
EXECUTIVE SUMMARY

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Executive Summary

Introduction

The purpose of this planning effort, the Oatka Creek Watershed Management Plan, was the formation of a long-term strategy to ensure the protection and restoration of Oatka Creek water quality and compatible land use and development. The result is this watershed management plan for the protection and enhancement of Oatka Creek. This briefing describes the Plan's discrete components and the project's process to develop strategies to protect and restore water quality within the Oatka Creek Watershed.

The Oatka Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 138,092 acres (216.8 sq. mi.) across portions of Wyoming, Genesee, Livingston and Monroe Counties of New York State. The watershed overlaps portions of 26 municipalities. The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Oatka Creek watershed has the second largest drainage area, constituting approximately 9% of the entire Genesee River Basin.

The Oatka Creek Watershed Management Plan was developed through a grant by the New York State Department of State (DOS) with funds provided to the Town of Wheatland under Title 11 of the Environmental Protection Fund.

History of Watershed Protection

Intermunicipal watershed planning began in the Black and Oatka Creek Watershed counties with the Rochester Embayment Remedial Action Plan (RAP), an area identified as an Area of Concern (AOC) since the early 1980's. Since then significant progress has been made towards improving the water quality in the Oatka Creek watershed.

Following the Caring for Creeks conference in Rochester in 1999, the Oatka Creek Watershed Committee formed. With the help of researchers at the State University of New York at Brockport, the non-profit Oatka Creek Watershed Committee developed a *State of the Basin* report in 2003. Subsequent work includes a completed a metals study throughout the watershed; initiation of a municipal outreach program; a stressed segment analysis of the Genesee and Wyoming County portions of the watershed funded through the Finger Lakes Lake Ontario Watershed Protection Alliance; completion of initial municipal outreach by the committee; an assessment of local ordinances and practices pertaining to erosion and sedimentation completed by Genesee/Finger Lakes Regional Planning Council (G/FLRPC) with funding from the Great Lakes Commission Great Lakes Basin Program for Soil Erosion and Sediment Control; and the *Oatka Creek Water Quality Assessment: Identifying Point and Nonpoint Sources of Pollution with Application of the SWAT Model*, Dale Matthew Pettenski (2012) in a thesis submitted to the Department of Environmental Science and Biology of the State University of New York College at Brockport.¹

Intermunicipal Cooperation

The basis for intermunicipal cooperation is founded in a Memorandum of Understanding (MOU) between the four counties and 26 municipal governments that geographically fall within the Oatka Creek

Watershed. The MOU will link those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization.

This “new” intermunicipal organization may replace the Oatka Creek Watershed Committee. This group can further the Plan’s goals of preserving, restoring, and enhancing the health of Oatka Creek leading efforts to implement the *Oatka Creek Watershed Management Plan*.

SECTION ENDNOTE

¹ Pettenski, Dale Matthew , *Oatka Creek Water Quality Assessment: Identifying Point and Nonpoint Sources of Pollution with Application of the SWAT Model*", (2012) in a thesis submitted to the Department of Environmental Science and Biology of the State University of New York College at Brockport, Theses. Paper 38

Watershed Plan Components

Process of Preparing the Plan

The project began in July 2009 with a meeting between project partners, including: Oatka Creek Watershed Committee (OCWC); Black Creek Watershed Coalition (BCWC); G/FLRPC; Genesee County Soil and Water Conservation District (GCSWCD); Genesee Community College; Monroe County Planning and Development; and New York State Department of State (DOS).

Following the 1998 "Caring for Creeks" conference hosted by the Rochester Area Community Foundation, the OCWC was formed to protect and improve the health of the watershed. This *Oatka Creek Watershed Management Plan*, developed from 2009 to 2014, builds on Timothy Tatakis' 2003 *Oatka Creek Watershed State of the Basin* report, prepared under the guidance of the OCWC.

The OCWC served as the core of the Oatka Creek Watershed Management Plan Project Advisory Committee (PAC), responsible for reviewing draft documents, making revision suggestions, and generally overseeing the plan's development. (Another joint Oatka Creek and Black Creek Watershed organizational meeting was held in August 2009 to encourage additional participants such as town supervisors and county agency staff.)

Regional Planning Councils are established pursuant to New York State General Municipal Law to address regional issues and assist with local planning efforts. The G/FLRPC supports watershed planning in the Oatka Creek watershed directly through the acquisition of funding sources for specific projects and indirectly through ongoing land use and water resources planning projects. County Planning departments also offer technical assistance and information regarding land use and related planning issues to municipalities.

Soil and Water Conservation Districts within each county play a critical role in the management of natural resources and agricultural activities in the Oatka Creek watershed, including applying for funding and implementing projects related to erosion and sediment reduction, streambank remediation, nonpoint source pollution control, and Agricultural Environmental Management (AEM).

Genesee Community College and the State University of New York at Brockport are very active in the Oatka Creek watershed, conducting various water quality sampling and quantity monitoring studies in support of a variety of short- and long-term projects and programs. Their independent research has significantly advanced the knowledge base within the watershed.

The New York State Department of State helps protect and enhance coastal and inland water resources and encourage appropriate land use through technical assistance for plans and projects that expand public access, restore habitats, and strengthen local economies.

The following documents are components of the Oatka Creek Watershed Management Plan, and were prepared to ultimately determine recommendations and priority projects in order to enable decision makers, stakeholders and residents to make decisions that will ultimately improve and protect the water quality of Oatka Creek and its tributaries:

- A community education and outreach program on water quality and quantity and watershed protection issues, completed in 2009;
- A characterization of the watershed and its constituent sub-watersheds, land use and land cover, demographics, natural resources, and infrastructure, completed in 2012;

- An evaluation of subwatersheds through existing water quality data, run-off characteristics, and pollutant loadings, completed in 2013;
- Establishment of a formal Intermunicipal Organization;
- Evaluation of government and non-government organizations, local laws, plans, programs, and practices that have an impact on water quality in the watershed, completed in 2013; and
- An implementation strategy, including the identification of watershed-wide and site-specific projects and other actions necessary to protect and restore water quality, completed in 2014.

A summary of each component can be found below. These documents can be found in their entirety at the websites listed in each summary section.

Community Outreach and Education

Community outreach was a significant part of the planning process. The *Community Outreach and Education Plan* was developed to clarify and define the variety of forums and outreach mechanisms used to engage people in the Oatka Creek Watershed Management Plan. Guided by the PAC, the G/FLRPC, and the respective county Soil and Water Conservation District representatives reached out to a broad set of stakeholders.

The *Community Outreach and Education Plan* report includes brief guidance on the plan's structure and process:

- Regular PAC Meetings
- Project Website
- Identification of Watershed Stakeholders
- Consultations, Discussions, and Reporting
- Special Stakeholder Focus Groups, Meetings and Key Contact Interviews
- Public Information Meetings

The *Community Outreach and Education Plan* defined the role of the Project Advisory Committee: its purpose; membership; chairperson; public participation protocol; meeting notification, scheduling, format, and location. PAC meetings were held to manage the project's progress, prepare and review draft documents, and advise the participating members of the PAC of project business or materials. Meetings of the PAC were open to the public (and used the consensus form of decision-making) to encourage broad participation among all residents and municipal officials throughout the watershed.

The PAC also included various additional "Key Contacts": representatives from each watershed community, County Planning Departments, County Soil and Water Conservation Districts, the NYS Department of Environmental Conservation, and environmental, recreational, historic preservation and economic development interests such as conservationists, boaters, and other regional recreation and trail groups.

The *Community Outreach and Education Plan* included the protocol for arranging at least two public information meetings and for outreach to special focus groups such as property owners, business owners, farmers, local highway superintendents, and local code enforcement officers. These and all PAC meetings – along with meeting minutes, publications, and draft materials – were posted on the project's website, <http://www.gflrpc.org/blackoatka.htm>.

The *Oatka Creek Watershed Management Plan: Community Outreach and Education Plan* is available at: <http://gflrpc.org/Publications/BlackOatka/OatkaCreekCommunityOutreachPlan.pdf>

Watershed Characterization Report (2012)

The Oatka Creek *Watershed Characterization Report* describes, or characterizes, the condition of natural resources and the built environment in the watershed. It is an environmental inventory containing a wealth of data on the watershed's character, including the 217 square miles of drainage areas and subwatersheds that make up Oatka Creek. The 121-page *Characterization* contains 30 maps, figures, and tables produced by project consultants at EcoLogic and the staff of the G/FLRPC. Building on previous work completed by SUNY College at Brockport researchers for the 2003 *Oatka Creek Watershed – State of the Basin* report¹, the *Characterization* report is the most comprehensive scientific report on Oatka Creek to date.

The Oatka Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 138,092 acres (216.8 sq. mi.) across portions of Wyoming, Genesee, Livingston and Monroe Counties of New York State. The watershed overlaps portions of 26 municipalities. The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Oatka Creek watershed has the second largest drainage area, constituting approximately 9% of the entire Genesee River Basin.

The primary water quality issues in Oatka Creek are nutrients, invasive species, and contaminants. Streambank erosion and agriculture were cited as the suspected sources of the excessive nutrients and sediments. Failing on-site wastewater disposal systems were cited as an additional source in one segment of Oatka Creek.

The *Characterization* report is comprised of the following sections:

1. Project Overview and Background
2. Description of the Study Area
3. Physical Characteristics of the Watershed
4. Planning Considerations
5. Surface Water Chemical Characteristics
6. Biological Characteristics of the Watershed
7. Watershed Runoff Export Coefficients
8. Identification of Impairments and Threats

Project Overview and Background

This section describes the history of past Oatka Creek watershed planning efforts and the background of the current plan, including the intermunicipal – yet separate – planning effort with Black Creek. The *Characterization* report is intended to facilitate the development of an overall strategy to protect and restore water quality within the Oatka Creek watershed by establishing a reliable inventory of existing vital and accurate information, identifying any significant knowledge gaps, and building on previous work already begun in the *State of the Basin* report.

Description of the Study Area

This section provides an overview of the study area and explains how a watershed can be defined and delineated. A watershed may be described as a geographic area of land drained by a river and its tributaries to a single point. A watershed's boundaries are generally defined by the highest ridgeline

around the stream channels that meet at the lowest point of the land; at this point, water flows out of the watershed into a larger river, lake, or ocean. Watersheds can be small and represent a single river or stream within a larger drainage network or be quite large and cover thousands of square miles.

The Oatka Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 138,092 acres (216.8 sq. mi.) across portions of Wyoming, Genesee, Livingston, and Monroe Counties of New York State. The watershed overlaps portions of 26 municipalities:

- Wyoming Village
- Town of Castile
- Town of Byron
- Scottsville Village
- Town of Riga
- Town of Bergen
- Caledonia Village
- LeRoy Village
- Warsaw Village
- Town of Caledonia
- Town of Bethany
- Town of Perry
- Town of Orangeville
- Town of Stafford
- Town of Gainesville
- Town of Middlebury
- Town of Wheatland
- Town of Covington
- Town of Warsaw
- Town of Pavilion
- Town of LeRoy

(The Town of York, Gainesville Village, the Town of Wethersfield, the Town of Chili, and the Town of Castile have less than 2% of their total land area within the watershed and thus were excluded from detailed analysis in this report.) The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Oatka Creek watershed has the second largest drainage area, constituting approximately 9% of the entire Genesee River Basin.

The USDA's National Resource Conservation Service designates all water bodies in the United States through hydrological units, or HUCs. The Oatka Creek is a Fifth level, or watershed HUC, with the assigned 10-digit HUC # 0413000304. The Oatka Creek HUC has six subwatersheds, all assigned a 12-digit HUC: Oatka Creek Headwaters (041300030401); Pearl Creek (041300030402); White Creek (041300030403); Mud Creek (041300030404); Village of LeRoy (041300030405); and the Oatka Creek Outlet (041300030406).

An ecoregion is a biological designation useful for making comparisons in ecosystems by type, quality, and quantity of environmental resources. The Oatka Creek sits in a Level IV ecoregion known as the

Ontario Lowlands, largely defined by the extent of glacial Lake Iroquois. (A very small area of the southern-most portion of the Oatka Creek watershed is located in the Cattaraugus Hills and the Finger Lakes Uplands and Gorges ecoregions.) The relative proximity of the Ontario Lowlands ecoregion to Lake Ontario tempers its climate, so that summer heat and winter cold are lessened. The climate in and around the Oatka Creek watershed is generally defined as humid-continental and the average annual precipitation in the Oatka Creek watershed ranges between 33 and 43 inches per year, depending on the location within the watershed.

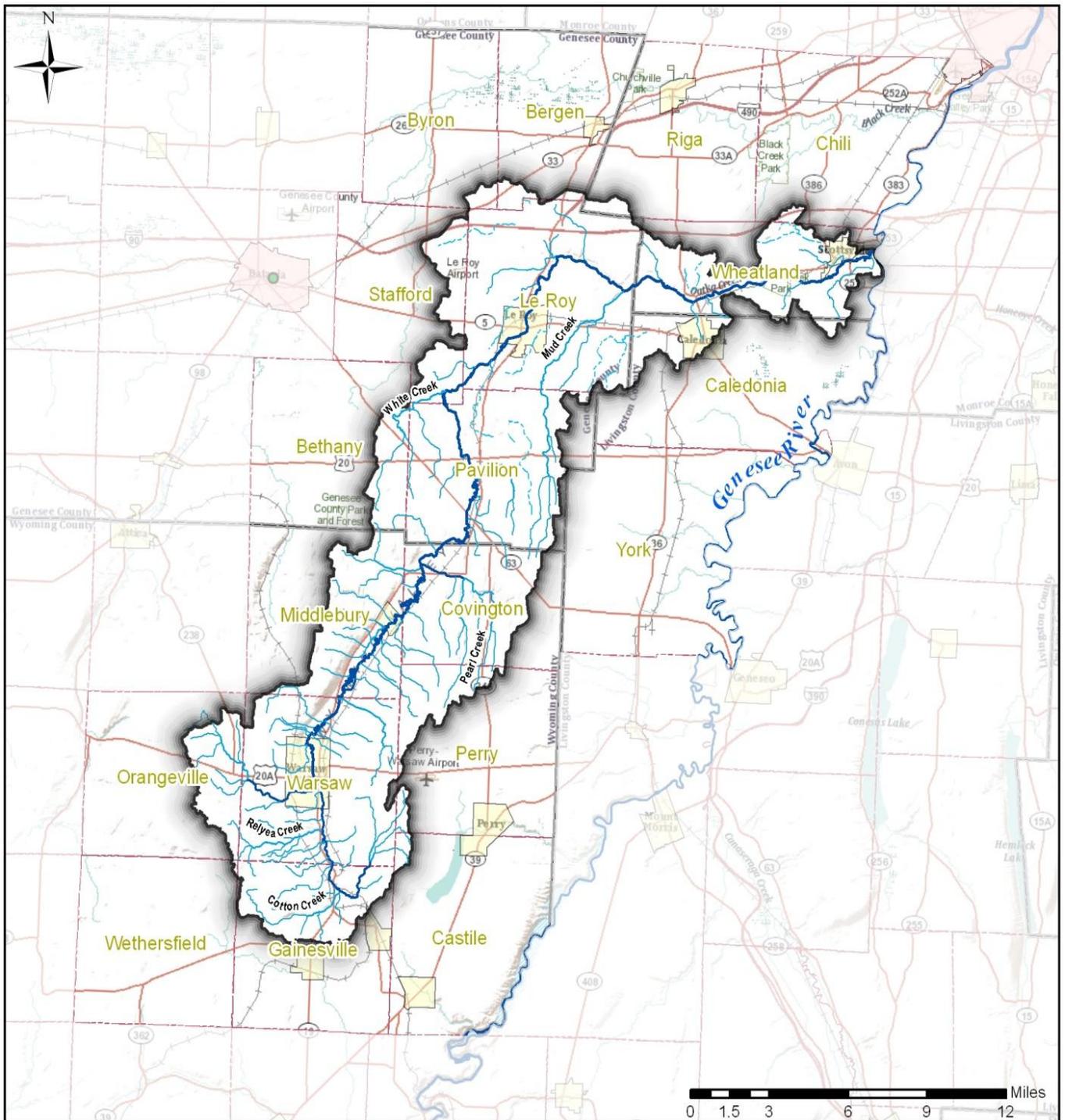
Physical Characteristics of the Watershed

The physical makeup of the Oatka Creek watershed is explained through bedrock and surficial geology, location of mines, geomorphology, geography, hydrology, climate, soils, elevation, demographics, and land use (including a build-out analysis). Much of the physical form of the Oatka Creek watershed is owed to the long-ago advancement and retreat of glaciers, and the modern streams that resulted still flow in low floodplain areas and nourish wetland swamps and deposit alluvial sediments. The dissolution of soluble rocks such as the limestone, dolostone, and gypsum in the bedrock of the Oatka Creek watershed have resulted in karst areas, underground drainage systems sensitive to fertilizer application and with potential for groundwater contamination.

About 44% of the soils in the Oatka Creek watershed have a moderately low runoff potential and just over 50% have a moderately high to high runoff potential. About four percent of the acreage in the Oatka Creek watershed sits at or below the 100-year flood elevation, further illustrating the importance of watershed planning in a future of higher levels of precipitation. Groundwater flows northward from the Allegheny Plateau and discharges into Lake Ontario. Deviations from this path may locally be affected by discharges into surface waters or withdrawal from surface waters. Oatka Creek's headwaters originate at 1,941 feet above sea level in the Town of Orangeville.

More than half (53.7%) of the land in the Oatka Creek watershed – over 72,000 acres – is used for agricultural purposes, largely pasture hay and cultivated crops. The watershed is 23% residential, 11.8% vacant, and 1.4% wild, forested or conserved lands. The watershed has a relatively low percentage of impervious cover, though more research is needed to quantify the areas of effective impervious cover in its urbanized areas.

Figure 1: Municipalities of the Oatka Creek Watershed



Planning Considerations

This section provides an overview of organizational structures, land uses, and regulatory measures relevant to environmental planning in the Oatka Creek watershed, beginning with the history of research, planning, and assessment on the Rochester Embayment Remedial Action Plan in the late 1980's. This section also contains information on federal, state, and local government entities as well as local regulations in the watershed, a topic further explored in the subsequent *Regulatory and Programmatic Environment Report*.

The watershed's 2000 estimated population is just fewer than 28,000 people. The most significant population increases are concentrated in the municipalities near the outlet of the watershed, which are also the most suburbanized towns in the watershed. An estimated build-out analysis is available in Table 4.12.

There are over 520 center-line miles of roads and 55 major bridges which cross a hydrologic feature in the Oatka Creek watershed. Centralized sewer systems are located in most of the villages in the watershed, excluding the Villages of Wyoming and Caledonia. Nearly all the public acreage in the watershed is in a land trust, easement, or is county and municipal parkland. In addition, the Village of Warsaw owns and maintains 354 acres of land in the Oatka Creek headwaters as part of its municipal water supply system. There are over 100 miles of officially-designated snowmobile trails within the watershed.

As agriculture is the dominant land use within the Oatka Creek watershed, this section also dedicates extensive analysis to agricultural districts and the local impact of New York State's Agricultural Environmental Management (AEM) and the State Pollution Discharge Elimination System (SPDES) programs. Following this is an examination of pollutants in the watershed, including permittees governed by SPDES, EPA regulated facilities, hazardous waste sites, spills, and landfills.

Surface Water Chemical Characteristics

This section explains the science behind water quality criteria, data collection, and its subsequent analysis in relation to the classification of surface waters in the state (precluded, impaired, stressed, or threatened.) Much of Oatka Creek is classified as stressed.

This section also includes a water quality data summary which further explains the data collection and monitoring results over many decades in the Oatka Creek, including statistics for concentrations of phosphorus, nitrogen, and total suspended solids (TSS).

Biological Characteristics of the Watershed

This section analyzes collected data on coliform bacteria from on-site wastewater disposal systems (septic systems), wastewater treatment facilities and animal feeding operations, including pastured animals with access to streams, confined animal feeding operations (CAFOs), and run-off from manured fields. It also presents data on macroinvertebrates, fish, birds, and other species that call the creek home.

Watershed Runoff Export Coefficients

An export coefficient model estimates annual loss of water and materials from the landscape. The predictions of phosphorus loading in the Oatka Creek watershed (the sum of land cover and discharge loading) were compared with recent USGS data from the Oatka Creek at Garbutt monitoring site. The model estimates were close to the values obtained by USGS.

Identification of Impairments and Threats

This section summarizes a complex and varied group of watershed “issues” organized into specific categories that lay the groundwork for a completed watershed strategy and subsequent implementation program, including agriculture, climate change, failing septic systems, habitat fragmentation, industrial and municipal discharges, nuisance and invasive species, spills, contamination, stormwater management, streambank erosion, and water quantity, flow, and channel maintenance.

These water quality issues identified in the *Oatka Creek Watershed Characterization Report* were considered and evaluated to formulate specific practices, approaches and strategies to better protect, restore and enhance water quality and watershed functions of Oatka Creek in the final component of the watershed plan, the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule*.

The *Oatka Creek Watershed Management Plan: Characterization Report* is available at : <http://gflrpc.org/Publications/BlackOatka/Characterization/OatkaCreekWatershed/FinalOatkaCharacterization.pdf>

Subwatershed Report (2013)

The *Subwatershed Report* provides a description of Oatka Creek’s natural features such as hydrology, floodplains, and wetlands. Along with consideration of water quality within the subwatersheds or stream segments, the report evaluates Oatka Creek’s subwatersheds according to impairments and/or threats to water quality and habitat, and identifies priority subwatersheds for focused, nonpoint source pollution management action.

The upstream portion of the watershed includes the Oatka Creek Headwaters and Pearl Creek subwatersheds. Pearl Creek is the largest subwatershed. In general these two subwatersheds are relatively undeveloped with a low percent of impervious cover, high percent of forest cover, riparian cover and agricultural uses, and fairly low population density. The mid-section of the Oatka Creek Watershed, the White Creek and Mud Creek subwatersheds, are characterized by relatively low impervious cover and forest cover, a high percentage of wetlands in the case of the White Creek subwatershed and agricultural uses, and fairly low population density. The downstream portion of the Oatka Creek Watershed, the Village of LeRoy and Oatka Outlet subwatersheds are large subwatersheds with relatively high population density and agricultural uses, relatively low forest and riparian cover, and in the case of the Oatka Creek Outlet subwatershed, very high impervious cover.

Also included in the report is more recent analysis based on water quality information found in the *Oatka Creek Water Quality Assessment: Identifying Point and Nonpoint Sources of Pollution with Application of the SWAT Model*,² Dale Matthew Pettenski’s 2012 thesis submitted to the Department of Environmental Science and Biology of the State University of New York College at Brockport.

The *Oatka Creek Watershed Management Plan: Subwatershed Report* is available at: <http://gflrpc.org/Publications/BlackOatka/Subwatershed/OatkaCreekSubwatershedReport.pdf>

Regulatory and Programmatic Environment Report (2013)

A *Regulatory and Programmatic Environment Report* is an assessment of federal, state, and local laws, programs and practices that affect water quality was conducted for the entire watershed, in order to determine gaps between present laws/practices and model best management practices (BMPs), and to

provide specific recommendations to each watershed municipality to address those gaps and improve water quality. Each municipality was provided with its own individual assessment based on a review and evaluation of laws, practices, and plans.

Many of the gaps in local laws and practices across the watershed are similar. Recommendations are specifically presented for each municipality based on the report, but also refer to recommendations that are applicable to multiple municipalities, such as amending a comprehensive plan or developing subdivision regulations. These recommendations may be used as a starting point to help municipalities and counties hone in on top priorities, determine what additional information is needed, and what steps are needed for implementation.

Generally, the regulatory deficiencies found in the *Regulatory and Programmatic Environment Report* are related to on-site wastewater management, lack of stream or riparian buffers, and lack of oversight in floodplain development. Additionally, a number of municipalities within the watershed are utilizing obsolete or incomplete comprehensive plans and zoning ordinances. This is directly reflected in the planning matrix, in both the sections on Wastewater Treatment Systems and Management as well as Regulatory Management. The highest recommendation, consistently prioritized across the planning matrix, is the adoption of stream buffer setbacks to reduce the amount of harmful runoff and sedimentation caused by land use activities, achieved through an environmental protection overlay district (EPOD) or setbacks from waterbodies within the zoning code. The other highly prioritized actions are related to water quantity, water quality, and flood management, such as a requirement for new developments to maintain the volume of runoff at predevelopment levels and an ordinance to prohibit development in 100-year floodplains and to restrict the location of barnyards and manure pits in these areas.

Water quality management is a regional issue and thus collaboration and standardization of strategies can be beneficial to all. The inclusion of some standardized recommendations is intended to facilitate the sharing of information between counties and municipalities; collaboration and standardization can make initial efforts more efficient and allow groups to focus on implementation work. Some examples of recommendations proposed to improve water quality through the reduction of nonpoint source pollution focus on increased participation in Agricultural Environmental Management Program; creation of riparian buffers; strengthened floodplain, onsite wastewater treatment, and subdivision regulations; development of green infrastructure standards; updating site review procedures; and recommendations based on stream monitoring, best management practices and education and outreach. Recommendations found in the *Regulatory and Programmatic Environment Report* are grouped together by municipality, and can also be cross-referenced in the overall implementation matrix.

The *Regulatory and Programmatic Environment Report* provides a broad overview of the regulatory and programmatic environment in the Oatka Creek watershed as well as specific analysis of the land use laws governing 21 municipalities – excluding five municipalities that have less than 2% of their total land area within the watershed – and four counties. The assessment is intended to determine gaps between present laws/practices and model best management practices (BMPs).

The assessment contains:

- Evaluation of government and non-government roles:
 - Descriptions of local, county, regional, state, and federal organizations that have an impact on water quality in the watershed
- Analysis of local laws, plans, programs, and practices affecting the watershed:

- Assessment of local laws, plans, programs, and practices based on water quality best management practices (BMPs);
- Recommendations for priority additions or changes to local laws, plans, programs, and practices.

The *Oatka Creek Watershed Management Plan: Regulatory and Programmatic Environment Report* is available at: <http://gflrpc.org/Publications/BlackOatka/RegProgEnv/Oatka/index.htm>

Intermunicipal Cooperation and Intermunicipal Organization

The basis for intermunicipal cooperation is founded in a Memorandum of Understanding (MOU) between the four counties and 26 municipal governments that geographically fall within the Oatka Creek Watershed. The MOU would link those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization. Article 12-C of New York State General Municipal Law authorizes formation of joint survey committees for this purpose.

The recommended Intermunicipal Organization Memorandum of Understanding (IO MoU) can help municipalities work together to implement the Watershed Management Plan – ultimately preserving, restoring, and enhancing the health of Oatka Creek through efforts in adopting improved ordinances, greater code enforcement, water monitoring, and staff training.

For more information on Intermunicipal Cooperation, please consult the Local Government Management Guide³ published by the New York State Office of the State Comptroller. It contains a wealth of information on recommended practices, cooperative studies, communication between parties and stakeholders, and how best to implement an intermunicipal agreement.

An example Intermunicipal Organization MOU is available at: <http://www.gflrpc.org/Publications/BlackOatka/WMP/DraftOatkaMoU.pdf>.

SECTION 2.0 ENDNOTES

¹ Tatakis, Timothy. *Oatka Creek Watershed – State of the Basin*. December 2002.

<http://www.oatka.org/Reports/StateofBasin.pdf>

² Pettenski, Dale Matthew, *Oatka Creek Water Quality Assessment: Identifying Point and Nonpoint Sources of Pollution with Application of the SWAT Model*. Environmental Science and Biology Theses, Paper 38. 2012.

http://digitalcommons.brockport.edu/cgi/viewcontent.cgi?article=1037&context=env_theses

³ New York State Office of the Comptroller, Division of Local Government and School Accountability. *Local Government Management Guide: Intermunicipal Cooperation*. November 2003.

<http://www.osc.state.ny.us/localgov/pubs/lmgm/intermunicipal.pdf>

Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule

Recommendations were developed in order to address a number of areas of concern. These recommendations are presented in the *Regulatory and Programmatic Environment Report* and *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* sections. The matrix in this section represents the culmination of years of deep research into the current conditions of Oatka Creek. The matrix includes recommendations that are presented in the *Regulatory and Programmatic Environment Report* section, and shows specific steps and strategies needed to complete an action, the groups responsible for completing the actions, and the timeline by which the tasks must be completed.

The matrix includes priority assignments, actions, objectives, steps, strategies, anticipated reductions and water quality improvements, benefits, related issues, lead organizations, potential funding sources, long- and short-term measures, approximate cost, and regulatory approvals in the following areas of concern for Oatka Creek:

Coordination, Collaboration & Partnership Recommendations – This set of recommendations addresses the need for improved collaboration amongst watershed municipalities, citizens and stakeholders; addresses the need for continuous water resource related monitoring activities; and identifies specific educational opportunities. The strongest recommendations are to present information on achievements in watershed planning to municipal boards and to develop an intermunicipal organization. Shared practice allows for better design, better maintenance, and economic incentives that can deliver higher performance and lower cost. Specific recommendations pertaining to Coordination, Collaboration & Partnership opportunities can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Agriculture – Farming can have a negative effect on water quality through erosion of crop land, sedimentation, and runoff contaminated with fertilizers or animal wastes. This section includes some of the highest prioritized actions of all the recommendations in the watershed, including the creation of riparian buffer zones around streams adjacent to agricultural land, the encouragement of farm participation in NYS Agricultural Environmental Management (AEM) program and the development of Comprehensive Nutrient Management Plans (CNMPs) tailored to all farms in the watershed. Further specific recommendations pertaining to agriculture can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Stormwater Management & Erosion Control – Stormwater runoff contains pollutants such as nutrients, pathogens, sediment, toxic contaminants, and oil and grease, resulting in water quality problems. This section's highest recommendation is to restore severely eroded streambank segments, focusing on restoring these critical processes that form, connect, and sustain habitats. Protecting these stream banks is vital to controlling sediment loading and maintaining the rock structures. Vegetation helps prevent erosion. Thus the other highest priority in this category is the revision of land use laws to require new developments to maintain the volume of runoff at predevelopment levels by using structural controls and pollution prevention strategies. Further specific recommendations pertaining to stormwater management and erosion control can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Forestry and silviculture management – Loss of large trees to the creek and poor maintenance of existing trees along the creek edge highlights one of the top overall recommendations in the watershed: the encouragement of private landowners to apply sound forest management practices based on the NYS Forestry Best Management Practices for Water Quality guide. Sustainable forestry balances preserving the integrity of our forests with economic development and maintaining our diverse wildlife population while minimizing damage to the agriculture and rural communities. An array of tools is available from the New York State Cooperative Forest Management Program; further details are available in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

On-Site Wastewater Management Systems (OWTS) – The number one source of nonpoint source pollution in New York State is on-site wastewater treatment systems. The highest recommendation in this category is to secure a funding stream to bring substandard septic systems into compliance, based on the classification of substandard OWTS. Substandard OWTS are defined as systems that are piped directly to surface waters, in close proximity to the surface or groundwater, or discharging directly to the surface. Further specific recommendations pertaining to on-site wastewater treatment systems can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Wastewater Treatment Plant Systems (WWTPS) – One of the highest overall recommendations for the Oatka Creek watershed is to upgrade some WWTPs to tertiary treatment or consider closing and transferring sanitary flows. Further specific recommendations pertaining to wastewater treatment systems and management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Hazardous Waste Management – Highly-ranked priorities in the Oatka Creek watershed are determining the location of inactive or unpermitted landfills; implementing a watershed-wide hazardous waste pick-up or drop-off; and preventing discharge of pharmaceuticals through community collection programs and by promoting best management practices and process changes at health care institutions, livestock and food industries, and other manufacturers. Educating the public and providing an opportunity to safely dispose of hazardous products keeps dangerous wastes out of landfills, lowering the environmental risks associated with improper disposal. Further specific recommendations pertaining to hazardous waste management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Roads and Highways – The highest-ranked priority in this section is educating municipal and county highway departments on ditch and culvert design and stream bank stabilization methods. Paved development has the highest coefficient of runoff, and thus highway departments have a very important role in preserving watershed quality. Further specific recommendations pertaining to highway department practices can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Wetlands, Riparian Zones, and Floodplains – Floodplains act as a check valve for streams; they allow water to be slowed down, to dissipate energy after a rainstorm or snow melt. The original analysis of the 100-year base flood elevation developed for the *Oatka Creek Watershed Characterization Report* indicated that 4.4% of the total land areas within the Oatka Creek watershed are within this zone, known as a Special Flood Hazard Area (SFHA). FEMA’s 2014 draft Discovery report indicates an average

annualized loss of \$5.7B concentrated around Oatka Creek, Black Creek, the Genesee River, and Spring Creek, making this a critical recommendation area both environmentally and economically. The highest recommendation under this heading is for all municipalities that do not presently deal sufficiently with flood plain development within local law to adopt ordinances prohibiting development in 100-year floodplain, and further restricting the location of barnyards and manure pits. More specific recommendations pertaining to wetlands, riparian zones, and floodplains can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Regulatory management – The highest recommendation is for the enforcement of the aforementioned floodplain development controls. Two other highly prioritized regulatory recommendations pertain to the building blocks of local land use: zoning and comprehensive plans. The highest recommendation is to adopt stream buffer setbacks to reduce the amount of harmful runoff and sedimentation caused by land use activities, achieved through an environmental protection overlay district (EPOD) or setbacks from waterbodies within the zoning code. Another highly prioritized action is the drafting (or revision) of comprehensive plans in municipalities without one, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek watershed and other neighboring watersheds within the municipality. A number of municipalities within the watershed are utilizing obsolete or incomplete comprehensive plans. Further specific recommendations pertaining to regulatory management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Nutrient and contaminant inputs to surface waters – Continuing the emphasis on nutrient loading and sediment reduction strategies, this section covers recommendations ranging from the highest prioritized action, the development of nutrient and sediment reduction strategies for Oatka Creek subwatersheds, to community outreach about green chemistry, safe disposal of household hazardous waste, and the assessment of contaminants present in fish and wildlife populations. Further specific recommendations pertaining to the reduction of nutrient and contaminant inputs to surface waters can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

Natural Resource and Habitat Protection – The highest ranked priority is the preparation and implementation of a comprehensive invasive species management plan as well as leadership and support for further research and monitoring to improve early detection and management of invasive species. The Finger Lakes PRISM (Partnership for Regional Invasive Species Management) is a cooperative partnership in central New York focused on reducing the introduction, spread, and impact of invasive species through coordinated education, detection, prevention and control measures. Other related recommendations pertaining to invasive species can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

The complete *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section can be found at: <http://www.gflrpc.org/Publications/BlackOatka/IdDesMgmtPrac/IdentificationandDescription091514Oatka.pdf>.

Next Steps

The basis for intermunicipal cooperation was founded in a Memorandum of Understanding (MOU) between the four counties and 26 municipal governments that geographically fall within the Oatka Creek Watershed. The MOU would ink those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization.

This “new” intermunicipal organization (IO) could combine with the OCWC. This group can further the Plan’s goals of preserving, restoring, and enhancing the health of Oatka Creek through efforts through overseeing the implementation of the *Oatka Creek Watershed Management Plan*.

The Memorandum of Understanding document does not request or require funding from municipalities. OCWC members (agencies, DEC, etc.) and municipalities not in the watershed but with interest in creek water quality may be non-voting *ex-officio* members of the IO. The importance of the watershed management plan in accessing grant funding for implementation of water quality protection measures was emphasized.

The key next steps for the Oatka Creek Watershed Management Plan’s advancement are:

- OCWC and the PAC continuing to work with municipalities to sign the IO/MOU;
- An organizational meeting of the IO scheduled by the end of 2014;
- OCWC continuing its mission to provide representation of all important sectors in the Oatka Creek Watershed and to facilitate the development of a watershed management plan for use by municipalities, stakeholders and individuals for the conservation and protection of the Oatka Creek watershed;
- Implementation of the Oatka Creek Watershed Management Plan; and
- Finding funding for the advancement of research in identified knowledge gaps, as delineated below.

As the data and related information reported in the *Characterization* is not exhaustive, pursuing funding to close gaps in knowledge is essential. The following specific gaps in research and monitoring criteria should be considered when seeking and applying for implementation funding:

- Securing a funding stream to classify and bring substandard septic systems into compliance;
- Continue to partner with FEMA’s Discovery Risk MAP (Mapping, Assessment, and Planning) program to identify communities and areas at risk of flooding and solutions for reducing that risk;
- Monitoring of fish and macroinvertebrate distributions, heavy metal concentrations, and other associations in the watershed’s tributaries;
- Linkages between stream corridors, sediment transport, and habitat availability and quality; and
- Developing a historical record of heavy metals, organic and other potentially toxic compounds for the watershed.