



**Prepared by:**

**The Stormwater Coalition of Monroe County and Monroe County  
Department of Environmental Services**

Prepared for:  
New York State Environmental Protection Fund

July 2013

Cover Photo: Upper - Mill Creek downstream of Woodhull Rd

Lower—channelized section of creek at Towne Center Plaza

# Table of Contents

	Page Number
List of Abbreviations	II
1. Assessment Overview	
1.1 Problems Statement	1
1.2 Purpose	1
1.3 Setting	1
1.4 Watershed Characteristics	3
1.4.1 Water Quality Concerns	4
1.4.2 Impervious Cover Analysis	6
1.4.3 Drainage Concerns	7
1.4.4 Streambank Erosion	8
1.4.5 Soils	8
2. Retrofit Ranking Inventory	10
2.1 Top Ranked Retrofit Project Diagrams	19
References	32
Appendix A – NYSDEC Waterbody Datasheet	33

# List of Abbreviations

cfs	cubic feet per second
CWP	Center for Watershed Protection
E	Education
EMC	Event Mean Concentration
EPA	US Environmental Protection Agency
GI	Green Infrastructure
GIS	Geographic Information System
GPS	Global Positioning System
IC	Impervious Cover
I	Infiltration
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
POC	Pollutant of Concern
S	Flood Storage
CP	Channel Protection
CR	Community Revitalization
Sc	Source Control
SWAAP	Stormwater Assessment and Action Plan
RH	Riparian Habitat
Wq	Water Quality

# Section 1. Assessment Overview

## 1.1 PROBLEM STATEMENT:

Similar to many developing areas, growth in Monroe County has caused some unfortunate consequences to water quality. One consequence is that developed areas shed larger volumes of stormwater from impervious surfaces (roads, buildings and parking lots) than natural landscapes. Because there is more volume, there is more pollution. Typical pollutants include: petroleum products and heavy metals from vehicles; fertilizers, chemicals and animal waste from lawns; and, sediment from eroded streambanks, construction sites and roadways.

A second consequence is that streams more frequently flow full or overflow their banks. High stormwater flows can cause flooding, damage property, and harm fish and wildlife habitat. Common damages from high flows are eroded stream banks, wider and deeper stream channels, and excessive sediment deposition. The degradation results in poor water quality and added maintenance costs to municipalities and property owners. In Monroe County, stormwater pollution and associated wet weather flows have harmed virtually all urban streams, the Genesee River and Lake Ontario's shoreline.

## 1.2 PURPOSE:

Developing plans to improve our impacted water resources is the objective of this the Rapid Green Infrastructure Assessment Plan (Plan). Due to limited funding, a method was devised to quickly evaluate multiple watersheds for stormwater retrofit potential. The main product is a ranked inventory of retrofit projects that, if constructed, have the potential to improve water quality and stream health while attenuating erosive storm flows and localized drainage problems. A second significant product is the creation of multiple, electronic data files and maps that lay the foundation for future, more in-depth studies. The Plan is a simplified version of more detailed Stormwater Assessment and Action Plans being done in other parts of Monroe County. These larger studies include water quality sampling as well as modeling the effects of the current watershed's condition and the potential improvement from proposed retrofits. The field work completed for this report was kept to a minimum and only a summary report is produced (herein). The project was conducted with funding from New York's Environmental Protection Fund, the Monroe County Department of Environmental Services, and the Stormwater Coalition of Monroe County.

### 1.3 SETTING:

Most of the 6500 acre Mill Creek watershed lies in the Town of Webster with its headwaters in the Town of Penfield. The Creek flows north and drains into Lake Ontario in Webster Park, approximately 4.5 miles west of Irondequoit Bay's outlet (Figure 1). The dominant land use is residential with a significant commercial portion along Ridge Road and the 104 Expressway cutting through the center of the watershed (Figure 2). To accommodate many of the commercial and neighborhood developments, the creek has been straightened, channelized and/or piped, such as through the Town Center Plaza. Table 1 shows other key watershed characteristics.

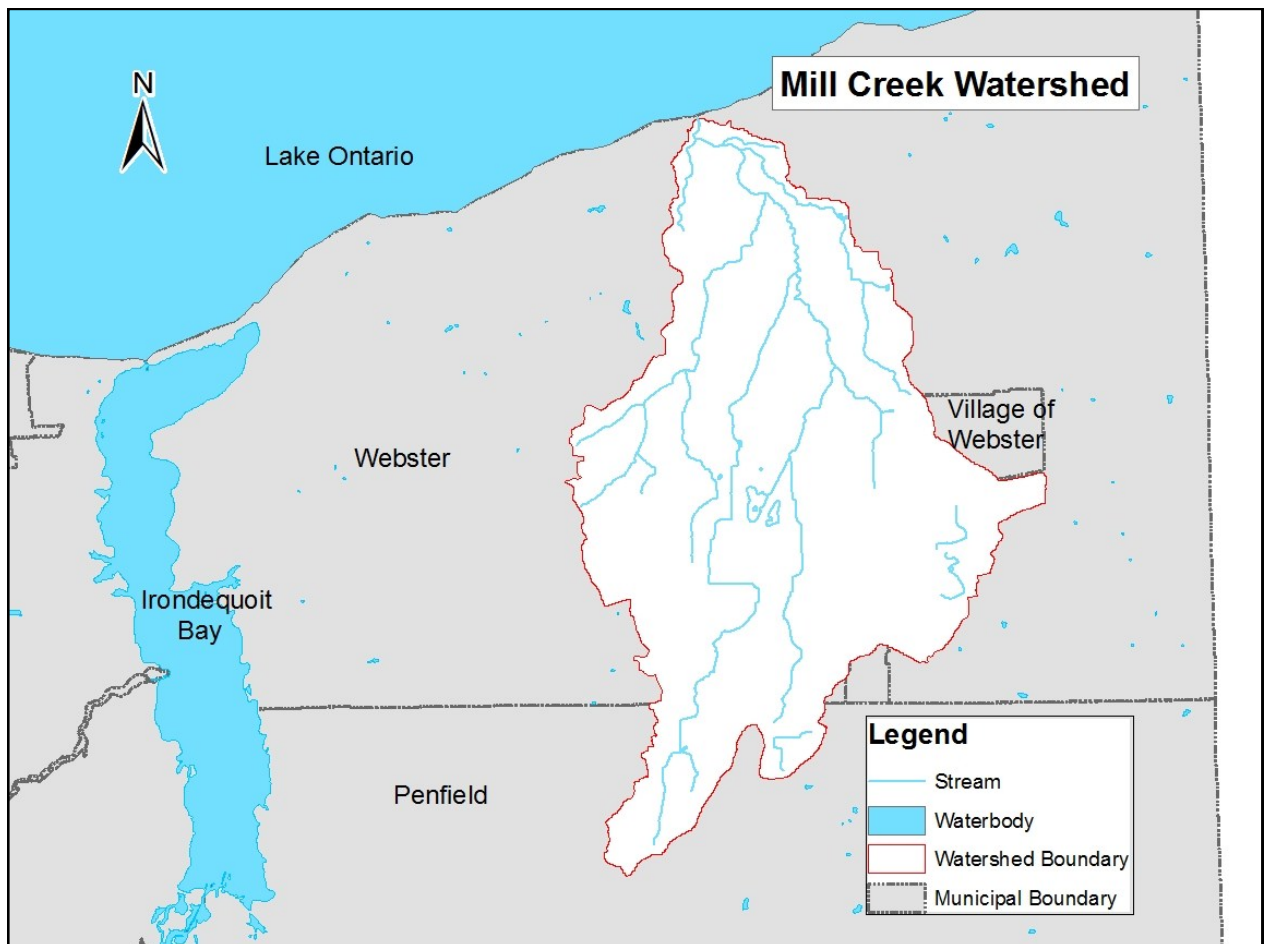


Figure 1: Mill Creek watershed.

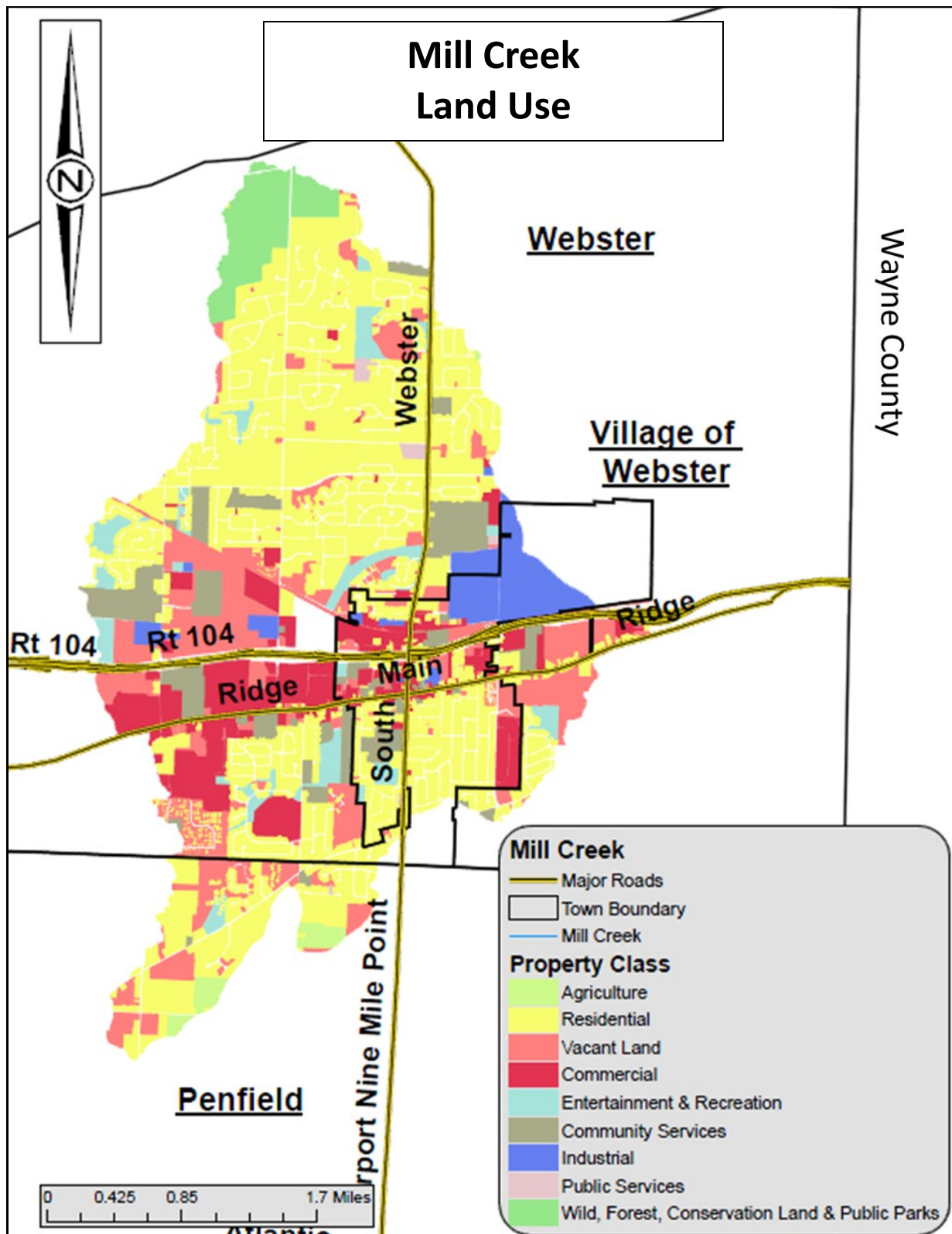


Figure 2: Land use within Mill Creek watershed.

<b>Table 1. Watershed Data</b>	
<b>Metric</b>	<b>Value</b>
Area	6,481 acres
Mapped Stream Length	28 miles (including tributaries)
Percent of Stream Channelized	28
Primary/secondary land use	Residential (5600 parcels)/Vacant Land
Land Use (percent of watershed)	
Agricultural	1
Residential	50
Vacant Land	17
Commercial	11
Recreation & Entertainment	4
Community Service	8
Industrial	5
Public Services	<1
Wild, Forested, Conservation Lands & Public Parks	4
# of Stormwater Treatment Ponds	
# of Stormwater Outfalls	225
Current Impervious Cover (%)	30
Estimated Future Impervious Cover (%)*	34
Wetland acres	≈200 acres
Municipal Jurisdiction	Webster (town) 70%, Webster (village) 15%, Penfield 15%

\* estimated for 20 year build out

## **1.4 WATERSHED CHARACTERISTICS:**

**1.4.1 Water Quality Concerns** According to the New York State Department of Environmental Conservation’s most recent “Lake Ontario and Minor Tribs Basin Waterbody Inventory/Priority Waterbodies List Report” (NYSDEC Final Draft Report August 2007), Mill Creek and its tributaries have major use impacts for public bathing, aquatic habitat and recreation. An excerpt from the waterbody datasheet states that “... *Aquatic life support, public bathing and other recreational uses are thought to be impaired by various nonpoint sources related to urban runoff and suburban development. Municipal and industrial sources have also been indicated. Fish consumption is restricted as a result of the Lake Ontario advisory. A biological (macroinvertebrate) assessment of Mill Creek in Webster (at Lake Road) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. Impact Source Determination indicated that municipal and/or industrial sources were the likely factors influencing the assessment. Poor habitat was noted and was likely to have influenced the results as well. However odors and other visual indications of sewage inputs to the stream were obvious during sampling. A biological assessment of Mill Creek at the same site was conducted in 1999. Sampling results at that time indicated severely impacted water quality conditions. (DEC/DOW, BWAM/SBU, June 2005).*”



*The entire watershed experiences considerable development pressures. A county streambank erosion assessment effort has documented severe erosion in various places along the creek. (Monroe County Health Department, April 2001) This segment includes the entire stream and all tribs. The waters of the stream are Class B from the mouth to trib -3, and Class C for the remainder of the reach. Tribs to this reach/segment are primarily Class C; some tribs to the lower portion are Class B. (May 2001).”* The full (two-page) waterbody datasheet is included in Appendix B.

In 2008, Mill Creek was added to NYSDEC’s Waterbody Inventory/Priority Waterbodies List (revised 2013, NYSDEC), or the “303d” list as it refers to section 303(d) of the Federal Clean Water Act (Appendix B). The 303d list is generated and updated every two years by NYSDEC who must consider a restoration strategy to reduce the input of the specific pollutant(s) that restrict a listed waterbody’s uses or, “impairments”. An impaired water does not support appropriate uses (drinking, swimming, fishing etc.) and may require the development of a Total Maximum Daily Load (TMDL- a prescribed diet that reduces the inputs of the listed problem pollutants) or, some other restoration strategy. Pollutants noted on the 303d list for Mill Creek are oxygen demand, phosphorus and pathogens from municipal sources. Adding to the complexity of the 303d process is how the list is divided into three parts, depending on how much information is known about the impairments. Mill Creek is listed as a “Waterbody for which TMDL Development May be Deferred (Requiring Verification of Cause/Pollutant)”. It is anticipated that implementation of this report’s retrofit projects will help to reduce the impairment level and avoid the regulatory approach of TMDL development.

An earlier study on Mill Creek water quality was funded by the Stormwater Coalition of Monroe County and completed by SUNY Brockport (Noll 2008). Chemistry sampling demonstrated the loading of phosphorus from storm flows versus the base flow of the stream. Noll sampled 16 sites along Mill Creek. Sampling indicated that an average of 35 percent more phosphorus concentration in the storm flow than in the stream’s base flow. In addition, and as demonstrated on other urbanized streams, concentration in the stream increased after flowing through more urbanized segments. The study did conclude, however, that the phosphorus values, while slightly elevated to what might be considered normal for a natural, non-impacted, system are not anticipated to create any issues with respect to excessive algal growth or eutrophication.

**1.4.2 Impervious Cover Analysis** The Center for Watershed Protection created the “Impervious Cover Model” (ICM) to predict a typical stream’s health using the relationship between subwatershed impervious cover and stream quality indicators. This relationship has been confirmed by nearly 60 peer-reviewed stream research studies (Figure 3). The ICM shows stream quality decline becomes evident when the watershed impervious cover exceeds ten percent. Mill Creek has an average of 30 percent impervious cover which would place stream quality between poor and fair and non-supporting for aquatic life. Based on current zoning, future impervious cover (over the next 10 years) will increase by 4 percent.

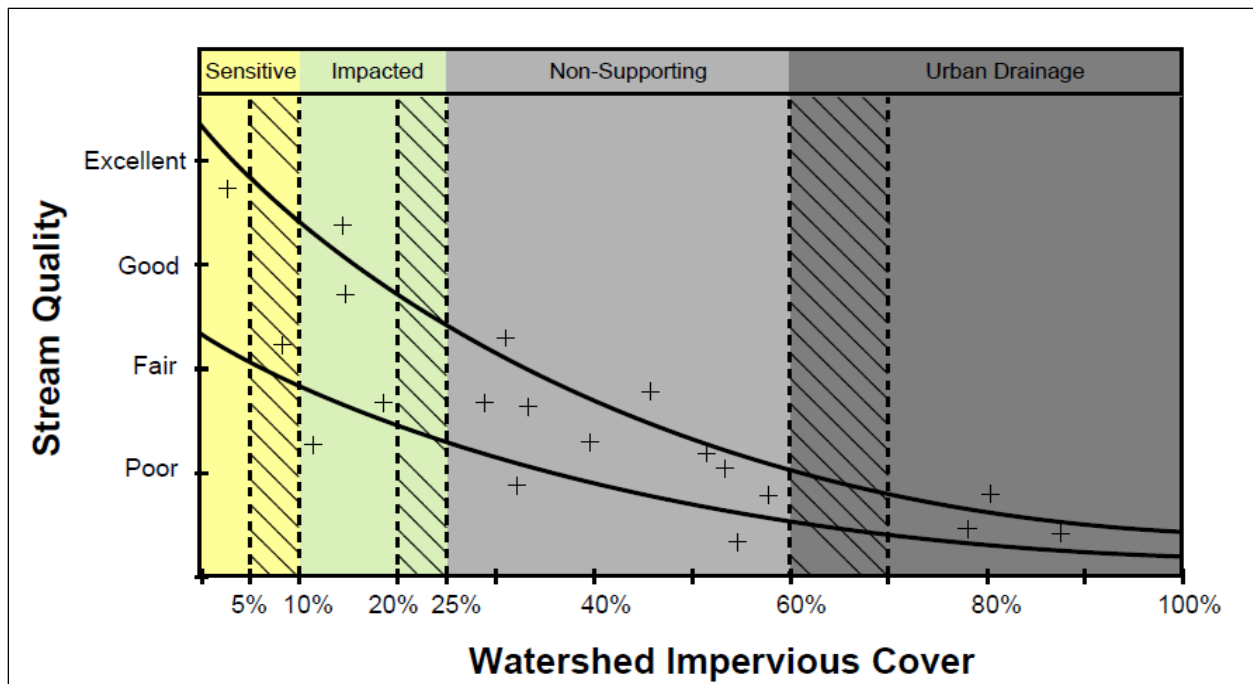


Figure 3. Impervious Cover Model

**1.4.3 Drainage Concerns** Interviews with DPW staff at the Town of Webster and a review of their Comprehensive Drainage Study identified drainage issue areas. While most drainage issues have been addressed by an active stormwater management program in the Town, some minor drainage concerns persist in low-lying areas.



Figure 4. Eroded Streambank on Mill Creek.

**1.4.4 Streambank Erosion** There are ten reported erosion sites on Mill Creek from assessments done by the Monroe County Soil & Water Conservation District in 2001. All sites were visited and show mostly minor eroded stream banks (Figure 4).

**1.4.5 Soils** A simplistic yet useful way to define how much stormwater runs off the pervious land surface is to determine soils' infiltration capabilities. Soil scientist have categorized soils into four categories, A through D. "A" and B soils are well drained and absorb much of the stormwater that drains on or over them. C and D soils are more poorly drained. However, the soils in some parts of this watershed are not categorized, denoting areas that have been so altered by land development that grouping a specific soil type is not feasible. The amount of each soil type in Mill Creek is: A soils 5%; B soils 48%; C soils 33%; D soils or not verified 14% (Figure 6).

The large percentage of B soils will allow for infiltration-type stormwater retrofits. These practices installed throughout the watershed may help prevent and reduce flooding, drainage problems, and streambank erosion as well as greatly improving water quality in Mill Creek.

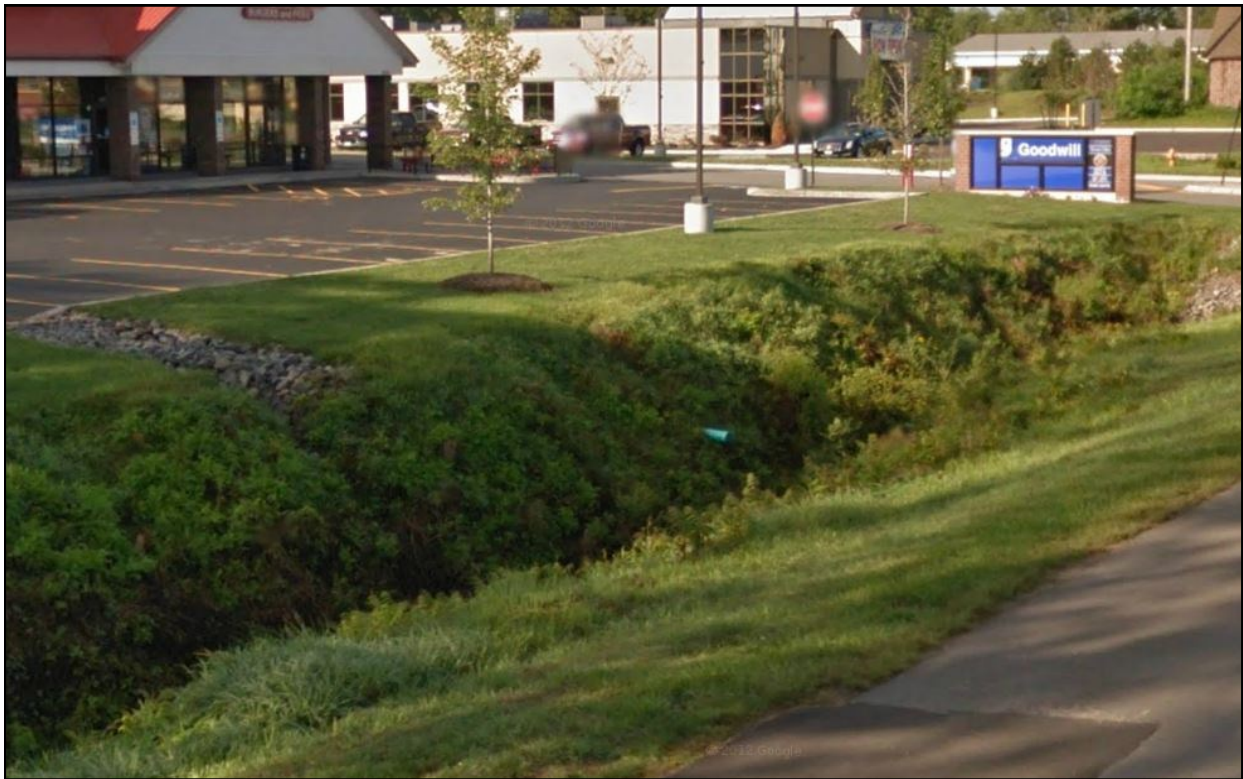


Figure 5. Mill Creek is channelized through much of length in commercial areas of Ridge Road

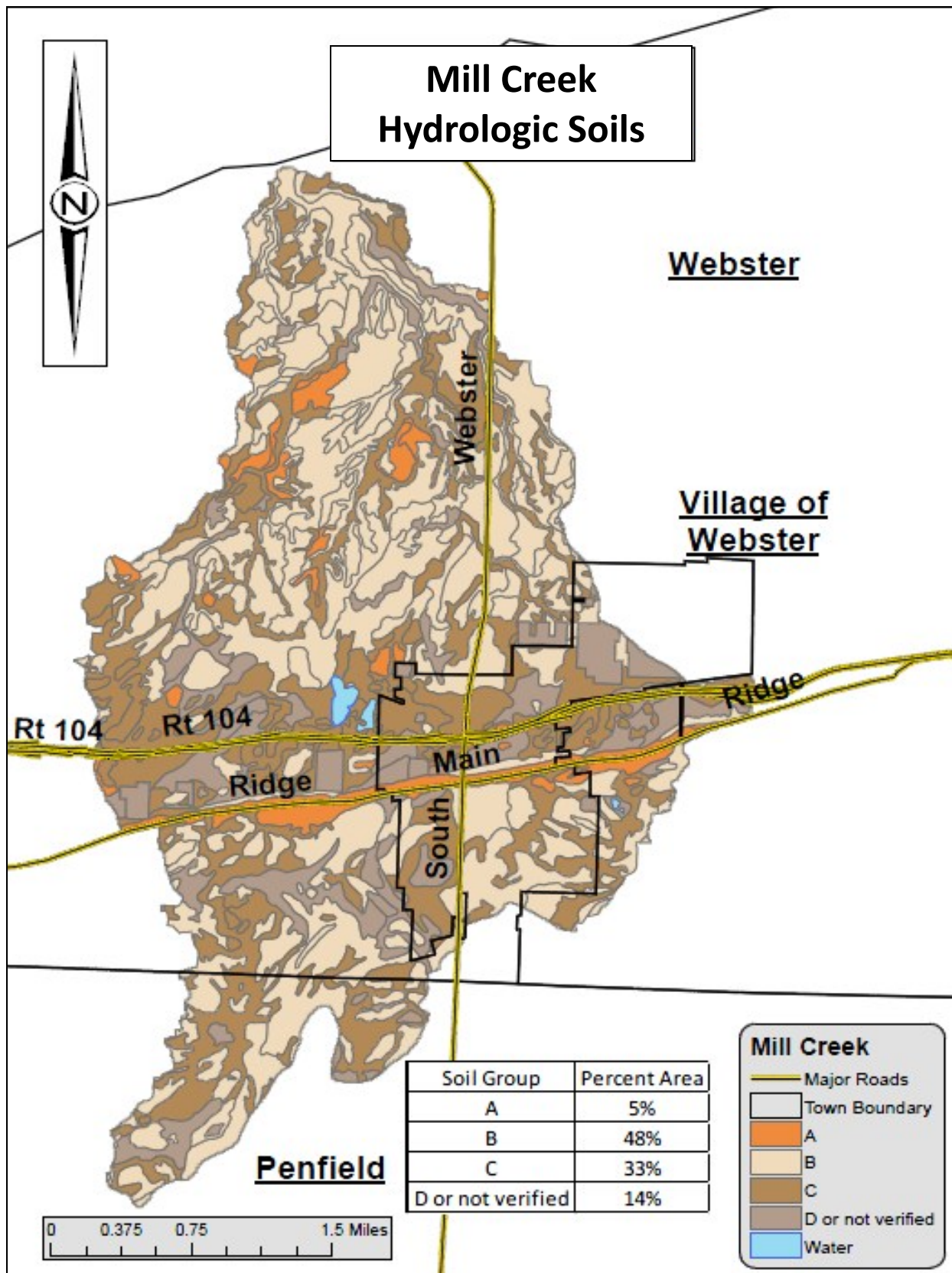


Figure 6. Hydric Soils Map of Mill Creek.

## Section 2. Retrofit Inventory

There are 161 potential retrofit sites generated using GIS mapping tools to locate public properties, stormwater practices like ponds, old urban areas (built before stormwater management requirements) and, pervious soil areas. Next, the appropriate stormwater management practice was determined for the properties identified and those were ranked based on their feasibility, how much they would improve water quality and their cost effectiveness. While the stormwater management practice types focused on green infrastructure (stormwater volume-reducing practices such as infiltration), project types include retrofitting stormwater ponds as a highly cost-effective practice. Stormwater pond projects rank well and are a recommended component of watershed restoration. Complete details of methods used to complete the rapid assessment and retrofit ranking is explained in a reference document titled “Assessment Methodology, Project Descriptions, and Retrofit Ranking Criteria For Monroe County Green Infrastructure Rapid Assessment Plans”.

Two broad categories of retrofit project types were considered:

- 1) New stormwater ponds, upgrades to existing stormwater ponds and new stormwater storage to existing drainage channels. Many existing ponds lack features that help them perform water quality functions such as well-designed outlet structures (Figure 7).
- 2) Green Infrastructure (GI). This category was divided and ranked by where a GI project might be installed and includes:
  - Public Right of Ways,
  - Older Residential Neighborhoods (Figure 8), and
  - Other Locations (such as areas with large impervious surfaces ie shopping malls)

“Green Infrastructure and Low Impact Development Evaluation and Implementation Plan” (G/FLRPC 2011) is another report that promotes GI retrofits in the Town of Webster. Other watershed retrofitting that would help meet water quality goals include the investigation and remediation of any stormwater hotspots and dechannelization and revegetation of straightened and degraded stream corridors. However these projects are outside the scope of this report and therefore were not studied.

Figure 9 shows project locations and project number within the watershed. Table 2 lists project addresses and how they scored. Diagrams of the several projects follow the table.



Figure 7. Existing pond's outlet structure lacks features that promote pollution removal.



Figure 8. Potential Retrofits include GI in green space at this dense multi-family residential development from the 1970's that lacks stormwater treatment.

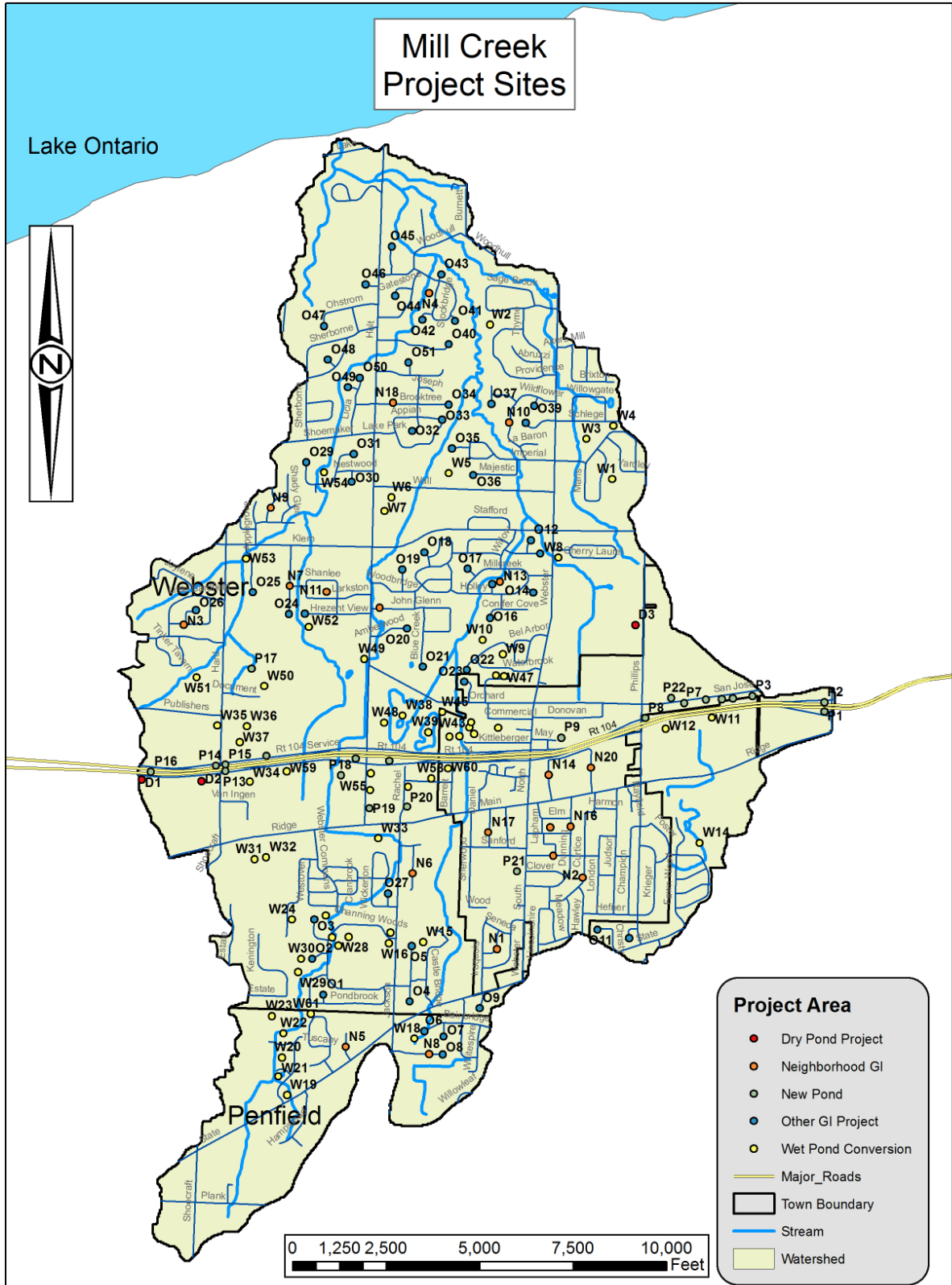


Figure 9. Retrofit Project Locations Map of Mill Creek.



**Table 2 Mill Creek Retrofit Ranking List**

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall Rank
W9	Wet Pond Upgrade	Bel Arbor Trail	5	I, WQ, Cp	3	12	1
W17	Wet Pond Upgrade	Channing Woods Drive	5	I, WQ, Cp	3	12	1
W24	Wet Pond Upgrade	100 Ahepa Circle	5	I, WQ, Cp	3	12	1
W27	Wet Pond Upgrade	Channing Woods Drive	5	I, WQ, Cp	3	12	1
W50	Wet Pond Upgrade	1000 Document Drive	5	I, WQ, Cp	3	12	1
W51	Wet Pond Upgrade	900 Publishers Parkway	5	I, WQ, Cp	3	12	1
W54	Wet Pond Upgrade	Everwild View	5	I, WQ, Cp	3	12	1
O55	Other GI	Bioretention at Spry Middle School 119 South Ave	5	WQ, SC, E	3	11	2
P1	New Pond	S side of NYSDOT Rt 104 EB and N side Salt Road off ramp	5	FS, WQ, Cp,	3	11	2
P2	New Pond	N side of NYSDOT Rt 104 WB and S side Salt Road on ramp	5	FS, WQ, Cp,	3	11	2
P8	New Pond	b/w Rt 104 WB + RR, E of Phillips	5	FS, WQ, Cp,	3	11	2
P9	New Pond	NYSDOT Rt 104 underpass at North Ave	5	FS, WQ, Cp,	3	11	2
P10	New Pond	storage at Rt 104 Service and Holt	5	FS, WQ, Cp,	3	11	2
P11	New Pond	storage at Rt 104 Service and Rt 104 EB	5	FS, WQ, Cp,	3	11	2
P12	New Pond	b/w WB Rt 104 north median + service In	5	FS, WQ, Cp,	3	11	2
P13	New Pond	b/w EB Rt 104 Service and EB 104 E of Hard Rd	5	FS, WQ, Cp,	3	11	2
P15	New Pond	b/w WB 104 and WB service In E of Hard Rd	5	FS, WQ, Cp,	3	11	2
P16	New Pond	b/wWB service In to Hard and WB Rt 104	5	FS, WQ, Cp,	3	11	2
O1	Other GI Project	Retrofit cul-de-sac Blue Spring	3	I, WQ, SC	3	10	3
O2	Other GI Project	Retrofit cul-de-sac Brick Landing	3	I, WQ, SC	3	10	3
O7	Other GI Project	Retrofit cul-de-sac Claridge	3	I, WQ, SC	3	10	3
O8	Other GI Project	Retrofit cul-de-sac Angean	3	I, WQ, SC	3	10	3
O9	Other GI Project	Retrofit cul-de-sac Cinnaberry	3	I, WQ, SC	3	10	3

## Mill Creek Retrofit Ranking List (continued)

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall Rank
O11	Other GI Project	Retrofit cul-de-sac Christy	3	I, WQ, SC	3	10	3
O12	Other GI Project	Retrofit cul-de-sac Northlight	3	I, WQ, SC	3	10	3
O13	Other GI Project	Retrofit cul-de-sac Creek Bend	3	I, WQ, SC	3	10	3
O14	Other GI Project	Retrofit cul-de-sac Foothill	3	I, WQ, SC	3	10	3
O15	Other GI Project	Retrofit cul-de-sac Laurel	3	I, WQ, SC	3	10	3
O16	Other GI Project	Retrofit cul-de-sac Conifer cove	3	I, WQ, SC	3	10	3
O17	Other GI Project	Retrofit cul-de-sac Old Farm	3	I, WQ, SC	3	10	3
O18	Other GI Project	Retrofit cul-de-sac Ashdon	3	I, WQ, SC	3	10	3
O19	Other GI Project	Retrofit cul-de-sac Cogdell	3	I, WQ, SC	3	10	3
O20	Other GI Project	Retrofit cul-de-sac Amberwood	3	I, WQ, SC	3	10	3
O22	Other GI Project	Retrofit cul-de-sac Clear Pond	3	I, WQ, SC	3	10	3
O24	Other GI Project	Retrofit cul-de-sac Shadow Wood	3	I, WQ, SC	3	10	3
O25	Other GI Project	Retrofit cul-de-sac Cottage Brook	3	I, WQ, SC	3	10	3
O26	Other GI Project	Retrofit cul-de-sac Thaxted	3	I, WQ, SC	3	10	3
O27	Other GI Project	Retrofit cul-de-sac Hickory Hollow	3	I, WQ, SC	3	10	3
O28	Other GI Project	Retrofit cul-de-sac Hrezent View	3	I, WQ, SC	3	10	3
O29	Other GI Project	Retrofit cul-de-sac Everwild View	3	I, WQ, SC	3	10	3
O30	Other GI Project	Retrofit cul-de-sac Autumn	3	I, WQ, SC	3	10	3
O31	Other GI Project	Retrofit cul-de-sac Everwild View	3	I, WQ, SC	3	10	3
O32	Other GI Project	Retrofit cul-de-sac Joseph	3	I, WQ, SC	3	10	3
O33	Other GI Project	Retrofit cul-de-sac Appian	3	I, WQ, SC	3	10	3
O34	Other GI Project	Retrofit cul-de-sac Brooktree	3	I, WQ, SC	3	10	3
O35	Other GI Project	Retrofit cul-de-sac Scandia	3	I, WQ, SC	3	10	3
O37	Other GI Project	Retrofit cul-de-sac Scenic	3	I, WQ, SC	3	10	3
O38	Other GI Project	Retrofit cul-de-sac Meadow Wood	3	I, WQ, SC	3	10	3
O40	Other GI Project	Retrofit cul-de-sac Woodsboro Farms	3	I, WQ, SC	3	10	3
O41	Other GI Project	Retrofit cul-de-sac Bucks	3	I, WQ, SC	3	10	3
O42	Other GI Project	Retrofit cul-de-sac Fox Hollow	3	I, WQ, SC	3	10	3
O43	Other GI Project	Retrofit cul-de-sac Gerrads Cross	3	I, WQ, SC	3	10	3
O44	Other GI Project	Retrofit cul-de-sac Gatestone	3	I, WQ, SC	3	10	3

## Mill Creek Retrofit Ranking List (continued)

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall Rank
O45	Other GI Project	Retrofit cul-de-sac Shadowbrook	3	I, WQ, SC	3	10	3
O46	Other GI Project	Retrofit cul-de-sac Rothwood	3	I, WQ, SC	3	10	3
O47	Other GI Project	Retrofit cul-de-sac Ohstrom	3	I, WQ, SC	3	10	3
O48	Other GI Project	Retrofit cul-de-sac Dawn	3	I, WQ, SC	3	10	3
O49	Other GI Project	Retrofit cul-de-sac Michael	3	I, WQ, SC	3	10	3
O50	Other GI Project	Retrofit cul-de-sac Licia	3	I, WQ, SC	3	10	3
O51	Other GI Project	Retrofit cul-de-sac Trailwood	3	I, WQ, SC	3	10	3
W1	Wet Pond Upgrade	605 Phillips Road	5	WQ, Cp	3	10	3
W2	Wet Pond Upgrade	Providence Drive public	5	WQ, Cp	3	10	3
W3	Wet Pond Upgrade	556 Morning Glory Drive	3	I, WQ, Cp	3	10	3
W4	Wet Pond Upgrade	590 Morning Glory Drive	3	I, WQ, Cp	3	10	3
W6	Wet Pond Upgrade	1123 Wall Road	3	I, WQ, Cp	3	10	3
W7	Wet Pond Upgrade	620 Holt Road	3	I, WQ, Cp	3	10	3
W8	Wet Pond Upgrade	1301 Cherry Laurel Circle	3	I, WQ, Cp	3	10	3
W10	Wet Pond Upgrade	Orchard Street	5	WQ, Cp	3	10	3
W11	Wet Pond Upgrade	Route 104 Eastbound	5	WQ, Cp	3	10	3
W15	Wet Pond Upgrade	1015 Castle Bridge Crossing	3	I, WQ, Cp	3	10	3
W16	Wet Pond Upgrade	Oakmonte Boulevard	3	I, WQ, Cp	3	10	3
W18	Wet Pond Upgrade	SW of Bainbridge	5	WQ, Cp	3	10	3
W23	Wet Pond Upgrade	65 Maryview Drive	3	I, WQ, Cp	3	10	3
W26	Wet Pond Upgrade	Channing Woods Drive	5	WQ, Cp	3	10	3
W28	Wet Pond Upgrade	Channing Woods Drive	5	WQ, Cp	3	10	3
W33	Wet Pond Upgrade	1135 Ridge Road	3	I, WQ, Cp	3	10	3
W36	Wet Pond Upgrade	860 Hard Road	5	WQ, Cp	3	10	3
W37	Wet Pond Upgrade	Hard Road	3	I, WQ, Cp	3	10	3
W38	Wet Pond Upgrade	North of Rt 104 to Holt Road	5	WQ, Cp	3	10	3
W39	Wet Pond Upgrade	North of Rt 104 to Holt Road	5	WQ, Cp	3	10	3
W49	Wet Pond Upgrade	Railway Crossing	3	I, WQ, Cp	3	10	3
W53	Wet Pond Upgrade	Cottage Brook Lane	3	I, WQ, Cp	3	10	3
W58	Wet Pond Upgrade	1120-1150 Crosspointe Lane	3	I, WQ, Cp	3	10	3

## Mill Creek Retrofit Ranking List (continued)

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall
W61	Wet Pond Upgrade	75-B Tuscany Lane	3	I, WQ, Cp	3	10	3
W62	Wet Pond Upgrade	Five Mile Line Road, Lowes Store commercial	3	I, WQ, Cp	3	10	3
D1	Dry Pond Conversion	Phillips and Chiyoda, xerox property	1	I, FS, WQ, CP	3	9	4
N1	Neighborhood GI	Wilmore	2	CR, WQ, E, SC	3	9	4
N2	Neighborhood GI	Village Manor	2	CR, WQ, E, SC	3	9	4
N3	Neighborhood GI	Town Manor	2	CR, WQ, E, SC	3	9	4
N4	Neighborhood GI	The Woods	2	CR, WQ, E, SC	3	9	4
N5	Neighborhood GI	Swiss Manor	2	CR, WQ, E, SC	3	9	4
N6	Neighborhood GI	Silvercrest	2	CR, WQ, E, SC	3	9	4
N7	Neighborhood GI	Shadow Wood	2	CR, WQ, E, SC	3	9	4
N8	Neighborhood GI	South Jackson	2	CR, WQ, E, SC	3	9	4
N9	Neighborhood GI	Parkwood	2	CR, WQ, E, SC	3	9	4
N10	Neighborhood GI	Millcreek	2	CR, WQ, E, SC	3	9	4
N11	Neighborhood GI	Midland Heights	2	CR, WQ, E, SC	3	9	4
N12	Neighborhood GI	McMath	2	CR, WQ, E, SC	3	9	4
N13	Neighborhood GI	Lakedale	2	CR, WQ, E, SC	3	9	4
N14	Neighborhood GI	Kircher Park	2	CR, WQ, E, SC	3	9	4
N15	Neighborhood GI	Fuller	2	CR, WQ, E, SC	3	9	4
N16	Neighborhood GI	Dunning	2	CR, WQ, E, SC	3	9	4
N17	Neighborhood GI	Corning Farm	2	CR, WQ, E, SC	3	9	4
N18	Neighborhood GI	Brooktree	2	CR, WQ, E, SC	3	9	4
N19	Neighborhood GI	Bluecreek	2	CR, WQ, E, SC	3	9	4
N20	Neighborhood GI	Baker	2	CR, WQ, E, SC	3	9	4
N21	Neighborhood GI	Conifer Cove	2	CR, WQ, E, SC	3	9	4
N22	Neighborhood GI	Klem Homestead sec 2-4	2	CR, WQ, E, SC	3	9	4
N23	Neighborhood GI	Klem Homestead sec 1	2	CR, WQ, E, SC	3	9	4
N24	Neighborhood GI	Lake Park Sec 1	2	CR, WQ, E, SC	3	9	4
N25	Neighborhood GI	Nestwood Sunbd	2	CR, WQ, E, SC	3	9	4
O52	Other GI	Summit knolls - bioretention	1	I, WQ, CP, SC	3	9	4
P5	New Pond	S side of San Jose Dr and N side of 104 WB Xerox	3	FS, WQ, Cp,	3	9	4
P7	New Pond	S side of San Jose Dr and N side of 104 WB Xerox	3	FS, WQ, Cp,	3	9	4

## Mill Creek Retrofit Ranking List (continued)

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall
P22	New Pond	N side of San Jose and W side of Phillips Xerox	3	FS,WQ,Cp,	3	9	4
P23	New Pond	1110 Crosspoint Pk along Rachel Dr private	3	FS,WQ,Cp,	3	9	4
O3	Other GI Project	Retrofit cul-de-sac Everwood	3	WQ, SC	3	8	5
O4	Other GI Project	Retrofit cul-de-sac Stonegate	3	WQ, SC	3	8	5
O5	Other GI Project	Retrofit cul-de-sac Stonegate	3	WQ, SC	3	8	5
O6	Other GI Project	Retrofit cul-de-sac Bainbridge	3	WQ, SC	3	8	5
O10	Other GI Project	Retrofit cul-de-sac Cottonwood	3	WQ, SC	3	8	5
O21	Other GI Project	Retrofit cul-de-sac Blue Creek	3	WQ, SC	3	8	5
O23	Other GI Project	Retrofit cul-de-sac Woodstone	3	WQ, SC	3	8	5
O36	Other GI Project	Retrofit cul-de-sac Majestic	3	WQ, SC	3	8	5
O39	Other GI Project	Retrofit cul-de-sac Little Bend	3	WQ, SC	3	8	5
O53	Other GI	swale to WQ swale Rachel Dr behind 1170 Ridge Rd	3	WQ, SC	3	8	5
O54	Other GI	110-130 cranbrook ter conc channel to wq swale	3	WQ, SC	3	8	5
W5	Wet Pond Upgrade	1204 Wall Road	3	WQ, Cp	3	8	5
W12	Wet Pond Upgrade	860 Phillips Road	3	WQ, Cp	3	8	5
W13	Wet Pond Upgrade	Wishing View Drive	3	WQ, Cp	3	8	5
W14	Wet Pond Upgrade	Fawn Wood and Beaver Creek	3	WQ, Cp	3	8	5
W19	Wet Pond Upgrade	111 Maryview Drive	3	WQ, Cp	3	8	5
W20	Wet Pond Upgrade	65 Maryview Drive	3	WQ, Cp	3	8	5
W21	Wet Pond Upgrade	65 Maryview Drive	3	WQ, Cp	3	8	5
W22	Wet Pond Upgrade	67 Maryview Drive	3	WQ, Cp	3	8	5
W25	Wet Pond Upgrade	952 Everwood Run	3	WQ, Cp	3	8	5
W29	Wet Pond Upgrade	Kenington Boulevard	3	WQ, Cp	3	8	5
W30	Wet Pond Upgrade	Kenington Boulevard	3	WQ, Cp	3	8	5
W31	Wet Pond Upgrade	991 Ridge Road	3	WQ, Cp	3	8	5
W32	Wet Pond Upgrade	Harmony Station	3	WQ, Cp	3	8	5
W34	Wet Pond Upgrade	1002 Ridge Road	3	WQ, Cp	3	8	5
W35	Wet Pond Upgrade	855 Hard Road	3	WQ, Cp	3	8	5
W40	Wet Pond Upgrade	Seasons Trail	3	WQ, Cp	3	8	5
W41	Wet Pond Upgrade	Seasons Trail	3	WQ, Cp	3	8	5

## Mfill Creek Retrofit Ranking List (continued)

Map I.D.	Project Type	Project Location	Feasibility	Watershed Benefits	Cost Effectiveness	Score	Overall Rank
W42	Wet Pond Upgrade	Wishing View Drive	3	WQ, Cp	3	8	5
W43	Wet Pond Upgrade	Wishing View Drive	3	WQ, Cp	3	8	5
W44	Wet Pond Upgrade	Wishing View Drive	3	WQ, Cp	3	8	5
W45	Wet Pond Upgrade	Seasons Trail	3	WQ, Cp	3	8	5
W46	Wet Pond Upgrade	Carriage Path Court	3	WQ, Cp	3	8	5
W47	Wet Pond Upgrade	Carriage Path Court	3	WQ, Cp	3	8	5
W48	Wet Pond Upgrade	840 Holt Road	3	WQ, Cp	3	8	5
W52	Wet Pond Upgrade	Railway Crossing	3	WQ, Cp	3	8	5
W55	Wet Pond Upgrade	900 Holt Road	3	WQ, Cp	3	8	5
W56	Wet Pond Upgrade	900 Holt Road	3	WQ, Cp	3	8	5
W57	Wet Pond Upgrade	Rachel Drive and Crosspointe Lane	3	WQ, Cp	3	8	5
W59	Wet Pond Upgrade	913-921 Holt Road	3	WQ, Cp	3	8	5
W60	Wet Pond Upgrade	80 Barrett Drive	3	WQ, Cp	3	8	5
W63	Wet Pond Upgrade	915 Hard Road back of Fairfield Inn	3	WQ, Cp	3	8	5
W64	Wet Pond Upgrade	29 Hampstead Dr Private Lot SW pond	3	WQ, Cp	3	8	5
D2	Dry Pond Conversion	20 Tuscany Ln Camden Pk Assoc	3	FS,WQ,Cp,	3		5
D3	Dry Pond Conversion	Heartland Estates HOA	3	FS,WQ,Cp,	3		5

**Off Ramp to Hard Road**  
**from EB NYS Rt 104**  
**New Pond (P15)**



**Project Area**

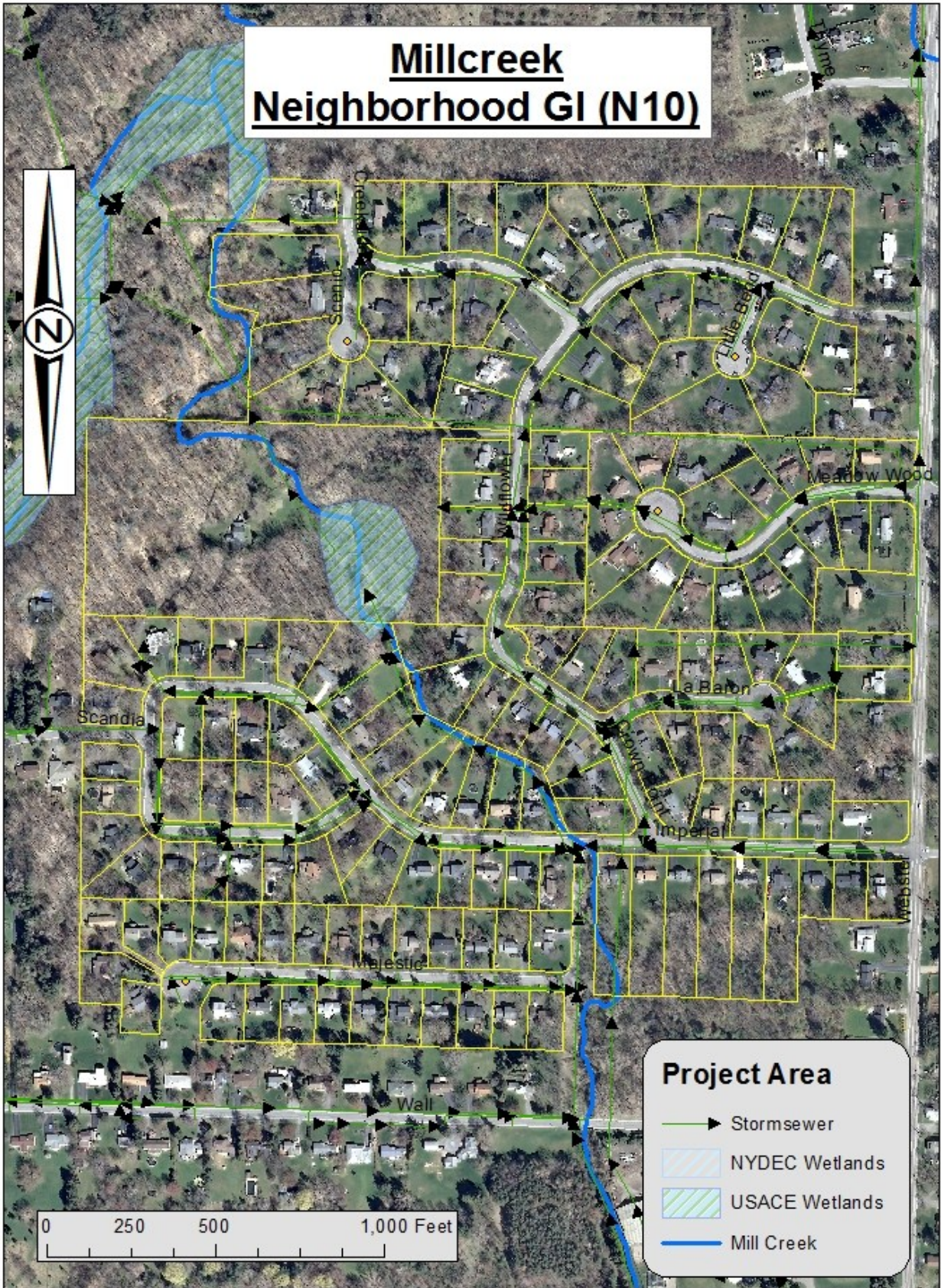
- Project Site
- Stormsewer
- NYDEC Wetlands
- USACE Wetlands
- Mill Creek

# Lakedale Neighborhood GI (N13)





# Millcreek Neighborhood GI (N10)



**Project Area**

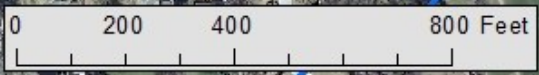
- Stormsewer
- NYDEC Wetlands
- USACE Wetlands
- Mill Creek

# Parkwood Neighborhood GI (N9)



### Project Area

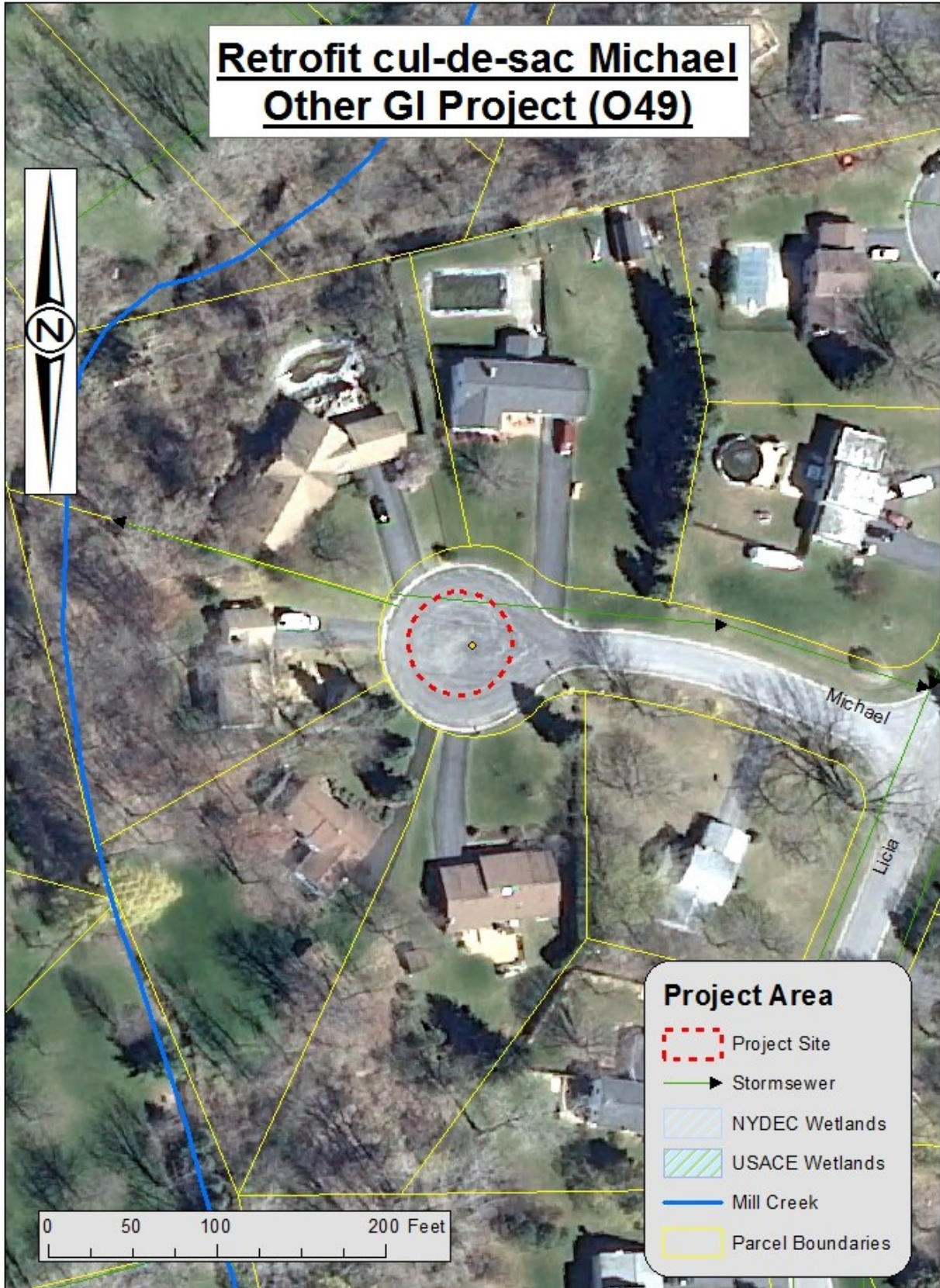
- Stormsewer
- NYDEC Wetlands
- USACE Wetlands
- Mill Creek



# The Woods Neighborhood GI (N4)

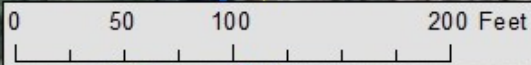


# Retrofit cul-de-sac Michael Other GI Project (O49)



**Project Area**

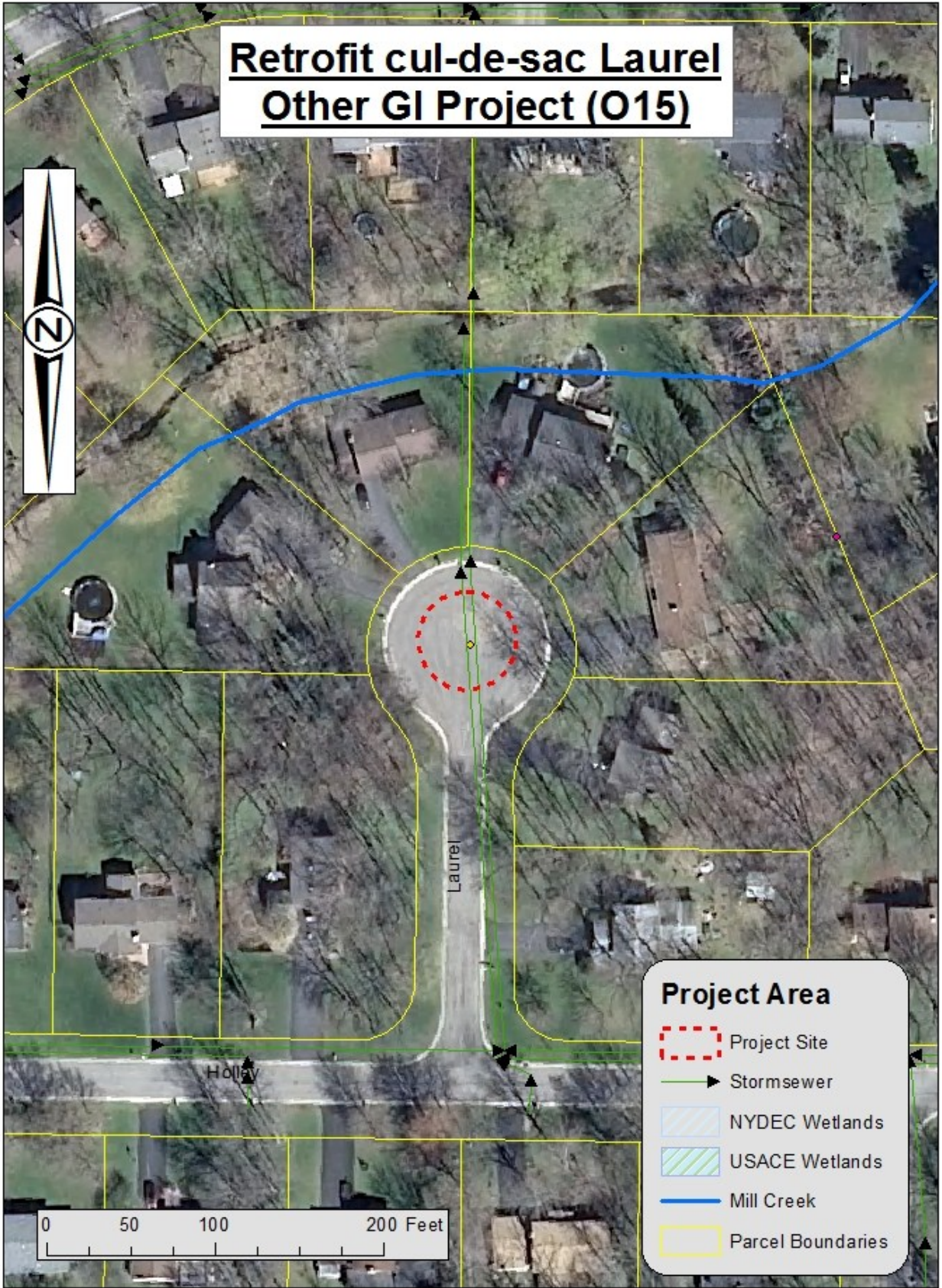
-  Project Site
-  Stormsewer
-  NYDEC Wetlands
-  USACE Wetlands
-  Mill Creek
-  Parcel Boundaries



# Retrofit cul-de-sac Shadowbrook Other GI Project (O45)



# Retrofit cul-de-sac Laurel Other GI Project (O15)



# 75-B Tuscany Lane Wet Pond Project (W61)

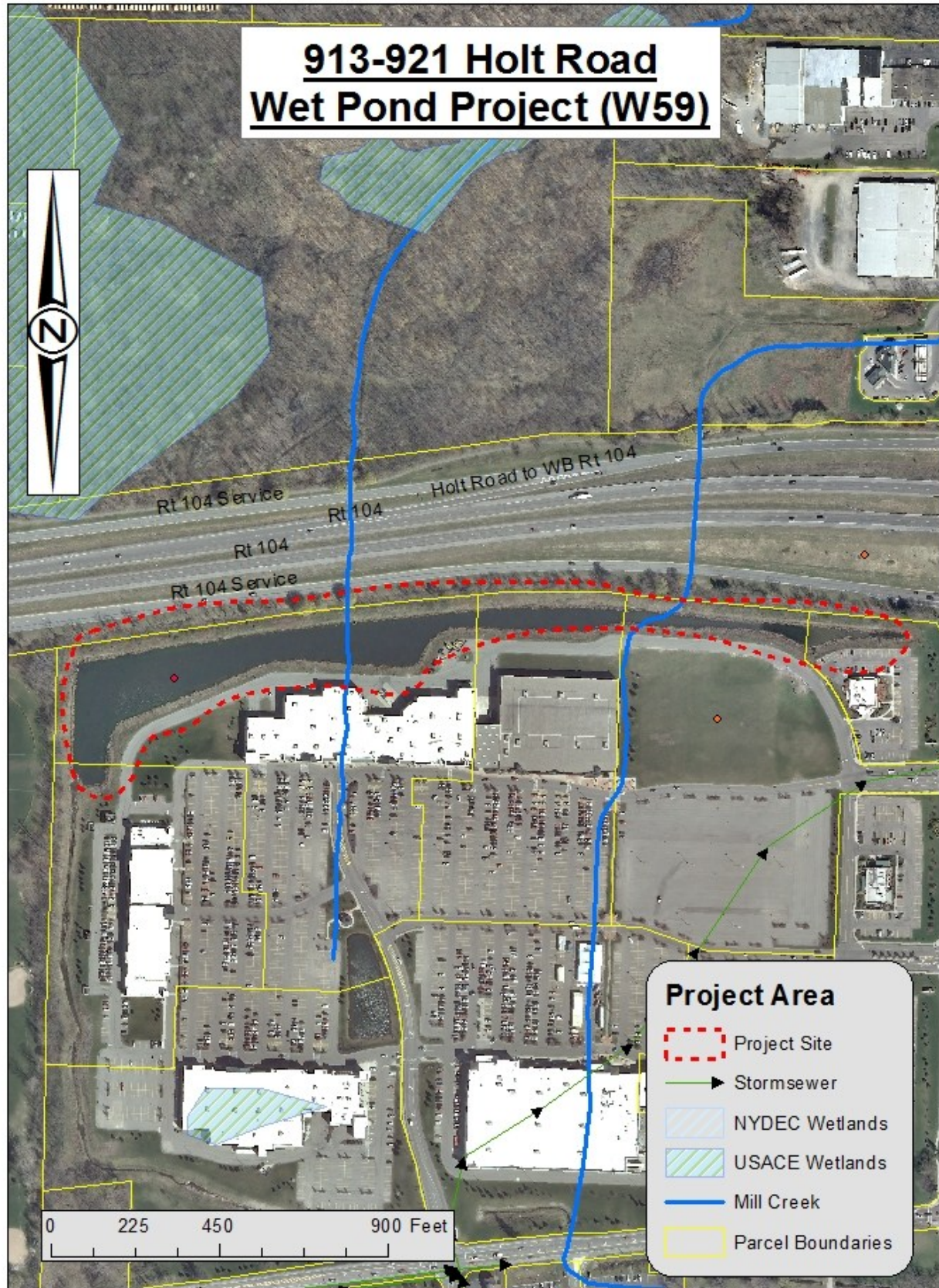


## Project Area

-  Project Site
-  Stormsewer
-  NYDEC Wetlands
-  USACE Wetlands
-  Mill Creek
-  Parcel Boundaries

0 20 40 80 Feet

# 913-921 Holt Road Wet Pond Project (W59)



**Project Area**

- Project Site
- Stormsewer
- NYDEC Wetlands
- USACE Wetlands
- Mill Creek
- Parcel Boundaries

0 225 450 900 Feet



# 900 Holt Road Wet Pond Project (W56)

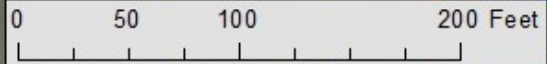


Rt 104 Service

Holt

**Project Area**

- Project Site
- Stormsewer
- NYDEC Wetlands
- USACE Wetlands
- Mill Creek
- Parcel Boundaries



# 900 Publishers Parkway Wet Pond Project (W51)



# 1135 Ridge Road Wet Pond Project (W33)



## References:

Center for Watershed Protection. 2004a. *Unified Stream Assessment: A User's Manual*. Manual 10 in the Urban Subwatershed Restoration Manual Series. Center for Watershed Protection, Inc. Ellicott City, MD.

2004b. *Unified Subwatershed and Site Reconnaissance: A User's Manual*. Manual 11 in the Urban Subwatershed Restoration Manual Series.

2005. *An Integrated Framework to Restore Small Urban Streams User's Manual*. Manual 1 in the Urban Subwatershed Restoration Manual Series.

2007. *Stormwater Retrofit Practices*. Manual 3 in the Urban Subwatershed Restoration Manual Series.

Genesee/Finger Lakes Regional Planning Council. 2011. *Green Infrastructure and Low Impact Development Evaluation and Implementation Plan*.

New York State Department of Environmental Conservation. 2004. *Ontario Basin Waterbody Inventory and Priority Waterbodies List, Revised 2007*

SUNY College at Brockport. Mark R. Noll, Ph.D, Department of the Earth Sciences. 2010. *Stressed Stream Analysis of the Mill Creek Watershed, Monroe County, New York*

US EPA. 2000. *Ambient Water Quality Criteria Recommendations Information Supporting the Development of State and Tribal Nutrient Criteria Rivers and Streams in Nutrient Ecoregion VII EPA 822-B-00-018*

---

# APPENDIX A

---

NYSDEC PWL Datasheet  
&  
Final 2012 Section 303(d) List

## Mill Creek and tribs (0302-0025)

Impaired Seg

### Waterbody Location Information

Revised: 05/04/2007

<b>Water Index No:</b>	Ont 100	<b>Drain Basin:</b>	Lake Ontario
<b>Hydro Unit Code:</b>	04140101/020	<b>Str Class:</b>	B
<b>Waterbody Type:</b>	River	<b>Reg/County:</b>	8/Monroe Co. (28)
<b>Waterbody Size:</b>	25.2 Miles	<b>Quad Map:</b>	WEBSTER (I-11-1)
<b>Seg Description:</b>	entire stream and tribs		

### Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Suspected
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Suspected
RECREATION	Impaired	Suspected

#### Type of Pollutant(s)

Known: Priority Organics (PCBs, dioxin), Pesticides (mirex)  
Suspected: D.O./OXYGEN DEMAND, NUTRIENTS, PATHOGENS, Silt/Sediment  
Possible: ---

#### Source(s) of Pollutant(s)

Known: ---  
Suspected: INDUSTRIAL, MUNICIPAL (unknown), ON-SITE/SEPTIC SYST, Construction(residential develop), Urban/Storm Runoff  
Possible: ---

### Resolution/Management Information

<b>Issue Resolvability:</b>	1 (Needs Verification/Study (see STATUS))	
<b>Verification Status:</b>	3 (Cause Identified, Source Unknown)	
<b>Lead Agency/Office:</b>	DOW/Reg8	<b>Resolution Potential:</b> Medium
<b>TMDL/303d Status:</b>	3a*	

### Further Details

Aquatic life support, public bathing and other recreational uses are thought to be impaired by various nonpoint sources related to urban runoff and suburban development. Municipal and industrial sources have also been indicated. Fish consumption is restricted as a result of the Lake Ontario advisory.

A biological (macroinvertebrate) assessment of Mill Creek in Webster (at Lake Road) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. Impact Source Determination indicated that municipal and/or industrial sources were the likely factors influencing the assessment. Poor habitat was noted and was likely to have influenced the results as well. However odors and other visual indications of sewage inputs to the stream were obvious during sampling. A biological assessment of Mill Creek at the same site was conducted in 1999. Sampling results at that time indicated severely impacted water quality conditions. (DEC/DOW, BWAM/SBU, June 2005)

## Mill Creek and Tribs (Continued)

The entire watershed experiences considerable development pressures. A county streambank erosion assessment effort has documented severe erosion in various places along the creek. (Monroe County Health Department, April 2001)

This segment includes the entire stream and all tribs. The waters of the stream are Class B from the mouth to trib -3, and Class C for the remainder of the reach. Tribs to this reach/segment are primarily Class C; some tribs to the lower portion are Class B. (May 2001)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
--------------------	----------------------------	--------	------	-------	-----------------	--------	------

**Part 3a - Waterbodies for which TMDL Development May be Deferred (Requiring Verification of Impairment)**

Ont 158 (portion 1)	Niagara River/Lake Erie Drainage Basin	Niagara	River	A(S)	Org. Chlor Pest/HCB	Cont. Sed, Land Disposal	2006
Ont 158 (portion 1)	Niagara River, Lower, Main Stem (0101-0027) <sup>69</sup>	Niagara	River	A(S)	PAHs	Cont. Sed, Land Disposal	2002
Ont 158 (portion 2)	Niagara River, Upper, Main Stem (0101-0006) <sup>69</sup>	Niagara	River	A(S)	Org. Chlor Pest/HCB	Cont. Sed, Land Disposal	2006
Ont 158 (portion 2)	Niagara River, Upper, Main Stem (0101-0006) <sup>69</sup>	Niagara	River	A(S)	PAHs	Cont. Sed, Land Disposal	2002
Ont 158-12 (portion 2)	Tonawanda Cr, Middle, Main Stem (0102-0006)	Genesee	River	B	Pathogens	Agriculture, Urb Runoff	2010
Ont 158-12 (portion 3)	Tonawanda Cr, Middle, Main Stem (0102-0002)	Genesee	River	C	Phosphorus	Urban/Storm, Str Erosion	2004
Ont 158-12-1	Ellicott Creek, Lower, and trbs (0102-0018)	Erie	River	B	Phosphorus	Urban Runoff	2004
Ont 158-12-1	Ellicott Creek, Lower, and trbs (0102-0018)	Erie	River	B	Silt/Sediment	Urban Runoff	2004
Ont 158-E-22	Muddy Creek, Lower, and trbs (0104-0051)	Erie	River	B	Pathogens	Unknown	2010
Pa-63-13-P133	Allegheny River Drainage Basin	Chautauqua	Lake	B	Nutrients (phosphorus)	Agriculture	1998
Pa-63-13-P133-3-P134	Lower Cassadaga Lake (0202-0003) Middle Cassadaga Lake (0202-0002)	Chautauqua	Lake	C	Nutrients (phosphorus)	Agriculture	1998
Ont 100	Lake Ontario (Minor Tribs) Drainage Basin	Monroe	River	B	Oxygen Demand <sup>1</sup>	Municipal, Onsite WTS	2008
Ont 100	* Mill Creek and trbs (0302-0025)	Monroe	River	B	Phosphorus	Municipal, Onsite WTS	2008
Ont 100	* Mill Creek and trbs (0302-0025)	Monroe	River	B	Pathogens	Municipal, Onsite WTS	2008
Ont 107	Shipbuilders Creek and trbs (0302-0026)	Monroe	River	C	Oxygen Demand <sup>1</sup>	Municipal, Onsite WTS	2008
Ont 107	* Shipbuilders Creek and trbs (0302-0026)	Monroe	River	C	Phosphorus	Municipal, Onsite WTS	2008
Ont 107	* Shipbuilders Creek and trbs (0302-0026)	Monroe	River	C	Pathogens	Municipal, Onsite WTS	2008
Ont 138	* Oak Orchard Creek (0301-0014)	Genesee	River	C	Nutrients (phosphorus)	Agriculture	1998
Ont 117-27-34	Genesee River Drainage Basin	Ontario	River	C	Phosphorus	Onsite WTS	2004
Ont 117-27-34	Hemlock Lake Outlet and minor trbs (0402-0013) Hemlock Lake Outlet and minor trbs (0402-0013)	Ontario	River	C	Pathogens	Onsite WTS	2004
SR (Pa)-1-P8	Susquehanna River Drainage Basin <b>Cayuta Lake (0603-0005)</b>	Schuyler	Lake	B	Phosphorus	Other (in-lake sediment)	2012
Ont 66-11-P26-37-6-2	Oswego River (Finger Lakes) Drainage Basin	Ontondaga	River	C	Oxygen Demand <sup>1</sup>	Municipal	2008
Ont 66-11-P26-37-6-2	Limestone Creek, Lower, and minor trbs (0703-0008) <sup>70</sup>	Ontondaga	River	C	Pathogens	Municipal	2008
Ont 66-12 (portion 2)	Limestone Creek, Lower, and minor trbs (0703-0008) <sup>70</sup> Seneca River, Lower, Main Stem (0701-0008)	Ontondaga	River	C	Pathogens	Onsite WTS	1998