

US EPA ARCHIVE DOCUMENT

Spatial Analytical Methods and Future Scenarios

**Ecological Sustainability in Rapidly Urbanizing
Watersheds: Evaluating Strategies Designed to Mitigate
Impacts on Stream Ecosystems**

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Collaborative Science and Technology Network
for Sustainability Progress Review Workshop
October 18-19, 2005
Washington DC



Collaborators

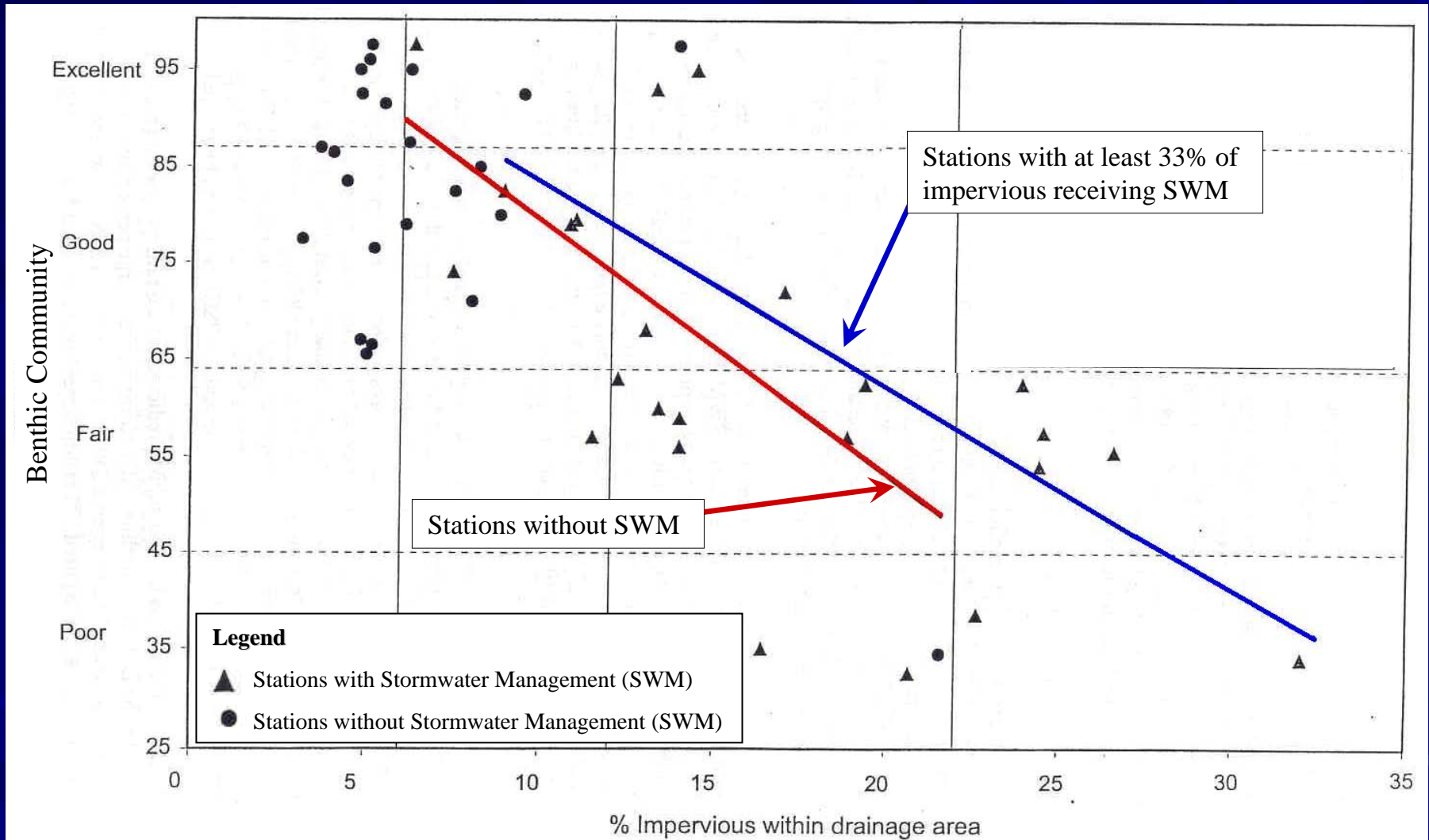
- The Palmer Lab
- Montgomery County
Department of Environmental Protection
- ESA, Inc.
- USGS-Water Resources Division
- EPA Environmental Photographic
Interpretation Center



Goals

- Use of spatial analytical methods to understand the relationship between the built environment and the natural environment over time
- Provide data for informed decision-making on future development and/or technical designs or solutions

Impervious Effects



Prepared by ERM, Inc. for MNCPPC-Montgomery County (May, 2000)

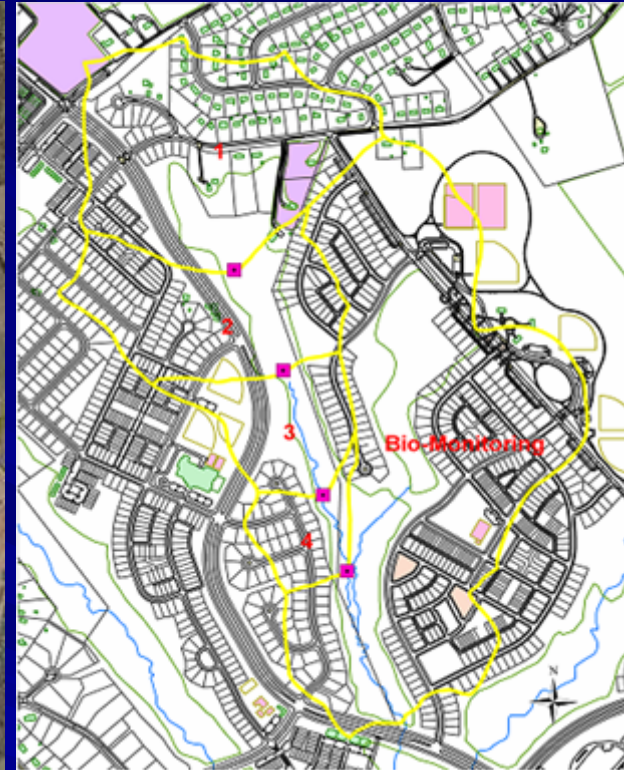
LSLS104 Test Area



Land cover in 2002



Land cover in 2004



Proposed Development

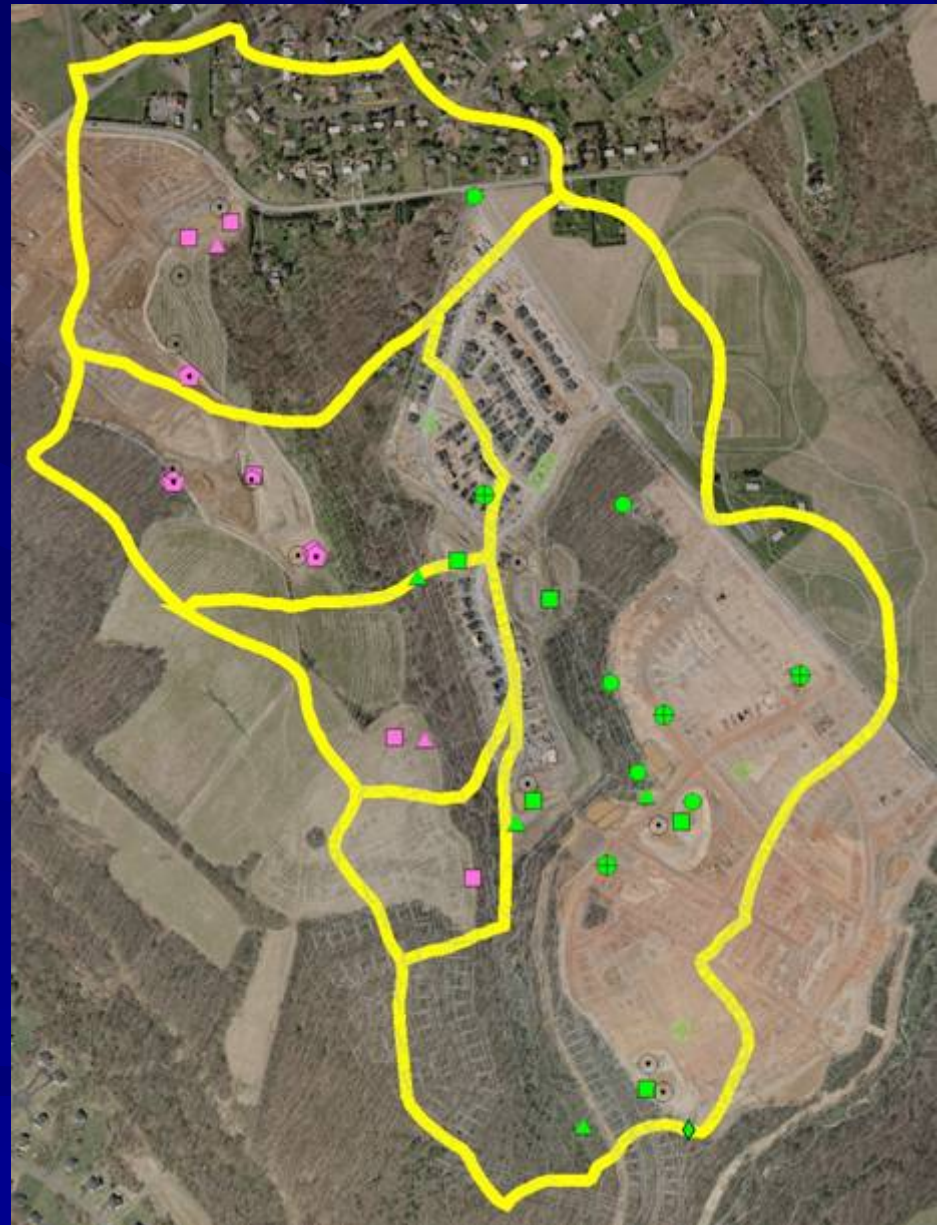
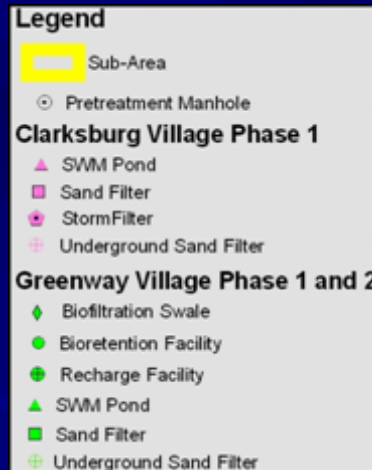
- Flow Gage
- Monitoring Station

Mitigating Impervious Impacts

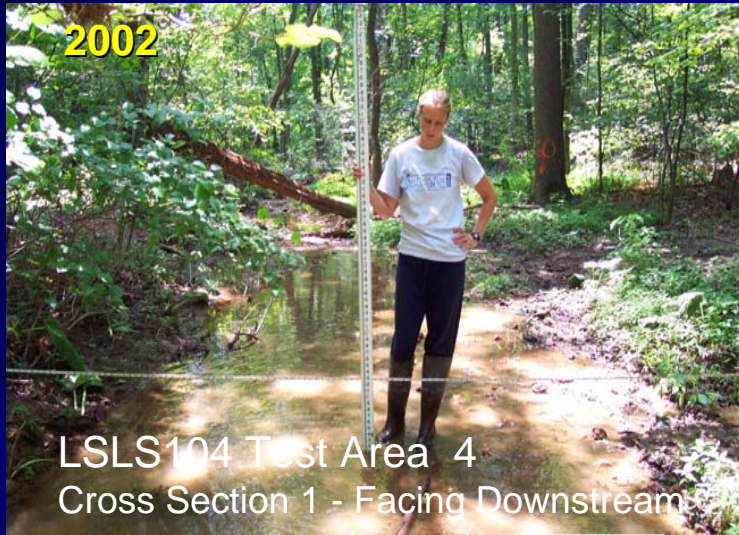
- **Stormwater management practices in combination with comprehensive site planning to provide maximum resource protection**
- **Site layout, including road network, dictates types of stormwater management practices used**
- **Higher levels of imperviousness require more structural runoff controls**
- **Redundant and multiple water quality controls upstream of primary runoff control**

LSLS104

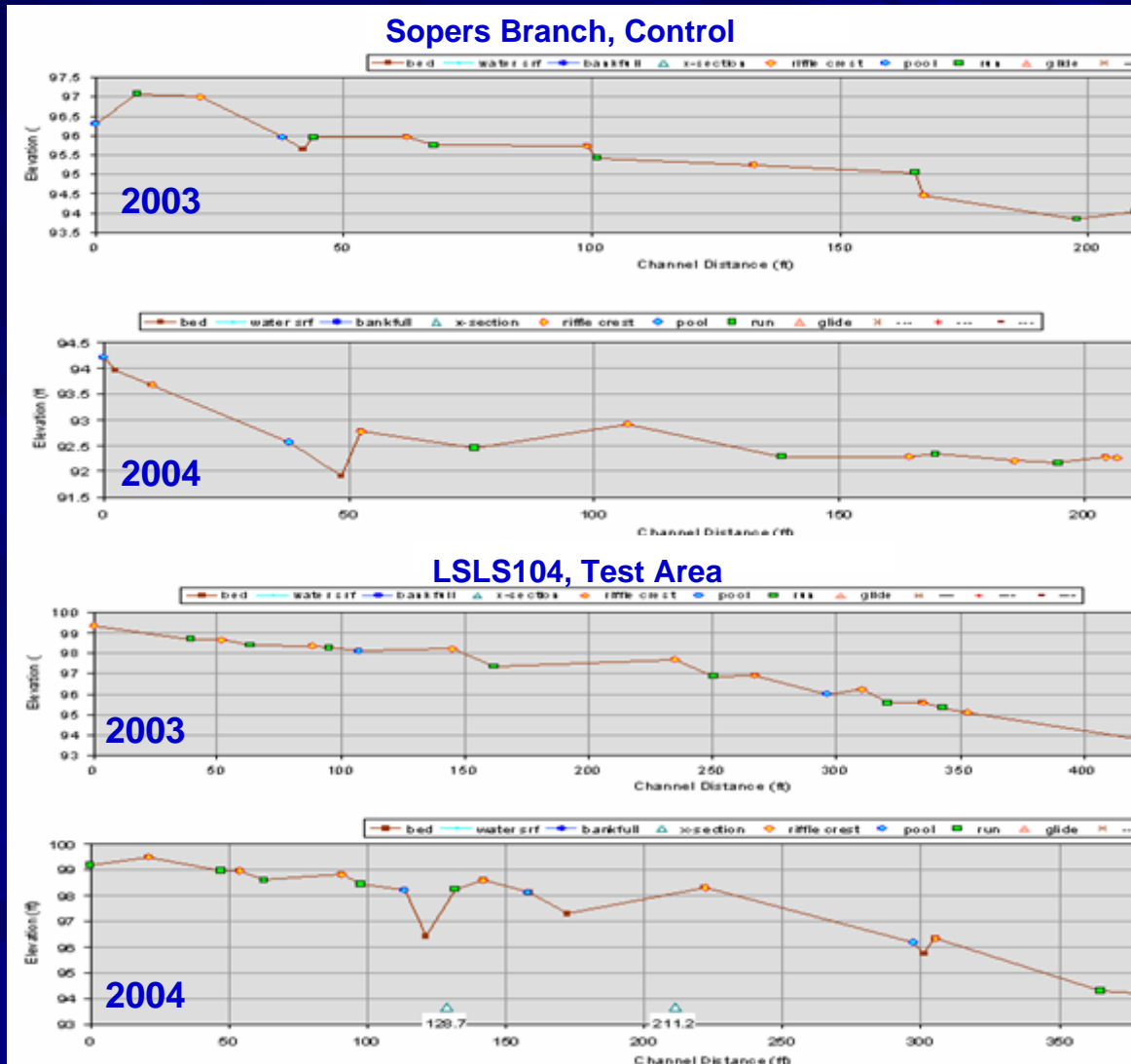
Proposed Stormwater Management Practices



Data: Cross-Sections



Data: Longitudinal Profiles



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