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Introduction

The physical attributes and natural resources within an area typically have a direct effect upon the types of development that occurs. The weather, water bodies, soil types, landscape or slopes and major features as well as the presence of resources encourage or discourage certain development patterns.

The Village of Alexandria Bay has long been influenced by its environment. As witnessed by its history, the creek, river and its harbors, and productive soils have been constant contributors to its development pattern. Along the St. Lawrence River, seasonal homes and increasing numbers of year-round homes have taken advantage of its harbors and varied waterfront views. Proximity to the water influenced the Village's early settlement as Alexandria Bay took advantage of being a sheltered port with abundant natural resources close by. The Town's productive soils allowed subsistence farming, and later, larger farms to be established. Now producers harvest soybeans, corn, and mulch hay.

Sometimes, the same soils that support pasture and crops have limitations for development such as high water table, shallow depth to bedrock in some areas, or other conditions such as clay soils that may limit septic system operation. The same landscapes that provide spectacular views of the river and islands with their high outcrop top views, often steep slopes can limit potential development and offer accessibility challenges.

When studying past, present, and any potential future development, a careful examination of an area's physical characteristics must take place. This chapter describes the primary features of Alexandria Bay and a portion of the Town of Alexandria for general planning purposes. However, smaller site level variation and change should also be considered when debating specific development needs.

Local Climate

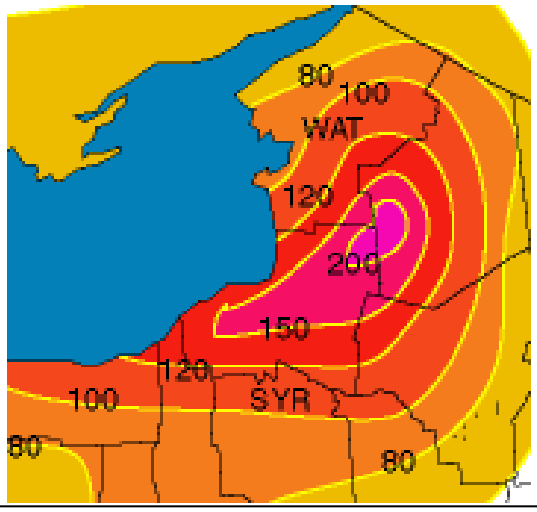
Favorable summers have long influenced Alexandria Bay's development history, as they positively affect activity levels and the demand for seasonal and year-round homes in the area. Likewise, the snowy winters affect the local area by providing many outdoor recreation opportunities. While some residents do choose to spend their winters in warmer states, many others become more active during the winter months, enjoying activities such as snowmobiling, ice fishing, cross country skiing, snowshoeing, downhill skiing/snowboarding, etc.

The area's climate is characterized as humid-continental. Winters are long and sometimes severe, spring is cool and short,

summers are warm and moderate, autumn is also warm, but usually short. The climate is influenced by the proximity to Lake Ontario. During the colder months of the year, the 'North Country' is known as 'snow country.' In late fall and winter months, the relatively warm lake provides moisture to air masses moving in from the west. These air masses then move over the area's colder land surfaces and encounter higher ground in a short distance. This combination of low temperatures and intervening high ground condenses the moisture and often causes heavy snowfall. Average annual snowfall in Alexandria is closer to 80 inches (Watertown averages about 110 inches), but occasionally 200-300 inches can fall in any given part of the region (usually in the higher elevations).

While the lake helps provide a source of snow for the area during the winter, the large body of water also moderates the extreme cold in winter and the heat during summer.

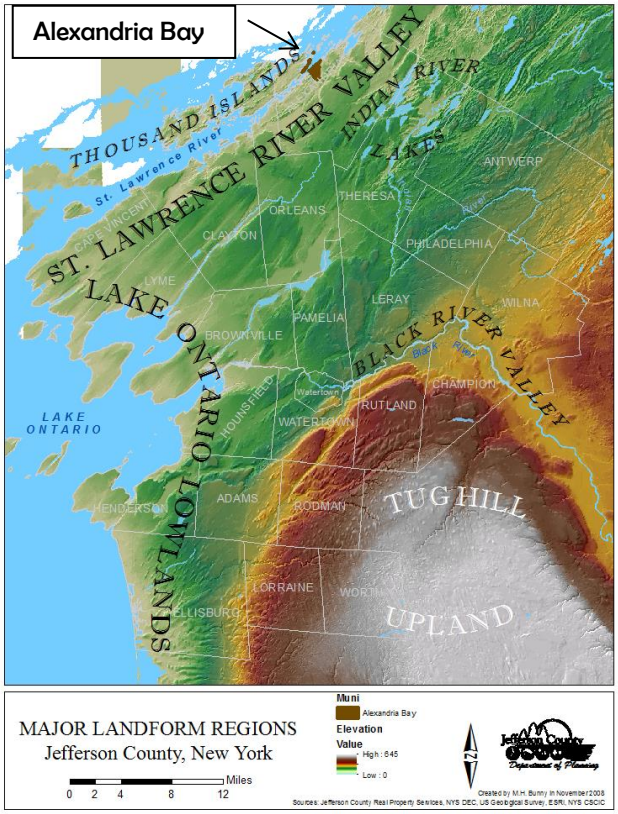
Average Annual Snowfall in Inches



Winds typically come from the west, often northwesterly during winter months and southwesterly during summer months. Such winds are influenced by the large open water found in Lake Ontario. Therefore, the presence of wind is relatively consistent throughout the year. More southerly winds sometimes occur, bringing warm spells at times, typically during summer or fall.

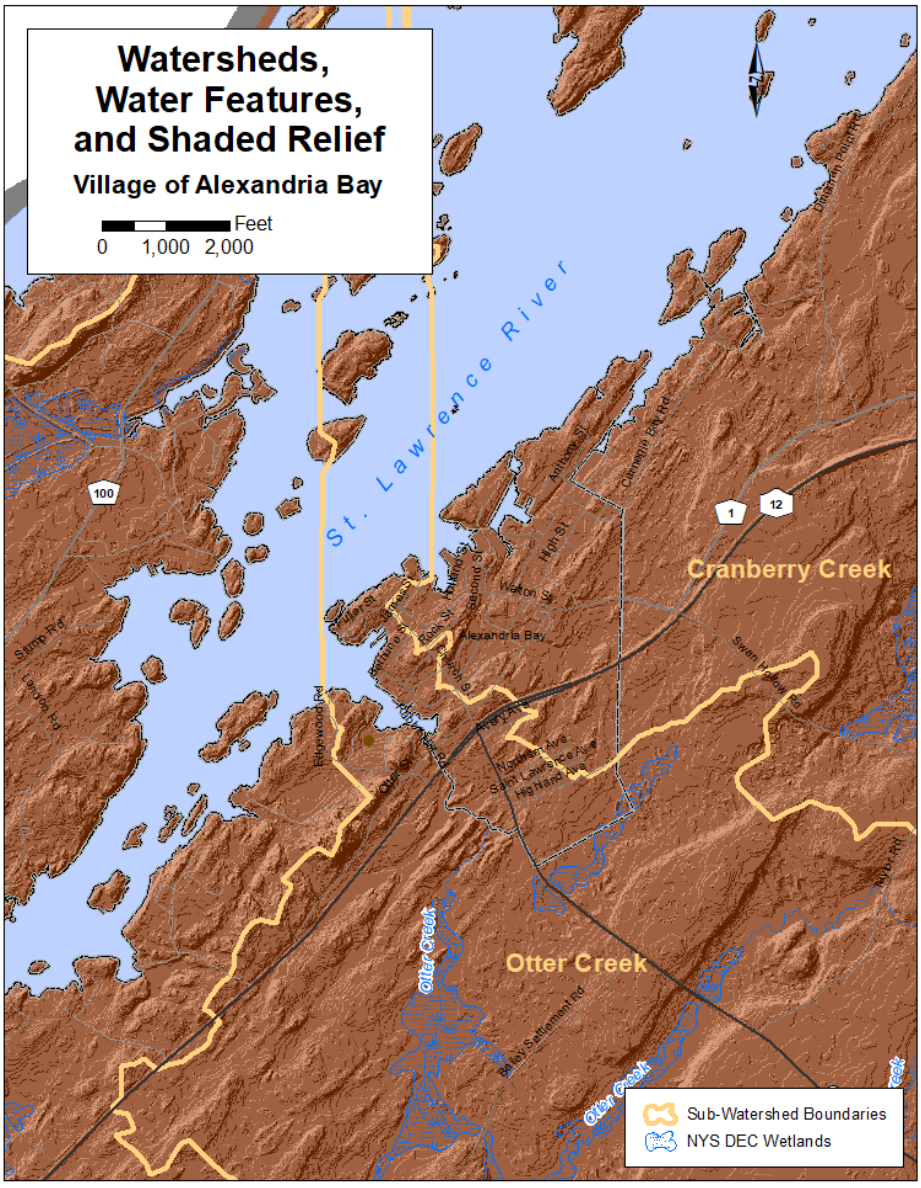
Topography - Landform

The way the landscape is shaped, otherwise known as its landform, typically gives an area its unique identity or its 'sense of place.' As mentioned previously, landform or topography also determines or influences the direction which development will expand, the potential for certain types of



development, the costs of providing services and ultimately, the value of land. Flat land, for example, can ease some development costs affording greater accessibility; however, it may contain drainage difficulties. Rolling land offers views of the surrounding landscape, while development costs may begin to increase. Similarly, steeply sloping land can increase private and public development costs dramatically in terms of site leveling, services, and road construction.

The topography in Alexandria Bay varies, ranging from hills, to rolling lowlands with some relatively flat areas. The topography of the NYS Route 12 Corridor area is generally flat rolling terrain with elevations ranging from 250' above sea level at the shoreline to 300' above sea level south of Route 12. The Watersheds, Water Features and Shaded Relief Map illustrates the Village and Town's topography near the Village. Portions of this area have a high water table, as evidenced by numerous wetlands. Some areas also contain rock outcrops, with shallow depth to bedrock, and areas of loamy soils (fertile soils containing clay and sand with other humus).



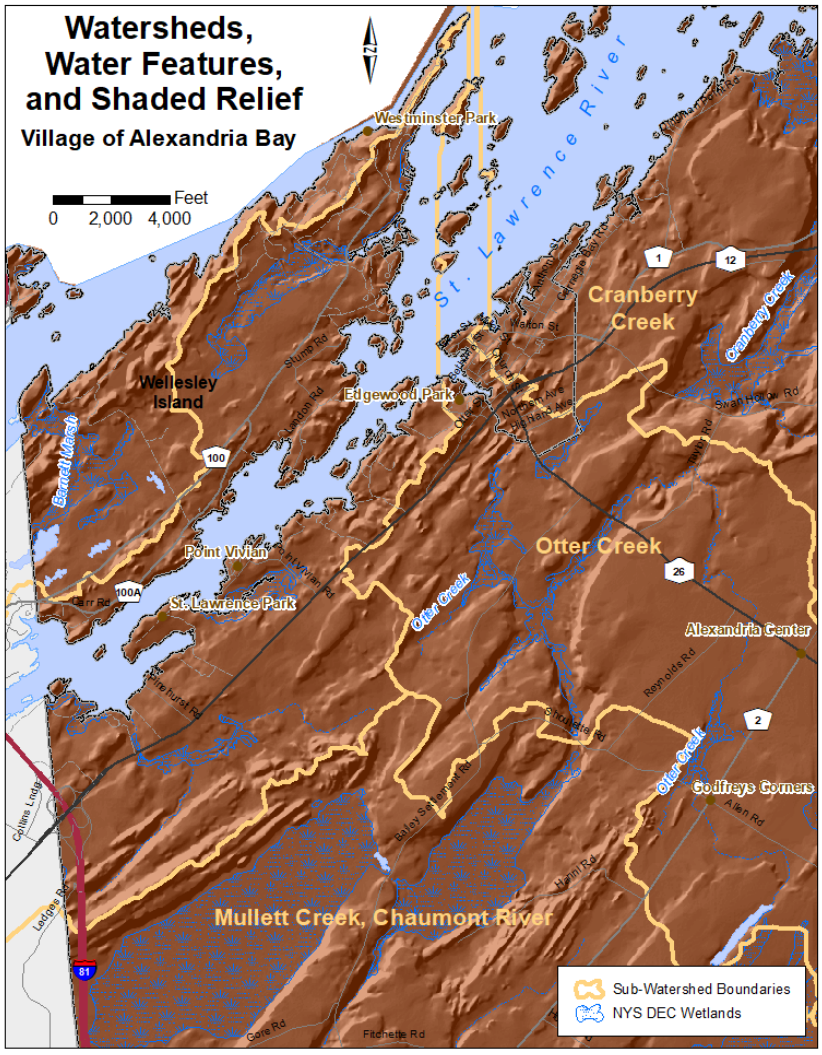
Sources: Jefferson County Real Property Tax Services, US Geological Survey, National Resources Conservation Services, NYS Department of Environmental Conservation, NYS Office of Cyber Security and Critical Infrastructure Coordination

Water Resources

St. Lawrence River/Thousand Islands

The Village of Alexandria Bay and Town of Alexandria share their northwestern boundaries with the St. Lawrence River. The River connects Lake Ontario to the Atlantic Ocean and runs 743.8 miles from the outflow of Lake Ontario near Kingston, Ontario to Quebec City, Quebec.

The Thousand Islands make up an archipelago or series of bedrock islands (1,864) that straddle the Canada-U.S. border within the St. Lawrence River as it emerges from Lake Ontario in Cape Vincent, stretching about 50 miles northeasterly. Including the 24 islands in the Village, and 142 islands in the Town, there are approximately 9.7 miles of shoreline in Alexandria Bay with 78.7 miles within Alexandria.



Sources: Jefferson County Real Property Tax Services, US Geological Survey, NYS Department of Environmental Conservation, NYS Office of Cyber Security and Critical Infrastructure Coordination

Within the Village, the river and various islands are visible depending on topography and building placement. There are a number of vantage points from higher elevations and along the shoreline. Densely developed, the waterfront contains marinas, hotels, the Village's Scenic Park and beach, the hospital, as well as seasonal and year round homes.

Wetlands

Wetlands are shallow areas commonly called swamps, marshes, bogs, wet meadows, estuaries, potholes, etc. As mentioned previously, these shallow areas are essential aquatic ecosystems that support the production of many types of vegetation, mammals, reptiles, waterfowl, fish and rare plants. Typically, wetlands are very productive, contributing greatly to biological diversity. Wetlands are very dynamic in nature and can be vulnerable to human encroachment and damage.

Wetlands also provide flood and storm water control by absorbing and storing rain

and snowmelt waters, thus minimizing flood damage. They also act as surface and groundwater recharge areas and help maintain important water sources. Wetlands buffer shorelines from erosion and help cleanse waters of pollutants through natural filtration and other processes. Please refer to the Wetlands Map for their NYS DEC classification and locations within the Village and Town of Alexandria nearby.

Even more valuable is that wetlands provide habitat for fish, waterfowl and other wildlife. They are among the most productive ecosystems providing a forage base for all levels of the food chain including spawning fish, nesting birds and many rare and endangered species. Another value of wetlands is that they provide natural beauty and valuable open space that can often be used for education and recreation.

A NYS DEC wetlands permit is required before any construction takes place in a regulated wetland or in an area 100 feet around such wetlands.

Flooding

Flooding is the temporary inundation of land with water from overflowing rivers and streams by runoff from adjacent slopes or nearby upland or upstream areas. Water standing for short periods is not considered flooding, nor is water in wetland areas. Flooding is rated in general terms which describe the frequency and duration of floods and the time of year when flooding is most likely to occur.

Floodplains in their natural or relatively undisturbed state are often important water resource areas. They can also be important sources of productive farmland. They serve three major purposes: natural water storage and conveyance; water quality maintenance; and ground water discharge. Unsuitable development can destroy their value. For example, any fill material placed in the floodplain eliminates essential water storage capacity causing the water elevation to rise, resulting in the flooding of previously dry land.

Floodplains

Floodplains are federally designated areas that have a higher risk of flooding. Such areas were mapped by the Federal Emergency Management Agency (FEMA) throughout much of Jefferson County. The program and mapping were designed to limit development in flood prone areas and to offer participating communities an insurance mechanism for protecting properties at risk of flooding.

FEMA's Flood Insurance Rate Maps (FIRM) show areas at risk based upon historic, meteorological, hydrologic, and hydraulic data, as well as open-space conditions, flood control measures, and development. Such flood prone areas have a 1 percent or greater chance of being flooded during any given year. Such areas have a 26 percent chance of flooding during a 30-year period.

If development is proposed in or near flood prone areas, the FIRM maps should be consulted. Community officials then use the

maps to administer floodplain management regulations and therefore mitigate flood damage. Lending institutions and Federal agencies use the Flood Maps to locate properties and buildings to determine whether flood insurance is required when making loans or providing grants for the purchase or construction of buildings.

Development should be monitored and avoided within such areas to protect the function of the floodplains as well as the health, safety, and property of the community's residents.

St. Lawrence Seaway water level

With regard to floodplains and coastal barriers adjacent to open water bodies in Alexandria, there is one important factor to consider. The level of the St. Lawrence River, and therefore along many shoreline areas in the Town and Village, is not fully determined by natural inputs of precipitation and flow from the St. Lawrence River watershed and the other Great Lakes.

The international St. Lawrence River Board of Control was established in 1952 when construction of the St. Lawrence Seaway was concluded. The main function of the Board of Control is to ensure that outflows from Lake Ontario (via the St. Lawrence Seaway) meet the requirements of the International Joint Commission (an entity created to resolve disputes over the use of waters along the U.S./Canadian Border).

Many factors are considered by the Board of Control in their decision making processes, including the needs of shoreline property owners from Niagara County, New York to Quebec, and the needs of Montreal Harbor. In summary, decisions and actions regarding water levels that are not made locally have the potential for significant local impact.

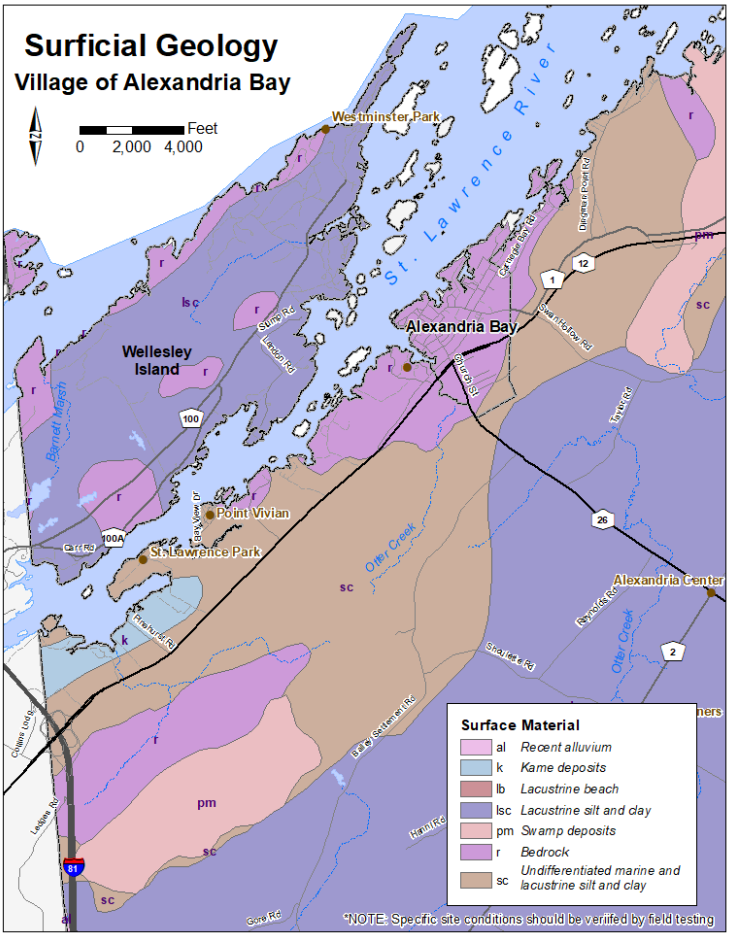
Recent Flooding

During the spring and summer of 2017 and again in 2019 St. Lawrence River water levels were significantly higher than usual and above flood stage. These high water levels resulted in many waterfront properties being inundated resulting in damage from sustained high water. As a result, volume and number of boat trips declined and general waterfront related tourism experienced low numbers, spending and visitation. Both years grant programs were established to assist in damage repair, but in 2019 the state initiative focuses on resiliency and repairs related to economic sustainability.

Surficial Geology

Surficial geology concerns the loose sedimentary materials that overlay bedrock and which are found near the earth's surface. A large portion of the Village consists of bedrock which is either exposed or generally within 1 meter of the surface. Although there is a small area with some undifferentiated marine and lacustrine silt and clay along the southern boundary of the Village. It historically consists of elevation within highest marine level, generally laminated to massive silt and clay, may include fossil shells, deposited in brackish to salt water (historically), with low

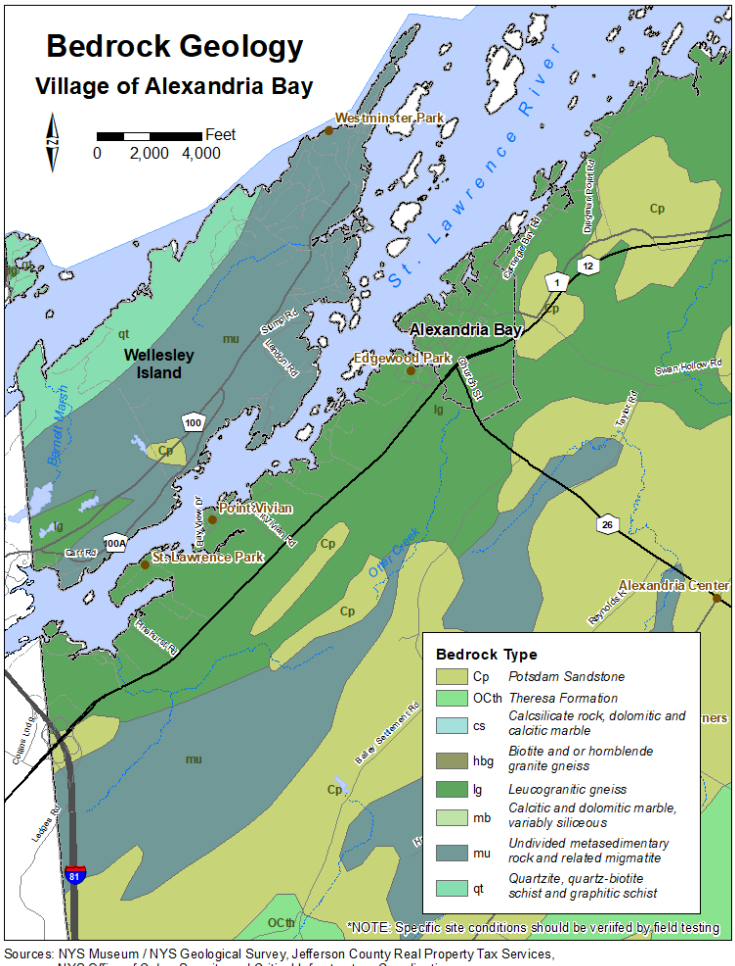
permeability characteristics, potential land instability and thickness variable (up to 50 meters).



Sources: NYS Museum / NYS Geological Survey, Jefferson County Real Property Tax Services, NYS Office of Cyber Security and Critical Infrastructure Coordination

Bedrock Geology

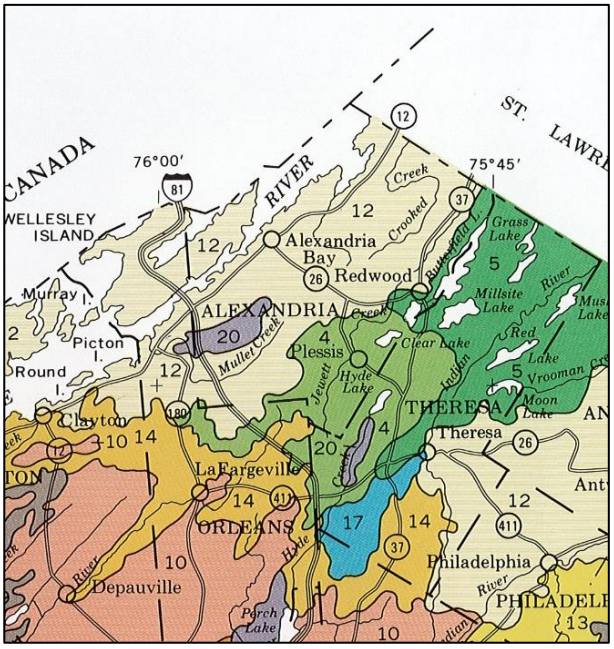
Bedrock geology refers to the physical rock visible underneath the soil, river systems, till, etc. The geological character of the area along the St. Lawrence River that includes Alexandria Bay is part of the St. Lawrence River Valley and Thousand Islands physiographic regions. Several bedrock types are common in the Town, but the Village consists of leucogranitic gneiss. Areas to the west, east and south of the Village also include leucogranitic gneiss, as well with some potsdam sandstone in a few small areas to the east and south, as well as undivided metasedimentary rock and related migmatite south along NYS Route 26. Refer to the Bedrock Geology Map that illustrates the predominant bedrock types.



Sources: NYS Museum / NYS Geological Survey, Jefferson County Real Property Tax Services, NYS Office of Cyber Security and Critical Infrastructure Coordination

Soils

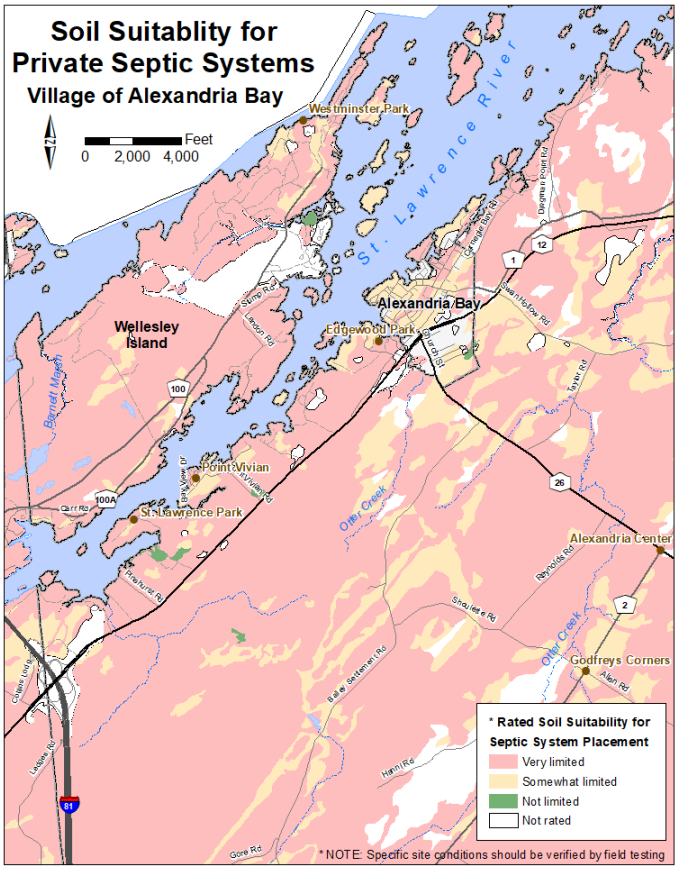
The general soil map included in this plan is from the Soil Survey of Jefferson County, New York, published by the US Department of Agriculture in 1981.



This type of soil is classified as having generally severe limitations for supporting development and roadways due to wetness and slow percolation times due to wetness that is not conducive for individual septic systems.

Septic System Suitability

Soils in Alexandria, generally described above, continue to influence development levels throughout the Village and nearby Town land. Generally, certain soils or soil conditions present have limitations for buildings and private septic system placement.



Sources: Natural Resources Conservation Service, Jefferson County Real Property Tax Services, NYS Office of Cyber Security and Critical Infrastructure Coordination

Soils in the County have been classified according to their ability to support on-site septic systems by the Soil Survey. Such septic systems consist of septic tank absorption fields in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated

pipe. The following ratings are based on soil properties, site features, and observed performance of the soils. Permeability, high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan also interfere with installation of individual septic systems.

Suitability is considered ***'not limited'*** if soil properties and site features are very favorable for the indicated use. Good performance and very low maintenance can be expected.

Suitability is considered ***'somewhat limited'*** if soil properties and site features are moderately favorable for the indicated use. The limitations can be overcome by special planning, design or installation. Fair performance and moderate maintenance can be expected.

Suitability is considered ***'very limited'*** if soil properties or site features have one or more features that are unfavorable for the specific use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

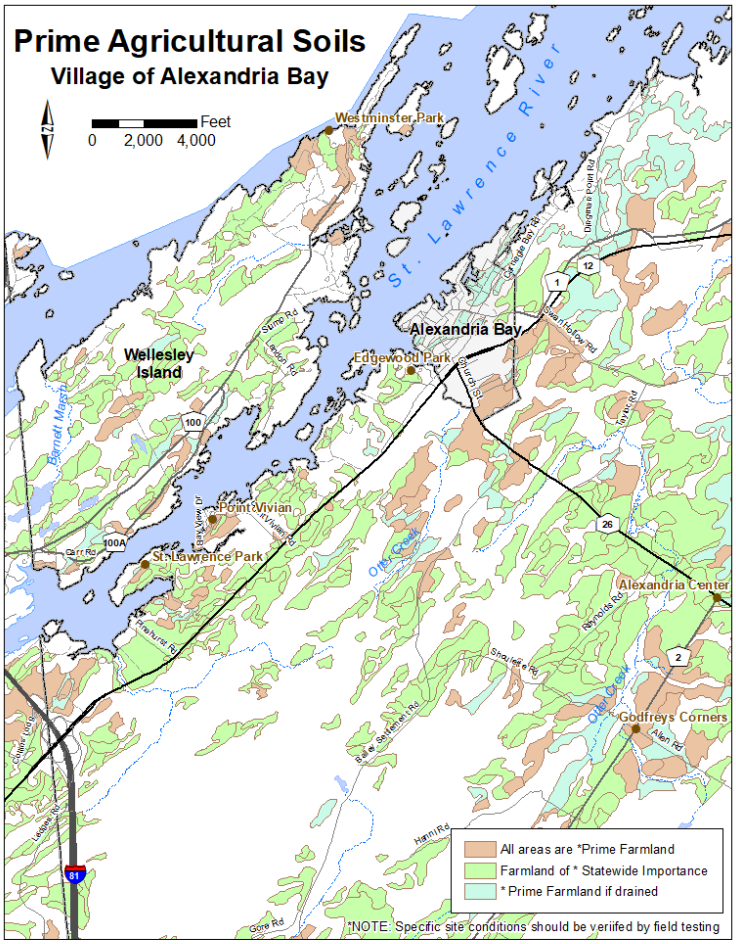
Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent.

On-site testing or investigations must be performed to be certain whether the present soils or soil conditions will support an individual septic system on a given site or project area. Refer to the Soil Suitability for Private Septic Systems Map.

Prime Farmland

Prime farmland is defined by the USDA as the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce a sustained high yield of crops while using acceptable farming methods. Prime farmland produces the highest yields and requires less energy and resources on average, and farming it results in the least damage to the environment.

Prime farmland soils identified in Alexandria are shown on the Prime Agricultural Soils Map. The general criteria for prime farmland are as follows: a generally adequate and dependable supply of moisture from precipitation or irrigation, favorable temperature and growing-season length, acceptable levels of acidity or alkalinity, few or no rocks, and permeability to air and water. Prime farmland is typically not excessively erodible, is not saturated with water for long periods, and is normally not flooded during the growing season.



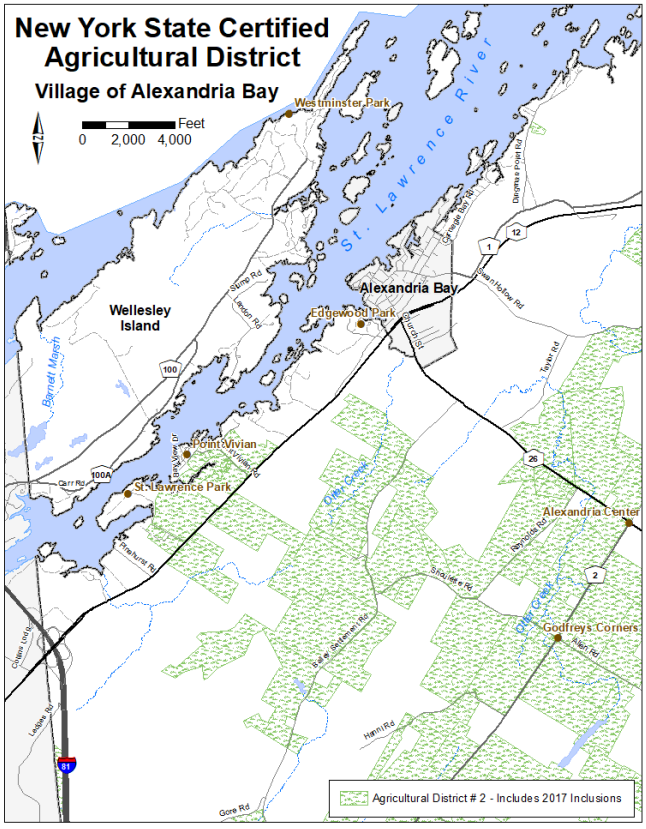
Sources: Natural Resources Conservation Service, Jefferson County Real Property Tax Services, NYS Office of Cyber Security and Critical Infrastructure Coordination

Agricultural Districts

NYS Agriculture and Markets Law, Article 25AA authorizes counties to create Agricultural Districts that are reviewed and certified by the NYS Commissioner of Agriculture. These districts offer participating landowners options to support agricultural operations. These options include: Agricultural Assessment; Notice of Intent; Limitation on use of eminent domain; Benefit Assessments; Restrictive Local Laws; Agriculture Data Statement; and Sound Agricultural Practices. Landowners of operating agricultural operations can apply for a special agricultural assessment which may result in a lower assessment.

If a governmental agency is proposing to take land within a certified agricultural district through eminent domain, then that agency is required to file a Notice of Intent and the project is reviewed by the County Agricultural and Farmland Protection Board to determine impacts on the agricultural operation and agricultural district.

Municipalities are not allowed to pass local laws that place undue restrictions on agricultural operations. As an example, a local junkyard law cannot require that a farmer place all equipment within a



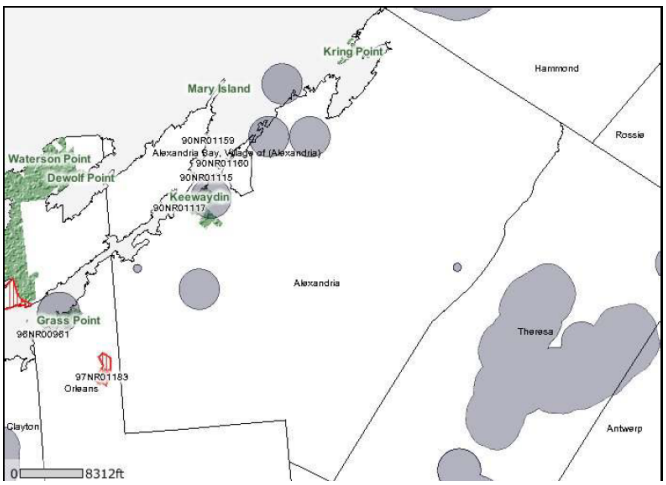
Sources: Jefferson County Real Property Tax Services, NYS Office of Cyber Security and Critical Infrastructure Coordination

structure or behind buffers. When local boards are reviewing projects any farm operation within five hundred feet must be identified and notified of the project and potential impacts on the operation are considered during review.

As of 2017, there were 14,459 acres of land within a NYS Certified Agricultural District in the Town of Alexandria. The Village had none.

Archeology

This map shows potential archeological sensitive areas within the Town and Village. The New York State Office of Parks, Recreation, and Historic Preservation website allows you to view areas of the State for archeological sensitive areas. This map viewer shows the location of areas of known archeological sites and areas where archeological sites are predicted. The exact locations are not displayed on this site since they are protected from disclosure by Section 304 (16 USC 4702-3) of the National Historic Preservation Act of 1966 and Section 427.8 of the implementing regulations for the State Historic Preservation Act of 1980. This information can only be accessed at the SHPO in accordance with the SHPO's Policy on Access to Files, Data, and Information. This information is used to provide recommendations to state and federal agencies on the need for further archeological surveys before projects may begin.



Significant Habitat

Significant Coastal Fish and Wildlife habitats have been designated by the NYS Department of State in support of their Coastal Management Program Policy, which states that "Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats".

There are a number of designated significant coastal fish and wildlife habitats identified within the Town of Alexandria. They are: Ironsides Island; Crooked Creek Marsh; Chippewa Bay Tern colonies; Goose Bay; Cranberry Creek; Lake of the Isles; St. Lawrence River shoreline bays and Wellesley Island pools.

Likewise, a number of species in the area have been listed as endangered or of special concern. These species include: Indiana bat, Northern long-eared bat, American Bittern, Bald Eagle, Black tern, Black-billed cuckoo, Black-crowned night-heron, Canada warbler, Cerulean warbler, Common tern, Golden winged warbler, Least bittern, Olive sided flycatcher and Wood thrush. In addition, the

bays throughout the area serve as major spawning areas for fish, namely the muskellunge.

√ It is important to protect and preserve these significant habitats, as they play an important role in the ecology of the town. Both land and water uses or development should not be undertaken if such actions would destroy or significantly impair the viability of the habitat.

Waterbody Restoration Priorities

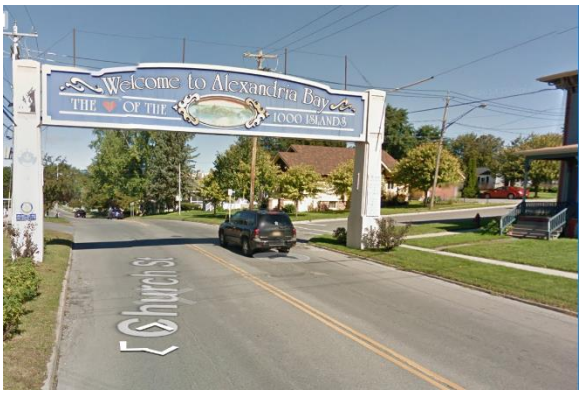
Aquatic plants and algae play a crucial role in the ecology of waterbodies. They provide oxygen to aquatic life via the process of photosynthesis, and serve as a refuge and food source for many types of aquatic organisms including juvenile fish, insects, crustaceans, and waterfowl.

Rooted aquatic vegetation also provides bottom stabilization, and thus can act to prevent shoreline erosion and bottom sediment disturbance. These plants frequently improve water clarity by competing with algae for available nutrients like phosphorus and nitrogen. In addition, the presence of aquatic plants in moderate amounts often add to the value of property around a body of water by offering aesthetic and recreational (e.g. fishing, swimming, boating) opportunities to users.

However, several St. Lawrence River shoreline bays in the Town near the Village have experienced excessive weed growth, algae blooms, and/or siltation. Restoration projects should be pursued which may include limiting or mitigating weed growth and in some cases restoring water flow by dredging or repairing historic water connections which can be crucial to maintain such significant habitats for native aquatic species and migrating birds. Equally important is to maintain the viability of water-based recreation and shoreline uses that depend on access and enjoyment of such open waterbodies.

The non-native weed Eurasian Milfoil has been identified in more than one case to be a cause of excessive weed growth. According to the Goose Bay Reclamation Corporation, Goose Bay has suffered from Eurasian Milfoil weed overgrowth and various efforts are underway to help eradicate it from Goose Bay and Cranberry Creek that flows into the bay.

√ Pursuing the goal of reducing or eliminating Eurasian Milfoil and other invasive species will help maintain the environmental, aesthetic, and recreational values of the river shoreline bays.



Important Views and Viewpoints in the Alexandria Bay Community

Alexandria Bay has many publicly important viewsheds of the St. Lawrence River and the Thousand Islands (including Boldt Castle) from viewpoints such as: Scenic Park, Riverwalk, Upper James Street Dock, Lower James Street Dock, Riverview Hospital views of St. Lawrence River waterfront, views of Carnegie Bay, as well as from businesses and residences. Additional special views of and from Otter creek as well as the Village Arch entrance sign are important. Such views are important identifying features that everyone benefits from, enjoys and depends upon continuing to make Alexandria Bay special, unique and treasured.

√ Maintaining and preserving such priority views should be a focus of the Village as such features are critical to the continued economic success and quality of life throughout the region.