

# CCV Stormwater Management Committee Report to the Town Council (July 27, 2021)

## CCV Stormwater Management Committee(SWMC) Formation

- Town Council formed SWMC after 9/10/20 storm
- Members of SWMC selected and announced
- Monthly-bi-monthly meetings from October 2020 through now

## SWMC Process

- Researched topographical, weather, and built environment issues
- Consulted town and county officials
- Reviewed relevant regulations of state, county, town, and neighboring towns
- Reviewed how regional communities are addressing these same issues
- Identified key contributing issues
- Made key findings and recommendations

## Stormwater Committee Members

David L. Goldwyn

Todd Eskelsen

Elise Pas

Nancy Somerville

Tom McCarty

Kevin Cannard

Bruce Hebbard

Tony Salah

Paul Kempton

Peter Marks of the Chevy Chase View Town Council served as Town Liaison to the Committee.

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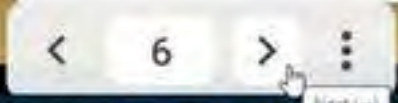
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## Overview of Key Findings

- Increase in the frequency and high intensity of storms
- Impermeable surface in CCV has increased substantially over recent decades
- CCV “grey” infrastructure (curbs, storm drains, underground pipes) is undersized for current conditions; “green” infrastructure to retain water on site are underused and needed
- The September 2020 storm evidenced historically high amounts of stormwater runoff and flooding; such rapid rise in water presents a health and safety risk
- Other local jurisdictions have implemented new rules and practices related to grey and green infrastructure; CCV residents would benefit from access to information to improve stormwater management.

# Key Findings: 9/10/20 Flooding in CCV





# Water levels high enough to be dangerous and rushing into homes

Ripple over step-  
7-8 in. height



Water up to glass  
and coming into  
house



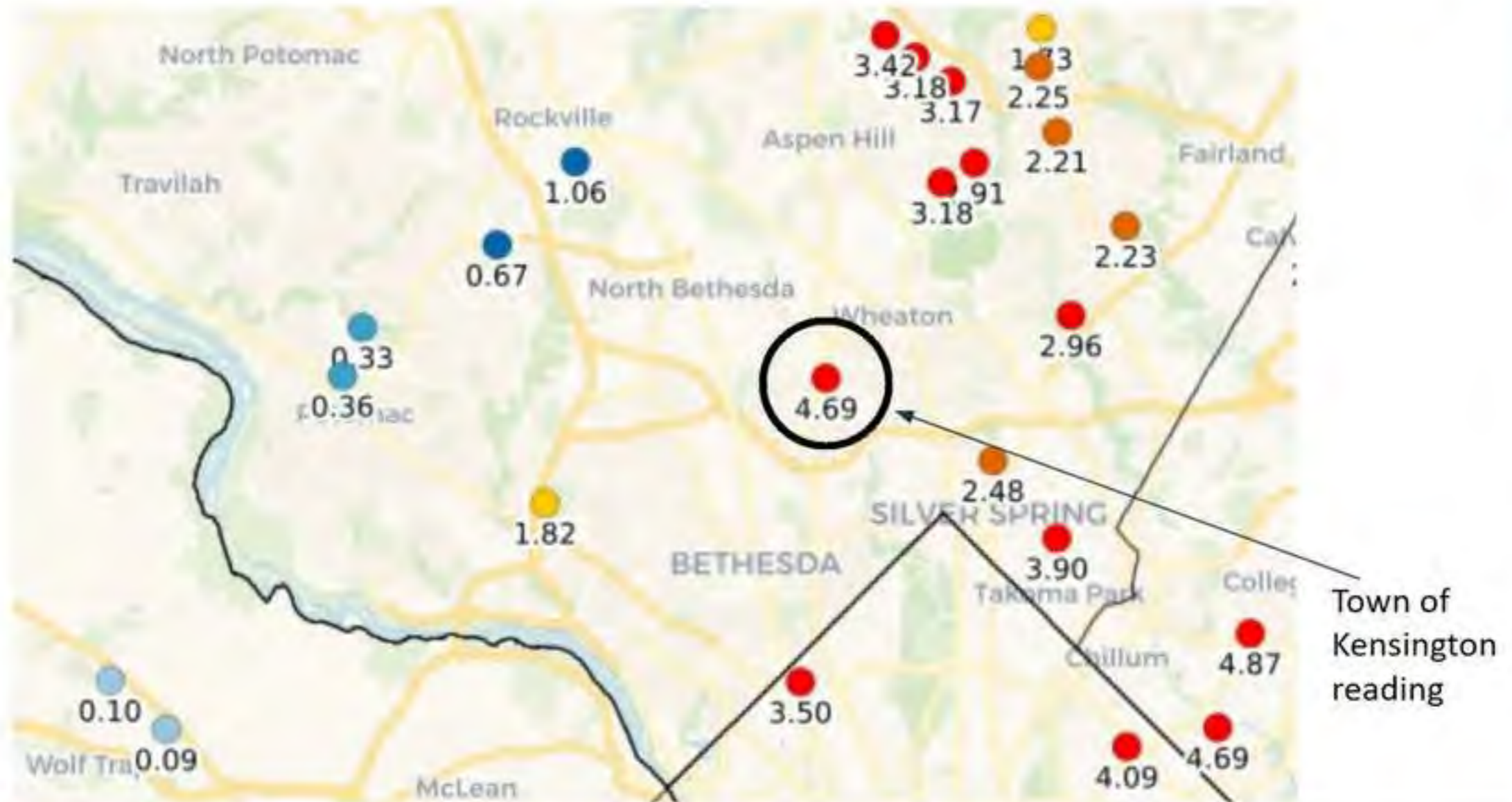
Flooded garage gym- water  
flowed from the street and  
down the driveway

## Getting a feel for the flooding...



Running water through a CCV street

# Key Findings: Actual Rainfall in Inches on 9/10/20



## Key Findings: Climate Impacts on Intense Storms

- More storms of this intensity coming: According to the latest [National Climate Assessment \(NCA4\)](#)

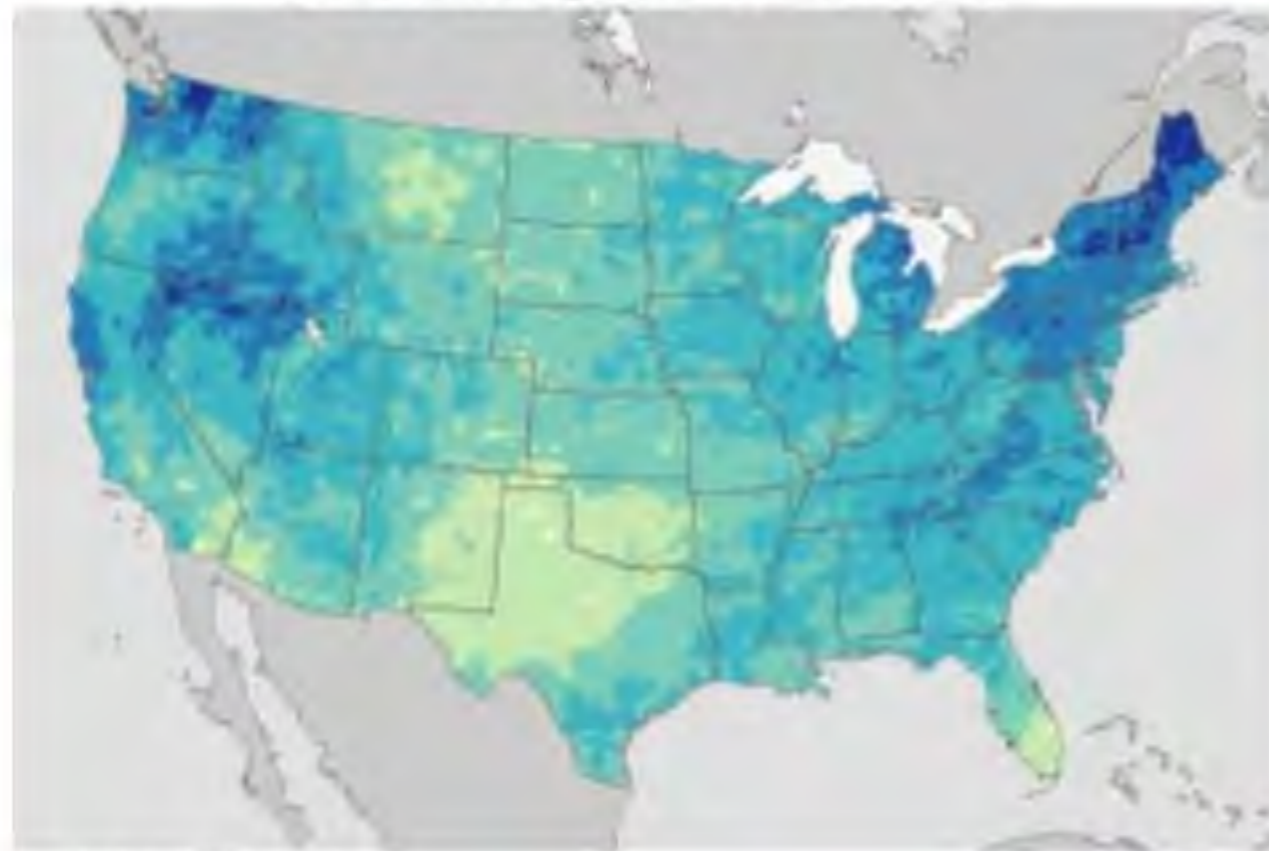
*“...heavy precipitation events in most parts of the United States have increased in both intensity and frequency since 1901 and are projected to continue to increase over this century...”*

<https://www.climate.gov/news-features/featured-images/prepare-more-downpours-heavy-rain-has-increased-across-most-united-0>

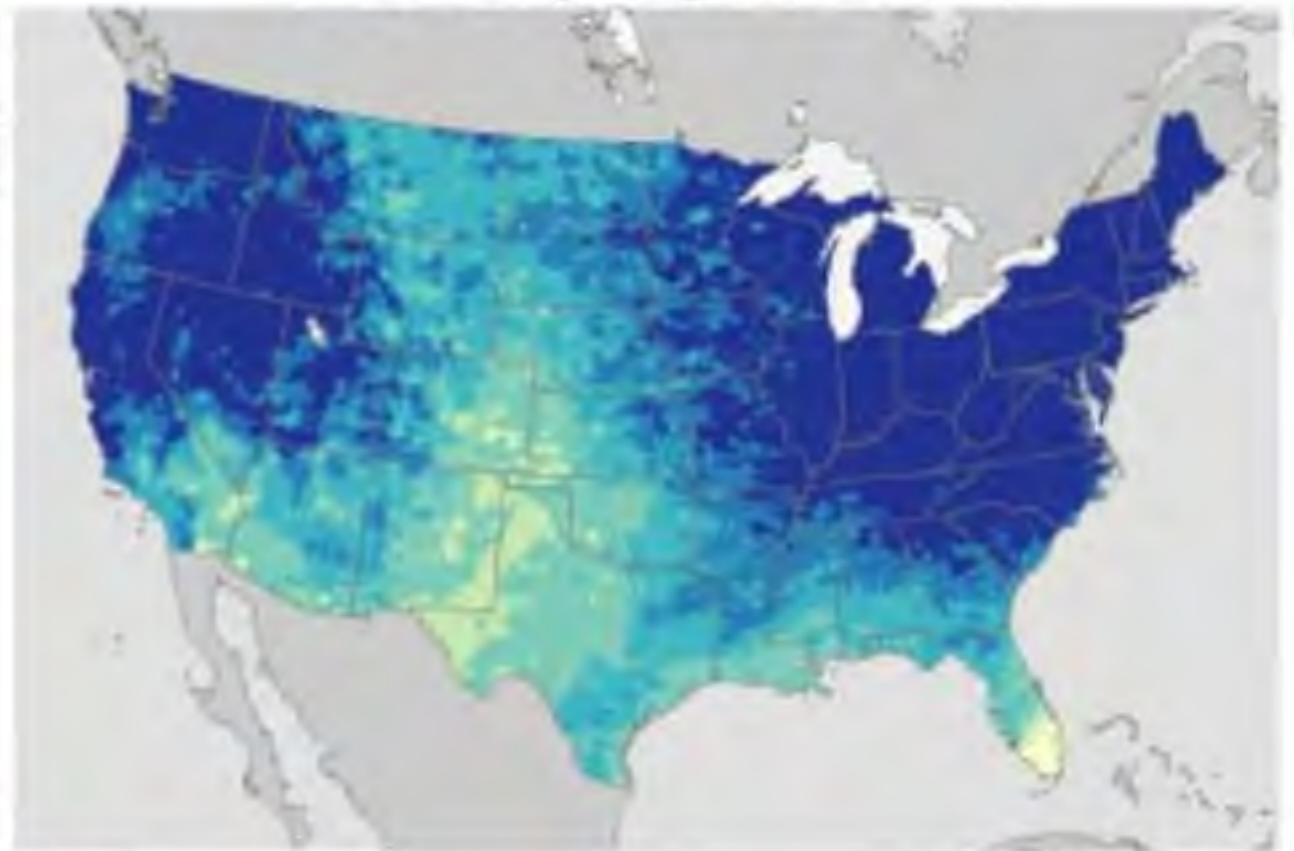
- More frequent and intense storms, and thus floods, present a health and safety risk

# Projected Rainfall Changes in the US in 21st Century

Future change (lower emissions)

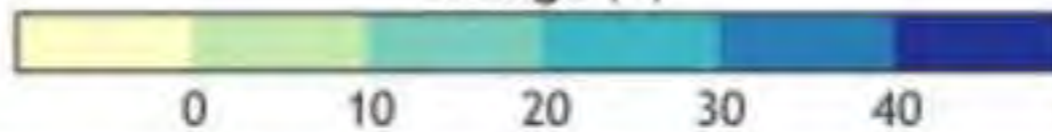


Future change (higher emissions)



by late 21<sup>st</sup> century  
compared to 1986-2016

Change (%)



NOAA Climate.gov  
Data: NCA4

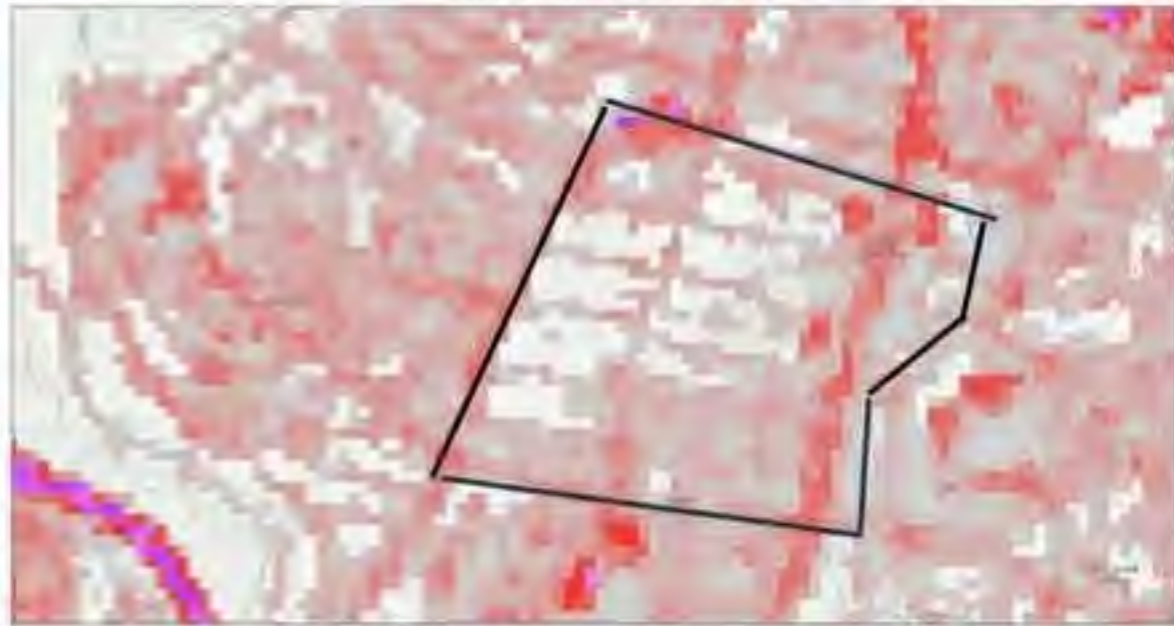
## Increased Development (1993 to 2019)



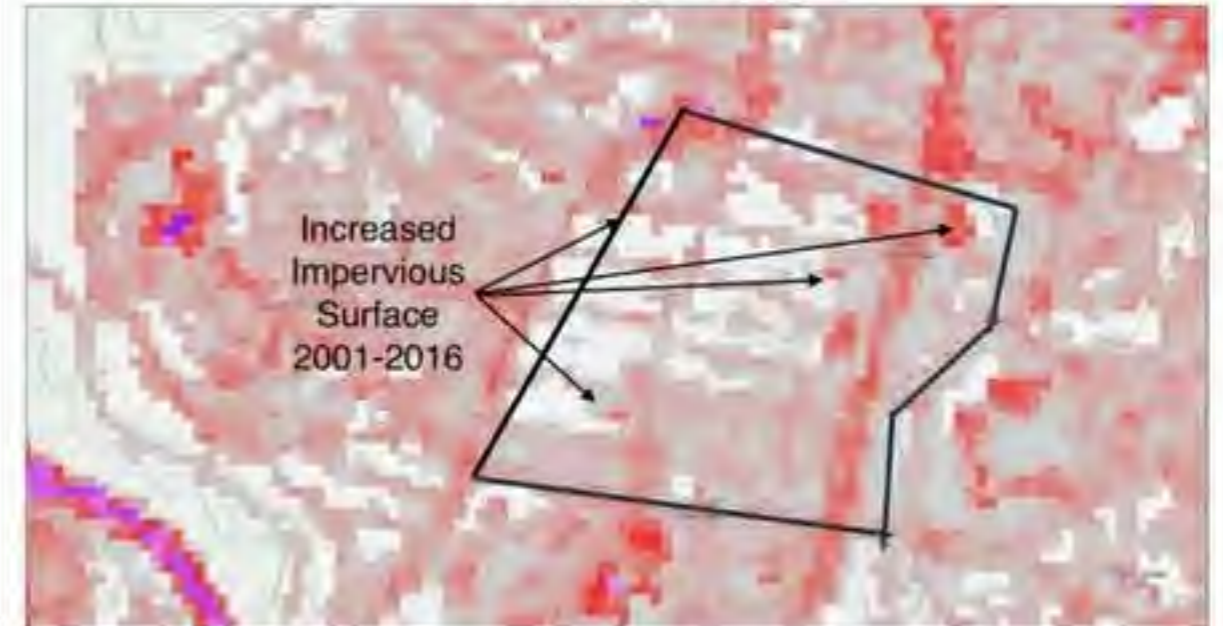
1993 on left, 2019 on right (Note 2021 date is date of download)

# Increased Impermeable Surfaces from 2001-2016

CCV Impervious Surface 2001

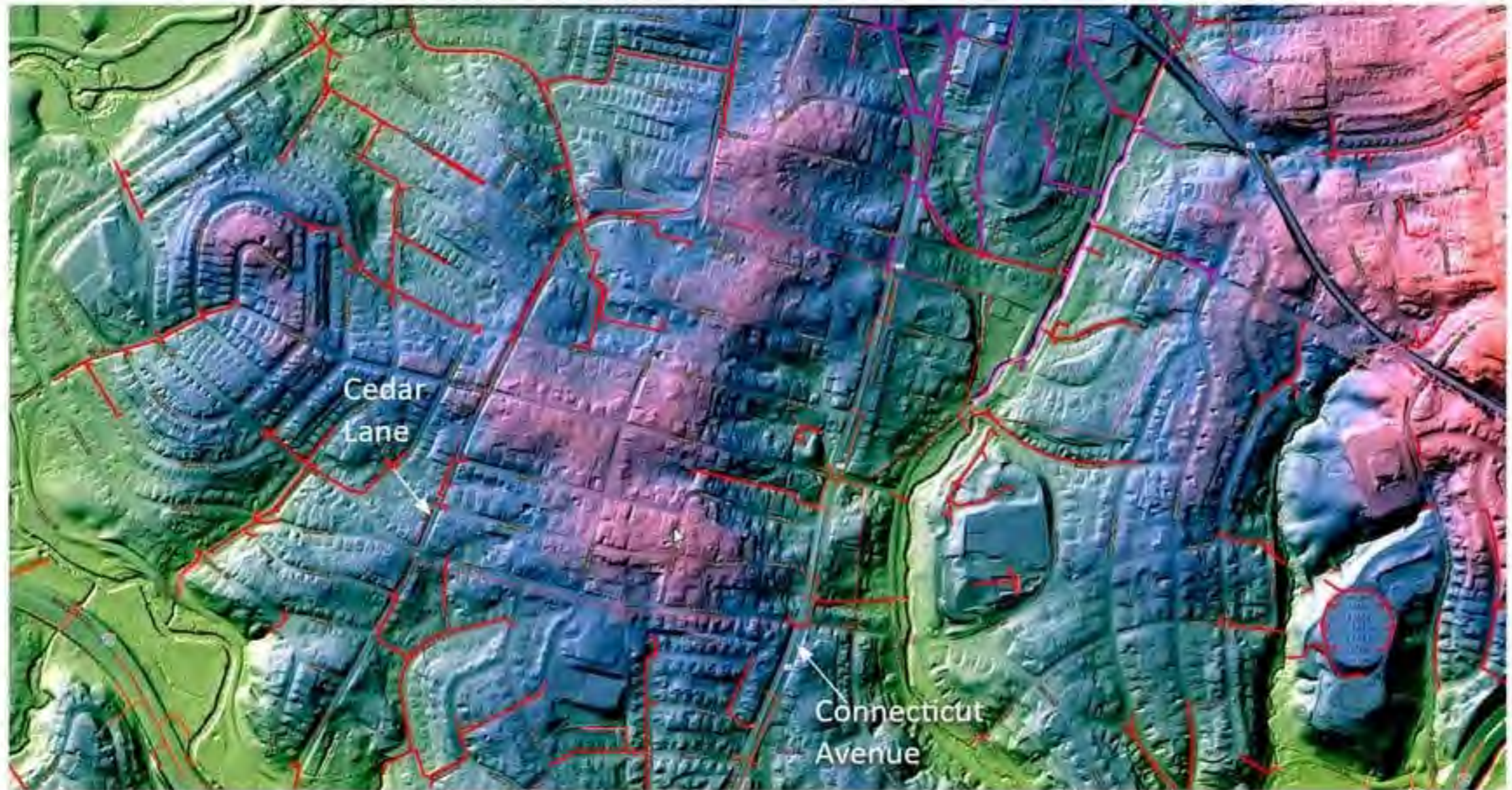


CCV Impervious Surface 2016



- Darker red = more impermeable (notice Connecticut & Summit Avenue and Kensington Parkwood in the 2016 photo, to the left)

Stormwater Drainage Infrastructure over Elevation (pink/higher: green/lower elev.)





# SWM Infrastructure

- How stormwater is managed:
  - Conventional “grey” infrastructure, e.g., drains, inlets, stormwater pipes, and
  - “Green” infrastructure, also called environmental site design (ESD), e.g., rain gardens, rain barrels, cisterns, green roofs, green streets, vegetation buffers, and pervious paving

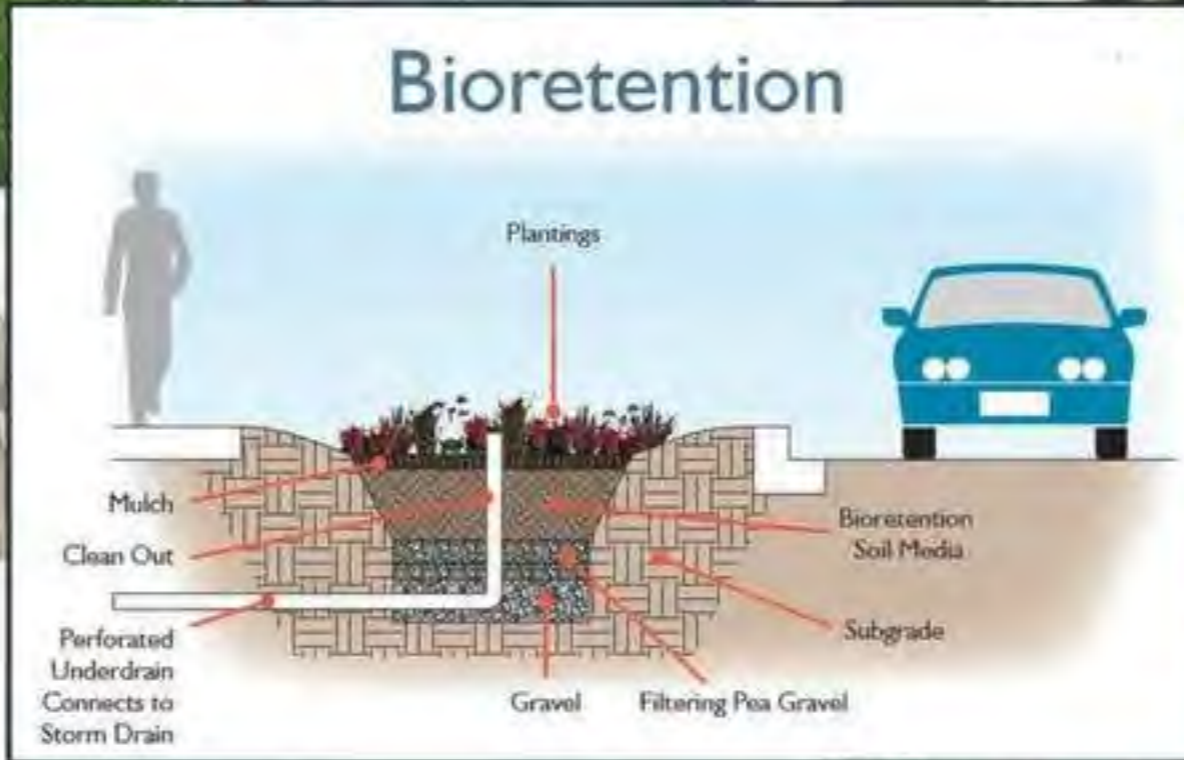
***Green infrastructure/ESD is used increasingly to manage stormwater because it is cost-effective and provides significant environmental benefits***



Curb Extensions



## Bioretention



## Green Streets

Images: Montgomery County Department of Environmental Protection

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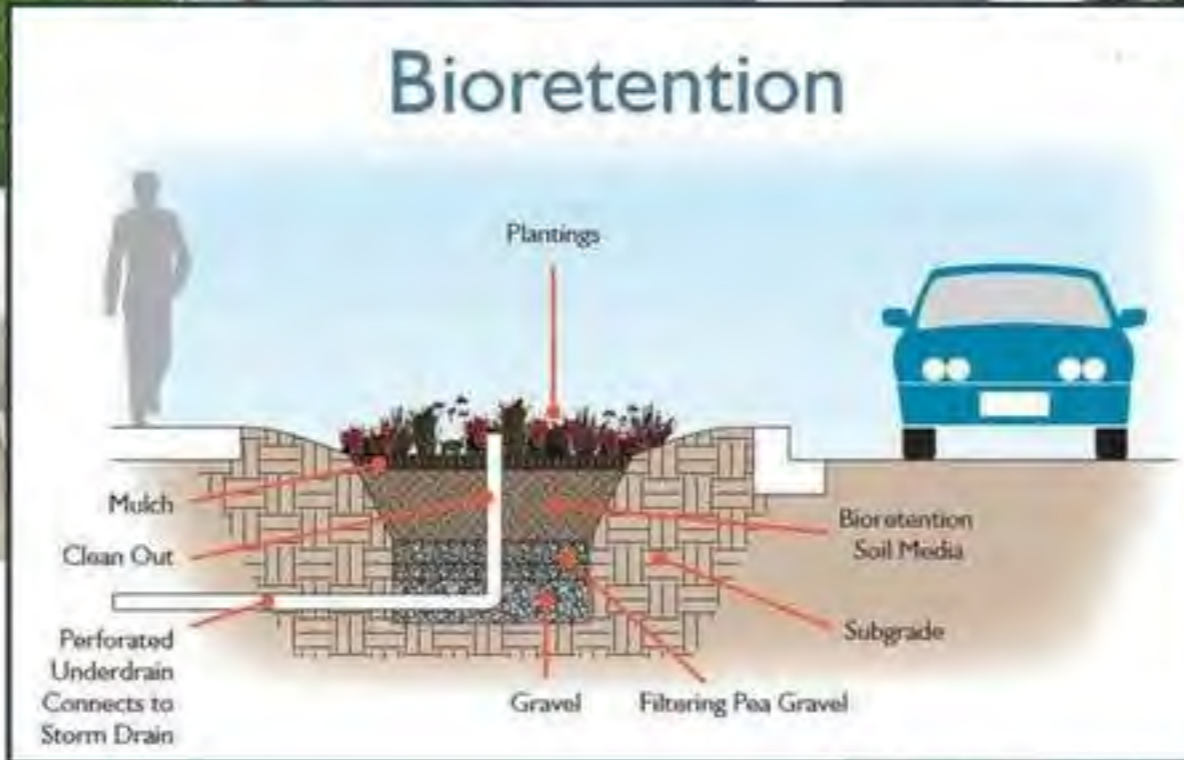
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# Green Infrastructure/ESD Examples

**Permeable Paving**

**Rain Garden**

**Dry Well**

**Green Street**

## Key Findings: CCV SWM Infrastructure

- The grey stormwater infrastructure serving CCV is outdated and undersized
  - Many streets have no curbing
  - Too few and outdated storm drains
  - Storm pipes underground are too few and too small
- State/county began requiring green infrastructure/ESD for building permits beginning in 2009

## Key Findings: County Regulation Shortfalls

- Do not reflect changing weather patterns
- Do not apply to all types/sizes of construction that impact stormwater runoff
- Do not adequately address runoff between properties
- Do not differentiate between new and established communities like CCV with most homes constructed prior to current stormwater requirements

***Many local jurisdictions have implemented new rules and stricter practices than the county's in response to similar stormwater concerns and flooding - IF WE DO NOTHING, THIS WILL WORSEN***

## Key Findings: Other Local Jurisdictions are Acting!

- **Town of Chevy Chase:** Requires drainage plans for development activities over 700 sq ft (includes 2 years of development) to manage 4 ½" of rain
- **Chevy Chase Section 5:** Drainage plan using ESD required for any construction that increases impermeable surface.
- **Town of Somerset:** Researching residents' use of county waivers for ESD requirements. Considering pervious pavement and use of town property for infiltration.
- **Village of Chevy Chase:** Reviews all stormwater plans as part of issuing permit, uses consulting engineer to work with homeowner. Municipal storm drain project in permitting process to address flooding in backyards (7 houses) with inlets and underground pipes connecting to street storm drains.



## Let's Inform CCV Residents!

- Make residents aware of flooding issues and the impacts of construction and impermeable surfaces
- Share information on how all residents can help and how to improve their properties
- Provide access to best practices and funding, including resources available to homeowners from the county
- Provide more, and more accessible, information on proposed new construction

## Urgent Actions in CCV to Mitigate Immediate Threats

- Procure our own engineering study to assess what options might mitigate the flooding and health and safety risk posed to the most severely affected areas
- Construct curbs where needed
- Add storm drains to streets with inadequate drains
- Clean and repair any under-functioning storm drains (along streets and in yards)
- Encourage the use of safety (speed camera) funds if possible and available to mitigate impact on most vulnerable properties
- Utilize green infrastructure when we make CCV improvements

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## High Priority Actions in CCV to Mitigate Existing Issues

- Mitigate existing flows
  - Encourage neighbors to increase permeable surfaces
  - Be creative about funding projects for most vulnerable areas, including pursuing grants
- Advocate to have aging infrastructure updated
  - Get a county level study funded
  - Support efforts of county and state representatives

## Other Direct Infrastructure Recommendations to Consider

- Update building regulations to include stormwater management in all development, construction, remodeling, and major landscaping
- Expand enforcement resources for stormwater management code provision
- CCV should reconsider steps to protect/promote tree canopy, given significant stormwater retention benefits of trees/tree canopy.

## Other Recommendations to Consider

- **Educational and Advocacy**

- Add stormwater management as a regular item to its meeting agendas.
- Consider the appointment of a standing committee on stormwater management.
- Develop and add to the town website a page with information for residents on stormwater management.

- **Regional Action**

- Continue and increase active participation with neighboring jurisdictions to further review and coordinate stormwater management infrastructure improvements; develop and share best practices; and implement and coordinate updated building regulations and permitting processes
- Advocate for updated federal, state and county regulation and funding for remediation of stormwater management issues addressing changing climate patterns; differentiating between the needs and conditions of new and established communities; improve regulations regarding planned construction and expand greater transparency in construction plans

## Why Should CCV Act?

- The state, county and neighboring jurisdictions all recognize the need for action
- Solving the existing flooding will take time and money BUT, if not addressed, property damage will continue/increase and property values may be affected
- County infrastructure update might take a decade if it happens
  - County action is uncertain in scope and timing
  - CCV is not necessarily a high priority
- Need to act locally first, with strategies tailored to our needs
- There are **safety concerns** when there are high levels of fast-moving water in our town- we have been lucky so far!