Appendix C

Guidance for Hydrologic and Geomorphic Assessment

A hydrologic analysis developed to support a watershed management plan should cover the entire watershed to help stakeholders understand the hydrologic characteristics of the watershed. This analysis should help stakeholders understand the impact of changes on stream flows, provide a basis for storm water management, and help determine the critical areas. The scope of the analysis should vary with the watershed and stakeholder needs. It could include:

- Delineation of watershed boundaries.
- Review of soil, land use, and population information.
- Calculation of stream flows and pollutant loads.
- Comparison of calculated runoff volumes or yields per sub basin.
- Flashiness Analysis.
- Analysis of percent imperviousness.
- Analysis of stream order.
- Recommendations to protect or improve treatment of stormwater runoff.
- Recommendations to manage storm flows to protect stream channels from increased erosion.

Hydrologic Analysis Resources

The hydrologic/geomorphic assessment should utilize recognized tools such as stream flashiness indices; channel evolution models; regional reference curves; stream bed particle size assessments; streambank stability analysis; stream power calculations; regime equation calculations; or similar measurements or models. The Department of Environment, Great Lakes, and Energy's Nonpoint Source Program has provided a number of guidance documents and tools on the Nonpoint Source Hydrologic Analysis page. In particular, see "Stream Stability Assessment Guidelines for NPS Grant Applicants". Hydrologic and geomorphic stability assessments are especially important in watersheds that have been significantly disturbed or modified. Hydrologic and geomorphic assessment shall include an inventory of current site condition (i.e., stable, aggrading, or degrading), identification of the type, extent, magnitude, and cause(s) of the stability problem(s) to be addressed, and a prediction of future stream response to the proposed treatment. Consider location within the watershed when prioritizing implementation sites. Implementation proposals are typically more competitive when working upstream to downstream.

Watershed management plans that identify flashiness or system wide stream erosion issues should focus on addressing storm water runoff before proposing work on the stream to be competitive in the grant process. Watershed management plans that recommend streambank stabilization, channel realignment, changes to channel geometry, or changes impacting flow or sediment transport must include a stream geomorphology assessment equivalent to the USDA-NRCS 580 Standard.