Meeting Stormwater Reduction Goals

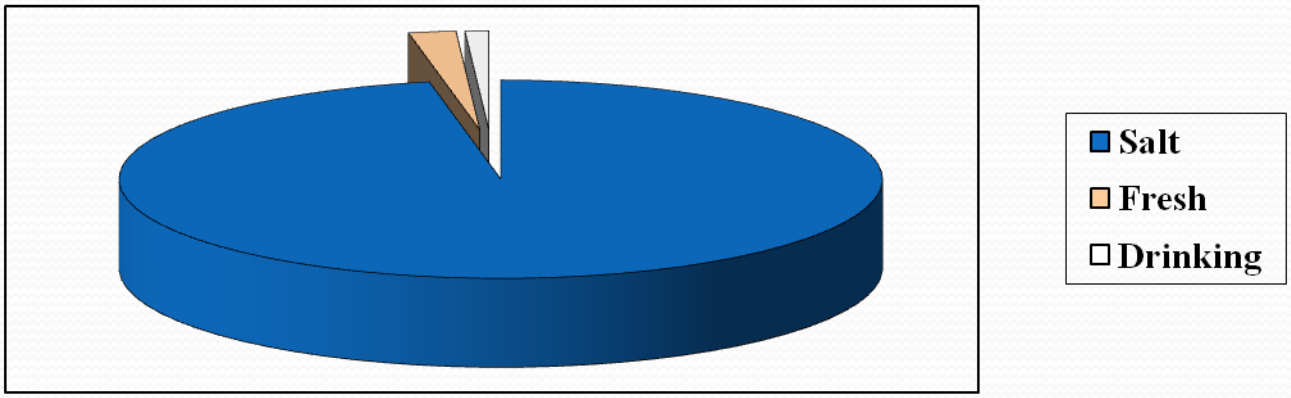
Montgomery Manor Stormwater Management Pond

Montgomery County Department of Environmental Protection
Watershed Management Division

Today's Agenda

- Sources of Water on Earth
- Montgomery County background
- What is a Watershed & Runoff?
- Intro to Stormwater
- Montgomery Manor SWM Pond Overview
- Project Objectives
- Project Costs and Benefits
- Design and Permitting Timeline
- What to Expect During Construction
- Questions

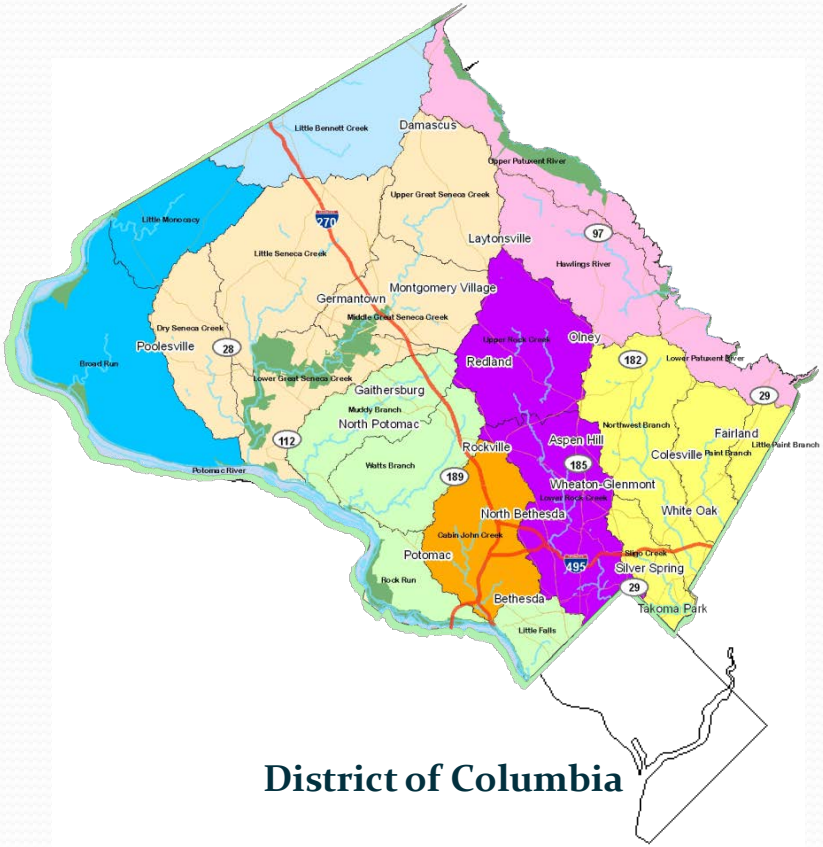
Sources of Water



- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
  - 95% from groundwater across the Country
  - 32% from groundwater, 68% from surface water in Maryland
    - Potential for greater impacts from runoff in Maryland

Montgomery County, MD

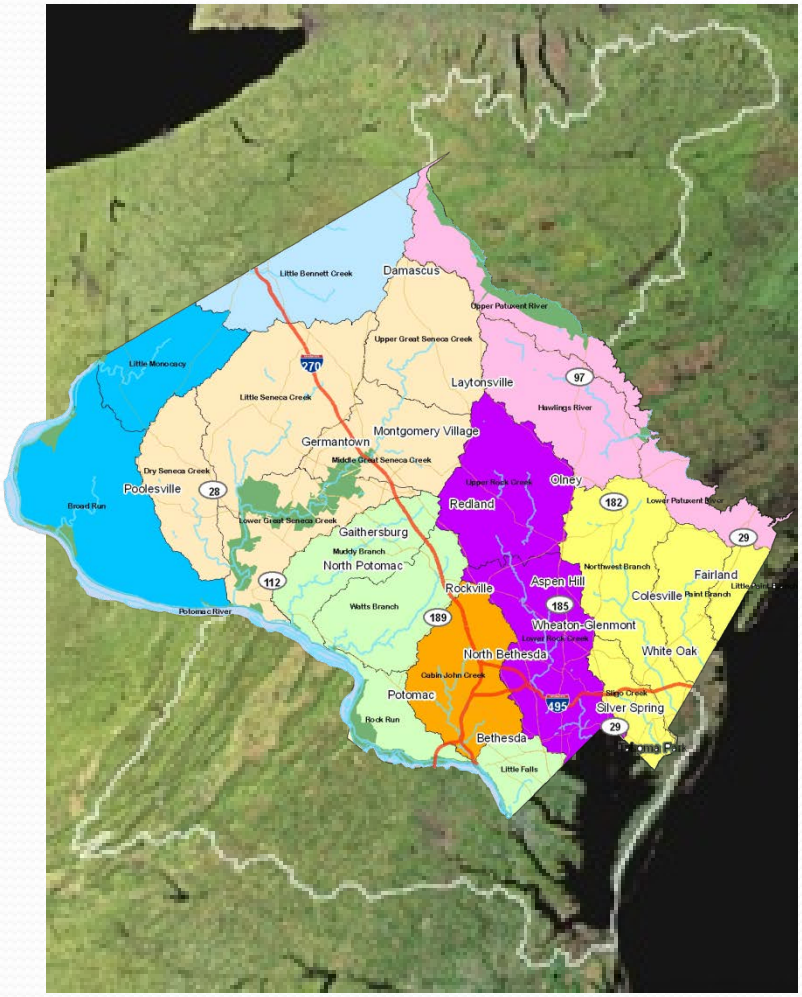
- 970,000 people
  - Second only to Baltimore City within Maryland in average people per square mile
- 500 sq. miles
- About 12% impervious surface overall
  - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
  - Potomac
  - Patuxent
- Eight local *watersheds*



Impervious: Not allowing water to soak through the ground.

What is a Watershed?

- A ***watershed*** is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
  - Chesapeake Bay
  - Eight local watersheds
  - Neighborhood (to a storm drain)

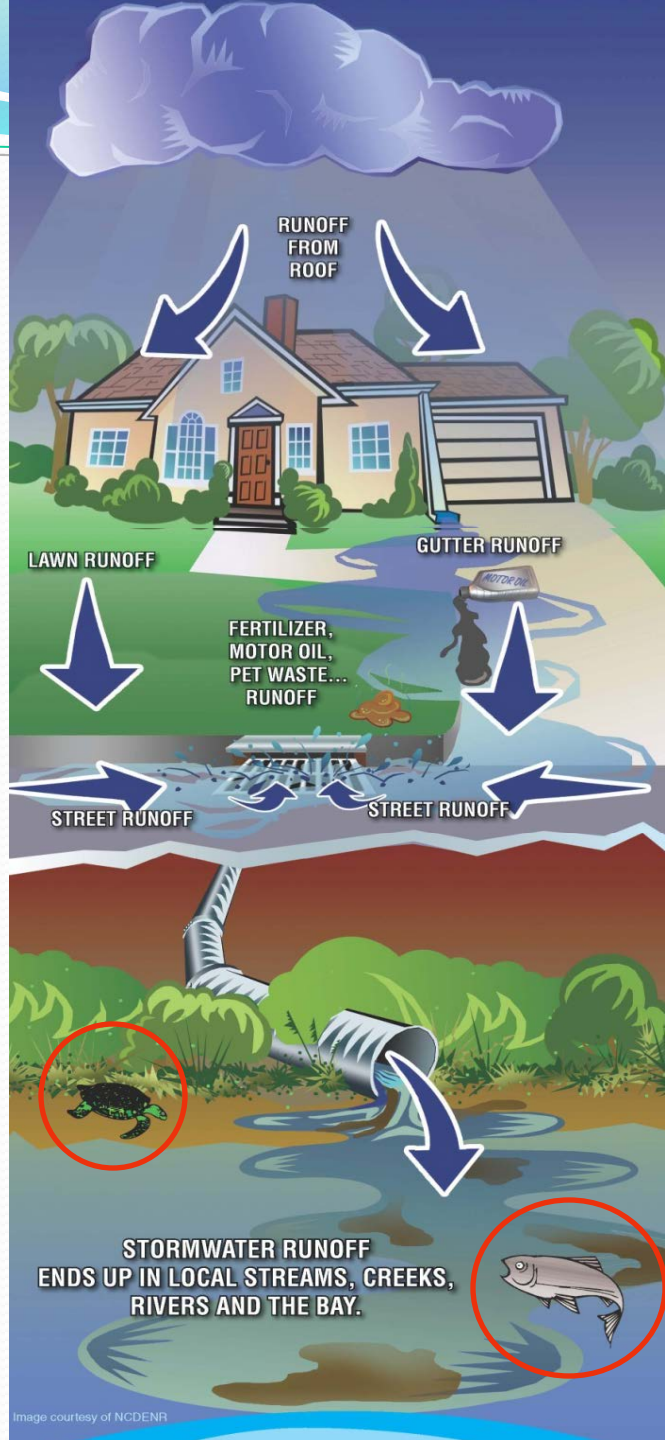


What is Runoff?

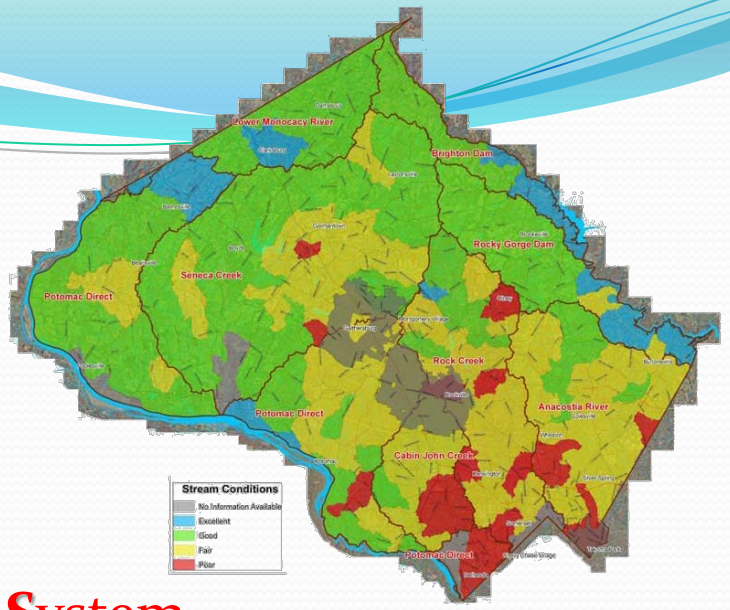
Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:

- **Directly into streams**
- **Into storm drain pipes, eventually leading to streams**
- **Into stormwater management facilities, then streams**

Two Major Issues:
Volume/Timing of Runoff
Water Quality



What is the County doing to protect our Streams?



- Must meet regulatory requirements
  - Federal Clean Water Act permit program
  - **MS4 = Municipal Separate Storm Sewer System**
- Applies to all large and medium Maryland jurisdictions
- County programs
  - Restore our streams and watersheds
    - Add runoff management
  - Meet water quality protection goals
    - Reduce pollutants getting into our streams
  - Educate and engage all stakeholders
    - Individual actions make a difference
  - Focus on watersheds showing greatest impacts

MS4 permit, what is it?

- Montgomery County is responsible for:
  - What goes into our storm drain pipes
  - What comes out of them
  - What flows into the streams
- Requires additional stormwater management for **20 percent** of impervious surfaces (4,292 acres = 6.7 square miles). That's about three times the size of Takoma Park.

Montgomery Manor Stormwater management Pond

- Drains residential areas north & east of Swan Stream Drive
  - 13.7 ac. total DA; 5 ac. impervious area
  - Discharges into Mill Creek Tributary of the Rock Creek Watershed

Montgomery Manor Stormwater Management Pond

- Existing conditions
  - Dry facility
  - Provides little water quality benefit
  - Captures 2 year storm event
  - No aquatic habitat provided

Project Objectives – Stormwater Management

- 6-8’ high earth embankment dam
- Provide full Cpv and partial WQv
- 2’ deep permanent pool
- Achieve 100% of MS4 Cpv; and partial WQv

Project Objectives - Streams

- Reduce pollutant-enriched stormwater to Mill Creek
  - Modify outlet works to better regulate pond discharge and protect Mill Creek Tributary
  - Provide permanent pool of water and plants to absorb pollutants

30 Second Video of a County Stream

Project Objectives - Maintenance

- Install new riser to meet current regulations
- Remove existing vault and replace with manhole structure
- Provide access to base of riser
- Install impervious liner on dam and pond bottom to prevent dam seepage

Project Objectives - Aesthetics

- Provide aquatic plants to enhance the pond
- Plant 12 trees around perimeter of the pond

Project Benefits and Costs

- **Water** – improved water quality below pond
- **Environmental** –
  - reduced downstream discharge allows for natural self-repair of stream channel
  - creation of aquatic habitat within the pond
  - provide aesthetic appeal
  - increased forest canopy
- **Maintenance** – safer operating structure that will require minimal structural maintenance in future
- **Financial** – Project costs: ~$220K

Design and Permitting Timeline

- **Design** – September 2013 – December 2013
- **Approvals** – January 2014
- **Permits** – February 2014
- **Bidding** – March 2014 – April 2014
- **Construction** – Spring 2014 – Summer 2014

What to expect during construction

- **Duration**
  - Approximately 3-5 months (weather dependent)
- **Construction Hours**
  - Monday through Friday, 7AM – 4PM
- **Safety**
  - Open sides of site will be fenced with orange construction safety fence
- **Traffic**
  - Entrance to site from Swan Stream Drive
- **Noise**
  - Contractor is required to comply with Montgomery County Noise Ordinance
- **Sediment**
  - Contractor will be required to comply with Montgomery County Sediment Control Permit and not track dirt onto roads

Questions?

Mosquito Predators

- **Non-Biting Midge**
- **Diving Beetle**
- **Damselfly Larvae**
- **Backswimmers**
- **Water Scorpion**
- **Dragonfly Nymph**
- **Phantom Midge**
- **Water Strider**
- **Swallows, Adult Dragonflies, Frogs**