Draft Feasibility Study

Mill Pond Pedestrian Improvements

Prepared for

A/GFTC 11 South St., Suite 203

Glens Falls, NY, 12801

Revision 1

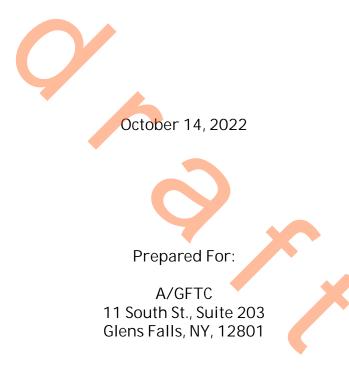
October 14, 2022

Barton&Loguidice

Town of Horicon Warren County, New York

DRAFT FEASIBILITY STUDY

Mill Pond Pedestrian Improvements



Prepared By:

Barton & Loguidice, D.P.C. Engineers • Environmental Scientists • Planners • Landscape Architects 10 Airline Drive, Suite 200 Albany, NY 12205

Table of Contents

	Page	
1.0	Background and Introduction1	1
2.0	Existing Conditions)
2.1	Project Location and Land Use2)
2.2	Roadway Geometry and Roadside Conditions	,
2.3	Pedestrian and Traffic Conditions4	ł
2.4	Crash History5)
2.5	Right of Way5)
3.0	Conceptual Pedestrian Improvement Options	;
3.1	NY Route 8 C <mark>ro</mark> sswalk from the Beach6	,
3.2	Pedestrian Path Encircling Mill Pond7	,
3.3	Market St	}
-	 Market St. Alternative No. 1 - One Way with Parking Lane	
3.4	NY Route 810)
-	4.1 NY Route 8 Alternative No. 1 – Limited Parking 10 4.2 NY Route 8 Alternative No. 2 – Additional Parking Provisions 11	
3.5	Pedestrian Path Surface Materials12	
3.6	Green Infrastructure12	•
3.7	Geometric Improvements13	,
4.0	Cost Estimates14	ļ
5.0	Funding Opportunities and Implementation15	,

1.0 Background and Introduction

The Town of Horicon and the Adirondack/Glens Falls Transportation Council (A/GFTC) initiated this project to investigate options for improving pedestrian mobility, pedestrian safety, and walkability around Mill Pond. This project was originally identified in the Town's 2019 First Wilderness Plan as one of many priority projects to be completed throughout the Town. Additionally in 2021, the Warren County Planning Department developed a virtual GIS tour of Mill Pond. The vision of the Pedestrian Improvements Conceptual Design is to create an accessible path for those who would like to follow the historical tour in person.



Please visit the tour page at the following link: Town of Horicon's Mill Pond Tour.

Suggested improvements include a pedestrian crossing of NY Route 8 between the Horicon Public Beach and the Horicon Volunteer Fire Department and improved pedestrian facilities around the pond, including a formal pedestrian path and parking opportunities. Other benefits that can be realized as part of the suggested improvements include bank stabilization to reduce erosion, water quality improvements through green infrastructure practices, increased and more formal fishing access, and seating and viewing locations for the events that occur at the pond and in the vicinity during the spring, summer, and fall months.

2.0 Existing Conditions

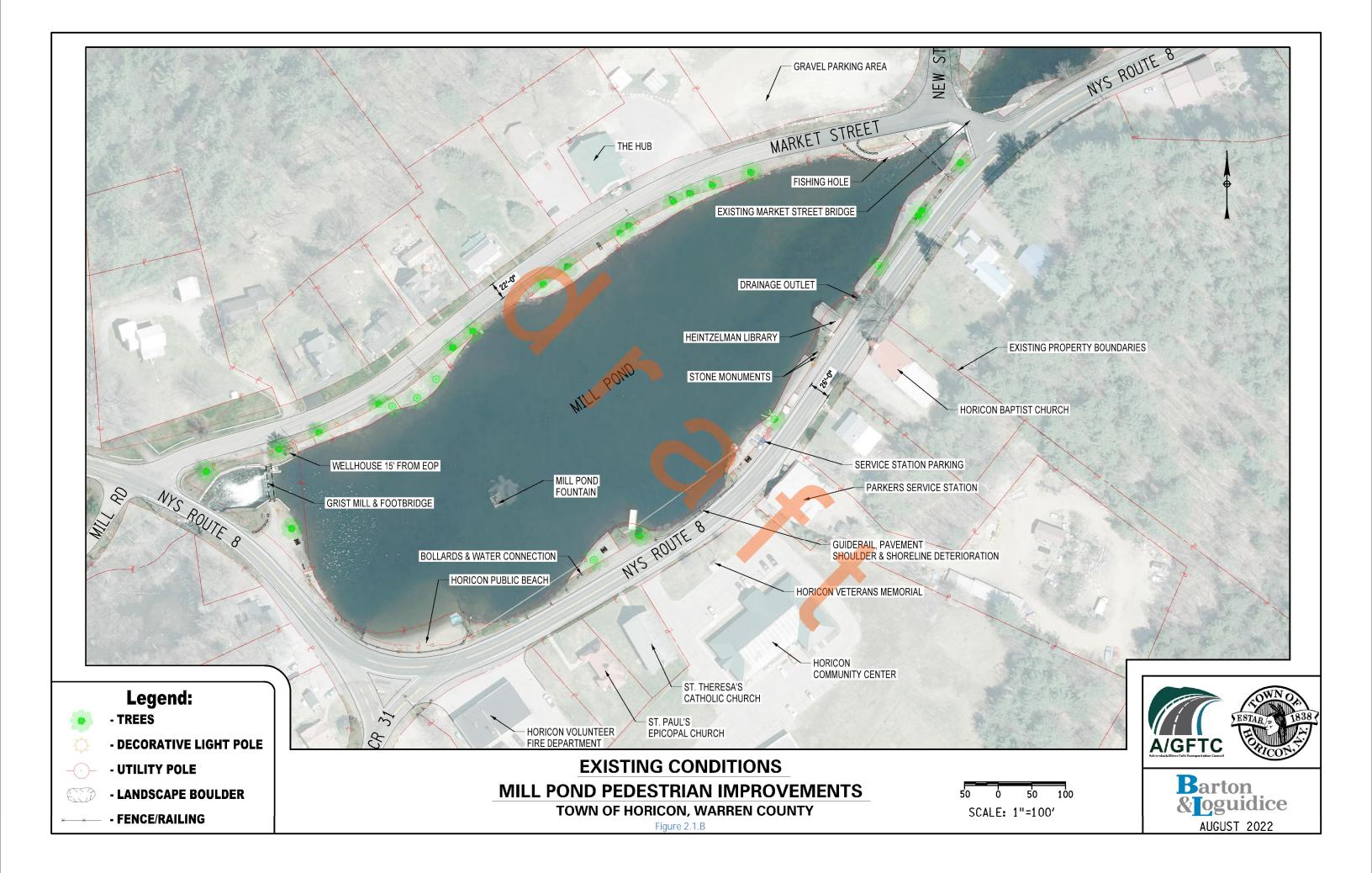
2.1 Project Location and Land Use

The project study area is along NY Route 8 and Market Street encircling Mill Pond located at the southern end of Brant Lake that includes a mix of municipal, commercial, and residential properties.



Figure 2.1 – Project Location Map (Reference: Google Maps)

Within the study area are several historical buildings and local recreational attractions such as the Horicon Community Center and Town offices, Volunteer Fire Department, the Heintzelman Library, the Horicon Public Beach, US Post Office, the Fishing Hole, and the gristmill and steel footbridge. In addition to the Town attractions, there are privately owned points of interest here as well including The Hub (Bike Shop/Restaurant/Bar), Brant Lake Bike Park, a General Store, and several churches. The Mill Pond area is the center for popular local events that draw large crowds such as Food Truck Fridays, Saturday morning swimming lessons, and Fireworks. Please refer to Figure 2.1.B for a graphical representation of the project area existing conditions.



2.2 Roadway Geometry and Roadside Conditions

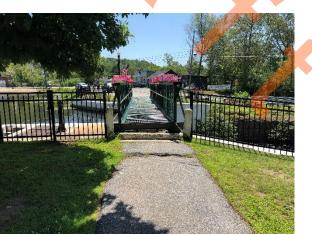
NY Route 8 is a state owned Rural Major Collector with eleven foot (11') wide travel lanes and shoulders varying from two feet (2') to six feet (6') in width. NY Route 8 winds around the east side of Mill Pond and includes a non-standard horizontal radius curve adjacent to the beach and intersection with Horicon Avenue (CR 31). Sight distance is limited in this area, restricted by the sharp curve and fencing around the beach area. The posted speed limit on NY Route 8 is 35 MPH through the study area.



NY Route 8 at the Heintzelman Library

NY Route 8 at the Horicon Public Beach

At the western end of the project limits, an existing steel footbridge is located over the pond and the dam that outlets to Spuytenduivel Brook. The historical sign at the footbridge marks the location of where a Grist Mill was once in operation dating back to 1865. It is anticipated that the footbridge will be utilized by the final pedestrian circulation path.



Existing Footbridge

Market Street is a Warren County owned roadway that is maintained by the Town. The roadway consists of twenty-two feet (22') of paved asphalt that follows the west shoreline of the pond and intersects with NY Route 8 at the north and south end of the pond. The posted speed limit is 25 MPH on Market Street.



Market St. across from The Hub

Roadside conditions vary throughout the corridors. The outside of the roadways consists of grassed lawns, driveways and parking lots with all buildings at least twelve feet (12') from the roadway edge. Sections of the side slopes from the roadways edge to the water's edge are steep with several feet of vertical drop. The width between the water's edge and roadway ranges from three feet (3') wide to twenty feet (20') wide with guiderail present in multiple narrow sections where there is limited recovery area. Trees, signs, and street lights are located along the roadside in the wider sections.

2.3 Pedestrian and Traffic Conditions

Existing traffic information was collected and pedestrian activity were observed utilizing field observations and mounted cameras.

Automatic traffic recorders (ATR) were deployed on NY Route 8, approximately 500 ft. north of the Fire Department to obtain vehicular volume and speed data. The ATRs were active between Thursday July 7, 2022 and Monday July 11, 2022. The data collected with the ATRs was compared with NYSDOT traffic data viewer and was found to be comparable, revealing a weekday peak period between 4:00 PM to 6:00 PM. The Average Annual Daily Traffic (AADT) was approximately 3,000 vehicles per day.

Vehicular speed was also recorded on NY Route 8 which showed an average speed of 32 MPH with an 85th percentile speed of 38 MPH

Pedestrian activity was monitored during peak hours and special events to determine general circulation paths and where pedestrians are currently crossing NY Route 8. Crossing habits, walking patterns, potential conflicts, pedestrian volume, user types (age, mobility challenges) other data was collected. Consistent with the Town's observations the majority of pedestrians cross NY Route 8 between the Fire Department and Town Hall en-route to/from the parking area behind the Fire Department and the public beach. The study also revealed that almost an equal number of people are parking in the northern gravel parking area next to The Hub; crossing the Market St. Bridge and walking along NY Route 8 on the pond side traveling north and south. There were no vehicular conflicts with pedestrians witnessed during the observation period.



Figure 2.3 – Pedestrian Circulation Path and Radar & Camera Locations

During the popular Food Truck Friday event there was a large volume of pedestrians moving throughout the entire Mill Pond area. The majority of people parked at the gravel parking area next to The Hub, or along Market Street to the south and walked along the shoulder to the Town Hall parking lot where the event is held. The high volume of people during the event did seem to have an impact on vehicular flow slowing down traffic and some vehicles having to wait for people crossing the road.

2.4 Crash History

The most recent 3 year crash history for the project area was requested from the NYSDOT Accident Location Information System. During this time period there were no reported accidents within the project area.

2.5 Right of Way

Highway and property boundaries were obtained from the Warren County GIS tax map viewer. It should be noted that tax maps are not boundary surveys and should not be used for establishing property lines for construction purpose, but the information is acceptable for preliminary investigations to identify where more detailed investigations are needed. The tax maps depict a highway boundary width of 48 ft. to 50 ft. wide (assumed to be a 3 rod road) for both NY Route 8 and Market St. Although Mill Pond is owned by the Town of Horicon, it was noted that there are several 10 ft. to 20 ft. wide parcels of privately owned land between the highway boundary and the water's edge.

3.0 Conceptual Pedestrian Improvement Options

For the purpose of this analysis, existing conditions were evaluated to determine the best design solution that meets the project goals and objectives. The factors which affect the feasibility of construction include current traffic patterns, right-of-way impacts (if any), roadside obstacles, environmental impacts, and stormwater/drainage.

3.1 NY Route 8 Crosswalk from the Beach

The determination for locating a mid-block crossing from the Volunteer Fire Department to the Public Beach is based on the observed circulation of pedestrians and measured sight distance. As seen in the screen shot below, taken from a video clip on Friday, July 8th, 2022 during the Town's Food Truck Friday weekly event. Pedestrians routinely crossed NY Route 8 at the eastern end of the Volunteer Fire Departments driveway.



In accordance with the NYSDOT Highway Design Manual, Chapter 2, the standard minimum stopping sight distance for a Rural Collector road with a design speed of 40 MPH is 271 ft. As shown in Figure 3.1, the placement of the crosswalk in the location that is currently utilized by pedestrians will have a non-standard stopping sight distance (175 ft.) for NY Route 8 northbound vehicles. It is noted that the 85th percentile speed was captured just north of the Community Center in a more straight alignment area of NY Route 8 and near the Public Beach vehicles are slowing down due to the sharp curvature of the road.



Figure 3.1 – NY Route 8 Crosswalk Location

To increase driver awareness of the crosswalk, it is suggested to accompany the pedestrian crossing signs with Rectangular Rapid Flashing Beacons (RRFBs). RRFBs consist of two rectangular yellow lights that flash at an alternating frequency when activated. The lights are activated through a pushbutton located on the sign post. According to the FHWA, RRFBs are particularly effective for mid-block crossings of multi-lane roadways with speed limits of 40 MPH or less as well as they increase motorist yielding rates for up to 98%.

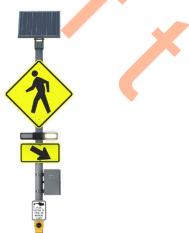


Figure 3.2 – RRFB with Pedestrian Pushbutton and Crossing Signs (Source: TAPCO, Inc.)

3.2 Pedestrian Path Encircling Mill Pond

Several alternatives were evaluated on both Market St. and NY Route 8 to determine the feasibility, cost, and impacts of constructing a formalized 6 ft. wide pedestrian path around Mill Pond. The alternatives for each road are presented separately so a combination of the alternatives can be implemented.

3.3 Market St.

3.3.1 Market St. Alternative No. 1 - One Way with Parking Lane

This alternative will include the conversion of Market St. to a northbound one way road with a 12 foot travel lane for vehicles and 8 foot parking lane. The 6 ft. wide pedestrian path will be constructed adjacent to the road on the pond side using either concrete or crushed stone to delineate the path from the road. Overall the footprint will be 22 ft. wide and will have limited impacts to the side slopes in this area.

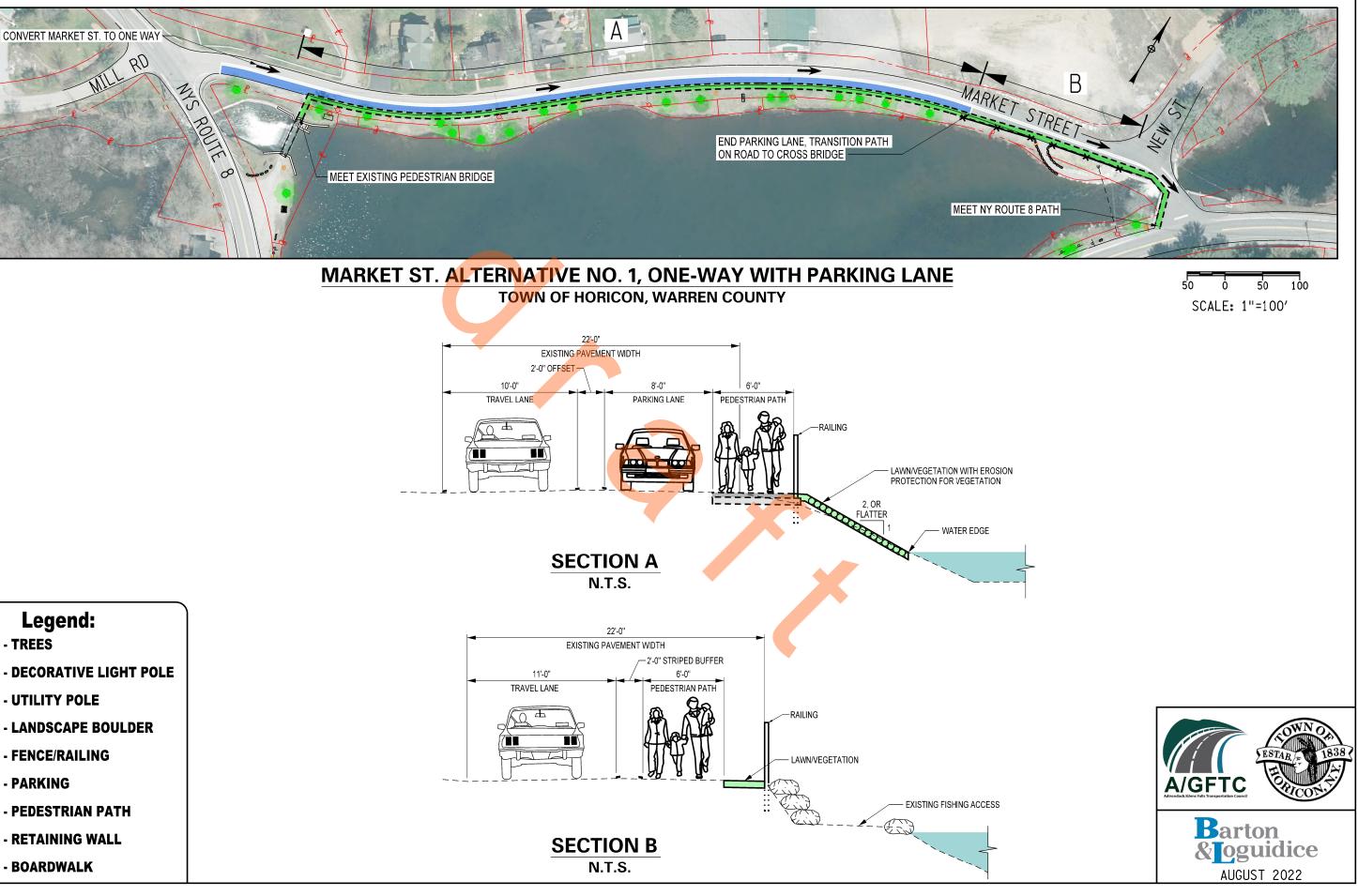
The pedestrian path on Market St. will begin at the existing steel footbridge located at the southwest end of the project and continue along the road to the northeast. The path will transition to the existing pavement near the Fishing Hole. The one-way conversion of Market St. will provide available width across the existing bridge over Mill Pond to be re-purposed for the pedestrian path to connect to the NY Route 8 North intersection.



- TREES

- PARKING

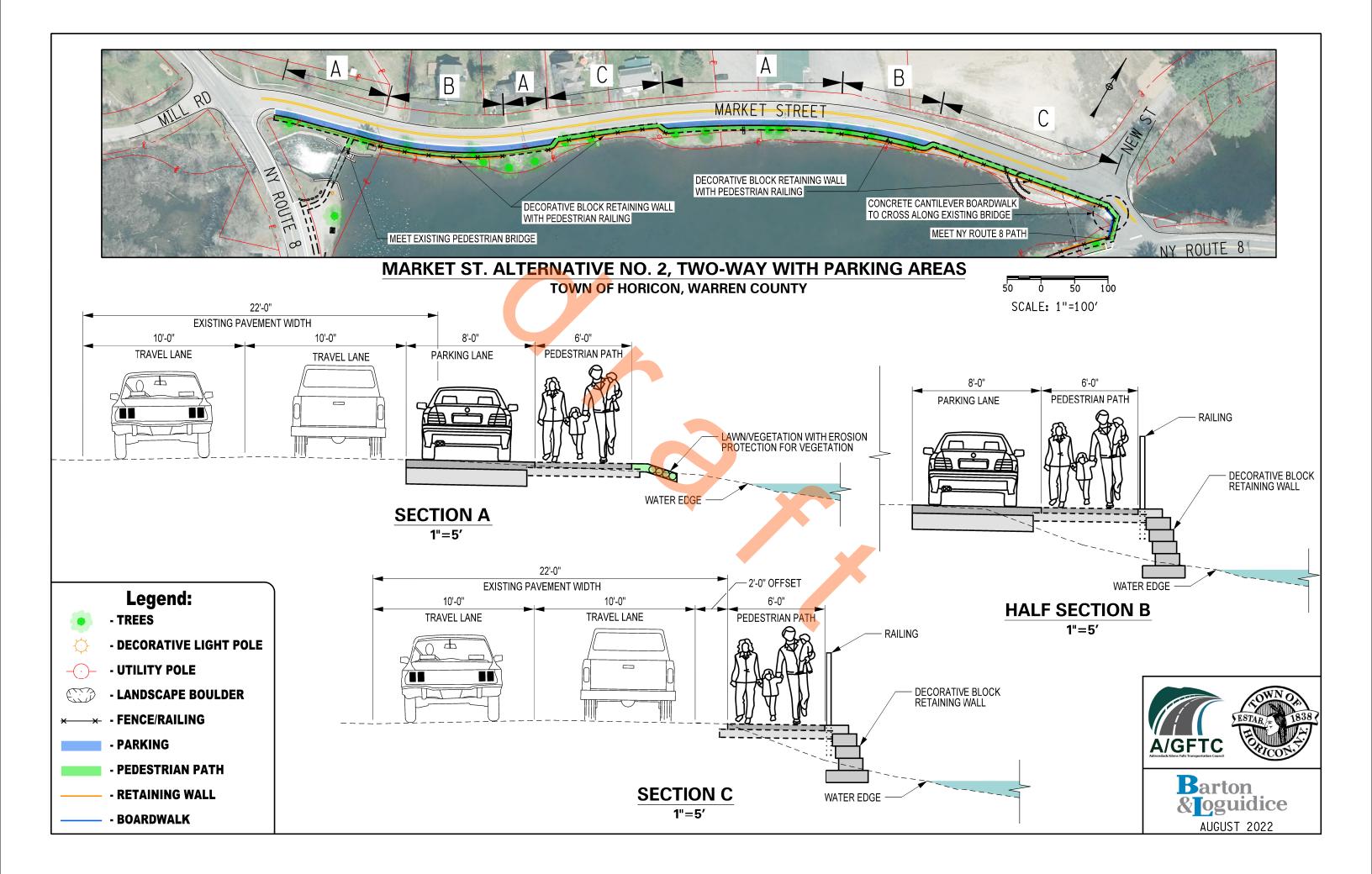
 $-(\cdot)$



3.3.2 Market St. Alternative No. 2 – Two-way with Parking Areas Market St. was evaluated to maintain the existing two-way vehicular travel while also providing the 6 ft. wide pedestrian path and maximizing potential on road parking. The additional width associated with the two vehicular travel lanes requires the pedestrian path to be constructed over the existing side slopes to Mill Pond that will require the installation of retaining walls. This alternative will encroach on several private properties that will require easements to be acquired. In order to navigate the path over the northern Mill Pond inlet, a cantilevered bridge structure is proposed to provide the necessary width for the pedestrian path without replacing the existing Mill Pond inlet culvert structure.



Figure 3.3.2 – Cantilever Bridge Sidewalk (Source: Creative Composites Group)



3.4 NY Route 8

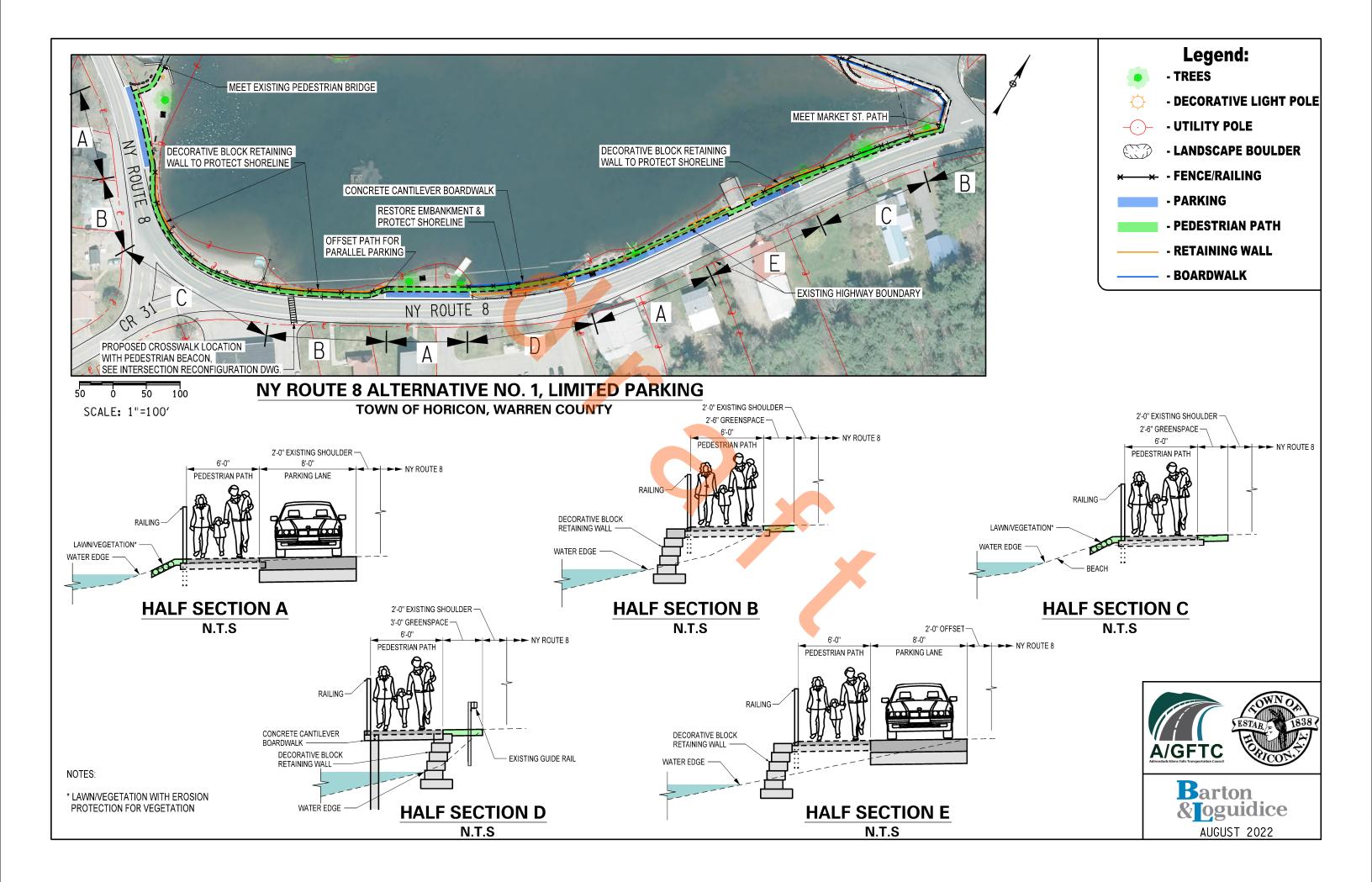
3.4.1 NY Route 8 Alternative No. 1 – Limited Parking

A 6 ft. wide path would be constructed along NY Route 8 that would be offset from the existing edge of pavement a minimum of 2 ft. There are several sections where the side slope drops off sharply down to the water. In these areas a retaining wall is proposed to protect the shoreline from erosion and provide a foundation for the pedestrian path.

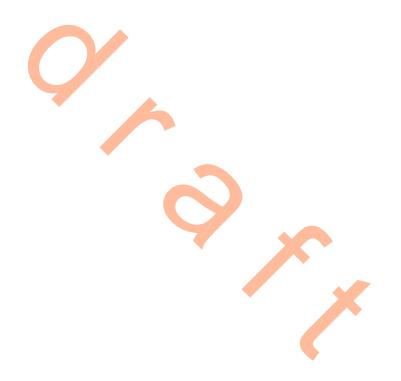
A short segment of the pedestrian path across from the Community Center, where the alignment will be over the water's edge will require the installation of a pre-cast concrete boardwalk structure. Please refer to figure 3.4.1 for representative picture of a boardwalk installation.

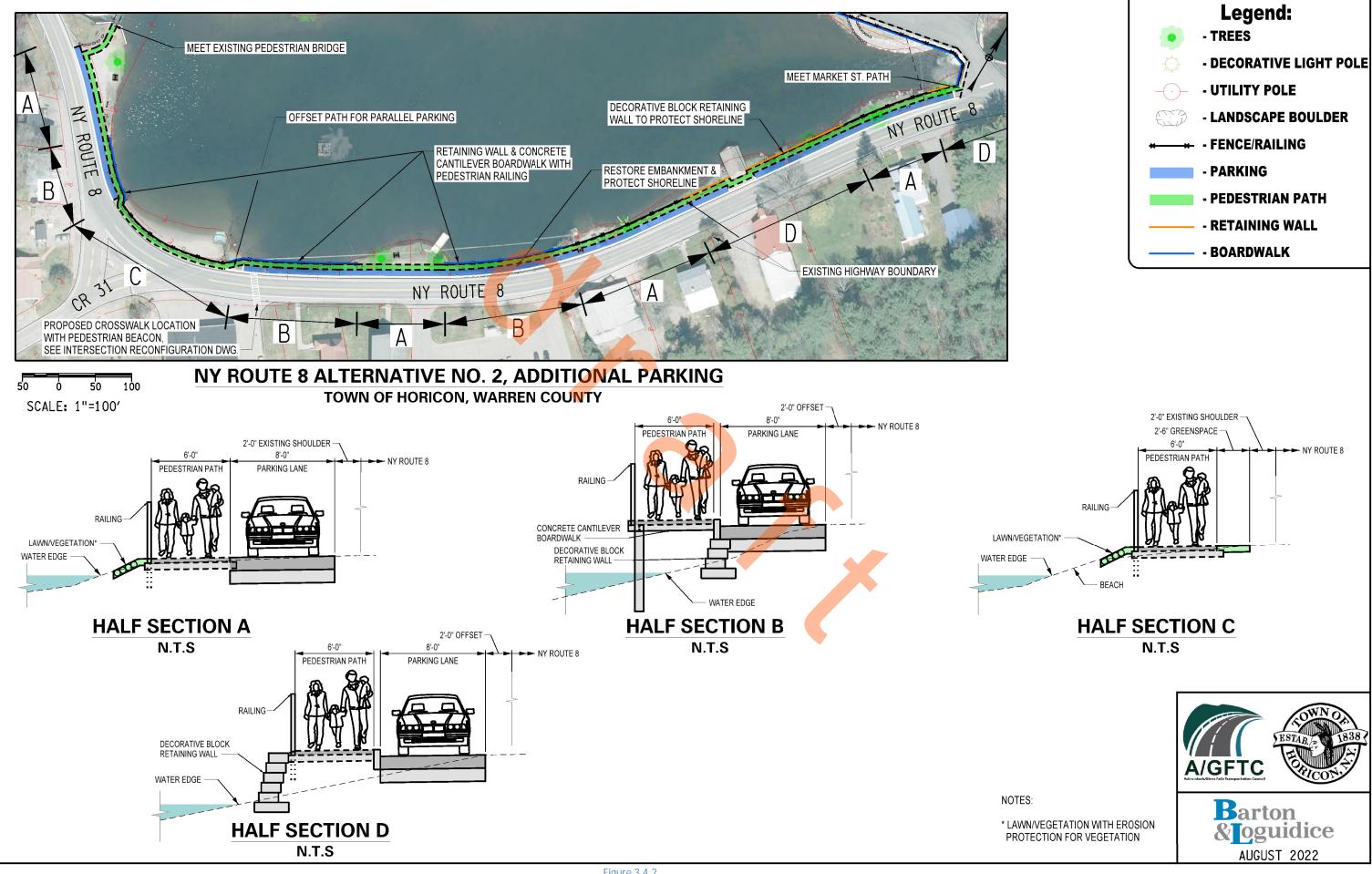


Figure 3.4.1 – Precast Concrete Boardwalk (Source: PermaTrak Co.)



3.4.2 NY Route 8 Alternative No. 2 – Additional Parking Provisions An additional alternative along NY Route 8 was investigated to maximize onstreet parking along the corridor. The pedestrian path alignment generally follows the Alternative No. 1 alignment, although to accommodate the additional parking lane width, the pedestrian path will be constructed closer to Mill Pond. The alternative will require the installation of several segments of retaining walls and pre-cast concrete boardwalk structures. Please refer to Figure 3.4.2 for the plan and section renderings for this alternative.





3.5 Pedestrian Path Surface Materials

It is anticipated that varying walking surfaces will be utilized throughout the pedestrian path system. Areas expected to be encroached upon by motor vehicles should consider utilizing asphalt or concrete pavement.

An alternative to the traditional hard surface material, is a crushed stone aggregate surface course that is bound by clay particles. The natural materials of this surface course appeals to the environmental setting of the project. Examples of this durable stone course



Ashokan Rail Trail, Ulster County, NY ADA compliant, permeable, load bearing, stone course design adjacent to NYC reservoir.

system use includes NYS OPRHP Minnewaska State Park, the Rockefeller State Park Preserve, and the Ashokan Rail Trail in Ulster County.

The Elevated or boardwalk type sections of the pedestrian path will be pre-cast concrete or timber surfaces.

3.6 Green Infrastructure

The project area provides opportunities for Green infrastructure elements for aesthetic enhancement but also to help offset any increases in impervious areas. Rain Gardens and infiltration practices are most applicable as they can be almost any shape or size and are adaptable for a variety of existing conditions. Sample locations are identified on the project figures. In the foreground of the picture below is a linear rain garden adjacent to porous asphalt, also with a bio-retention system in the center of the roundabout in Lake George, NY.



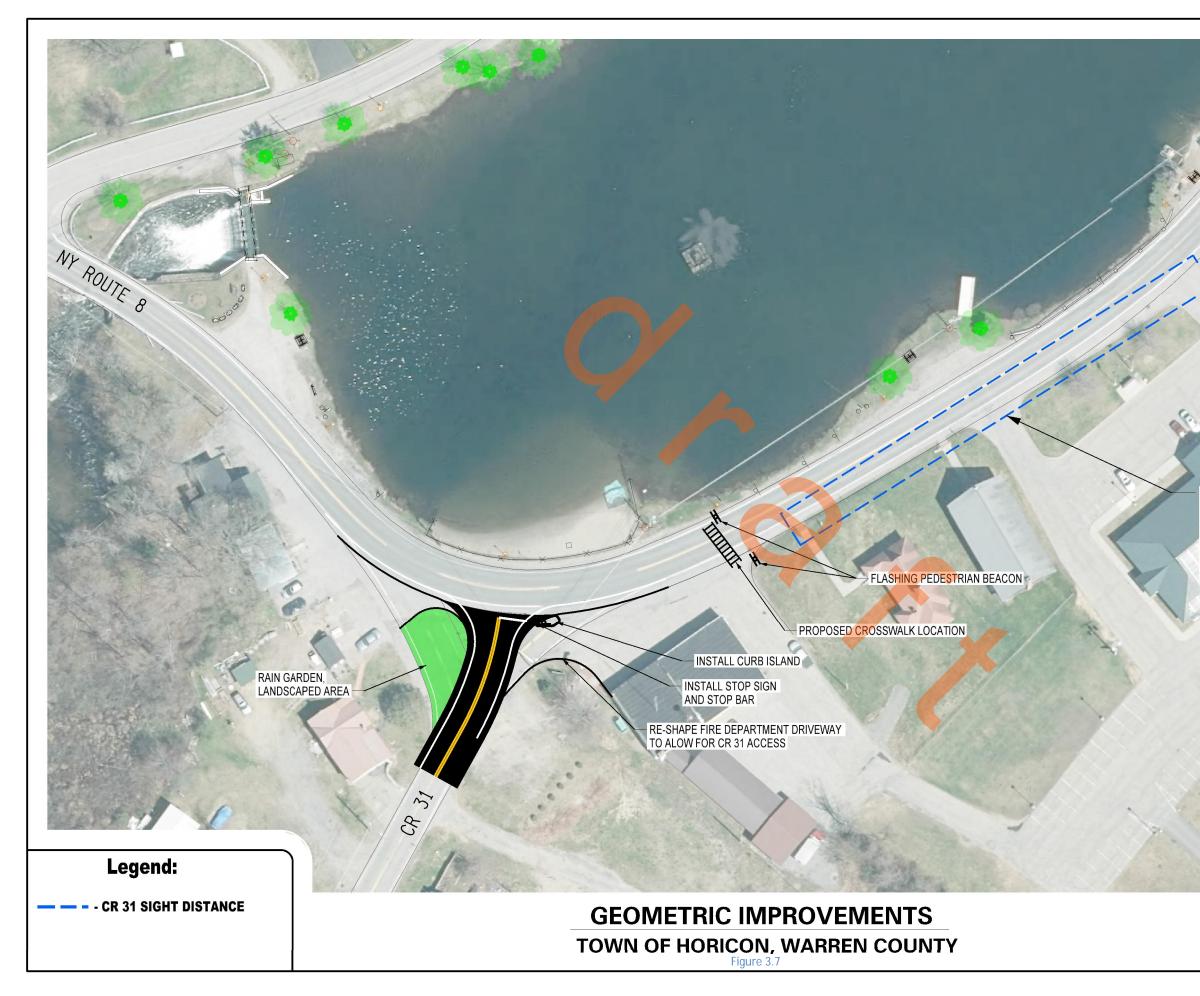
As further described in the funding opportunities section, there are several grants available for stormwater practices and green infrastructure implementation that will help to offset the overall total cost of the project. The project is attractive to the green infrastructure funding sources due to the proximity to a water body and promotion of alternative transportation.

3.7 Geometric Improvements

While evaluating alternatives for the NY Route 8 crossing location and the pedestrian path, there were additional roadway system geometric improvements that were investigated. The horizontal alignment of NY Route 8 between the Volunteer Fire Department and the Community Center creates an opportunity to shift the roadway approximately 4 ft. away from Mill Pond (to the southeast). The alignment option was investigated to allow more space along the pond for the pedestrian path to be constructed without additional retaining wall or boardwalk structures. It was determined that the additional property impacts, roadway construction costs, and NYSDOT coordination would offset any potential pedestrian path cost savings.

The existing intersection of CR 31 (Horicon Ave.) with NY Route 8 is set up as a "Y" pattern with two-lane approaches on either side of a wide triangular median. Reconfiguring the intersection to a standard "T" stop controlled approach does provide additional benefits to the roadway network and the pedestrian improvement project. As shown in Figure 3.7, the "T" intersection will inherently provide traffic calming elements by creating a tighter right turn movements for NY Route 8 exiting vehicles or vehicles entering NY Route 8 from CR 31. The "T" alignment will also provide the stopped vehicles a more complete view of the intersection rather than the existing layout which requires the driver to turn their head back more than 90 degrees to look for on-coming traffic. Also, an additional benefit for the pedestrian improvement project is the existing impervious surface that can be repurposed for green infrastructure and stormwater improvement use located west of the re-aligned intersection.

X



NOTE:

NOTE: NY ROUTE & SHIFT OF APPROXIMATELY 4' TO THE EAST IN THIS AREA IS FEASIBLE AND WOULD REDUCE COSTS OF PROVIDING PARKING AND THE PEDESTRIAN WALKWAY ALONG THE PONDS EDGE. HOWEVER, RIGHT OF IMPACTS, NYSDOT COORDINATION & ROADWAY COSTS WILL LIKELY OFFSET THESE FINANCIAL SAVINGS.





4.0 Cost Estimates

Preliminary cost estimates were prepared for both alternatives for the Market St. and NY Route 8 corridors as well as the CR 31 Intersection Re-alignment option. For the purposes of estimating costs, the surface material is assumed to be traditional concrete and the boardwalk structure is assumed to be a pre-cast concrete boardwalk supported by helical piles along the pond.

The cost estimates were prepared with the assumption that the project would receive funding through a federal or state grant and constructed through the traditional design-bid-build process. Federal or state grant programs typically provide funding to cover 50% to 80% of the project costs. The cost estimate table below includes the potential costs that would be the responsibility of the Town at the typical 20%, 25%, and 50% match requirements.

		Market street Alt. No. 1		MARKET STREET ALT. NO. 2		NY ROUTE 8 ALT. NO. 1		NY ROUTE 8 ALT. NO. 2		CR 31 Intersection Re-Alignment	
	DEMO., CLEARING, & GRUBBING	\$	5,000	\$	10,000	\$	4,000	\$	5,000	\$	-
	EARTHWORK	\$	25,000	\$	15,000	\$	9,000	\$	5,000	\$	10,000
	PEDESTRIAN PATH	\$	70,000	\$	100,000	\$	110,000	\$	85,000	\$	-
	BOARDWALK STRUCTURE	\$	-	\$	-	\$	96,000	\$	235,000	\$	-
	RETAINING WALL	\$	-	\$	298,000	\$	324,000	\$	315,000	\$	-
	HANDRAIL	\$	45,000	\$	84,000	\$	96,000	\$	115,000	\$	-
	ROADWORK	\$	15,000	\$	110,000	\$	81,000	\$	165,000	\$	75,000
	LANDSCAPE & SITE AMENITIES	\$	15,000	\$	18,000	\$	35,000	\$	35,000	\$	10,000
	MARKET STREET CANTILVERED BRIDGE CROSSING	\$	-	\$	60,000	\$	-	\$	-	\$	-
	WORK ZONE TRAFFIC CONTROL	\$	50,000	\$	75,000	\$	100,000	\$	100,000	\$	25,000
CONSTRUCTION COSTS:		\$	225,000	\$	770,000	\$	855,000	\$	1,060,000	\$	120,000
CONTINGENCY (25%)		\$	57,000	\$	193,000	\$	214,000	\$	265,000	\$	30,000
SUBTOTAL (2022 DOLLARS)		\$	282,000	\$	<mark>9</mark> 63,000	\$	1,069,000	\$	1,325,000	\$	150,000
AWARD AMOUNT INFLATED 3% (2024 DOLLARS)		\$	300,000	\$	992,000	\$	1,102,000	\$	1,365,000	\$	155,000
ENGINEERING AND SURVEY		\$	42,300	\$	144,450	\$	160,350	\$	198,750	\$	22,500
CONSTRUCTION INSPECTION		\$	45,000	\$	100,000	\$	111,000	\$	137,000	\$	16,000
RIGHT OF WAY COSTS:		\$	-	\$	25,000						
	TOTAL PROJECT COSTS:	\$	387,300	\$	1,261,450	\$	1,373,350	\$	1,700,750	\$	193,500
								7			
Town Cost with 20% Grant Match		\$	77,460	\$	252,290	\$	274,670	\$	340,150	\$	38,700
Town Cost with 25% Grant Match		\$	96,825	\$	315,363	\$	343,338	\$	425,188	\$	48,375
Town	Cost with 50% Grant Match	\$	193.650	\$	630,725	\$	686,675	\$	850,375	\$	96,750

5.0 Funding Opportunities and Implementation

There are several potential funding opportunities that are available for pedestrian improvements and positive environmental impact projects. The Town should be aware that all of the funding sources are reimbursement programs that will require the Town to expend all project costs up front and then be reimbursed the funding source match.

A/GFTC Make the Connection Program is available to assist municipalities with funding to improve the region's non-motorized travel network. Project types that are considered in the program include new sidewalk connections, pedestrian safety improvements, and pavement markings that delineate pedestrian spaces. Make the Connection funding is available through the FHWA and administered by the A/GFTC.

- 20% Local Match
- Design Only Projects have a minimum of \$25,000
- Design & Construction or Construction Only Projects have a minimum of \$75,000
- Federal Aid Procedures Apply

NYSDOT Transportation Alternatives Program (TAP) is available for projects that improve the quality of life of the community through the construction of pedestrian and bicycle facilities and pedestrian safety improvements. The program also funds community improvements such as historic preservation, vegetation management, and stormwater mitigation. The program is a Set-Aside of funds from the Surface Transportation Block Grant Program. The FHWA has set-aside a minimum of \$1.4 Billion annually for this program for 2023 through 2026.

- 20% Local Match
- Federal Aid Procedures Apply
- Design & Construction: Minimum = \$500,000; Maximum = \$5 Million

NYSOPRHP Recreational Trails Program (RTP) provides funding for the development and maintenance of recreational trails or trail-related facilities. RTP funding is available through the FHWA and administered by the NYSOPRHP. The program will not fund sidewalk projects, therefore the pursuit of this program would require the Town to utilize the stone surface course material. The RTP can be applied for through the NYS Consolidated Funding Application that is due at the end of July each year.

- 20% Local Match
- Federal Aid Procedures Apply
- Design & Construction: Minimum = \$25,000; Maximum = \$250,000

NYSEFC Green Innovations Grant Program (GIGP) provides funding to projects across New York State that apply green stormwater infrastructure design and promote innovative green technologies. Grant funding is awarded to projects that implement green stormwater infrastructure, energy efficiency, water efficiency, and environmental innovation. The GIGP will fund the stormwater and drainage infrastructure needs that will improve the water quality of Mill Pond and Brant Lake. The GIGP funds would be utilized to supplement an overall project funding source. The GIGP can be applied for through the NYS Consolidated Funding Application that is due at the end of July each year.

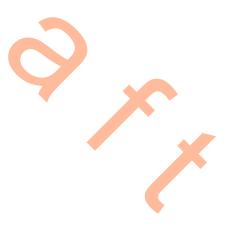
• 25% Local Match

NYSDEC Water Quality Improvement Project (WQIP) Program supports projects that directly improve water quality, aquatic habitat, or protect a drinking water source. The project would be eligible to receive funding through the WQIP project subtypes Green Infrastructure Practices or Stormwater Retrofits, both project subtypes closely align with the application and selection requirements of the NYSEFC GIGP. The WQIP will fund the stormwater and drainage infrastructure needs that will improve the water quality of Mill Pond and Brant Lake. The WQIP funds would be utilized to supplement an overall project funding source. The WQIP can be applied for through the NYS Consolidated Funding Application that is due at the end of July each year.

• 25% Local Match

The NYSDOS Local Waterfront Revitalization Program (LWRP) provides support for waterfront communities to address waterway issues, promote waterfront access, redevelop underutilized waterfronts, and improve water quality. The Town's 2019 First Wilderness Plan was funded by the LWRP and it established prioritized projects throughout the Town, the elements of the Mill Pond Pedestrian Improvements were identified in that 2019 document. With the identification of these project elements, the Town is eligible for implementation funds through the LWRP. The LWRP can be applied for through the NYS Consolidated Funding Application that is due at the end of July each year.

- 25% Local Match
- Design & Construction: Minimum = \$50,000; Maximum = \$5 M







www.bartonandloguidice.com