

Rappahannock-Rapidan PDC - Urban BMP data 10/19/18

Sector	LAPG BMPs	Unit	2017	WIP 2	2025 Available	WIP 3	WIP 3 + 250%	Notes
Developed	Advanced Grey Infrastructure Nutrient Discovery Program (IDDE)	acres	0	0	86,057	0	0	
Developed	Bioretention/raingardens - A/B soils	acres	55	2,884	114,172	2,884	10,094	
Developed	Bioretention/raingardens - C/D soils	acres	2	0	48,845	500	1,750	
Developed	Bioswale	acres	10	0	114,172	1,000	3,500	
Developed	Dirt & Gravel Road Erosion & Sediment Control	feet	0	80	25,882	0	0	
Developed	Dirt & Gravel Road Erosion & Sediment Control - Outlets	feet	0	196	12,941	1,000	3,500	
Developed	Dry Detention Ponds and Hydrodynamic Structures	acres	2,518	5,652	114,172	3,000	10,500	
Developed	Dry Extended Detention Ponds	acres	2,013	10,744	114,172	3,000	10,500	
Developed	Erosion and Sediment Control Level 1	acres	60	877	1,251	0	0	
Developed	Erosion and Sediment Control Level 2	acres	0	0	1,251	877	3,070	Moved WIP 2 ESC1 acres to ESC2
Developed	Erosion and Sediment Control Level 3	acres	0	0	1,251	0	0	
Developed	Filtering Practices	acres	29	6,144	114,172	500	1,750	
Developed	Floating Treatment Wetland 10% Coverage of Pond	acres	0	0	114,172	0	0	
Developed	Floating Treatment Wetland 20% Coverage of Pond	acres	0	0	114,172	0	0	
Developed	Floating Treatment Wetland 30% Coverage of Pond	acres	0	0	114,172	5	18	
Developed	Floating Treatment Wetland 40% Coverage of Pond	acres	0	0	114,172	0	0	
Developed	Floating Treatment Wetland 50% Coverage of Pond	acres	0	0	114,172	0	0	
Developed	Forest Buffer	acres	0	344	71,923	50	175	
Developed	Forest Planting	acres	0	86	71,923	200	700	
Developed	Impervious Surface Reduction	acres	0	1,899	29,169	200	700	
Developed	Infiltration	acres	112	5,513	114,172	162	567	
Developed	Nutrient Management Plan	acres	659	42,923	86,057	20,000	70,000	
Developed	Permeable Pavement	acres	0	6	114,172	6	21	
Developed	Storm Drain Cleaning	pounds	0	0	N/A	50	175	
Developed	Stormwater Performance Standard-Runoff Reduction	acres	5	0	114,172	5	18	
Developed	Stormwater Performance Standard-Stormwater Treatment	acres	1	0	114,118	1	4	

Sector	LAPG BMPs	Unit	2017	WIP 2	2025 Available	WIP 3	WIP 3 + 250%	Notes
Developed	Mechanical Broom Technology (Street Cleaning)	acres	0	633	13,375	633	2,216	
Developed	Tree Planting - Canopy	acres	0	0	114,172	2.5%	8.8%	
Developed	Vegetated Open Channels - A/B	acres	11	145	114,172	500	1,750	
Developed	Wet Ponds and Wetlands	acres	2,764	10,514	114,172	10,514	36,799	
Natural	Algal Flow-way Non-Tidal Monitored	pounds	0	0	N/A	0	0	
Natural	Algal Flow-way Non-Tidal	acres	0	0	114,172	0	0	
Natural	Urban Stream Restoration	feet	0	10,218	10,431,144	10,218	35,763	
Natural	Wetland Enhancement	acres	0	0	26,208	25	88	
Natural	Wetland Rehabilitation	acres	0	0	26,208	25	88	
Septic	Septic Connection	systems	6	3,401	42,812	500	1,750	
Septic	Septic Denitrification-Conventional	systems	91	6,041	38,504	185	648	VDH estimate
Septic	Septic Denitrification-Enhanced	systems	31	0	38,504	167	585	VDH estimate
Septic	Septic Effluent-Enhanced	systems	20	0	38,504	24	84	VDH estimate
Septic	Septic Pumping	systems	403	5,073	38,504	5,073	17,756	
Septic	Septic Secondary Treatment Conventional	systems	307	0	38,504	698	2,443	VDH estimate
Septic	Septic Secondary Treatment Enhanced	systems	8	0	38,504	74	259	VDH estimate
Growth	Agricultural Conservation Policy	County	0	0	All	0	0	
Growth	Forest Conservation Policy	County	0	0	All	0	0	
Growth	Growth Management Policy	County	0	0	All	All Counties	All Counties	

NOTE: grey shading denotes annual BMPs

Nitrogen Loads (lbs/yr)

10/19/2018

Load Source	Rappahannock-Rapidan WIP 2 Baseline (EOS)	RRRC WIP 3 Working Draft (EOS)	RRRC WIP 3 Working Draft + 250% (EOS)	Rappahannock-Rapidan WIP 2 Baseline (EOT)	RRRC WIP 3 Working Draft (EOT)	RRRC WIP 3 Working Draft + 250% (EOT)
Sector: Agriculture	4,230,652.57	4,242,297.72	4,242,154.50	2,620,077.50	2,628,313.34	2,628,230.61
Sector: Developed	874,428.41	943,514.97	845,754.19	482,813.78	520,951.99	466,196.45
Sector: Natural	1,578,455.66	1,589,825.25	1,573,182.22	909,424.81	915,429.09	906,553.10
Sector: Septic	347,953.35	372,032.70	354,999.42	188,485.58	201,386.29	192,116.87
Sector: Wastewater	400,731.66	400,731.66	400,731.66	279,725.91	279,725.91	279,725.91
Total	7,432,221.65	7,548,402.31	7,416,821.98	4,480,527.58	4,545,806.62	4,472,822.95

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Virginia Phase III WIP Programmatic Action Template

The Commonwealth has initiated the process for developing the Phase III Watershed Implementation Plan (WIP), which builds on BMPs and programmatic actions developed during the Phase II WIP to meet 2025 goals. As Virginia and local stakeholders move forward in Phase III, this document has been developed to provide a format for building and submitting local Phase III programmatic actions. Localities, PDCs and SWCDs will submit input decks with revised or enhanced BMP data that will be run through the Chesapeake Assessment and Scenario Tool (CAST). Programmatic actions that will facilitate BMP implementation will be submitted to DEQ using this formatted spreadsheet.

Using the table below, enter proposed programmatic actions and quantitative measures of implementation, when applicable. In addition, you may enter funding/capacity needs that can be utilized to implement the programmatic actions. There are also columns to enter co-benefits that will result from the implementation of the programmatic actions and gaps in statutory/regulatory authority that may exist.

PROGRAMMATIC ACTIONS TO IMPLEMENT SELECTED BMPS	QUANTITATIVE MEASUREMENT	FUNDING AND CAPACITY NEEDS	LOCALLY IDENTIFIED CO-BENEFITS	GAPS IN STATUTORY/REGULATORY AUTHORITY
Track pump outs for alternative septic systems (VDH)			Local water quality improvement, increased property value, economic development, ground water protection	Reporting requirement for haulers in areas outside of the Chesapeake Bay Act
Implement an educational program asking haulers to report pump outs (VDH)			Local water quality improvement, increased property value, economic development, ground water protection	
Implement project to install bio-swales and other LID practices at area churches along with development of targeted messaging and outreach			Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand VCAP cost-share program		Additional VCAP funds	Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand Friends of the Rappahannock Rainscaping program to install more small-scale stormwater practices on residential and community sites		Grant Funding	Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand Cooperative Extension's Green Grass Program to develop more urban nutrient management plans on residential sites		Additional VCE Funding or Grant Funding	Local water quality improvement, habitat/fisheries improvement, drinking water protection	
No fertilizer pledge campaign			Local water quality improvement, habitat/fisheries improvement	
Continue to fund/implement Fauquier county's PDR program			Local water quality improvement, ag/forestry land preservation, tourism	
Implement recommendations of Healthy Watershed Forest Initiative when completed			Economic development, local water quality improvement, CO2 reduction/air quality improvement, habitat/fisheries improvement	
Begin tracking local storm drain cleaning (municipal and private)			Local water quality improvement, fisheries improvement	Reporting requirement for private entities to track storm drain cleaning
Implementation of DOF phone app to track/verify citizen tree planting		Local staffing/funding to verify planting as required	Local water quality improvement, CO2 reduction/air quality improvement, habitat/fisheries improvement	
Ensure VDOT projects that reduce impervious surface are being tracked as such in the Bay Model				Internal VDOT policy change or directive to ensure VDOT projects that reduce impervious surface are being tracked as
Develop a Watershed Management Plan for the Upper Rappahannock River (RRRC)		Grant Funding and/or dedicated PDC Environmental staff funding from state	Local water quality improvement, reduced flooding, habitat/fisheries improvement, drinking water protection, economic development, air quality improvement	
Track local street sweeping miles and expand programs where feasible			Local water quality improvement, fisheries improvement, beautification/economic development	
Improve water monitoring capabilities along major rivers in the region (including additional monitor stations and improved data tracking capabilities) in partnership with VDEM and RRBC (2018 Regional Hazard Mitigation Plan strategy)		State and local match funding to complete phase 2	Local water quality improvement, reduced flooding, habitat/fisheries improvement, recreation	
Limit the percentage of allowable impervious surface within developed parcels to reduce the impact of erosion and to lessen the impact of flooding (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Require more trees be preserved/planted in landscape designs to reduce the amount of stormwater runoff (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, habitat improvement, beautification	
Require clustering for PUDs in the zoning ordinance that reduce or eliminate development in known hazard areas (generally flood zones) (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, land conservation	
Require setbacks from delineated hazard areas (e.g. wetlands, steep slopes) (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, habitat improvement	
Join the Community Rating System program to reduce the flood insurance premiums of citizens and to foster better floodplain management practices (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, economic development	
Consider acquisition, elevation, or flood-proofing of structures with repetitive loss claims to the National Flood Insurance Program (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Provide vegetative buffers where appropriate to offset effects of potential flooding (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, habitat improvement	

PROGRAMMATIC ACTIONS TO IMPLEMENT SELECTED BMPS	QUANTITATIVE MEASUREMENT	FUNDING AND CAPACITY NEEDS	LOCALLY IDENTIFIED CO-BENEFITS	GAPS IN STATUTORY/REGULATORY AUTHORITY
Employ the use of impervious surfaces, only where practical, to counteract the effects of flooding in developed areas of town (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Relocation of structures out of the floodplain (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Establish and manage riparian buffers along rivers and streams to minimize erosion and flooding (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, habitat/fisheries improvement	
Retain thick vegetative cover on public lands flanking river to reduce the potential of erosion (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, habitat/fisheries improvement	
Encourage residents to keep storm drains clear of debris during storms (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Require developers to plan for on-site sediment retention. (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Develop an open space acquisition, reuse and preservation plan targeting hazard areas (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding, land preservation	
Prohibit any development within the floodplain areas (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Substitute porous surfaces/pavement for impervious pavement when appropriate to reduce flooding caused by runoff (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Retain natural vegetative bed in stormwater channels to reduce erosion (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Complete a stormwater drainage study/plan for known problem areas (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	

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PROGRAMMATIC ACTIONS TO IMPLEMENT SELECTED BMPs	QUANTITATIVE MEASUREMENT	FUNDING AND CAPACITY NEEDS	LOCALLY IDENTIFIED CO-BENEFITS	GAPS IN STATUTORY/REGULATORY AUTHORITY
Track pump outs for septic systems (VDH)		Adequate VDH Staffing	Local water quality improvement, increased property value, economic development, ground water protection	Reporting requirement for haulers in areas outside of the Chesapeake Bay Act
Implement an educational program asking haulers to report pump outs (VDH)		Adequate VDH Staffing	Local water quality improvement, increased property value, economic development, ground water protection	
Implement project to install bio-swales and other LID practices at community meeting locations along with development of targeted messaging and outreach		Grant Funding	Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand VCAP cost-share program and other urban cost share funds		Additional VCAP funds and adequate SWCD staffing and technical assistance	Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand Friends of the Rappahannock Rainscaping program to install more small-scale stormwater practices		Grant Funding	Local water quality improvement, habitat/fisheries improvement, reduced flooding	
Expand Cooperative Extension's Green Grass Program to develop more urban nutrient management plans on residential sites		Additional VCE Funding or Grant Funding	Local water quality improvement, habitat/fisheries improvement, drinking water protection	
Implement a no fertilizer pledge campaign		Grant Funding	Local water quality improvement, habitat/fisheries improvement	
Continue to fund/implement Fauquier county's PDR program		Adequate local staffing and state funds	Local water quality improvement, ag/forestry land preservation, tourism	
Implement recommendations of Healthy Watershed Forest Initiative when completed		unknown	Economic development, local water quality improvement, CO2 reduction/air quality improvement, habitat/fisheries improvement	Support for initiatives in the General Assembly as they arise
Begin tracking local storm drain cleaning (municipal and private)		Adequate local staffing, tracking forms	Local water quality improvement, fisheries improvement	Reporting requirement for private entities to track storm drain cleaning
Implementation of DOF phone app to track/verify citizen tree planting		Local staffing/funding to verify planting as required	Local water quality improvement, CO2 reduction/air quality improvement, habitat/fisheries improvement	
Ensure VDOT projects that reduce impervious surface are being tracked as such in the Bay Model				Internal VDOT policy change or directive to ensure VDOT projects that reduce impervious surface are being tracked as such in the Bay Model
Develop a Watershed Management Plan for the Upper Rappahannock River (RRRC/SWCD)		Grant Funding and/or dedicated PDC Environmental staff funding from state	Local water quality improvement, reduced flooding, habitat/fisheries improvement, drinking water protection, economic development, air quality improvement	
Track local street sweeping miles and expand programs where feasible		tracking forms	Local water quality improvement, fisheries improvement, beautification/economic development	
Improve water monitoring capabilities along major rivers in the region (including additional monitor stations and improved data tracking capabilities) in partnership with VDEM and RRBC (2018 Regional Hazard Mitigation Plan strategy)		State and local match funding to complete phase 2	Local water quality improvement, reduced flooding, habitat/fisheries improvement, recreation	
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Complete a stormwater drainage study/plan for known problem areas (2018 Regional Hazard Mitigation Plan strategy)			Local water quality improvement, reduced flooding	
Work with VDH to implement an educational program for residential septic pump-outs		Adequate local staffing	Local water quality improvement, increased property value, economic development, ground water protection	
Renew local Ag/forestal Districts				
Expand and encourage use of non-profits' and localities' conservation easements programs		Grant funding, local staff		
Implement education program for dirt/gravel road design, construction and maintenance		Grant funding, local staff		
Initiate dialogue with VDOT to allow plantings in right-of-way				
Implement educational programs to encourage tree planting and proper forestry practices and other sustainable conservation landscaping practices				
Implement and track tree seedling sales from government and non-profit entities		Grant funding for materials and local staff		
Raise awareness about land use taxation credits to increase forestry		Grant funding for materials and local staff		
Expand DOF cost share programs funding for urban forests		Adequate DOF staffing and funding		
Track trees installed per local ordinances		Adequate local staffing		
Identify opportunities for stream restoration and bank stabilization and implement as part of a larger watershed plan		Grant funding, local staff and technical assistance		
Identify opportunities for retrofitting storm water BMPS and implement as part of a larger watershed plan		Grant funding, local staff and technical assistance		
More local control over approval of alternative septic systems				Change in statutory authority
Adequate enforcement support for erosion and sediment control		DEQ staff		
Finish process to combine state erosion and sediment control and VSMP programs				
Reinstate annual regional ESC/stormwater workshops for locality staff led by regional DEQ staff to provide updates, answer questions and facilitate discussion		Adequate DEQ staffing		
Seek clarification of agricultural and forestry exemptions in state erosion and sediment control and stormwater law to eliminate loopholes.				Clarify agricultural and forestry exemptions in state erosion and sediment control and stormwater law to eliminate loopholes

Virginia Phase III WIP Programmatic Actions

As Virginia and local stakeholders move forward in Phase III, this document has been developed to provide examples of programmatic actions for BMP implementation and capacity building efforts that may be considered for submission by localities. The programmatic action examples presented in this document are actions proposed by localities during the Phase II WIP process. They are not requirements, but provide a format for identifying and submitting local Phase III programmatic actions.

Programmatic actions that will facilitate BMP implementation, like the examples provided, will be submitted to DEQ using a separate spreadsheet template. When completing this template, localities should include quantitative measures of implementation, such as target dates for completion, percentage of available land cover that the programmatic action will be applied to, and/or the number of acres (or other unit of measurement) that will be treated through implementation of the programmatic action. Some possible ways to express these are included in the examples below.

LOCAL PROGRAMMATIC ACTION

Erosion & Sediment Control Examples

By 2023, locality outside the Bay Act area to amend the local erosion & sediment control ordinance to adjust the threshold at which erosion control practices are applied from 10,000 square feet to 2,500 square feet.

Low Impact Development/Better Site Design Examples

Within 5 years, amend parking requirements within land use ordinances to incorporate low impact development practices such as pervious pavement, increased landscaping, use of bioretention, and lowering minimum parking space requirements for all new parking lots.

By 2021, inventory existing urban vacant land uses for potential infill, redevelopment, and low impact development opportunities.

Investigate developing programs that will utilize green roofs, green streets and other low impact development practices on at least 50% of publically owned lands. Pilot several practices by 2022 to demonstrate the efficiency of these practices to the public and increase awareness.

Investigate the adoption of DEQ's Better Site Design Manual to mitigate the impact of stormwater runoff from developed lands.

By 2025, require developers to incorporate low impact development into all proposed projects, where feasible.

Ordinances - General Examples

By 2020, add provisions to local land use ordinances to prevent excessive changes to existing topography and tree cover outside of designated growth areas.

As part of the regular 5-year comprehensive plan review process, amend the plan to promote conservation/cluster development for residential development in rural areas, and develop companion land use ordinances to implement such a policy.

Establish specific development standards in local ordinances that minimize impervious cover and increase open space requirements for new development and redevelopment.

Work with the Commonwealth of Virginia to create a model waterfront redevelopment ordinance that encourages cost-effective redevelopment that will result in reduced pollutant runoff.

Septic

Over 5 years, implement a septic pumpout and enforcement program covering 20% annually of all septic systems (for areas not covered by the Chesapeake Bay Preservation Act).

Annually, provide opportunities for homeowners with septic systems to connect to the municipal wastewater system at a reduced cost.

Shoreline/Streambank Protection

Adopt a program to identify annual opportunities for stream restoration/bank stabilization. Designate a % of Capital Improvement Plan (CIP) budget to support stream restoration.

Develop outreach/incentive programs to encourage the use of living shorelines to address shoreline erosion control over bulkheads and rip-rap.

By 2020, evaluate the extent of existing IDAs (intensely developed areas) and modify limits to promote the maintenance and establishment of riparian forest buffers.

Dedicate funds annually to municipal Flood Assistance Program to purchase/demolish residential properties in floodplains to promote floodplain re-establishment.

Stormwater Management

Analyze the benefits of adopting stormwater management strategies that are more stringent than the minimum standards required by the Virginia Stormwater Management Act.

Incentivize privately funded BMP retrofits.

Investigate the development of a sustainable funding mechanism to support the implementation of urban BMPs such as pro rata fees or stormwater utility programs.

Investigate opportunities to retrofit existing stormwater quantity control facilities to address water quality using low impact development practices.

Revise existing design standards to encourage the construction of infiltration-based stormwater management practices within street right-of-way.

Tree Conservation

Develop landscaping/tree canopy ordinance that requires additional tree cover.

Establish an urban tree planting program in all local parks and restore forested buffers on streams within locality-owned open space and parkland that would result in a % of restored forested buffers within 5 years.

Implement program to promote the establishment of forested buffers in urban areas.

Initiate a streetscape program to encourage urban tree planting in residential/commercial areas.

Maintain no-mow zones in public parks.

Place a % of public lands under conservation or other types of easements that restrict the removal of trees and established forested buffers and limit impervious surfaces.

Urban Nutrient Management

Develop local urban nutrient management programs.

General

Broaden existing Purchase/Transfer of Development Rights (TDR) program to allow such programs to cross jurisdictional boundaries.

Undertake watershed management planning that includes data on impervious/pervious land cover, stream corridor condition and floodplain connection, identification of healthy watersheds, spatial location of agricultural and urban BMPs and land area treated, and development of a Stormwater Master Plan.