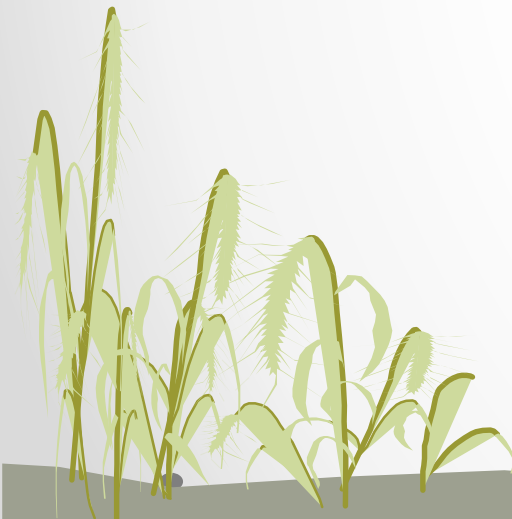


# Department of Parks and Recreation's

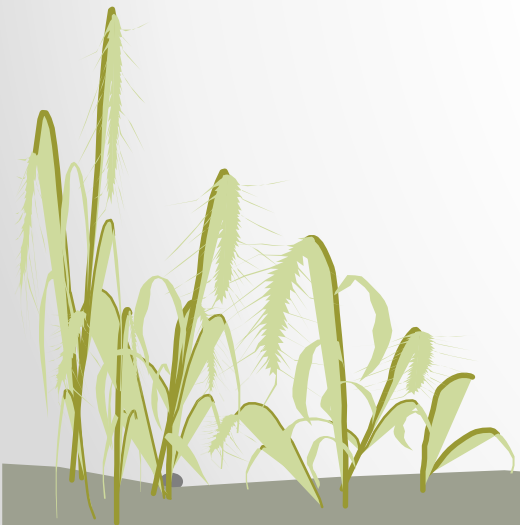
## Stormwater Management, Best Management Practices (BMPs)

Chris Willett, LEED GA  
*Environmental Management Specialist*



# Outline

- What is stormwater runoff
  - Control requirements
- Park's BMPs
  - Bioretention
  - Swales
  - Permeable pavement
  - Filter strips
- Moving forward
  - Collaboration
- Questions



# Stormwater Runoff:

Occurs when the amount of precipitation exceeds the capacity of the ground to absorb water. Runoff washes off impervious surfaces (e.g., compacted soils, roofs, driveways, roads, etc.) and carries sediment, trash, oil, fertilizers and other pollutants to local waterways.

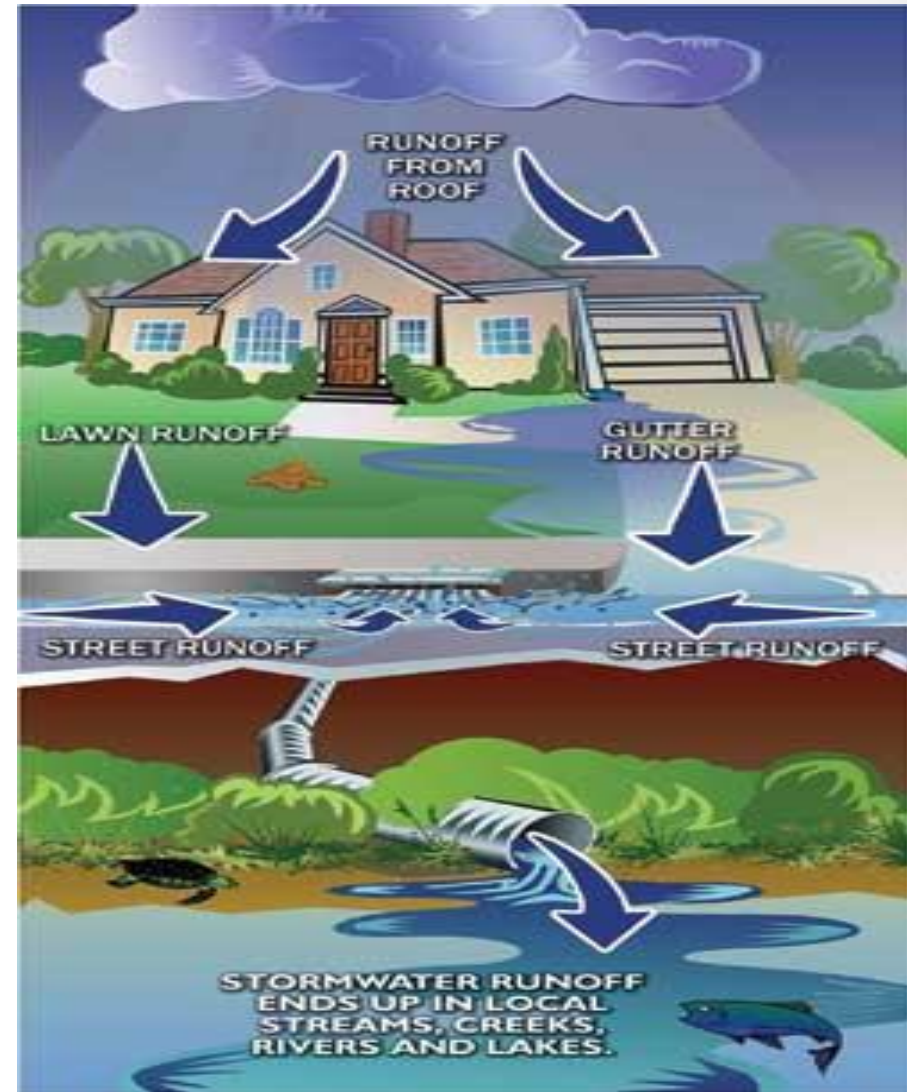


Figure 5.4: Stormwater runoff. Source: NCDENR

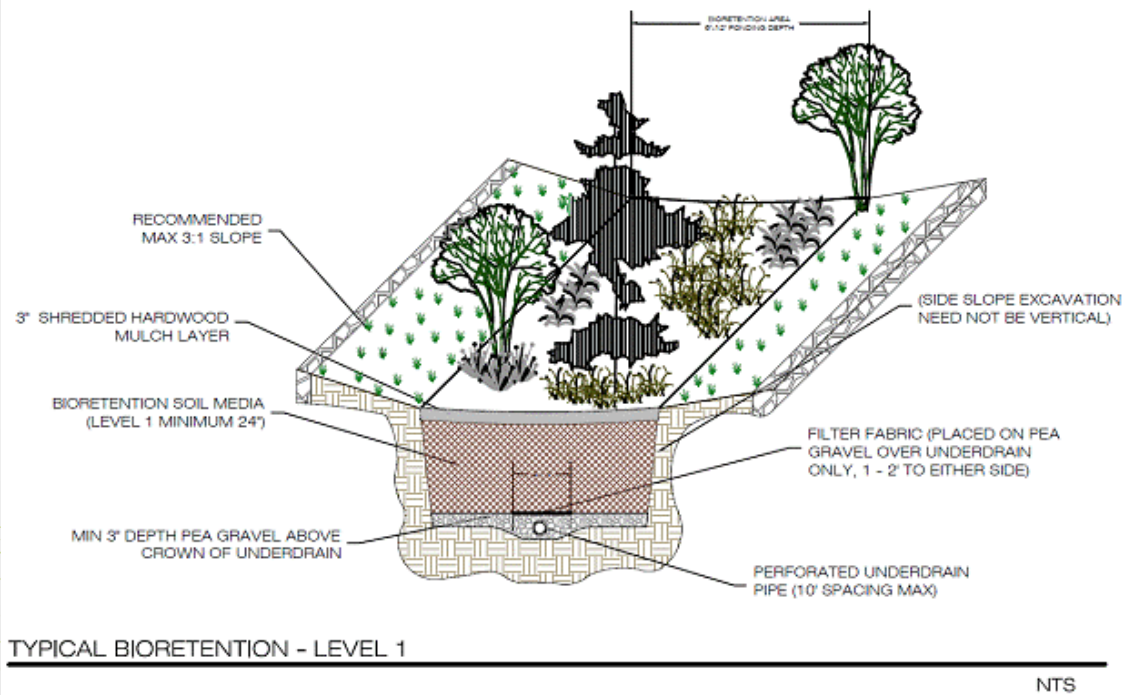
# Chesapeake Bay Total Maximum Daily Loads (TMDL)

- A Total Maximum Daily Load (TMDL) is a “pollution diet” that identifies the maximum amount of a pollutant a waterway can receive and still meet applicable water quality standards.
- Arlington County must reduce its share of the TMDL pollution by:
  - 5% by the end of the first permit cycle (2013-2018)
  - 40% by the end of the second permit cycle (2018-2023)
  - 100% by the end of the third permit cycle (2023-2028)



<https://www.epa.gov/chesapeake-bay-tmdl/frequent-questions-about-chesapeake-bay-tmdl#anchor1>

# Bioretention

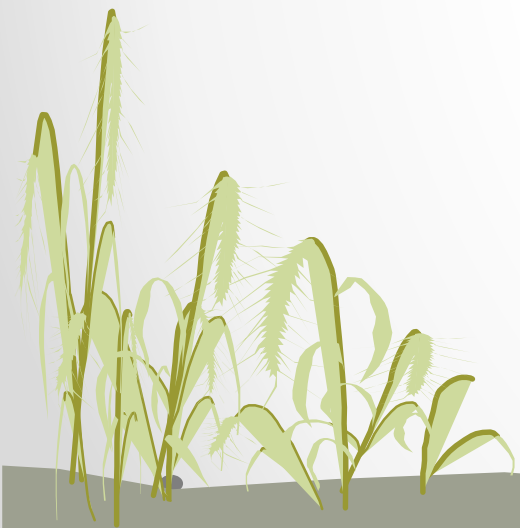


<http://www.vwrrc.vt.edu/swc/NonPBMPSpecsMarch11/VASWMBMPSpec9BIORETENTION.html>

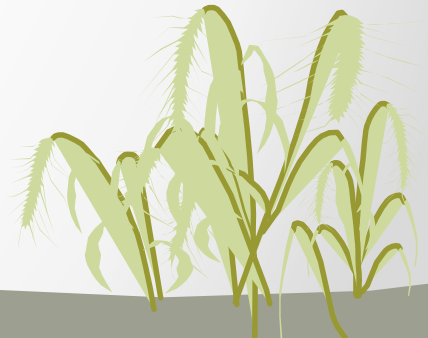
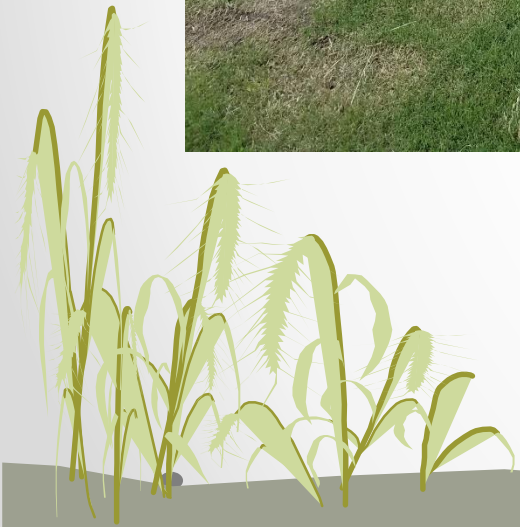




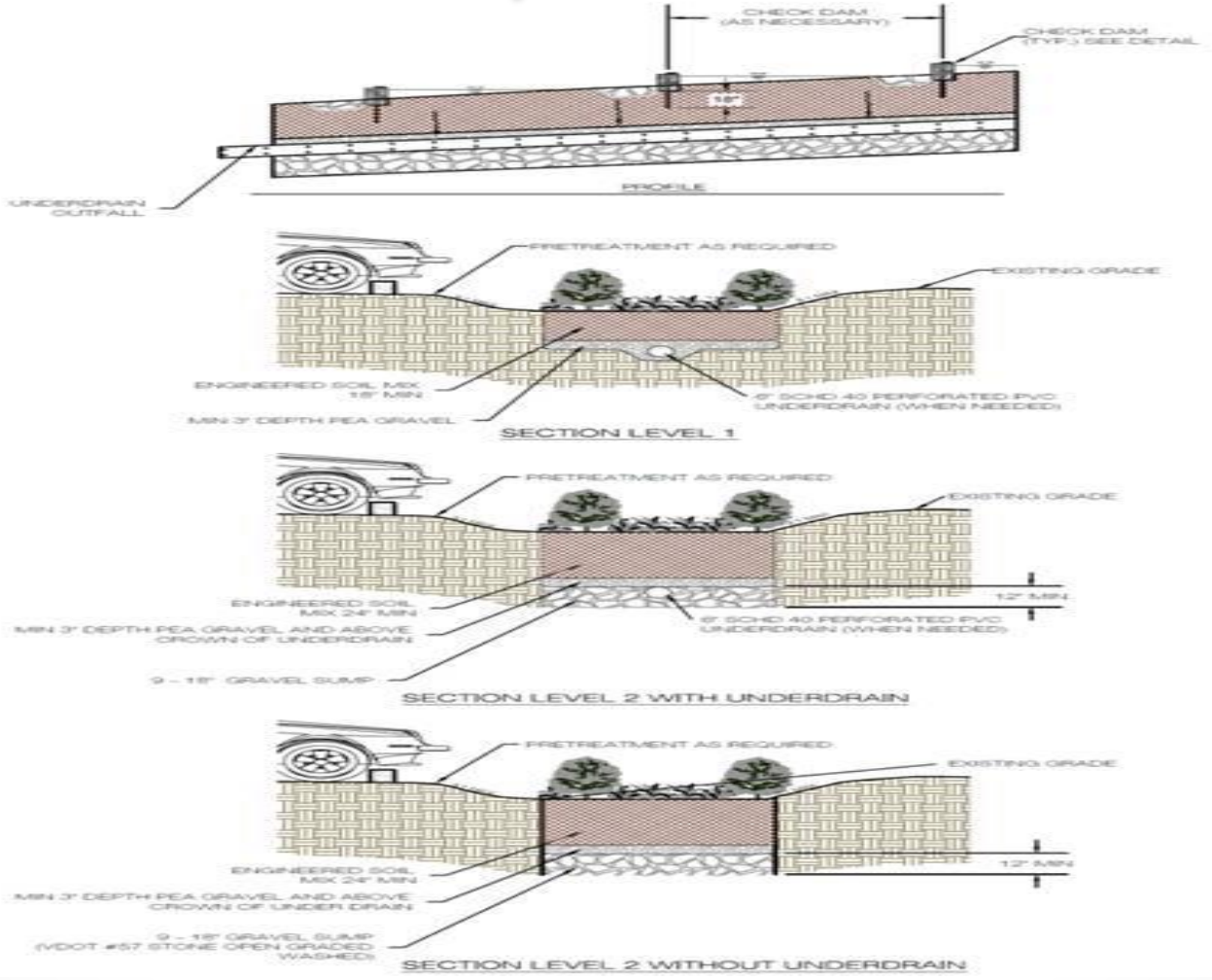








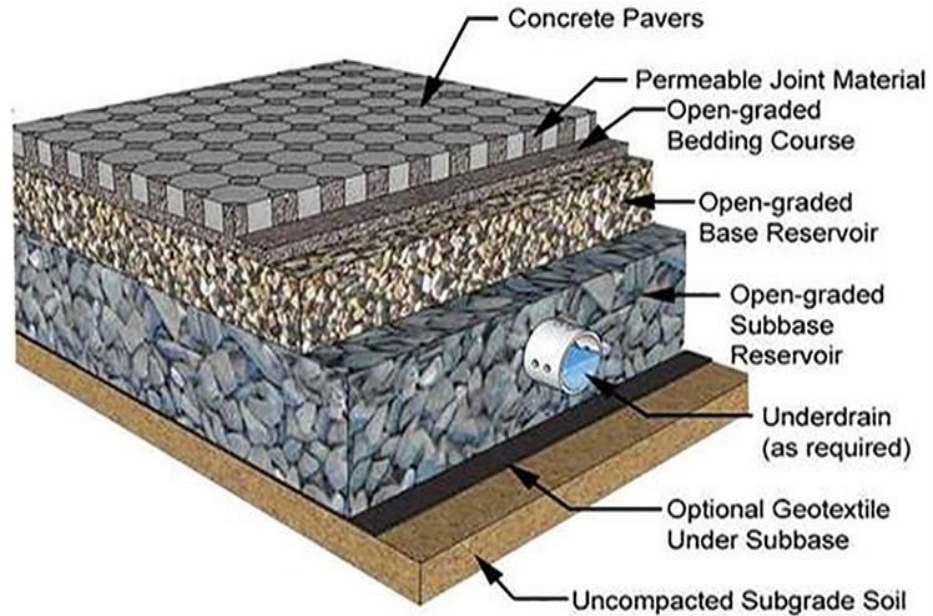
# Dry Swale





# Permeable Pavement

- Porous Concrete
- Flexi®-Pave
- Concrete Pavers



<http://www.vwrrc.vt.edu/swc/NonPBMPSpecsMarch11/VASWMBMPSpec7PERMEABLEPAVEMENT.html>

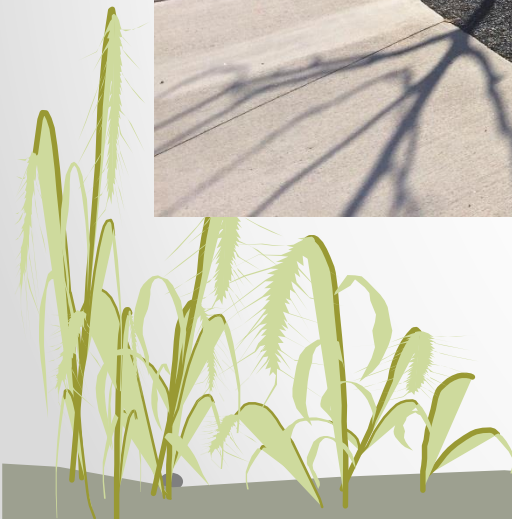
# Permeable Pavement

## Porous Concrete



# Permeable Pavement

## Flexi®-Pave



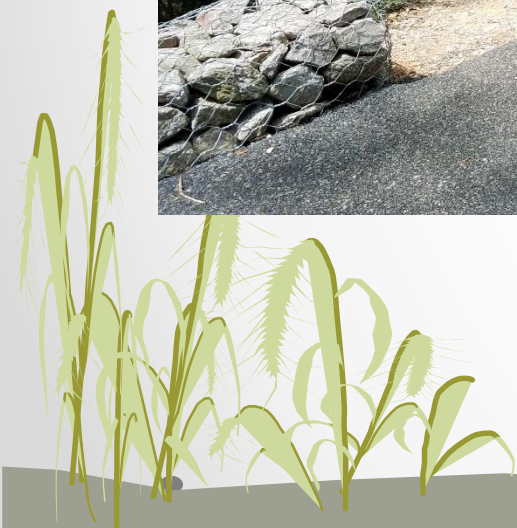
# Permeable Pavement

## Flexi®-Pave



# Permeable Pavement

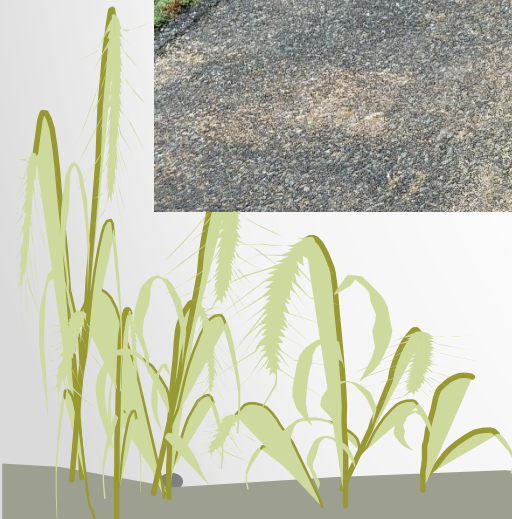
## Flexi®-Pave





# Permeable Pavement

## Flexi®-Pave



# Permeable Pavement

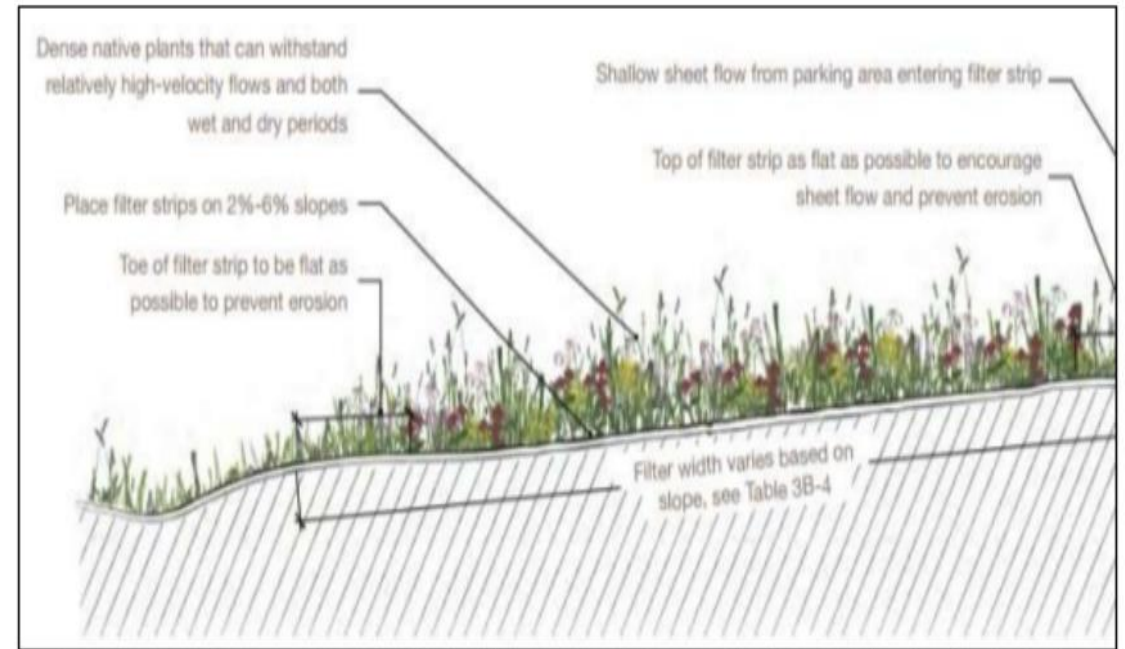
## Concrete Pavers



# Vegetative Filter Strips and Conserved Open Space

- Vegetative Filter Strips and Conserved Open Space are Virginia DEQ acceptable non-proprietary BMPs.
- Serve as streamside forest buffers.

Filtration Design – Vegetated Filter Strip

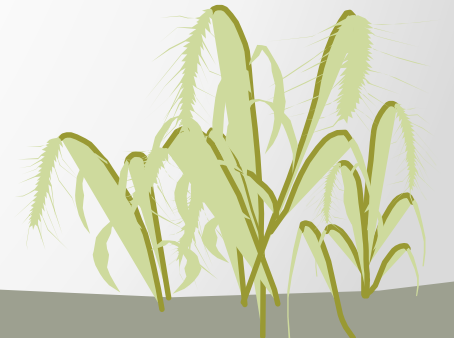
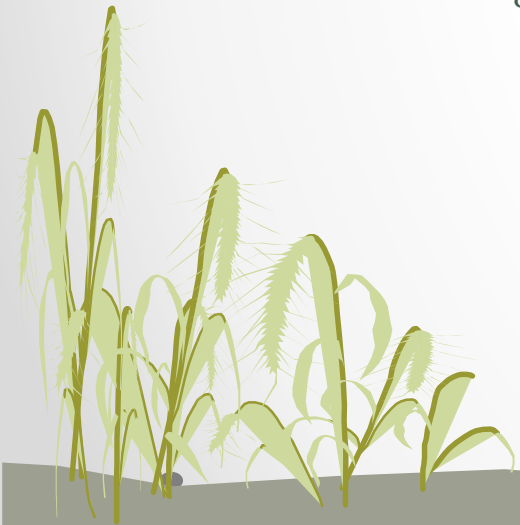


<https://www.slideshare.net/rshimoda2014/prepare-to-launch-guidelines-for-accessing-designing-and-building-launch-sites-for-carryin-waterfract>



# Moving Forward

- Collaboration with designers at 30%, 60% and 90% of design phase.
- Evaluating surrounding area before selecting BMP
  - Contributing drainage area
  - Adjacent plant material
  - Considering maintenance issues



# Questions



<https://environment.arlingtonva.us/tag/stormwater>

