Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Welcome

Bill Cary, Brooks Pierce

March 25, 2020

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Zoom Information and Reminders:

- Mute when not speaking (bottom left screen).
- Chat “tech Support” participant if having difficulties.
- Can’t see video? Follow along with agenda and slides.
- Dial-in from Zoom #s if you get disconnected.

This meeting is being audio recorded for note taking purposes only and to share with any work group members unable to participate today. The recordings will not be shared with the public.

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Statement by:

Michael S. Regan, Secretary
N.C. Department of Environmental Quality

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Meeting Overview:

- Four Work Groups Meeting Today and Concurrently
  - a.m. - New Development and Roadways
  - p.m. - Stormwater Retrofit and Working Lands

Agenda Overview:

- Project Overview and Defining "Nature-based Stormwater Strategies"
- Remarks from The Pew Charitable Trusts
- Facilitated Group Session
  - Nature-based Stormwater Strategies and Future Opportunities
  - Existing and Perceived Impediments to Implementation
  - Identify Research Needs
  - Next Steps

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Project Overview and Defining "Nature-based Stormwater Strategies"
Stormwater Retrofit Work Group

Lauren Kolodij, North Carolina Coastal Federation

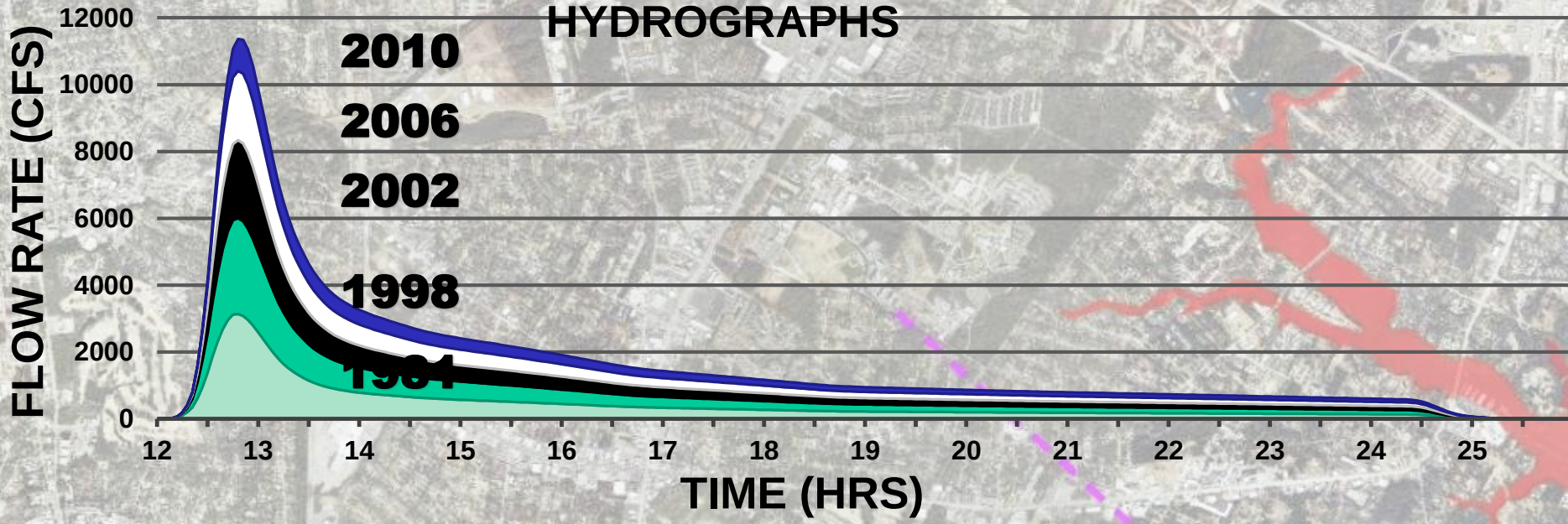
Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Increased Volumes of Stormwater Runoff and Flooding

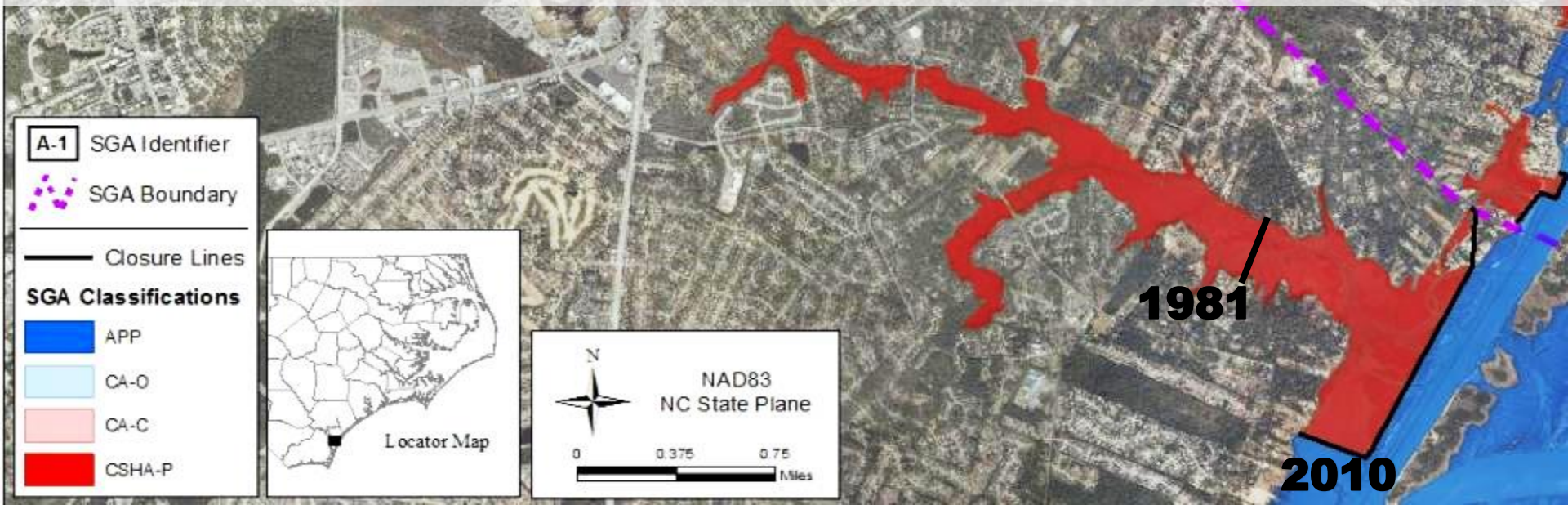
- Both urban and rural land uses alter natural hydrology.
- Alterations effect the land's capacity to collect and absorb rain and storms.
- Stormwater runoff causes flooding.
- Stormwater runoff carries pollutants to surface waters.
- Intensity and frequency of storms are magnifying problems.
- Statewide Issue.

Urban and Rural Land Uses Alter Natural Hydrology Result in Flooding and Surface Water Degradation

HEWLETTS CREEK WATERSHED 1-YR STORM HYDROGRAPHS



CHANGES IN SHELLFISH CLOSURE BOUNDARIES



Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Impact of Nature-based Stormwater Strategy Approach

- Maintain natural hydrology and capacity of land to collect and infiltrate.
- Mimic natural hydrology (retrofits).
- Reduce flooding.
- Protect and restore water quality.
- Result in more resilient communities statewide.
- Multiple co-benefits – including economic and aesthetic.

Snapshot of Nature-based Stormwater Strategies

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Working Together Toward Solutions:

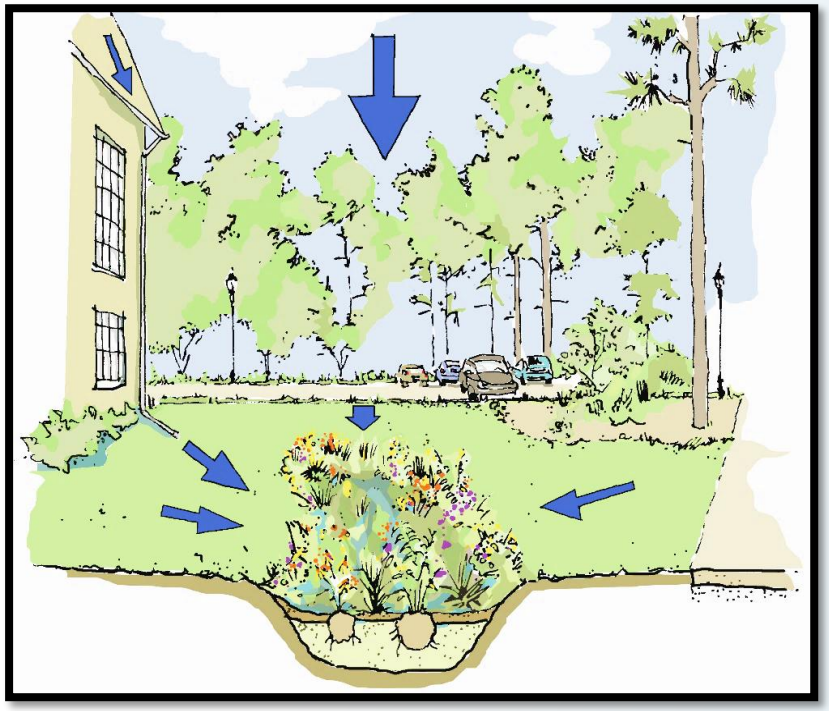
- Governor's Executive Order 80
- June 2019 Workshop
- Determined Need to Assemble Experts to Collaborate Toward Solutions
- Project Team Formed
- Work Groups Assembled

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Work Group Goals:

- Develop and implement consensus-driven statewide Nature-based Stormwater Strategy Action Plan.

- Increase the use of nature-based stormwater strategies where practicable to reduce flooding and protect water quality.



Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Work Group Charge:

- Evaluate current use of nature-based stormwater strategies, opportunities and need.
- Identify real and perceived impediments to its use.
- Formulate set of recommendations for advancing where feasible.

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Project Schedule:

March 2020	Introductory meeting, identify impediments to implementation
May 2020	Compile policy, funding, and promotion needs for nature-based strategy implementation
July 2020	Develop draft Plan with tools to advance policies, funding, and promotion
Nov. 2020	Review and finalize Plan
March 2021	Host Nature-based Stormwater Strategy Summit

Nature-based Stormwater Strategies for Stormwater Retrofits

Nature-based stormwater strategies for existing land uses include cost-effective landscaped features and other designed and engineered techniques to infiltrate, store and filter rain where it falls.

Retrofitting existing developments by disconnecting impervious surfaces to slow stormwater runoff and promote infiltration can restore a site's natural hydrology and capacity to capture and treat runoff.

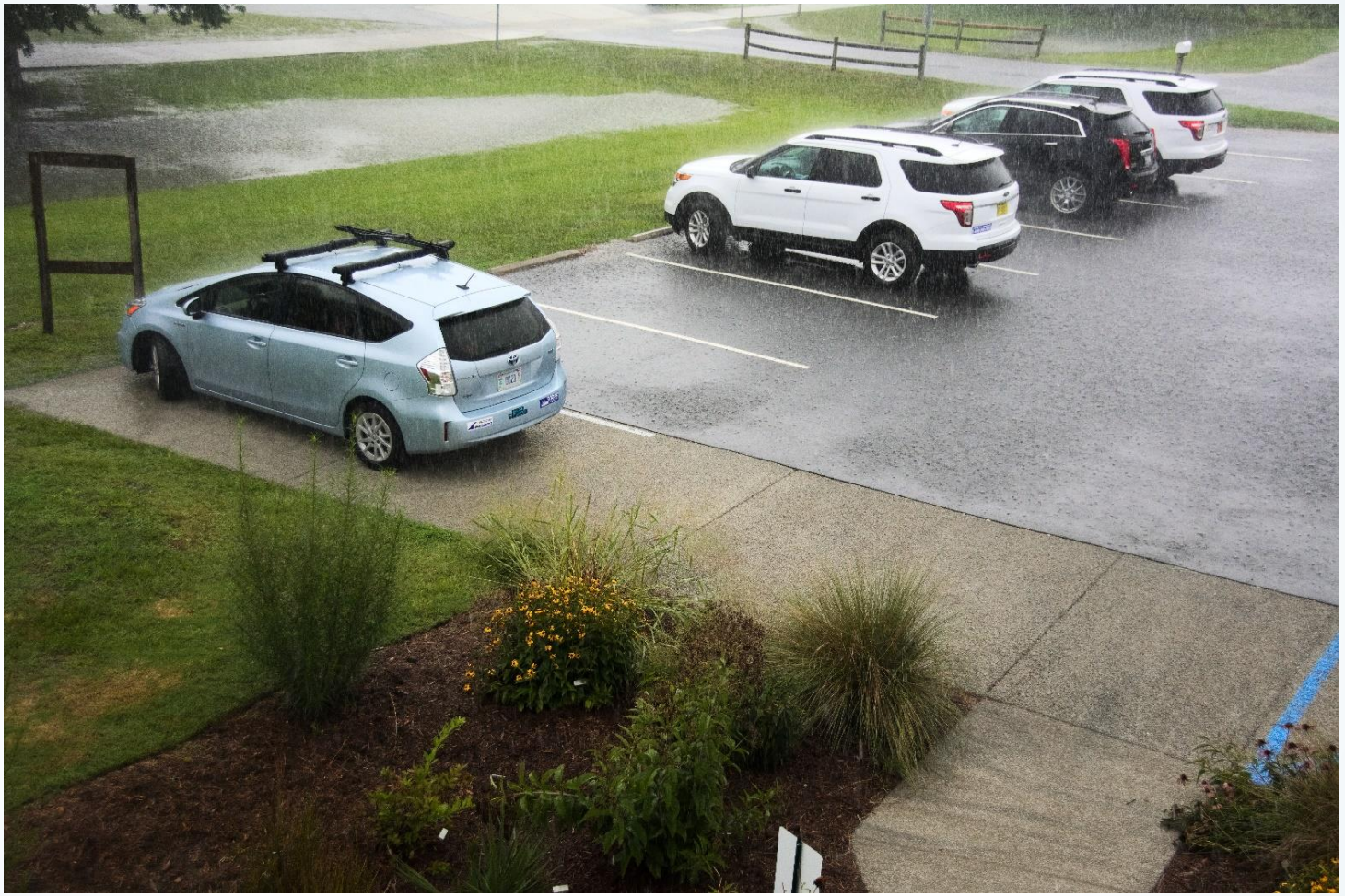
Nature-based Stormwater Strategies for Stormwater Retrofits

This site now collects and absorbs stormwater that previously flowed into street drains and straight through pipes to surface waters. It is planted with native plants and turf that soak up rainwater and prevent polluted runoff.

Nature-based Stormwater Strategies for Stormwater Retrofits

This local government installed a rain garden to help reduce flooding and ponding.

Nature-based Stormwater Strategies for Stormwater Retrofits



This parking lot was retrofitted to include a permeable parking strip that collects and absorbs stormwater that previously flowed into street drains. Notice the runoff from the conventional paved surface above.

Nature-based Stormwater Strategies for Stormwater Retrofits

An underground detention chamber, bioswales, and cistern are three types of strategies used at the Market of Colonnade infill development site.

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Working Together:
Remarks From The Pew Charitable Trusts

Yaron Miller, The Pew Charitable Trusts

Flood-Prepared Communities
The Pew Charitable Trusts

Reduce the impact of weather-related catastrophes, such as floods and hurricanes, on the U.S. taxpayer and environment by better preparing communities through federal and state policy reform in four areas: federal flood insurance, infrastructure, pre-disaster mitigation, and nature-based solutions to flood control.

North Carolina
Climate Science Report

Looking Back:

An upward trend in the number of heavy rainfall events (3 inches or more in a day), with 2015–2018 having the greatest number of events since 1900.

Looking Forward:

It is ***likely*** that annual total precipitation in North Carolina will increase.

It is ***very likely*** that extreme precipitation frequency and intensity in North Carolina will increase.

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Stormwater Retrofit Work Group Facilitated Session

Bill Cary, Brooks Pierce

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Opportunities

- How are nature-based stormwater strategies being applied in North Carolina?
- With optimal, unimpeded application of nature-based stormwater strategies, what does North Carolina look like in 10 years?
- Can you share additional nature-based stormwater strategy successes? (in NC or other states)

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Impediments

- What are the impediments to implementing nature-based stormwater strategies?
  - Awareness?
  - Regulatory Constraints (fed, state and local level)?
  - Costs?
  - Demand?

- How are nature-based stormwater strategies perceived in your field? By your colleagues?

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Research Needs to Advance Our Work

- Current policies and regulations?
- Current funding sources?
- Initiatives from other states?
- Other?

Advancing Nature-based Stormwater Strategies to Reduce Flooding and Improve Water Quality in North Carolina

Next Steps

- Follow Up Form to Solicit Additional Ideas.
- Send Meeting Notes.
- Project Team Complete Research.
- Work Group Meeting late May (begin recommendation development).
- Questions? Contact Lauren Kolodij, North Carolina Coastal Federation at laurenk@nccoast.org
- Thank You!