Sub-Area 2 – Bulkheading and Shoreline Dockage

In Sub-Area 1, where a combination of forces (wind, wave action and current) impacts the shoreline, erosion protection structures are comprised of a mix of concrete walls and barriers, corrugated metal sheet piling, wooden bulkheading and stone rip rap. A limited number of locations along the shoreline in both sub-areas remain natural. While shoreline hardening may provide some temporary relief from erosion in areas subjected to intense storms and significant wave action or current, structural measures are expensive to install, degrade shoreline habitat, interrupt natural shoreline processes and may act to transfer erosion problems to adjacent areas.

Alternative shoreline management techniques exist and should be considered for use as a first or next step for erosion protection, whenever possible. Examples of alternative measures for protecting the shoreline include bioengineering techniques and planted buffers that utilize deep rooted vegetation. These alternative solutions can result in a more naturalized shoreline, which has ecological and aesthetic benefits. Hard structural erosion protection measures should only be uses as a last alternative, where there is a documented erosion problem and where alternative measures have been proven to be inadequate to protect the principal use. The construction and modification of erosion protection structures along the Niagara River requires review and approval from the U.S. Army Corps. of Engineers, as well as the NYSDEC. Structures along the Erie Canal are regulated by the NYS Canal Corporation.

2.7 Natural Resources

2.7.1 Water Resources

There are no major lakes or ponds within the LWRA. There are no major creeks or streams that outlet to the Niagara River in Sub-Area 1. According to the Upstate New York Groundwater Management Program report of the NYSDEC, there are no Primary or Principal Aquifers underlying either sub-area. The key waterbodies in the Wheatfield LWRA include:

Sub-Area 1: Niagara River
Sub-Area 2: Tonawanda Creek (Erie Barge Canal) and Bull Creek

The Niagara River is part of the Lake Erie (East End) – Niagara River Drainage Basin. Tonawanda Creek is a major tributary watershed to the Niagara River, with 1,538 miles or 28 percent of the basin stream miles.
In Sub-Area 1, there is a small unnamed tributary that flows south in the vicinity of Williams Road, crossing River Road through a large culvert and discharging to the Niagara River. This stream channel extends above ground, just west of York Road, for approximately 300 feet, before it is conveyed below ground to discharge through two separate outfall points to the river.

There is one creek in Sub-Area 2 that drains to Tonawanda Creek (Erie Canal) and forms the boundary between the City of North Tonawanda and the Town, constituting the LWRP boundary. Known as Bull Creek, this creek is tributary to Sawyer Creek and also commonly referred to by this name. Sawyer Creek intersects (or terminates at) Bull Creek approximately 0.6 miles inland from the shoreline. Although many maps indicate Sawyer Creek as the stream corridor that terminates at Tonawanda Creek, the Federal Emergency Management Agency officially mapped this segment of the stream channel as Bull Creek when the floodplain mapping was updated for the Town of Wheatfield in September 2010.

- **Water Quality**

In accordance with 6 NYCRR Part 701 Classifications - Waters and Groundwaters, the New York State Department of Environmental Conservation (NYSDEC) has assigned water quality stream classifications to surface waters in New York State. These classifications identify the best usage for each stream. The creeks along the Wheatfield waterfront are classified as follows:

Waterbody Segment	Index No.	Classification
Niagara River	Ont 158 (portion 2)	A-Spcl
Tonawanda Creek	Ont 158-12	C
Sawyer Creek (Bull Creek)	Ont 158-12-3-1	C

The Niagara River is designated Class A-Special (International Boundary Waters) along the entire Wheatfield (Sub-Area 1) shoreline. The best uses for Class A-Special waters include drinking water supply, food processing, primary and secondary contact recreation and fishing. These waters are also suitable for fish, shellfish and wildlife propagation and survival. Class C fresh surface waters are suitable for fishing. These waters are also considered suitable for primary and secondary contact recreation, although other factors may limit their use for these purposes.

Priority Waterbodies List

The water quality classifications assigned to waterbodies do not necessarily reflect all water quality issues. The Federal Clean Water Act requires states to periodically assess and report on the quality of waters in their state. Therefore, the NYSDEC has developed a Statewide inventory of specific waterbodies, based on monitoring and information drawn from other programs and sources, which characterizes general water quality, the degree to which water uses are supported, and progress toward the identification of quality problems and improvements. The NYSDEC Division of Water periodically publishes a list of the surface waters that cannot be fully used as a resource or have problems that can damage their environmental integrity. The "Waterbody Inventory/Priority Waterbodies List" is used as a base resource for NYSDEC Division of Water program management. Separate Waterbody Inventory/Priority Waterbodies List Reports are prepared and maintained for each of the major drainage basins in the State. The list includes an assessment of water quality for waterbodies under six categories, which include:

- *Waters with No Known Impacts* – waterbody segments where monitoring data and information indicate no use restrictions or other water quality impacts or issues.

- *Threatened Waterbody Segments* – waterbody segments for which uses are not restricted and no water quality problems exist, but where specific land use or other changes in the surrounding watershed are known or strongly suspected of threatening water quality; or waterbodies where the support of a specific and/or distinctive use makes the waterbody susceptible to water quality threats.

- *Waters with Minor Impacts* – waterbody segments where less severe water quality impacts are apparent, but uses are still considered fully supported (these waters correspond with waters that are listed as having "stressed" uses).

- *Waterbodies with Impacts Needing Verification* – these are segments that are thought to have water quality problems or impacts, but where there is insufficient or indefinitive documentation. These segments require additional monitoring to determine whether uses should be restricted.

- *Impaired Segments* – these are waterbodies with well documented water quality problems that result in precluded or impaired uses.

- *UnAssessed Waterbodies* – waterbody segments where there is insufficient water quality information available to assess the support of designated uses.

Impaired waterbodies are deemed waters that frequently do not support appropriate uses. Impaired segments, waters with Minor Impacts and Threatened Waterbody segments are the focus of remedial/corrective and resource protection activities by the NYSDEC.

The following table outlines the use impairments, types of pollutants and sources for each listed waterbody located within the Wheatfield LWRA.

Water Body	Impaired Use	Severity	Type of Pollutant	Causes/Source	Category
Niagara River Upper, Main Stem	Fish Consumption Habitat / Hydrology Aquatic Life	Impaired (*known*) Impaired (*suspected*) Stressed (*suspected*)	Priority Organics (PCBs) Water level/flow Non-Priority Organics (PAHs)	*Known:* Contaminated / Toxic Sediments Habitat Modification *Suspected:* Landfill / Landfill Disposal Combined Sewer Overflows Urban Runoff	Impaired Segment
Tonawanda Creek Lower, Main Stem	Fish Consumption Aquatic Life Recreation	Impaired (*known*) Stressed (*suspected*)w Stressed (*suspected*)	Priority Organics (PCBs) Nutrients Silt/Sediment	*Known:* Contaminated / Toxic Sediments Urban Runoff *Suspected* Storm Sewers Streambank Erosion *Possible:* Landfill / Landfill Disposal	Impaired Segment
Bull Creek and Tributaries	Aquatic Life	Impaired (*known*)	Unknown toxicity, Dissolved Oxygen/Oxygen Demand, Nutrients	*Suspected* Municipal, Urban and Storm Runoff *Possible:* Industrial	Impaired Segment

Shoreline development, bulkheading, dredging and other stream modifications have also impacted habitat along the Niagara River. As indicated by a NYS Department of Health advisory, fish consumption has been impaired in this segment of the Niagara River. These advisories recommend restricted consumption of some species due to elevated PCB levels. Fish consumption in the Erie Canal, from the City of Lockport to the Niagara River, is also impaired due to PCB levels in sediments. Improved water quality in the Canal, however, has been attributed to upgrades at the Town of Amherst wastewater treatment plant.

Section 303(d) of the Federal Clean Water Act also requires states to identify *Impaired Waters*, where specific designated uses are not fully supported. For these Impaired Waters, states must consider the development of a *Total Maximum Daily Load (TMDL)* or other strategy to reduce the input of the specific pollutant(s) that restrict waterbody uses, in order to restore and protect such uses. The Niagara River and its tributaries were monitored in 2000 to 2002 and 2005 to 2007. Additional information was finalized in June of 2010 with respect to the identification of waterbody segments that do not support appropriate uses and that require development of a Total Maximum Daily Load (TMDL) or other restoration strategy. The final list indicates that the Niagara River requires the development of such a strategy to remedy water quality impacts from

pathogens carried in urban/stormwater runoff. This effort must also consider sediments contaminated with PCBs, which have adversely affected fish consumption.

The Niagara River is subject to a joint U.S. – Canadian Niagara River Toxics Management Plan to reduce toxic contributions to the basin. The river, from its mouth at Lake Ontario to Smokes Creek (near the southern end of Buffalo Harbor) has been designated an International Joint Commission Area of Concern (AOC), and associated Remedial Action Plans have been developed, including an action plan for the Niagara River to address serious impairment from pollutants that affect the beneficial use of the river. Past municipal and industrial discharges, waste disposal sites and urban/stormwater runoff have long been the key source of contaminants to the river. Beyond this, water quality issues in the drainage basin are quite diverse and, as noted in the table above, include non-point source pollution problems, stream bank erosion, urban/industrial runoff, combined sewer outfall discharges, and agricultural activity.

The Niagara River Remedial Action Plan (RAP) was completed in September 1994 and a status report was prepared in 2000 to report on the progress of remedial actions. Specific priority activities and strategies in the RAP focus on stream water quality, inactive hazardous waste site remediation, contaminated river sediments, point source control, fish and wildlife habitat improvements, and enhanced environmental monitoring activities.

Another primary impact to water quality in the Wheatfield LWRA is non-point source pollution. Non-point source pollution is pollution that reaches a surface water body through unconfined or indiscrete means. Examples include stormwater sheet or overland flow (i.e. – unchanneled flow from paved surfaces, buildings and construction sites) which carries animal wastes, soil and sediment, road oil and other automotive by-products, pesticides and fertilizer; and groundwater infiltration that can carry contaminants from faulty cesspools or septic tanks or toxins from other sources of pollution. The best way to control the rate of non-point contaminant generation and transport in upland areas is through the use of best management practices (BMPs). Non-structural BMPs, such as reducing fertilizer and pesticide applications, and proper disposal of pet wastes, automobile waste oils, etc., are relatively inexpensive as compared to the costs of employing structural measures to mitigate pollution. Public Education is an important means of implementing best management practices. Vessel waste discharges are another potential source of water pollution, particularly in areas where vessels dock in higher concentrations. Due to the lack of a marina in the LWRA, vessel waste discharges have not been identified as a significant problem.

In an effort to address issues with stormwater runoff, the Town prepared a Stormwater Management Plan and adopted Chapter 164 - the Stormwater Management Law. This law was determined necessary to help address problems associated with land development and associated increases in impervious surfaces that alter the hydrologic response of local watersheds and increase stormwater runoff rates and volume. Land development activities can result in flooding, stream channel erosion, and sediment transport and deposition in local waterways that impacts

aquatic life and habitat. This law was also aimed at controlling clearing and grading during construction, reducing loadings of waterborne pollutants, ensuring proper design and construction of stormwater control devices and implementation of stormwater management practices, and stemming economic losses that result from the impacts of faulty and unregulated stormwater discharges. While this law is essential for addressing water quality problems in the community, the Stormwater Management Plan sets forth best management practices to address other sources of non-point source pollution that are conveyed by stormwater runoff. The Stormwater Management Plan complements the law and provides educational information for the public.

2.7.2 Wetlands and Habitats

Wetlands (swamps, marshes and similar areas) are areas saturated by surface or ground water sufficient to support distinctive vegetation adapted for life in saturated soil conditions. Wetlands serve as natural habitat for many species of plants and animals and absorb the forces of flood and tidal erosion to prevent loss of upland soils. As shown on Map 6A and Map 6B, there are no areas of State-designated freshwater wetlands in either sub-area; however, there are areas of federal jurisdictional wetlands, which are managed by the Army Corps of Engineers. The Corps regulates all activities that occur, or that are proposed, within or near regulated wetland areas. Wetlands in Sub-Area 1 are concentrated at the western end of the area, near the City of Niagara Falls boundary, and to the east, primarily in the vicinity of the railroad corridor. A narrow band of freshwater wetlands also extends along the shoreline of the river. Freshwater wetlands in Sub-Area 2 are found along Tonawanda Creek and the shoreline of Bull Creek. There are no wetlands in the upland area.

The NYSDEC mapping data indicate that there are two areas in the Sub-Area 1 that were noted to contain rare, threatened or endangered species; one area includes the southwestern end of Sub-Area 1 and the other covers a larger area to the west. According to NYSDEC Division of Fish, Wildlife & Marine Resource representatives, the area to the west reflects the outer edge of the identification area for the Buckhorn Island State Park, which is located on the opposite side of the Niagara River in the Town of Grand Island. This area is ecologically significant and a designated Bird Conservation Area. No portion of this resource falls within the boundaries of the LWRA.

In the area to the west, a native species of goldenrod has been identified, which is listed as a threatened or endangered plant and protected by the State. Therefore, the NYSDEC should be contacted prior to undertaking any activity in this vicinity. It was also noted that the Niagara River corridor is considered a significant resource because it is a designated winter waterfowl concentration area. The creeks in Sub-Area 2 are also home to native species of freshwater clams that are under threat by contaminants and invasive species, and are protected by the State.

The Town of Wheatfield waterfront areas do not contain any New York State designated significant coastal fish and wildlife habitats. Bull Creek (Sawyer Creek), in Sub-Area 2, is the only area identified as a habitat of local significance in the LWRA. Bull Creek is tributary to

Tonawanda Creek, with only the outlet area at the creek situated within the LWRA boundary. This creek has a far reach, extending through the Town of Wheatfield and into nearby townships. It supports a fish population, including rainbow trout, northern pike and sauger, and is popular with local anglers. As noted above, the creeks in Sub-Area 2 also provide habitat for freshwater clams. Aquatic life in Bull Creek is impaired by elevated nutrient levels. Municipal and industrial sources, as well as organic sewage wastes, have been identified as the sources. Urban runoff (non-point source pollution) also likely contributes to this problem.

2.7.3 Topography and Soils

Niagara County borders the southern shoreline of Lake Ontario to the north, Tonawanda Creek (Erie Canal) to the south, Genesee and Orleans Counties to the east, and the Niagara River to the west. The Niagara Escarpment divides the County into two plains, the Ontario Plain to the north and the Huron Plain to the south. Drainage from the Huron Plain runs southward to Tonawanda Creek, which flows westward to the Niagara River. The escarpment is a steep northward slope, with perpendicular bluffs that are exposed in some places. As you move away from the escarpment, lands to the north and south become flat, with little topography as you move toward each shoreline.

- **Soils**
  All of Sub-Area #2 and the eastern one-third of Sub-Area #1 is comprised of Raynham (RaA) soils. The remaining two-thirds of Sub-Area #1 includes Lakemont (Lc), Cosad (Cs) and Canandaigua (Ca and Cb) soils. The Raynham and Cosad soils are known to be potentially hydric (may contain hydric inclusions), while Canandaigua and Lakemont soils are hydric. Canandaigua and Lakemont soils are deep and poorly to very poorly drained. They are level and occupy broad areas in the southern parts of Niagara County. Raynham and Cosad soils are found at slightly higher elevations and are typically associated with Canandaigua soils. These soils are also deep and poorly to somewhat poorly drained.

2.7.4 Flooding and Erosion

The Federal Emergency Management Agency (FEMA) developed a series of Flood Insurance Rate Maps (FIRM) for the Town of Wheatfield. The LWRA is covered by two Community Panels Numbers: 360513-0007D for Sub-Area 1 and 360513-0009B for Sub-Area 2. The FIRM maps delineate the final flood hazard boundaries which provide the basis for the implementation of the regular program phase of the National Flood Insurance Program within the Town. The FIRM maps for Wheatfield were updated in 2010.

Within Sub-Area 1, the flood hazard area (100-year floodplains) extends along portions of the riverfront; potentially affecting homes that are situated directly along the shoreline (see Map 6A and Map 6B). In Sub-Area 2, the 100-year flood plain encompasses the Tonawanda Creek corridor (Erie Canal), but does not extend beyond Lockport Avenue. Therefore, properties on the

west side of Niagara Falls Blvd. are located outside of this area. East of Niagara Falls Blvd., properties situated seaward of Lockport Avenue are affected. There is a small section of upland that has been designated in the B-Zone (areas located between 100-year and 500-year floodplains).

In order for property owners to take advantage of the National Flood Insurance Program (NFIP), the Town Board has adopted federally approved floodplain management regulations to manage land use and development within the designated flood hazard areas (Chapter 101 of the Town Code). Property owners within designated flood hazard areas are eligible to receive federal flood insurance and federally insured mortgage money is available to buyers. Areas of both sub-areas are located within the 100-year floodplain.

The flood zones are established based upon the degree to which an area is susceptible to flood damage. The general flood zones that exist within the Town of Wheatfield are:

- "A" and "AE" Zones – (also called the special flood hazard area) is that area of land that would primarily experience still water flooding, without significant wave activity, during the 100-year storm. In Zone A no Base Flood Elevations or depths are shown, while in Zone AE Base Flood Elevations have been derived and are shown on the maps;
- “B” Zones – areas situated between the 100-year and 500-year floodplains, or areas in the 100-year floodplain where the average flood depth is less than one foot.
- "C" Zone – areas of minimal flooding.

Development in the floodplain in the Town of Wheatfield is regulated under Chapter 101 – Flood Damage Prevention of the Code of the Town of Wheatfield. This law is designed to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas, as designated on the Flood Insurance Rate Maps. Within the regulatory floodplain, Floodplain Development Permits are required for certain construction activities within the Regulated Floodway and Special Flood Hazard Area (Zones A and AE). Pursuant to Chapter 101, any development action proposed within the Special Flood Hazard Area requires review and possibly a permit from the Code Enforcement Officer, who is the designated Local Administrator of the Flood Damage Prevention Law.

In addition, the Town of Wheatfield Comprehensive Plan recognizes that stream corridors play an important role in drainage, flooding and erosion control. This plan recommends the establishment of buffer zones along the creeks to help minimize flooding and erosion.

2.7.5 Environmental Hazards and Constraints

Sub-Area1 has traditionally been used for recreational and residential development. Although the waterfront has no history of industrial or wide scale commercial use, there are two known waste sites within the LWRA. One area is located at 2020 River Road and includes an approximate 4.2-

acre property that is owned by the Town of Wheatfield. The second site is the 15-acre Brzezinski property, which is located at 2040 River Road, immediately to the east. Both properties lie vacant and undeveloped.

The Brzezinski property was initially listed as an inactive hazardous waste site. Various investigations on the site identified industrial fill containing Polysyslic Aromatic Hydrocarbons (PAHs) and metals in the fill materials. However, according to the NYSDEC Division of Environmental Remediation (G. Sutton, January 2013), the site was delisted because the materials found there were either not significant enough to qualify the site as hazardous or there was not enough contamination found to represent a significant problem or threat to the public. The site does, however, contain industrial wastes that would need to be cleaned up and could restrict future use of the site (or portions of the site) for residential purposes.

The 4.2 -acre Town-owned site is listed as an inactive hazardous waste site (No. E932135) and was found to contain contamination from volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and Polychlorinated Biphenyls (PCBs) in soils that were above established standards. Historic filling of the property in the late 1970's and early 1980's occurred in various phases, raising the elevation of the site up to10.5 feet in some places. The fill material consists of industrial wastes such as ash, cinders, firebrick, coal, foundry sand and slag. In addition, unknown slag-like material and an oily sheen on the groundwater surface and within the fill have been found, but not identified through laboratory analysis. It is also reported that the southern portion of the property was filled in with grinding wheel sand, extending the land approximately 100 feet to the south.

This property has been identified by the Town for remediation to enable the development of portions of the site for passive recreation and public access (much of the area would remain in its natural, wooded state). The Town applied to the NYSDEC for funding under the Environmental Restoration Program but there were no monies available and their application was terminated. The Town is currently working with Niagara County Office of Economic Development, who secured a grant from the U.S. Environmental Protection Agency and is conducting a second Phase II environmental audit as a part of the overall effort to investigate and remediate the site, as necessary. The Town is looking to redevelop this property for public access and limited passive recreation.

2.8 Historic, Cultural and Scenic Resources

2.8.1 Historic Sites and Structures

The Town of Wheatfield was formed in 1836 from the Town of Niagara. It is situated in the southwest part of Niagara County, surrounded by the Town of Lewiston and Town of Cambria to the north, Town of Pendleton to the east, City of North Tonawanda and Niagara River to the south, and the City of Niagara Falls and Town of Niagara to the west.