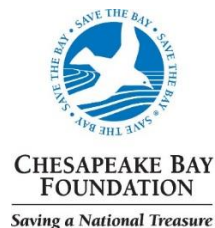


Healthy Waters Round Table

Making Healthy Waters a Reality: Eastern Shore Priority Actions 2016

December 7, 2015

Supporting Partners:



Introduction/Executive Summary

Healthy waters, the long standing vision for the Chesapeake Bay and local rivers, are within our grasp. Counties and municipalities on Maryland's Eastern Shore are making progress toward achieving the Chesapeake Bay total maximum daily load (TMDL) pollution reduction targets by implementing specific activities set forth in watershed implementation plans (WIPs).

These activities are producing results for the benefit of citizens, local economies and the environment. However, while the outcomes have been positive, local government resources generally remain insufficient to fully implement the WIPs. Ways to increase efficiency and enhance local government capacity are needed to finish the job of bringing back local waterways to health.

In 2015, the Chesapeake Bay Foundation, Eastern Shore Land Conservancy, Harry R. Hughes Center for Agro-Ecology, and University of Maryland Sea Grant Extension, supported by consultant services supplied by Earth Data, Inc. (hereafter the supporting partners), convened Eastern Shore local leaders to form the Healthy Waters Round Table. This effort sought resource enhancements and collaborative actions able to bolster implementation of the WIPs. The Round Table worked to grow the local government capacities to achieve clean water goals.

One elected leader and one staff official from each Shore county as well as the municipalities of Berlin, Cambridge, Chestertown, Easton, Oxford, and Salisbury (see Appendix 1) were invited to meet as a



Restoring the health of local waters can help improve our economies. Note: all photos in this document by Sandy Coyman unless otherwise noted. This photo from Talbot County Tourism.

Healthy Waters Round Table in 2015. Meetings on August 12, September 10, October 28, and December 2 (see Appendix 2 for agendas) facilitated by the supporting partners brought the group together for strategic planning.

From interviews with local government officials and capacity analyses conducted earlier by the Hughes Center (see Appendix 3), an extensive listing of "Candidates for Collaborative Action" (see Appendix 4) was prepared and examined in detail by Round Table participants.

The participants set priorities for the wide-ranging proposed actions. This was based on a number of factors including the frequency with which items were mentioned by local governments, the perceived importance to local governments, the potential impact to local water quality, the capacity to be helpful to local governments, and the

likeliness that local governments would commit to moving each item forward.

The highest-ranking actions were analyzed further to determine the specific implementations steps believed to be necessary to produce the most valuable results. Participants agreed to recommend a discrete set of high value priority actions for focused attention.

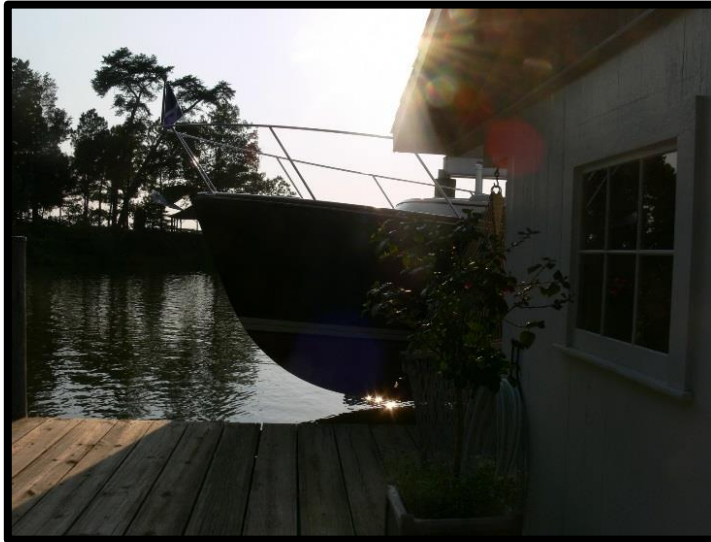
The Healthy Waters Round

Table supporting partners heard from local leaders that there is strong interest in collaborative action. Working together, jurisdictions can accelerate their healthy waters progress. The Round Table was designed to provide a forum for local governments to formulate a plan for increasing efficiency and working cooperatively. This document serves as the Round Table participants' action plan.

The Healthy Waters Round Table brought together 42 local government representatives. This group with the help of the supporting partners generated a total of 120 concepts that were refined into five initial actions and six priority action initiatives. The two sets of actions are distinguished by the fact that the initial actions are within the supporting partners' capabilities and the priority actions require additional resources and/or new institutional arrangements.

The initial actions include:

1. Provide grant writing training.
2. Create and distribute model requests for proposals, requests for qualifications and contracts for soliciting grants and consultant services.



Shore jurisdictions.

3. Secure MAST training for Eastern Shore jurisdictions.
4. Provide social marketing and public education training to engender support of healthy waters initiatives.
5. Obtain clarity and guidance on state stormwater management expectation and priorities for Eastern

The priority actions fall into the following six categories, which are discussed in more detail later:

1. Funding. Determine WIP implementation resource gaps by locality and work collaboratively to close gaps by securing support from federal, state, private, and other funding sources. A regional financing strategy can attract outside resources and better prepare local jurisdictions for making progress on pollution reduction obligations.
2. Best Management Practice (BMP) Tracking and Reporting. Pilot a BMP tracking database and develop an operations manual for replication across jurisdictions. Include data acquisition and verification protocols. Synchronize state and local tracking systems.

3. Sewer Extension Policy and Implementation. In partnership with the state, convene a workgroup, task force, or workshop to create a guidance document that addresses 1) denied service area creation and enforcement, 2) appropriate methods to fund facilities outside priority funding areas (PFA's), 3) delineation of suitable service areas, 4) mandatory connections, and 5) incentives. Increase public acceptance of sewer extension through community outreach and social marketing.
4. Circuit Rider. Survey localities to determine the gaps in staffing that might be best filled by outside service providers Collaborate across jurisdictions to create suitable contracting arrangements and solicit public and private funding for ongoing support.
5. Clearinghouse for Information and Procurement. Create web-based access to approaches, methods, and resources for WIP implementation. Feature successful projects and methods for meeting milestones, funding resources, qualified contractors, model requests for proposals (RFP's), requests for qualifications (RFQ's), contracts, reports of local significance, and notices of educational opportunities.
6. BMP Maintenance. Create BMP maintenance templates including maintenance plans, inspection forms, and repair schedules. Deliver staff trainings regionally to promote innovation and cross-fertilization across jurisdictions. Build maintenance considerations into

BMP project design and educate the public about the value and importance of BMP upkeep.

The initial actions will be pursued by the sponsoring partners. They will begin in 2016 and most should be completed within the year. The priority actions include 44 individual initiatives to facilitate local healthy water efforts, which are further categorized into initial priorities and items to be addressed once the first tranche is completed.

The following sections discuss each of the six priority actions that require additional resources and institutional arrangements. Eastern Shore jurisdictions can now review this plan and choose those initiatives and actions that will best help them achieve their local water quality objectives. The supporting partners will undertake the five initial actions identified that are within their existing work programs to facilitate local efforts. The partners will also continue to encourage and support collaborative local efforts to keep the initial momentum going.



To complete the priority actions, six work groups comprised of interested jurisdictions' representatives will be formed. Each will be tasked with developing a detailed work plan and strategy for implementing the priority

actions. In mid-2016, the Healthy Waters Round Table will reconvene to review the work plans and implementation progress. The sponsoring partners in addition to delivering the five initial actions will help facilitate the work groups and apply their resources as available to continue the collaborative process begun by the Round Table.

The Healthy Waters Round Table is intended to help Eastern Shore government officials and their partners identify and advance practical, cost-effective solutions to achieve clean water. Participants are able to

work across county and town lines to share knowledge and experience, maximize limited resources, and procure new funding and technical assistance. The Round Table has the potential to help communities fully realize the local economic, environmental and social benefits that clean and healthy waters deliver. With the WIP midpoint assessment due in 2017 and full BMP implementation expected by 2025, time is of the essence to grow the capacity needed to achieve success.

Healthy Waters Round Table Priority Actions Summary

Funding

Description: First round watershed implementation plan (WIP) budgets challenged local jurisdictions to look critically at the need for water quality improvement projects and the means to fund them. These budgets relied on the best management practices (BMPs) approved by the Chesapeake Bay Program at that time. For some jurisdictions, billions of dollars appeared to be needed; for all jurisdictions it now represents a major new financial commitment.

The Round Table participants ranked this action:

- first for urgency
- first for most resource intensive
- second most likely to affect water quality
- first most helpful to achieve work goals
- first most likely to be worked on

Funding leads all other priority actions for the Round Table participants' agendas. The group focused on seeking aid from state and federal sources as well as outside sources including private foundations; an idea that appears to be at odds with the state agencies' expectations. As a result, local governments will need to determine how to commit additional funds to their WIP implementation. State officials have recently suggested that a local funding source may be a prerequisite for access to Bay Restoration



Photo Bill Wolinski

Fund (BRF) monies after major WWTP upgrades are complete statewide in 2017.

A reconciliation of expected state and pass-through federal sources, vis-à-vis estimated local expenses for WIP implementation, could be helpful. Such an analysis would identify the gap between total WIP implementation costs and currently identified funds. In anticipation of a gap between these sources and program costs, three Eastern Shore jurisdictions have adopted stormwater utilities (Berlin, Oxford, and Salisbury) and several other jurisdictions have budgeted funds for WIP implementation.

Tools: Funds available to counties include:

- The Bay Restoration Fund
- Section 319 funds
- Public and private grants
- Loans

- Bonding (local)
- Critical Area and Forest Conservation Fund fee-in-lieu balances
- Other local discretionary fund balances
- The local general fund
- Local enterprise funds
- User fees
- Stormwater utility fees

The methods and restrictions of these sources are generally familiar to most participants and a discussion of each is beyond this plan's scope. The next steps section below provides suggested actions that can address suitable funding for water quality initiatives.

Resources Needed: WIP implementation using currently approved BMPs will require significant funds. If not already done, an assessment of the available state and federal pass-through funds should be conducted to determine the gap between these sources and the total statewide WIP implementation budget.

Local jurisdictions should also, to the degree possible, ensure that milestone commitments include an assessment of resources needed to achieve proposed and planned activities. Documenting funding and staff needs to achieve milestone targets would improve jurisdictions' access to federal, state and/or private assistance. This exercise facilitates development of near and long term capital and operating budgets, which will help anticipate and resolve competing interests for limited local resources.

Gaps and Challenges: For obvious reasons, sufficient funding is the greatest need for achieving healthy waters via WIP implementation. Determining the gap between available funds and program costs

will give all involved a more realistic fiscal picture for WIP implementation. Once this relationship is established, an appropriate expense allocation for each government level can be negotiated. Then each level can responsibly assume its appropriate share of WIP implementation costs.

Discussion: Fund availability is the most important unresolved aspect in achieving healthy waters. Budgets for WIP implementation should be calculated and tallied statewide. This accounting of available funds and anticipated costs would clarify the amount of additional resources needed.

Several unknowns exist which could positively affect WIP implementation expenses. The first, nutrient trading, promises to permit new development and jurisdictions the opportunity to bid for and secure nutrient reduction credits. Credit purchases could be much less costly than expensive stormwater and septic retrofits tasked to local jurisdictions. Nutrient trading's success hinges on a host of challenges to bring about a workable and verifiable program. This includes much skepticism and uncertainty about nutrient trading's efficacy.

The second, new less costly BMPs, potentially offer superior performance and very low installation and maintenance costs. For example, a bioreactor can be as simple as a strategically located trench filled with wood chips with a service life of 20 years and pollution reduction efficiencies over 90 percent. Per pound cost of pollutant reductions are a fraction of traditional urban stormwater retrofits. Several such BMPs are yet to be approved for use in the WIPs, but are under active consideration.

Both alternatives if they become a reality could be game-changers for addressing WIP implementation costs. However, until they are brought formally into the Bay Model TMDL toolbox, they are only prospects with great potential.



Healthy Waters Round Table Next Steps:

1. Initial priority work items:
 - a. State and other non-local funding source amounts should be compared to the local total expenses for WIP implementation. This will determine the resource gap, which includes both funds and staffing needs to implement jurisdictions' WIPs. A realistic expectation for the role of state and federal funding is important to discern during this work and it will be important, as soon as possible, to understand what the future holds for the Bay Restoration Fund (BRF) post 2017. Fairness to the Eastern Shore should also be considered and greater communication with MDE is needed.
 - b. Jurisdictions should review their WIPs in light of the cost-effectiveness of their planned

BMPs. Funds should be allocated to the most cost-effective BMP until the opportunities for installation or available funds are exhausted, or the TMDL target is achieved. If the target is not achieved, remaining funds should then be applied to the next most cost-effective BMP. This iterative process should continue until either the allocated resources are exhausted or the target is achieved.

- c. All available resources and studies on BMP cost-effectiveness should be brought up-to-date and made centrally accessible. This could be located in a central clearinghouse for water quality information.
- d. Increase jurisdictions' awareness of the existing grant and funding processes and sources available for WIP implementation. Continue to provide email notices of grant application deadlines. Seek ways to make this information more accessible to appropriate staff, such as the central clearinghouse noted above.
- e. Consider including grantsmanship in the job description for the healthy waters circuit rider program should it develop.
- f. Develop an Eastern Shore collaborative to lobby for and recruit more funding from state, federal, foundation and other sources. Working together, Eastern Shore jurisdictions can proactively justify priority allocations from the BRF and other sources of funds.

- g. Jurisdictions should work collaboratively to obtain funding.
 - h. Each jurisdiction should assess its capacity to fund the portion of WIP implementation that is not expected to be funded by non-local sources.
 - i. An analysis by each local jurisdiction of pollution sectors, reduction strategies and related resource allocations as reflected in local milestone commitments and elsewhere can provide a strong platform from which to defend efforts to secure additional revenue.
 - j. For perspective, provide sample WIP implementation per-household budget costs on an annual and a monthly basis.
2. Pursue the following work items when the initial priority work items are substantially complete:
- a. Bring funders and potential grantees together to share perspectives and seek to streamline the grant application process. Expand the use of letters of intent. A model for such letters is the now common college application form. The Chesapeake Funders Network may be an appropriate sponsor for this work item.
 - b. Explore ways to streamline grant reporting to make it more manageable for smaller jurisdictions.
 - c. Healthy Waters Round Table partners should help local governments develop public and state-level recognition for funding clean water projects.
 - d. Explore the development of a regional financing plan for WIP implementation. Jurisdictions that detail resource needs and financing strategies for achieving locally-defined milestone commitments can develop cooperative approaches to close funding gaps. A regional, well-defined financing strategy can attract outside support and better prepare local jurisdictions for making progress on pollution reduction obligations.

Healthy Waters Round Table Priority Actions Summary

Best Management Practice (BMP) Tracking and Reporting

Description: Jurisdictions must determine the number, location and performance of the best management practices (BMPs) installed since the Chesapeake Bay Model base year of 2009. This enables the calculation of existing progress toward TMDL load reductions.

In addition, as new BMPs are installed, the jurisdiction must record and verify them to receive credit. Several potential sources generate BMP installations. These include the jurisdictions themselves, private individuals, non-profit organizations, and other private organizations.

Round Table participants ranked this action:

- second place for urgency
- second most resources intensive
- fifth place for affecting water quality
- second most helpful to achieve work goals
- third most likely to be worked on

Tools: A web-based portal would be ideal for jurisdictions to permit authorized individuals and organizations to report information about BMP installations. After all initial entries are made, the jurisdiction would verify the relevant installation parameters before the project can be



formally brought into the BMP inventory and credit is received. This requirement has been in place from the beginning of the TMDL program, but currently there is not a uniform statewide process for compliance. To bridge this gap, the following tools are under development:

MDE Report Forms—The Maryland Department of the Environment (MDE) established an Interim Collection Form as a means for standardizing the way BMP information is collected and reported.¹ However, this form has not been widely used as most jurisdictions are reporting progress in self-generated spreadsheets. MDE's Water Management Administration is developing a geodatabase designed primarily for MS4 jurisdictions for stormwater BMPs, which is scheduled to be

¹ Information and this form can be found on the MDE website:
<http://www.mde.state.md.us/programs/Water/TMDL/>

TMDLImplementation/Pages/MDSimpleBMPReportingTool.aspx

available in 2016. Also, MDE has developed an on-line septic system upgrade reporting tool. Both these databases will be downloadable to locally-accessible spreadsheet and database software. MDE's Water Quality Restoration and Accountability Program is developing a data management system to record non-point source BMPs for reporting to the Chesapeake Bay Program².

UMD Sea Grant Extension SMART Tool— A web-based reporting tool for private small scale BMP installations by homeowners. The tool can be found at: extension.umd.edu/watershed.

Resources Needed: Implementing a BMP tracking and reporting program will require both dedicated staff time and database or spreadsheet software. Uniform database software would be most helpful to generate summary reports and statistics. In addition, a system is needed to verify installation and inspections over time.

Gaps and Challenges: The most significant challenge is the lack of staff resources and budget. Many jurisdictions now struggle to conduct just the required regular stormwater facility inspections.

To assess the required staffing levels, an analysis of the approximate number and types of BMPs to meet the TMDL load reductions is necessary. First, an inventory of the jurisdiction's existing land use changes and BMP installations is needed so that the current pollutant load can be determined. Once the adjusted load reduction is calculated, an estimate of the additional BMPs needed could be completed.

The annual and monthly rate of installations linked to an assumed person-hours per inspection provides the basis for deriving the full time equivalents needed for initial installations' inspection and record keeping. Next, each BMP's maintenance inspection schedule should be determined. This estimates the labor needed to enable a jurisdiction to confidently document BMP establishment and performance. As a demonstration, such an analysis should be done for several representative jurisdictions' WIPs. This would provide an order of magnitude labor estimate for other jurisdictions, which is essential for budgeting.

Also an issue is the need to gather data on existing BMP installations and to capture private volunteer installations that may or may not be installed for water quality improvement purposes. Tree planting is one example of a BMP enjoying some voluntary installation, but at this time goes largely unrecorded. Reviewing existing



development records and ferreting out voluntary, private BMPs will be labor intensive, but this work could produce large savings when target load reductions are reduced.

² Dr. Jim George, personal correspondence, Maryland Department of the Environment, October 21, 2015.

Discussion: The need for tracking and reporting installed BMPs becomes more critical as time passes. Not only must a jurisdiction identify, verify and record new BMPs, but it must inventory and verify existing installations to retain credit.³ MDE, with the EPA's approval, has credited jurisdictions with an approximation of un-inventoried BMPs. This credit assumes that these BMPs are equal in load reduction to those actually inventoried.

This approach assumes that only about half of existing BMPs have been inventoried and included in MDE's official inventory. These agencies' current thinking is that as time passes, the BMPs that comprise the assumed credit must be specifically inventoried and verified or the credited load reduction will be lost.

Jurisdictions were asked to provide MDE with their historic BMP inventory by September 30, 2015. However, there is still a need to account for the installed but uncounted installations. Otherwise in the future, jurisdictions will be required to install BMPs to make up for the lost credit noted above.

Records for the above BMPs reside within the jurisdictions' development review files. This information, however, must be supplemented by field inspections and additional analysis to determine the full set of verification parameters.

In addition to BMPs identified in development records, several other BMPs must be documented for a jurisdiction to receive its full load reduction potential. They include:

1. Voluntary practices
2. Locally installed stormwater and septic upgrades
3. Urban stream restorations
4. Unapproved practices
5. Activities on federal lands⁴

The above issues and resulting work to overcome them present significant demands on the already overburdened local government staff. Addressing the BMP tracking and verification challenge requires much more than creating a database or a spreadsheet tool. Obtaining the needed data to create this electronic inventory presents the greatest challenge.

Healthy Waters Round Table Next Steps:

For this action, the next steps below are all short term priorities.

1. Local jurisdictions individually and through the Maryland Association of Counties (MACo) and the Maryland Municipal League (MML) should encourage the state to complete its web-based stormwater BMP tracking tools and publicize their development. The state should work with local jurisdictions and beta test it with counties and municipalities. Local jurisdictions should explore with MDE these databases' adaptability for local tracking purposes.
2. Eastern Shore jurisdictions individually and through MACo and MML should formally request of MDE that local jurisdictions be

³ Ibid, October 2, 2015.

⁴ Lister, Jessica J., *Requirements Analysis: Development of a Geographic Information System (GIS) to Track Best Management Practices (BMPs)*

for Talbot County's Watershed Implementation Plan (WIP) Talbot County, Maryland, unpublished paper, Salisbury University, 2013, page 14.

involved in the development of the stormwater tracking system.

3. In the interim, Eastern Shore jurisdictions as a group should seek funding and an organization to conduct the associated work to:
 - a. Develop a pilot jurisdiction for creating a BMP tracking database.
 - b. Include development of an electronic data entry technique that is suitable for field and office mobile device data entry and allows for smooth transition from device to report format.
 - c. Secure funding for staff sufficient to analyze the jurisdiction's development records, inventory existing

BMPs, and conduct the related field and analytical work necessary to verify and document the installation's parameters and performance.

- d. Develop a maintenance inspection protocol and checklist.
- e. Conduct representative maintenance inspections and record the staff time and other resources expended.
- f. Document the process, required person-hours, data gaps, itemized labor and non-labor costs and recommendations in an operations manual that supports the ability of other jurisdictions to effectively undertake this task.

Healthy Waters Round Table Priority Actions Summary

Sewer Extension Policy and Implementation

Description: Connecting conventional on-site septic systems to enhanced nutrient removal (ENR) waste water treatment plants (WWTP) holds promise for meeting a significant portion of a number of jurisdictions' septic sector nitrogen load limits. Many Eastern Shore jurisdictions have existing developed areas served by on-site septic systems located on poor soils or on small parcels; the health of local waterways suffers from both conditions. An alternative, replacing an on-site system with a best available technology system (BAT), has wide applicability, but these systems' performance cannot match ENR WWTP nitrogen reductions⁵⁵. With comparable initial costs above \$10,000, the better-performing ENR WWTP may produce a higher return on a dollars-per-pound of pollution ratio.

Municipal and county sanitary sewer systems with surplus ENR capacity offer an opportunity for septic system connections with the associated major nutrient reductions. For example, the Town of Easton has on average 1.42 million gallons per day of remaining WWTP capacity or about 5,680 equivalent dwelling units (EDUs). There are several satellite subdivisions developed with on-site septic within striking distance of Easton's system. These subdivisions are outside town limits and a common municipal policy is to serve



such areas only after annexation. Other jurisdictions around the Shore experience similar circumstances. Such communities usually seek annexation and sewer service only when faced with mass septic failures and the attendant health issues.

For county systems, opportunities also exist to reduce pollutants through septic connections. Talbot County is pursuing the connection of several villages and has included more than 700 such connections in their TMDL watershed implementation plan (WIP). All in all, septic to ENR connections appear to be an important tool for TMDL compliance.

The Round Table participants ranked this action:

- third place for urgency
- third most resources intensive

⁵⁵ BAT systems listed by the Bay Restoration Fund Ranking Documentation 2016 discharge in the range of 14 to 27 mg/l of nitrogen, while ENR plants

discharge less than 4 mg/l. A septic system without BAT can discharge nitrogen at concentrations of up to 40 mg/L.

- most likely to affect water quality
- third most helpful to achieve work goals
- second most likely to be worked on

Tools: On-site septics or septic connections are capital intensive projects requiring amendment to the affected county’s comprehensive water and sewer plan and in some cases require annexation or other creative arrangements between counties and towns.⁶ Grants and low interest financing from federal and/or state sources are available in some cases to offset costs to local government. Project costs not covered by grants or loans could be billed to the user through an enterprise fund. Both the initial and annual costs to the end user are significant. Front end costs can exceed \$10,000 while annual service costs may run into the hundreds of dollars⁷.

Resources Needed: As noted above, the capital costs of this approach can be significant and they are usually financed through grants, low interest loans, and bonds, often requiring all three mechanisms. Project design requires qualified engineers. Construction administration can be handled in-house or contracted out.

Gaps and Challenges: The most significant challenges relate to financing and growth management. These projects require dollars in amounts that severely impact the fiscal resources of many jurisdictions. The Bay Restoration Fund (BRF) was established to overcome this hurdle. In 2017 if the schedule holds, the BRF monies dedicated to ENR WWTP upgrades will be conditionally available for supporting septic connections after the major WWTP funding

commitments are made. A portion of these funds will be allocated to smaller WWTP upgrades and on-site septic connection projects along with other cost-effective WIP projects.

Extending sewer lines can result in sprawl development if connection access is not appropriately restricted. To address water quality issues, sewer extensions to existing communities may travel outside the state’s Priority Funding Areas (PFAs). Regulations adopted pursuant to HB 11 of 2014 provide a policy framework for extensions beyond PFAs; however, additional state guidance and clarity on such extensions would provide for a more efficient planning process for these lines.

Discussion: Septic connections to ENR plants provide promise for meeting jurisdictions’ septic sector TMDL load reductions. MDE has suggested that in some cases total treatment costs of residences connected to ENR systems are less than those connected to BAT systems. A detailed life-cycle cost analysis would provide a better picture of the relative cost-effectiveness of these alternative approaches.

With substantially increased BRF funding becoming available for WWTP upgrades, sewer line rehabilitation and extension, and other projects starting in FY’18, jurisdictions must firm up their WIP plans. The state will be judging projects on several criteria, with cost-effectiveness and readiness-to-proceed being key considerations. For this reason, prudent jurisdictions will reexamine their current WIPs and focus on BMPs with the highest

⁶ Round Table participants concluded that additional dialogue is warranted on issues related to annexation and town-county coordination. The Round Table did not identify specific “next steps” on this point.

⁷ Personal correspondence, Bill Wolinski, Environmental Engineer, Talbot County Department of Public Works, October 20, 2015.

ratios of pollutant reduction per dollar invested. To accomplish this, each BMP will need a life cycle cost analysis. This analysis may be beyond the capacity of many jurisdictions. The results for the Eastern Shore jurisdictions are likely to be similar and may be able to be completed on a regional basis.

Healthy Waters Round Table Next Steps:

1. Short-term priorities:
 - a. Request that MDE and MDP convene a working group to clarify and raise awareness of policies related to:
 - Denied service area creation and enforcement
 - Funding facilities outside PFAs
 - Cost-benefit analysis and project feasibility
 - Service area delineation
 - Mandatory connections
 - Incentives
 - WIP crediting and potential application to MS4 permit requirements
 - Impacts on remaining WWTP discharge allocations

Work group members should include county and municipal governments, applicable state agencies, health and sanitary departments, and supporting partners.

- b. Develop a regional needs assessment based on county water and sewer master plans,

municipal growth elements and other data that characterizes the resources necessary to resolve problem areas and identifies alternatives for areas not feasible to connect. The assessment should include an economic analysis of septic-sector BMPs. The information included can help guide jurisdictions to choose among these and other alternative septic sector BMPs.

2. Mid-term priorities:
 - a. Request that the state legislature develop a more explicit mechanism for its review and enforcement of denied service areas. This legislation should make the state a required and explicit signatory to a very limited set of circumstances permitting individual property connections in non-service designated areas. Specific criteria would limit conversion of denied service during comprehensive water and sewer plan updates and amendments.
 - b. Identify useful social marketing techniques to increase public acceptance of sewer extension to serve water quality goals. A grant-funded consultant could review prior efforts sponsored by groups such as the Rural Maryland Council and conduct additional research to fill knowledge gaps. A survey of public attitudes and test messages can inform development of outreach materials.

Healthy Waters Round Table Priority Actions Summary

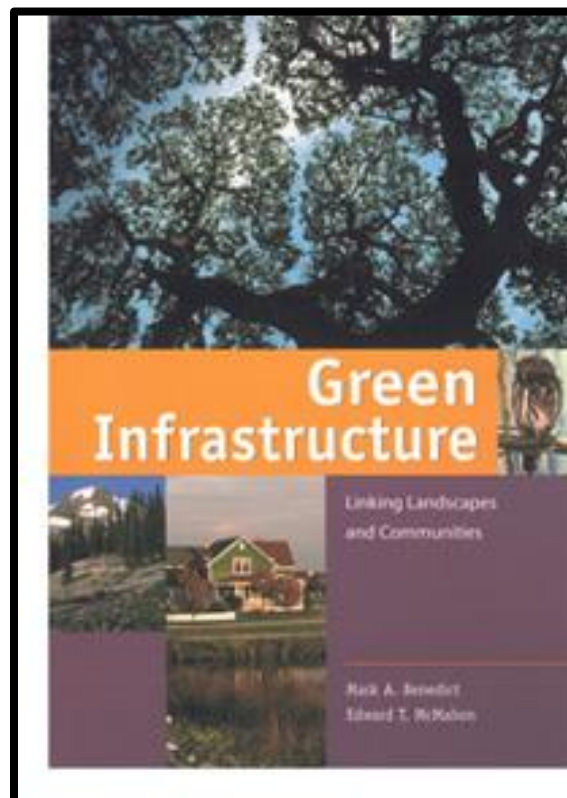
Clearinghouse for Information and Procurement

Description: Limited budgets and staff resources suggest that Eastern Shore jurisdictions pursue healthy waters in the most efficient manner possible. Creating a web-based tool for recording and accessing successful projects, methods, consultants, technologies and materials would provide a new and higher baseline of knowledge available to Eastern Shore jurisdictions. This tool could also provide a forum for sharing information as well as listing issues and questions that can be answered by the collective knowledge base throughout the local or state region.

This Round Table participants ranked⁸ this action:

- fourth place for urgency
- fourth for most resource intensive
- fifth most likely to affect water quality
- fifth most helpful to achieve work goals
- fourth most likely to be worked on

Although the priority for this action item falls down the list to the lower tier, this is a ranking of all the top priorities identified by the Round Table. Every item on the list is important. The Clearinghouse priority action



is relatively inexpensive and it requires few resources to implement.

Tools: Tools of this nature are most effective when user driven. For that reason, it is suggested that a subgroup of Round Table participants research and decide the best platform for moving forward. The format can be chosen based on participants' survey responses regarding their practices

⁸ At the September 10, 2015 Roundtable Meeting, the Clearinghouse and Circuit Rider priority actions were combined during the small group discussion and for

purposes of priority setting. So, these priority rankings are for the two actions combined.

and preferences on how best to receive and access information.

Resources Needed: Resources needed will be a function of the methods selected. This section will be completed once the method is selected.

Gaps and Challenges: Designing this tool to be self-maintaining would be optimal. However, to be of the most value, the tool will likely require routine updates and maintenance. An organization must monitor and periodically maintain the tool. A regional, state or a Bay wide institution could be this tool's care-taker.

Budget: Budget will be a function of the method selected. This section will be completed once the method is selected.

Discussion: Creating a central information clearinghouse that provides ready access to successful approaches, methods and other resources can help staff be efficient in planning and implementing their jurisdiction's watershed implementation plan (WIP).

Identified information needed includes:

- Successful project types with key parameters, contacts, and locations;
- Examples of model milestones and methods to achieve them;
- Funding sources and schedule for applications;
- Innovative techniques' status and prospects;
- Model contracts, requests for proposals (RFPs), requests for qualifications (RFQs), contracts, and maintenance agreements;

- An "Angie's List" of consultants and contractors enabling organizations to share their experience.
- BMP tracking, reporting and verification techniques, strategies and templates; and
- Regional reports and data and information on water quality status and changes;
- Notice of meetings, webinars, and other educational opportunities (email blast)

Healthy Waters Round Table Next Steps:

1. The subgroup with the partners will poll Healthy Waters Round Table participants to determine the best platform for helping local jurisdictions to receive/access information.
2. The subgroup with the partners will identify the most accessible web-based platform(s) for collecting and entering the preferred information. The subgroup with the partners will explore current websites (i.e.: Chesapeake Stormwater Network) to see what style is preferred and also provide examples. They will also determine a method to enable the local jurisdictions to enter content.
3. Determine and secure commitment from a regional, state or Bay wide institution to develop and manage the clearinghouse. UMD Sea Grant Extension may host a test web site and monitor uses. Other potential parties to host the site include the BEACON at Salisbury University, MACo, and MML. Other parties that may be included in this project are Environmental Protection Agency, Chesapeake Bay Program, and US Geological Survey as they have

indicated interest in the clearinghouse concept.

4. Publicize the tool's availability once completed and monitor its use; update and continue as long as it is

demonstrated to add value to local jurisdictions.

5. Determine a means of funding and maintaining the tool.

Healthy Waters Round Table Priority Actions Summary

Circuit Rider

Description: Over the last several years, Counties and towns reduced staff to adjust to falling revenues. With development and construction activity now picking up with staff at these reduced levels, watershed implementation plan (WIP) implementation may have become a secondary priority for some jurisdictions.

One alternative to adding full time staff for WIP implementation is to engage a circuit rider or consultant to supplement existing staff. This approach can make a senior level person available for a limited number of hours on a weekly or monthly basis for a specified period or project. For many jurisdictions this could either meet their WIP staffing need or provide the extra capability to accelerate their TMDL program.

This approach provides flexibility and a staff member with suitable qualifications to address the broad range of WIP implementation requirements. This work requires experience, deft handling and senior level analytical and program development skills.

The Round Table participants ranked⁹ this action:

- fourth place for urgency

⁹ At the September 10, 2015 Roundtable Meeting the Clearinghouse and Circuit Rider priority actions were



- fourth for most resource intensive
- fifth most likely to affect water quality
- fifth most helpful to achieve work goals
- fourth most likely to be worked on

Although the priority for this item fell down the list to the lower tier, this ranking is relative to the other top priorities identified by the Round Table. Therefore, every priority item may be helpful to a particular jurisdiction.

The Circuit Rider approach is relatively inexpensive and requires few resources to implement. This approach could supply just the force multiplier needed. Round Table participants recognized that returns on the

combined during the small group discussion and for purposes of priority setting.

relatively modest investment are likely to be great.

Tools: Many models exist for engaging a circuit rider. On the Eastern Shore, several small municipalities hire circuit riders as town managers, planners and other needed positions. In addition, there are past efforts that have used circuit riders during the initial stages of the WIP process. Essentially an individual is either contracted directly or through a third party organization to serve a prescribed function. The circuit rider's duties would be contained in the contract's scope of services and required qualifications would be noted in the initial position notice.

Resources Needed: Total budget for a circuit rider position would be in the vicinity of \$100,000 to \$150,000 per year to serve several jurisdictions. This figure estimates salary, support facilities, supplies and other expenses. Pending duties and responsibilities that participating jurisdictions would assign, it is estimated that one circuit rider could readily serve three jurisdictions and perhaps more if those served are small municipalities. There is also the recognition that it may be necessary to employ more than one circuit rider to address the jurisdictions' needs. Supervision of a circuit rider could potentially be handled by the three Eastern Shore regional councils; this has been broached with the Shore's three directors and while no commitments have been made, there is interest in exploring the concept further. In addition, the Maryland Rural Development Corporation already employs circuit riders in a number of areas and may be able to house this effort.

Gaps and Challenges: The principal challenge for this action is the willingness and fiscal ability of jurisdictions to engage a circuit rider. Collaborating jurisdictions

would need to settle on a specific circuit rider job description. Special care must be exercised in producing the job description or consultant scope of services. Round Table participants noted that some aspects of WIP implementation may not be appropriate for a circuit rider, e.g., construction project administration, as this requires intense internal and external coordination.

Should jurisdictions desire to pursue this concept, the following questions must be answered. For each question potential options are provided. The jurisdictions involved should determine how best to proceed either collaboratively or individually:

- What functions will the position(s) fulfill? The circuit rider can potentially fulfill many roles and functions. Several jurisdictions expressed the need for help with identifying existing BMPs and tracking new ones. Other potential functions include WIP and milestone development/updates and progress tracking, BMP site identification, public relations, and grant writing. A detailed scope of work prepared by each jurisdiction can help best position the circuit rider to deliver intended results.
- What are the qualifications for a circuit rider? A variety of backgrounds should be considered for this position. Planners, environmental scientists with non-governmental or nonprofit experience and environmental engineers depending on their education and experience could all be suitable. Specific qualifications would be linked to the actual functions to be provided. A mid or

senior level person would be required.

- Where would the circuit rider be housed? Several options exist. The tri-county councils have been approached and while non-committal are willing to explore the circuit rider concept further. The circuit rider could simply float to each jurisdiction for whom they work but will need to have an overarching body that they report to. The previously mentioned ongoing structure for circuit riders at the Rural Maryland Development Corporation may be appropriate for this function.
- How would a circuit rider be contracted? The circuit rider could be contracted directly or through an organization such as a tri-county council. Organizations that are able to receive grants or other sources of funding may be preferred to help secure resources that lower costs to participating jurisdictions. Another alternative is to directly engage a consultant as the circuit rider. In all cases, the served jurisdiction would receive an invoice and pay the appropriate contracted party and would not have engaged a full time employee. Participating jurisdictions in a scope of work could specify the terms and conditions under which the circuit rider is managed, either jointly or separately.
- How would a circuit rider be funded? There are several potential funding options for this position. The first option would invoice the served jurisdiction for services rendered. The second option could require jurisdictions to pay a user-fee upfront for access to the circuit rider. As an initial trial phase, grant

funding for all or a portion of a demonstration project could be sought. Jurisdictions should balance the political and operational costs on investing in a circuit rider with those of investing directly in additional staff support needed to meet water quality improvement obligations.

Discussion: Implementing a WIP will require significant funding and staff resources. The best management practices (BMPs) for urban stormwater and septic systems will entail numerous relatively small projects that are geographically dispersed. Design, bidding and contract administration even if projects are packaged will require significant, dedicated staff resources to properly oversee project execution. Government initiated and owned BMPs will require regular inspections and maintenance adding expenses and devoted staff time.

Privately built and held BMPs will require review if part of new development and inspections during construction. Throughout the project's useful life regular performance and maintenance inspections will ensure jurisdictions receive pollution reduction credit, but will further generate demand for staff resources.

This added work load argues for either hiring more full time staff or the creation of an alternative labor source. Circuit riders and/or consultants provide more flexibility to meet this need, enabling capacity for services delivered without the long-term funding commitment to full-time equivalent employees. With the 2025 deadline for BMP installation approaching, jurisdictions who engage a circuit rider can augment in-house resources, respond to specific unmet needs, and maintain fiscal flexibility.

Healthy Waters Round Table Next Steps:

1. Determine which jurisdictions need additional staff resources and are interested in exploring the circuit rider concept. Form a work group with these jurisdictions to pursue implementation.
2. Produce a gap assessment for jurisdictions interested in the circuit rider concept and then produce suitable job descriptions.
3. Determine the appropriate institutional/contracting arrangement.
4. Solicit funding to undertake a circuit rider program for jurisdictions seeking additional staff resources or to accelerate the implementation of the WIP. A pilot program may be useful to test the concept. It is

advisable for establishing a minimum two-year contract period. This will help generate a qualified pool of potential candidates for the position.

5. Explore local, state and federal legislative support for state funding, as well as private funding to institutionalize the circuit rider program.

Healthy Waters Round Table Priority Actions Summary

BMP Maintenance

Description: Watershed implementation plans (WIPs) will only succeed if the installed best management practices (BMPs) perform to specifications over time. Therefore, BMP maintenance properly done and timed is a key to achieving healthy local and Bay waters in the Chesapeake Bay Watershed.

BMP upkeep not only protects project performance but it will help maintain a jurisdictions' credits for their total maximum daily load (TMDL) efforts. Maintenance considerations often are overlooked during project design; this can be an expensive oversight particularly as performance verification requirements become more stringent. Consciously addressing maintenance must be built into BMP design, implementation, budgets and work plans.

The Round Table participants ranked this action:

- fifth place for urgency
- fifth for most resource intensive
- third most likely to affect water quality
- fourth most helpful to achieve work goals
- fourth most likely to be worked on

The maintenance priority ranking while low relative to the other priority actions is none-the-less critical to jurisdictions' water



improvement; we cannot overstate maintenance's importance.

Tools: BMP maintenance programs should explicitly identify required physical actions, schedules, equipment, labor, supplies and costs. Maintenance expenses are usually budgeted on an annual basis. Jurisdictions should analyze their BMP maintenance requirements and determine whether the annual budget can sustain the anticipated costs.

Many times, BMP maintenance is periodic and can occur in clusters. Should this be the case, creating a maintenance fund with annual contributions can finance the clustered expenses as they occur. This can smooth out annual budget spikes. Adding a contingency factor to yearly contributions would also help reduce unexpected budget increases.

Resources Needed: The total budget for BMP maintenance will be highly variable

and will be a function of the number, nature, and ownership of the installed BMPs.

Gaps and Challenges: A major challenge arises with the tendency to overlook maintenance needs and expenses during project development. Often this leads to selecting a project with the lowest initial cost without proper regard for future maintenance needs. This can be avoided by using life cycle costing, which expressly recognizes the project's cost stream over its lifespan. This stream includes upfront, as well as, upkeep costs. This technique also adjusts future expenses to their present value, giving a more rational basis for project selection.



Other barriers include inexperience and misunderstanding of the BMPs' nature, function, and requisite maintenance standards. This, along with the inherent difficulty with long term monitoring, requires planning and diligence. Monitoring can be especially nettlesome for privately developed projects.

Overcoming inexperience can be addressed through education and training. Opportunities exist for regional education and training efforts to increase their

effectiveness while reducing costs to individual jurisdictions.

Maintenance can be inglorious and tends to be overlooked as time passes and priorities change. With this, budgets and performance can decline.

Monitoring issues will require additional staff and appropriate funding. These resource needs should be recognized during budget development.

Discussion: Maintenance of installed BMPs will be one of the keys to achieving healthy local and Bay waters. Without proper maintenance, BMP performance will falter and in the worst case could increase pollutant loads. For example, poorly maintained denitrification BAT¹⁰ septic systems can produce more pollution than a standard system.

Understanding the value of maintenance is not a new challenge. While Eastern Shore jurisdictions have competent departments, many of the BMPs being implemented are unfamiliar to staff and require an orientation to their purpose and maintenance.

Also unfamiliar to maintenance workers may be a BMP's value. The priority for repairing potholes and misbehaving heating and air conditioning units may be self-evident; "cleaning" a ditch without exposing raw soil and removing its vegetation may be another matter. Clear maintenance standards will be required to provide frontline workers and supervisors with an understanding and sensitivity for maintaining their organization's healthy waters initiatives.

Alerting the public to the BMP's benefits and function is equally important. BMP neighbors need to understand these

¹⁰ Best Available Technologies (BAT)

facilities' appearance and necessary character may vary from what they are accustomed to. For example, a "clean" ditch devoid of vegetation delivers more pollution and floodwaters faster than one "filled with weeds and snakes." The latter provides natural filtration and slows stormwater, allowing it to seep into the groundwater. Attached is a fact sheet from Worcester County (see Appendix 5) designed to provide an improved understanding of healthy waters ditch maintenance.

Healthy Waters Round Table Next Steps:

1. Jurisdictions should build maintenance considerations into BMP project design.
2. Jurisdictions should provide a complete BMP maintenance template¹¹. Include both electronic and hard copy with:
 - a. A maintenance plan sheet (name, description, maintenance work required, responsible department, staff, equipment, supplies, cost and schedule)
 - b. Inspection forms
 - c. Schedule template for inspections and repair work
3. Jurisdictions and non-government (NGO) partners should include in public education campaigns a primer on maintenance program concepts. This would help create expectations aligned with the need for a more natural appearance of public and private grounds and facilities. The reduced roadside mowing schedules

that resulted from belt-tightening during the recent economic downturn serve as an example. Meadows now bloom along our roadways with wild flower, songbird habitat and water quality benefits.

4. Jurisdictions and non-governmental organizations (NGO) partners should explore with funders ways to finance the long term BMP maintenance needs to sustain their performance over time. For example, the state now provides funding for ENR WWTPs maintenance; perhaps on-going BMP maintenance training could also be funded.
5. Jurisdictions and NGO partners should make maintenance more prominent in internal and public educational water quality programs. These trainings should help the public and frontline staff understand the value of BMPs and that their appearance and their upkeep can vary from past norms. Maintenance should be specifically addressed in funding requests.
6. Jurisdictions and NGOs on the Eastern Shore can collaboratively deliver staff trainings on a regional basis to reduce the cost to individual jurisdictions and promote innovation and cross-fertilization among the attendees.
7. Explore collaboration for the purchase or use of supplies and equipment.

¹¹ Consult the Chesapeake Stormwater Network website for documents and workshop results on BMP

maintenance and inspections.
<http://chesapeakestormwater.net>

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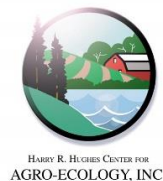
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Appendix 2—Meeting Agendas



Healthy Waters Round Table

Roland E. Powell Convention Center, Room 217
4001 Coastal Highway, Ocean City, MD
Wednesday, August 12, 2015
5:30 p.m. – 7:30 p.m.

5:30 Buffet Dinner

6:00 Welcome and Introductions

6:25 Local Government Resources

- *Gabe Cohee, Chesapeake & Atlantic Coastal Bays Trust Fund*
- *Jake Reilly, National Fish & Wildlife Foundation*
- *Jag Khuman, Maryland Department of the Environment*

6:55 Round Table Overview & Purpose

- *Enhance the capacity of Eastern Shore jurisdictions to achieve local goals for healthy water through:*
 - *Sharing of knowledge and experience*
 - *Maximizing limited resources*
 - *Partnering to secure new funding and assistance*
 - *Other?*

7:05 Ground Truthing

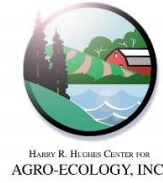
- *Local government capacity assessment review*
- *Group discussion*

7:25 Next Steps

- *Work Session: 9:30 a.m. – 3:30 p.m. Thursday, September 10, Tidewater Inn, Easton*
- *Action Plan Development: September – November*
- *Action Plan Review & Next Steps: 11:30 a.m. – 2:30 p.m. Wednesday, December 2, Tidewater Inn, Easton*

7:30 Adjourn

Optional: Informal conversation immediately follows at the Tiki Bar, Hampton Inn & Suites, 4301 Coastal Highway, Ocean City, MD (adjacent to and north of the Convention Center, bayside). Cash bar.



Healthy Waters Round Table Meeting Agenda

Date and Time: Thursday, September 10, 2015 9:30 a.m. – 3:00 p.m.

Location: Tidewater Inn, 101 East Dover Street, Easton, MD

9:30 Registration

9:50 Welcome and Introductions

10:20 Round Table Objectives and Principles

1. Program purpose: enhance Eastern Shore jurisdictions' capacity to achieve local healthy water goals
2. Goal for today: create a list of priority actions and identify steps and resources to accomplish them
3. Supporting Partner principles:
 - a. Facilitation not advocacy
 - b. Transparency
 - c. Assistance with effective local collaboration framework

10:30 Opportunity/Issue Assessment—Review key priorities for evaluation

11:30 Action Steps—Small group activity

1. Determine how priorities can be moved forward
2. Identify resources and responsible parties
3. Set timelines

12:10 Lunch

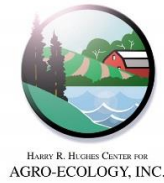
1:00 Action Steps Continued

2:00 Focus—Rank priority actions

2:45 Next Steps

1. Action plan development and review: September–November
2. Action plan discussion and adoption: 11:30 a.m.–2:30 p.m. Wednesday, December 2, Tidewater Inn, Easton

3:00 Adjourn



Healthy Waters Round Table Meeting Agenda

Date and Time: Wednesday, October 28, 2015 1:00 p.m. – 4:00 p.m.

Location: Hyatt Regency Hotel, 100 Heron Blvd. at Route 50, Cambridge, MD

1:00 Registration

1:10 Welcome and Introductions

1:30 Status Check

1. Progress review
2. Action plan development
3. Action plan finalization and implementation

1:45 Draft Action Plan Overview—Proposed implementation of local government priority actions

2:20 Break

2:30 Refinement—Small group review of specific implementation steps

1. BMP Tracking and Reporting
2. Sewer Extensions / Upgrades
3. Funding
4. Circuit Rider / Clearinghouse
5. BMP Maintenance

3:15 Review—Executive summary highlights, as proposed by participants

3:45 Next Steps

1. Action plan final review mid-November (date/time TBD at this meeting)
2. Action plan adoption: 11:30 a.m. – 2:30 p.m. Wednesday, December 2, Tidewater Inn, Easton. Lunch included.

4:00 Adjourn

Appendix 3—Hughes Agro-Ecology Center Interview Summary



HARRY R. HUGHES CENTER FOR
AGRO-ECOLOGY, INC.

Promoting and Supporting Viable Farms and Forests

January 21, 2015

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The Hon. Harry R. Hughes

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Keith Wills
Lucy B. Wright

Emeriti
K. King Burnett, Esq.
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Nina Rodale Houghton

Executive Director
Russell B. Brinsfield

MEMORANDUM

TO: The Honorable Larry Hogan, Governor of Maryland
State House

FROM: Harry R. Hughes, President 
Board of Directors of the Harry R. Hughes Center for
Agro-Ecology, An Affiliated Foundation of the University of
Maryland, College Park

RE: Synopsis of Interviews with the Watershed Implementation
Teams from 21 Counties and the City of Baltimore (Dorchester
and Worcester were unable to be reached after several attempts)

Positive Findings:

- The Watershed Implementation Planning (WIP) process has become institutionalized and is a part of the budget process or Capital Improvement Program at the local level. Those counties include: Allegany, Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Prince George's, St. Mary's, Washington and Wicomico along with Baltimore City.
- Even though the WIP effort is aimed at reducing nutrients to the Chesapeake Bay, local waters and their water quality is the focal point for local approaches being taken to attain nutrient reduction. Counties include: Allegany, Anne Arundel, Baltimore, Calvert, Caroline, Carroll, Cecil, Charles, Garrett, Harford, Kent, Montgomery, Queen Anne's, St. Mary's, Talbot, Washington and Wicomico along with Baltimore City.
- For the more urban jurisdictions, the MS4 permit drives the Watershed Implementation Planning process. The counties include: Anne Arundel, Baltimore County, Carroll, Frederick, Harford, Howard, Prince George's and Montgomery along with Baltimore City which has enhanced progress being made.
- Local Non-Governmental Organizations have been essential to the implementation of local government Watershed Implementation Plans. Counties that have noted this were: Allegany, Anne Arundel, Baltimore County, Calvert, Cecil, Charles, Frederick, Harford, Howard, Kent, Montgomery, Prince George's,



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Queen Anne's, Somerset, St. Mary's, Talbot and Wicomico along with Baltimore City. The Non-Governmental Organizations are viewed as doing the bulk of the work and many jurisdictional representatives said that without them, the attainment of the reductions needed for the first round of reporting to EPA and also for the next round might not have been or be successful.

- Several Regional and State-wide Non-Governmental Organizations were specifically mentioned as being very supportive and are viewed favorably. Examples include: The Center for Watershed Protection, The Chesapeake Bay Trust, The Nature Conservancy and the Chesapeake Sea Grant Watershed Specialist Program. Anne Arundel, Baltimore City, Baltimore County, Calvert, Caroline, Cecil, Kent, St. Mary's, Talbot and Wicomico made specific mention of these organizations.
- State agency efforts received high marks, specifically Science Services Administration and other units at MDE (Curry, George, Thornton, Pellicano) and at DNR (Cohee). Appreciation from the counties was noted for the staff visits from MDE to their respective jurisdictions to address questions and issues. Feedback from MDE is important to the local governments and important to the local WIP teams as they inform and educate their local officials. All interviewed jurisdictions made mention of this.
- State grant programs are receiving high marks from the local governments, particularly those administered by DNR. All jurisdictions interviewed made mention of this.
- The regional meetings as well as the webinars have been useful. For the webinars, it depends on the topic as to how useful and efficient they are, but both are needed. All jurisdictions made mention of this.

Matters Needing Attention:

- The issues between the regulated (MS4 permit) counties and the unregulated counties are becoming more diverse. For example, there appear to be stronger relationships and more cooperation on projects between the regulated counties and the State agencies and less so with jurisdictions that are unregulated.
- Municipalities, especially smaller ones, have been left out of the WIP process because of a lack of staff and resources, except for what a county is able to provide. This was specifically noted by Allegany, Calvert, Caroline, Cecil, Charles, Frederick, Harford, Kent, Queen Anne's, Prince George's, St. Mary's, Somerset, Talbot, Washington and Wicomico counties.
- Budget is the limiting factor in being able to do more. This was noted by Allegany, Calvert, Charles, Harford, Howard, Prince George's, St. Mary's and Washington counties.
- Available professional staffing (particularly engineers) is also a very big limiting factor in being able to do more. Cecil, Charles, Kent, Prince George's, Queen Anne's, St. Mary's and Wicomico counties made particular mention of this.

- Support from MDE's Water Administration is not as responsive as it could be. Carroll, Harford, Montgomery and Somerset counties made mentioned of this.
- The Maryland Assessment Scenario Tool (MAST) that is available for local governments to use to assess the efficiencies of Best Management Practices is still receiving low marks as to ease of ability to use and it has since become more complex because of changes made to it by MDE. Allegany, Anne Arundel (does double duty as it uses its own program and then feeds the data into MAST), Calvert, Caroline, Cecil, Charles (hired a consultant to help integrate its data into MAST), Harford, Howard, Kent, Queen Anne's, Somerset, St. Mary's, Washington and Wicomico counties all made similar statements.
- Finish developing and implement a Statewide tracking system because lack of a tracking tool is causing each jurisdiction to develop its own system and consistency of data across the board is hampered without a uniform system of reporting and tracking of projects. All interviewed jurisdictions expressed this concern.
- MDE needs to do a better job with outreach and education on topics such as Lawn Care, Pet Waste, Rain Gardens, etc. Information on these topics as well as others is sorely needed. Allegany, Baltimore City, Baltimore County, Harford and Howard made particular mention of this and the same group along with other jurisdictions noted that the MDE Website is hard to navigate so therefore information on the above topics is difficult to find.
- There is a need for efficiencies for new Best Management Practices (BMPs), or for BMPs that local jurisdictions are trying out. They are: street sweeping (Baltimore City, Baltimore Co. and Charles County), pump out of septic tanks (Charles), sand mounds (St. Mary's), swales, bio-swales and ditches (Baltimore Co., Somerset), oyster cultivation (restoration projects) (Calvert, Talbot), stream restoration (Carroll).
- Credits should be considered for the following: Planting of trees (Port Tobacco), removing land that could be developed from development such as making a park out of a paved over shopping center (Charles), voluntary BMPs (St. Mary's), and credit for Maximum Extent Practicable (Montgomery), hooking up septics to the Wastewater Treatment Plants (WWTP) (Anne Arundel), benefits from stream corridors (Calvert), and receiving Stream Regeneration through Upland Hydrologic Recovery (Carroll). And who will get the credits for Consent Decree CSO and SSO efforts?
- Concern about how inspection and maintenance of all of the BMPs that have been put into place (both large and small) will be difficult because there is insufficient staff at the local as well as at the State level to do this. All interviewed jurisdictions expressed this concern.
- Concern about adequate staffing at the State level to review and approve projects in time to coincide with grant funds available for projects. All jurisdictions noted this concern.
- Concern about expeditious and consistent reviews of watershed restoration projects between the Federal, State and local governments. All jurisdictions noted this issue as well.

- Implementing consequences when local jurisdictions do not move forward with their WIPs. Those who have been unable to move forward believe they need a “kick” (Calvert). While those that have moved forward and have spent considerable time, effort and money do not want to have to bear the lack of effort on the part of other jurisdictions (Cecil, Montgomery).
- There are concerns with the "Accounting for Growth" policy and regulations and their implication for all jurisdictions. This is of particular concern with the low growth part of the State. (Allegany, Garrett, Talbot, Washington and Wicomico Counties).
- State leadership is missing from the business development perspective as to involving contractors, construction inspectors, etc. Cecil, Harford and Wicomico Counties expressed this concern.

Suggestions from the Local Jurisdictions for Moving Forward:

- A contract position that can be shared by the counties for engineering work as well as for grant writing would be a big help. Allegany, Calvert, Cecil, Kent, Washington, Wicomico, Somerset and St. Mary's counties were all in agreement with this suggestion.
- Tracking: Tie MS4 reporting and WIP reporting to a State developed, top down State-wide system. Example, Health Dept and the septics issue, and the data base with stormwater structures. Howard, Somerset and Washington Counties said this could all be handled with one tracking system.
- Consider the Think Blue Maine website as an example for resources, toolkits and documents for homeowners, educators, children and municipalities.
- Develop partnerships such as is being done in Prince George's County (the 3 P's of Public, Private Partnerships) to implement programs and projects where money is not so plentiful. And in this regard, the State agency counterpart (DBED) should be brought into this process to help foster those relationships in other areas of the State.
- Wrap up the SMART tracker (WAC BMP tool) and make it available to the rest of the State (Prince George's)
- Have the Cabinet set up training for inspectors, contractors to help move the implementation of the WIPs along and also to help handle the inspection function once BMPs are in the ground and require monitoring.
- To expedite implementation of projects, have MDE establish a regional office on the Eastern Shore (or use one if it has one on the Eastern Shore) for jurisdictions to bring in their projects, ask questions, obtain answers and move forward all in a day.
- MDE should consider changing and revising the formula for small jurisdictions so that they can take advantage of funding Enhanced Nutrient Reduction (ENR) for their small wastewater treatment plants (WWTP) under the Bay Restoration Funds. This is because they

do not have the budgets to float loans until they receive the funding nor do they have the money to match a project of this nature.

- MDE should consider improving the timing of Bay Restoration Fund (BRF) septic connecting grants so that all qualified septic owners can obtain funding by the time a new sewer connection is available (current process provides limited funding each year, forcing many low-income septic owners to take out loans to cover the gap between the deadline to connect and the year BRF funds are allocated.) In addition, MDE should consider expanding the use of BRF funds to update the smaller systems as well as increasing funds for connections to public systems.
- The State should mandate a stormwater fee for all jurisdictions, not just the highly populated ones.
- The State should champion projects that are not currently being implemented to improve water quality. In many cases what is lacking is a demonstrated successful project.
- Watersheds do not have jurisdictional boundaries so money allocations should not either. At present, county allocations appear to be limited to a set amount.
- MDE should establish a certified repository of BMPs and tracking and reporting system to ensure uniformity throughout the jurisdictions.
- It would be very helpful if the accuracy of the numbers provided by the State was confirmed so that the WIP teams felt confident in providing these numbers to their officials and in using the numbers during the decision process for funding and implementation of projects.
- The State should implement a more rapid review process for new and pending BMPs as this would greatly assist the counties with planning and implementing approaches. At present the lengthy process is preventing cheaper, more innovative BMPs from being placed in the ground.
- MDE should work with the Maryland Association of Counties (MACo) to provide outreach and education to newly elected officials at the MACo's winter 2015 conference.

cc: Joe Bartenfelder, Secretary Designee (MDA)
Charles Evan, Jr., Secretary Designee (DNR)
R. Michael Gill, Secretary Designee (DBED)
Ben Grumbles, Secretary Designee (MDE)

Appendix 4—Candidates for Collaborative Action

Candidates for Collaborative Action Reported by Local Governments (summarized)

CATEGORY	SUMMARY DATA	
Primary/ Secondary	1-Sentence Description	# of Entries/ Jurisdiction
BMPs	Develop a centralized, uniform tracking system for BMP reporting	6
Tracking	Consistent BMP tracking mechanism across counties and towns within counties	Kent
	Work with Mike Scott @ SSU on tracking mechanism	LSRC
	Develop an app for BMP inspections that satisfies verification requirements	Salisbury
	BMP tracking/reporting system	Salisbury
	Multi-jurisdictional tracking system	Talbot
	Central tracking system	Hughes Center Survey
BMPs	Build workforce capacity for BMP installation	5
Workforce	Installers training and certification (through schools?)	Wicomico
	Workforce development program focused on contractor shortage	USRC
	Build private sector capacity for installing BMPs	MSRC
	Develop a community volunteer corps that could hop on grants	Cecil
	Inspector/contractor training	Hughes Center Survey
BMPs	Develop a workforce and knowledge base to conduct BMP maintenance and verification	5
Maintenance	Develop a maintenance corps (regional paid or volunteer) for stormwater BMPs	Berlin
	Maintenance of BMPs a major concern	Easton

	Best practices for BMP management and upkeep	Talbot
	BMP maintenance corps	Wicomico
	Resources for BMP monitoring and maintenance	Hughes Center Survey
BMPs	Develop and share information about the cost effectiveness of approved and pending BMPs	5
Technical Assistance	CWP BMP cost effectiveness information	Talbot
	Basin-wide WIP for stormwater/wastewater ranked by cost-effectiveness	Wicomico
	TA for cost effective BMPs	Hughes Center Survey
	Identify the cheapest per-pound BMPs for stormwater	Talbot
	Publish/share BMP cost effectiveness information	Somerset
BMPs	Accelerate the testing and approval of new BMPs, especially for septic systems	3
Innovation	Test center for new/innovative BMPs (funding & expertise)	Caroline
	Accelerate CBP review & approval process for new BMPs	Hughes Center Survey
	Develop alternatives to traditional BAT systems: wood chip walls, etc.	Caroline
BMPs (TA)	Establish an MDE Eastern Shore field office to expedite project permitting	1
Coordination	Continue HWRT as an ongoing forum and include additional local government structures/partnerships	7
Forum	Continued forum (like HWRT) for interjurisdictional collaboration	Wicomico
	Engage with MAMSA and MAMWA on policy issues	Berlin
	Participate in joint Regional Council meetings (MACo) & quarterly exchanges with RMC	USRC
	Present HWRT progress at winter MACo conference	MSRC
	Work with Rural Maryland Council	MSRC
	Regional councils may be appropriate location for regional TMDL efforts. Review with board once proposal is set	MSRC
	Coordinate with MACo/MML	MSRC

Coordination	Provide a clearinghouse for sharing information and success stories among jurisdictions	4
Information	Develop an infrastructure for sharing information, strategies and success stories	Cecil
	Dissemination of success stories	Hughes Center Survey
	Success story sharing time (ex: hoist truck for bag filters)	Salisbury
	Online clearinghouse of information, success stories, and contacts (across counties, perhaps a web portal)	Talbot
Coordination	Build a forum for Town-County collaboration	3
Inter-governmental	Provide a forum for Town-County cooperation	Somerset
	Involve more munis for greater buy-in and results	LSRC
	Pooling of resources across jurisdictional lines to maximize cost effective BMPs (town SW in county)	Cecil
Coordination	Develop relationships in state government to advance local government partnership efforts	2
Inter-governmental	ID someone from Governor's Office who can be an advocate for HWRT programs	LSRC
	Talk to Tracy and Keith at MDP to get local perspective on TMDL efforts and needs.	LSRC
Coordination	Engage the State of Delaware in cross-border watershed assessments and policy discussions	2
Inter-governmental	Interstate watershed assessment with DNREC	Cecil
	Delaware growth affecting MD water quality	LSRC
Coordination	Increase collaboration between local governments and Eastern Shore educational institutions	1
Funding	Increase grant funding to close gaps, especially for engineering and eligibility	6
	Money to support detailed engineering (most grants only fund planning or implementation)	Somerset
	Engineering and permitting capacity that does not require preliminary expense	Oxford
	Construction cost assistance	Oxford
	Close the funding gap for "ordinary" small towns: don't qualify for CDBG or environmental emergency funds	Caroline
	Pool of seed money to tap as match for state and federal grants	Somerset

Consider pursuing a carve out for \$6M rural development ask USRC

Funding	Simplify grant making: information centrally accessible, workshops for gov't staff, and unified applications and deadlines	5
	Simplify grant making cycles and applications. Universal application, and funders sort out the rest?	Salisbury
	Clearinghouse for outside funding resources to leverage with inside money	Queen Anne's
	Grants workshop for DPW staff focused on WIP funding sources & funder criteria	Somerset
	Grant opportunity summaries with application deadlines and applicable costs	Salisbury
	Funding resources clearinghouse	Talbot
	More capacity for securing and administering grants	Salisbury

Funding	Coordinate grant applications across jurisdictions to increase share for the Eastern Shore	3
	Regional coordination on grant applications so there is less competition on ES	Wicomico
	Use BRF funds as engagement hook. Western shore will get the money if ES does not act	LSRC
	Unified ES effort to secure more state and federal funding	Worcester

Funding	Advocate for USDA to better align funding priorities with WIP goals	3
	Voice to USDA to better align spending priorities with WIP goals (ex., rejected ENR as a "luxury")	Caroline
	Align USDA funding priorities with WIP goals	Worcester

Funding	Extend grant funding commitments to cover longer timeframes and more stages of the process	3
	Assurance that initial funding will bring additional funding	Oxford
	Move BRF from a yearly RFP to a CIP (project-based) model	Worcester
	Innovative and consistent funding	Cecil

Funding	Target revenue from fines for local WIP work	1
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Outreach	Educate the public to increase WIP understanding and support	4
	Citizen education campaign to overcome NIMBY sentiments for urban BMPs	Berlin

	Citizen outreach to overcome resistance to high costs	Caroline
	Public communication and awareness (DPW has no capacity)	Talbot
	TA for public education	Hughes Center Survey
Outreach	Engage the farming community	3
	Engage farmers, proactively present at county farm bureaus?	RMC
	DPW / local Farm Bureau regular information exchange	Talbot
	More interaction between local government and farming community	Reception Flip Charts
Outreach	Increase local understanding of federal and state initiatives, including the Bay model and regulatory priorities	2
	Hold training to increase confidence in model	Hughes Center Survey
	More communication from state agencies on regulatory initiatives (PMT sludge rules were a surprise)	Worcester
Planning	Plan and deliver projects regionally	4
	Regional watershed assessments to help with project targeting (ex., TNC Pocomoke effort)	Worcester
	Larger, regional projects rather than smaller ones for broader impact at same effort	Wicomico
	Regional implementation across counties and categories	Kent
	Regional RCPP projects like TNC's Pocomoke effort bring money to the Shore	Reception Flip Charts
Planning	Secure assistance with WIP strategy development	2
	TA for general WIP strategy development	Hughes Center Survey
	Town has focused on projects and needs overall strategy for TMDLs (Coyman observation)	Easton
Policy	Enhance sewer extension policy by resolving annexation, accessibility, funding, credit, and public education issues	6
Sewer Extension	Work through annexation laws and service policies for extending sewer lines to failing septic systems	Salisbury
	Resolve policy issues around municipal sewer extensions: credit, annexation	Salisbury
	Pursue denied access protections and limit funds for sewer extensions to failing systems only	Talbot

	Address small towns with sewer needs	LSRC
	Guidance on serving failing septic system area as mentioned by Jag Khuman	Salisbury
	Move neighborhoods towards agreement about septic system connections	Talbot
Policy	Advance trading on the Shore	4
Trading	"Informal" nutrient trading (state can "work on the trade market")	Cecil
	Advance nonpoint--nonpoint nutrient trading on Eastern Shore	LSRC
	Nutrient trading is a concern, uncertain about its benefits and how it would work.	LSRC
	Earn SW credit for installing ag practices on county-owned lands	Reception Flip Charts
Policy	Obtain clarity and guidance on state stormwater management expectations and priorities	3
State	MS4 Phase II permit requirement info and reporting assistance	Salisbury
	Clarity about future regulatory expectations for Phase II MS4s	Cecil
	Mandate stormwater fee for all jurisdictions	Hughes Center Survey
Policy	Increase sensitivity and responsiveness to farm community issues	3
	Joint ES letter to Gov asking for a tax credit to support alternative energy per PMT regs (poultry & sludge)	Worcester
	Phosphorus management tool large issue with ag community. Be prepared for this to be discussed. Work with Ag on TMDLs	LSRC
	Regional conversation about dramatic increase in poultry houses	Worcester
Policy	Prioritize minor WWTP upgrades, potentially through BRF formula adjustments	2
State funding	Increased focus on upgrades to minor plants and villages on septic	Caroline
	Revise BRF formula to prioritize small WWTPs & expand funding for septic connections	Hughes Center Survey
Policy	Seek approval to meet WIP goals at the regional or basin scale	2
WIP	Permission to meet WIP goals as a regional coalition or basin	Wicomico
	Basin-scale WIP compliance	Kent

Procurement	Establish a procurement clearinghouse to streamline access to products and services	6
	Pre-qualified contractors list	Queen Anne's
	Contractors clearinghouse	Talbot
	Collective, prequalified vendor listing	Wicomico
	Need more qualified contractors	Wicomico
	Procurement clearinghouse (ex., ebid through state for vehicles)	Wicomico
	Procurement clearinghouse	Salisbury

Procurement	Establish model RFPs that can serve multiple projects and jurisdictions	3
	Regional RFP for others to piggyback on (LSRC model: can hire ESRGC with just a quote - no bidding)	Salisbury
	Model RFPs	Salisbury
	RFPs that can serve multiple projects	Oxford

TA	Share design and engineering services, potentially through a circuit rider	6
Design & Engineering	Shared stormwater or wastewater engineering expertise	Caroline
	Engineering circuit rider	Hughes Center Survey
	TA or funding to more rapidly scale up promising pilots (ex., TNC not ready to expand ditch work)	Cecil
	Circuit rider to ID potential future projects and find credit for existing projects	Talbot
	Shared contract position for engineering and grant writing	Hughes Center Survey
	BMP design assistance	Queen Anne's

TA	Increase project management capacity	4
Project Administration	Need help with project administration	Wicomico
	Soup-to-nuts project management: grant manager, project manager, engineering, permit compliance, reporting all in one shop - like done for ferry dock, for example	Oxford
	Project delivery assistance - MES to play a role?	Salisbury

Simplify or outsource project management: procurement, managing contracts, filing reports Cecil

TA	Secure MAST training and assistance	2
	MAST training for increased proficiency in planning and reporting	Kent
	TA for MAST	Hughes Center Survey

Appendix 5—Ditch Maintenance Public Information, Worcester County, MD

PUBLIC ROADSIDE DRAINAGE SYSTEMS IN WORCESTER COUNTY, MARYLAND

In Worcester County, roadside ditches are the typical means for providing flood control for roads, but if not managed optimally, these ditches can also contribute to water pollution.

The purpose of this fact sheet is to provide Worcester County citizens with information about the roadside drainage system, specifically, where does roadside drainage occur, how it is maintained, why certain maintenance techniques are preferable, and what actions citizens can take to ensure optimal road safety and water quality associated with the drainage system.

What is the Purpose of Roadside Ditches?

Roadside ditches, swales or similar drainage features are installed to move water from rain and runoff from the road to a pond, creek, or other waterway. A ditch may require design and maintenance that is based upon specific local characteristics and needs to ensure adequate road drainage as well as safety.

Who is Responsible for Drainage in Worcester County?

All public roads are located within land which is referred to as the road right-of-way (R-O-W). Roadside drainage features, typically ditches, are also located within road R-O-Ws. The R-O-W is typically owned and managed by a public entity, such as the County or a homeowners' association. The Worcester County Department of Public Works has jurisdiction over, and is responsible for managing, County road R-O-Ws.

Importantly, the role of a ditch or other drainage feature within the road R-O-W is to drain the road, not the adjacent private property. Drainage of private properties is the responsibility of homeowners' associations, Public Drainage Associations (these exist primarily in agricultural areas) or individual property owners.

How Can a Ditch be Designed and Managed to Minimize Pollution?

Pollutants from the roadway as well as sediment can be transported from the road R-O-W to surface waters or groundwater, and ultimately, to the bays. Adequate vegetation and/or ponding slow and filter runoff. To ensure water quality is protected, the County creates gentle slope drainage swales wherever possible; uses seed and matting to stabilize new drainage; does not cut trees or remove stumps, except when necessary to improve road drainage or for safety reasons; and mows only 5 times per year.

Aren't "Clean" Ditches the Best Way to Assure Drainage?

Removing vegetation and exposing soil does not improve ditch drainage, and can pollute downstream waters with additional sediment and clog drainage.

Should There be Water Standing in the Ditch?

The open drainage system is suited to our coastal, rural landscape. It also helps protect water quality by slowing the movement of stormwater and providing some settling of sediment and uptake of pollutants before it reaches creeks or bays. Unlike dense urban areas, Worcester County does not use closed pipe systems to convey stormwater. Closed pipe systems are expensive and they can cause costly damage to water quality.



Bare soil in this ditch will erode and contribute to pollution downstream. Photo by Bruce Nichols, NRCS



Sediment traps and protective buffers improve water quality downstream. Photo by Bruce Nichols, NRCS



Photo by Katherine Munson

What Design and Management Techniques Both Protect Water Quality and Provide Adequate Drainage?

- Shallow, wet ditches remove nutrients and settle out sediments better than deep, narrow ditches.
- Stable, vegetated ditch sides prevent erosion.
- Small pools, if it is possible to provide them, trap sediment.
- Ditching should be avoided in areas where the road R-O-W consists of tidal marsh, because roadside drainage will usually not be improved while sediment pollution will increase.
- Should trees be removed from a road R-O-W, stumps should be left in place to prevent erosion and retain stability unless drainage is impeded.
- Grass buffers adjacent to a ditch/drainage area help reduce erosion, therefore reducing the need for maintenance.

But What About Mosquitoes?

Unfortunately, mosquitoes are part of life on the coast. Because mosquitoes sometimes carry diseases that affect humans, there are certain actions and precautions both government and you can take to minimize human exposure. Mosquitoes breed best in standing water without natural predators. The best example of this situation is a container left about that fills with rainwater. Draining County roadside ditches will have no significant effect on local mosquito populations if wetlands or salt marsh is nearby. Ditches that drain within 30 hours of a storm event will not breed mosquitoes. Some ditches provide some habitat for mosquito predators, such as fish, which can minimize the mosquito population.

How Can Citizens Contribute to Road Safety and Water Quality?

Landowners adjacent to road R-O-Ws can work with the County to ensure that both public safety and the environment are protected. Recognizing the purpose of the roadside drainage system and qualities of effective, environmentally friendly drainage is the first step. Adjacent landowners should **NOT** do the following activities in a road R-O-W and ditch:

- **Scrape or excessively mow, exposing bare soil, as this can contribute to erosion and sediment pollution.**
- **Fertilize or apply herbicides, as this may pollute water.**
- **Place any materials in the R-O-W including: yard debris such as grass clippings or leaves, landscaping such as trees or rocks, or pavement as this may impede road drainage.**

Landowners who are interested in working with the county to install practices that enhance water quality associated with roadside drainage may contact the Department of Comprehensive Planning at 410-632-5651.

For more information or to report a problem with road drainage, please contact Worcester County Department of Public Works, Roads Division, 410-632-2244.



A wide, shallow drainage area can reduce erosion and control sediments. Photo by Bruce Nichols, NRCS



Photo by Katherine Munson



Adjacent property owners can reduce pollution by avoiding over-mowing, fertilizing or placing stone, wood or cement in the R.O.W. Photo by Bruce Nichols, NRCS

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