Project Profiles for Jefferson & St. Lawrence Region

LAKE ONTARIO REDI
Resiliency & Economic Development Initiative

NEW YORK
STATE OF
OPPORTUNITY.

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ICONS/ACRONYMS FOR JEFFERSON & ST. LAWRENCE REGION

Project location

Project owner

Approximate cost

Acronym	
AC	Asbestos-Cement
B&L	Barton & Loguidice, DPC
DANC	Development Authority of the North Country
FEMA	Federal Emergency Management Agency
ft	Feet
I&I	Infiltration and Inflow
ID	Identification
LF	Linear Feet
NEC	National Electric Code
NTS	Not to Scale
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSEFC	New York State Environmental Facilities Corporation
PER	Preliminary Engineering Report
SPDES	State Pollutant Discharge Elimination System
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

THE RIVERWALK

This project seeks to address flooding issues along the Riverwalk in the Village of Clayton. The high water and significant wave action associated with the flooding have caused water to flood the Riverwalk and buildings that line the Riverwalk. The area of the Riverwalk most impacted by the flooding includes 11 properties in a registered historic district.

Village of Clayton, Jefferson County

Village of Clayton

$ 3,750,000

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Raising the height of the Riverwalk in areas that are below flood stage to provide flood protection
- Installing shoreline stabilization for 1,250 linear feet (LF) of shoreline

Public Support and Asset Owner

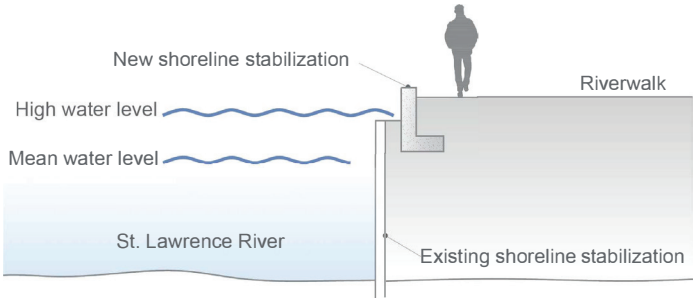
Public support is high. Multiple stakeholders are engaged and input was obtained. Public support exists as the Riverwalk is popular among residents and visitors. Over the past 10 years, the community has worked to develop the Riverwalk. The Riverwalk is located along the St. Lawrence River and the downtown shopping district, which includes a registered historic district. The multiple phases of the Riverwalk have been funded by the New York State Department of State (NYSDOS), New York State Department of Transportation (NYSDOT) Federal Highway Transportation Enhancement Program, and private and municipal funds. The asset owner is public.

Permitting and Feasibility

The project is moderately to highly feasible. Raising the elevation of the Riverwalk will require portions of the popular attraction to be closed during the construction period, resulting in a potential economic disturbance for properties located in the affected areas. Multi-jurisdictional permit review is needed.

Benefits

Raising the Riverwalk will increase access to businesses and help protect its historic resources. This should improve sales and the enjoyment of these assets.



Shoreline stabilization at the Riverwalk (Principle sketch, NTS)

Flexibility

The construction sequence of this project can be adjusted based on the needs of the residences and businesses. Additionally, the timeframe of the construction can be scheduled during the off-season for the local businesses (late fall/winter).

Durability

Raising the Riverwalk will drastically reduce the flooding issue and therefore protect the residences and businesses in the affected areas from flood damage. The raised area will require less periodic maintenance.

Economic Development Potential

The proposed project will improve access to shops, local restaurants, and the waterfront. The Riverwalk connects the assets of the downtown shopping districts, which include shops, restaurants, art galleries, and parks, to the waterfront. The Riverwalk has become a popular attraction for visitors and residents. Without project implementation, sales will be decreased each time elevated water levels make the Riverwalk inaccessible.

Environmental Considerations

This proposed solution will address adverse environmental effects from flood damage and erosion.

Alternatives Considered

None.

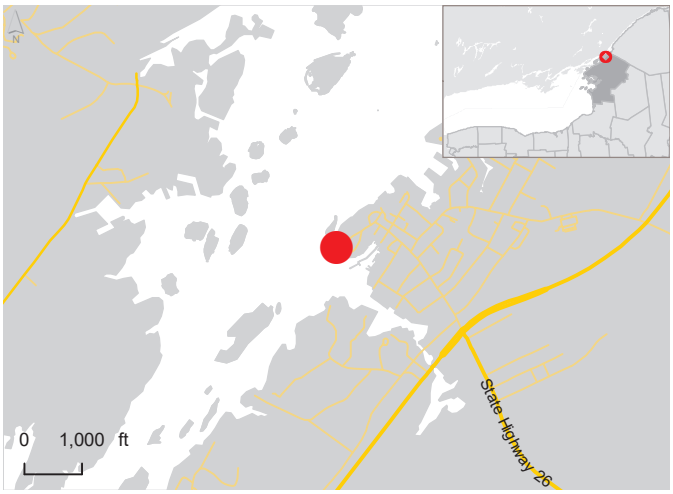
WATER TREATMENT FACILITIES/ WATER PLANT FOUNDATION

This project seeks to address the damage caused by flooding at the water treatment facilities in the Village of Alexandria Bay. The front section of the facility is underwater, and there is some flooding in the office. The amount of damage is currently unknown, as damage cannot be assessed until water recedes.

Village of Alexandria Bay, Jefferson County

Village of Alexandria Bay

$ 260,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Remediating the foundation walls
- Installing shoreline stabilization measures to protect the foundation

Public Support and Asset Owner

Public support is high. The asset owner is public.

Permitting and Feasibility

As the water level recedes and more information is collected, the feasibility of this project can be further defined. However, shoreline stabilization and repairing the foundation walls to protect against flooding are practical solutions to address higher water levels. The asset was evaluated to be at moderate risk for consequences due to flooding, indicating that measures should be taken to reduce exposure and/or vulnerability. Multi-jurisdictional permit review is needed.

Benefits

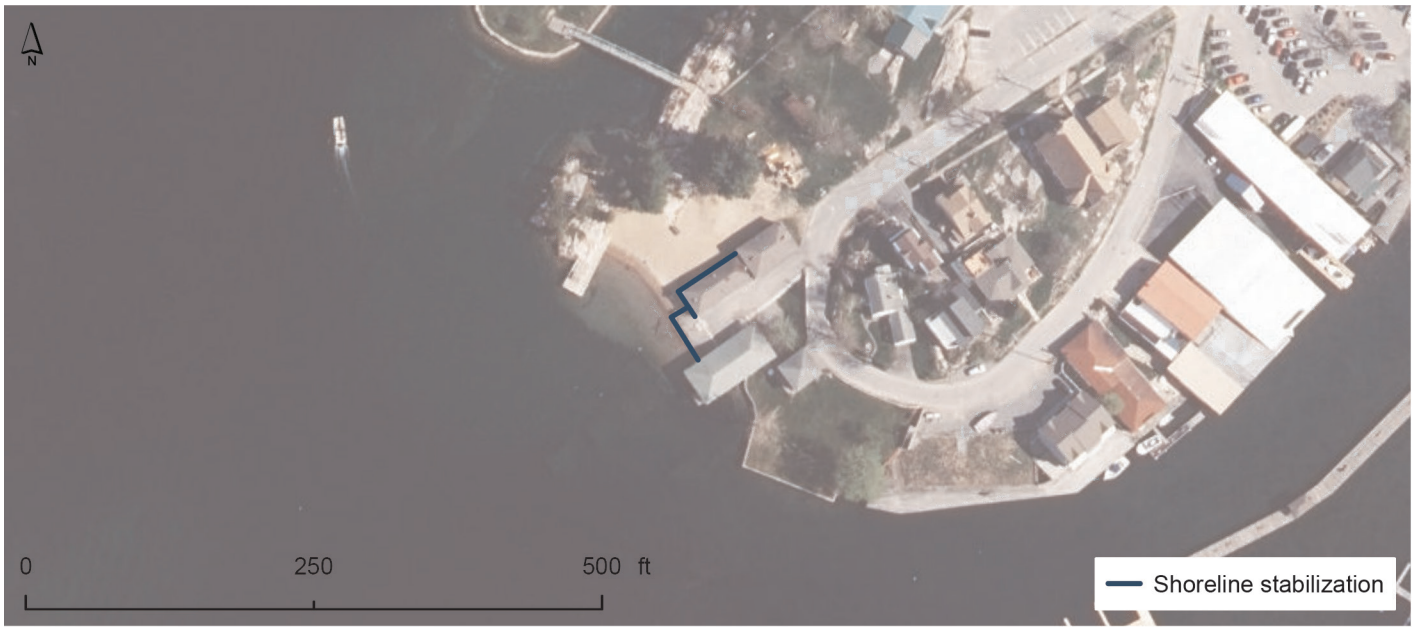
Project implementation would prevent additional damage to the asset and minimize the potential for service interruption.

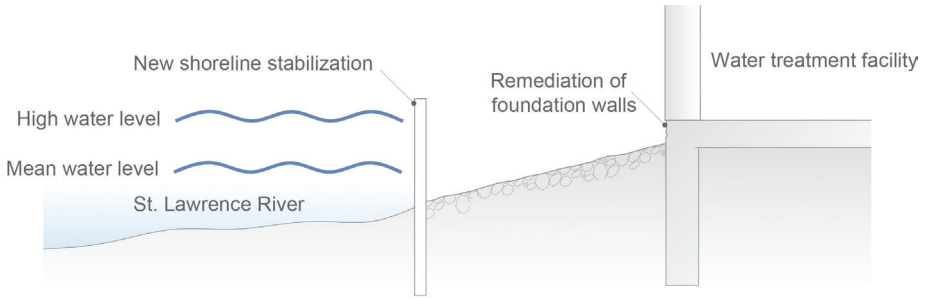
Flexibility

The proposed project limits are not yet defined. The project elements that can be adjusted are the dimensions of the stabilization measures and method of repairing foundation walls.

Durability

It is recommended that a breakwater or additional shoreline stabilization measures also be installed to minimize erosion of shoreline.





New shoreline stabilization and existing foundation wall remediation (Principle sketch, NTS)

Economic Development Potential

The total damage is currently unknown and will be evaluated when water recedes. Avoidance of service interruption is important to this area.

Environmental Considerations

Environmental considerations will be clearly defined once the water level recedes and damages/erosion can be assessed. Impacts to aquatic resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

No action. Additional alternatives are to be assessed once extent of damages are known. Installation of an offshore breakwall should be evaluated for potential added affect. Alternative natural and nature-based solutions were identified and are under consideration.

MARKET ST. SEWER

This project seeks to address problems in the sewage collection system along Market, Point, and Gouvello streets caused by recent high water flood events. The existing piping was subjected to increased external water pressure from floodwaters, leading to infiltration of water into the sewer line. Backups caused increased flow and debris to enter the sewage pump station through opened joints. This sewer conveys a significant percentage of the flow within the village, as the manhole at the intersection of Market and Gouvello streets combines several pipelines.

Village of Cape Vincent, Jefferson County

Village of Cape Vincent

$ 705,000

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Replacing the sewage collection mains and manholes on the affected streets with new watertight piping and manholes
- Replacing the existing eight-inch asbestos-cement (AC) pipe with a new 12-inch pipe
- Restoring asphalt roadway and concrete sidewalk over the disturbed trench

Public Support and Asset Owner

Public support is high. Many stakeholders are involved and the project has strong support. The asset was evaluated to be at residual risk for consequences due to flooding, indicating that both exposure and vulnerability of the asset are low. The asset owner is public.

Permitting and Feasibility

A report with cost analysis was prepared by BCA Architects & Engineers, and an application for Federal Emergency Management Agency (FEMA) storm recovery assistance has been submitted. Multi-jurisdictional permit review is needed. No impacts to aquatic resources are proposed.

Benefits

The proposed project will prevent sewer backups in basements and reduce the increased pumping and treatment costs the village has incurred. It will also prevent damage to the lift station pumps and appurtenances.

Flexibility

Project elements that can be adjusted include the material of new piping and extent of piping replacement.

Durability

The project proposal is intended to make the sewage collection system more resilient to flooding and high water events. Where practical, longer-term flood protection for infrastructure will also be provided.

Economic Development Potential

Reduced maintenance and repair costs will make more resources available for the village to spend on alternative assets. Reduction of sewer issues will improve quality of life for residents and businesses.

Environmental Considerations

Proper removal and disposal of the AC piping is required, and the surrounding soil should be tested to ensure it can be backfilled.

Alternatives Considered

The proposed emergency mitigating project is to replace the existing eight-inch AC pipe with a new 12-inch pipe and restore asphalt roadway and concrete sidewalk over the disturbed trench.

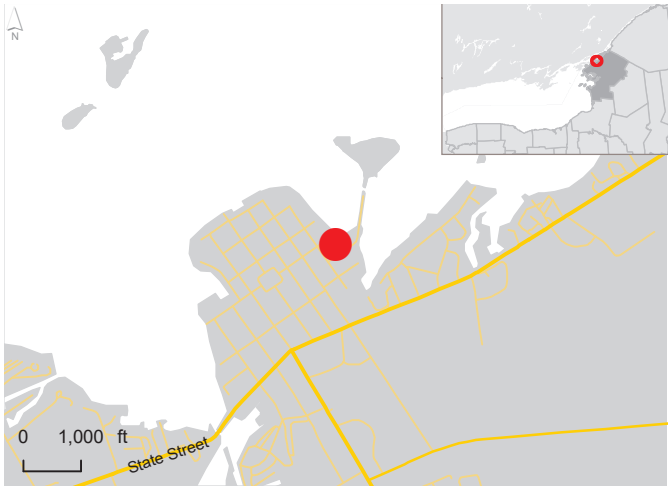
VILLAGE OF CLAYTON WASTEWATER COLLECTION AND TREATMENT PLANT

This project seeks to address damage to the wastewater collection and treatment plant as a result of high water events. Treatment processes and pumping capacity at the Riverside Dr. Pump Station and the East Union Pump Station are limited, requiring excess flows to be pumped directly into the St. Lawrence River during flood events.

Village of Clayton, Jefferson County

Village of Clayton

$ 2,370,000




Village of Clayton WWTP

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Chlorine contact tank upgrades, filter building improvements, and electrical and mechanical improvements
- Installation of wet-weather force mains to increase capacity at two pump stations
- A diversion box and side stream treatment process in the WWTP to accommodate high flows
- Installing disk filters after the addition of a flocculating agent and a new ultraviolet (UV) light disinfection system

Public Support and Asset Owner

Public support is high. Multiple stakeholders are engaged. The Village of Clayton is coordinating with the Development Authority of the North Country (DANC) and Barton & Loguidice, DPC (B&L). The asset owner is public.

Permitting and Feasibility

The project is assessed to be highly feasible. A design contract is already in place for upgrades not related to flooding and additional repairs to accommodate high waters. The village is working with B&L on upgrades, and additional measures have been identified. Multi-jurisdictional permit review is needed.

Benefits

The project will benefit the village as the WWTP services the village. The proposed measures will eliminate potential permit violations and health hazards caused by the discharge of partially disinfected treatment plant effluent. The proposed

project also provides the potential for year-round disinfection by UV rather than chlorine, eliminating the use of hazardous chlorine gas, improving worker safety.

Flexibility

The project has flexibility in that immediate solutions are provided, as well as long-term resilience strategies. The number of improvements that can be undertaken will depend on the funding and scheduling of the project.

Durability

The project includes additional resilience improvements to eliminate issues faced by the village due to high water levels. These expand upon improvements already identified in the PER.

Economic Development Potential

The project will reduce/eliminate the potential for permit violations at the WWTP. In addition, the village currently hires hauling trucks to pump excess flows from the pump stations. Increasing the pumping capacity will eliminate this cost.

Environmental Considerations

Improved resiliency measures will reduce the discharge of partially disinfected treatment plant effluent into the St. Lawrence River. The potential for year-round tertiary treatment and disinfection by UV will also improve local water quality.

Alternatives Considered

Multiple options for improving resiliency of facilities were proposed.

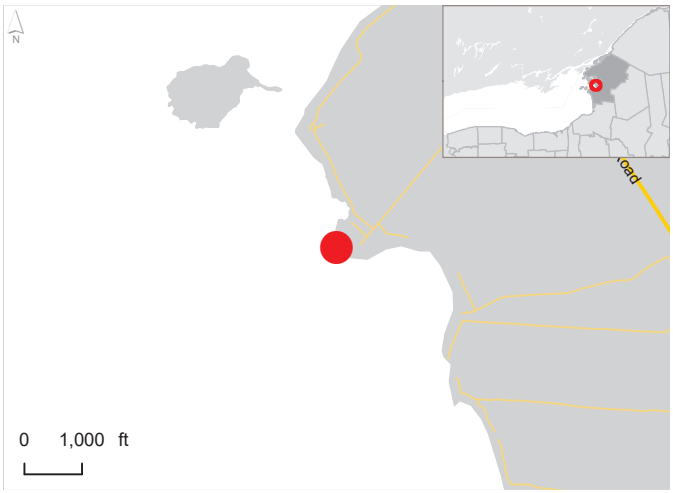
SEAWALL NEAR WATER TREATMENT FACILITY

This project seeks to address erosion at the seawall near the water treatment plant (WTP) which, if it collapses, could compromise the existing water intake structure beneath it. There is an aquadam in place around the WTP, and no water is near the facility. However, water is lapping over the seawall along the shore and eroding shoreline behind it.

Village of Sackets Harbor, Jefferson County

Village of Sackets Harbor

$ 160,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Installing additional shoreline protection
- Installing measures to protect the water intake facility

Public Support and Asset Owner

Public support is moderate. Approximately 600 LF of seawall at the WTP at the end of Ambrose St. received funding from NYSDEC to subsidize the project. The asset owner is public.

Permitting and Feasibility

The project appears feasible. Multi-jurisdictional permit review is needed.

Benefits

The proposed project would provide shoreline protection to the WTP and surrounding areas and protect the existing water intake.

Flexibility

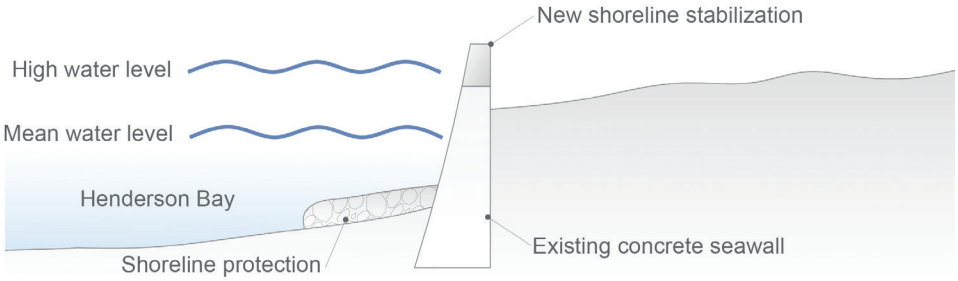
The number of improvements that can be undertaken will depend on the funding and scheduling of the project.

Durability

The project will increase the coastal resiliency of the WTP and surrounding areas.

Economic Development Potential

Protection of water service utilities will help provide long-term water services to local residents and businesses and allow the village to allocate funds to other pursuits.



Additional shoreline protection (Principle sketch, NTS)

Environmental Considerations

The proposed project will mitigate shoreline erosion. Impacts to aquatic resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

Proposed alternatives include extending the seawall along a larger portion of the eastern shoreline. Alternative natural and nature-based solutions were identified and are under consideration.

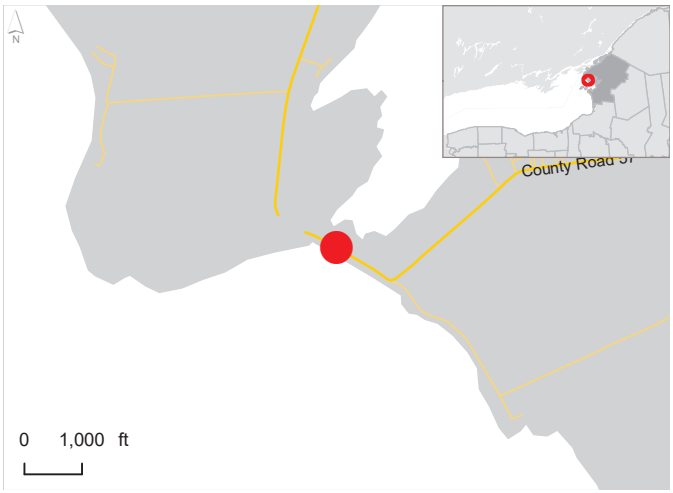
COUNTY RD. 57, POINT PENINSULA

This project seeks to address the roadside erosion that is occurring along County Rd. 57. There is roughly an 1,800 LF stretch where erosion has highly impacted its use and safety. This stretch of County Rd. 57 falls between Chaumont Bay and Lake Ontario in a highly vulnerable area. The road is impassable and hazardous if the roadside erodes. The roadway in some areas is within 500 ft of Chaumont Bay.

Town of Lyme, Jefferson County

Jefferson County

$ 5,450,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Raising 1,800 LF of the roadway to avoid potential flooding
- Installing shoreline protection

Public Support and Asset Owner

Public support is high. Multiple stakeholders are engaged and input was obtained. Public support exists for this project due to the project's ability to resist breaches and combat high water levels while maintaining natural features of the eastern bar. This highway provides the only land access to the island/ peninsula. The asset owner is public.

Permitting and Feasibility

Multi-jurisdictional permit review is needed.

Benefits

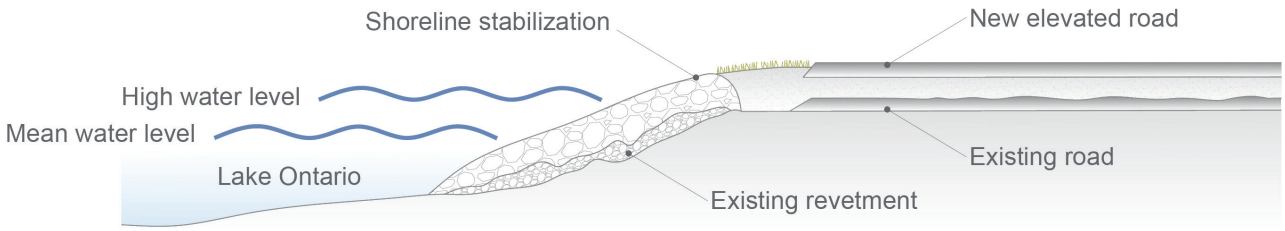
Reducing the occurrences of flooding of the roadways will positively affect nearby residences.

Flexibility

Flexibility is limited by its proximity to the water on one side and wetlands on the other. The construction sequencing of this project is flexible and can be adjusted so that road closures are kept to a minimum.

Durability

Raising the roadway will drastically reduce the flooding and road closures and protect the roadway as well as any residences or businesses along the road. It will also provide for emergency access and reduce the need for future repairs and maintenance.



Shoreline stabilization and elevated road (Principle sketch, NTS)

Economic Development Potential

Reducing the occurrences of flooding will protect property values and improve access for seasonal residents and tourists who help support the local economy.

Environmental Considerations

Runoff analysis will be conducted prior to raising the road to ensure it does not create ponding or flooding in other areas and increase maintenance costs. Impacts to aquatic and wetland resources and the associated protected species will be minimized to the extent practicable.

Alternatives Considered

Installation of a bridge has been considered by the asset owner but has not been proposed or designed at this time. Potential impacts to the adjacent wetlands associated with bridge installation make road improvements the preferred alternative. Alternative natural and nature-based solutions were identified and are under consideration.

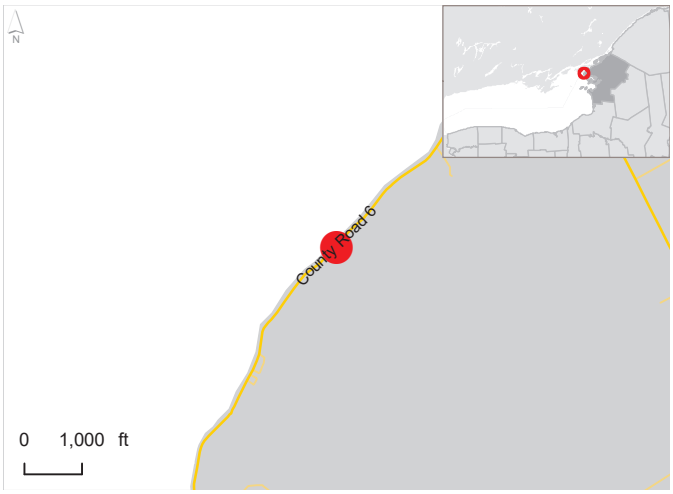
TIBBETS POINT, COUNTY RD. 6

This project seeks to address roadside shoreline erosion along County Rd. 6. The asset is especially vulnerable, as it is located directly on the St. Lawrence River and the eastern end of Lake Ontario, so there is little opportunity for landscape protection from flooding. The project scope includes restoration and rehabilitation to protect the roadway from future damage and shoulder erosion.

Town of Cape Vincent, Jefferson County

Jefferson County

$ 1,145,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Protecting the roadway by installing shoreline stabilization
- Improving culvert infrastructure
- Repairing the roadways with blacktop and stone

Public Support and Asset Owner

Public support is moderate. The asset owner is public.

Permitting and Feasibility

Multi-jurisdictional permit review is needed.

Benefits

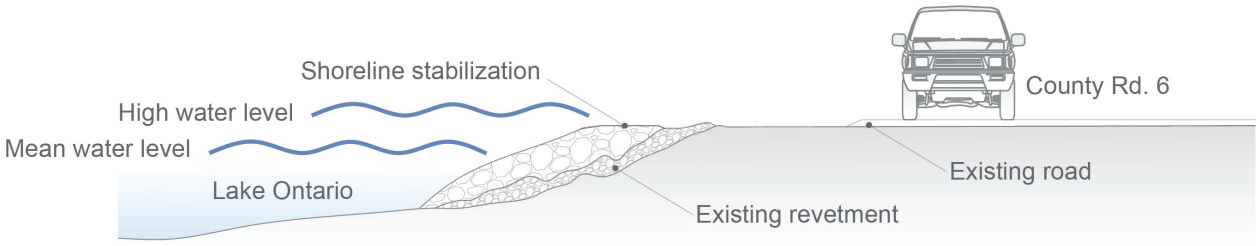
A fully functional road will provide benefits to the community for emergency access and access to the local businesses and historic Tibbets Point Lighthouse. The road will become impassable and/or hazardous if the roadside is eroded.

Flexibility

Flexibility is limited by its proximity to the water on one side and adjacent resources (e.g., homes) on the other. The proposed project limits need to be defined so that the project can be implemented in a manner that minimizes impacts to traffic patterns. Existing culvert sizes will need to be identified to develop the scope for the project.

Durability

The proposed project will increase the resiliency and durability of the road and adjacent homes, lighthouse, and hostel.



Shoreline stabilization (Principle sketch, NTS)

Economic Development Potential

The project will protect the county road, allowing for more community access, increasing business for the local economy.

Environmental Considerations

Materials used for construction will be as sustainable as feasibly and economically possible. Shoreline erosion mitigation will protect the road from erosion. Impacts to aquatic and wetland resources and the associated protected species will be minimized to the extent practicable.

Alternatives Considered

Alternatives include raising the road in addition to shoreline stabilization. The asset may also benefit from the establishment of a wider buffer between the water and the road that would include vegetative plantings. Alternative natural and nature-based solutions were identified and are under consideration.

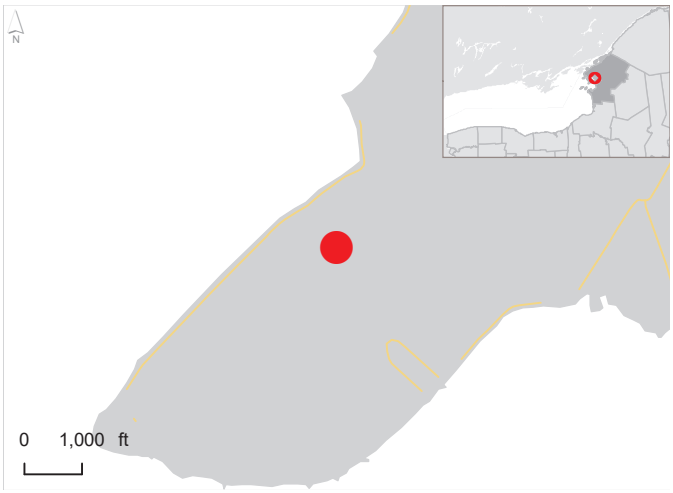
POINT SALUBRIOUS, COUNTY RD. 125

This project seeks to address roadside shoreline erosion along County Rd. 125 at Point Salubrious. The asset is especially vulnerable, as it is located on the eastern end of Lake Ontario, where the largest fetch occurs. Approximately 1,500 ft of roadside shoreline, including roadway, shoulders, and culverts, will need to be repaired to protect the roadway adjacent to Lake Ontario from wave action.

Village of Lyme, Jefferson County

Jefferson County

$ 1,500,000




County Rd. 125 shoreline

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Restoration and repair of 1,500 ft of impacted roadway, including shoreline stabilization, addressing issues such as roadway erosion and shoulder undermining
- Culvert replacements, fill, roadway stone elevation change, and improvements to prevent future damage

Public Support and Asset Owner

Public support is moderate. The asset owner is public.

Permitting and Feasibility

Project is feasible. Multi-jurisdictional permit review is needed.

Benefits

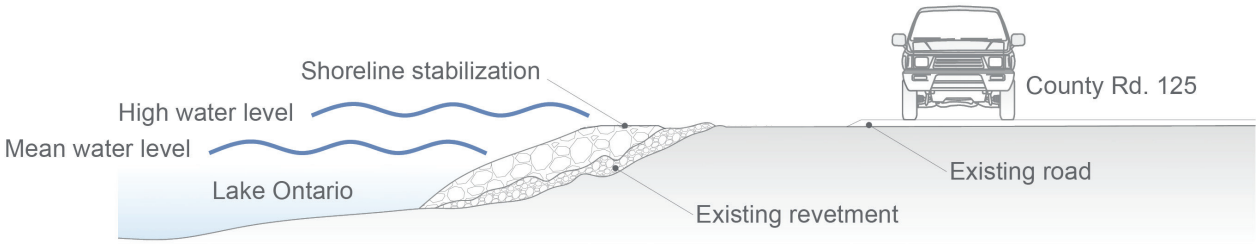
A fully functional road will provide benefits to the community for emergency access and access to local businesses. The road will become impassable and/or hazardous if the roadside is eroded.

Flexibility

Flexibility is limited by its proximity to the water on one side and adjacent resources (e.g., homes) on the other. The proposed project limits need to be defined such that the project can be implemented in a manner that minimizes impacts to traffic patterns. Existing culvert sizes will need to be identified to develop the scope for the project.

Durability

The project will improve the resiliency and durability of the road and adjacent assets.



Shoreline stabilization (Principle sketch, NTS)

Economic Development Potential

The project will protect the county road, allowing for more community access, and increasing business for the local economy.

Environmental Considerations

Materials used for construction will include appropriate sustainable materials, while still meeting feasibility and economic requirements. Shoreline stabilization will protect the road from erosion. Impacts to aquatic and wetland resources and the associated protected species will be minimized to the extent practicable.

Alternatives Considered

Alternatives include raising the road in addition to shoreline stabilization. Alternative natural and nature-based solutions were identified and are under consideration.

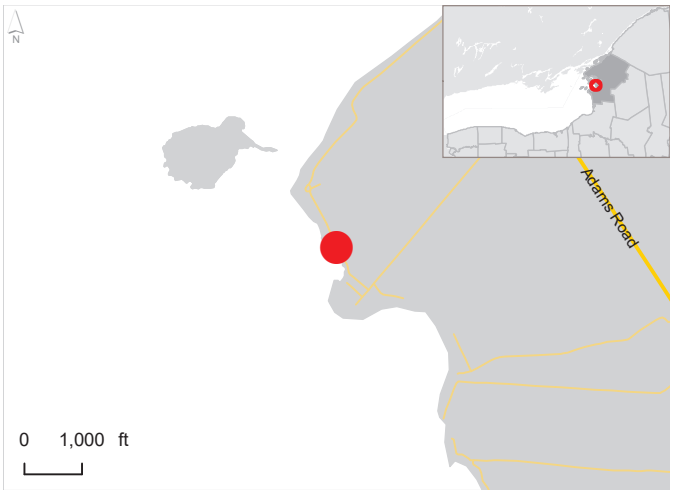
BROWN SHORE RD.

This project seeks to address damage to Brown Shore Rd., which is especially vulnerable, as it is located on the eastern end of Lake Ontario. Recent flooding resulted in 12 inches of standing water. The culvert under the road discharges from a large wetland. The project includes raising the road and providing shoreline stabilization.

Village of Sackets Harbor, Jefferson County

Village of Sackets Harbor

$ 2,500,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Raising the road 24 inches at a length of approximately 1,575 LF
- Installing shoreline stabilization

Public Support and Asset Owner

Public support is moderate. Most year-round residents who live on Brown Shore Rd. are more than 65 years old, and the road is the singular access road for emergency vehicles to access parcels. The asset owner is public.

Permitting and Feasibility

The project appears feasible. Multi-jurisdictional permit review is needed.

Benefits

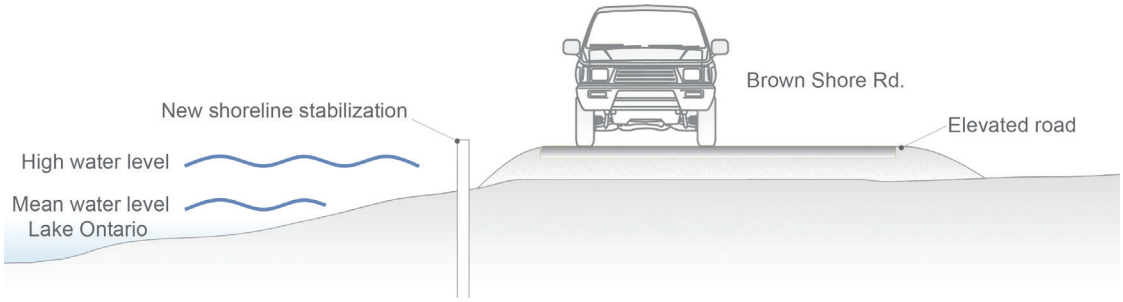
The project will benefit the community, as Brown Shore Rd. is the only access road for shoreline parcels. The road becomes impassable/hazardous if flooded. Multiple sewer manhole drains and a sanitary sewer lift station are located on the road. The road is currently dry and riprap and jersey barriers have been placed by the county to minimize flow and debris on road.

Flexibility

The project has flexibility in that immediate solutions are provided, as well as long-term resilience strategies. The number of improvements that can be undertaken will depend on the funding and scheduling of the project.

Durability

The project will increase the coastal resiliency of the road.



New shoreline stabilization and elevated road (Principle sketch, NTS)

Economic Development Potential

Brown Shore Rd. runs through and separates land owned and planted by Boulton's Beach Farms and private parcel owners. Crops produced by these farms support dairy operations in the area. This project will also support sanitary sewer resiliency, which provides protection to the entire system.

Environmental Considerations

Materials used for construction will include appropriate sustainable materials, while still meeting feasibility and economic requirements. Shoreline stabilization will protect the road from erosion. Impacts to aquatic and wetland resources and the associated protected species will be minimized to the extent practicable.

Alternatives Considered

As per a recommendation from FEMA (DR-4348-NY), an additional emergency protective measure is adding riprap to bolster protection for the road. Further mitigation measures include increasing the height of the lift station. Alternative natural and nature-based solutions were identified and are under consideration.

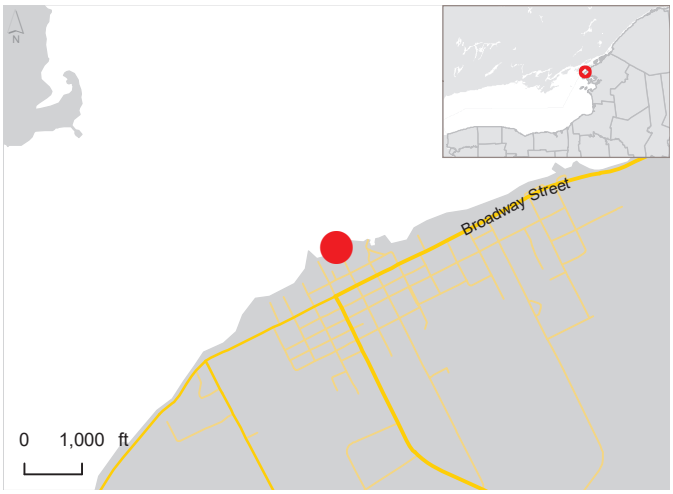
POINT ST. SEAWALL, SIDEWALK, AND ROAD

This project seeks to address damage to the seawall, sidewalks, and roadways caused by flooding at the Point St. seawall, located directly on the St. Lawrence River and eastern end of Lake Ontario. Point St. was inundated, saturating the subbase and weakening the roadway structure. Road traffic then caused damage to the pavement and adjacent sidewalks.

Village of Cape Vincent, Jefferson County

Village of Cape Vincent

$ 65,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Filling in exposed voids behind seawall with flowable fill, replacing topsoil, seed, and mulch
- Reconstructing affected portions of the street
- Replacing damaged sidewalks

Public Support and Asset Owner

Public support is high. Preliminary engineering design was done by BCA Architects & Engineers. The asset owner is the public.

Permitting and Feasibility

Feasibility is high, as preliminary engineering has already been completed. The project also has potential access to FEMA funds. Multi-jurisdictional permit review is needed.

Benefits

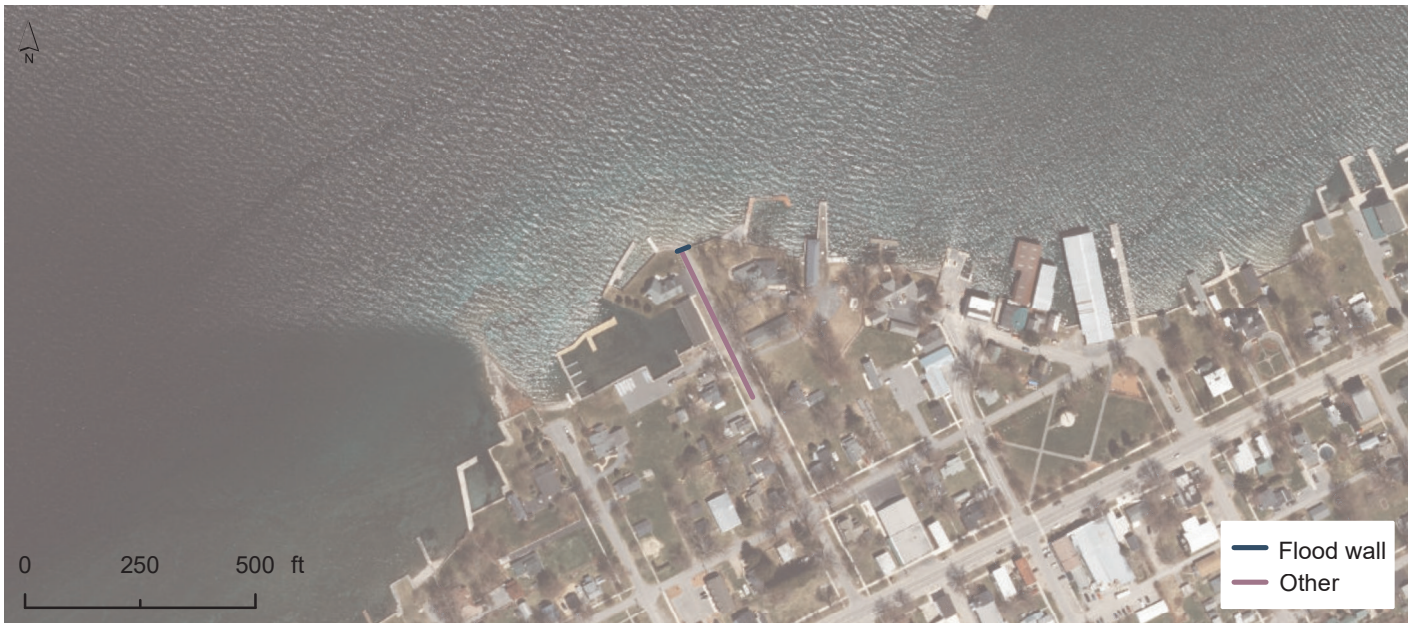
The project will mitigate further damage to the seawall, which may render it unstable, hazardous, or otherwise insufficient to function properly. The wall provides access to the St. Lawrence River for fishing and recreation and protects a public shoreline area used for boating and recreation access to the river. The project also has potential access to FEMA funds. NOTE: State funds should be for separate and distinct components from any federal funds.

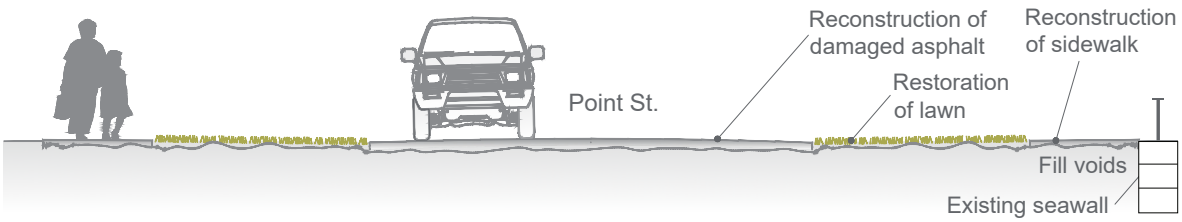
Flexibility

The project has flexibility in strategies to stabilizing the shoreline, material for replacing docks, and fill for restoring lawn areas.

Durability

An additional goal of the project is to provide long-term flood protection for infrastructure.





Repair of street and sidewalks (Principle sketch, NTS)

Economic Development Potential

Current shoreline stabilization improved access to the St. Lawrence River for fishing and recreation and protects the public shoreline.

Environmental Considerations

Materials for construction will include sustainable materials, while meeting feasibility and economic requirements. Shoreline erosion mitigation will protect the road from erosion. Impacts to aquatic resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

Alternatives include relocating as many facilities as possible to higher elevations, as well as ensuring new facilities are built at higher elevations. Another possible project element is the addition of a breakwater to further minimize erosion. Alternative natural and nature-based solutions were identified and are under consideration.

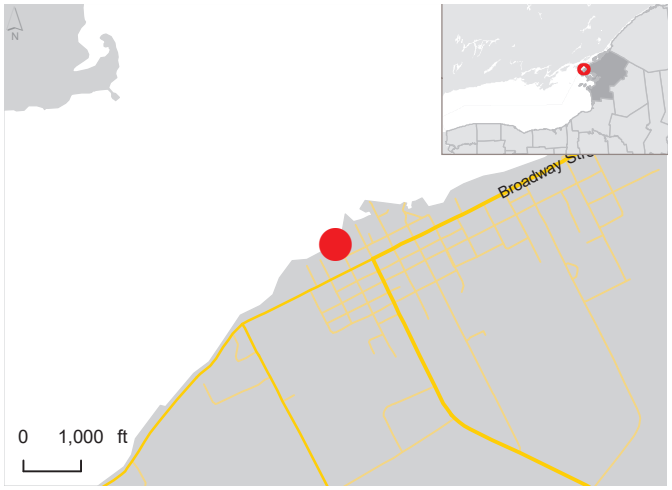
REAL ST. SEAWALL

This project seeks to address flooding damage caused by erosion to the seawall on Real St., located directly on the St. Lawrence River and eastern end of Lake Ontario. During a high water event, floodwaters overtopped the seawall, washing out the bedding stone, lawn, and soils beneath the wall and sidewalk, weakening the structural integrity of the wall.

Village of Cape Vincent, Jefferson County

Village of Cape Vincent

$ 103,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Resetting the top few tiers of the limestone portion of the seawall
- Installing shoreline stabilization measures
- Removing/replacing the sidewalk adjacent to the seawall, filling in voids, and repairing undermined areas

Public Support and Asset Owner

Public support is high. Preliminary engineering design was done by BCA Architects & Engineers. The asset owner is public.

Permitting and Feasibility

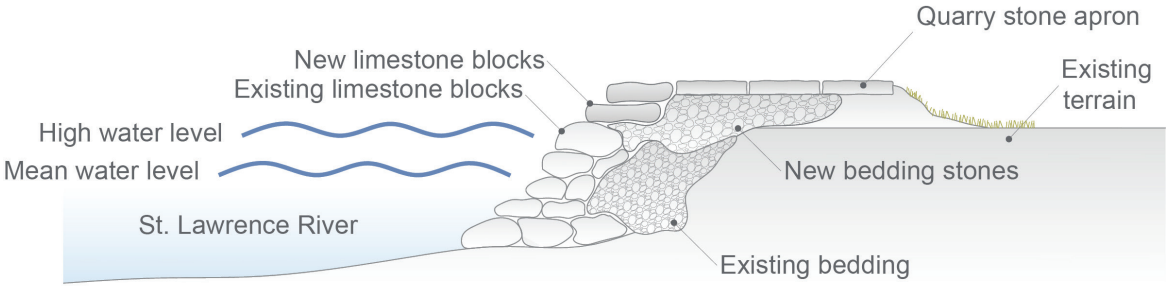
Feasibility is high, as preliminary engineering has been completed. The project also has potential access to FEMA funds. NOTE: State funds should be for separate and distinct components from any federal funds. Multi-jurisdictional permit review is needed.

Benefits

The project will mitigate further damage to the seawall, which may render it unstable, hazardous, or otherwise insufficient to function properly. The wall provides access to the St. Lawrence River for fishing and recreation and protects a public shoreline area used for boating and recreation.

Flexibility

The project has flexibility in strategies for repairing the seawall, material for replacing docks, and fill for restoring lawn areas.



Shoreline stabilization (Principle sketch, NTS)

Durability

Shoreline stabilization will provide long-term protection for shoreline areas.

Economic Development Potential

The proposed project will provide increased access to the St. Lawrence River and improve the safety and enjoyment of users.

Environmental Considerations

Materials used for construction will include sustainable materials, while still meeting feasibility and economic requirements. Shoreline stabilization will protect the road from erosion. Impacts to aquatic resources and the associated protected species will be minimized to the extent practicable.

Alternatives Considered

Alternative natural and nature-based solutions were identified and are under consideration.

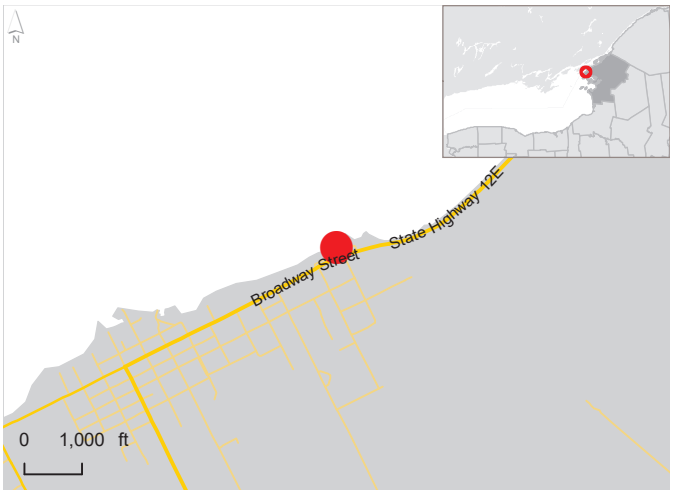
EAST END PARK

This project seeks to address damage caused by erosion to the seawall and docks at East End Park, situated on the St. Lawrence River and eastern end of Lake Ontario. During recent flood events, floodwaters overtopped the seawall, washing out the bedding stone, lawn, and soils beneath the wall and sidewalk, weakening the wall. The docks were also inundated and displaced from their supports.

Village of Cape Vincent, Jefferson County

Village of Cape Vincent

$ 1,000,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Resetting the top few tiers of the limestone portion of the seawall, raising the wall system
- Constructing a quarry stone apron behind the seawall
- Removing/replacing the sidewalk adjacent to the seawall
- Filling in voids, repairing undermined areas, and replacing the underdrain
- Replacing dock decking and repairing the lawn

Public Support and Asset Owner

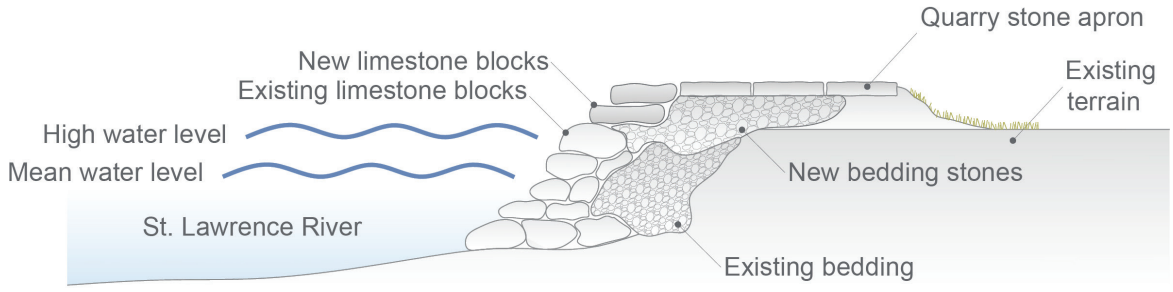
Public support is high. Preliminary engineering design was done by BCA Architects & Engineers. The asset owner is public.

Permitting and Feasibility

Feasibility is high, as preliminary engineering has already been completed. The project also has potential access to FEMA funds. NOTE: State funds should be for separate and distinct components from any federal funds. Multi-jurisdictional permit review is needed.

Benefits

The project will mitigate further damage to the seawall, which may render it unstable, hazardous, or otherwise insufficient to function properly. The wall provides access to the St. Lawrence River for fishing and recreation and protects a public shoreline area used for boating and recreational access to the river. The project will also restore access to docks, as the current inundation of docks renders them unusable. The docks are a valuable asset, as they provide public boating and recreational access to the St. Lawrence River.



Shoreline stabilization (Principle sketch, NTS)

Flexibility

The project has flexibility in strategies for repairing the seawall, material for replacing docks, and fill for restoring lawn areas.

Durability

The restoration of the seawall will provide long-term protection for shoreline areas.

Economic Development Potential

The seawall provides access to the St. Lawrence River for fishing and recreation and protects public shoreline. Docks provide public boating and recreational access. Approximately 10 boat slips are located at this asset. Boaters depend on the docks for boat storage.

Environmental Considerations

Materials used for construction will be as sustainable as feasibly and economically possible. Stabilization measures will protect the shoreline from further erosion. Impacts to aquatic resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

Alternatives include relocating as many facilities as possible to higher elevations, as well as ensuring new facilities are built at higher elevations. Incorporating floating docks into the design is also proposed. Another possible project element is the addition of a breakwater to further minimize erosion. Alternative natural and nature-based solutions were identified and are under consideration.

MAPLE CITY TRAIL AT OSWEGATCHIE AND ST. LAWRENCE RIVERS

This project seeks to address flooding damage to the section of the Maple City Trail and seawall at the confluence of the Oswegatchie and St. Lawrence rivers. The trail was heavily impacted by recent flooding events, damaging approximately 100 LF of seawall. The proposed project aims to increase shoreline stabilization and improve resiliency to floodwaters.

City of Ogdensburg, St. Lawrence County

City of Ogdensburg

$ 2,000,000


Oswegatchie and St. Lawrence rivers

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Increasing shoreline stabilization, where necessary; the project will include a combination of measures to achieve erosion mitigation and flood resiliency

Public Support and Asset Owner

Public support is high. The asset owner is public.

Permitting and Feasibility

The project appears to be feasible. Multi-jurisdictional permit review is needed.

Benefits

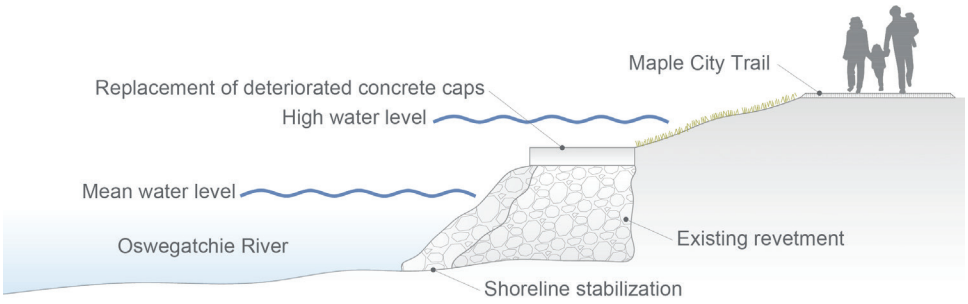
Improved erosion mitigation and flood resiliency will promote waterfront recreation, fishing, and public access that supports the economic development of the downtown marina district.

Flexibility

The number of improvements that can be undertaken will depend on the funding and scheduling of the project. The Maple City Trail will require a combination of treatments due to the complex nature of the site.

Durability

The objective of the project is to optimize flood resiliency of the surrounding areas.



Shoreline stabilization (Principle sketch, NTS)

Economic Development Potential

The proposed project will mitigate shoreline erosion of a major commercial center. Many marinas, tourist locations, and local businesses are located near the coastline. The Maple City Trail is among the City of Ogdensburg's most valued public recreational assets. Due to damage to the existing seawall, popular areas for fishing, passive recreation, and relaxation near the water are now inaccessible. The current seawall also serves as a valuable recreational asset by providing direct access to the waterfront for trail visitors and anglers.

Environmental Considerations

The proposed project will address shoreline erosion. Impacts to aquatic resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

Raising this section of the trail is being considered to provide additional resiliency. Alternative natural and nature-based solutions were identified and are under consideration.

NORTHUMBERLAND ST. BRIDGE

The bridge on Northumberland St. over Morristown Bay is highly susceptible to erosion. This project involves removing the deteriorating bridge and improving the hydrologic connection and development potential of Morristown Bay.

Town of Morristown, St. Lawrence County

St. Lawrence County

$ 2,100,000

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Removing the bridge which will open the channel within Morristown Bay; removal of the bridge will necessitate completion of the partially constructed bypass road and relocation of associated utilities

Public Support and Asset Owner

Public support is moderate. Multiple citizens rely heavily on access to the bridge, so support is reliant on completion of the bypass road to replace this service. The asset owner is public.

Permitting and Feasibility

The project is moderately feasible because it has moderate public support. Necessary permits include those for impacts to adjacent aquatic and wetland resources.

Benefits

Relocating the bridge would eliminate the risk of bridge failure due to erosion and eliminate the need for St. Lawrence County to maintain the bridge now and in the future. It would also increase the amount of aquatic and benthic habitat in the footprint of the existing bridge.

Flexibility

The elements of this project can be adjusted, including height, length, material composition, position, and addition or subtraction of project elements. This project can also serve as a basis for adaptive management should long-term management goals be unmet, requiring an increased level of protection and accompanying justification.

Durability

Removal of the bridge eliminates the need for St. Lawrence County to maintain this asset that is susceptible to erosion.

Economic Development Potential

The community currently relies heavily on this bridge to cross the bay. However, completion of the bypass road would allow for removal of the bridge without significant traffic impacts. The region believes that this would allow for significant additional development in the bay.

Environmental Considerations

Removal of the bridge would eliminate an artificial structure and allow for unimpeded flow and passage of aquatic biota through the bay.

Alternatives Considered

No action; would require maintenance of both the existing bridge and the partially constructed bypass road.

WADDINGTON WASTEWATER COLLECTION AND TREATMENT FACILITIES

This project seeks to address the infiltration and inflow (I&I) issues due to lack of storm sewers in the Village of Waddington. One major issue is the high groundwater table due to increased rainfall and high river levels. The existing system serves a population of approximately 900 people and businesses.

Village of Waddington, St. Lawrence County

Village of Waddington

$ 11,000,000

Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Replacing and relining existing clay tile sewer mains
- Constructing new stormwater mains in certain areas of the existing system
- Installing new outfall, effluent pumping system, standby power system, clarifier improvements, and additional site work
- Constructing individual stormwater laterals

Public Support and Asset Owner

The village has been working to correct collection system and treatment plant issues for several years. The asset was evaluated to be at “moderate risk” for consequences, indicating that measures should be taken to reduce exposure and/or vulnerability. The asset owner is public.

Permitting and Feasibility

The treatment system has been experiencing a loss of solids through treatment process tankage, resulting in exceedances of the State Pollutant Discharge Elimination System (SPDES) permit. This project is moderately to highly feasible. A preliminary engineering report (PER) has been prepared and submitted for comment. Significant I&I has contributed to SPDES violations. Multi-jurisdictional permit review is needed.

Benefits

Repairing and improving the sewer system in the village will significantly reduce health risks during flood events and meet the requirements of the existing SPDES permit.

Flexibility

The proposed improvements can be implemented to support various water level conditions both at the wastewater treatment plant (WWTP) and within the collection system. The overall budget request of

$11 million will be maximized to reduce I&I influence and sanitary sewer overflows.

Durability

Materials and construction approach will result in a durable system with a design life of more than 30 years.

Economic Development Potential

Completing this project will help stabilize home values in this small community. No direct economic development potential has been identified.

Environmental Considerations

The existing clay tile sewers shall be tested to ensure there are no hazardous materials. This project will reduce or eliminate occasional sanitary sewer overflows in the village due to excess I&I, thereby improving water quality in the river.

Alternatives Considered

The Village of Waddington received an Engineering Planning Grant from the New York State Environmental Facilities Corporation (NYSEFC) to prepare a PER to evaluate alternatives and associated costs for various improvements to the village's existing wastewater collection and treatment system. The information in the PER is intended to address the Notice of Violation from the NYSDEC and the Notice of Significant Non-Compliance from the United States Environmental Protection Agency (USEPA). The village received these notices due to noncompliance issues within the system, which include deterioration of the existing treatment system and exceedances of permitted effluent limits. The PER evaluates replacing, relining, and installing new sanitary sewers. The PER also looks at converting existing sanitary sewer to storm sewers, as well as installing new storm sewers.

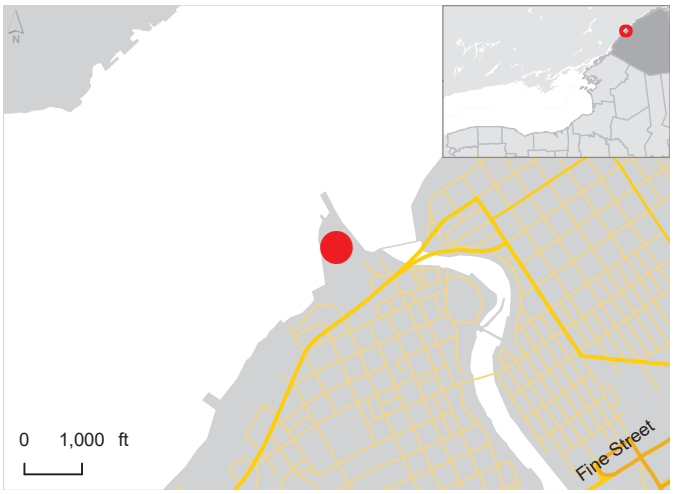
FORT DE LA PRESENTATION TRAIL

This project seeks to address erosion and flooding on the Fort de La Presentation's Interpretive Trail and western shore of Van Rensselaer Point. The trail is located directly on the St. Lawrence River. Areas affected are located within the 100-year FEMA flood zone, facing exposure to both the St. Lawrence and Oswegatchie rivers.

City of Ogdensburg, St. Lawrence County

Fort de La Presentation Association

$ 1,295,000



Mitigation Measures

Proposed mitigation measures in the project will consist of:

- Shoreline stabilization and potentially raising the trails

Public Support and Asset Owner

Public support is high. The asset owners are public and private.

Permitting and Feasibility

The project is feasible. Multi-jurisdictional permit review is needed.

Benefits

The project would increase accessibility to the trail, which is impassable if flooded, inhibiting the experience at this tourist location.

Flexibility

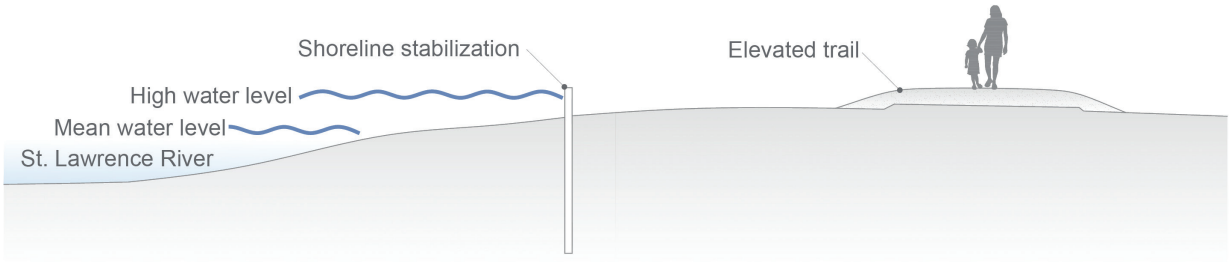
The number of improvements that can be undertaken will depend on funding and scheduling.

Durability

The project will increase the flooding resiliency of the trail.

Economic Development Potential

Van Rensselaer Point is largely undeveloped with the exceptions of a privately owned lighthouse, stone dust recreational trails, and a memorial statue. The Fort de la Presentation area is used both as cultural interpretation asset (e.g., re-enactments, informational signs), and for semi-public passive recreational purposes (e.g., walking, waterfront enjoyment). Many communities depend on shoreline tourism/recreation.



Shoreline stabilization and elevated trail (Principle sketch, NTS)

Environmental Considerations

The shorelines of the peninsula feature a mix of vegetation, mostly low grasses and mature canopy trees. Directional currents leave the west side of the peninsula exposed to debris buildup and sediment accretion, while flow across the east shoreline may leave it vulnerable to the erosive force of the Oswegatchie River. Impacts to aquatic and wetland resources and associated protected species will be minimized to the extent practicable.

Alternatives Considered

The potential emergency mitigating project is to provide short-term erosion protection. An additional proposed project component is raising the trails. Alternative natural and nature-based solutions were identified and are under consideration.

PUBLICLY OWNED REGIONAL DOCKS AND BOAT LAUNCHES

Towns of Alexandria, Clayton, Hammond, Lyme, and Orleans; villages of Alexandria Bay, Cape Vincent, Clayton; Dexter; Sackets Harbor, and Waddington; City of Ogdensburg

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Jefferson and St. Lawrence Counties

Public

$ 24,913,973

Mitigation Measures

Proposed mitigation measures for these projects will require some or all of the following improvements:

- Fixed elevation docks will be replaced with floating docks and slips, inclusive of anchorage and posts to restrict dock movement vertically only
- Relocate fuel pumps and fuel tanks to a higher elevation to protect against rising lake levels
- Modification of dock electrical services in tandem with floating docks and/or relocation of facility infrastructure affected by rising water levels
- Raising elevation of permanent structures located close to waters edge and at elevations that are below anticipated high water levels
- Installation of stabilization measures at waters edge, in some cases, extending height of existing infrastructure to higher elevation

The attached table summarizes projects located within the Jefferson and St. Lawrence regions.

Public Support and Asset Owner

Public support is high. The facilities provide substantial impact to the area in the form of jobs, tax revenue, recreation, and tourism. In many communities, these assets are at the core of the community identity. The asset owners are public.

Permitting and Feasibility

These projects are considered moderately to highly feasible due to the type of improvements, and work will only be conducted on assets that have existing facilities that have been impacted. Multi-jurisdictional permits will be required.

Benefits

Proposed shoreline stabilization will protect the localized infrastructure from flooding and damage due to debris, ice, and waves experienced under current conditions. Relocating marine fueling facilities and electric and sanitary sewer facilities to a higher elevation will improve safety and reduce negative impacts to the adjacent aquatic resources.

Flexibility

The final project components will be determined during design and tailored for each facility. All electrical work will be completed in accordance with National Electric Code (NEC), building modifications in accordance with local building code, and shoreline stabilization measures constructed of materials locally available and in alignment with the project funding.

Durability

Infrastructure improvements will be in accordance with national and local codes and generally will have a 20-year design life. Shoreline stabilization will be based on the selected site-specific design guidance and will typically last 30 to 40 years and be low maintenance.

Economic Development Potential

Recreational boating is of high value to this region and per 2014 data, results in an approximate annual direct spending of $18 million for slip rental, launch lanes, and charter boats. Translated into 2019, this value likely exceeds $22 million when inflation, fuel sales, boat repairs, and restaurants are included.

Jefferson and St. Lawrence Counties Mitigating Projects – Publicly Owned Regional Docks and Boat Launches				
County	**Municipality**	**Asset**	**Quantity of Slips**	**Total Project Cost**
Jefferson	Town of Alexandria	Goose Bay Boat Launch	20	$455,000
Jefferson	Town of Clayton	Shoreline near Hotel and Riverwalk	-	$3,000,000
Jefferson	Town of Clayton	Upper Landing on Grindstone Island Boat Launch	10	$600,000
Jefferson	Town of Lyme	New Access to Village, Docks, Infrastructure	-	$1,182,000
Jefferson	Town of Orleans	Fishers Landing Boat Launch	-	$400,000
Jefferson	Village of Alexandria Bay	Upper and Lower James dock	-	$2,000,000
Jefferson	Village of Alexandria Bay	Scenic View Park Pier	-	$1,100,000
Jefferson	Village of Cape Vincent	Village-Owned Boat Ramp	-	$50,000
Jefferson	Village of Cape Vincent	Village-Owned Dock	-	$50,000
Jefferson	Village of Cape Vincent	Esseltyne Public Dock	-	$3,106,000
Jefferson	Village of Clayton	Crib Dock at Mary St. Boat Launch	20	$938,000
Jefferson	Village of Clayton	Village Docks by Veteran's Monument	15	$183,000
Jefferson	Village of Clayton	Frink Park Regional Dock	15	$1,397,000
Jefferson	Village of Dexter	Boat Launch/Fishing Area	-	$59,000
Jefferson	Town of Clayton	Clayton Harbor Municipal Marina	60	$1,257,000
Jefferson	Village of Sackets Harbor	Market Square, including Boat launch on West Main St.	50	$1,500,000
St. Lawrence	City of Ogdensburg	Municipal Marina and City Docks close to Dobisky Center	70	$911,973
St. Lawrence	Town of Hammond	Chippewa Bay Boat Launch	30	$430,000
St. Lawrence	City of Ogdensburg	Morissette Park and City Dock	70	$4,875,000
St. Lawrence	Town of Hammond	Oak Point Boat Launch	NA	$140,000
St. Lawrence	Village of Waddington	Public Dockage	30	$750,000
St. Lawrence	City of Ogdensburg	Greenbelt Park	NA	$530,000
				$24,913,973

Environmental Considerations

Projects will avoid causing harm to adjacent properties through careful design of proposed improvements. Construction will follow appropriate standards and permit requirements. Impacts to aquatic and wetland resources and associated protected species will be minimized to the extent practicable.