



Stony Creek at Van Hoosen Farm, Rochester Hills

CHAPTER 2: INTRODUCTION

2.1 THE STONY/PAINT CREEK SUBWATERSHED

Stony Creek is a high-quality tributary of the Clinton River located in northeastern Oakland County and northwestern Macomb County. Stony Creek's watershed encompasses over 74 square miles, representing approximately 10% of the 760-square-mile Clinton River basin (Figure 2.1). The subwatershed includes a large portion of Addison Township, the southeast portion of Oxford Township, the southwest corner of Bruce Township, the eastern half of Oakland Township, the western third of Washington Township, and northern portions of the cities of Rochester and Rochester Hills (Figure 2.2). The subwatershed also includes small areas of the villages of Lake Orion, Leonard, and Oxford, and the townships of Orion and Shelby. The roughly 17,500 residents of the Stony Creek subwatershed inhabit an area that ranges from rural agricultural and low-density residential areas in the north to rapidly developing and dense suburban and commercial areas in the south. The subwatershed contains a number of protected natural areas, including the North Unit of Bald Mountain State Recreation Area, Stony Creek Metropark, Addison Oaks County Park, the Michigan Nature Association's Lakeville Swamp Preserve, and a number of local parks. One of Stony Creek's distinctive features is that the majority of the creek and its tributaries flow through privately owned lands, presenting unique challenges for riparian landowner stewardship and watershed management.

Stony Creek has two major branches: the West Branch, which is 13.4 miles long, and the Main Branch, which is 21.2 miles long. The Main Branch begins north of Lakeville Lake in Addison Township, and the headwaters of the West Branch are located in a cluster of lakes in southeast Oxford Township. The two branches both flow into Stony Creek Lake, an impoundment in Stony Creek Metropark, which is part of the Huron-Clinton Metropolitan Authority. Stony Creek flows into the Clinton River near downtown Rochester, just downstream of Paint Creek.

Stony Creek is still considered a coldwater fishery by the Michigan Department of Natural Resources, but stocking of brown trout ceased in 1991 due to limited access to the creek, a history of low survivorship, and the presence of better access opportunities nearby in Paint Creek. Nevertheless, the fact that Stony Creek still supports coldwater fish species is an indicator of its high quality.

Paint Creek is a high-quality coldwater tributary of the Clinton River, with headwaters in Brandon and Oxford Townships upstream of Lake Orion. The creek then flows through Lake Orion, Orion Township followed by Oakland Township, Rochester Hills and Rochester before reaching its confluence with the Clinton River near downtown Rochester. Paint Creek's subwatershed spans over 70 square miles in 10 communities and is inhabited by roughly 68,000 people. Paint Creek below Lake Orion to the confluence with the Clinton River is a cold water tributary that is designated trout stream. Sampling by MDNR in 2001 found mottled sculpins, creek chubs, white suckers, and brown trout as the predominant species. Brown trout reproduce in Paint Creek but are supplemented with an annual stocking by MDNR, Fisheries Division.

In recent years, the effects of suburban development have started to become visible along the stream channel and riparian corridor. The removal of riparian vegetation, poor road crossings, increased storm water runoff from roadside ditches and storm drain systems, inadequate soil erosion controls, and elevated nutrients result in flashy flows, erosion, sedimentation, algae blooms, and excessive aquatic plant growth. These impacts are still relatively isolated, and Stony Creek remains one of the highest quality waterways in the Clinton River system.

2.2 PURPOSE OF THE STONY/PAINT CREEK SUBWATERSHED MANAGEMENT PLAN

The Stony/Paint Creek Subwatershed Management Plan is part of an effort to create management plans for all of the major subwatersheds of the Clinton River basin.

This plan creates a vision for the long-term protection of Stony & Paint Creeks as unique natural, recreational, and cultural resource for the communities through which they flow.

The purpose of this plan is two-fold: (1) to identify current sources and causes of impairments in order to determine actions necessary to restore the stream to stable conditions; and (2) to recommend actions that will prevent further degradation of Stony & Paint Creeks and their watershed resources as development advances on the landscape.

This plan also serves to fulfill the watershed management plan requirements of the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) Phase II storm water regulations. (For more information on these regulations, visit the Southeast Michigan Phase II Information Clearinghouse at www.crw.org/phase2/phase2home.html.)

The fourteen communities, two counties and two school districts that were involved in the development of this plan are committed to protecting the unique natural areas of the Stony/Paint Creek subwatershed, mitigating the impacts of increasing storm water discharges, and restoring areas that have been degraded.

2.3 STONY/PAINT CREEK SUBWATERSHED GROUP

In 1997, the Clinton River Watershed Council (CRWC) received a grant from the U.S. Environmental Protection Agency to conduct a wetlands assessment project in the Stony Creek subwatershed. CRWC formed the Stony Creek Stewardship Committee to guide the project. The committee was composed of representatives from each of the communities containing land area in the Stony Creek subwatershed, as well as other local, county, and regional

stakeholders. In 2000, CRWC received a Clean Water Act Section 604(b) non-point source pollution planning grant from the Michigan Department of Environmental Quality to develop a watershed management plan for the Stony Creek subwatershed. The existing Stony Creek Stewardship Committee, which was wrapping up work on the wetlands assessment, was naturally well-suited to continue the oversight of this new project. The committee has thus been meeting continuously since 1997 to guide water resource protection and restoration efforts in the Stony Creek subwatershed.

In 2002, the Stony Creek group was joined by communities from the Paint Creek subwatershed, which is located to the immediate west of Stony Creek subwatershed and exhibits many similar land uses and stream characteristics. This was done so that a combined Stony/Paint Subwatershed Plan could be developed to fulfill the watershed management plan requirements of the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) Phase II stormwater regulations. In addition, the Clinton River Watershed Council was awarded an additional grant to update the Stony Creek Subwatershed Plan and include specific components that would make the stakeholders eligible for future grant funding. The Stony/Paint Creek Subwatershed Group includes representatives from the following communities, agencies, and other stakeholder groups:

- Addison Township
- City of Auburn Hills
- Brandon Township
- Bruce Township
- Huron-Clinton Metropolitan Authority
- Independence Township
- Village of Lake Orion
- Macomb and Oakland County Boards of Commissioners
- Macomb and Oakland Conservation Districts
- Macomb County Health Department
- Macomb County Planning & Economic Development
- Macomb County Prosecutor's Office
- Macomb County Public Works Office
- Michigan Department of Environmental Quality
- Oakland County Drain Commissioner's Office
- Oakland County Parks & Recreation
- Oakland County Planning & Economic Development Services
- Oakland Land Conservancy
- Oakland Township
- Orion Township
- Oxford Township
- Oxford Village
- City of Rochester
- City of Rochester Hills
- Shelby Township
- Southeast Michigan Council of Governments
- Washington Township

It should be noted that several communities that have land area in the Stony/Paint Creek subwatershed did not actively participate in the development of this plan because they are focusing their efforts in other subwatersheds where they have more land area. These

communities and their respective subwatersheds include Lake Orion (Paint Creek), Orion Township (Upper Clinton / Paint Creek), Shelby Township (Clinton River East), and the Village of Oxford (Paint Creek). The Village of Leonard was also not actively involved in the development of this plan.

In addition to the Clinton River Watershed Council, the core Project Team also included three consultants: Environmental Consulting & Technology, Inc. which completed the field surveys and updated the original plan; Carlisle/Wortman Associates, Inc., which assisted with the planning analysis; and previously Tilton & Associates, Inc., which conducted the initial Stony Creek stream assessment, and Applied Science, Inc., which conducted the initial Stony Creek flow gauging.

2.4 THE SUBWATERSHED PLANNING PROCESS

The development of this plan followed a process that has been used by the Michigan Department of Environmental Quality's (MDEQ) Nonpoint Source Program since 1995. This process is outlined in the document, *Developing a Watershed Management Plan for Water Quality: An Introductory Guide*, which was jointly developed by Michigan State University, MSU Extension, and MDEQ and published in February 2000. The Stony/Paint Creek Project Team and Stewardship Committee followed the basic steps outlined in the guide (note that developing the plan is an iterative process, and many of these steps took place simultaneously):

1. **Identify and network with local agencies and citizens** to identify water quality concerns, define the geographic scope of the watershed, form a steering committee, and begin to develop a resource library. Many of these initial tasks were conducted as part of the Stony Creek wetlands assessment project described previously.
2. **Get to know your watershed** to identify designated and desired uses, determine pollutants of concern and their sources and causes, and develop initial goals for your watershed. This information was obtained in the process of the stream assessment outlined in Chapter 3 and is summarized in Chapter 5.
3. **Define a critical area** that geographically narrows the scope of your watershed project by focusing attention on the parts of the watershed that contribute the greatest pollution to the waterbody. The critical area for the Stony/Paint Creek subwatershed is defined in Chapter 3.
4. **Survey the watershed and inventory your critical area** to clarify the list of pollutants, sources, and causes. The inventory of the Stony/Paint Creek subwatershed is summarized in Chapter 3.
5. **Prioritize pollutants, sources, and causes** based on the designated and desired uses. The pollutants of Stony & Paint Creeks and their sources and causes were prioritized based on the results of the stream inventory, analysis of historic data, and observations of the Project Team and riparian landowners. They are outlined in Chapter 5.
6. **Determine objectives for your watershed goals.** A visioning session was held in July 2003 to finalize the Stony Creek subwatershed goals and establish objectives; these are outlined in Chapter 5. An additional visioning session was held in July 2005 to revisit the Stony Creek goals and update the goals and objectives to be representative for both Stony and Paint Creeks. In addition, Chapter 5 outlines specific actions, such as modifications to existing policies and ordinances, structural improvements, and education and outreach activities to meet the watershed goals and objectives.

7. **Identify systems of best management practices needed** for each source or cause of pollution, including estimated costs. This information is described in Chapter 5.
8. **Identify and analyze projects, programs, and ordinances** that currently impact water quality, evaluate them for consistency with the watershed goals, and identify opportunities to coordinate with or improve upon existing programs. This evaluation was conducted for each of the Stony/Paint Creek communities and is outlined in Chapter 4 and summarized in Chapter 5.
9. **Inform and involve the public** in the watershed planning process and develop an education strategy for delivering watershed information to the public. Public participation and education was a critical component of the Stony/Paint Creek subwatershed planning process. Continued education efforts have been defined in each community's Public Education Plan.
10. **Develop an evaluation process** based on the goals, objectives, and tasks of the watershed plan to determine if your efforts are successful. An evaluation component is included in the Action Matrix in Chapter 5.

2.5 COORDINATION WITH THE NPDES PHASE II STORM WATER PERMIT

The development of a subwatershed management plan is a requirement of Michigan's watershed-based permit, one of two permit options available to communities in Michigan that must comply with the National Pollutant Discharge Elimination System (NPDES) Phase II storm water regulations under the Clean Water Act. Phase II of the NPDES requires communities that fall within the U.S. Census Bureau's urbanized area to obtain storm water discharge permits. Virtually all of the communities in the Clinton River watershed must comply with these regulations as of March 2003.

The watershed-based permit is an innovative approach developed in the mid-1990s by the State of Michigan for the Rouge River National Wet Weather Demonstration Project. This approach requires the formation of subwatershed areas where communities and other public agencies responsible for the management of storm water discharges work cooperatively to develop and implement plans to address storm water pollution. The U.S. Environmental Protection Agency has endorsed the use of the watershed-based permit in place of the traditional jurisdictional permit that would otherwise be required under the NPDES Phase II regulations.

To date, the vast majority of the communities in the Clinton River watershed have adopted the watershed approach and have joined one of six subwatershed planning groups (Upper Clinton, Stony/Paint, Clinton Main, Clinton River East, North Branch, and Red Run). A seventh group has also formed in the Lake St. Clair direct drainage area immediately south of the Clinton River.

As the initial Stony Creek plan was being developed and which was completed in November 2003, the communities in the Stony and Paint creek subwatersheds agreed to combine their efforts due to the similarities between the two creeks and the fact that many of the communities had land area in both subwatersheds. Thus this subwatershed management plan covering both creeks has been developed and includes all of the stakeholders identified in the initial document, with the addition of the Paint Creek communities of Brandon Township, Orion Township, and the villages of Lake Orion and Oxford.

Under the watershed permit, communities and agencies are required to complete a series of plans to address storm water pollution. These plans include a strategy to educate the public about their role in preventing storm water pollution (Public Education Plan) and a plan that identifies the steps each community will take to find and eliminate illicit discharges entering their storm water system (Illicit Discharge Elimination Plan). Communities in each subwatershed must work collaboratively to develop a Subwatershed Management Plan and a Public Participation Plan, which outlines how the public will be involved in the development of the management plan. Finally, each permit holder must develop a Storm Water Pollution Prevention Initiative (SWPPI) after the Subwatershed Management Plan is adopted. The SWPPI identifies the specific actions that will be taken in order to achieve the goals and objectives of the Subwatershed Management Plan. Communities will report annually to the Michigan Department of Environmental Quality on the status of their SWPPIs over the five-year term of the permit.

2.6 COORDINATION WITH THE CLINTON RIVER REMEDIAL ACTION PLAN

In 1972, the United States and Canada signed the *Great Lakes Water Quality Agreement*, which identified 42 pollution “hot spots,” or Areas of Concern, in the Great Lakes basin. The main branch of the Clinton River and the spillway downstream of Red Run was initially designated as the Clinton River Area of Concern (AOC), primarily due to concerns over contaminated sediments deposited near the mouth of the river. The first Clinton River Remedial Action Plan (RAP) was developed in 1988 to define a strategy for restoring and protecting the river. At the request of the Clinton River RAP Public Advisory Council (the organization overseeing the RAP process, representing public and private stakeholders in the watershed), the Area of Concern designation was expanded in the early 1990s to include the entire Clinton River watershed in an effort to provide a more holistic, watershed approach to managing water quality concerns and to more adequately address the impacts from sources upstream from the designated AOC. These sources included historical sediment contamination within the watershed, agricultural impacts, and wet weather impacts including CSOs, SSOs, and increasing impacts of storm water pollution due to land use changes and increased impervious surfaces within the watershed. The RAP was updated in 1995 and again in 1998. The most recent RAP update identifies the primary pollutants of concern in the watershed as storm water runoff and its associated pollutants, contaminated sediments, and bacterial contamination, largely from sewer overflows and failing on-site sewage disposal systems.

In 2004, the Clinton River Public Advisory Council (PAC) received a \$32,000 grant from the Great Lakes Commission to develop restoration criteria for the eight Beneficial Use Impairments (BUIs) within the Clinton River Area of Concern. These criteria define “how-clean-is-clean” and are the end goals that will be used to determine when the Clinton River has recovered to the point that it can be delisted as an Area of Concern. The PAC convened a technical committee of local and regional experts and stakeholders to help guide this process. The Clinton River Watershed Council served as the grant administrator and Environmental Consulting & Technology, Inc. (ECT) provided technical support. The technical committee convened in January 2005 to review MDEQ’s draft delisting criteria and begin discussing the application of these guidelines to criteria for the Clinton River. Draft restoration criteria have been proposed and the technical committee is currently receiving comments on the criteria. The committee and the PAC have met several times to review and refine the initial proposed criteria. In addition the criteria have been presented to each SWAG within the Clinton AOC combined with a discussion regarding the applicability of the criteria to each of the sub-watersheds within the AOC. On

September 15th, 2005, the draft restoration criteria was reviewed by the PAC and unanimously accepted as the final restoration criteria for the Clinton AOC.

The Stony/Paint Creek Subwatershed Management Plan has been developed with the priorities of the Clinton River RAP process in mind.