

Initial Natural Resources Inventory

Village of Hamburg, NY

May 2023



Acknowledgements

This document was created through the efforts of many people. Among them are Holly Park, Village Trustee and the liaison to the Environmental Conservation Commission, Marc Shuttleworth, Superintendent of Public Works and the Environmental Conservation Commission whose members include:

Adrienne Punturiero (Chair)

Kim Bourke

Mary Mack

Mike Reilly

Andy Schrauth

Kathryn Walsh

Stu Wheaton

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1 Natural Resource Inventory

1.1 Introduction

The Village of Hamburg Environmental Commission has prepared this Natural Resource Inventory (NRI) to provide a baseline of information for helping Village officials, developers, and residents make informed and environmentally sound land use decisions. Without such data it is difficult to fully assess the likely impacts of development on the health and quality of water resources, soils and biological communities, as well as on the welfare of residents and the safety of their homes.

In addition to serving as a valuable land use planning tool, the NRI can be used as a public education resource. Collectively, the maps in this Inventory provide a sense of the ways in which the Village's resources and topography have shaped its history and development.

The Environmental Commission recognizes that this NRI is not a static document. It is a preliminary step towards better recognizing the natural resources in Hamburg. This NRI is an evolving document that will be updated periodically to reflect additional public input, the availability of more accurate data, and the natural and human changes to the landscape over time. This revision process is essential to ensuring that land use decision-makers, whether they are residents, developers, or Village officials, have the best and most up-to-date information available.

1.2 Summary of the Inventory Process

This NRI is the result of a collaborative process between the Village Environmental Commission and the local Climate Smart Communities coordinator from the University at Buffalo Regional Institute (UBRI). The process followed to the greatest extent possible that laid out in the DEC publication, *Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed*. Using this guide, Commission and UBRI staff worked together to identify the maps and information that should be included in the inventory.

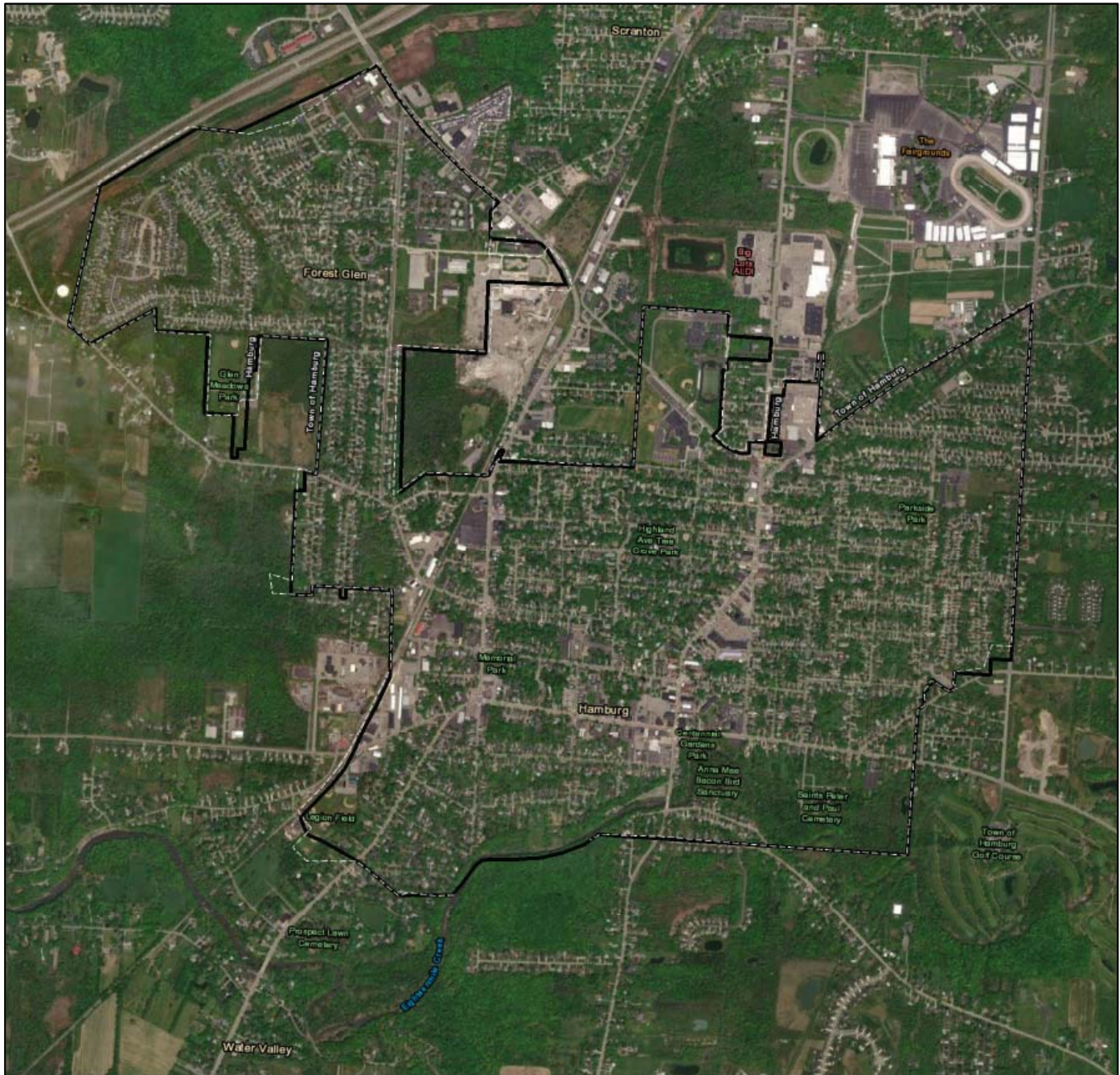
Based on these discussions, UBRI staff sought out GIS data to produce the maps that appear in this inventory. Much of the data was found using Erie County's Natural Resources Inventory, which is an interactive online mapping platform. Where data gaps existed, UBRI staff relied on other sources of GIS data, like the New York GIS Clearinghouse and others identified in the *Creating a Natural Resources Inventory* guide. Other local documents, like the Village's Tree Inventory/Management Plan and Comprehensive Plan, were also examined for relevant information. Data sources are indicated for most maps in the inventory.

Because of the Village's small geographic footprint and mostly developed land, a number of potential maps were not included in the inventory, including un-fragmented habitat blocks, significant natural communities, and agricultural land, among others.

Once GIS data was obtained, maps were produced by UBRI staff using ESRI's ArcGIS mapping software. Existing maps, like the Village's Zoning Map and a map of Village park land, were also collected for use in the inventory. Maps were then shared with the Environmental Commission, which provided feedback and produced descriptive narratives for each map, and then laid out the inventory document. The Environmental Commission members possess a strong understanding of natural world and an intimate knowledge of the Village's natural history, making them the ideal community members to write the document. Commission members and UBRI staff worked together to revise the document into its current form.

Village of Hamburg Natural Resources Inventory

Aerial Imagery



0 0.25 0.5 1 Miles



Map produced for the Village of Hamburg
Environmental Commission, November 2022

Data Sources:
Aerial Imagery: ESRI

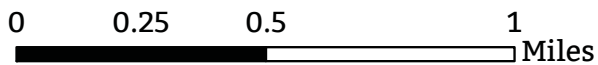
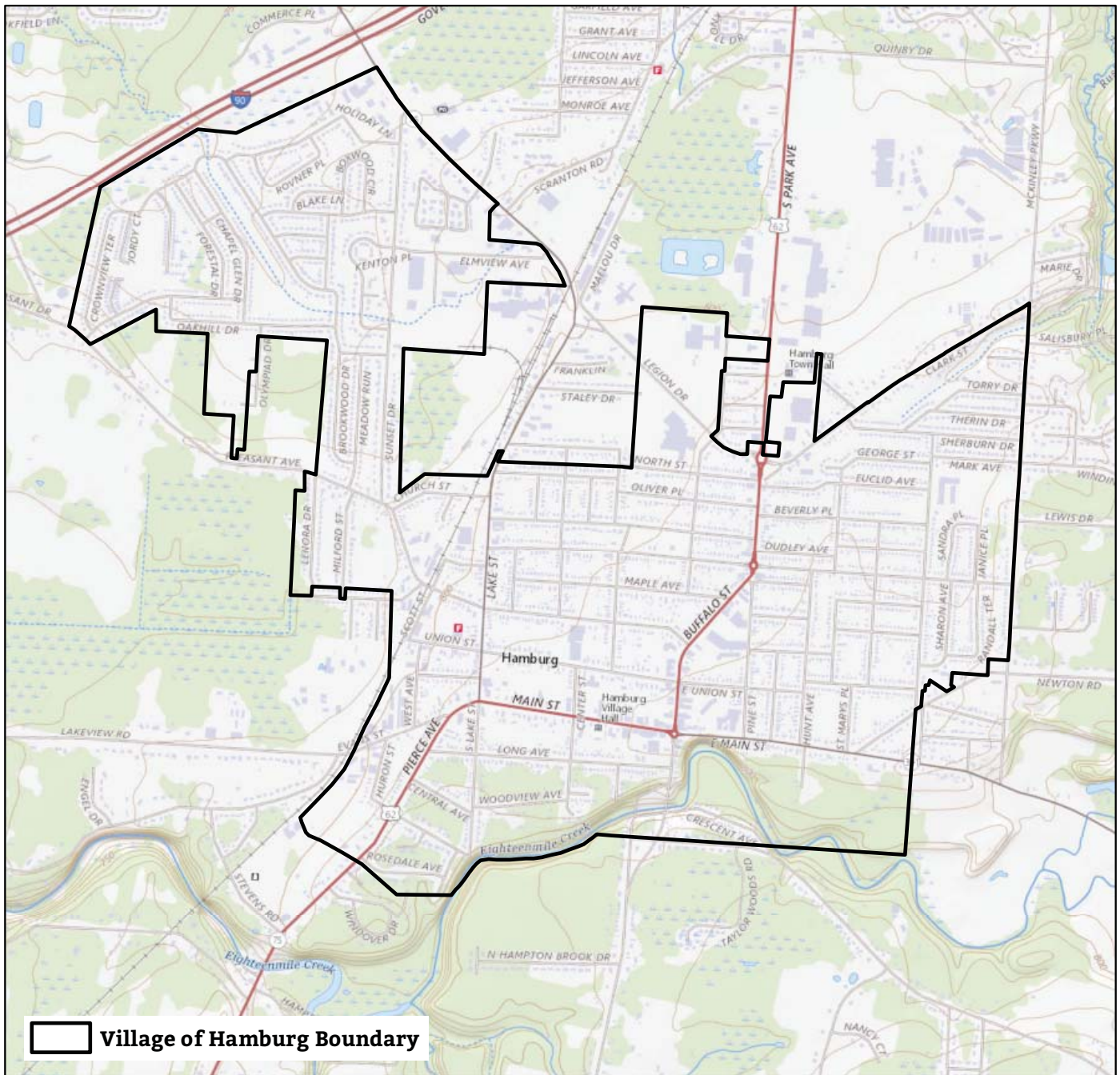
2 Mapping the Natural Resources

2.1 The Base Map

The base map shows the boundaries of the Village of Hamburg with state and local roads, water courses, and topographic contours. All subsequent maps build off of this base mapping.

Village of Hamburg Natural Resources Inventory

Basemap



Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Basemap: USGS The National Map

3 The Physical Setting

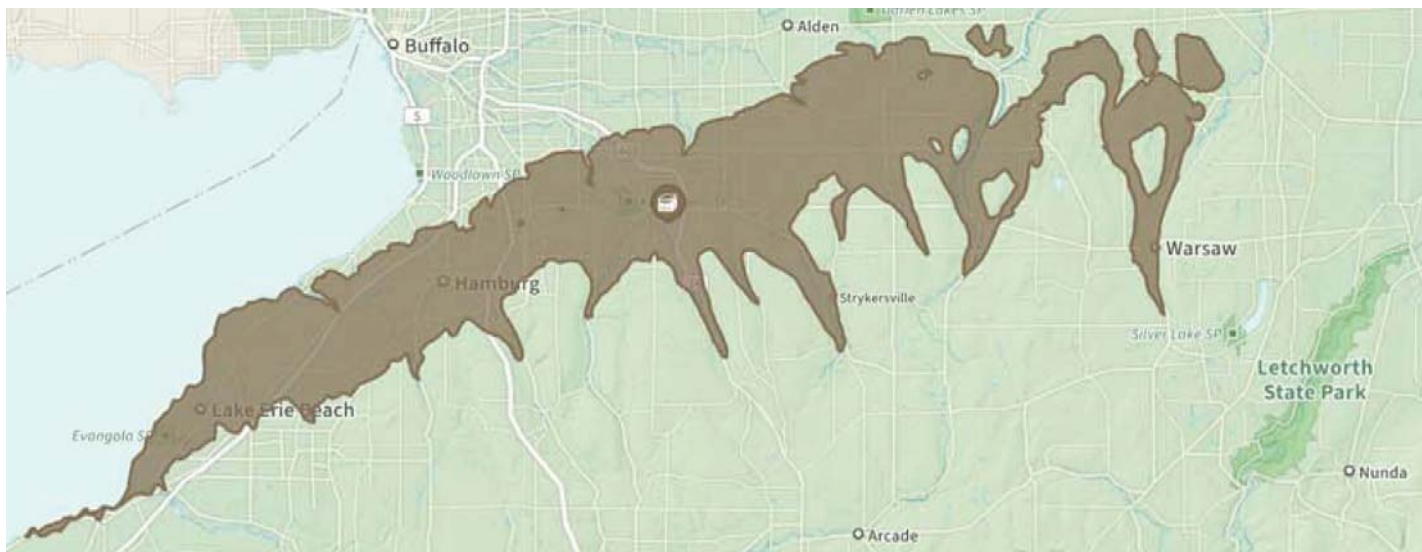
The physical setting, or natural surroundings, includes the soils, geology, topography and other natural features. It encompasses the features and processes which form the natural landscape.

The area of the Village has been covered by both low inland sea and glaciated in the past. These events helped to form the physical setting we see today.

3.1 Bedrock Geology

The type of bedrock that lies under the village has significant impacts on the landscape above it. Bedrock factors that may impact the village include which minerals are contained in the bedrock, the structural integrity and density of the rock¹, and whether or not the bedrock has any economically important elements contained within. This specific analysis of the bedrock underlying the Village of Hamburg gives a generalized summary for the Village and is not intended for a detailed study of any specific locality.

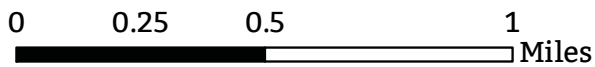
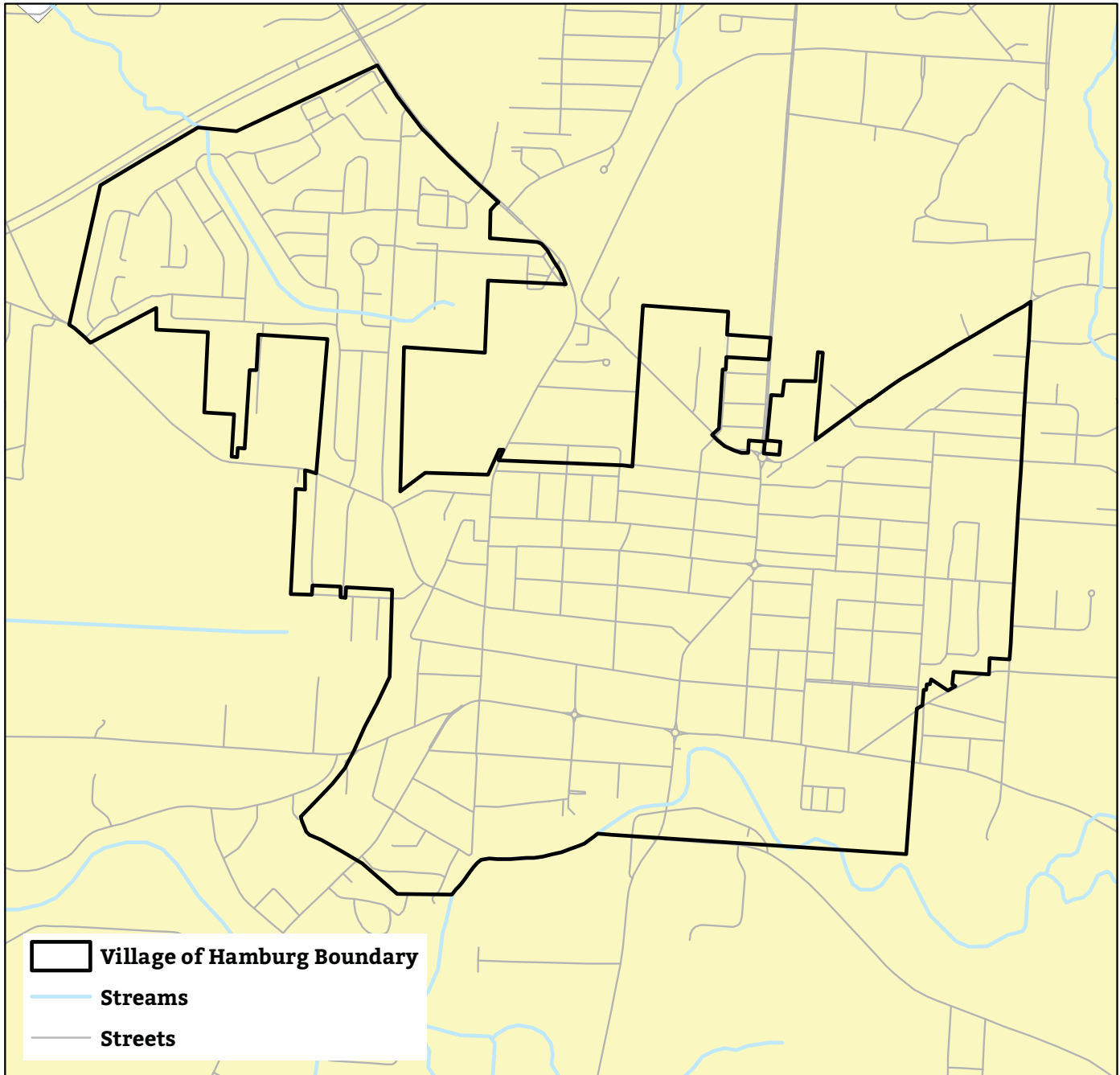
Two types of bedrock subunits lie under the Village of Hamburg - Angola and Rhinestreet Shales; part of the West Falls Formation; sedimentary rock. Shales are formed from silts and muds deposited in an aquatic environment, compacted and cemented into hard rock over millions of years. There is a potential economic significance as oil and gas may be contained in these types of bedrock. Devonian period fossils are also contained within these bedrocks, typically shallow and deeper water brachiopods, or bi-valve mollusks (such as clams). The associated image below shows a typical area of an outcrop belt of Angola and Rhinestone Shales.



1 Horton, J.D., et al., 2017, The State Geologic Map Compilation (SGMC) geodatabase of the conterminous United States (vet. 1.1, August 2017): U.S. Geological Survey Data release, <https://doi.org/10.5066/F7WH2N65>

Village of Hamburg Natural Resources Inventory

Bedrock Geology



 **Angola and Rhinestreet Shales**

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Surficial geology: NYS Museum



3.2 Surficial Geology

Surficial geology encompasses the physical structure of the earth's surface. That is, earth or subsoil that lies between the top soil and the bedrock. These layers are composed of various silts, sand, gravel, and clay that are transported and deposited by wind, water, or ice over thousands of years. It may also be created by the weathering of bedrock.

It is useful to understand the surficial geology of an area in order to make appropriate land use and economic decisions. Understanding the geology of a place may also aid in determining the suitability of an area for building development. Surficial deposits can be a great resource for building materials, mineral resources, and sources of water. They also may indicate areas susceptible to erosion, ground subsistence, flooding, landslides, and earthquakes.

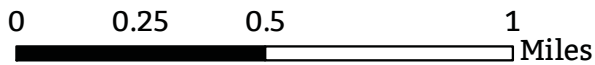
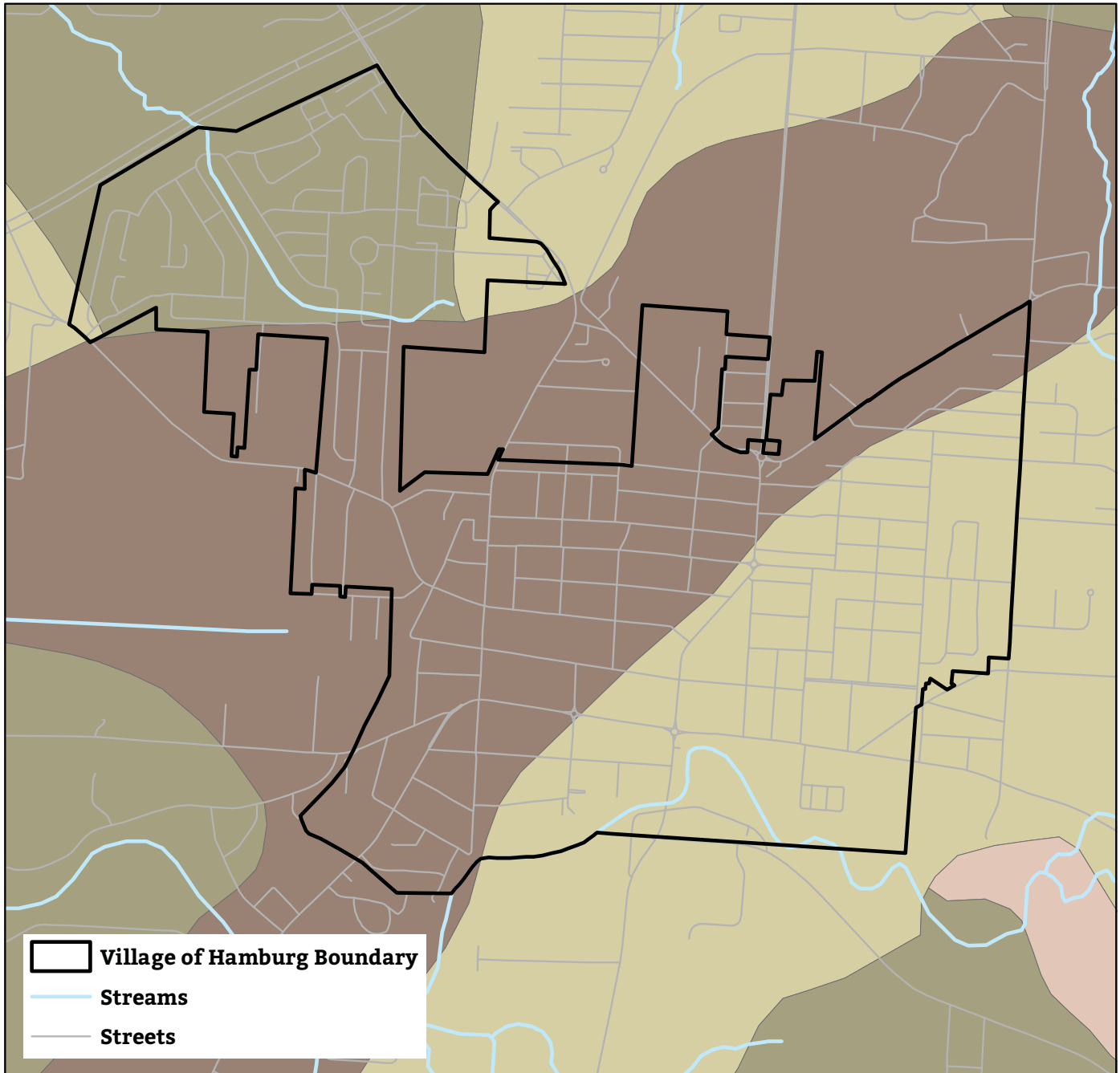
The Village boundary contains three different surficial geologic categories: Lacustrine beach cutting through the middle of the Village, Lacustrine silt and clay in the southeast portion, and Till in the northwest portion. All three of these categories are tied to the geologically recent glacial history of the area.

Lacustrine deposits, which are formed at the bottom of ancient lakes, are composed of very fine grained silt making it advantageous for fossil preservation. This is evident by the nearby Penn Dixie Fossil Park and Nature Reserve in Blasdell, NY. These deposits are characterized by weak soils, with poor shear strength and very low permeability. These spoils are also significantly compressible especially when they are rich in organic matter and plastic clay minerals. Resources such as oil shale, uranium, and coal may be associated with lacustrine deposits.

Till is characteristically unsorted and unconsolidated material of a variety of sizes deposited directly by glacial ice and showing no stratification. Most till consists predominantly of clay, silt, and sand, but with pebbles, cobbles, and boulders scattered throughout. This varied material can be a resource for construction material.

Village of Hamburg Natural Resources Inventory

Surficial Geology



Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Surficial geology: NYS Museum



Surficial Geology

- Recent alluvium
- Lacustrine beach
- Lacustrine silt and clay
- Till

3.3 Soils

Most soils in New York State have been laid down by the last glacial period, and hence, most of it was formed from glacial till. The soils map illustrates there are roughly thirty five different soil types present in the village. Roughly five of these soil types cover most of the land area in the village.

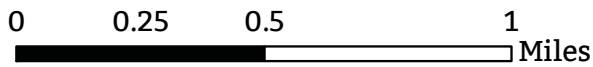
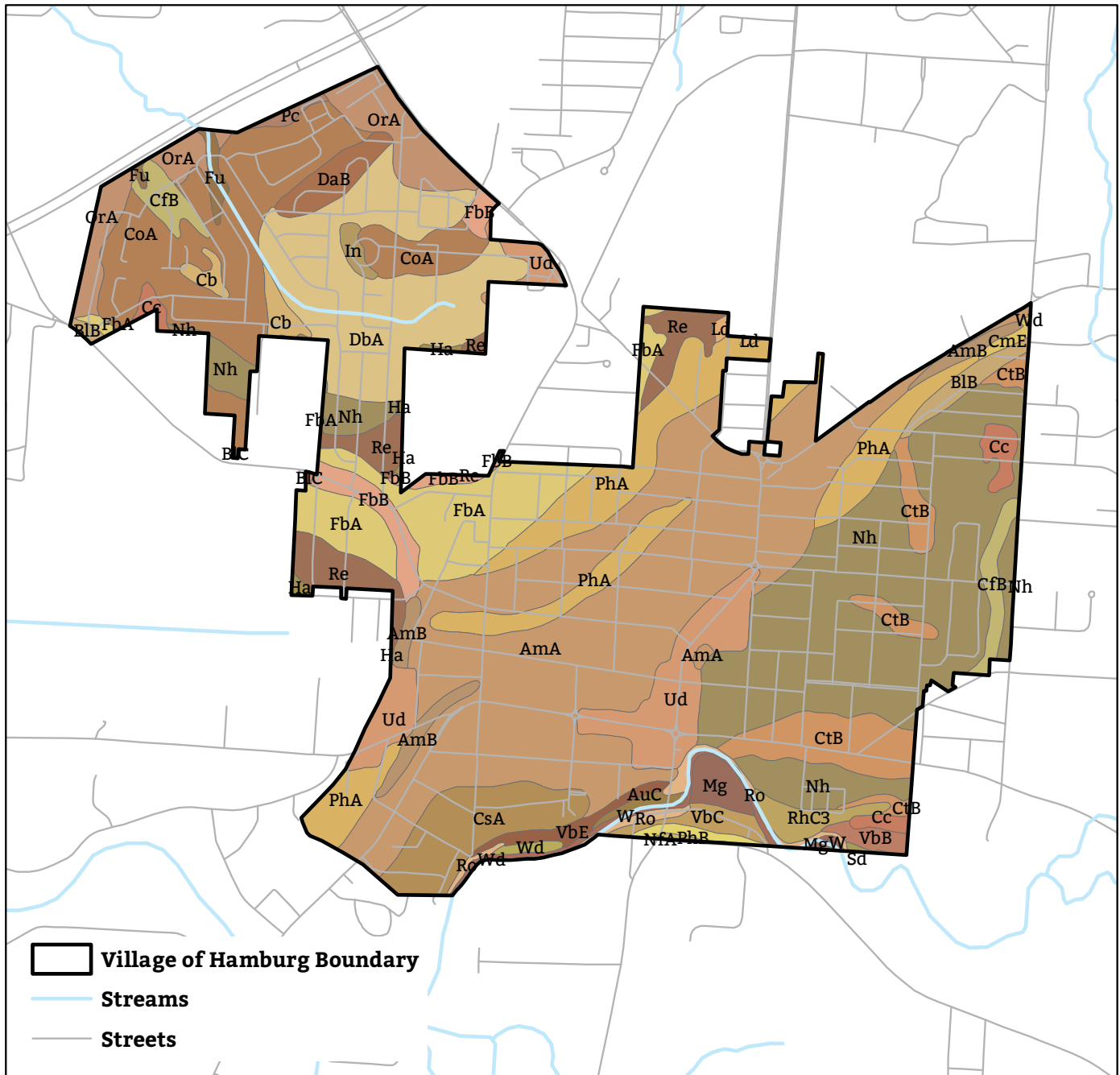
The majority of the southeastern part of the village soil cover is made up of the Alton and Niagara series. The Alton series consists of very deep, well drained or somewhat excessively drained soils formed in gravelly glacial outwash deposits. The taxonomic class is a loamy-skeletal, mixed, active, mesic Dystric Eutrudepts. The Niagara series consists of very deep, somewhat poorly drained soils formed in silty glacio-lacustrine deposits. These soils are in level to slightly concave areas on lake plains and in valleys. The taxonomic class is a fine-silty, mixed, active, mesic Aeric Endoaqualfs.

The Farmington series makes up much of the soil cover of the land between the southeastern and northwestern sections of the village. This series consists of shallow, well drained and sometimes excessively drained soils formed from till. They are nearly flat to very steep soils located on glaciated uplands. Bedrock is at a depth of 10 to 20 inches. Limestone sinks are a feature of some areas. The taxonomic class is a loamy, mixed, active, mesic Lithic Eutrudepts.

The majority of the northwestern section of the village soil cover is made up of the Danley and Churchville series. The Danley series consists of deep and very deep, moderately well drained soils formed in till, which is strongly influenced by grayish calcareous shale. They are nearly level to moderately steep soils on upland till plains. The taxonomic class is a fine-loamy, mixed, active, mesic Glossaquic Hapludalfs . The Churchville series consist of very deep, somewhat poorly drained soils that formed in clayey lacustrine sediments overlying loamy till. The taxonomic class is a fine, illitic, mesic Aeric Endoaqualfs.

Village of Hamburg Natural Resources Inventory

Soils



For descriptions of soil types,
please see the accompanying pages

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:
Roads, village boundary: UB Regional Institute
Soils: USDA

Village of Hamburg, NY

The following tables identify the majority of the soil types found in the Village of Hamburg, organized by their suitability for farming. Although soils in the Village are not generally used for farming, organizing them this way provides a useful way to generalize about soil characteristics².

Prime farmland	
AmA	Alton fine gravelly loam, 0 to 3 percent slopes
PhA	Phelps gravelly loam, 0 to 3 percent slopes
FbA	Farnham channery silt loam, 0 to 3 percent slopes
FbB	Farnham channery silt loam, 3 to 8 percent slopes
CtB	Collamer silt loam, till substratum, 3 to 8 percent slopes
BIB	Blasdell channery silt loam, 3 to 8 percent slopes
CfB	Cayuga silt loam, 3 to 8 percent slopes
DaB	Danley silt loam, 3 to 8 percent slopes
CsA	Collamer silt loam, 0 to 3 percent slopes
AmB	Alton fine gravelly loam, 3 to 8 percent slopes
Mg	Middlebury silt loam

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding. (USDA)

Prime farmland if drained	
Nh	Niagara silt loam, till substratum
Cc	Canandaigua silt loam, 0 to 3 percent slopes
DbA	Darien silt loam, 0 to 3 percent slopes
CoA	Churchville silt loam, 0 to 3 percent slopes
OrA	Orpark silt loam, 0 to 3 percent slopes
Re	Red hook silt loam

² The Source for the soil categorization along with the descriptions of types of soils are from: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database. Available online at <https://sdmdataaccess.sc.egov.usda.gov>. Accessed [1/2023].

Natural Resources Inventory

These soils tend to be hydric soil, which is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. (Erie County Natural Resources Inventory)

Farmland of statewide importance	
Cc	Canandaigua silt loam
AuC	Aurora channery silt loam, 8 to 15 percent slopes
In	Ilion silt loam
Cb	Canadice silt loam, channery till substratum

These soils do not meet the criteria for prime farmland but otherwise are important agricultural soils.

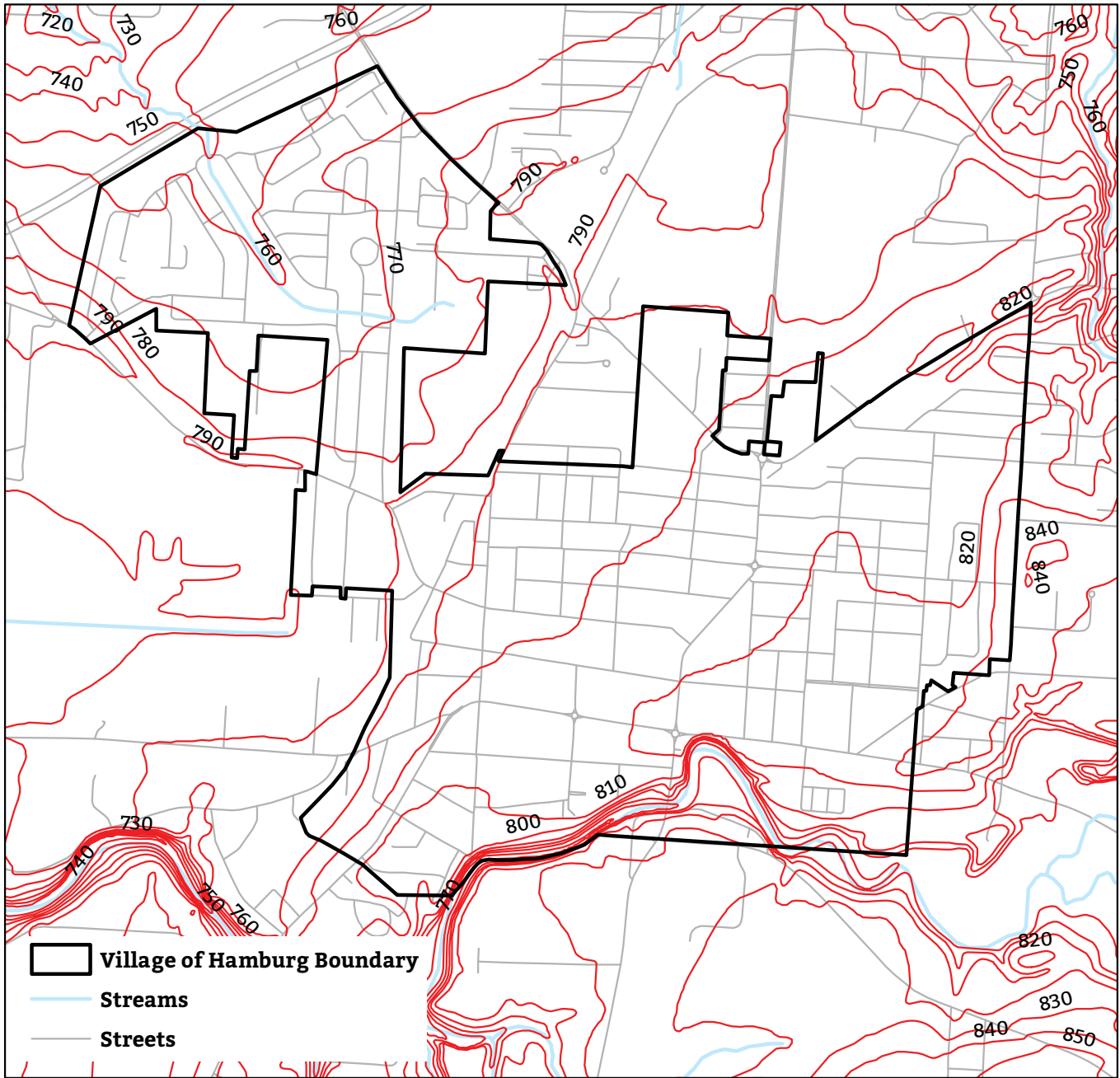
3.4 Slopes

Slope describes the steepness of the ground's surface. The slope of the land can impact the cost of local development, the ease of farming, risks from natural hazards like flooding, erosion, and landslides. Slope is defined as the rise, or change in elevation, divided by the run of the land over the same distance. For example, a rise of 10 feet over a horizontal distance of 100 feet is a 10% slope. Steep slopes are generally considered as slopes 15% or greater. Very steep slopes are generally considered to be 25% and greater.

Much of the village interior is relatively flat. Very steep slopes occur along the banks of Eighteen Mile Creek along the southern border of the village. Areas of rolling slopes occur along the eastern edge of the village. The Forest Glen area of the village has poorly draining soil, which when coupled with relatively flat land, can create drainage issues. The village does not have any provisions regarding development on steep slopes.

Village of Hamburg Natural Resources Inventory

Slopes



0 0.25 0.5 1 Miles

— Contour Lines (10 ft. intervals)

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Contour Lines: USGS



4 Water Resources

The Village of Hamburg has abundant water resources both within and adjacent to its boundaries. Streams, wetlands, and floodplains are all present within the village borders, and on a larger scale, the village is located within the Lake Erie watershed. Due to these bountiful water resources it is very important that the Village think about the interconnectedness of these water resources, and how they impact the surrounding environment including Lake Erie itself which is already in a significant state of degradation.

4.1 Water Quality / Streams

Surface waters, including streams, ponds, and lakes, provide social, economic, and ecological resources to their surrounding municipalities. These water resources are important for drinking water, agriculture, fish and wildlife habitat, and recreational opportunities. The quality of the water contained within these ecological features has an impact on how municipalities are able to utilize them, and what measures need to be instituted in order to protect and improve their condition. The state of New York is rich in surface water resources, specifically the central and western portions of the state. In Western New York, where the Village of Hamburg is located, there are many inland streams, lakes, ponds, and two of the five Great Lakes, Erie and Ontario.

The New York State Department of Environmental Conservation (NYSDEC) classifies surface waters depending upon their existing or expected best usage. These classes begin at the AA or A level indicating the water is safe as a source of drinking water. Class B indicates water suitable for swimming or other contact recreation, but not drinking water. Class C represents waters suitable for supporting fisheries or other non-contact water activities. And finally, Class D is reserved for the surface waters with the greatest contamination, and are generally not considered safe for human usage³.

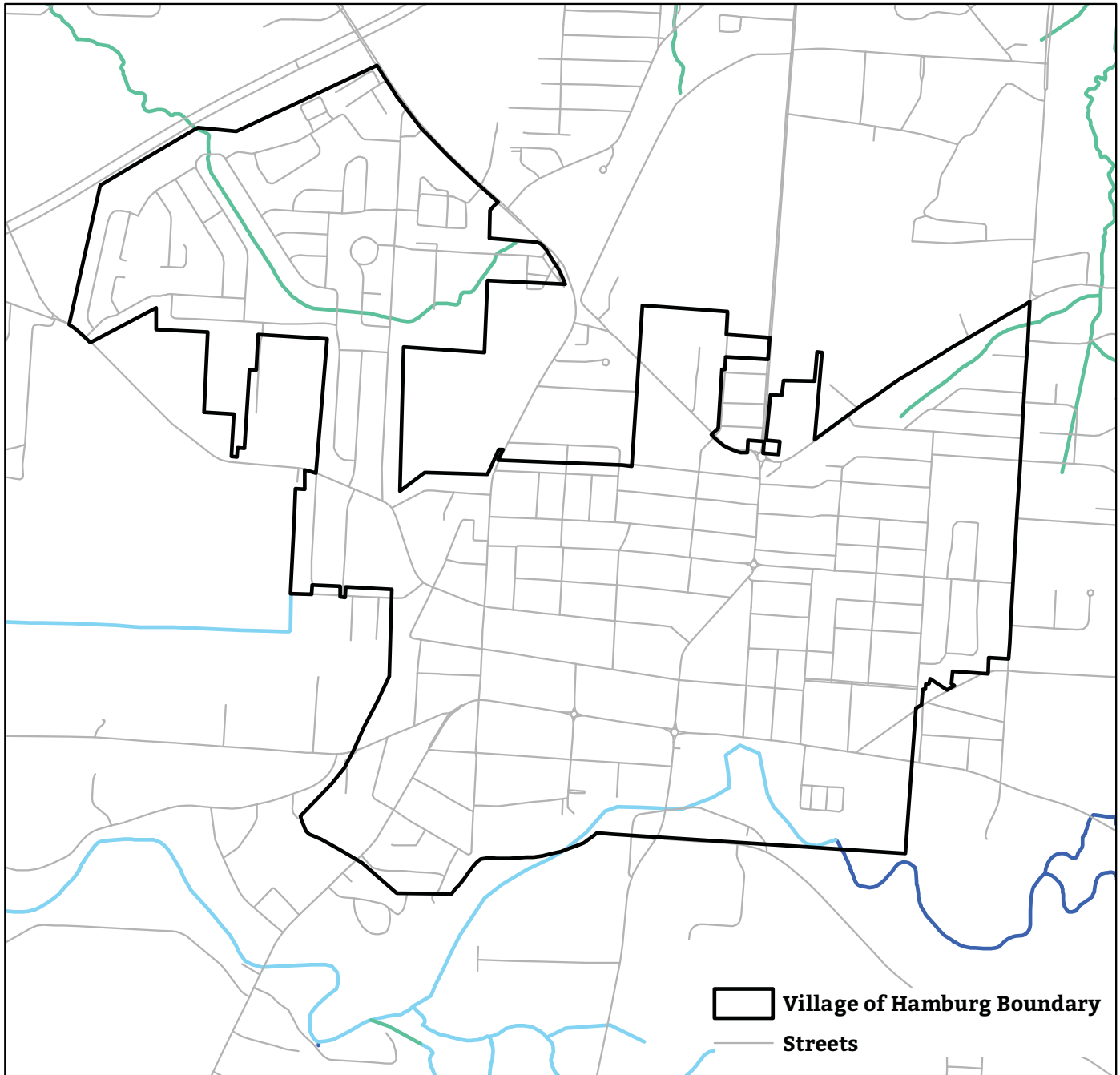
The Village of Hamburg is home to stretches of three different streams. The largest of which is the Middle Branch of Eighteen Mile Creek. This particular stream is located on the south side of the village, and offers residents the opportunity for aquatic recreation including fishing and swimming. Eighteen Mile Creek is a rather large watershed that drains into Lake Erie. The upstream areas of this creek are classified as an “A” rating from the NYSDEC. Where the creek enters the Village of Hamburg and then continues on toward Lake Erie it is downgraded to a “B” rating. The stretch of this creek that is within the village is surrounded by a floodplain area that has been designated a wildlife area where village residents are welcome to hike the trails, swim, and fish in the creek.

The other two streams are located on the northeast and northwest portions of the village. On the northeast side, the small stream is a tributary to Rush Creek, which also drains into Lake Erie. This tributary, and Rush Creek itself, have also been designated as “B” quality streams. The Rush Creek tributary within the Village of Hamburg is flanked by large and steep cliffs, and is not usually accessed by village residents. The stream on the northwest portion of the village is called Berricks Creek and drains directly into Lake Erie. It has also been classified as a “B” quality stream. Both of these streams are important to the Village of Hamburg in managing flooding and stormwater runoff. It is important that the village take into account the outflow point of each of these streams (i.e. Lake Erie) in order to minimize the impacts on this already degraded lacustrine ecosystem.

3 New York State Department of Environmental Conservation Protection of Waters Program., <https://www.dec.ny.gov/permits/6042.html>

Village of Hamburg Natural Resources Inventory

Water Quality



0 0.25 0.5 1 Miles



Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:
Roads, village boundary: UB Regional Institute
Water Quality: NYSDEC

4.2 National Wetlands Inventory

The wetlands shown on the accompanying map include wetlands from a U.S. Fish and Wildlife Service's map. Under the Clean Water Act (CWA) of 1970 wetlands are classified as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands that are included in the CWA are either directly or indirectly adjacent to navigable waters of the United States. However, even those wetlands not technically protected by the CWA are still invaluable resources within communities.

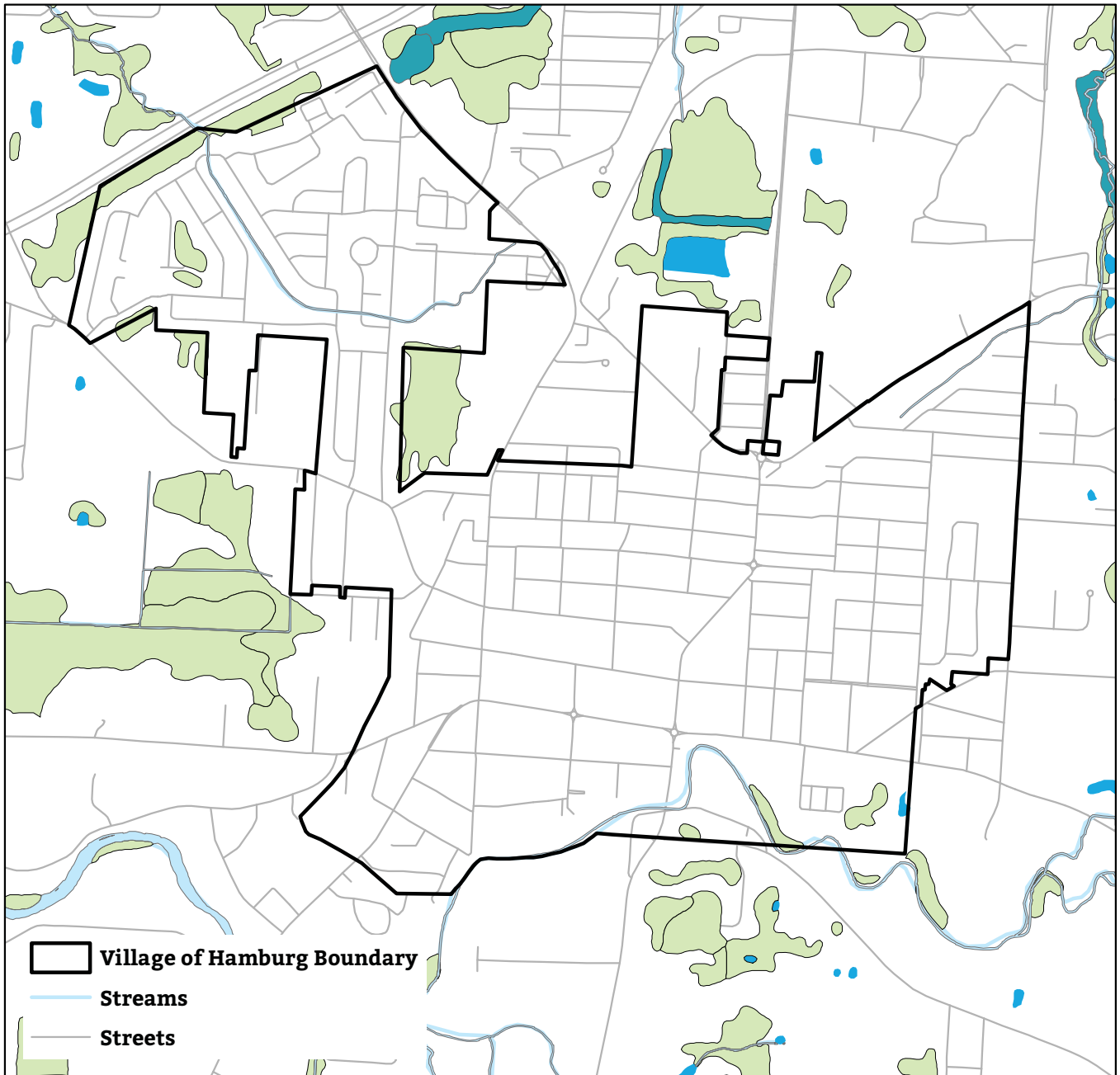
While there are many different types of wetlands, including swamps, marshes and bogs, all of them have a few defining characteristics in common. Wetlands are transitional areas between terrestrial and aquatic environments. Due to this transitional nature, wetlands typically have saturated, or water-logged soils for at least part of the growing season. Soils that are saturated with water develop an anoxic (lacking oxygen) environment which has a very direct effect on the types of plants and animals that can survive in the environment. Wetlands also serve important roles as flood water and surface runoff retention areas, and act as significant carbon sequestering areas due to their anoxic soil conditions.

Due to the significant residential and commercial development that has occurred within the Village of Hamburg boundaries since the late 1800's very few natural wetlands still remain. However, there are still substantial wetland areas adjacent to the village boundaries, some of which are directly connected to the remaining wetland areas within the village. For this reason, maintaining these scarce wetland resources within the village will be even more important as the village continues to develop. These wetland areas that still remain within and around the village are very important areas for mitigating flood risks throughout the village. Flood mitigation could become an even more significant feature of these remaining wetlands in the future decades as climate change continues to impact local weather events. In the Buffalo, NY area where Hamburg is located, there has been a historic increase in annual precipitation over the past 80 years⁴, leading to more flooding events. Maintaining these wetland areas surrounding the Village of Hamburg could become a critical step in lessening the flood risk to the village and surrounding areas.

4 National Weather Service, Buffalo, NY Monthly Precipitation. <https://www.weather.gov/buf/buffaloP-cpn>. Accessed 2/1/2023

Village of Hamburg Natural Resources Inventory

Wetlands National Wetlands Inventory



0 0.25 0.5 1 Miles



Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:
Roads, village boundary: UB Regional Institute
Wetlands: US Fish & Wildlife Service

4.3 Flood Plains

The floodplains shown in the map are from the Federal Emergency Management Agency (FEMA). The map shows floodways along each of the three streams in Hamburg. These are areas most prone to flooding, and must be preserved in order to protect downstream areas from more frequent and devastating flooding. The map also shows 100 and 500 year flood levels, which is the level one might expect to see a stream flood to after significant precipitation events occurring approximately every 100 to 500 years. It is possible with climate change, these significant flooding events might become a more common occurrence. For this reason, delineating and protecting these areas from future development may become an even more important venture. Along with wetlands, floodplains are important ecosystems that provide ecological, economic, and social benefits to surrounding communities. Floodplains are typically situated along the banks of streams and rivers, and often include adjacent areas of wetland. Ecologically, floodplains are important for natural flood and erosion control, improved water quality, and recharging of aquifer and groundwater supplies⁵.

Functionally, the most critical and direct impact of floodplains as they pertain to surrounding communities are their ability to mitigate flooding. During times of elevated or extreme precipitation events, floodplains act as a natural retaining basin for the excess water draining into rivers and streams

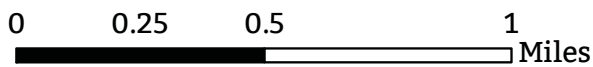
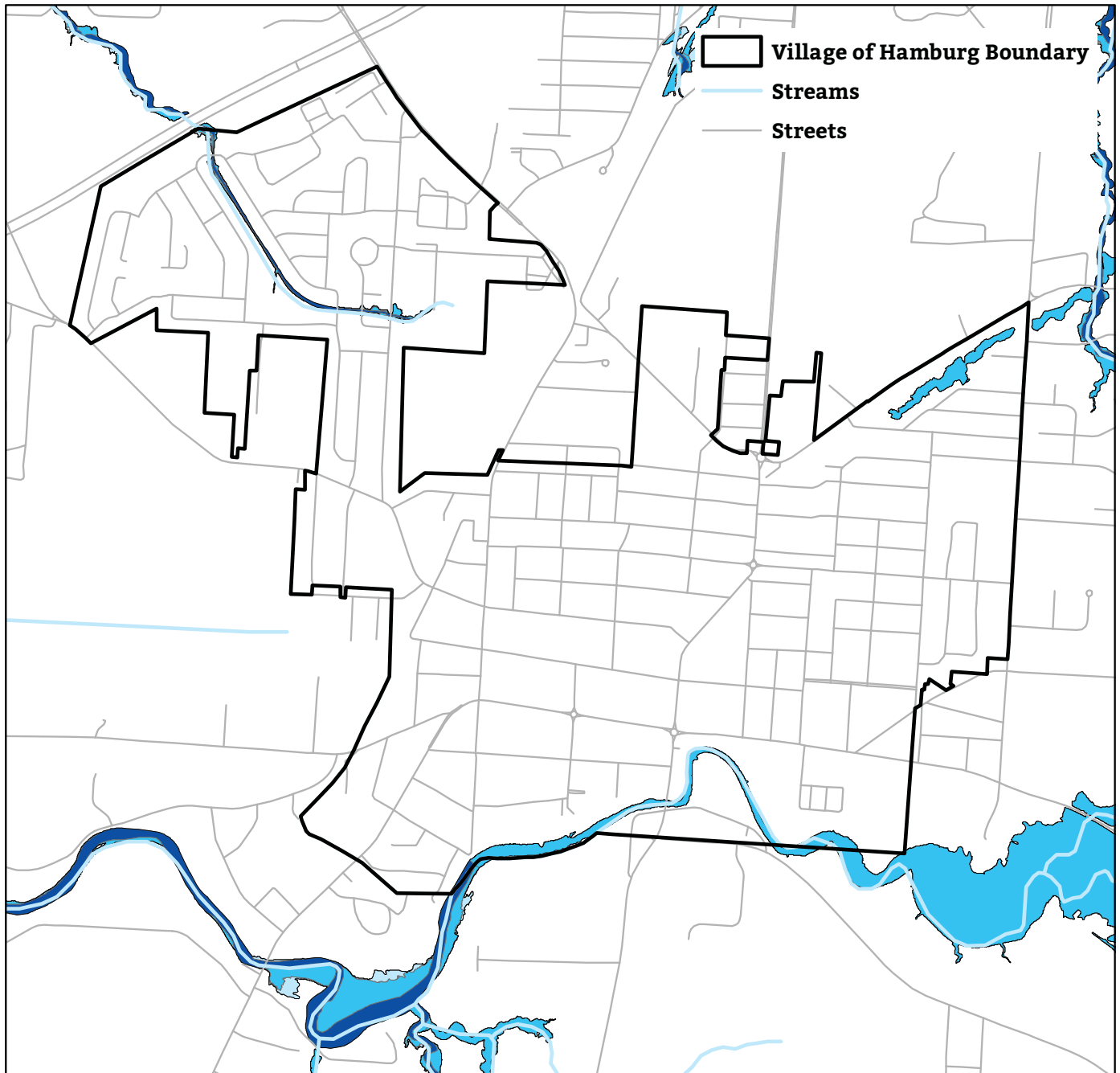
Overall, the risk of flooding in most areas of the Village of Hamburg is low. There are three areas within the Village of Hamburg that contain natural floodplains. Each of these are associated with a separate body of water. The largest of the three is along the bank of Eighteen Mile Creek, which runs along the southern border of the village. Eighteen Mile Creek is an interesting case, as most of the creek is flanked by 20 to 80 feet high cliffs which significantly decrease the risk of flooding to the land atop these cliffs. However, there are areas at creek level that are classified as floodplains along its course. One of these areas is within the Village of Hamburg, and has been designated a wildlife sanctuary. This sanctuary, The Anna Mae Bacon Bird Sanctuary, is one of the last places within the village boundaries that remains undeveloped and forested.

The other two floodplain areas are at the northeast and northwest corners of the village. Both are associated with small streams that are part of the Rush Creek watershed. Because of the distribution of these three floodplain areas throughout the Village of Hamburg, they act as a natural insurance policy to help mitigate flooding risks to home and business owners along the banks of these streams. It will be important for the Village of Hamburg to maintain these natural floodplain areas as it continues to develop through future decades. As development in these areas poses increased flood risks to buildings and their occupants.

⁵ Federal Emergency Management Agency. Benefits of Natural Floodplains. <https://www.fema.gov/flood-plain-management/wildlife-conservation/benefits-natural>. Accessed 2/2023.

Village of Hamburg Natural Resources Inventory

FEMA Floodplains



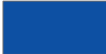

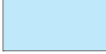

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

FEMA Floodplains: FEMA

FEMA Flood Zone

-  Floodway
-  100 year Flood Zone
-  500 year Flood Zone
-  Area of Minimal Flood Hazard

4.4 Watersheds

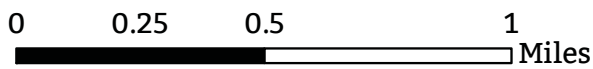
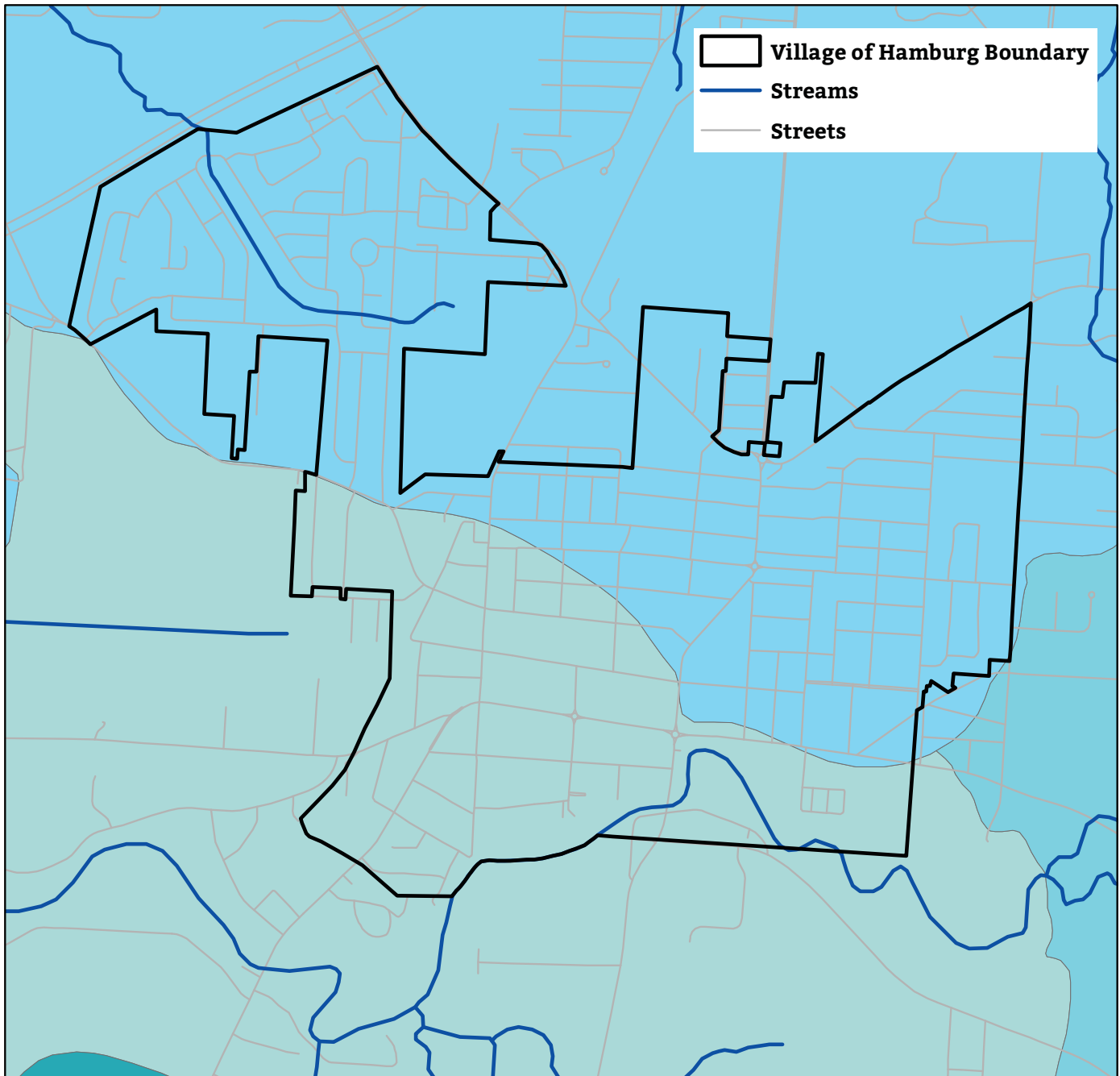
Watersheds are any land area that channels precipitation or snowmelt into rivulets, streams and creeks, all of which flow toward larger outflow points such as reservoirs, lakes or oceans. Watersheds, also called drainage basins or catchments, can range in size from a single small inland lake or pond to vast expanses of land that all drain into a single outflow point. Ultimately, the two smaller watersheds that encompass the Village of Hamburg are part of the Lake Erie watershed. Lake Erie itself is part of the vast Great Lakes Watershed which encompasses over 201,000 square miles of land area, not including the surface area of the lakes themselves⁶.

The two watersheds that underlie the Village of Hamburg are the Rush Creek Watershed and the Middle branch of the Eighteen Mile Creek Watershed, both of which eventually drain into Lake Erie. Ultimately, this is significant because the runoff of stormwater and its associated pollutants from within the boundaries of the village end up in the Great Lakes system. While the Great Lakes themselves are the second largest sources of fresh water in the world, second only to the polar ice caps, they are a very sensitive and degraded environment. It is true that the Village of Hamburg itself is a small portion of the Great Lakes Watershed, however, the summation of all efforts of each town and village located within this vast system have a significant impact on the Lakes. In the Village of Hamburg, lawn fertilizer and road salt are two of the most significant and damaging inputs that the village contributes into these watersheds. Both of these chemicals are damaging to the Great Lakes ecosystem. While agriculture runoff, including animal wastes and chemical fertilizers are not a significant input from within the village, the surrounding towns of Hamburg and Eden are both origins of this type of non point source input. Because watersheds are large and interconnected, each municipality within the various drainage basins leading to the Great Lakes must keep in mind the serious impacts and the wide variety of pollutants making their way into the Great Lakes system when planning stormwater management plans.





⁶ The Great Lakes: An Environmental Atlas and Resources Book. (1995). Government of Toronto and The United States Environmental Protection Agency.

Village of Hamburg Natural Resources Inventory

Watersheds



Watershed

-  Rush Creek-Frontal Lake Erie
-  South Branch Eighteenmile Creek
-  Middle Eighteenmile Creek
-  Upper Eighteenmile Creek

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Watersheds: USGS

4.5 Aquifers

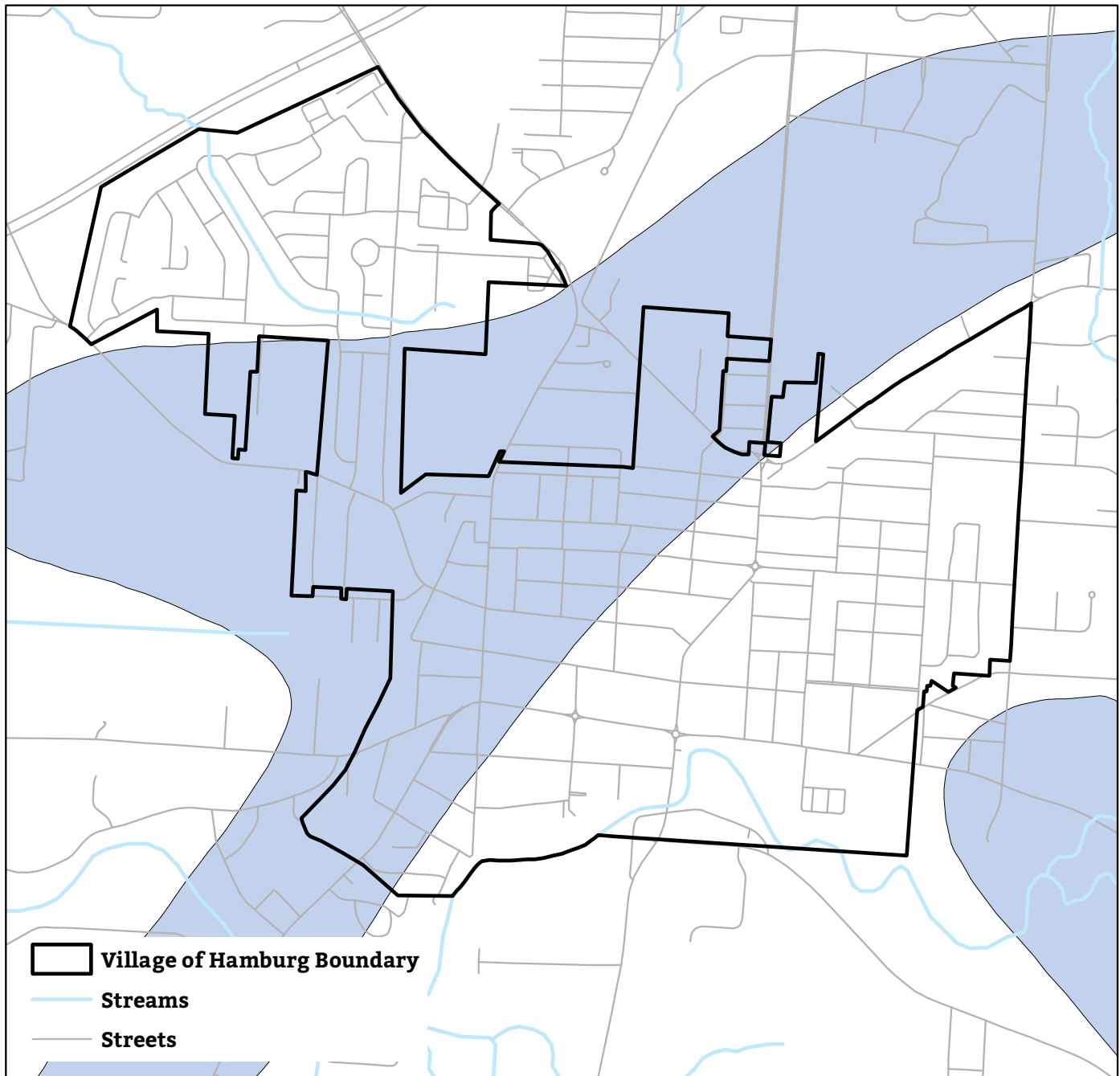
Aquifers within upstate New York constitute areas of unconsolidated sand and gravel typically associated with major rivers, streams and lake plains. Municipalities have historically been built overtop of these aquifers as they tend to form flat land areas suitable for development, and also provide ample ground water supply. The Village of Hamburg is built atop one such aquifer, specifically an unconsolidated aquifer, meaning that the water table below most of the village is at a shallow depth below ground, and the soils are rather permeable. These characteristics together mean that the aquifer below the Village of Hamburg may be particularly susceptible to point source contamination from landfills or petroleum storage, and from non point sources like agricultural and urban stormwater runoff⁷.

It is important to note that while the Village of Hamburg sits atop an unconsolidated aquifer, the municipal water supply is drawn from nearby Lake Erie. That being said, it is still important to protect and understand the aquifer below the village, as other municipalities that tap into connecting aquifers may be dependent on the quality of water that percolates into the aquifer below Hamburg. For this reason, managing stormwater runoff throughout the village is an important consideration for any future development.

7 United State Geological Survey. Unconsolodated Aquifers of Upstate New York. <http://ny.water.usgs.gov/projects/bgag/aquifer.maps/maps.html>. Accessed 2/2023.

Village of Hamburg Natural Resources Inventory

Aquifers



0 0.25 0.5 1 Miles



Unconsolidated Aquifer

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:
Roads, village boundary: UB Regional Institute
Aquifers: NYS DEC

5 Department of Environmental Conservation Lands

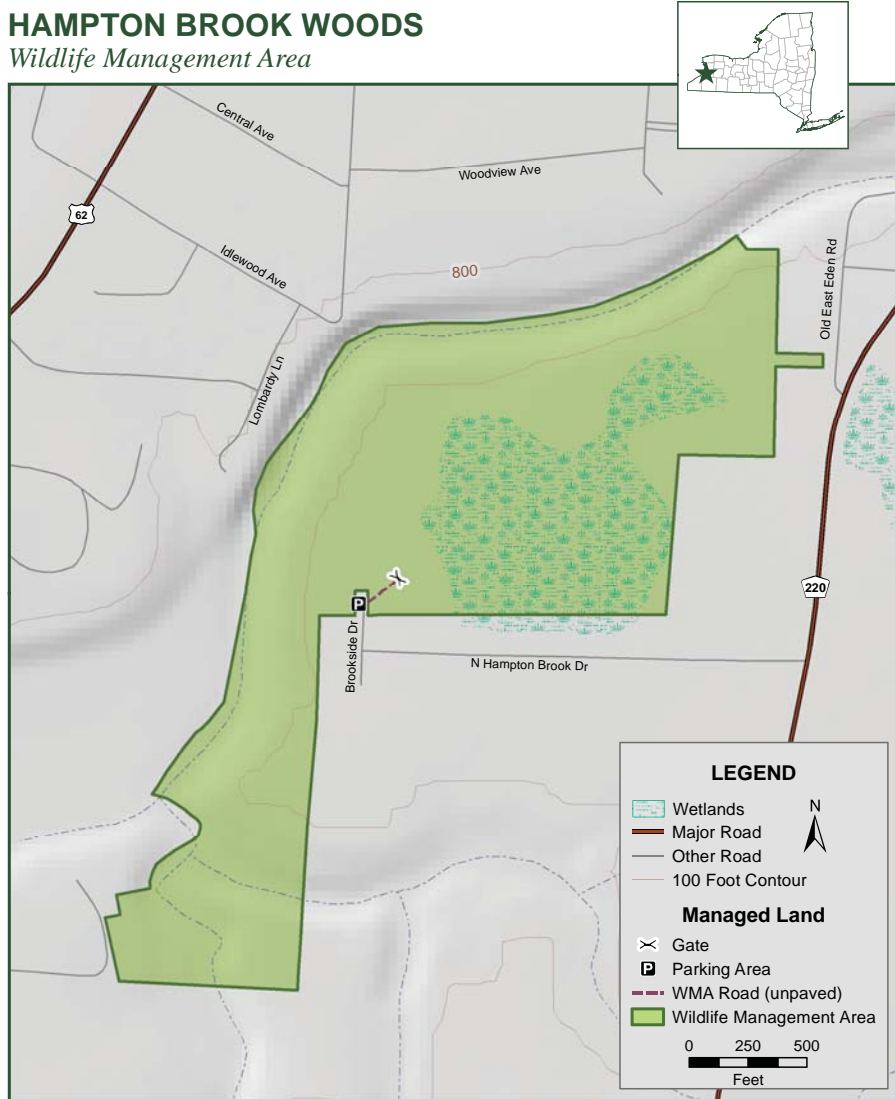
Department of Environmental Conservation lands are properties under the care, custody and control of NYSDEC, including Wildlife Management areas.

5.1 Wildlife Management Areas

Just outside the southern Village limits is the Hampton Brook Woods Wildlife Management Area (WMA). Although located in the Town of Hamburg, it is within walking distance, is free to access and is across Eighteen Mile Creek from the Village’s Woodview Park.

The primary purposes of Hampton Brook Woods Wildlife Management Area (WMA) are for wildlife management, wildlife habitat management, and wildlife-dependent recreation. The land was acquired in 2001 by DEC with funding provided by the Environmental Quality Bond Act of 1996. The area consists of nearly 78 acres of forested woodland, about seven acres of wetland, and approximately four acres of brush land.

Permitted activities within this WMA include hiking, hunting and trapping and birding. Hiking the area you may see deer, turkeys, black bears, squirrels, and a host of songbirds that frequent the area.

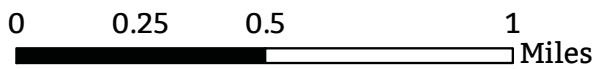
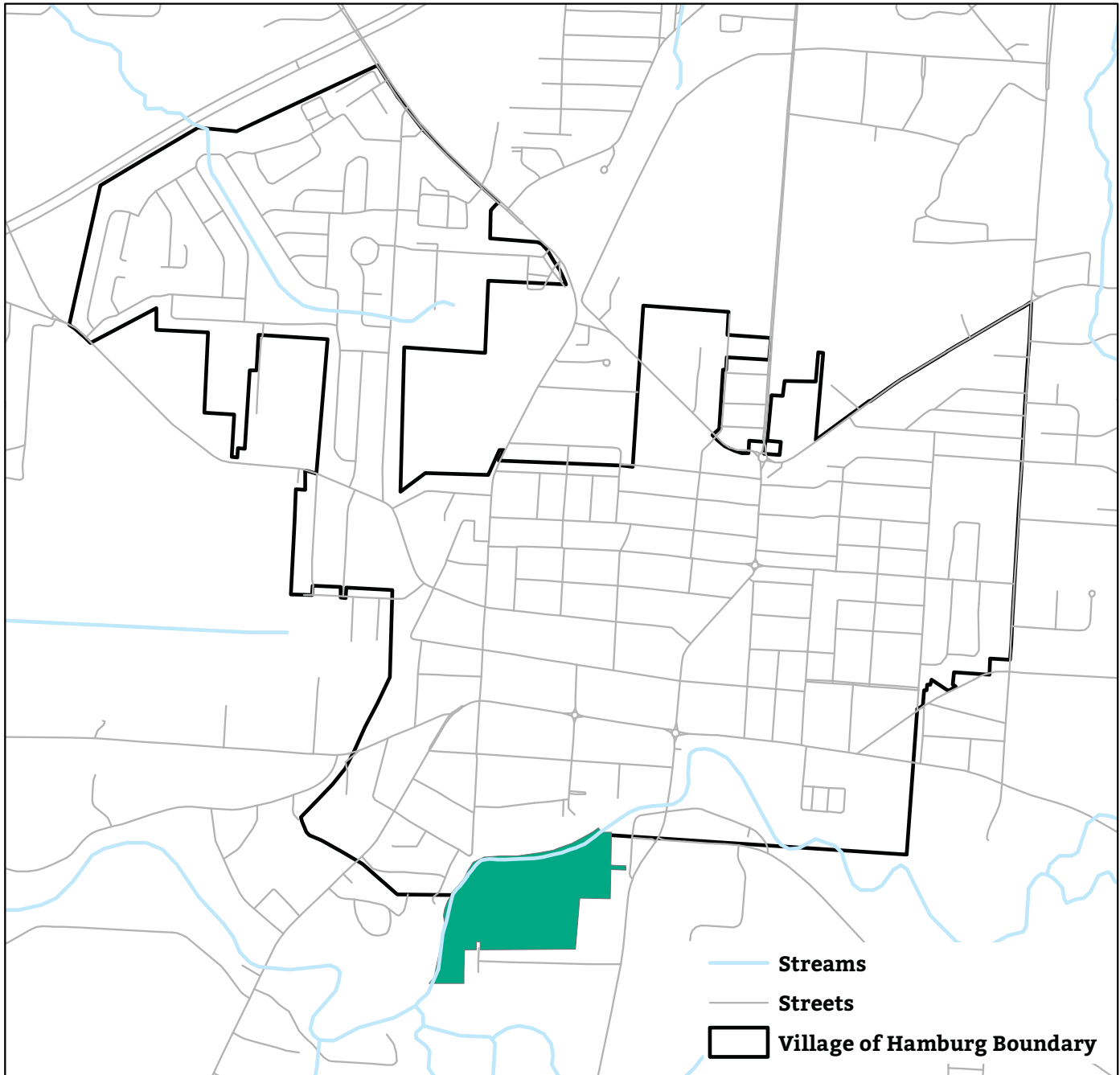


Hamburg, Erie Co.



Village of Hamburg Natural Resources Inventory

NYSDEC Lands



Facility

 **Hampton Brook Woods WMA**

Map produced for the Village of Hamburg
Environmental Commission, October 2022

Data Sources:
Roads, village boundary: UB Regional Institute
NYSDEC Lands: NYSDEC

6 Land Cover

Land cover refers to the vegetative characteristics or manmade constructions on the land's surface. A common use of land cover maps are for supporting planning and decision-making activities undertaken by public and private enterprises. Land cover affects or influences environmental conditions in many ways⁸, by:

- Affecting other environmental variables including water quality, watershed hydrology, habitat and species composition, climate, and carbon storage.
- Influencing the mass and energy exchanges between the surface and the atmosphere and thus influencing weather and climate.
- By affecting species habitat and distribution, as a primary ingredient of ecological structure and function.
- Altering hydrologic regimes, runoff patterns, and flood buffering in watersheds.

Overview

As would be expected for a suburban area, the Village of Hamburg is primarily made up of high, medium and low density development. The attached National Land Cover data legend and description indicates the development in the village. There is a very small percentage of the village that is forest (either deciduous forest or mixed-forest), planted/cultivated (pasture/hay) or wetlands (woody wetlands) land cover. The village's wide variety of parks provide some Deciduous Forest area indicating greater than 20% of total vegetation cover. More than 75% of the tree species are deciduous and shed their foliage in response to the changing seasons.

Details

There are very few undeveloped areas left within the boundaries of the Village of Hamburg. The accompanying land cover map shows the development intensity within the village boundaries. The shades of red signify developed areas with the darkest red representing the most intensely developed areas. Within the village there are two main corridors where most of the multi-unit apartments, restaurants and commercial buildings are located. These intensely developed areas contain 80%-100% impervious surfaces in the form of buildings, asphalt and concrete. Surrounding these intensely developed areas are regions of medium intensity development, where impervious surface accounts for 50%-79% impervious surfaces. These areas do contain some percentage of vegetated areas and are typically represented by residential units. The vast majority of the village is occupied by low intensity development, or developed but open space. Low intensity development is characterized by containing 20%-49% impervious surface and most commonly includes areas of single family residences. Developed open spaces are areas with less than 20% covered by impervious surfaces and commonly include large residential lots, parks and areas with vegetation planted for erosion control or aesthetic purposes.

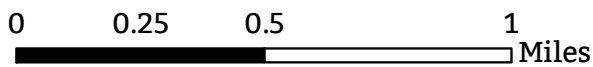
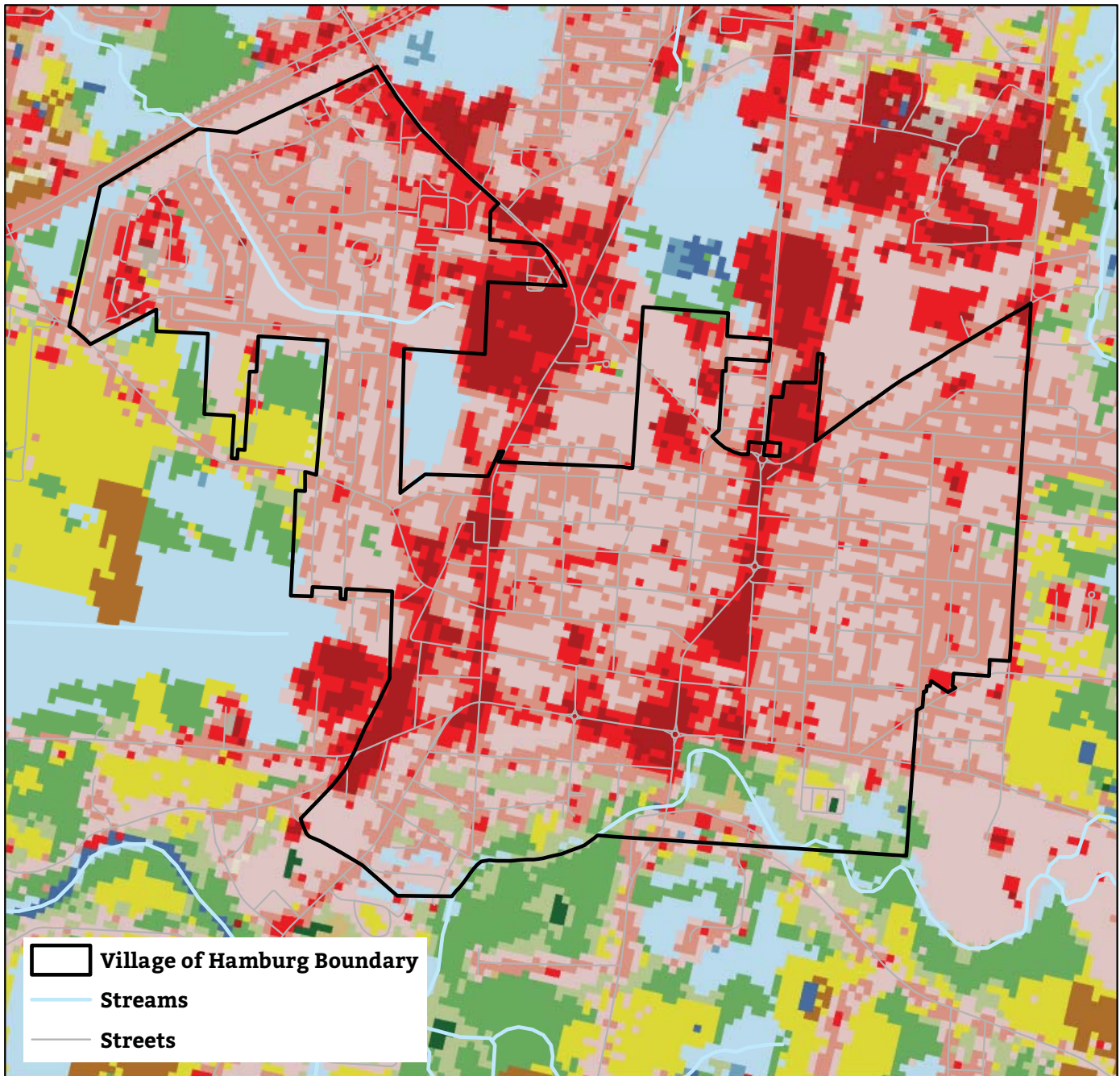
The land within the village is overwhelmingly developed, but mostly residential. In terms of natural resources, this means that there are significant amounts of lawns, and trees along streets and in yards and parks that must be taken into consideration for the health of the village. Going forward, it will be important to take into account these underutilized spaces and seek opportunities to improve upon them through increasing native tree and shrub plantings and educating residents on the negative impacts of lawn chemicals to the surrounding environment.

There is a small section on the south side of the village where the land is mostly undeveloped and even forested in some areas. This is a natural resource that the village must continue to protect and invest in. A significant portion of this undeveloped land has been classified as a bird sanctuary and acts as a wild refuge for village residents, both human and animal.

⁸ United States Environmental Protection Agency. Land Cover. <https://www.epa.gov/report-environment/land-cover>. Accessed 3/2023.

Village of Hamburg Natural Resources Inventory

Land Cover



For description of land cover categories, please see the accompanying pages

Map produced for the Village of Hamburg Environmental Commission, October 2022

Data Sources:

Roads, village boundary: UB Regional Institute

Land Cover: USGS MRLC

National Land Cover Database Class Legend and Description

Class\ Value	Classification Description
Water	
11	Open Water - areas of open water, generally with less than 25% cover of vegetation or soil.
12	Perennial Ice/Snow - areas characterized by a perennial cover of ice and/or snow, generally greater than 25% of total cover.
Developed	
21	Developed, Open Space - areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
22	Developed, Low Intensity - areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.
23	Developed, Medium Intensity -areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.
24	Developed High Intensity -highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
Barren	
31	Barren Land (Rock/Sand/Clay) - areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
Forest	
41	Deciduous Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
42	Evergreen Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.

Natural Resources Inventory

43	Mixed Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
Shrubland	
51	Dwarf Scrub - Alaska only areas dominated by shrubs less than 20 centimeters tall with shrub canopy typically greater than 20% of total vegetation. This type is often co-associated with grasses, sedges, herbs, and non-vascular vegetation.
52	Shrub/Scrub - areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
Herbaceous	
71	Grassland/Herbaceous - areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
72	Sedge/Herbaceous - Alaska only areas dominated by sedges and forbs, generally greater than 80% of total vegetation. This type can occur with significant other grasses or other grass like plants, and includes sedge tundra, and sedge tussock tundra.
73	Lichens - Alaska only areas dominated by fruticose or foliose lichens generally greater than 80% of total vegetation.
74	Moss - Alaska only areas dominated by mosses, generally greater than 80% of total vegetation.
Planted/Cultivated	
81	Pasture/Hay -areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
82	Cultivated Crops -areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
Wetlands	
90	Woody Wetlands - areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
95	Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

7 Land Use

7.1 Parks and Open Spaces

There are very few natural areas left within the boundaries of the Village of Hamburg, as most of the village is developed for residential usage, with small corridors used as commercial areas. However, there are a number of areas within the village that are designated as parks and open spaces that are important to consider for the sake of a Natural Resource Inventory. The village oversees these properties, and they can be important places to improve upon the land cover usage and potential habitat for flora and fauna within the village boundaries.

One of the largest areas that provides forested green space is located at the southern most section of the village encompassing the Town of Hamburg and towards the Town of Eden. Most of which borders Eighteen Mile Creek.

One of our larger areas at 6.45 acres is the Anna Mae Bird sanctuary. Acquired in 1963 this scenic area of woods and meadow runs along the Eighteen Mile Creek. This tract of land is a flood plain that offers lovely natural space within the village limits. It is comprised of many mature trees that include maple, oak, sycamore, yellow poplar, locust willow and white pine.

The Village of Hamburg has a wide variety of parks including: Centennial Garden Park which overlooks the Anna Mae Bird Sanctuary from the opposite side of Eighteen Mile Creek. Centennial Park sits above Eighteen Mile Creek and makes for a beautiful view of the natural beauty the village has to offer. Other parks within the Village of Hamburg are Hamburg Memorial youth park, Brookwood-Kenton Park, Glen Meadows Park, Highland Avenue Tree Grove Park, Legion field, Peace Park, Trolley Stop Park, Westview – Lenora Park and Wood View Park. Although the majority of the Village of Hamburg is comprised of developed areas, all of these parks contribute to the green spaces available within the community.

In addition to the spaces under the jurisdiction of the village, there is a significant area of land cover throughout the village devoted to residential lawn area. The village has the opportunity here to educate residents about ecologically sound lawn care practices. These practices include reducing or eliminating lawn fertilizer and pesticide usage, and planting native species.

The Environmental Commission for the Village of Hamburg has already completed a Tree Management Plan in order to help improve the areas of the village where street trees are planted and cared for.

*The mapping to the right was created by consultants from Clarke-Patterson Lee design professionals.
It is an excerpt from the 2012 Village of Hamburg Comprehensive Master Plan Update.*

Map 5: Parks, Recreation and Open Space

Village of Hamburg - Comprehensive Plan Update

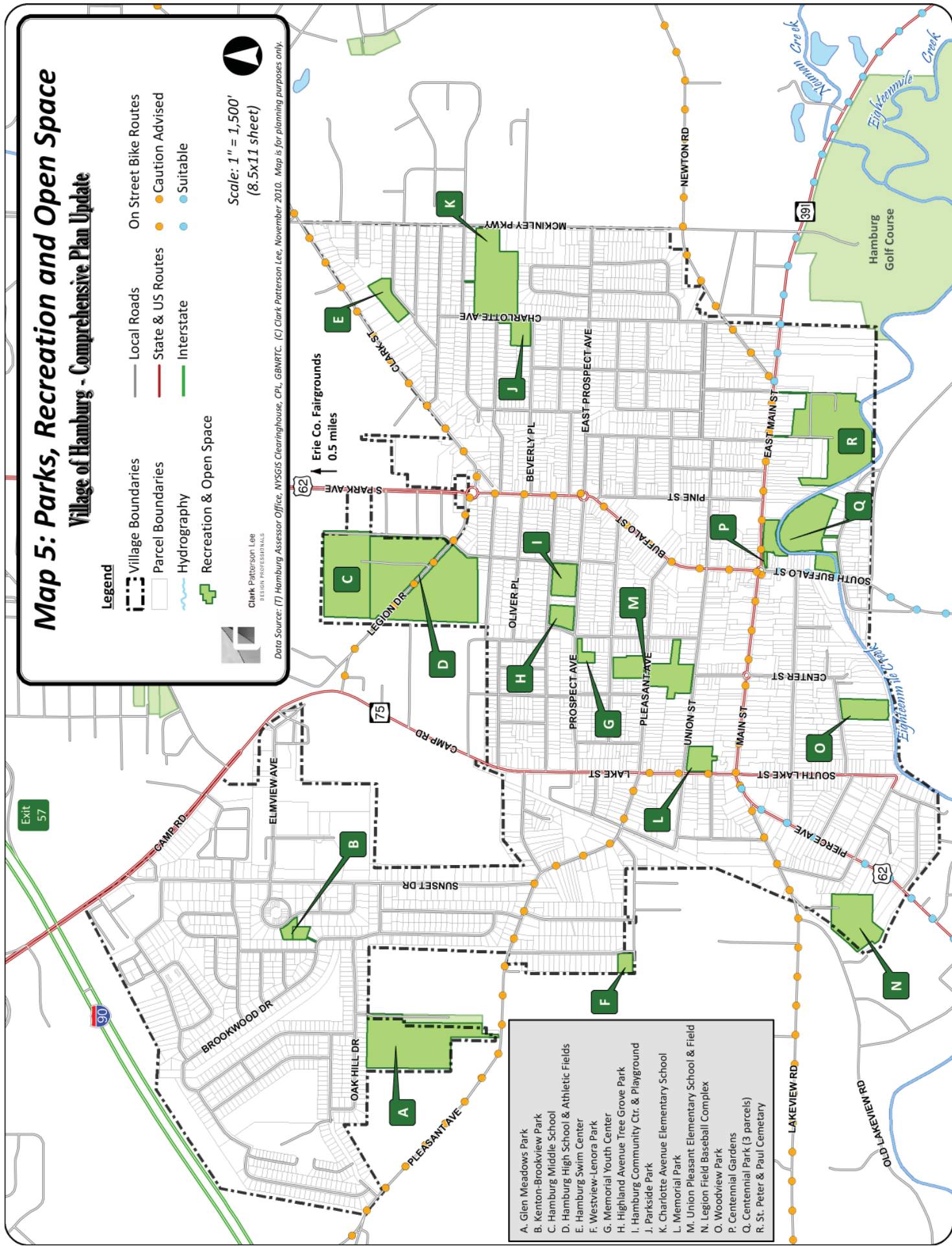
Legend

- Village Boundaries
- Local Roads
- State & US Routes
- Interstate
- Hydrography
- Recreation & Open Space
- On Street Bike Routes
- Caution Advised
- Suitable

Scale: 1" = 1,500'
(8.5x11 sheet)

Clark Patterson Lee
DESIGN PROFESSIONALS

Data Source: (T) Hamburg Assessor Office, NYSGIS Clearinghouse, CPL, GBNRTC. (C) Clark Patterson Lee, November 2010. Map is for planning purposes only.









- A. Glen Meadows Park
- B. Kenton-Brookview Park
- C. Hamburg Middle School
- D. Hamburg High School & Athletic Fields
- E. Hamburg Swim Center
- F. Westview-Lenora Park
- G. Memorial Youth Center
- H. Highland Avenue Tree Grove Park
- I. Hamburg Community Ctr. & Playground
- J. Parkside Park
- K. Charlotte Avenue Elementary School
- L. Memorial Park
- M. Union Pleasant Elementary School & Field
- N. Legion Field Baseball Complex
- O. Woodview Park
- P. Centennial Gardens
- Q. Centennial Park (3 parcels)
- R. St. Peter & Paul Cemetery

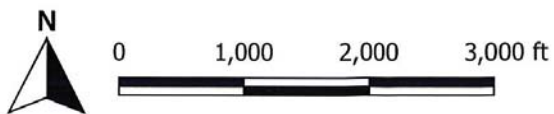
8 Zoning

Municipalities use zoning maps to establish designated areas for residential, commercial and industrial usage. Zoning maps and codes separate areas of a community and place specific limits on the types, density, size and height of buildings within the municipality. The Village of Hamburg’s zoning code is located in Chapter 250 of the Village Code, and designates permitted land uses based on the mapped zones shown in the zoning map. The vast majority of the village is designated as residential development areas, either Traditional Village Residential (TVR) or Single-Family Residential (SFR). The main “U” shaped corridor spanning the central area of the village is designated as a variety of commercial uses including Village Center Commercial (VCC), Neighborhood Commercial Corridor (NCC) and Gateway Commercial (GC).

The Zoning map can help provide insight into the type of land and natural resources needing special consideration during potential future development projects. Zoning maps are also a valuable resource for evaluating open space planning and updating comprehensive plans

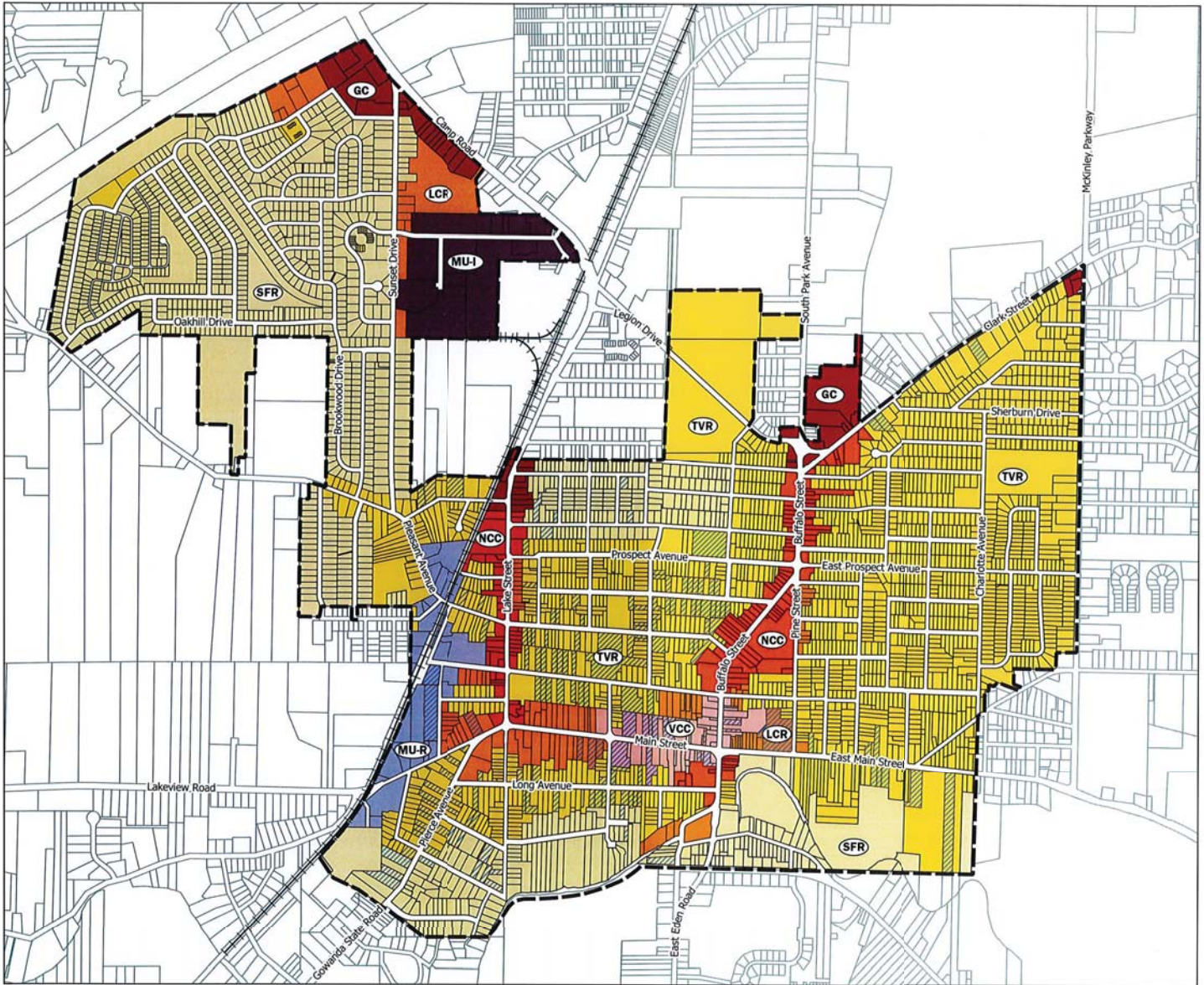
ZONING DISTRICTS

-  Single-Family Residential (SFR)
-  Traditional Village Residential (TVR)
-  Limited Commercial Residential (LCR)
-  Village Center Commercial (VCC)
-  Neighborhood Commercial Corridor (NCC)
-  Gateway Commercial (GC)
-  Mixed Use Redevelopment (MU-R)
-  Mixed Use Industrial (MU-I)
-  Historic Resources (2004 Reconnaissance Survey)



Prepared by: Bergmann | Barton & Loguidice

Natural Resources Inventory



1

Above mapping created by consultants from Clarke-Patterson Lee design professionals. It is an excerpt from the 2012 Village of Hamburg Comprehensive Master Plan Update.

9 Climate Projections

According to the New York State Department of Environmental Conservation's report *Observed and Projected Climate Change in New York State: An Overview* (August 2021), the climate variables and effects that are most likely to impact upstate New York in a changing climate include higher average and extreme temperatures, and higher average and extreme precipitation. The following excerpts from that report detail observed and future climate projections for these climate variables.

9.1 Average Temperature

Observed

New York has warmed at an average rate of 0.25°F per decade since 1900. Annual average temperatures have increased in all regions of the state. More recently, warming has accelerated: since 1970, the statewide annual average temperature has risen about 0.6°F per decade, with winter warming exceeding 1.1°F per decade.

Projected

Annual average temperatures in New York State are projected to rise 4.1°F to 6.1°F by the 2080s. Climate change modeling predicts that the anticipated increases in temperature will not be uniform across New York State, and some areas may be more affected by these changes than others. By 2100, some regions of New York could experience an increase in average temperature of more than 12°F. Throughout the state, summers will become warmer and winters milder.

9.2 Extreme Temperatures

Observed

The frequency of cold waves has decreased across the contiguous U.S since the early 1900s, while the frequency of heat waves has increased since the mid-1960s.

Projected

The total annual number of individual hot days, and the annual frequency and duration of heat waves in New York State are expected to increase as the century progresses. Conversely, the number of extreme cold days, of either of the above two definitions, will likely decrease. Some research has connected the loss of arctic sea ice with a weakening of the temperature gradient that tends to confine the polar vortex. The weakening of this temperature gradient could allow excursions of the vortex's extreme cold over the Northeast, resulting in periods of extreme cold, but as time progresses, such outbreaks will become increasingly unusual.

9.3 Average Precipitation

Observed

Most regions of the state have experienced an increase in average annual precipitation over the past century. In addition to increased mean annual precipitation across New York State, both year-to-year variability and multiyear variability of precipitation have become more pronounced.

Projected

Natural variability in precipitation amounts across time and geographic areas is large, so precipitation projections are less certain than those for temperature. Most of the increase in total precipitation is expected in winter and spring, with little change expected in the summer. By the late twenty-first century, under a high emissions scenario, Northeast monthly precipitation is projected to be about 1 inch greater for the period December through April. Most ClimAID projections indicate increased precipitation across the state, but some

do not.

9.4 Extreme Precipitation

Observed

The nationwide trend of increasingly frequent extreme precipitation events has been particularly pronounced in the Northeast, including New York. The proportion of total annual precipitation falling in the heaviest 1% of events increased by 38% in the Northeast, between the periods 1901–1960 and 1986–2016. More recently, from 1958–2016, this increase was 55%.

Projected

ClimAID projects increases in the frequency and duration of precipitation events with more than one, two, and four inches of precipitation at daily timescales, and that the frequency and severity of downpours at sub-daily or even sub-hourly timescales are also very likely to increase. By the period 2070–2099, under a lower emissions scenario, portions of New York can expect increases in the proportion of annual precipitation falling in the heaviest 1% of events of 20 to greater than 40% over the period 1986–2015. Under a high emissions scenario, the entire state can expect at least a 40% increase in the proportion of annual precipitation falling in the heaviest 1% of events. The proportion of total annual precipitation falling in the heaviest 1% of events is projected to increase by 20–39% under a lower emissions scenario (RCP4.5) and by more than 40% under a high emissions scenario (RCP8.5), relative to 1986–2015, by the period 2070–2099.

9.5 Snowfall

Observed

The state averages about 40 inches of snow annually, but annual snowfall varies considerably across the state, from more than 175 inches per year in the Adirondacks and Tug Hill Plateau to less than 36 inches per year on Long Island and in the New York City metropolitan area. However, southern portions of the state can experience heavy snowfall events in excess of 20 inches, associated with nor'easters.

Projected

Snowfall in New York is likely to become less frequent, and the combination of less early winter snowfall and earlier snowmelt will lead to a shorter snow season; fewer days with snow on the ground; decreased snow depth, water equivalent, and extent; and earlier snowmelt. One modeling study determined that under a high emissions scenario, central and eastern North America would experience, on average, 28% fewer snowstorms per year and that the amount of snow or frozen precipitation per storm would decrease by one-third by the 2090s. The degree to which the intensity of individual snowstorms will change is uncertain. Cold parts of the state could continue to experience heavy snowfall events due to the capacity of the warmer atmosphere to hold more moisture.

