

NONPOINT SOURCE PLANNING GRANT



Department of
Environmental
Conservation

Stream Sediment and Debris Management Plan Outline

Plans to complete a comprehensive assessment for stream sediment and debris management. The plans must identify and prioritize flood damage prone areas. Local officials and municipal staff responsible for identifying areas in need of mitigation are required to complete the 4-hour Post-Flood Emergency Stream Intervention training class¹.

Required Elements

- I. **Cover Page** (project title, owner, prepared by, professional's stamp, and date)
- II. **Executive Summary:** Overview of the plans purpose, the plan location, watershed, and associated stream.
- III. **Projective Objectives:** Describe goals for stream sediment debris management report, existing watershed-wide flood risk assessments and location prioritization. Indicate whether the elements are a portion of a larger project. Include a project background description and history/problem statement.
- IV. **Existing Conditions:** Include an inventory of the stream corridor. Information collected must include but is not limited to:
 - a. Stream Watershed Area Description
 - Watershed map
 - Subwatershed map
 - Identify locations of all major road and stream crossings which include: bridges, culverts, railroad crossings, and privately-owned crossings.
 - Areas of planned action
 - Land use and cover types
 - b. Stream Data
 - Base flow
 - Storm condition flow at bankfull and 5, 10, 25, 50, and 100 year intervals
 - c. Stream Features
 - Sinuosity
 - Flowpath
 - Longitudinal dimensions of stream
 - Cross-sectional area
 - Slope
- V. **Pre-Storm and Post-Storm Monitoring Assessment:** Include the protocol for assessing the condition of the stream reaches before and after a storm event and

¹ Post-Flood Emergency Stream Intervention Upcoming Trainings
<https://www.dec.ny.gov/lands/89755.html>

identification of areas where stream sediment and debris management is necessary. DEC's website provides information on Post-Flood Stream Reconstruction Website².

- a. Assessment protocol to identify problematic areas where buildup of sediment and debris after storm events have been observed. The Post-Flood Emergency Stream Intervention Training Manual checklist³ (Appendix A) provides a checklist starting point. Assessments should include considerations for streams that have become stabilized post-flood.
- b. Detailed and long term pre- and post-storm monitoring and assessment of watershed condition to create a more ecosystem-based approach to flood mitigation strategies. The following assessment methods can assist in identifying a longer-term solution to a community's flooding issues, and as such should serve to complement this stream sediment and debris management plan:
 - Stream Corridor Assessments: A systems-based method to inventory basin conditions that assesses stream function based upon a rising framework of hydrology, hydraulics, geomorphology, chemistry and biology with specific considerations for channel dimensions, bed condition and process, bed material, cover types and wood supply. As a core assessment system, this will include stream cross sectional and longitudinal surveys and sediment size analysis. A summary approach is provided by the Upper Susquehanna Coalition's 2017 *Stream Corridor Assessment – A Process Guide* (<http://pecpa.org/wp-content/uploads/B1-Stream-Corridor-Assesment-Guide-2-1.pdf>). This approach follows analogous stream corridor assessment approaches supported by the EPA and USFWS (<https://www.epa.gov/cwa-404/function-based-framework-stream-assessment-restoration-projects>). Also recommended is the USDA Stream Visual Assessment Protocol (https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044776.pdf)
 - Road/Stream Crossing Assessments: Undersized bridges and culverts very often form constriction points that cause significant flooding. These locations should be identified, assessed and modeled as to their contribution to flooding. Crossing assessments following the North Atlantic Aquatic Connectivity Collaborative (NAACC, www.streamcontinuity.org) are an efficient way to inventory these structures and will assess them for flooding risk, structural failure risk and aquatic organism passage. Crossings should also be assessed for erosion issues and bed load contribution/passage.
 - Hydraulic Modeling: Full HEC-RAS modeling of water surface elevations affected by changes in stream channel dimensions and at relevant storm flow intervals should be developed when possible, particularly for areas located within Federal Emergency Management Agency (FEMA) mapped floodplain and floodway areas. It is important that this modeling include a sediment transport analysis to identify areas of existing overbank flooding

² DEC's Post-Flood Stream Reconstruction Resources <http://www.dec.ny.gov/lands/86450.html>

³ Emergency Stream Intervention Manual checklist Appendix A
https://www.dec.ny.gov/docs/administration_pdf/strmmnappend.pdf

as well as any areas of proposed modifications. This is especially critical near infrastructure that may be creating constriction points.

http://www.netwc.org/uploads/2/0/9/4/20948254/roy_schiff.pdf

VI. Identified Problematic Areas and Prioritization: identify problematic areas where buildup of sediment and debris after a storm event has been observed. While this section should discuss the source of the issue, such as upstream culvert flow restrictions, focus should be on problematic areas where the resulting sediment and debris blockage requires management.

- a. Problematic area map
- b. Prioritization of problem areas so that the most severe risk factors can be addressed first

VII. Stream Sediment and Debris Removal Plan

- a. Stream channel dimensions for problematic areas
- b. Boundaries for re-establishment of stream channels, sediment and debris removal, and stabilizing streambank activities
- c. Plan and cross-sectional sketches for each of the problematic areas which can be used for the permitting process and during sediment and debris removal
- d. Detail methods for removing sediment and debris, re-establishment of channel geometry and streambank stabilization
- e. Provide a narrative that explains the site location which provides justification for the recommended practices and why they were selected.

VIII. Permits, Documentation and Record Keeping

- a. Copies of all permits, corresponding attachments, plan sketches, engineering drawings, and before and after photos of those projects to use as examples for continued or future work
- b. Documentation of all work and costs for potential state and federal reimbursement
- c. Copies of inspection reports, etc.