

Sustainable Urban Watershed Management

- Objectives:** The main objectives of this research program are to: (1) evaluate the feasibility, cost, and legal issues of a decentralized approach to stormwater management using a voluntary reverse auction to place on parcel BMPs, (2) characterize the environmental benefits of increased runoff storage or detention, and (3) evaluate and synthesize qualitative and quantitative changes in ecological endpoints, hydrologic conditions, and water quality status in tributaries resulting from decentralized stormwater management.
- Background:** Urbanized conditions increase the risk of downstream flooding, stream channel degradation, and damage to aquatic and terrestrial ecosystems. Although stormwater is typically conveyed to centralized detention, retention, or treatment structures, there is potential for reducing stormwater runoff flows through source control, detention, and infiltration at the residential parcel via rain gardens and rain barrels (BMPs). Yet, implementation of such an arrangement is a system-wide problem requiring market-based incentives to promote the installation of BMPs.
- Description:** The purpose of this study is test the feasibility of reducing urban stormwater runoff volume via a reverse auction to encourage the adoption of parcel-level stormwater best management practices. The project site is located in the Shepherd Creek watershed, a mixed-land use watershed located near Cincinnati, OH where suburban development transforms precipitation into high runoff flows. The specific approach is: (1) Monitor and characterize conditions, (2) Administer economic auction and install BMPs based on auction results, (3) Evaluate environmental effectiveness of BMPs via post-implementation monitoring on a pilot scale.
- Product:** EPA Report embodying a manual for the application of the methodology covering IAC Outcomes for water, land and ecosystems..
- Collaborators:** Hamilton County Engineer, Hamilton County Soil & Water Conservation District, Cincinnati Metropolitan Sewer District, Cincinnati Parks Board, Ohio EPA, U.S. EPA Region 5
- Project Team:** H. Cabezas (Project Oversight), M. Morrison (Water Quality), M. Clagett (Law), A.H. Roy (Ecology), W.D. Shuster (Hydrology), H.W. Thurston (Economics).
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