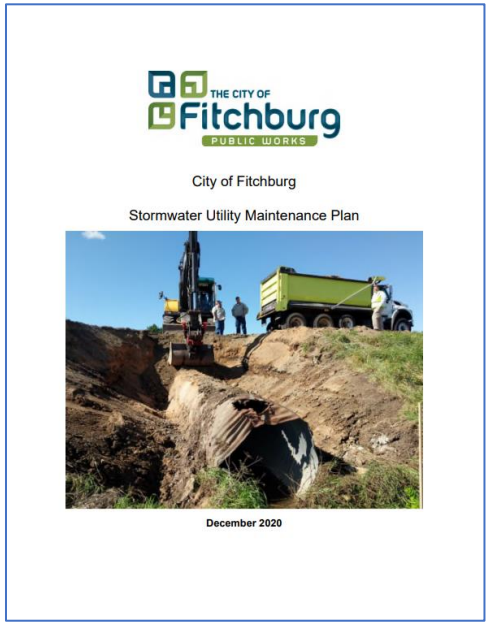
Stormwater Utility's Role

BACKGROUND INFORMATION

- Fitchburg's Stormwater Utility was established in 2002 to provide consistent funding for meeting the City's stormwater management responsibilities.

- Stormwater Rates are set based on a rate study, and reflect the City's current level of service for residents.





Documents can be found at:
http://www.fitchburgwi.gov/232/Stormwater-Utility

CURRENT LEVEL OF SERVICE

The Stormwater Utility maintains City-owned stormwater facilities, including inlets, manholes, and storm sewers located within the City right-of-way. In addition, the Stormwater Utility maintains regional ponds, infiltration basins, bioretention basins, greenways which are located on City property.

Repairing a corroded culvert

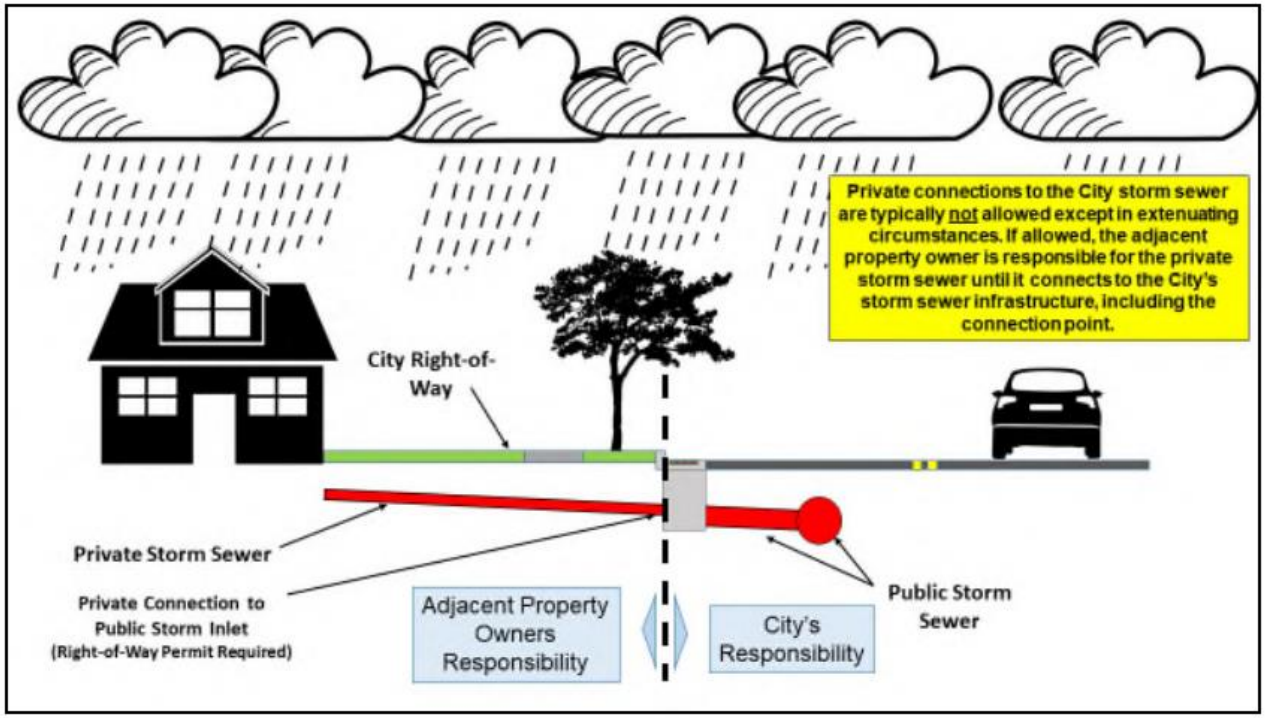
Clearing willows from a greenway

Sinkhole in need of repair

Street sweeping

CURRENT POLICY REGARDING ISSUES ON PRIVATE PROPERTY

- Addressing stormwater issues on private property are the responsibility of the landowner. This includes, but is not limited to, the installation, maintenance and repair of any private storm sewers (including drain tiles), as well as driveway culverts.



http://www.fitchburgwi.gov/DocumentCenter/View/21428/Stormwater-Utility-Maintenance-Plan

NEXT STEPS

- Task 2 (Backyard Flooding)
  - Compile input from residents
    - If you didn't have an opportunity to fill out the survey, please go to https://arcg.is/1zCCLG and fill in your responses by Friday, June 11
    - If you'd like to send photos, videos, or provide other input, please email that information to Claudia.guy@fitchburgwi.gov
  - Policy research
    - Research policies that other municipalities in Wisconsin have regarding municipal funds being used to resolve drainage issues located on private property
  - Develop recommendation for new backyard assistance program and present to Common Council

NEXT STEPS

- Any change to the City's current policy would require:
  - Common Council support of a new backyard drainage assistance program
  - Operating Budget would need to include funds to support a new backyard drainage assistance program
  - A Rate Study to determine new stormwater rates to reflect this new level of service

PROJECT TIMELINE

- Task 1 (Cheryl Drive)
  - June – July 2021. First public meeting, information gathering, and development of storm sewer models.
  - July – August: Develop and test conceptual solutions. Create preliminary figures and cost estimates for proposed solutions.
  - August – September: Final public meeting
- Task 2 (Backyard Flooding)
  - July – September: Policy research
  - October: Presentation to Common Council or Committee of the Whole (residents who would like to attend or speak are encouraged to come)

PROJECT RESOURCES

- The following webpage will be used to post recordings of meetings, as well as final reports:
  - http://www.fitchburgwi.gov/2704/Cheryl-Drive-Stormwater-Project
- Please sign up for the "Cheryl Drive Stormwater Project" notification list to receive updates regarding this project:
  - http://www.fitchburgwi.gov/list.aspx

QUESTIONS?

Claudia Guy, P.E.
City of Fitchburg Environmental Engineer
Claudia.Guy@fitchburgwi.gov
(608) 270-4262