

Roanoke River Community Meeting:

AGENDA

1. Welcome
 - Housekeeping items
2. Background on Clean Up Plan Development
 - James Moneymaker, Virginia Department of Environmental Quality
3. Highlights from Roanoke River Clean Up Plan Part II (North Fork & South Fork Roanoke Rivers)
 - James Moneymaker, Virginia Department of Environmental Quality
4. Best Management Practice Discussion & Steps Moving Forward
 - James Moneymaker, Virginia Department of Environmental Quality
5. General Questions

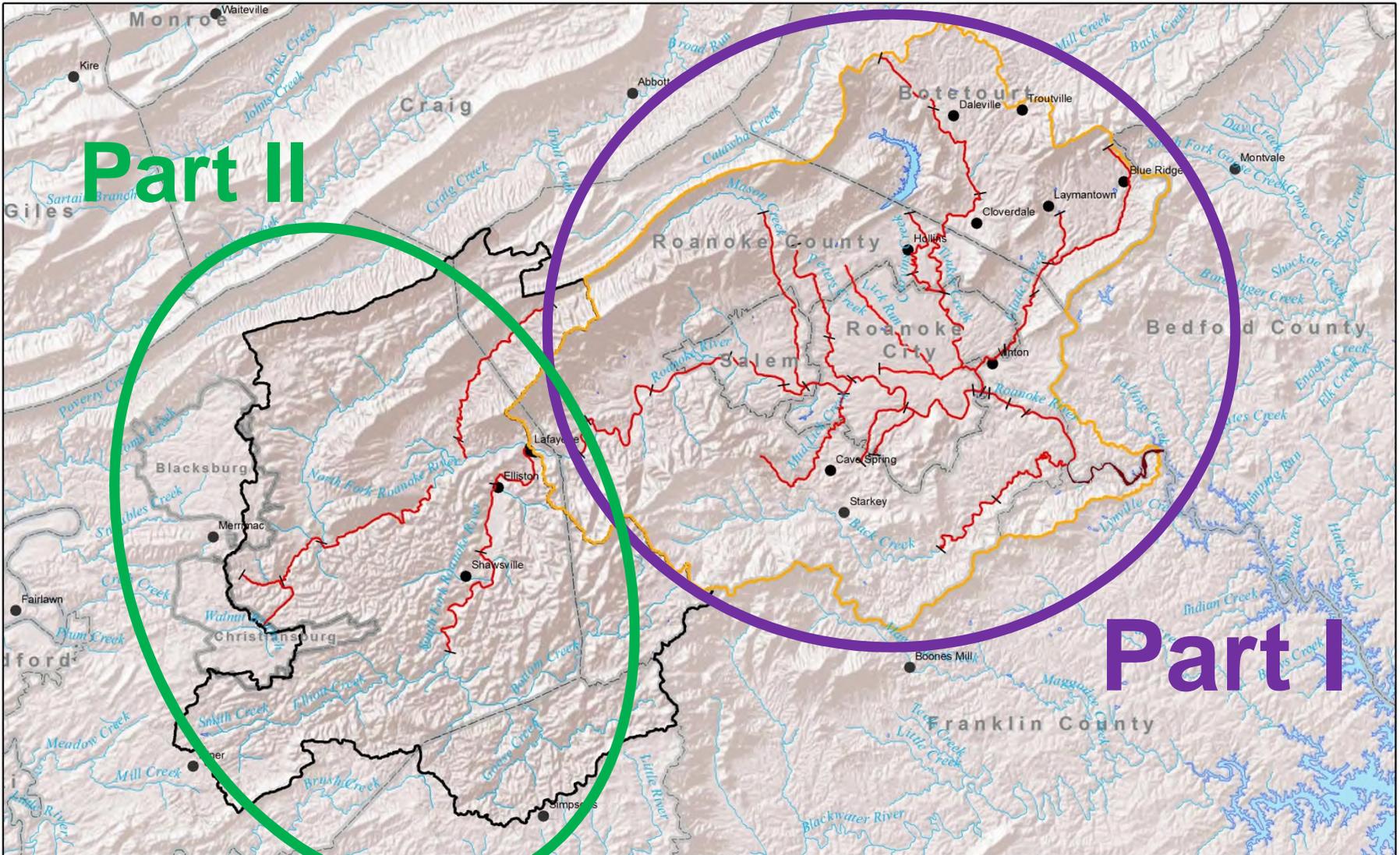
TWO PLANS FOR CLEAN WATER: ROANOKE RIVER WATERSHED CLEAN-UP PLAN, NORTH FORK & SOUTH FORK ROANOKE RIVERS CLEAN-UP PLAN



Louis Berger

The Big Picture





Part II

Part I

Legend

- Impaired Segments
- Part I Watershed Boundary
- Part II Watershed Boundary
- Cities
- County
- Waterbodies
- Streams

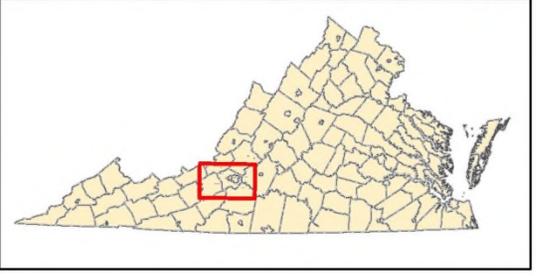
VADEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Roanoke Valley-Allegheny
REGIONAL
commission

Louis Berger

0 2.5 5 10
Miles

Sources: USGS, VADEQ, ESRI
Projection: NAD 1983 UTM Zone 17N



Where are we now?

The Planning Process in Roanoke River Watershed

- ⦿ Watershed studies completed in 2004 and 2006
- ⦿ Identified sources of bacteria & sediment in the watersheds, their contributions and the reductions needed
- ⦿ Concluded Part I Clean Up Plan in April 2015
 - EPA approved Part I Clean Up Plan 4/22/2016
- ⦿ Part II Clean Up Plan began in April 2015
 - Working group and steering committee meetings held over the past year
 - Part II Clean Up Plan public comment begins tonight

Why do we need a plan for clean water?

- ◎ **Too much *E.coli***
 - Human health concern
 - Risk based standard
 - Indicator of pathogens in the water (viruses, protozoans, bacteria)
 - Impacts on livestock
 - cattle diseases transmitted through fecal oral pathway
- ◎ **Too much sediment**
 - Clogs the spaces between rocks causing a shift in aquatic life communities



Review of the Studies:

Where is the bacteria coming from?

- ⦿ *E. coli* is found in warm blooded animals
 - Humans
 - Wildlife
 - Livestock
 - Pets
- ⦿ Some bacteria deposited on the land ends up in rivers and streams
- ⦿ Impact of direct deposition of bacteria in rivers and streams



Review of the Studies:

Where is the sediment coming from?

⦿ Stormwater

- Exposed soil from land disturbing activities
- Streets and parking lots and other paved surfaces
- High flows causing erosion in stream channels

⦿ Lack of stream-side vegetation



Land Use is a major driver of pollutant loading
 Since the development of the original TMDL, there
 have been land use changes and the unit area loads
 were **updated** as follows:

| Part I Landuse Distribution and Comparison | | | | | | | |
|--|---------------|---------------|---------------|---------------|--------------------|---------------|---------|
| Landuse | Developed | Cropland | Pasture/Hay | Forest | Water/ Wetlands | Other | Total |
| NLCD 1992 Acres | 35,677 | 1,080 | 29,010 | 139,761 | 1,722 | 2,173* | 209,423 |
| NLCD 2006 Acres | 71,656 | 213 | 18,614 | 116,537 | 1,479 | 923** | 209,423 |
| Percent Change | 100.9% | -80.2% | -35.8% | -16.6% | -14.1% | -57.5% | |

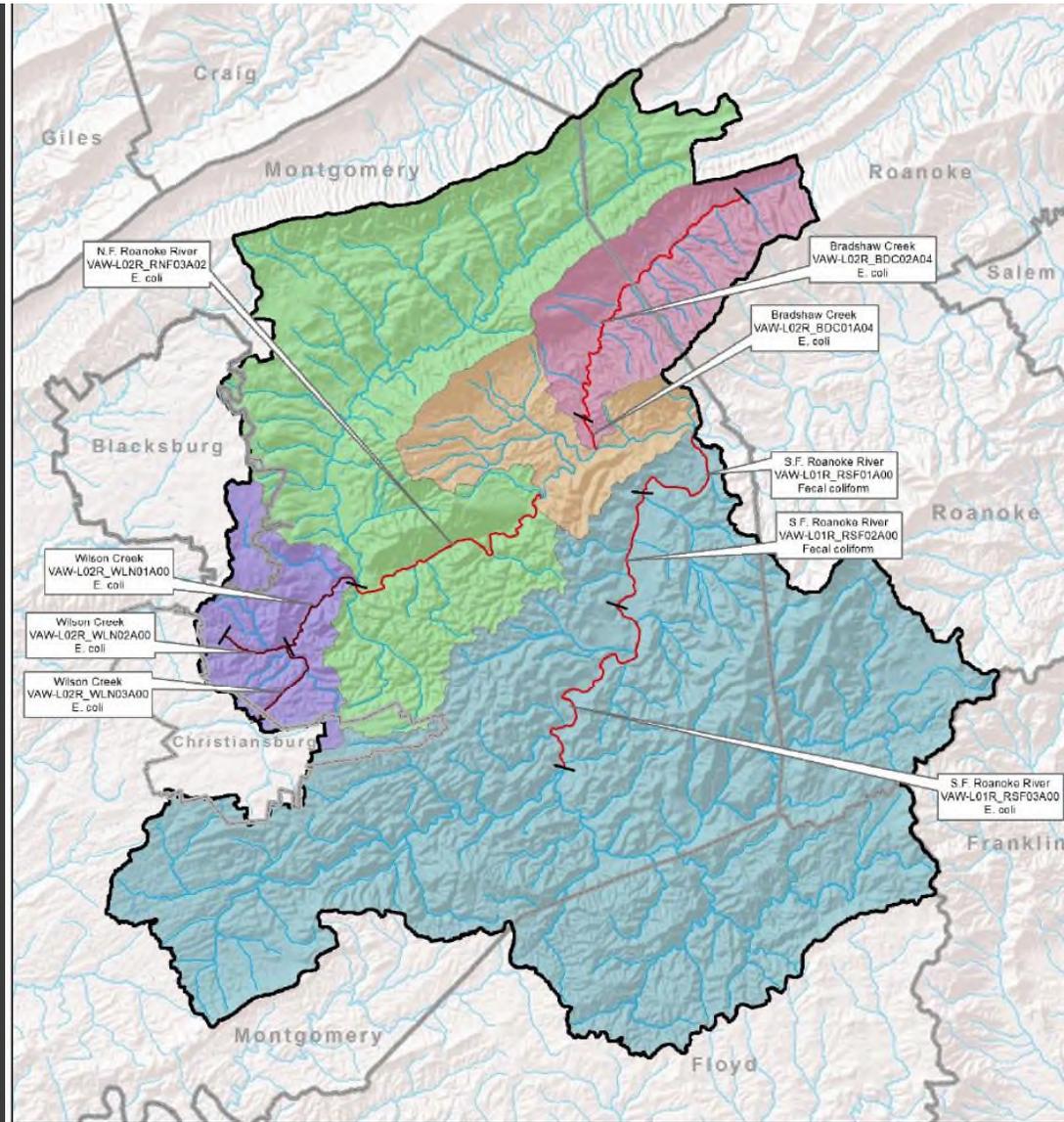
| Part II Landuse Distribution and Comparison | | | | | | | |
|---|---------------|---------------|---------------|--------------|--------------------|---------------|---------|
| Landuse | Developed | Cropland | Pasture/Hay | Forest | Water/ Wetlands | Other | Total |
| NLCD 1992 Acres | 2,274 | 3,678 | 23,150 | 131,975 | 225 | 743* | 162,046 |
| NLCD 2006 Acres | 13,878 | 1,216 | 20,179 | 126,504 | 140 | 130** | 162,046 |
| Percent Change | 510.2% | -67.0% | -12.8% | -4.1% | -37.8% | -82.4% | |

* NLCD 1992 "Other" includes Quarries/Strip Mines/Gravel Pits, Transitional, and Urban/Recreational Grasses

**NLCD 2006 "Other" includes Barren Land, Grassland/Herbaceous, and Shrub/Scrub

Subwatersheds* covered by Part II Clean-up Plan

* *Subwatershed = a smaller piece of a larger watershed associated with drainage areas that feed a tributary stream*



| | | | |
|---|--|--------------------------|----------------------------|
| <p>Legend</p> <ul style="list-style-type: none"> — Bacteria Impairments with TMDL — Incorporated Bacteria Impairments Part II Watershed Boundary — Streams and Rivers Waterbodies County/Municipality | <p>Subwatershed</p> <ul style="list-style-type: none"> Bradshaw Creek North Fork Roanoke River South Fork Roanoke River Unimpaired North Fork Roanoke River Wilson Creek | <p>0 1 2 4 Miles</p> | <p>VA INDEX MAP</p> |
|---|--|--------------------------|----------------------------|

What is in the plan?

- ⦿ Updated landuses & pollutant reductions
- ⦿ Actions to improve water quality (BMPs)
- ⦿ Outreach strategies
- ⦿ Costs and benefits
- ⦿ Funding opportunities
- ⦿ Project timeline
 - Implementation goals
 - Implementation milestones





Septic System Pump-out



Septic System Replacement



Septic System Repair



Alternative On-site
Sewage Disposal System

Pet Waste Management (Residential)



Pet Waste
Composters



Pet Waste Kiosk



CCU Waste Treatment



Eliminate Illicit Discharges



Vegetated Buffer



Pervious Pavement



Bioretention Area
(Rain Garden)



Infiltration Trench



Permanent Vegetative Cover



Reforestation



Watering Trough





Exclusion Fencing & Riparian Buffer



Stream Restoration



Photo courtesy of Virginia Department of Game & Inland Fisheries

Education and Outreach

- Focus on economic benefits of agricultural BMPs
- Pet Waste Education Campaigns
 - HOAs
 - Veterinarian Offices & Kennels
- Septic System Maintenance
- Develop and distribute educational materials at ongoing events
 - Waterway Clean-ups
 - Home Shows



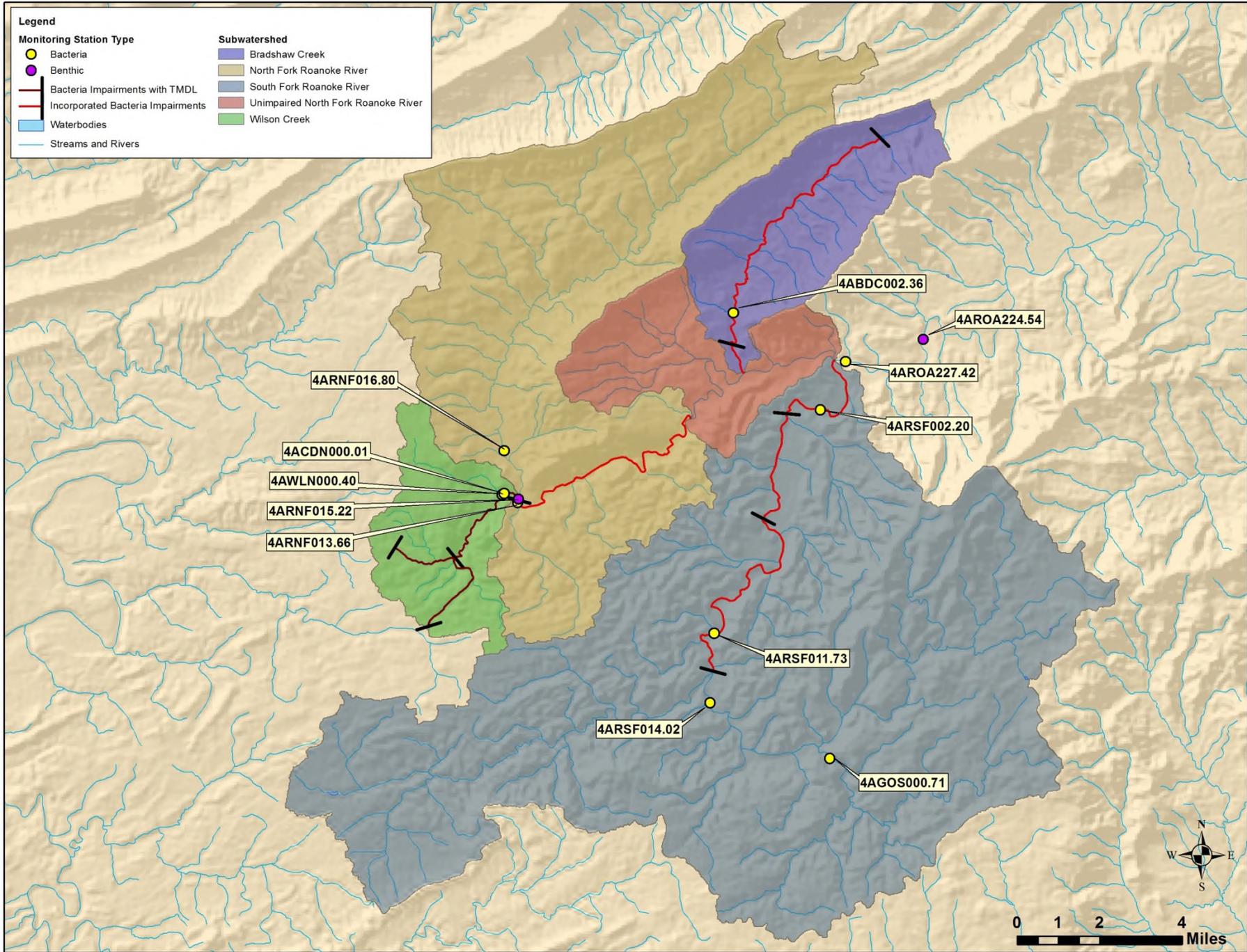
Clean water begins at home!



DEQ's Water Quality Monitoring Program







What funding sources are available?

- USDA Programs - CREP/EQIP
- Water Quality Improvement Fund
- National Fish and Wildlife Foundation Grants
- EPA 319 Funds (available through DEQ)
- State Revolving Loan Funds
- State Cost-Share Program and Tax Credits



Photo: Jeff Vanuga, NRCS

Why should **you** participate?

- ⦿ Economic benefits
 - Agricultural producers
 - Homeowners
 - Local economy

- ⦿ Water quality benefits
 - Environmental
 - Human health
 - We all live downstream!

Public Comment Period for Part II

- July 14, 2016 – August 15, 2016

- Send written comments to:

James Moneymaker

Virginia Department of Environmental
Quality

3019 Peters Creek Road

Roanoke, VA 24019

Email: james.moneymaker@deq.virginia.gov

Thank you!

