

TWO RIVERS GREENWAY

Design Guidelines and Signage Plan



Prepared For:

The Binghamton Metropolitan Transportation Study

Prepared By:



SYNEGRAPHICS



2012

ACKNOWLEDGMENTS

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TWO RIVERS GREENWAY

Design Guidelines and Signage Plan

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Background. _____

In June of 1996 the Binghamton Metropolitan Transportation Study (BMTS) Pedestrian and Bicycle Plan called for a feasibility study to determine the potential of a regional trail system that would connect Binghamton and its surrounding areas. In December of 1999 the BMTS proposed a contiguous regional multi-use trail system extending from the Greater Binghamton Urban Area to the Village of Owego. Signed and numbered on-road bike routes were installed to identify the connections where off road trail development was not feasible, and in the time period before trails were constructed. In 2000 it was decided that each Municipality would be responsible to develop their segments of the trail system and connect to their neighboring municipalities, ultimately creating a contiguous system.

More recently in 2011 Peter J. Smith & Company, Inc completed the *Broome County Intermunicipal Waterfront Public Access Plan* that outlined future development along Broome County riverfronts. The Two Rivers Greenway Signage Plan will expand various parts of this study including its recommendations to “Develop/ Put in Place Wayfinding Signage and Information System” that would alert and direct travelers to the Riverway. Also an expansion of the previous study the TRG Signage Plan hopes to expand the bi-counties tourism and marketing. Outlined in section 5.6.1 “Branding Strategy” is one of the first steps to identify the riverway as a major destination for outdoor and recreational activities.

Broome and Tioga Counties have multiple assets that set them apart from other Northeastern counties. Natural resources such as the Susquehanna and Chenango Rivers create opportunities for multi-modal transportation, recreation and diverse habitats. The Two Rivers Greenway Design Guidelines and Signage Plan takes a closer look at navigating the multi-modal trail systems within the river communities in Broome and Tioga Counties. Many Towns and Villages have built successful Trail systems to promote outdoor recreation. These trail segments are made up of walking and biking paths that offer local communities a safe and enjoyable place to exercise, explore and have fun.

Currently. _____

The BMTS and the New York State Department of Transportation (NYSDOT), Region 9 are working together to promote and facilitate the implementation of the Regional Greenway Trail System as a cooperative venture of their respective pedestrian and bicycle advisory groups and BMTS Pedestrian and Bicycle Committee.

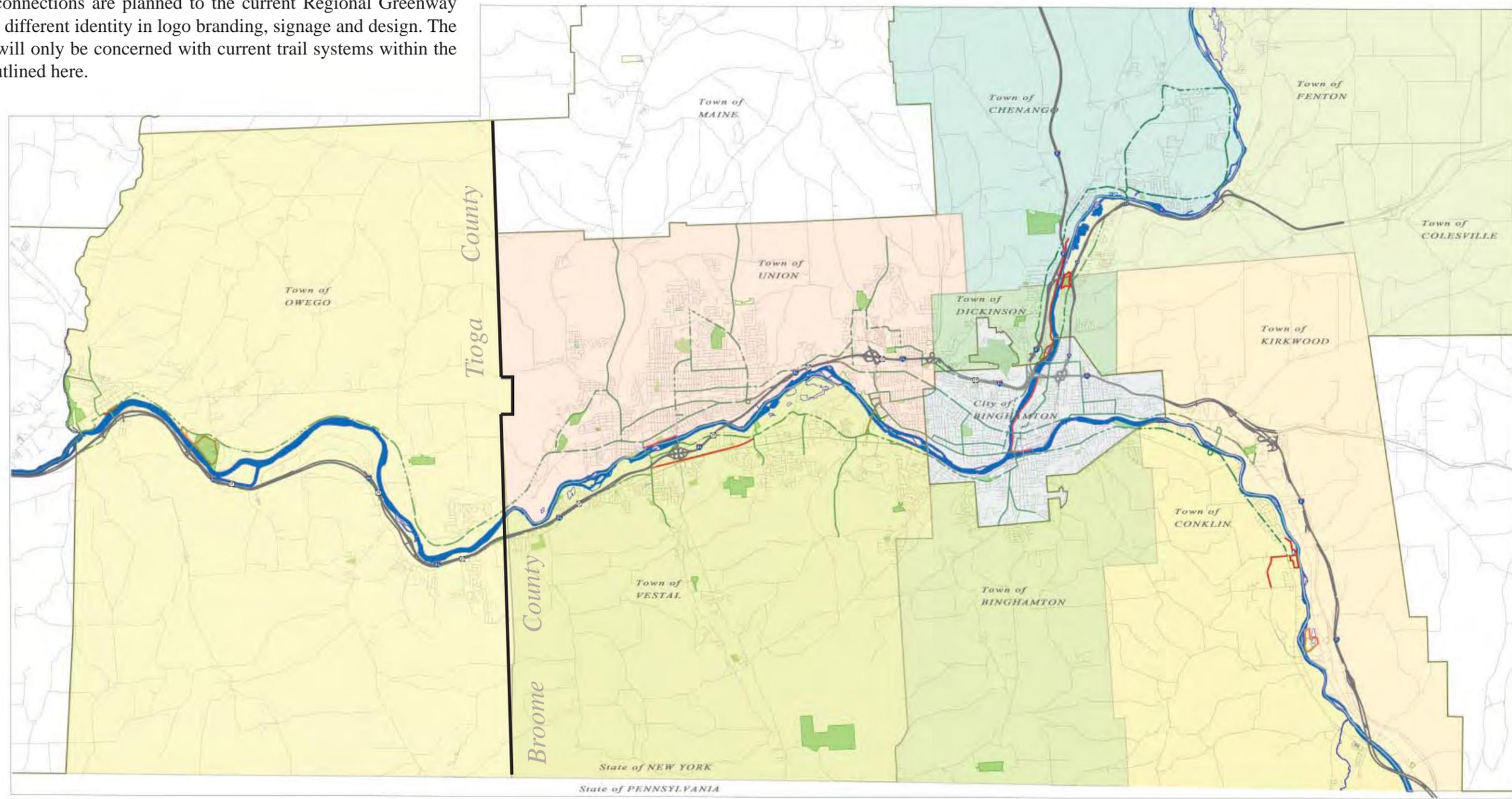
Purpose of Study. _____

To brand the regional network of trails as once contiguous system. To create a uniform design and plan for wayfinding, that includes the full array of identification, orientation, directional, interpretive and regulatory signage as well as communication standards that go beyond the greenways own communication opportunities to include print and electronic media throughout the system.

project EXTENTS



The Two Rivers Greenway Design Guidelines and Signage Project extents, shown below, covers the BMTS region including Owego, Union, Vestal, Binghamton, Conklin, Dickinson and Fenton, ultimately spreading West to the Owego Creek and as far East as Conklin along the Susquehanna River. The Project will extend north up to the Chenango Bridge Park and Ride facility. Future trail connections are planned to the current Regional Greenway Trail System, but may take on a different identity in logo branding, signage and design. The Two Rivers Greenway Project will only be concerned with current trail systems within the Broome and Tioga Region as outlined here.



project GOALS & OBJECTIVES

Goal I.

Create a distinctive signage standard that will brand the Two Rivers Greenway Trail across two Counties.

OBJECTIVES:

- Use sign materials and forms already present throughout the Greenway Trail Segments.
- Incorporate Native American, natural and cultural influences of this area into sign design form.
- Develop a timeless and strong identifiable logo to brand the Greenway.

Goal II.

Increase trail usage and efficient wayfinding throughout the Greenway trail system.

OBJECTIVES

- Incorporate directional and orientation signage at key locations within the system to direct users to destinations.
- Provide local wayfinding points of interest in proximity to trail segments within a 1/2 mile radius.
- Increase trail visibility from primary roadways through the use of ‘Trailblazer’ and Directional signs.
- Provide destination distances up to 2 miles for municipalities and other neighboring trail segments of the Two Rivers Greenway.

Goal III.

Provide visitors with useful information about our cultural and historical identity.

OBJECTIVES:

- Provide interpretive panels where historic, cultural and ecological information or destinations are relevant and contextual.
- Promote regional preservation and stewardship of the Susquehanna Heritage Area’s resources.
- Strengthen regional identity through interpretation and education of the region’s history.

Goal IV.

Provide elements for a marketing program to widen the audience, and promote the region’s historic, cultural and recreational attributes while increasing visits to the Susquehanna Heritage Area resources and Two Rivers Greenway.

OBJECTIVES:

- Brand an identity that captures the vision of the Two Rivers Greenway that can be used to market and promote the surrounding region.
- Prepare appropriate sign types, maps, points of interest and graphic language to use in promotional media.

inventory EXISTING SIGNAGE

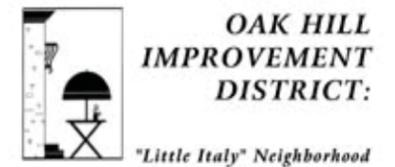


Existing Signage. _____

As is typically the case in existing trail locations, there is often an assortment of forms, colors, materials and applications throughout the system. These include some well-conceived and consistent signage elements evident along Owego's Riverwalk and Otsiningo Park that emphasize interpretation in the architectural sign forms. Usage and safety information is provided to trail goers along the Vestal Rail Trail. However, there are many portions of the existing trails that have little or no signage to identify trail access or direction or to acquaint visitors with the many heritage, recreational and entertainment offerings.

What is more, there is a dizzying array of graphic images projected on the trail or in adjacent neighborhoods and parklands through which the trails pass. Some of the images that can be seen in the vicinity of the trail are shown below.

Consequently, there is a tremendous opportunity to create both a uniform identity for the Two Rivers Greenway and standards for orienting and directing visitors. This will serve as a catalyst to forge a more collaborative effort to market the Greenway's many opportunities.



inventory DESIGN LANGUAGE

INVENTORY DESIGN LANGUAGE

An important aspect of the Two Rivers Greenway Sign Project is understanding the character of existing trail design features. In order to create a congruent system across the region, an extensive inventory of existing structures, textures, materials and concepts must be catalogued and understood. In our area of Upstate New York materials such as bluestone are easily accessible and widely used as a hard-scape element. Shown in these pictures below, bluestone is already incorporated into multiple trail segments including:

Some parts of the trail system already have signage structures in place. Our inventory phase documented the location of many existing sign structures with photographs. Many of the forms, particularly the kiosks, exhibit identity that is compatible with project design criteria. This invites re-use of these structures with new, complementary message panels.

Designers can obtain design clues from existing amenities such as railings and lighting fixtures. Confluence Park is an excellent example of this. Designed by Haas Landscape Architects, this small park has elements in the railings and lighting fixtures that speak to the Native American Heritage for which this area is known. The forms found within the railings and lighting seen below, are symbolic of Two Rivers in Native American art.



Confluence Park,
City of Binghamton



Peacemakers Plaza,
City of Binghamton



Washington Street,
City of Binghamton



Owego Riverwalk, Village
of Owego



Chenango River Promenade,
City of Binghamton

Owego Riverwalk,
Village of Owego



Other design language can originate from the feelings one experiences on a particular trail. Depending on the location and setting of a particular segment, planting treatments may differ. Nonetheless, a planting standard can be implemented across the entire trail system that will further enhance the “brand” of the Two Rivers Greenway.



Confluence Park, City of Binghamton



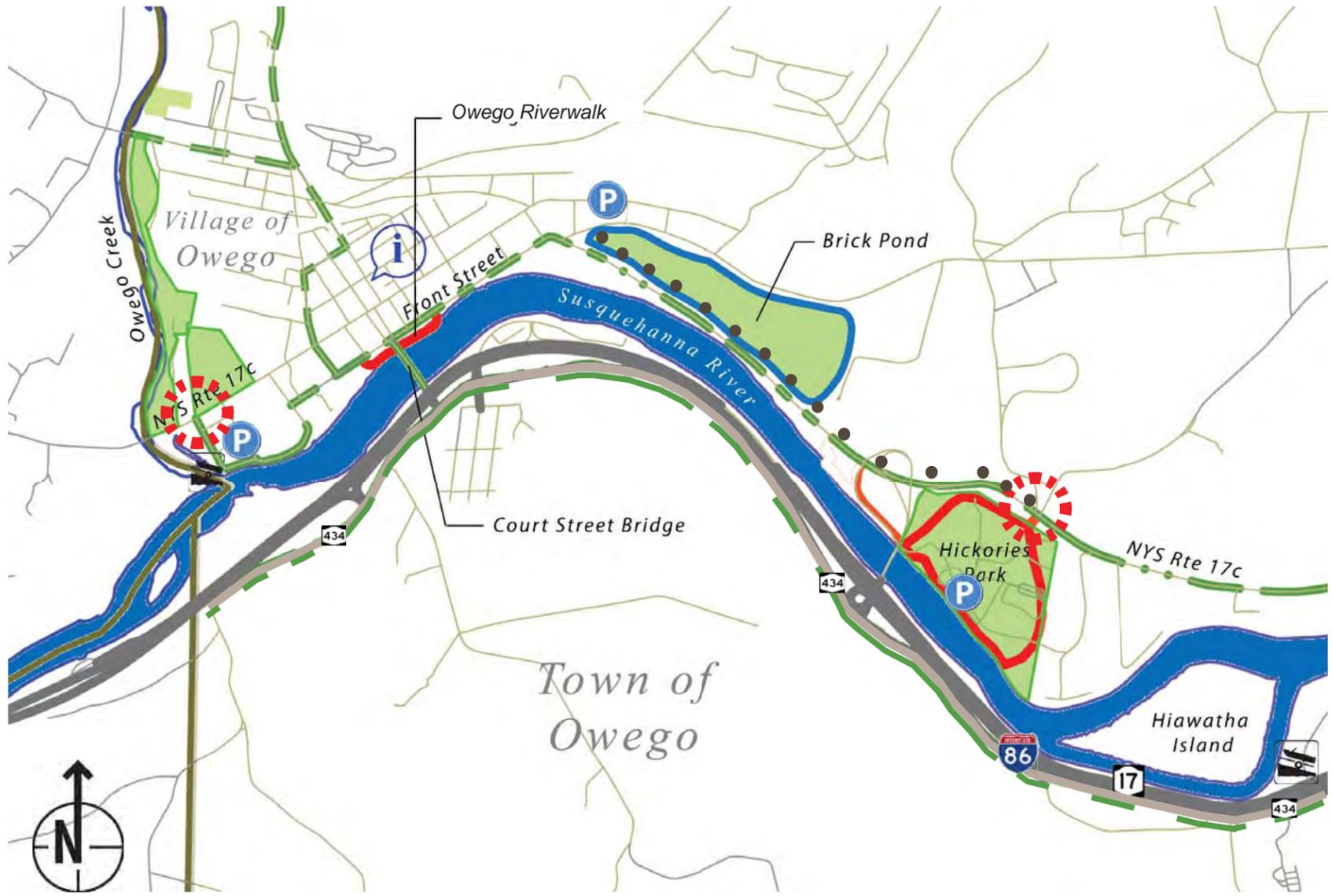
Otsiningo Park,
Town of Dickinson

Designers can obtain design clues from existing amenities such as railings and lighting fixtures. Confluence Park is an excellent example of this. Designed by Haas Landscape Architects, this small park has elements in the

Owego Riverwalk,
Village of Owego



inventory OWEGO TRAILS



LEGEND

- TRAIL TYPES**
- Two Rivers Greenway Trail Segment
 - - - On-Road Bikeway
 - • • • • Proposed Two Rivers Greenway Trail Segment

- TRAIL FACILITIES/SERVICES**
- TH Trailhead Locations
 - P Parking Locations
 - i Tourist Information

- TRAIL ATTRACTIONS**
- Park
 - Boat Launch
 - University
 - Natural Area

- ⊘ **Challenging Area:**
Railroad underpass on north side of Hickories Park.



Facilities:

Owego Creek Boat Launch:

Due to its location away from primary travel roads, the boat launch is difficult to locate. No signage is present to direct visitors and users to the facility. Once arriving at the facility there is a wood sign present.

Owego Riverwalk:

This section of trail is well designed and located within the downtown waterfront of Owego, NY. The trail system features informational kiosks that provide historical interpretations. Along the walk overlooks, signage gives users opportunities to educate themselves on the history of their surroundings.

Hickories Park:

Camp signs and Park trailblazer signage is found on Rte. 17C as well as the connecting bridge from Rte. 434. No trail signage is present. Facilities are located onsite and may be a primary location for directional signage. Restroom facilities are located onsite and provide excellent opportunities for orientation and directional signage.

inventory

I-86 TRAIL SEGMENT



Facilities:

Future Trail Extension:

No trail segments are currently built through the I-86 section. A trail is proposed to run through the area that connects from Hickories Park in Owego to the Vestal Trail extension ending at the Broome/ Tioga County border.

Proposed trails in this section will mostly parallel with the Susquehanna River's edge connections to be made to Marshland Road in Apalachin.

Marshland Road:

A trail connection to the facilities along Marshland Road would be advantageous. Two boat launches are located at the west end of the road. The Waterman boat launch is the only access point to get to Hiawatha Island, a recreational destination point for many visitors, and opportunity for interpretation

Currently, no trail signage exists.

LEGEND

TRAIL TYPES

- Two Rivers Greenway Trail Segment
- On-Road Bikeway
- Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

- Trailhead Locations
- Parking Locations
- Tourist Information

TRAIL ATTRACTIONS

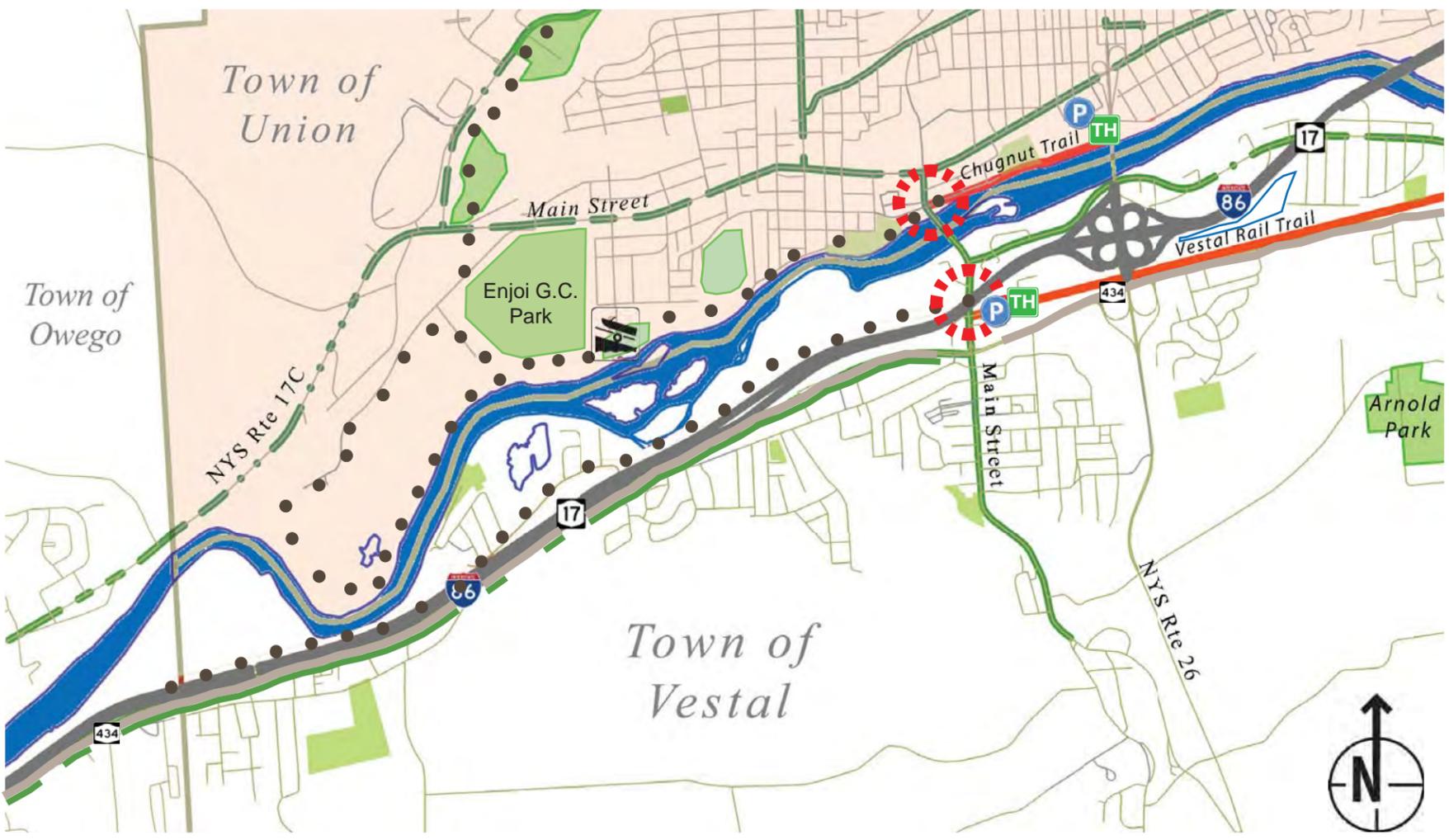
- Park
- Boat Launch
- University
- Natural Area



Challenging Area

Trail entry from Marshland Road onto Rte. 434.

inventory VESTAL TRAILS- WEST



Facilities:

Vestal Rail Trail:

This 2-mile trail segment is the most utilized section of the current trail system. The trail has 2 trailheads that offer visitors a place to park and unload. The west end of the trail has facility ID signs as well as trail use rules and regulations. Visitors are directed to the trail heads via Trailblazer signage on Rte. 434 and Main Street.

Nature Trail:

Towards the middle of the paved trail users have the option to use a nature trail that is unpaved. The nature trail offers wetlands and natural areas. A kiosk is present giving rules and regulations as well as information on types of species users may encounter.

Future Extension:

Future expansion west of the Vestal Rail Trail is expected by 2014. The first segment will connect from the west trailhead to the Castle Gardens Senior Living Center about 1.7 miles west. The second phase will go to the County border in Apalachin, NY.

LEGEND

TRAIL TYPES

-  Two Rivers Greenway Trail Segment
-  On-Road Bikeway
-  Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

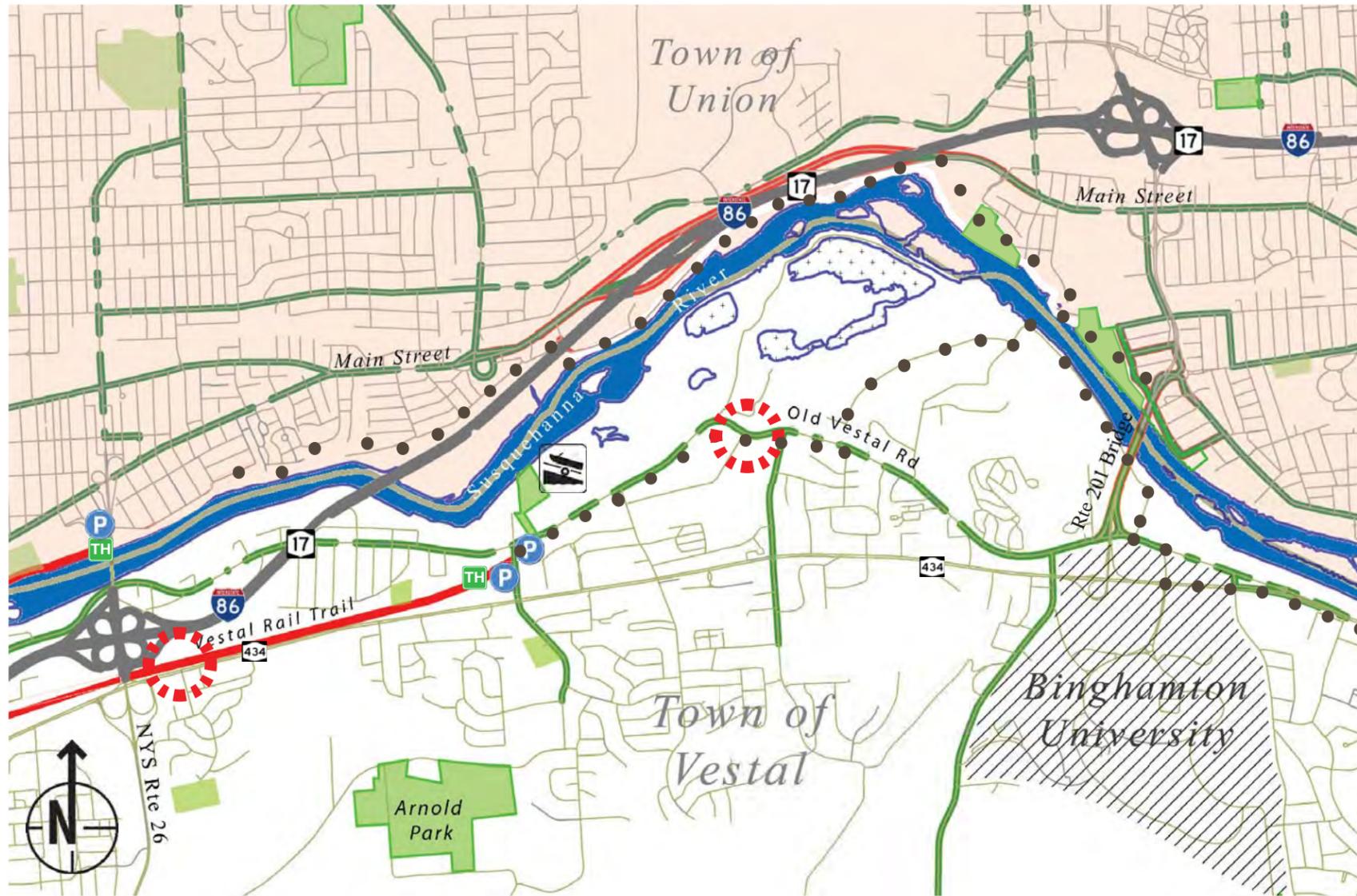
-  Park
-  Boat Launch
-  University
-  Natural Area



Main Street Crossing to Pumphouse Road.
Chugnut Trail on Vestal Avenue.

inventory

VESTAL TRAILS - EAST



LEGEND

TRAIL TYPES

-  Two Rivers Greenway Trail Segment
-  On-Road Bikeway
-  Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area

Challenging Area:

- Pedestrian safety at Rte. 434 & Airborne Ave intersection.
- Trail crossing Old Vestal Road.



Facilities:

Vestal Rail Trail:

The east end has facility ID signs as well as trail use rules and regulations. The east end offers visitors a pavilion and restroom facilities. The trail is identified by Trailblazer signs on Rte. 434 as well as African Road.



Neighboring Park

The northeast portion of the trail is bordered by a neighborhood with a small park providing connection to the trail. Orientation signage should be incorporated at this point to apprise users of the trail system's scope and offerings.

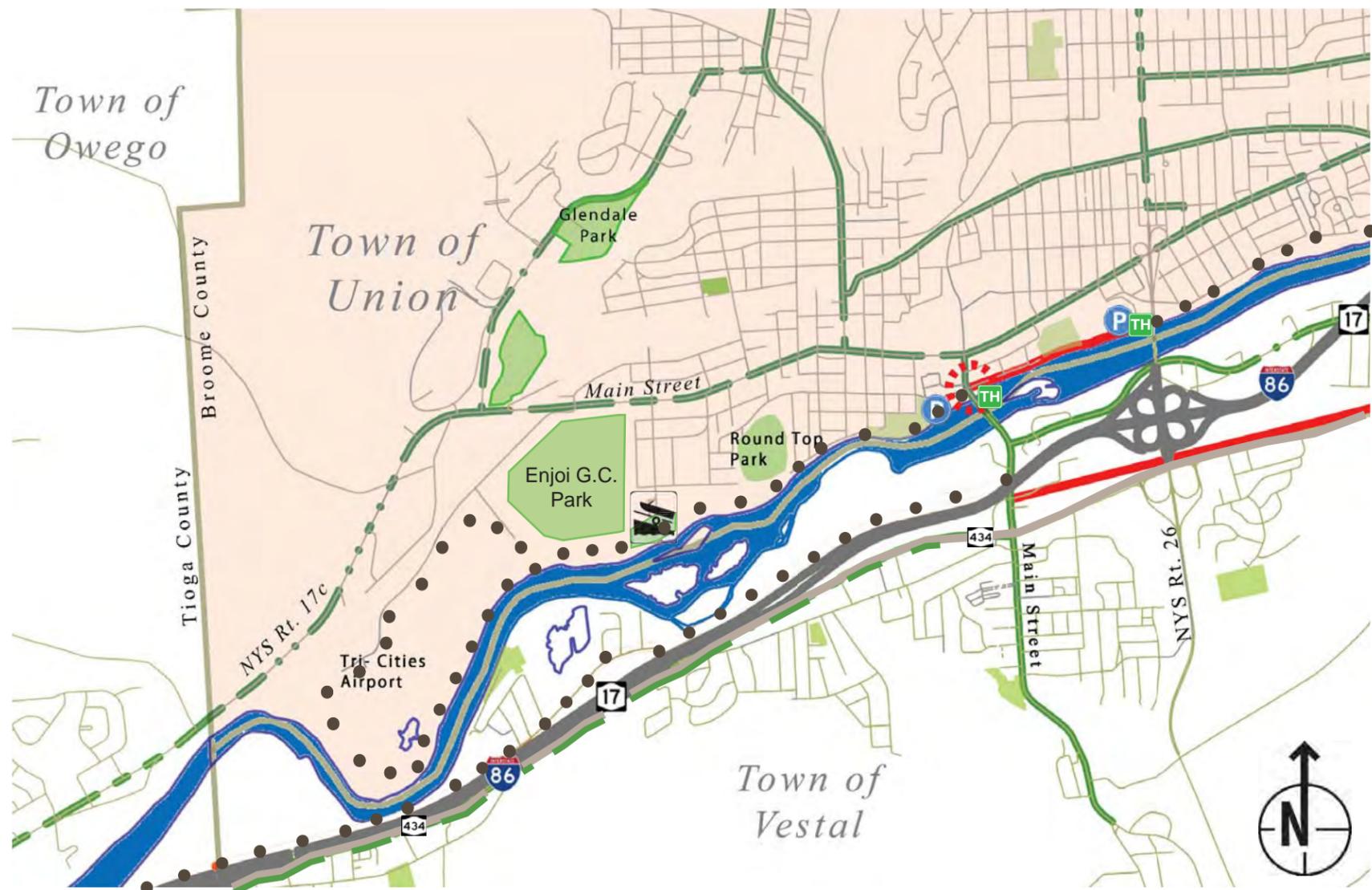


Future Extension:

Future expansion east of the Vestal Trail will run behind the Vestal Town Square Mall. A narrow strip of land, formerly railroad, is being considered for trail construction. This connection is parallel to Old Vestal Road. This segment will also promote use of Harold Moore Park and give users access to the Susquehanna River.



inventory UNION TRIALS - WEST



LEGEND

TRAIL TYPES

-  Two Rivers Greenway Trail Segment
-  On-Road Bikeway
-  Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area

Challenging Area:

- Vestal Avenue future trail crossing.
- Union trails connecting into Vestal Trail system across Vestal Ave. bridge.



Facilities:

Chugnut Trail:

The Chugnut Trail is a 1-mile long segment that runs from the Vestal Avenue bridge to the Boys and Girls Club. Currently the trail has a facility ID sign at either end. On the east end of the trail, a kiosk is present.

Future Extension:

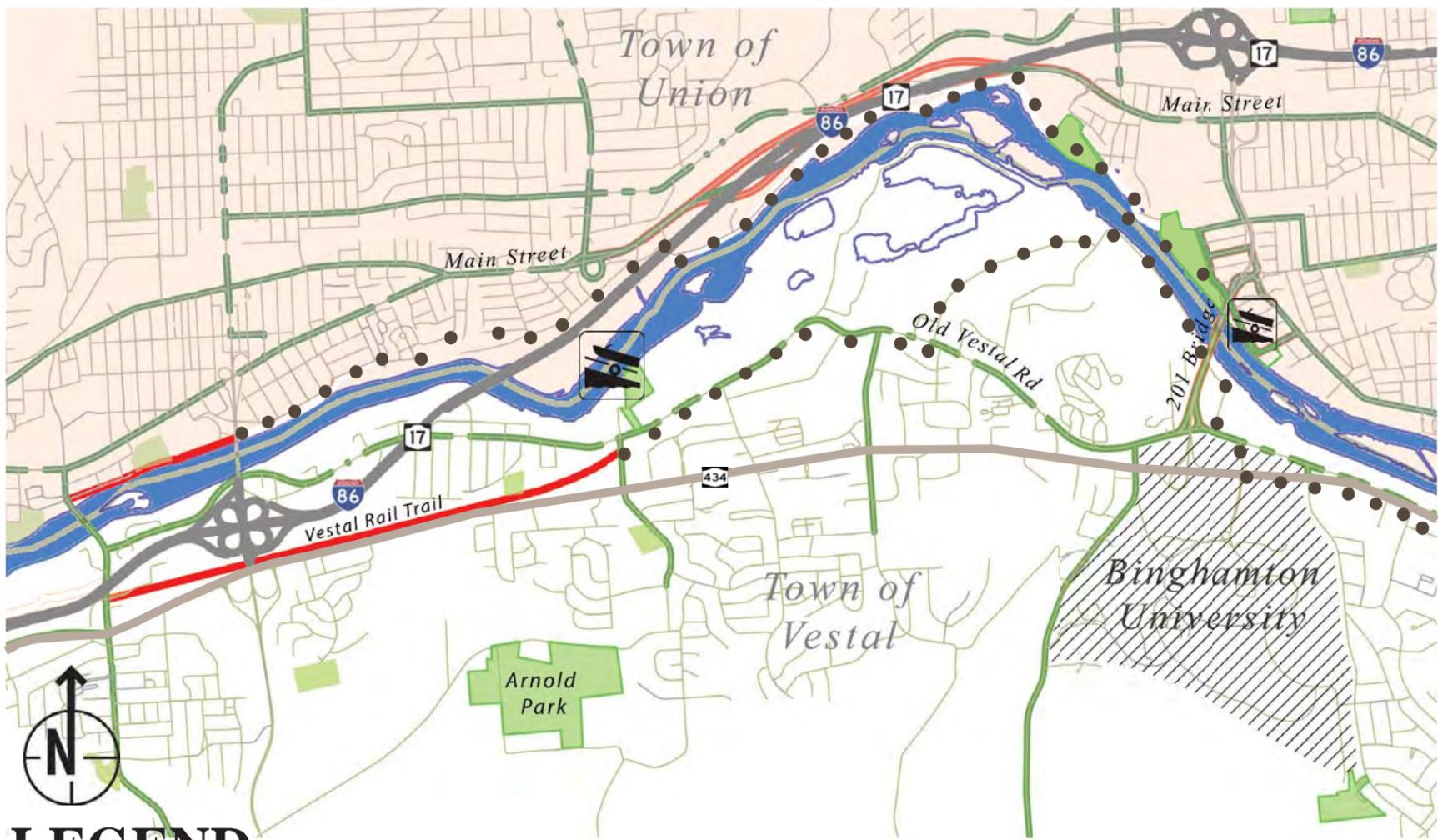
A western extension of the Chugnut Trail is being considered along the flood wall- providing that regulatory issues can be resolved between the Army Corps of Engineers and the Village of Endicott. The Village hopes to connect the Trail to facilities such as Round Top Park, Grippen Park, En-Joie Golf Course and the Tri-Cities Airport.



INVENTORY UNION TRIALS WEST

inventory UNION TRAILS- EAST

INVENTORY UNION TRAILS EAST



LEGEND

TRAIL TYPES

- Two Rivers Greenway Trail Segment
- - - On-Road Bikeway
- • • • • Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area



Union Trails:

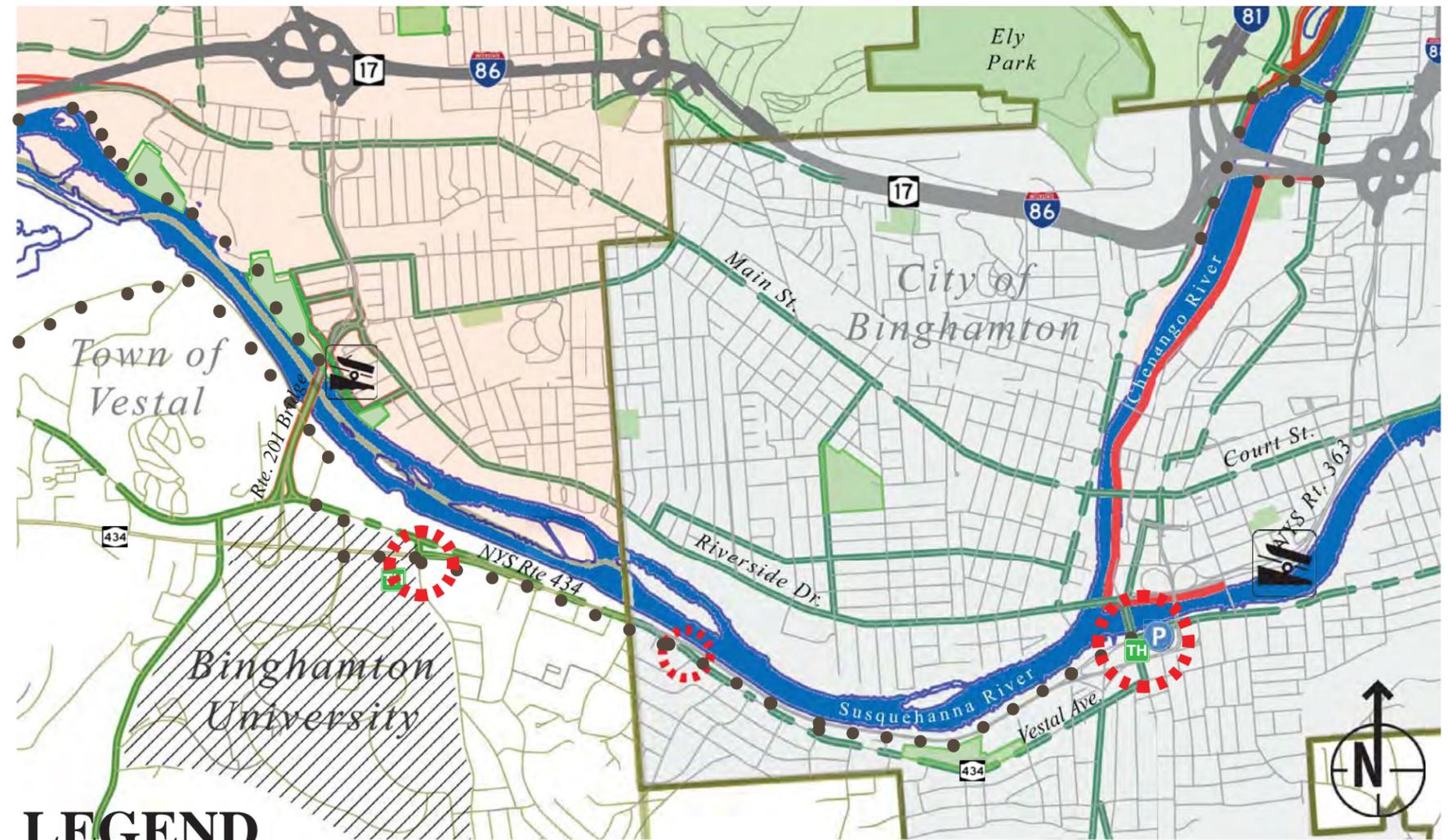
The Town of Union currently has limited established trail systems in place. Future construction will connect the Chugnut Trail east to the banks of the Susquehanna. The trail has potential to connect into resources such as Argonne Park located on Argonne Ave. Other existing infrastructure such as the Rte. 17 underpass would create an excellent connection point.



This trail system will ultimately connect into Johnson City through William Hill and Boland Parks.



inventory UNIVERSITY TRAIL SEGMENT



Facilities:

Binghamton University:

Binghamton University is a key destination in the trail system with many advantages to its connection to downtown Binghamton. The University currently has established trails throughout the campus with a signage system in place at the nature preserve.

Future Extension:

The future Greenway extension connecting the University to downtown is proposed to be completed by 2015. This extension will connect along Rte. 434 to the Washington Street Bridge.

Some areas of concern are the intersection at Rte. 434 and Vestal Avenue. This intersection is skewed and may be a challenge for pedestrians.

The NYSDOT has been considering options by which to safely move trail traffic across Rte. 434. These include construction of a bridge, creating an underpass or incorporating a controlled crossing at street level.

LEGEND

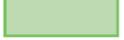
TRAIL TYPES

-  Two Rivers Greenway Trail Segment
-  On-Road Bikeway
-  Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area



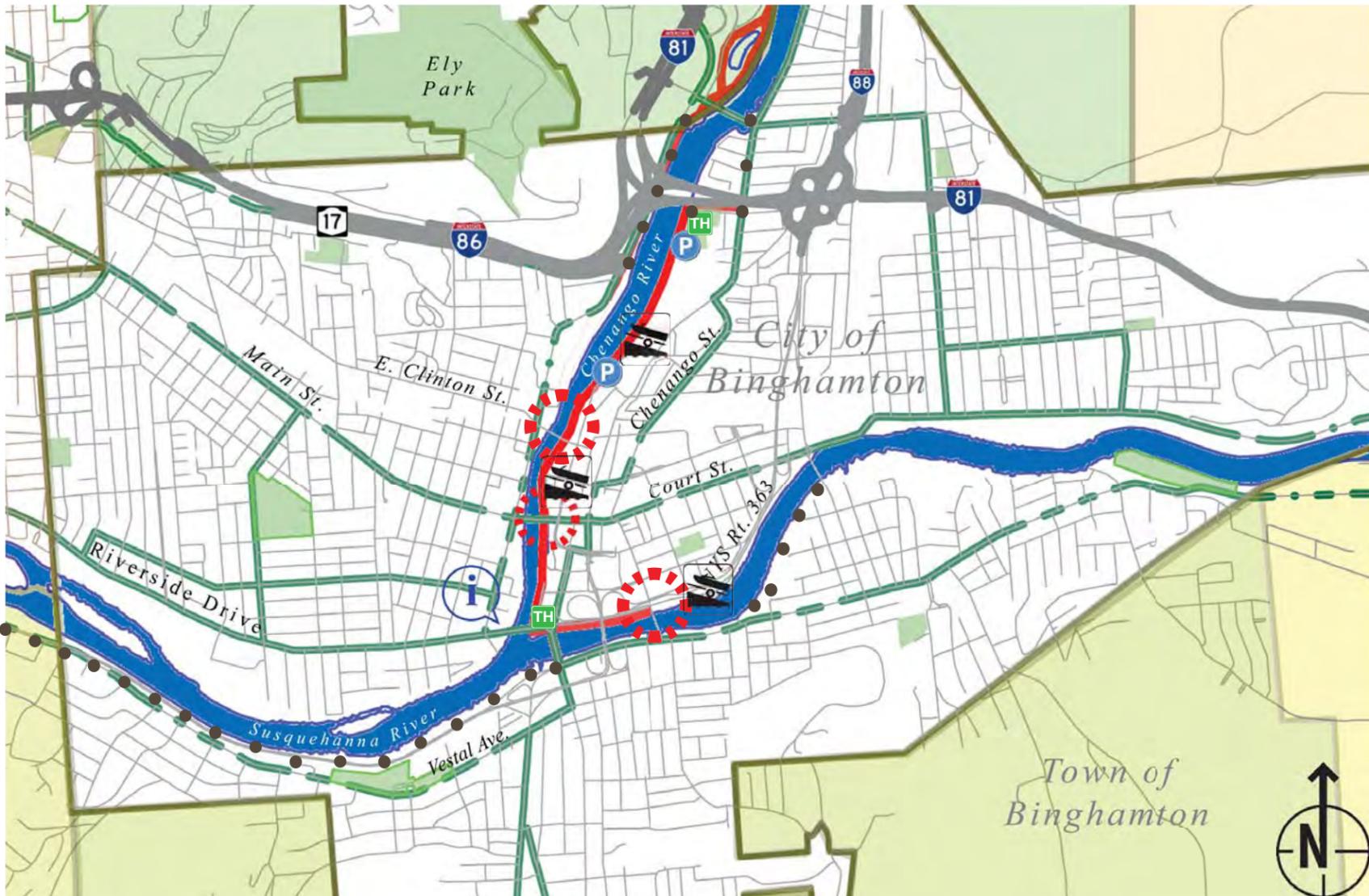
Challenging Area:

Vestal Avenue intersection @ Rte. 434, pedestrian safety.

Entry onto BU Campus.

inventory CITY OF BINGHAMTON

INVENTORY CITY OF BINGHAMTON



LEGEND

TRAIL TYPES

- Two Rivers Greenway Trail Segment
- On-Road Bikeway
- Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

- Trailhead Locations
- Parking Locations
- Tourist Information

TRAIL ATTRactions

- Park
- Boat Launch
- University
- Natural Area

Facilities:

Confluence Park:

The park designed by Haas Landscape Architects, provides opportunities for directional, orientation and interpretive signage. This site is also a major connection point for bike and walking trails such as the Chenango River Promenade.



The Spanish-American War "Skirmisher" on the north end of the pedestrian bridge is a strategic location for directional, bike route and historical landmark signage.

Chenango River Promenade:

An established riverwalk, the Promenade already has multiple signage infrastructure systems in place. Currently empty kiosks can be utilized for orientation and interpretive information signs.



Cheri Lindsey Park:

Should be considered a trail head destination. Its large parking area and central location to the Greenway Trail provide an excellent opportunity for orientational and directional information signs.



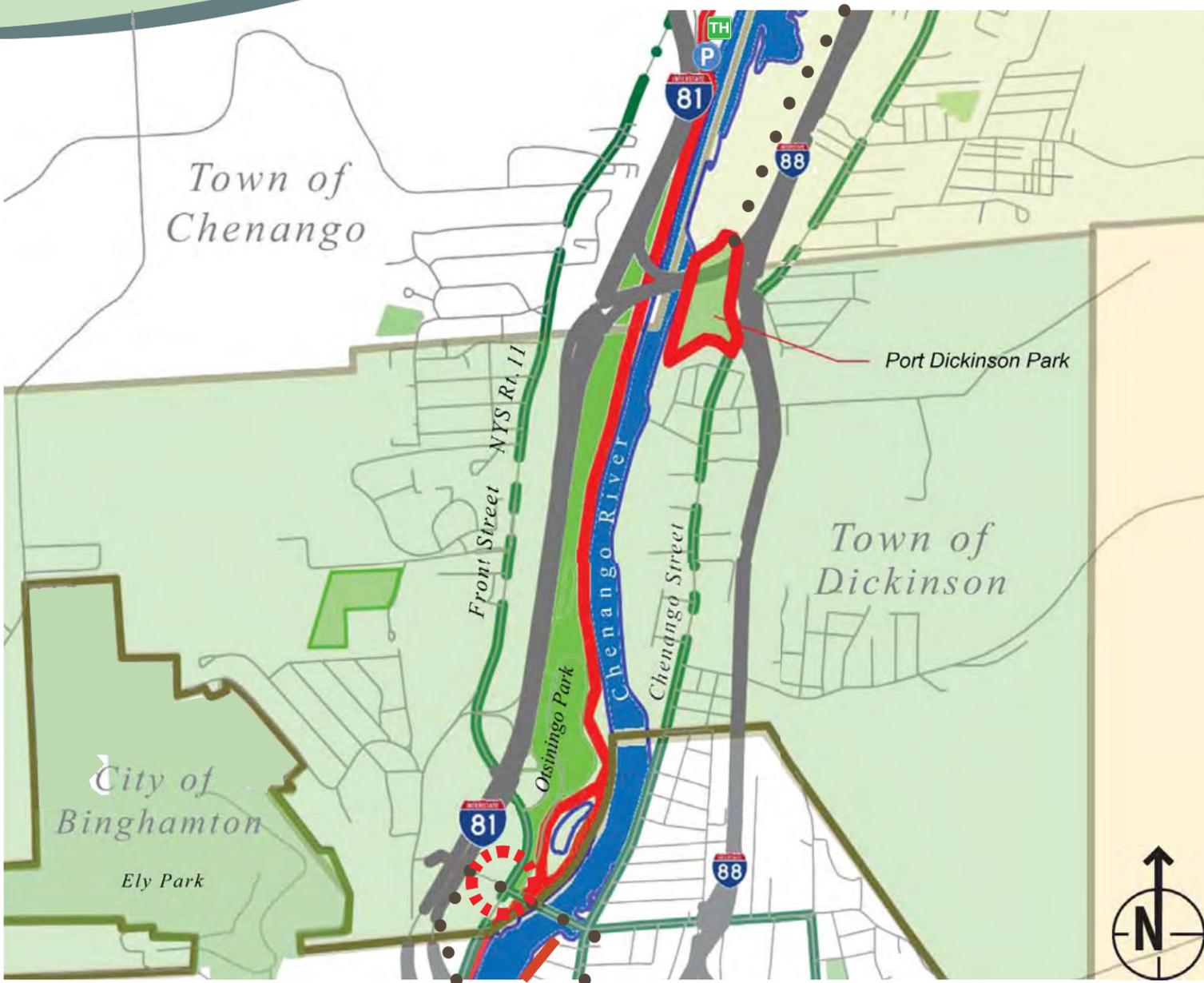
Future Extension:

Trail connections north to Otsiningo Park along the Chenango River bank have been explored. Although land is available to complete it, current conflicts with some residential land owners may postpone progress.

Challenging Area:

Pedestrian crossing at Court Street.
Clinton Street Crossing

inventory OTSININGO TRIAL SEGMENT



LEGEND

- TRAIL TYPES**
- Two Rivers Greenway Trail Segment
 - - - On-Road Bikeway
 - • • • • Proposed Two Rivers Greenway Trail Segment

- TRAIL FACILITIES/SERVICES**
- TH Trailhead Locations
 - P Parking Locations
 - i Tourist Information

- TRAIL ATTRACTIONS**
- Park
 - Boat Launch
 - University
 - Natural Area

- ⊙ Challenging Areas
- Upper Front Street bike route intersection into Otsiningo Park, north entrance
 - Front Street/ Bevier Street intersection at Otsiningo Park, south entrance.



Facilities:

Otsiningo Park:

This County Park has an established entry sign and minimal directional signage within the park. A kiosk with a park map is located on the north entrance off of Upper Front Street. A regional Farmer's Market is planned for the former rest-stop within the Park. This may be an opportunity to provide a minor kiosk.

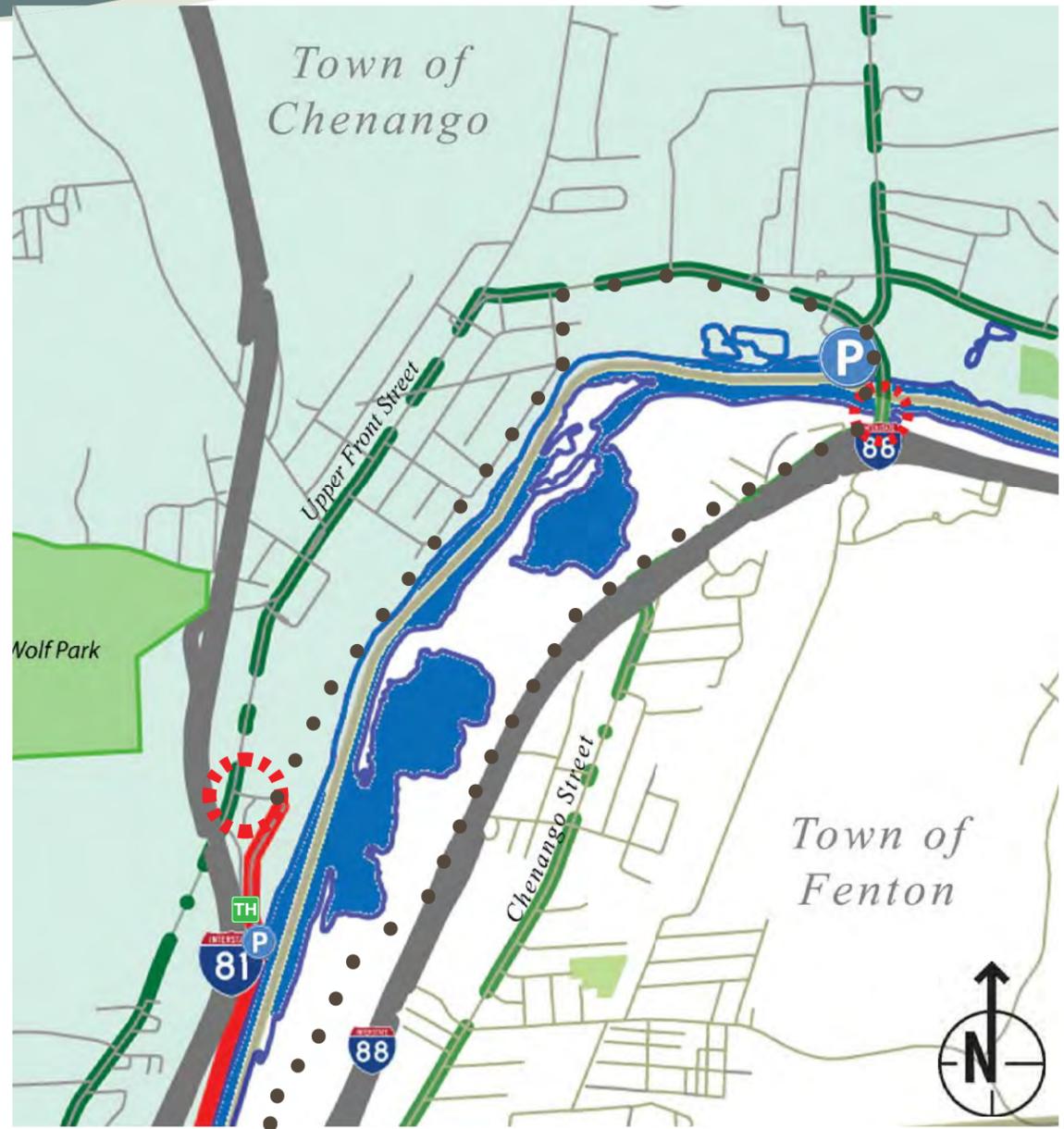
The north entrance should be treated as a trail head. Orientation and Directional signage should be utilized along with rules and regulations. A future extension along Front Street to Otsiningo Park south entrance is planned. Orientation signs will be needed near the south entrance.

Signage within the park should be the responsibility of the County Parks Department.

No signage currently exists to direct traffic exiting I-81 to the park and Greenway system. The wayfinding sign system should commence as early as the I-81 off ramps.

inventory CHENANGO BRIDGE

INVENTORY CHENANGO BRIDGE



LEGEND

TRAIL TYPES

-  Two Rivers Greenway Trail Segment
-  On-Road Bikeway
-  Proposed Two Rivers Greenway Trail Segment

TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area

Challenging Areas

- North entrance into Otsiningo Park.
- Rte. 12A bridge into Chenango Forks.



Facilities:

Rte 12A Park and Ride:

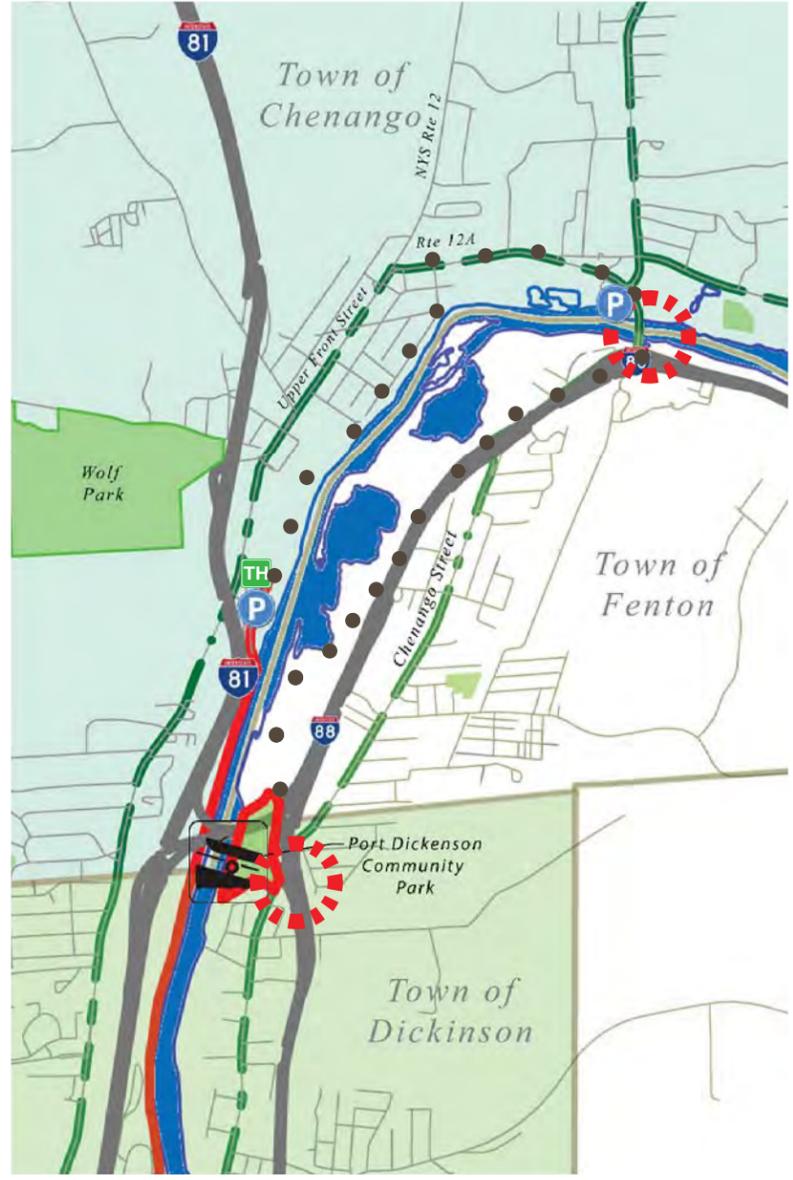
This destination could become a significant trailhead. Its generous parking facilities and northern suburban location can provide an important access point for trail users.

Existing signage for the Park & Ride is present and begins on Chenango Street (Rte. 12A) in both directions.

Future Expansion:

Trails are planned to connect Otsiningo Park with the Park & Ride but a completion date is not set.

Another extension exists to run down I-88 service road and connect into the Village of Port Dickinson/ Town of Fenton area.



Facilities:

Village of Port Dickinson Jeanne & John D. Wilfley Community Park:

Facility identification and park signage is present. Multiple signage elements could be consolidated at the park entrance and to reduce confusion.

No trailblazer signage is present to direct traffic to the park along Chenango Street.

The park offers many amenities such as recreational fields walking paths and access to the Chenango River via boat launch. The Park is also home to the Angel of Hope Memorial.

Future Expansion:

Furthering the trail north has been looked at in the past. However the character of the land it would pass through, and private ownership makes it unlikely. Therefore, on-road connection along the service road is preferred.



LEGEND

TRAIL TYPES

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TRAIL FACILITIES/SERVICES

-  Trailhead Locations
-  Parking Locations
-  Tourist Information

TRAIL ATTRACTIONS

-  Park
-  Boat Launch
-  University
-  Natural Area

 Challenging Area

Pedestrian safety along Rte. 12A bridge into Chenango Bridge.

Entry into Village of Port Dickinson Park.

inventory TOWN OF CONKLIN

INVENTORY TOWN OF CONKLIN



Facilities:

Currently Conklin offers on-road bike lanes that begin in the City of Binghamton and extend into the Town.

Conklin recently added a new park/ boat launch called Sullivan Park. The Park is located on Conklin Rd. north of the former Conklin Sports Park facility, and was formerly a residential lot that was flooded in 2011.

There are currently no proposed trail segments for the Two Rivers Greenway in the Town of Conklin. However, there is one trail project to be built in the next 2-3 years that is in the Broome Corporate Park and will connect to Schnurbusch Park, which is the the eastern extent of the Two Rivers Greenway.



LEGEND

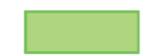
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TRAIL ATTRACTIONS

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-  Natural Area



ORIENTATION AND DIRECTIONAL "POINTS OF INTEREST"							
MUNICIPALITY	LANDSCAPES & WATERWAYS	NATURAL BOUNTY	INDUSTRIAL/ COMMERCIAL HERITAGE	HISTORICAL/ HERITAGE SITES/ VISITOR CTRS	THE ARTS & ARCHITECTURAL GEMS	TRANSPORTATION CTRS/ MUNICIPAL BLDGS	FAMILY/ RECREATION/ ACADEMIC/EDUCATION
City of Binghamton	MacArthur Park	Northside Farmer's Market	Railroad Terminal Historic District	Roberson Museum	Artists Row	South Washington Street Parabolic Bridge	Binghamton Zoo at Ross Park
	Recreation Park	Binghamton Farmer's Market	Binghamton Railway Company Complex	Binghamton Visitor Center	The Bundy Arts & Victorian Museum	Binghamton City Hall	Discovery Center of the Southern Tier
	Sandy Beach Park		Center for Technology & Innovation	Clinton Street Antique Row	Riverwalk Fine Art Gallery	Broome County Courthouse	Broome County Veterans Memorial Arena
	Cheri Lindsey Park			Christ Church	The Art Mission & Theatre	Broome County Transportation Center	Link Planetarium at Roberson Museum
	Confluence Park			Court Street Historic District	Forum Theater	Broome County Public Library	Ballpark / Stadium
	Chenango River Promenade			State Street/Henry St. Historic District	Tri-Cities Opera		
	Martin Luther King, Jr. Promenade			Abel Bennett Tract Historic District	Binghamton Philharmonic		
	Water Street Trail			Jonas M. Kilmer House	ACA Memorial		
				Robert H. Rose House			
	Susquehanna River			Phelps Mansion			
	Chenango River						
Town of Owego	Hiawatha Island						Waterman Conservation Education Center
	Hickories Park						

DESTINATIONS

MUNICIPALITY	LANDSCAPES & WATERWAYS	NATURAL BOUNTY	INDUSTRIAL/ COMMERCIAL HERITAGE	HISTORICAL/ HERITAGE SITES/ VISITOR CTRS	THE ARTS & ARCHITECTURAL GEMS	TRANSPORTATION CTRS/ MUNICIPAL BLDGS	FAMILY/ RECREATION/ ACADEMIC/EDUCATION
	Susquehanna River						
Town of Union	Glendale Park *			Washingtonian Hall *			17C Sports Complex *
	Susquehanna River						
Town of Vestal	Harold Moore Boat Launch *	Vestal Farmer's Market *		Vestal Museum *	Anderson Center for the Performing Arts*	Vestal Public Library *	
	Twin Orchards Park			Rounds Coal Building		Vestal Town Hall	
	Memorial Park			Vestal Central High School			
				Drovers Inn			
	Susquehanna River			Rounds House			
Town of Dickinson	Port Dickinson Community Park *	Chenango Park Farmer's Market *			Little Theater- Broome Community College *		Cutler Botanical Garden *
	Cutler Botanical Garden *						
	Otsiningo Park						
	Chenango River						
Town of Chenango	Wolfe Park * ?						
	Chenango River						
Town of Conklin	Schnurbusch Park *					Conklin Town Hall *	
	Veterans River Park * ?						

inventory DESTINATIONS



MUNICIPALITY	LANDSCAPES & WATERWAYS	NATURAL BOUNTY	INDUSTRIAL/ COMMERCIAL HERITAGE	HISTORICAL/ HERITAGE SITES/ VISITOR CTRS	THE ARTS & ARCHITECTURAL GEMS	TRANSPORTATION CTRS/ MUNICIPAL BLDGS	FAMILY/ RECREATION/ ACADEMIC/EDUCATION
Town of Kirkwood	Valley Park *			Kirkwood Historical Society *			
	Susquehanna River						
Village of Endicott	West Endicott Park *	Endicott Farmer's Market *	IBM History & Heritage Center *	Olde Village of Union Historical Society *	Endicott Performing Arts Center *	U. S. Post Office * ?	En-Joie Golf Course * ?
	Susquehanna River			Endicott Visitor Center *			
				Little Italy *			
				Village of Endicott Historic District *			
				Riverside Cemetery * ?			
				Endicott Square Deal Arch *			
Village of Johnson City	Boland Park *			Johnson City Square Deal Arch *	The Goodwill Theatre Performing Arts Center *	U. S. Post Office * ?	Your Home Library *
	Susquehanna River						
Village of Owego	West Main St. Park * ?	Owego Farmer's Market *	Historic Owego Marketplace *	Tioga County Historical Society Museum *	Gallery Forty-One * ?	Tioga County Courthouse *	
	Livingston Park * ?			Village of Owego Historic District	Ti-Ahwaga Performing Arts Center * ?	U. S. Post Office * ?	
	Marvin Park *			Evergreen Cemetery * ?			
	Draper Park *			St. Paul's Church *			
	Ahwaga Park *						

program LOCATION PLANS

Key Code

The signs recommended in this program are indicated with a hexagon on the drawings. The top portion of these symbols contains a letter designating the Greenway Zone and a sequential number. The bottom portion identifies the recommended signage category.

Zones (Letter Code in Top Portion of Hexagons)

- T – Tioga County (Formerly Owego)
- U- Town of Union
- V- Vestal
- B- University at Binghamton (Formerly South Bridge and Susquehanna South)
- C- Conklin
- P- Chenango Promenade (Formerly Chenango Promenade and Susquehanna North)
- O- Otsego

Categories (Code in Bottom Portion of Hexagons)

- A-1 Primary Trail Orientation
- A-2 Secondary Trail Orientation
- A-3 Orientation Retrofit
- B-1 Large Trail Directional
- B-2 Small Trail Directional
- B-3 Directional Pylon
- C-1 Trail Blazer
- D-1 MUTCD Vehicular Directional
- E-1 Free Standing Interpretive
- E-2 Rail-Mounted Interpretive
- F-1 STOP Sign
- F-2 Hazard/Warning Sign (Diamond)
- F-3 Hazard/Warning Sign (Square)



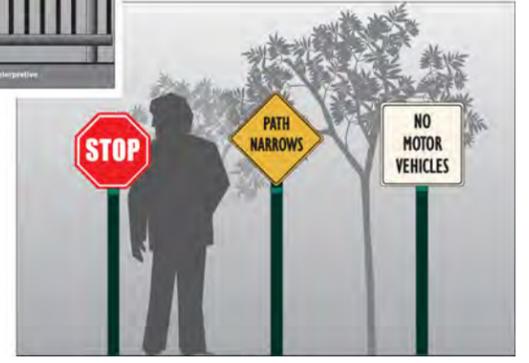
A-1 Primary Orientation A-2 Secondary Orientation B-1 Large Trail Directional B-2 Small Trail Directional
B-3 Directional Pylon



C-1 Trailblazer C- 2 Trailblazer D-1 MUTCD Vehicular Directional



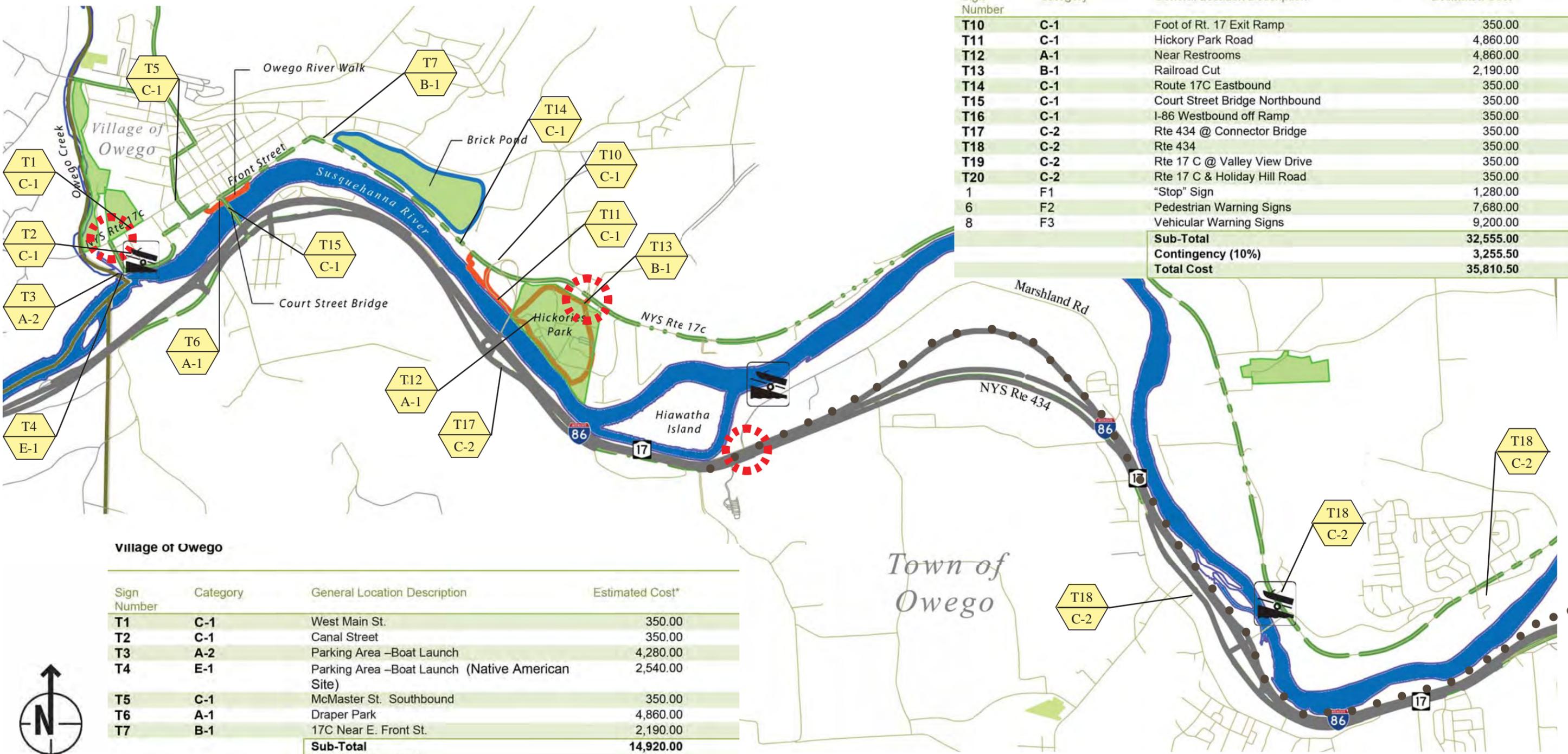
E-1 Free Standing Interpretive
E-2 Rail Mount Interpretive



F-1 Stop Sign
F-2 Hazard Warning
F-3 Hazard Warning

LOCATION PLANS

TOWN OF OWEGO



Town of Owego

Sign Number	Category	General Location Description	Estimated Cost*
T10	C-1	Foot of Rt. 17 Exit Ramp	350.00
T11	C-1	Hickory Park Road	4,860.00
T12	A-1	Near Restrooms	4,860.00
T13	B-1	Railroad Cut	2,190.00
T14	C-1	Route 17C Eastbound	350.00
T15	C-1	Court Street Bridge Northbound	350.00
T16	C-1	I-86 Westbound off Ramp	350.00
T17	C-2	Rte 434 @ Connector Bridge	350.00
T18	C-2	Rte 434	350.00
T19	C-2	Rte 17 C @ Valley View Drive	350.00
T20	C-2	Rte 17 C & Holiday Hill Road	350.00
1	F1	"Stop" Sign	1,280.00
6	F2	Pedestrian Warning Signs	7,680.00
8	F3	Vehicular Warning Signs	9,200.00
Sub-Total			32,555.00
Contingency (10%)			3,255.50
Total Cost			35,810.50

Village of Owego

Sign Number	Category	General Location Description	Estimated Cost*
T1	C-1	West Main St.	350.00
T2	C-1	Canal Street	350.00
T3	A-2	Parking Area –Boat Launch	4,280.00
T4	E-1	Parking Area –Boat Launch (Native American Site)	2,540.00
T5	C-1	McMaster St. Southbound	350.00
T6	A-1	Draper Park	4,860.00
T7	B-1	17C Near E. Front St.	2,190.00
Sub-Total			14,920.00
Contingency (10%)			1,492.00
Total Cost			16,412.00

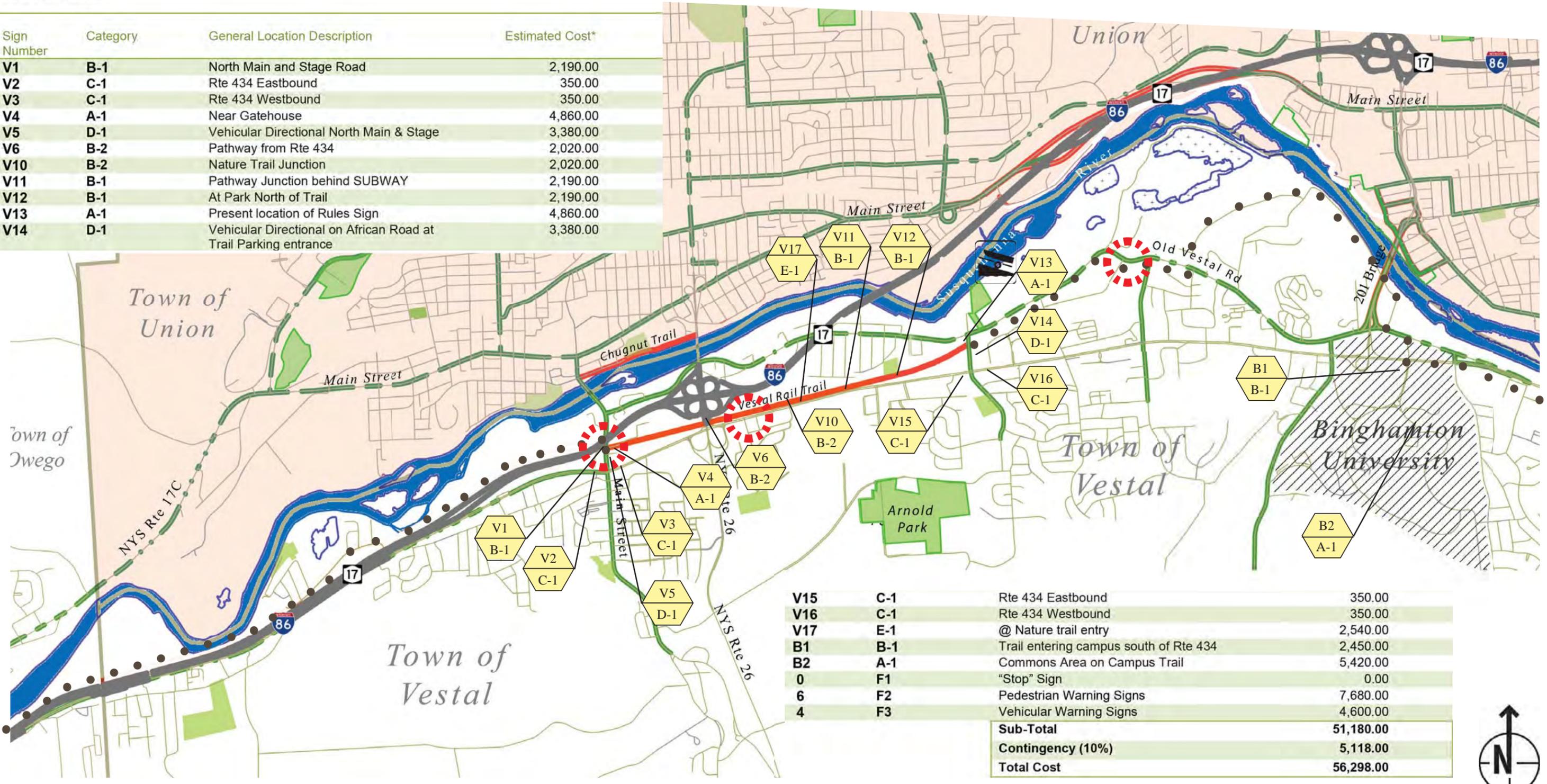


location Plan

TOWN OF VESTAL

Town of Vestal

Sign Number	Category	General Location Description	Estimated Cost*
V1	B-1	North Main and Stage Road	2,190.00
V2	C-1	Rte 434 Eastbound	350.00
V3	C-1	Rte 434 Westbound	350.00
V4	A-1	Near Gatehouse	4,860.00
V5	D-1	Vehicular Directional North Main & Stage	3,380.00
V6	B-2	Pathway from Rte 434	2,020.00
V10	B-2	Nature Trail Junction	2,020.00
V11	B-1	Pathway Junction behind SUBWAY	2,190.00
V12	B-1	At Park North of Trail	2,190.00
V13	A-1	Present location of Rules Sign	4,860.00
V14	D-1	Vehicular Directional on African Road at Trail Parking entrance	3,380.00

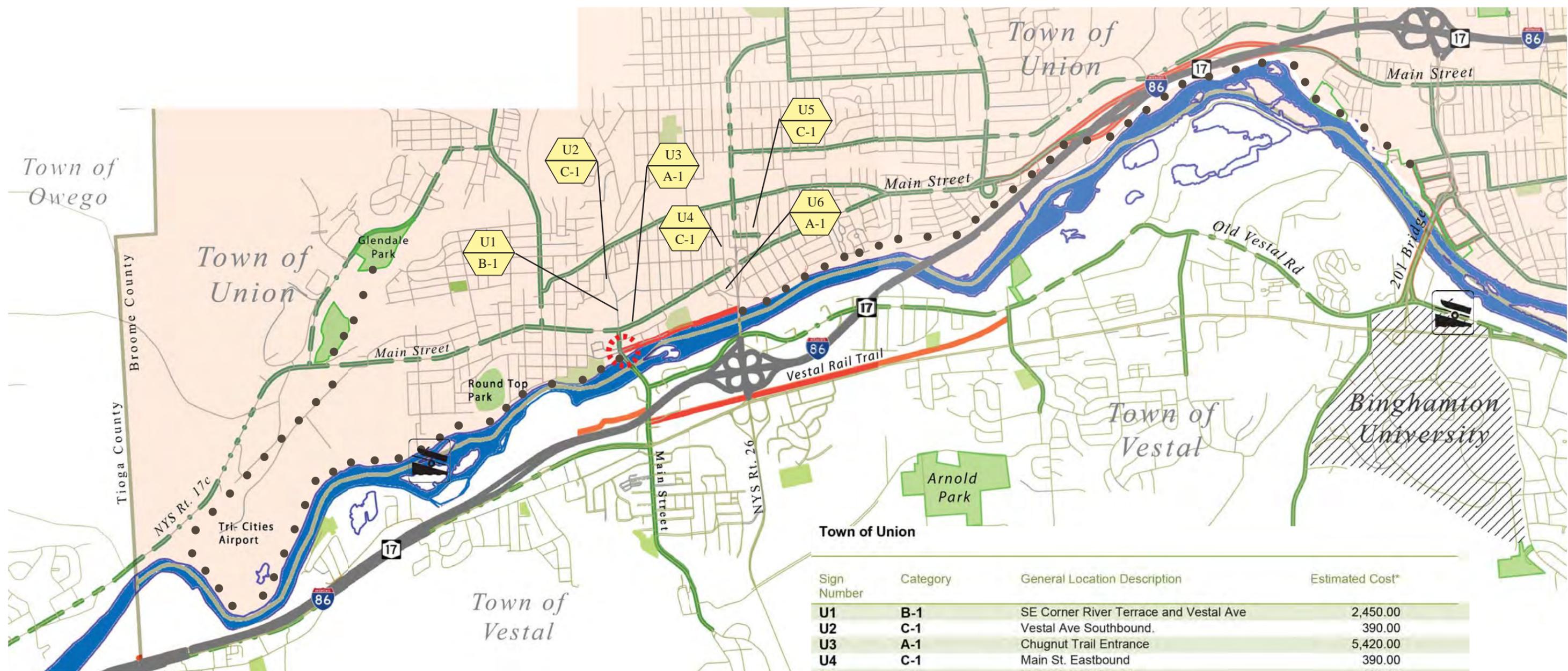


V15	C-1	Rte 434 Eastbound	350.00
V16	C-1	Rte 434 Westbound	350.00
V17	E-1	@ Nature trail entry	2,540.00
B1	B-1	Trail entering campus south of Rte 434	2,450.00
B2	A-1	Commons Area on Campus Trail	5,420.00
0	F1	"Stop" Sign	0.00
6	F2	Pedestrian Warning Signs	7,680.00
4	F3	Vehicular Warning Signs	4,600.00
Sub-Total			51,180.00
Contingency (10%)			5,118.00
Total Cost			56,298.00



LOCATION PLANS

TOWN OF UNION



Town of Union

Sign Number	Category	General Location Description	Estimated Cost*
U1	B-1	SE Corner River Terrace and Vestal Ave	2,450.00
U2	C-1	Vestal Ave Southbound	390.00
U3	A-1	Chugnut Trail Entrance	5,420.00
U4	C-1	Main St. Eastbound	390.00
U5	C-1	Main St. Westbound	390.00
U6	A-1	Chugnut Trail @ Existing Kiosk	5,420.00
0	F1	"Stop" Sign	0.00
2	F2	Pedestrian Warning Signs	2,560.00
4	F3	Vehicular Warning Signs	5,000.00
Sub-Total			22,020.00
Contingency (10%)			2,202.00
Total Cost:			24,222.00

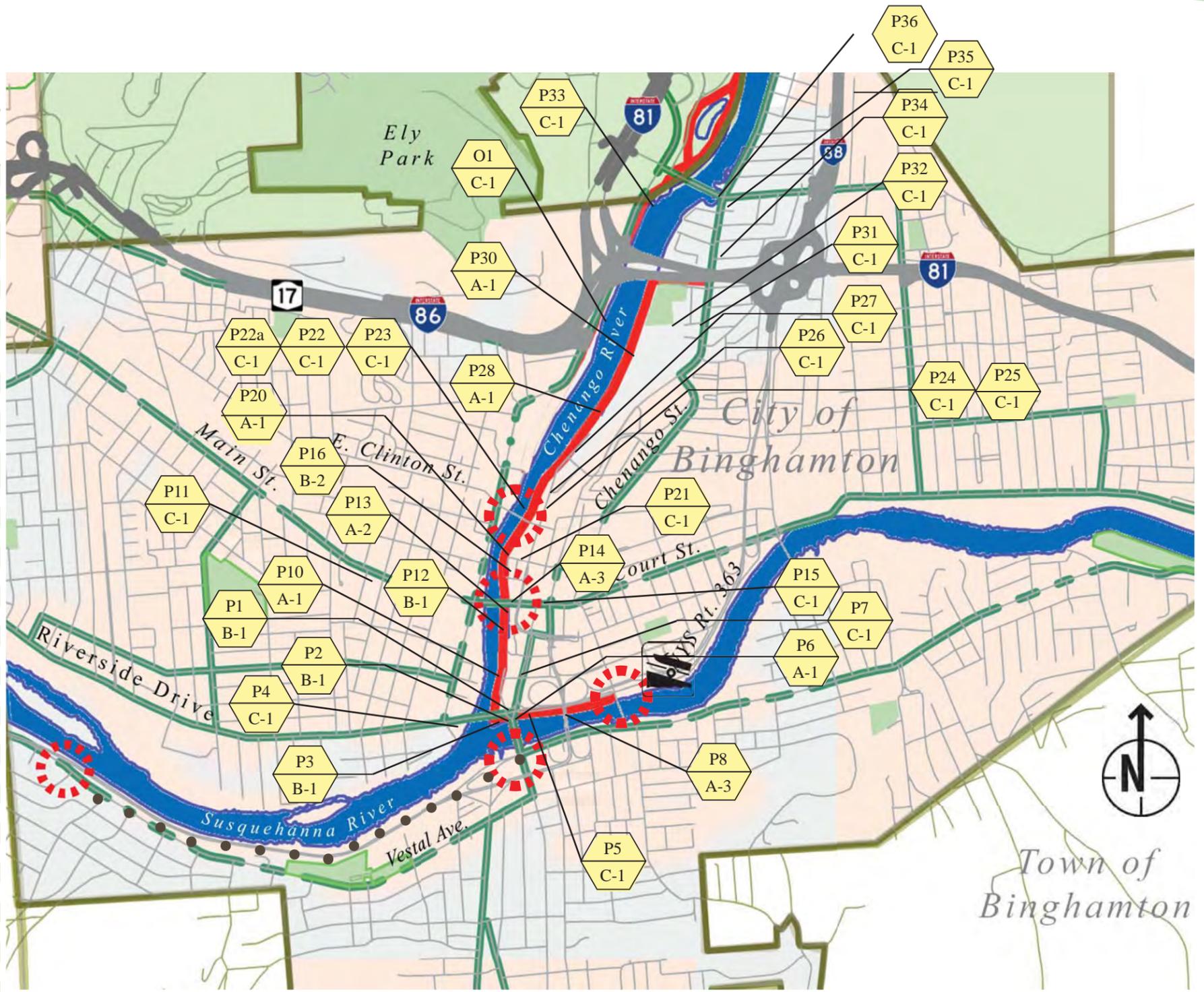


location Plan CITY OF BINGHAMTON

LOCATION PLANS

Chenango Promenade

Sign Number	Category	General Location Description	Estimated Cost*
P1	B-1	North of N Shore Dr, West of Washington St.	2,190.00
P2	B-1	Sidewalk leading to tunnel at East end of Confluence Park	2,190.00
P3	B-1	Tunnel under Memorial Bridge in Confluence Park	2,190.00
P4	C-1	Riverside Dr. Eastbound	350.00
P5	C-1	N Shore Dr. Westbound	350.00
P6	A-1	South of "Skirmisher"	4,860.00
P7	C-1	Washington St Southbound	350.00
P8	A-3	Retrofit existing orientation near parking area south of N Shore Dr.	4,280.00
P10	A-1	Student Housing Access	4,860.00
P11	C-1	Main St. Eastbound	350.00
P12	B-1	Trail divergence south of Court St.	2,190.00
P13	A-2	South of Court St.	4,280.00
P14	A-3	Retrofit existing orientation North of Court St.	4,280.00
P15	C-1	Court St. Westbound	350.00
P16	B-2	Opposite Stairs to lower trail segment	2,020.00
P20	A-1	Memorial off Henry St.	4,860.00
P21	C-1	Henry St. Westbound	350.00
P22	C-1	Clinton St. East of Water Eastbound	350.00
P22a	C-1	Clinton St. East of Water Westbound	350.00
P23	C-1	Clinton St. @ Front Street	350.00
P24	C-1	Water St. north of Clinton St. Southbound	350.00
P25	C-1	Water St. at Clinton St. Southbound	350.00
P26	C-1	Water St. at Robinson St. Southbound	350.00
P27	C-1	Water St. at Eldredge St. Southbound	350.00
P28	A-1	Park north of Eldredge St. (Park & Ride)	4,860.00
P30	A-1	Cheri Lindsey Park	4,860.00
P31	C-1	Truesdell St. and Chenango St. Eastbound	350.00
P32	C-1	Truesdell St. Eastbound from Cheri Lindsey	350.00
P33	C-1	Chenango St. at @ Front St. Southbound	350.00
P34	C-1	Chenango St. at Cary St. Northbound	350.00
P35	C-1	Chenango St. at Bevier St. Northbound	350.00
P36	C-1	Bevier St. at Chenango St. Eastbound	350.00
P37	E-2	Interpretive Panel @ Confluence Pk.	1,440.00
P38	E-2	Interpretive Panel @ Confluence Pk.	1,440.00
P39	E-1	@ Lower Promenade Trail	2,540.00
P40	E-1	(4) Interpretive Panels @ Existing Kiosk	5,760.00
2	F1	"Stop" Sign	2,560.00
6	F2	Pedestrian Warning Signs	7,680.00
12	F3	Vehicular Warning Signs	13,800.00
Sub-Total			89,790.00
Contingency (10%)			8,979.00
Total Cost			98,769.00

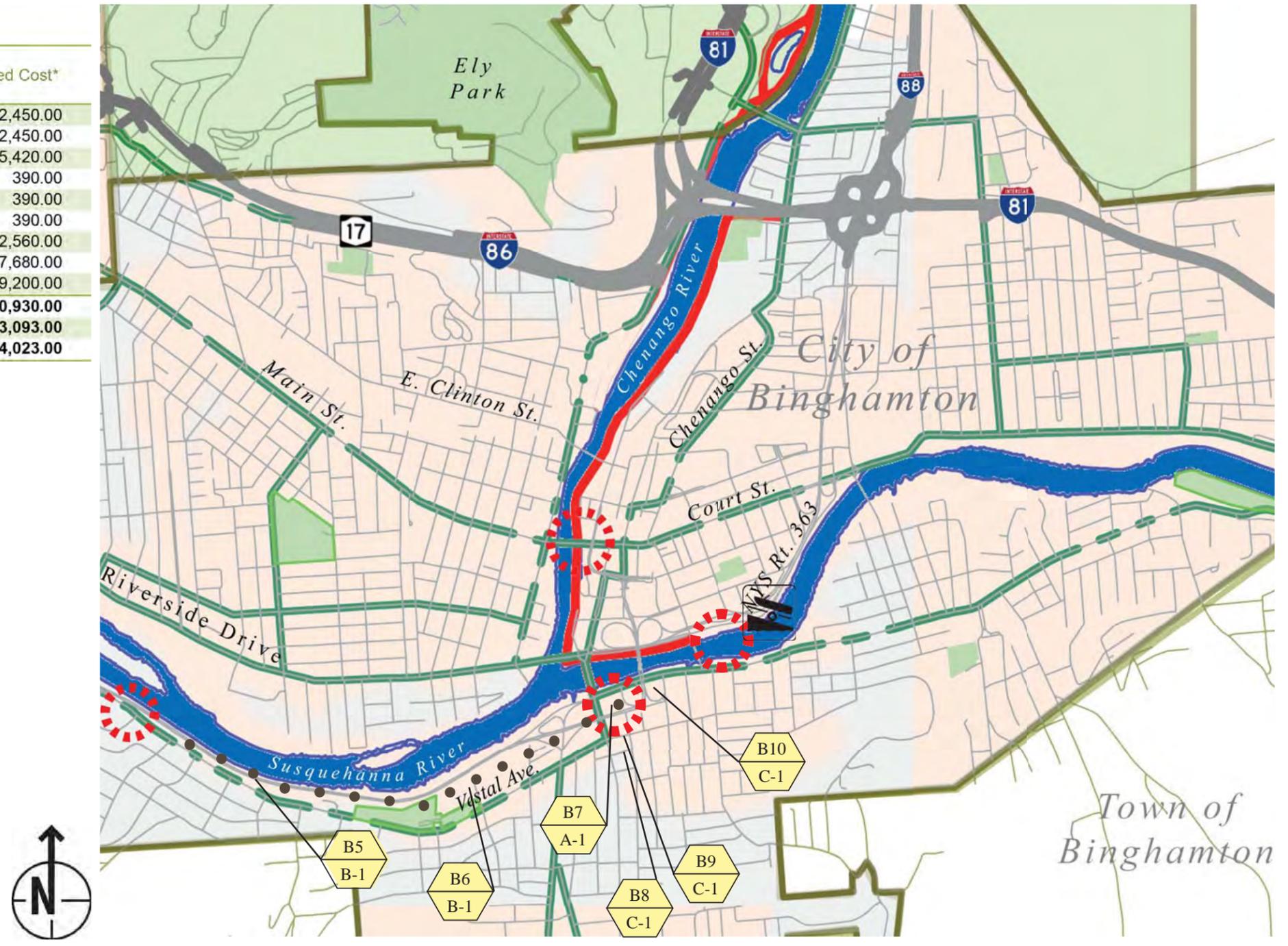


UNIVERSITY AT BINGHAMTON TRAIL



University at Binghamton Trail

Sign Number	Category	General Location Description	Estimated Cost*
B5	B-1	Vestal Ave	2,450.00
B6	B-1	Tunnel Crossing	2,450.00
B7	A-1	South end of Washington St Bridge	5,420.00
B8	C-1	434 at South Washington St.	390.00
B9	C-1	S. Washington St. Northbound	390.00
B10	C-1	Conklin Ave Westbound	390.00
2	F1	"Stop" Sign	2,560.00
6	F2	Pedestrian Warning Signs	7,680.00
8	F3	Vehicular Warning Signs	9,200.00
Sub-Total			30,930.00
Contingency (10%)			3,093.00
Total Cost			34,023.00



LOCATION PLANS

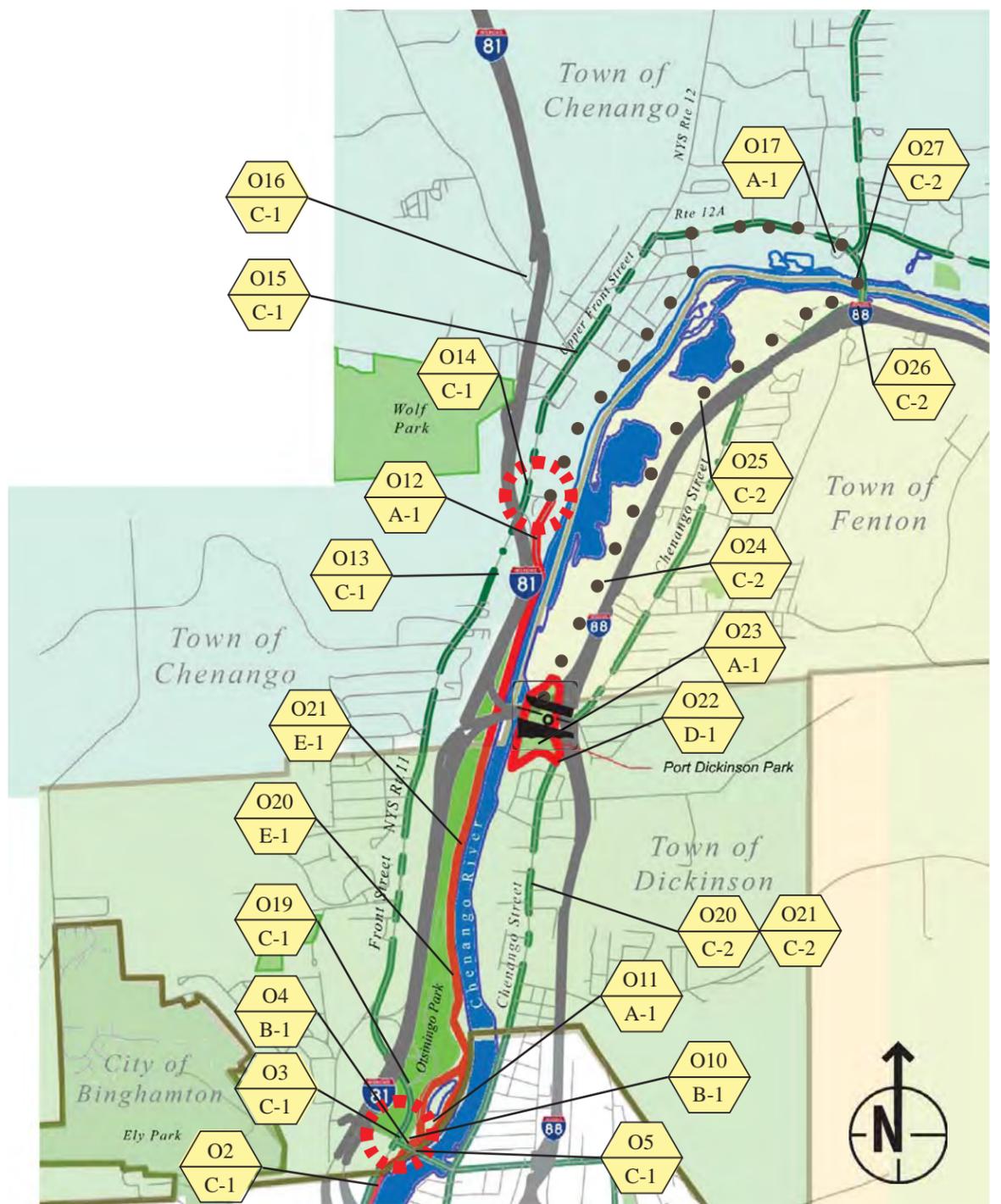
TOWN OF DICKINSON/ CHENANGO



LOCATION PLANS

Town of Dickinson

Sign Number	Category	General Location Description	Estimated Cost*
O1	C-1	Front at Prospect St.	350.00
O2	C-1	Front South of Bevier st.	350.00
O3	C-1	On trail entering from West	350.00
O4	B-1	South of Bevier St. Bridge	2,190.00
O5	C-1	Bevier St. Westbound	350.00
O10	B-1	Trail convergence at south end of Park	2,190.00
O11	A-1	NE of Previous Sign	4,860.00
O12	A-1	Near existing sign at Park north end	4,860.00
O13	C-1	Front St. at Prospect St.	350.00
O14	C-1	Front St. north of Bevier St.	350.00
O15	C-1	Castle Creek Rd at Upper Front St.	350.00
O16	C-1	I-81 exit ramp at Castle Creek Rd.	350.00
O17	A-1	Park & Ride Lot	4,860.00
O19	C-1	I-81 Northbound off ramp @ Front St.	350.00
O20	C-2	Chenango St. North Bound	350.00
O21	C-2	Chenango St. South Bound	350.00
O22	D-1	Chenango St. @ Port Dickinson Park Entry	3,380.00
O23	A-2	Port Dickinson Park	4,280.00
O24	C-2	Arterial Highway Service Route	350.00
O25	C-2	Arterial Highway Service Route	350.00
O26	C-2	Chenango St. Bridge North Bound	350.00
O27	C-2	Chenango St. Bridge South Bound	350.00
0	F1	"Stop" Sign	0.00
2	F2	Pedestrian Warning Signs	2,560.00
6	F3	Vehicular Warning Signs	6,900.00
Sub-Total			41,680.00
Contingency (10%)			4,168.00
Total Cost			45,848.00



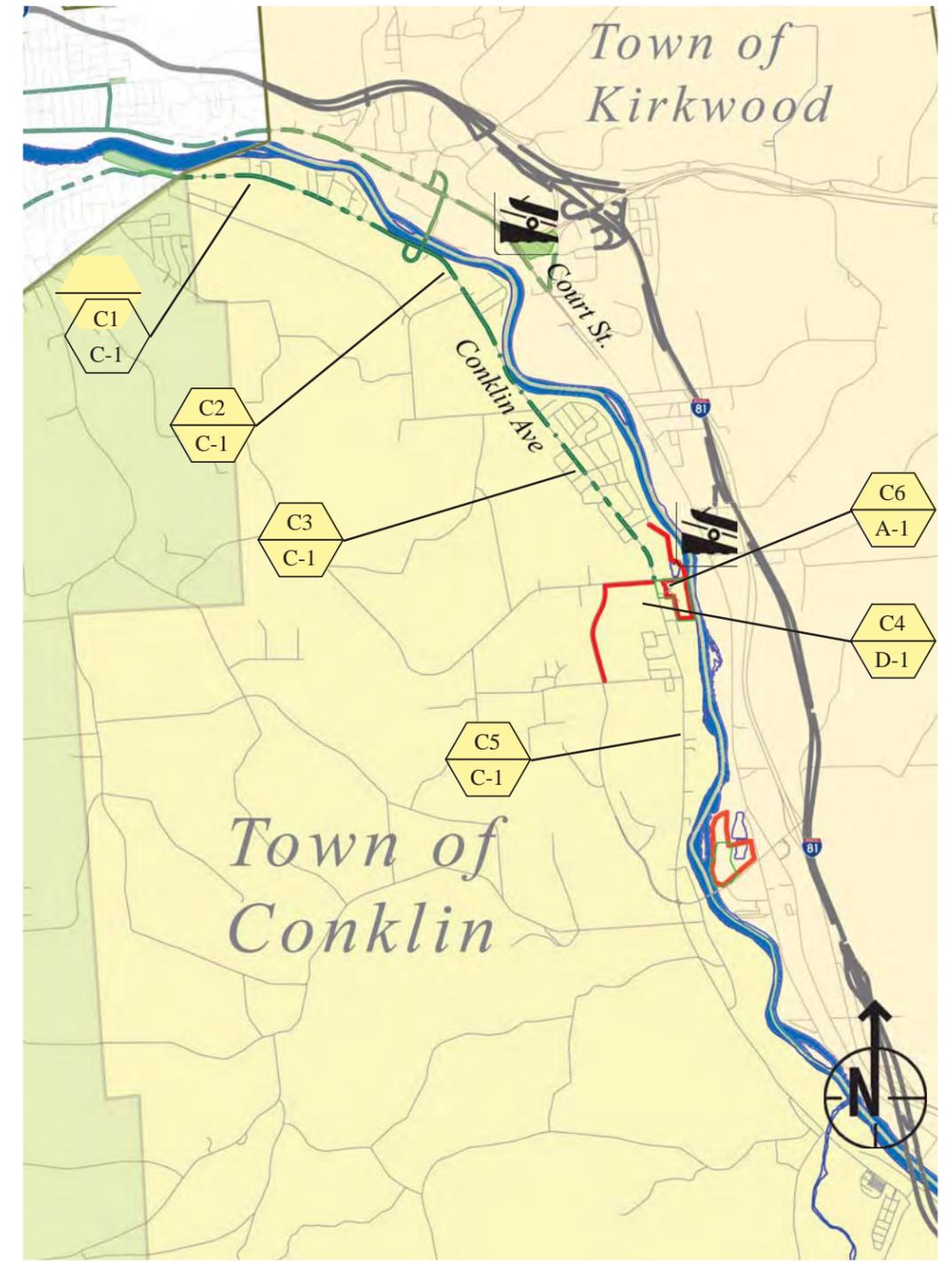
TOWN OF CONKLIN

Town of Conklin

Sign Number	Category	General Location Description	Estimated Cost*
C1	C-1	Conklin Ave @ Hall St.	390.00
C2	C-1	Conklin Ave @ Terrace Dr.	390.00
C3	C-1	Conklin Ave @ Inamour Dr.	390.00
C4	D-1	Adjacent to Schnurbush Park	3,780.00
C5	C-1	Conklin Ave @ Willow Way	390.00
C6	A-1	Schnurbush Park	5,420.00
Sub-Total			10,760.00
Contingency (10%)			1,076.00
Total Cost			11,836.00

Project Totals

Municipality	Estimated Total Cost*
Town of Owego	35,810.50
Village of Owego	16,412.00
Town of Union	24,222.00
Town of Vestal	47,461.00
University at Binghamton Trail	42,680.00
City of Binghamton	98,769.00
Town of Dickinson	45,848.00
Town of Conklin	11,836.00
Total Project Cost	323,038.50



Location Plans

SIGN APPLICATIONS



E-1 Free Standing Interpretive
Owego, New York

E-1 Interpretive Panel
Owego Creek Overlook
Owego, NY



A-3 Orientation Retrofit - MLK Plaza
City of Binghamton, New York

A-3 Orientational
MLK Plaza (Retrofit)
Binghamton, NY



B-1 Large Trail Directional
Otsiningo Park, New York

B-1 Directional
Otsiningo Park Trails
Binghamton, NY



C-1 Trailblazer
I-81 South Off Ramp
Chenango Bridge, NY



C-1 Trailblazer
I-81 North Off Ramp
Binghamton, NY



C-2 On Road Bike Trailblazer
Conklin Avenue
Binghamton, NY

SIGN APPLICATIONS

Location Plans SIGN APPLICATIONS



D-1 MUTCD Vehicular Directional
I-81 Off Ramp @ Front Street
Binghamton, NY



A-1 Primary Orientational @ Skirmisher
Binghamton, New York

A-1 Primary Orientational
Southbridge Skirmisher
Binghamton, NY



B-1 Large Trail Directional
Vestal Rail Trail, New York

B-1 Directional
Vestal Rail Trail
Vestal, NY



A-1 Primary Orientation
Vestal Rail Trail, New York

A-1 Primary Orientational
Vestal Rail Trail
Vestal, NY



Chugnut Trail West - A-1 Primary Orientation
Endicott, New York

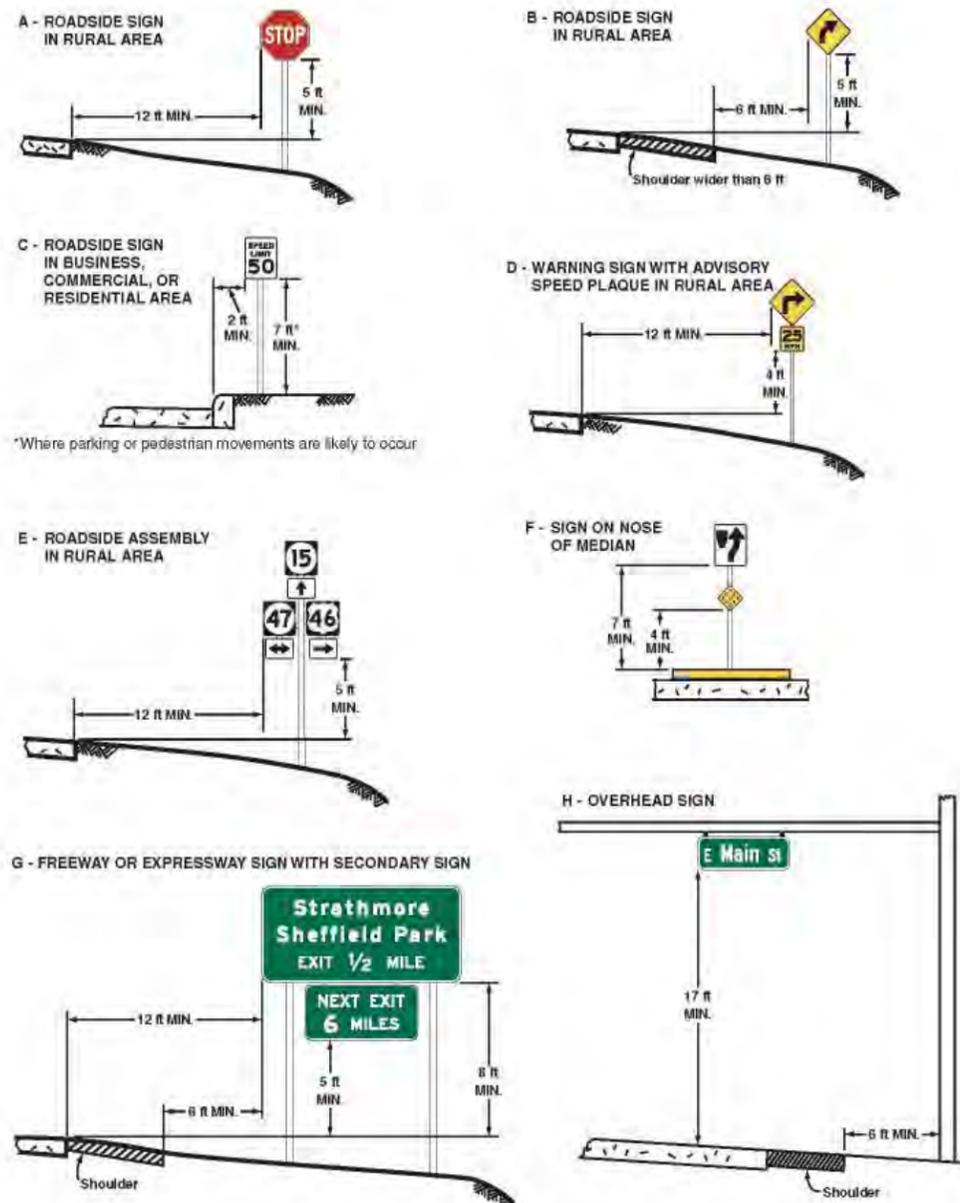
A-1 Primary Orientational
Chugnut Trail
Endicott, NY

SIGN & PAVEMENT

Page 38

2009 Edition

Figure 2A-2. Examples of Heights and Lateral Locations of Sign Installations



*Where parking or pedestrian movements are likely to occur

Note:
See Section 2A.19 for reduced lateral offset distances that may be used in areas where lateral offsets are limited, and in business, commercial, or residential areas where sidewalk width is limited or where existing poles are close to the curb.

Sect. 2A.16

December 2009

REGULATORY SIGNS, WARNING SIGNS AND PAVEMENT MARKINGS

Each of the “Challenge Areas” identified along portions of the Two Rivers Greenway will be inventoried to identify the existing regulatory and warning signs, including pavement markings, as they pertain to pedestrian and bicycle crossings, and their interface with public highways. The inventory will be reviewed for compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and associated documents referenced below. Recommendations will be made for correction, if necessary, including possible modifications or improvements to the type, size, location and placement of the signs or pavement markings.

The following documents will be used to establish compliance for the appropriate type, size and placement of signs and pavement markings at the specific “Challenge Areas” of the Two Rivers Greenway:

The Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition dated May 2012 including Revisions 1 and 2, predominately:

- Part 2A – General
- Part 2B – Regulatory Signs
- Part 2C – Warning Signs
- Part 3 – Pavement Markings
- Part 9 – Traffic Control for Bicycle Facilities

The N.Y.S. Department of Transportation’s (NYSDOT) Supplement to the MUTCD, dated March 16, 2012, with Parts corresponding to those referenced from the MUTCD above

The NYSDOT’s Standard Sheets (US Customary), primarily:

- Series 645 – Signs
- Series 685 - Pavement Markings

The NYSDOT Highway Design Manual , Chapter 11 -Signs, Signals, and Delineation, including Appendix A – The NYS Scenic Byways Sign Manual.

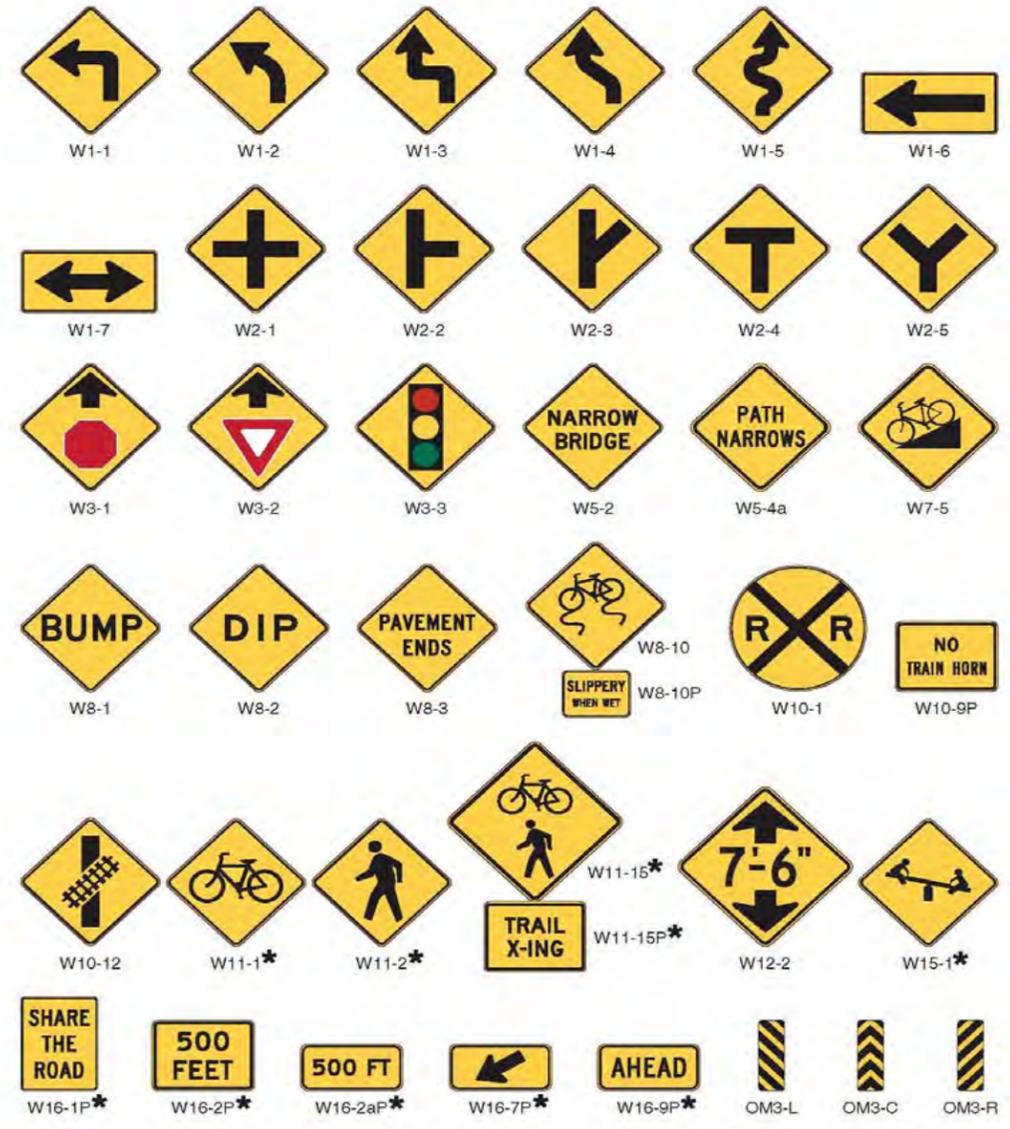
For example, MUTCD Figure 2A-2 shows placement heights and lateral locations for various sign installations.



2009 Edition

Page 797

Figure 9B-3. Warning Signs and Plaques and Object Markers for Bicycle Facilities



* A fluorescent yellow-green background color may be used for this sign or plaque. The background color of the plaque should match the color of the warning sign that it supplements.

December 2009

Sect. 9B.18

Also, for example, MUTCD Figure 9B-3 shows typical warning signs and plaques that are appropriate for use on bicycle facilities (subject to revision by the NYS Supplement to the MUTCD).

The MUTCD gives specific guidance for each sign in the manual. The guidance typically includes the standards of usage, references to supporting sections in the MUTCD and optional methods of usage. Two examples of signs which are likely to be used along the Two Rivers Greenway are the "W11-15" Combined Bicycle/Pedestrian and "W11-15P" Trail X-ing signs, and the "R1-6" State Law -Yield To Pedestrians Within Crosswalk signs shown below along with abbreviated excerpts from their respective sections of the MUTCD (which are subject to modification by the NYS Supplement to the MUTCD).



BMTS Greenway Sign Study Project #CA9-295

Challenging Areas Sign and Pavement Marking Recommendations

NY17C at Hickories Park (RR Underpass), Town of Owego

- Install L or LS style crosswalk across NY17C
- Install advance W11-2 Pedestrian Crossing warning signs with W16-2aP “300 FEET” supplemental warning plaques on NY17C
- Install W11-2 Pedestrian warning signs with W16-7P diagonal down arrow supplemental plaques on NY17C at the crosswalk
- Install two sets of double-posted R5-3 “No Motor Vehicles” signs at the trail entrance (near the bollards) and at the RR underpass*
- Install an R1-1 Stop sign with solid white stop bar pavement marking on the trail at the intersection with NY17C*
- Install a W2-4 Intersection warning sign with a supplemental W16-8P “RTE 17C” plaque on the trail approximately 100 feet prior to Route 17C,
- Option: Install three bollards with solid yellow obstruction pavement markings on south side of NY17C at the trail intersection (center bollard removable for EV and MV access).*

* Assumes the trail will be paved.

NY17C (Main St.) at Canal Street, Village of Owego

- Install L or LS style crosswalk across NY17C on the east side of Canal Street**
- Install advance W11-2 Pedestrian Crossing warning signs with W16-2aP “200 FEET” supplemental warning plaques on NY17C
- Install W11-2 Pedestrian warning signs with W16-7P diagonal down arrow supplemental plaques on NY17C at the crosswalk

** Consider installation of ADA curb ramp on the southeast corner of the intersection with a connection to sidewalk on the south side of Route 17C.

NY434 at Marshland Road (West), Town of Owego

- Install W11-1 Bicycle warnings signs with supplemental W16-2aP “500 FEET” plaques on NY17C in advance of Marshland Road
- Install bicycle lane arrows and symbols in the bicycle lanes (shoulders) on NY17C approximately 200 feet in advance of Marshland Road
- Install W11-1 Bicycle warning signs with supplemental W16-1P “SHARE THE ROAD” plaques on the east side of Marshland Road between NY434 and the NY17 overpass

Vestal Avenue at Riverview Terrace, Village of Endicott

- Change the crosswalks to L or LS style crosswalk across Vestal Avenue along the north side of the Riverview Terrace intersection with ADA curb ramps
- Install an advance W11-2 Pedestrian Crossing warning signs with a W16-2aP “200 FEET” supplemental warning plaques on Vestal Avenue in the southbound direction
- Install an overhead R1-9 “STATE LAW – YIELD TO PEDESTRIANS” in the northbound direction on Vestal Avenue approximately 200 feet prior to the intersection (installed overhead on the bridge truss)
- Install W11-2 Pedestrian warning signs with W16-7P diagonal down arrow supplemental plaques on Vestal Avenue at the crosswalk
- Install in-roadway R1-6 “STATE LAW - YIELD TO PEDESTRIANS IN CROSSWALK” signs on Vestal Avenue in advance of the crosswalk
- Narrow the through lanes of Vestal Avenue – particularly in the southbound direction – with the use of white edgelines and cross-hatching

East Clinton Street at Water Street, City of Binghamton

- Re-install bicycle detection markings on the approaches to the signal
- Install bicycle lane arrows and symbols within all bike lanes. They should be installed in the immediate vicinity of the intersection and approximately 200 feet from the intersection
- Install a W11-1 bicycle warning sign with a supplemental W16-1P “SHARE THE ROADWAY” sign on East Clinton Street prior to the end of the eastbound bicycle lane,
- Re-install S-type crosswalks at the signalized intersection



- Install solid white edgelines to delineate the bicycle lane on Water St. along the section where it is located in the wide snow storage area
- Install double-posted R9-3bP “USE CROSSWALK (with right arrow) signs at the end of the Promenade where it intersects East Clinton Street
- Consider upgrading the pedestrian signal indications at the intersection to include countdown timers along with the associated R10-3e traffic signal pedestrian actuation signs (the crosswalk across East Clinton St. on the west side of Water St. currently has pedestrian signal indications with countdown timers)
- Install an R10-15 “TURNING VEHICLES YIELD TO PEDESTRIANS” sign at the intersection on the southbound approach of Water Street

US11 (Front Street) at Bevier Street, City of Binghamton

- Install R10-15 “TURNING VEHICLES YIELD TO PEDESTRIANS” signs at the intersection on the US11 northbound and Bevier St. approaches
- Change the crosswalks to Type L or LS style crosswalk across Bevier Street
- Replace the existing pedestrian actuation signs with R10-3e signs
- Install a W11-15 Bicycle & Pedestrian warning sign with a W16-2aP “500 FEET” supplemental plaque on the US11 southbound approach to the signal
- Install a stop bar across the shared use path (from Old Front Street) at the edge of shoulder of US11

Front Street (US11) at Otsiningo Park North Access, Town of Chenango

- Install W11-15 Bicycle & Pedestrian warning signs with a W16-2aP “300 FEET” supplemental plaques on Front Street (US11) in advance of the park entrance
- Change the crosswalks to L or LS style crosswalks
- At the adjacent signalized intersection of Front Street (US11) and Exit 6 I-81 North:
 - Install L or LS style crosswalks
 - Install R10-3e traffic signal pedestrian actuations signs
 - Install an R10-15 “TURNING VEHICLES YIELD TO PEDESTRIANS” sign at the end of the I-81 Exit 6 exit ramp

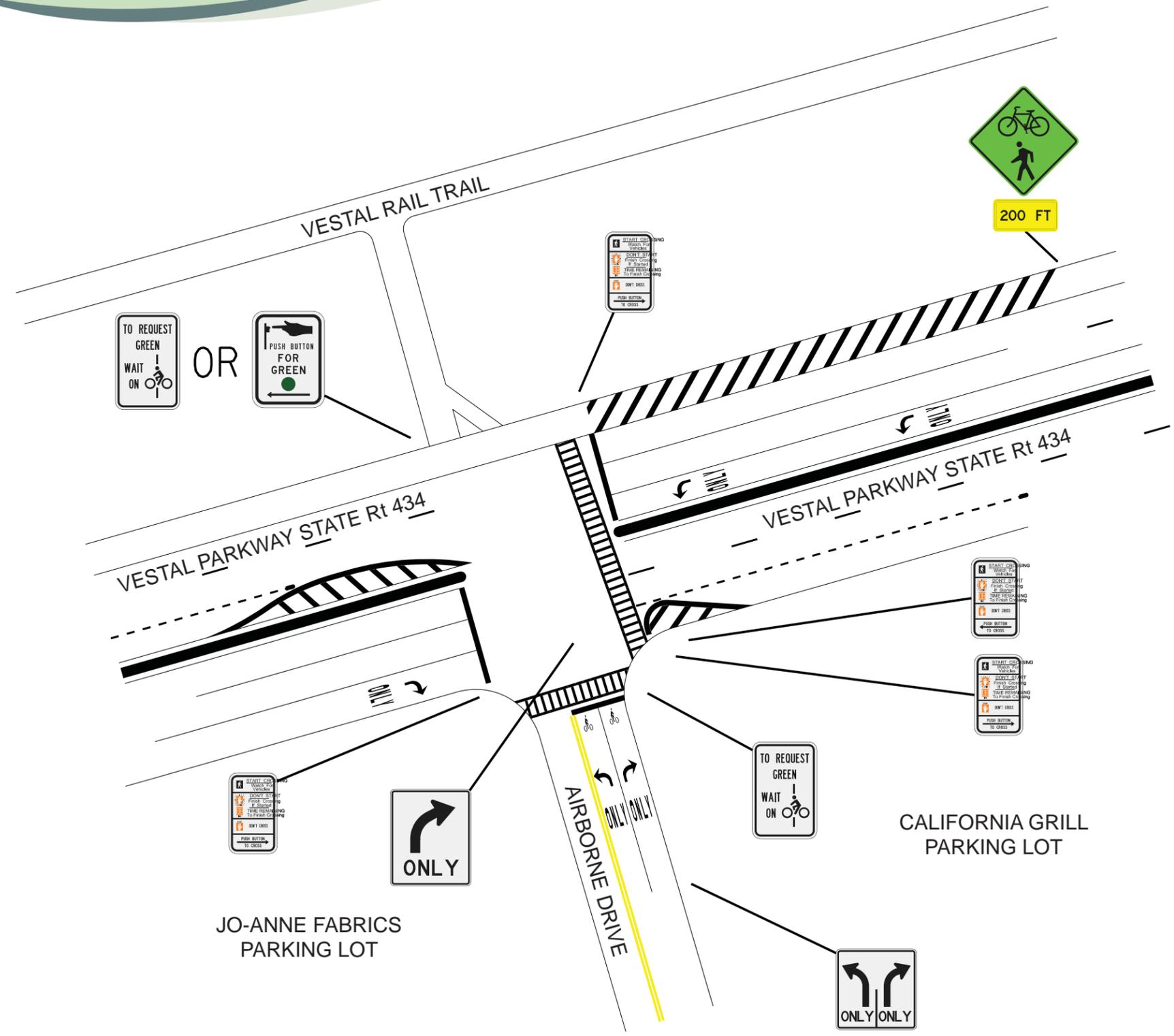
Chenango Street at Port Dickinson Park Entrance, Town of Chenango

- Install W11-2 Pedestrian warning signs with supplemental W16-7P diagonal down arrow plaques at the crosswalk including the crosswalks at the adjacent intersection of Chenango Street and West Service Road
- Change the crosswalks to L or LS style crosswalks including the crosswalks at the adjacent intersection of Chenango Street and West Service Road
- Install advance W11-2 Pedestrian warning signs with W16-2aP “200 FEET” supplemental plaques on Chenango Street in advance of the crosswalk near re park entrance
- Install in-roadway R1-6 “STATE LAW – YIELD TO PEDESTRIANS IN CROSSWALK” signs at the crosswalk across Chenango Street near the park entrance
- Install an R10-15 “TURNING VEHICLES YIELD TO PEDESTRIANS” sign on the West Service Road at the intersection with Chenango Street

Route I-88 Service Road at Northern Terminus of Route 12A, Town of Fenton

- Change the crosswalks to L or LS style crosswalks including the crosswalks at the adjacent intersection of NY12A and Towpath Road
- Install double-posted R5-10B “NO PEDESTRIANS OR BICYCLE” signs at the entrances to the I-88 ramps
- Install R10-15 “TURNING VEHICLES YIELD TO PEDESTRIANS” signs at the end of the entrance ramp from I-88 westbound at the intersection with NY12A and at the Chenango Valley Central School driveway at the intersection with Towpath Road.

SIGN & PAVEMENT

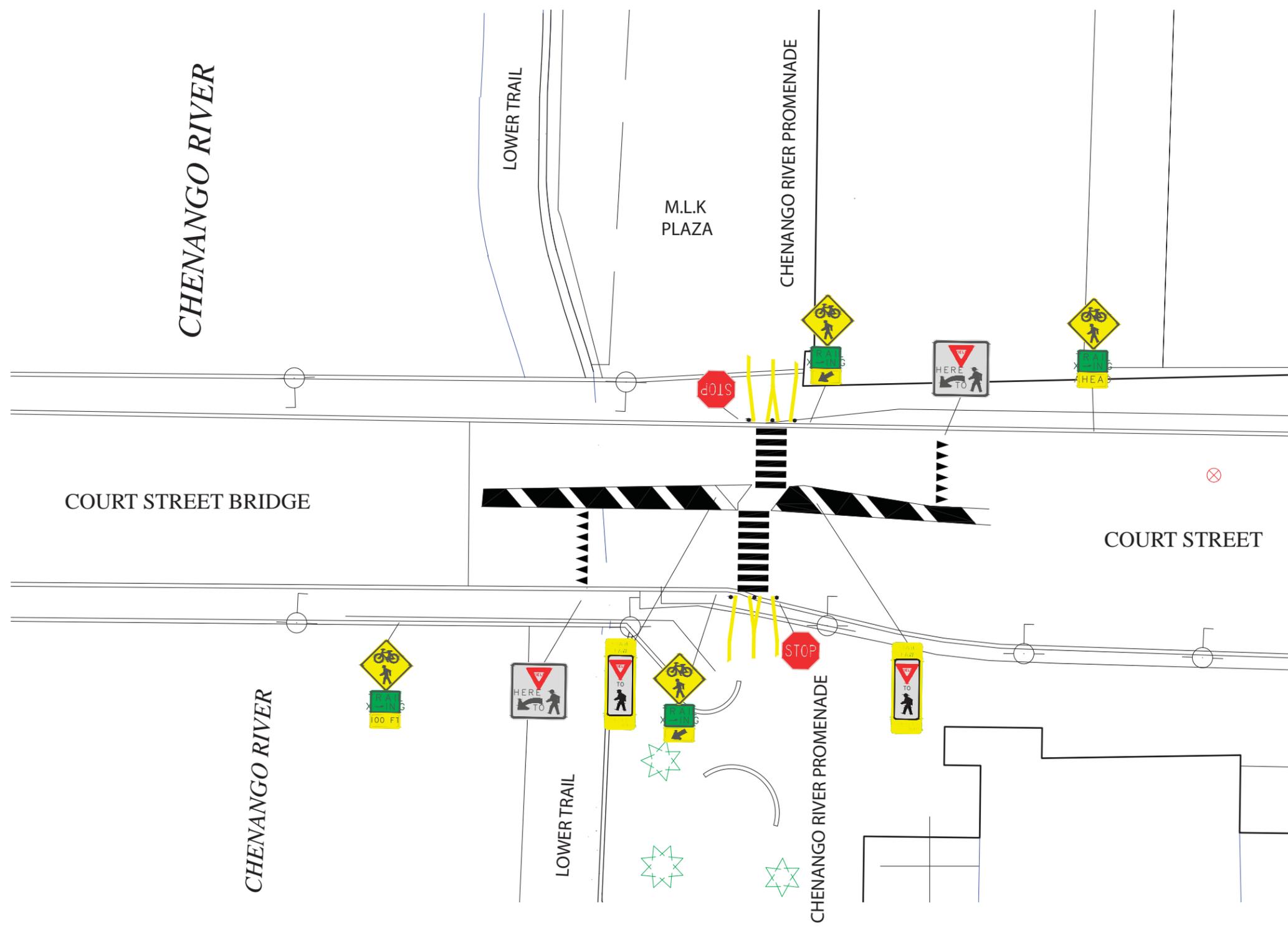


Here is a look at what the intersection of Airborne Drive and the Vestal Parkway State Rt. 434 might look like.

Pedestrians crossing this busy intersection will need the appropriate safety measures installed in order to make this intersection comply with regulatory standards. This graphic shown to the left is a good example of what precautions may be installed. Striping the shoulder will decrease vehicular travel speed and warn travelers that there is something different about this intersection.

Sign types shown including pedestrian/ bicycle crossing, warning signs, signal operation instructions, directional signs and only turn left/right signs will be installed.

SIGN & PAVEMENT



The intersection located at the crossing of the Chenango River Promenade and Court Street is a major concern of safety. At this location vehicles are entering and exiting a bridge and tend not to think about pedestrian traffic across the mid-block break.

Striping the pavement will create a median and safe zone for pedestrian crossings. These pavement markings will also create a pinch point, making vehicular traffic slow down to maneuver through the crossing area.

Also incorporated into this crossing is a “Z” patterned crosswalk. This type of crosswalk makes users orient their line of vision to on-coming traffic. Studies have shown that this type of installation is the most effective and safe when dealing with mid-block crossings.

Other signage that will be developed at this crosswalk include stop signs, yield to pedestrian/ bike signs, bike crossing and pedestrian crossing signs.

OVERVIEW

In support of current efforts to establish, promote, preserve and enhance the Two Rivers Greenway (TRG), this comprehensive **Wayfinding Master Plan** has been developed. This effort includes guidelines that articulate how visitors will be introduced to and guided throughout the TRG with environmental graphics. The methodologies used to orient and direct trail users with signage have been carefully considered so that mapping, destination nomenclature and circulation theories may be consistently rendered throughout the full length of the TRG. Moreover, these wayfinding standards may be applied consistently to print and electronic communications that are developed to promote the TRG in the area as well.

User access and circulation throughout the TRG will be facilitated by a standardization of signage formats and communication guidelines. The visual standards include consistent signage formats, materials, colors, graphic layouts and the positioning of signage relative to the trail and roadways that provide access to it. In particular, a logo and logotype will be uniformly applied to signage devices as a primary means to establish a graphic identity and cultivate the autonomy of the TRG. Moreover, this Manual will articulate issues of overlapping identity among the various municipalities, trail segments and parklands through which the TRG passes as well as the tourism venues accessible from it.

The purpose of the Two Rivers Greenway **Wayfinding Standards and Signage Maintenance Manual** is to provide:

1. consistency in the appearance of signage,
2. uniformity in the content rendered in signage and all subsequently developed communication tools.

With particular respect to signage, the drawings and specifications in this Manual aim to preserve the appearance of signs, standardize the materials and application technologies utilized and streamline the procurement of additional and replacement signage components. These are particularly important objectives given the number of municipalities in Broome and Tioga Counties that will be involved in instituting these standards and, subsequently, with updating and maintaining the signs.

The standards and practices articulated in this Manual aim to ensure the consistency of the messages being communicated to TRG visitors and prospective visitors. These include:

1. usage standards for each signage category
2. nomenclature standards
3. circulation strategies
4. articulation of policies adopted for referencing destinations on orientation and directional signage
5. electronic artwork for logos and map graphics
6. recommendations for wayfinding references among print and electronic marketing tools

Formally, the **Wayfinding Standards and Signage Maintenance Manual** is comprised of the following sections:

1. History and Development
2. Strategies for Signage Implementation
3. Recommendations for Message Content
4. Nomenclature Standards and Circulation Theory

5. Listing of Signage Categories
6. Signage Format Usage Criteria
7. Signage Detail Drawings
8. Standards for Colors, Typography and Logo Usage
9. Standards for Map Graphics and Legends
10. Recommendations for Wayfinding Reinforcement Among Related Communications
11. Signage Fabrication and Installation Specifications
12. Maintenance Practices

1 History and Development

The Two Rivers Greenway (TRG) is a system of connected, existing off-road and on-road trails through Broome and Tioga Counties that runs over 35 miles along the Chenango and Susquehanna Rivers. The initial project explored signage design standards in 2012 and utilized a steering committee with representation of major stakeholders and municipalities along the TRG. This effort explored alternatives to promote a consistent environmental identity for this trail system and produced schematic alternatives for graphic identity, signage standards and communication content.

This project also recommended a theory for organizing the information on the multitude of attractions along the TRG. This manifested in a zoning theory that divided the TRG into segments (or zones). Along the Chenango River, these sections are designated:

- Otsiningo
- Chenango River Promenade

Along the Susquehanna River, the sections are designated:

- Conklin
- University
- Vestal Rail Trail
- Union
- Owego

The rationale for subdividing the TRG is:

1. The scale of the TRG across two counties suggests divisions that have a relationship to existing trail segments, municipalities and the course of the rivers.
2. The zoning formula permits the many attractions accessible from the TRG to be associated with the smaller-scaled sections. This will facilitate both marketing and wayfinding.
3. The initial funding, development and on-going trail maintenance can be better administrated around a zoned trail system. See **Section 3 – Recommendations for Message Content** and **Section 6 – Signage Format Usage Criteria** for more information on how the zoning theory described here impacts the selection of signage categories and the content on such elements as orientation and directional signage.



2 Strategies for Signage Implementation

The objectives for the Signage System documented in this Standards Manual are to provide wayfinding information and reinforce the identity of the Two Rivers Greenway. This will be achieved through the implementation of visual design standards, message content and location/positioning standards (i.e. the positioning of signage along the trail).

Visual Design Standards

One of the key objectives of the Wayfinding Master Plan is to maintain formatting standards for all signage. By maintaining this singular visual identity, the signage can underscore the autonomy of the TRG trail as it passes through the various municipalities, parks and other attractions in Broome and Tioga Counties. The strategies for maintaining the visual standards are:

1. Replication of consistent signage categories. This involves the usage of specific formats for the various kinds of messages that need to be communicated. See **Section 5 – LISTING OF SIGNAGE CATEGORIES** and **Section 6 – SIGNAGE FORMAT USAGE CRITERIA** for more detailed information regarding available signage formats and recommendations for how they will be used.
2. Utilization of consistent color scheme. The combination of a dark teal field, black framing and yellow accents will comprise the most visible aspect of trail signage identity. See **Section 8 - STANDARDS FOR COLORS, TYPOGRAPHY AND LOGO USAGE** for technical information about these colors.
3. Usage of consistent logos and typographic layouts. The TRG logo is used at the top of most wayfinding signage categories. Its particular sizing and location is rendered for each signage format and is articulated in **Section 7 – SIGNAGE DETAIL DRAWINGS**. Similarly, the typefonts, layouts and sizing of text on the various signs are also shown on the Detail Drawings.
4. Usage of consistent map graphics. The graphic standards for colors, graphic symbols, type sizing, location coding and legends have been established in the artwork produced for Type A-1 and A-2 Orientation Signage. See **Section 9 - STANDARDS FOR MAP GRAPHICS, LEGENDS AND SYSTEMS DESCRIPTION** to view the application of these standards.

Shown below are illustrations of several signage categories that exhibit these visual design standards.



Content Standards

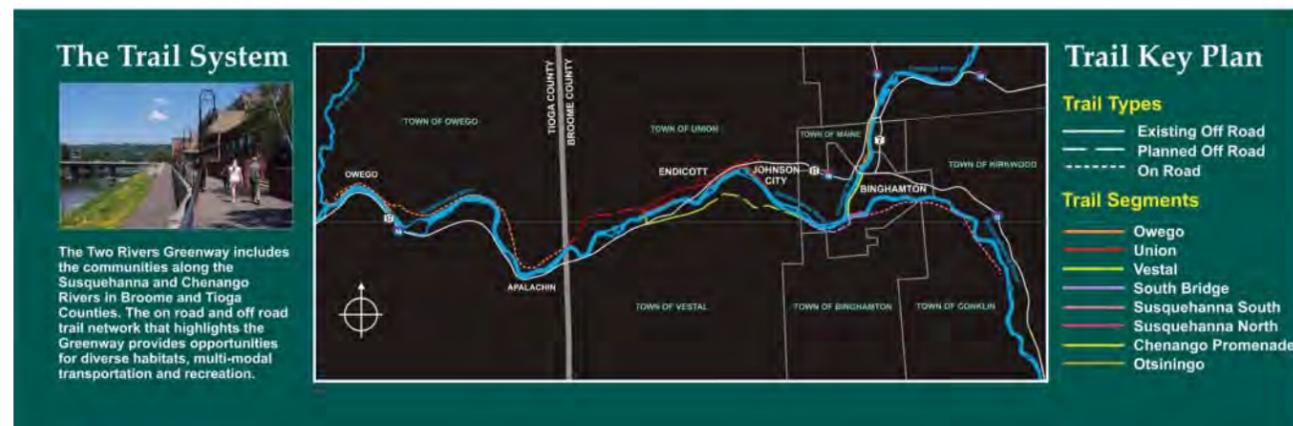
The content standards have been established for the graphics and messages used for the various signage categories can contribute significantly to the consistency of orientation and direction-giving throughout the TRG. There are two primary advantages to maintaining these standards throughout the Greenway. First, the utilization of these standards will provide information where it is needed and in appropriate formats. Secondly, these guidelines will afford some predictability for trail users as to where this information is likely to be found on signs along the trail. The primary aspects of these content standards are:

1. Placement of specific kinds of information on accommodating signage formats. In essence, the signage formats have been designed around the information they need to convey. Detailed orientation information, for instance, is placed on large signs where people can pull off or step away from the trail and spend as much time as they wish to view maps, legends or interpretive information. Directional signs, on the other hand, use arrow symbols and copy sizes that permit the whereabouts of nearby destinations to be seen without stopping. See **Section 6 – SIGNAGE FORMAT USAGE CRITERIA** to review the available formats for signage and recommendations for on how these formats may be used.
2. Nomenclature Standards. These standards aim to reinforce consistency, not merely among signage categories, but also among print and electronic communications that may be developed in the future to reference the trail and its close-by attractions. These standards articulate the precise wording that is used to identify municipalities, neighborhoods, parklands, intersecting trails and points of interest. See **Section 4 – NOMENCLATURE STANDARDS** for specific information regarding the formal names applied to various venues as established in the Demonstration Program.

standards manual

WAYFINDING STANDARDS & MAINTENANCE

3. Rationale for Signage Content. This involves recommendations for what specific kinds of information may be placed on wayfinding signage. Given the size of the TRG and its many destinations, it is not functional to convey all of this information on any one sign. As such, a zoning rationale was established for both orientation and directional signage categories. This provides guidelines for what information may be utilized so that the signs can provide the necessary information and guidance without becoming excessively detailed or lengthy. See **Section 3 – RECOMMENDATIONS FOR MESSAGE AND GRAPHICS CONTENT** for more information on this rationale. An example of a key plan map that displays the zones of the TRG is shown below.



Location Standards

The consistent placement of signage along the TRG and in parks and neighborhoods adjacent to it can contribute to both the identity of the trail and the function of its signage to provide guidance. The “predictability” of signs at decision points and trailheads not only reinforces the fact that trail users are on the trail but also conditions them to look for and use the information provided. The standards for signage placement are:

1. Consistent with the MUTCD requirements for shared-use trails, no portion of any sign shall be closer to the edge of the trail than 24 inches. The standard adopted for the TRG is placement of directional and regulatory signs at 30” from the trail and orientation signs at 48”.
2. Orientation signage (either Type A-1 or A-2) is generally located between the trail and the predominant user approach path (from parking lots, playgrounds, restrooms, etc.).
3. Where Directional Signage is directing trail users approaching from both directions, it is generally located as close as possible to the decision points. In the event a directional sign is directing visitors from only one approach, it is generally placed 20’ to 30’ in advance of the decision point.
4. Regulatory signage is placed consistent with directional signage. For single-post signage, no portion of the sign shall be closer to the trail than 24”.

5. Trailblazer signage shall be placed on the nearest light pole to the intersection in advance of where a turn is to be made.

The Autonomy of the Two Rivers Greenway

The paramount objective for the signage formats included in this Manual is to establish and preserve the integrity and autonomy of the TRG. Although the trail will pass through numerous municipalities, parks and historical areas, it is the goal of this program to maintain the TRG signage standards at the various access and decision points along its entire pathway. As the trail approaches municipalities, parks or historical areas, TRG directional signage will call out these destinations at a reasonable distance in advance. When the trail crosses into such areas, trail signage may acknowledge these boundaries. In reciprocation, we are hopeful that the signage within the municipalities, parks and historical areas will acknowledge the whereabouts of the TRG in their own signage content.

The most fundamental caveat of this system is that those signs that appear directly adjacent to the TRG should reflect a singular identity in order to reinforce the sovereignty of this trail system and underscore its physical continuity. For these reasons, it is important that the colors and formats used for signage by the municipalities, parks and attractions through which the TRG passes make no attempt to replicate the visual standards applied to TRG signage. This standard is consistent with that employed along the Canalway Trail across New York State, the Genesee Riverway Trail in Rochester and the Shoreline Trail in Western New York.

3 Recommendations for Message Content

This section includes guidelines for the kinds of information that may be presented among key signage elements. In particular, these standards impact the two fundamental wayfinding tools used in TRG signage – Directional and Orientation signage. With respect to the Trail Directional categories, the following guidelines are intended to establish consistency in:

- where such signs are placed along the trail,
- the types of destinations that are referenced,
- how much information is placed on each sign and
- the relative distances from which various destinations may be referenced.

There are three different formats available for trail directional signage and two additional categories for vehicular direction. The trail options are distinguished by the size of the message panel and are dependent upon the quantity of information that needs to be conveyed. A third trail directional category involves a simple pylon that employs the logo and a directional arrow and may be useful at points where the trail converges or diverges from a sidewalk. The standards feature a vehicular directional format that meets current MUTCD standards and is intended to guide motorists to parking areas where these are in close proximity to roadways. Trailblazers provide direction to vehicular traffic from one-quarter to one-half mile away from trail access points.

For Orientation Signage, the recommendations entail criteria for the placement and content for two types of Orientation Kiosks and detailed information on the kinds of maps, legends and other information that can be applied. Also see **Section 6 – SIGNAGE FORMAT USAGE CRITERIA** for more information on the selection of specific signage formats.



Directional Signage

Proposed Criteria for Directional Signage Content and Placement

1. The purpose of Vehicular Directional Signage will be to guide users to trail access points. The purpose of Trail Directional Signage will be to **reinforce circulation** along the trail. It is assumed that the attractions referenced on Trail Directional Signage are also articulated on the orientation signs that the trail user is likely to find at trail access points.
2. Vehicular Directional Signage can be utilized at junctions/intersections with roadways that provide access parking to the trail. Trail Directional Signage may be placed at major roadways with pedestrian access, intersecting trails, junctions with pathways to restrooms or playgrounds and trailhead/access points.
3. Directional Signage categories should include:
 - a. Type D-1 Vehicular Directional (Ground Mount)
 - b. Type C-1 Vehicular Directional (Trailblazer) (Pole Mount)
 - c. Type B-1 Trail Directional (Up to six destinations)
 - d. Type B-2 Trail Directional (Up to four destinations)
 - e. Type B-3 Pylon Trail Directional (Special site situations)
4. Trail Directional Signage should be **as terse as possible** and placed in areas adjacent to the trail where the viewer may read the messages on approach without having to stop.
6. Should the content of directional signage at any decision point exceed six items, it will be separated among two signage elements no closer to one another than 40 feet.

7. Trail Directional Signage content will include references to neighboring trail segments, municipalities, parks, intersecting trails, and points of interest.
8. The information rendered on directional signage should be limited to the municipalities, parks, trails and points of interest that are **within** the segment of the trail in which the sign is placed as well as those in adjacent segments within one-half mile of the section boundary. Destinations in neighboring sections **beyond this point will not** be referenced.

Type of Destination	Recommended Maximum Distance to Destination along Trail or Roadway/Trail leading to Destination	Recommended Distance from Trail (* - Trail either passes through or is adjacent to destination)
Neighboring Trail Sections (Ex. Vestal Rail Trail)	2 Miles	*
Municipalities (Ex. Endicott)	2 Miles	*
Trails (Ex. Chugnut Trail)	1 Mile	*
Parks/ Preserves (Ex. Otsiningo Park)	1 Mile	1 Mile
Neighborhoods (Ex. First Ward)	½ Mile	*
Points of Interest (Roberson Mansion)	½ Mile	1 Mile

Note: Distances may vary somewhat based on the density (or scarcity) of attractions in a particular area.



The Directional sign at left shows the recommended maximum of six destinations. This is the greatest number of messages that can be assimilated by an individual passing by on a bicycle or jogging. In the event more destinations are required at any one decision point, a second directional should be placed at least 40 feet in advance.

WAYFINDING STANDARDS & MAINTENANCE

Orientation Signage

Proposed Criteria for Orientation Signage Content and Placement

1. The purpose of Orientation Signage should be to **provide an overview** of the course of the Trail and the attractions that are accessible from it.
2. Orientation Signage will include:
 - a. Primary Orientation Kiosks
 - b. Secondary Orientation Kiosks
3. The content for Primary Orientation Kiosks may include:
 - a. Directional information (Content criteria same as previous section)
 - b. Key Plan Map of entire Trail (Conklin and Port Dickinson to Owego)
 - c. Section Map graphic and legend (this will reference parks, trails, municipalities and points of interest in proximity to the Trail within the local trail section)
 - d. Welcoming information and general information about the Trail
 - e. Description of the conditions that exist along the Local Trail Section including segments on roadways, missing segments, portions under construction, hazards, and ADA-related information about trail accessibility
 - f. Interpretive information
 - g. Credits & acknowledgements
4. The content for Orientation Maps will include:
 - a. Key Plan Map of entire Trail
 - b. Section Map graphic and legend (this will reference parks, trails, municipalities and points of interest along the Trail within the local trail section)
5. Specific destination information rendered on orientation signage will be limited to the municipalities, parks, trails and points of interest that are **within** the segment of the Trail in which the signage is placed.
6. Orientation signage may be placed at trail access points, junctions/intersections with major roadways and areas where people frequently pass by or gather (e.g. restrooms, dining areas, observation areas, boat launches, etc.).
7. Orientation Signage should be visible from the trail but be placed such that the viewer can safely stand off the trail and away from other pedestrian traffic areas in order to spend as much time as he or she wishes to read signage content.

To ensure consistency among the orientation elements used throughout the Trail system, formal nomenclature should be utilized on signage. These terms will be applied to orientation and directional elements as well as any print or electronic graphics developed as reinforcement. The terms will be revised and updated on a regular basis to accommodate additions, deletions and changes to the attractions referenced. The "Points of Interest" that should be included in the map legends might include the following categorizations:

1. The Landscape
 - a. Parks and Trails
 - b. Blueway Trails
 - c. Rivers, Streams and dams
2. Natural Bounty
 - a. Agribusiness
 - b. Farmers Markets
 - c. Wine Trails
 - d. Orchards, Fruit Farms
3. Industrial/ Commercial Heritage
 - a. Factory Sites/Museums
 - b. Industrial Ruins
 - c. Auto/Airline Manufacturing Museums
 - d. Railroad Displays/Museums
 - e. River Shipping/Canal sites
4. Historical/Heritage Sites/Visitors Centers
 - a. Visitors Centers
 - b. Historical Societies
 - c. Battlefields
 - d. Historic Urban Districts
 - e. Military Museums/Memorials
 - f. Underground Railroad Sites
 - g. Ethnic Cultural Centers
5. The Arts & Architectural Gems
 - a. Historic Architecture (inc. National Register Buildings)
 - b. Performing Arts Theaters and Music Halls
 - c. Historic Public Art Displays
 - d. Art Museums
6. Transportation Centers/Municipal Buildings
 - a. Train/Bus Terminals
 - b. Airports
 - c. City Halls
 - d. Post Offices
 - e. Courthouses
7. Family Recreation/Academic/Education
 - a. Colleges/Universities
 - b. Convention Centers
 - c. Libraries
 - d. Ballparks/Hockey Arenas
 - e. Science/ Planetariums



4 Nomenclature Standards and Circulation Theory

Nomenclature Standards

To ensure consistency among the wayfinding elements used throughout the TRG, the following formal nomenclature will be utilized on signage. These terms will be applied to orientation and directional elements as well as any print or electronic graphics developed as reinforcement. The terms will be revised and updated on a regular basis to accommodate additions, deletions and changes to the attractions referenced.

Chenango River Promenade Segment

The Landscape

- Cheri Lindsey Park
- Columbus Park
- Confluence Park
- Peacemakers Plaza
- Recreation Park
- Veterans Park

Natural Bounty

- Court Street Farmers Market
- Northside Farmers Market

Industrial/Commercial Heritage

- Center for Technology and Innovation
- Binghamton Railroad Company Complex
- Historic District
- Railroad Terminal Historic District

Historical/Heritage Sites/Visitors Centers

- Abel Bennett Tract Historic District
- Binghamton Visitors Center
- Christ Church
- Clinton Street Antique Row
- Court Street Historic District
- Jonas M. Kilmer House
- Phelps Mansion
- Roberson Museum
- State Street / Henry Street Historic District

The Arts & Architectural Gems

- Artists Row
- Art Mission & Theater
- Binghamton Philharmonic
- Bundy Arts and Victorian Museum
- Forum Theater
- Tri Cities Opera

Transportation Centers/Municipal Buildings

- Binghamton City Hall
- Chenango Street Transportation Center
- Court House
- US Post Office

Family Recreation/Academic/Education

- Binghamton Public Library
- Binghamton Zoo at Ross Park
- Broome County Veterans Memorial Arena
- Center for Technology and Innovation
- Discovery Center & Story Garden
- Link Planetarium at Roberson Museum
- Minor League Baseball Stadium

Destinations for the following segments can be found in the Matrix located on pages 21-23:
Conklin, Otsiningo, University Segment, Vestal, Union, and Owego.

Circulation Theory

The Circulation Theory for the TRG is an extension of the zoning philosophy that organizes destinations within the seven zones (See **Section 2 – STRATEGY FOR SIGNAGE IMPLEMENTATION**). As the zones are used as an intermediate division of the entire TRG trail system, mapping and directional references for any particular orientation sign is generally focused on the zone in which that sign is situated. An orientation element in the Otsiningo segment, for instance, will include a detailed map of this segment as well as a listing of destinations within this zone.

As articulated in **Section 3 – RECOMMENDATIONS FOR MESSAGE CONTENT**, this theory manifests in the placement of destinations on directional signage as well. Here, there are standards for the reference of various kinds of destinations in the context of their proximity in miles to any given directional sign. As new destinations are added to the areas and neighborhoods that may be accessed by the TRG, it is important to determine where these elements should be listed and which existing directional signage elements should be updated in order to maintain standards for reference.

5 Listing of Signage Categories

Included below is a listing of Two Rivers Greenway signage categories documented as of December 1, 2012. These are referenced by Category and Detail Drawing (See **Section 7 – SIGNAGE DETAIL DRAWINGS**).

<i>Category</i>	<i>Description</i>	<i>Detail</i>
A-1	Primary Orientation Kiosk	S-1
A-2	Secondary Trail Orientation	S-2
A-3	Orientation Retrofit	S-3
B-1	Large Trail Directional	S-4
B-2	Small Trail Directional	S-5
B-3	Directional Pylon	S-6
C-1	Trail Blazer	S-7
D-1	MUTCD Vehicular Directional	S-8
E-1	Free Standing Interpretive	S-9
E-2	Rail-Mounted Interpretive	S-10
F-1	STOP Sign	S-11
F-2	Hazard/Warning Sign (Diamond)	S-12
F-3	Hazard/Warning Sign (Square)	S-13

6 Signage Usage Criteria

One of the fundamental objectives of this program is to maintain signage standards along the trail's entirety. Through the standardization of signage formats, nomenclature, wayfinding standards and map graphics, this Manual seeks to preserve the visual integrity of the trail system as well as the consistency of the messages that are communicated. These measures aim to maximize the visibility of the trail, alert users to changes of direction or trail surface and, most importantly, reinforce its continuity through the municipalities and various kinds of environs through which it passes.

The following usage criteria are applicable to the specific signage standards that have been developed for the TRG thus far. They provide information as to how and where each signage format may be utilized. They also provide information regarding restrictions (as may be required by law) and additional recommendations as may be applicable to the location or placement of signs.

Category	Description	Usage Criteria	Recommendations/Restrictions
A-1	Primary Trail Orientation	<p>This format can be used on trails, in parks or other attractions where it is necessary to orient visitors and provide trail/facility identification, directional, regulatory and interpretive information. The format is designed to receive one to four, vandal-resistant phenolic resin panels on each elevation. The precise content and sequencing of information for the Two Rivers Greenway will be determined later. Likely content will include identity graphics, directional information, key plan, Trail segment map graphics & legend of destinations and regulatory information pertaining to trail usage, seasonal maintenance and accessibility. Interpretive information and acknowledgments may also be incorporated.</p> <p>This category may be located at primary trailheads, parking areas adjacent to trailheads, or primary public gathering points (e.g. Restaurants, restrooms, docking areas, playgrounds) or junctions with major access streets and other trails.</p>	As per MUTCD Section 9 - TRAFFIC CONTROL FOR BICYCLE FACILITIES, no portion of this sign may be closer than 24" to a shared use path.
A-2	Secondary Trail Orientation	<p>The overall size, function and usage criteria for Type A-2 is very similar to the previous category. Its smaller format limits its content to identity graphics, key plan, Trail segment map graphics/ legend of destinations. This element may be used at secondary trailheads, residential community access points and secondary public gathering areas.</p>	Same as above.

Category	Description	Usage Criteria	Recommendations/Restrictions
B-1	Large Trail Directional	<p>Type B-1 format shall be used to convey directional information along the trail. This format meets MUTCD requirements for trail signage. They may be located at or slightly in advance of decision points and convey the whereabouts of neighboring trail segments, parks, ...</p> <p>The format is designed to receive two vandal-resistant phenolic resin message panels on each elevation. The top section is reserved for trail identification and the lower section is available for directional content. The format selection shall be used for a maximum of six destinations with appropriate directional arrows.</p>	<p>See MUTCD Section 9 – TRAFFIC CONTROL FOR BICYCLE FACILITIES to see precise content, text and directional arrow signage may be closer than 24" to a shared use path.</p>
B-2	Small Trail Directional	<p>The Type B-2 format is similar in all respects to Type B-1 except it is slightly smaller and will accommodate a maximum of four destinations with appropriate directional arrows.</p>	Same as above.
B-3	Directional Pylon	<p>The Type B-3 format utilizes a simple round aluminum pylon with vertical and angled planes fabricated into the form to accommodate the Two Rivers Greenway logo and appropriate directional arrow.</p> <p>This format is used at points where the trail pathway may need to be clarified, such as where a trail converges or diverges from a sidewalk. It is also frequently used at points where the trail intersects driveways or streets. At these points, two pylons are often placed side by side to effectively block the pathway from access by motorized vehicles.</p>	
C-1	Trailblazer	<p>The Type C-1 Trailblazer Sign is intended to provide offsite directional assistance for visitors on access streets and roadways in the vicinity of the trail. The placement of these signs will be along major vehicular circulation pathways in the neighborhoods adjacent to the trail.</p> <p>Although these may reinforce circulation (with a vertical arrow) in certain situations, it is particularly important to utilize trailblazers in advance of the decision points that involve turns. This format is intended to be placed on existing utility or light poles as allowed by the municipality.</p>	Consult local zoning/permit office to determine feasibility of using trail blazer signage.



Category	Description	Usage Criteria	Recommendations/ Restrictions
D-1	MUTCD Community Directional	<p>This format satisfies the material, sizing and reflectivity requirements of the MUTCD Version 2009 for Community Wayfinding Signage recently adopted by the New York State Department of Transportation. Its typographic sizing is required on all community roadways with vehicle speeds in excess of 25 MPH. This format is the preferred detail for directing visitors to trailhead parking facilities.</p> <p>The MUTCD requirements of this format include arrow configuration and spacing, typestyle, word and interletter spacing and graphics/ background reflectivity. A divider must be utilized between the header and directional groupings and between directional groupings.</p>	<p>See Section 2D-50 for more information about Community Wayfinding Guide Signage.</p> <p>Consult the vendor for options to achieve reflective background colors. Consult MUTCD for listing of colors that are prohibited for usage on community signage.</p>
E-1	Free-Standing Interpretive	<p>The Type E-1 format can be used for free-standing interpretive signage in the vicinity of the trail. This sign utilizes a single phenolic resin panel and reinforced pedestal base. The content for these signs may include heading copy, text, graphic illustrations and photographs.</p>	<p>The Owner must furnish electronic artwork to the fabricator for the entire graphic layout comprising the interpretive content.</p>
E-2	Rail-Mount Interpretive	<p>This format uses a somewhat smaller format for interpretive signage and is engineered to be installed on the top round section of railing.</p>	<p>Same as above. Furnish fabricator with profiles and dimensions of all railings to be used for this signage format.</p>
F-1	STOP Sign	<p>This Stop Sign format shall be used on shared-use paths where bicyclists are expected to yield to the right of way to conflicting traffic. The format utilized for the Two Rivers Greenway is MUTCD format R1-1.</p>	<p>Consult the MUTCD Section 9B.03 - STOP AND YIELD SIGNS to review the requirements for this signage.</p>
F-2	Hazard/Warning Sign (25-1/2" x 25-1/2" Diamond)	<p>This format can be used for several messages of warning signs utilizing a "diamond" format with yellow background. These include messages warning trail users of sharp turns and other trail irregularities, junctions, intersections, railroad crossings, narrowing of the trail and bridges.</p>	<p>Consult the MUTCD Section 9B.18 - BICYCLE WARNING AND COMBINED BICYCLE/PEDESTRIAN SIGNS to review the array of warning signs that may be selected for this format.</p>
F-3	Hazard/Warning Sign (24" Square)	<p>This format can be used for all square and rectangular signs (18" in height) that provide special regulatory information for shared-use trails.</p>	<p>Consult the MUTCD Section 9B-2 - REGULATORY SIGNS AND PLAQUES FOR BICYCLE FACILITIES to review the sign messages that may be selected for this format.</p>

7 Signage Detail Drawings

The detail drawings on the following pages represent the Two Rivers Greenway signage formats developed through December 1, 2012. These drawings should accompany any requisitions for new or replacement signs as well as the replacement of message panels on existing signage. These drawings are necessary to guarantee that the materials, colors, graphics, formats and fabrication technology of new or replacement signage is consistent with the standards established in the initial program installation.

All purchases or procurements of new or replacement signs or message panel replacements should also include the applicable written specifications in **Section 11 - SIGNAGE FABRICATION AND INSTALLATION SPECIFICATIONS**. The Specifications may require modification to coordinate with the specific signage categories or sign components included in the procurement.

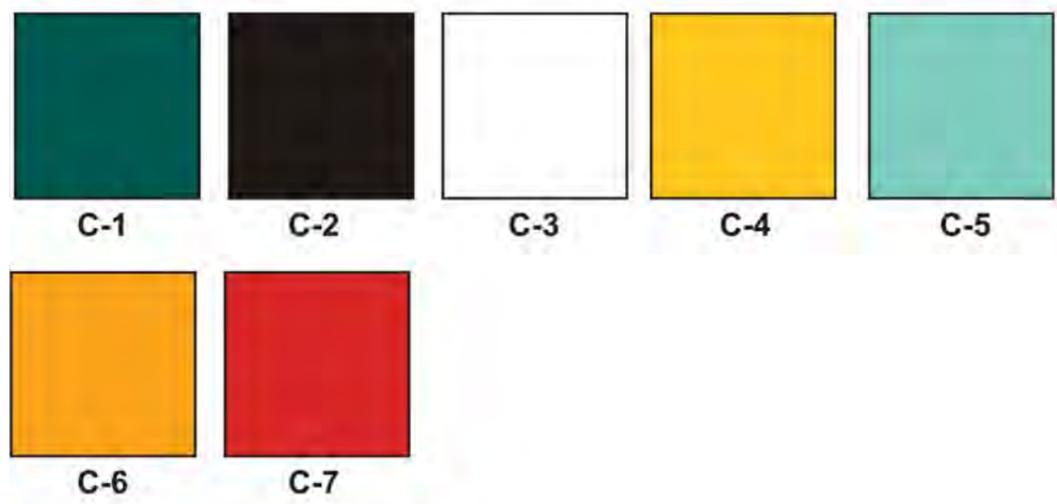
In order to preserve the graphic identity of this facility, this package of detail drawings may be used **only** for signage being applied to the Two Rivers Greenway.

8 Standards for Color, Typography and Logo Usage

Included below are standards for color, typography and logo usage as may be applicable for the development of new or replacement Shoreline Trail signage. Included with this Manual is a CD that contains jpegs of logos that are applicable to this project and should accompany any request for new signage.

Signage Colors

- C-1 Dark Teal Green (PMS 330)
- C-2 Black
- C-3 White
- C-4 Yellow (PMS 123)
- C-5 Light Teal Green (PMS 3248)
- C-6 Yellow (DOT Reflective Yellow)
- C-7 Red (DOT Reflective Red)



standards manual
**WAYFINDING STANDARDS
 & MAINTENANCE**

STANDARDS & MAINTENANCE

Signage Typography

TWO RIVERS

Goudy Old Style Bold

Roberson Museum

Arial Bold

Chenango River Promenade

Symbols & Logos



Two Rivers Greenway



Directional Arrow



Directional Arrow

9 Standards for Map Graphics and Legends

Included in this section are reduced illustrations of the maps and legends developed for the Two Rivers Greenway through December 1, 2012. These graphics are utilized in the development of Types A-1 and A-2 Orientation Signage. Included with this Manual is a CD that contains Corel Draw files of these graphics that may be used to make modifications as required for updating these elements in the future.

Key Plan Map/Legend

The Trail System

The Two Rivers Greenway includes the communities along the Susquehanna and Chenango Rivers in Broome and Tioga Counties. The on road and off road trail network that highlights the Greenway provides opportunities for diverse habitats, multi-modal transportation and recreation.

Trail Key Plan

Trail Types

- Existing Off Road
- Planned Off Road
- On Road

Trail Segments

- Owego
- Union
- Vestal
- South Bridge
- Susquehanna South
- Susquehanna North
- Chenango Promenade
- Otsiningo

Promenade Map/Legend

**Two Rivers Greenway
 Chenango Promenade Trail Segment**

Nearby Attractions

The Landscape

- Cheri Lindsey Park..... 1
- Columbus Park..... 37
- Confluence Park..... 34
- Peacemakers Plaza..... 16
- Recreation Park..... 12

Industrial/Commercial Heritage

- Center for Technology and Innovation..... 4
- Binghamton Railroad Company Complex..... 5
- Railroad Terminal Historic District..... 10

The Arts & Architectural Gems

- Artists Row..... 20
- Art Mission & Theater..... 6
- Binghamton Philharmonic..... 17
- Bundy Arts and Victorian Museum..... 13
- Forum Theater..... 21
- Tri Cities Opera..... 2

Transportation Centers/ Municipal Buildings

- Binghamton City Hall..... 36
- Court House..... 26
- US Post Office..... 8

Historical/ Heritage Sites/ Visitors Centers

- Abel Bennett Tract Historic District..... 14
- Binghamton Visitors Center..... 31
- Christ Church..... 15
- Clinton Street Antique Row..... 3
- Court Street Historic District..... 23
- Jonas M. Kilmer House..... 30
- Phelps Mansion..... 25
- Roberson Museum..... 32
- State Street / Henry Street Historic District..... 22

Natural County

- Northside Farmers Market..... 7

Family Recreation/ Academic/ Education

- Binghamton Public Library..... 24
- Broome County Veterans Memorial Arena..... 15
- Link Planetarium at Roberson Museum..... 35
- Minor League Baseball Stadium..... 11

Services

- Trailhead Parking
- Restrooms (Seasonal)
- Blue Water Trail Access

Two Rivers Greenway Trail Segments

- Chenango River Promenade
- Otsiningo
- South Bridge
- Susquehanna River North
- Susquehanna River South

Trail Types

- Existing Off Road
- Planned Off Road
- On Road

YOU ARE HERE



10 Recommendations for Wayfinding Reinforcement Among Related Communications

While this document primarily focuses on preserving the Two Rivers Greenway identity and message content standards embodied in the development of signage, there will be opportunities to extend this visual and communication continuity beyond the bounds of the trail itself. These opportunities may take the form of electronic communications, promotional print graphics and special displays or exhibits. The recommendations included below are intended to capitalize on the equity that has been created with these standards and their potential to promote awareness and usage of the TRG.

Identity Graphics

The overall identity of the Two Rivers Greenway can be substantially reinforced among other forms of communication with effective use of the current identity graphics. This would entail:

1. Exclusive usage of the TRG logo and logotype
2. Usage of Dark Teal field color (C-1) whenever possible
3. Usage of Yellow (C-4) and Light Teal Green (C-5) in motifs and as a high-lighting feature
4. Usage of Goudy Old Style Bold and Arial Bold as headline typography
5. Usage of graphic vocabulary as depicted in current map graphics (i.e. field colors, roadway graphics and labeling, trail marking and color coding, municipal demarcations, key designations and coding formula, map legends, etc.)

Content

Similarly, communication can be streamlined if specific references to the trail, its segments, destinations and attractions are made consistently with the information that appears on signage.

11 Signage Fabrication and Installation Specifications

Use the attached specification when ordering new or replacement signage elements. Included in Appendix C are:

SECTION 02600 SITE RESTORATION
SECTION 10400 POST AND PANEL SIGNAGE

These documents will require modification to reflect the specific signage products and installation conditions of each new purchase.

12 Maintenance Practices

Each municipality that uses this Manual to create and implement signage will have its own practices and protocols for maintaining such products. Included below is a general outline for recommended maintenance that Manual Users may find helpful.

Bimonthly (March – November)

1. Order all new or replacement signage components.
2. Remove unauthorized signage.
3. Inspect all existing signage for wear and vandalism.
4. Repair or replace damaged signage.

Semi-Annually (April and October)

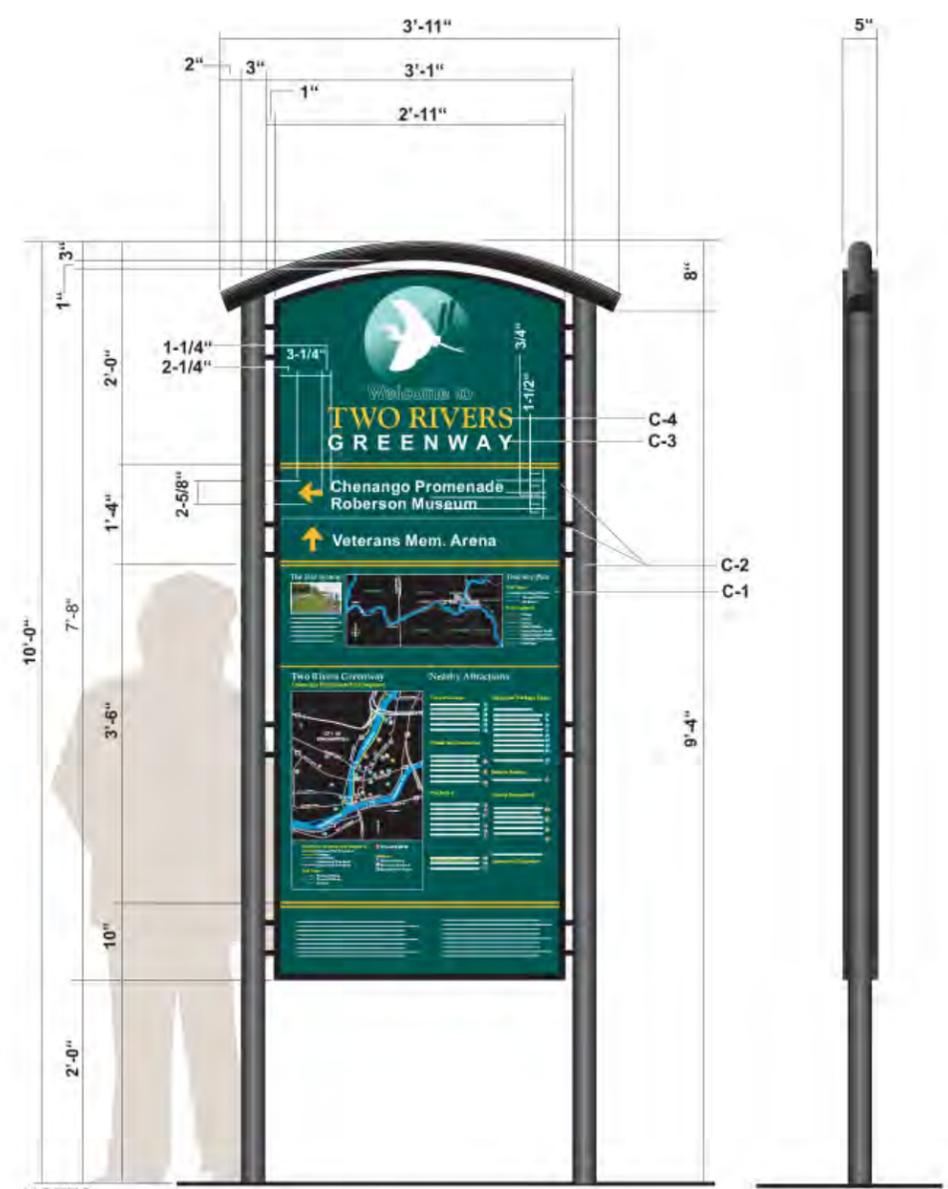
1. Update orientation and directional signage with respect to changes to nomenclature or circulation theory.
2. Review wayfinding standards to evaluate any needs identified for adjusting signage standards.
3. Review existing or planned projects to expand or upgrade the Trail and confirm that allowances are made to add or modify signage as required

Where specific signs and sign components are designated in this Manual, these standards will be followed in all cases. Should any specific signage requirements exceed the size, content or material requirements in this Manual, the BMTS will oversee the extrapolation of current design standards and coordinate the revision of the Manual to reflect the changes. It will also review policy issues that impact signage and wayfinding on the Two Rivers Greenway. These may include:

1. Requests for new signage formats or departures from the existing standards,
2. Coordination issues relating to what destinations are formally called and what pathways are used to guide visitors to access them,
3. Apparent or potential wayfinding conflicts with other media,
4. The coordination of temporary or short-term signage elements, or
5. The implications of new projects and the potential for multi-discipline design efforts to enhance wayfinding strategies.

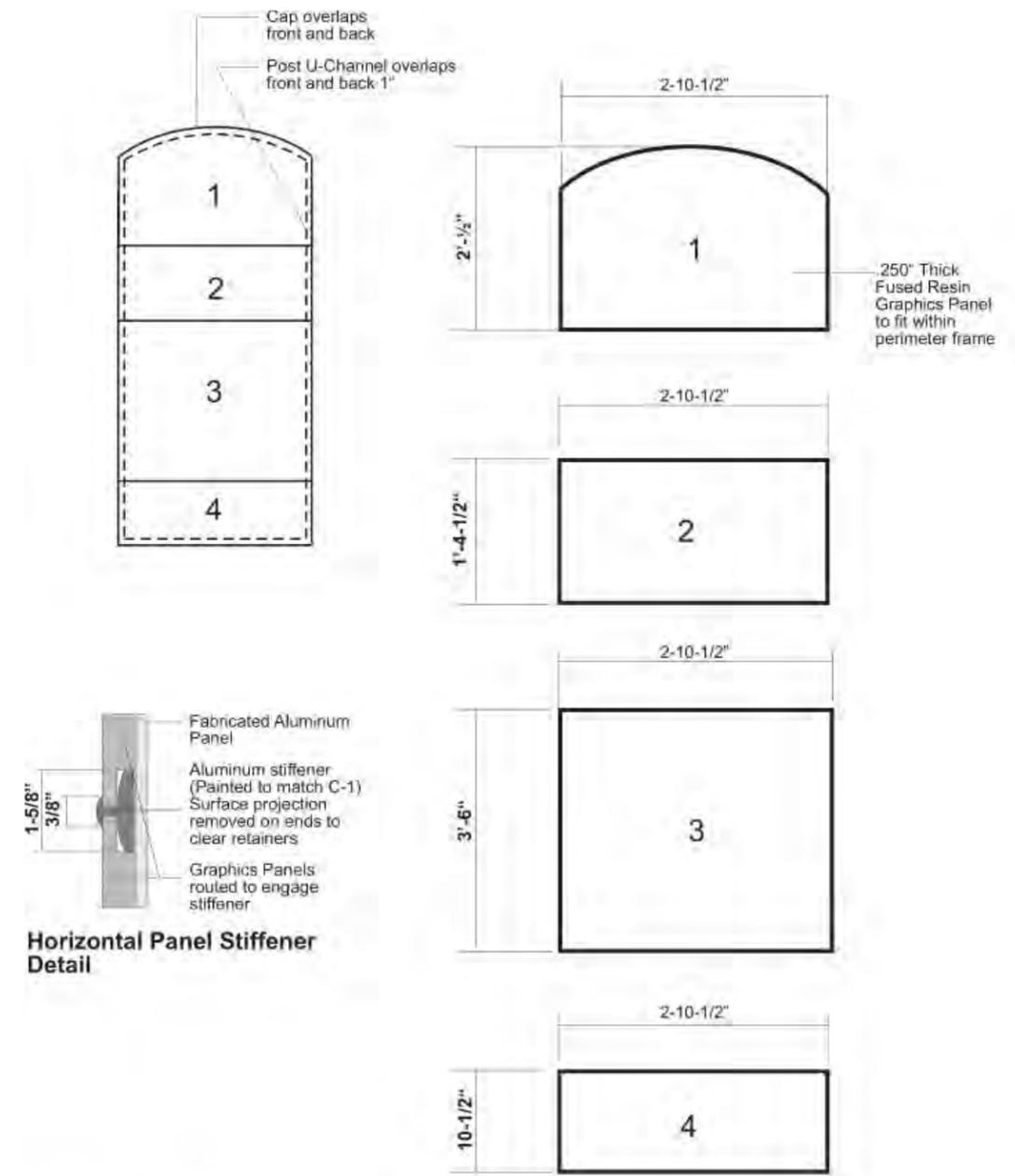
...End of Section

appendix A : SIGN DETAILS



- NOTES:
1. Fabrication will include aluminum box panel core, Fused Resin changeable message panels and aluminum posts. Art for logo, logotype, map graphics graphics and tourist information will be furnished in CorelDraw V13 format. Header and directional copy will be as indicated in message schedule.
 2. See drawings S-1A through S-1C for fabrication and installation details.

Type A-1 Primary Trail Orientation Kiosk	
Two Rivers Greenway	S-1

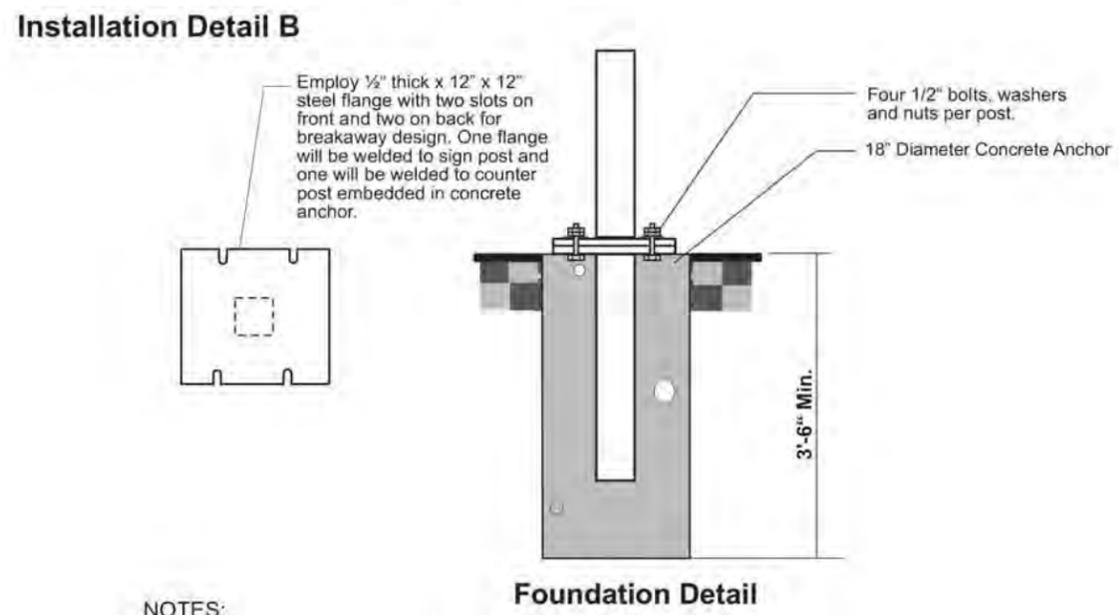
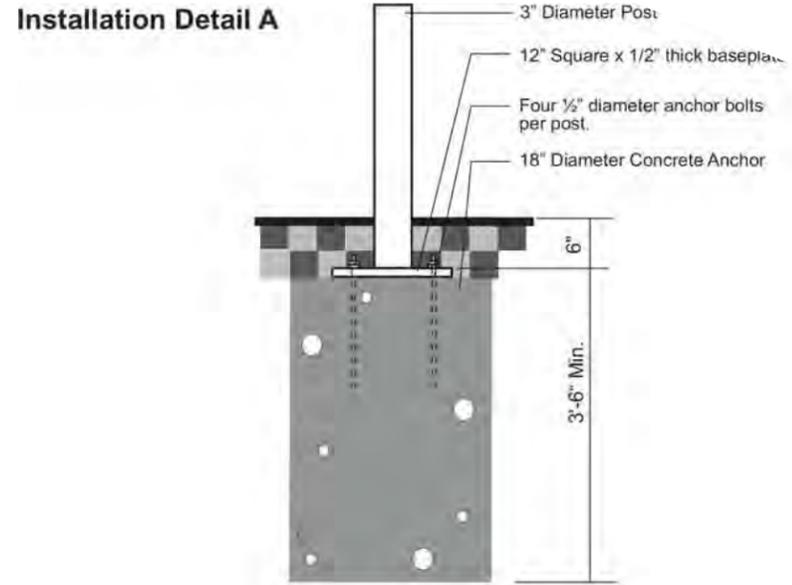
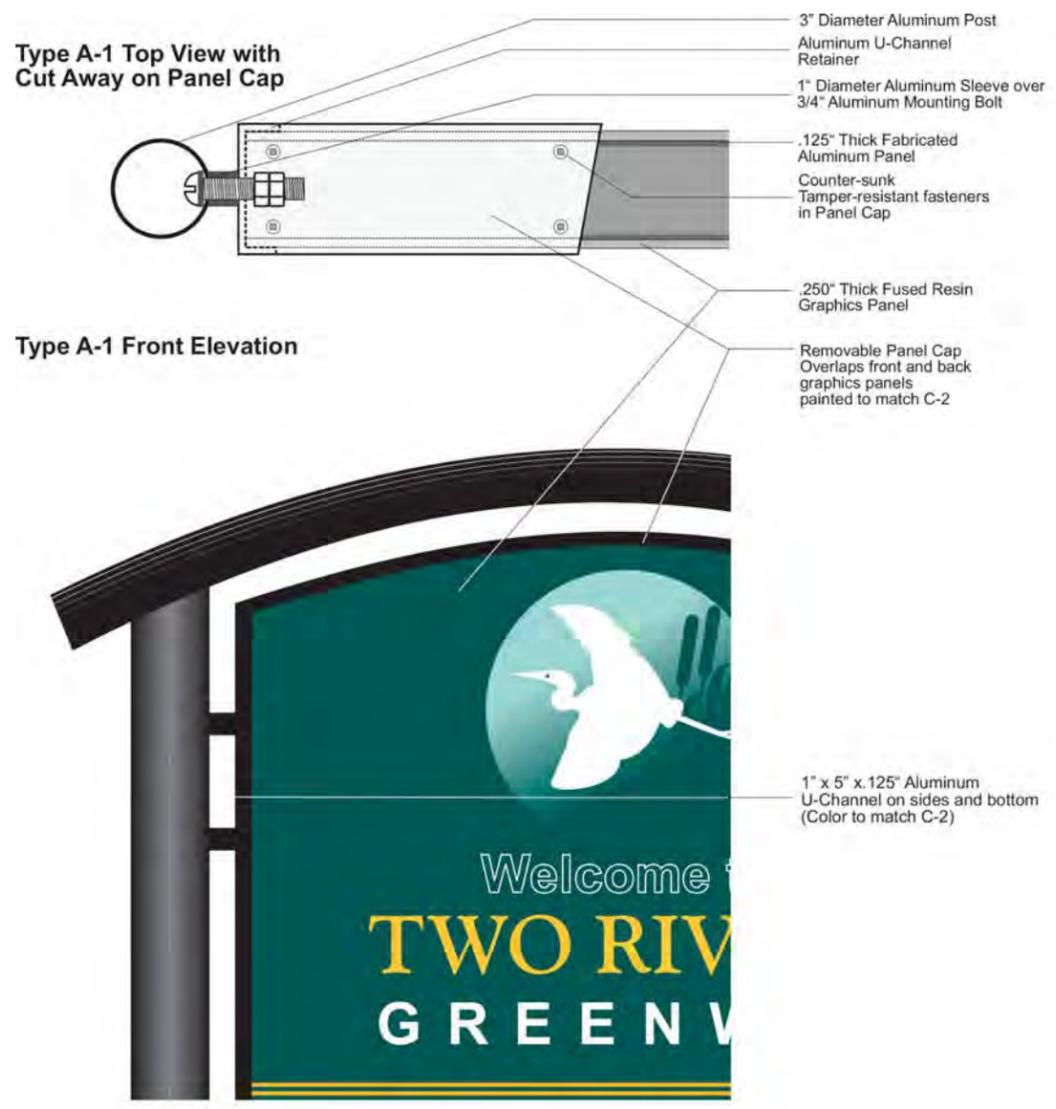


- NOTES: 1. Changeable Panels to be .250" Thick Fused Resin Graphics Panel as depicted above. All Panels will be inserted behind U-Channel around perimeter on front and back.

Type A-1 Primary Orientation Changeable Panel Detail	
Two Rivers Greenway	S-1A

SIGN DETAILS

appendix A : SIGN DETAILS

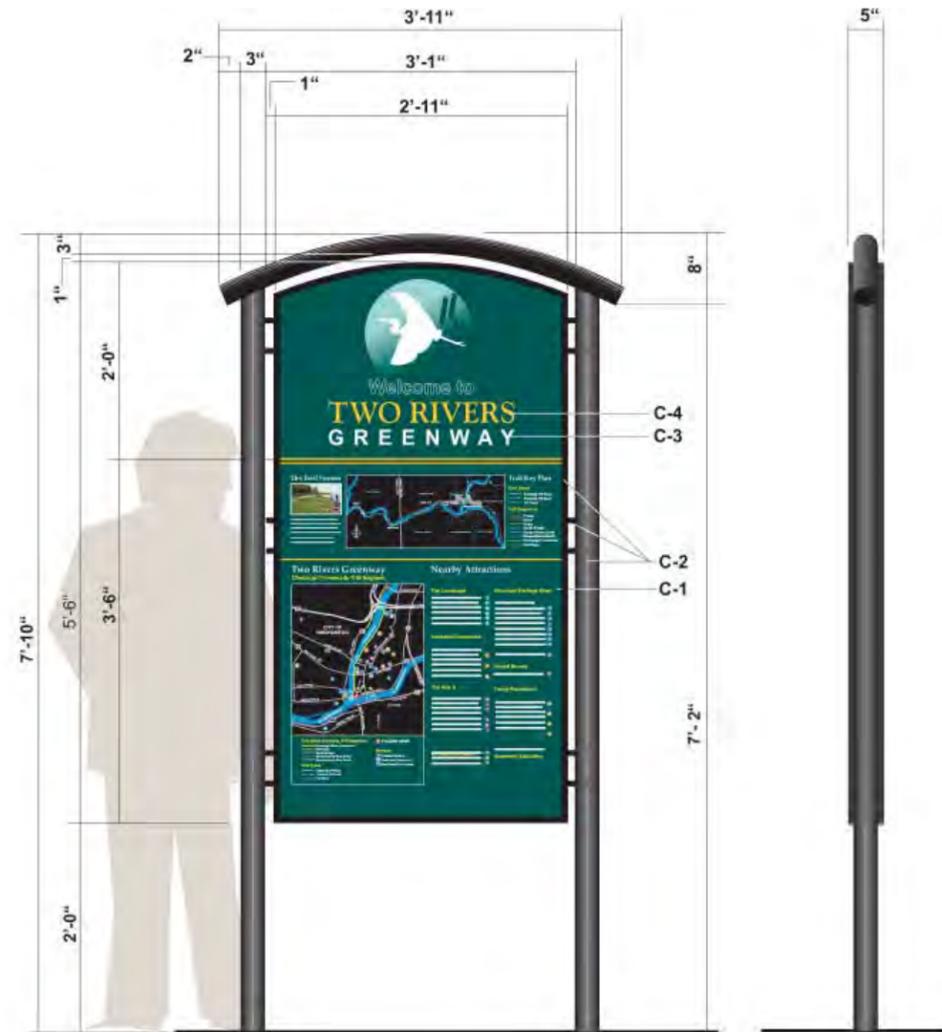


- NOTES:**
1. Use Foundation Detail A above for undisturbed soil mounting locations.
 2. Use Foundation Detail B above for concrete, asphalt and any other locations where break away requirements exist.
 3. Foundations shall be augered into undisturbed soil. Concrete strength to be 3000 PSI.
 4. Base plates shall be aluminum alloy 356-T6 preformed in shop using inert metal-arc welding process. Filler metal to conform to AWS Specification A5-10. Anchor bolts to conform to ASTM 4307, galvanized.

Type A-1 Primary Orientation Kiosk Fabrication Details	
Two Rivers Greenway	S-1B

Type A-1 Primary Orientation Installation Detail	
Two Rivers Greenway	S-1C

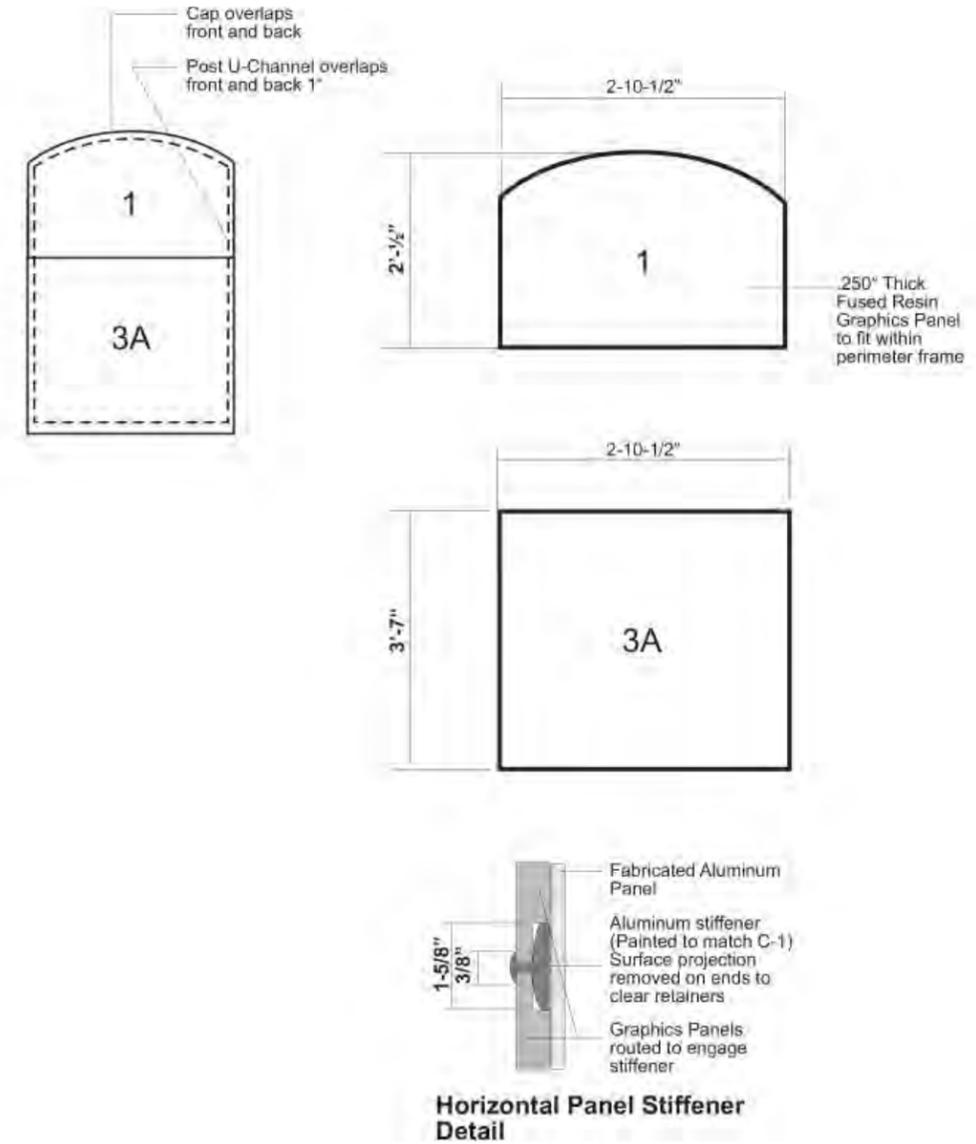
appendix A : SIGN DETAILS



NOTES:

1. Materials, fabrication and mounting same as Type A-1.
2. See Drawing S-2A for insert details.

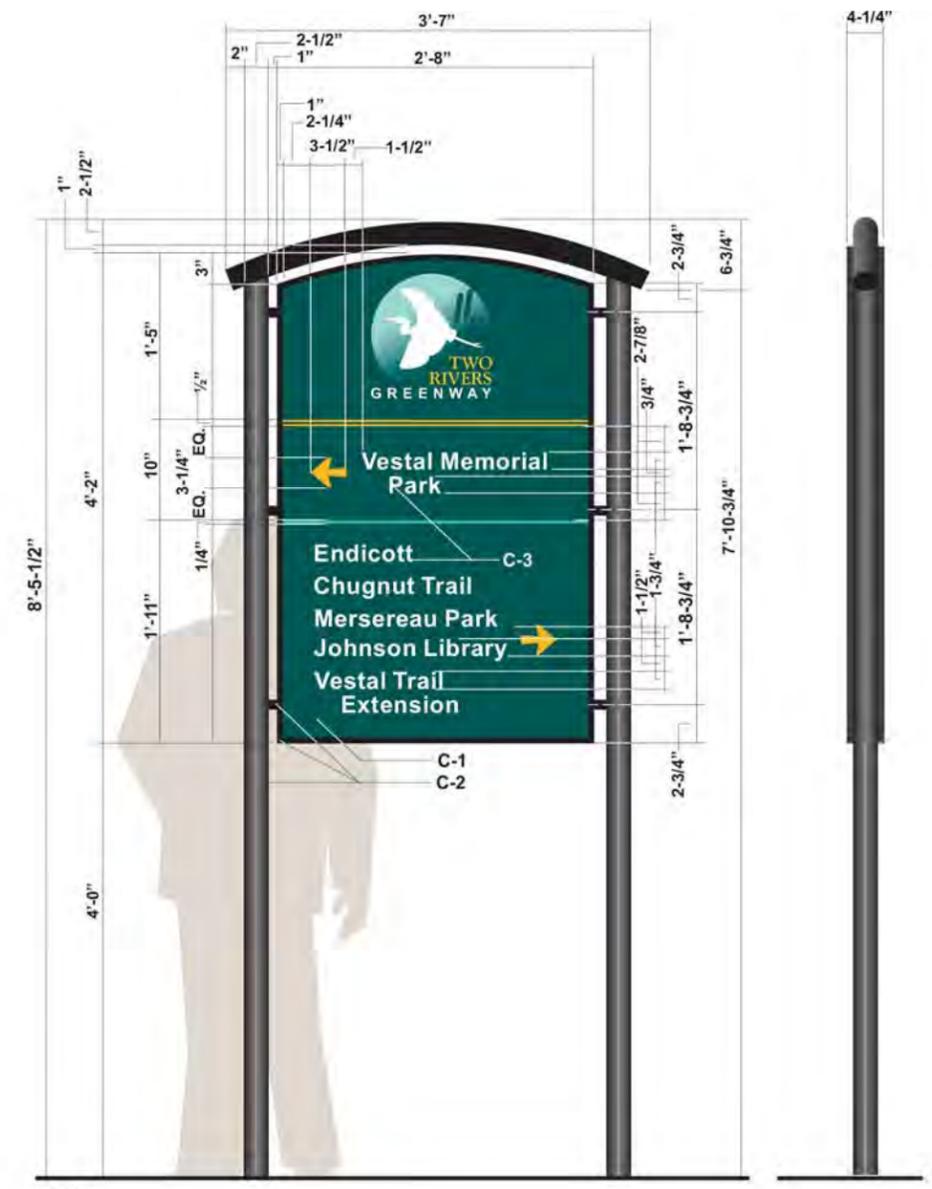
Type A-2 Secondary Trail Orientation Kiosk	
Two Rivers Greenway	S-2



- NOTES:** 1. Changeable Panels to be .250" Thick Fused Resin Graphics Panel as depicted above. All Panels will be inserted behind U-Channel around perimeter on front and back.

Type A-2 Secondary Orientation Changeable Panel Detail	
Two Rivers Greenway	S-2A

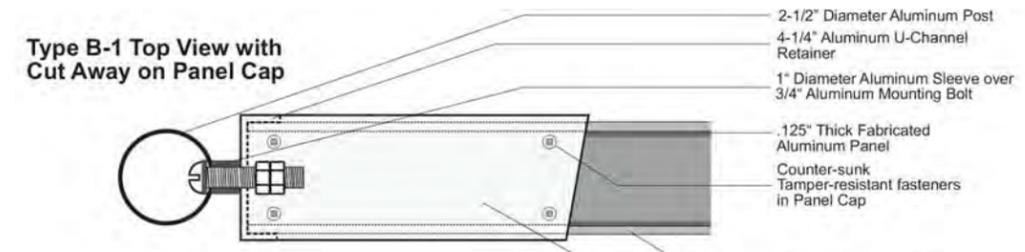
appendix A : SIGN DETAILS



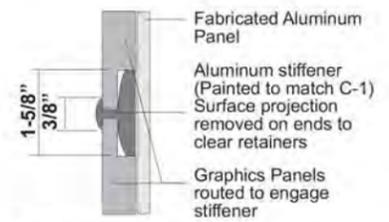
NOTES:

1. Fabrication to include perimeter retainer to secure fused resin graphic panels similar to Type A-1.
2. Colors, logo and typefaces same as Type A-1.
3. Owner will provide art on disk of all logos to be used on Directional Signage.
4. See Drawings S-4A and S-4B for fabrication and installation details.
5. Divider between directional blocks to be 1/4" C-5 (Light Teal) and will span sign panel. Directional arrows to be C-4 (Yellow).
6. Arrow orientation and message copy to be as specified in the Signage Schedule.

Type B-1 Large Trail Directional	
Two Rivers Greenway	S-4



Type B-1 Front Elevation



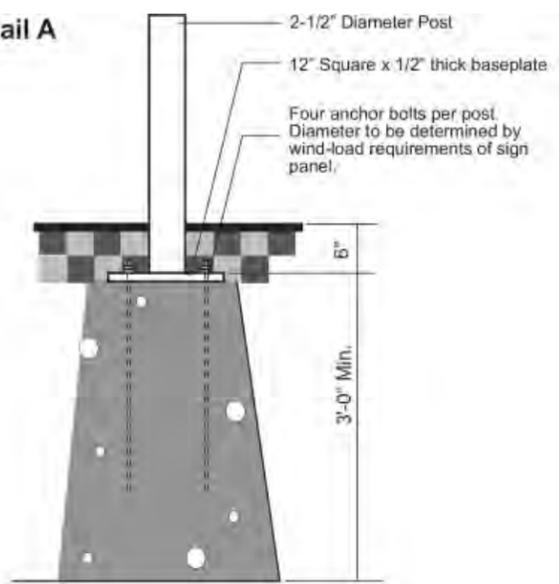
Horizontal Panel Stiffener Detail

Type B-1 Large Directional Fabrication Details	
Two Rivers Greenway	S-4A

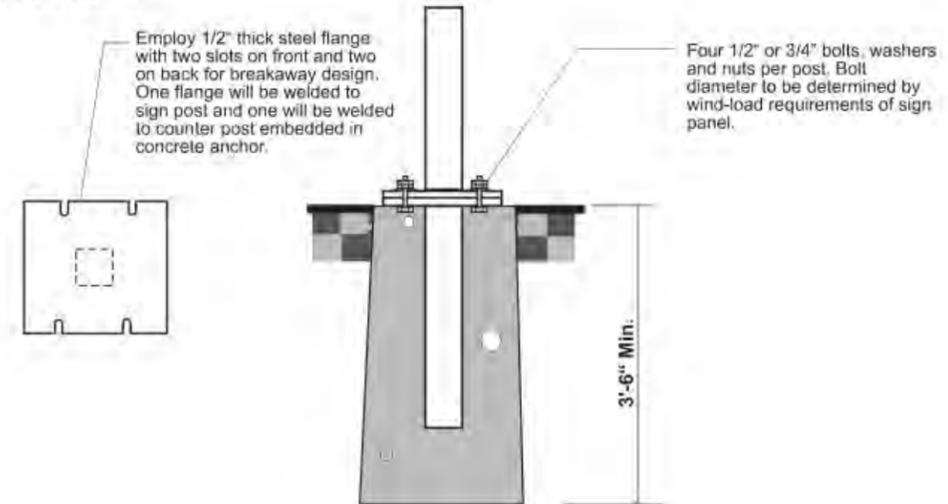
SIGN DETAILS

appendix A : SIGN DETAILS

Installation Detail A



Installation Detail B

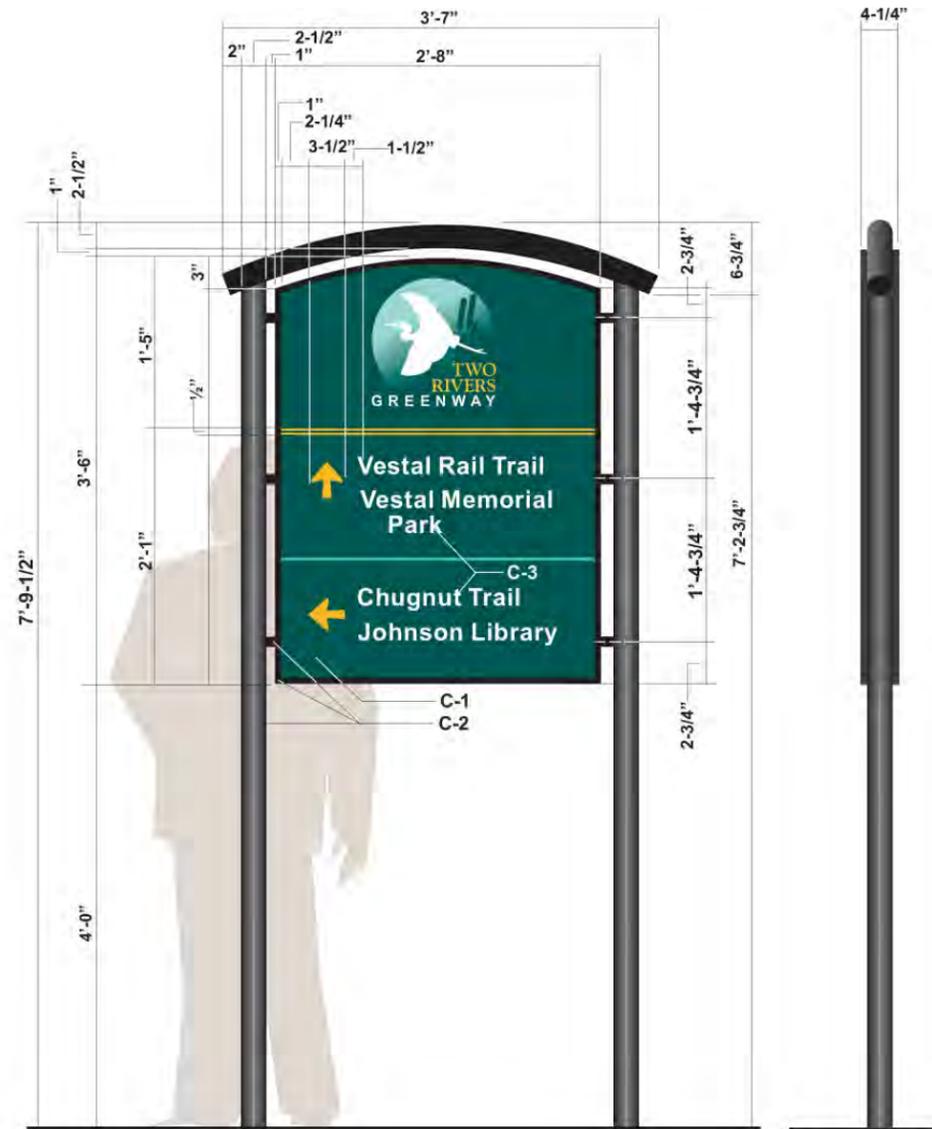


Foundation Detail

NOTES:

1. Use Foundation Detail A above for undisturbed soil mounting locations.
2. Use Foundation Detail B above for concrete, asphalt and any other locations where break away requirements exist.
3. Fasteners, baseplate dimensions and anchor depth to be determined by wind load requirements.

Type B-1 Large Directional Installation Details	
Two Rivers Greenway	S-4B

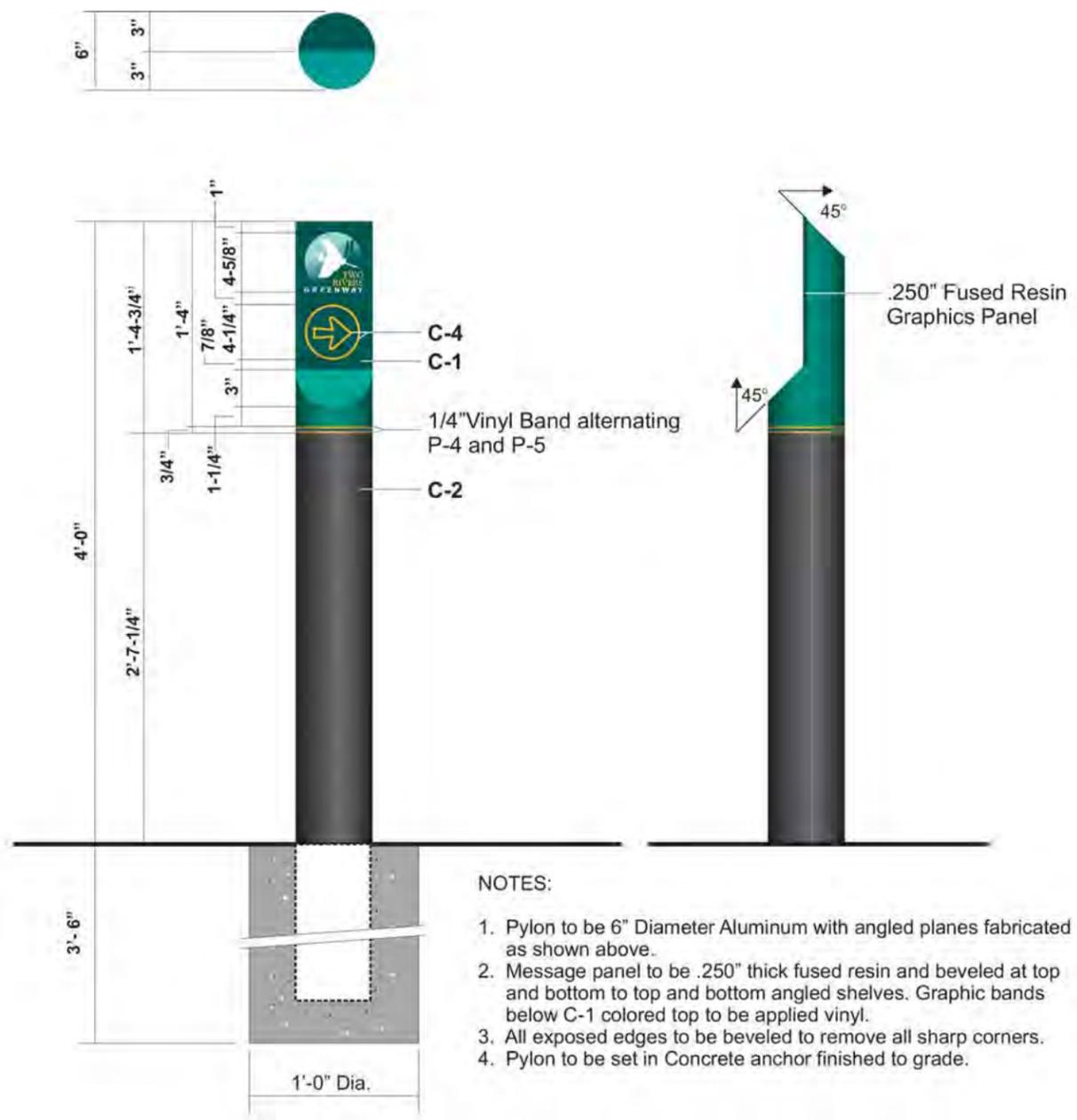


NOTES:

1. Materials, fabrication and installation same as Type B-1.
2. Copy size and spacing same as Type B-1.

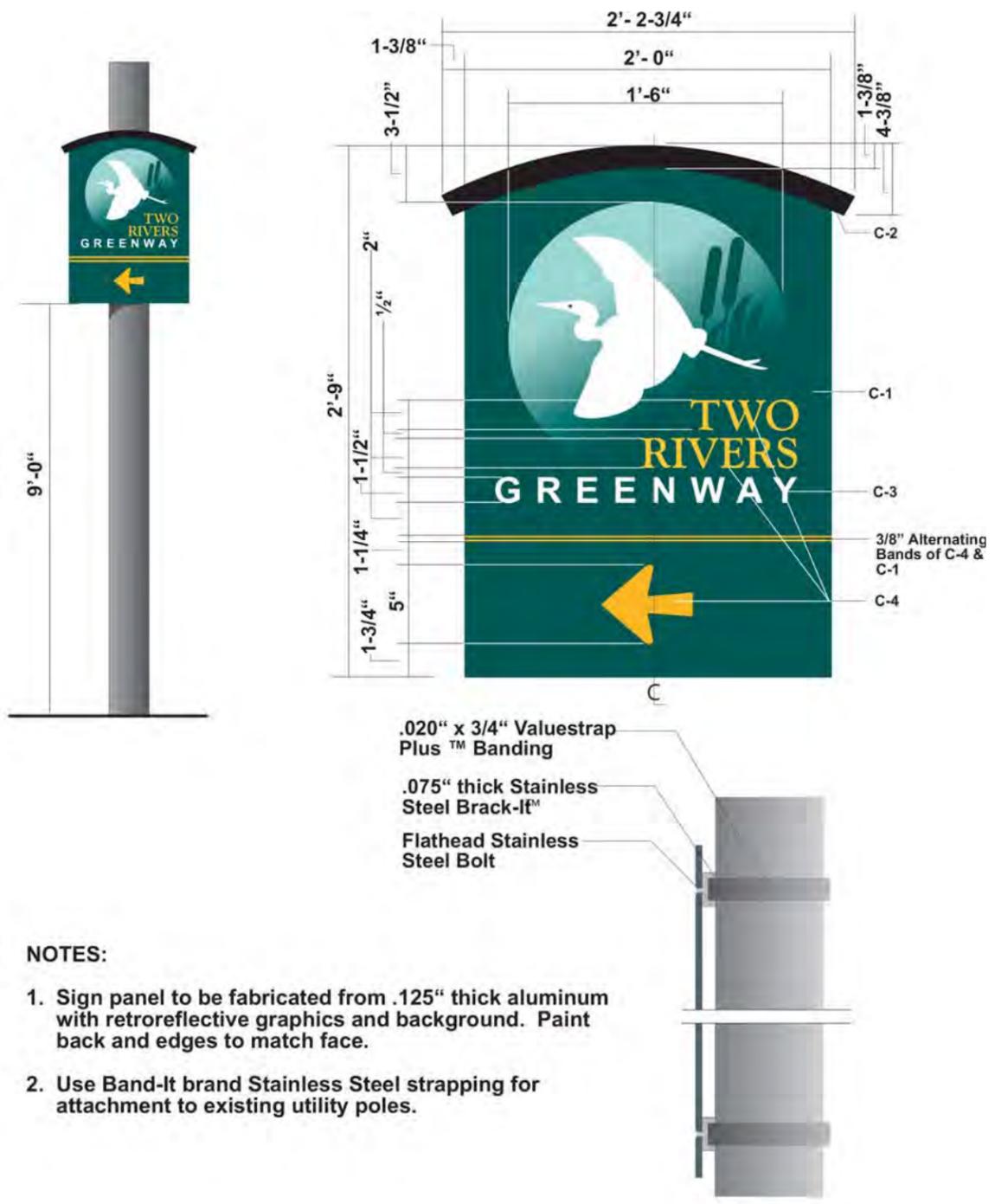
Type B-2 Small Trail Directional	
Two Rivers Greenway	S-5

appendix A : SIGN DETAILS



- NOTES:**
1. Pylon to be 6" Diameter Aluminum with angled planes fabricated as shown above.
 2. Message panel to be .250" thick fused resin and beveled at top and bottom to top and bottom angled shelves. Graphic bands below C-1 colored top to be applied vinyl.
 3. All exposed edges to be beveled to remove all sharp corners.
 4. Pylon to be set in Concrete anchor finished to grade.

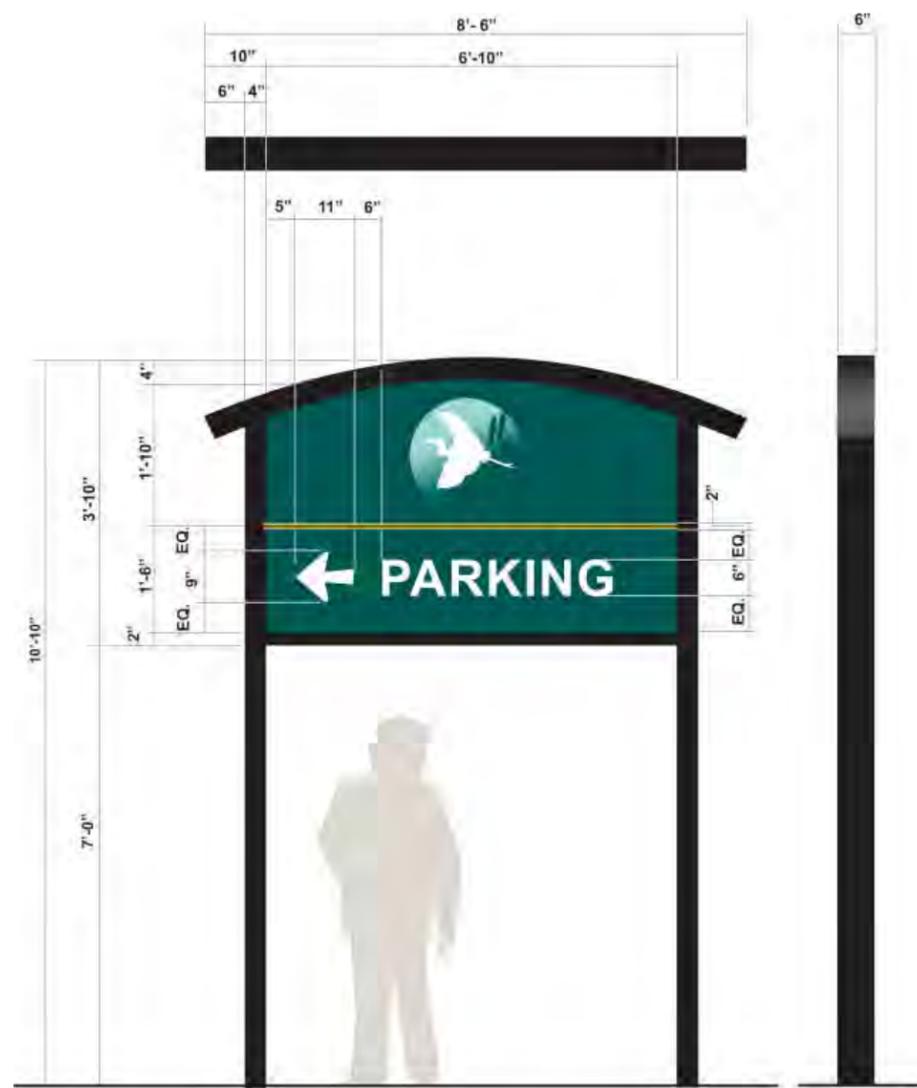
Type B-3 Pylon Directional	
Two Rivers Greenway	S-6



- NOTES:**
1. Sign panel to be fabricated from .125" thick aluminum with retroreflective graphics and background. Paint back and edges to match face.
 2. Use Band-It brand Stainless Steel strapping for attachment to existing utility poles.

Type C-1 Trailblazer Sign - Existing Pole Mount	
Two Rivers Greenway	S-7

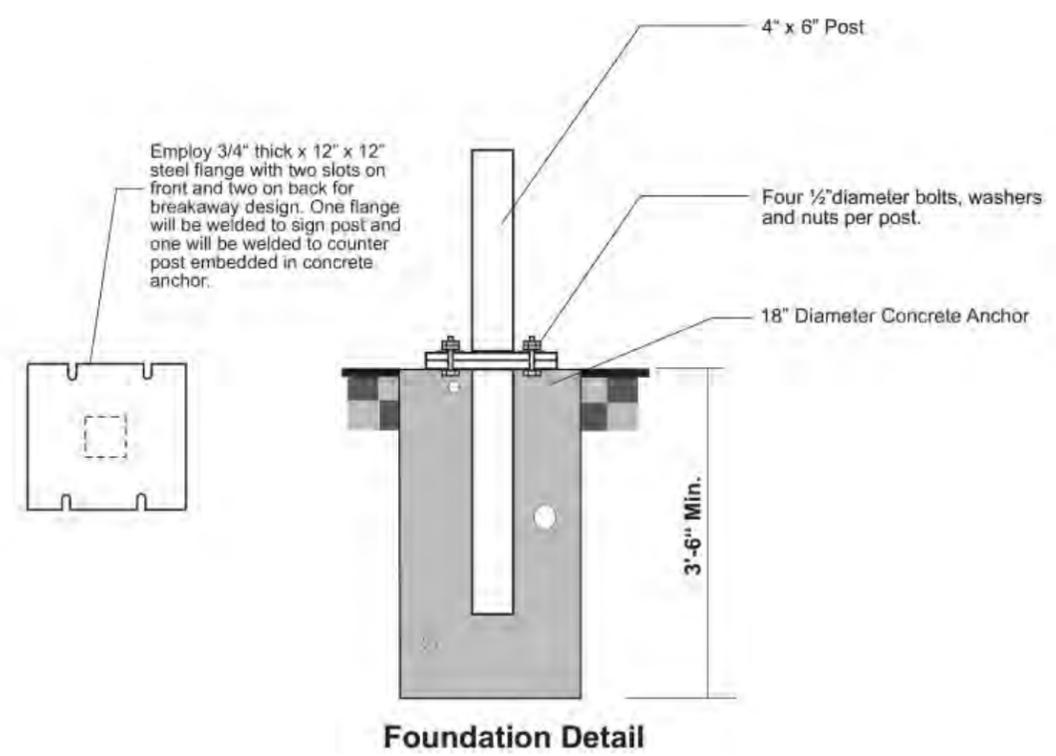
appendix A : SIGN DETAILS



NOTES:

1. Panel to be fabricated aluminum with C-1 (teal) field, C-2 (Black) posts and framing, C-4 (yellow) accents and C-3 (white) graphics and and dividers. Posts to be 4" x 6" aluminum.
2. Copy and arrows to subscribe to the style (Standard Alphabet Series C), line-spacing and letter spacing standards in the MUTCD version 2009 and Standard Highway Signs and Marking (FHWA).
3. All panel graphics, borders, dividers and background shall be retroreflective. Copy to be 6" upper case and 4" lower case.
4. Arrows to be 9" x 11" and centered vertically on copy block.
5. Owner will provide art on disk for Two Rivers Greenway logo.

Type D-1 Vehicular Directional Sign	
Two Rivers Greenway	S-8



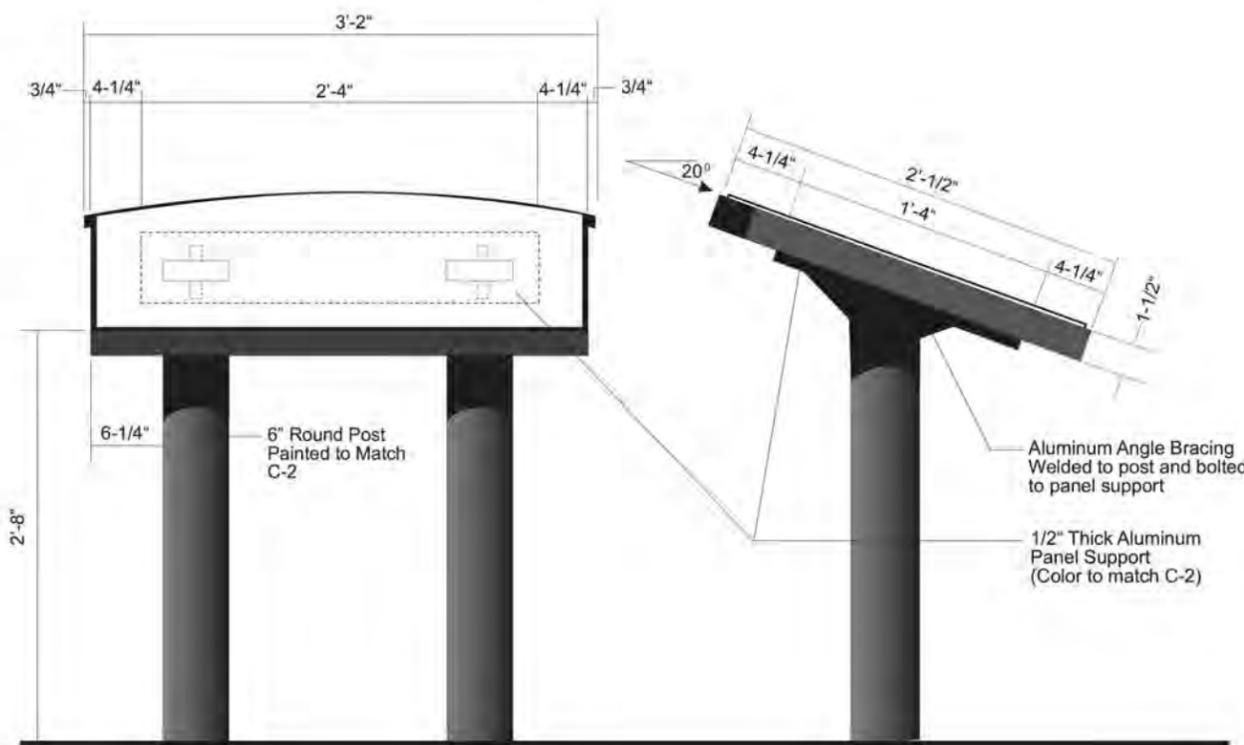
Foundation Detail

NOTES:

1. Use Foundation shown above for Sign Type D-1.
2. Foundations shall be augered into undisturbed soil. Concrete strength to be 3000 PSI.
3. Base plates shall be aluminum alloy 356-T6 preformed in shop using inert metal-arc welding process. Filler metal to conform to AWS Specification A5-10. Anchor bolts to conform to ASTM 4307, galvanized.

Post and Panel Details - Breakaway Base Mount	
Two Rivers Greenway	S-8A

appendix A : SIGN DETAILS



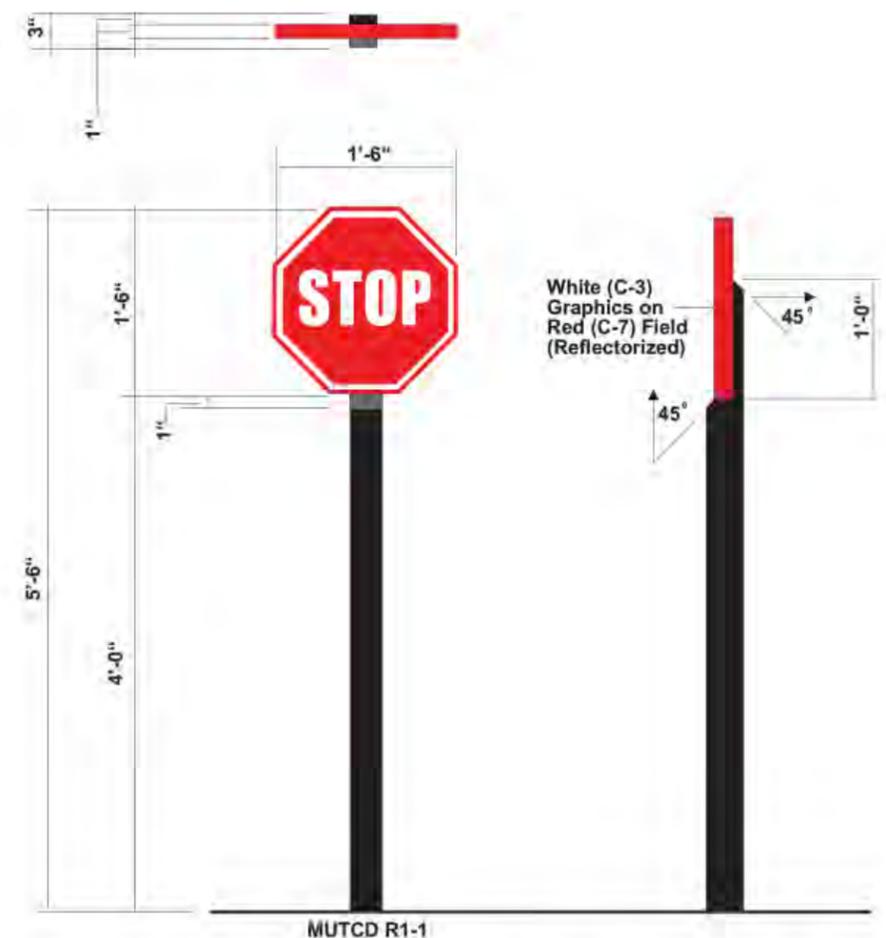
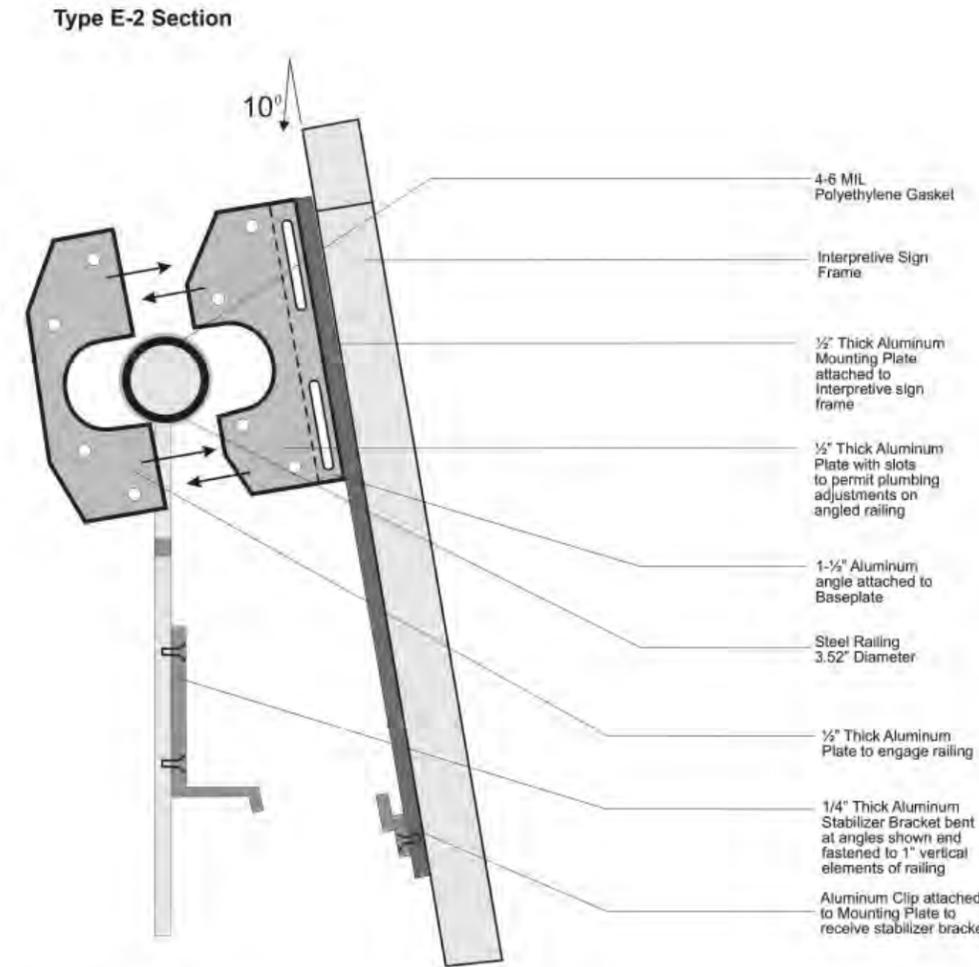
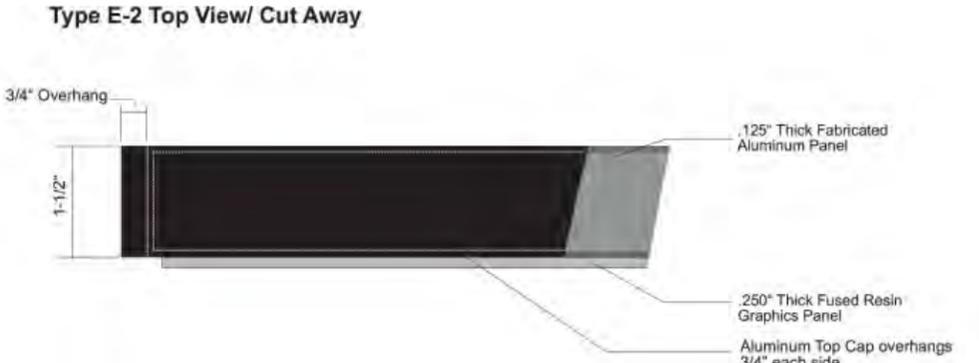
- NOTES:
1. Fabrication will include aluminum box panel core, Fused Resin interpretive panels and aluminum posts. Art for graphics graphics will be furnished in CorelDraw V10 format by Owner.
 2. Fused Resin Graphics Panel to be 24" by 36".



- NOTES:
1. Sign Panel will include aluminum box panel, aluminum cap and Fused Resin interpretive panel.
 2. Install panel with hardware as shown on Drawing S-10A.
 3. Fused Resin Graphics Panel to be 24" by 36".
 4. All visible brackets and hardware to be painted to match frame.
 5. Art for graphics panel will be provided by Owner.

Type E-2 Rail-Mounted Interpretive Sign	
Two Rivers Greenway	S-10

appendix A : SIGN DETAILS



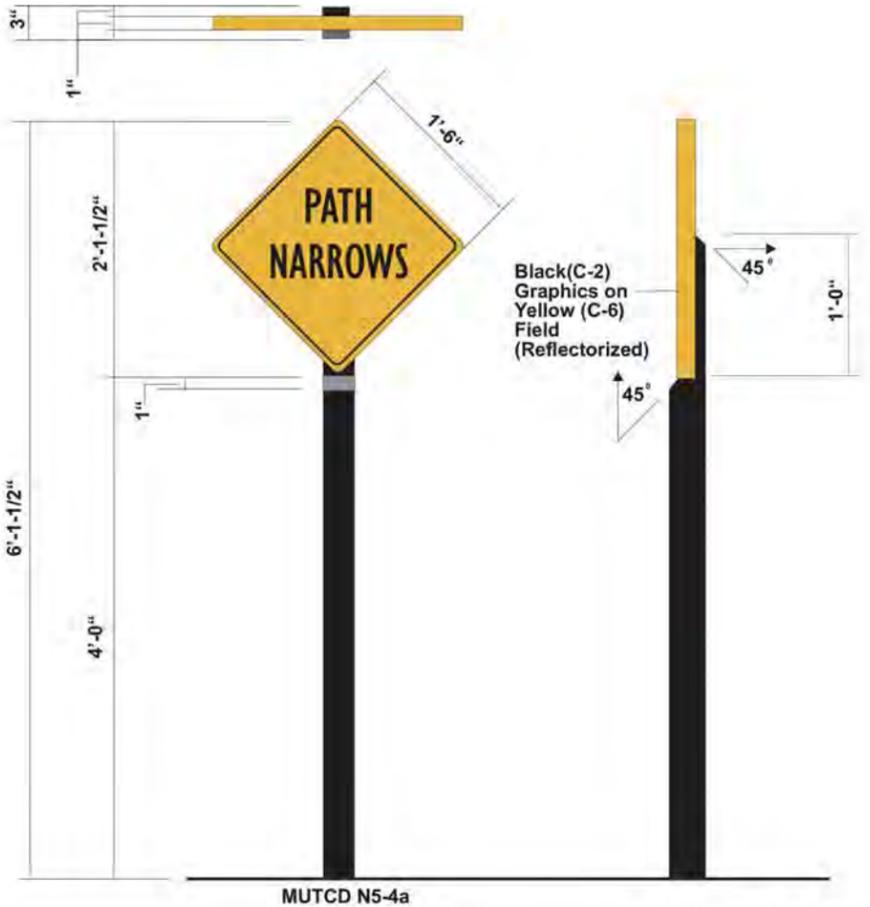
- NOTES:**
1. Sign Post to be 3" Square Aluminum with angled planes fabricated as shown above.
 2. STOP Sign to be fabricated aluminum box panel with reflectorized graphics and background as per MUTCH Section 9B.01.
 3. Post to be direct embedded into 42" concrete anchor with minimum 12" diameter.

Type E-2 Panel Construction Details	
Two Rivers Greenway	S-10A

Type F-1 Stop Sign	
Two Rivers Greenway	S-11

SIGN DETAILS

appendix A : SIGN DETAILS



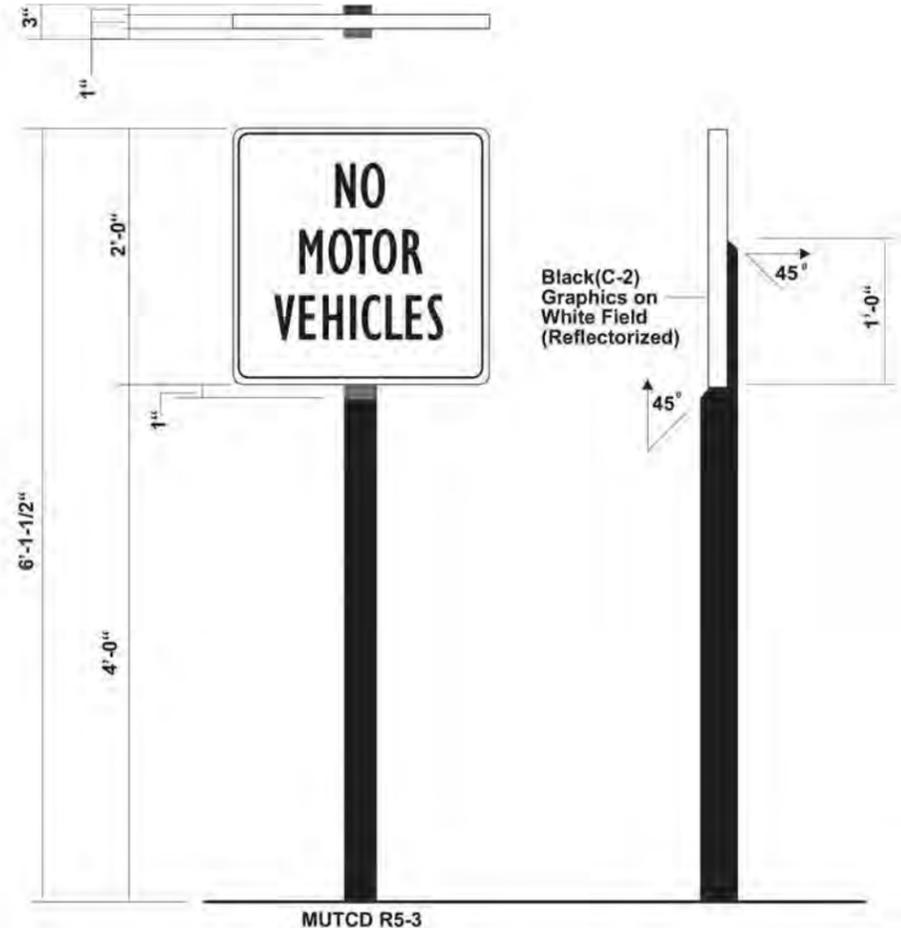
MUTCD N5-4a



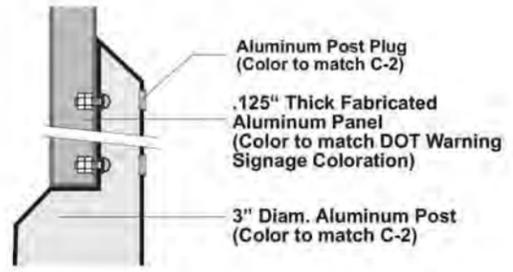
NOTES:

1. Sign Post to be 3" Square Aluminum with angled planes fabricated as shown above.
2. Sign to be fabricated aluminum box panel with reflectorized graphics and background as per MUTCD Section 9B.01.
3. Post to be direct embedded into 42" concrete anchor with minimum 12" diameter.

Type F-2 Hazard/Warning Sign	
Two Rivers Greenway	S-12



MUTCD R5-3



NOTES:

1. Materials and fabrication same as Type F-1.

Type F-3 Hazard/Warning Sign	
Two Rivers Greenway	S-13

SIGN DETAILS

appendix B : LOGO DETAILS

Graphic Identification Specifications

The success of the TRG logo as a tool to establish and reinforce identity is dependent upon its consistency of application. Its usage on signage is only the first step in creating this identity. The most effective identity programs are those which incorporate the widest perspective in implementation and the most consistent application of the graphic and typographic details. This will ultimately involve the accurate rendition of the logo to brochures, maps, letterheads, press releases, web pages, broadcast spots and possibly education tools. If stringent controls to its usage are not observed, the logo will begin to compete against itself as a tool to establish identity and render autonomy to the TRG.

This section will discuss the standards for consistent usage of the logo as well as those situations where variations may be considered. Given the myriad of communication variables that exist, deviations are inevitable. Even in its first application (Tee Shirt), the prescribed PMS background color could not be replicated in the fabric. Consequently, the specifications provided on the pages which follow will attempt to provide both the preferred usage standards as well as variables that will continue to render the image in as consistent a manner as possible.

The graphic imagery of the heron, circular form, reeds and cattails need to be rendered as accurately as possible to match what is shown below. The color relationship of the reeds/cattails to the background is an important consideration in order to create the dark field for the text that is dropped out below the heron image. Moreover, the angled application of fountain fill in the circular form is another detail that is critical to the diffuse of the circle form allowing an area for the text. Finally, the relationship of the graphic forms to the typography also needs to be carefully controlled and replicated.



Although the logo is available in various digital formats, it can be manipulated. Its composition can be altered and substitutions made for colors and gradient control. The specifications on the following pages attempt to establish the preferred standards for usage as well as the allowances for manipulation.

General Logo Specifications

Wherever possible, the TWO RIVERS GREENWAY logo will be placed on a field to match PMS 330 (Dark Teal). The Circle form will be a Fountain Fill angled 120 degrees and utilize a gradient from PMS 330 at the bottom of the form to an 81% Tint of PMS 3248 at the top. (See Figure 1 Below.) The reeds and heron's eye will match the background (PMS 330). The Heron and "GREENWAY" text will be white. The "TWO RIVERS" text will match PMS 123 (Gold). The white text will be Arial bold and the gold text will be Goudy Old Style Bold.

The logo will always be positioned on the dark teal background with a minimum border separating it from the top, bottom and sides of its applications as well as any other graphics or text. This minimum dimension will be 2-1/2 times the height of the text "GREENWAY" (See Figure 2 Below). The "TWO RIVERS" text will be flush to the right side of the circle form. The text "GREENWAY" will be aligned with the circle on both sides (See Figure 3 below). The text "TWO RIVERS" will be 1.2 times the height of the text "GREENWAY". The spacing between the lines of text will be .33 times the height of the text "GREENWAY".

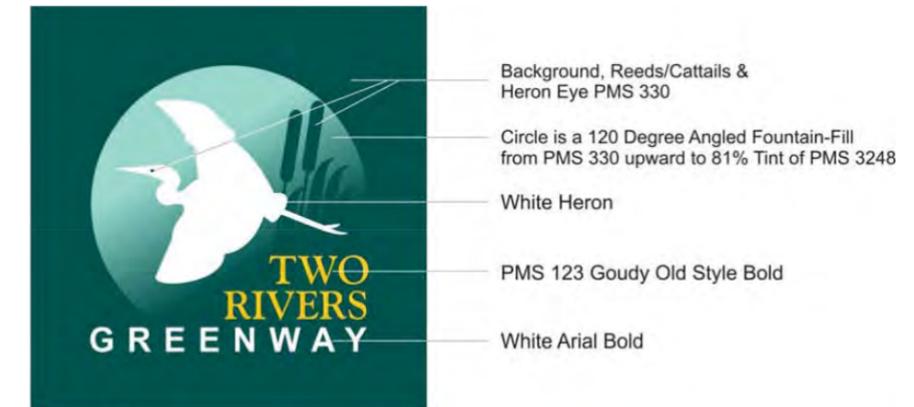


Figure 1



Figure 2



Figure 3

appendix B : LOGO DETAILS



Allowable Deviations

In certain cases, the logo may need to be adjusted or adapted for special communication requirements or material applications. Figure 4 below shows an adaptation for signage that repositions and resizes the text. This may be required to permit the text to become large enough to be read by the intended audience. For these applications, the text should be placed below the graphic image and centered. The top line of text should be no closer to the graphic image than the height of its upper case characters.

In certain print applications, it may be necessary to deviate from the specifications for coloration. In those situations where the field cannot be made to match the normal logo background color, the preferred approach is to simply contain the image on a square background and contain it on light neutral field (e.g. beige or light gray). This will minimize any potential for the background color conflicting with the logo colors. (See Figure 5 below.) Also shown below (Figures 6 and 7) are applications where portions of the logo normally colored in the dark teal (background and reeds) are switched to match the background color (black and white respectively). In the event a white background is used, the text "GREENWAY" should match PMS 330 (Dark Teal). In both cases, the Fountain Fill will need to be adjusted to match the background color at the bottom of the circle image (black and white respectively).

Lastly, if the image is utilized as a subtle watermark, all portions of the image should receive a dimensional (bas-relief) treatment. In addition, the circle form may be adjusted from the usual Fountain Fill formula to a gradient of white at the bottom to PMS 331 (Light Teal) at the top. (See Figure 8 below).

...End of Section

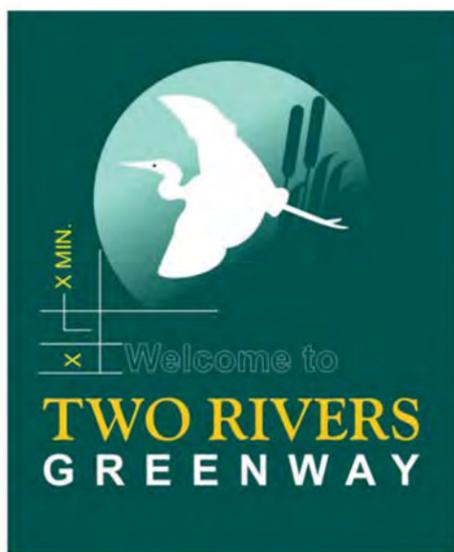


Figure 4



Figure 5



Figure 6



Figure 7



Figure 8

appendix C : CONSTRUCTION SPECS

SECTION 10400

POST AND PANEL SIGNAGE

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

- A. Manufacturers and Installers Qualifications
 - 1. The signage manufacturer shall have a minimum of five consecutive years in the manufacturing of signage of the particular type specified and shall have been responsible for manufacturing signage for projects of similar scope.
 - 2. The signage installer shall have a minimum of three consecutive years of installing signage of similar types specified on projects of similar scope.
 - 3. The signage manufacturer shall include references for three projects utilizing similar materials, fabrication technologies and installation practices. The references shall include the name of the project, general description of work performed, location, date and client contact information.
- B. Reference Standards
 - 1. American Society of Testing and Materials (ASTM)
 - a. ASTM B 221-75, Aluminum alloy extruded bars, rods, wires, shapes and tubes.

1.02 SUBMITTAL REQUIREMENTS

- A. Shop Drawings
 - 1. Indicate details of fabrication and installation or all materials including colors.
- B. Product Data
 - 1. Submit complete technical data for all sign types.
- C. Samples:
 - 1. Submit samples of the following
 - a. Type A-1 Post and Panel Section
 - b. Type A-1 Phenolic Graphic Panel sample
 - c. Full size samples of typography in style specified on Detail Drawings. Provide three blue line prints from original drawings. Do not use alphanotype, lettraset or similar typesetting methods.
 - d. Sample of each color indicated in Color Code
 - e. Full-scale prints of all graphic elements or artwork to be used on signage. Designs shall be optically correct and enlarged prior to submission.
- D. Contractor's Responsibilities
 - 1. Review Shop Drawings, product data, and samples prior to submission and stamp with approval.
 - 2. Submittals without Contractor's stamp of approval will not be considered and will be returned for resubmission.

- 3. Verify:
 - a. Field measurements
 - b. Field construction criteria
 - c. Catalog Numbers and similar data
 - d. Quantities
- 4. Coordinate each submittal with requirements of work and of Contract Documents.
- 5. Contractor's responsibility for errors and omissions in submittals is not relieved by Designer's review of submittals.
- 6. Contractor's responsibility for deviations in subs review of submittals, unless Contract Documents is not relieved by Designer's review of submittals, unless Designer gives written acceptance of specific deviations.
- 7. Notify Designer, in writing at the time of submission, of deviations in submittals from requirements of Contract Documents.
 - a. If Submittals deviate from the Contract Documents and Designer is not notified in writing of such deviation, then review is invalid.
 - b. When work is directly related and involves more than one trade, Shop Drawings shall be coordinated by the Contractor and submitted under one cover.
 - c. After a Shop Drawing base has been submitted for review, no changes may be made to that Drawing other than changes resulting from corrections made by the Designer unless such changes are clearly identified and circled before being resubmitted to the Designer. Any failure to comply with this requirement shall nullify and invalidate the Designer's review.

E. Submission Requirements:

- 1. Quantity:
 - a. Shop Drawings: 1 sepia transparency and 2 blue line Prints
 - b. Product Data: 6 copies
 - c. Samples: 2 each unless otherwise indicated in Specification Sections
- 2. Accompany submittals with transmittal letter, in duplicate, containing:
 - a. Date
 - b. Project Title and Number
 - c. Contractor's Name and Address
 - d. The number of each Shop Drawing, product data, and sample submitted
 - e. Notification of deviations from Contract Documents
 - f. Other pertinent data
- 3. Submittals shall include:
 - a. Date and Revision Dates
 - b. Project Title and Number
 - c. The Names of Designer, Contractor, Subcontractor, Supplier, and

appendix C : CONSTRUCTION SPECS



- Manufacturer
 - d. Identification of Product or Material
 - e. Relation to Adjacent Structure or Materials
 - f. Field Dimensions, clearly identified as such
 - g. Specification Section Number
 - h. Applicable standards, such as ASTM number or Federal Specification
 - i. A blank space, 4" x 4" for the Designer's stamp
 - j. Identification of Deviations from Contract Documents
 - k. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements, and compliance with Contract Documents
- F. Review Procedure:
- 1. Stamped 'No Exception Taken'.
 - a. No corrections or resubmissions required, fabrication may proceed.
 - 2. Stamped 'Make Corrections Noted'.
 - a. If Contractor complies with noted corrections, fabrication may proceed. Submit corrected print for final review.
 - b. If for any reason the Contractor cannot comply with the noted corrections, fabrication shall not proceed and Contractor shall resubmit, following procedures outlined hereinbefore.
 - 3. Stamped 'Revise and Resubmit' or 'Rejected'
 - a. Contractor shall revise and resubmit for review, fabrication shall not proceed.
- G. Resubmission Requirements:
- 1. Shop Drawings
 - a. Revise initial drawings as required and resubmit as specified for initial submittal.
 - b. Indicate on Drawings any changes which have been made.
 - 2. Product Data and Samples:
 - a. Submit new data and samples as required for initial submittal.
- H. Distribution of Submittals after Review by Contractor:
- 1. Distribute copies of Shop Drawings and product data which carry Designer's stamp, to:
 - a. Contractor's File
 - b. Job-Site File (Record Copy)
 - c. Other Contractors
 - d. Subcontractors
 - e. Supplier
 - 2. Distribute Samples as Directed
 - a. Shop drawings, product data, and samples which do not have the Designer's stamp 'No Exceptions Taken' or 'Make Corrections Noted' will not be permitted on the project site.

- I. Designer's Duties:
- 1. Review submittals with reasonable promptness.
 - 2. Review for:
 - a. Design concept of project.
 - b. Information given in Contract Documents.
 - 3. Review of separate item does not constitute review of an assembly in which item functions.
 - 4. Affix stamp and initials or signature certifying review of submittal.
 - 5. Return submittals to Contractor for distribution.
- J. Delivery, Storage, and Handling
- 1. Exterior signage components will be accepted under the following conditions:
 - a. Deliver materials with manufacturers tags and labels intact. Store in original packaging, off the ground, and under protective covers.
 - b. Handle so as to prevent damage.
- K. Job Conditions
- 1. Examination of Base Surfaces
 - a. Examine the base surfaces and conditions under which their materials are to be installed and verify all dimensions in the field.
 - b. Notify the General Contractor in writing, with copy to Designer, if conditions are detrimental to the proper and timely completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected. Commencement of installation constitutes acceptance of base surfaces and the cost of any corrective work due to faulty base surfaces shall be born by the Contractor.
 - 2. Protection
 - a. Preserve and protect all existing site features, including by not limited to pavements, curbs, lawn, plantings. Preserve and protect all portions of the existing building(s).
 - 3. Restoration
 - a. If damage is caused to interior finishes or buildings as a result of the work under this Contract, it shall be corrected to the satisfaction of the Owner at the expense of the Contractor. Correction shall be by restoration or replacement, as determined by the Owner.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. SignArt
- B. Architectural Graphics Inc.
- C. ASI Sign Systems
- D. Park Place Inc.
- E. Signmatic Systems Inc.

appendix C : CONSTRUCTION SPECS

2.02 MATERIALS

- A. Aluminum Post and Panel Signs
1. Sign Panels to be fabricated from 5052H38 sheet aluminum around aluminum framing to form smooth non-lipped finish.
 2. Posts to be 4" or 6" square or as specified on the Detail Drawings. Post wall thickness to be as required to meet wind load specification.
 3. Aluminum panels will be degreased, immersed in a chromate conversion solution and hot water rinse.
 4. Size, finish, color and typeface will be as shown on Detail Drawings. The minimum thickness for all sign panel faces, corners and edges and aluminum posts will be .125" throughout.
- B. Tourist Information, Directional and Map Graphics
1. The solid composite phenolic graphic panels on sign types A-1, B-2, D-1, D-2 and D-4 shall meet the following material and manufacturing specifications:

Thickness: 1/8" (0.125" / 3mm)

Approx. Weight/SF: 0.91 lbs.

Surface Finish: Textured semi-matte or semi-gloss outdoor finish

Compressive Strength: M.D. 193,064 Kpa (31,000 PSI)

C.D. 172,378 Kpa (25,000 PSI)

Tensile Strength: M.D. 151,693 Kpa (22,000 PSI)

C.D. 110,322 Kpa (16,000 PSI)

Flexural Strength: M.D. 158,588 Kpa (23,000 PSI)

C.D. 103,427 Kpa (15,000 PSI)

Impact (Edgewise): M.D. 0.6 FT/LBS/IN

C.D. 0.5 FT/LBS/IN

Rockwell Hardness M Scale: 95 to 115

Flammability ASTM E-162: Flame propagation index of 10

Radiant Panel: to 15 without drip of flame; 1/10" to 1/2" thickness

Water Absorption: 1/4":0.9% - 1/2":-0.6% - 1":0.35%

Toxicity Test: LC50 Pittsburgh Protocol Toxicity test. Equal to and no more toxic than wood or paper.

UV Resistance: Exterior Grade with 20 year warranty: based on ASTM G26/A, no changes after 3000 hrs.

Frost Resistance: No change after 15 cycles (16 hrs ice at -20o C and 8 hrs thawing in air)

Pollution Resistance: DIN 50018 No change after 20 cycles

Coefficient of Thermal Expansion:

DIN 51045 (-20oC to +80oC temp. Range) Longitudinal 9×10^{-6} per oC

Transverse 16×10^{-6} per oC

2.03 FABRICATION

- A. Panel Fabrication
1. Aluminum panels to be attached to internal aluminum framing with structural adhesive to form shapes as shown on detail drawings. Structural adhesive to be as manufactured by:
 - a. Lord Corporation
111 Lord Drive
Cary, NC 27512-7923
 - b. 3M Corporation
3M Center
St. Paul MN 55144-1000
 - c. Master Bond Inc.
154 Hobart Street
Hackensack, NJ 07601
 2. All seams will be filled, ground smooth and painted.
- B. Graphics Application
1. Pedestrian categories A-1, A-2, B-1, B-2, B-3, E-1 and E-2 will utilize .125" thick digitally-printed solid composite phenolic graphics panels. Electronic art for all standard graphics, including maps, timelines and tourist information will be provided to fabricator in Corel Draw Version 10 format.
 2. Vehicular and regulatory categories D-1, F-1, F-2, and F-3 will utilize retroreflective graphics, fields, borders and dividers in accordance with MUTCD Version 2009 Section 2D-50. Typography shall be four inch upper case and 3 inch lower case copy. Line spacing, letter spacing, and dimensioning between graphic components shall be as per MUTCD Version 2009 and Standard Highway Signs and Marking (FHWA). Logos will developed from electronic art furnished by designer.
 3. Categories D-1 Typography to be Standard Alphabet Series C in accordance with MUTCD Version 2009 and Standard Highway Signs and Marking (FHWA).
- C. Post and Panel Painting
1. Prime aluminum posts and panels with primer coat as manufactured by:
 - a. Akzo Nobel Decorative Coatings Ltd.
Rijksstraatweg 31
Sassenheim, 2171 AJ
NETHERLANDS
 - b. Matthews Paint Company
760 Pittsburg Drive
Delaware, Ohio 43015
 - c. PPG
One PPG Place
Pittsburg, PA 15272



2. Paint aluminum posts and panels with two-part acrylic urethane enamel in semi-gloss finish as manufactured by:
 - a. Akzo Nobel Decorative Coatings Ltd.
Rijksstraatweg 31
Sassenheim, 2171 AJ
NETHERLANDS
 - b. Matthews Paint Company
760 Pittsburg Drive
Delaware, Ohio 43015
 - c. PPG
One PPG Place
Pittsburg, PA 15272
- D. Wind Load Requirements:
 1. Fabricate signs to withstand a wind load of 35 pounds per square foot or a direct wind force of 90 miles per hour.
- E. Proof-Reading
 1. Fabricator will be responsible for proof-reading all completed signs for message accuracy.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Manufacturers Directions
 1. All work will be installed in accordance with manufacturer's printed instructions and the approved shop drawings.
 2. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned, as directed by the manufacturer, unless otherwise specified.
- B. Mounting
 1. Signage contractor will be responsible for development of concrete signage anchors and coordination of all hardware requirements for installation of signs.
 2. See Detail Drawings for determination of installation methods for all post and panel signs.
 3. The Designer and Owner will meet with the Signage Contractor in the field to confirm the precise location of each sign. The Signage Contractor will be responsible to confirm that sign locations are free and clear of underground utilities by consulting with local authorities prior to excavating for signage

- anchors. Should there be any conflicts with preferred signs locations, the Designer and Owner will identify and document alternate locations and convey these to the Signage Contractor.
4. All work will be installed plumb, level and in true alignment.
5. All components will be securely attached.
6. All above-grade connections of separate or moveable components will be water-tight.
- C. Permits
 1. Sign Permits for all components in this program will be procured by the Owner and forwarded to the Installer.
 2. The installer will be responsible to obtain any Registration or Licenses necessary to install signage in the municipalities involved in this contract.

...End of Section

appendix C : CONSTRUCTION SPECS

SECTION 02600

SITE RESTORATION

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Various types of street surfaces, shoulders, gutters, culverts, sidewalks, driveways, lawns, landscape, hedges, trees, shrubbery, etc. disturbed, damaged or destroyed during the work shall be restored and/or replaced and maintained as specified herein and as shown as directed.
 - 2. The finished pavements, shoulders, sidewalks, and driveways, gutters and culverts shall be maintained in satisfactory condition during a period of one year following final acceptance of the work.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 03300 – Cast-In-Place Concrete
- B. Section 10410 – Post and Panel Signage

1.03 SUBMITTALS

- A. Concrete mix design for structural concrete shall be submitted for approval in conformance with Section 03300.
- B. Soil mix composition shall be submitted for Owner approval.
- C. Adequate copies of certification of materials to indicated conformance with standards specified shall be submitted.

1.04 QUALITY ASSURANCE

- A. All work in conjunction with lawns shall be performed under the direction of individuals experienced in the establishment of lawns.
- B. All work in conjunction with pavement restoration shall be performed under the direction of individuals experienced in pavement restoration.

PART 2 – PRODUCTS AND MATERIALS

2.01 GENERAL

- A. The materials used in restoration or replacement shall produce a street surface, shoulder, sidewalk, curb, gutter, culvert, driveway or lawn and landscaped areas, fences, trees, and shrubbery equal to or better than the condition of each before the work began.

2.02 TOPSOIL

- A. 6” of natural, friable, fertile soil, characteristic of productive soil in the vicinity, reasonably free of stones, clay lumps, roots and other foreign matter. Acidity between 6.0 and 6.8 pH.

2.03 FERTILIZER

- A. Fertilizer shall be in accordance with New York State Department of Transportation (NYSDOT) Standards.

2.04 SEED MIXTURES

- A. Permanent seed shall be in accordance with NYSDOT Standards.
- B. Temporary seed shall be in accordance with NYSDOT Standards.

PART 3 – EXECUTION

3.01 TOPSOIL, SEED AND FERTILIZING

- A. Completely fill below-grade areas and voids resulting from demolition of structures and/or development of signage anchors.
- B. Use only clean and approved soil material, stone, gravel, or sand that is free from deleterious materials.
- C. Do not place fill on saturated grade or deleterious material.
- D. Place fill materials in 6 inch loose lifts and compact at optimum moisture content to original density of adjacent ground.
- E. Fine Grading Lawn Areas
 - 1. Bring the grade of areas to receive lawns to a uniform level slope to meet adjacent contours.
- F. Seed Operations



1. Dry seeding
 - a. Seed indicated areas within contract limits and areas adjoining contract limits, disturbed as a result of construction operations.
 - b. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two directions, at right angles to each other.
 - c. After seeding, lightly rake or drag surface of soil to incorporate seed into 1/8" of soil. Roll with light lawn roller.

G. Fertilizer

1. Apply fertilizers by mechanical rotary or drop-type distributor, thoroughly and evenly incorporated into soil to a depth of 3" by discing or other approved method.

3.02 TEMPORARY RESURFACING AND PERMANENT REPAVING GENERAL MANNER OF EXECUTION

- A. Immediately upon completion of refilling of the trench or excavation, the Contractor shall place a temporary surface over all disturbed areas of the streets, driveways, alleys, and other traveled places where the original surface has been disturbed by this operation. The temporary surface shall be of character satisfactory in all respects and safe for public travel at no cost to the Owner. This work shall be performed promptly and as directed by the Owner. If such work is not completed within the 24 hours of written notice, then the Owner shall order the work done by others and the cost of the same will be deducted from the Contract price.
- B. The temporary pavement surface shall consist of 2" of asphalt bituminous wearing surface and/or 6" of granular material Type F placed upon the required trench backfill material. The temporary asphalt surface shall be maintained as necessary to minimize traffic disturbance.
- C. The permanent and final re-paving of all streets, driveways, and similar surfaces where pavement has been removed, disturbed, settled, or damaged by or on account of the work of the Contractor, shall be repaired and replaced by the Contractor, by a new and similar pavement at such time as directed. All new surfaces shall be replaced in type, kind, and quality to the original or as shown on the Drawings and as directed by the Owner. Pavement in State Highways, County Highways, and City, Village, or Town roads shall conform to the requirements of their established standards.
- D. Prior to placing new pavement, any temporary pavement shall be removed and new pavement shall be placed as shown on the Drawings and herein specified. All service boxes, manhole frames, and covers and similar structures within the areas of pavement to be repaired shall be set to an established grade as directed by the Designer. The new pavement shall be compacted with ten-ton roller. All joints shall be saw cut, tack coated, and trimmed to provide a smooth surface. Contractor shall maintain the permanent

pavement for one year after the placement and acceptance. Any depression or failure of the pavement shall be corrected promptly at no cost to the Owner.

3.03 MAINTENANCE

- A. Properly maintain all turfed areas by watering, cultivating, weeding, mowing, re-seeding, filling eroded areas and all other repairs and replacements until final acceptance of the work.
- B. Re-seed all areas where seed has failed to germinate and where seeded areas have been damaged by erosion, people, vehicular traffic or other causes.
- C. Any depression or failure of temporary or permanent pavement shall be corrected promptly. The Contractor shall be responsible for the repair to all existing asphalt concrete pavement if damaged as a result of this work.

...End of Section

