Acknowledgements

- The Watershed Institute
- AKRF, Inc.
- GSWA Stream Team Volunteers
Project Location

Great Swamp Watershed

Great Brook Watershed

Silver Brook Watershed
Background—Silver Brook

- Reports and Studies
  - Great Swamp Watershed Management Plan (June 1997)
  - Nonpoint Source Inventory of the Great Brook Watershed (December 2001)
  - Silver Brook Watershed Management (SBW) Plan
- GSWA Conservation Management Area
  - Land preservation
  - Ecological restoration
  - Education
- Highlands Planning Area
Study Objectives

- Summarize existing conditions
- Assess root causes of observed impairments
- Define management goals for SBW
- Identify specific project opportunities
  - In-stream flow improvement
  - Water quality enhancement
  - Channel habitat improvements
Background Data Collection

- Past Studies
  - Great Swamp basin and outfall inventory
  - Stream assessments (GSWA volunteers)
  - Water quality monitoring
  - Great Brook Nonpoint Source Inventory Report
- Aerial photography
- Geo-referenced data
Watershed Reconnaissance

- Landuse patterns
- Road Crossings
- Stormwater management
  - Basin retrofit assessment
- Riparian condition
Stream Corridor Assessment

- Stream channel characterization
- Channel stability
- Identification of problem areas
GSWA Volunteer Stream Visual Assessments
Assessment Results—Watershed

- Watershed divided by major roads
- Landuse
  - Historic
    - Primarily agricultural
  - Current
    - Mixture of commercial, residential and undeveloped
- Stormwater management
  - Unmanaged or Phase I detention
- Riparian areas
  - Extensive wetland complexes on mainstem
Assessment Results—Characteristic Reaches

- Downstream Commercial Park
- Mainstem—CMA
- Upstream I287
- Residential Reaches
Assessment Results—Stream Corridor

- Residential and undeveloped in good condition
- Segmented by roads
- Instability and active incision
  - Upstream of I-287
  - Downstream of commercial basins
- Lack of woody debris
- Main stem downstream of I-287
  - Historically channelized
  - Sediment aggradation from upstream incision
Management Plan Components

- Definition of framework and goals
- Assessment of existing conditions
  - Landscape
  - Stream corridor
- Assessment of design constraints
- Development of management strategy
- Identification of restoration project sites
Management Strategy

- Mitigate untreated or minimally-treated stormwater runoff
  - Stormwater basin retrofits on commercial properties
  - Upstream of actively incising streams
Management Strategy

- Restore forested riparian buffers where absent or denuded
- Add large woody debris to replace natural inputs during buffer establishment
Management Strategy

- Actively restore incising channel segments in headwater reaches
  - Increase bank resistance through vegetative reinforcement
Specific Project Recommendations

In-stream Restoration Sites

Basin Retrofit Opportunities
Additional Recommendations

- Establish riparian buffers
- Preserve forested areas and open space
- Reforest old field and former agricultural sites
- Develop stream friendly outreach program for homeowners
Conclusions

- Numerous opportunities for management
  - Large and simple retrofits
  - Unstable headwaters
  - Land use management
- Strategies will improve
  - In-stream flow
  - Water quality
  - Channel habitat
- Follows Ten Towns Great Swamp Watershed Plan
- Model for other Great Brook subwatersheds
SBW Management Plan

- Finalized July 2009
- 9 priority restoration projects identified
- Estimated construction costs range from: $25,000 - $1,340,000
- Seeking DEP approval of the Plan
- Project implementations
Questions?
Contact Information

Kelley Curran
Director of Water Quality Programs
Great Swamp Watershed Association
PO Box 300
New Vernon, NJ 07976
973-538-3500 x16
kcurran@greatswamp.org
www.greatswamp.org