River Falls Drainage Assessment Study

Public Kickoff Meeting

February 10, 2022

Montgomery County Department of Transportation

Agenda

- Introductions
- Drainage Program Overview
- Existing Storm Drain System
- Flooding Issues & History
- Work Done or In Progress
- Study Structure & Goals
- Scope of Work
- Questions

Introductions

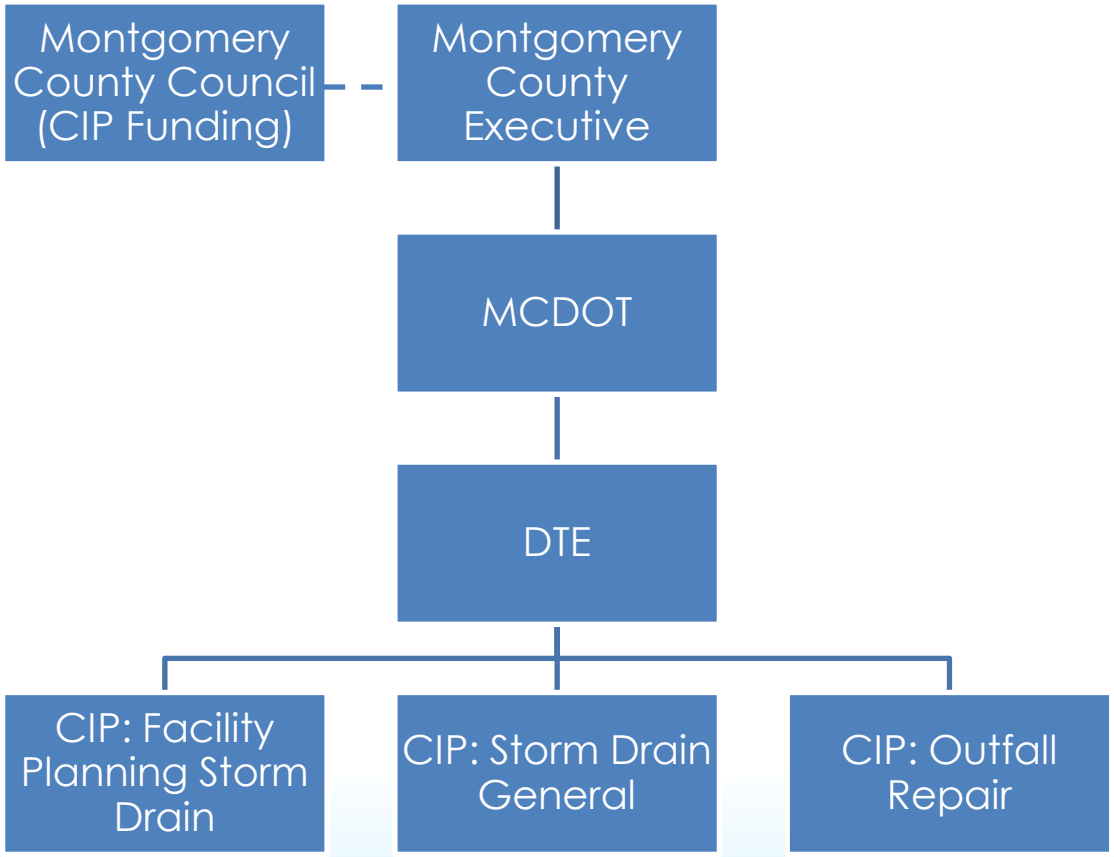
Key Organizations:

- MC DOT - Montgomery County Department of Transportation
- DTE - Division of Transportation Engineering
- DAR - Drainage Assistance Request Program
- MC DEP – Montgomery County Department of Environmental Protection

Key Personnel

- Dan Sheridan
  - Chief, DTE Design Section
- Kyle Hanley
  - DTE Engineer, DAR program Project Manager
- Ann English
  - DEP, RainScapes program manager
- Matt Spielman
  - DAR Program Consultant (GPI), Case Manager
- Bill Park
  - DAR Program Consultant (GPI), Engineering Services Manager

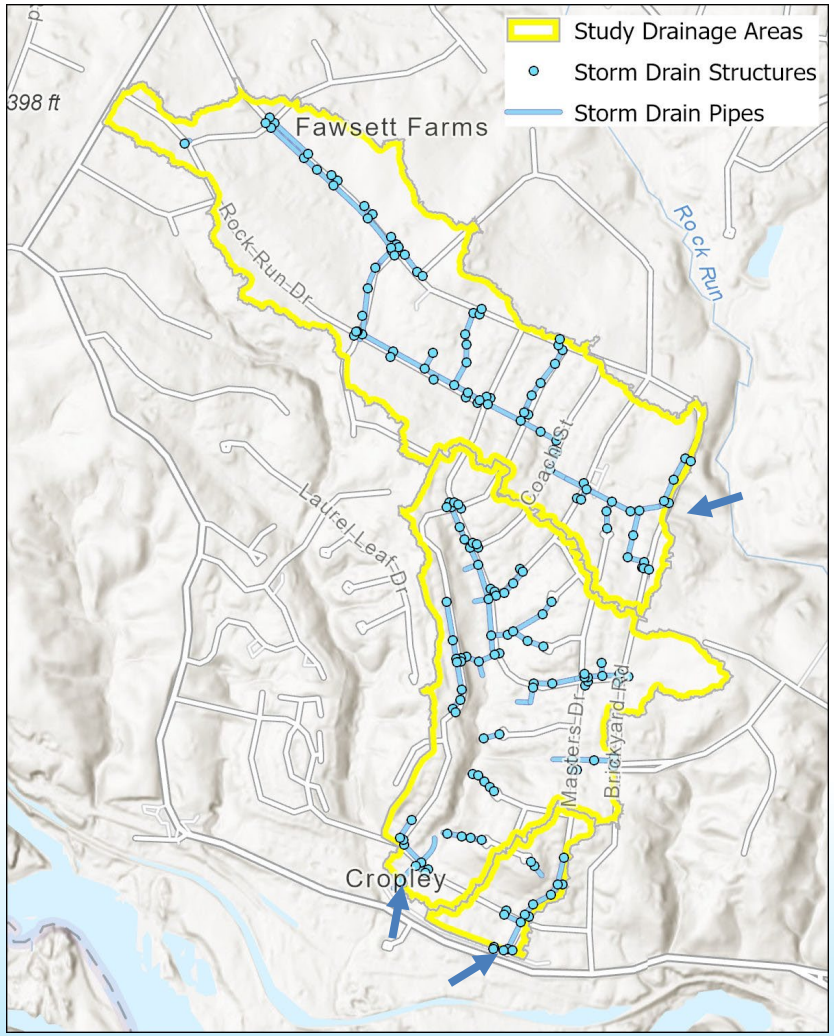
Drainage Program Overview



- CIP – Capital Improvement Project

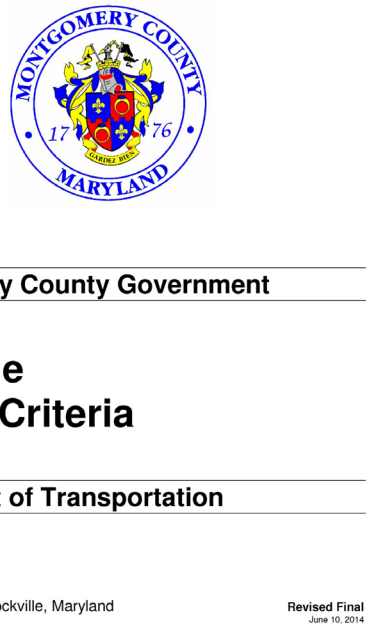
Existing Storm Drain System

- Storm drain system separate from sanitary sewer (WSSC)
- Installed mostly in 1960's
- 200 pipes - 22,000 linear feet
- >180 structures (manholes, inlets)
- Multiple piped streams
- Drainage Areas:
  - North – Outfall east of Brickyard Rd into Rock Run (190 acres)
  - South – Two outfalls to culverts under MacArthur Blvd (to C&O Canal) (136 acres)



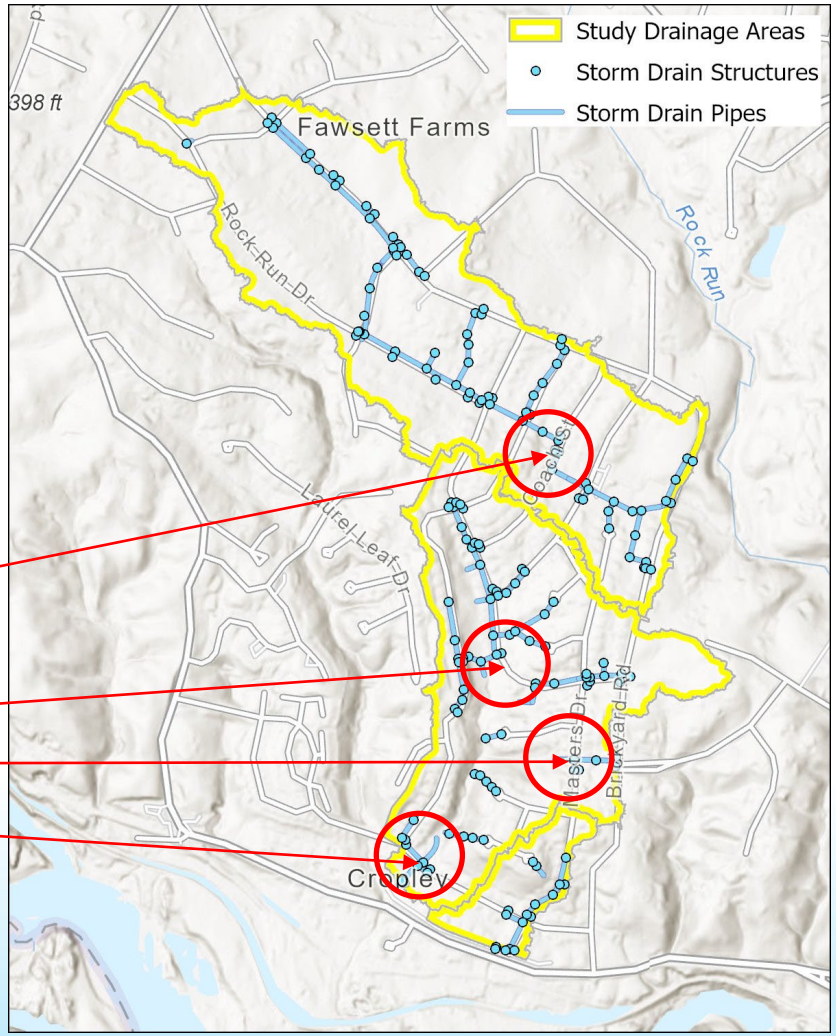
Storm Drain Design Capacity

- Capacity measured in cubic feet per second (cfs) of runoff water
- Drainage systems designed for specific storm sizes, called “return periods” or “design storms”
- Runoff volume calculated using 10-year (storm drains), 25- or 50-year (culverts) design storms
- Design storms are probabilistic:
  - 10-year = 10% chance each year
  - 100-year = 1% chance each year
- These are model storms, unusual storms (short duration downpours, Hurricane Ida) cause unpredictable flooding



Drainage Issues

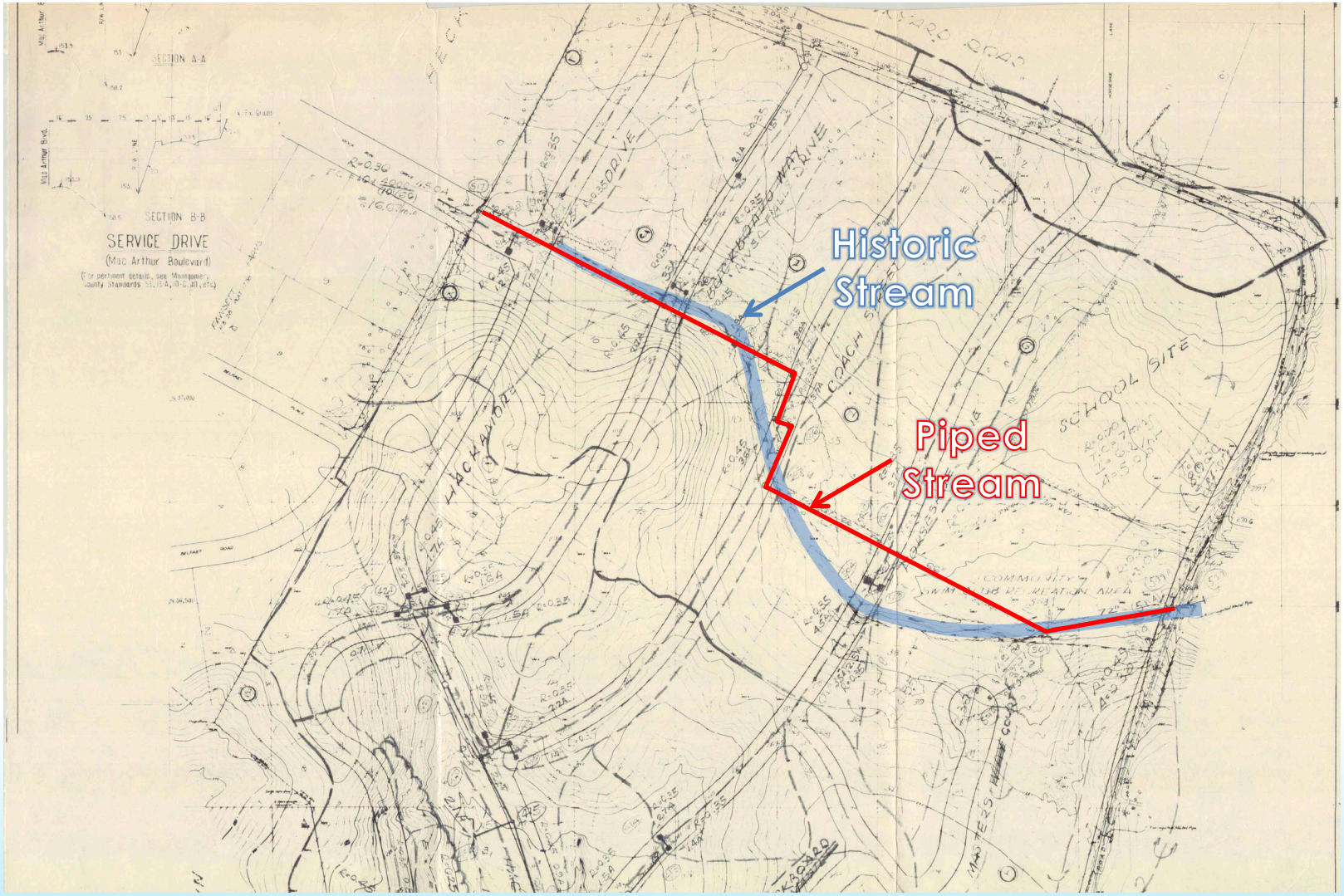
- Major Storm Events
  - May 5, 2015
  - July 8, 2019
  - August 7, 2019
  - September 10, 2020
  - September 1, 2021
    - 30 min intense duration
    - Exceeded 200-year storm
- Major Problem Spots
  - Low spots along piped stream (north)
  - Low spots on Hackamore
  - Low spots on Masters
  - Low spots along piped stream (south)
- Multiple other Problem Areas



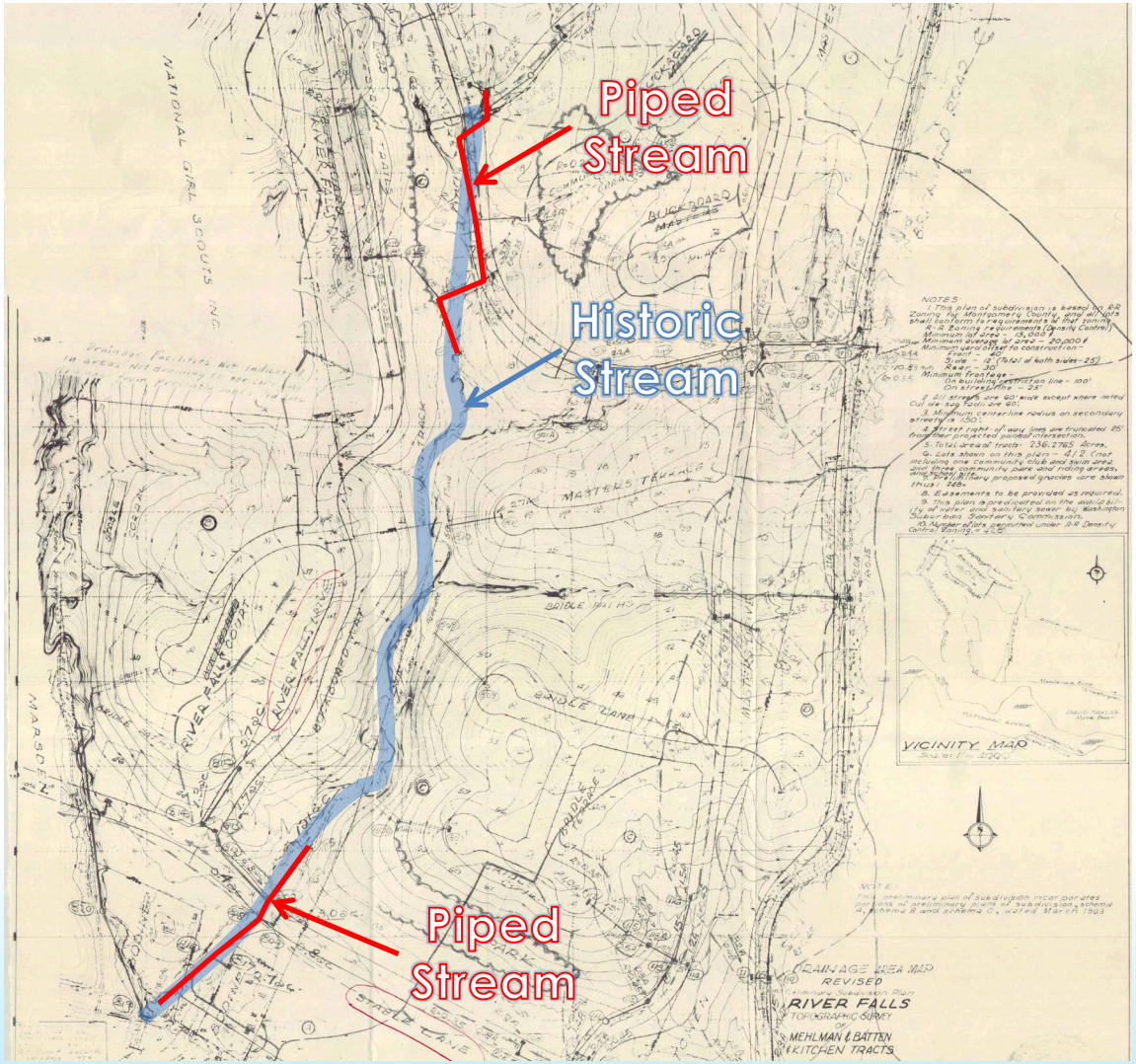
Drainage Issues

MCDOT

Neighborhood Plan: 1963 (North)



Neighborhood Plan: 1963 (South)



Piping Streams

- Natural streams usually have wide banks and broad floodplains
- Piped streams handle base flow and some storms, but flooding will try to follow historic path of stream

Completed Project: Stable Ln

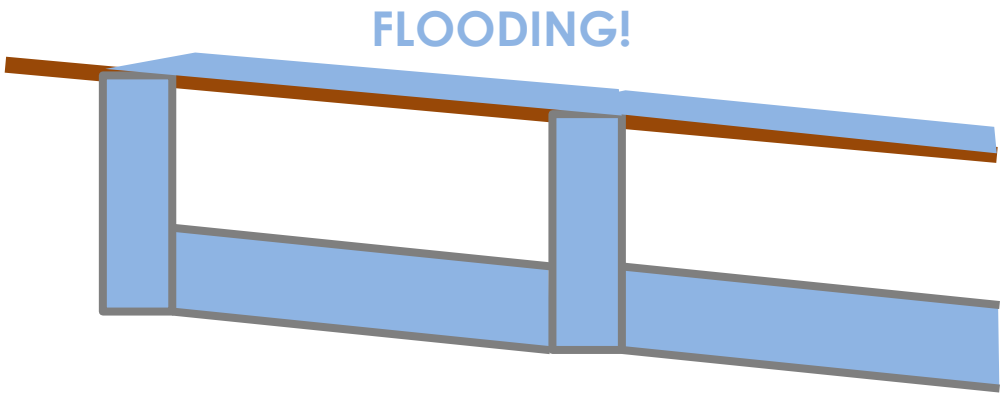
- Realigned pipe at road to reduce clogging
- Improved pipe headwall and stream to improve inlet efficiency
- No capacity increase

Upcoming Project: MacArthur Blvd Culvert

- Excavate opening and clear interior clogging
- Owned by US Army (DC aqueduct), MCDOT project
- In permitting with DPS, MDE, USACE

Problem with Piecemeal Approach

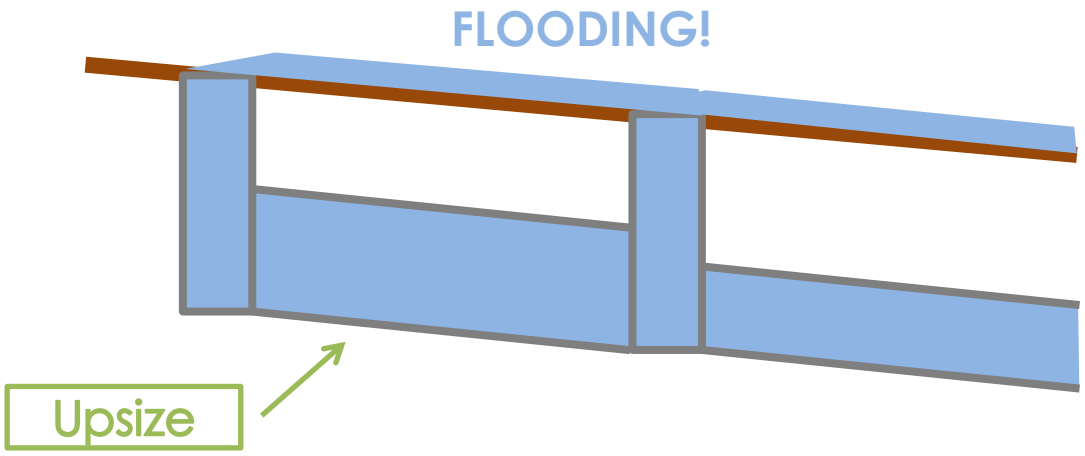
- Effective localized capacity improvements are difficult



- Existing Condition:
  - Overwhelmed pipes

Problem with Piecemeal Approach

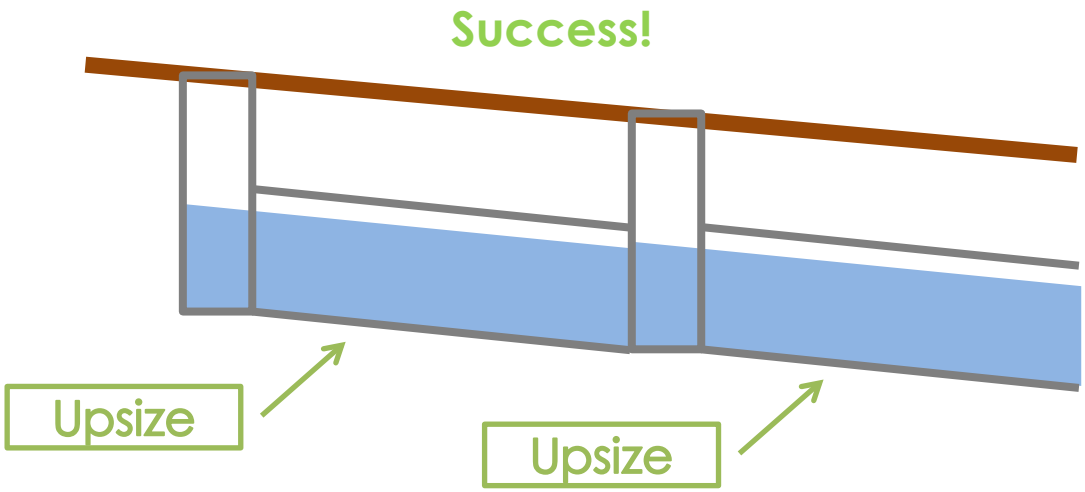
- DAR program Countywide, limited budget



  - Localized improvement near problem:
    - Less expensive, easier
    - Lower part of system restricts flow

Problem with Piecemeal Approach

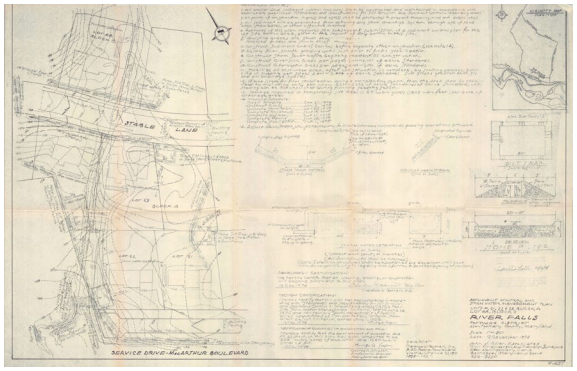
- Proper analysis and upgrade plan

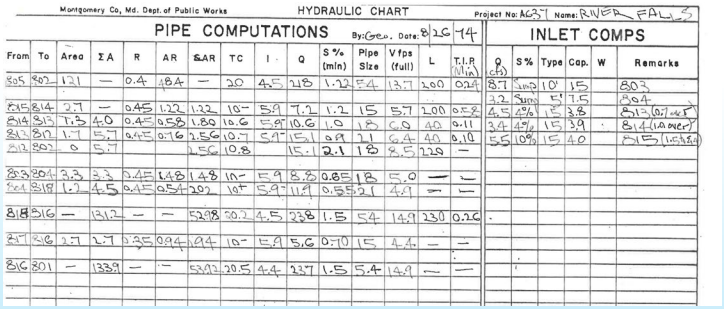


- Upsize to outfall:
  - Successful
  - Expensive and difficult, requires special funding

Study Structure

- Preliminary Site Assessment
  - Gather existing plans, computations, GIS data
  - Identify known issues/complaints
- Field Data Collection
  - Verify storm drain configuration (field survey)
    - Pipe size and condition
    - Structure location, size, condition
    - Drainage area confirmation
- Drainage Assessment Report
  - Hydrologic & Hydraulic (H&H) Analysis
    - Hydrologic – Drainage areas, impervious surfaces, soils
    - Hydraulic – Pipe and structure capacity
  - Recommendations for Improvements





Key Milestones

- Preliminary Site Assessment – Feb. 25, 2022
- Field Data Collection – Mar. 25, 2022
- Drainage Assessment Report – Apr. 20, 2022
- Internal Review and Comment – May 4, 2022
- Final Report and Public Meeting – May 18, 2022

Scope of Work for Grant Study

- Funding is for study only
- Project selection, prioritization, and funding sources will be determined later
- Risk and severity can be reduced but some storm flooding unavoidable (e.g. Hurricane Ida)
- Grant Manager: Megan Granato, MD Dept. Of Natural Resources, Chesapeake and Coastal Services. Grant is funded by US EPA through MD DNR

Strategy for Best Outcome

- Holistic Approach
- Structural improvements – inlets/pipes
- Retention improvements – rain gardens, etc.
- Identify any large capacity issues for long-term CIPs
- Identify smaller improvements for existing programs
- Community stormwater improvements
  - DEP RainScapes

MCDOT

How You Can Help

- Even if you aren't affected, you can help reduce runoff
- Reduce Impervious
  - Remove unnecessary concrete/asphalt
  - Install pervious pavers instead of concrete/asphalt, replace existing
- Increase Retention Time
  - Rain Barrels
  - Rain Gardens
  - Tree Planting/Conservation Landscaping
- Every little bit helps!

- https://www.montgomerycountymd.gov/water/rainscapes/

RainScapes

MCDOT

Questions?

Preparedness

- These storms are natural disasters, risk cannot be eliminated
- You don’t need to be in a floodplain to get flood insurance
- Maryland Insurance Administration
- Montgomery County Office of Emergency Management and Homeland Security (OEMHS)
- Links provided in meeting invite