2017 Goal Implementation Team Project Proposal

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Goal Implementation Team: Water Quality

Project Title: Crafting Guidance for Enhanced Treatment by Roadside Ditch Management Practices

Project Type: (1) Practice Research and Recommendations (2) Training

Goal/Outcome: Water Quality/2025 Watershed Implementation Plans

Estimated Cost: $60,000.00

Justification: The Scientific and Technical Advisory Committee (STAC) released a research report on improving roadside ditch management practices to help meet water quality goals in the Bay watershed (Schneider and Boomer, 2016). One of the key report findings was that improved management of the roadside ditch network could be an effective pollutant reduction strategy in many rural and/or unregulated portions of the Bay watershed. The CBP director requested that Chesapeake Stormwater Network (CSN) form a short-term, cross-sector team to discuss how to define, credit and verify roadside ditch management (RDM) practices this group of practices in January of 2017.

The RDM team came to consensus on how to classify and credit seven categories of roadside ditch management practices in the context of existing BMP expert panel reports (CSN, 2017). They include ditch:

1. Buffers
2. Elimination
3. Slope reduction
4. Stabilization
5. Maintenance
6. Treatment (including PEDs to boost nutrient removal)
7. Retrofits

The team recommendations were reviewed by both the Agricultural and Urban Stormwater Workgroups earlier this summer, who generally supported the technical approach. The Workgroups also agreed that additional work was needed to craft more detailed crediting protocols, design guidelines and verification techniques for the RDM practices.

Local and state highway agencies expressed a critical need for RDM technical resources so they can implement the proposed credit more broadly across the watershed. The additional work could be integrated with a recent research synthesis on design enhancements to boost nutrient removal in roadside ditches and swales (Hirschman, 2017).

More detailed design and inspection guidelines would help promote greater adoption of these new and innovative roadside practices. This format enables state stormwater agencies and soil conservation districts to rapidly append RDM guidelines to their existing stormwater manuals and design review processes. The draft guidelines would also be subject to the review and approval of the Agricultural, Forestry and Urban Stormwater Workgroups.

Methodology: The project will be conducted in three phases. In the first phase, the project lead will form a small, cross-sector technical team composed of researchers, practitioners and regulators to help craft the design guidance. The project team will then draft the design guidance for the range of practices. Guidance will include: practice feasibility, minimum design specifications, construction sequence, construction inspection, project acceptance, ongoing maintenance, routine inspection, remediation and verification. The Bay-wide Stormwater BMP Design Specifications (CSN and CWP, 2010) would serve as the basic template for the proposed RDM guidelines.

In the second phase, the project team will work with Bay stormwater stakeholders to review and approve the design guidelines. Specifically, the guidelines will be subject to the review of all three work groups (AGWG, USWG, FWG), the existing RDM team, state stormwater agencies and local and state highway maintenance departments. CSN will help facilitate the review process for the RDM design guide through the CBP partnership, and solicit input from our 12,000-member network of stormwater professionals across the Bay.

In the third and final phase, the project team will develop outreach materials on the new RDM design guidelines for local and state highway agencies. The team will deliver the stormwater training materials to a wide group of road, highway and stormwater professionals across the Bay watershed via webcasts, fact sheets, and on-line training modules.

Cross-Goal Benefits:

The proposed project has a lot of cross-sector appeal as roadside ditches run through forest, farm, rural, suburban and even urban land uses across the watershed.

Improved RDM practices have the potential to improve stream health and fish habitat, contributing to healthy watersheds. The STAC report noted that the existing roadside ditch network degrades habitat quality and food web structures in headwater streams in the Bay watershed, due to increased runoff volumes and velocities, sediment erosion and stormwater pollution (Schneider and Boomer, 2016). RDM practices would be particularly appropriate to protect trout streams in rural and forested subwatersheds.

The project also has potential to improve community engagement by involving new stakeholders in the Bay restoration effort. Training and outreach resources will be targeted to local and state highway maintenance agencies located in un-regulated rural areas in the headwater states who have been underrepresented in past Bay restoration efforts.

Lastly, prior expert panels have concluded that roads and streets are a hotspot for toxic contaminants, including PAHs, hydrocarbons and trace metals. Improved treatment at roadside ditches could help achieve goals for toxic reductions in the Bay watershed.

Are you willing to serve as GIT lead? YES

References:

Chesapeake Stormwater Network (CSN) and Center for Watershed Protection (CWP). 2010. Bay-wide Stormwater Design Specifications (12 different urban BMPs). www.chesapeakestormwater.net. Ellicott City, MD.

Chesapeake Stormwater Network (CSN). 2017. Draft options for crediting pollutant reduction from roadside ditch management (RDM) practices in the Chesapeake Bay watershed. Technical memo to agricultural and urban stormwater workgroups. management practices. Revised May 22, 2017.

Hirschman, D., Brian Seipp and T. Schueler. 2017. Performance enhancing devices for stormwater best management practices. Final Technical Report. Chesapeake Stormwater Network and Center for Watershed Protection.

Schneider, R. and K. Boomer. 2016. Re-plumbing the Chesapeake Watershed: Improving roadside ditch management to meet TMDL water quality goals. STAC Publication No. 16-001. Edgewater, MD
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