

Upper Mantua Creek

Watershed Based Implementation Plan

Recommended Management Strategies

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Prepared for: The Upper Mantua Creek Regional Stormwater Management Committee
for the purpose of preparing a Mantua Creek Regional Stormwater Management Plan

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The information contained in this report is for planning and evaluation purposes only and is presented to assist in the development of a Regional Stormwater Management Plan. A Professional Engineer must make all design determinations and no structure or engineering design should be based on this information without detailed analysis by the proper professionals.

Upper Mantua Creek Watershed

Recommended Management Strategies

The Upper Mantua Creek Watershed Characterization and Assessment Report defines the current condition of the watershed and many of the stormwater related features. Further investigations, data collection, research and analysis since the reports publication have provided more information on some of these features or issues. This information, combined with input from the watershed stakeholders, has resulted in this list of recommended management strategies.

These strategies are grouped into four categories: General Provisions, Priority Projects, Design Standards and Proposed Municipal Ordinances. Each strategy is directly supported by work included in either the C&A report or one of the supporting reports completed by project staff and partners. Where appropriate, the supporting report or section is referenced.

The Upper Mantua Creek Watershed stakeholders, especially county and municipal planners and parks departments, local planning boards, engineers and regulatory reviewing agencies should carefully review this information for inclusion into their procedures, policies and requirements.

General Provisions

1. Maintain an Upper Mantua Creek Watershed Stakeholder Committee to monitor conditions and progress and to coordinate activities at a watershed level. The County Planning Division could facilitate this committee.
2. Monitor all stormwater basins for effectiveness and efficiency. Failures or maintenance should be addressed immediately. *See C&A Report, Section 2.2.3*
3. For all roadway improvement projects provide adequate stormwater management facilities and avoid direct connection of impervious cover to the stream network. *See C&A Report, Section 2.2.5*
4. Monitor lakes and ponds for degradation. Provide adequate protections for any lake currently swimmable to ensure the continued high level of water quality. *See C&A Report Section 2.2.8*
5. Promote through existing Federal, State and local programs agricultural Best Management Practices to control erosion, reduce surface runoff and enhance water quality of any runoff. Support efforts through cost share and other sources of funding. *See C&A Report, Section 2.2.6*

6. Implement recommendations of Princeton Hydro, LLC report *Bethel Mill Pond Lake Characterization and Assessment Study* February 2009. Major components of this plan include:
 - Enhance circulation with aeration to improve dissolved oxygen conditions
 - Implement effective Canada goose controls
 - Dredging to improve aesthetic and recreational value and expand aquatic habitat
 - Implement a variety of biomanipulation practices to restructure the aquatic food web
 - Implement watershed wide management strategies to reduce Non-point Source Pollution loads, including a low/no phosphorus fertilizer ordinance, basin retrofit and other urban stormwater retrofits

Priority Projects

1. Complete stormwater basin and stormwater outfall repairs as specified in the *Priority Restoration Projects*. These projects include basin retrofit at five locations, four stormwater outfall repairs. The highest priority is Stormwater Outfall SWO-077. Several of these outfalls are located outside of the detailed project area, but are within the overall Mantua Creek Watershed.
2. Support and promote the construction of rain gardens and bio-infiltration facilities throughout the watershed, but specifically in regions and neighborhoods with inadequate stormwater management. These facilities can be constructed on individual homeowner lots, commercial properties and public lands.

Design Standards

1. Natural Stream Restoration projects require a reference reach to determine stream geometry dimensions and ratios. Use Cartwheel Branch as a Reference Reach for Natural Stream Restoration Project. *See C&A Report, Section 2.2.1 and contact the SCD for reference reach data.*
2. Ensure that culverts, cross-drains and bridge repairs meet all design requirements and avoid to greatest extent possible increasing discharge rates or volumes through these structures. Ideally, all culverts should be replaced with a similar size structure while maintaining the same inverts. *See C&A Report, Section 2.2.2*
3. All hydrologic analysis must address existing depression storage through appropriate use of ponding factors or other hydrologic methods. *See C&A Report, Section 2.2.9*

Municipal Ordinances

1. Adopt a Low/ No Phosphorus Fertilizer Ordinance
2. Adopt a Riparian Buffer Conservation Ordinance. *See C&A Report, Section 2.2.7 and Draft Ordinances*