FAQs About the Healthy Watersheds Forest/TMDL Project in Virginia

1. What is the project?

The project was a two year, landscape scale, Virginia and Pennsylvania partnership focused on first, quantifying the value of retaining forestland for meeting water quality objectives and secondly, determining what is needed to prioritize forestland retention as a land use planning option to meet Chesapeake Bay Watershed goals from the perspective of the local leaders who are responsible for making it happen. The final report on the project's findings and recommendations was submitted June 30, 2017.

2. Who were the Virginia project partners?

The project sponsors in phase I and II were the Department of Forestry and the Rappahannock River Basin Commission. Virginia project partners were: the Virginia Department of Environmental Quality (phases I & II); the George Washington Regional Commission (phases I & II); the Water Resources Center at Virginia Tech (phase I); the Virginia Tech Land Use Education Program (phase II); The Chesapeake Bay Commission (phases I & II); and The Nature Conservancy (phase I). Project grant funding came from the Chesapeake Bay Program Healthy Watersheds Goal Implementation Team through the Chesapeake Bay Trust (phases I & II); the US Endowment for Forests and Communities (phases I & II) and the Virginia Environmental Endowment (phase II).

3. What were the project's results/outcomes?

Although forest cover is recognized as one of the best land uses for achieving Chesapeake Bay water quality and healthy watershed goals and outcomes, localities and particularly MS4 jurisdictions in the watershed, have long maintained that unless TMDL credit is given for retaining forestland, there is little local incentive for doing so. This project addressed that issue. An objective was to determine the present economic value implications of the reduction in nitrogen, phosphorus, and sediment loads of alternative land-use change scenarios and pass that value on to localities as a forestland credit in the TMDL model to create an incentive for local officials and private land owners to retain more high-conservation-value forestland now. The project proposed to answer two questions: Can we quantify the contribution of forestland in economic terms toward achieving Chesapeake Bay cleanup goals; and if the value is significant, what needs to be done to incentivize forestland retention so that contribution is maximized? The follow-on analyses, modeling, evaluations, interviews, discussions and negotiations required to answer those two questions consumed thousands of hours over the past two years and drew on the expertise and advice of many people across Virginia and Pennsylvania who generously contributed their time and energy to develop the findings and recommendations for the project.

Phase I was a Virginia only effort focused on modeling different growth and development scenarios within a landscape level pilot area in the Rappahannock River Basin employing the EPA's methodology and high resolution data from jurisdictions that will be standard in the new 6.0 version of the TMDL model. The results demonstrated that retaining forestland could result in up to $125 million in potential offset savings in the pilot demonstration area alone due to localities and landowners not having to invest in alternative BMPs between now and 2025 depending on the land use decisions and actions taken. This savings extrapolated out across the entire Chesapeake Bay could therefore be very substantial and as a result the Chesapeake Bay Program partnership asked Virginia to undertake a Phase II program focused on working with local officials and others to identify the incentives, tools, and policies required to address the challenges that were inhibiting forestland retention land use planning actions. At the same time, the Chesapeake Bay Partnership goal implementation teams began focusing on crediting forestland retention in the TMDL.

Phase II expanded the project in Virginia from its Phase I pilot area in the George Washington Regional Commission service area of the basin to the entire Rappahannock River basin as a proxy for the Chesapeake Bay watershed. Since the Virginia project team's working hypothesis was that crediting forestland retention in the TMDL would stimulate and, perhaps, even drive development of additional incentives at the local level to conserve high conservation value forestland, outreach to and negotiation with local government leaders was critical. The key priority was to build consensus, from the locality level up, on a toolbox of policy, regulatory and financial incentives necessary to stimulate land use decisions required to achieve the Chesapeake Bay healthy watershed goals by retaining high conservation value forestland while simultaneously meeting local economic and other ecosystem service needs. It was believed that the toolbox elements, to be credible on a peer to peer basis, had to be designed to help local officials optimize land use decisions so development can occur at the same time that water quality protection actions are maximized. A forest land retention TMDL credit would be a driver but only one of what could be a package of incentives available.

Phase II also expanded the effort beyond Virginia. It became a Virginia/Pennsylvania partnership. Pennsylvania tested the quantification methodology Virginia employed in Phase I in a water basin study area in the Susquehanna River Basin to determine what savings, if any, a forest retention strategy offered to Pennsylvania. It also worked with localities in its study area to learn the same type of information Virginia was endeavoring to discover and the two Commonwealths pooled their findings. Given the differences between Pennsylvania's various municipal governments environment and Virginia's strict Dillon Rule government environment, the forest retention incentives toolbox resulting from these two state governance models was expected to be applicable to some degree to all the Chesapeake Bay jurisdictions.

Such a partnership was also viewed as a potentially effective way to speed adoption and implementation of forestland retention actions across the Watershed as the 2017 amendments to the TMDL model were adopted and rolled out. If all goals were met, a toolbox of incentives and policies that could augment and support a forestland retention credit in the TMDL model would have been developed and tested by localities within the two jurisdictions comprising the largest land area in the Chesapeake Bay watershed. This could provide the other Chesapeake Bay Watershed (CBW) jurisdictions with tool options that fit their own situations and further the goal of sustaining currently healthy sub-watersheds throughout the entire CBW.

Those efforts included over sixty discussion sessions and presentations including one-on-one, small group, large group, formal and informal meetings throughout the lower, middle and upper Rappahannock River Basin as well as with some neighboring Virginia river basins where officials were interested in the project. These discovery and negotiation sessions proved there was no single answer, demonstrated that the environmental and economic trade-offs were complex but also identified some fundamental challenges that if addressed, offer considerable promise for enhancing forestland retention as a land use planning priority.

4. Did the project accomplish its goals?

Yes. First, Virginia quantified that the value of retaining forestland to meet Chesapeake Bay TMDL requirements was economically significant and had its methodology peer reviewed and validated by Pennsylvania in Phase II. Secondly, it produced through extensive discussions with localities and numerous other stakeholder groups a "toolbox" of policy and other incentives that can be used to stimulate forestland retention in land use planning decision making; and third, it identified and focused discussions on some of the key challenges that thwart enhanced forestland retention planning so possible solutions can be explored.

5. What significant internal and external factors impacted outcomes?

The most significant internal factor was time, or more specifically, the lack of it. In both Phase I and Phase II we had only one year for each phase to undertake a very broad and complex scope of work over a very broad geographical area. However, we benefited considerably from external factors such as the dedicated volunteer efforts of numerous individuals at the local, state and federal levels, most of whose time was not even calculated for matching purposes against grants, who lent their professional reputations to the effort so their colleagues and others believed in the credibility and potential of what we were trying to do and worked with us to accomplish it.

6. What differences exist between the way the project was planned and implemented?

We began with the assumption that a TMDL credit for retaining forestland could be a principal driver to incentivize localities and landowners to retain high conservation value forestland in their land use planning processes. While this idea has merit in MS4 jurisdictions and jurisdictions that are likely to become MS4 jurisdictions in the near future, it was not a driver in rural areas that had no regulatory driver. As we progressed through our discussion sessions with rural localities, we began to talk less about the TMDL and more generally about what incentives were needed to prioritize forestland retention. This approach yielded much more interest and attention and also provided us with feedback to discuss internally with the federal, state and NGO sponsors of the project so we could move beyond conjecture to "what if discussions" aimed at resolving challenges and barriers.

What do the differences mean to the project and your organization? For the project in phase II, the difference with regard to implementation was minimal. Our hypothesis from the beginning was that it was absolutely necessary to hear from the persons "on the ground" who make the land use decisions what the issues were and how to address them to incentivize greater forestland retention actions. That was the approach we followed, it simply led us to a more complex set of possible solutions and challenges then we originally envisioned.

7. What unanticipated opportunities or challenges arose?

The original concept for the project arose out of the Department of Forestry's interest in reducing the rate of forestland conversion to non-forest use in the Commonwealth. The state has been losing an area of forestland about the size of the City of Charlottesville every year for over a decade. Because forestland is recognized in the Chesapeake Bay TMDL model as among the best land uses for protecting water quality DOF approached EPA to determine whether there was interest in prioritizing forestland retention. Coincidentally, the Chesapeake Bay partner jurisdictions had been debating the idea of crediting conservation in the TMDL model for some time and had reached a point where there was considerable interest in a landscape scale project to quantify the value of retained forestland. As a result, DOF was quickly afforded the opportunity to develop a project concept and was assisted in pulling together the partnership required to implement it.

Broadening the project to the level of a partnership between Virginia and Pennsylvania in phase II created challenges in that the scope of work became even more complex but the working relationship between the two state teams remained excellent and very collaborative throughout the project. It was also a continued challenge to coordinate the scheduling of the dozens of discovery and negotiation sessions that were held with local officials and others throughout the Rappahannock River Basin. Again though, the project team benefited from having access to the Rappahannock River Basin technical committee, a group of program specialists from the various

RRBC jurisdictions as well as from regional NGO organizations and SWCDs. This group became a volunteer sounding board with which to discuss what the project team was learning and we met with them on a monthly basis. The individual technical committee members were also invaluable in helping us set up the discovery sessions in their communities. They and project team member, Dr. Michael Chandler with Virginia Tech who had trained most of the county planners in Virginia at some point over the past 30 years provided us with instant credibility and we were careful to respect and not lose that.

8. **Will the project be continued in the future? If so, what are the biggest lessons learned? To what extent will the HWF/TMDL project partners adapt their approach in the future based upon these learnings?**

Yes, the project is continuing. Balancing Chesapeake Bay water quality clean up objectives with economic requirements of localities so a win/win situation is created is essential to meeting Bay cleanup goals but an injection of funding other than through grants, etc. is needed. A means to monetizes incentives for landowners and localities so they will make land use decisions that retain forestland, result in healthy watersheds, and reduce TMDL model loadings as projected if the TMDL model changes from a 2010 baseline to a 2025 baseline as expected is needed. The financial incentive driver is the potential avoided BMP infrastructure cost to a state and developers if development actions/strategies result in less forest being converted by 2025 and beyond than the TMDL model projects.

A TMDL credit for making land use decisions that reduce a state's projected TMDL obligations coupled with a carbon trading component that is already done elsewhere on a commercial basis offers the potential for a market driven funding source to incentivize landowners and localities to action and creates a long-term funding source for Bay cleanup.

Our original hypothesis was that modifying the Chesapeake Bay TMDL model to recognize the conservation benefit of existing forest land as demonstrated in Phase I offers potentially significant infrastructure development cost-savings. MS4 communities agreed with this hypothesis. However, among the non-MS4 communities, without the same regulatory pressures, the TMDL was not a primary driver. The Virginia Project team learned though through discovery conversations with rural local officials in the lower and upper Rappahannock River Basin that stormwater management costs serve much the same functional driver for forestland retention as would a possible TMDL credit for retaining forestland.

Through further discussions with stakeholders, it became apparent that, if monetized, trading credits between MS4 and non-MS4 communities to meet TMDL and/or SWM targets could be a

potentially strong driver for conserving forest lands, improving water quality and meeting economic growth objectives, particularly if credit trading were feasible both upstream and downstream of the MS4 communities.

This idea remains attractive to rural jurisdictions where future economic growth is projected to be minimal and where they are concerned about being able to generate sufficient tax revenue to provide basic services to their citizens. Urban jurisdictions find it attractive if it will reduce their SWM costs to meet future state WIP requirements. However, an approach focused on altering the current Virginia nutrient credit trading program has little to no support from the state regulatory agencies and the environmental community. Therefore, the challenge is to revisit our original hypothesis and stick with the idea of developing a forestland retention credit through reducing future TMDL required investments while also creating a means for rural communities to derive an economic benefit.

Another very important lesson we learned was the conflict between Land Use Value Taxation (LUVT) programs and the need by rural localities for tax revenue to meet other needs. Land Use Value Taxation is a tool that has been used by rural localities with significant amounts of undeveloped land to encourage conservation efforts mostly in agriculture, and working forests as a means of generating jobs in local economies. Under such programs, a landowner who retains land in a use that is covered by the locality's LUVT is taxed based on the land's value in use (use value) as opposed to the land's market value.

Although such preferential tax assessment programs as LUVT serve as an important incentive for landowners to retain forest or other uses covered by the program, they frustrate other residents who resent the shift of tax burden to those who are not large landowners. HWF/TMDL project team members were advised that as more forest and agricultural lands are converted to alternative suburban-type uses, citizens' pressure on local elected officials is growing to modify or do away with LUVT programs because they are increasingly perceived as an "unfair" tax break to large landowners and corporations.

This perception is to some extent a holdover from the time most forest properties were held by corporations but that is no longer the case in Virginia. This reality however creates uncertainty for the individual forest landowner and makes long-term business decisions troublesome. In Virginia, for localities that have adopted a land use value taxation ordinance, property owners must initially submit an application for taxation on the basis of a use assessment. In addition, some localities require property owners to annually re-certify the continued eligibility for the special tax treatment afforded under the land use valuation program. In one high-growth locality, this annual revalidation represents an annual processing of 1,100 applications which places an administrative burden on the

local Commissioner of Revenue (COR) office staff as well as the many participating landowners, some of whom have increasing difficulty properly preparing the application which places even more administrative burden on the COR staff in trying to assist the applicants.

There is also a conflict between LUVT programs that promote land conservation and the calculation of Virginia's Composite Index that determines state funding contributions to localities in support of K-12 education which discourages adoption of LUVT programs. The Composite Index formula uses multiple factors to determine a locality's financial ability to support K-12 education. One factor in the Index formula is the taxable value of all real estate. The Composite Index formula however does not recognize the reduced taxable value of land enrolled in the LUVT program. The net effect is that a locality gives up tax revenue as an incentive for land owners to keep land in forest or agriculture or open space but that loss of revenue is not acknowledged by the Commonwealth when determining state support for local schools.

One recommendation from many counties across the basin has been to modify the Composite Index formula to more appropriately recognize the actual "ability to pay" of a locality rather than ignoring the reduced taxable value of lands in LUVT. It was felt this would provide state policy consistency and would lessen the concern of some taxpayers towards LUVT. In discussing this issue with legislators and others familiar with the history of this state policy and budget issue concern was voiced that merely changing the Composite Index formula creates winners and losers. Past legislative efforts to make such a change to the formula have been unsuccessful because of the impact on the losers (those localities not utilizing LUVT). It was noted that to be successful additional K-12 funding would need to be included in the state budget to hold the losers "harmless." One person commented that additional K-12 funding for this purpose would represent an increase in education funding for Chesapeake Bay cleanup and as such, it could be a multi-benefit investment. It could strengthen the LUVT program locally by offsetting some of the negative budget impact of the program.

Addressing these issues will be a principal focus going forward as the project team collaborates with the state executive branch natural resource agencies and the General Assembly.

9. To what extent did a collaborative approach help advance project implementation?

The bottom-up focus of this project made a collaborative approach absolutely necessary to help advance project implementation. We would not have been able to carry out the scope of work required without close collaboration among individuals and organizations at the local, regional, state and federal levels. Continuous two-way communications, up and down, built credibility for the project team and the project's objectives. It provided a continuous feedback loop that allowed us to follow an adaptive management approach and go where the information led us. Having easy access

as well to senior level Chesapeake Bay Program and state policy personnel enabled us to get answers quickly to questions and ideas posed by localities during our discovery sessions so we could identify and follow the most promising directions.

10. Is the project replicable? If so, what plans are there for disseminating results and sharing information (for example, to the public or decision makers, where applicable)?

The modeling effort undertaken by Virginia in Phase I was designed to be replicated by other states and that was begun in Phase II when Pennsylvania used Virginia's phase I methodology to determine the potential savings of a land use strategy that prioritized forestland retention. The objective of phase II was to identify the suite of land use planning tools, policies and incentives that are currently available to states or that could be made available to be employed by other Chesapeake Bay jurisdictions to meet TMDL obligations and to inform the national TMDL program.

Dissemination of our results and sharing of information has already begun. The June 30, 2017 Healthy Watersheds TMDL/Forests project final report was submitted to the following organizations:

- The Chesapeake Bay Program Partnership Healthy Watersheds Goal Implementation Team, Land Use Workgroup and Forestry Workgroup;
- The Local Government Advisory Committee to the Chesapeake Bay Executive Council;
- The US EPA Chesapeake Bay Program Office;
- The Commonwealths of Virginia and Pennsylvania;
- The Rappahannock River Basin Commission;
- The George Washington Regional Commission;
- The Chesapeake Bay Commission;
- The Nature Conservancy;
- The Chesapeake Bay Trust;
- The Virginia Environmental Endowment, and
- The US Endowment for Forests and Communities

Individual Virginia HWF/TMDL project team members have separately presented outside the Rappahannock River Basin study area on the project's findings at a national forum in New Orleans sponsored by the American Water Works Association; as part of a WIP III outreach team at multiple DEQ sponsored regional public meetings; at a meeting of City of Alexandria planning officials interested in the project; at multiple meetings of the Chesapeake Bay Forestry Work Group; at the Great Valley Stormwater Forum, a regional practitioner session focused on meeting the needs and challenges of communities in the Great Valley of the Bay watershed that included portions of WV,

VA, MD and PA; at a regional riparian buffers conference sponsored by USFS, NRCS and the Chesapeake Bay partners program; at meetings with the Chair of the Virginia Chamber of Commerce and Virginia Naturally; with representatives of EPA and the Chesapeake Conservancy; the Chesapeake Bay Healthy Watersheds Goal Implementation Team; the Maryland State Forest Advisory Board; the Chesapeake Bay Program Land Use Committee; and the Local Government Advisory Committee to the Chesapeake Bay Executive Council.

The project team is continuing in place even though the grant period has ended to focus on implementation of the recommendations in the final report. To that end, the Rappahannock River Basin Commission will be meeting in September to begin to prioritize in collaboration with the Department of Forestry and other project team members the recommendations requiring General Assembly and/or state executive action to address. The goal is to have legislation that can be introduced in the next session of the General Assembly to stimulate forest retention land use actions. Team members representing the RRBC and the Department of Forestry were also recently named to a new General Assembly created workgroup, the HR 1774 workgroup, charged with making recommendations to the General Assembly by January 2018 on how to meet the environmental challenges associated with stormwater management requirements while simultaneously enhancing the economic growth of communities in rural coastal Virginia.

At the federal level project team members have already received commitments from the EPA Chesapeake Bay Program Office, the Chesapeake Bay Land Use Working Group, and the Chesapeake Bay Forestry Work Group to begin working on a forestland retention TMDL credit. The Chesapeake Bay Healthy Watersheds Goal Implementation team is currently cross referencing the findings and recommendations in the project's final report against the goals, objectives and projects underway among other Chesapeake Bay Program goal implementation teams and workgroups to identify opportunities for collaboration and leveraging.

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The full project report and findings are available on the VDOF and RRBC websites