

ONESQUETHAW-COEYMANS

Watershed Management Plan

June, 2010

Introduction

A drop of rain falling to the ground atop a high peak inevitably goes “downstream” – one way or another it will accumulate with other drops, penetrate the soil or move as overland flow to the nearest body of water. The paths that this water will travel are varied. It will flow through a wide network of drainage pathways, either as surface or ground water, to the lowest point where it collects in a stream, pond or wetland. A watershed is the land that drains, or *sheds*, this water to a single waterbody, such as a wetland, river, lake, or ocean.

New York State has a strong connection to its water bodies, which help shape communities and provide us with drinking water, economic activity, wildlife habitat, recreational opportunities, and a place to just relax and enjoy the scenery. With all these benefits, it is no wonder that communities throughout New York are searching for ways to protect and restore these resources while balancing the need for economic growth and development. Communities are recognizing that comprehensive watershed planning helps protect and restore their water resources, and many are already implementing local watershed plans with great results. They have found that it takes a clear vision, broad public involvement, creative partnerships, patience, persistence, and a step-by-step strategy to create a successful watershed plan.

Gaining an understanding of our watershed is key to preparing a successful watershed plan. Knowing our water resources, land use patterns, local regulations, and municipal programs will help create goals for the future and the framework around which we build our plan.

We began by recognizing the importance of understanding and knowing our watershed and now have specific recommendations for improving water quality. More and more people are realizing that protecting and improving their watersheds is important to the entire community, and it starts by recognizing that the watershed belongs to the community. By developing and implementing watershed plans, communities are coming together to protect water resources and improve the overall quality of their wetlands, streams, rivers and lakes, helping improve not only our water quality but the community as well. This translates into a healthy environment, a good quality of life, and strong local economies.

Background

This Watershed Management Plan is based on the findings of the Onesquethaw-Coeymans Watershed Study, completed in May 2008 using a grant from the Hudson River Estuary Program. The Study documented natural and manmade features within the watershed; described the relationship between land use, the natural environment and water quality; documented growth trends within the watershed; summarized the important water quality related information collected by the Onesquethaw-Coeymans Watershed Council (OCWC) in a variety of different reports and documents; provided a summary of federal, state and local regulations that affect water quality; identified key issues and threats within the watershed that may affect water quality; and offered recommendations for mitigating water quality impacts and protecting and improving the integrity of the watershed. The Watershed Study is part of this Management Plan by reference. The Watershed Study can be downloaded from <http://ocwatershed.org>.

While most land use planning is carried out at the municipal scale, watersheds don't coincide with municipal boundaries. There are five municipalities within the OC Watershed (Towns of New Scotland, Bethlehem, Berne, and Coeymans, and the Village of Ravena). The county, state, and federal governments exercise partial regulatory oversight as well. This jurisdictional fragmentation makes the implementation of any watershed management plan difficult. One way to compensate for this is to formulate a watershed coalition, usually made up of diverse watershed stakeholders, who hold regular meetings to communicate watershed issues and cooperatively address them. One of the advantageous circumstances within the OC Watershed is that the OCWC already exists. A true and successful coalition will involve participation by municipalities, industries, agencies, community members and other stakeholders.

This Watershed Management Plan reflects the input of representatives from the watershed municipalities, industry, and other stakeholders.

1. Land Use Management

A review of local land use regulations, which was conducted using Center for Watershed Protection standards, found that local laws are inconsistent across the watershed and may not be sufficient to protect water quality. Comprehensive plans, zoning laws, and subdivision regulations currently being applied in the watershed need to be revised to facilitate sustainable development. In general, current land use regulations and practices rely on zoning and subdivision techniques that allow for, and in some cases encourage, large lots and setbacks, wide roads, and oversized parking lots that create unnecessary and excessive impervious surfaces. It was also found that use of regulatory tools to help protect individual natural resources such as wetlands, flood plains, streams, and drinking water supplies need to be enhanced.

Although there has not been a large amount of new housing development within the watershed, the potential exists for major new growth in the future. For example, the addition or extension of major roadways or sewer and water lines could likely become a catalyst for additional development, especially in the southern portion of the watershed. For this reason, it is important to incorporate the necessary laws and practices now so that communities will be prepared with a plan that balances the existing rural character and the protection of natural resources with development and growth.

Special consideration should be given to water quality impacts when planning for the amount of new growth allowed in the watershed, particularly for large-scale projects, and development in areas of sensitive karst terrain and poor soils for on-site septic systems. The following sections describe a number of practices recommended for inclusion in local laws, policies, and procedures.

1.1 Reduce Impervious Surfaces Through Low Impact Development (LID)

Water quality impacts from new development can be greatly mitigated with the use of low impact development (LID) practices. Low Impact Development is a comprehensive land planning and engineering design approach that can be applied to new development, redevelopment, or as retrofits to existing development. It is based on principles such as preserving and recreating natural landscape features, minimizing impervious surfaces, and maintaining a watershed's hydrologic and ecologic functions. There are many practices that have been used to adhere to these

principles such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. The environmental benefits of reducing impervious surfaces include decreased stormwater runoff, downstream flooding, and pollutant loadings. Low impact development may also lower development costs by reducing the amount of pavement needed and the length of utilities.

A number of LID practices should be considered to reduce impervious surfaces, preserve land and rural character, save on infrastructure costs, and better protect environmental resources:

1. Reduce the required road width for residential streets, and driveway and setback standards for new residential construction.
2. Review the minimum size requirement for parking lots and consider allowing for smaller lots or shared parking where possible. Also encourage the use of pervious asphalt and unpaved overflow parking.
3. Incorporate green infrastructure practices into road construction such as permeable asphalt and pavers, bioretention areas, vegetative planters, curb extensions and vegetated swales. Also provide incentives to use rain gardens, green roofs and other green initiatives in residential and commercial building designs. In addition to filtering pollutants these practices help cool stormwater, which is very important to trout streams.
4. Pursue opportunities for expanding existing hamlets and/or creating new hamlets of higher density in environmentally appropriate areas served by public infrastructure. Hamlets should have a connected network of streets with sidewalks and include a mix of housing types, and neighborhood-scale commercial and civic uses. This will reduce unnecessary land consumption, capitalize on public infrastructure capacities, and help to create areas with a better sense of place that are less reliant on automobiles.
5. Reduce allowable density outside of hamlet and village areas and limit infrastructure extensions in these areas.

1.2 Protect Sensitive Habitats

Special consideration should be given to the impact of development in critical habitats such as wetlands and mature forests, sensitive karst areas near water sources, and riparian corridors. It is recommended that a biodiversity evaluation using the method outlined by *Hudsonia's Biodiversity Assessment Manual for the Hudson River Estuary Corridor* by Kivat and Stevens be conducted to identify these areas. Once sensitive habitats are mapped, a municipality may consider adding special consideration of development in these areas through their zoning or site plan review process.

1.3 Establish Stream and Wetland Buffers

There are several areas where riparian buffers could be enhanced with partnerships and efforts with landowners, community and recreational organizations, and agencies. Sites include, but are not limited to, closed landfills, a long section of stream between Old Ravena Road and NY Route 144, and several farms. These efforts should focus on stream bank stabilization, and wildlife habitat enhancement. Buffer areas may also present an opportunity to provide low impact recreational access to the creek. In addition to identifying projects to restore stream and wetland buffers, communities should consider adding a buffer overlay zone to protect other sensitive areas. There is guidance available through the Center for Watershed Protection and the Environmental Protection Agency on how to develop effective buffer ordinances and review procedures.

2. Stormwater Management

The Towns of Bethlehem and New Scotland have developed stormwater management programs in compliance with New York State Department of Environmental Conservation's (NYSDEC) MS4 Phase II Stormwater Permit, which deals with many aspects of stormwater pollution prevention, and control of erosion and sedimentation related to land development. It is recommended that the Towns of Coeymans and Berne and Village of Ravena become familiar with the permit requirements and consider developing similar programs to address stormwater pollution. It is likely that the permit will be expanded in the future to include these municipalities and they would benefit greatly from working with the regulated watershed communities who have experience with this program. The New York State Stormwater Management Design Manual can

be obtained at <http://www.dec.ny.gov/chemical/29072.html>. It provides specifications for stormwater management practices to comply with New York Standards and Specifications for Erosion and Sediment Controls, called the “Blue Book”. An abbreviated version of the Blue Book can be downloaded from http://www.dec.ny.gov/docs/water_pdf/bluebk-lite.pdf.

Outlined below are several recommendations related to components of the stormwater management program that when implemented can significantly improve water quality.

2.1 Eliminate Pollutant Discharge to Stormwater Conveyance Systems and Waterways

Municipalities should consider taking the following steps to find and eliminate pollutants such as untreated sewage overflows, septic tank effluent, laundry wastewater, and improperly disposed of auto and household toxics:

1. develop and maintain a map showing the location of all stormwater system outfalls and receiving waterbodies and conduct routine sampling to check for pollutants and structural problems
2. pass and enforce a local law or resolution that prohibits illicit discharges to the stormwater conveyance system
3. use neighborhood assessments, hotspot site investigations, pervious area assessments and the analysis of streets and storm drains to examine pollution sources and restoration potential. These watershed assessment methods are outlined by the Center For Watershed Protection publication “*Urban Subwatershed Restoration Manual No. 11: Unified Subwatershed and Site Reconnaissance: A User's Manual (Version 2.0)*” which can be downloaded for free from their website <http://www.cwp.org>.

2.2 Control Erosion From Construction Activity

Controlling erosion and sediment from construction activity is also a part of the state stormwater regulations. Municipalities regulated by the NYSDEC have adopted local laws to address enforcement of these regulations and have received training on how to review a site plan and inspect a construction site to ensure that appropriate practices are in place and functioning properly. Some have also incorporated zoning restrictions on construction on steep slopes.

It is recommended that the unregulated communities (Coeymans, Ravena, and Berne) become familiar with the NYS construction activity permit to insure that construction projects that fall under this category are properly permitted. Amendments to zoning may be considered also to limit construction on steep slopes. Finally, training for local building inspectors is important so construction sites can be monitored to ensure proper implementation of a stormwater pollution prevention plan. The OCWC and partners should work together to have more municipal staff and contractors trained on this issue.

2.3 Manage and Treat Post-Construction Runoff

Establishing a method of controlling the quantity and quality of stormwater runoff after a construction project is completed is also part of the MS4 and Construction Activity permits. This insures that pre-development stream hydrology and water quality are maintained and limit downstream flooding and offsite nonpoint source pollution from stormwater after the project is completed.

The regulated MS4 municipalities have already instituted procedures to ensure proper compliance with this regulation. They have also developed resource materials on maintaining practices such as detention and retention ponds that may be of use to the other communities. It is recommended that the unregulated municipalities become familiar with post-construction requirements so they can make sure that they are included in development plans where required. It is also recommended that an inventory of existing stormwater practices (such as stormwater ponds that are privately owned, e.g., by a homeowners association or apartment complex) be prepared so that information about proper maintenance can be provided to the owner.

2.4 Maintenance of Public Properties

Public facilities, especially public works and parks departments, can be a potential source of stormwater pollution. Municipalities should periodically inspect their facilities to make sure chemicals, fertilizers and road salt are stored properly, that vehicles are properly maintained and that waste is disposed of properly. Procedures should also be reviewed to look for ways to reduce the impact of operations such as limiting salting where possible and establishing a “no pesticides/fertilizer zone” in sensitive areas or adopting an Integrated Pest Management (IPM) policy.

3. Community Outreach and Education

Intermunicipal partnerships should be formed with the Onesquethaw-Coeymans Watershed Council (OCWC) to develop plans for teaching residents about what they can do at home to improve water quality, including low impact lawn care techniques, proper waste disposal, and septic system maintenance. The OCWC can arrange technical assistance, speakers, and educational programs focused on these issues. Watershed municipalities may want to consider appointing a representative to serve on both the OCWC and the Albany County Water Quality Coordinating Committee, a county-wide volunteer group focused on water quality issues. These groups have access to many educational resources that address nonpoint source pollution.

In addition, the OCWC and partners should look for public participation opportunities that will help educate the public about the watershed and creek and how to protect them. These may include tree plantings, water sampling, stream walks and watershed tours among other things.

4. Landfills

Water quality concerns with a landfill are: potential for underground leachate leakage into the creek and/or into nearby wells; removal of vegetative cover and subsequent soil erosion into the creek; nonpoint surface pollutants washing off into the creek and infiltrating into the groundwater; and garbage dispersal such as paper and plastics blown off site.

For the Town of Bethlehem and New Scotland closed landfills and the South Bethlehem construction and demolition (C&D) Metz Landfill, information should be gathered about each site, such as years of operation, amount and type of materials dumped, closeness to the stream, and the results of any monitoring (the Metz Site has been monitored by NY State).

Provide vegetative buffers to reduce runoff and pollution from landfills. Partnerships should be formed with community groups, municipalities, and agencies to develop recreational uses, such as access to streams, begin cooperative efforts to enhance natural land features, and plant streamside vegetation.

Studies have been made at the site of the proposed City of Albany Regional Landfill, the results of which have not been released to the public, but they should be evaluated once they are released.

5. Industrial Activity and Point Discharges

There are a number of large industries in the watershed including Selkirk Rail Yards, Selkirk Cogen, and Sabic Plastics located on Upper Coeymans Creek, limestone quarries on Feuri Spruyt and Mosher Brook tributaries, and the Lafarge Cement Plant located on Lower Coeymans Creek. Discharges from these industries are permitted and regulated by NYSDEC's SPDES program (State Pollutant Discharge Elimination System). In total, there are over 50 permitted point discharges to the Upper and Lower Coeymans Creek.

Monitoring and observations in locations proximate to discharges in the upper Coeymans Creek indicate that water quality and aquatic life are being negatively impacted. There is also a risk that toxic substances found in aquatic animals will make their way up the food chain and ultimately affect human health.

A concentrated effort should be made to evaluate the sources of toxics and other contaminants, the cumulative effects of point discharges, the source of heavy turbidity, and whether partnerships can be formed to find financially viable solutions to mitigate pollutant sources and impacts. One approach discussed to mitigate the impacts of runoff was "created wetlands", however, further evaluation is required before appropriate solutions can be determined.

6. Barriers and Water Diversions

Volunteers have identified five waterfalls and two areas which flow underground during low flow periods. The Wolf Hill Diversion Dam is used to divert water to Vly Reservoir for drinking water for the Town of Bethlehem. Dams also have created Lawson Lake, Helderberg Lake, and Vly Reservoir in the headwaters, and Mill Pond in Clarksville. Culverts can also act as barriers to aquatic wildlife movement, depending on how they are installed or maintained.

There are a number of culverts that have been located. Two significant culverts exist where the Feuri Spruyt tributary travels about 1/3 mile under a rock quarry; and where Upper Coeymans Creek travels about 1/3 mile under the Selkirk Rail Yards. Although natural barriers

are significant starting at the Hudson River, an inventory of barriers is not considered a priority compared to other issues such as reducing toxic inputs.

The impact of the Wolf Hill Diversion Dam on natural stream processes is not known. With the expansion of fluvial geomorphology and the understanding of stream processes, it would appear the water diversion at Wolf Hill may impact stream bedload movement, flood plain dynamics, and other stream process not previously considered. If a future opportunity presents itself, the impacts of the diversion dam should be technically evaluated.

7. Stream Stability

Stream instability can arise from a number of impacts, such as:

1. Natural stream dynamics
2. Sparse vegetative cover due to too much animal or human traffic
3. Concentrated runoff adjacent to stream banks, i.e. gullies, seepage
4. An infrequent event, such as an ice jam or low probability flood
5. Unusually large or frequent wave action
6. Significant changes in the hydrologic characteristics (typically land use) of the watershed
7. A change in the stream form impacting adjacent portions of the stream, i.e. dredging, channelization

This Plan concurs with the study by the Albany County Soil and Water Conservation District, which recommends that the stream corridor from Old Quarry Road to NY Route 9W would benefit from natural channel restoration. This initiative would require considerable resources, effort, and funding.

Another study of stream instability was completed by a graduate student along 3.5 miles of Onesquethaw Creek. (Refer to the Watershed Study, Section 7.5, p.73, for details of both of these studies). The Kisby Study recommends a number of actions:

1. Assess stream bank and channel conditions
2. Collect data about past flooding patterns and build up of surrounding land.
3. Determine desirable vegetative buffer widths
4. Prepare a detailed land use and land cover map
5. Monitor the 44 eroded sites found in the study
6. Restore existing eroded sites
7. Identify surrounding wetlands as possible correction tools
8. Evaluate the long-term pattern of channel migration and land use
9. Evaluate stream discharge and precipitation using hydrologic models

These actions can be prioritized, specifically described and understood, and their costs estimated, so that prompt response can be made if funding opportunities appear.

Community and other groups should plan field trips to view unstable areas and consider projects to stabilize banks and plant riparian vegetation.

8. Riparian Buffers

Vegetation adjacent to a stream is called riparian vegetation. It creates a filter strip and provides a buffer as it intercepts surface water runoff, wastewater, and subsurface flow. The vegetated buffer holds the soil, slows water flow velocity, reduces erosion, land loss and flooding, and the tree canopy intercepts rainfall (refer to the Watershed Study, Section 4.2, p.26)

There are several areas where riparian buffers could be enhanced with partnerships and efforts with landowners, community and recreational organizations, and agencies. Sites include, but are not limited to, the closed landfills, the long section of stream behind the cement plant, the Upper Coeymans above the rail yards, and several farms. Such efforts could be combined with recreational access, stream bank stabilization, and wildlife habitat enhancement. The OCWC and municipalities should be alert to and seek out opportunities and partnerships to pursue such projects.

9. Public Access

The stream corridor contains beautiful natural features such as waterfalls, caves, and gorges. The stream itself contains a healthy population of wild trout, which could be a significant recreational resource for the residents of the capital district. There are several parcels of riparian land owned by municipalities, but the majority of riparian land is privately owned. While the amount of posting is not considered significant, observed trends of more posting have been noted, especially after land is sold.

Trout Unlimited volunteers have started an initiative with Region 4 staff at the NYSDEC to acquire public fishing rights or other forms of more formal recreational access. The Mohawk Hudson Land Conservancy may acquire additional properties providing access to unique natural features. Community organizations, local municipalities, and agencies should be aware of opportunities to obtain land and easements for public benefit. This can occur as a result of

conservation subdivisions, or based on New York State's Town Law, Article 16, Section 277, which permits set-asides for public recreation as part of the subdivision process. Joint efforts by community organizations, municipalities, industry, stake holders, and agencies increases success.

10. Land Conservation

As development occurs, it will be difficult to restrain the amount of impervious surface created. Important vegetated open space, as well as sensitive Karst terrain and unique natural features should be proactively protected. This can be done as part of conservation subdivisions resulting from environmentally sound decisions, and by landowners who wish to protect their land. If a parcel serves a particularly important buffering function or would protect a unique natural feature, it will be important to protect that land.

Desirable features of land can be preserved through outright ownership, by obtaining an easement, or placing the land in a land trust. Several land trusts operate in the area and can be called upon to partner with municipalities and others to protect important land in the watershed; these include the Open Space Institute, the Mohawk Hudson Land Conservancy, the Catskill Center, and the Audubon Society of NYS. All watershed stakeholders should pursue opportunities to protect important land features.

11. Agriculture

Given the large amount of agricultural land in the watershed, increasing the number of farms involved in conservation programs has tremendous potential to have a significant benefit to the health of the watershed, and would greatly enhance New York's plans for developing 'agritourism' as an economic driver of growth. Presently, there are a number of conservation and environmental protection programs available at the federal, state, and county level that are being implemented by the US Department of Agriculture Farm Service Agency (USDA FSA), Natural Resource Conservation Service (NRCS), Cornell Cooperative Extension of Albany County, and the Albany County Soil and Water Conservation District. While these agencies are presently working with farms in the watershed, participation in these programs needs further attention and focus.

To increase the opportunities for grant funding and expanding agricultural enhancement programs to more farms in the watershed, municipalities should support efforts to restore a dedicated NRCS staff person to the County. The NRCS position is currently shared with another county, leaving less time to focus on outreach for new projects and pursuit of grants. There has recently been increased interest in participating in conservation programs, so it's important to have the resources available to pursue grants, conduct outreach and education about the programs, and assist farmers in navigating the program.

Addressing agricultural issues requires knowledge of agricultural practices, best management techniques, as well as sensitivity to the environmental issues that are associated with farming. Albany County is fortunate to have several experts at various agencies in Voorheesville to assist farmers with addressing these issues. It is recommended that municipalities work closely with these agencies to maximize conservation and pollution prevention programs in priority areas of the watershed. It is suggested that these agencies be consulted during comprehensive planning and zoning processes to find the best solutions for both agricultural and environmental protection. Contact information for these agencies can be found at <http://www.albanywater.org/Members.htm>

Conclusion

Success in watershed planning comes about by involving people who have a strong interest in the future of our watershed. Developing partnerships and involving the community in our watershed planning process will strengthen the foundation for its success. We are building a program with, and centered around, our communities, charting the course for new community involvement.

Watershed planning is only successful when those that live and work in the watershed realize that they are a crucial part of it, and recognize that their actions impact its health. When we are determined to protect and restore our watershed for the benefit of the entire community and future generations, it will happen. From the beginning, as we seek to heal our watershed and make it thrive, the public must be involved. This is more than a few neighborhoods or a few hamlets; it's more than our towns, and it's a big chunk of our county. Involvement is needed at every stage of the process, from developing a vision and goals, to planning for and implementing improvements. Meaningful public participation doesn't just happen. It has to be carefully thought out and planned to embrace the public and keep everyone informed about progress. This

Watershed Management Plan recommends the formation of a work group to develop implementation strategies. The work group should consist of representatives from each of the watershed municipalities, industries, land owners, the farming community, local organizations and institutions and other community stakeholders. Protecting and enhancing our water resources requires:

1. understanding the watershed and recognizing the importance of water quality,
2. recognizing the relationship among economic, social and natural processes,
3. creating a clearly defined vision for the future of our watershed,
4. establishing creative partnerships and gaining community support,
5. setting realistic goals and laying out a detailed strategy for implementation,
3. basing the plan on real, grounded priorities
4. making specific recommendations to improve water quality,
8. taking advantage of all our resources, assets and opportunities,
9. generating a sense of community ownership of the watershed,
10. sustaining improvements and continuing momentum into the future,
11. understanding that watershed planning is a dynamic process, requiring careful monitoring and timely adjustments, and
12. having the patience and persistence to get through the many phases of watershed planning, one step at a time.