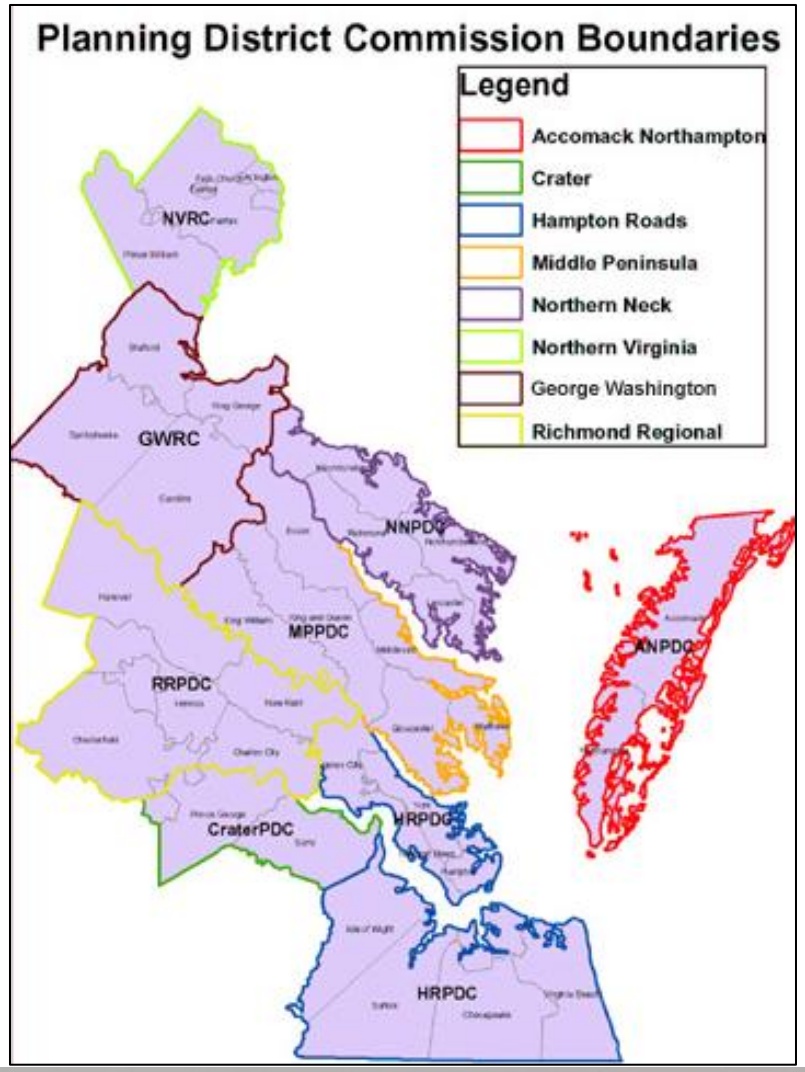
WATER QUALITY INITIATIVES: VIRGINIA

- The Virginia CZM Program works with Planning District Commissions to support local efforts to manage coastal resources
- PDCs are state enabled, regionally created planning agencies

Purpose: *"to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance"* (Code of Virginia, Section 15.2-4207)

WATER QUALITY INITIATIVES: VIRGINIA



WATER QUALITY INITIATIVES: VIRGINIA

- CZM funding has helped prepare local governments for requirements stemming from the Chesapeake Bay TMDL.
- Annual Technical Assistance Grants to PDCs
- Competitive Grants available for PDCs if funds are available.
- Coastal Strategy (Section 309) Grants to PDCs
  - Hampton Roads PDC – Urban/Suburban localities
  - Middle Peninsula PDC – Rural localities

WATER QUALITY INITIATIVES: VIRGINIA

- **Middle Peninsula PDC**
  - Identification of process and financial solutions (communications, local ordinances, etc.) for failing septic systems.
  - Potential incentives for living shorelines.
- **Northern Virginia Regional Commission**
  - Conservation landscaping work, combining native plants promotion and conservation landscape planning.

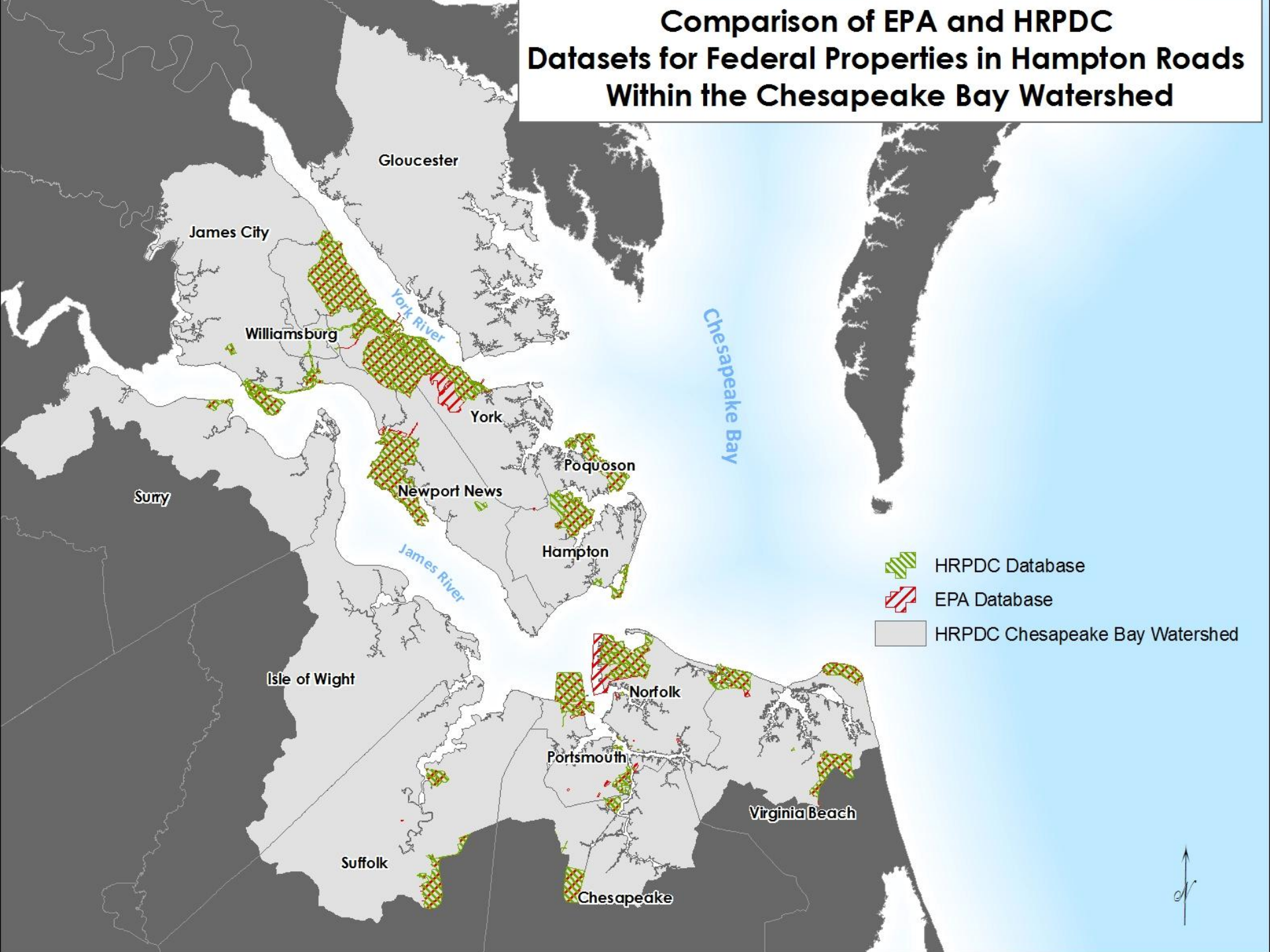
WATER QUALITY INITIATIVES: HAMPTON ROADS

- **Technical Assistance Grant**
  - Local WIP Coordination
- **Competitive Grants (FY11)**
  - Incentivizing voluntary BMPs on private property
  - Promoting urban redevelopment as a strategy for the Bay TMDL
- **Coastal Strategy (Section 309) Grants**
  - Year 1: Select code and ordinance review tool, summarize stormwater regulations.
  - Year 2: Review local codes of selected localities, develop coastal BMP guidance.
  - Year 3: Assist localities in implementing policy changes.

WATER QUALITY INITIATIVES: VIRGINIA

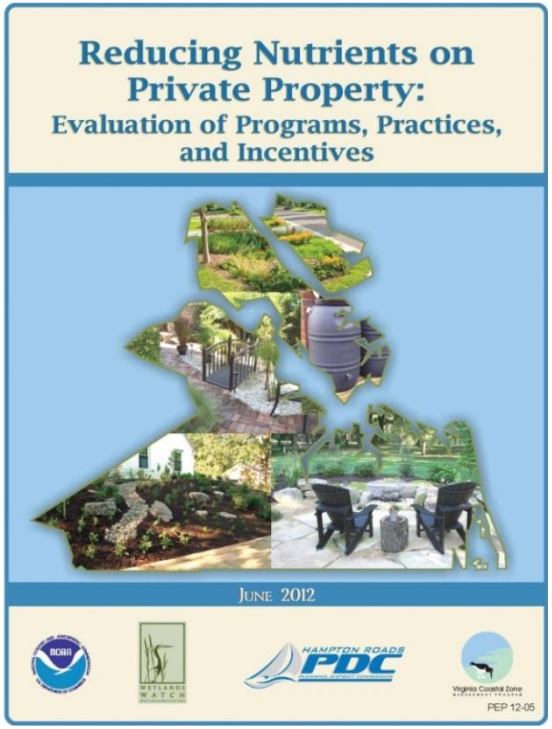
- Support for Watershed Implementation Planning
- Analysis of lands owned by federal and state agencies to determine load reduction responsibility
- Comparison of EPA, HRPDC, and Navy data
  - Significant differences identified
    - Colonial NHP, Naval Station Norfolk, NASA Langley, etc.
- Analysis of areas possibly owned by VDOT

Comparison of EPA and HRPDC Datasets for Federal Properties in Hampton Roads Within the Chesapeake Bay Watershed



WATER QUALITY INITIATIVES: INCENTIVIZING VOLUNTARY BMPS

- Can programs that increase BMPs on existing private property play a larger role in local government Bay TMDL and MS4 compliance strategies?



WATER QUALITY INITIATIVES: INCENTIVIZING VOLUNTARY BMPS

- BMP have been installed on private property in Hampton Roads that could count towards WIP and MS4 goals.
- No process to ensure consistency, reliability, ongoing maintenance, and adequate reporting of existing and future BMPs on private property.
- Stewardship programs should have strategies based on a well-defined, unifying, and publicly-available plan that acknowledges and responds to local issues.
- There are model programs, in adjacent states and within Virginia that could be used to lay out "best practices" to expand BMP installation on private property.
- Stakeholders would benefit from regional cooperation and coordination.

WATER QUALITY INITIATIVES: REDEVELOPMENT AS A TMDL STRATEGY

Key Findings:

- Redevelopment is not consistently defined by local governments.
- Redevelopment is not typically tracked for reporting.
- Planning for strategic growth areas for redevelopment does not typically include stormwater management designs for water quality.

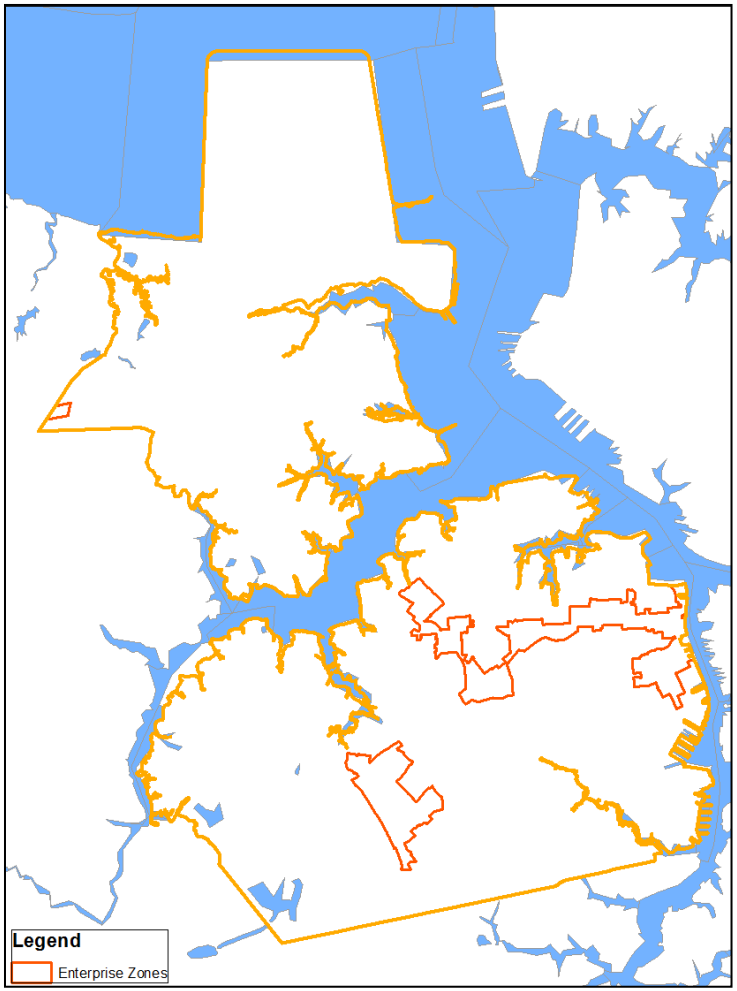
Recommendations:

- Develop a definition of redevelopment for site plan review that is consistent with Virginia's Stormwater Management Regulations.
- Promote redevelopment to take advantage of developer funded nutrient reductions that can help meet the Chesapeake Bay TMDL goals.
- Calculate and track nutrient reduction from redevelopment activities to help plan strategies.

WATER QUALITY INITIATIVES: REDEVELOPMENT AS A TMDL STRATEGY

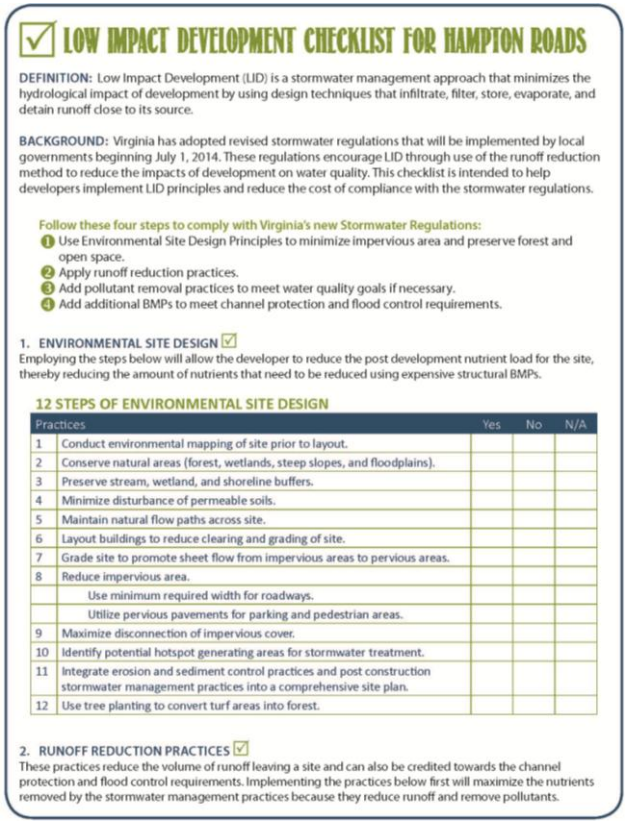
City of Portsmouth example:

- Enterprise Zones = 5% of total city area.
- Impervious area without stormwater treatment = 600 acres.
- Nutrient reduction due to redevelopment = 4% to 6% of total TMDL requirement.
- City Savings = up to $127 million on the construction of public property BMP retrofits.



WATER QUALITY INITIATIVES: 309 POLICY GUIDANCE

- Identify code and ordinance review tools.
- Review local codes and ordinances to identify opportunities for improvement.
  - Environmental site design
  - Transfer of Development Rights
  - Cluster Development
- Multiple benefits approach
  - Water quality, floodplain management, open space preservation, sea level rise



☑ LOW IMPACT DEVELOPMENT CHECKLIST FOR HAMPTON ROADS

DEFINITION: Low Impact Development (LID) is a stormwater management approach that minimizes the hydrological impact of development by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source.

BACKGROUND: Virginia has adopted revised stormwater regulations that will be implemented by local governments beginning July 1, 2014. These regulations encourage LID through use of the runoff reduction method to reduce the impacts of development on water quality. This checklist is intended to help developers implement LID principles and reduce the cost of compliance with the stormwater regulations.

Follow these four steps to comply with Virginia's new Stormwater Regulations:

1. Use Environmental Site Design Principles to minimize impervious area and preserve forest and open space.
2. Apply runoff reduction practices.
3. Add pollutant removal practices to meet water quality goals if necessary.
4. Add additional BMPs to meet channel protection and flood control requirements.

1. ENVIRONMENTAL SITE DESIGN ☑

Employing the steps below will allow the developer to reduce the post development nutrient load for the site, thereby reducing the amount of nutrients that need to be reduced using expensive structural BMPs.

12 STEPS OF ENVIRONMENTAL SITE DESIGN

	Practices	Yes	No	N/A
1	Conduct environmental mapping of site prior to layout.			
2	Conserve natural areas (forest, wetlands, steep slopes, and floodplains).			
3	Preserve stream, wetland, and shoreline buffers.			
4	Minimize disturbance of permeable soils.			
5	Maintain natural flow paths across site.			
6	Layout buildings to reduce clearing and grading of site.			
7	Grade site to promote sheet flow from impervious areas to pervious areas.			
8	Reduce impervious area.			
	Use minimum required width for roadways.			
	Utilize pervious pavements for parking and pedestrian areas.			
9	Maximize disconnection of impervious cover.			
10	Identify potential hotspot generating areas for stormwater treatment.			
11	Integrate erosion and sediment control practices and post construction stormwater management practices into a comprehensive site plan.			
12	Use tree planting to convert turf areas into forest.			

2. RUNOFF REDUCTION PRACTICES ☑

These practices reduce the volume of runoff leaving a site and can also be credited towards the channel protection and flood control requirements. Implementing the practices below first will maximize the nutrients removed by the stormwater management practices because they reduce runoff and remove pollutants.

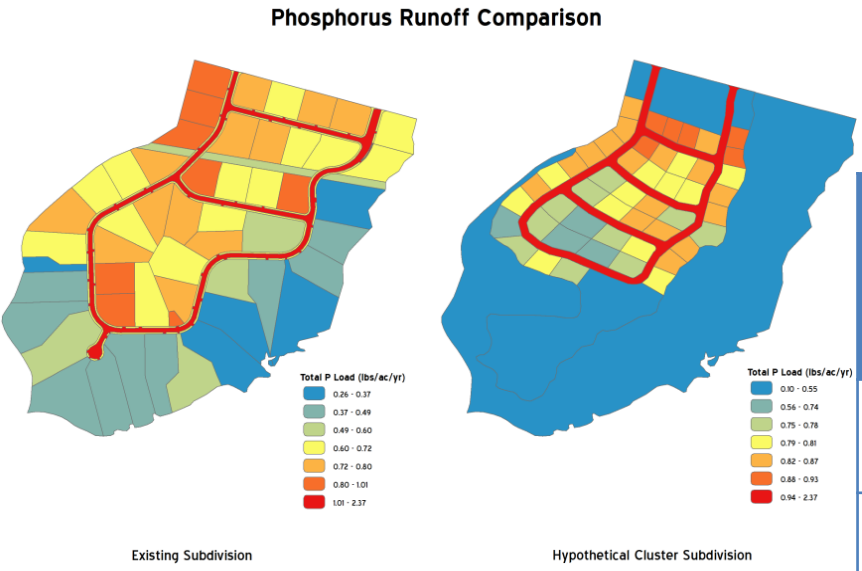
WATER QUALITY INITIATIVES: 309 STORMWATER PROGRAM IMPLEMENTATION

1. Assessment of impacts on local governments due to new stormwater management regulations.
2. Coastal Plain Stormwater BMP Guidance.
3. Tools to encourage LID BMPs.

Practice	Preferred	Accepted	Restricted	Phosphorus Removal Efficiency (%)
Rooftop Disconnection	X			25
Sheet flow to open space	X			50-75
Rainwater Harvesting	X			Up to 90
Permeable Pavement	X			59-81
Bioretention	X			55-90
Dry Swales	X			52-76
Wet Swales	X			20-40
Constructed Wetlands	X			50-75
Small Scale Infiltration	X			63-93
Soil Amendments		X		
Vegetated Roofs		X		45-60
Filtering Practices		X		60-65
Wet Ponds		X		45-65
Grass Channels			X	23
Extended Detention Ponds			X	31
Large Scale Infiltration			X	63-93

WATER QUALITY INITIATIVES: 309 MODELING POLICIES

- Integrated the Virginia Runoff Reduction Method Spreadsheet with ArcGIS/CommunityViz .
- Case study of existing development compared with alternative cluster development.



Scenario	Forest	Turf	Impervious
Conventional Subdivision	28.8%	56%	15.2%
Cluster Subdivision	49.9%	39%	11.1%

Scenario	Total Treatment Volume (cubic feet)	Total P Load (lbs/yr)	P Load Target Goal (lbs/yr)	P Reduction Required (New Regulations) (lbs/yr)
Conventional Design	90,509	62.16	36.53	25.63
Cluster Design	68,449	47.01	36.53	10.36