Salmon Creek West
Stream Maintenance Program

Williamson Watershed Management Committee
Town of Williamson, 6380 Lake Avenue, Williamson, NY 14589
town.williamson.ny.us

Contracted to Managed by Wayne County Soil & Water Conservation District,
10 Leach Road, Lyons, NY 14489, Phone/Fax: 315.946.4136, Wayneswcd1@rochester.rr.com
waynecountyNYsoilandwater.org

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I. INTRODUCTION

In 2011, the Town of Williamson's Watershed Management Committee (Committee) contracted for services with the Wayne County Soil & Water Conservation District (WC SWCD) to provide services on watershed project technical assistance and implementation as needed.

In 2012, the Committee decided to take a much larger management approach to the watersheds with in the Town of Williamson. These are (west to east): Jack Creek, Salmon Creek West, and Mink Creek. This would include completing a complete assessment of each tributary to identify issues that would have a negative impact on stream flow during storm events, spring thaw, winter ice events and other infrastructure needs.

These three major watershed's cover 90% of the land within the Town borders and affect every landowner. The committee decided that managing the main flow channels of these three watersheds would have a long term management impact on drainage for the resiliency and sustainability for community infrastructure, long term protection on water quality and economic .protection for managing flood plain efforts for all rural landowners

Assessments would include gaining permission from landowners to allow technicians to walk every part of the stream corridor, mapping the current blockages, identifying potential blockages, trees and shrubs that are likely to cause problems and manage the already existing streambank erosion control issues. Once the individual stream assessments were reviewed by the Committee a plan of work was established which would allow the District the ability to begin permitting, contracting and implementing/cleaning of conservation issue area.

II. Watershed Description: Salmon Creek West

The Salmon Creek Watershed has several considerations while planning for conservation watershed maintenance. It is imperative to consider an Ecosystem based management approach while managing the stream and its tributaries. Natural features such as floodplains, wetlands, topography/geography, soil types, and wildlife/human habitat all have a huge impact on how WC SWCD is working to manage this program.

Natural Features and Boundaries

Floodplains: The Federal Emergency Management Agency (FEMA) maintains digital mapping records of floodplains for all of the United States. According to FEMA's Flood Insurance Rate Mapping, approximately 491 acres of floodplains are located along the entire length of Salmon Creek. With the exception of a small area located just south of Gildersleeve Road in the Town of Marion, all 100 year floodplain areas are located in the Town of Williamson.

Floodplains provide a number of community benefits and, as experience has shown, can be far more effective than many man-made structures (e.g., floodwalls, stream channelization, etc.) in reducing downstream flood peaks. First, floodplains provide flood and erosion control by storing and slowly releasing floodwaters, thus reducing the depth and velocity of flooding. Floodplain vegetation can also positively impact water quality, trapping sediments and capturing pollutants before they are carried off downstream. Floodplains also provide groundwater recharge by storing floodwaters and promoting percolation to groundwater.

Wetlands: The New York State Department of Environmental Conservation (NYSDEC) identifies and regulates all freshwater wetlands greater than 12.4 acres in size. The U.S. Fish and Wildlife Service also maps wetland areas through the National Wetlands Inventory (NWI). The National Wetlands Inventory identifies all wetlands, regardless of size and regulatory status, based on a combination of the interpretation of aerial photography and on-the-ground surveys. Given the difference in identification methodologies, significant overlap can occur between those wetlands identified by the NYSDEC and those identified by the NWI. Based on data provided by the NYSDEC, there are 532 acres of state regulated wetlands in the Salmon Creek Watershed. NWI data indicates there are 875 acres of federally regulated wetlands within the watershed. Many of the federal wetlands overlap state wetlands.

In addition to providing food and habitat for a wide range of plant and animal species, wetlands contribute significantly to water quality. By impeding drainage flow from developed land, wetlands can filter out pollutant and sediment-laden run-off before it enters streams, thus improving water quality. Riparian wetlands located along streams and rivers also provide valuable flood protection, acting as storage basins and reducing the amount of downstream flow. This temporary storage of water results in decreased runoff velocities, reduced flood peaks, and delayed distribution of storm flows, all which cause tributaries and main channels to peak at different times. In some instances it has been found that wetlands provide more cost-effective flood control than man-made measures such as reservoirs or dikes.

Topography

While the topography of the Salmon Creek watershed is predominately gently rolling to flat, areas comprising steeper slopes do occur, particularly in areas along Salmon Creek and its associated tributaries. The northern portion of the watershed is located in an area commonly known as the lake plains and is generally flat. The terrain becomes gently rolling as you move south, with drumlins appearing in and near the watershed area located in the Town of Marion.

Climate

The climate of the Salmon Creek watershed in the Town of Williamson, Wayne County is classified as humid continental with cool summers. The region is marked by a highly variable climate and the possibility of rapid, frequent and extreme weather changes. A weather station located at Sodus Center, about seven miles distant collects weather data for the area.

Average annual precipitation is 36.41 inches and about 50% falls during the growing season. Precipitation is well distributed through the months and adequate for most crops on most soils. In the late fall and winter, snow squalls (lake effect) are frequent and snowfall can be heavy. Average seasonal snowfall is 88 inches. Because winter precipitation often arrives as snow and ice stored in the watershed, there is often a strong pulse of runoff to the lake in the early spring of each year.

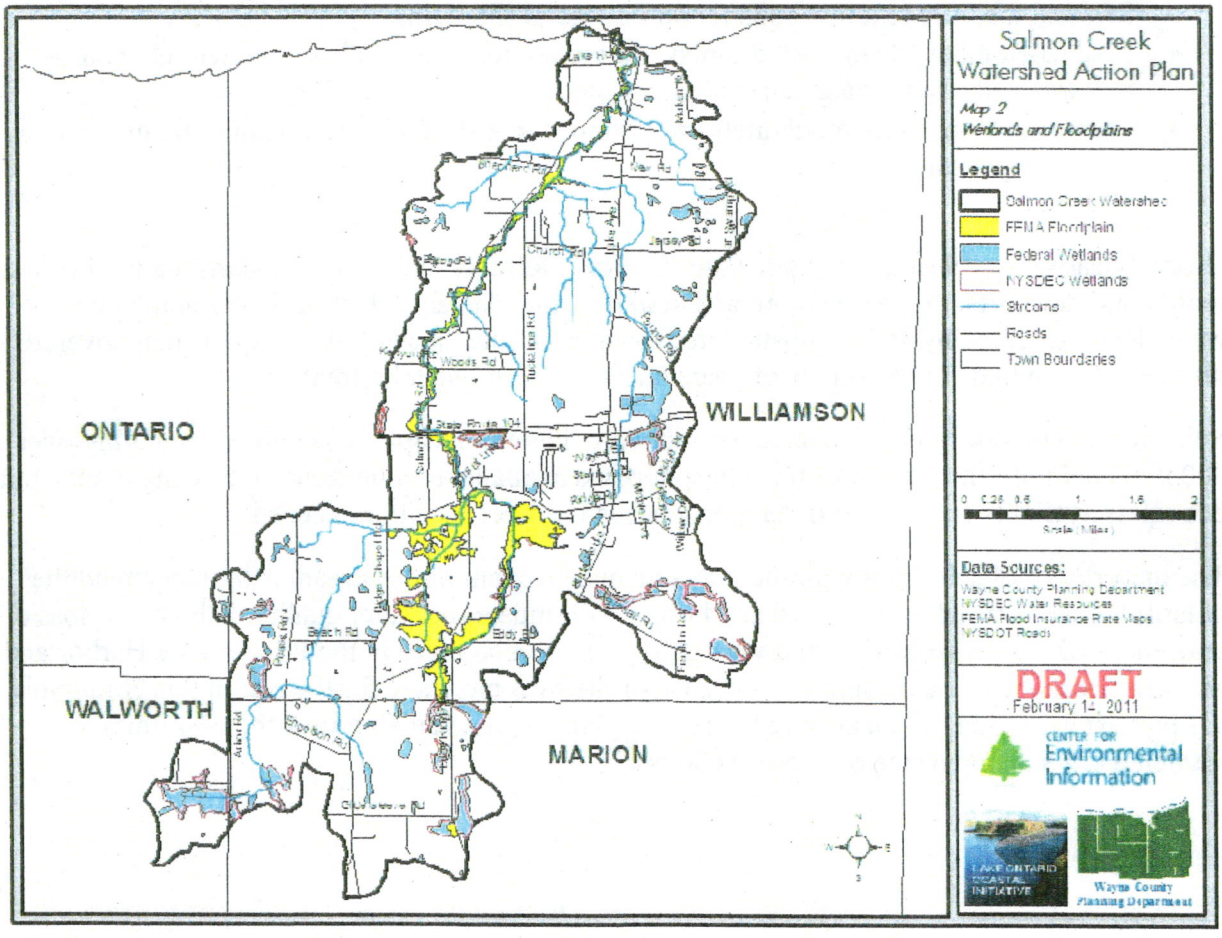
Areas of the watershed closest to the lake, such as the hamlet of Pultneyville, are buffered by the lake water temperature, especially during the summer months.

Actual annual evapotranspiration is measured as 21.5 inches per year, with most occurring between June and September.

Streams, Wetlands and Flood Plains

Lake Ontario is the most prominent natural feature in the Town of Williamson, with approximately 6.5 miles of shoreline comprising its northern-most boundary. In addition to Lake Ontario, approximately 63 acres of small, unnamed lakes and ponds are also located within the Town boundaries. Two named streams – Salmon Creek and Mink Creek – and their tributaries flow for more than 40 miles through the Town as they drain into Lake Ontario.

The Federal Emergency Management Agency (FEMA) maintains digital mapping records of floodplains for all of the United States. According to FEMA's Flood Insurance Rate Mapping, approximately 568 acres of 100-year floodplains exist within the Town of Williamson, of which 488 acres are located along the entire length of Salmon Creek. The remaining 80 acres of 100-year floodplains occur at the mouths of the Bear and Mink Creeks.



Map and Floodplain information taken from *Salmon Creek Action Plan*, March 9, 2012, Center for Environmental Initiatives.

III. Soils Descriptions & Land use Considerations

A mantle of glacial till (material detached, transported, processed and deposited by glaciers) averaging forty feet in thickness covers the Ordovician and Silurian bedrock of the watershed area. The most recent glacial period (Wisconsin Stage 65,000 – 11,500 years ago) featured many advances and retreats of the ice in response to global climate. Most of the modern soil has developed in the intervening time.

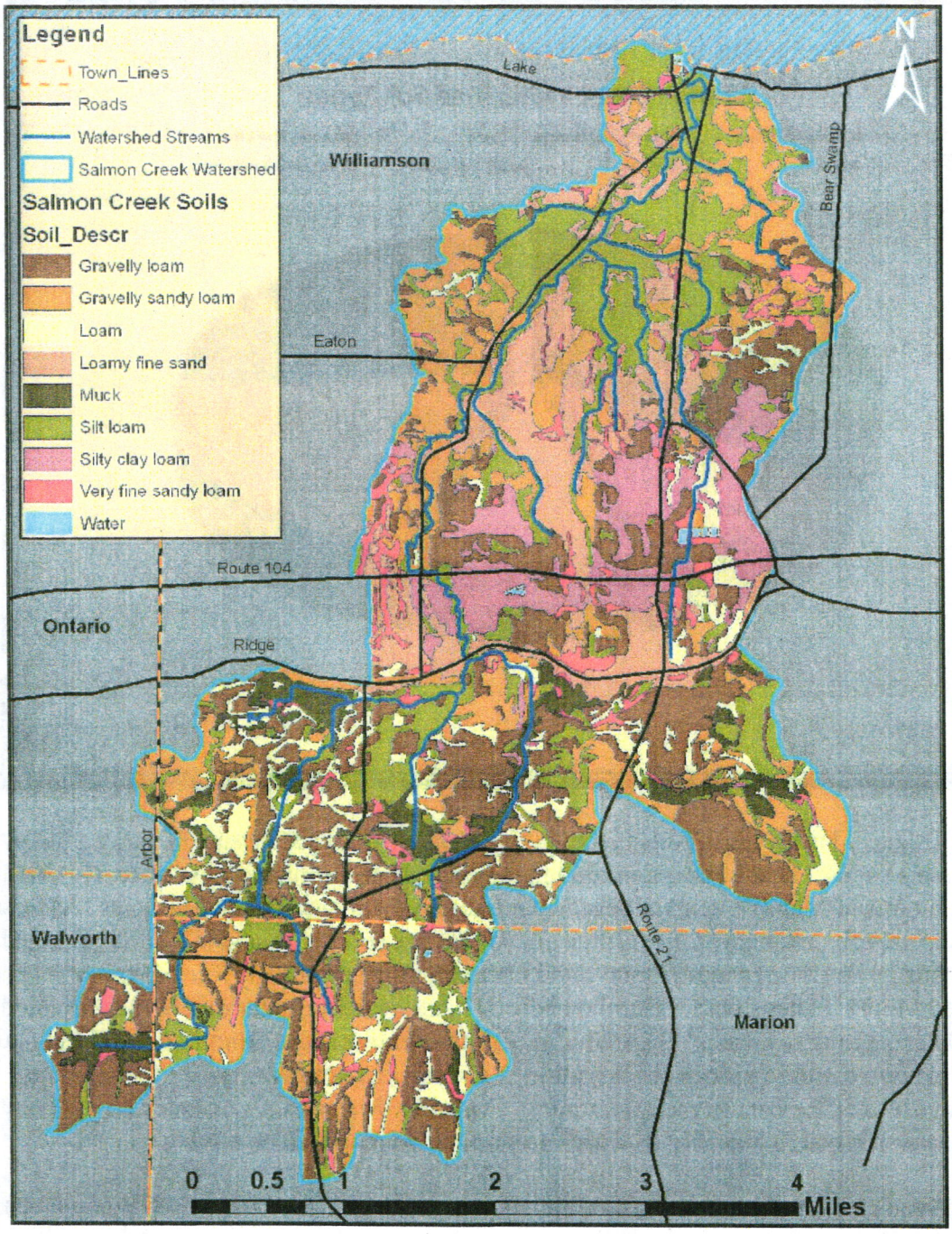
The four dominant mineral soil associations of the Salmon Creek watershed are (from north to south):

- Williamson-Elnora-Collamer, deep, moderately well-drained, medium and coarse textured soils found on lake plains;
- Appleton-Lockport, deep and moderately deep, somewhat poorly drained, moderately fine and medium textured soils found on glacial till plains;
- Madrid-Bombay, deep, well drained and moderately well-drained, moderately coarse textured soils found on glacial till plains; and
- Ontario-Hilton, deep, moderately well drained and well drained, medium textured soils found on glacial till plains.

Glacially caused soil features include kames, eskers, terraces and outwash plains made of coarser sediments transported by, washed out and sorted by the glaciers. Most of the Salmon Creek watershed is covered by soils deposited in the waters of the glacial Lake Iroquois that covered the area for hundreds of thousands of years during the last glacial retreat.

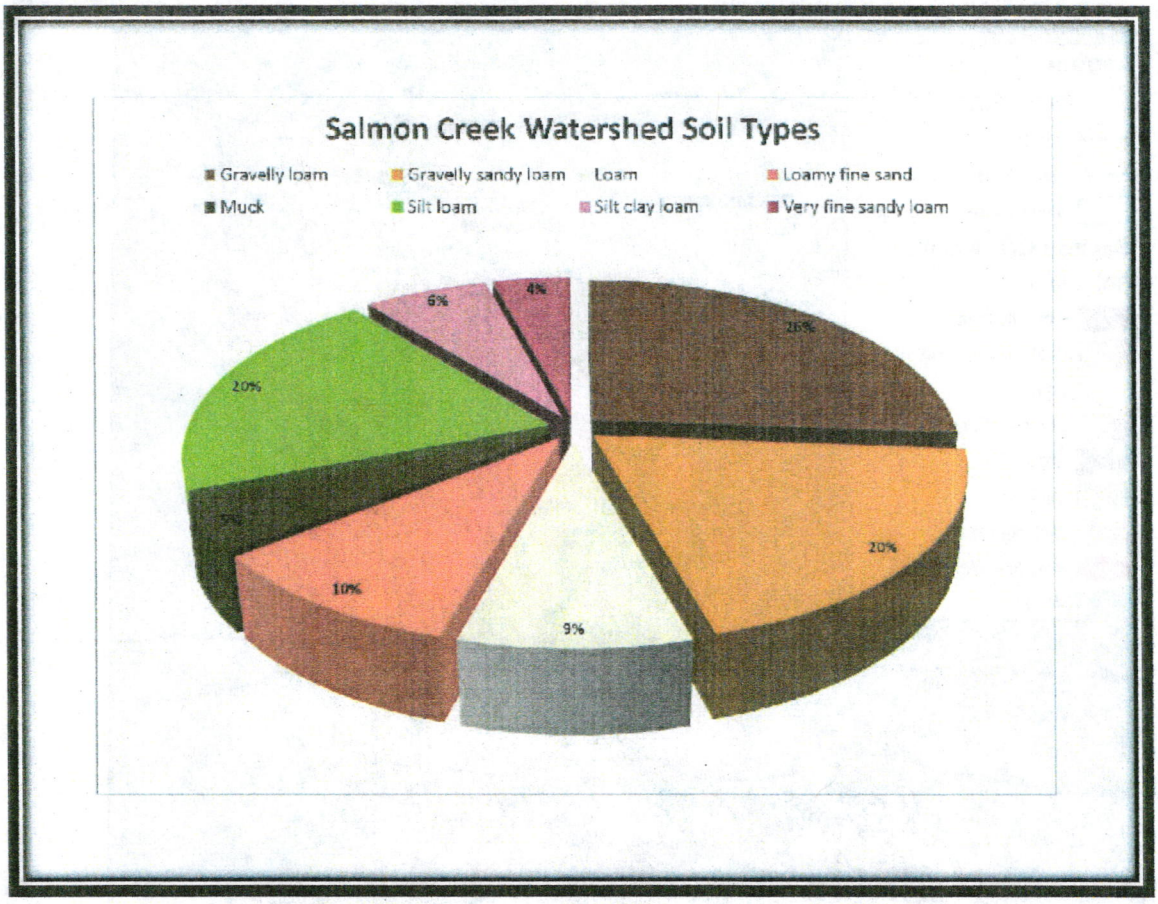
Soils of the Salmon Creek watershed are relatively high in phosphorus content, averaging over 300 parts per million. Not all of this phosphorus is available as a nutrient to growing plants, but enough is available so that additional phosphorus fertilizer is seldom needed.

The importance of soil types with the maintenance program of the stream is to understand the volatility of the soil when disturbed and how it will impact the water quality, habitat and loss of nutrients from the environment and where they will be deposited in the Pultneyville Harbor and the near shoreline of Lake Ontario. Because of the extreme value for the soil in this community, the District is working to make sure to create a plan which even identifies the best times to implement the maintenance on these sections.



This map provides an overview of the soil types and how they can impact each individual landowner that lives near the stream corridor.

Salmon Creek Watershed Soil Descriptions



Gravelly Loam: This group of soils includes Cazenovia, Hilton, Massena, Ontario, Palmyra and Phelps series soils. These soils are predominately deep, well drained to excessively drained soils located on outwash plains, remnant beaches, terraces, kames, eskers and till plains. Massena series soils are the only exception, as they are somewhat poorly drained to poorly drained soils on till plains. The slope ranges from 0 to 50 percent but is dominantly 3 to 8 percent. The solum averages 24 to 41 inches thick. Depth to bedrock in all soils is greater than 40 inches and greater than 60 inches in many areas. Where not limed, the solum ranges from strong acid to neutral and the substratum neutral to moderately alkaline. Coarse fragments average 7 to 30 percent in the solum and 24 to 50 percent in the substratum. Gravelly loam soils account for 26 percent of the soils in the watershed, a majority of which are located south of Ridge road.

Gravelly Sandy Loam: Includes Alton, Bombay, Ira, Madrid, Newstead and Sodus series soils. These soils are deep, moderately well drained soils on till plains, moraines and drumlins. Slope can be anywhere from 0 to 45 percent, but is dominantly 0 to 8 percent. The solum averages 30 to 50 inches thick and where not limed can be strongly acid to neutral. Coarse fragments make up an average of 10 to 35 percent of the solum. Bedrock is deeper than 60 inches everywhere except for Newstead series soils, where it can be found between 20 and 40 inches deep. The substratum can be slightly acidic to moderately alkaline and consists of 22 to 45 percent coarse

fragments. Gravelly sandy loam soils account for 20 percent of the soils within the watershed. These soils are scattered throughout the watershed relatively evenly.

Loam: Appleton, Fredon and Joliet series soils comprise this group. Appleton and Fredon series are deep, somewhat poorly and poorly drained soils on till plains, outwash plains, remnant beaches and terraces. Joliet series are shallow, poorly drained soils located on bedrock controlled till plains. Slope ranges from 0 to 5 percent for these soils. The solum for these soils averages 18 to 30 inches thick, contains 0 to 15 percent coarse fragments and can be medium acid to neutral in reaction. The substratum can be anywhere from neutral to moderately alkaline. Coarse fragments can consist of up to 70 percent of the substratum for these soils. Bedrock is deeper than 60 inches for Appleton and Fredon soils. Bedrock is located only 10 to 20 inches below the surface fro Joliet series soils. These soils make up 9 percent of the watershed. Small pockets of these soils are scattered mainly to the south of Ridge road, with only a few areas north of the Ridge.

Loamy Fine Sand: This group of soils consists of Colonie, Elnora and Oakville series soils. These soils are deep, well drained to excessively well drained soils on lake plains, remnant sand bars, deltas, remnant beaches, outwash plains, beaches and sand bars. Slope is dominantly in the 0 to 6 percent range but can be as high as 25 percent in areas of Colonie soils. The solum averages 28 to 46 inches is depth and bedrock is deeper than 60 inches throughout these soils. Coarse Fragments are almost absent in the solum and substratum. Un-limed reaction ranges from very strongly acid to slightly acid in the solum and medium acid to neutral in the substratum. These soils make up 10 percent of the watersheds soils and lie almost completely north of Ridge road.

Muck: Adrian, Carlisle, Chippeny, Edwards, Martisco and Palms series of soils make up this group. These are moderately deep to deep, very poorly drained soils in bogs or marshes. Slopes range from 0 to 3 percent but are dominantly less than 1 percent. Adrian, Edwards and Palms soils have an organic layer that ranges from 16 to 50 inches thick. The organic layer for Carlisle is greater than 51 inches and between 8 and 16 inches for Martisco soils. Chippeny soils have an organic layer that is 20 to40 inches and is restricted by bedrock that can be anywhere from 20 to 51 inches deep. Bedrock is deeper than 60 inches for all the other soil types. These soils can be strongly acidic to mildly alkaline. All of the muck soils are located south of Ridge road in the watershed.

Silt Loam: These soils are split into two distinctive groups based on their major characteristics. The first group contains Canandaigua, Halsey, Lyons, Niagara, Ovid, Wallington and Wayland series soils. These soils are all deep, poorly and very poorly drained soils on lake plains, outwash plains, depressions and remnant beaches. This group has an average solum thickness of 24 to 40 inches, depth to bedrock is greater than 60 inches in all areas and reaction can range from very strong acid to mild alkaline depending on exact soil type. Coarse fragments consist of 0 to 30 percent of the soil by volume. The substratum for these soils can be neutral to moderately alkaline and consists of 0 to 50 percent coarse fragments. Areas of these soils are dominantly 0 to 3 percent slopes.
The second group of silt loam soils includes Cazenovia, Collamer, Dunkirk, Farmington and Wassaic series of soils. Cazenovia, Collamer and Dunkirk soils are deep, well drained to

moderately well drained soils located on till plains and lake plains. Farmington and Wassaic soils are shallow and moderately deep, well drained soils on bedrock controlled till plains. The average solum depth is 20 to 40 inches, except where limited by bedrock. Depth to bedrock is generally greater than 40 inches, except Farmington and Wassaic soils, where is can be as shallow as 10 inches. These soils can consist of 0 to 35 percent coarse fragments and have a reaction ranging from strong acid to neutral. The substratum can also consist of 0 to 35 percent coarse fragments with a reaction ranging from slightly acid to moderately alkaline. These soils are dominantly 0 to 8 percent slopes, except for Dunkirk series soils, which are dominantly 15 to 45 percent. The silt loam soils are located throughout the watershed; however, they dominate the very northern part of the watershed.

Silt Clay Loam: These soils have also been split into two groups with similar characteristics. The first group includes Lockport, Brockport, Lakemont, Madalin and Rhinebeck series soils. Soils in this group are moderately deep and deep, somewhat poorly drain to very poorly drain soils on lake plains and bedrock controlled till plains. The Lockport and Brockport soils have a shallow depth to bedrock, at 20 to 40 inches. They also contain 2 to 35 percent coarse fragments in the solum and substratum, which is much higher than the other soils in this group. The remainder of the soils are made up of no more than 3 percent coarse fragments and have a depth to bedrock over 40 inches. All of the soils in the group have an average solum depth between 20 and 36 inches and can have a reaction from medium acid to mildly alkaline. Slopes for these soils can be between 0 and 8 percent.

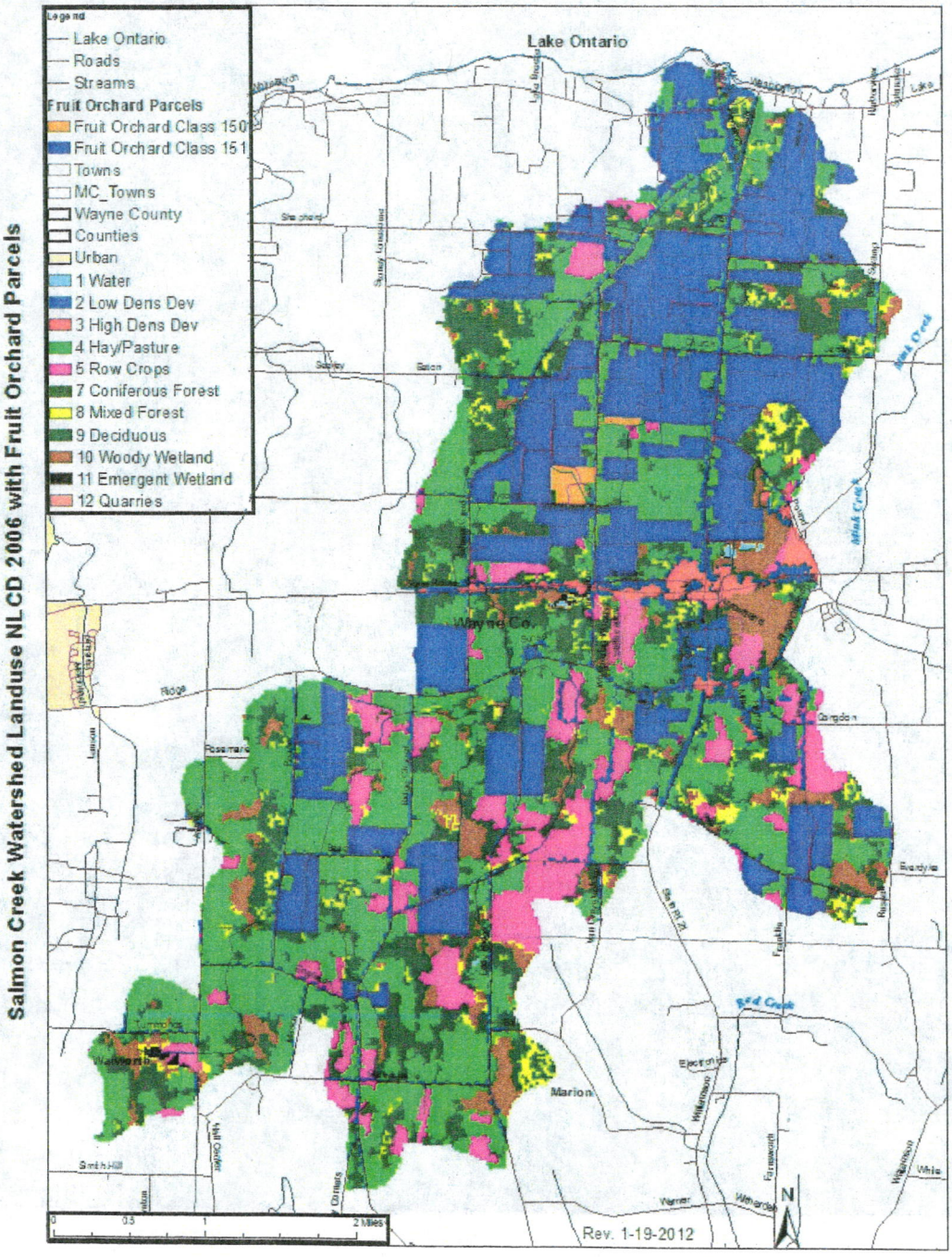
The second group of soils is comprised of Lairdsville and Riga soils. These soils are moderately deep, well drained to moderately well drained soils located on bedrock controlled till plains. Although the slope can be anywhere from 2 to 25 percent, it is dominantly 2 to 6 percent. The solum is 18 to 36 inches thick with depth to bedrock anywhere from 20 to 40 inches. Coarse fragments range from 2 to 25 percent by volume in the solum and 10 to 35 percent in the substratum. Reaction ranges from medium acid to mildly alkaline in the solum and from neutral to moderately alkaline in the substratum. Almost all of the silty clay loam soils are located in the middle of the watershed along both sides of route 104, with only a few small areas elsewhere in the watershed.

Very Fine Sandy Loam: This group contains Lamson and Minoa series soils. These soils are deep, somewhat poorly to very poorly draining soils on lake plains and deltas. Slopes range from 0 to 3 percent. The solum is 26 to 40 inches thick and depth to bedrock is greater than 60 inches. Coarse fragments range from 0 to5 percent in the solum and substratum. Reaction in Lamson soils ranges from slightly acid to mildly alkaline in the solum and mildly alkaline to moderately alkaline in the substratum. Reaction in Minoa soils ranges from strongly acid to neutral in the solum and medium acid to mildly alkaline in the substratum. Small areas of these soils are spread across the entire watershed.

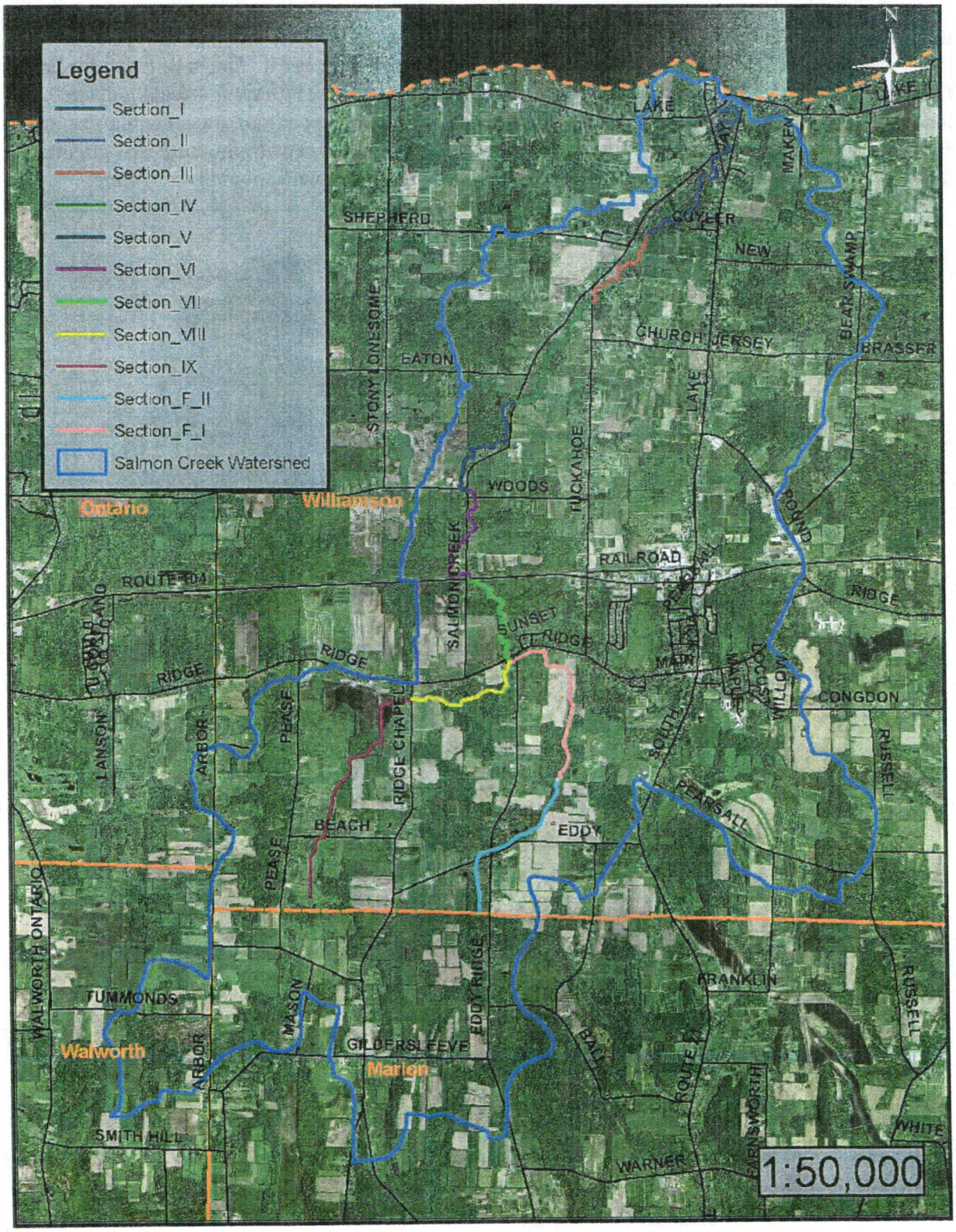
Information compiled from the Soil Survey of Wayne County, New York, by Christopher Hotto, Wayne County Soil & Water Conservation District Technician.

Land uses & Access for stream maintenance

Land use was a huge consideration while assessing the watershed in segments and how to implement conservation best management practices for the long term. The map from the Salmon Creek Action Plan, 2012, reviews the land use in the watershed and how it affects nutrient loading in the stream. When we look at the same map, you can see there are several areas of the stream corridor that will not provide direct access for maintenance without enter the stream. This can only be done during certain times of the year during specific windows of time.



IV. Management Strategies



The WC SWCD's stream team after completing the assessment in 2012-2013 on all three tributaries decided that the best approach would be to map all the existing concerns.

(Include descriptions of the assessment and a sample map)

(Include segment descriptions)

V. Permitting & Timelines

New York State Department of Environmental Conservation (NYSDEC) requires permitting on sections 1 & 2 of the management map

(Review of the process & timelines and why)

VI. Procurement of Contractor Services

VII. Watershed Management Committee Goals

Drafted Maintenance Schedule for Salmon Creek:

1. Sections 1 & 2 – Fall of 2017
2. Sections 3, 5, 7 – Spring/Summer 2018
3. Sections 4, 6, 8 – Spring/Summer of 2019
4. Sections 1& 2 – Fall of 2020
5. Sections 3, 5, 7 – Spring/Summer of 2021
6. Sections 4, 6, 8 – Spring/Summer of 2022 etc.