



# Introduction to Municipal Downspout Disconnection

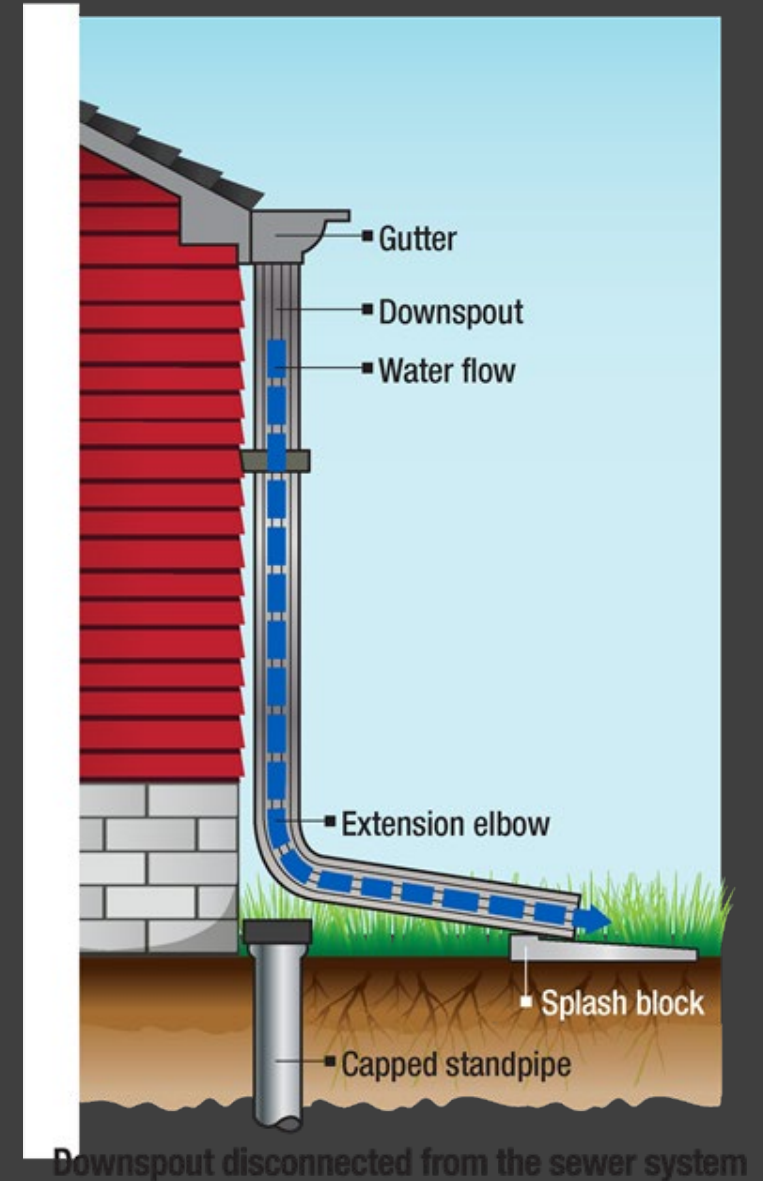
**Kristen Hychka, PhD**

Research & Outreach Specialist

NYS Water Resources Institute (NYS WRI)

# Thank you!

- Speakers
- Panelists
- Audience





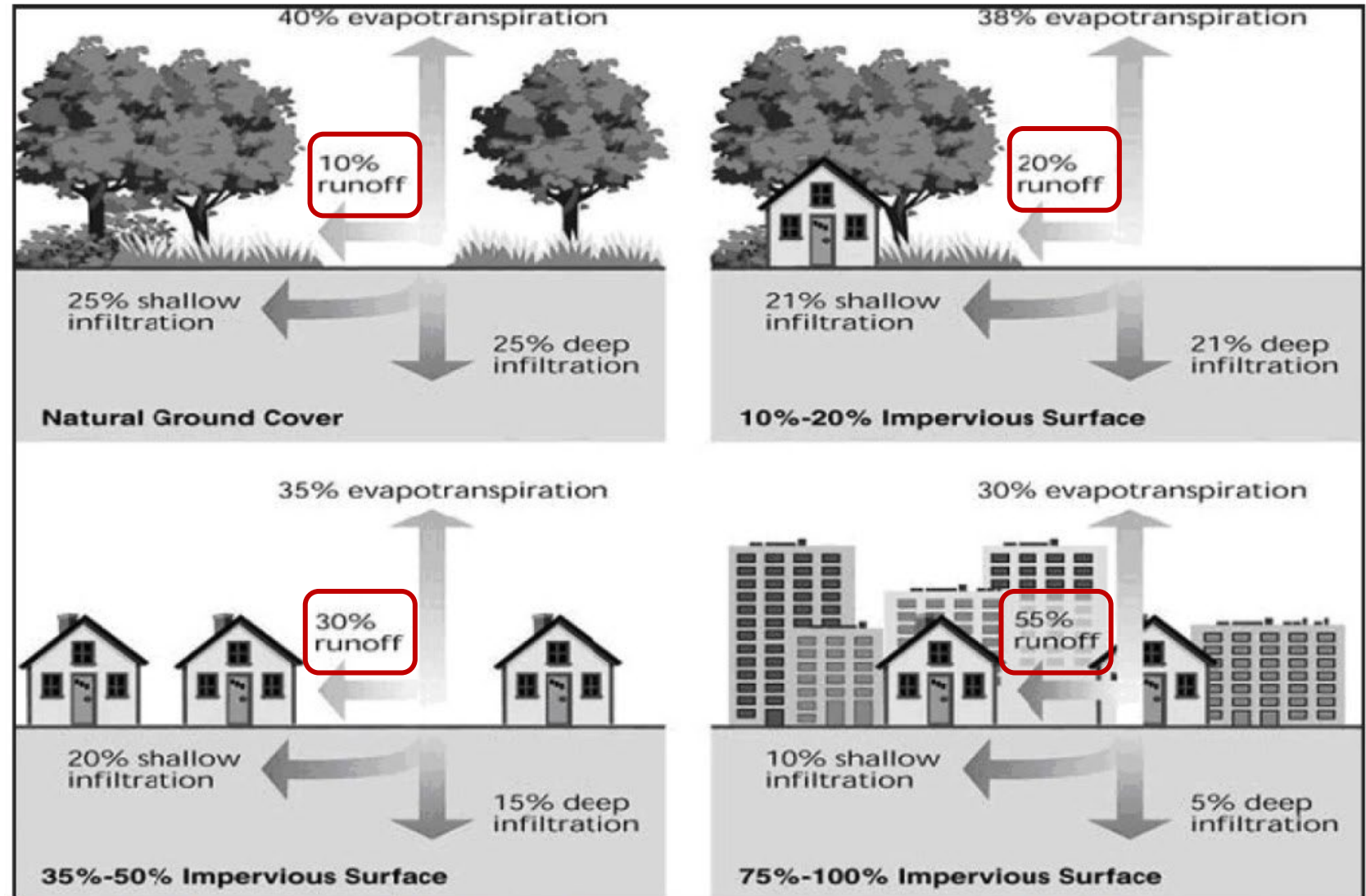
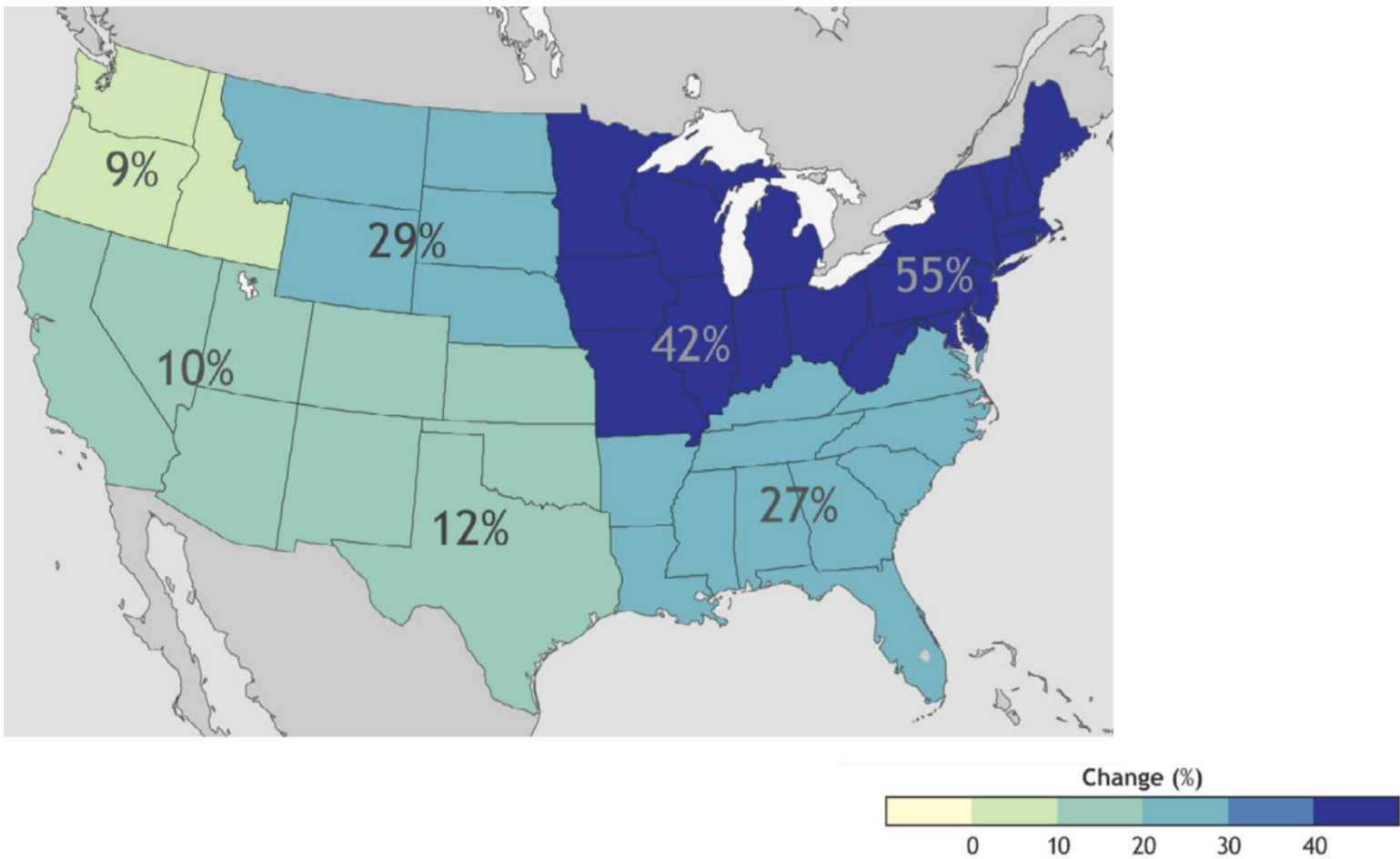


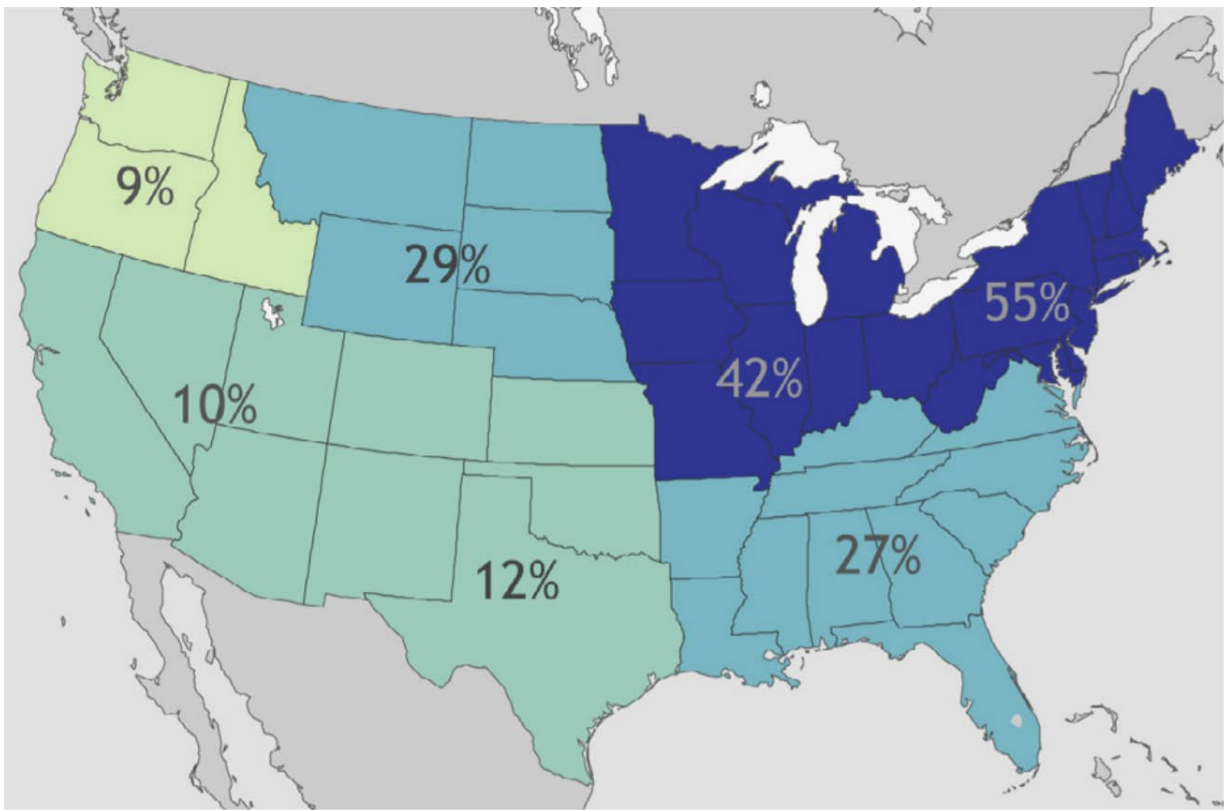
Figure 1: Changes in site hydrology with increasing impervious cover (US EPA)

**Observed recent change** in extreme precipitation,  
1958-2016

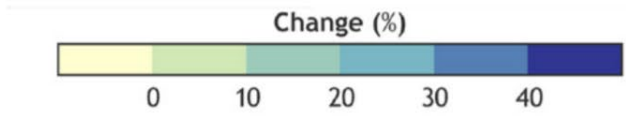
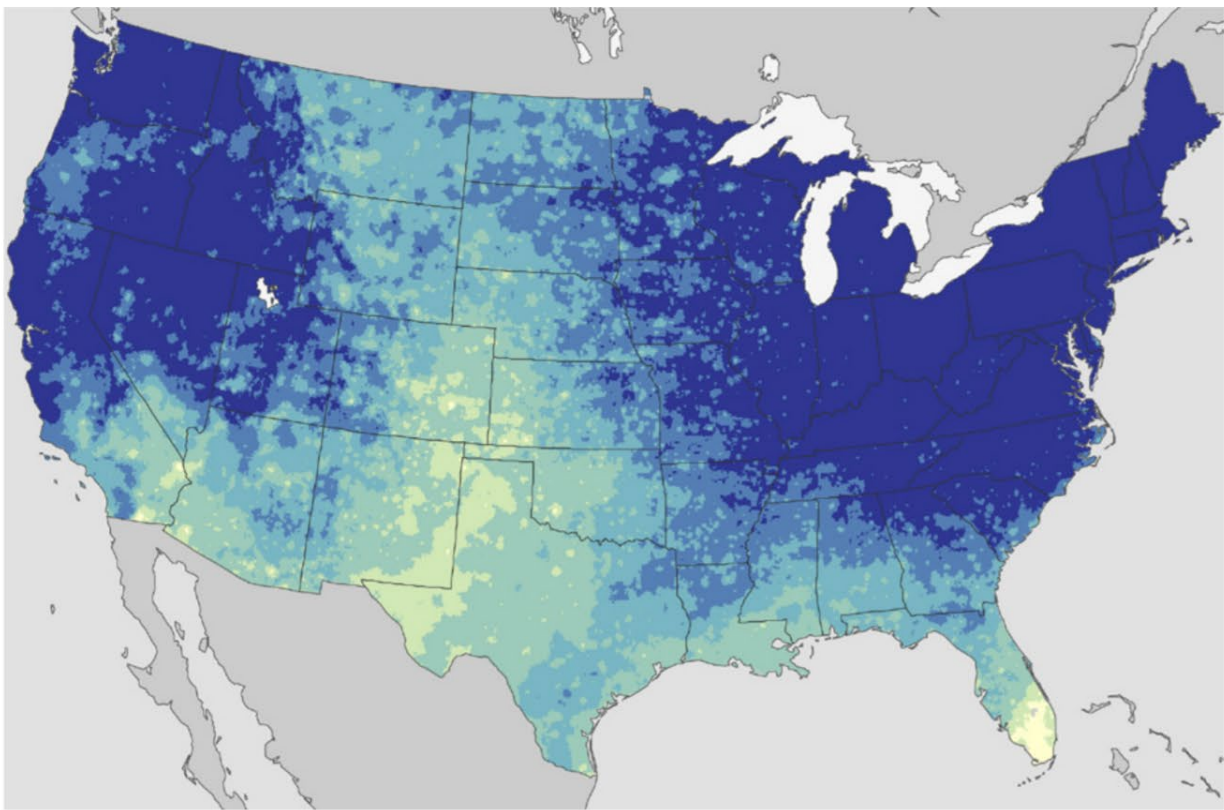


Source: NOAA Climate.gov  
Fourth National Climate  
Assessment

**Observed recent change** in extreme precipitation, 1958-2016



**Projected future change** in extreme precipitation by the late 21st century (higher emission)



Source: NOAA Climate.gov  
Fourth National Climate  
Assessment



# Aging and Undersized Infrastructure

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- NY State would need an estimated \$80 billion to repair, maintain, and replace drinking and wastewater infrastructure in New York over the next 20 years
  - NYS Comptroller, 2017
  - (<https://www.nysac.org/files/WaterWhitePaper.pdf>)





## House with no disconnect



Without a disconnected downspout, storm water goes into the roadway and storm and sewer systems.

Downspouts connected to the sanitary sewer result in very high flows to the wastewater treatment facility.

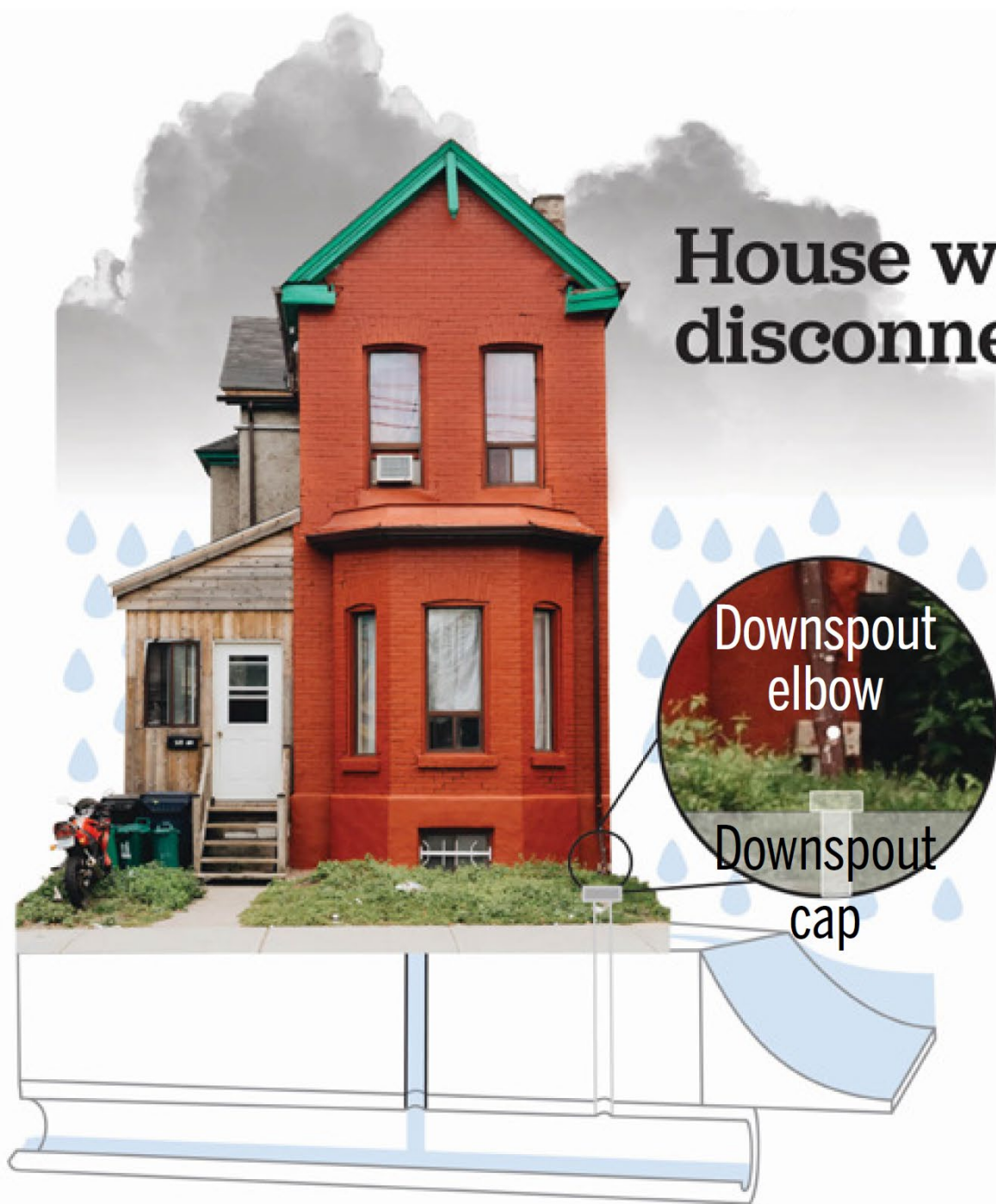
A typical eight-inch sanitary sewer can handle domestic sewage from up to **225 homes**;

however, it takes only **five sump pumps** operating at full capacity to overload an eight-inch sanitary sewer—

*Town of Olean*



## House with disconnect



With a disconnected downspout, stormwater goes into the roadway and storm systems.

There's less rain water in the sewer system, however without any additional water retention, localized flooding could happen downstream of the house.

## House with disconnect and water retention systems



A downspout disconnected from sanitary sewer with retention systems installed shows no increase in localized flooding downstream of the house.

The rain barrel and rain garden (a shallow, planted depression) will hold overflow water until it soaks into the soil.





Downspout  
disconnection

Municipal  
program

## What are we talking about?

Resilient  
stormwater  
systems

Resilient sanitary  
sewer systems

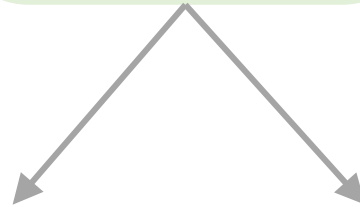
Green  
Infrastructure

**Municipal  
program**

**Downspout  
Disconnection  
+  
Green  
Infrastructure**

**Resilient  
stormwater  
systems**

**Resilient  
sanitary  
sewer systems**





# Community Motivation



## CSOs

- Reduce overflow events
- Meet permit requirements



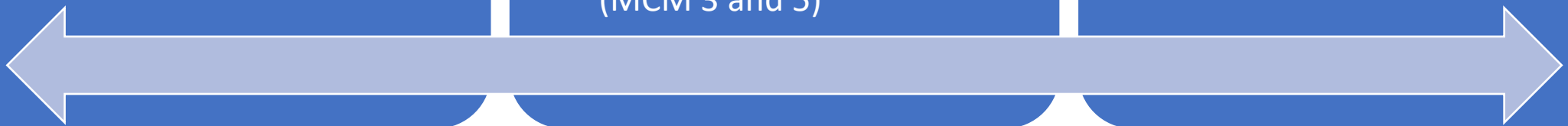
## MS4

- Reduce the amount of pollutants carried by stormwater during storm events to waterbodies
- Meet permit requirements (MCM 3 and 5)



## Other

- Infrastructure capacity
  - Storm water and sewer pipes
  - Wastewater treatment facility



## WASHINGTON, DC

- Voluntary program for FREE downspout disconnections with a FREE rain barrel in select areas.
- Free technical assistance, design.




We are helping protect  
our rivers by participating  
in the Downspout  
Disconnection Program. **You  
can too!**

**DRAIN the RAIN!**

dc water is life® dc clean RIVERS PROJECT

<https://www.dewater.com/projects/downspout-disconnection-program>



dc water is life®

**Clean Rivers  
Project**



# **Developing a Municipal Downspout Disconnect and Green Infrastructure Program**



# Program Development Step-by-Step



Determine **Baseline**  
and **Estimate Targets**



Determine **Budget**



Determine **Program**  
**Structure and**  
**Administration**



Determine **Timeline**



Determine **Target**  
**Audience**



Structure your  
**Outreach and**  
**Engagement Efforts**

# Program Development Step-by-Step

## Pre-step:

- Assess enabling conditions for GI
- Funding for program development and implementation



Determine **Baseline and Estimate Targets**



Determine **Budget**



Determine **Program Structure and Administration**



Determine **Timeline**



Determine **Target Audience**



Structure your **Outreach and Engagement Efforts**



# Program Structure and Administration

In-house administration,  
contracted, or both

Voluntary vs compliance-  
based programs

Types of Resources  
Provided

Determine Tracking  
Approach

## **Appendix A**

### Technical Support Resources

#### **Performing Disconnections**

Disconnecting residential downspouts can be done by a professional plumber or by a home owner with simple tools and materials.

- <https://www.lcbp.org/water-environment/water-quality/stormwater/how-to-redirect-a-downspout/>
- <https://www.southhadley.org/DocumentCenter/View/810/Downspout-Disconnections-PDF?bidId=>

#### **Residential Green Infrastructure Guidance**

Below is information about some of the most common and useful green infrastructure practices. Prior to installing any of

– most rain barrels are gravity-fed and so the water pressure is not that great

- Be disconnected from the downspout when temperatures are below freezing

#### **Rain Gardens**

Rain Gardens are sunken gardens that intercept stormwater runoff from a downspout, drain, or nearby impervious areas. A rain barrel and rain garden can be connected to the same downspout; in this case, the overflow or excess water from the rain barrel is routed into the rain garden. Do It Yourself installation/project guides:

**Appendix A**  
Technical Support Resources

**Appendix B**  
Sample 12-Month Outreach Strategy

Below is an outline for an example 12-month outreach strategy for a municipal downspout disconnect program.

Date	Activity	Target Audience	Partner Organizations	Expected Outcomes/Follow up
Month 1	Present at community meeting about Downspout Disconnect Program	Interested stakeholders	N/A	Introduce effort and receive feedback from residents
Month 1	Post announcement on neighborhood listserv/relevant social media with same content as community meeting presentation	For residents who did not attend meeting; or for permanent record of program	N/A	Increase reach of program information and receive feedback from residents
Month 1	Post announcement on neighborhood listserv/relevant social media with same content as community meeting presentation	For residents who did not attend meeting; or for permanent record of program	N/A	Increase reach of program information and receive feedback from residents



**Appendix A**  
Technical Support Resources

**Appendix B**  
Sample 12-Month Outreach Strategy

**Appendix C, Case Studies**  
Program Comparison

Program Name/ Location	Website	Practices	Incentive	Key Points
Sump Pump and Roof Drain Grants Sterling, IL	<a href="http://ci.sterling.il.us/sumppumpgrantcfm.cfm">http://ci.sterling.il.us/ sumppumpgrantcfm.cfm</a>	Sump pump and down- spout disconnection	\$400 maximum rebate for sump pump and down- spout disconnection	Program is targeted to keep ratepayer costs in check, and address sewer overflows
Sump Pump Amnesty	<a href="https://www.revere.org/">https://www.revere.org/</a>	Sump pump disconnect-	City pays for disconnect-	After “amnesty period”

# Appendix A

## Technical Support Resources

# Appendix B

## Sample 12-Month Outreach Strategy

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## Checklists

### Recommended first steps

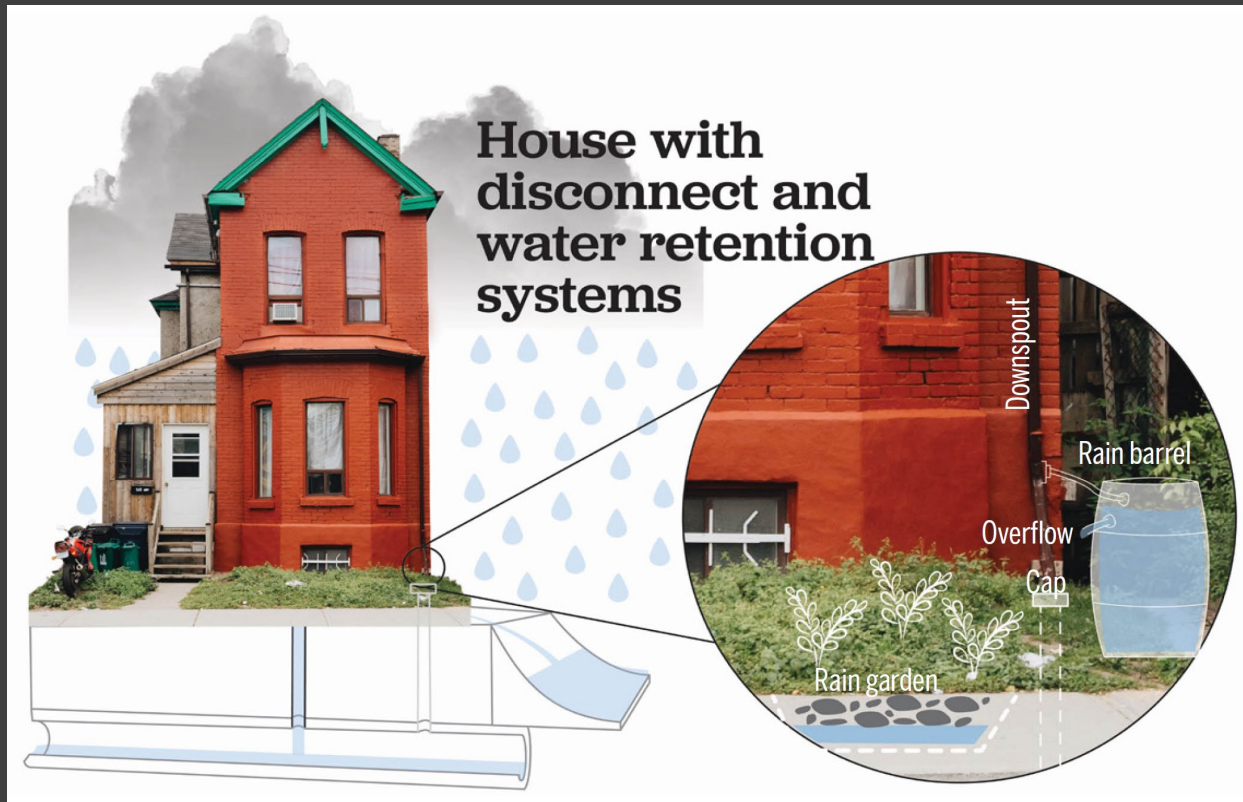
- ☐ Create guidance documents (print and digital) for property owners encouraging the disconnection of downspouts and other drains from the sanitary sewer. Documents should be posted on municipal websites, along with program point of contact
- ☐ Conduct a 12-month outreach and education initiative with the goal of reaching every property owner in the municipality to inform them of:
  - the downspout disconnect program and municipally-provided resources,
  - the amnesty/compliance period, and
  - the date after which the municipality may begin assessing fines.
- ☐ Implement an amnesty period (12 months) in which property owners can voluntarily disconnect drains. After the conclusion of the amnesty period, municipal officials can assess fines to properties that have not complied.
- ☐ Determine if the municipality has regulations regarding unpermitted connection to sanitary sewer lines. If not, may consider developing that, possibly in the form of an ordinance
  - DEC model ordinance:
    - [https://www.dec.ny.gov/docs/water\\_pdf/modelseweruselaw.pdf](https://www.dec.ny.gov/docs/water_pdf/modelseweruselaw.pdf)
  - Town of Amherst, NY general Sewer Use Requirements:
    - <https://ecode360.com/13279678>

### Key Questions: Program Oversight and Management

- ☐ Program Administration
  - Who will administer the program?
  - What languages will documents need to be provided in?
  - If technical assistance is provided, who will do the work?
    - If a contractor will be completing this work, does the municipality have the necessary legal structure in place for them to do so (to work on private property, to disburse funds on behalf of the municipality, etc.)?
  - If there are grants/rebates, who will handle tracking and disbursement of funds?
  - If technical or financial assistance is provided, how will the need for work and the completion of the work be verified?
    - Will there be any time of maintenance required and is inspection of maintenance tasks required?
- ☐ Have program managers met with local community and business leaders to gather and incorporate feedback about the program?
- ☐ If there is an “amnesty period,” ensure that any local ordinances allow for temporary non-enforcement
- ☐ How will program progress and milestone achievements be tracked? A digital tracking system for participating properties should be created, ideally in Excel or another format that is compatible with GIS.



# What your municipality can do



- Decide what is right for your municipality
- This webinar
  - Practical experience working with range of municipalities
    - Technical and programmatic
    - Disconnection and GI
- Funding
- Resources



# Thank you

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