

Genesee/Finger Lakes Regional Planning Council



Controlling Sediment in the Black and Oatka Creek Watersheds

Municipal Law Review and Analysis

June 2006

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Front Cover: *Agricultural BMP – CREP vegetative stream buffer along a tributary of Spring Creek at sunset, south side of Searls Road, Town of Byron.*
Credit: Jason Haremza, Spring 2004

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A report submitted to the Great Lakes Commission in fulfillment of Task 3 of the overall requirements for the “Controlling Sediment in the Black and Oatka Creek Watersheds” project. This report was partially funded by the Great Lakes Commission Program for Soil Erosion and Sediment Control.



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GENESEE/FINGER LAKES
Regional Planning Council

Mission Statement

The Genesee/Finger Lakes Regional Planning Council (G/FLRPC) will identify, define, and inform its member counties of issues and opportunities critical to the physical, economic, and social health of the region. G/FLRPC provides forums for discussion, debate, and consensus building, and develops and implements a focused action plan with clearly defined outcomes, which include programs, personnel, and funding.

Table of Contents

I. Executive Summary	1
II. Introduction	3
III. Assessment Approach	5
<i>Table 3-1: Basic Land Use Inventory.....</i>	<i>5</i>
<i>Compilation and Ranking of Best Management Practices</i>	<i>5</i>
<i>Laws vs. Practices.....</i>	<i>5</i>
<i>Independent Organizations and Special Jurisdictions.....</i>	<i>6</i>
<i>Assessing Level of Implementation</i>	<i>6</i>
<i>Summary of Assessment Results.....</i>	<i>7</i>
<i>Table 3-2: Example of a Municipal Summary Table of Assessment Results.....</i>	<i>7</i>
IV. Summary of Major Findings	8
<i>Major Findings and Model Best Management Practices</i>	<i>8</i>
<i>Section 1: Development.....</i>	<i>8</i>
<i>Section 2: Forestry and Agriculture</i>	<i>10</i>
<i>Section 3: Waterways and Wetlands.....</i>	<i>12</i>
<i>Section 4: Recreation</i>	<i>14</i>
<i>Section 5: Roads and Bridges.....</i>	<i>15</i>
<i>Section 6: Onsite Wastewater Treatment Systems</i>	<i>18</i>
<i>Table 4-1: Regulations Regarding OWTS Inspection within Black and Oatka Watershed</i>	
<i>Counties.....</i>	<i>19</i>
V. Municipal Summaries.....	21
<i>Wyoming County</i>	<i>22</i>
<i>Town of Covington.....</i>	<i>23</i>
<i>Town of Gainesville</i>	<i>26</i>
<i>Town of Middlebury</i>	<i>30</i>
<i>Town of Orangeville.....</i>	<i>34</i>
<i>Town of Perry</i>	<i>38</i>
<i>Town of Warsaw</i>	<i>42</i>
<i>Village of Warsaw</i>	<i>46</i>
<i>Village of Wyoming.....</i>	<i>50</i>
<i>Genesee County</i>	<i>53</i>
<i>Town of Batavia.....</i>	<i>54</i>
<i>Town of Bergen.....</i>	<i>58</i>
<i>Village of Bergen.....</i>	<i>62</i>
<i>Town of Bethany.....</i>	<i>65</i>
<i>Town of Byron</i>	<i>69</i>
<i>Town of Elba</i>	<i>73</i>
<i>Town of LeRoy.....</i>	<i>76</i>
<i>Village of LeRoy.....</i>	<i>79</i>
<i>Town of Pavilion.....</i>	<i>82</i>
<i>Town of Stafford</i>	<i>86</i>
<i>Orleans County.....</i>	<i>89</i>
<i>Town of Clarendon</i>	<i>90</i>

Livingston County	94
<i>Town of Caledonia</i>	<i>95</i>
<i>Village of Caledonia</i>	<i>98</i>
Monroe County.....	101
<i>Town of Chili.....</i>	<i>102</i>
<i>Village of Churchville.....</i>	<i>106</i>
<i>Town of Ogden</i>	<i>109</i>
<i>Town of Riga</i>	<i>112</i>
<i>Village of Scottsville</i>	<i>115</i>
<i>Town of Sweden.....</i>	<i>118</i>
<i>Town of Wheatland</i>	<i>121</i>
 Appendices	 I
<i>A: Area Figures.....</i>	<i>II</i>
<i>B. Rate of Development</i>	<i>IX</i>
<i>C. GIRAS Land Cover.....</i>	<i>X</i>
<i>D. Glossary/List of Acronyms</i>	<i>XI</i>
<i>E. List of Contacts</i>	<i>XII</i>
<i>F. Municipal Assessment Form.....</i>	<i>XIV</i>

I. EXECUTIVE SUMMARY

The *Controlling Sediment in the Black and Oatka Creek Watersheds* project was funded in part by a grant awarded by the Great Lakes Commission (GLC) Program on Erosion and Sediment Control. As stated on the GLC website, the Program's purpose is to "protect and improve water quality in the Great Lakes by reducing soil erosion and controlling sedimentation through financial incentives, information and education, and professional assistance."¹

The project consists of five major components:

- **Task 1** – Erosion and Sediment Control - Municipal Meetings (Black Creek)
- **Task 2** – Report: *Identification and Analysis of the Riparian Corridor in the Black and Oatka Creek Watersheds*
- **Task 3** – Report: *Municipal Law Review and Analysis*
- **Task 4** – Report: *Water Resources Issue Identification*
- **Task 5** – Assistance to the Towns of Bethany, Sweden and Warsaw in Revising Local Laws

Funds for this project were applied for in February 2004 and awarded in June 2004. Tasks 1 and 2 were completed in autumn of 2005; tasks 3, 4 and 5 were completed in June 2006.

This report is intended to satisfy the requirements of *Task 3: Municipal Law Review and Analysis*. The document consists of two primary components:

- An overview of model best management practices pertaining to erosion and sediment control and other nonpoint source water quality issues within the study area and throughout the region; and
- Individual municipal summaries of findings of the local law review and analysis for each of the 28 towns and villages contained within the study area.

The second component – municipal summaries – represents the bulk of data compiled for this report. This section summarizes the findings of a comprehensive review and assessment of municipal local laws with regard to erosion and sediment control and other nonpoint source water quality issues. Data for each town and village was gathered and entered into an individual assessment form; this information was then used to summarize findings and draw basic conclusions regarding erosion and sediment control capabilities. Due to their large volume, each completed form could not be included in this report; each form, however, can be viewed and downloaded in its entirety at the project website listed on the following page.

Final documents will be mailed to the highest elected official in each municipality. *Appendix F* of these documents will include a copy of the assessment form that was compiled for the respective municipality. For readers accessing this document online, a blank generic form will replace customized forms; however, completed assessment forms are available for download

¹ Great Lakes Commission Program on Erosion and Sediment Control. <http://www.glc.org/basin/background.html>. Last visited 6/5/06.

through the project website listed below.

All information related to Tasks 1–5 of this project – including background information, fact sheets, forms and completed reports – may be viewed and downloaded at the following webpage:

Project Website:

<http://gflrpc.org/Publications/ControllingSediment/ControllingSediment.htm>

All documents related to Task 3 – including this final report and individual municipal summary forms – may be accessed at the following webpage:

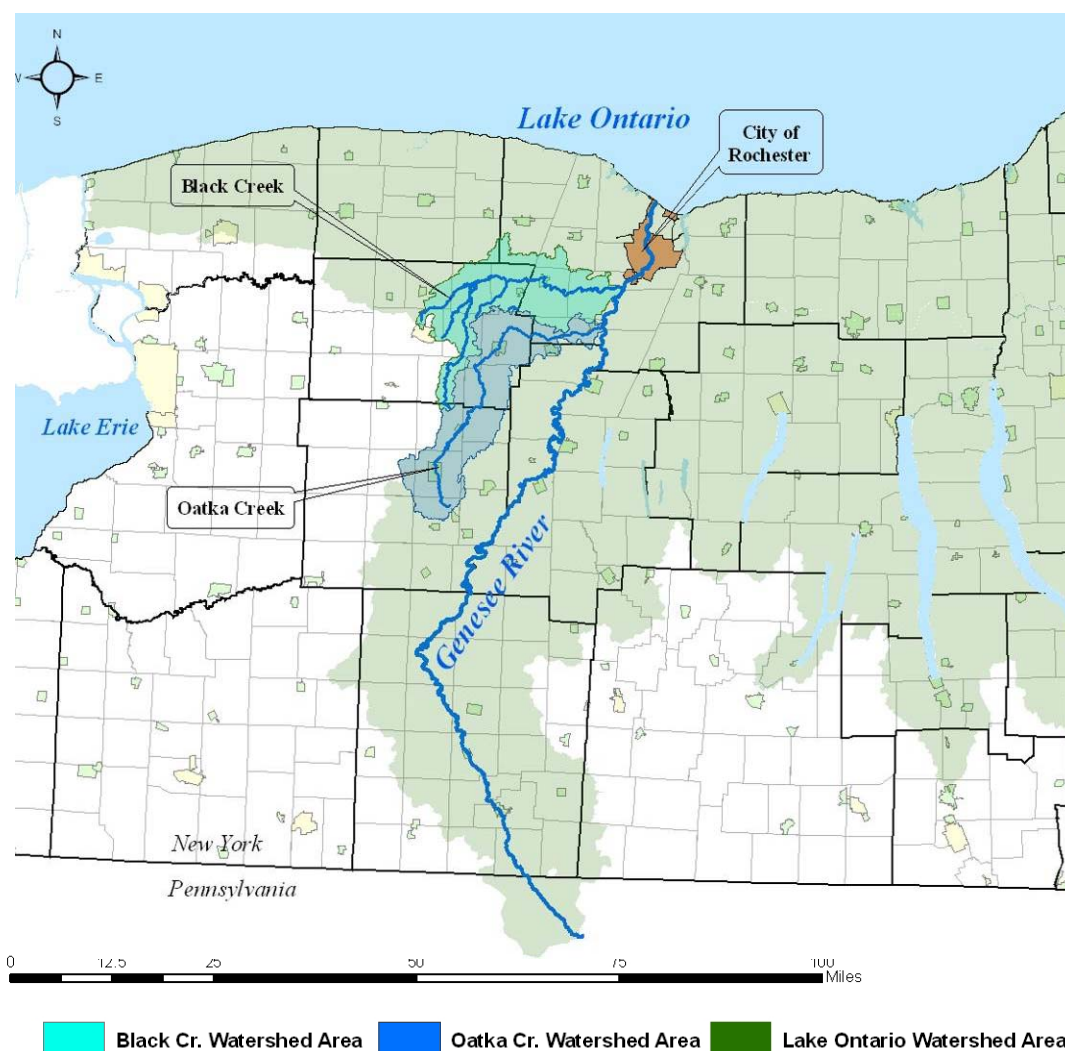
Task 3: Municipal Law Review and Analysis

<http://gflrpc.org/Publications/ControllingSediment/Assessment/ReviewAnalysis.htm>

II. INTRODUCTION

The assessment of local laws and their relationship to erosion and sediment control in the Black Creek and Oatka Creek watersheds was initiated in early 2005 by Genesee/Finger Lakes Regional Planning Council in fulfillment of Task III of the *Controlling Sediment in the Black and Oatka Creek Watersheds* project. This process began by conducting a general land use regulation inventory which focused on three primary building blocks of land use control in New York State: the comprehensive plan, zoning, and subdivision regulation. The 28 municipalities within the two watersheds vary significantly in terms of area, demographics and geography. While such regulations are common among most municipalities in New York State, the presence of these basic components of land use control can not be assumed. Results of this basic land use inventory can be found in Chapter 3.

Overview of the Black and Oatka Creek Watersheds/Lake Ontario Drainage



Subsequently, a much more detailed assessment was conducted using a ‘best management practices’ (BMP) assessment tool. This tool was originally developed by the New York State Department of State Division of Coastal Resources for use with the Long Island South Shore Assessment and Lake George Watershed Assessment – projects initiated in the late-1990s. The form was adopted and modified by G/FLRPC for use in the *Local Laws to Protect Finger Lakes Water Quality* project (completed in 2005). In an effort to better reflect the issues and concerns particular to residents and officials in the Black Creek and Oatka Creek watersheds, the assessment tool was modified further for use in this project.

The entire assessment process was conducted in order to gain a thorough understanding of existing local laws, ordinances, and practices, many of which impact land use and ultimately water resources in the two watersheds. The BMP assessment form lists 130 individual best management practices which are divided into six primary categories, as shown below.

1. Development

- Existing Development
- New Development and Substantial Redevelopment

2. Forestry and Agriculture

- Forestry
- Agriculture

3. Waterways and Wetlands

- Modified Waterways
- Wetlands and Riparian Area Management and Restoration

4. Recreation

- Golf Courses

5. Roads and Bridges

- Existing Roads and Bridges
- New Roads and Bridges
- All Roads and Bridges (existing and new)

6. Onsite Wastewater Treatment Systems (OWTS)

- (There are no sub-categories for OWTS)

**Detailed copies of this form can be found in Appendix F.*

The existing local laws of the 28 municipalities were reviewed against these 130 best management practices. Utilizing G/FLRPC’s library of local land use ordinances, staff began the process of local law assessment in the spring of 2005. Tables summarizing the results of this assessment can be found throughout the body of this report. Due to their large volume, unabridged assessment forms are not included in this report; however, each is available for download on the project website. In it, each BMP has been cited according to its source.

III. ASSESSMENT APPROACH

There are numerous challenges associated with an assessment of this nature. The diversity of the socio-economic and land use characteristics across the 28 municipalities coupled with the detail of the assessment form (130 individual best management practices) complicate the review process, although the ultimate outcome is a meaningful assessment of environmental best management practices.

As stated in Chapter 1, the process began with the creation of an inventory of local laws and other pertinent land use documents for each case study municipality. Along with comprehensive plans, zoning and subdivision ordinances, other relevant local codes and regulations were reviewed when available. Examples include (but are not limited to) local sediment and erosion control laws, construction specifications, junk laws and – in a limited number of instances – animal control ordinances.

In order to gather any recent updates to local regulations that may have occurred within the timeframe of this project, a process was initiated to contact local officials in an effort to update G/FLRPC's Local Law Library. All available laws and other official documents supplied and filed as of January 2006 have therefore been included in this analysis.

Table 3-1: Basic Land Use Inventory of the 28 Case Study Municipalities

	Comprehensive Plan	Zoning	Subdivision Regulation
Number of Municipalities that Possess:	21	28	23
Percentage	75%	100%	82%
Average Age (in years) of existing documents	10.4	9	11.3

Source: Land Use Planning and Regulations: A Survey of New York State Municipalities. NYS Legislative Commission on Rural Resources: July, 2004.

Compilation and Ranking of Best Management Practices

Laws vs. Practices

Local laws and regulations were methodically reviewed in an effort to detect legal mandates for the use of BMPs while undertaking various construction or operational activities within the jurisdiction. As BMPs were found, they were entered into the assessment form with their respective citation.

Legislation is viewed as a reliable means of instituting BMPs within a jurisdiction. By subjecting the variables of a BMP's use and application to public scrutiny and seeing that the implications of its use are fully deliberated by the relevant officials, a municipality can help to ensure that it will serve its intended purpose in a uniform and efficient manner throughout the

jurisdiction. The legislative process, however, by no means guarantees that a BMP will be properly implemented in the field.

In many cases, environmental BMPs are practiced voluntarily in the field by conscientious public officials, private contractors and citizens. “Good housekeeping” practices were therefore searched for and assessed by contacting local highway and public works departments directly. In some instances, field research was conducted in order to investigate whether BMPs were in place at specific locations, such as waterfront recreation areas or construction sites and new developments visible from the roadside.

Independent Organizations and Special Jurisdictions

In many instances, local jurisdictions rely on independent or public agencies to perform certain tasks across a large area, such as a watershed, county or region.

All of the counties within the case study area have Soil and Water Conservation District (SWCD) offices which perform a wide array of duties relative to land and water conservation. These activities typically include source water protection, drainage assessment and improvement, water quality monitoring, erosion prevention and environmental restoration, as well as the development of various education and outreach programs. Cornell Cooperative Extension county offices perform similar functions, often in conjunction with SWCDs, private land owners and local governments. Local and regional watershed groups – recognizing the need for specific actions to take place in their respective areas of concern – have also been increasing their organizational capacity, complexity and resource base in recent years. In a number of instances, these groups have become very effective and efficient at addressing local water quality needs and concerns. Furthermore, county, state and regional agencies – such as county health departments or the NYS Office of Parks, Recreation and Historic Preservation – are responsible for administering a variety of functions across a wide area or within their respective jurisdictions.

When available, BMPs that are undertaken and implemented by agencies other than local jurisdictions have been captured in the assessment and listed as appropriate.

Assessing Level of Implementation

Within the detailed assessment forms, each BMP found in effect within a municipality has been assessed based on its level of implementation using the following methodology:

2 – Full Implementation: If a law, it must fully address the associated BMP without question or variance. As the law is written, it should bear a clear and reasonable resemblance to the BMP as it is stated in the assessment form. The defined jurisdiction of the law should be considered thoroughly. For example, BMPs mandated within mobile home parks can not, by definition, be applied throughout a municipality and should not be given a ranking of ‘2’ if the BMP is intended to be applied across an entire jurisdiction. For practices, the identified practice must clearly relate to the BMP. Personal conversation with relevant local officials or actual observance in the field must be made to determine whether the BMP is being fully implemented.

1 – Partial Implementation: If a law, the BMP may be considered to be “partially implemented” if it is not entirely clear in the language of the law if the action or mandate will thoroughly address the area of concern as described in the BMP assessment form. Or, the law may be written to address only a specific area or zone, such as a mobile home park or environmental protection overlay district, and is therefore not applicable to the entire municipality. Furthermore, any goals or future intended circumstances cited in comprehensive plans will only be awarded partial implementation in the absence of any empowering statute of said goal or intended circumstance.

If a practice, the BMP may be considered to be partially implemented if it is a general practice applied across a regional or local jurisdiction without strict scrutiny or oversight. In some cases, this applies to activities undertaken by independent organizations, such as a watershed group or academic institution.

0 – Not at all: No evidence has been found that the BMP listed in the assessment form is being implemented to any degree within the municipality or jurisdiction.

N/A Not applicable: It would not be possible for the municipality to implement the BMP and/or the BMP as it is described in the assessment form is not covered under the routine operational authority of the municipality or department in question. For example, agricultural operations are not typically found in urban settings; therefore a “n/a” can be found throughout the Forestry and Agriculture section for several villages in the case study area.

Summary of Assessment Results

Results of this assessment process have been tabulated and included in a table at the end of each municipal summary. These tables are intended to provide a short summary of assessment results. Interested readers are encouraged to view the individual assessment forms to see precisely how the results were ranked for each town and village.

Table 3-2: Example of a Municipal Summary Table of Assessment Results

Assessment Results:			
Development	14 of 44 BMPs, or 32%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	6 of 23, or 26%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	22 of 29 BMPs, or 76%	Onsite Wastewater Treatment Systems	
Existing	4 of 6, or 67%		2 of 7 BMPs, or 29%
New	10 of 13, or 77%		
All	8 of 10, or 80%		

As shown above, individual best management practices identified within a municipality are tabulated under their corresponding category and summarized accordingly. An explanation of individual BMPs and their corresponding categories can be found in *Appendix F* of this report.

IV. SUMMARY OF MAJOR FINDINGS

Major Findings and Model Best Management Practices

The following section briefly summarizes the major findings of this inventory and gaps analysis. Model examples of BMP implementation within the Black and Oatka Creek watersheds have been delineated with an arrow symbol (“➡”). When no such examples were found to be practiced locally, models from across the region and the country have been cited.

Section 1: Development

General Findings

While state, county and regional entities in New York State are granted some authority over land use, the majority of authority has been delegated to local municipalities, a tradition commonly referred to as “home rule”. As stated in his book *Well Grounded: Shaping the Destiny of the Empire State*, John Nolan explains:

Specific authority has been delegated to municipalities to adopt comprehensive plans and zoning laws and to adopt subdivision and site plan regulations under the Village, Town, and General City Law. General authority to legislate with regard to the public health, safety and welfare and the physical environment is delegated under the Municipal Home Rule Law, which is the source of authority often relied on to adopt natural resource protection regulations. The General Municipal Law provides specific authority to local governments to adopt laws relating to the protection of trees, the preservation of historic districts and landmarks, and the creation of conservation advisory boards.²

At a minimum, municipalities can govern the location, height, size and – to a degree – the use of various structures through zoning regulations. Most municipalities choose to go several steps further, however, in an effort to ensure the safety and quality of life in their communities and to decrease economic risk or liability that may result from aberrant building and development practices. Such is the case within the majority of municipalities in the Black and Oatka Creek watersheds.

Best management practices most commonly found in this analysis were those related to development practices; consequently, stormwater and erosion and sediment control BMPs were most commonly found within a local subdivision ordinance. The subdivision ordinance provides a local review board (typically a planning board) with the authority to review and approve land subdivisions based on a set of local standards. In many cases, these standards included BMPs in erosion and sediment control or other environmental safeguards, such as protecting the natural character of the land, providing for adequate drainage, or the proper installation of important facilities such as detention ponds and road ditches.

² Nolan, John R. *Well Grounded: Shaping the Destiny of the Empire State*. White Plains: Pace University School of Law, 1999. Page 5.

Municipalities found to have the most comprehensive protections regarding erosion and sediment control were those where a specific “Stormwater and Sediment Control” or “Specifications for New Construction” regulations were present in conjunction with a zoning or subdivision ordinance.

Model Best Management Practice: The NYS Sample Local Law for Stormwater Management and Erosion and Sediment Control

Under federal National Pollutant Discharge Elimination System (NPDES) regulations, selected municipalities in urban areas in NYS are required to pass and enforce a local law that will address stormwater management and erosion and sediment control. This process is referred to as Phase II Stormwater compliance; in NYS, the Department of Environmental Conservation (DEC) administers this program through the State Pollutant Discharge Elimination System (SPDES). The municipalities subject to all sections of this law are referred to as “regulated MS4s” (**MS4** stands for **M**unicipal **S**eparated **S**torm **S**ewer **S**ystem). Regulated MS4s are defined as urbanized areas which are generally contiguous census blocks with population densities of greater than 1,000 persons per square mile. At this point in time, only regulated MS4s are required to comply with this section of the Phase II Stormwater regulations. By March 10, 2003, such areas were required to begin developing and implementing Phase II stormwater programs in the urban portion of their community, including the passage of a local pre- and post-construction stormwater regulation.

In an effort to encourage regulated MS4 communities in NYS to comply with federal stormwater regulations, state agencies (DEC, NYS Department of State (DOS)) drafted a sample local law for communities to use as a guidance tool. As stated in the introduction to the sample law:

The goal of providing this model law is to assist communities in amending existing laws and ordinances and/or adopting new provisions of local law to meet the new federal and state guidelines for stormwater control. In designing a model stormwater law for a New York State audience, [we] include suggestions for standard language and concepts that [we] believe a good stormwater management program should contain.

The introduction goes on to state: “The local law should not be construed as an exhaustive listing of all the language needed for a local law, but represents a good base that communities can build upon and customize to be consistent with the local conditions and staff resources available in their municipality.”

Within the Black and Oatka Creek watersheds, 3 of the 28 municipalities are designated as regulated MS4 communities. These include the Towns of Sweden, Ogden and Chili. By January 1, 2008 these municipalities must comply with the full requirements of Phase II Stormwater regulations. As such, each town is currently working toward compliance and is actively involved with the Stormwater Coalition of Monroe County in order to seek assistance from other MS4 municipalities and provide insight on their experiences when possible.³

³ Visit the Stormwater Coalition of Monroe County’s website at: www.thestormwatercoalition.org.

Non-regulated MS4 communities are therefore not required to have their local ordinances meet the parameters of state and federal guidelines at this point in time. These municipalities should not construe this circumstance as a “free pass,” however. Instead, non-regulated cities, towns and villages should attempt to use this opportunity to their advantage by evaluating their current local laws with regard to state and federal stormwater regulations and addressing any gaps that might exist. By maintaining a proactive stance, municipalities can begin to develop a comprehensive and reliable approach to stormwater and erosion and sediment control. This can have the added benefit of providing a more consistent and predictable framework for developers to follow as they work across different jurisdictions.

The *Sample Local Law for Stormwater Management and Erosion and Sediment Control* – along with other useful stormwater resources – can be found online at the DEC’s website at the following address: <http://www.dec.state.ny.us/website/dow/mainpage.htm>.

Model Best Management Practice: Genesee County Smart Growth Plan

Land use and water quality are inherently connected. While individual water quality BMPs can target specific concerns within a jurisdiction, such an approach may be too narrow in scope in the absence of a comprehensive approach to land use and watershed management. The *Genesee County Smart Growth Plan* directly identifies infrastructure expansion as a precursor to development. In doing so, it sets the course for efficient use of infrastructure and protection of agricultural lands and open space throughout the county.

Requiring updates every two years, the primary function of the plan is to mitigate potential impacts of the Genesee County Water Supply Project on the viability of agriculture in Genesee County.⁴ New development is therefore encouraged to take place in designated development areas where infrastructure already exists, thereby minimizing potential land use conflicts. In turn, non-point source threats to water quality such as the growth of impermeable surface area and significant land disturbing activities can be minimized.

Information on the Genesee County Smart Growth Plan can be found at the following website: <http://www.co.genesee.ny.us/frameset.html?/dpt/planning/smartgrowth.html&1>.

Section 2: Forestry and Agriculture

General Findings

Beyond basic requirements – such as Soil and Water Conservation District (SWCD) certification of manure storage facilities – no significant local laws relevant to environmental agricultural management were found in the study area. Section 308 of Article 25-AA (Agricultural and Markets Law – Agricultural Districts) prevents municipalities from enacting laws which may unreasonably restrict farm operations that have been designated as “sound agricultural practices”

⁴ Starting in 2007, updates will be required every three years as opposed to two.

by the Commissioner of Ag and Markets.⁵ Agriculture and Markets staff review both existing and proposed laws across NYS to determine if they are compatible with farm operations. In cases where a local law is determined to be unreasonable, Ag and Markets staff work with the involved local government to develop mutually accepted modifications. If a local government is unwilling to modify a restrictive law, the Department is authorized to take action to compel compliance with the Agricultural Districts Law.

Article 25-AA is intended to protect farmers from nuisance suits and other public actions that may impact an agricultural operation's economic viability. The ability of municipalities to regulate specific practices such as tilling and fertilization methods is therefore severely restricted.

Many municipalities within the Black and Oatka Creek watersheds have strong representation by the farming community on local planning, zoning and conservation boards. These bodies seek to balance quality of life issues of the entire community while considering the functions that are necessary to run a profitable agricultural business, all while meeting the obligations of federal, state and applicable local laws. Furthermore, the advancement of sound agricultural practices within the local farming community have been incrementally applied on local farms by a variety of agencies – in particular, local branches of the Natural Resources Conservation Service (NRCS, a service of the United States Department of Agriculture), county Cornell Cooperative Extension offices, and county Soil and Water Conservation District offices. This voluntary, gradual approach to implementing environmental BMPs has proven to be successful, as evidenced by the growing number of farming operations participating in programs like Agricultural Environmental Management and other USDA-sponsored conservation programs.

➡ Model Best Management Practice: Agricultural Environmental Management

Agricultural Environmental Management (AEM) is perhaps the best example of a concerted, incremental effort toward implementing environmental BMPs among farms in NYS.

Administered by SWCDs in all five counties in the case study area, the AEM approach begins by evaluating a farm's activities and future plans for growth. Based on the farm's current level of land stewardship and the needs of the watershed in which it lies, areas of concern are first prioritized and then addressed through comprehensive conservation plans tailored specifically to the farm. Implementation of such plans is done utilizing the greatest degree of financial, educational and technical assistance that is feasible. Agricultural operations are then continually evaluated in order to ensure that conservation needs are being met.

➡ Model Best Management Practice: Wyoming County Winter Crop Cover Program

An excellent example of agricultural BMP implementation can be found in Wyoming County, NY in the winter cover crop cost share program. The program is administered by the Wyoming County SWCD and funded through the NRCS under the Environmental Quality Incentives

⁵ Article 25-AA, § 308-1a and b

Program. There are at least 5,000 acres of cover crop both under cost share and some 1,000 or more with no cost share in place. As explained by Bruce Tillapaugh, Ag Program Leader/Field Crops Specialist:

Winter cover crops are required on many fields designated as “highly erodible land”. Established cover crops provide viable root systems and soil vegetative cover which protects soil from excessive rates of soil erosion. Implementation of an effective winter crop strategy also takes up nutrients and puts them in physical plant form, reducing the potential for nutrient loss to the environment. In the 2004 program year, a new experimental method of interseeding winter annual and perennial grass was evaluated. As a result, local farm producers have another viable alternative to fall establishment of cover crops.⁶

As stated above, some farmers are required to implement this BMP if they operate on highly erodible lands; others, however, choose to install cover crops simply to protect their soil and add valuable nutrients to the land when they are plowed under in the spring. Most landowners see direct operational savings in the form of reduced till and soil protection and, as a result, end up maintaining this BMP well after cost shares are discontinued.

Section 3: Waterways and Wetlands

General Findings

Few municipalities in the study area were found to have comprehensive local rules or regulations directed specifically at stream corridors or modified waterways. While setback guidelines and rules governing illicit discharges were not uncommon, few municipalities have enacted regulations regarding the design or long-term maintenance of modified streams. Article 15 and Article 17 of the NYS Environmental Conservation Law detail the regulations regarding water resources and water pollution control, respectively. Most municipalities generally feel that it is unnecessary to supersede these regulations at the local level. Rules regarding the protection, maintenance and stabilization of stream banks can be written into local code, however, without interfering with state Environmental Conservation statutes. Subdivision rules or the specific requirements of a stormwater management and erosion control plan are appropriate venues for dealing with such guidelines.

While a number of municipalities were found to cite the importance of wetlands within their comprehensive plans, few were found to have enacted rules or regulations specific to wetland protection. This is likely due to the presence of state and federal laws regarding wetland protection. Article 24 of the NYS Environmental Conservation Law provides for the protection of wetland areas of 12.4 acres or more throughout the state, while Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into waters of the United States, which include wetland areas. Some activities are exempt from the Section 404 permit process, such as certain agricultural activities.

⁶ Tillapaugh, Bruce Ag Program Leader/Field Crops Specialist. “Winter Cover Crops.” Wyoming County Cornell Cooperative Extension 2004 Annual Report.

The degree to which these permitting systems are successful, however, can vary considerably under different circumstances. To this end, local regulations can be an important addition to state and federal enforcement. Furthermore, other environmentally-sensitive areas – such as vernal pools, for example – are not designated as wetlands under federal or state law, but nonetheless serve important ecological functions. These areas would therefore be at great risk in the absence of a specific local law if development were to take place.

If local municipalities are concerned about maintaining the integrity of riparian areas and wetland systems, enacting a local law that identifies the location and importance of these assets is highly recommended. Under NYS Municipal Home Rule Law, municipalities have the authority to adopt laws to protect the physical environment. “Under these local laws, broader definitions of wetlands may be adopted, larger buffer areas regulated, and a more extensive range of [permitted] activities covered.”⁷

Model Best Management Practice: Implementing an Environmental Protection Overlay District (EPOD)

Overlay zones can be used in order to provide special controls over land development in designated areas of a municipality. Common applications of the overlay zone include historic districts, economic development districts, or areas of unique environmental integrity. Environmental Protection Overlay Districts (EPODs) are typically used around stream corridors, wetlands, steep slopes or flood plains; however, they can be applied to any land area that has been identified as a unique environmental asset worthy of special protection. Provisions applied in an overlay district area work in addition to other provisions of a zoning ordinance already in effect in that area and can be more restrictive or permissive than those that are already in place. Existing zoning provisions therefore do not have to be altered in an effort to conserve natural resources or realize development objectives.

Model Best Management Practice: Rochester’s Cornerstone Group Wetland Mitigation Bank

Under the federal Clean Water Act and NYS Environmental Conservation Law, entities undertaking construction activities which impose unavoidable losses to protected water resources are required to meet compensatory mitigation requirements. Rochester’s Cornerstone Group (RCG), a real estate development, consulting, brokerage and property management firm, has initiated a unique method of managing wetland losses by developing a wetland mitigation banking system. The banking system is intended to create, restore or enhance wetlands and serve as a ‘bank’ of wetland credits for future wetland impacts resulting from development. Interested developers can purchase wetland credits to offset impacts resulting from construction activities. As stated on the RCG website:

Typically, when a developer is required to create wetland to offset the loss of wetlands caused by a particular project, the wetland is created long after the impacts have occurred. Wetland mitigation

⁷ Nolon, John R. Page 323.

banks are built in advance of a project's impacts and, as a result, provide compensation up front, without there ever being a loss of wetland function.

The first of its kind in NYS, this banking system has been developed with oversight and cooperation from regulatory agencies such as the US Fish and Wildlife Service, US Environmental Protection Agency (EPA), DEC and US Army Corps of Engineers (ACE). The current bank is located in the Town of Chili within the Black Creek watershed.⁸

Section 4: Recreation

General Findings

Best management practices in the area of golf course maintenance emerged as an issue of concern among local stakeholders during the initial municipal meetings. In addition to BMPs relative to docks and other waterfront activities, a list of 17 BMPs relative to management practices for golf course maintenance departments was developed. The assessment revealed that no municipalities have enacted any legislation governing practices in this particular area of concern. Indeed, it is understandable that such a proposal would likely rank low among towns given the host of other priorities that local officials are responsible for coupled with the relatively small number of courses present in the area. When one considers the volume of chemical pesticides and fertilizers applied and water consumption and irrigation that occurs on a golf course during a given operating season, however, further action may be desired.

Ascertaining the degree to which individual golf facilities in the region are undertaking environmental stewardship initiatives fell outside of the scope of this project. In order to better understand the issues, it is important that a baseline level of data first be established regarding environmental procedures of area golf facilities. The following two models begin to establish a framework for doing so.

Model Best Management Practice: Florida Department of Environmental Protection Manual

In 1995, the State of Florida Department of Environmental Protection developed a basic guidance document regarding BMP implementation for golf course maintenance departments. This document identifies three general principles:

- Isolate all potential contaminants from soil and water, and,
- Do not discharge any material other than clean stormwater onto the ground or into surface water bodies.

⁸. "Wetland Mitigation Bank." Rochester's Cornerstone Group, Ltd. Last viewed online 2/6/06 at http://www.ricc-rcg.com/wetland_bank.asp.

- Minimize irrigation, fertilizer, and pesticide use requirements through use of Integrated Pest Management and native or naturalized vegetation wherever practicable.⁹

These basic goals are excellent performance standards that golf courses should strive for in the Black and Oatka Creek watersheds. Suggested future action in the Black and Oatka Creek watersheds is to establish to what degree these practices are taking place.

➡ **Model Best Management Practice: Golf Course Superintendents Association of America (GCSAA) Baseline Survey**

At present, there is limited data pertaining to golf course best management practices being used in the United States, let alone the Black and Oatka Creek watersheds. In March of 2006, the GCSAA, in partnership with the Toro Corporation, will begin to administer a baseline survey to golf facilities across the United States in order to establish a foundation of data relative to golf course best management practices in environmental management. Referred to as the *Golf Course Environmental Profile*, the survey will be designed to collect data on attributes such as natural resource inventories, management inputs and current environmental stewardship practices. Categories such as water use, water quality, habitat and wildlife, energy consumption and inputs of nutrients and pesticides are intended to be included. Essential data, such as a physical profile of courses, including information on acreage, vegetative cover, maintenance, and facility information will be covered as well.

It is unknown what the sample size of this survey will be or how many courses in the North Eastern and Great Lakes regions of the US will be contacted (i.e. where results will be transferable to Western New York). Results of this survey, however, will nonetheless be a significant asset for organizations interested in assessing environmental stewardship of golf courses at the local level. Baseline data and an established methodology will facilitate future research projects; furthermore, this effort can help to legitimize the issue of golf facility environmental stewardship in instances where groups fail to recognize that a problem may exist.

Information on the survey and the GCSAA can be found at the Environmental Institute for Golf website at <http://www.eifg.org/>.

Section 5: Roads and Bridges

General Findings

Practical good housekeeping procedures were observed to be present at most municipal facilities or were explained by officials. New road and bridge construction is rare throughout the entire case study area, even within areas experiencing high rates of new development. In instances where new road and bridge construction does take place, construction activities are generally

⁹ Florida Department of Environmental Protection. Best Management Practices for Golf Course Maintenance Departments. May, 1995. Last viewed online 2/6/06 at <http://www.dep.state.fl.us/water/nonpoint/docs/nonpoint/golfbmp.pdf>.

performed by an outside contractor. In most instances, road *rehabilitation* is much more relevant. This study revealed that when road and bridge rehabilitation takes place, the majority of departments are currently employing BMPs in erosion and sediment control to a far greater degree than they ever have in the past.

In rural areas, particularly near the headwaters of the creeks (Wyoming County, Genesee County) where development is not occurring at a rapid pace, opportunities for highway departments to impact non-point sources of pollution are confined to three general areas: road deicing, ditch/stormwater conveyance maintenance, and other right-of-way maintenance activities. Along with these three basic areas, suburban municipalities in the northern portion of the study area are more likely to deal with issues associated with pre- and post- construction stormwater runoff in their daily operations. As a result, highway departments near the Rochester Metropolitan Area were aware of applicable regulations and procedures associated with Phase II Stormwater regulations, including several municipalities that are not currently considered to be regulated MS4 communities.

Overall, town and village highway supervisors and department of public works superintendents are well-informed regarding basic erosion and sediment control practices and procedures. This should come as no surprise given that the majority of these administrators have a wide range of practical experience in areas of basic engineering, construction and land alteration. Furthermore, popular annual educational seminars such as the Cornell Local Roads Program (often referred to as “highway school”) have had a lasting impact on this community of professionals. Other locally-administered training programs have a similar effect, two of which have been highlighted below.

While highway and DPW managers tend to be adept in the area of erosion and sediment control, the emerging regulations associated with the Phase II Stormwater program have made it necessary to increase efforts in information dissemination regarding new rules and regulations, not to mention technical advances in the fields of erosion and sediment control and non-point source abatement. Even with the advances brought about through the Phase II program, local budget constraints will likely be the greatest factor in implementing stormwater erosion and sediment control best management practices. To this end, inter-agency cooperation and sharing of services can provide significant benefit.

Model Best Management Practice: Monroe County SWCD Highway Staff Education Efforts

The Monroe County SWCD in conjunction with the Monroe County Health Department and Stormwater Coalition of Monroe County coordinated an effort to provide information to county highway staff regarding roadway stormwater best management practices. This effort was funded through a grant by the Great Lakes Basin Program for Erosion and Sediment Control (the same program that has provided funding for the *Controlling Sediment in the Black and Oatka Creek Watersheds* project). As described in a department press release, the goals of the project included:

1. Developing a roadway operation and maintenance program to reduce water pollution by sediment, phosphorus, and chlorides via runoff from roadways within the Rochester Embayment of Lake Ontario.
2. Identifying priority roadway operation and maintenance best management practices that protect water quality.
3. Training municipal staff to implement these best management practices.
4. Assisting municipalities to meet the requirements of the Phase II Stormwater regulations.

Furthermore:

Three recommendation lists of feasible, effective, and accepted roadway operation and maintenance Best management practices (BMPs) were developed for winter roadway, non-winter roadway and roadside drainage system operation and maintenance practices. Information for these lists was obtained from sources including the U.S. Environmental Protection Agency, the New York State Department of Environmental Conservation, and the American Public Works Association.

Other aspects of the program covered information related to salt storage and application, stormwater facility management and tools for further staff self-training and information dissemination.

➡ **Model Best Management Practice: Wyoming County Blue Book Dissemination**

In similar fashion, the Wyoming County SWCD will provide municipal highway officials and DPW departments with the latest iteration of the *NYS Standards and Specifications for Erosion and Sediment Control* manual (a.k.a. the “Blue Book”) in the spring of 2006. Originally published in 1972 and distributed by the Empire State Chapter of the Soil and Water Conservation Society, this technical manual was recently updated and outlines the latest procedures to protect water quality due to construction activity and reduce sediment damage and associated maintenance costs of road ditches, storm sewers, streams, lakes, and flood control structures.

A NYS Soil and Water Committee grant will allow for the inexpensive distribution of copies of the manual to all highway officials in the county. In conjunction with the distribution, SWCD professionals will host a workshop to explain the contents of the manual, thereby increasing the likelihood that it will be referenced by officials when working in the field. Local highway administrators will therefore have an opportunity to ask specific questions regarding the contents of the manual, applicable rules in stormwater regulations, and the latest developments in the construction and design of stormwater facilities.

➡ **Model Best Management Practice: Highway Superintendent Road and Water Quality Handbook**

The *Highway Superintendent Road & Water Quality Handbook* was prepared by Cornell Cooperative Extension of Steuben County, Natural Resources Conservation Service of Steuben County, Steuben County Soil and Water Conservation District, and the Yates County Soil and

Water Conservation District. Currently in its second edition, the handbook is yet another excellent example of proactive education and outreach by local environmental stewards. Quoting the handbook's preface:

The *Highway Superintendents Road and Water Quality Handbook* was a multi-agency project designed to assist local Highway Superintendents in the permit process associated with activities that may impact local and regional water quality...Becoming familiar with the permitting processes and technical information concerning water-related impacts associated with roadway construction and maintenance should help reduce uncertainties and frustrations encountered by local highway superintendents.

The manual is broken down into three sections: Section I covers permit-related documentation and processes; Section II covers a wide variety of road construction and maintenance activities such as BMP implementation; and Section III provides a listing of agencies that can provide additional information or technical assistance on the range of topics covered in previous sections. Much of the information contained within the manual can be very difficult to find; this resource therefore provides local highway officials with a single, comprehensive reference guide pertaining to a wide variety of issues related to stormwater management.

Section 6: Onsite Wastewater Treatment Systems (OWTS)

The primary governing statute regulating onsite wastewater treatment systems (commonly referred to as septic systems) in New York State is Part 75 of the Department of Health (DOH) Administrative Rules and Regulations (10NYCRR 75). These regulations stipulate the minimum requirements for the construction and specifications for *new systems only*. There is currently no state code addressing the maintenance or inspection of existing OWTS. To this end, county and local governments are given authority under Sections 347 and 308 of NYS Public Health Law to enact ordinances and regulations for the protection of public health. Such ordinances must be at least as restrictive as the state law that grants the authority unless a specific waiver is granted by the NYS Commissioner of Health.¹⁰

Within the study area, basic codes regulating OWTS are in place; however, none of these codes regulate inspections at a frequency deemed adequate to detect failures within such systems (determined to be approximately every 3-7 years). Inspections of septic systems within the Black and Oatka Creek watersheds occur at the time of new building construction, during alterations and/or expansions of an existing system and, in most cases, at the time of property transfer. Inspections can also occur if failures become evident or when specific complaints are lodged by the public.

Failing onsite wastewater treatment systems are cited as a known impairment to water quality throughout both watersheds in the *2001 Genesee River Basin Waterbody Inventory and Priority*

¹⁰ Allee, David J. *et al.* [A Guide to the Public Management of Private Septic Systems](http://www.cardi.cornell.edu/local_government/000397.php). Ithaca: NYS College of Agriculture and Life Sciences, 2001. Last viewed online 2/28/06 at: http://www.cardi.cornell.edu/local_government/000397.php.

Waterbodies List.¹¹ While it is clear that failing OWTS have been adversely affecting water quality within the two watersheds for some time, most municipalities are not necessarily in a position to begin inspection and maintenance programs given the costs associated therein. Furthermore, many households would face significant financial hardship if forced to absorb the costs associated with upgrading or replacing their systems in the absence of a financial support mechanism. Nonetheless, innovative approaches to addressing failing OWTS have been developed and implemented across NYS. One useful county model has been highlighted below. Other approaches developed at municipal and regional levels can be found in the Cornell University publication *A Guide to the Public Management of Private Septic Systems*, which is referenced below.

Table 4-1: Regulations Regarding OWTS Inspection within Black and Oatka Watershed Counties

	DOH Inspection for new construction	DOH Inspection for repairs/expansions/alterations*	DOH Inspection at time of property transfer or refinancing	Municipal laws exceeding county requirements (within the study area)?
Genesee	Yes	Yes	Yes**	None
Livingston	Yes	Yes	Yes	None
Monroe	Yes	Yes	Recommended	None
Orleans	Yes	Yes	Upon Request**	None
Wyoming	Yes	Yes	Yes	None

* Specific circumstances vary by county

** For refinancing, inspections are typically performed upon request from the lending institution

➡ Model Best Management Practice: Cayuga County Sanitary Code

The *Cayuga County Sanitary Code* is perhaps the most comprehensive county approach to addressing failing OWTS in NYS. Revised in 1994, the code was developed out of concern for water quality in two popular bodies of water – Little Sodus Bay (Lake Ontario) and Owasco Lake (one of the Finger Lakes). The code focuses on two specific areas: new system design and existing system inspection. As explained in *A Guide to the Public Management of Private Septic Systems*:

A major emphasis of the county sanitary code ensures that design work for residential wastewater treatment systems meets high standards. In accord with the state sanitary code, the county code requires that licensed engineers must design septic systems for new dwellings...[D]esigns must be submitted to the county DOH for review, suggested or required changes, and final approval.¹²

Furthermore, the code sets a schedule for mandatory inspections to occur throughout the county, depending upon location. Residential systems within sensitive environmental areas are required to be inspected every two years. For the rest of the county, the code establishes a five year

¹¹ New York State Department of Environmental Conservation. *The 2001 Genesee River Basin Waterbody Inventory and Priority Waterbodies List*. Albany: DEC, March 2003.

¹² Allee, David J. *A Guide to the Public Management of Private Septic Systems*. Ch. VII-4.

rotating inspection cycle. Inspections must also occur at time of property transfer and/or refinancing.¹³

This rigorous inspection cycle is an excellent means of ensuring that problems with residential OWTS have the potential to be identified within a reasonable and prudent time period before serious problems can develop.

¹³ Cayuga County, Sanitary Code of the Cayuga County Health Department, August 1994. Last viewed online 2/28/06 at: <http://www.co.cayuga.ny.us/wqma/projects/sanitarycode.pdf>.

V. MUNICIPAL SUMMARIES

The following municipal summaries provide the findings of this municipal law review and analysis. For each municipality in the two watersheds, a map of the town or village is provided, along with useful demographic and geographic information on the focus area.

Each summary begin with a table illustrating the results of a spatial analysis conducted for each municipality listing the area of the municipality and the amount of land that is located within the respective watersheds. In order to facilitate comparison between towns and villages in the study area, a summary of this information has been included in Appendix B.

In an effort to illustrate the general demographic state of the municipality, a short narrative of socio-economic information derived from Census 2000 has been provided. The level of development pressure (described as “rate of development”) within each municipality has also been included, utilizing the findings of the *Regional Land Use Monitoring Report*.¹⁴ A summary of this information, including an explanation of how “rate of development” has been defined in this report, can be found in Appendix C. It is important to note that this analytical tool has a distinct limitation: the data source provides no indication as to the location of new development within any given municipality. It may therefore be the case in some instances that the high rate of development found in some of the case study municipalities may be occurring outside of the Black and Oatka Creek watershed areas.

Basic descriptions of the land cover typical of each municipality are provided as well. This information is derived from a variety of sources. The Geographic Information and Retrieval and Analysis System (GIRAS), a remote-sensing package created by the US Environmental Protection Agency (EPA), provides general information regarding various types of land cover found throughout the region. This, in conjunction with aerial photography and field observations, provide the basis for land cover descriptions. An illustration of the GIRAS display for the case study area and the 17 classification units for land cover can be found in Appendix D.

Summaries conclude with an explanation of findings of significance relevant to best management practices in erosion and sediment control and/or water quality assuredness. A list of the laws and ordinances that were reviewed as part of this analysis can be found at the top of each summary. A list of general recommendations for future action by local officials has also been included for each municipality. Finally, a basic chart providing the tally of BMPs found to be present has been included at the end of each municipal summary (see page 7 for explanation). Unabridged assessment forms for each municipality can be found in an addendum to this report, available for download on the project website at: <http://gflrpc.org/Publications/ControllingSediment/Assessment/ReviewAnalysis.htm>.

Municipalities have been grouped under their respective counties and are listed in alphabetical order; counties are arranged south to north, west to east in an effort to reflect the general hydrological order characteristic of the Black and Oatka Creek watersheds.

¹⁴ Genesee/Finger Lakes Regional Planning Council. *2004 Regional Land Use Monitoring Report*. Available online at <http://gflrpc.org/Publications/LandUseMonitoring.htm>.

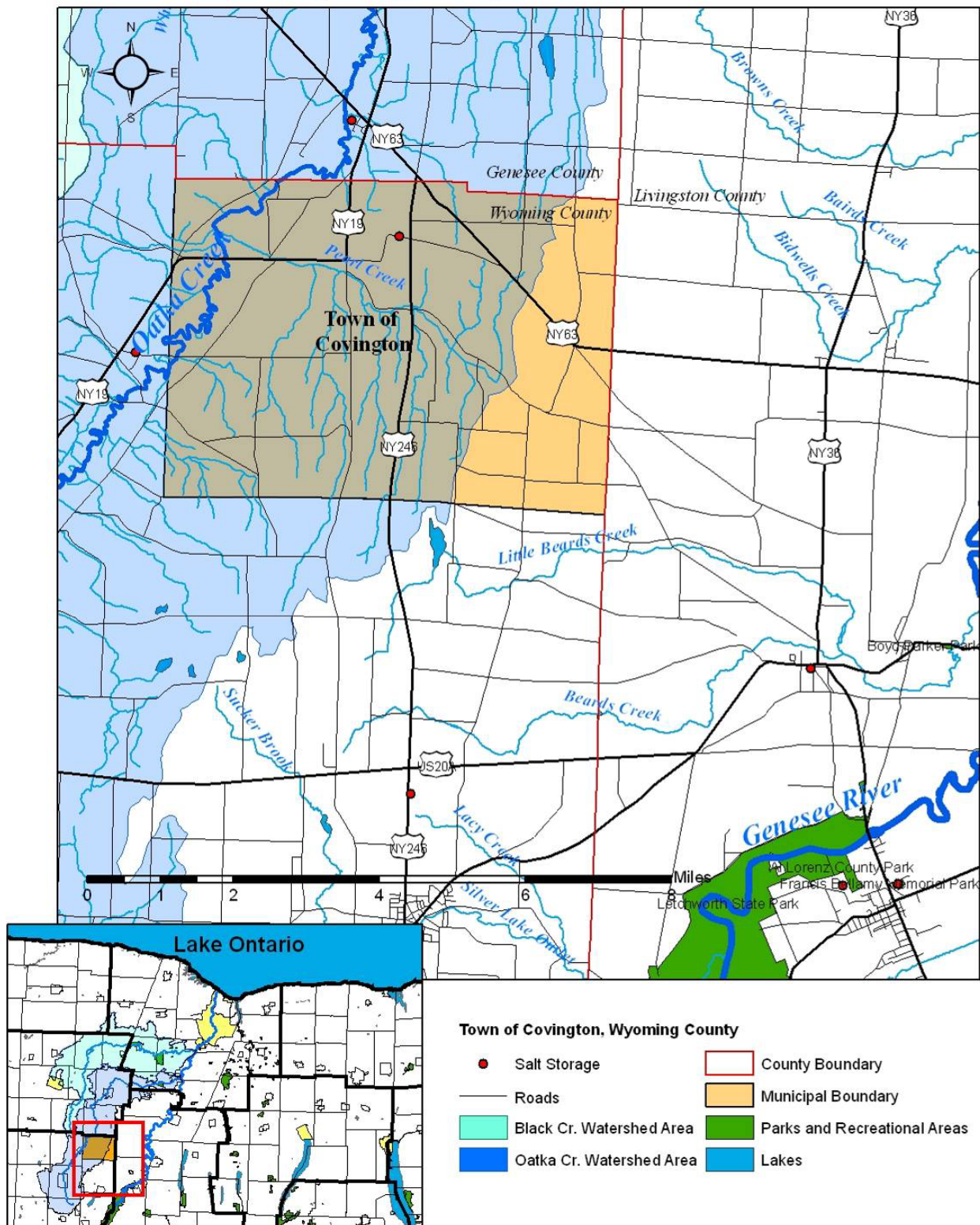
MUNICIPAL SUMMARIES: WYOMING COUNTY



General Statistics for Wyoming County:

Total Land Area	596 sq. miles
Median Household Income	\$39,895
Average Household Size	2.62 persons
Average Family Size.....	3.08 persons
Median Age	37 years
Median Year Structure Built	1945
Median Value of Owner-Occupied Housing Unit	\$74,000

Town of Covington, Wyoming County



Overview Area

Town of Covington ~ *Wyoming County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
26.19	0	20.09	0	76.71%	0	9.35%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Ordinances Reviewed:

- *Town of Covington Index of Local Laws, 1971 – 2005.*
 - *Includes Town of Covington Zoning and Subdivision Regulations*

Over three-quarters of the 26.2 square miles of the Town of Covington lie within the Oatka Creek watershed. The headwaters of the Pearl Creek branch throughout much of the area of the town, which is a significant contributing tributary of the Oatka Creek. The town has no other significant bodies of water.

Covington has a population of 1,357 residents, with 491 housing units and 473 households. The median age is 37 years old. The average household size is 2.87 persons and the average family size is 3.15 persons. The median income for a household in Covington is \$40,446 and the median value of an owner-occupied housing unit is \$78,900. The median year a structure was built in Covington is 1966.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 7 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in Covington, indicating a significantly low rate of development within the town relative to the municipalities within the two watersheds.

Land cover in Covington is predominated by pasture/hay and row crops with small stands of mixed forest.

A comprehensive review of Covington's land use control ordinances revealed several important best management practices to be in place. The town's subdivision ordinance has basic, substantive requirements for new development such as the consideration for drainage needs, preservation of natural features and respect for and maintenance of the boundaries of local waterways. Post construction site stabilization and professional review of proposed drainage plans (by either the town engineer or SWCD) are also required of all new subdivisions.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent also revealed information in this regard. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to

state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering Covington's relatively small population and low housing density, coupled with the low number of permits issued for new construction over the past several years, erosion stemming from construction activities is likely to remain low into the immediate future. The most significant sources of erosion are likely to be agricultural in nature.

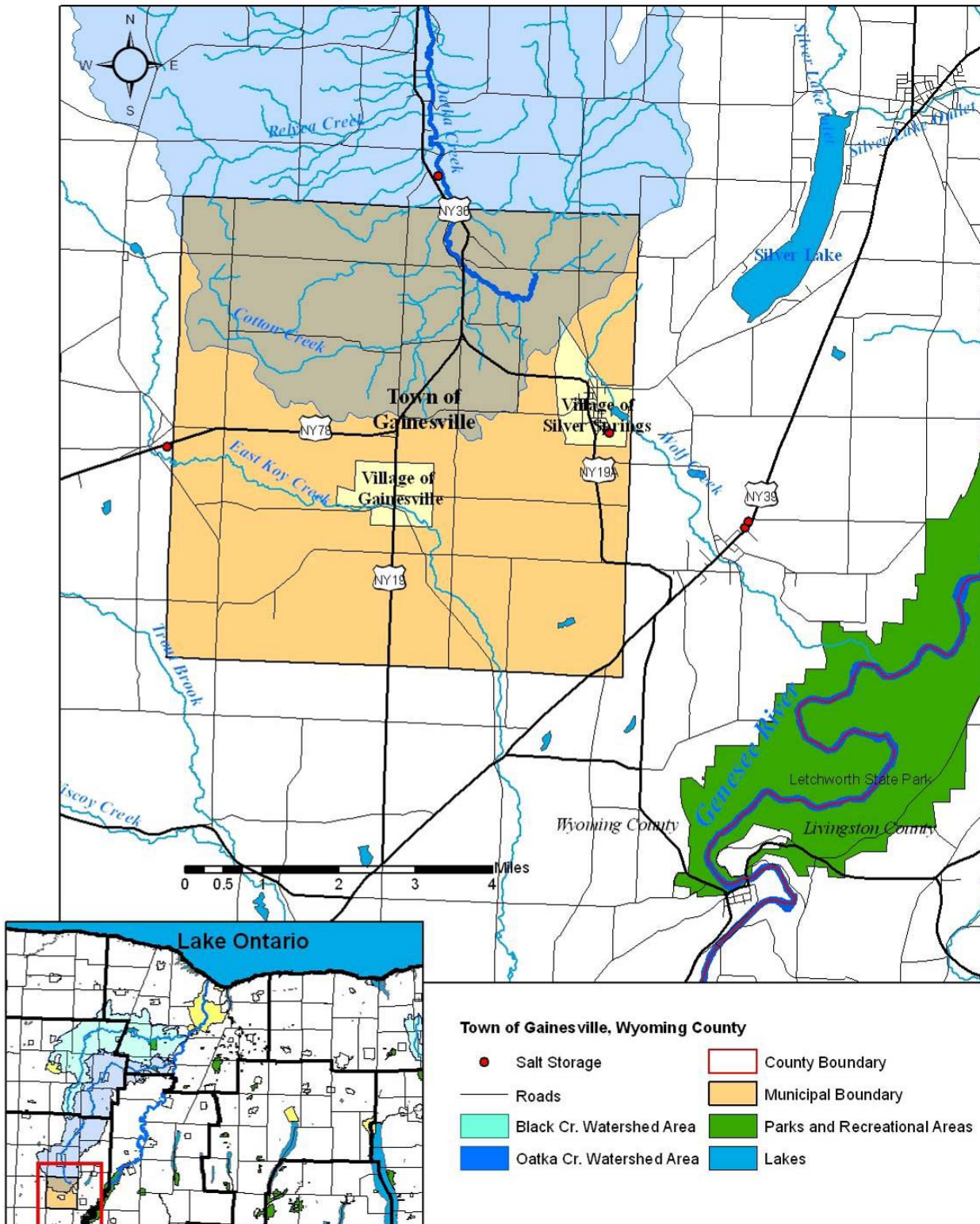
Recommendations for Future Action by Local Officials:

- Continued education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Develop a comprehensive plan that sets goals for the protection of local water resources and recognizes the importance of watershed planning efforts within the Oatka Creek watershed and other neighboring watersheds.
- Consider developing a small buffer zone (see "EPOD," page 13) around the Oatka and Pearl Creeks, encouraging the maintenance of vegetative buffers and prohibiting the erection of new structures within a minimum of 50 feet of stream banks.
- Continue to conduct ditch maintenance according to best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after cleaning.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development		20 of 44 BMPs, or 45%	Forestry and Agriculture		7 of 18 BMPs, or 39%
Existing Development		11 of 21, or 52%	Forestry		1 of 10, or 10%
New Development or Redevelopment		9 of 23, or 39%	Agriculture		6 of 8, or 75%
Waterways/Wetlands		7 of 15 BMPs, or 47%	Recreation0 BMPs found		
Modified Waterways		6 of 9, or 67%	Docks and Launches		does not apply
Wetlands/Riparian Areas		1 of 6, or 17%	Golf Courses		0
Roads and Bridges		22 of 29 BMPs, or 76%	Onsite Wastewater Treatment Systems		
Existing		5 of 6, or 83%	2 of 7 BMPs, or 29%		
New		9 of 13, or 69%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.		
All		8 of 10, or 80%			

Town of Gainesville, Wyoming County



Overview Area

Town of Gainesville ~ *Wyoming County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.74	0	13.12	0	36.72%	0	6.10%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Zoning Ordinance, Town of Gainesville, County of Wyoming, State of New York.** March 13, 1995. Updated 2004; includes Article IX, Comprehensive Plan.
- **Flood Damage Prevention Local Law.** Town of Gainesville Local Law No. 2 of the year 1983.

The headwaters of the Oatka Creek are dispersed across the lands of Perry, Warsaw and the northern half of the town of Gainesville. The southern boundary of the watershed is located just north of the corporate boundary of the Village of Gainesville. The town encompasses 35.7 square miles in total area, 0.31% of which is covered by water.

According to the 2000 Census, Gainesville has a population of 2,333 residents, with 873 households and 944 housing units. The average household size is 2.67 persons and the average family size is 3.07 persons. The median age is 37 years old. The median income for a household in the town is \$37,188 and the median value for an owner-occupied housing unit is \$59,300. The median year a structure was built is 1940.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 13 permits issued for new residential units and 8 permits issued for new commercial units between 2002 and 2004 in Gainesville, indicating a moderate rate of development within the town relative to the municipalities within the two watersheds.

While land cover in the Oatka Creek portion of Gainesville is nearly half pasture/hay, the remaining land area is almost entirely composed of large patches of mixed forest, which happen to surround the primary tributaries. Patches of row crops are dispersed throughout this area; a small area of commercial/industrial space is also present.

A comprehensive assessment of the Town of Gainesville's land use regulations revealed no ordinances or regulations specific to erosion and sediment control. The Town's comprehensive plan does, however, begin to identify basic issues relative to new construction, such as appropriate site locations for new developments. This is particularly important due to areas with considerable degree of slope within the town. The plan also recognizes the importance of conserving area open spaces, which are an important component of maintaining a healthy and uncompromised water cycle.

There are also a number of BMPs found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal

conversation with the town's highway superintendent revealed information in that arena as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Gainesville is one of the most rural of those municipalities reviewed in this study; the majority of the land cover near major tributaries is either pasture/hay, mixed forest or row crops. While the rate of development is described as "moderate," this is still a considerably low rate of development relative to urban and suburban areas. Erosion stemming from new construction is therefore likely to remain low in the near future. The most significant sources of erosion are likely to be either direct streambank erosion or agricultural in nature.

Recommendations for Future Action by Local Officials:

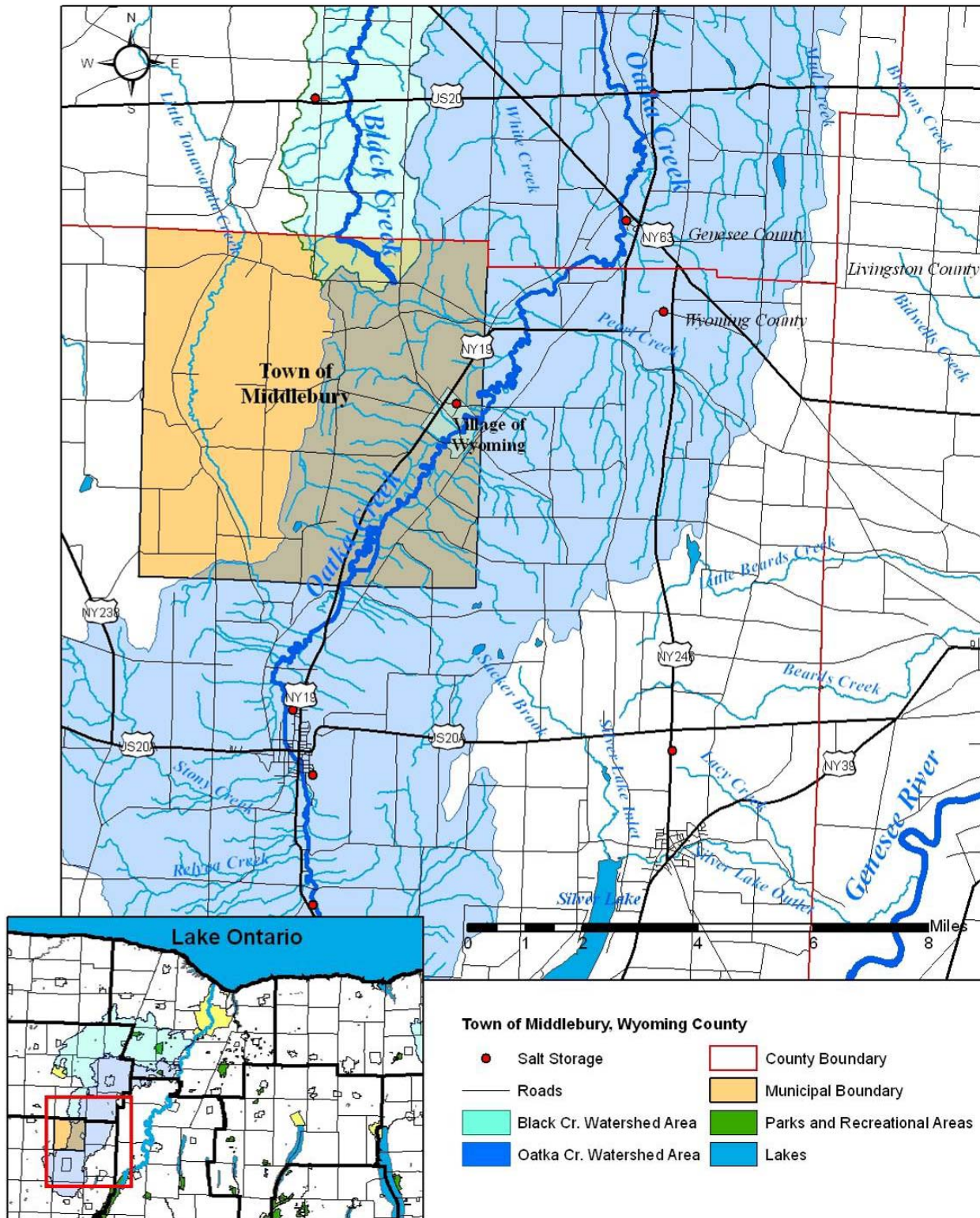
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled revision of the comprehensive plan, local planners should set goals for the protection of local water resources by recognizing the importance of watershed planning efforts within the Oatka Creek watershed and other neighboring watersheds within the municipality.
- Consider developing buffer zones around the Oatka Creek and other notable tributaries (see "EPOD," page 13), prohibiting the erection of new structures within a minimum of 50 feet of watercourse banks and encouraging the retention of vegetation. Similar environmental protection overlay zones can be established in areas with steep slopes.
- Continued education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Consider enacting a Local Timber Harvesting Law in an effort to protect land and water resources that may be adversely affected by poor timber harvesting practices. Model local laws regarding timber harvesting are available through G/FLRPC.
- Continue to conduct road and ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after. Construction and maintenance of check dams in steep areas that have the potential to produce high-velocity runoff is highly recommended.

- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	14 of 44 BMPs, or 32%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	6 of 23, or 26%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	21 of 29 BMPs, or 72%	Onsite Wastewater Treatment Systems	
Existing	4 of 6, or 67%		2 of 7 BMPs, or 29%
New	9 of 13, or 69%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	8 of 10, or 80%		

Town of Middlebury, Wyoming County



Overview Area

Town of Middlebury ~ Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.70	1.36	17.7	3.81%	49.59%	.67%	8.23%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Zoning Ordinance, Town of Middlebury, Wyoming County, New York.** October 1988.

The eastern half of the Town of Middlebury lies within the Oatka Creek watershed. A small area comprising the headwaters of the Black Creek lies within the northern section of the town. The town is 35.7 square miles in area, of which 0.08% is water.

According to the 2000 Census, the town has a total population of 1,508 residents, with 530 households and 554 housing units. The average household size is 2.84 persons and the average family size is 3.21 persons. Median age is 37 years of age and the median age that a structure was built in Middlebury is 1940. The median value of an owner-occupied housing unit is \$69,000 and median household income is \$43,125.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 14 permits issued for new residential units and 1 permit issued for new commercial units between 2002 and 2004 in Middlebury, indicating a low rate of development within the town relative to the municipalities within the two watersheds.

Middlebury is characterized by steep slopes flanking a north/south ridge running through the center of the town. The east side of this ridge descends into the broad Oatka Creek valley, a largely agricultural area predominated by lands used for pasture and field crops, experiencing frequent seasonal flooding. A comprehensive assessment of the Town of Middlebury's land use regulations revealed a small number of basic best management practices integrated into the general zoning provisions which are subject in all areas of the town. Specifically, these included stipulations regarding the preservation of natural features, such as trees, streams, and other notable features.

There are also a number of BMPs found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed information in that arena as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering Middlebury's relatively small population and low housing density, coupled with the low number of permits issued for new construction over the past several years, erosion stemming from construction activities is likely to remain low into the immediate future. A reasonable approach to erosion and sediment control should focus efforts on instituting best management practices on roadside ditches, gullies and streambeds in an effort to decrease downstream sediment loading.

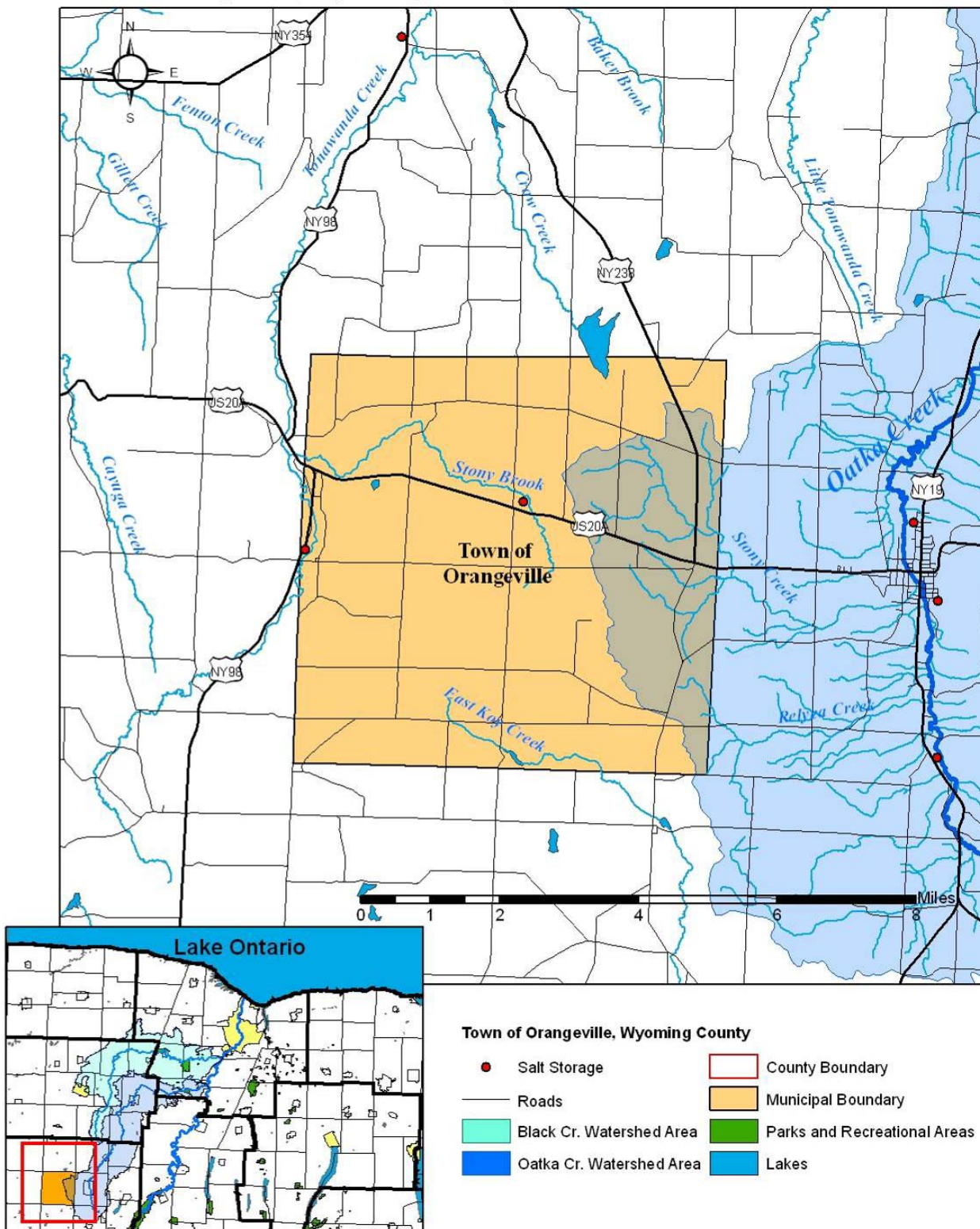
Recommendations for Future Action by Local Officials:

- Drafting of a comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka and Black Creek watersheds and other neighboring watersheds within the municipality.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Consider developing buffer zones around the Oatka and Black Creeks (see "EPOD," page 13), as well as other notable tributaries, prohibiting the erection of new structures within at least 50 feet of watercourse banks and encouraging the retention of vegetation. Similar environmental protection overlay zones can be established in areas with steep slopes.
- Continued education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after is also recommended.
- It is highly recommended that check dams be constructed and/or maintained in steep slope areas which have considerable potential to produce high-velocity runoff.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	18 of 44 BMPs, or 41%	Forestry and Agriculture	7 of 18 BMPs, or 39%
<i>Existing Development</i>	<i>10 of 21, or 48%</i>	<i>Forestry</i>	<i>1 of 10, or 10%</i>
<i>New Development or Redevelopment</i>	<i>8 of 23, or 35%</i>	<i>Agriculture</i>	<i>6 of 8, or 75%</i>
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
<i>Modified Waterways</i>	<i>7 of 9, or 78%</i>	<i>Docks and Launches</i>	<i>0</i>
<i>Wetlands/Riparian Areas</i>	<i>1 of 6, or 17%</i>	<i>Golf Courses</i>	<i>0</i>
Roads and Bridges	21 of 29 BMPs, or 72%	Onsite Wastewater Treatment Systems	
<i>Existing</i>	<i>5 of 6, or 83%</i>	2 of 7 BMPs, or 29%	
<i>New</i>	<i>7 of 13, or 54%</i>	<i>Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.</i>	
<i>All</i>	<i>9 of 10, or 90%</i>		

Town of Orangeville, Wyoming County



Overview Area

Town of Orangeville ~ Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.67	0	7.29	0	20.44%	0	3.39%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- ***Town of Orangeville Zoning Ordinance.*** 1964.
- ***Amendments related to building permits and agricultural districts.*** 1979.

Approximately 3.4% of the total area of the Oatka Creek watershed lies within the eastern portion of the Town of Orangeville. The town has an area of 35.7 square miles, 0.25% of which is water.

Orangeville has a total population of 1,300 and possesses 602 housing units according to the 2000 US Census. The median year a structure was built in Orangeville is 1971, and the median value for an owner-occupied housing unit is \$82,600. There are 485 households and 358 families residing in the town; the average household size is 2.68 persons and the average family size is 3.07 persons. The median age is 37 years and median income for a household in the town is \$45,208.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 36 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in Orangeville, indicating a high rate of development within the town relative to the municipalities within the two watersheds.

A comprehensive assessment of the Town of Orangeville's land use regulations revealed no ordinances or regulations specific to erosion and sediment control. The Town's highway superintendent is, however, amply aware of drainage issues throughout the town and has personally overseen the installation of several mitigation projects approved by FEMA related to flash-flooding and stormwater control (specifically, culvert re-sizing and "drop-box" or check dam installation). Continued evaluation as to the effectiveness of these structures and regular maintenance will be crucial to avoiding problems in the future.

There were a number of BMPs found to be in effect throughout the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed information in this regard as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The predominate land cover in the Orangeville portion of the Oatka Creek watershed is hay/pasture, with a modest amount of mixed forest along with a small amount of land used for row crop production. This portion of the watershed is characterized by very steep slopes with deep gullies, resulting in high-velocity surges in stormwater runoff during rain and thaw events. Two Oatka Creek tributaries – Stony Creek and Relyea Creek – are the primary drainage channels here. While both appear to be well-forested, their contributing tributaries appear to be somewhat unprotected and are likely to receive and contribute significant volumes of water from roadside ditches and drainage tiles originating in private farmland.

Considering the relatively high degree of new construction that has been occurring in the Town of Orangeville over the past several years, it may be prudent for town officials to consider enacting a stormwater management local law, as the risks of erosion resulting from construction activities are likely to increase if these building trends persist. This is of particular importance when considering the relative age of Orangeville's current land use regulations, which currently lack provisions related to erosion and sediment control.

General attention should also continue to be paid to the maintenance of roadside ditches and other similar systems of stormwater conveyance. Roadside ditches are typically designed to accommodate only the runoff that originates from within the road right-of-way. As other connections are made from private lands, serious complications are likely to occur (specifically, downstream flooding and property damage). Continued evaluation of roadside ditches and connections from private drainage appurtenances (agricultural drainage tiles, sump pumps, other ditches from private lands, etc.) is therefore strongly recommended.

Recommendations for Future Action by Local Officials:

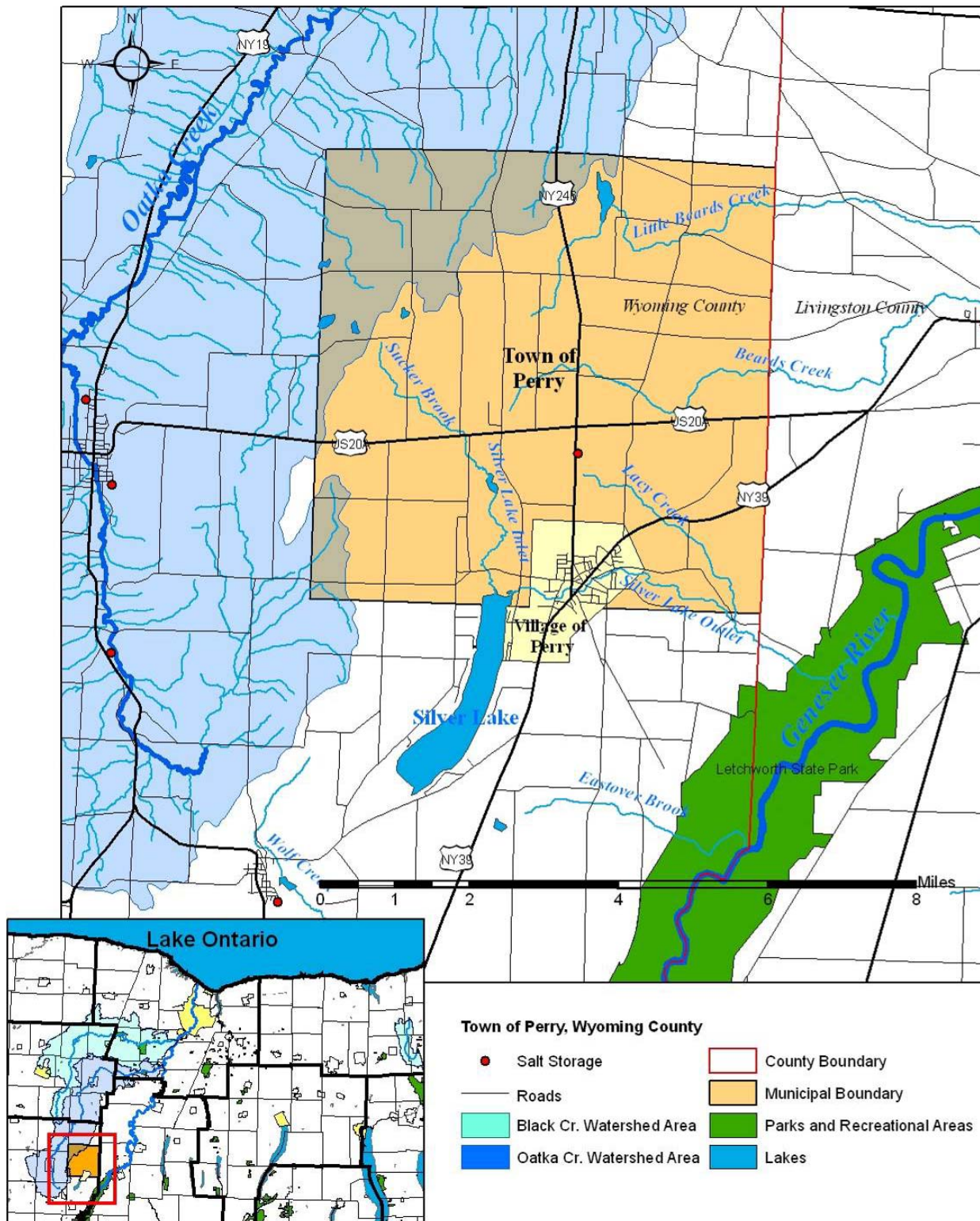
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Drafting of a comprehensive plan, 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.
- It is highly recommended that check dams be constructed and/or maintained in steep slope areas which have considerable potential to produce high-velocity runoff.
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after is also recommended.

- Consider developing environmental protection overlay zones (see “EPOD,” page 13) for significant tributaries and steep slope areas, prohibiting the erection of new structures within at least 50 feet of environmentally sensitive areas.
- Continued education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	12 of 44 BMPs, or 27%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	4 of 23, or 17%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	22 of 29 BMPs, or 76%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		2 of 7 BMPs, or 29%
New	8 of 13, or 62%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	9 of 10, or 90%		

Town of Perry, Wyoming County



Overview Area

Town of Perry ~ Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
36.61	0	7	0	19.12%	0	3.26%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- *A Comprehensive Master Plan for the Town and Village of Perry, Wyoming County, New York.* 1969.
- *Town of Perry Zoning Regulations.* December 2, 2000.

The Town of Perry contains approximately 3.3% of the area of the Oatka Creek watershed, including the headwaters of the Pearl Creek and other small tributaries; 0.6% of the town's total area is covered by water.

The town has a population of 6,654 persons. There are 1,905 households and 1,339 families residing in Perry. The average household size is 2.55 persons and the average family size is 3.00 persons. Perry has 2,084 housing units, and the median year a structure was built is 1940. The median age is 35 years. The median income for a household in the town is \$39,455, and the median value for an owner-occupied housing unit is \$64,400.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 12 permits issued for new residential units and 6 permits issued for new commercial units between 2002 and 2004 in the Town of Perry, indicating a moderate rate of development within the town relative to the municipalities within the two watersheds.

The predominate land cover in the Perry portion of the Oatka Creek watershed is hay/pasture, with a modest amount of land used for row crop production and a small amount of mixed forest dispersed throughout. A comprehensive review of Perry's land use regulations revealed no ordinances or regulations specific to erosion and sediment control or water quality in general; however, stipulations pertaining to agricultural practices (specifically, animal waste management) were found to be present. Furthermore, the Town's comprehensive plan calls for "conservation areas" along the entire length of all streams within the town, although the degree to which this has been implemented is unknown.

A number of BMPs were found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed information pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

While Perry's rate of development is considered to be moderate relative to other municipalities in the watershed, future development is not likely to be severe or necessarily concentrated in the area of the Oatka Creek watershed. Erosion stemming from new construction activities is therefore likely to remain low into the immediate future. Sources of erosion resulting from agricultural activities may be a concern, however. To this end, continued outreach to area farmers by the Wyoming County SWCD is strongly recommended.

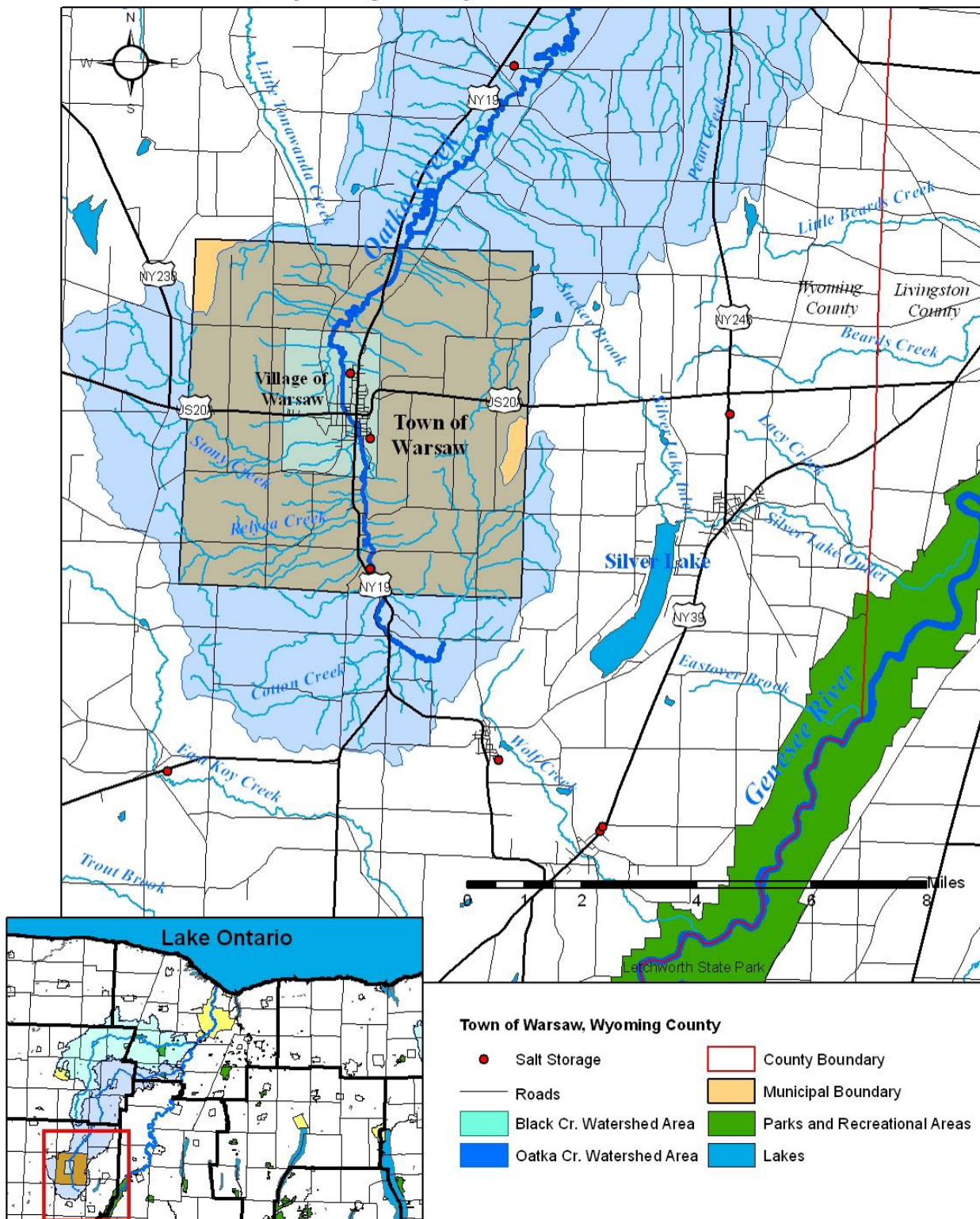
Recommendations for Future Action by Local Officials:

- Updating the joint Village/Town Comprehensive Plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka and neighboring watersheds.
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- It is highly recommended that check dams be constructed and/or maintained along road ditches in steep slope areas, thereby minimizing the potential of erosion resulting from high-velocity runoff.
- Consider developing environmental protection overlay zones for significant tributaries and steep slope areas (see "EPOD," page 13), prohibiting the erection of new structures within at least 50 feet of environmentally sensitive areas and encouraging the retention of vegetation.
- Continued education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	13 of 44 BMPs, or 30%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	9 of 21, or 43%	Forestry	1 of 10, or 10%
New Development or Redevelopment	4 of 23, or 17%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	24 of 29 BMPs, or 83%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		2 of 7 BMPs, or 29%
New	10 of 13, or 77%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	9 of 10, or 90%		

Town of Warsaw, Wyoming County



Overview Area

Town of Warsaw ~ Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.48	0	34.63	0	97.6%	0	16.11%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Subdivision Regulations.** Town of Warsaw. November 1988.
- **Zoning Ordinance.** Town of Warsaw. September 1998.
 - Includes *Appendix B: Town Master Plan Land Use Goals and Policies*

The Town of Warsaw lies almost entirely within the Oatka Creek watershed, occupying over 16% of the total Oatka Creek watershed area. The town encompasses 35.5 square miles, 0.14% of which is covered by water.

The Town has 2,232 housing units built in the median year of 1940. The population of the town is 5,423 persons, with 2,113 households and 1,354 families. The median age is 39 years. The average household size is 2.39 persons and the average family size is 2.98 persons. The median income for a household in the town is \$37,699 and the median value of an owner-occupied housing unit is \$68,600.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 28 permits issued for new residential units and 7 permits issued for new commercial units between 2002 and 2004 in the Town of Warsaw, indicating a high rate of development within the town relative to the municipalities within the two watersheds.

The predominant land cover in the town outside of the village is pasture/hay with substantial patches of row crops dispersed throughout these pasture/hay areas. Large swaths of mixed forest cover most of the land area of two steep north-south ridges that run the length of the town on either side of the Oatka Creek valley. Commercial expansion has been gradually occurring at the northern boundary of the village limits, contributing a significant amount of impervious surface area to the lands between State Route 19 and the Oatka Creek.

Several fundamental best management practices in erosion and sediment control were found to be included in the Town of Warsaw's zoning and subdivision regulations. Examples include stipulations regarding the preservation of natural features during construction activities, stabilization of lands and the retention of vegetated ground cover during excavations, mandatory stream setbacks, barnyard runoff controls, as well as various other general drainage provisions.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway

maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The Town of Warsaw has a relatively high rate of development in comparison to other municipalities within the study area. Strict oversight of site plans and construction activities should be paid by the town as commercial activities continue to expand. Warsaw's unique geographic location between two steep ridges underlies the need for local officials to pay close attention to erosion and sediment control issues, particularly as development continues to expand in the valley floor near floodplains. This sub-drainage area has the potential to capture a large amount of stormwater and deliver it to the Oatka Creek at a rapid pace, thereby greatly increasing the potential for flooding and erosion. Furthermore, expansion of impervious surface area through commercial and residential development can increase the velocity by which runoff can travel through an area. Destruction of wetland areas and filling of floodplains reduce the opportunities for water to infiltrate into the ground, further exacerbating stormwater drainage issues.

The circumstances described above increase the likelihood for rain and thaw events to increase the rates of erosion and sedimentation that would otherwise be likely to occur. In addition, the pollutants that are present on these impermeable surfaces – such as pathogens from domesticated animal waste, chemicals from automobiles, road salts, and various types of litter and debris – are more likely to enter into local waterbodies at higher concentrations, causing significant environmental stress. In conjunction with this project, G/FLRPC is working closely with the town to identify areas in need of improvement and to develop strategies to address gaps in local controls regarding these issues.

General attention should also continue to be paid to the maintenance of roadside ditches and other similar systems of stormwater conveyance. Roadside ditches are generally designed to accommodate only the runoff that originates from within the road right-of-way. As other connections are made from private lands, serious complications are likely to occur (specifically, downstream flooding and property damage). Continued evaluation of roadside ditches and connections of private drainage appurtenances (agricultural drainage tiles, sump pumps, field ditches, etc.) is therefore strongly recommended. Furthermore, local officials should consider identifying areas that may be appropriate for the construction of retrofit facilities – such as stormwater retention and detention ponds – in an effort to address and control stormwater surges.

Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws

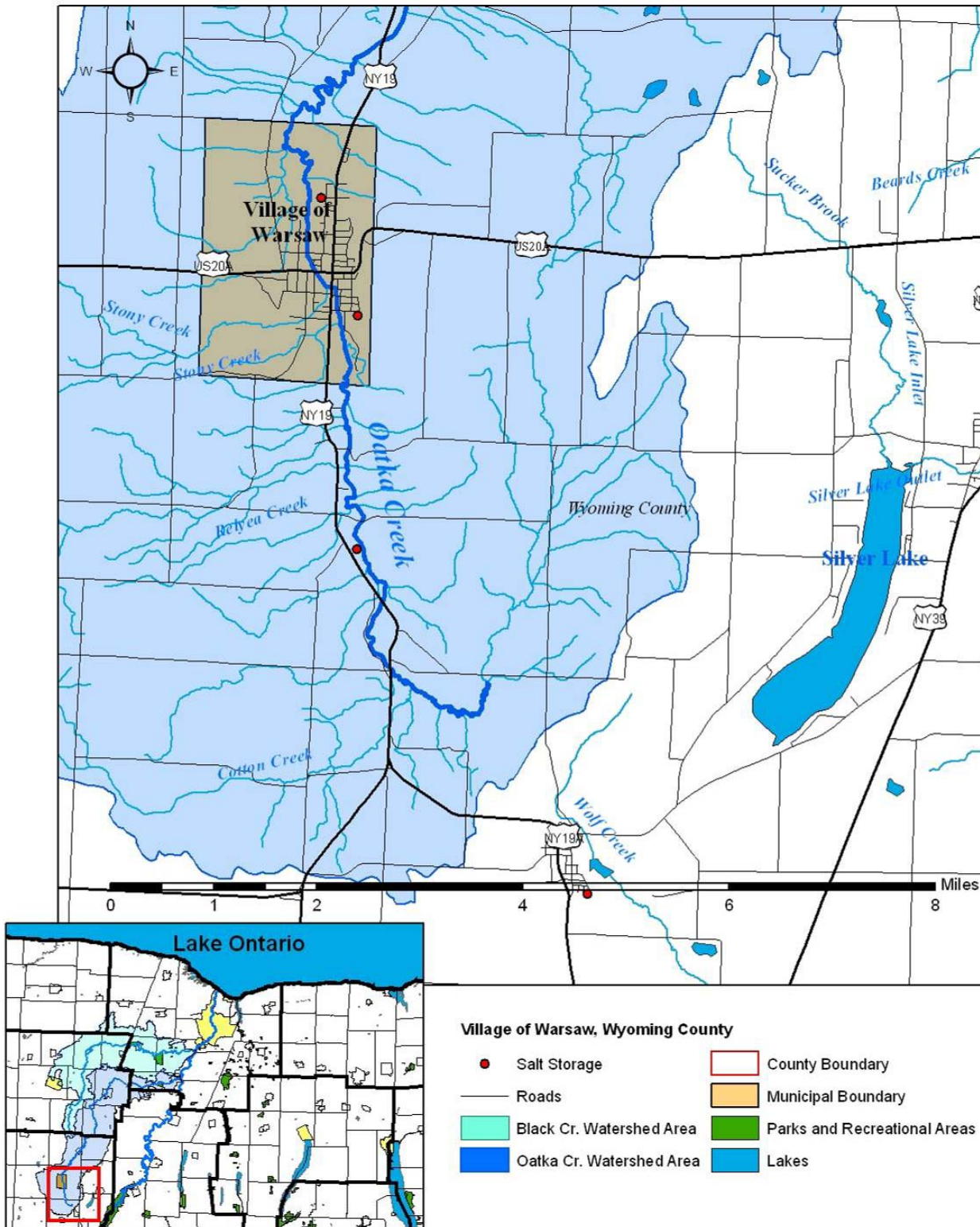
and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.

- Revision of the town's comprehensive plan, 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.
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- It is highly recommended that check dams be constructed and/or maintained in steep slope areas which have considerable potential to produce high-velocity runoff.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.
- Conduct education and outreach to area farmers by the Wyoming County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	20 of 44 BMPs, or 45%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	10 of 21, or 48%	Forestry	1 of 10, or 10%
New Development or Redevelopment	10 of 23, or 43%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	23 of 29 BMPs, or 79%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		2 of 7 BMPs, or 29%
New	9 of 13, or 69%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	9 of 10, or 90%		

Village of Warsaw, Wyoming County



Overview Area

Village of Warsaw • Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
4.14	0	4.14	0	100%	0	1.93%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Comprehensive Plan.** Village of Warsaw, Wyoming County, New York. October 1994.
- **Chapter 133: Subdivision of Land.** From the Code of the Village of Warsaw. March 1995.
- **Chapter 163: Zoning.** From the Code of the Village of Warsaw. 1995.

The village of Warsaw, located in the center of the town of Warsaw, is completely within the Oatka Creek watershed. The village is 4.1 square miles in area and the creek flows northward through the village.

Warsaw contains 3,814 persons, 1,484 households and 887 families. The median age is 39 years. The average household size is 2.32 persons and the average family size is 3.01 persons. The median income for a household in the village is \$35,592. There are 1,538 housing units and the median age that a structure was built in the village is 1940. The median value for an owner-occupied housing unit is \$66,200.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 3 permits issued for new residential units and 0 permits issued for new commercial units between 2003 and 2004 in the Village of Warsaw. Normally this would indicate a significantly low rate of development within the village relative to the municipalities within the two watersheds; however, data was not provided for all years or across all categories by Village officials.

The village is characterized by medium- to high-density residential and commercial land uses, creating a large amount of impervious surfaces (buildings, driveways, roads, parking lots, etc.). Steep slope areas on the east and west sides of the village are covered with significant stands of mixed forest, which appears to be the predominant land cover outside of the developed area of the village. Pasture/hay land cover occupies much of the remainder of the land with small patches of row crops interspersed throughout.

A comprehensive review of the Village of Warsaw's land use regulations revealed a number of basic best management practices to be present. Consideration of stormwater and drainage needs, mandated stream setbacks, preservation of natural features and erosion prevention were the types of requirements and language found throughout the Village's zoning ordinance and subdivision laws. A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater

Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

While Warsaw exhibits classic “small town” character, runoff issues that occur in and around this immediate area can accurately be described as “urban” in nature. Expansion of impervious surface area greatly increases the velocity by which runoff can travel through an area. Destruction of wetland areas and filling of floodplains reduce the opportunities for water to infiltrate into the ground. These two circumstances increase the likelihood that rain and thaw events will cause an increase in erosion and sedimentation that would otherwise be likely to occur. Furthermore, the pollutants that are present on these impermeable surfaces – such as pathogens from domesticated animal waste, chemicals from automobiles, road salts, and various types of litter and debris – are more likely to enter into local waterbodies at higher concentrations, causing them significant environmental stress.

While the majority of new development appears to be occurring in areas outside of the village, strict oversight of site plans and construction activities should nonetheless be paid by village officials to any activities occurring within their jurisdiction. The Village’s unique geographic location between two steep ridges underlies the need for local officials to pay close attention to erosion and sediment control issues. This sub-drainage area has the potential to capture a large amount of stormwater and deliver it to the Oatka Creek at a rapid pace, thereby greatly increasing the potential for flooding and erosion.

Identification of structures on private lands – such as culverts or sediment traps – should occur in an effort to ensure that such structures are being properly maintained. Furthermore, local officials should consider identifying areas that may be appropriate for the construction of retrofit facilities – such as stormwater retention and detention ponds – in an effort to address and control future stormwater surges. Education and outreach to private land owners regarding rights and responsibilities pertaining to maintenance of stormwater facilities and other pertinent riparian issues should also occur as necessary.

Recommendations for Future Action by Local Officials:

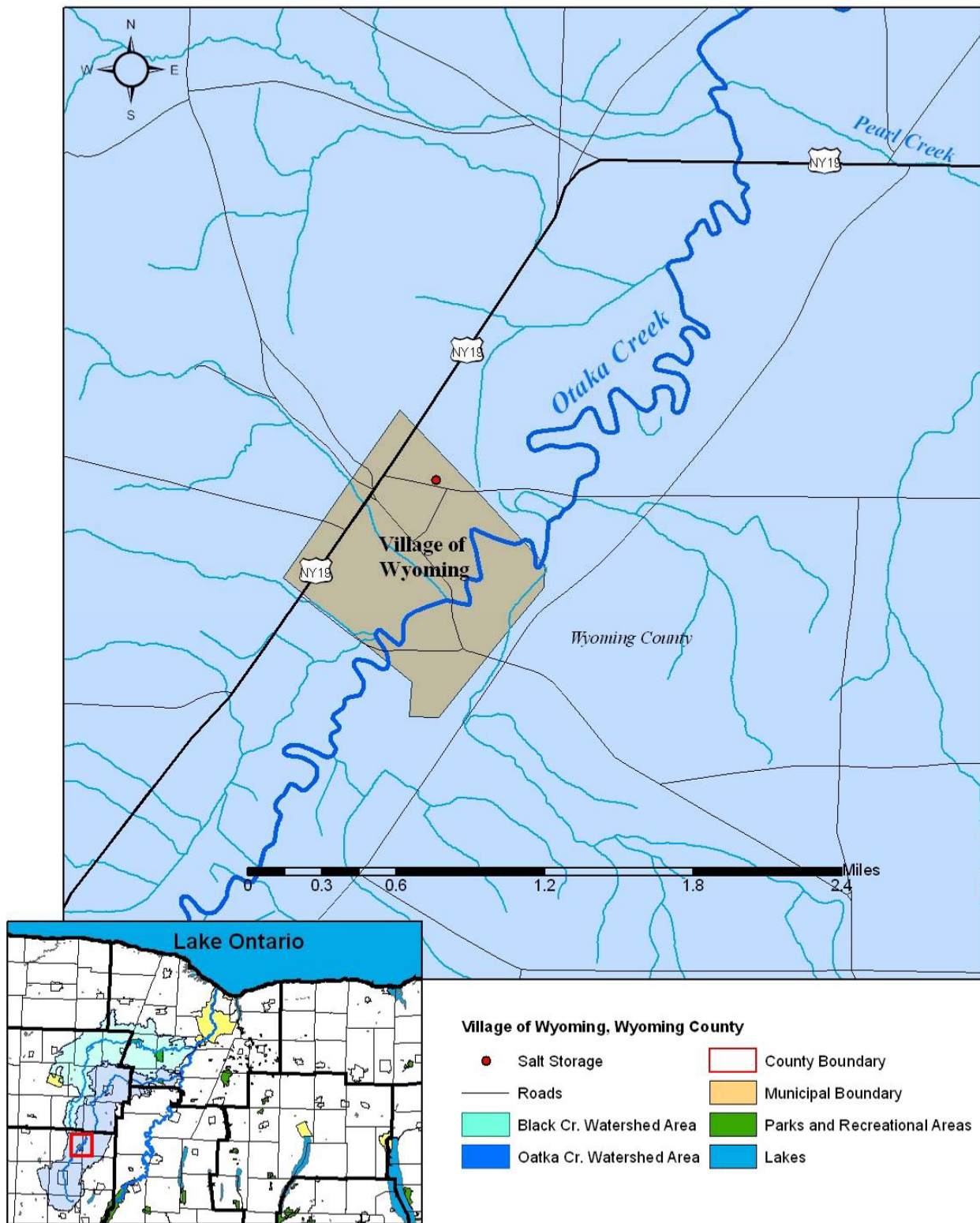
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.

- Revision of the village's comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek watershed.
- Actively search for opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- It is highly recommended that check dams be constructed and/or maintained in steep slope areas which have considerable potential to produce high-velocity runoff.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands contain contributing tributaries or Oatka Creek segments. Issues including non-point source pollution, maintenance of stormwater facilities, riparian rights and landowner responsibilities, setbacks and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	21 of 44 BMPs, or 48%	Forestry and Agriculture	7 of 18 BMPs, or 39%
<i>Existing Development</i>	<i>10 of 21, or 48%</i>	<i>Forestry</i>	<i>1 of 10, or 10%</i>
<i>New Development or Redevelopment</i>	<i>11 of 23, or 48%</i>	<i>Agriculture</i>	<i>6 of 8, or 75%</i>
Waterways/Wetlands	9 of 15 BMPs, or 60%	Recreation	0 BMPs found
<i>Modified Waterways</i>	<i>7 of 9, or 78%</i>	<i>Docks and Launches</i>	<i>0</i>
<i>Wetlands/Riparian Areas</i>	<i>2 of 6, or 33%</i>	<i>Golf Courses</i>	<i>0</i>
Roads and Bridges	18 of 29 BMPs, or 62%	Onsite Wastewater Treatment Systems	
<i>Existing</i>	<i>5 of 6, or 83%</i>	2 of 7 BMPs, or 29%	
<i>New</i>	<i>8 of 13, or 62%</i>	<i>Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.</i>	
<i>All</i>	<i>5 of 10, or 50%</i>		

Village of Wyoming, Wyoming County



Overview Area

Village of Wyoming ~ Wyoming County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
.67	0	.67	0	100%	0	.31%

**All area figures in square miles*

**Town area calculations include villages within*

The Village of Wyoming, located on the eastern edge of the town of Middlebury, is entirely within the Oatka Creek watershed. With a total area of 0.7 square miles, the village occupies only 0.31% of the total Oatka Creek watershed area.

There are 513 people, 176 households, and 133 families residing in the Village of Wyoming. The median age of a Wyoming resident is 33 years. The average household size is 2.90 persons and the average family size is 3.33 persons. There are 173 housing units, of which the median year of construction is 1940. The median value for an owner-occupied housing unit is \$66,200; median household income is \$38,750.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 0 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Village of Wyoming, indicating a significantly low rate of development within the village relative to the municipalities within the watershed.

After repeated requests, the Village of Wyoming did not submit land use regulations to G/FLRPC. As a result, the assessment is incomplete. There were, however, a number of BMPs found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Land use in Wyoming is predominated by low- to medium-density residential and commercial structures; most of the properties contain large, grassed yards and there is relatively little area of impermeable surfaces. The vast majority of land cover in the village is pasture/hay with small patches of wetlands and row crops distributed throughout. The northwestern border of the village is characterized by a steep, forested slope.

Considering Wyoming's small population and low housing density, coupled with the lack of permits issued for new construction over the past several years, erosion stemming from construction activities is likely to remain low into the immediate future. The most significant sources of erosion and sedimentation are likely to be related to area conveyance systems, such as tributaries and roadside ditches. To this end, stream buffers and facilities such as sediment traps should be considered for implementation. Agricultural activities in this area also have the

potential to contribute to erosion, although the land cover analysis indicates that lands are well-protected.

Recommendations for Future Action by Local Officials:

- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Drafting of a village comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek watershed.
- Actively search for opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Construction and maintenance of check dams in steep areas that have the potential to produce high-velocity runoff is highly recommended.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	11 of 44 BMPs, or 25%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	3 of 23, or 13%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges*	3 of 29 BMPs, or 7%	Onsite Wastewater Treatment Systems	
Existing	0		2 of 7 BMPs, or 29%
New	1 of 13, or 8%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	1 of 10, or 10%		

*Orson Beardslee, Jr., Village of Wyoming Supervisor of Public Works could not be reached for comment; section therefore is incomplete.

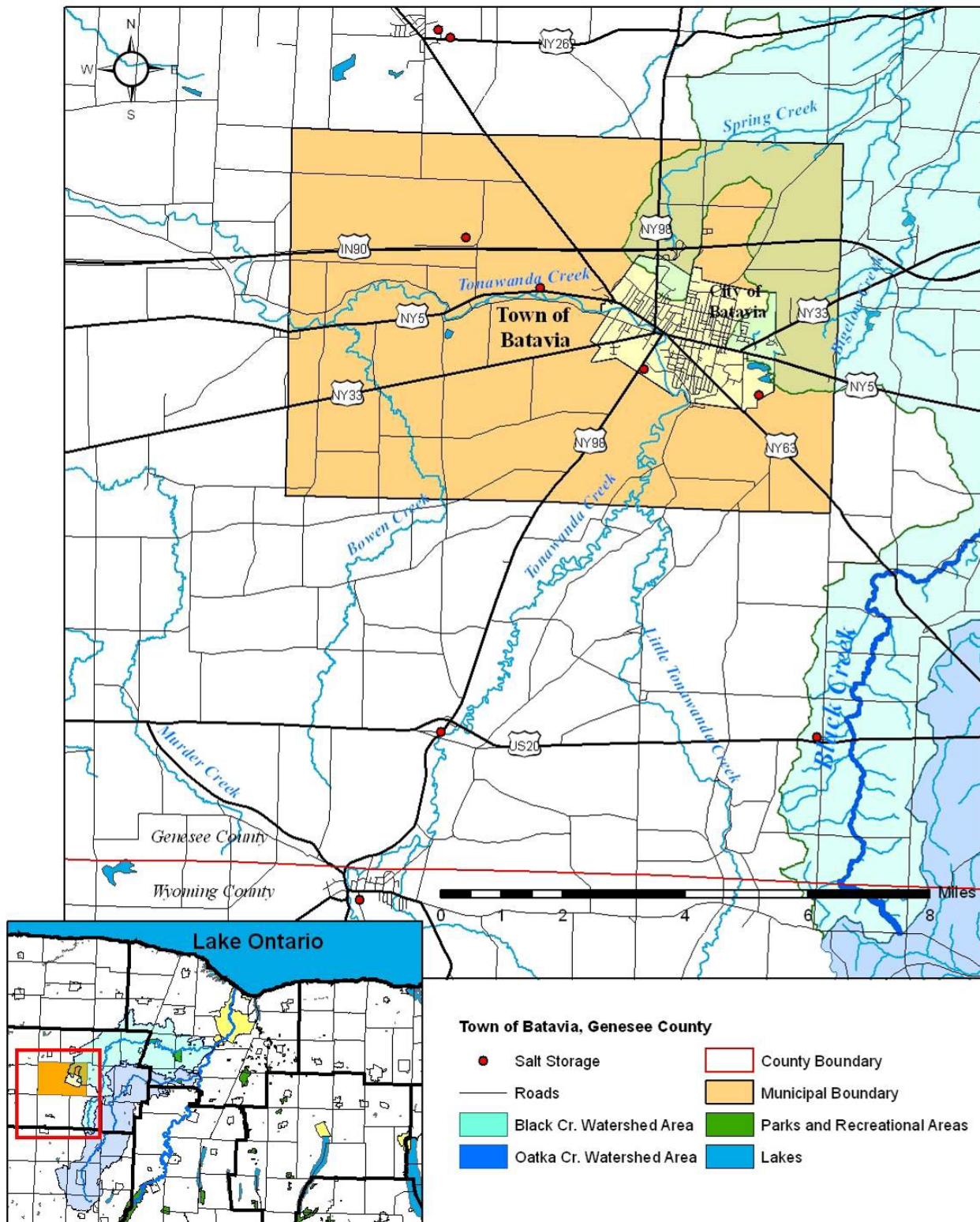
MUNICIPAL SUMMARIES: GENESEE COUNTY



General Statistics for Genesee County:

Total Land Area	495 sq. miles
Median Household Income	\$40,542
Average Household Size	2.59 persons
Average Family Size	3.10 persons
Median Age	37 years
Median Year Structure Built	1951
Median Value of Owner-Occupied Housing Unit	\$83,200

Town of Batavia, Genesee County



Town of Batavia ~ *Genesee County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
48.43	7.46	0	15.39%	0	3.68%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- ***Town of Batavia Zoning Ordinance.*** Adopted 8/20/97, amended through 6/17/98.
- ***Town of Batavia Highways, Vehicles and Traffic Ordinance.*** Adopted 10/22/97, amended through 1/20/99.
- ***Mobile Home Ordinance, Town of Batavia.*** Adopted 12/14/98, amended through 5/18/94.
- ***Town of Batavia Comprehensive Master Plan.*** Adopted 7/6/93.
- ***Town of Batavia Land Subdivision Regulations.*** Amended through 6/15/94.
- ***Town of Batavia Flood Damage Prevention law.*** Adopted 1996.
- ***Town of Batavia Town Roadway Specifications.*** Amended through 1998.
- ***Dog Control Law of the Town of Batavia.*** Adopted 1989.

Approximately 15% of the Town of Batavia falls within the Black Creek watershed. The town has a total area of 48.5 square miles, accounting for over 3% of the total Black Creek watershed area.

As of the Census 2000, the town had a total population of 5,915 persons. The town has 2,334 households and 1,645 families. The average household size is 2.53 persons and the average family size is 2.99 persons. The median age is 39 years. The median income for a household in the town is \$38,449. There are 2,447 housing units, housing structures were constructed in the median year 1966, and the median value for an owner-occupied house is \$81,400.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 47 permits issued for new residential units and 12 permits issued for new commercial units between 2003 and 2004 in the Town of Batavia, indicating a significantly high rate of development within the town relative to the municipalities within the two watersheds.

The predominant land cover in the Town of Batavia is pasture/hay, with areas of row crops and small patches of mixed forest interspersed throughout. It is important to note that small portions of the watershed stretch into the City of Batavia, a municipality that has been omitted from this analysis. Land cover in the city is mainly low-intensity residential. It has been noted by local officials, however, that drainage infrastructure within the city transfers significant portions of stormwater from the Black Creek watershed into adjacent watersheds.

Best management practices in erosion and sediment control are well-represented in Batavia's land use regulations. For example, zoning ordinances stipulate that practices in erosion and sediment control should be taken from the NYS Guidelines for Urban Erosion and Sediment Control. Furthermore, stipulations regarding activities in the established Wellhead Protection

District are explicit regarding water quality practices and standards. A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The Town of Batavia has a relatively high rate of development in comparison to other municipalities within the study area. Strict oversight of site plans and construction activities should be paid by the town as agricultural land uses are converted to residential and commercial uses within the watershed. While specific erosion and sediment control BMPs were found to be present, local officials should strongly consider adopting the NYS model ordinance for stormwater management and erosion and sediment control, as it guarantees uniformity and comprehensiveness.

General attention should also continue to be paid to the maintenance of roadside ditches and other similar systems of stormwater conveyance. Roadside ditches are generally designed to accommodate only the runoff that originates from within the road right-of-way. As other connections are made from private lands, serious complications are likely to occur (specifically, downstream flooding and property damage). Continued evaluation of roadside ditches and connections of private drainage appurtenances (agricultural drainage tiles, sump pumps, field ditches, etc.) is therefore strongly recommended. Furthermore, local officials should consider identifying areas that may be appropriate for the construction of retrofit facilities – such as stormwater retention and detention ponds.

Recommendations for Future Action by Local Officials:

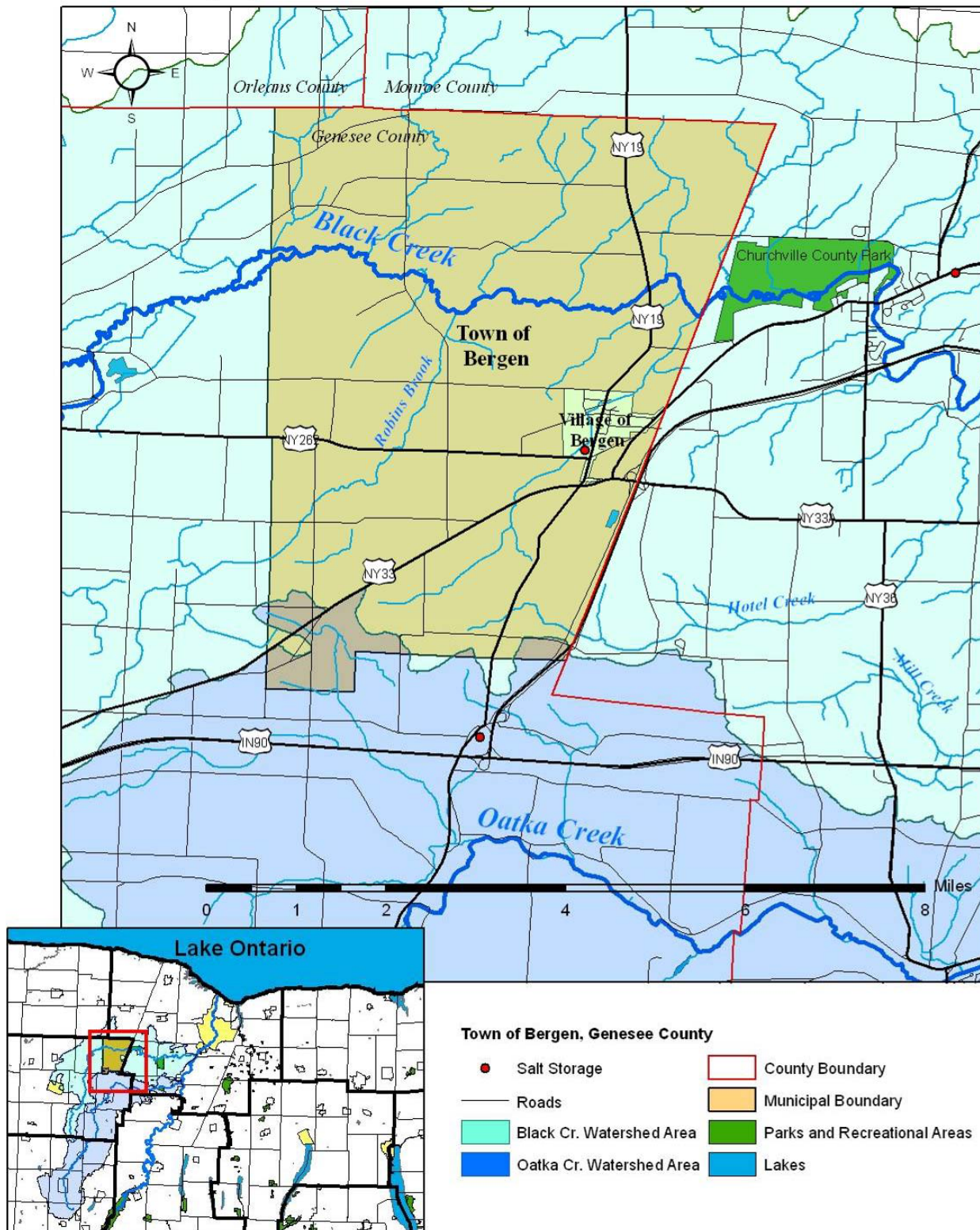
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Revision of the town's comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Black Creek watershed and other neighboring watersheds within the municipality.
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.

- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	21 of 44 BMPs, or 48%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	7 of 21, or 33%	Forestry	1 of 10, or 10%
New Development or Redevelopment	14 of 23, or 61%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	24 of 29 BMPs, or 83%	Onsite Wastewater Treatment Systems	
Existing	6 of 6, or 100%		3 of 7 BMPs, or 43%
New	9 of 13, or 69%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	9 of 10, or 90%		

Town of Bergen, Genesee County



Overview Area

Town of Bergen ~ Genesee County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
27.57	26.39	1.18	95.73%	4.28%	13.03%	.55%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Bergen, Village of Bergen Comprehensive Plan 2015.** April 1996.
- **Town of Bergen Zoning Law.** Adopted 9/25/83.
- **Town of Bergen Land Subdivision Regulations.** Approved 3/24/69; revised 9/5/91.
- **Town of Bergen Stormwater Management and Erosion Control Law.** Date unknown.

The Town of Bergen is predominantly within the Black Creek watershed, with the exception of a small area of the Oatka Creek watershed along the southern boundary of the town. The town is 27.6 square miles in area. Bergen Swamp – an area designated as a National Natural Landmark by the US Department of the Interior – is located in the western portion of the town and is shared with the Town of Byron. The Black Creek flows through this ecologically unique area, which is privately owned and maintained.

According to 2000 Census data, there are 3,182 people, 1,196 households, and 857 families residing in the town of Bergen. The average household size is 2.66 persons and the average family size is 3.14 persons. The median age is 37 years. There are 1,240 housing units and the median household income is \$49,412. The median year a structure was built is 1962; the median value of an owner-occupied housing unit is \$86,900.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 20 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Bergen, indicating a moderate rate of development within the town relative to the municipalities within the two watersheds.

The predominant land cover in Bergen is pasture/hay with significant patches of row crops and stands of mixed forest interspersed throughout. A significant area of mixed forest stretches east to west across the Black Creek corridor, which passes through the Bergen Swamp.

A comprehensive review of the Town of Bergen's land use regulations revealed a wide array of best management practices. The town's stormwater management and erosion control law in conjunction with subdivision regulations appear to provide excellent coverage of stormwater and erosion issues. The law requires developers to submit a stormwater and sediment control plan to the respective boards before development takes place. Furthermore, the joint town/village comprehensive plan references the importance of continued monitoring of stormwater runoff issues throughout the town and addressing any needed changes through the local legislative process.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The Town of Bergen was found to have a moderate rate of development in comparison to other municipalities within the study area. Current land use regulations seem to provide comprehensive protection against new land altering activities with regard to erosion and sediment control provisions. Strict oversight of site plans and construction activities should continue to be paid by the town as agricultural land uses are converted to residential and commercial uses within the watershed. While Bergen already has an erosion and sediment control law in place, local officials should strongly consider reviewing the NYS model ordinance for stormwater management and erosion and sediment control in an effort to establish uniformity with the state model and address any gaps that may be present.

General attention should also continue to be paid to the maintenance of roadside ditches and other similar systems of stormwater conveyance. Roadside ditches are generally designed to accommodate only the runoff that originates from within the road right-of-way. As other connections are made from private lands, serious complications are likely to occur (specifically, downstream flooding and property damage). Continued evaluation of roadside ditches and connections of private drainage appurtenances (agricultural drainage tiles, sump pumps, field ditches, etc.) is therefore strongly recommended.

Recommendations for Future Action by Local Officials:

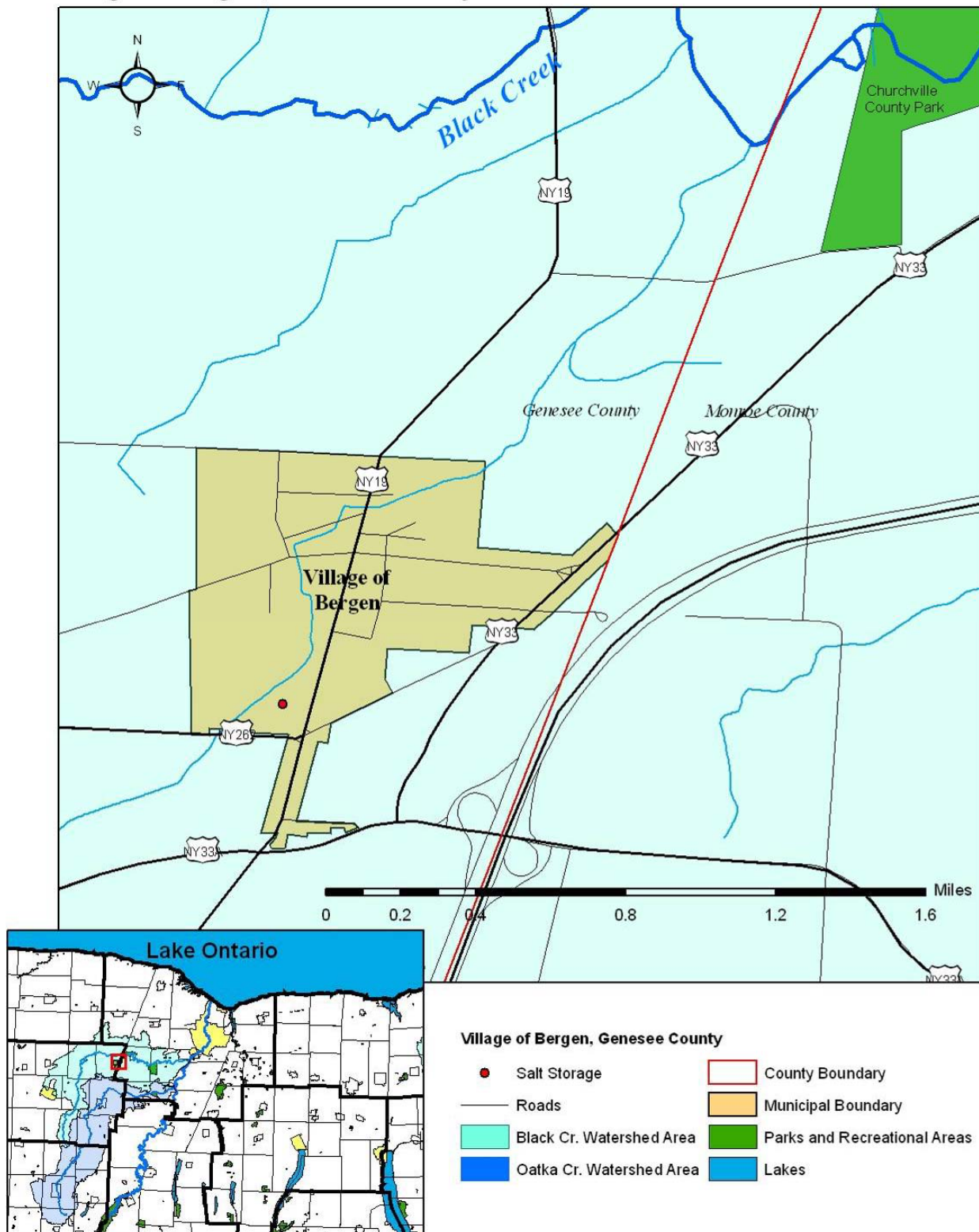
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka and Black Creek Watershed Committee meetings. Oatka Creek Watershed Committee meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall. The schedule for Black Creek Watershed committee meetings can be found at their website: <http://blackcreekwatershed.org>
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Revision of the town's comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Black and Oatka Creek watersheds

- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development		22 of 44 BMPs, or 50%	Forestry and Agriculture		8 of 18 BMPs, or 44%
<i>Existing Development</i>		9 of 21, or 43%	<i>Forestry</i>		1 of 10, or 10%
<i>New Development or Redevelopment</i>		13 of 23, or 57%	<i>Agriculture</i>		7 of 8, or 88%
Waterways/Wetlands		9 of 15 BMPs, or 60%	Recreation 0 BMPs found		
<i>Modified Waterways</i>		7 of 9, or 78%	<i>Docks and Launches</i>		0
<i>Wetlands/Riparian Areas</i>		2 of 6, or 33%	<i>Golf Courses</i>		0
Roads and Bridges		22 of 29 BMPs, or 76%	Onsite Wastewater Treatment Systems		
<i>Existing</i>		5 of 6, or 83%	2 of 7 BMPs, or 29%		
<i>New</i>		10 of 13, or 77%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.		
<i>All</i>		7 of 10, or 70%			

Village of Bergen, Genesee County



Overview Area

Village of Bergen ~ Genesee County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
.59	.59	0	100%	0	1.27%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Bergen, Village of Bergen Comprehensive Plan 2015.** April 1996.
- **Village of Bergen Draft Zoning Revisions.** Date Unknown.

The Village of Bergen is completely within the Black Creek watershed. It is less than 0.6 square miles in area and accounts for approximately 1.3% of the area of the Black Creek watershed.

There are 477 housing units in the village of Bergen, which is home to 1,240 people, 466 households, and 317 families. The median income for a household in the village is \$51,016. The average household size is 2.66 persons and the average family size is 3.23 persons. The median age is 35 years. The median value for an owner-occupied housing unit in the village of Bergen is \$83,800 and the median year for a structure to have been built is 1940.

According to the 2004 *Regional Land Use Monitoring Report*, there was 1 permit issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Village of Bergen, indicating a significantly low rate of development within the village relative to the municipalities within the two watersheds.

Land cover within the Village of Bergen is predominately low-intensity residential. Modest areas of pasture/hay and recreational fields surround the village boundary on all sides.

A comprehensive review of Bergen's comprehensive plan and draft zoning codes revealed several key best management practices to be present. Specifically, site plan review in the Village calls for developers to submit all requirements called for by NYSDEC stormwater and SEQRA processes, including a Stormwater Management and Erosion Control Plan. Furthermore, the joint town/village comprehensive plan references the importance of continued monitoring of stormwater runoff issues throughout the town and addressing any needed changes through the local legislative process.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering the significantly low rate of development within the village, coupled with the erosion and sediment control guidelines set forth within the proposed zoning regulations, the risk of erosion stemming from new construction activities is relatively low. Furthermore, the Village's small land area and relatively stable land cover make it unlikely to be a major contributor of sedimentation to area waterbodies.

Recommendations for Future Action by Local Officials:

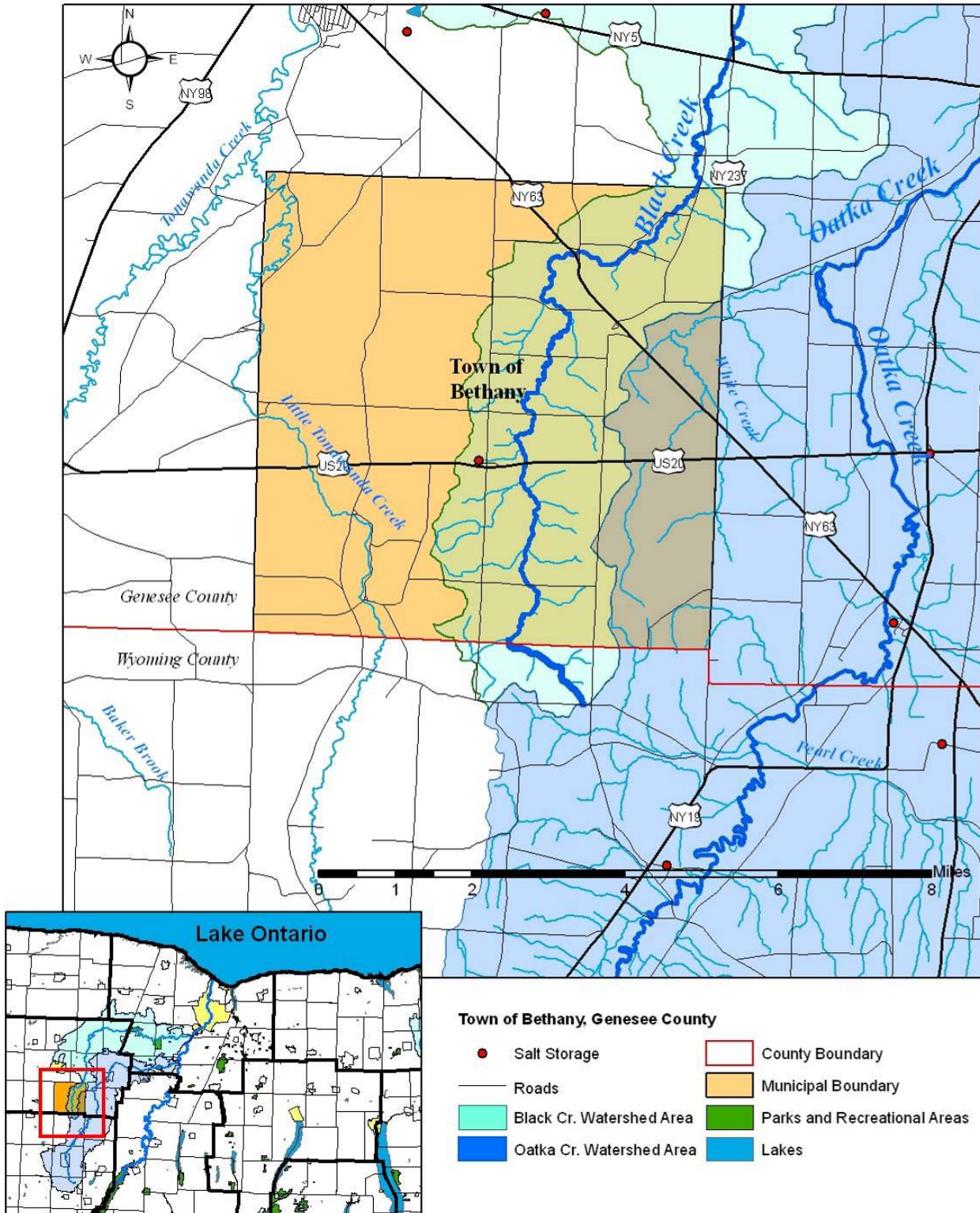
- Designate a local official (preferably a member of the town board) to represent the town at future Black Creek Watershed Coalition meetings. Information regarding meeting times and location can be found at the following website: <http://blackcreekwatershed.org>
- Consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Revision of the town's comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Black Creek watershed
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	19 of 44 BMPs, or 43%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	11 of 21, or 52%	Forestry	1 of 10, or 10%
New Development or Redevelopment	8 of 23, or 35%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	9 of 15 BMPs, or 60%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	2 of 6, or 33%	Golf Courses	0
Roads and Bridges*	4 of 29 BMPs, or 14%	Onsite Wastewater Treatment Systems	
Existing	1 of 6, or 17%	2 of 7 BMPs, or 29%	
New	2 of 13, or 15%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	1 of 10, or 10%		

*Joe Chimino, Village of Bergen Supervisor of Public Works could not be reached for comment; section therefore is incomplete.

Town of Bethany, Genesee County



Town of Bethany ~ *Genesee County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
36.12	30.29	.23	93.72%	.70%	14.96%	.11%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- ***Town of Bethany Comprehensive Plan.*** Adopted April, 1996.
- ***Town of Bethany Comprehensive Emergency Management Plan.*** Adopted April 20, 2002.
- ***Town of Bethany Zoning Law.*** Adopted June 19, 1985; amended through October 11, 2004.
- ***Town of Bethany Stormwater Management and Erosion Control Law.*** 1994.
- ***Town of Bethany Flood Damage Prevention Law.*** 1989.

The Town of Bethany has a total area of 36.1 square miles, with portions of it spanning both the Black and Oatka Creek watersheds. While the headwaters of the Black Creek begin in Middlebury to the south, the creek becomes well established as it enters Bethany in the area of the Genesee County Park and Forest, a public area of 444 acres which lies at the town's southern border.

The Town of Bethany has a population of 1,760 persons. There are 636 households and 499 families residing in Bethany with an average household size of 2.77 persons and an average family size of 3.10 persons. The median age is 38 years. The median income for a household is \$45,450, and the median income for a family is \$50,234. The median year a structure was built in the town is 1954 and the median value of an owner-occupied housing unit is \$82,600.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 14 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2003 in Bethany, indicating a low rate of development within the town relative to the municipalities within the two watersheds.

Land cover in the Town of Bethany is rather diverse. Significant stands of mixed forest line the southern half of the Black Creek riparian corridor; these stands give way to pasture/hay in the northern half of the town. Outside of the central riparian corridor, land cover is predominately pasture/hay with significant patches of row crops. Land cover within the Bethany/Oatka Creek watershed area mirrors similar patterns as observed in the Black Creek watershed.

Town officials have noted that the majority of sediment and erosion problems occurring within the town are associated with agricultural practices rather than development. Aside from encouraging participation in voluntary federal and state incentive programs, there is little that municipal governments can do to regulate specific agricultural activities.

A comprehensive review of Bethany's land use ordinances revealed a host of important best management practices relevant to stormwater and sediment control. The town's comprehensive

plan sets clear goals for the preservation of the town's rural character and the abatement of environmental degradation resulting from new development. Bethany's *Stormwater Management and Erosion Control Law* accounts for most of the BMPs that were found. The law requires erosion control plans to be developed and submitted to the responsible board for review and requires specific BMPs in erosion and sediment control to be present on disturbed sites, such as vegetative retention, various structural facilities (both temporary and permanent), as well as hazardous waste source controls. While the law covers many of the important areas relevant to erosion and sediment control, it does not meet the standards that regulated MS4s will be held to in 2008. Town officials may therefore want to consider reviewing the state model (as described on page 9 of this report) in order to ensure comprehensiveness of scope of the local stormwater and erosion control law.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Recommendations for Future Action by Local Officials:

- Consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled revision of the town's comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Controlling Sediment in the Black and Oatka Creek Watersheds

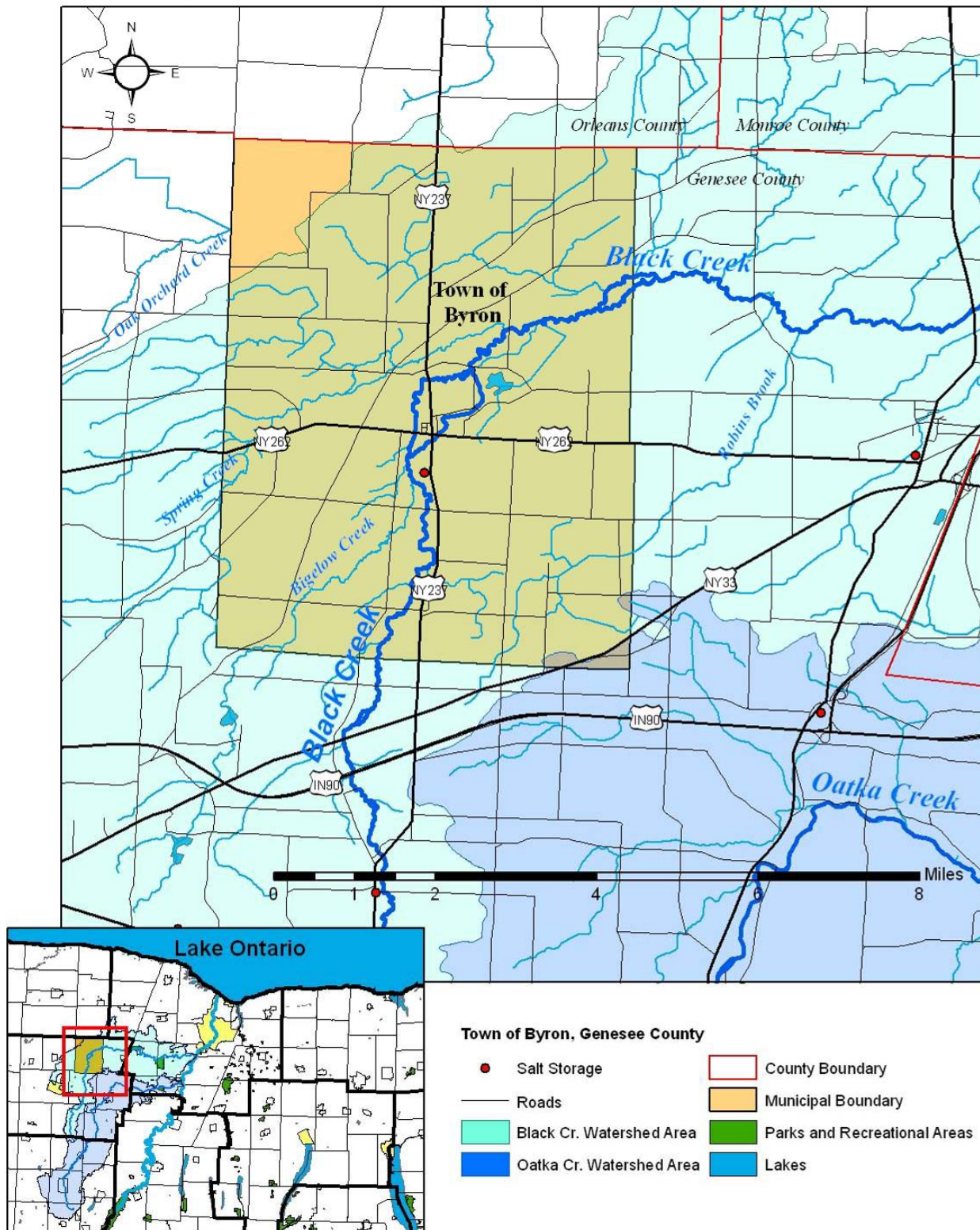
Municipal Law Review and Analysis

Assessment Results:

Development	24 of 44 BMPs, or 55%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	10 of 21, or 48%	Forestry	1 of 10, or 10%
New Development or Redevelopment	14 of 23, or 61%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	10 of 15 BMPs, or 67%	Recreation	0 BMPs found
Modified Waterways	8 of 9, or 89%	Docks and Launches	0
Wetlands/Riparian Areas	2 of 6, or 33%	Golf Courses	0
Roads and Bridges*	11 of 29 BMPs, or 38%	Onsite Wastewater Treatment Systems	
Existing	1 of 6, or 17%		2 of 7 BMPs, or 29%
New	6 of 13, or 46%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	4 of 10, or 10%		

Roy Hersee, Town of Bethany Highway Superintendent could not be reached for comment; section therefore is incomplete.

Town of Byron, Genesee County



Overview Area

Town of Byron ~ *Genesee County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
32.32	30.29	.23	93.72%	.7%	14.96%	.11%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- ***Official Zoning Ordinance: Town of Byron.*** April 23, 1997
- ***Town of Byron Land Subdivision Regulations.*** 6/19/91
- ***Town of Byron Comprehensive Plan.*** 10/13/93

The Town of Byron is almost entirely within the Black Creek watershed with the exception of some territory in the northwestern corner of town. The town has an area of 32.2 square miles, only 0.19% of which is covered by water. Bergen Swamp – an area designated as a National Natural Landmark by the US Department of the Interior – is located in the eastern portion of the town and is shared with the Town of Bergen. The Black Creek flows through this ecologically unique area, which is privately owned and maintained.

As of Census 2000 there were 2,493 people, 878 households, and 663 families residing in the town. The average household size is 2.84 persons and the average family size is 3.24 persons. The median age is 36 years. There are 922 housing units, median income for a household in the town is \$49,722, and median owner occupied housing unit value is \$89,200. The median year for a structure built in the Town of Byron is 1970.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 11 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Byron, indicating a low rate of development within the town relative to the municipalities within the two watersheds.

Land cover within the Town of Byron is predominately pasture/hay with significant area dedicated to row crops. Large stands of mixed forest and woody wetlands dominate the area in and around Bergen Swamp; other smaller patches of mixed forest are dispersed throughout the town.

A comprehensive review of the Town of Byron's land use regulations revealed several land use best management practices to be present. BMPs regarding mandatory stream setbacks, the preservation of significant natural features and the retention of vegetation and soil stabilization are examples of the type that were found.

A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway

maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The relatively low rate of development within Byron, coupled with the adequate set of land use ordinances related to new construction considerably diminishes the risk of significant erosion stemming from new construction activities. As stated in the *2001 Genesee River Basin Waterbody Inventory and Priority Waterbodies List*, the major source of sediment and nutrient loading in this part of the watershed is a direct result of intense agricultural activity.¹⁵

Recommendations for Future Action by Local Officials:

- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled revision of the town's comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

¹⁵ New York State Department of Environmental Conservation. Page 28.

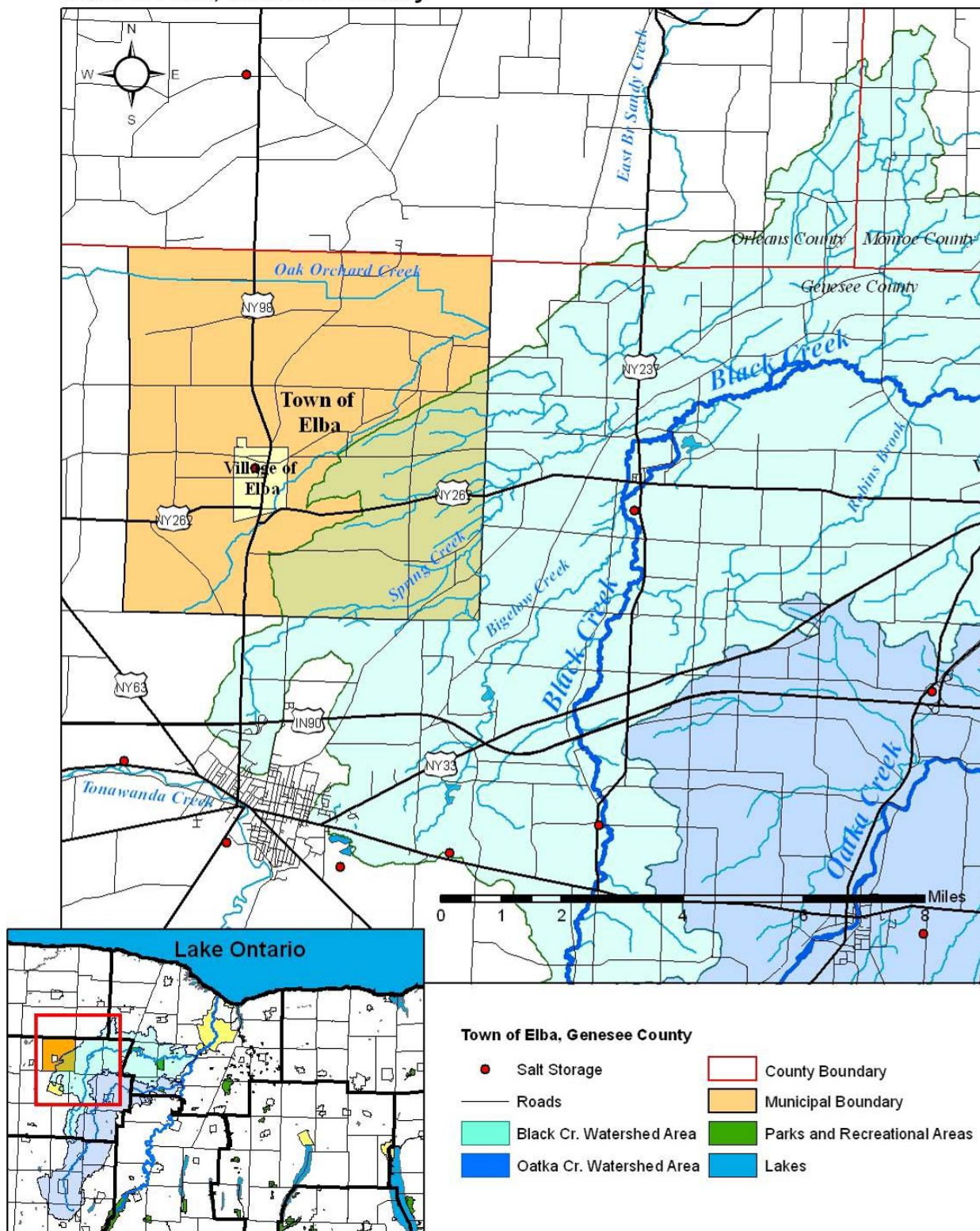
Controlling Sediment in the Black and Oatka Creek Watersheds

Municipal Law Review and Analysis

Assessment Results:

Development	22 of 44 BMPs, or 50%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	9 of 21, or 45%	Forestry	1 of 10, or 10%
New Development or Redevelopment	13 of 23, or 57%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	18 of 29 BMPs, or 62%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		3 of 7 BMPs, or 43%
New	8 of 13, or 62%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	5 of 10, or 50%		

Town of Elba, Genesee County



Overview Area

Town of Elba ~ *Genesee County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.76	9.57	0	26.76%	0	4.73%	0

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- ***Comprehensive Plan, Town of Elba.*** Adopted July 8, 1999.
- ***Town of Elba Zoning Law.*** Adopted April 14, 1998; amended through October 9, 1997.

The southeastern portion of the town of Elba falls within the Black Creek watershed. Elba is 35.7 square miles in area, making up nearly 5% of the total Black Creek watershed area.

The total population of the town of Elba is 2,439, with 853 households and 668 families. There are 910 housing units; the median year a structure was built is 1946. The average household size is 2.82 persons and the average family size is 3.18 persons. Median household income is \$46,161. Median value of an owner-occupied household is \$83,100. The median age is 37 years.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 4 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Elba, indicating a significantly low rate of development within the town relative to the municipalities within the two watersheds.

Land cover in the Black Creek watershed portion of Elba is predominantly pasture/hay, although there are substantial patches of row crops dispersed throughout this area. There are also several large portions of mixed forest present as well.

A comprehensive review of Elba's land use ordinances revealed few best management practices related to erosion and sediment control. Laws pertaining to commercial excavation practices were explicit; however, such practices are not likely to be wide-spread and do not apply to residential or commercial developments. There were a number of BMPs found to be in effect throughout the town when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

The relatively low rate of development within Elba, coupled with its generally flat topography indicates that the risk of significant erosion stemming from new construction activities is likely

to remain low into the near future. As stated in the 2001 *Genesee River Basin Waterbody Inventory and Priority Waterbodies List*, the major source of sediment and nutrient loading in this part of the watershed is a direct result of intense agricultural activity.

Recommendations for Future Action by Local Officials:

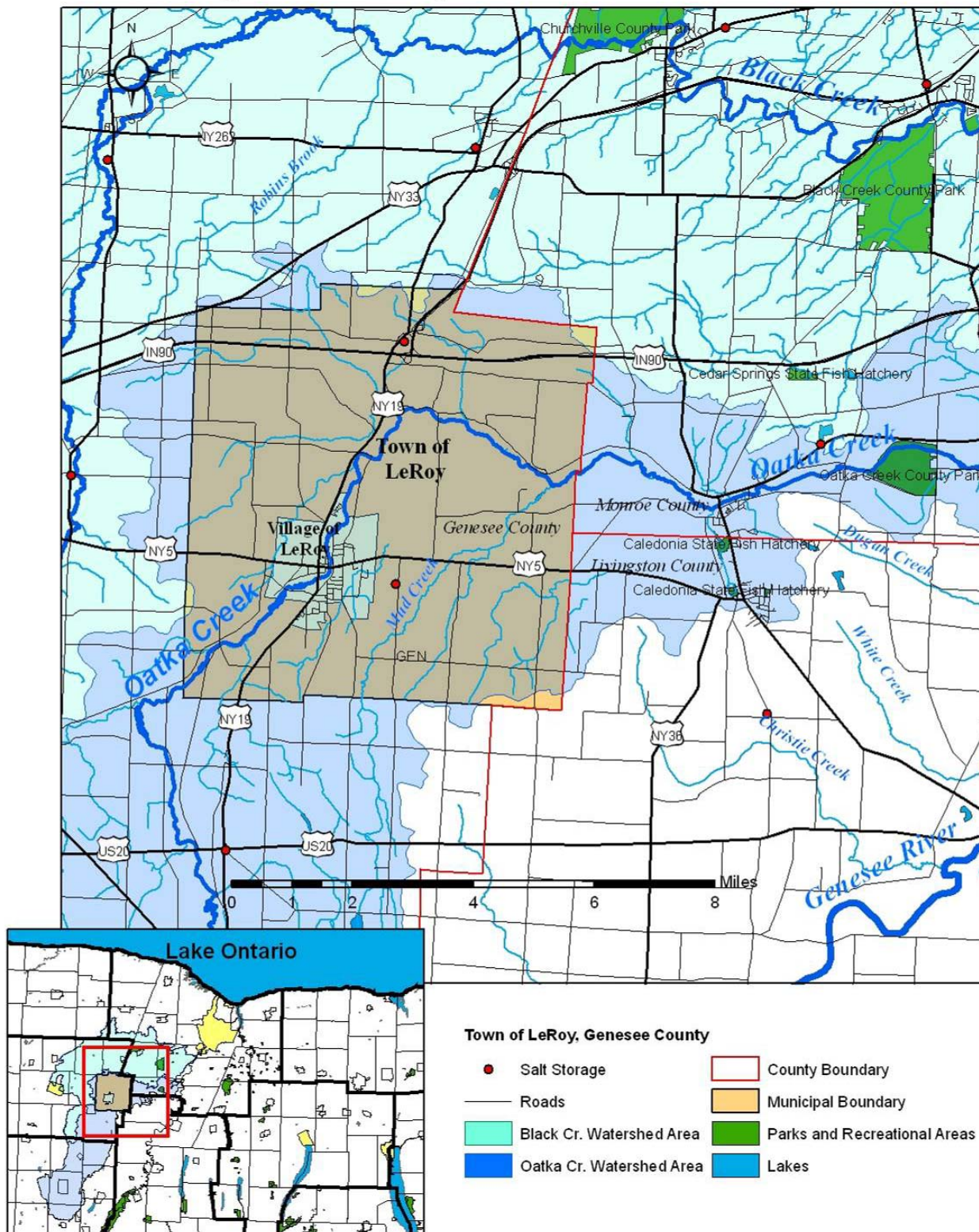
- Designate a local official (preferably a member of the town board) to represent the town at future Black Creek Watershed Coalition meetings. Information regarding meeting times and location can be found at the following website: <http://blackcreekwatershed.org>
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled revision of the town's comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black Creek and other neighboring watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	17 of 44 BMPs, or 39%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	7 of 21, or 25%	Forestry	1 of 10, or 10%
New Development or Redevelopment	10 of 23, or 45%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges*	4 of 29 BMPs, or 14%	Onsite Wastewater Treatment Systems	
Existing	0 of 6		2 of 7 BMPs, or 29%
New	4 of 13, or 15%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	0 of 10		

Allen Totten, Town of Elba Highway Superintendent could not be reached for comment; section therefore is incomplete.

Town of LeRoy, Genesee County



Overview Area

Town of LeRoy ~ Genesee County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
42.15	.39	41.49	.93%	98.44%	.19%	19.30%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Chapter 135: Subdivision of Land.** From the Code of the Town of LeRoy. 1989.
- **Chapter 165: Zoning Regulations.** From the Code of the Town of LeRoy. July 1999.

The Town of LeRoy encompasses a total area of 42.2 square miles, 98.44% of which falls within the Oatka Creek watershed, while less than 1% falls within the Black Creek watershed.

The town has 7,790 inhabitants, 3,219 housing units, 3,037 households and 2,034 families. The median age is 38 years; the average household size is 2.49 persons and the average family size is 3.04 persons. Median household income in LeRoy is \$39,690 and the median value of an owner-occupied housing unit is \$86,200. Median year a structure was built in LeRoy is 1950.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 32 permits issued for new residential units and 3 permits issued for new commercial units between 2002 and 2004 in the Town of LeRoy, indicating a high rate of development within the town relative to the municipalities within the two watersheds.

Land cover varies considerably throughout the town. Overall the predominant land cover in the town outside of the village is pasture/hay; however, the southeastern portion of the town in and around Mud Creek and its tributaries is dominated by row crops. Furthermore, a large, contiguous stand of mixed forest surrounds the Oatka Creek near the eastern border.

A comprehensive review of land use regulations in effect in the Town of LeRoy revealed several best management practices to be present, primarily within the subdivision law. Examples include the preservation of natural features and submission of drainage plans for new subdivisions. A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering the high rate of development in LeRoy relative to other municipalities within the two watersheds along with the lack of specific erosion and sediment control regulations pertaining to new development, there is considerable risk for erosion stemming from construction activities to occur. Agriculture, however, is currently the primary land use in the area. The *2001 Genesee River Basin Waterbody Inventory and Priority Waterbodies List* indicates that erosion, stream sedimentation and nutrient loading is known to result primarily from intense agricultural activity, in conjunction with several other sources (failing septic systems and general streambank erosion).

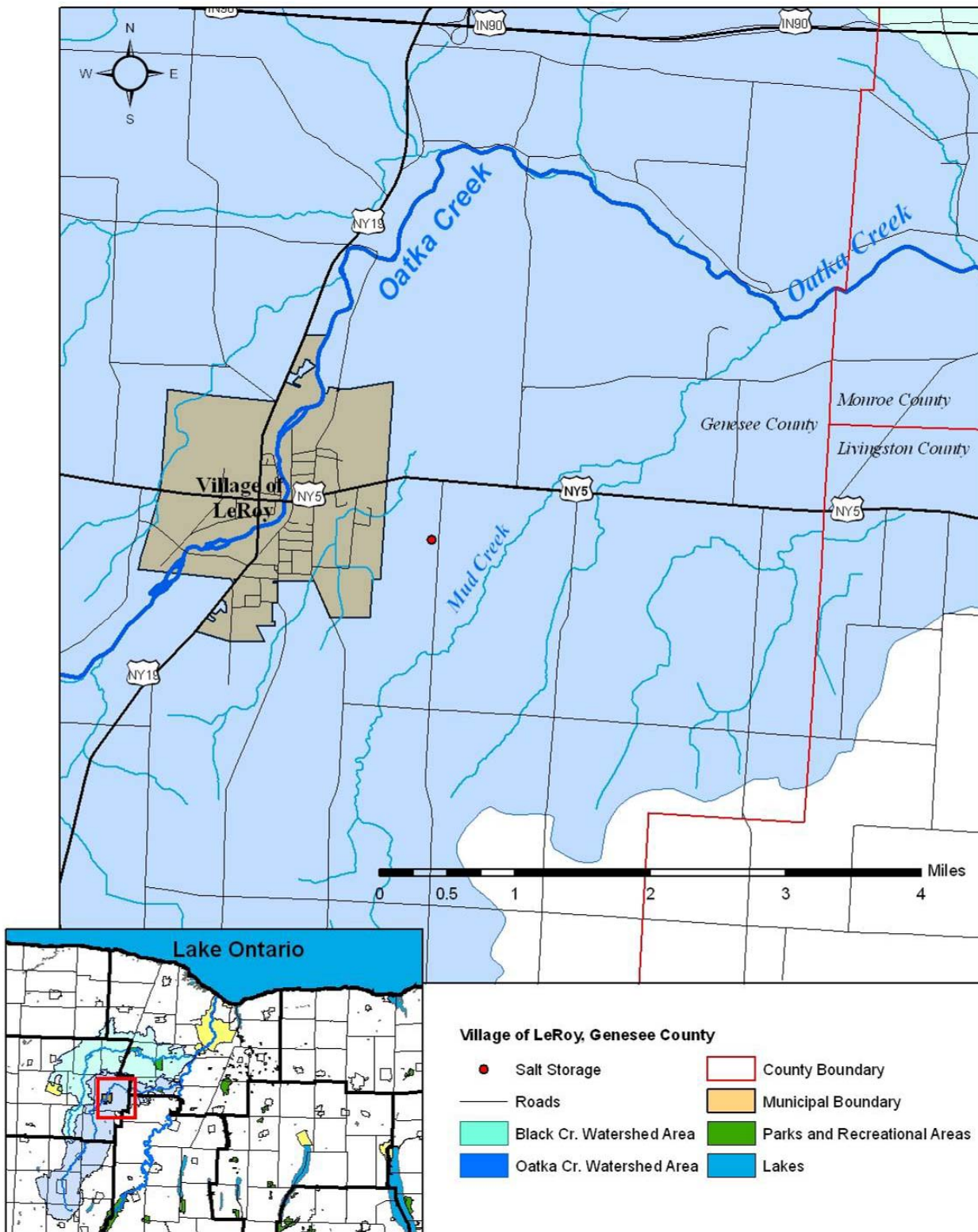
Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Preparation of a town comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Black Creek and other neighboring watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	13 of 44 BMPs, or 30%	Forestry and Agriculture	8 of 18 BMPs, or 44%
<i>Existing Development</i>	8 of 21, or 38%	<i>Forestry</i>	1 of 10, or 10%
<i>New Development or Redevelopment</i>	5 of 23, or 22%	<i>Agriculture</i>	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
<i>Modified Waterways</i>	6 of 9, or 67%	<i>Docks and Launches</i>	0
<i>Wetlands/Riparian Areas</i>	1 of 6, or 17%	<i>Golf Courses</i>	0
Roads and Bridges	15 of 29 BMPs, or 52%	Onsite Wastewater Treatment Systems	
<i>Existing</i>	4 of 6, or 67%	2 of 7 BMPs, or 29%	
<i>New</i>	4 of 13, or 31%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
<i>All</i>	7 of 10, or 70%		

Village of LeRoy, Genesee County



Overview Area

Village of LeRoy ~ *Genesee County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
2.69	0	2.69	0	100%	0	1.25%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- ***Village of LeRoy Comprehensive Plan.*** March, 2001.
- ***Chapter 50: Subdivision Regulations.*** From the Code of the Village of LeRoy. 1972.
- ***Chapter 215: Zoning Regulations.*** From the Code of the Village of LeRoy. Date unknown/estimated 1990 (as per the date noted on latest version of the official zoning map).

The Village of LeRoy lies completely within the Oatka Creek watershed. The town has an area of 2.7 square miles, accounting for 1.25% of the watershed's total area.

LeRoy has a population of 4,366 persons, 1,845 households and 1,114 families. There are a total of 2,002 housing units in the village which were built in the median year of 1940. The average household size is 2.35 persons and the average family size is 3.04 persons. The median age is 38 years. The median income for a household in the village is \$33,168 and the median value for an owner-occupied housing unit is \$82,100.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 10 permits issued for new residential units and 13 permits issued for new commercial units between 2002 and 2004 in the Village of LeRoy, indicating a moderate rate of development within the village relative to the municipalities within the two watersheds.

Land cover within the village is predominantly low-intensity residential with significant area of commercial/industrial and high-intensity residential. Small patches of pasture/hay, mixed forest and recreational fields exist along the east and west borders of the village.

A comprehensive review of land use regulations in effect in the Village of LeRoy revealed few best management practices to be in effect. The local subdivision law and the presence of a Land Conservation District within the village, however, did yield several basic BMPs. A number of BMPs were found to be in effect within the village when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Construction and development and general urban runoff issues are cited in the 2001 *Genesee River Basin Waterbody Inventory and Priority Waterbodies List* as suspected sources of pollution in this part of the watershed.

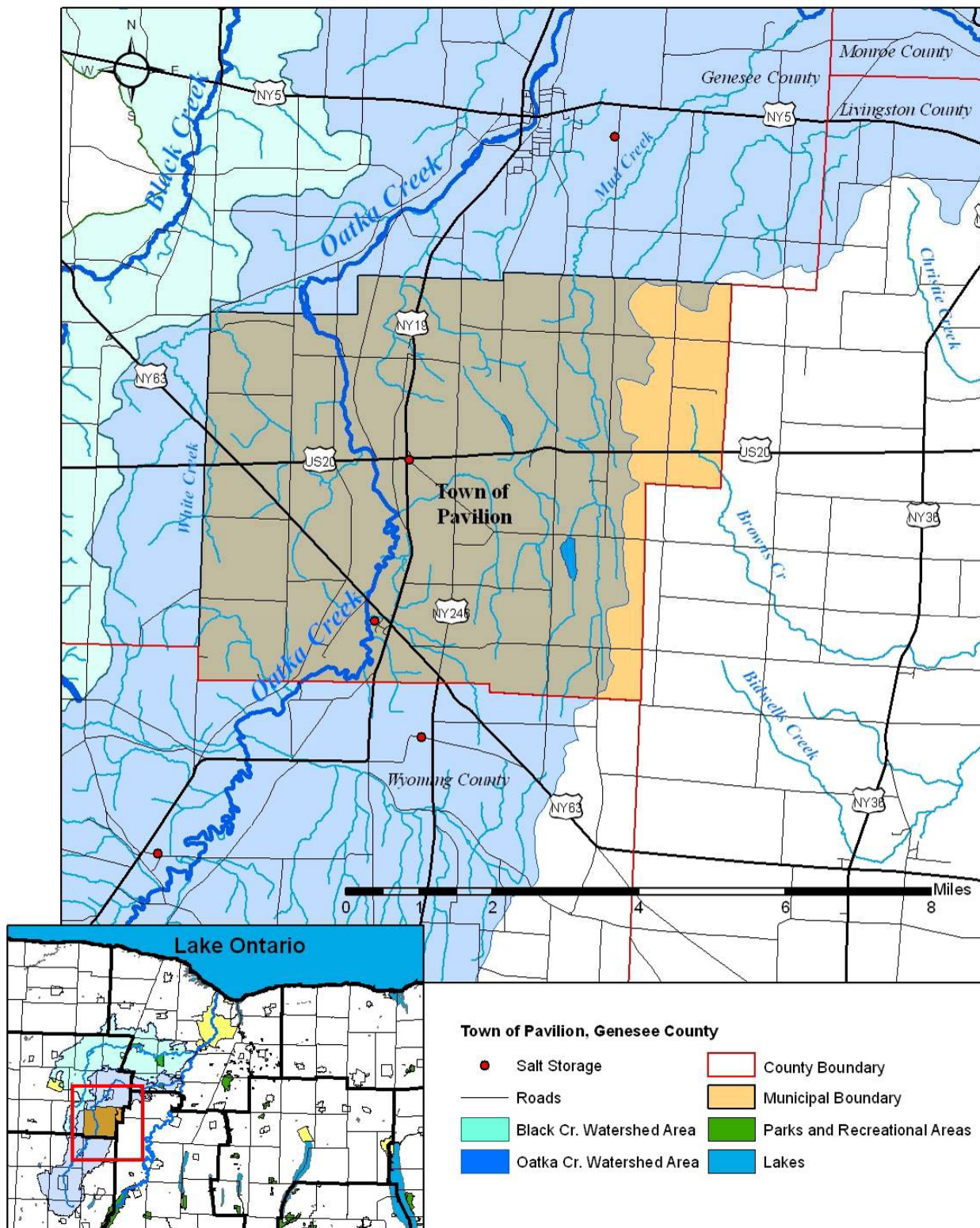
Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Oatka Creek watershed.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	13 of 44 BMPs, or 30%	Forestry and Agriculture	(does not apply)
<i>Existing Development</i>	7 of 21, or 33%	<i>Forestry</i>	--
<i>New Development or Redevelopment</i>	6 of 23, or 26%	<i>Agriculture</i>	1 BMP Present: Genesee County Smart Growth Plan
Waterways/Wetlands	8 of 15, or 53%	Recreation	0 BMPs Found
<i>Modified Waterways</i>	7 of 9, or 78%	<i>Docks and Launches</i>	0
<i>Wetlands/Riparian Areas</i>	1 of 6, or 17%	<i>Golf Courses</i>	0
Roads and Bridges	21 of 29 BMPs, or 72%	Onsite Wastewater Treatment Systems	
<i>Existing</i>	6 of 6, or 100%		2 of 7, or 29%
<i>New</i>	6 of 13, or 46%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
<i>All</i>	7 of 10, or 70%		

Town of Pavilion, Genesee County



Overview Area

Town of Pavilion ~ Genesee County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.79	0	31.42	0	87.78%	0	14.61%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Pavilion Land Subdivision Regulations.** 1991.
- **Town of Pavilion Zoning Ordinance..** Adopted May 1990; amended through April 1995.

The town of Pavilion is almost completely within the Oatka Creek watershed except for small portions near the eastern boundary of town. The town is 35.7 square miles in area, 0.28% of which is covered by water.

According to Census 2000, Pavilion has a total population of 2,467 people; there are 930 housing units, 886 households, and 691 families within the town. The median age is 37 years. The average household size is 2.78 persons and the average family size is 3.10 persons. Median income for a household in the town is \$48,837 and median value of an owner occupied housing unit is \$83,800. The median year a structure was built in Pavilion is 1958.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 16 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2003 in the Town of Pavilion, indicating a moderate rate of development within the town relative to the municipalities within the two watersheds.

Land cover in the vast majority of the town is pasture/hay with large, intermittent patches of row crops that run in a north/south direction across the town. There are also a number of large areas of mixed forest dispersed evenly throughout the town, particularly around the Mud Creek corridor. A small area of low-density residential and commercial/industrial land uses exists in the southern portion of the town.

A comprehensive review of Pavilion's land use regulations revealed a number of important BMPs relative to erosion control and water quality. Perhaps the most notable BMP is a requirement cited within town subdivision regulations, which requires the planning board to consult with the Genesee County SWCD in order to determine the adequacy of proposed drainage, erosion and sediment control measures for all new subdivisions. This is a service that the SWCD is well-suited for and one they are willing to provide to communities (typically under contract) for a reasonable fee when given adequate and appropriate notice. Commercial excavations were also found to be subject to strict scrutiny with regard to erosion and sediment control under town zoning laws.

A number of BMPs were found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering the moderate rate of development found to be present within the town and the current stipulations set within Pavilion's subdivision ordinance, erosion and sedimentation resulting from construction activities is not likely to be extreme if these procedures are followed in an effective and consistent manner. The *2001 Genesee River Basin Waterbody Inventory and Priority Waterbodies List* indicates that erosion and sedimentation is a significant concern in this part of the watershed. The primary source of sediment and nutrient loading is known to result primarily from intense agricultural activity, in conjunction with several other sources (failing septic systems and general streambank erosion).

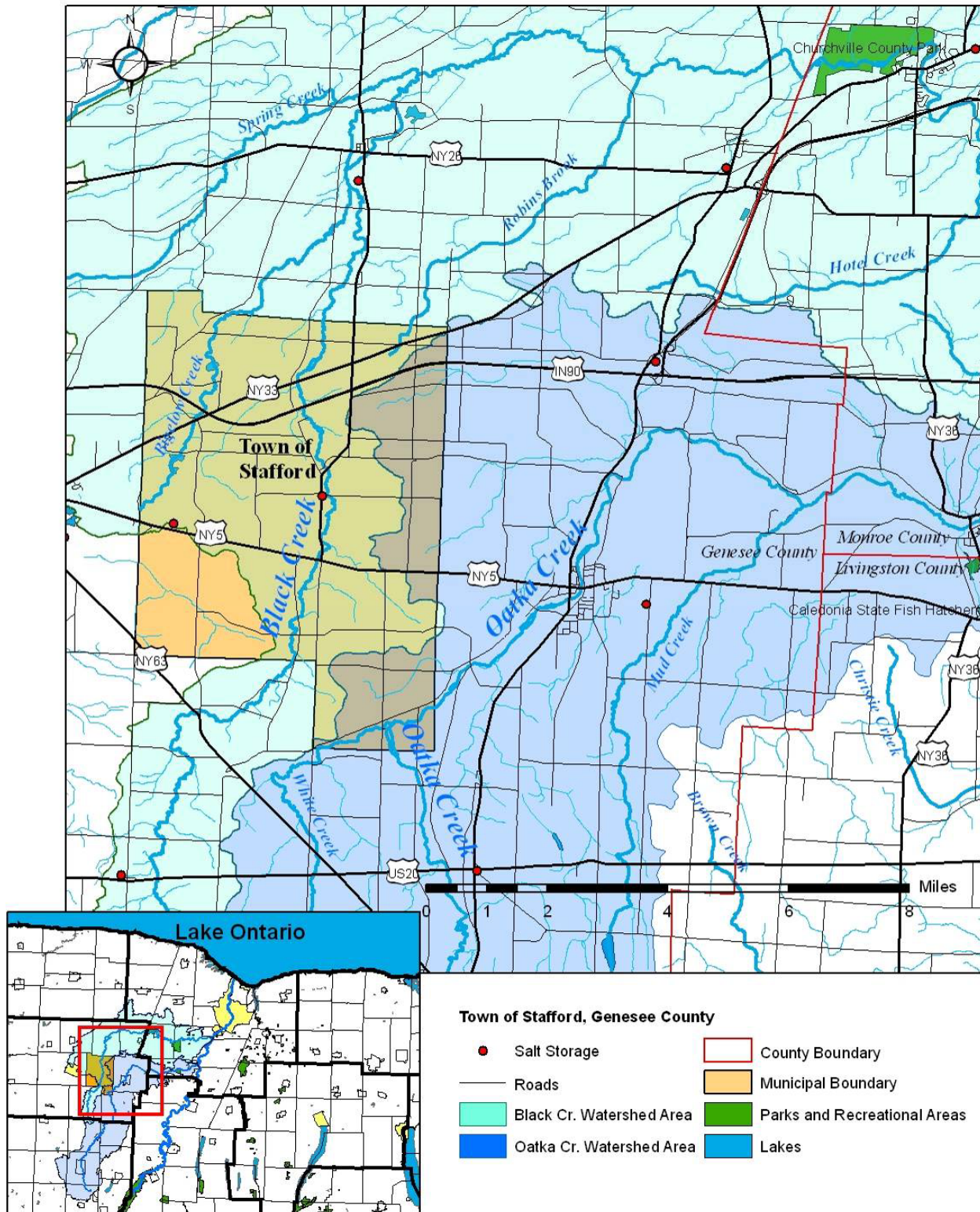
Recommendations for Future Action by Local Officials:

- Consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings.
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Preparation of a town comprehensive plan which emphasizes the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek and other neighboring watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	24 of 44 BMPs, or 55%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	9 of 21, or 43%	Forestry	1 of 10, or 10%
New Development or Redevelopment	15 of 23, or 65%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	16 of 29 BMPs, or 55%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		2 of 7 BMPs, or 29%
New	7 of 13, or 54%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	4 of 10, or 40%		

Town of Stafford, Genesee County



Town of Stafford ~ Genesee County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
31.31	20.87	6.66	66.65%	21.27%	10.30%	3.10%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Stafford Zoning Law.** Adopted 1987; amended through December 1998.

The Town of Stafford lies within both the Oatka and Black Creek watersheds, although the majority of area is within the Black Creek watershed.

According to Census 2000, there are 2,409 people, 909 households, and 695 families residing in the Town of Stafford. The average household size is 2.65 persons and the average family size is 3.03 persons. The median age is 40 years. There are 1,024 housing units, and the median year a structure was built is 1953. The median value of all owner-occupied units is \$87,600; the median income for a household in the town is \$49,516.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 8 permits issued for new residential units and 2 permits issued for new commercial units between 2003 and 2004 in the Town of Stafford, indicating a low rate of development within the town relative to the municipalities within the two watersheds.

Land cover within the town is predominantly pasture/hay with large areas of row crops dispersed throughout. The area around Bigelow Creek on the western side of the town has significant cover of mixed forest; several other relatively small patches of mixed forest can also be found in the town.

A comprehensive review of the Town of Stafford's land use regulations revealed few examples of best management practices outside of several which are applied to special uses only (mobile home parks and communication tower construction).

A number of BMPs were found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Agriculture is the primary land use in the area. The 2001 *Genesee River Basin Waterbody Inventory and Priority Waterbodies List* indicates that agriculture and streambank erosion are two known contributors to elevated levels of nutrients and silt/sedimentation in this section of the Black Creek.

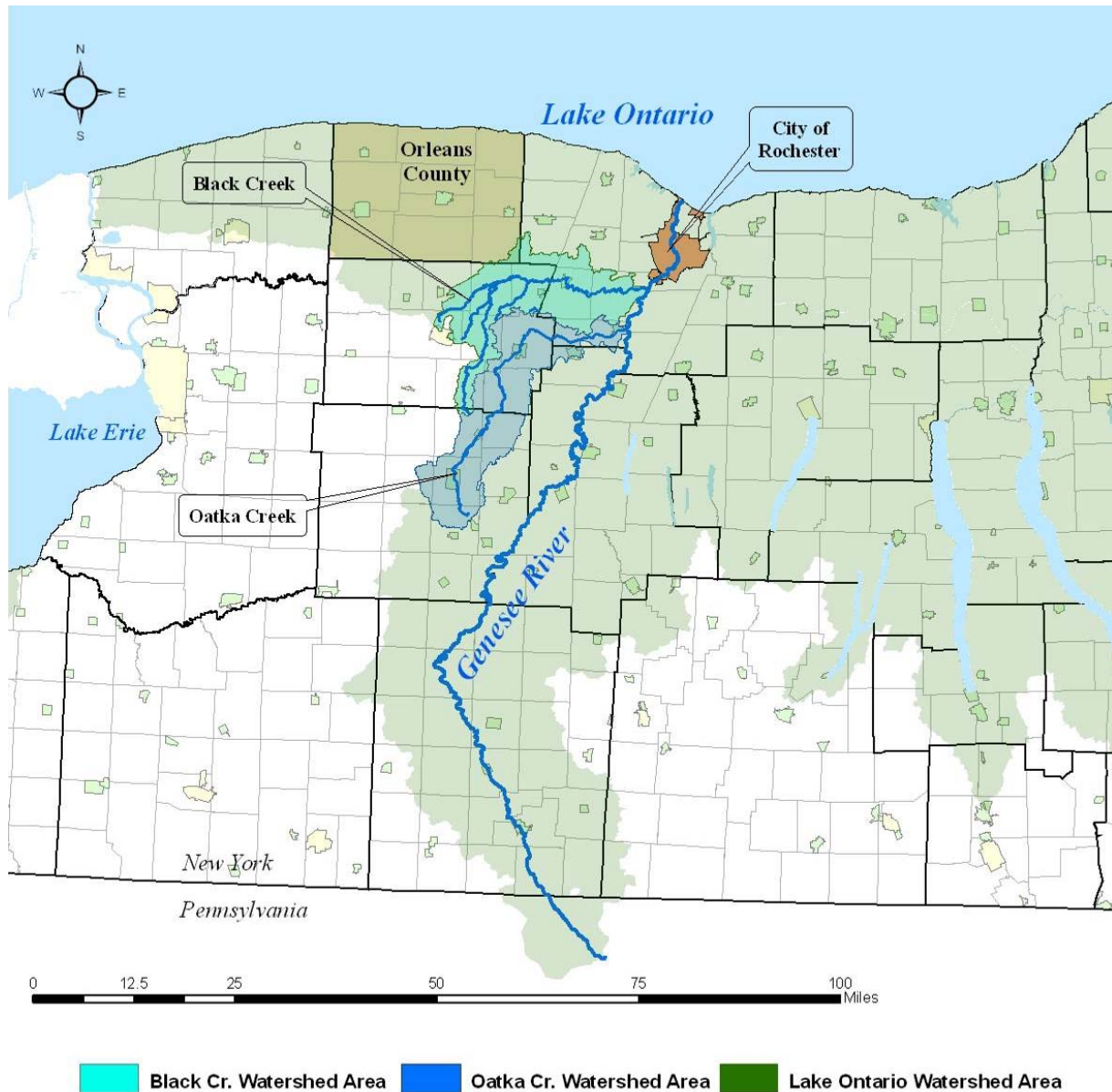
Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Designate a local official (preferably a member of the town board) to represent the town at future Black Creek Watershed Coalition meetings. Information regarding meeting times and location can be found at the following website: <http://blackcreekwatershed.org>.
- Continued education and outreach to area farmers by the Genesee County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Preparation of a town comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek and other neighboring watersheds
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	12 of 44 BMPs, or 27%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	4 of 23, or 17%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	19 of 29 BMPs, or 66%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%	2 of 7 BMPs, or 29%	
New	8 of 13, or 62%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	6 of 10, or 60%		

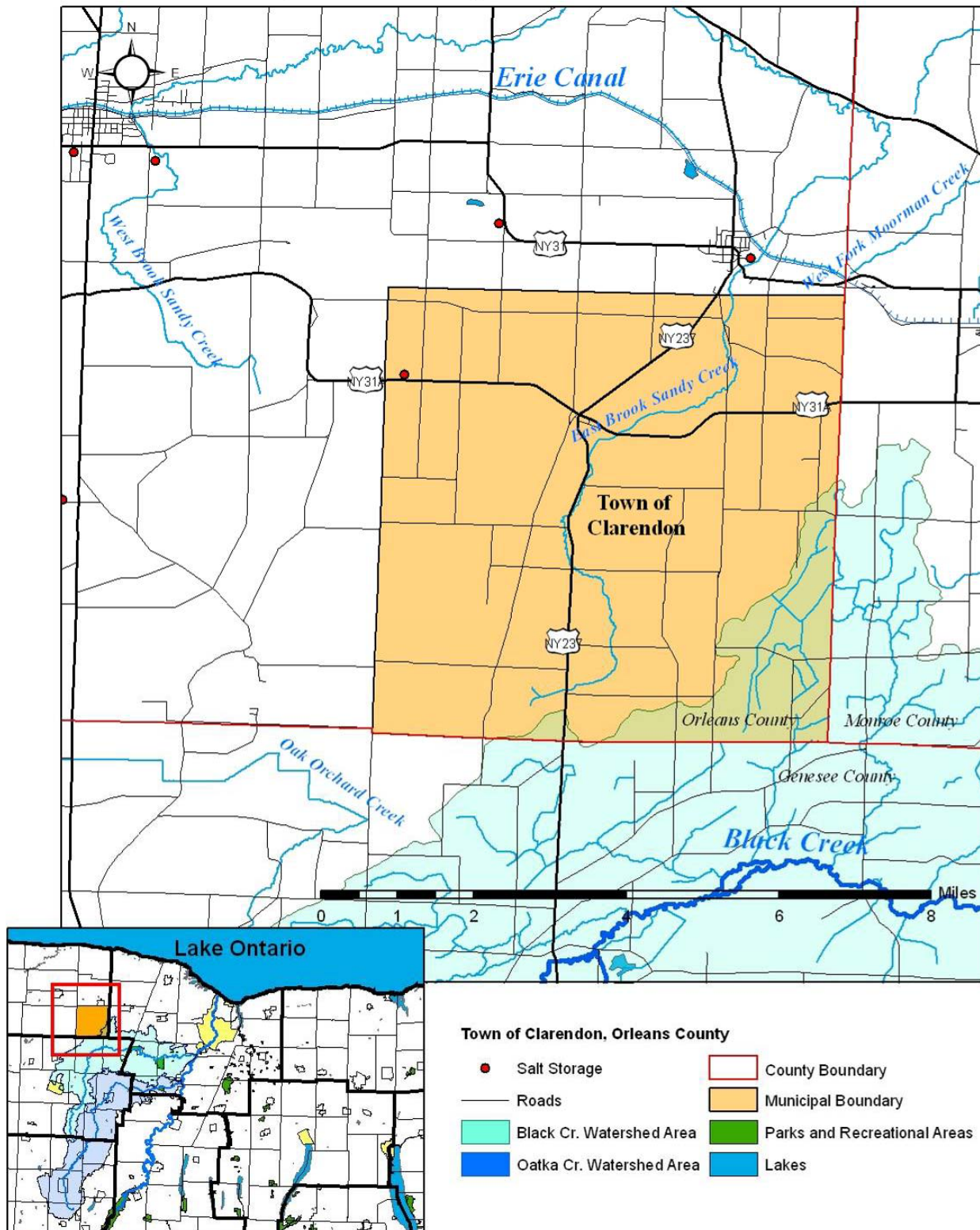
MUNICIPAL SUMMARIES: ORLEANS COUNTY



General Statistics for Orleans County:

Total Land Area	817 sq. miles
Median Household Income	\$37,972
Average Household Size	2.65 persons
Average Family Size.....	3.13 persons
Median Age	36 years
Median Year Structure Built	1947
Median Value of Owner-Occupied Housing Unit	\$27,600

Town of Clarendon, Orleans County



Overview Area

Town of Clarendon ~ Orleans County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.20	4.07	0	11.56%	0	2.01%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Clarendon Zoning Ordinance.** As amended February 1999.
- **Local Law No 2. of the Year 1997, Regulating the Outside Storage of Junk Materials in the Town of Clarendon.** 1997.
- **Local Law Providing for the Design Criteria and Construction Specifications for the Land Development in the Town of Clarendon.** 1996
- **Town of Clarendon Comprehensive Plan 1998.** As amended through November 1998.

The southeastern section of the Town of Clarendon lies within the Black Creek watershed. The total area of the town is 35.2 square miles, with no significant area covered by water.

According to the Census 2000, there are 3,392 people, 1,331 housing units, 1,230 households, and 928 families in the town. The average household size is 2.76 persons and the average family size is 3.15 persons. The median age is 36 years. The median income for a household in the town is \$46,667 and the median value for an owner occupied housing unit is \$84,200. The median year a structure was built in Clarendon is 1976.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 92 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Clarendon, indicating a significantly high rate of development within the town relative to the municipalities within the two watersheds. It is important to note, however, that the bulk of this development is not currently occurring in the area of the Black Creek watershed.

Land cover in the Clarendon portion of the Black Creek watershed is predominantly mixed forest, including significant area of woody wetlands. Outside of this forested area, land cover is predominantly pasture/hay with small patches of row crops.

An assessment of the Town of Clarendon's land use regulations revealed a host of best management practices regarding erosion and sediment control. The town has a comprehensive set of design guidelines for new construction which includes stipulations regarding BMP installation and use, performance guarantees and routine maintenance of facilities. The Town's zoning law sets standards for stormwater district formation for new developments and the Town Comprehensive Plan sets the goals of maintaining natural drainage patterns and adequately addressing the stormwater needs of new developments.

A number of BMPs were found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Overall, the town appears to have been conscious of the need for specific design criteria for new development as development continues to rise. The significantly high rate of development is largely due to the town's close proximity to the Monroe County border and the City of Rochester. Given the type of land cover in this part of the watershed, erosion stemming from construction activities is likely to be the greatest risk in the near future. It is therefore important that local officials continue to consider the adequacy of the Town's land use regulations and practice strict scrutiny regarding new developments.

Recommendations for Future Action by Local Officials:

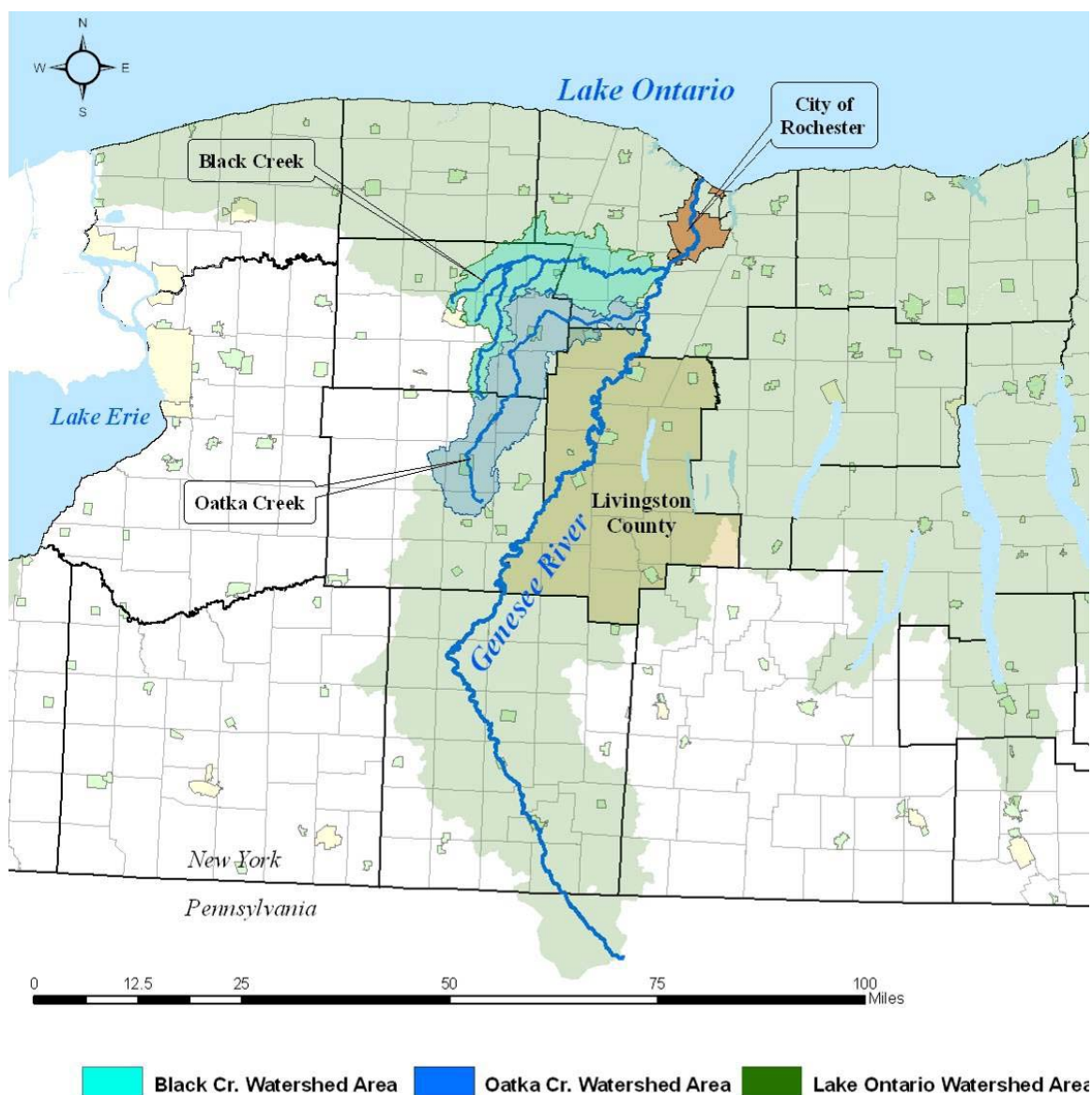
- Designate a local official (preferably a member of the town board) to represent the town at future Black Creek Watershed Coalition meetings. Information regarding meeting times and location can be found at the following website: <http://blackcreekwatershed.org>
- Consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Continued education and outreach to area farmers by the Orleans County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Revision of the town's comprehensive plan, 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.
- Consider opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds; also attempt natural conveyance restoration wherever possible.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	25 of 44 BMPs, or 57%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	13 of 21, or 62%	Forestry	1 of 10, or 10%
New Development or Redevelopment	12 of 23, or 52%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges*	8 of 29 BMPs, or 28%	Onsite Wastewater Treatment Systems	
Existing	0 of 6		3 of 7 BMPs, or 43%
New	6 of 13, or 46%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	3 of 10, or 43%		

*Larry Swanger, Town of Clarendon Highway Superintendent could not be reached for comment; section therefore is incomplete.

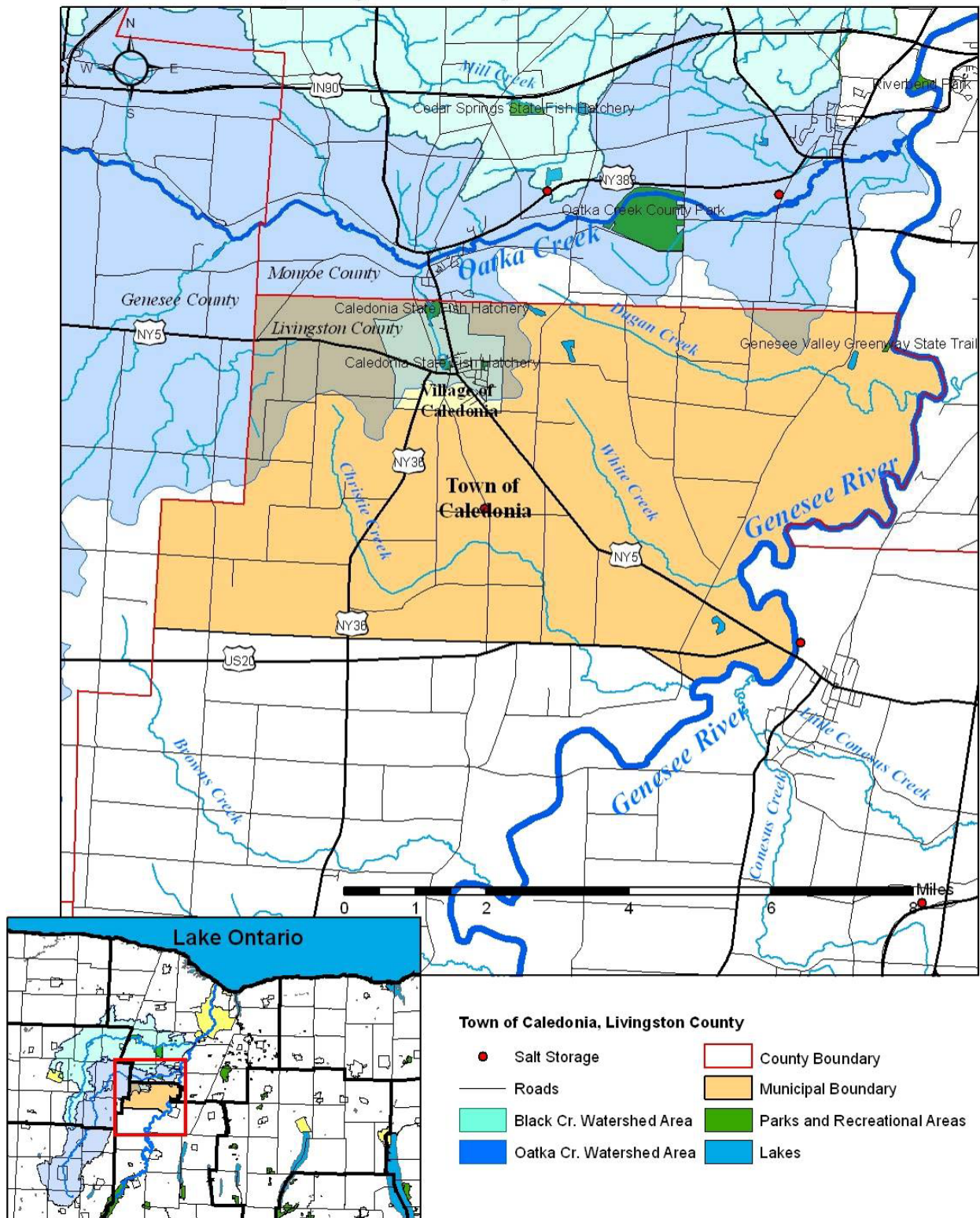
MUNICIPAL SUMMARIES: LIVINGSTON COUNTY



General Statistics for Livingston County:

Total Land Area	640 sq. miles
Median Household Income	\$42,066
Average Household Size	2.60 persons
Average Family Size.....	3.05 persons
Median Age	35 years
Median Year Structure Built	1960
Median Value of Owner-Occupied Housing Unit	\$88,800

Town of Caledonia, Livingston County



Overview Area

Town of Caledonia ~ *Livingston County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
44.21	0	6.2	0	14.02%	0	2.88%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- ***Chapter 113: Subdivision of Land.*** From the Code of the Town of Caledonia. 1994.
- ***Chapter 130: Zoning.*** From the Code of the Town of Caledonia. 1994.
- ***The Comprehensive Plan for the Town and Village of Caledonia.*** Volumes 1 and 2; 1964.

Relatively small portions of the northwestern and northern sections of the Town of Caledonia fall within the Oatka Creek watershed, accounting for approximately 3% of the total Oatka watershed area. The town has a total area of 44.2 square miles.

As of Census 2000, the town had a total of 4,567 people, 1,671 households and 1,268 families. The average household size is 2.73 persons and the average family size is 3.13 persons. The median age is 37 years old. The Town of Caledonia has 1,750 housing units built in the median year of 1967. The median income for a household in the town is \$46,359. The median value of an owner-occupied housing unit is \$93,500.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 24 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Caledonia, indicating a moderate rate of development within the town relative to the municipalities within the two watersheds.

The land cover within the area of the Oatka Creek watershed in Caledonia outside of the village is an even mix of pasture/hay, mixed forest and row crops.

A comprehensive review of land use regulations within the town revealed a host of best management practices integrated into local law. The town's subdivision regulations address the importance of maintaining natural drainage rates and patterns in new developments, retaining and/or protecting vegetation, preserving natural features, and conforming developments to the local topography and soils. A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the town's highway superintendent revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Sedimentation resulting from agricultural activities outside of the village is very likely the greatest concern for local officials. To this end, continued education and outreach from the Livingston County SWCD to area farmers, land owners and relevant officials is highly recommended.

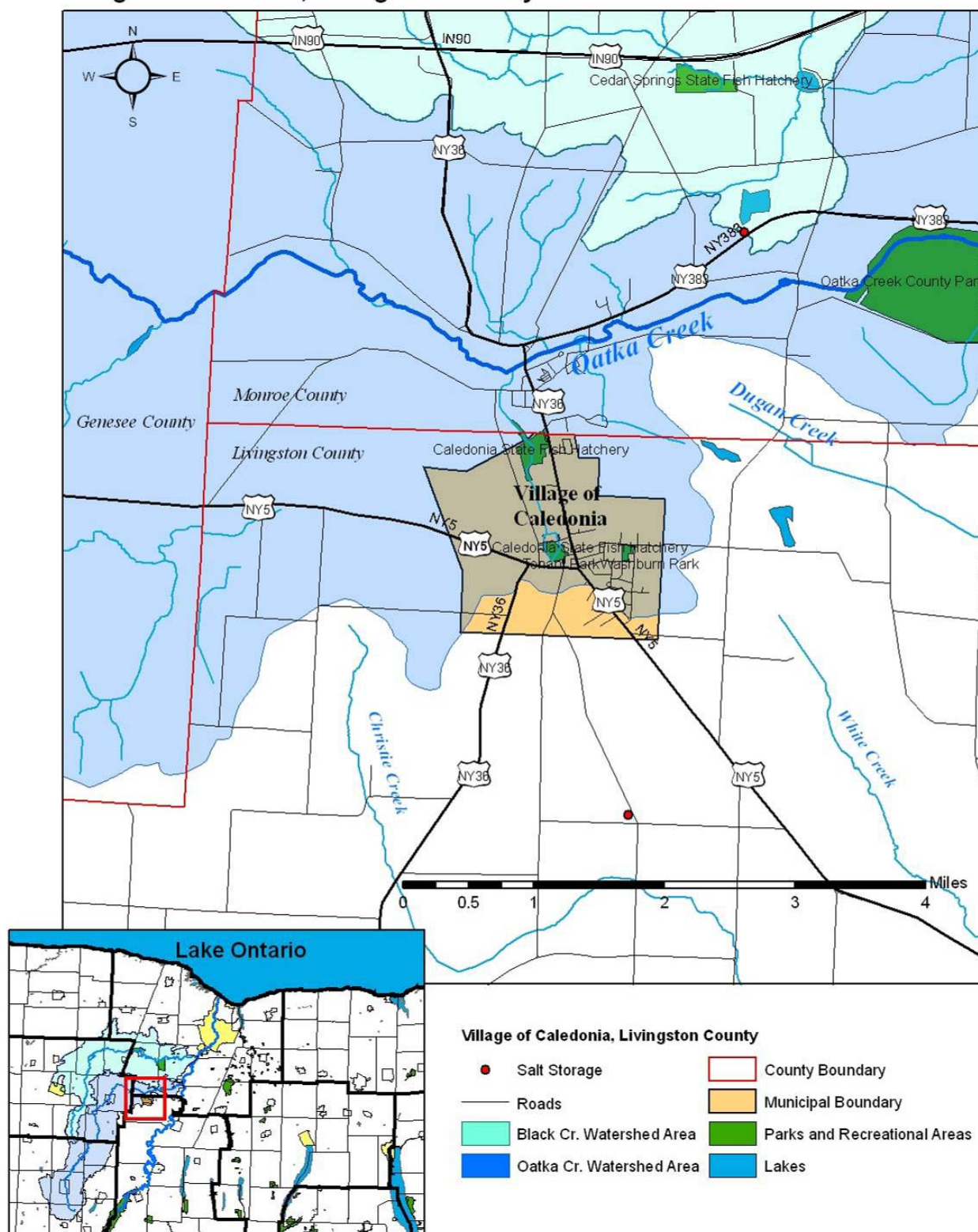
Recommendations for Future Action by Local Officials:

- Designate a local official (preferably a member of the town board) to represent the town at future Oatka Creek Watershed Committee meetings. Meetings are held on a monthly basis during the 3rd Monday of each month at the LeRoy Village Hall.
- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- Revisiting the outdated town/village comprehensive plan (published in 1964), emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Oatka Creek watershed.
- Continued education and outreach to area farmers by the Livingston County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	20 of 44 BMPs, or 45%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	8 of 21, or 38%	Forestry	1 of 10, or 10%
New Development or Redevelopment	12 of 23, or 52%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	22 of 29 BMPs, or 76%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		3 of 7 BMPs, or 43%
New	9 of 13, or 69%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	8 of 10, or 80%		

Village of Caledonia, Livingston County



Overview Area

Village of Caledonia ~ Livingston County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
2.13	0	1.7	0	79.8%	0	.79%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Chapter 186: Subdivision of Land.** From the Code of the Village of Caledonia. 1995.
- **Chapter 215: Zoning.** From the Code of the Village of Caledonia. August 1999.
- **Sustaining Our Viability into the Future:** Village of Caledonia Comprehensive Strategic Plan. 2003.

Almost all of the village of Caledonia is within the Oatka Creek watershed. The village has a total area of 2.1 square miles.

The village of Caledonia has 2,327 people, 902 households, and 645 families. The average household size is 2.57 persons and the average family size is 3.06 persons. The median age is 38 years old. Caledonia has 939 housing units built in the median year of 1943. The median value of an owner-occupied housing unit is \$87,300. Median household income is \$44,309.

According to the 2004 *Regional Land Use Monitoring Report*, there was 1 permit issued for new residential units and 1 permit issued for new commercial units between 2002 and 2004 in the Village of Caledonia, indicating a significantly low rate of development within the village relative to the municipalities within the two watersheds.

Land cover within the Village of Caledonia is predominately low-intensity residential with modest area of industrial/commercial space. Outside of this developed area, agricultural activities are present with land predominantly used for pasture/hay with small patches of row crops interspersed throughout.

A comprehensive review of local laws and regulations within the Village of Caledonia revealed several important best management practices. Perhaps the most notable was the existence of a Land Conservation District, the purpose of which is to preserve unique physical and/or ecological characteristics of designated portions of the municipality. A number of BMPs were also found to be in effect within the town when considering the activities conducted by regional entities such as the county SWCD and the CCE. While regulations such as SPDES permit compliance and Stormwater Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials.

Considering the low number of building permits issued in Caledonia in recent time, erosion stemming from construction activities does not appear to be a major concern. Sedimentation resulting from urban stormwater conditions is very likely to be the greatest concern. To this end, village officials should actively search for opportunities to retrofit existing properties with new facilities, such as stormwater detention/retention ponds. Natural conveyance restoration may also be an option in certain instances.

In addition, the lack of a centralized sewage treatment facility for a municipality with a population density of this magnitude will likely have a significant negative impact on local water resources in the future.

Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Oatka Creek watershed.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development		Forestry and Agriculture	
12 of 44 BMPs, or 27%		8 of 18 BMPs, or 44%	
<i>Existing Development</i>	<i>6 of 21, or 29%</i>	<i>Forestry</i>	<i>1 of 10, or 10%</i>
<i>New Development or Redevelopment</i>	<i>6 of 23, or 26%</i>	<i>Agriculture</i>	<i>7 of 8, or 88%</i>
Waterways/Wetlands		Recreation	
7 of 15 BMPs, or 47%		0 BMPs found	
<i>Modified Waterways</i>	<i>6 of 9, or 67%</i>	<i>Docks and Launches</i>	<i>0</i>
<i>Wetlands/Riparian Areas</i>	<i>1 of 6, or 17%</i>	<i>Golf Courses</i>	<i>0</i>
Roads and Bridges		Onsite Wastewater Treatment Systems	
18 of 29 BMPs, or 62%		3 of 7 BMPs, or 43%	
<i>Existing</i>	<i>5 of 6, or 83%</i>	<i>Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.</i>	
<i>New</i>	<i>6 of 13, or 46%</i>		
<i>All</i>	<i>7 of 10, or 70%</i>		

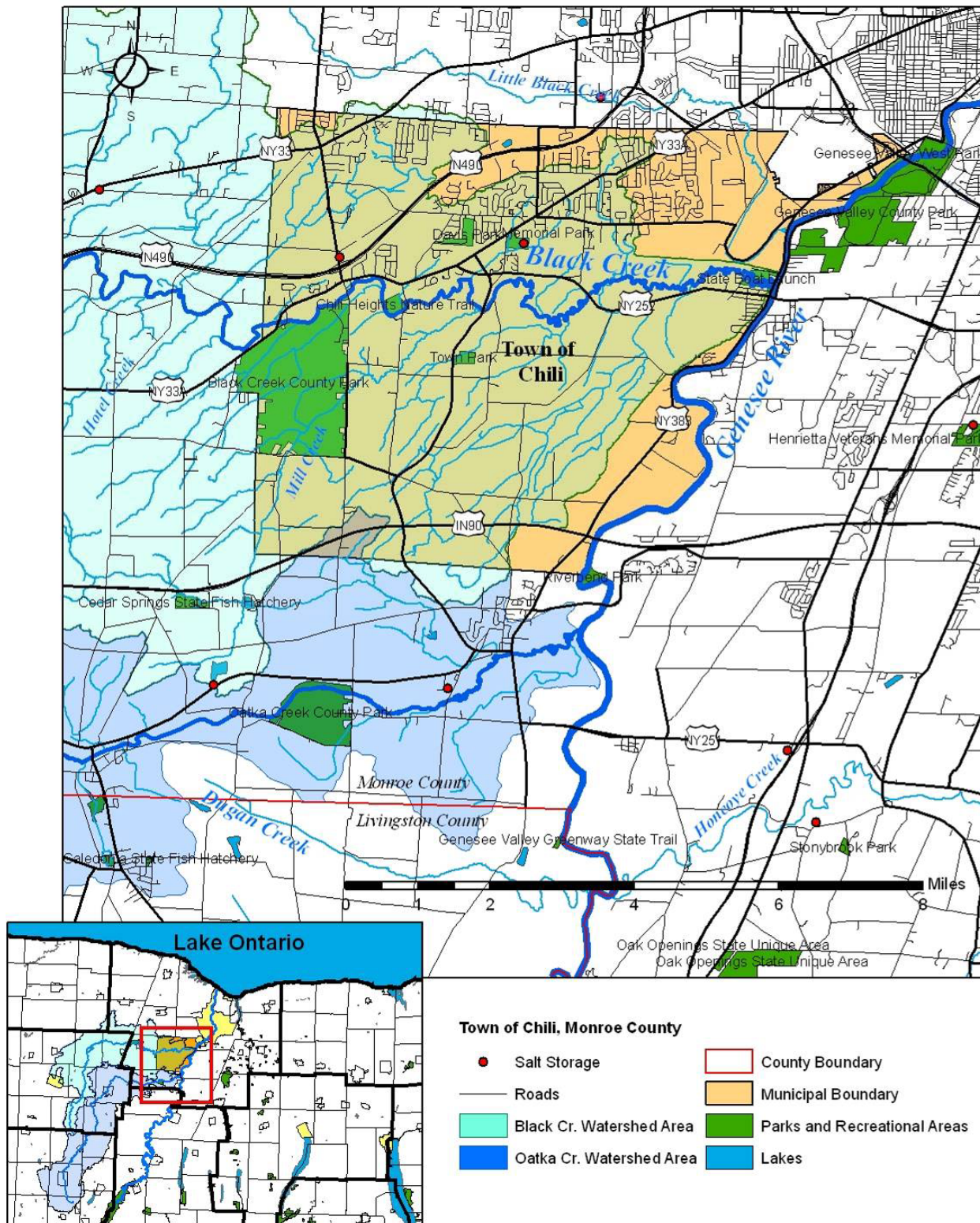
MUNICIPAL SUMMARIES: MONROE COUNTY



General Statistics for Monroe County:

Total Land Area	1,336 sq. miles
Median Household Income	\$44,891
Average Household Size	2.47 persons
Average Family Size.....	3.08 persons
Median Age	36 years
Median Year Structure Built	1960
Median Value of Owner-Occupied Housing Unit	\$98,700

Town of Chili, Monroe County



Overview Area

Town of Chili ~ Monroe County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
39.87	30.21	.42	75.76%	1.04%	14.91%	.19%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Chapter 96: Subdivision of Land.** From the Code of the Town of Chili. October 1999.
- **Chapter 115: Zoning.** From the Code of the Town of Chili. June 2000.

The Town of Chili lies mainly within the Black Creek watershed, with just over 1% of land area within the Oatka Creek watershed. The total area of the town is 39.9 square miles, 0.48% of which is covered by water.

According to Census 2000, Chili has a total population of 27,638 people, 10,159 households, and 7,558 families. The average household size is 2.67 persons and the average family size is 3.09 persons. The median age is 37 years. There are 10,466 housing units and the median value of a single-family owner occupied home is \$101,700. Median income for a household in the town is \$55,097 and the median year a structure was built in Chili is 1970.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 348 permits issued for new residential units and 57 permits issued for new commercial units between 2002 and 2004 in the Town of Chili, indicating an extremely high rate of development within the town relative to the municipalities within the two watersheds.

Land cover is rather diverse throughout the Town of Chili. Within the northern portion of the town – north of the main stem of the Black Creek – the predominant land cover is heavily developed with large areas of low- and high- intensity residential land uses. Outside of the developed area, one can find significant cover of pasture/hay with small patches of row crops dispersed throughout. South of the main stem of the Black Creek, land cover is considerably more rural in character. This area is predominantly covered by pasture/hay, with large patches of mixed forest near the riparian corridor. Small patches of row crops are interspersed throughout.

Chili – one of three regulated MS4s in the Black and Oatka watersheds – is clearly the most urbanized community within the case study area, experiencing significant suburban expansion in recent years in the northern and north-eastern sections of town. Chili's Subdivision of Land ordinance was found to contain several important best management practices that pertain specifically to erosion and sediment control in and around new developments. Provision of adequate drainage facilities and basic site stabilization techniques were among those found. Also, town zoning regulations contain explicit BMPs specific to certain districts – such as Planned Unit Development districts – and specific practices – such as mining and excavations.

While new development and construction activities are a concern in this portion of the Black Creek watershed, conscientious and consistent enforcement of current Town of Chili Subdivision of Land laws can provide adequate protection against excessive silt and sedimentation within area tributaries. Indeed, while the *2001 Genesee River Basin Waterbody Inventory and Priority Waterbodies List* cites silt/sediment as a known pollutant type in this portion of the Black Creek, agricultural activities – not construction activities – are referenced among the known sources of pollution. Urban runoff and non-point source pollution will continue to be a looming concern, however, as residential development continues. Specific threats include the expansion of impervious surfaces, increased nutrient loading resulting from residential fertilization, encroachment upon sensitive environmental areas and the loss of natural conveyance systems.

Recommendations for Future Action by Local Officials:

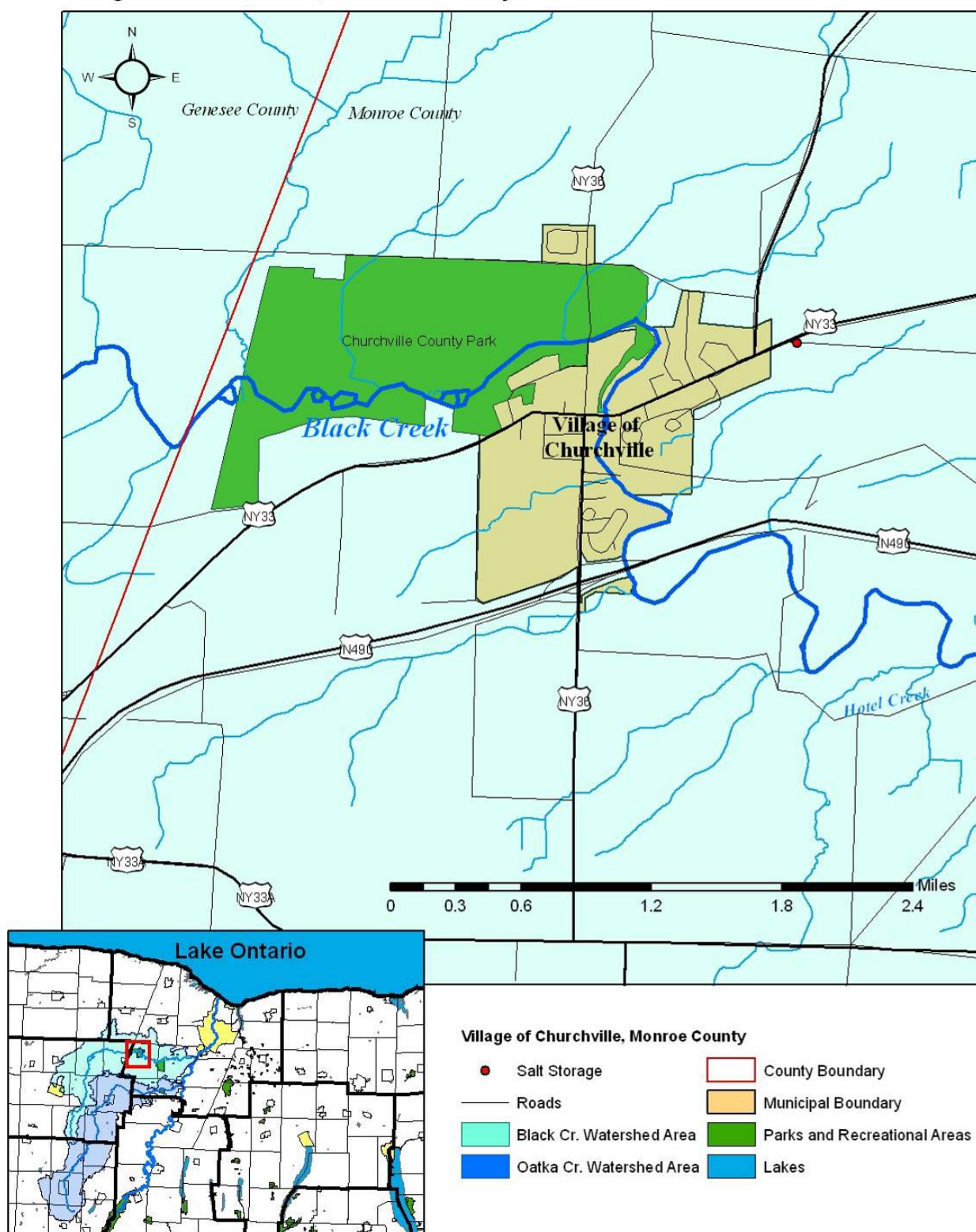
- In accordance with mandatory Phase II Stormwater Regulations for regulated MS4 communities, continue developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- The Stormwater Coalition of Monroe County has adopted its own model ordinance and should be considered as well. Information regarding Coalition activities may be found at the following web address: <http://www.thestormwatercoalition.org>.
- During the next scheduled update of the comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds.
- Continued education and outreach to area farmers by the Monroe County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	22 of 44 BMPs, or 50%	Forestry and Agriculture	6 of 18 BMPs, or 33%
Existing Development	10 of 21, or 48%	Forestry	1 of 10, or 10%
New Development or Redevelopment	12 of 23, or 52%	Agriculture	5 of 8, or 63%
Waterways/Wetlands	7 of 15 BMPs, or 47%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges*	8 of 29 BMPs, or 28%	Onsite Wastewater Treatment Systems	
Existing	1 of 6, or 17%		3 of 7 BMPs, or 43%
New	7 of 13, or 54%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	0 of 10		

* Joseph Carr, Town of Chili Comm'r of Public Works/Highways could not be reached for comment; section therefore is incomplete.

Village of Churchville, Monroe County



Village of Churchville ~ Monroe County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
1.15	1.15	0	100%	0	.57%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- *Code of the Village of Churchville, New York: v. 33. 2005.*

The Village of Churchville is located entirely within the Black Creek watershed.

According to Census 2000, there are 1,887 people, 723 households, and 514 families residing in the village. The average household size is 2.59 persons and the average family size is 3.10 persons. The median income for a household in the village is \$55,357. The median age is 36 years. The village has 753 housing units. The median year for a structure built in Churchville is 1973 and the median value of an owner-occupied housing unit is \$89,600.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 9 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Village of Churchville, indicating a low rate of development within the village relative to the municipalities within the two watersheds.

Land cover in the Village of Churchville is predominantly low-intensity residential with a small central corridor of dense commercial/industrial uses. A large portion of the village – nearly half – is devoted to pasture/hay and contains small patches of row crops.

A comprehensive review of the Village of Churchville's body of land use regulations revealed a wide array of best management practices to be in place. The village's subdivision ordinance contains a comprehensive set of rules pertaining to erosion and sediment control for new developments. Site stabilization and facility construction and long-term facility maintenance are among the BMPs that were found.

Considering that development is occurring at a relatively slow pace in Churchville, coupled with the comprehensive body of rules pertaining to erosion and sediment control, construction activities are not likely to be a major source of erosion and sedimentation within the village. To this end, consistent and effective enforcement of current laws is extremely important. The 2001 *Genesee River Basin Waterbody Inventory and Priority Waterbodies List* cites eutrophication, elevated nutrient levels and silt/sediment as a known pollutant types in this portion of the Black Creek. While agricultural activities are largely to blame, new construction, urban runoff and failing on-site septic systems are cited as possible contributing sources.

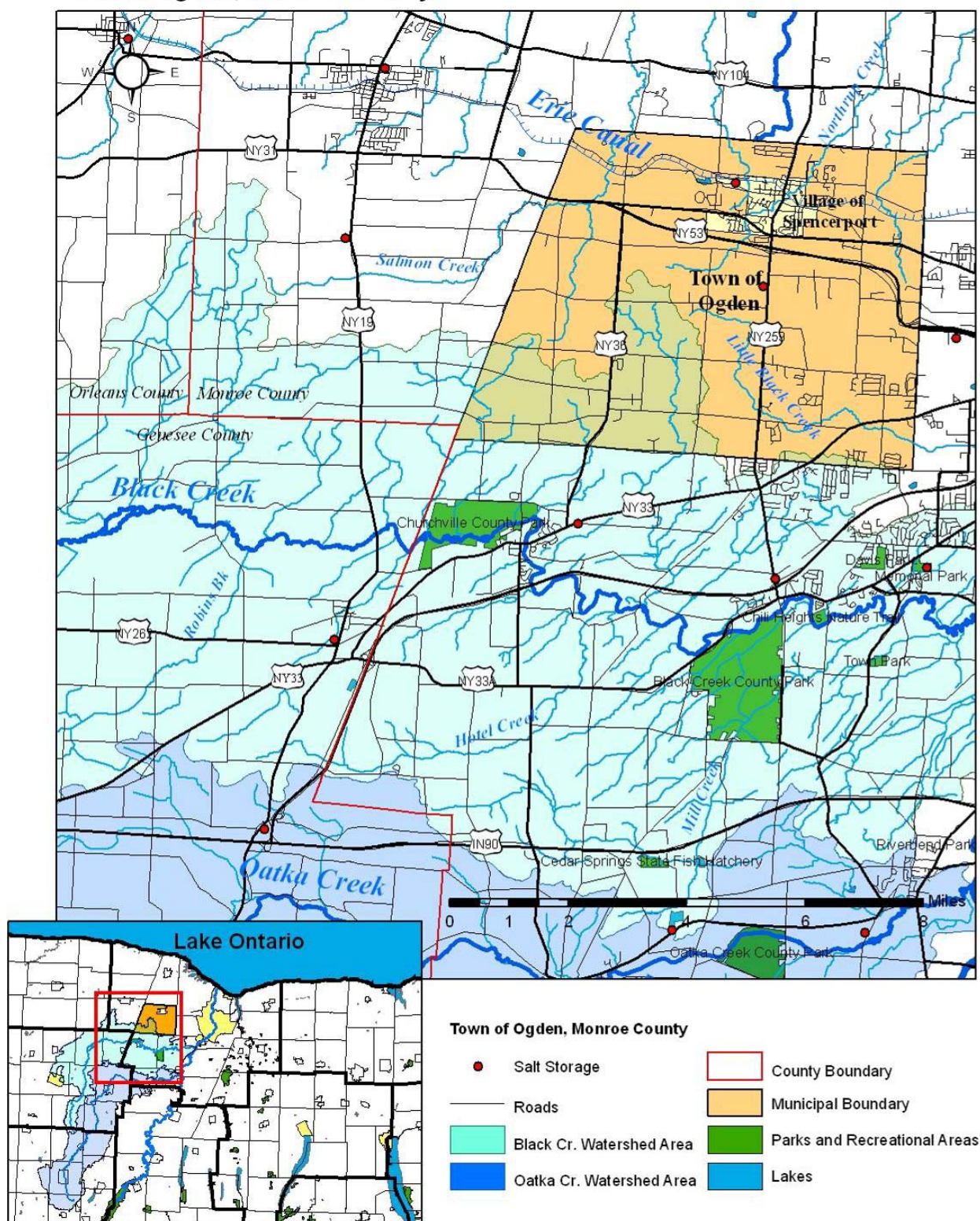
Recommendations for Future Action by Local Officials:

- While Churchville is not currently considered to be a regulated MS4, such areas are designated as such using the decennial census figures. The town's designation could therefore change pending Census 2010. The town should therefore consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development		25 of 44 BMPs, or 57%	Forestry and Agriculture		(does not apply)
Existing Development		11 of 21, or 52%	Forestry		--
New Development or Redevelopment		14 of 23, or 61%	Agriculture		--
Waterways/Wetlands		8 of 15 BMPs, or 53%	Recreation0 BMPs found		
Modified Waterways		7 of 9, or 78%	Docks and Launches		0
Wetlands/Riparian Areas		1 of 6, or 17%	Golf Courses		0
Roads and Bridges		19 of 29 BMPs, or 66%	Onsite Wastewater Treatment Systems		
Existing		4 of 6, or 67%	3 of 7 BMPs, or 43%		
New		10 of 13, or 77%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.		
All		5 of 10, or 50%			

Town of Ogden, Monroe County



Overview Area

Town of Ogden ~ *Monroe County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
36.75	7.77	0	21.14%	0	3.84%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- *Town of Ogden Master Plan Update*. 1991.
- *Chapter 38: Animals*. Code of the Town of Ogden. 1979
- *Chapter 52: Building Construction and Fire Protection*. Code of the Town of Ogden. Date unknown; retrieved from town website on March 28, 2006.
- *Chapter 76: Excavations and Fill*. Code of the Town of Ogden. Date unknown; retrieved from town website on March 28, 2006.
- *Chapter 82: Flood Damage Prevention*. Code of the Town of Ogden. 1972.
- *Chapter 173: Subdivision of Land*. Code of the Town of Ogden. 1995.
- *Chapter 210: Zoning*. Code of the Town of Ogden. 1997.

The southwestern area and a small portion of central area of the town of Ogden lie within the Black Creek watershed. The town is 36.8 square miles in area, of which 0.65% is water.

Ogden has and a population of 18,492 persons. There are 6,527 households, 6,740 housing units, and 5,032 families in the town. The average household size in Ogden is 2.78 persons and the average family size is 3.19 persons. The median age is 36 years. The median income for a household in the town is \$59,240 and the median value for an owner occupied housing unit is \$114,400. The median year a structure was built in the town of Ogden is 1971.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 232 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Town of Ogden, indicating an extremely high rate of development within the town relative to the municipalities within the two watersheds. The majority of this development, however, is does not appear to be occurring within the area of the Black Creek watershed.

Land cover within the Black Creek watershed portion of the Town of Ogden is an even mix of pasture/hay, row crops and mixed forest. There are three large patches of mixed forest, while patches of row crops are interspersed throughout the area.

The Town of Ogden's Comprehensive Plan clearly and consistently identifies stormwater management as a significant priority for the town to address. Few best management practices, however, were found to be written into the Town's zoning or subdivision ordinances. Ogden's zoning and subdivision ordinances refer to *Town Criteria and Construction Standards*, which were not made available in time for the completion of this report. As one of three regulated MS4s in the Black and Oatka Creek watersheds, the Town of Ogden will have to comply fully with Phase II Stormwater standards by January 1, 2008. The town is a member of the

Stormwater Coalition of Monroe County and has been working with that group in order to ensure compliance by the deadline.

Ogden is one of the few municipalities within the 9-county Genesee/Finger Lakes region to utilize drainage districts in an effort to manage stormwater facilities more efficiently. As development continues to necessitate construction of new stormwater facilities, issues relating to their long-term maintenance will begin to arise. Stormwater districts can provide municipalities with a framework for managing these facilities by establishing a mechanism for targeted user fees, thereby ensuring their long-term physical maintenance.

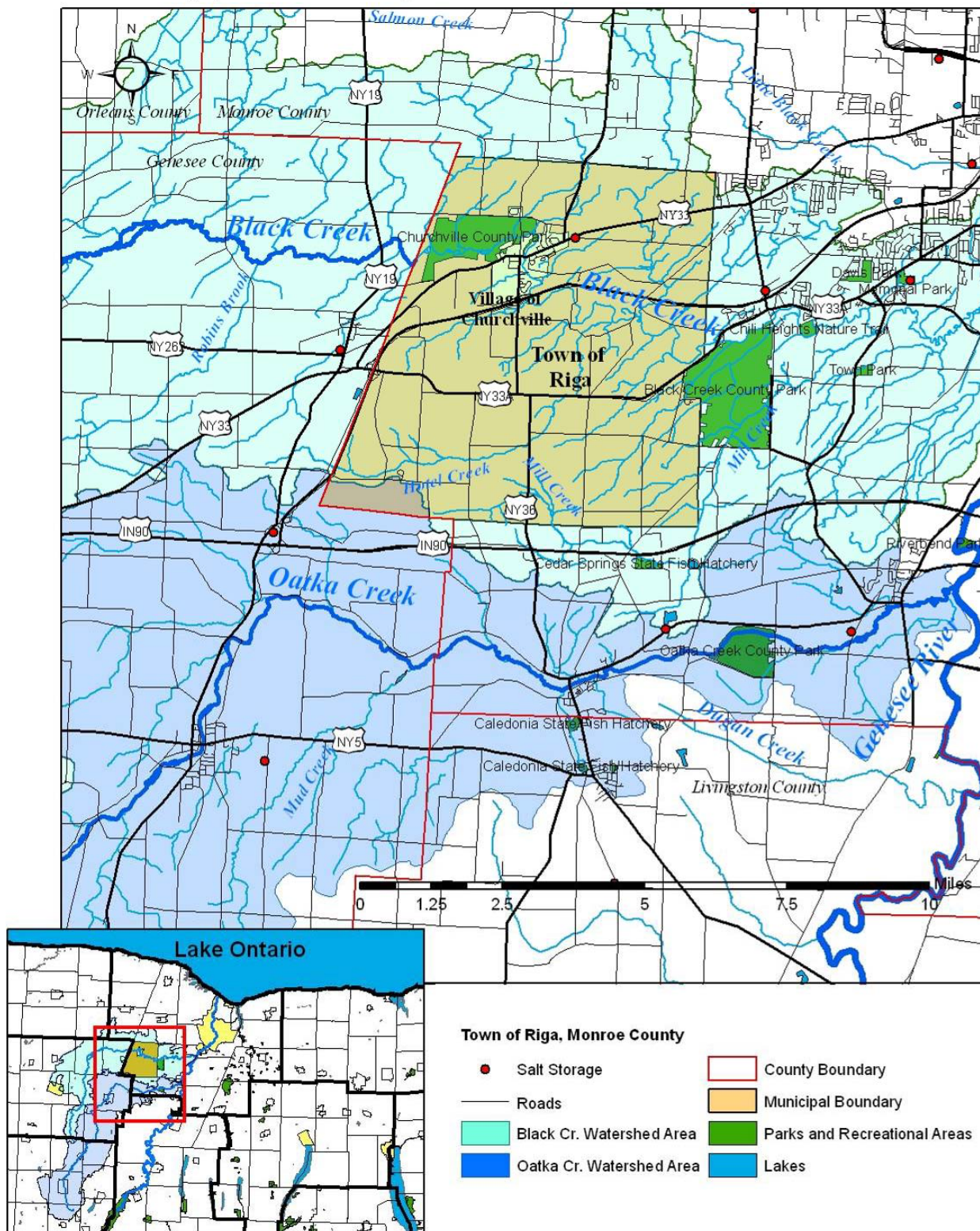
Recommendations for Future Action by Local Officials:

- In accordance with mandatory Phase II Stormwater Regulations for regulated MS4 communities, continue developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- The Stormwater Coalition of Monroe County has adopted its own model ordinance and should be considered as well. Information regarding Coalition activities may be found at the following web address: <http://www.thestormwatercoalition.org>.
- Continued education and outreach to area farmers by the Monroe County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	24 of 44 BMPs, or 55%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	11 of 21, or 52%	Forestry	1 of 10, or 10%
New Development or Redevelopment	13 of 23, or 57%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	12 of 15, or 80%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	6 of 6, or 100%	Golf Courses	0
Roads and Bridges	24 of 29 BMPs, or 83%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		3 of 7 BMPs, or 43%
New	11 of 13, or 85%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	8 of 10, or 80%		

Town of Riga, Monroe County



Town of Riga ~ Monroe County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
35.33	34.43	.87	97.46%	2.46%	17%	.40%

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Chapter 81: Subdivision of Land.** Code of the Town of Riga. 1997.
- **Chapter 95: Zoning.** Code of the Town of Riga. 2000.

The town of Riga is 35.2 square miles and is predominately within the Black Creek watershed. 0.37% of this area is covered by water. The village of Churchville is located in the northeastern section of town.

There are 2,018 housing units in the town of Riga and 5,437 people, 1,969 households, and 1,518 families. The average household size is 2.75 and the average family size is 3.15. The median age is 38 years. There are 2,018 housing units and the median year a structure was built in the town of Riga is 1971. The median value of an owner occupied housing unit in Riga is \$104,100. Median income for a household in Riga is \$58,842.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 37 permits issued for new residential units and 1 permit issued for new commercial units between 2002 and 2004 in the Town of Riga, indicating a high rate of development within the town relative to the municipalities within the two watersheds.

Land cover within the Town of Riga is predominantly pasture/hay with considerable patches of row crops. Mixed forested lands and woody wetlands are distributed throughout the town; two large areas of urban/recreational grasslands are present as well.

A comprehensive review of the Town of Riga's land use control ordinances revealed several key environmental best management practices to be in place. The prevention of soil erosion, preservation of existing vegetation and the maintenance of boundaries of water courses were among those found. An established Environmental Protection Overlay District (EPOD) offers further protection for the lands contained within that district. The protection of wetland areas and waterbodies from construction activities have been specifically cited within the EPOD ordinance.

Considering the current rate of development occurring in the Town of Riga, erosion stemming from construction and land development activities should be a concern for local officials. To this end, consistent and effective enforcement of current laws is extremely important. The 2001 *Genesee River Basin Waterbody Inventory and Priority Waterbodies List* cites elevated nutrient levels and silt/sediment as known pollutant types in this portion of the Black Creek. While

agricultural activities are largely to blame, new construction, urban runoff and failing on-site septic systems are cited as possible contributing sources.

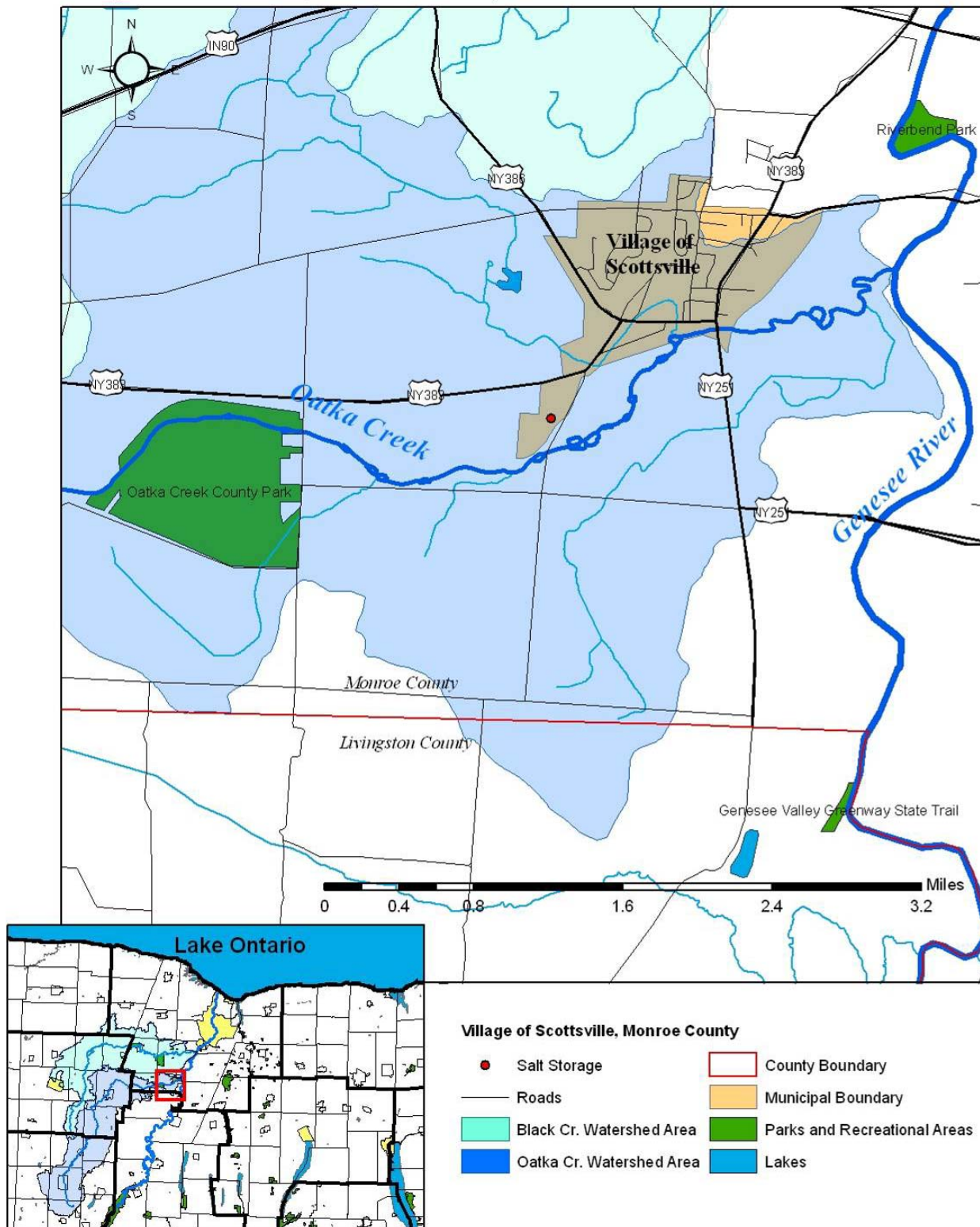
Recommendations for Future Action by Local Officials:

- While Riga is not currently considered to be a regulated MS4, such areas are designated as such using the decennial census figures. The town's designation could therefore change pending Census 2010. The town should therefore consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds.
- Continued education and outreach to area farmers by the Monroe County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	19 of 44 BMPs, or 43%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	10 of 21, or 48%	Forestry	1 of 10, or 10%
New Development or Redevelopment	9 of 23, or 39%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	9 of 15 BMPs, or 60%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	3 of 6, or 50%	Golf Courses	0
Roads and Bridges	24 of 29 BMPs, or 83%	Onsite Wastewater Treatment Systems	
Existing	6 of 6, or 100%		3 of 7 BMPs, or 43%
New	11 of 13, or 85%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	7 of 10, or 70%		

Village of Scottsville, Monroe County



Village of Scottsville ~ Monroe County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
.98	0	.88	0	90.04%	0	.41%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- *Code of the Village of Scottsville.* 2005.
- *Wheatland/Scottsville Joint Comprehensive Plan: 2004—2024.* 2004.

Over 90% of the land area of the Village of Scottsville is within the Oatka Creek watershed. The village has a total area of 1.1 square miles; a small portion of the Oatka Creek as well as a small mill race pass through the village.

According to Census 2000, Scottsville has a total population of 2,128 people, 835 households, and 591 families. The median age for residents is 38 years; the average household size is 2.53 persons and the average family size is 3.05 persons. There are 852 housing units in the village; the median year for a structure to have been built is 1959. The median income for a household in the village is \$52,472; the median value for an owner-occupied housing unit is \$90,500.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 13 permits issued for new residential units and 0 permits issued for new commercial units between 2002 and 2004 in the Village of Scottsville, indicating a low rate of development within the village relative to the municipalities within the two watersheds.

Land cover in the Village of Scottsville is almost entirely low-intensity residential, interspersed with many patches classified as “urban/recreational grasses”. Small areas along the outside border of the village are classified as pasture/hay with patches of mixed forest that extend out into the Town of Wheatland.

A comprehensive review of land use regulations in effect in the Village of Scottsville revealed few best management practices to be in effect. The joint Scottsville/Wheatland comprehensive plan does, however, set a clear vision for land preservation efforts, particularly around established woodlots and natural areas. The plan cites the mutual desire among town and village residents to see “innovative design practices” and “natural design themes” implemented in new developments. The goal of mapping and protection of environmentally sensitive areas in the future is also cited in the plan.

A number of BMPs were found to be in effect within the village when considering the activities conducted by regional entities such as the county SWCD and the CCE; personal conversation with the village’s superintendent of public works revealed BMPs pertaining to highway maintenance as well. While regulations such as SPDES permit compliance and Stormwater

Phase II Pre/Post Construction are intended to cover all of New York State, universal enforcement can at times be challenging for relevant authorities. Local regulations can therefore be an important addition to state and federal enforcement and will provide the municipality with the greatest degree of effectiveness when monitored and enforced by local officials. The village's DPW superintendent did note, however, that his department and the local zoning department are aware of Phase II Stormwater rules and follow them explicitly when new development occurs within the village.

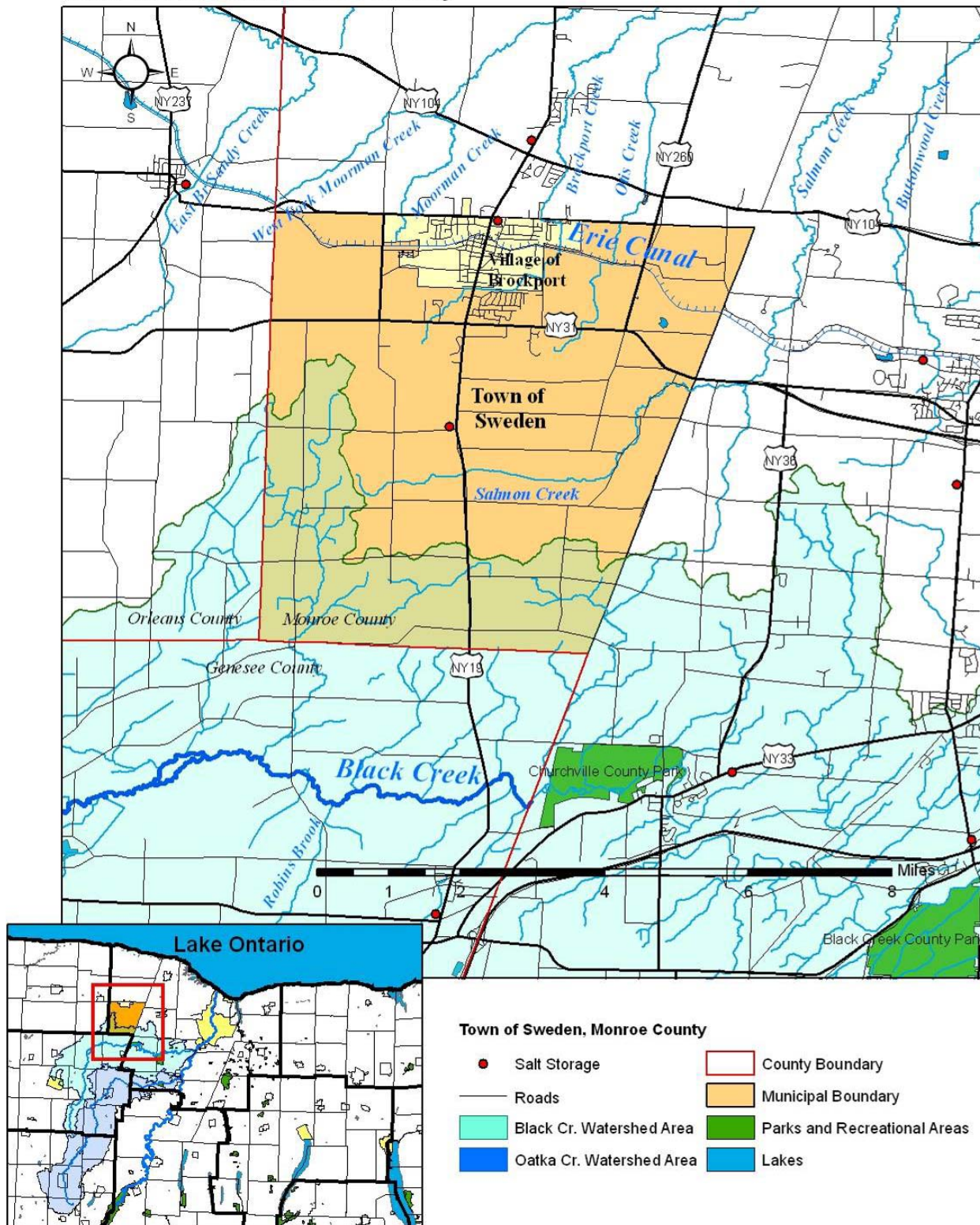
Recommendations for Future Action by Local Officials:

- Consider developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. Such a law would require developers to prepare a Stormwater Pollution Prevention Plan and submit it to the relevant local board as part of the process for new development. For complete information on stormwater and erosion and sediment control programs in NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information Page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, further emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Oatka Creek watershed.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	15 of 44 BMPs, or 34%	Forestry and Agriculture	(does not apply)
Existing Development	9 of 21, or 43%	Forestry	--
New Development or Redevelopment	6 of 23, or 26%	Agriculture	--
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	2 of 6, or 33%	Golf Courses	0
Roads and Bridges	26 of 29 BMPs, or 90%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%	3 of 7 BMPs, or 43%	
New	12 of 13, or 92%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	9 of 10, or 90%		

Town of Sweden, Monroe County



Overview Area

Town of Sweden ~ Monroe County

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
33.92	9.28	0	27.36%	0	4.58%	0

*All area figures in square miles

*Town area calculations include villages within

Land Use Documents Reviewed:

- **Town of Sweden/Village of Brockport Comprehensive Plan.** Update 2002, Amended May 3, 2005.
- **Town of Sweden Land Use Development and Subdivision Regulations.** As adopted by the Town Board on February 27, 1996.
- **Town of Sweden Zoning, Chapter 175.** February 2002.

The Town of Sweden has a total area of nearly 34 square miles and contains just under 5% of the total Black Creek watershed area.

According to Census 2000, the Town contains 13,716 residents, 4,581 households, and 2,757 families. The median age is 25 years. The Town has an average household size of 2.52 persons and an average family size of 3.06 persons. Median income for a household in the town is \$44,151, and the median value of an owner-occupied housing unit is \$95,300. There are 4,843 housing units located in Sweden; the median year a structure was built is 1965.

According to the 2004 *Regional Land Use Monitoring Report*, there were a total of 49 permits issued for new residential units and 7 permits issued for new commercial units between 2002 and 2004 in the Town of Sweden, indicating a significantly high rate of development within the town relative to the municipalities within the two watersheds. Much of this development, however, appears to be occurring in areas well north of the Black Creek watershed.

Land cover in the Black Creek portion of Sweden is largely pasture/hay, although significant patches of mixed forest can be found throughout. Smaller patches of row crops are present as well.

A comprehensive review of Sweden's land use control ordinances revealed a host of best management practices specifically targeted at erosion control when land movement activities are taking place. Vegetative stabilization, preservation of natural features, and maintaining natural drainage patterns were among those BMPs found. Furthermore, the subdivision ordinance requires individuals undertaking land movement activities to follow specifications cited within "the most current edition of *NY Guidelines for Urban Erosion and Sediment Control*," thereby guaranteeing a high degree of protection against poor land development practices.

While the Town has been experiencing a relatively high rate of development over the past three years, the risk of erosion stemming from new construction activities is relatively low assuming that current local laws are enforced in a consistent and effective manner. As one of three

regulated MS4s in the Black and Oatka Creek watersheds, the Town of Sweden will have to comply fully with Phase II Stormwater standards by January 1, 2008. The town is a member of the Stormwater Coalition of Monroe County and has been working with that group in order to ensure compliance by the deadline.

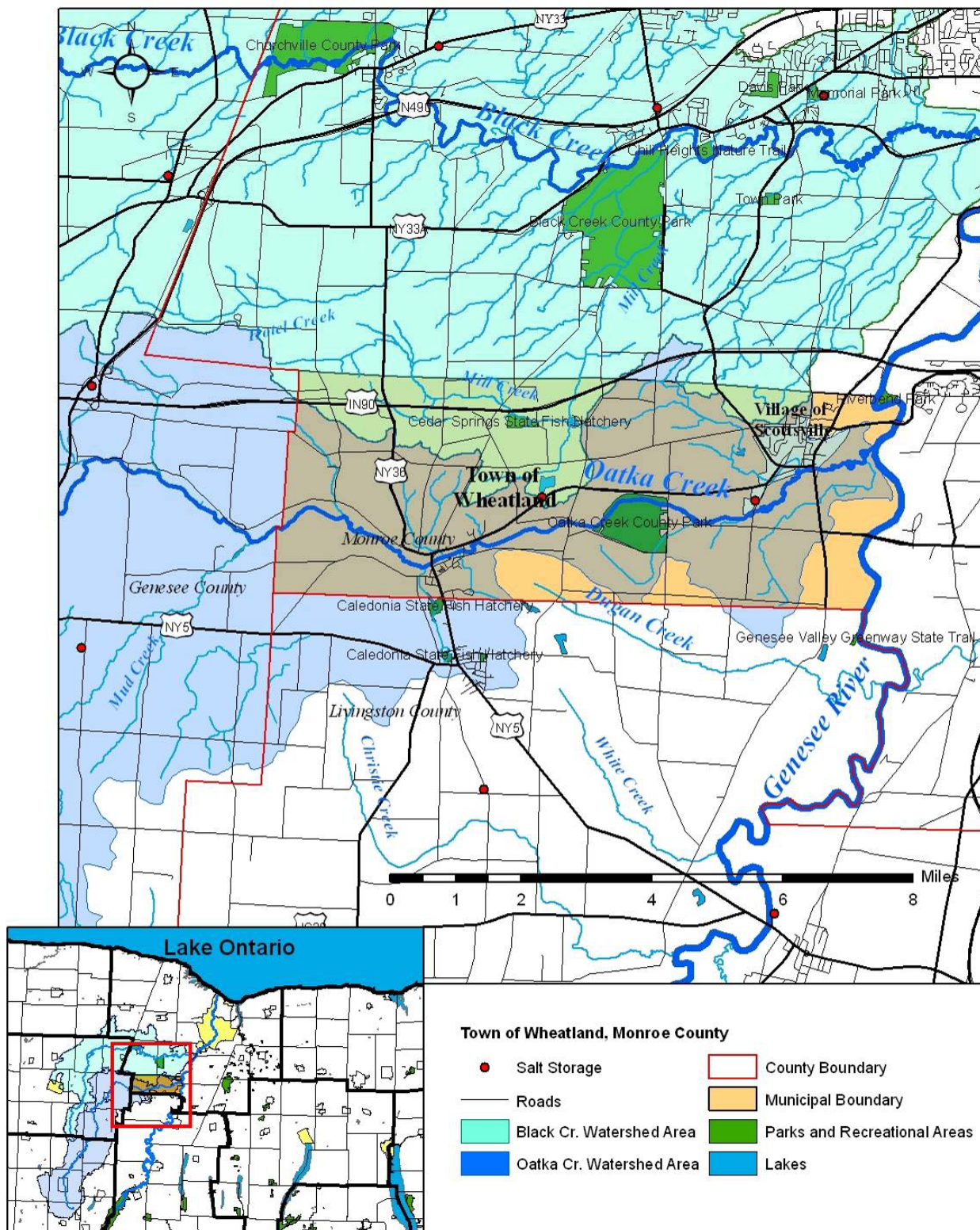
Recommendations for Future Action by Local Officials:

- In accordance with mandatory Phase II Stormwater Regulations for regulated MS4 communities, continue developing a stormwater management local law that works in conjunction with existing zoning, site plan and/or subdivision ordinances. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- The Stormwater Coalition of Monroe County has adopted its own model ordinance and should be considered as well. Information regarding Coalition activities may be found at the following web address: <http://www.thestormwatercoalition.org>
- Revision of the town's comprehensive plan, emphasizing the protection of local water resources and recognizing the importance of watershed planning efforts within the Black Creek watershed
- Continued ditch maintenance using best management practices, maintaining vegetative buffers near waterbodies, lining sensitive areas with rip rap and seeding disturbed areas immediately after are recommended practices.
- Continued education and outreach to area farmers by the Monroe County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	26 of 44 BMPs, or 59%	Forestry and Agriculture	8 of 18 BMPs, or 44%
Existing Development	11 of 21, or 52%	Forestry	1 of 10, or 10%
New Development or Redevelopment	15 of 23, or 65%	Agriculture	7 of 8, or 88%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	7 of 9, or 78%	Docks and Launches	0
Wetlands/Riparian Areas	1 of 6, or 17%	Golf Courses	0
Roads and Bridges	24 of 44 BMPs, or 83%	Onsite Wastewater Treatment Systems	
Existing	5 of 6, or 83%		3 of 7 BMPs, or 43%
New	11 of 13, or 85%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	8 of 10, or 80%		

Town of Wheatland, Monroe County



Overview Area

Town of Wheatland ~ *Monroe County*

Area of Municipality*	Watershed Area		% of Municipality within Watershed		% of Watershed within Municipality	
	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>	<i>Black</i>	<i>Oatka</i>
30.78	6.35	20.39	20.63%	66.25%	3.14%	9.48%

**All area figures in square miles*

**Town area calculations include villages within*

Land Use Documents Reviewed:

- **Chapter 82: Subdivision of Land.** From the Code of the Town of Wheatland. March 1999.
- **Chapter 98: Zoning.** From the Code of the Town of Wheatland. December 1999.
- **Wheatland/Scottsville Joint Comprehensive Plan: 2004—2024.** 2004.

The Town of Wheatland is in both the Black Creek and Oatka Creek watersheds, although Oatka Creek predominates from the east to the western edge and throughout the Village of Scottsville, which is in the northeastern portion of the town. The Black Creek watershed is in the north-central and northwestern portions, mainly near the town line with Riga. The town encompasses 30.7 square miles, 0.26% of which is covered by water.

Wheatland has a population of 5,149 people, 2,011 households, and 1,425 families. The average household size is 2.55 persons and the average family size is 3.02 persons. The median age is 37 years. Median income for a household in the town is \$55,239 and the median value of an owner-occupied housing unit is \$97,000. There are 2,093 housing units in the town; the median year a structure was built in Wheatland is 1965.

According to the *2004 Regional Land Use Monitoring Report*, there were a total of 10 permits issued for new residential units and 0 permits issued for new commercial units between 2003 and 2004 in the Town of Wheatland, indicating a low rate of development within the town relative to the municipalities within the two watersheds.

Land cover in the Town of Wheatland outside of the Village of Scottsville is predominantly pasture/hay with large patches of row crops. A large patch of mixed forest can be found in the southwest portion of town near the Oatka Creek corridor. Indeed, much of the corridor is surrounded by a forested buffer. A significant area of low-intensity residential space can be found extending north out of Caledonia into Wheatland along the 383 corridor.

A comprehensive review of the Town of Wheatland's land use control regulations revealed a number of important best management practices. Floodplain management, drainage reports for new developments, and the identification of sensitive soils were among those BMPs found to be in place. The joint Scottsville/Wheatland comprehensive plan also sets a clear vision for land preservation efforts, particularly around established woodlots and natural areas. The plan cites the mutual desire among town and village residents to see "innovative design practices" and "natural design themes" implemented in new developments. The goal of mapping and protection of environmentally sensitive areas in the future is also cited in the plan.

Considering the low rate of development within the Wheatland, coupled with the erosion and sediment control guidelines set forth within established land use regulations, the risk of erosion stemming from new construction activities is relatively low, assuming that consistent and effective enforcement of established regulations is taking place.

Recommendations for Future Action by Local Officials:

- Designate a local official (preferably a member of the town board) to represent the town at future Black Creek Watershed Coalition meetings. Information regarding meeting times and location can be found at the following website: <http://blackcreekwatershed.org>
- While Wheatland is not currently considered to be a regulated MS4, such areas are designated as such using the decennial census figures. The town's designation could therefore change pending Census 2010. The town should therefore consider modifying current local laws to be in conformance with the *Sample NYS Local Law for Stormwater Management and Erosion and Sediment Control*. By doing so, local officials will be providing uniformity and comprehensiveness regarding stormwater management and enforcement. For complete information on stormwater and erosion and sediment control programs NYS, including model local laws and guidance manuals, refer to the NYSDEC Division of Water Stormwater Information page at <http://www.dec.state.ny.us/website/dow/mainpage.htm>.
- During the next scheduled update of the comprehensive plan, further emphasize the protection of local water resources and recognize the importance of watershed planning efforts within the Black and Oatka Creek watersheds.
- Continued education and outreach to area farmers by the Monroe County SWCD and CCE regarding agricultural best management practices and the various federal and state incentive programs available for implementation.
- Support education and outreach (mailings, brochures, etc.) to individuals whose lands are adjacent to Oatka Creek and Black Creek segments or contain contributing tributaries. Issues including non-point source pollution, riparian rights and landowner responsibilities, setbacks, floodplain protection and other stream maintenance BMPs are recommended focus areas.

Assessment Results:

Development	19 of 44 BMPs, or 43%	Forestry and Agriculture	7 of 18 BMPs, or 39%
Existing Development	10 of 21, or 48%	Forestry	1 of 10, or 10%
New Development or Redevelopment	9 of 23, or 39%	Agriculture	6 of 8, or 75%
Waterways/Wetlands	8 of 15 BMPs, or 53%	Recreation	0 BMPs found
Modified Waterways	6 of 9, or 67%	Docks and Launches	0
Wetlands/Riparian Areas	2 of 6, or 33%	Golf Courses	0
Roads and Bridges*	6 of 29 BMPs, or 17%	Onsite Wastewater Treatment Systems	
Existing	1 of 6, or 17%		4 of 7 BMPs, or 57%
New	3 of 13, or 23%	Table summarizes the number of BMPs found to be present within the municipality. A listing of these BMPs can be found in Appendix F. Unabridged results for each municipality can be found on the project website.	
All	0 of 10		

* Howard Hazelton, Town of Wheatland Highway Superintendent could not be reached for comment; section therefore is incomplete.

APPENDICES

APPENDIX A: AREA FIGURES

Total Area of the Black Creek Watershed = 202.53 Square Miles

Total Area of the Oatka Creek Watershed = 214.99 Square Miles

- Area calculations for towns include the area of any villages within their jurisdiction. Village figures are therefore omitted from total watershed area calculations and have been arranged at the bottom of the table.
- Municipalities are in descending order of magnitude according to total watershed area.

Municipality	County	Area of Muni.*	Municipal-Watershed Overlap Area		Total Watershed Overlap Area	% Municipality in Watershed		% Watershed in Municipality	
			Black	Oatka		Black	Oatka	Black	Oatka
<i>Town of LeRoy</i>	Genesee	42.15	0.39	41.49	41.88	0.9	98.4	0.2	19.3
<i>Town of Riga</i>	Monroe	35.33	34.43	0.87	35.30	97.5	2.5	17.0	0.4
<i>Town of Warsaw</i>	Wyoming	35.48	0.00	34.63	34.63	0.0	97.6	0.0	16.1
<i>Town of Pavilion</i>	Genesee	35.79	0.00	31.42	31.42	0.0	87.8	0.0	14.6
<i>Town of Chili</i>	Monroe	39.87	30.21	0.42	30.62	75.8	1.0	14.9	0.2
<i>Town of Byron</i>	Genesee	32.32	30.29	0.23	30.52	93.7	0.7	15.0	0.1
<i>Town of Bergen</i>	Genesee	27.57	26.39	1.18	27.57	95.7	4.3	13.0	0.5
<i>Town of Stafford</i>	Genesee	31.31	20.87	6.66	27.53	66.6	21.3	10.3	3.1
<i>Town of Wheatland</i>	Monroe	30.78	6.35	20.39	26.74	20.6	66.2	3.1	9.5
<i>Town of Covington</i>	Wyoming	26.19	0.00	20.09	20.09	0.0	76.7	0.0	9.3
<i>Town of Middlebury</i>	Wyoming	35.70	1.36	17.70	19.06	3.8	49.6	0.7	8.2
<i>Town of Bethany</i>	Genesee	36.12	13.12	5.51	18.63	36.3	15.3	6.5	2.6
<i>Town of Gainesville</i>	Wyoming	35.74	0.00	13.12	13.12	0.0	36.7	0.0	6.1
<i>Town of Elba</i>	Genesee	35.76	9.57	0.00	9.57	26.8	0.0	4.7	0.0
<i>Town of Sweden</i>	Monroe	33.92	9.28	0.00	9.28	27.4	0.0	4.6	0.0
<i>Town of Ogden</i>	Monroe	36.75	7.77	0.00	7.77	21.1	0.0	3.8	0.0
<i>Town of Batavia</i>	Genesee	48.43	7.46	0.00	7.46	15.4	0.0	3.7	0.0
<i>Town of Orangeville</i>	Wyoming	35.67	0.00	7.29	7.29	0.0	20.4	0.0	3.4
<i>Town of Perry</i>	Wyoming	36.61	0.00	7.00	7.00	0.0	19.1	0.0	3.3
<i>Town of Caledonia</i>	Livingston	44.21	0.00	6.20	6.20	0.0	14.0	0.0	2.9
<i>Town of Clarendon</i>	Orleans	35.20	4.07	0.00	4.07	11.6	0.0	2.0	0.0
<i>Village of Warsaw</i>	Wyoming	4.14	0.00	4.14	4.14	0.0	100.0	0.0	1.9
<i>Village of LeRoy</i>	Genesee	2.69	0.00	2.69	2.69	0.0	100.0	0.0	1.3
<i>Village of Caledonia</i>	Livingston	2.13	0.00	1.70	1.70	0.0	79.8	0.0	0.8
<i>Village of Churchville</i>	Monroe	1.15	1.15	0.00	1.15	100.0	0.0	0.6	0.0
<i>Village of Scottsville</i>	Monroe	0.98	0.00	0.88	0.88	0.0	90.0	0.0	0.4
<i>Village of Wyoming</i>	Wyoming	0.67	0.00	0.67	0.67	0.0	100.0	0.0	0.3
<i>Village of Bergen</i>	Genesee	0.59	0.59	0.00	0.59	100.0	0.0	0.3	0.0

**All area calculations are in square miles.*

It is important to note that the Towns of Castile and Weathersfield and the City of Batavia have miniscule portions of their municipal boundaries within either the Black or Oatka Creek watersheds. Due to their small watershed overlap area, these municipalities have not been included in this analysis. Furthermore, because these municipalities have been omitted from the analysis, the “% Watershed in Municipality” column should not be expected to add to 100% (the sum of total watershed area for each watershed comes to approximately 99.5%, indicating that the omitted municipalities comprise approximately .5% of the Black and Oatka watershed areas).

APPENDIX B: RATE OF DEVELOPMENT

Rates of development were arrived at using data from G/FLRPC's 2004 *Regional Land Use Monitoring Report*. As shown below, the number of permits issued for new residential and commercial units between 2002 and 2004 were combined, arriving at a total number of permits for that three-year period. The sum of these figures was then used to derive a general "rate of development" figure *relative to other municipalities within the watersheds*, which – as illustrated below – experience a wide range of development rates. While some municipalities did not provide data for some years, the data nonetheless provides an interesting benchmark that can be used to reliably measure local development pressure in the town. Unfortunately, the data does not indicate precisely where that development is occurring, and may therefore include instances of development from outside the Black Creek and Oatka Creek watersheds.

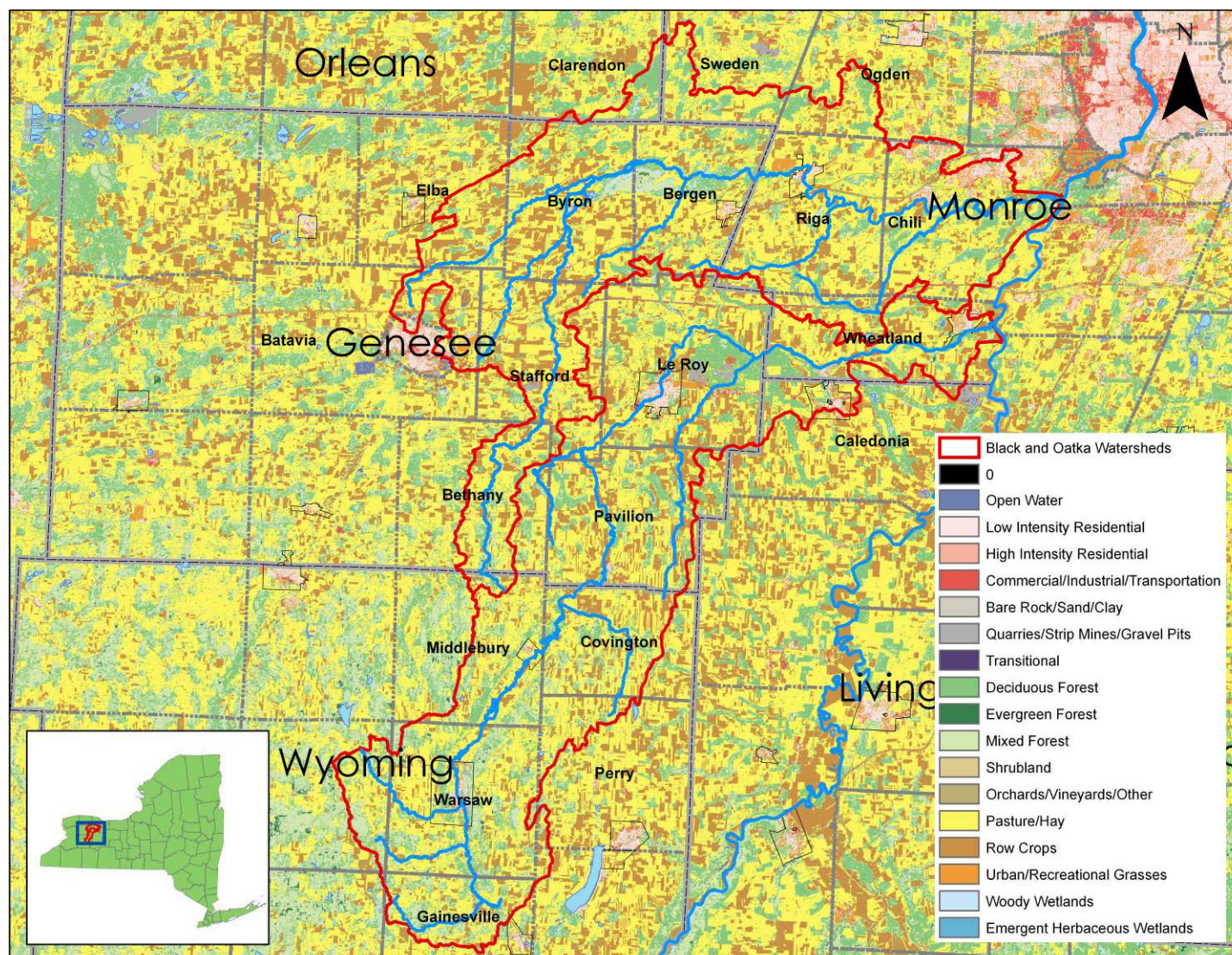
Municipality	Building Permits		Total	"Rate of Development"
	Residential	Commercial		
Wyoming, Village	0	0	0	5 & Under = "Significantly Low"
Bergen, Village	1	0	1	
Caledonia, Village	1	1	2	
*Warsaw, Village	3	0	3	
Elba, Town	4	0	4	
Covington, Town	7	0	7	6 - 15 = "Low"
Churchville, Village	9	0	9	
*Stafford, Town	8	2	10	
*Wheatland, Town	10	0	10	
Byron, Town	11	0	11	
Scottsville, Village	13	0	13	
*Bethany, Town	14	0	14	
Middlebury, Town	14	1	15	
*Pavilion, Town	16	2	18	16 - 25 = "Moderate"
Perry, Town	12	6	18	
Bergen, Town	20	0	20	
Gainesville, Town	13	8	21	
Leroy, Village	10	13	23	
Caledonia, Town	24	0	24	
Leroy, Town	32	3	35	26 - 50 = "High"
Warsaw, Town	28	7	35	
Orangeville, Town	36	0	36	
Riga, Town	37	1	38	
Sweden, Town	49	7	56	51 - 99 = "Significantly High"
*Batavia, Town	47	12	59	
Clarendon, Town	92	0	92	
Ogden, Town	232	0	232	100+ = "Extremely High"
Chili, Town	348	57	405	

* Indicates data missing for one or more years.

Land Use Monitoring Reports dating back to 1999 – including the iteration used above – can be viewed in their entirety at the following web address: <http://gflrpc.org/Publications/LandUseMonitoring.htm>.

APPENDIX C: G.I.R.A.S. LAND COVER, 1998

Land cover information obtained from the Geographic Information Retrieval and Analysis System (GIRAS), 1998 data (time period of content ranges between 1977 and 1980). For more information on GIRAS, refer to <http://gis.esri.com/library/userconf/proc03/p0904.pdf>. Retrieved March 14, 2006.



APPENDIX D: GLOSSARY/LIST OF ACRONYMS

Agriculture Environmental Management (AEM): A voluntary, multi-agency New York State program that provides farm operators with assistance in protecting land and water resources and sustaining their agricultural markets. Usually administered through the county Soil and Water Conservation Districts

Berm: A linear mound or series of mounds of earth, planted with, and maintained as, grass

Best Management Practice (BMP): (1) A measure that is implemented to protect water quality and reduce the potential for pollution associated with stormwater runoff. (2) Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

Biological Oxygen Demand (BOD): The quantity of largely organic materials present in a water sample as measured by a specific test. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act. Excessive BOD monopolizes available oxygen within a waterbody, thereby depriving other living organisms – such as fish – of an adequate supply.

Check Dam: A small dam constructed in a gully to decrease the flow velocity, minimize channel scour, and promote deposition of sediment.

Clean Water Act: This is the principal law governing pollution of the nation's rivers, lakes, estuaries, and coastal waters. Originally enacted in 1948 as the Federal Water Pollution Control Act (P.L. 80-845), it was totally revised by amendments in 1972 that gave the Act its current name and shape (P.L. 92-500). The objective of the Act is the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The Act is implemented by the Environmental Protection Agency in partnership with state and local governments. Programs in the Act have been primarily directed at managing point source pollution (wastes discharged from industrial facilities, sewage treatment plants, and municipal storm sewer systems). Agricultural activities have been less of a focus, but some may be affected by the Clean Water Act. Large confined animal feeding operations are treated like industrial sources and are subject to permit requirements. Programs to manage nonpoint source pollution (rainfall runoff from farms, rangelands, forests, etc.) may affect agriculture. However, irrigation return flows are specifically exempt from regulation. A program in the Act that regulates discharges of dredged and fill material into wetlands (Section 404) requires permits for activities on agricultural wetlands.

Cluster Development: A subdivision where houses are sited on smaller parcels of land, while the additional land that would have been allocated to individual lots is retained as open space

CREP (Conservation Reserve Enhancement Program): A voluntary USDA land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water. Financial incentives are typically paid to the land owner to take viable farmland in sensitive areas out of production.

Cut and Fill: When the terrain is not flat, it may be necessary to level spots for a proposed road. This is done by taking soil (cut) from high areas and placing it (fill) in the low areas. Cuts and fills should be balanced to minimize the need for extra material and to maximize roadbed stability.

Detention Area/Pond/Basin: A low-lying area that is designed to temporarily hold a set amount of water while slowly draining it into another location (such as the ground or a receiving waterbody). Generally designed for purposes of flood control when large amounts of rain could cause flash flooding if allowed to flow unrestrained

Drainage Tile: Pipe-shaped clay tiles installed in below-grade trenches for gravity-rated drainage. PVC pipe is now commonly used for this purpose.

Eutrophication: A process whereby water bodies, such as lakes, estuaries, or slow-moving streams receive excess nutrients that stimulate excessive plant growth (algae, periphyton attached algae, and nuisance plants weeds). This enhanced plant growth, often called an algal bloom, reduces dissolved oxygen in the water when dead plant material decomposes and can cause other organisms to die. Nutrients can come from many sources, such as fertilizers applied to agricultural fields, golf courses, and suburban lawns; deposition of nitrogen from the atmosphere; erosion of soil containing nutrients; and sewage treatment plant discharges.

Gabion: Steel wire-mesh basket to hold stones or crushed rock to protect a stream bank or bottom from erosion

Impervious/Impermeable Areas: Areas where the infiltration of water or other liquids (gasoline, oil, antifreeze, etc.) into the ground is difficult or impossible, contributing to increased runoff, especially of rain or melting snow (Examples include

Controlling Sediment in the Black and Oatka Creek Watersheds

Municipal Law Review and Analysis

streets, sidewalks, paved driveways and parking lots, roofs, etc.)

Municipal Separated Storm Sewer System (MS4): A conveyance or system of conveyances (including roads with drainage systems and municipal streets) that is owned or operated by the Federal government, a State, city, town borough, county, parish, district, association, or other public body designed or used for collecting or conveying stormwater which is not a combined sewer and which is not part of a Publicly Owned Treatment Works as defined at 40 CFR 122.26.

National Pollution Discharge Elimination System (NPDES): A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or, where delegated, a tribal government on an Indian reservation

Non-point Source Water Pollution: Pollution coming from many diffuse sources; caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up pollutants such as residential and agricultural chemicals, petroleum residue and de-icing materials from roads and parking lots, and dust and sediment, and deposits them into water bodies. (By contrast, "Point Source Water Pollution" is generally discharged from an outflow or pipe that should be reviewed and permitted by the New York State Department of Environmental Conservation. Point Source Pollution is typically thought of as "traditional" sources of pollution such as industrial waste and sewage).

Onsite Wastewater Treatment System (OWTS): Any system designed for the treatment of household sewage; also referred to as septic systems.

Phase II Stormwater: National approach to non-point source water pollution abatement which was mandated under the 1987 Clean Water Act Amendments. The process is an incremental approach (i.e. in phases) to addressing stormwater runoff from MS4s and construction activities. The program began in the most heavily urbanized areas of the country (Phase I) and will eventually be applied throughout most of the United States. Current Phase II communities are those with an MS4 which serves a population of 50,000 or more, as determined by Census 2000.

Regulated MS4: Those MS4 communities subject to Phase I and Phase II Stormwater rules and regulations, as required under the federal Clean Water Act.

Retention Area/Pond/Basin: Area intended to capture diverted stormwater runoff from streets and gutters and hold the runoff indefinitely. Secondary benefits include pollutant removal through settling and biological uptake as well as habitat creation for various types of organisms

Return/Return Wall: A facing, usually made of stone or concrete, installed to protect an eroding shoreline from the force of water (see also revetment)

Revetment: Sloping surface of stone, concrete or other material used to protect an embankment, natural coast or shoreline against erosion (see also return wall)

Riparian Buffer: Zone of vegetation along a river or stream that works to trap and filter pollutants and stabilize bank sediments

Rip Rap: Cobblestone or coarsely broken rock used for protection against erosion of an embankment, road ditch or gully

Silviculture: The science, art, and practice of caring for forests with respect to human objectives

State Pollution Discharge Elimination System (SPDES): In NYS, the enforcement mechanism of the NPDES (see above). In all cases, SPDES regulations must at a minimum meet NPDES regulations; in some instances, SPDES regulations are more stringent than NPDES regulations.

Stormwater Pollution Prevention Plan (SWPPP): Permittees subject to Stormwater Phase II Regulations must develop and implement a storm water pollution prevention plan that details construction site stabilization methods. This plan should consist of at least five different phases: Planning and Organization, Assessment, BMP (Best Management Practices) Identification, Implementation, and Evaluation/Monitoring.

Soil Bio-engineering: Techniques used to stabilize land by using live plant materials to provide erosion control, slope and stream bank stabilization, landscape restoration, and wildlife habitat. Used alone or in conjunction with conventional engineering techniques

Vernal Pool: a temporary pool of water formed by the collection of rainwater or runoff in a depression such as a tip-up formation. Vernal pools serve as nurseries for frogs, salamanders and other types of herptafauna.

Wing Wall: Wall attached to the headwall of a culvert, set at an angle with the centerline, which prevents earth from spilling into a channel and improves hydraulic efficiency.

Yarding system: A method of log transport that allows for the harvesting of timber in an environmentally sound manner. A tractor with a mounted tower and winches moves through forests to preplanned locations, while a “yarding” cable is run down to an anchor tree. There are no wide landing areas to bulldoze and no excessive ground disturbances. Narrow skid trails replace the high disturbance skid roads of the past

APPENDIX E: CONTACTS

The following officials were contacted in order to gather or confirm information used in this report regarding the duties performed by their respective agencies and/or jurisdictions:

*Dave Adams,
Village of Churchville Supervisor of Public Works*

*Mike Bell,
Town of Covington Highway Superintendent*

*Steven Bolt,
Town of Stafford Highway Superintendent*

*Chris Buckley,
Village of Caledonia Superintendent of Public Works*

*Donald Butler,
Town of Perry Highway Superintendent*

*Rodney Cook,
Town of Batavia Highway Superintendent*

*Jim Daniel,
Town of Orangeville Highway Superintendent*

*Royce Fisher,
Town of Gainesville Highway Superintendent*

*John Hurst,
Town of Middlebury Highway Superintendent*

*James Kingston,
Orleans County SWCD*

*Tom Klafehn,
Town of Riga Highway Superintendent*

*Peter Knouse,
Livingston County SWCD*

*David Lanni,
Town of Warsaw Highway Superintendent*

*Jim Luke,
Village of Scottsville Supervisor of Public Works*

*Mike McCulley,
Village of LeRoy Highway Superintendent*

*Caroline Myers,
Monroe County SWCD*

*Dave Roggow,
Town of Bergen Highway Superintendent*

*Gerald Roth,
Town of LeRoy Highway Superintendent*

*Dave Reckahn,
Wyoming County SWCD*

*George Squires,
Genesee County SWCD*

*Gil Stearns,
Village of Warsaw Supervisor of Public Works*

*John Strathearn,
Town of Pavilion Highway Superintendent*

Unavailable for Comment:

*Orson Beardslee, Jr.,
Village of Wyoming Supervisor of Public Works*

*Joseph Carr,
Town of Chili Comm'r of Public Works/Highways*

*Joe Chimino,
Village of Bergen Supervisor of Public Works*

*Howard Hazelton,
Town of Wheatland Highway Superintendent*

*Roy Hersee,
Town of Bethany Highway Superintendent*

*Larry Swanger,
Town of Clarendon Highway Superintendent*

*Allen Totten,
Town of Elba Highway Superintendent*

APPENDIX F: ASSESSMENT FORM

Section 1: Development

Section 1-A: New Development

<i>BMP #</i>	Best Management Practices (BMP)
1-01	Identify retrofit opportunities such as addition of stormwater ponds to older developments or construction of wastewater treatment systems to replace older septic systems
1-02	Identify habitat and natural conveyance system restoration opportunities
1-03	Establish retention/detention areas
1-04	Acquire additional land for locating treatment facilities
1-05	Encourage homeowners to place compost piles away from waterbodies and roadways
1-06	Encourage proper use and disposal of lawn and other household chemicals
1-07	Institute turf management practices on golf courses and parks and recreation areas
1-08	Undertake storm drain stenciling
1-09	Encourage volunteer programs, such as adopt-a-highways and adopt-a-stream, etc.

1-10	Include high percentage of indigenous plants in new landscaping on privately-owned properties (excluding arboretums, horticultural gardens, and sites requiring turf grasses)
1-11	Encourage water conservation
1-12	Develop outreach programs targeted at specific problems related to water quality management & resource conservation
1-13	Encourage proper control of pet wastes
1-14	Encourage continued operation of private storm water runoff control structures
1-15	Discourage feeding of waterfowl
1-16	Discourage the introduction of exotic aquatic species (Eurasian water milfoil, zebra mussels, water chestnut, loosestrife, hogweed, etc)
1-17	Encourage continued (periodic) operation and maintenance of private septic disposal systems
1-18	Effective and consistent application and enforcement of stormwater regulations & requirements
1-19	Require certification of existing on site septic systems for property transfers or building expansions.
1-20	Require entire property (existing as well as proposed) to be included in stormwater analysis/calculation.
1-21	Use of drainage districts

Controlling Sediment in the Black and Oatka Creek Watersheds

Municipal Law Review and Analysis

Section 1-B: New Development and Substantial Redevelopment

BMP #	Best Management Practices (BMP)		
1-22	Minimize the amount of land disturbed and the duration of disturbance	1-34	Encourage construction site management techniques which include erosion control practices (follow SWPPPs) and the proper handling and disposal of pesticides and petroleum products and containers
1-23	Preserve natural features and conform substantially with the natural boundaries and alignment of waterbodies	1-35	Ensure proper operation and maintenance of runoff management facilities
1-24	Retain and protect trees and other natural vegetation on and near disturbed sites	1-36	Target training for contractors, developers, inspectors and zoning and planning officials.
1-25	Account for topography and soil type in efforts to minimize erosion potential	1-37	Require tree surveys and/or cutting plans.
1-26	Maintain runoff rates similar to pre-construction levels	1-38	Develop priority list for BMP's - use of vegetative low areas for retention/infiltration.
1-27	Minimize the creation of impervious areas [encourage permeable surface]	1-39	Encourage cluster development/conservation subdivisions
1-28	Control increased runoff caused by changed surface conditions to minimize the danger of flooding, erosion, sedimentation and pollutants entering waterbodies prior to, during and after construction	1-40	Require connection to and/or extension of existing water & sewer if project is within 500 feet of existing infrastructure
1-29	Use temporary vegetation, silt barriers, and mulching to protect exposed and critical areas during development including timeline requirements (i.e. two weeks of no activity would need to be seeded)	1-41	Enact limits on driveway grades.
1-30	Redistribute topsoil within the boundaries of the disturbed land for seeding and planting	1-42	For redevelopment, employ regulations that provide for technologically advanced (on and off) site wastewater treatment systems to optimize efficiencies and address "challenging" sites
1-31	Stabilize disturbed soils as soon as possible	1-43	Implement Federal/State Stormwater (SPDES) Phase II requirements including MS4 and Construction Permits as well as Municipal and Industrial Discharge Permits
1-32	Minimize the use of cut and fill operations. Conform such operations to topography and soils to minimize erosion potential and adequately accommodate runoff	1-44	Discourage development in flood plain and/or development below base flood elevation
1-33	Use appropriate solid and hazardous waste generation and disposal practices including source controls and recycling		

Section 2: Forestry and Agriculture

Section 2-A: Forestry

BMP #	Best Management Practices (BMP)
2-01	Consider potential water quality impacts when selecting silviculture system (yarding system, site preparation, pesticides employment, etc)
2-02	Consider harvesting practices
2-03	Seasonal preference for logging operations
2-04	Have specialists (geologist, soil scientist, geotechnical engineer, wildland hydrologist) review plans in high erosion hazard areas

BMP #	Best Management Practices (BMP)
2-05	Preplan harvest areas, skid trails, and access so as to be on stable soils, avoiding steep gradients, multiple stream crossings, poor drainage areas, etc.
2-06	Limit grades of access roads.
2-07	Require stabilization of roads/drives to forestry site.
2-08	Employ natural topography and contour for design of road network
2-09	Require stormwater controls for increased runoff from ground cover modification
2-10	Consider site restoration

Section 2-B: Agriculture

BMP #	Best Management Practices (BMP)
2-11	Use Agricultural Environmental Management (AEM)
2-12	Require farms seeking agricultural value assessment to participate in AEM
2-13	Concentrated Animal Feeding Operations (CAFO) regulations and permits being followed
2-14	Use of Comprehensive Nutrient Management Plans
2-15	Barnyard runoff controls

BMP #	Best Management Practices (BMP)
2-16	Grazing in environmentally sensitive areas (e.g. streams)
2-17	Use of agricultural protection such as Agricultural Districts, agricultural preservation ordinances and practices, right to farm laws, and Agricultural and Farmland Protection Plans
2-18	Existing Open Space Plans

Section 3: Waterways and Wetlands

Section 3-A: Modified Waterways

<i>BMP #</i>	Best Management Practices (BMP)
3-01	Develop an operation and maintenance program for existing modified streams that includes identification of opportunities and actions to restore habitat and the physical and chemical characteristics of these streams.
3-02	Improve stream quality by controlling instream sedimentation and selectively clearing debris
3-03	Establish or reestablish riparian buffers
3-04	Prevent animal wastes from entering waterbodies. Examples may include: animal control ordinances and/or practices that pertain to animal waste disposal; waterfowl abatement programs.
3-05	Attempt vegetative stabilization before undertaking structural measures
3-06	Schedule the periodic maintenance of sediment control measures, and inspect and repair them as needed in conformance with established schedule.

<i>BMP #</i>	Best Management Practices (BMP)
3-07	Protect streambanks through direct nonstructural means, such as new vegetation or protection of existing vegetation; direct structural means, such as revetments and bulkheads; indirect nonstructural means, such as regulating irrigation near streambanks or rerouting overbank drainage; or indirect structural means, such as deflecting channel flow away from streambanks with dikes, board fences and gabions
3-08	Use setbacks to minimize disturbance of land adjacent to streambanks and shorelines
3-09	Prevent discharges to waterbodies in amounts that would adversely affect the taste, color or odor of the waters, or would impair the waters for their best usages

Section 3-B: Wetlands and Riparian Area Management and Restoration

<i>BMP #</i>	Best Management Practices (BMP)
3-10	Consider wetlands and riparian areas and their non-point source (nps) control potential
3-11	Identify existing functions of those wetland and riparian areas with significant nps control potential when implementing nps management practices. Do not alter wetlands or riparian areas to improve their water quality at the expense of their other functions
3-12	Conduct permitting, licensing, certification and nonregulatory nps pollution activities in a manner that protects wetland functions

<i>BMP #</i>	Best Management Practices (BMP)
3-13	Special zoning considerations to protect wetland areas
3-14	Use appropriate pretreatment practices such as vegetated systems or detention or retention basins to prevent adverse impacts to wetland functions that affect nps pollution abatement from hydrologic changes, sedimentation, or contaminants
3-15	All projects should require wetlands certification.

Section 4: Recreation

Section 4-A: Docks and Launches

BMP #	Best Management Practices (BMP)
4-01	Required site planning and approval for docks and launches
4-02	Use of naturally resistant non-treated wood for docks
4-03	Docks constructed to allow for free-flow of water beneath them to prevent erosion and sedimentation along shoreline

BMP #	Best Management Practices (BMP)
4-04	Limit size of docks
4-05	Maintenance of dock - application of preservatives and paints
4-06	Consideration of access to dock and launches to mitigate erosion

Section 4-B: Golf Courses

BMP #	Best Management Practices (BMP)
4-07	Pesticide storage - covered, locked concrete or steel building with adequate ventilation and metal shelving, no floor drains, and berm or sill to contain spills
4-08	Pesticide mixing and loading - use of chemical mixing center and proper operation and maintenance
4-09	Solvents and Degreasers - separate solvent collection systems such as solvent wash baths
4-10	Solvents and Degreasers - consideration of storage, use (contained), and disposal
4-11	Fertilizer Storage - covered fertilizer storage areas with curbs or berms to prevent water from entering. Secondary containment should be used even where not required
4-12	Fertilizer Loading: Make specific accommodations for fertilizer loading and mixing so that spills may be collected and managed. Examples include covered, impermeable surfaces intended for mixing; sloped surfaces that direct spills toward a liquid-tight sump for recovery; provision of appropriate cleaning materials, such as cat litter or sand.

BMP #	Best Management Practices (BMP)
4-13	Disposal of grass clippings: Grass clippings should remain on the surface in order to provide a natural source of organic matter and nutrients. If this is not preferred, clippings should be spread lightly in the rough or other unmanaged areas away from surface waters, outside of aquatic buffer zones.
4-14	Used Oil, antifreeze and lead acid batteries - collection and recycling
4-15	Gasoline, Diesel fuel - compliance with DEC regulations for above-ground and below ground tanks, closing of stormwater drains in immediate vicinity of fueling point
4-16	General Equipment Washing: Minimize the use of detergents or degreasers; high pressure systems are used to decrease water usage; If less than 500 gallons per day, wastewater from equipment washing may drain to a grassed retention area or swale away from receiving waterbodies; otherwise discharges should be directed to a municipal treatment system
4-17	Encourage use of vegetated buffers near aquatic areas, such as streams, ponds, lakes and wetlands

Section 5: Roads and Bridges

Section 5-A: Existing Roads and Bridges

<i>BMP #</i>	Best Management Practices (BMP)
5-01	Conduct road and bridge maintenance (de-icing material usage and storage, pot-hole repair, bridge washing, scraping and painting, etc) according to best management practices
5-02	Conduct right-of-way activities (mowing, brush removal, pesticide and fertilizer use, etc) - according to best management practices
5-03	Include high percentage of indigenous plants in new landscaping on public-owned properties (excluding arboretums, horticultural gardens, and site requiring turf grasses)

<i>BMP #</i>	Best Management Practices (BMP)
5-04	Implement a regular inspection and maintenance plan of existing structures
5-05	Develop and identify erosion/sediment control areas (examples include steep slopes, easily erodible soils, and nearby sensitive areas) and retrofit opportunities
5-06	Incorporate alternatives to traditional de-icing practices, including adjusting mix rates, using non-salt and non-sand alternatives

Section 5-B: New Roads and Bridges

<i>BMP #</i>	Best Management Practices (BMP)
5-07	Minimize the amount of land disturbed and the duration of disturbance
5-08	Preserve natural features and conform substantially with the natural boundaries and alignment of waterbodies
5-09	Retain and protect trees and other natural vegetation on and near disturbed sites
5-10	Retain additional runoff sites
5-11	Minimize the creation of impervious areas
5-12	Treat increased runoff caused by changed surface conditions to minimize the danger of flooding, erosion and pollutants entering waterbodies prior to, during and after construction
5-13	Use temporary vegetation and mulching to protect exposed and critical areas during development
5-14	Redistribute topsoil within the boundaries of the disturbed land for seeding and planting

<i>BMP #</i>	Best Management Practices (BMP)
5-15	Stabilize disturbed soils as soon as possible
5-16	Minimize the use of cut and fill operations. Conform such operations to topography and soils to minimize erosion potential and adequately accommodate runoff
5-17	Control erosion and sedimentation prior to, during and after site preparation and construction
5-18	Require long term stormwater management plan.
5-19	Require long term sedimentation control & maintenance.

<i>Section 5-C: All Roads and Bridges (existing and new)BMP #</i>	Best Management Practices (BMP)
5-20	Target existing public holdings, such as parks, for removing unnecessary impervious surfaces
5-21	Incorporate New York State Department of Transportation design and guidance documents, standard specifications, and procedural manuals (<i>Highway Design Manual, Environmental Procedures Manual, Maintenance Guidelines</i> , etc) into local laws and operating procedures
5-22	Ensure application of appropriate solid and hazardous waste generation and disposal practices including source controls and recycling
5-23	Ensure proper operation and maintenance of runoff management facilities
5-24	Participate in Cornell Local Roads Program activities and training

<i>Section 5-C: All Roads and Bridges (existing and new)BMP #</i>	Best Management Practices (BMP)
5-25	Target training programs at highway officials, contractors, construction workers, inspectors, zoning and planning officials
5-26	Target training and outreach programs about the proper handling of materials, leakage and spill prevention and spill response procedures at maintenance staff and workers
5-27	Culvert maintenance: Culverts are routinely inspected and maintained so that they will remain unobstructed, allowing for the free flow of water during storm events. Blockages resulting from sedimentation, debris, excessive vegetation and structural failure are issues to be aware of.
5-28	Culvert sizing for existing land use
5-29	Culvert sizing for changes in upstream land use and imperviousness

Section 6: Onsite Wastewater Treatment Systems

<i>BMP #</i>	Best Management Practices (BMP)
6-01	Conduct regular inspections of OWTS at a frequency adequate to determine failure and undertake required maintenance
6-02	Institute setback guidelines
6-03	Promulgate plumbing codes that require practices that are compatible with OWTS
6-04	Target outreach programs at homeowners, contractors and developers

<i>BMP #</i>	Best Management Practices (BMP)
6-05	Inspection of all OWTS at property transfer or within 1 year prior to transfer
6-06	Require all properties within 500' of municipal service to connect.
6-07	Set goals for effluent limits (nitrogen, phosphorous, BOD, etc)