Congress Street Bridge Study

City of Watervliet and City of Troy

APRIL 2021

PREPARED BY:

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EDR FoitAlbert ASSOCIATES Architecture. Engineering. Surveying. Environmental.

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Associated Projects

This document was prepared with funding provided by the New York State Department of State under Title 11 of the Environmental Protection Fund.

Introduction

This chapter includes summaries of existing plans and feasibility studies within the Congress Street Bridge study area. Each of the projects have goals and objectives that align with the Congress Street plan. Some of the detailed designs have already been constructed, will be constructed, or are part of a long-term plan within Troy and Watervliet.

Constructed Projects

Watervliet Shared-Use Path (2020)

The Watervliet Shared-Use Path is part of the Mohawk Hudson Bike Hike Trail (MHBHT) that runs along Broadway and 23rd Street , taking trail users from 4th Street to Hudson Shores Park. The project is currently under construction and is expected to be completed in June 2021.

Shared-use path along Broadway from 4th Street to 23rd Street

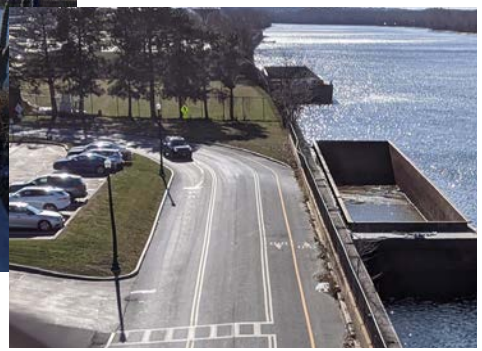
South Troy Industrial Road Project (2020)

Construction of Phase 1 of the South Troy Industrial Road was completed in December 2020. A two-lane roadway was constructed between Main Street to the south and Monroe Street to the north. Sidewalks are provided on one side of the roadway. Phase 2 will extend this roadway north to the intersection of Adams Street and River Street and is expected to be constructed in 2022. Plans include a shared travel lane for cyclists and a sidewalk for pedestrians.

South Troy Riverfront Bikeway (2018)

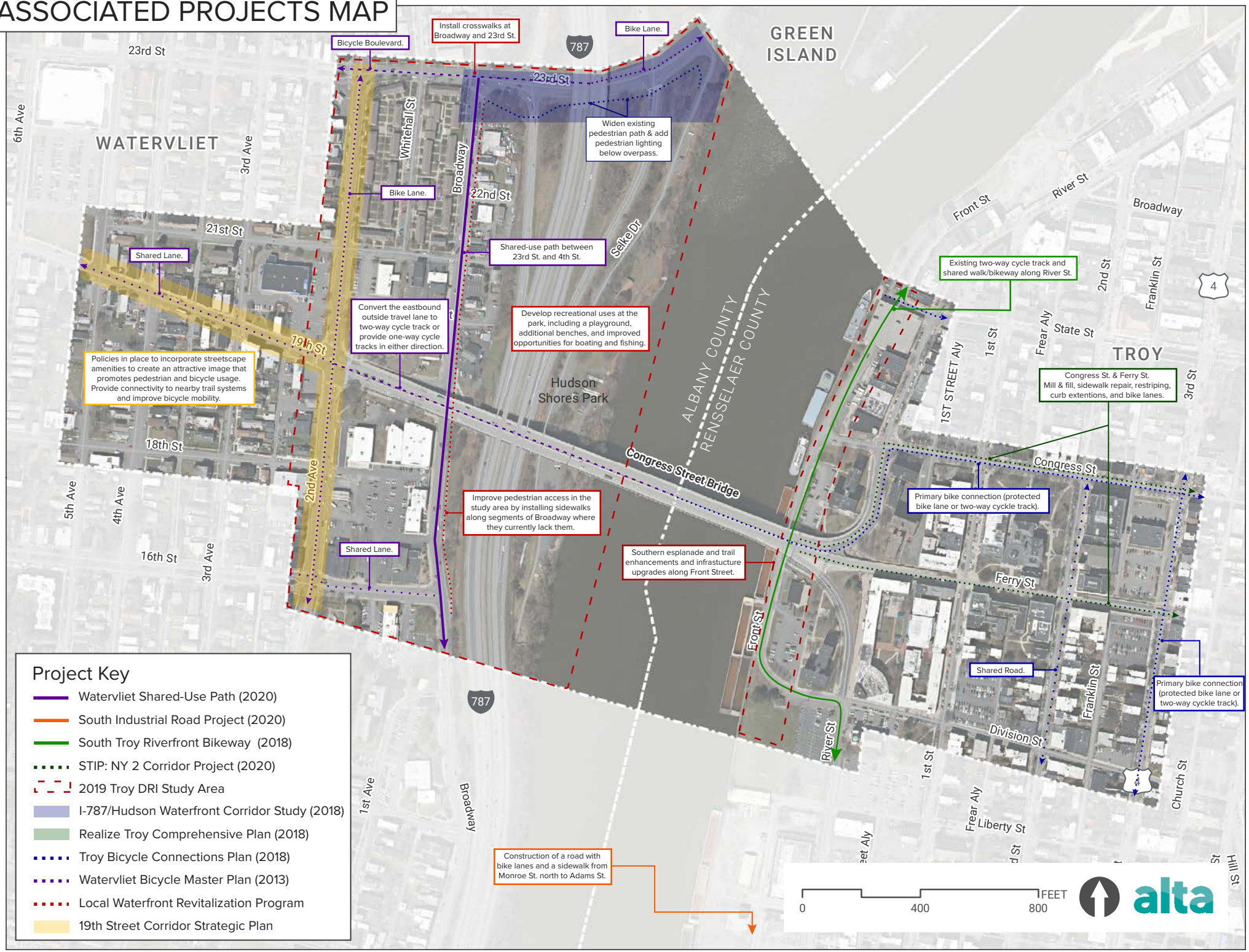
The resulting South Troy Riverfront Bikeway will be approximately four miles long and introduce varying levels of protected facilities along the proposed route. The plan calls for bike lanes along Burden Avenue, 1st and 2nd Streets between Mill and Madison Streets, a two-way cycle track along 1st, Adams, River, and Front Streets, shared lane markings along River Street between Vanderheyden and Middleburgh Streets, and a new multi-use trail under the Collar City Bridge. Part of the South Troy Riverfront Bikeway was completed in 2018. At this time, the two-way cycle track along Front Street is completed from Division Street to River Street.

Front Street cycle track



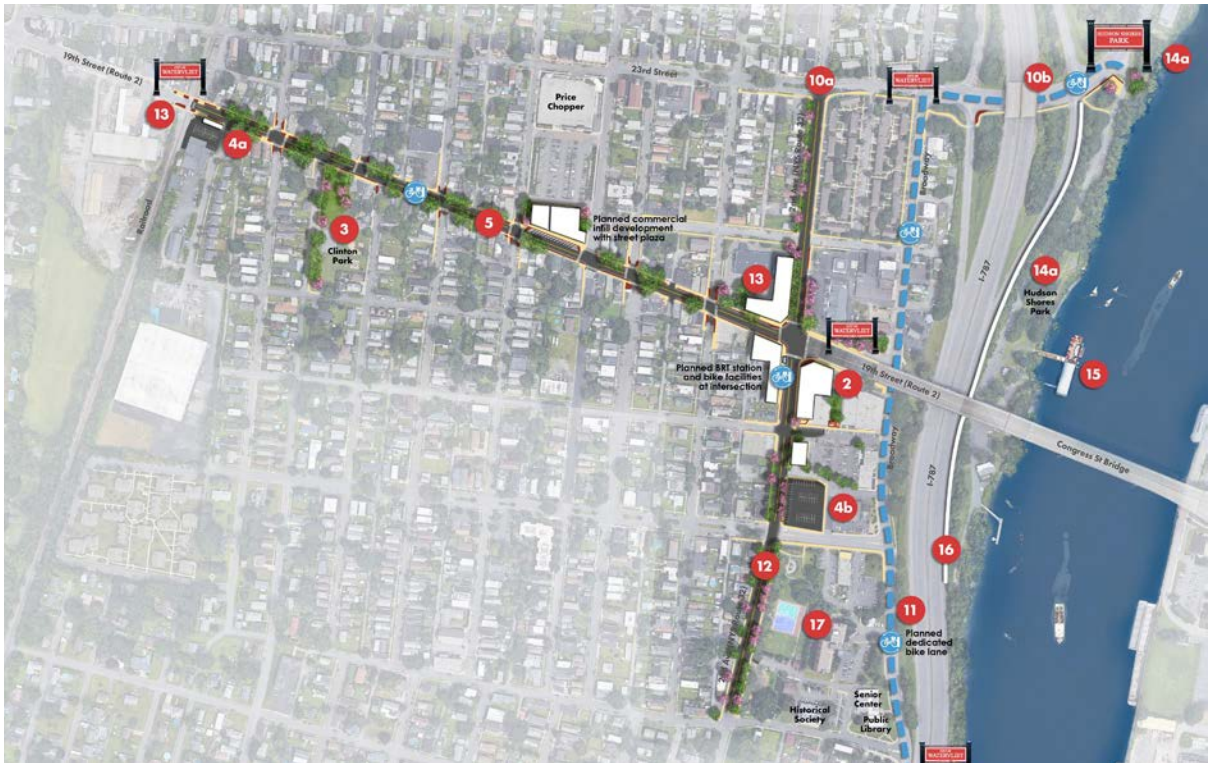
Front Street cycle track - view from bridge

ASSOCIATED PROJECTS MAP



Project Key

- Watervliet Shared-Use Path (2020)
- South Industrial Road Project (2020)
- South Troy Riverfront Bikeway (2018)
- STIP: NY 2 Corridor Project (2020)
- 2019 Troy DRI Study Area
- I-787/Hudson Waterfront Corridor Study (2018)
- Realize Troy Comprehensive Plan (2018)
- Troy Bicycle Connections Plan (2018)
- Watervliet Bicycle Master Plan (2013)
- Local Waterfront Revitalization Program
- 19th Street Corridor Strategic Plan



Watervliet DRI study area and design initiatives (Image: Chazen)

Complete Streetscape (Image: Chazen)

Screen wall / urban art (Image: Chazen)

Planned Projects

Watervliet DRI (2020) (policy)

The 2020 Watervliet Downtown Revitalization Initiative was designed in 2020 to foster economic development within the City. Specifically, it aims to reconnect the City to the Hudson River Waterfront, invest in parks and infrastructure, and redesign 19th Street.

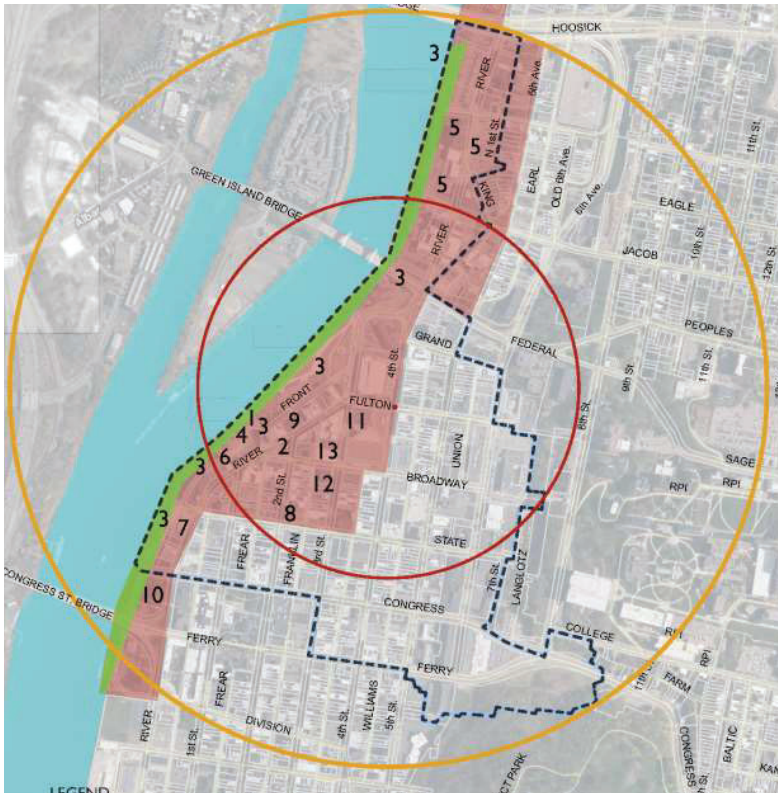
Physical recommendations within the Congress Street Bridge study area include:

- Completing 19th Street streetscape improvements
- Developing a new construction fund to encourage TOD/infill development near BRT station/19th and 2nd intersection
- Constructing a public parking garage at current USPS site
- Completing ped/bike connections to the waterfront
- Installing new bike share stations
- Connecting downtown to City Hall and municipal services by improving ped connections on 2nd
- Establishing gateways with lighting, landscaping, and wayfinding features
- Improving Hudson Shores Park and expanding public programming
- Reopening destination barge restaurant at Hudson Shores Park
- Constructing a sound barrier with public art along 787 in Hudson Shores Park

- Developing a mixed-use zone and encouraging higher-density housing on 19th Street

State Transportation Improvements Program: NY 2 Corridor Project (2020)

Funding has been allocated to improve Congress Street and Ferry Street between River Street and 11th Street in downtown Troy. Design for the DOT local project is expected to start in 2021. The redesign tentatively includes a mill and fill, repairing 50% of the existing sidewalk within the project area, restriping each street to one driving lane, and adding curb extensions and bike lanes. Ferry Street, which is currently a two-lane one-way street, may be converted to two-way traffic with a single lane in either direction.

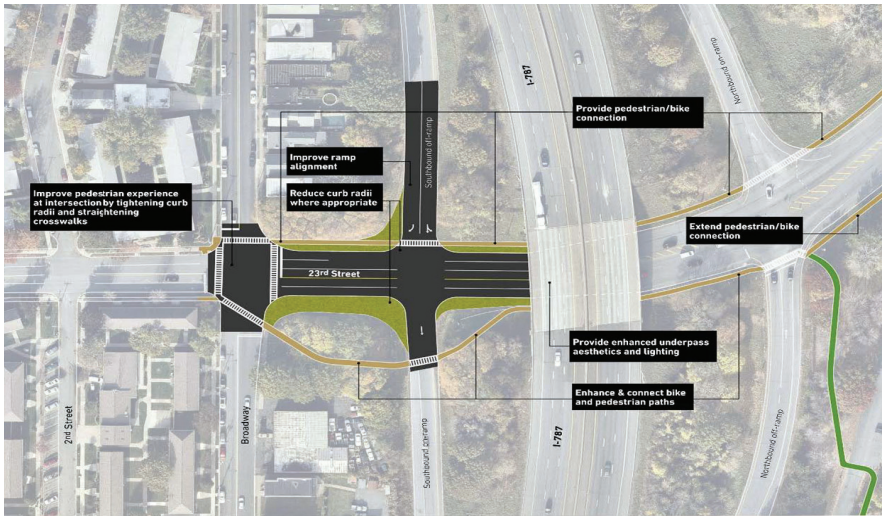


Troy DRI study area

Troy DRI (2019)

The 2019 City of Troy Downtown Revitalization Initiative was designed to create a thriving community with a sense of place, offer a choice of mixed income urban living, and build Troy's history, arts, culture, and entertainment opportunities. One of the plan's initiatives, the Riverfront Esplanade Connection to South Troy, is within the Congress Street study area. Two of the goals of the connection include:

- Southern Esplanade and Trail Enhancements: The project includes improving the waterfront esplanade from the landing at Monument Square to Russell Sage College playing fields at Division Street
- Infrastructure Upgrades: consolidating and relocating utility infrastructure



23rd Street ped/bike connectivity improvement concept from the I-787/ Hudson Waterfront Corridor Study

along Front Street will create outdoor spaces with waterfront views and public access. The project will enable development of multiple River Street buildings overlooking Front Street and the Hudson River.

Area Plans and Studies

I-787/Hudson Waterfront Corridor Study (2018)

This plan was completed in 2018 and includes 9.4 miles of the I-787 Corridor from the City of Albany to the City of Cohoes. There are multiple purposes to this project but the one that relates to the Congress Street Bridge Study is the 23rd Street Ped/Bike Connectivity Improvement Concept in Watervliet. The following points correlate to the Congress Street Bridge Study:

- Provide enhanced pedestrian-scale lighting under the I-787 bridges that will improve aesthetics and the feeling of safety
- Realign the I-787 southbound off-ramp approach to 23rd Street to be a conventional perpendicular intersection
- Reduce corner radii at the interchange ramps and at the northeast corner of 23rd Street and Broadway, where possible, to reduce the pedestrian/bicyclist crossing distances and to lower vehicle turn speeds
- Widen the existing pedestrian path on the south side of 23rd Street under I-787 to be converted to a shared-use path

Realize Troy rendering from Troy Comprehensive Plan

Realize Troy aerial photosim

Realize Troy Comprehensive Plan (2018)

The City of Troy has not had an update to the comprehensive plan since 1962 and since then Troy has experienced significant change over the last several decades. This Plan will be used by the City to guide land use decisions and to seek funding and support for key infrastructure and capital improvement projects. To help encourage more walking and cycling, city streets and paths must be more complete, safer and better connect people to shops, services, schools, parks, campuses and jobs and the City's waterfront. The development of a well-designed multi-use trail/promenade along the waterfront and through the waterfront neighborhoods would significantly enhance the City's active transportation network and improve the look and attractiveness of waterfront places.

How the comprehensive plan relates to the Congress Street Bridge Study:

- Encourage and facilitate city center living
- Encourage the development of a coordinated building and street lighting program in the historic downtown
- The City will prepare and implement a streetscapes master plan for the City center
- The City will encourage and support temporary/pop-up placemaking initiatives
- Extension of downtown district will require the replacement of the Congress Street Bridge ramps and the reconfiguration of River Street and the bridge connection

Troy Bicycle Connections Plan (2018)

This Plan was adapted in 2018 and intended to help the City of Troy achieve a network of bikeways that provides a comfort level that accommodates people of all ages and abilities. Key features that relate to the Congress Street Bridge Study include:

- The implementation of primary and secondary on-road bicycle facilities and shared-use paths
- Intersection treatments, bike boxes, and left turn boxes along Rt. 4
- One way striped lane along Rt. 4
- Bicycle route signage and parking
- Implementation of primary, secondary, and neighborhood bike connections within the study area

Watervliet Bicycle Master Plan (2013)

The Watervliet Bicycle Master Plan consists of two parts: one report focused on an intracity bicycle network, and another report focused on the Mohawk-Hudson Bike-Hike Trail. The plan includes Complete Street policies that intend to highlight access management and streetscaping efforts. The plan also calls for the installation of bicycle parking facilities and wayfinding/ signage plan implementation within the study area. Key elements of the plan that relate to the Congress Street Bridge Study include:

- The Intracity Bicycle Network report identifies a system of north-south and east-west routes that provide access to residential neighborhoods and key destinations. The streets within the Congress Street Bridge study area include:

Watervliet Bicycle Master Plan - typical contra-flow bike lane

Watervliet Bicycle Master Plan - two-way cycle track example

  - » **19th Street/NYS Route 2** (between 2nd Avenue and the City Line): Shared lane markings are recommended
  - » **Congress Street Bridge** (City of Troy to 2nd Avenue): Convert the eastbound outside travel to two-way cycle track or provide one-way cycle tracks in either direction
  - » **16th Street** (between Broadway and Avenue A): Shared lane markings are recommended
  - » **23rd Street and 24th Street** (between Broadway and 12th Avenue): Shared lane markings or a protected bike lane (between the parking and the curb) are recommended for this one-way pair
  - » **Broadway / Route 32 (**between 25th Street and 4th Street): shared-use path (MHBHT)
  - » **2nd Avenue** (between 25th Street and 13th Street): Bike lanes are recommended
- The short-term solution of a combination of shared lane markings and a cycle track along Broadway from 4th Street to Hudson Shores Park
- The recommended long-term solution is a shared-use path along 23rd Street from the I-787 underpass to Hudson River Shores Park
- "Short-term MHBHT Alternative'': this project will provide improved bicycle/pedestrian accommodations along the MHBHT via a cycle track on Rt. 32 between 4th Street and 23rd Street / Hudson Shores Park. North of the Congress Street Bridge, the MHBHT would continue along a shared-use path along I-787 to 23rd Street.

Watervliet Climate Action Plan (2011)

In 2011, the City released the Watervliet Climate Action Plan, with the goal of reducing greenhouse gas (GHG) emissions. As part of the plan, the City adopted a goal to achieve an emissions level 10% below its 2008 baseline by 2014, and a stretch goal of a 20% reduction in that same period. To meet this goal, the City identified a series of strategies for near-term implementation and long-term planning, including energy efficiency, renewables, waste recycling, and vehicle fleet measures. Key features that relate to the Congress Street Bridge Study:

- Becoming energy efficient includes reducing the usage of vehicles and creating a walkable/bikeable environment for pedestrians and cyclists

City of Watervliet, NY Comprehensive Plan (2010)

The City released its first Comprehensive Plan in 2010. The Comprehensive Plan identified nine goals to meet the City's vision of remaining a good place to live, work and visit today and in the future. Key ideas that relate to the Congress Street Bridge Study include:

- Upgrade and maintain the City's transportation system
- Create an attractive and functional built environment that meets the needs of existing residents and businesses while creating opportunities to attract new residents and economic opportunities
- Foster a business group to identify and develop economic initiatives that support the social fabric of the community, enhance the City's commercial districts, provide strong employment opportunities, and meet residents' needs for goods and services
- Offer high-quality recreation amenities
- Maintain and upgrade the City's infrastructure
- Improve land management by updating the City's Zoning Ordinance
- Improve access to the waterfront by implementing the City's Local Waterfront Revitalization Program (LWRP)

Local Waterfront Revitalization Program Report (2006)

The City of Watervliet's first LWRP report, released in 2006, focuses on identifying both a vision for its waterfront and the implementation strategies necessary to achieve that vision. Key strategies that relate to the Congress Street Bridge Study include:

- Focusing redevelopment efforts to revitalize deteriorates and underutilized waterfront areas and reconnect the City with its shoreline
- Protecting and improving visual quality within the City of Watervliet
- Protecting and improving visual quality within the City's Central Business

District

- Providing public visual access to coastal lands and waters or open space at all sites where physically practical
- Add Missing Sidewalk Segments: Improve pedestrian access in the study area, especially access to Hudson Shores Park, by installing sidewalks along the segments of Broadway that currently lack them
- Install Pedestrian Amenities: Improve pedestrian access throughout the study area, with appropriately located crosswalks, pedestrian signals, and ADA ramps. There is a particular need for crosswalks and possibly pedestrian signals, at the intersection of Broadway and 23rd Street. There is also a need for a crosswalk on Broadway at the bus stop in front of Hudson Shores Plaza

19th Street Corridor Strategic Plan (2003)

In late 2003, the City of Watervliet completed the 19th Street Corridor Strategic Plan. The Plan identified goals to build on the community's assets and capitalize on the many opportunities identified during the planning process. Goals relating to the Congress Street Bridge Study included:

- Fostering economic development on 19th Street and Second Avenue
- Providing safe, quality housing to all residents in the corridor
- Developing 19th Street and Second Avenue as an attractive, vital mixed-use district
- Improving and maintaining the capacity and efficiency of the transportation infrastructure through access management and enhanced mobility in the corridor
- Enhancing the existing parks and recreational facilities in the target area and creating new venues for social/recreational activities
- Considering revisions to the Zoning Regulations to create new commercial districts along 19th Street and Second Avenue
    - » Creating a 19th Street Corridor Management Program
    - » Creating a marketing program for the target area

Notable actions to meet these goals included:

- Developing a Business Assistance Program to help existing businesses prosper, expand, and or develop
- Coordinating projects for mixed-use, infill, and large-scale development, including exploring options for retail, light industrial, and housing development and focusing on eating and drinking places, sports and entertainment, nightlife, women's apparel, and services
- Developing a City-sponsored homeownership program
- Encouraging mixed-use residential and commercial buildings on 19th Street and Second Avenue to provide an appropriate mix of housing and shopping opportunities and enhance the urban character of the area
- Developing a façade improvement program for commercial or mixed-use buildings and making financial assistance available to building/business owners who wish to participate
- Creating attractive "Gateways" to welcome motorists/visitors into the City
- Incorporating streetscape amenities to improve the visual character of the area and create a unified and attractive image that promotes pedestrian and bicycle usage
- Providing connectivity to social gathering spots, businesses, and nearby trail systems
- Improving bicycle mobility; establishing a marketing program and strategy; developing an identity/logo for the 19th Street Corridor
- Promoting the Corridor through gateway signs and other wayfindings signs, among others

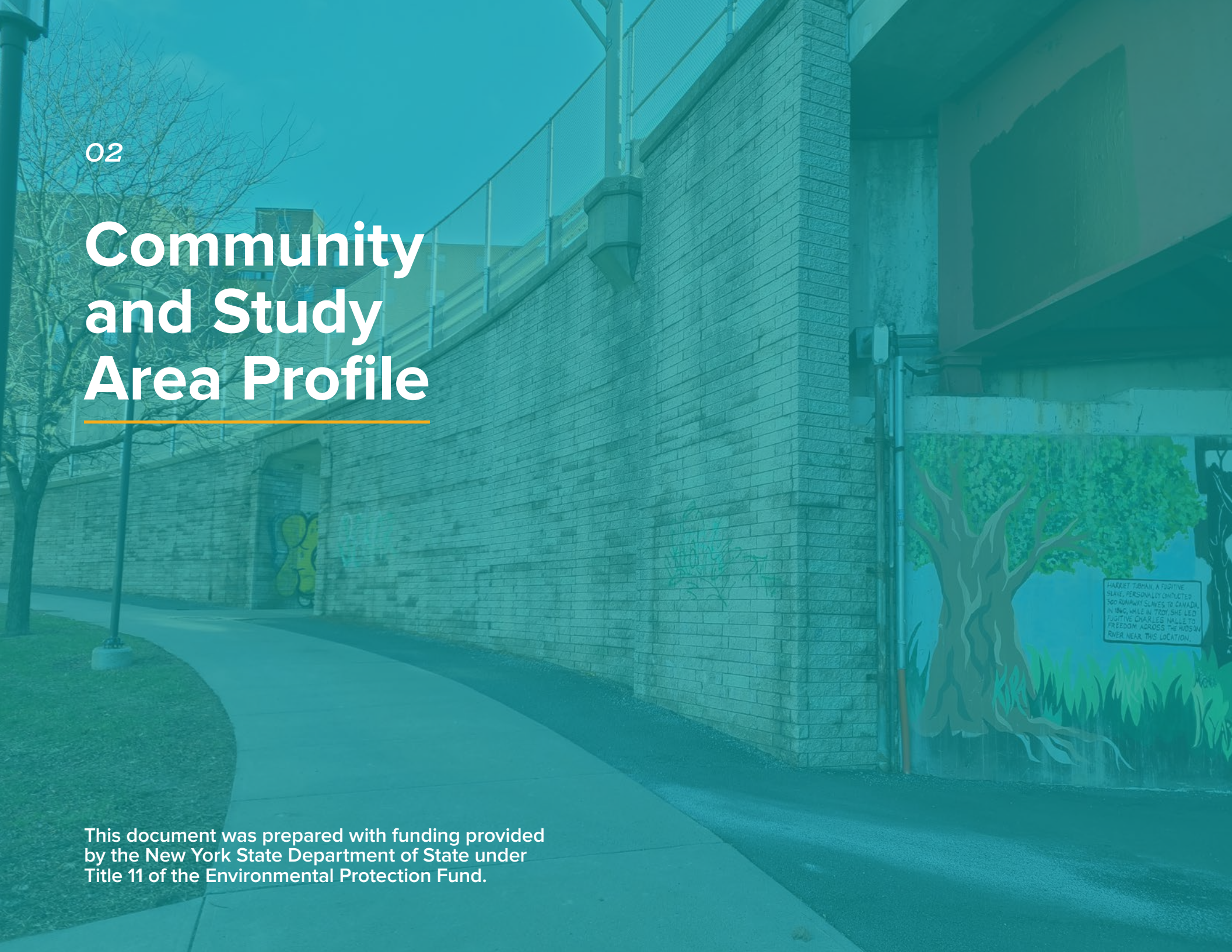
South Troy Waterfront Revitalization Plan (2003)

This plan is a comprehensive waterfront redevelopment strategy that was designed in 2003 with a goal to return South Troy to its role as an economic center for the City of Troy. Specific objectives that align with the Congress Street Bridge Study include:

- Improving waterfront transportation access and removing trucks from nearby residential streets and maintaining/enhancing river freight movement
- Creation of waterfront access and recreation opportunities, including shoreline bike and pedestrian access and boating access
- Improved quality of life for residents in the adjacent neighborhood by reducing transportation and land use conflicts and creating connections from the neighborhood to the waterfront

02

Community and Study Area Profile



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Introduction

The Community & Study Area Profile chapter identifies important existing waterfront recreational, transportation, economic, natural and cultural resources within the Study Area. This inventory includes information and mapping related to:

- Zoning
- Land Use
  - » Public Land
  - » Redevelopment
- Transportation Profile
  - » Traffic Volumes
  - » Traffic Direction
- Transit
- Active Transportation and Recreation
- Historic Sites
- Topography
- Floodplain
- Bridge Conditions
- Redevelopment Plans and Potential
- Aesthetics
- Stakeholder Outreach

Bridge History

The existing Congress Street (NY 2) Bridge over the Hudson River was built in 1969 to replace the previous Whipple Through Truss Swing Bridge (c. 1913). According to NEB&W Railroad*, the original bridge was a through-truss with a center swing span, built in 1874. It was rebuilt sometime later, about 1927, still as a truss swing bridge. This bridge was replaced in 1969 with a deck-girder fixed span bridge to connect with Ferry Street in Troy. This placement was chosen so the new bridge would be in place before the old bridge was demolished.

Congress Street Bridge Study Area

* http://nebwrailroad.com/index.php/NEB%26W_Guide_to_Troy,_NY_-_Congress_Street_Bridge

Zoning

The following zoning categories are included in the Study Area for Troy:

- **Central Commercial (B-4)**: According to the City of Troy Zoning Code "this District is designed to encompass the City's Central Business District. As such, this District is designed to encourage a wide variety of mixed land uses, including but not necessarily limited to commercial, professional office, entertainment service, medium- to high-density housing and governmental activities." Additional information about B-4 can be found using this link: https://ecode360.com/11134083
- **Institutional (INST)**: According to the City of Troy Zoning Code "this District is designed to ensure the orderly continued development of health-related, educational and community services agencies in a fashion which is least intrusive upon and most complementary toward adjacent existing neighborhoods." and has been put in place because of the Sage College campus. Additional information about INST can be found using this link: https://ecode360.com/11134269
- **High Rise Residential, High Density (R-5)**: According to the City of Troy Zoning Code "this District is designed to accommodate construction of high-rise, high-density residential buildings. Within these structures, complementary professional, health-related, institutional/and commercial uses are encouraged." Additional information about R-5 can be found using this link: https://ecode360.com/11133869
- **Urban Neighborhood Residential, Medium To High Den (R-4)**: *This zone is visible on the map but is located just outside the Study Area, south of Division Street and East of 3rd Street.* According to the City of Troy Zoning Code "this District is designed to continue the stabilization and upgrading of the City's oldest and most well-established neighborhoods. Recognizing the unique problems of mixed land use patterns and the need to accommodate traffic flow and parking within an urban street system designed prior to the widespread use of automobiles, the regulations for this Zone district are designed to maintain existing housing densities." Additional information about R-4 can be found using this link: https://ecode360.com/11133836

**All additional information about Watervliet zoning districts can be found using this link: https://ecode360.com/28654992*

The following zoning categories are included in the Study Area for Watervliet*:

- **Planned Business Development District (Overlay PBD)**: According to the City of Watervliet Zoning Code "the purpose of the PBD District is to provide for the development of a variety of compatible commercial uses containing both individual building sites and common property in areas that are zoned for commercial or may not be zoned for commercial but are adjacent to commercially zoned areas. The PBD District may also provide flexibility to enhance the efficient use of land, energy, community services and utilities."
- **Business (B)**: According to the City of Watervliet Zoning Code "the purpose of the Business (B) District is to provide areas that allow for a broad range of commercial uses and other compatible nonresidential uses that serve residents City-wide with access to streets carrying significant traffic volumes."
- **Mixed-Use 1 (MU-1)**: According to the City of Watervliet Zoning Code "the purpose of the MU-1 District is to preserve the pedestrian scale and traditional urban mixed-use character of the corridor."
- **Mixed-Use 2 (MU-2)**: *This zone is visible on the map but is located just outside the Study Area, south of 16th Street.* According to the City of Watervliet Zoning Code "the purpose of the MU-2 District is to encourage an appropriate mix of compatible residences and businesses along the 19th Street corridor. As a state road, this corridor is more heavily traveled and auto oriented than the MU-1 District."
- **Two-Family (R-2)**: According to the City of Watervliet Zoning Code "the purpose of the R-2 District is to preserve neighborhoods that have a mix of single- and two-family dwellings on individual lots."
- **Multifamily (R-3)**: According to the City of Watervliet Zoning Code "the purpose of the R-3 District is to provide areas for higher-density residential uses with a variety of housing types."
- **Waterfront Conservation District (WC)**: According to the City of Watervliet Zoning Code "the purpose of the Waterfront Conservation District is to protect and preserve the City's undeveloped Hudson River shoreline. The district applies to lands adjacent to the Hudson River that are designated City parklands or other open space that is constrained for development purposes by steeply sloping shore lands."


CONGRESS STREET BRIDGE STUDY
GREEN ISLAND
WATERVLIET
TROY
ALBANY COUNTY
RENSSELAER COUNTY
Hudson Shores Park
Congress Street Bridge
23rd St
22nd St
21st St
20th St
19th St
18th St
16th St
Alley
6th Ave
5th Ave
4th Ave
3rd Ave
2nd Ave
Whitehall St
Broadway
Selke Dr
787
Front St
River St
Broadway
2nd St
Alley
State St
1st St
1st St Alley
3rd St
Congress St
Ferry St
Division St
Liberty St
Church St
Hill St
4
Watervliet Zoning
Planned Business District Overlay
Business
Mixed Use 1
Mixed Use 2
Two-Family
Multifamily
Waterfront Conservation
Troy Zoning
Central Commercial
Institutional
High Rise Residential, High Density
Urban Neighborhood Residential, Medium To High Density
0
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800
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Land Use

Both the City of Watervliet and City of Troy have a variety of land uses within the study area. The study area includes more land area within the City of Watervliet to encompass Hudson Shores Park. Both communities have more commercial property than residential, however, there are more residential uses immediately surrounding the study area in the City of Watervliet. Community Services includes the Sage College campus, which increases that proportion of acreage within the City of Troy. Most notably, the only grocery store within or near the study area is located within the City of Watervliet, on 19th Street between 5th and 6th Avenues.

Public Land

Table 1 to the right shows the area of each land use within the study area. Public land is largely comprised of public right-of-way in both Watervliet and Troy and is the highest acreage within both communities - 33% of the total study area. Public parcels within the study area are owned by the City of Watervliet, City of Troy, Rensselaer County, NYSDOT, and the Troy Public Library.

Table 1: Land Use Area

Land Use	Watervliet (Acres)	Troy (Acres)	Total (Acres)
Residential	4.6	1.4	**6.0**
Commercial	14.5	6.8	**21.3**
Community Services	0.3	10.0	**10.3**
Parks and Recreation	9.1	1.0	**10.1**
Vacant Land	0.5	0.9	**1.4**
Public Right-of-Way	28.6	11.0	**39.6**
Water	15.1	14.4	**29.5**
Total (Acres)	**72.7**	**45.5**	**118.2**

Table 2: Private vs Public Land Area

Land Use	Watervliet (Acres)	Troy (Acres)	Total (Acres)
Private Parcels	19.9	16.1	**36.0**
Public Parcels	9.1	4.0	**13.1**
Public Right-of-Way	28.6	11.0	**39.6**
Water (Public)	15.1	14.4	**29.5**
Total (Acres)	**72.7**	**45.5**	**118.2**


Congress Street
Bridge Study
Land Use and Building Footprints
Building Footprints
Land Use
Residential
Commercial
Community Services
Parks and Recreation
Vacant Land
0
400
800
FEET
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GREEN
ISLAND
WATERVLIET
TROY
ALBANY COUNTY
RENSSELAER COUNTY
Hudson
Shores Park
Congress Street Bridge
787
4
23rd St
22nd St
21st St
20th St
19th St
18th St
16th St
6th Ave
5th Ave
4th Ave
3rd Ave
2nd Ave
1st Ave
Alley
Whitehall St
Broadway
Selke Dr
Front St
River St
State St
1st St
1st St Alley
2nd St
3rd St
Congress St
Ferry St
Division St
Liberty St
Church St
Hill St

Redevelopment - Planned and Potential

Watervliet

Much of the Watervliet waterfront is occupied by Hudson Shores Park, a 6.5-acre open space that includes a river walk, pavilion, boathouse, and portable dock. A barge docked at Hudson Shores Park was converted into a restaurant and was in operation from 2006 to 2019, when it was damaged by a storm and closed. There is interest in bringing back commercial uses to the park in the future.

Approximately two-thirds of Watervliet's housing units are renter- occupied, contributing to the increased number of residents in their early to mid-twenties (Watervliet has a younger population than both the regional and state averages). The availability of affordable rental housing may also be a contributing factor to the diversifying racial composition and lower median income in Watervliet. With a growing regional job market, the housing market will play an increasingly important role for young employees looking to move to the area.

A recently opened Price Chopper supermarket on 19th Street provides easy access to affordable, healthy food for residents and visitors. Additional convenience stores (e.g., Dollar General and Stewart's) offer options for food access.

Watervliet recently completed a Downtown Revitalization Initiative (DRI) Plan as a precursor to a formal DRI application to NYS. The DRI Plan identified several themes of improvements to transform the study area. Some examples include:

- Create Gateway and Arrival Zones
- Connect to the Waterfront
- Establish Central Gathering Areas and Activity Hubs
- Improve Streetscapes
- Maximize Infill Lot Redevelopment

Several locations/sites within Watervliet that are ripe for redevelopment and/or infill. These sites were discussed with stakeholders during the development of the DRI Plan:

- Higher density development (TOD) at the northwest and southwest corners of 19th Street & 2nd Avenue
- Infill development on the East side of Broadway between 19th and 21st Streets
- 19th Street site redevelopment
- Placemaking improvements to 19th Street and 2nd Avenue Corridors
- Improved connectivity and establishment of a true municipal City Center Campus with the Community pool and City Hall as a centerpiece.

Transit oriented development and street aligned development could really enhance this gateway to Watervliet and bring the 19th Street commercial district closer to the waterfront and City of Troy

Troy

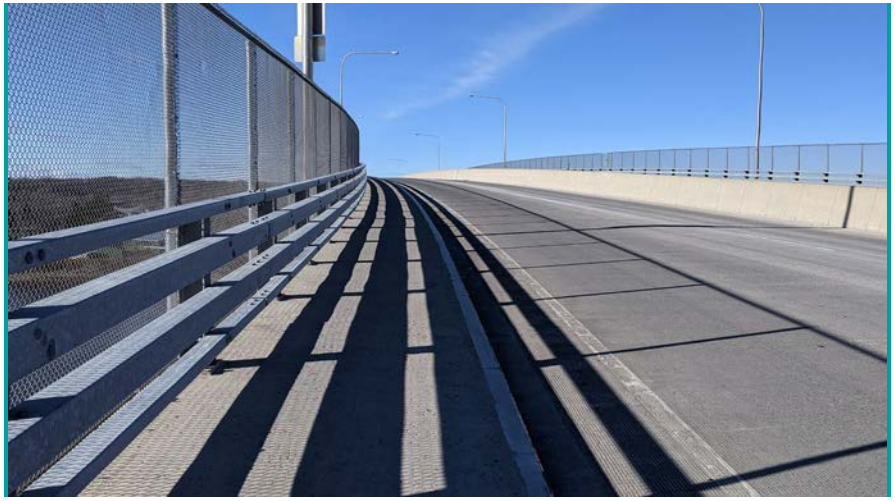
The Taylor Apartments are currently undergoing redevelopment. This Troy Housing Authority Site is divided into three parcels. The apartment building on the NE corner of River Street/Ferry Street is expected to be completed in 2023. The two apartment buildings between River and Front Streets will follow.

Sage College is currently progressing an update to their campus master plan but specific plans have not been developed within the study area.

There is also interest in redeveloping the buildings between Front Street and River Street, north of Congress Street. 155-157 River has had previous proposals to convert it to a boutique hotel. Improved waterfront access would encourage reuse of these existing buildings.

Congress Street Bridge is a vital direct connection between Watervliet's 19th Street and the high-density housing found directly across the river in Troy. While already used by Troy residents to walk to the recently opened Price Chopper on 19th Street, potential improvements that come out of the Congress Street Bridge Plan will further enhance this asset, bringing residents across the river to both communities for services and commercial opportunities.

Rendering of the Taylor Apartments redevelopment currently proposed in the City of Troy



Even though sidewalks are present on the bridge, the environment is uncomfortable and uninviting, discouraging pedestrians and bicyclists from traveling between the two communities

Transportation Profile

The street network in both cities is primarily laid-out in a typical grid system and on-street parking is allowed along most roadways. Primary north/south roads in Watervliet are Broadway and 2nd Avenue, and east/west roads are 19th Street and 23rd Street. Primary north/south roads in Troy are River Street, 1st and 2nd Streets and east/west roads are Congress and Ferry Streets. I-787 runs through the study area in Watervliet with Exit 8 accessing the city at 23rd Street.

Traffic Volumes

Traffic volume data was retrieved from NYSDOT. This data is based on a set of daily traffic counts and represents the annual average daily traffic (AADT). I-787, at 88,000 vehicles per day, is the outlier and is not the focus of this study.

All of the roadways within the study area see less than 20,000 vehicles per day, a common threshold for considering more than two lanes of traffic to carry this volume through a corridor. More traveled roadways, or collectors are considered to have a daily traffic volume between 5,000 and 20,000 vehicles per day. These include 2nd Avenue (north of 19th Street), 19th Street, and 23rd Street, and Broadway in Watervliet and Congress Street, Ferry Street, and River St (north of Ferry Street) in Troy.

The Congress Street Bridge carries approximately 15,200 vehicles per day. The last count was conducted by NYSDOT in 2016. The are calculated 2019 traffic volumes.

As expected, the highest traffic volumes are present on I-787. Table 3 lists the most-recent daily traffic volumes in the study area.

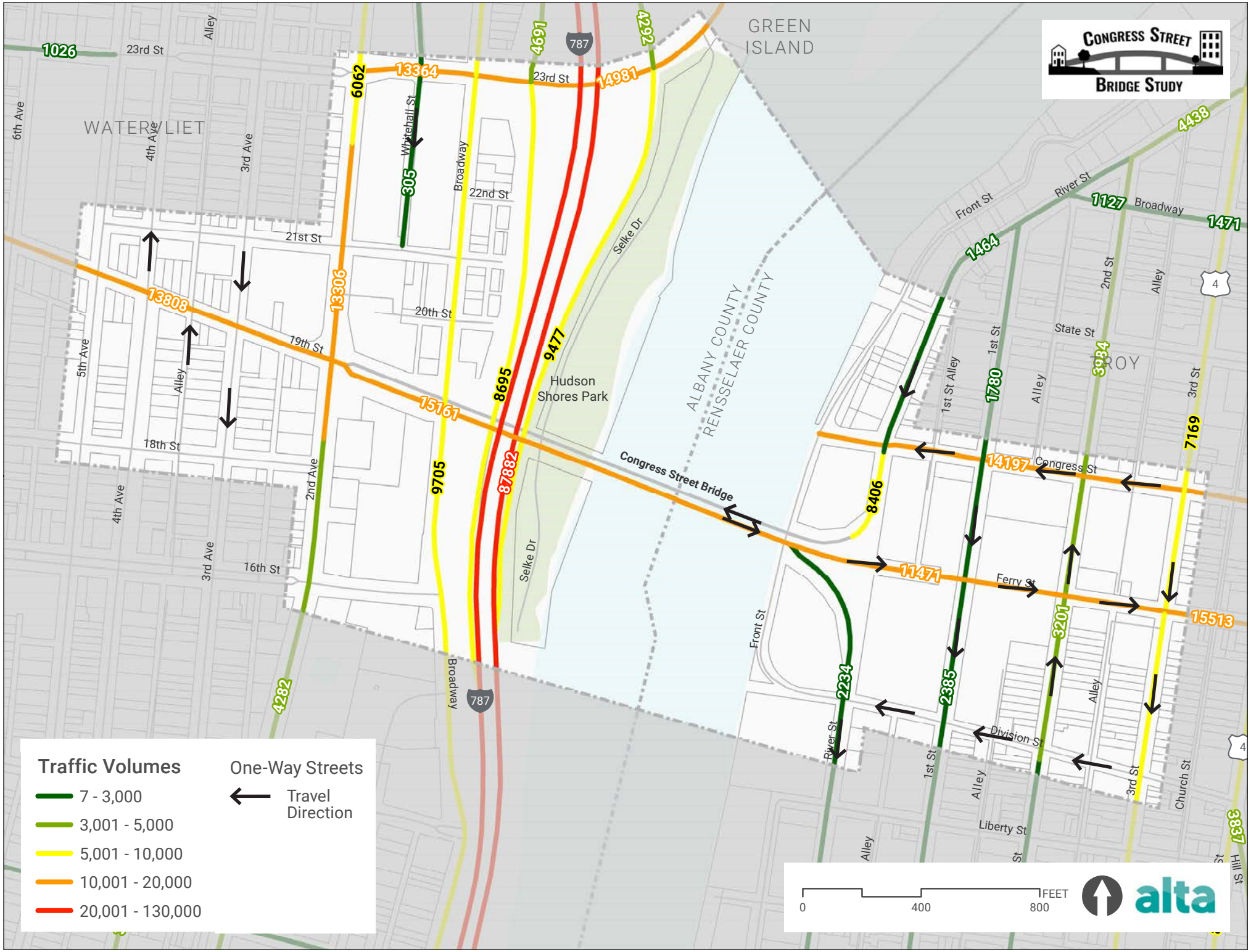
Traffic Direction

Watervliet mainly consists of 2-way streets and Troy mainly has a 1-way street traffic flow system. In Watervliet, wide intersections with turning lanes exist at 2nd Avenue with 19th Street, and at 23rd Street with the Exit 8 ramps. The 1-way street network in Troy keeps intersections from being excessively wide. The ramps that connect the Congress Street Bridge to Troy's street grid actually disconnect the grid, cutting off River Street. The Congress Street Bridge is a 4-lane facility with sidewalks on both sides.

Table 3: Daily Traffic Volumes (vehicles per day, vpd)

City	Road	Daily Volume
Watervliet	Broadway	9,700
	2nd Avenue (south of 19th Street)	4,300
	2nd Avenue (north of 19th Street)	13,300
	19th Street	13,800
	23rd Street	15,000
	Congress Street Bridge	15,200
	I-787	88,000
Troy	River Street (south of Ferry Street)	2,200
	River Street (north of Ferry Street)	8,400
	1st Street	2,400
	2nd Street	3,200
	Ferry Street	11,500
	Congress Street	14,200

Source: NYSDOT Traffic Data Viewer; typically counted or calculated for the year 2019


CONGRESS STREET BRIDGE STUDY
GREEN ISLAND
WATERVLIET
ALBANY COUNTY
RENSSELAER COUNTY
TROY
Hudson Shores Park
Congress Street Bridge
23rd St
22nd St
21st St
20th St
19th St
18th St
16th St
Broadway
Whitehall St
Selke Dr
Front St
River St
State St
Ferry St
Congress St
Division St
Liberty St
1st St
2nd St
3rd St
4th Ave
5th Ave
6th Ave
2nd Ave
3rd Ave
Alley
Church St
Hill St
1st St Alley
787
4
1026
6062
13364
4691
4292
14981
4438
1127
1471
1464
305
13306
13808
15161
9705
8695
9477
87882
4282
1780
3984
7169
14197
8406
11471
15513
3201
2234
2385
3337
Traffic Volumes
7 - 3,000
3,001 - 5,000
5,001 - 10,000
10,001 - 20,000
20,001 - 130,000
One-Way Streets
Travel Direction
0
400
800
FEET
alta

Transit

The transportation network within the study area offers a wide-range of multi-modal travel options. From a transit standpoint, the area is well-served by CDTA with numerous bus routes on both sides of the river and connecting routes across the Congress Street Bridge. The routes across the bridge include 22, 182, 370, 522, and the new Bus Rapid Transit (BRT) River Corridor Bus Plus Blue Line – Routes 922/923. A major transfer hub is located on River Street in Troy at the Riverfront Park.

15 CDTA bus routes that provide access to Study Area:

- 22 Albany - Troy via Watervliet
- 85 Fifth Avenue
- 87 Hoosick Street - RPI
- 182 Troy - Albany via Cohoes and Latham
- 224 Albany - Troy via I-90
- 286 Troy / Wynantskill
- 289 Griswold Heights - Street Mary's Hospital
- 370 Troy/Schenectady
- 802 Troy Shuttle
- 809 South Albany - Troy Shuttle
- 815 Troy Shopping Bus
- 922 BusPlus Blue Line Cohoes to Delaware Station
- 923 BusPlus Blue Line Waterford to Rail Trail Station

Additional routes that travel through the Study Area on I-787 include:

- 522 Cohoes/Troy/Albany Express
- 540 NX - Northway Express

9 CDTA bus stops within the Study Area:

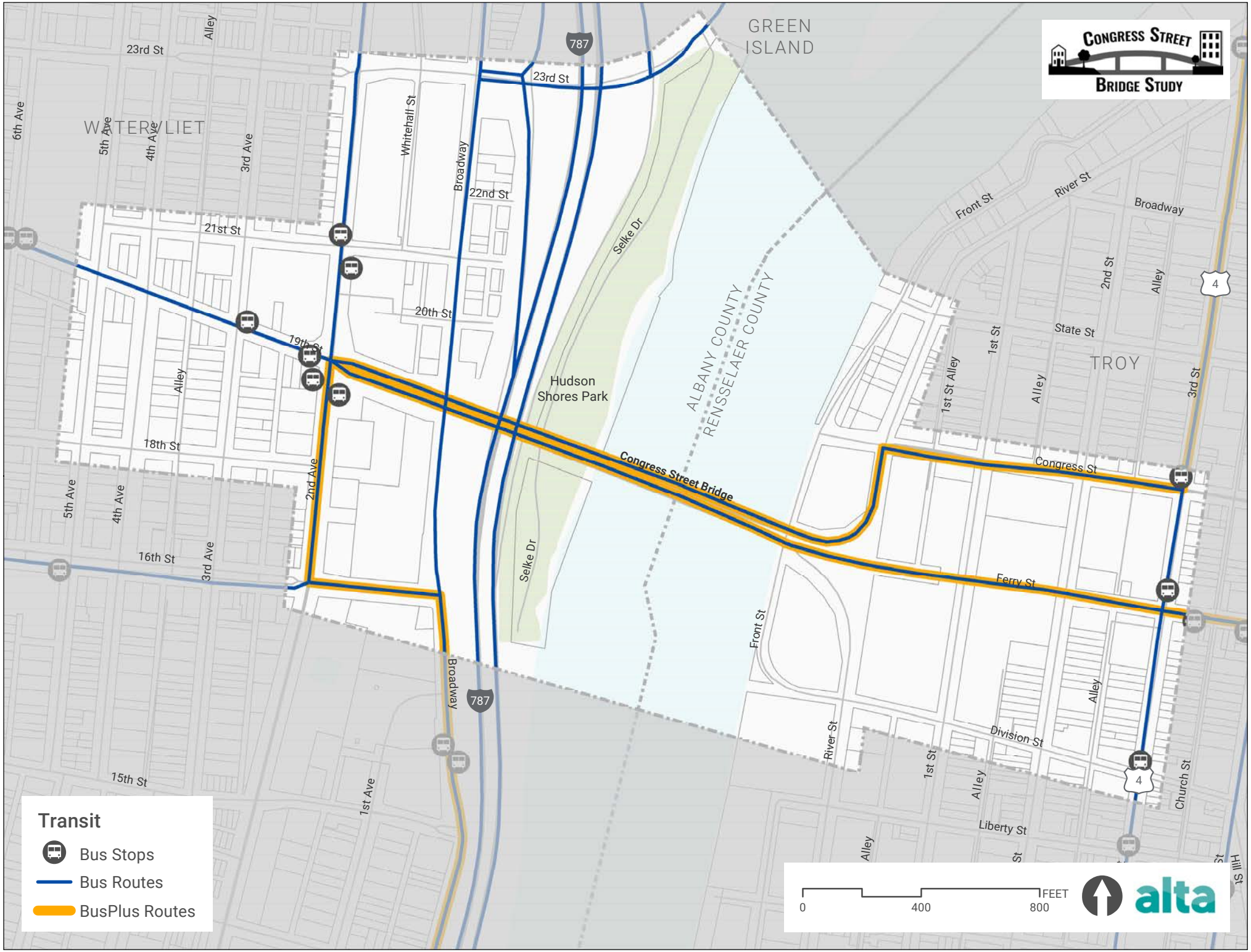
- 19th Street and 3rd Avenue (Watervliet - 2 stops)
- 2nd Avenue and 21st Street (Watervliet - 2 stops)
- Watervliet 19th Street Station - 2nd Avenue and 19th St (Watervliet - 2 stops)
- 3rd Street and Division Street (Troy)
- 3rd Street and Ferry Street (Troy)
- Congress Station- 3rd Street and Congress Street (Troy)

CDTA has continued the expansion of their Bus Rapid Transit (BRT) network through the Capital District. The River Corridor (blue line) provides service from downtown Albany to downtown Troy via Watervliet, in addition to providing connections to Cohoes, Menands, and Waterford. As part of the River Corridor (blue line) expansion, a road diet was implemented along 2nd Avenue in Watervliet from 16th Street to 21st Street in the City of Watervliet. A new BRT station was installed with a complete amenities package on the southeast corner of the 2nd Avenue and 19th Street intersection.

In the City of Troy, buses are currently routed along River Street and 4th Street and then on 3rd Street and 4th Street over the Congress Street Bridge. CDTA is interested in the creation of an additional stop along River Street. They have been working with the City of Troy and Troy Housing Authority on a collaborative effort to reconfigure this area. There are also discussions of allowing Ferry Street to have two-way vehicular traffic and shifting the route off of Congress St. The BRT features of the new stop would include a bus shelter, typical amenities package, bike share station, and transit signal priority (TSP). While a queue jump lane is not currently planned, if the balance of modes could be achieved, the installation of a queue jump lane would be preferable.

Bike Share

CDTA also operates the Capital Region Bike Share Program - CDPHP Cycle!. Docking stations are located thoughout the City of Troy but no stations are present within the City of Watervliet. The only docking station within the study area is located at the intersection of Congress St and 3rd Street.


Congress Street Bridge Study
GREEN ISLAND
WATERVLIET
TROY
ALBANY COUNTY
RENSSELAER COUNTY
Hudson Shores Park
Congress Street Bridge
23rd St
Alley
6th Ave
5th Ave
4th Ave
3rd Ave
Whitehall St
Broadway
22nd St
21st St
20th St
19th St
18th St
16th St
15th St
Selke Dr
2nd Ave
1st Ave
787
Front St
River St
2nd St
1st St
1st St Alley
State St
Congress St
Ferry St
Division St
Liberty St
Church St
3rd St
Hill St
4
Transit
Bus Stops
Bus Routes
BusPlus Routes
0
400
800
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Active Transportation and Recreation

Sidewalks

Sidewalks are typically present on either side of the street throughout the Study Area. Ferry Street in Troy, just east of the Congress Street Bridge, is missing a sidewalk on the south side of the street between the bridge and 1st Street, where the tunnel begins. There are no sidewalks along Front Street, though pedestrians are permitted to use the two-way cycle track along this corridor. Throughout both cities, there are alleys that function as low volume shared streets. In Watervliet, there are portions of sidewalk missing along 4th Avenue as well as the east side of 5th Avenue and the north side of 23rd Street. Additionally, there are a significant number of curb cuts, creating many interruptions in the sidewalk network.

Shared Use Paths

A shared use path is present along the east side of Broadway as well as in Hudson Shores Park. Another existing shared use path is located along the south side of 23rd Street connecting the shared use path along Broadway to Selke Drive in Hudson Shores Park.

On-Road Bicycle Facilities

A selection of roadways within the Study Area have on-road bicycle facilities to provide designated space for bicyclists.

Watervliet:

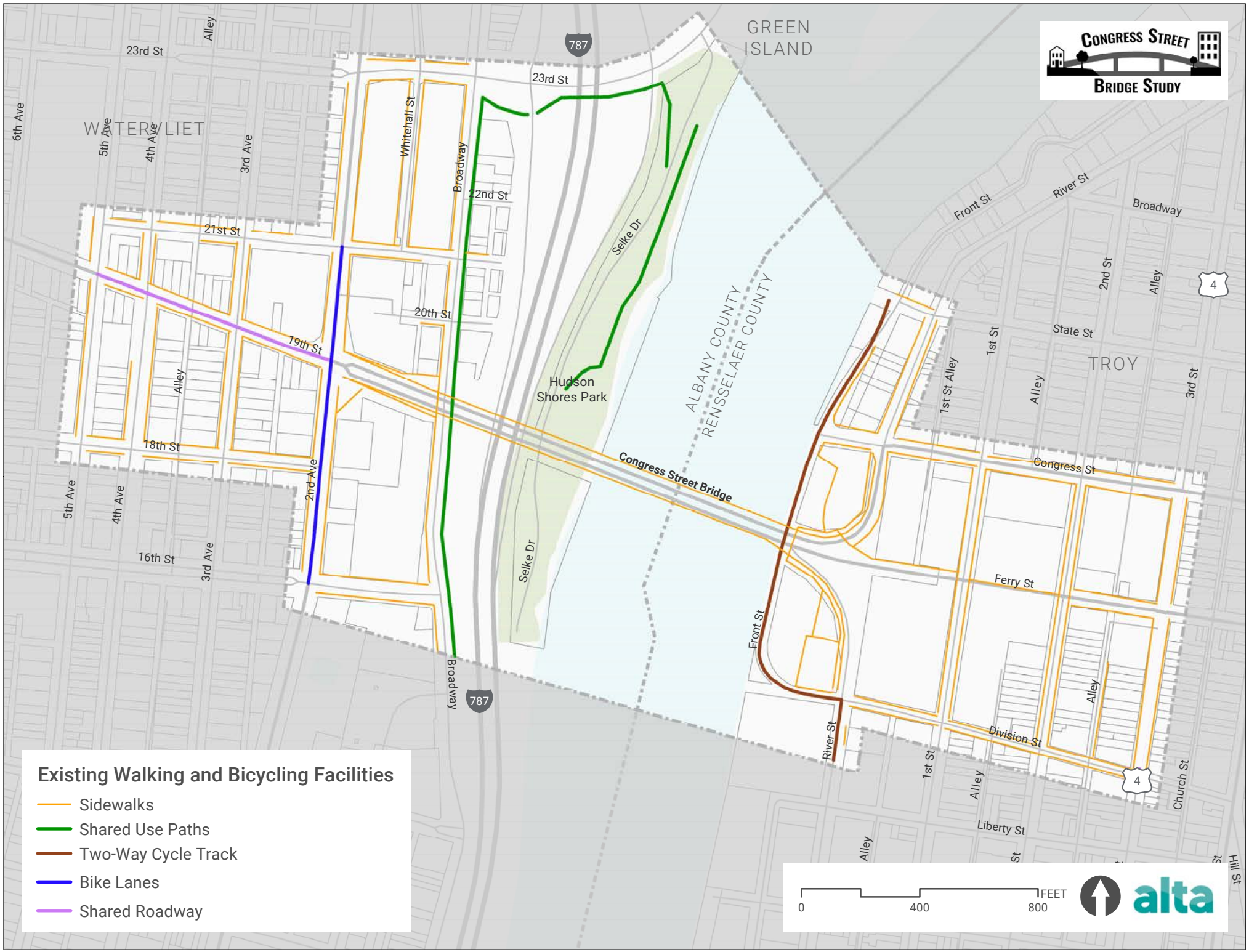
- Bike Lanes on 2nd Avenue from 16th Street to 21st Street
- Shared Roadway on 19th Street from 2nd Avenue to 5th Avenue

Troy:

- Two-Way Cycle Track on River Street / Front Street

The new shared use path, installed along the east side of Broadway, in 2020

The Troy Riverwalk - a cycle track installed along Front Street in 2018


CONGRESS STREET BRIDGE STUDY
GREEN ISLAND
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4th Ave
3rd Ave
2nd Ave
Whitehall St
Broadway
Selke Dr
Front St
River St
2nd St
1st St
1st St Alley
State St
3rd St
Congress St
Ferry St
Division St
Liberty St
Church St
Hill St
787
4
Existing Walking and Bicycling Facilities
Sidewalks
Shared Use Paths
Two-Way Cycle Track
Bike Lanes
Shared Roadway
0
400
800
FEET
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Historic Sites

The data used on this map include buildings, structures, objects, historic districts listed in the National Register. Historic sites within the Study Area boundaries include:

- Central Troy Historic District (Troy)
- River Street Historic District (Troy)
- Troy Public Library (Troy)
- Watervliet Side Cut Locks (Watervliet)
- Ohio Street Methodist Episcopal Church (Watervliet)

Topography

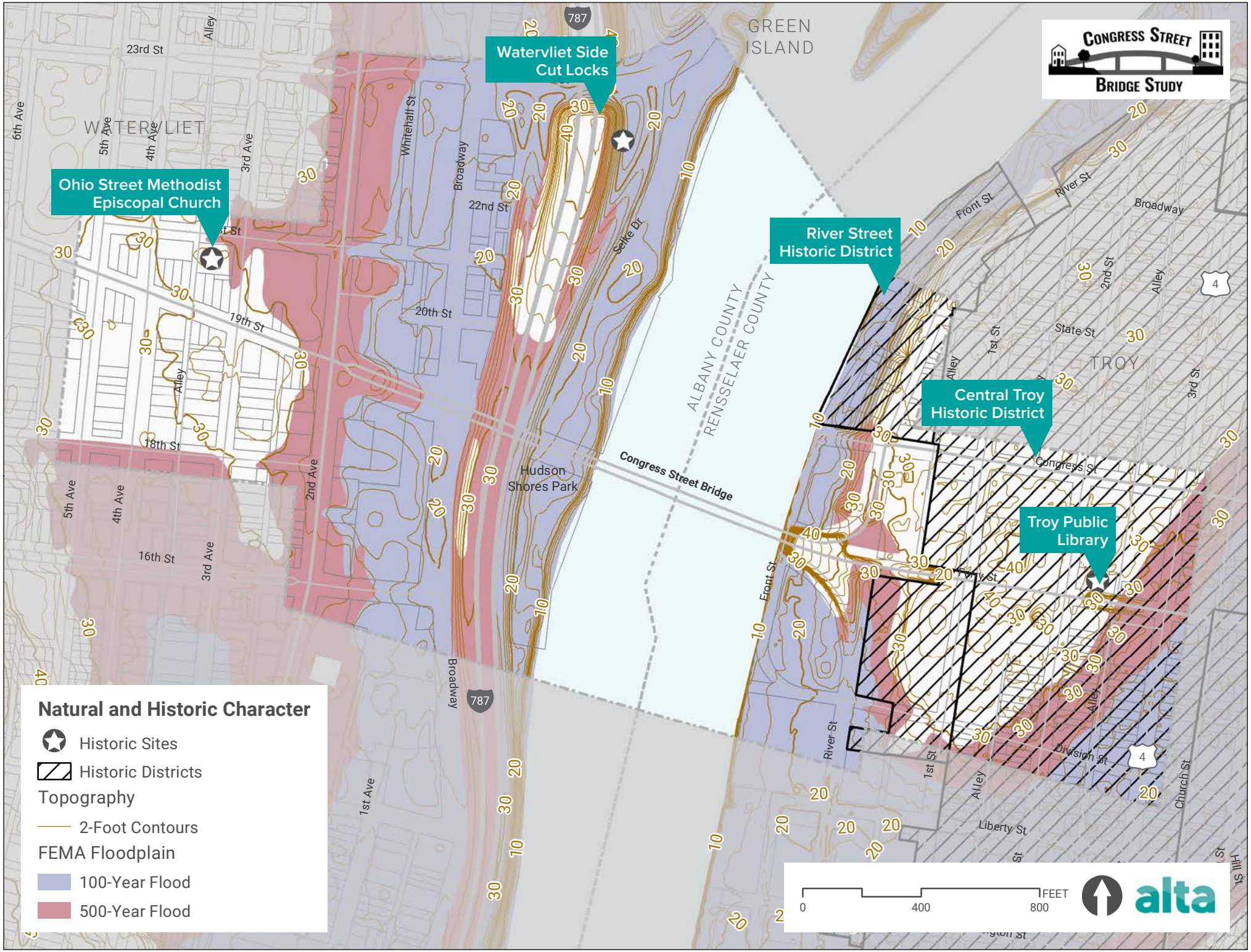
Due to the proximity of the Hudson River to Troy and Watervliet, there is not much elevation gain within the Study Area. In Troy the elevation goes up to 48 feet and in Watervliet the elevation rises to a maximum of 44 feet within the Study Area.

Floodplain

There are flood risks given the Study Area's proximity to the Hudson River. FEMA floodplain data shows where there is a 1% annual chance flood hazard (100-year flood) and where there is a 0.2% chance of flood hazard (500-year flood). With ever increasing storm events, this is subject to change.

The grade differences between the existing buildings, roadways, ramps, and bridge are a challenge

Because the Congress Street Bridge already spans Broadway and I-787 prior to crossing over Hudson Shores Park, its elevation above the park is significant


Congress Street Bridge Study
Watervliet Side Cut Locks
Ohio Street Methodist Episcopal Church
River Street Historic District
Central Troy Historic District
Troy Public Library
Hudson Shores Park
Congress Street Bridge
GREEN ISLAND
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23rd St
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3rd Ave
4th Ave
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6th Ave
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Front St
River St
1st St
2nd St
3rd St
State St
Congress St
Division St
Liberty St
Church St
Hill St
1st Ave
787
4
Natural and Historic Character
Historic Sites
Historic Districts
Topography
2-Foot Contours
FEMA Floodplain
100-Year Flood
500-Year Flood
0
400
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Bridge Conditions

The superstructure is an approximately 1409' long by 76'-7" wide (out-to-out) deck plate girder bridge comprised of 9 steel girders, 8 spans, and 7 piers on a 0° skew with each span varying in length. The bridge ends sit on two cantilever abutments with armored finger joints. Topside, the bridge is lined on both sides by cobra-style lighting, safety fencing, 4-rail bridge rail, and an approximate 5' wide sidewalk with concrete curbing. In the center of the bridge dividing the traffic is a concrete median barrier. Both directions of traffic have two, 12' lanes along with a 3' right shoulder and a 2'-6" left shoulder.

Traffic Information

The bridge is aligned East/West and spans multiple different elements including Broadway Street, I-787 NB & SB, & Hudson Shores Park on the west side and Front Street on the east. On the east side of the bridge, prior to the bridge joint, the off & on-ramps on NY 2 begin & end; creating a slightly wider abutment and corresponding features (lane width, joint width, etc.) as compared to the west abutment.

Existing Characteristics of Concern

The most recent Bridge Inspection Report gave this bridge a general recommendation of 5 out of 7 and revealed two yellow flags along with one safety flag. Given this recommendation, primary members and substructures are generally in good condition and do not need any major repairs. The two yellow flags are regarding certain bearings in an off-centered position and the one safety flag is regarding red navigation lights under the bridge for Hudson River boat wayfinding that are not working.

Detailed Existing Conditions Summary

The concrete wearing surface in all spans exhibit similar conditions with partial to full width transverse cracking in both the EB & WB lanes. Both abutments exhibit spalling and cracking in their respective backwalls; approximately 5% of the surface area. Piers 1, 2, & 7 all show deteriorating and spalling concrete around the columns with some showing exposed rebar and deep cracking. The pier caps at these locations are also showing signs of delamination and cracking as well. The steel protective coating on the girders is in similar condition, with the bottom girder flanges exhibiting areas of peeling paint in localized areas and the top flanges showing paint loss in scattered areas. Both of the compression seal joints for the entire length at piers 1 & 2 are rated CS-4. The joint headers are in good condition, however, heavy leakage on the underside of the bridge was noted. The joint seal at pier 1 has begun to separate from the concrete headers and the joint at pier 2 has completely separated from the header on the WB side, is cracked, and torn for most of the joint length. All bearings exhibit moderate corrosion with pack rust. Approximately 50% of the steel protective coating on bearings at piers 1, 2, 4, 7, and both abutments have limited effectiveness. Multiple rocker bearings have shifted/expanded/contracted slightly, and a yellow flag was issued for the span 7 expansion side of G1 & G10 because of the off-center position of the bearings. Most of the steel girders are in good condition with the exception of the span 5 side end diaphragm at pier 4, bay 4. That diaphragm shows approximately 30-50% bottom flange section loss and up to 15% web loss. The bridge approach slabs are in good condition, however the end approach EB lane shows two 1/8" wide full length longitudinal cracks. This information was collected from the Bridge Inspection Report, dated November 10, 2019, provided by NYSDOT.

BIN: 1104279

AADT: 15,161 (2019)

Truck AADT: 913 (6%)

Functional Class: Principal Arterial (14)

County: Rensselaer

Last General Inspection Date: 11/10/2019

Summary

In general, the Congress Street (NY Route 2) Bridge over the Hudson River is in good condition. Topside, there are minor elemental deficiencies, but nothing to warrant a rehabilitation or replacement of the bridge deck. The anticipated next rehabilitation element of this bridge will most likely be a replacement of the bearings which may be needed within the next 15-30 years.

Looking underneath the span at Hudson Shores Park

Looking east toward the center of the bridge, from the south sidewalk.

The eastern most span of the bridge flairs out to encompass the ramps into downtown Troy

Aesthetics

The City of Watervliet and City of Troy have both common and unique characteristics. Both generally have a pedestrian oriented environment, with sidewalks being common along roadways, crosswalks, street lighting, and most development with store frontage. In order to understand the aesthetic environment and conditions surrounding the Congress Street Bridge, a photographic survey was conducted of the existing conditions within the study area. The photographic survey was conducted within the cities of Watervliet and Troy to the east and west of the bridge. Within the City of Watervliet two main areas were documented: Hudson Shores Park and 19th Street. Within the City of Troy River Street around the Congress Street Bridge and Front Street along the Hudson River were documented. The emphasis of the survey was to document existing conditions related to bicycle and pedestrian infrastructure, street furniture and street lighting, as well as the elements of the public spaces that surround the bridge including existing murals and public park spaces.

Watervliet: Hudson Shores Park

VIEW SOUTH TOWARD CONGRESS STREET BRIDGE

Typical park like character along river's edge. Asphalt walks in poor condition. Pavilion in rear of photo.

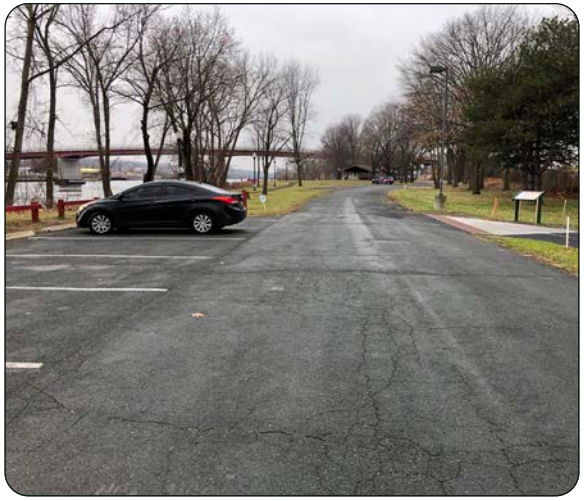

Photo 1: Main asphalt parking lot off Selke Drive. Kiosk on right at base of new asphalt pedestrian path to 23rd Street.

Photo 2: Asphalt pedestrian path continues toward bridge.

Photo 3: West end of bridge over I-787. Direct connection to bridge from the park appears to prohibitively challenging.

Photo 4: Pedestrian crosswalk at interesction of I-787 off-ramp and 23rd Street. Jersey barriers block entrance to park.

Photo 5: Pedestrian path beneath I-787. Path width is comfortable; however, the guide rail barrier is not aesthetically pleasing and the lack of lighting decreases the sense of comfort.

Photo 6: Pedestrian path at intersection of I-787 on-ramp and 23rd Street.

Watervliet: 19th Street

INTERSECTION AT 2ND AVENUE; VIEW EAST TOWARD CONGRESS STREET BRIDGE

Traffic is relatively light over the bridge into Troy as there is no direct connection to I-787. The bridge slopes are steep and may not feel comfortable to some.

Photo 1: Bike path heading south beneath bridge along Broadway.

Photo 2: Pedestrian connection along north side of bridge ramp from Broadway to 19th Street.

Photo 3: View east of bridge ramp from 19th Street toward Troy.

Photo 4: Typical stamped asphalt border detail between sidewalk and curb.

Photo 5: Stamped asphalt at 4th Avenue intersection bump-out.

Photo 6: Typical painted crosswalk.

Photo 7: Green space, gazebo and bus stop shelter at 3rd Avenue intersection.

Photo 8 : Typical lightpole and banner streetscape treatment.

Troy: River Street

ON RAMP TO CONGRESS STREET BRIDGE

View south toward Ferry Street ramp to tunnel (center of photo in rear). Ramp elevation at this location is over six feet higher than River Street elevation.

Photo 1: View north to bridge off-ramp to River Street.

Photo 2: Allley adjacent to bridge off-ramp. View north toward Ferry Street ramp to tunnel. Note elevation of car on ramp.

Photo 3: View west toward tunnel. Road shoulder is extremely narrow. Traffic noise in tunnel is very highly amplified.

Photo 4: Pedestrian alley above south side of underground tunnel.

Photo 5: Pedestrian alley above north side of underground tunnel.

Photo 6: Pedestrian crosswalk on 1st Street. Stamped asphalt in poor condition. Decorative paint is mostly worn away.

Photo 7: Painted pedestrian crosswalk on 2nd Street.

Photo 8: Garden space above west end of underground tunnel.

Photo 9: Sage Park streescape along 2nd Street.

Photo 10: Typical stamped asphalt crosswalk treatment in area surrounding Russell Sage College.

Photo 11: Sidewalk and street tree planting along Congress Street.

Photo 12: Traffic light fixture at 1st and Congress Street intersection.

Photo 13: Typical lightpole and banner streetscape treatment.

Photo 14: Entrance to Russell Sage College on 1st Street.

Troy: Front Street

VIEW NORTH TO CONGRESS STREET BRIDGE

Photo 1: Bike path at Division Street entrance to Front Street looking west.

Photo 2: View of Front Street looking north from under bridge.

Photo 3: Inspirational mural painted on ramp wall beneath bridge. Basketball court.

Photo 4: Graffiti painted pedestrian tunnel under bridge ramp.

Photo 5: Stamped asphalt crosswalk at River and Congress Street intersection. Bridge in rear of photo.

Photo 6: Green space between ramp and Front Street parking lot with view to bridge.

Photo 7: Riverfront Park looking south toward river.

Photo 8: Riverfront Park looking north toward river.

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03

Public Involvement

This document was prepared with funding provided by the New York State Department of State under Title 11 of the Environmental Protection Fund.

Project Outreach

This study was guided by a project advisory committee (PAC) that included staff members from both the City of Watervliet and City of Troy, as well as NYSDOS. Throughout the project a large group of stakeholders were engaged in detailed discussions. Three groups of stakeholder meetings were held to discuss opportunities and challenges within the study area, consider details of priority projects, and review the proposed projects and general recommendations.

These stakeholders included:

- Additional City of Watervliet staff and elected officials
- Additional City of Troy staff
- Capital District Transportation Authority
- New York State Department of Transportation
- Capital District Transportation Committee
- Troy Housing Authority & Penrose, LLC
- Watervliet Housing Authority
- City of Watervliet and Troy interest groups including active businesses in or adjacent to the study area

Stakeholder Outreach

The project team conducted a series of eight stakeholder listening sessions. Included within these groups were City of Troy staff, City of Watervliet staff, CDTA, NYSDOT, CDTC, Troy Housing Authority, Watervliet Housing Authority, and interest and economic development groups from both municipalities. There were several consistent themes that emerged from these discussions:

- A better bicycle and pedestrian connection across the Congress Street Bridge is vital for prosperity of both communities
- Removal of the Congress Street Bridge ramps and a reconnection of the street grid within the City of Troy is highly desirable
- Enhancing pedestrian safety at the intersection of 19th Street and 2nd Avenue is critical
- A direct connection between 19th Street/2nd Avenue and Hudson Shores Park would be beneficial, for quality of life of residents and economic vitality
- A proper connection between downtown Troy and the grocery store in Watervliet would benefit both communities
- The riverfront is an underutilized asset within both communities.
- A loop trail between the Congress Street Bridge and the Green Island Bridge with trails along both riverfronts is desirable
- Improved placemaking, pedestrian environment, and vehicular connectivity would economically benefit both the City of Watervliet and City of Troy
- Both communities and CDTA desire to use the new BusPlus route to create transit centers and transit oriented development near the Congress Street Bridge

Other items that were discussed include:

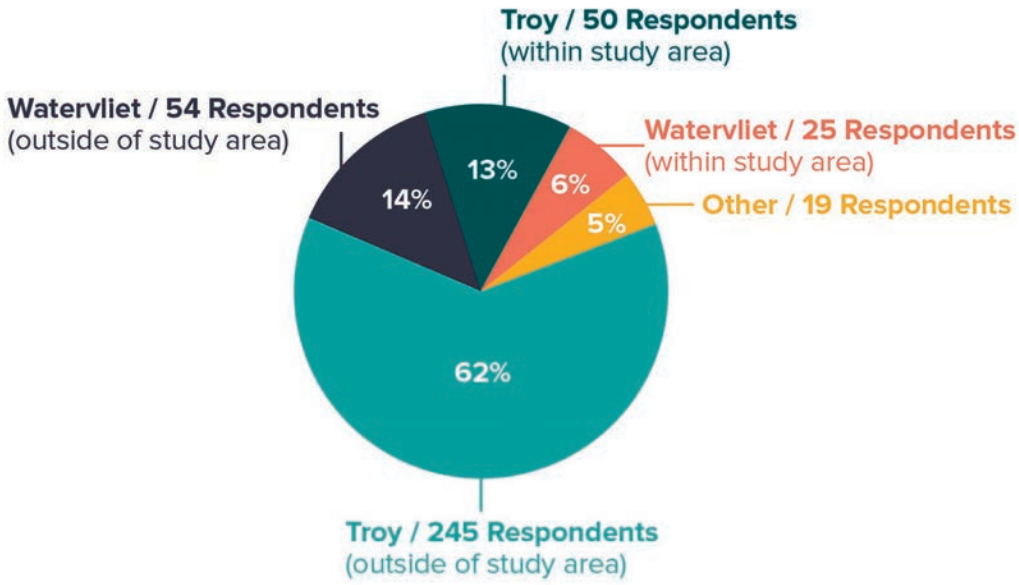
- On-street and general parking need to be considered to support local businesses
- Additional amenities and commercial opportunities could encourage higher utilization of Hudson Shores Park
- Closure of a portion of Front Street to create a more robust riverfront trail in the City of Troy is desired, as well as enhanced connectivity between downtown and the waterfront
- Traffic calming and enhanced pedestrian safety on 23rd Street would enhance mobility for area residents and provide a stronger connection to Hudson Shores Park

Public Meeting #1

Alta facilitated a virtual public meeting, due to the COVID pandemic, in January where they discussed the preliminary proposal for the Congress Street Bridge Project. Prior to the meeting, a survey was open for two weeks with questions like “How do you get around the study area?” and “Which project is most important to you?” There was a total of 393 respondents from the following areas:

- Troy, within the study area
- Troy, outside of the study area
- Watervliet, within the study area
- Watervliet, outside the study area
- Other locations surrounding the Capital District

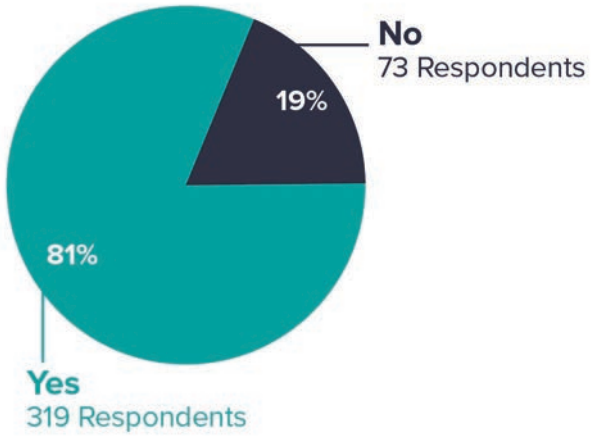
393 Survey Respondents



Public Meeting #2

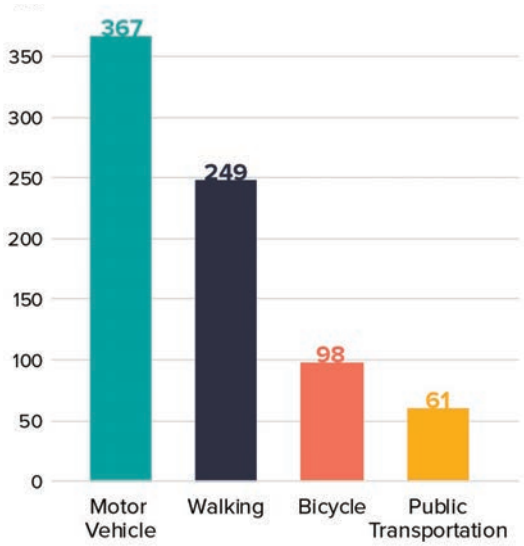
Alta facilitated a virtual public meeting in March where they presented and discussed the priority projects and general recommendations for the Study Area. Additionally, the team discussed the survey results from the previous public meeting held in January.

Would you walk or bike more after improvements are made within the study area?



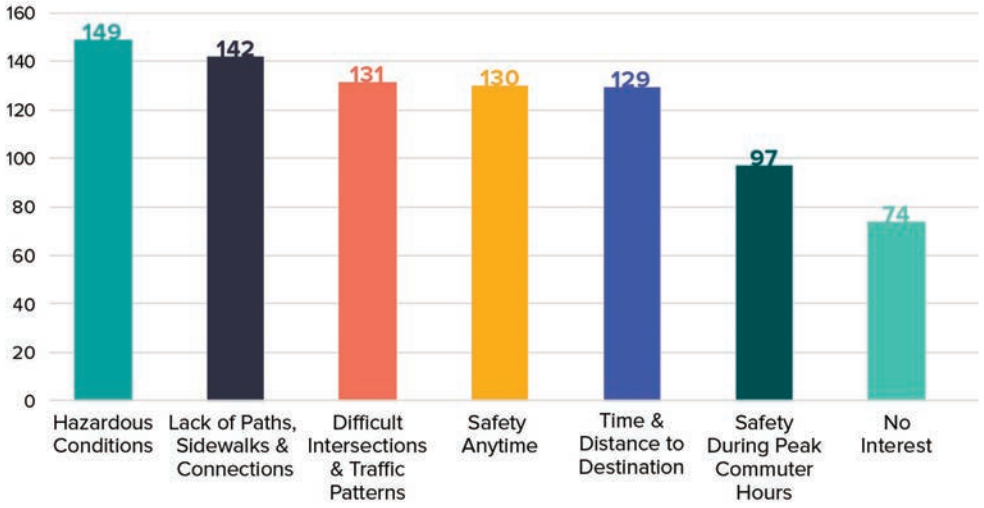
Which amenities are most important to you?

How do you travel within the study area?



Respondents were allowed to select multiple modes of travel. While most drive within the study area, many also walk, bike, and use public transportation.

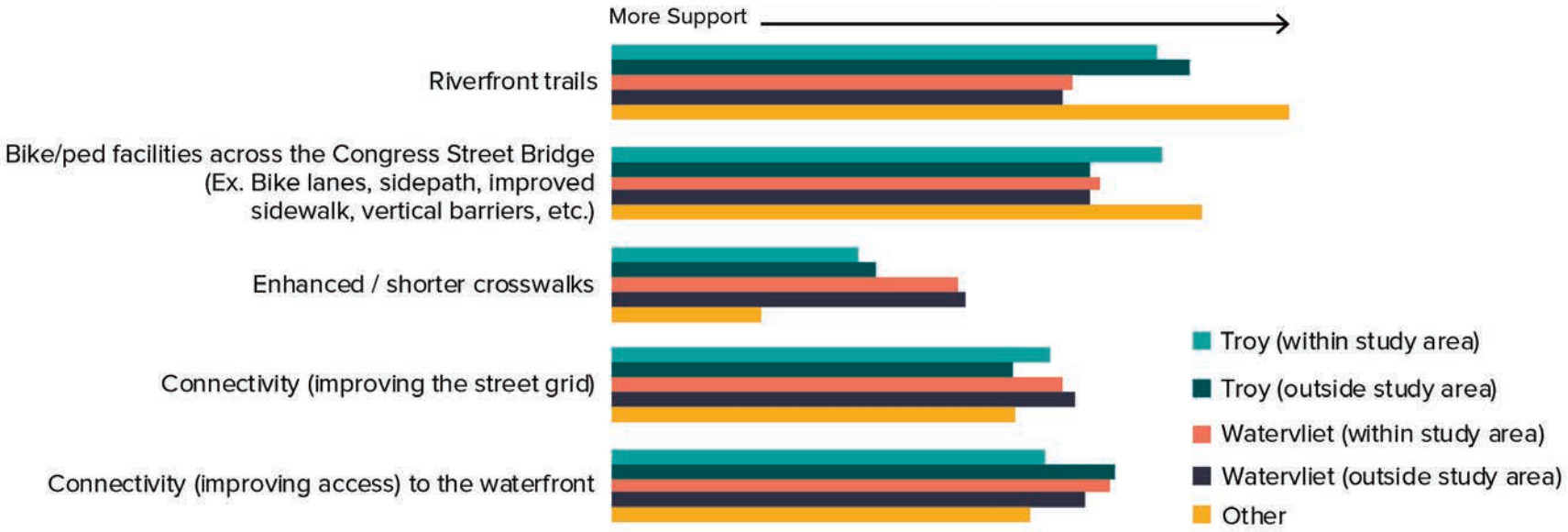
Why do you choose not to walk or bike within the study area?



Hazardous conditions or lack of facilities were top reasons discouraging non-motorized transportation. Safety specifically during peak hours and no interest ranked the lowest as reasons not to walk or bike within the study area.

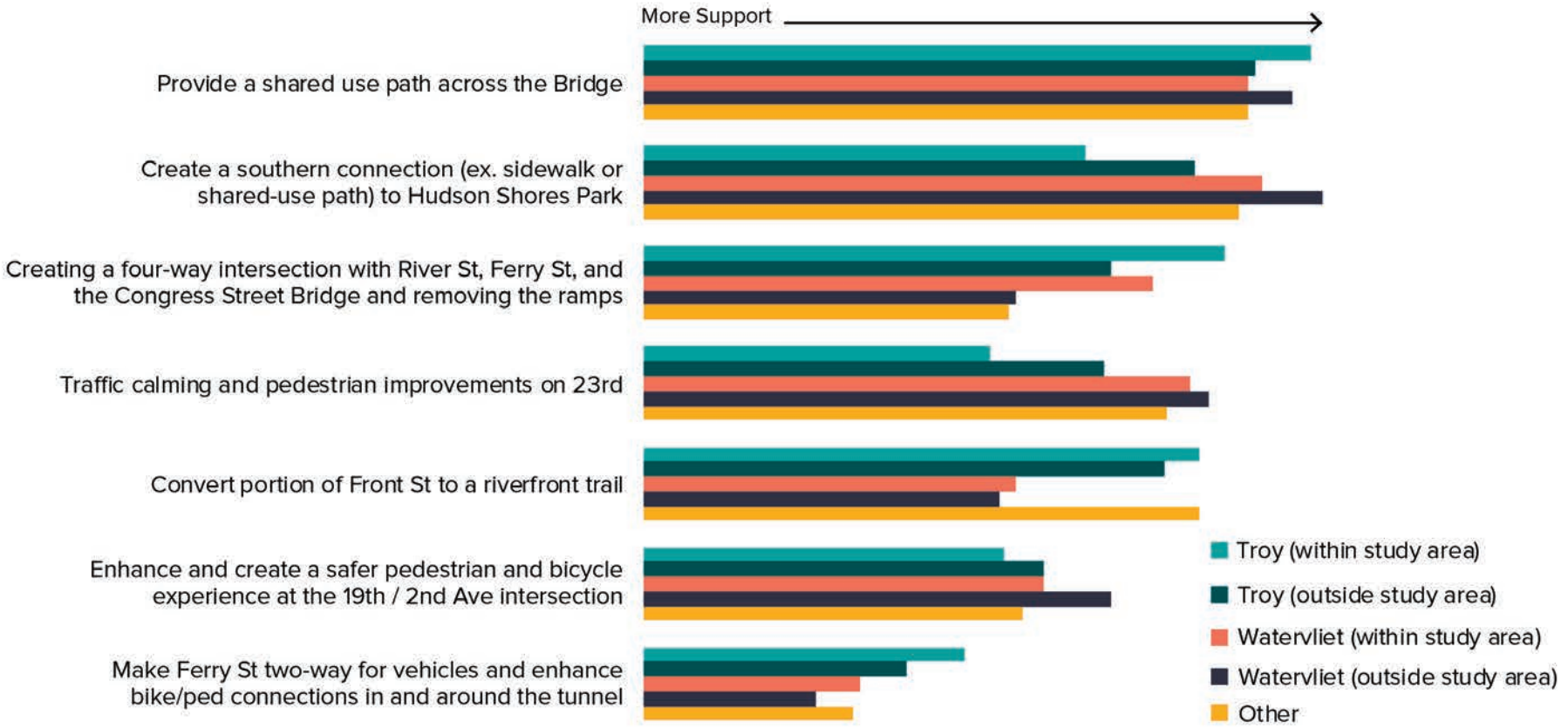
Which improvements would you like to see the most?

Better bicycle and pedestrian facilities across the Congress Street Bridge were ranked highly among all respondents. Riverfront trails were well supported by Troy residents, while connectivity to the waterfront was well supported by Watervliet residents.



Which projects are most important to you?

A shared use path across the Congress Street Bridge was clearly supported by residents in both communities. Watervliet residents also supported a southern connection to Hudson Shores Park and improvements to 23rd Street. Troy residents also supported the Ferry Street / River Street intersection and Front Street Trail.



04

Priority Projects

This document was prepared with funding provided by the New York State Department of State under Title 11 of the Environmental Protection Fund.

Introduction

This study covers a broad range of recommendations for increased mobility and the creation of a sense of place within the study areas for the Cities of Watervliet and Troy. Six priority projects are identified and described in detail in this chapter. When implemented, these projects will serve as a catalyst for future projects and redevelopment within both communities, create beneficial economic impacts for the cities, and increase the qualitity of life for residents.

Each of these projects included careful consideration of design criteria, potential challenges, impacts on surrounding systems, such as drainage, and construction methods. For example, careful consideration went into determining the most appropriate side of the bridge for the shared use path. The southside of the bridge was chosen for several reasons, including the direct connection to the pocket park in Watervliet, the more gentle connection to the riverfront trail in Troy, and integration with the other projects.

Congress Street Bridge Shared Use Path

Project Type	*Bridge Reconfiguration / Shared Use Path*
*Estimated Cost**	*Phase 1 - $0.9M / $2.3M*
Involved Entities	*NYSDOT, City of Watervliet, City of Troy*

*Cost includes 25% contingency, engineering, and inspection. $2.3M assumes an initial full build out.

Project Description

The Congress Street Bridge is a gateway between the City of Troy and the City of Watervliet. It currently functions as a high speed vehicular corridor, accommodating, but discouraging, pedestrian traffic. Under the current and projected traffic volumes, the bridge has excess capacity for vehicles, and is over designed with two travel lanes in both the eastbound and westbound directions. Additionally, the sidewalks are not separated from the vehicular traffic by anything more than a 9" curb. The exposure to the high speed vehicular traffic on one side, vertical exposure on the other, and the high winds and elements all contribute to an uncomfortable experience for pedestrians. Currently there are no bicycle accommodations.

The goals of this project are to:

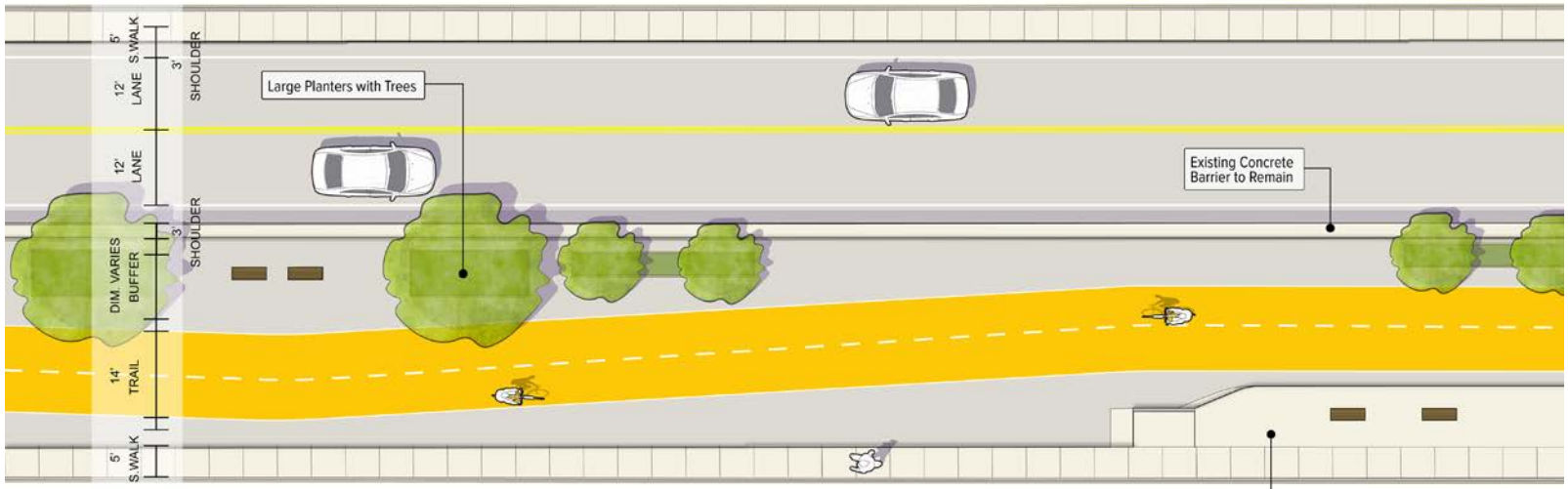
- Provide a comfortable and inviting pedestrian and bicycle path
- Reduce excessive speeding across the bridge
- Create a gateway connecting the two communities

The proposed configuration maintains two lanes of vehicular traffic (one eastbound and one westbound) between the two cities. The ends of the bridge represent gateway intersections into both Watervliet and Troy. How these gateway intersections are reconfigured, and how the traffic will flow on and off the bridge are topics addressed below under the 19th Street / 2nd Avenue intersection and the Ferry Street/ River Street intersection discussions. All vehicular traffic will travel on the northern side of the bridge, using the existing two westbound lanes, one of which will be converted into an eastbound lane. This configuration will narrow the travel width for both directions of travel, slowing traffic while still meeting the needs of the existing and projected traffic demand.

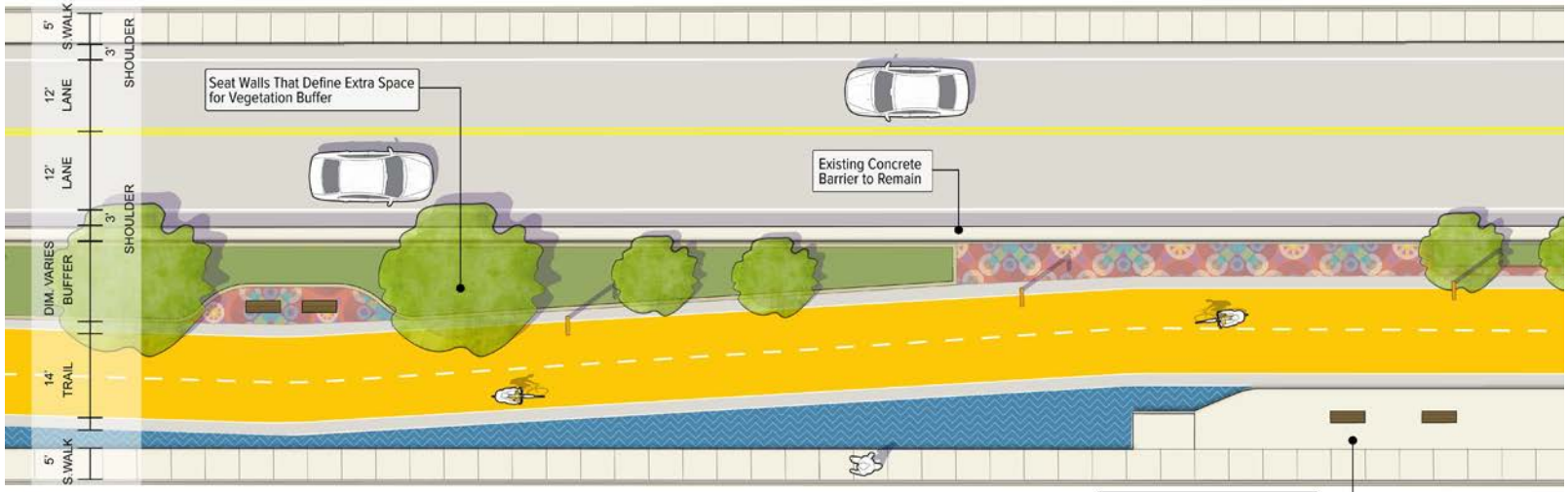
Non-motorized passage over the bridge will be vastly improved. The northern sidewalk will remain as is (with additional repair work to make the surface acceptable). The entire southern half (two existing eastbound lanes) will be converted into a shared use bicycle and pedestrian path. The shared use path will primarily be 14' wide with 2' shoulders to accommodate bicycle traffic. Pedestrian traffic will be encouraged to use the sidewalk on the south side of the bridge. Across the system, the shared use path will

This rendering focuses on the proposed shared use path on the southside of the bridge, but also shows the broader context of the additional priority projects, such as the southern connection to Hudson Shores Park, the Front Street Trail, and the improvements to the intersections on either side of the bridge.

CONGRESS STREET BRIDGE - PHASE 1



CONGRESS STREET BRIDGE - PHASE 2



maintain a 4' minimum distance from the sidewalk. This will allow pedestrian traffic along the south side of the bridge to utilize the sidewalk and this clear space without interfering with bicycle traffic. In at least three locations, ADA accessible ramps will allow pedestrians to access the sidewalk from the main bridge deck.

One major overlook area will be provided at the apex of the bridge, built up to the elevation of the sidewalk and accessed from the bridge deck with ADA ramps. This feature will provide a viewing platform and bench/ seating opportunities. As the proposed shared use path passes north of the overlook feature it will narrow to 12' with 2' shoulders. As this is the apex of the bridge, bicycle speeds will be more controlled.

Large planters will be installed to provide opportunities for tree planting that will soften the character of the shared use path and offer greater appeal and attraction of the bridge. The planters may be made of a lightweight material and filled with growing media, similar to the material used on green roofs to keep the weight at minimum. In order to support the growing demands of small stature trees, the planters must contain about 28" of growing media. In addition to small trees, drought and salt tolerant shrubs and groundcovers may be planted to shade the soil and further reduce mulching and maintenance demands. Further discussion of planting and maintenance is provided on the next page.

In addition to the overlooks, or in areas where the grades are the most challenging, additional rest areas and seating areas may be provided along the shared use path in some of the unused space on the bridge deck or among the proposed planting areas.

The limits of the shared use path will be defined by marking the trail and its shoulders with paint. At this time there is no proposed alteration to the material or elevation of the bridge deck. It is anticipated that drainage within the center median will remain as-is exclusive of the approaches to the 19th Street and River Street intersections.

Implementation

The implementation will focus on the reconfiguration of the traffic pattern to reduce the speed of vehicular travel while promoting the installation of a safe and effective bicycle and pedestrian facility to promote active transportation between Troy and Watervliet. The aim is to implement the project without altering the surface of the bridge deck or altering the existing drainage pattern.

Phase One will realign the vehicular lane configuration on the north side to provide vehicular access for both eastbound and westbound traffic. The active transportation side of the bridge will be defined with surface marking, planter boxes and site furnishings but the bridge deck will be left essentially unchanged.

If the vision put forth in this document develops to its full potential, transforming this bridge into more than a community gateway, but also a regional destination, then a future Phase Two development may be viable. In this Phase the area where the planters are placed may be defined by 30" retaining walls, creating large planting and plaza spaces. More visually appealing guardrail and fencing may be installed as part of this phase as well.

Permits

There should be no permits required, although this project will require close coordination with NYSDOT.

Maintenance

The shared use path is proposed to be 14 ft with 2 ft shoulders which will allow easy plowing by a pick-up truck during winter months. The gradual transitions across the bridge will be easy to maneuver and vertical elements will delineate the shared use path space. Interstitial, un-programmed spaces adjacent to the shared use path will provide ample room for snow storage.

Any landscaping proposed would require minimal maintenance and be tolerant of drought, salt and urban conditions. Native trees such as Crataegus cursgalli (Cocksput Hawthorn) or Nyssa sylvatica (Black Tupelo), Juniperus virginiana (Eastern Red Cedar), Pinus rigida (Pitch Pine) or Celtis occidentalis (Common Hackberry) will be specified.

In order to reduce weed growth and limit the need for repeated yearly mulching in the planters it is recommended that the surface soil is mulched the first and third year, but if it is properly planted with a dense and diverse mix of native low growing ground covers and short shrubs, selected for the harsh, dry, sunny conditions maintenance will be kept to a minimum.

Ornamental plants that require pruning, dead-heading, or yearly cutting are not recommended for this project.

Phase 1 implementation includes the paint to delineate the shared use path, planters, and raised overlook, as shown below. Phase 2 replaces the current bridge railing with an aesthetically pleasing, safe guide rail and includes pedestrian scale lighting across the bridge.

River Street Connection

Project Type	*Intersection Reconfiguration*
*Estimated Cost**	*$4.6M*
Involved Entities	*City of Troy, NYSDOT, CDTA, Troy Housing Authority, Sage College*

*Cost includes 30% contingency, engineering, and inspection

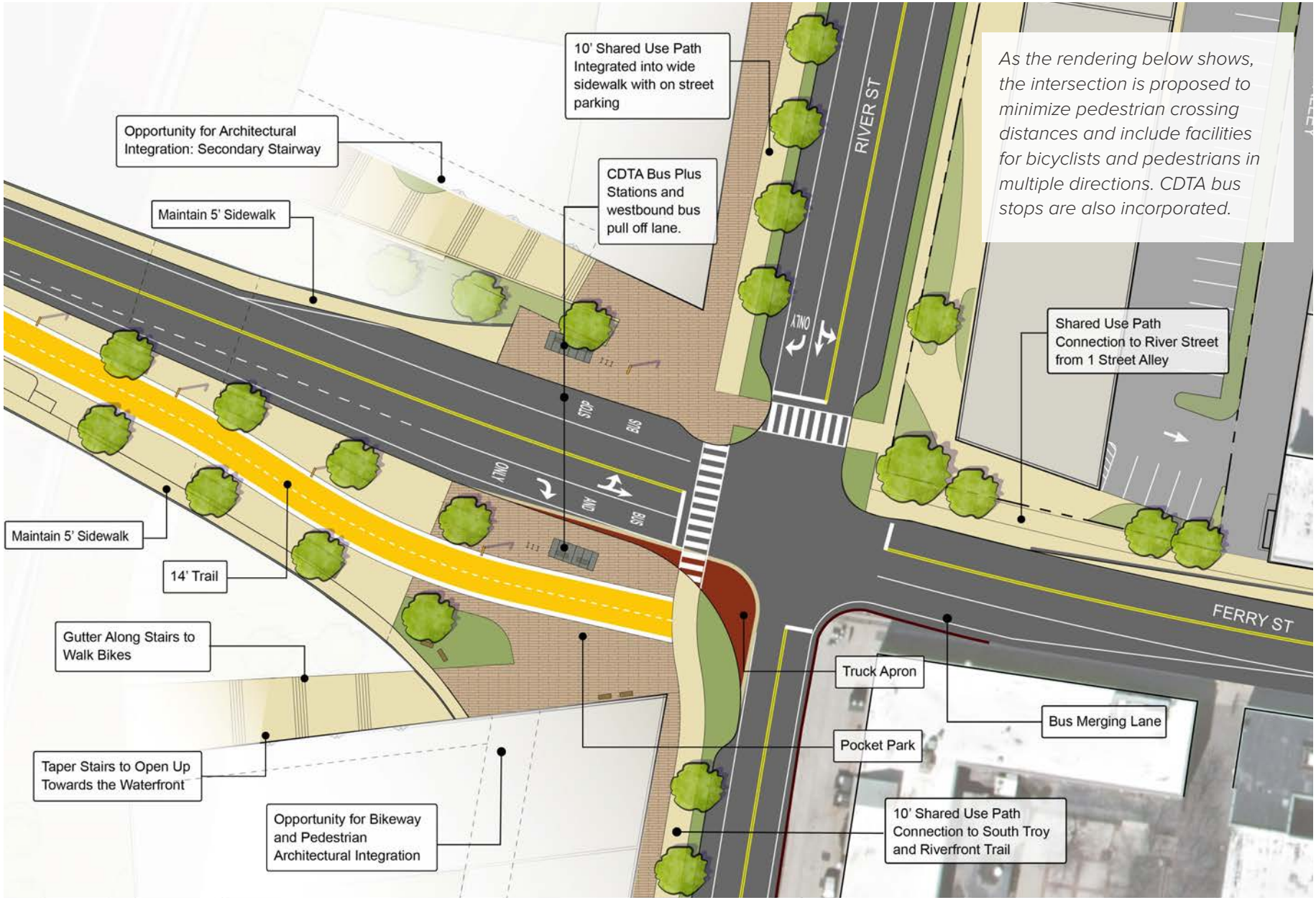
Project Description

This project will reconnect the City of Troy street grid by eliminating the ramps to and from the Congress Street Bridge and create a four way intersection with River Street, Ferry Street, and the Congress Street Bridge. The current configuration of this interchange directs northbound traffic to Front Street as a means to access the bridge or downtown, or mis-directs traffic out of downtown and over the bridge. There is limited pedestrian connectivity, and no bicycle or transit infrastructure.

The goals of this project include providing a direct connection to the bridge (pulling traffic from Front St), allowing more direct access between south Troy and downtown, enhancing bicycle and pedestrian connectivity to and from Congress Street, and providing better circulation and street frontage for the Taylor Apartments redevelopment.

The reconfiguration of this intersection, illustrated to the right, allows for two-way traffic in all directions. It is assumed that vehicular traffic over the bridge will be reduced to two lanes, Ferry Street will be converted to two-way vehicular traffic from River Street to some point east, and River Street will be converted to two-way vehicular traffic from Congress Street to some point north.

The conceptual design for the intersection is a compromise of maintaining level of service for vehicles, while also providing comfortable pedestrian and trail crossings at the intersection - following the ITE Walkable Thoroughfare Guide. The City of Troy and CDTA are currently analyzing traffic throughout the downtown area, considering different circulation patterns and roadway conversions, including the creation of this intersection and the changes noted above. The regional projects used estimated the redistribution of vehicular trips resulting from these changes. Based on that regional model, the AADT on the Congress Street Bridge was projected to increase by 150%. This would exceed the capacity of a two-lane configuration and would shift vehicles from the Hoosick Street Bridge to the Congress Street Bridge, both of which are undesirable. Therefore, the intersection lane configurations were developed using a 30% reduction in these vehicle trips. This is still a conservative analysis, as it assumes a roughly 20% growth in traffic



As the rendering below shows, the intersection is proposed to minimize pedestrian crossing distances and include facilities for bicyclists and pedestrians in multiple directions. CDTA bus stops are also incorporated.

This rendering illustrates the new eastbound approach of the intersection, including the curb extensions, bus stops, and shared use path along the southside of the bridge.

volumes resulting from the completion of the South Troy Industrial Road and increased connectivity.

The intersection is proposed to be signalized, with two-lane approaches for the Congress Street Bridge eastbound approach and the River Street southbound approach. Single lane approaches are adequate for the River Street northbound approach and the Ferry Street westbound approach. This layout keeps the intersection to a compact size allowing for better pedestrian accommodations. The intersection will operate at level of service C. To further enhance pedestrian crossings at the intersection, a truck apron on the southwest corner, to accommodate large trucks traveling to South Industrial Road, and a curb bump extension on the northwest corner, to define the bus pull off and on-street parking, have been incorporated. CDTA bus stops have been incorporated into the design for the intersection, with the eastbound stop occurring in the right turn lane and a bus pull off being provided for the westbound stop. A queue jumper can be incorporated into the signalization of the intersection and a merging taper has been provided to allow buses to merge into the through lane before entering the tunnel.

To provide continuous bicycle and pedestrian connectivity, shared use path connections are recommended along the west side of River Street, north and south of the intersection, and along the north side of Ferry Street, east of the intersection. The space remaining between the bridge structure and the northbound leg of River Street creates a pocket park where these two trails will converge and where the eastbound bus stop and shelter will be located. The available space and vertical height does not lend itself to a direct shared use path connection to the waterfront so stairs are recommended while bicyclists will be encouraged to travel south to Division Street to access the waterfront trail.

Implementation

The reconfiguration of this intersection should be conducted in conjunction with shifting all vehicle traffic to the northside of the Congress Street Bridge. While the construction will need to be phased to maintain vehicular access, it is recommended that the creation of this intersection occur as part of one construction project.

Permits

The Congress Street Bridge, Ferry Street, and Congress Street are state routes with local City of Troy jurisdiction. Given that Ferry Street and Congress Street are also NY Route 2, on the National Highway System, and designated as an access highway, the project will require coordination with NYSDOT for a highway work permit to modify the intersection.

Close Coordination should occur with CDTA and Penrose, LLC / Troy Housing Authority throughout the detailed design process. Utility coordination and improvements, as well as work zone traffic control would be handled through the detailed design process.

Maintenance

Increased maintenance would be limited to the creation of the pocket park on the southwest corner of the intersection and street trees along River Street. The vegetation selected, whether flowers, grasses, trees, or shrubs, should require minimal maintenance.

The amount and type of enhancements implemented at the intersection will also change the maintenance needs. Selections should be made with maintenance needs in mind. Consideration should be given to the availability of products and enhancements should a replacement be needed.

VEHICULAR LEVEL OF SERVICE (LOS)

Approach	*Turning Movement*	*Volume during PM Peak Hour*	*LOS (ave. delay in seconds)*
Northbound	LTR	275 / 5 / 5	C (28)
Southbound	LT R	5 / 15 290	B (15) A (1)
Eastbound	LT R	160 / 425 245	C (33) A (7)
Westbound	LTR	5 / 240 / 5	C (21)
Overall			C (21)

19th Street / 2nd Avenue Intersection

Project Type	*Intersection Reconfiguration*
*Estimated Cost**	*$2.1M*
Involved Entities	*City of Watervliet, NYSDOT*

*Cost includes 30% contingency, engineering, and inspection

Project Description

As a gateway to Watervliet, a connection between two cities and various uses, and part of the new Bus Plus BRT Blue Line, this intersection experiences heavy pedestrian traffic. As an important vehicular connection between Watervliet and Troy and I-787, this intersection also experiences high volumes and significant truck traffic. Balancing these competing needs is challenging and the current intersection configuration gives vehicles the priority.

The goal of the proposed project is to provide safer pedestrian accommodations that will allow for pedestrians to feel more comfortable navigating the intersection. To achieve this goal, crosswalks will be shortened and curb returns will be reconfigured to reduce the speed of turning vehicles while not significantly impacting vehicle operations.

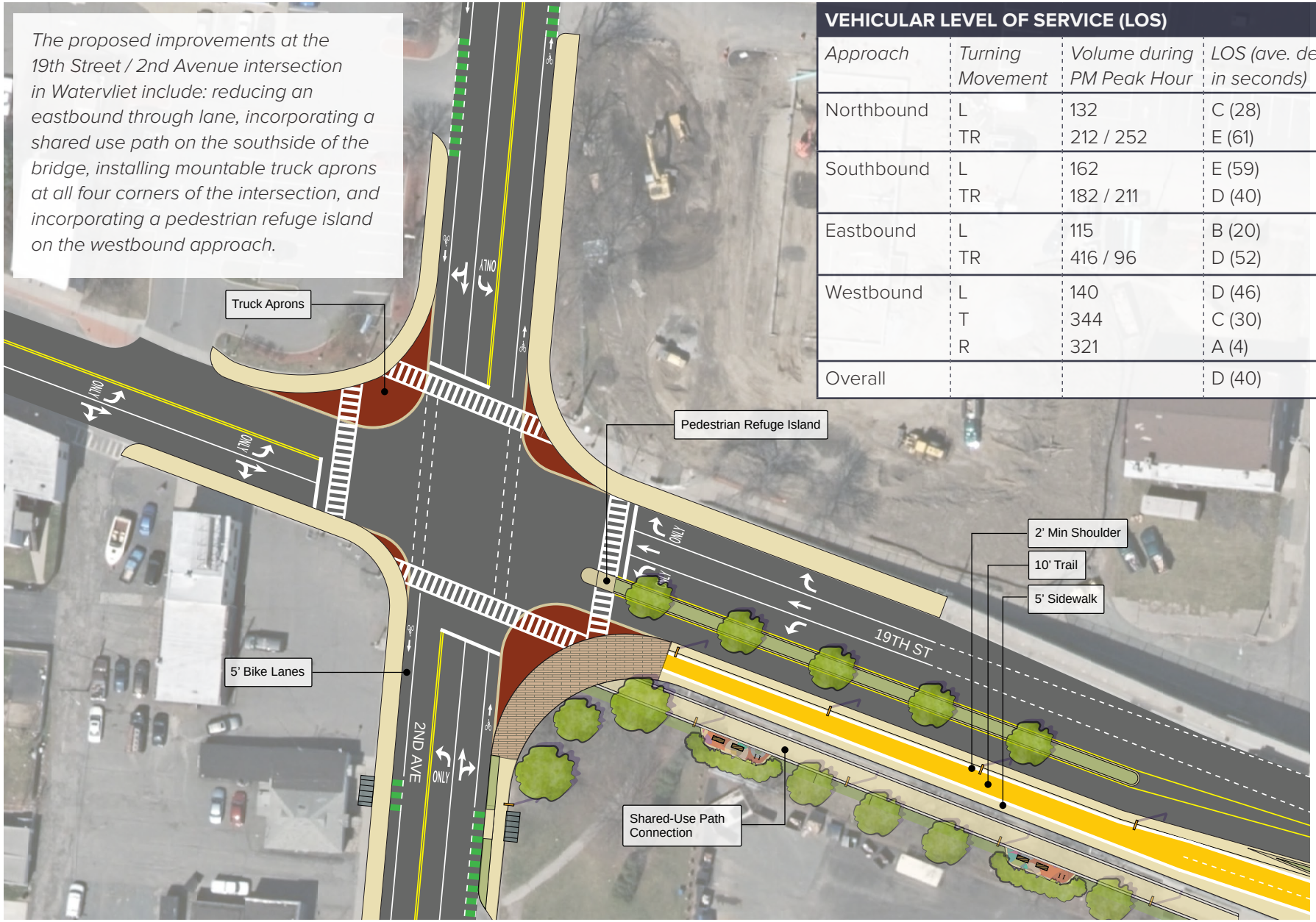
This project proposes the reduction of an eastbound through lane. This allows for better definition of the eastbound approach of this intersection with an exclusive left-turn lane and a shared through-right turn lane. The proposed reconfiguration of this intersection allows for the eastbound and westbound left turn lanes to directly oppose each other, improving signal operations and also allows for a pedestrian refuge island to be incorporated into the median of the westbound approach. The pedestrian refuge island is a key component that will break up this long crosswalk and will better define the pedestrian space.

Heavy-vehicle turning volumes at this intersection are significant, requiring large curb radii. This increases the crosswalk distance and induces higher speeds for passenger vehicles making these movements. Incorporating mountable curb extensions, or truck aprons, will reduce vehicle speeds around these turns while still enabling heavy vehicle turning movements. The curb extensions will also allow the crosswalks to be shortened, thereby reducing pedestrian exposure time. As a result of these extensions, some of the ADA curb ramps will require reconfiguration. The truck apron on the southeast corner of the intersection should be designed to be more flush with the pavement to accommodate CDTA buses, while still discouraging this area's use by motor vehicles.

New pavement markings for crosswalks and lane assignments will be required as well to ensure proper lane usage for vehicles. Since the signal is currently timed to accommodate the eastbound movements as two thru lanes, the signal

The proposed improvements at the 19th Street / 2nd Avenue intersection in Watervliet include incorporating a shared use path on the southside of the bridge which will allow additional space adjacent to the pocket park and will incorporate a landscaped pedestrian refuge island on the westbound approach.

The proposed improvements at the 19th Street / 2nd Avenue intersection in Watervliet include: reducing an eastbound through lane, incorporating a shared use path on the southside of the bridge, installing mountable truck aprons at all four corners of the intersection, and incorporating a pedestrian refuge island on the westbound approach.



VEHICULAR LEVEL OF SERVICE (LOS)

Approach	*Turning Movement*	*Volume during PM Peak Hour*	*LOS (ave. delay in seconds)*
Northbound	L	132	C (28)
	TR	212 / 252	E (61)
Southbound	L	162	E (59)
	TR	182 / 211	D (40)
Eastbound	L	115	B (20)
	TR	416 / 96	D (52)
Westbound	L	140	D (46)
	T	344	C (30)
	R	321	A (4)
Overall			D (40)

will need to be re-timed to optimize signal operations. The existing drainage system within and around the intersection will require relocation due to the reduction of eastbound lanes approaching the bridge and the installation of curb extensions. There are no utility impacts anticipated as part of this project.

Implementation

The reconfiguration of this intersection can mostly be conducted exclusive of the other projects presented within this study. If a phased approach were taken, the first phase would include:

- Installation of the truck aprons on all quadrants except the southeast quadrant of the intersection
- Replacement of the curb ramps, as needed
- Restriping the crosswalks and lane designation pavement markings
- Retiming the traffic signal to match the new lane assignments and the shorter crossing needs

The implementation of phase I will achieve the majority of the benefits of this intersection reconfiguration. The second phase would need to be coordinated with the reconfiguration of the Congress Street Bridge and the southside of the eastern leg of the 19th intersection would be reconfigured to match the bridge condition. This phase of work would include:

- Installation of the truck apron on the southeast quadrant of the intersection
- Replacement of the curb ramps, as needed
- Removal of the concrete bridge barrier and installation of median landscaped island
- Installation of the greenway on the southside of 19th street east of the intersection

A final phase could be combined with either phase I or II depending on the preference and availability of funds by the City of Troy. This phase would include all enhancements to the intersection, such as increased landscaping, bike racks, pole banners, colored crosswalks, colored pavements for maintenance strip areas or the greenway, and wayfinding. While these features create a sense of place and provide interest for pedestrians and bicyclists, most of the benefits of the intersection reconfiguration will be realized without these features.

Permits

Both 19th Street and 2nd Avenue are state routes with local City of Watervliet jurisdiction. Given that 19th Street is also NY Route 2, on the National Highway System, and designated as an access highway, the project will require coordination with NYSDOT for a highway work permit to modify both the eastern and western approaches to the intersection. As 2nd Avenue is also designated as NY Route 32, coordination with both the City of Watervliet and NYSDOT is anticipated. Since the City of Watervliet has jurisdiction over 2nd Avenue (NY Route 32), a highway work permit is not anticipated.

While additional permitting is not anticipated, coordination with CDTA is recommended since the bus plus BRT Blue line travels through this intersection. Utility coordination and improvements, as well as work zone traffic control would be handled through the detailed design process.

Maintenance

As the outermost limits of the curb returns of the intersection will remain as they are today, winter plowing operations will likely remain the same.

With the removal of the existing concrete barrier on the bridge and a replacement with a curbed island, there may be some increased maintenance. This will depend on the treatment of the median islands, landscaping versus hardscape. Landscaping should be limited within these medians to reduce maintenance needs. The vegetation selected, whether flowers, grasses, trees, or shrubs, should require minimal maintenance.

The amount and type of enhancements implemented at the intersection will also change the maintenance needs. Selections should be made with maintenance needs in mind. Consideration should be given to the availability of products and enhancements should a replacement be needed.

Ferry Street and Congress Street Improvements

Project Type	*Traffic Pattern Reconfiguration and Traffic Calming*
*Estimated Cost**	*$5.2M*
Involved Entities	*City of Troy, NYSDOT, CDTA*

*Cost includes 30% contingency, engineering, and inspection

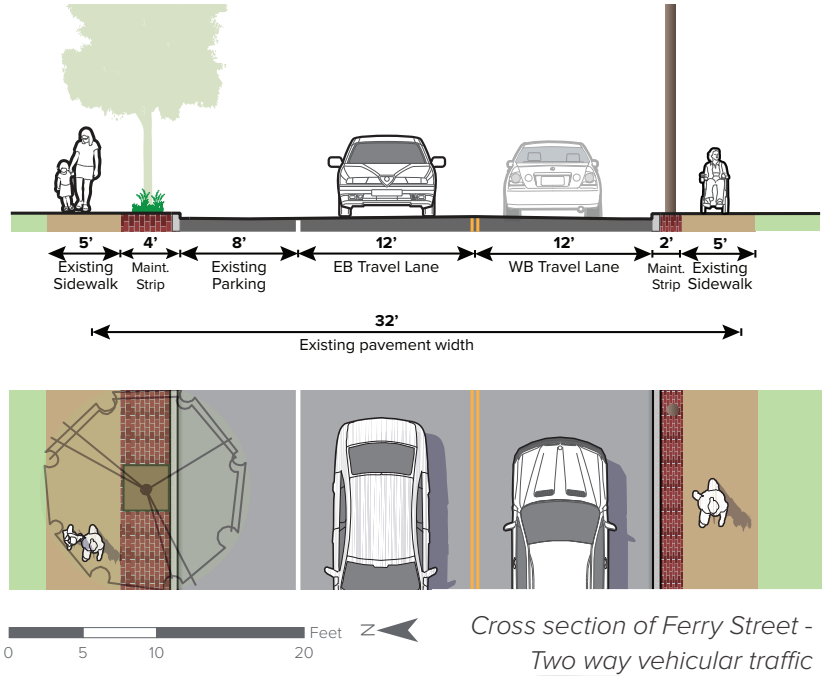
Project Description

This study focuses on recommendations for the blocks between 5th Avenue and Front Street. The current configuration of Congress Street and Ferry Street do not provide bike infrastructure.

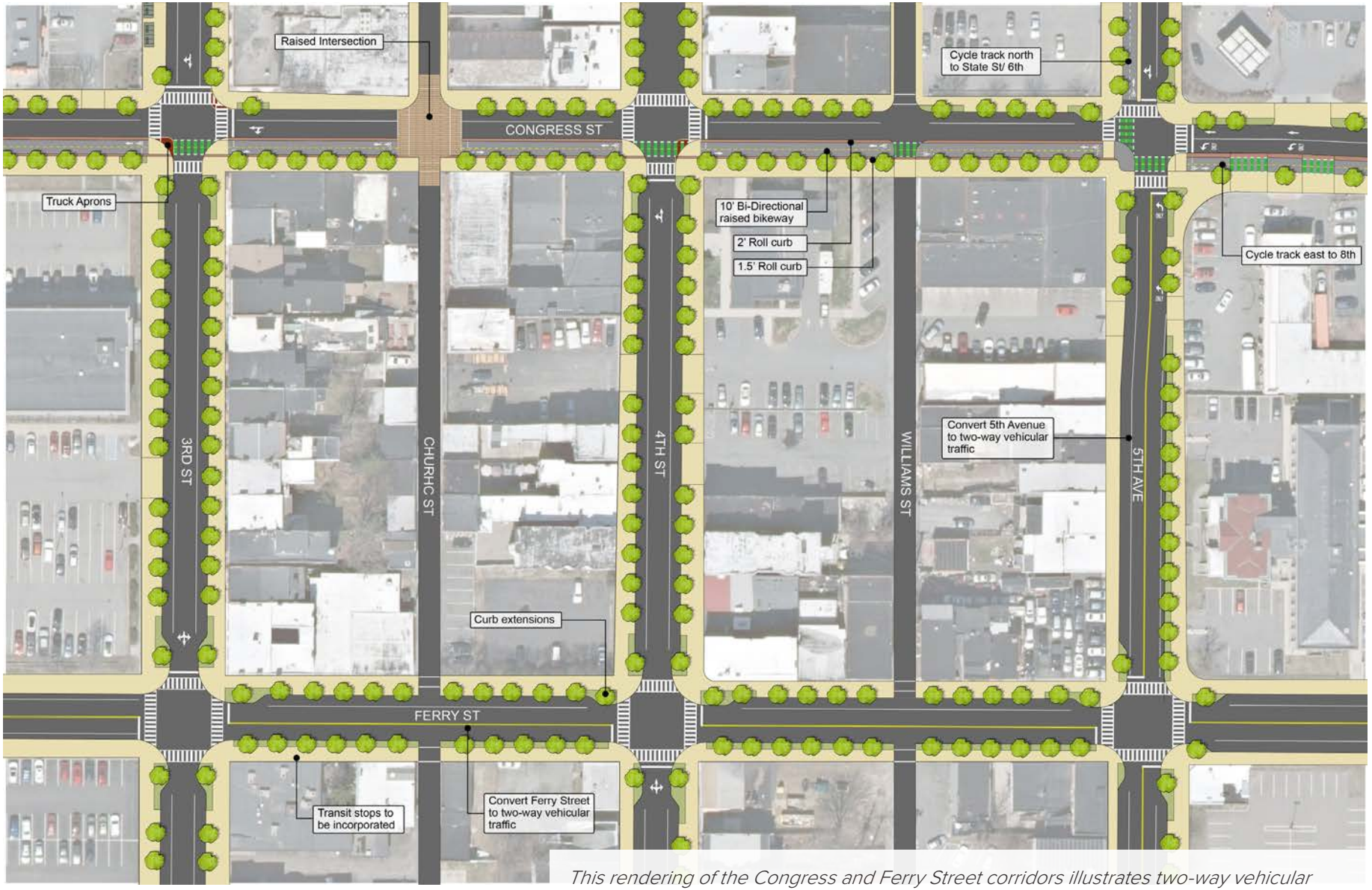
The goals of this project include providing better connectivity and a safer corridor for cyclists and pedestrians, allowing more direct access between downtown Troy and the waterfront, and providing better circulation for vehicles.

The reconfiguration of Ferry Street, illustrated below, allows for two-way traffic in both directions while keeping parking on one side of the street and maintaining all existing sidewalks along the corridor.

Congress Street, illustrated on the next two pages, will remain a one-way street for vehicular traffic but will be narrowed from two lanes to one lane. The remaining space will be sufficient for the construction of a raised bi-directional bikeway (cycle track) that will allow cyclists to safey travel along the east to west corridor. Parking will remain on the northern side of the street and all existing sidewalks will be maintained. The project should look



Cross section of Ferry Street - Two way vehicular traffic



This rendering of the Congress and Ferry Street corridors illustrates two-way vehicular traffic on Ferry Street, the bi-directional cycle track on Congress Street. A variety of traffic calming features are recommended, including curb extensions and raised intersections.

Rendering of the proposed bi-directional bikeway along Congress Street. Textured rolling curbs will provide traffic calming and separation of cyclists from motor vehicles.

to include traffic calming, additional textures, and landscaping to create a slow shared street environment.

This project is currently included in the NYSDOT STIP NY 2 Corridor Project planned for 2021. The STIP project includes corridor improvements such as milling and resurfacing of Congress and Ferry Streets, restriping to one driving lane, curb extensions, bike facilities, and repair of 50% of the sidewalks.

Implementation

A phased construction implementation is recommended with the two-way conversion of Ferry Street occuring first. This will alleviate traffic on Congress Street for construction of the bicycle facilities.

Close Coordination should occur with CDTA throughout the detailed design process as this will impact preferrred transit routes and bus stop locations. Local businesses and residents should be kept informed of the project throughout the design and construction phases.

Utility coordination and improvements, as well as work zone traffic control would be handled through the detailed design process.

Permits

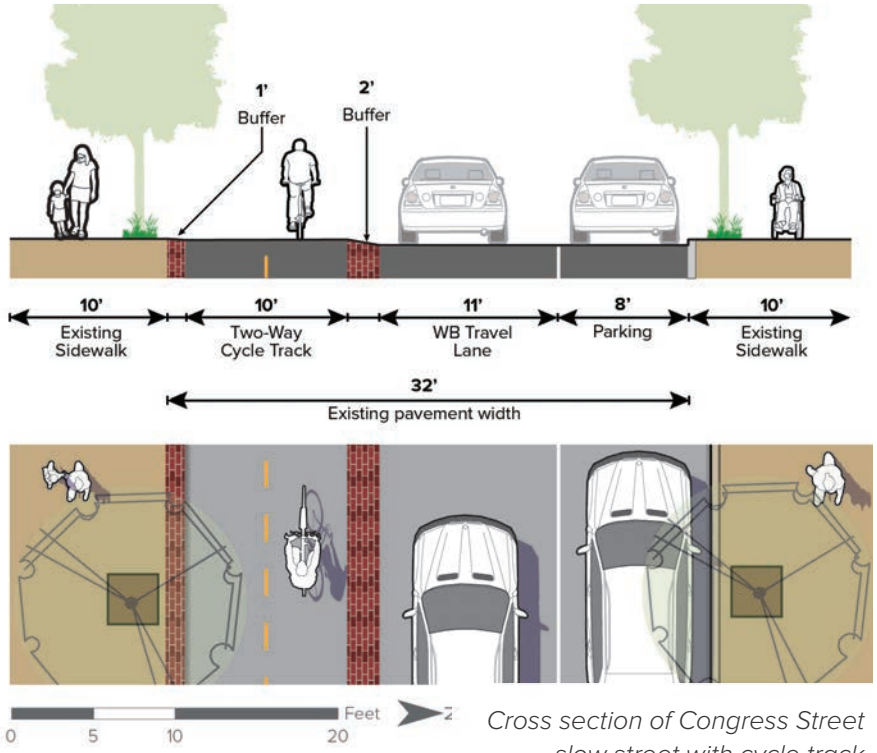
The Congress Street Bridge, Ferry Street, and Congress Street are state routes with local City of Troy jurisdiction. Given that Ferry Street and Congress Street are also NY Route 2, on the National Highway System, and designated as an access highway, the project will require coordination with NYSDOT for a highway work permit to modify the intersection.

Maintenance

Increased maintenance would include snow clearing operations on the proposed raised bi-directional bikeway, curb extensions, and raised intersections.

The amount and type of enhancements implemented along the corridor will also change the maintenance needs. Selections should be made with maintenance needs in mind. Consideration should be given to the availability of products and enhancements should a replacement be needed.

Example slow street - common elements include reduction or elimination of curbs and textured or colored surfaces



Cross section of Congress Street - slow street with cycle track

Front Street Trail Conversion

Project Type	*Riverfront Shared Use Path*
*Estimated Cost**	*$1.7M*
Involved Entities	*City of Troy, Troy Housing Authority*

*Cost includes 30% contingency, engineering, and inspection

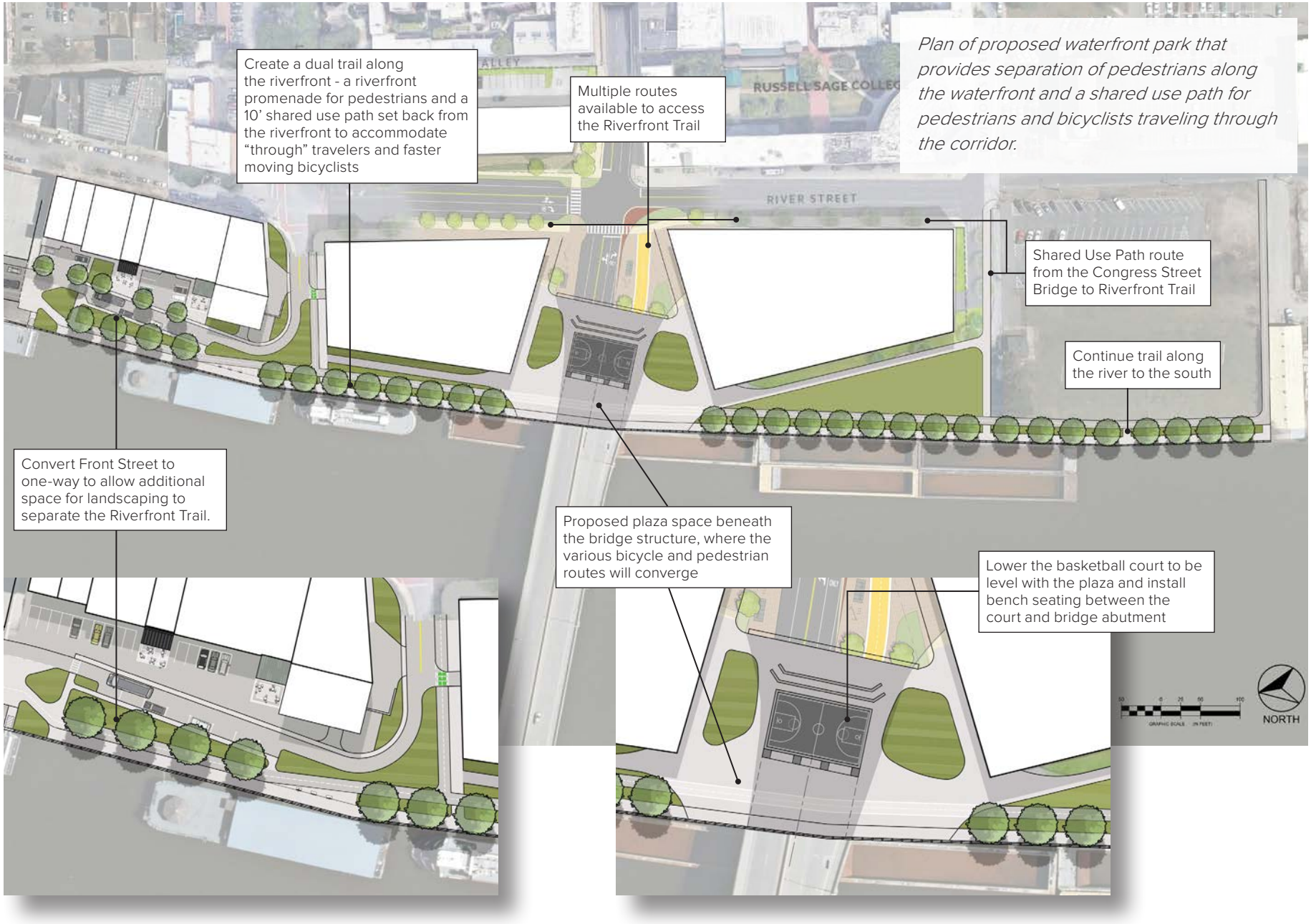
Project Description

Front Street currently acts as an important connector between the ramps that provide access to and from the Congress Street Bridge at River Street. The City of Troy has an opportunity to close Front Street between Division Street and Congress Street in conjunction with the reconfiguration of the River Street on-ramps.

The closure of Front Street can be coordinated with the redevelopment of the Taylor Street Apartments to allow for the development of a waterfront park and a continuation of the Troy waterfront trail. The new waterfront park will allow for a flexible space for activities and events, a re-constructed basketball court with stadium seating, and improved connectivity with the Hudson Riverfront.

The proposed project also includes recommendations for reconfiguring Front Street between Congress Street and the State Street Garage to be one-way for vehicular traffic traveling north toward the garage. The remaining lane would be made into a two-way cycle-track connecting north south along the Troy riverfront. The reconfiguration will allow for the creation of additional passive recreation space along the edge of the Hudson River.

Lastly, the proposal contemplates the extension of the waterfront trail southward across the athletic fields controlled by Russell Sage College connecting to Liberty Street and beyond.



Plan of proposed waterfront park that provides separation of pedestrians along the waterfront and a shared use path for pedestrians and bicyclists traveling through the corridor.

The Front Street promenade offers opportunites for pedestrians and cyclists to enjoy the waterfront. This space will also provide another opportunity for Troy residents to gather and hold events.

Implementation

This proposed project can be separated into phases that can be coordinated with the reconfiguration of the Congress Street Bridge ramps and the redevelopment of the Taylor Street apartments.

The closure of Front Street is dependent on the reconfiguration of the Congress Street Bridge ramps to reconnect River Street. Once that project is completed the City could begin by completing the conversion of Front Street from Congress to the State Street Garage to one way. This will include:

- Scarification/repaving of the existing road surface and restriping of lane designation markings
- Removal of excess pavement and planting of new trees

The second phase could include the closure of Front Street between Congress and Division Streets. This phase would include the development of the waterfront plaza and extension of the waterfront trail southward toward Division Street. This phase of work would include:

- Removal of pavement associated with Front Street
- Installation of new hardscape for waterfront plaza area
- Reconfiguration/regrading of existing basketball court to include stadium seating
- Addition of a waterfront promenade
- Repair/reconstruction of the riverfront bulkhead wall to conform to other Troy bulkhead improvements along the waterfront trail
- Addition of plant materials

The third phase (which could be combined with the second) would include the extension of the waterfront trail to Liberty Street.

Permits

There should be no permits required, although this project will require close coordination with NYSDOT.

Maintenance

As the outermost limits of the curbing for Front Street north of Congress will remain as they are today, winter plowing operations will likely remain the same.

The new waterfront plaza and waterfront trail extension will require long-term maintenance of the hardscape elements.

Any landscaping proposed would require minimal maintenance and be tolerant of drought, salt and urban conditions. Native trees such as Crataegus cursgalli (Cocksput Hawthorn) or Nyssa sylvatica (Black Tupelo), Juniperus virginiana (Eastern Red Cedar), Pinus rigida (Pitch Pine) or Celtis occidentalis (Common Hackberry) will be specified.

Front Street Waterline

An existing 20” waterline is located along Front Street. This waterline is aging and has prohibited the development of additional structures along the waterfront. It is recommended that this waterline be replaced as part of this project since major construction will already be occuring. Replacement cost would be an additional $400,000 to $1,200,000, dependent on the length of replacement and relocation within the study area.

Southern Connection to Hudson Shores Park

Project Type	*Pedestrian / Bicycle Facilities*
*Estimated Cost**	*$2.6M to $5.4M***
Involved Entities	*NYSDOT, FHWA, City of Watervliet*

*Cost ncludes 30% contingency, engineering, and inspection

**Dependent on the type of tunnel installed and method of installation

Project Description

This proposed project will develop a southern connection to Hudson Shores Park through the construction of a bicycle and pedestrian underpass connecting 16th Street to Hudson Shores Park under I-787. From the intersection of the proposed tunnel with Broadway, protected bike lanes are recommended to connect west along 16th Street to 2nd Avenue. Within the park itself, an overlook area is proposed, creating a destination at the southern end of the park.

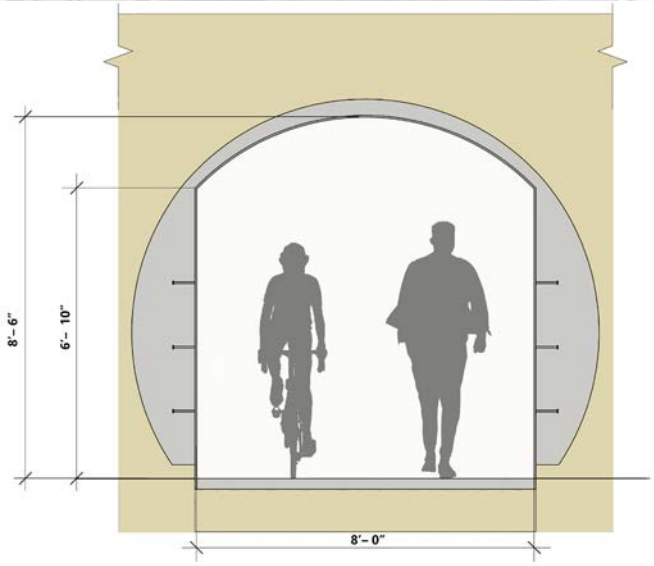
There are several options available to construct the proposed tunnel. Size and method of construction impact the construction cost. A reduced size is easier to install by boring under I-787, maintaining traffic flow through construction; however, it is not as comfortable for bicyclists and pedestrians, especially given the approximately 120 ft length required. The following four options were evaluated and are listed in the order of construction cost (least to most):

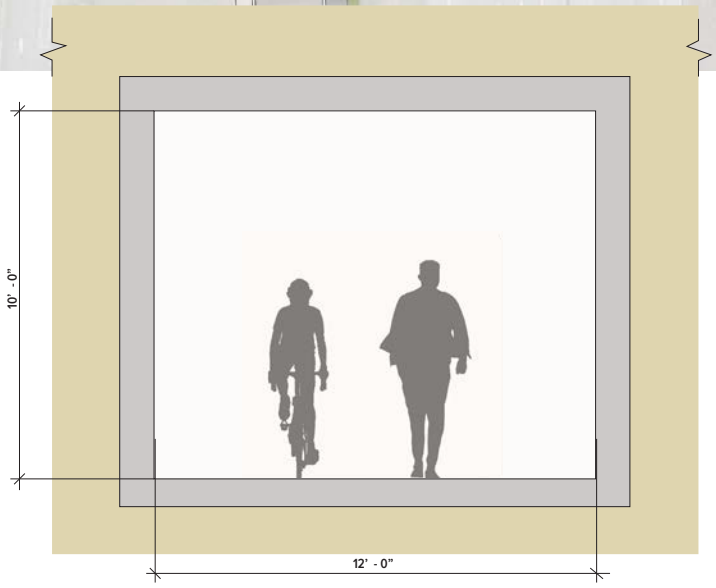
- Box culvert, 12 ft wide, using open cut installation ($1.19M)
- Steel/aluminum liner, providing an opening 8 ft wide ($2.02M)
- Steel/aluminum liner, providing an opening 12 ft wide ($2.72M)
- Box culvert, 12 ft wide, using jacking ($3.36M)

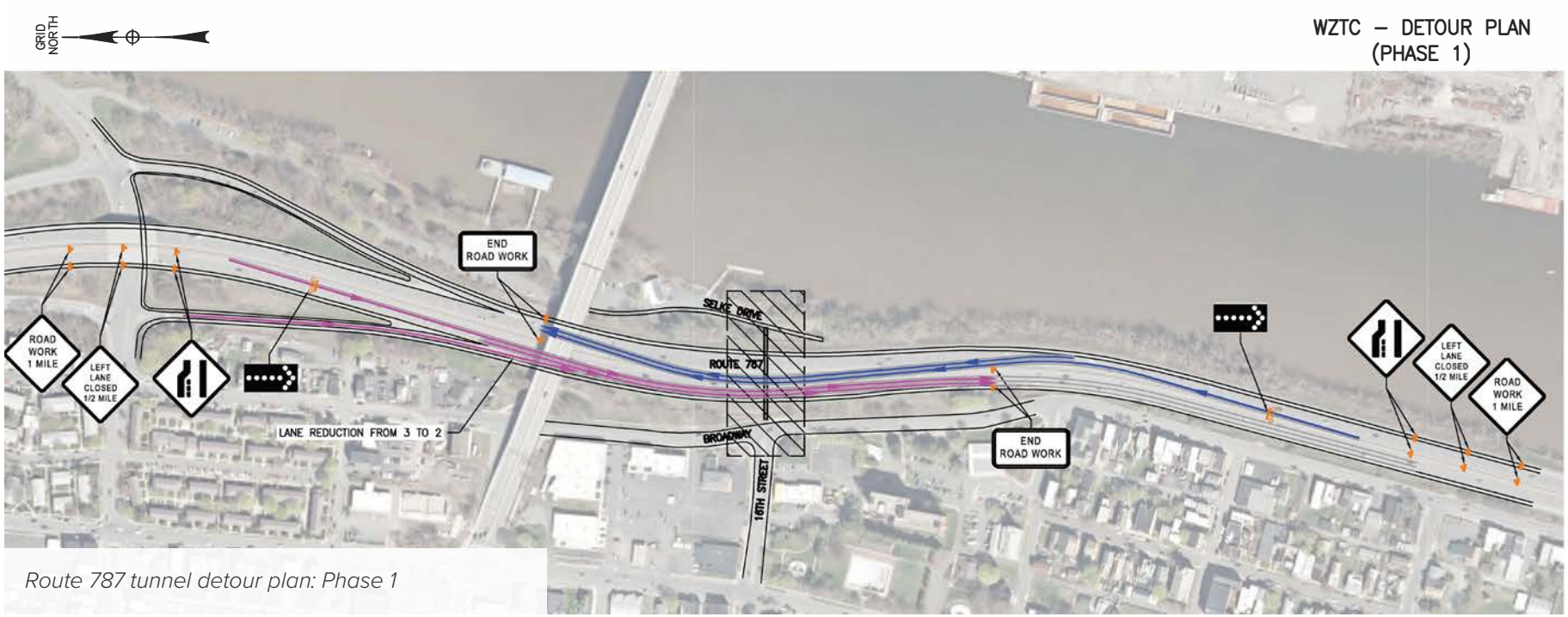
The underpass would include interior lighting for safe pedestrian access. The walls of the underpass may be a location where artwork could be painted on the sides. This would give the inside of the underpass a more friendly look as people pass through it.

The underpass is not intended to provide emergency access, as it can be accommodated via Broadway and 23rd Street / Hudson Shores Park as needed. A pump station will need to be included to remove water during or after normal rain events and flood events. No provisions have been included to shut off the underpass should the Hudson River flood during larger events.

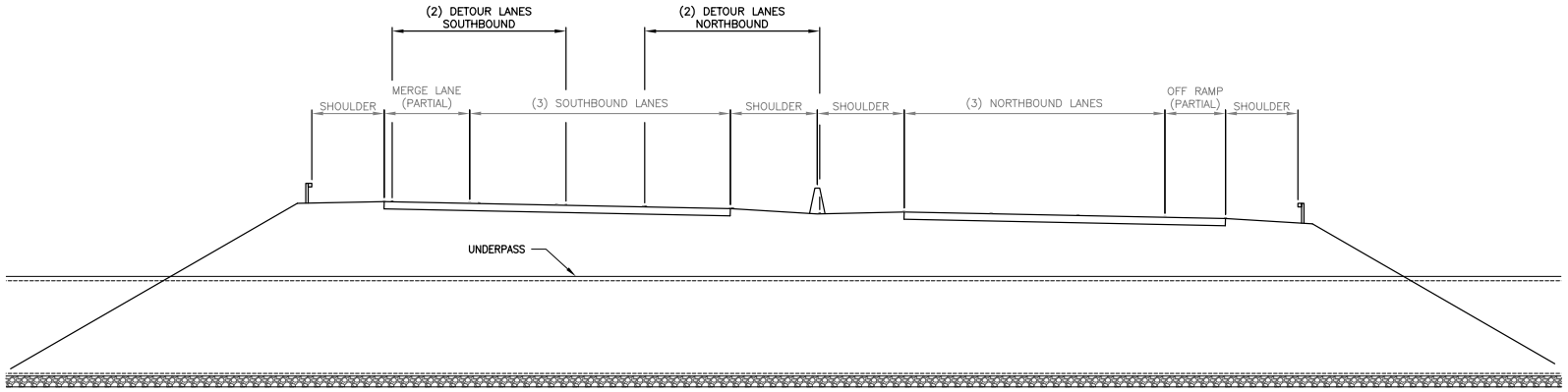
A proposed tunnel under interstate 787 provides a connection between Hudson Shores Park, the Empire State Trail along Broadway, and proposed bicycle infrastructure connecting along 16th Street to downtown Watervliet.



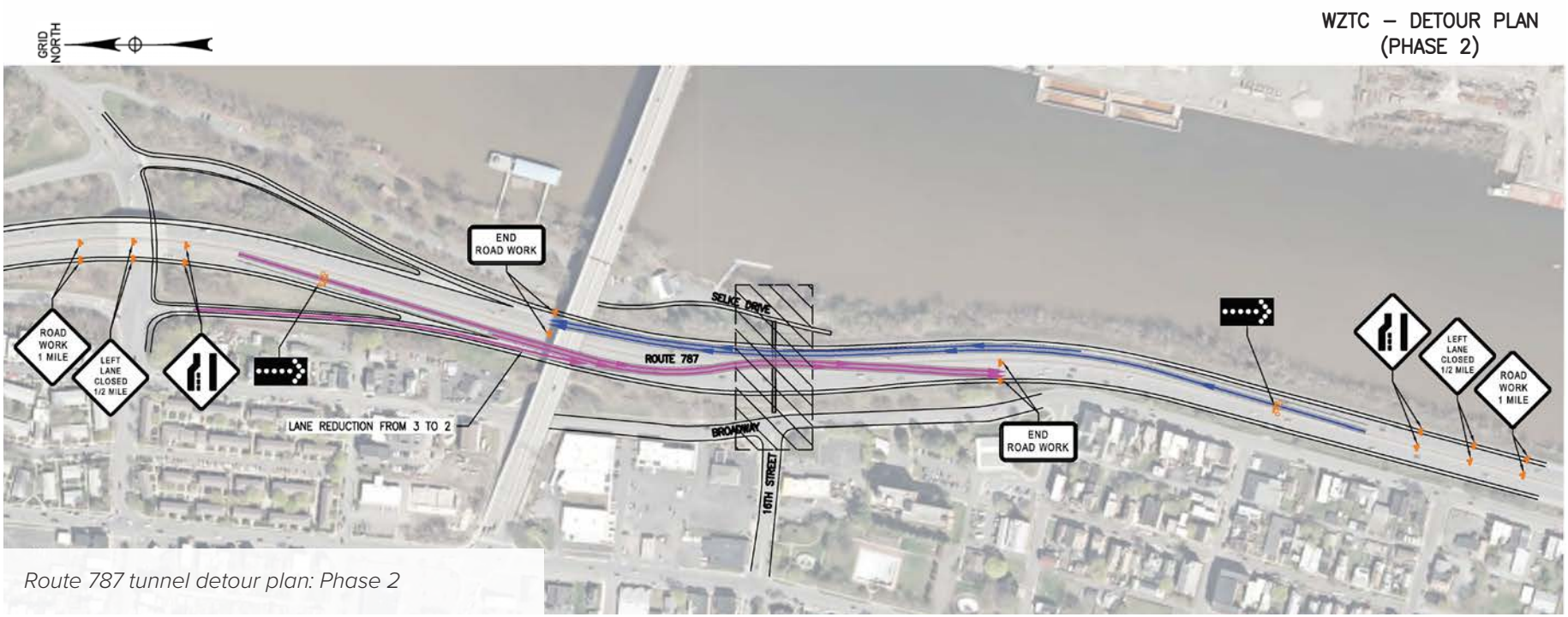




Route 787 tunnel detour plan: Phase 1



WZTC – SECTION VIEW AT UNDERPASS
LOOKING NORTHWARD (PHASE 1)



Route 787 tunnel detour plan: Phase 2

Implementation

An open cut installation is the most cost effective and preferred construction method. The drawing on the previous page and above show a phased work zone traffic control plan to still maintain two northbound and two southbound lanes of traffic along I-787. Work should be limited to nights and weekends as much as possible.

To construct the underpass without an open cut, it is expected that one lane of Broadway would be closed, and traffic limited to one alternating lane. This will be controlled using a temporary signal. Jacking pits at both ends of the underpass will then need to be constructed and the site prepared. During a more detailed design, it will need to be determined if some excavation may need to occur around the bottom of the slopes of I-787 as a working area. The necessary drainage can then be installed, and the outer liner will then be "pushed" through the embankment with no disruption of traffic to I-787. Once the outer liner is installed, the invert will be filled to the correct level and the inner liner pushed through the underpass. Lighting and approaches can then be constructed.

This project will require close coordination with NYSDOT. The tunnel under I -787 will also likely require coordination with and approval from FHWA.

Utility coordination and improvements, as well as a more detailed work zone traffic control plan would be handled through the detailed design process for improvements to Broadway and 16th Street.

The proposed separated bike lanes offer a direct connection from 2nd Avenue to the Mohawk Hudson Bike/Hike Trail and the proposed tunnel to access Hudson Shores Park. This new southern access will allow residents of southern Watervliet better access to the Park.

Permits

It is anticipated that multiple permits will be necessary for the construction of the pedestrian underpass. These permits include: NYSDOT Highway Work Permit, Joint Permit Application for the USACE (United States Army Corps of Engineers) and NYSDEC (New York State Department of Environmental Conservation), Nationwide Permit No. 14 – Linear Transportation Projects, and a floodplain permit. It is also anticipated that coordination with USACE, NY Natural Heritage Program, USFWS (United States Fish and Wildlife Service), FEMA (Federal Emergency Management Agency), and NYSHPO (New York State Historic Preservation Office) will be required.

Maintenance

Much like a bridge, the underpass should be inspected every year to look for cracking, water infiltration and deterioration. The slopes should be examined for any distortion at that time.

The underpass will need regular maintenance to keep it clean. If graffiti is present, it should be cleaned off to give a safer feeling of being inside. Artwork often discourages this type of behavior. A regular patrol will also decrease the use of the underpass by people other than trail users.

Winter plowing operations will be more difficult with the proposed roadway and median treatments; however, the increase to vehicular, pedestrian, and bicyclist mobility outweighs this increased effort.

Depending on the treatment of the median islands, landscaping versus hardscape, the maintenance requirements will vary. Landscaping should be limited within these medians to reduce maintenance needs and trees and shrubs should be selected that require minimal maintenance.

A new connection along 16th Street will allow bicyclists and pedestrians access to the center of Watervliet by following 16th Street west toward 5th Avenue.

23rd Street Improvements

Project Type	*Traffic Calming*
Estimated Cost	*$5.5M*
Involved Entities	*City of Watervliet, NYSDOT, FHWA*

*Cost includes 30% contingency, engineering, and inspection

Project Description

This proposed project aims at reducing the excess pavement space that currently exists between 2nd Avenue and the Hudson Shores Park entrance along 23rd Street. There are many vehicle turning movements occurring in a very short distance, and the lack of definition causes confusion for drivers and significant discomfort for pedestrians traveling along or across 23rd Street.

The goal of the proposed project is to:

- Reduce the amount of pavement space
- Clarify turning movements
- Shorten crosswalks
- Enhance comfort of bicyclists and pedestrians within the corridor
- Enhance the entrance to Hudson River Shores Park
- Calm traffic and reduce vehicle speeds

Several proposed treatments were considered. The rendering to the right illustrates an alternative that reduces the existing pavement space to the minimal amount to accommodate vehicular traffic. Where practical, median islands are incorporated to both define these vehicular movements and to provide pedestrian refuge space for those crossing 23rd Street. This new space allows for a significant buffer to be created between vehicular movements and the new shared use path leading to Hudson Shores Park, enhancing user comfort and experience. Both concepts reduce turning radii, particularly for the I-787 exit 6 southbound right turn movement. Mountable corner radii are proposed at several locations along the corridor, where truck movements require large radii. These mountable curbs will encourage passenger vehicles to take these turns more slowly, resulting in better conditions for drivers and non-motorized uses.

One challenge with this corridor is the quick succession of intersections and turning movements. To help alleviate this, a center median island is proposed on 23rd Street on either side of the Whitehall intersection. This also allows for a two-stage crosswalk to be implemented across 23rd Street, where pedestrians frequently cross the roadway.

Alternative 1: This proposed reconfiguration significantly reduces the pavement space allocated to vehicular movements. The incorporation of medians will induce traffic calming and create median refuge islands at Whitehall Street.

Install truck aprons to slow turning movements for passenger vehicles

Realign southbound exit ramp to be perpendicular to 23rd Street to slow and better define vehicle movements

Complete the sidewalk connection along the north side of 23rd Street

Narrow and better define entrance to Hudson Shores Park

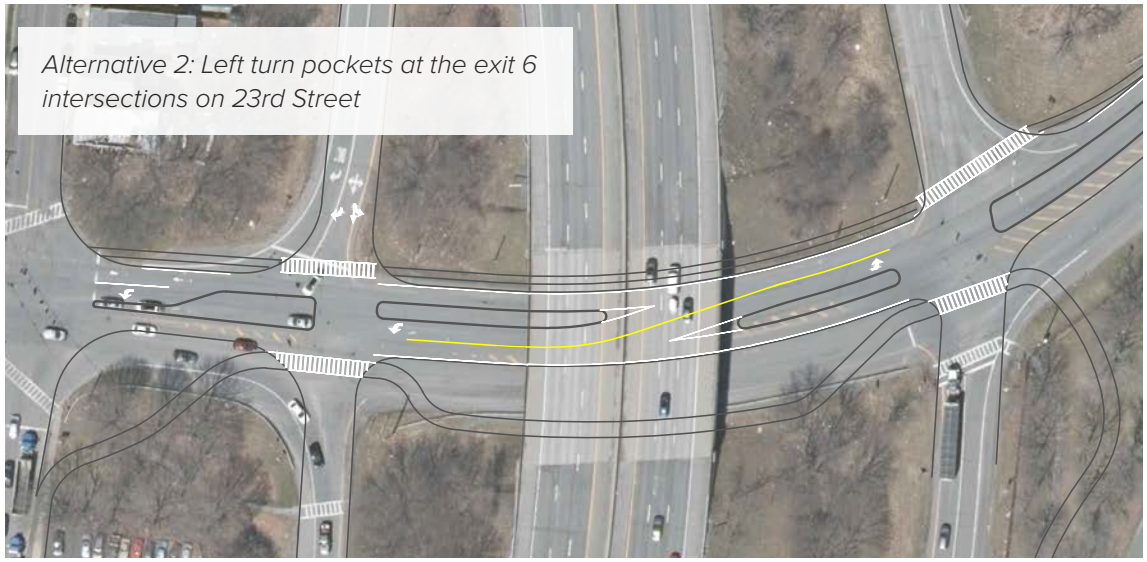
Install median to create a pedestrian refuge area for crosswalks at Whitehall Street

Narrow the existing pavement width to create a natural buffer between the roadway and the shared use path

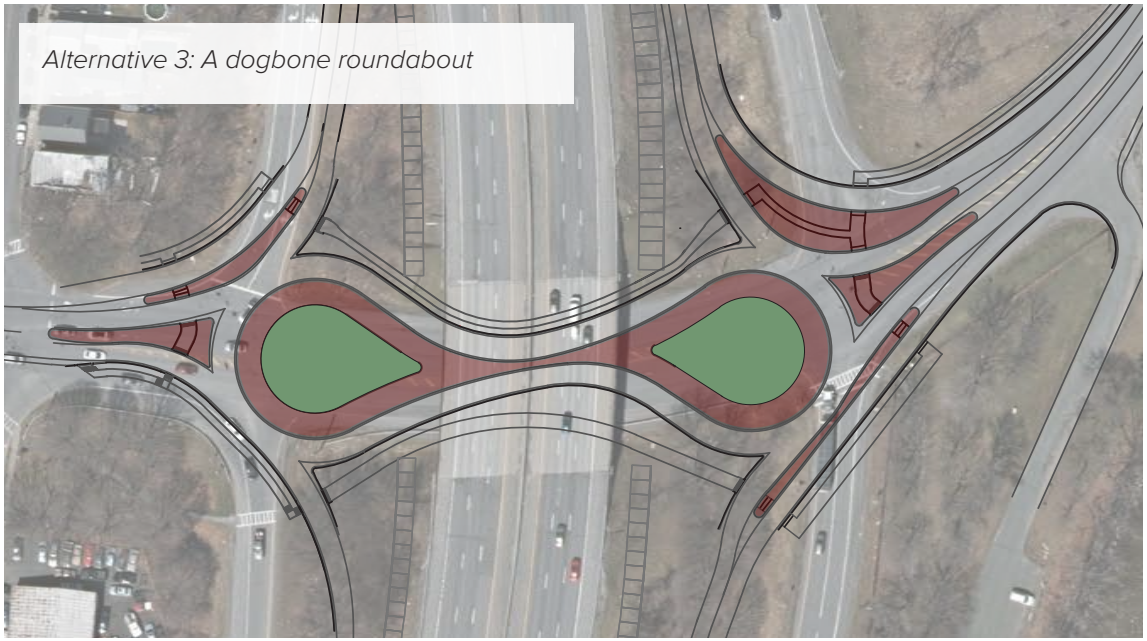
A second alternative increases the roadway cross section to allow for the incorporation of additional median space. This would further define the vehicular movements within the corridor and extend the “boulevard” characteristic of 23rd Street between 4th Street and 2nd Avenue to the entrance to Hudson Shores Park. This concept creates left turn pockets separated by a median so maintenance considerations, especially plowing during winter months, would need to be considered.

A third alternative incorporates a dogbone roundabout. This would provide a significant traffic calming element at the exit 6 ramps to I-787 while still maintaining vehicular capacity and fluid movement through the interchange. Roundabouts are also known to enhance comfort for pedestrians.

All of these alternatives meet the objectives provided above but vary in their cost and future maintenance requirements.



Alternative 2: Left turn pockets at the exit 6 intersections on 23rd Street



Alternative 3: A dogbone roundabout

Implementation / Permitting

This project will require close coordination with NYSDOT. Modifications of the ramps will also likely require coordination with and approval from FHWA. In all alternatives, relocation of the ramps closer to I-787 can be accommodated. In Alternative 3, the relocation of the ramps is required to accommodate the roundabout.

It is recommended that the project be limited to 2nd Avenue to Hudson Shores Park; however, the project could potentially be divided into two pieces at Broadway. Utility coordination and improvements, as well as work zone traffic control would be handled through the detailed design process.

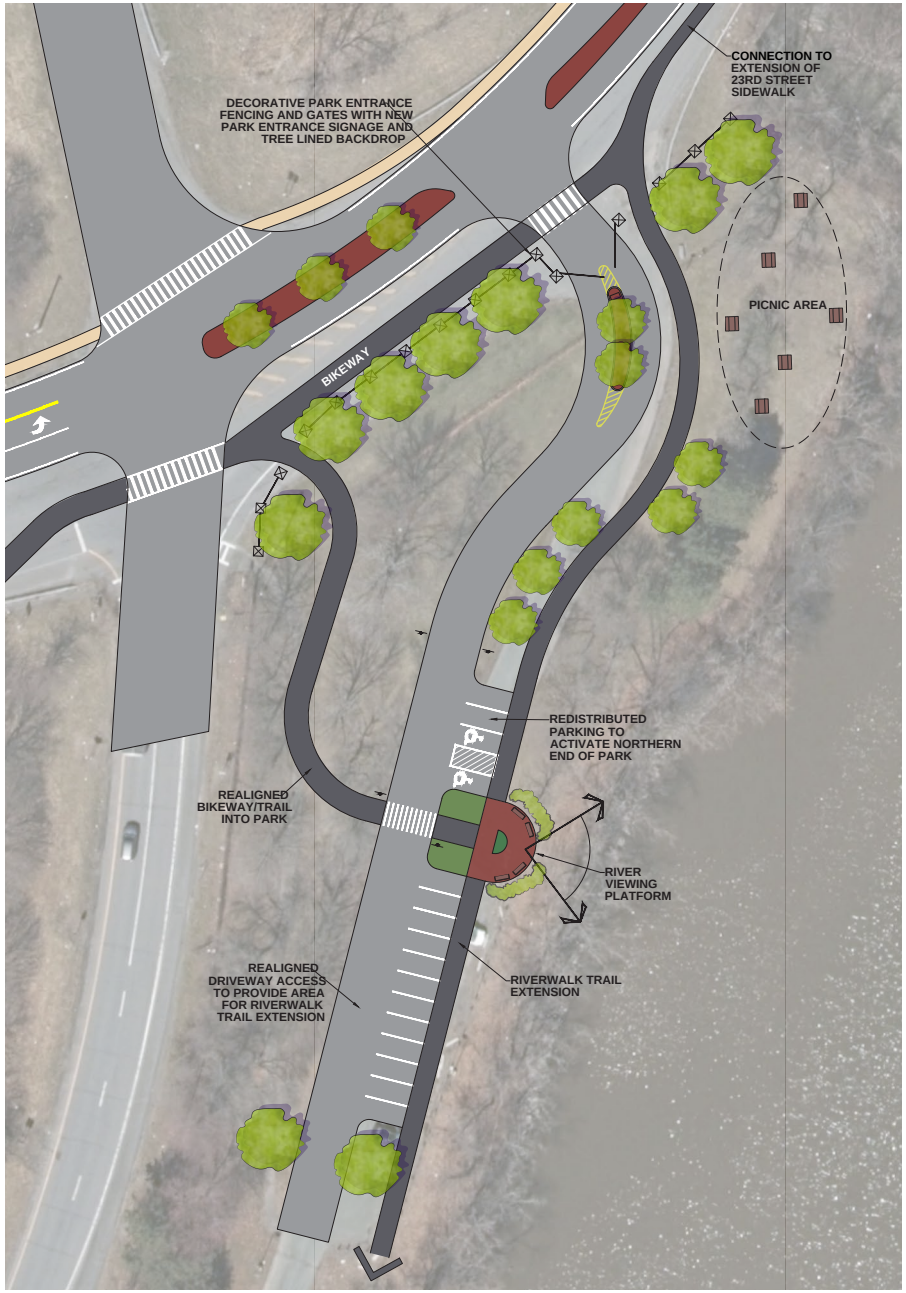
Maintenance

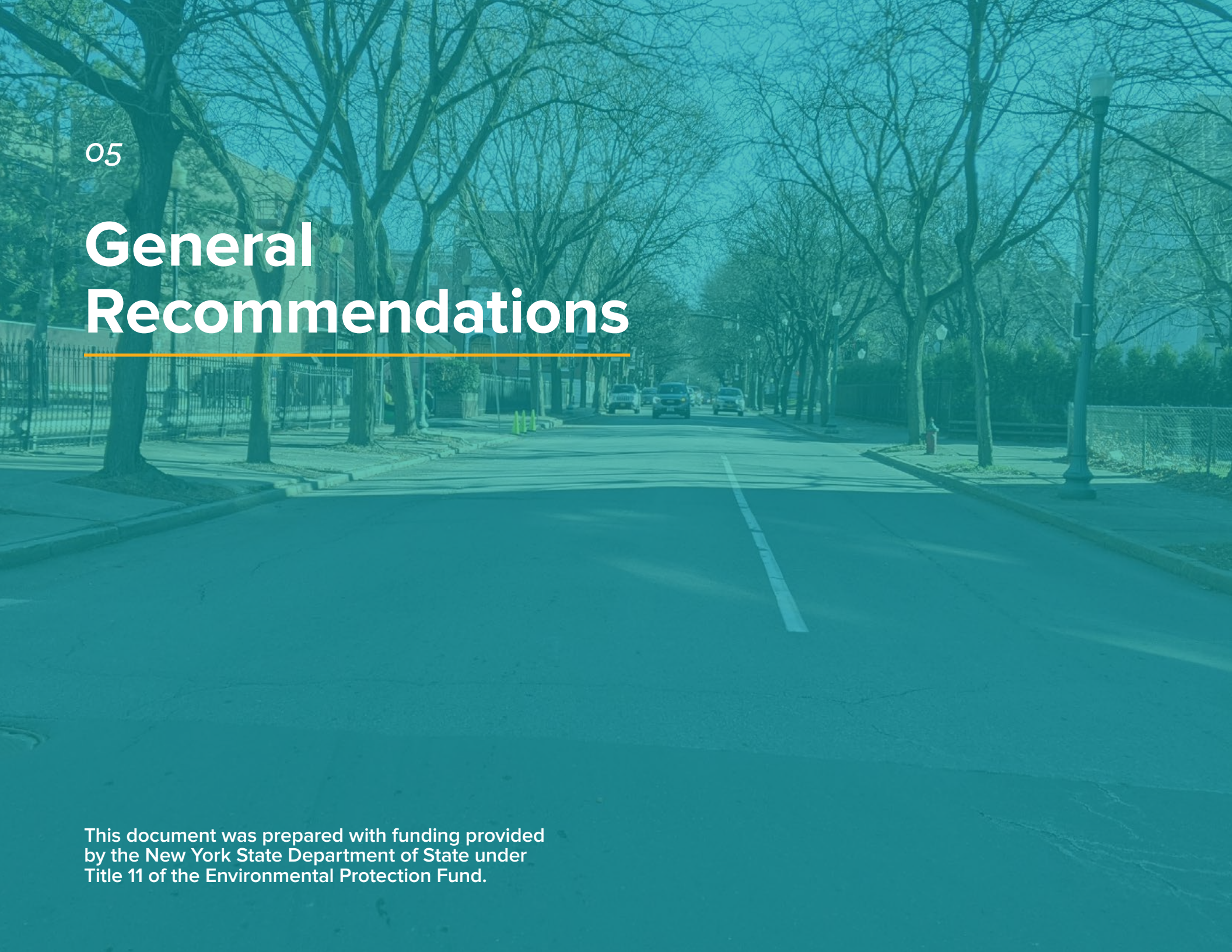
Winter plowing operations will be more difficult with all of the proposed alternatives; however, the increase to vehicular, pedestrian, and bicyclist mobility outweighs this increased effort. The first alternative would be the closest to current operations.

Depending on the treatment of the median islands, landscaping versus hardscape, the maintenance requirements will vary. Landscaping should be limited within these medians to reduce maintenance needs and trees and shrubs should be selected that require minimal maintenance.

Hudson Shores Park Northern Entrance

The northern area of Hudson Shores Park is underutilized and the entrance to the park is poorly defined. It is recommended that the shared use path network be completed by continuing the shared use path along 23rd Street to connect to Green Island and along the riverfront into the park. Along this path, a picnic area and overlook site can be created. By narrowing the park entrance and installing fencing and landscape features, this will better define and enhance the park entrance. This additional improvement is estimated to be $1.04 million.





05

General Recommendations

This document was prepared with funding provided by the New York State Department of State under Title 11 of the Environmental Protection Fund.

Introduction

While the priority projects will serve as a catalyst for improved pedestrian and bicycling circulation and potential redevelopment, a range of general recommendations for increased mobility and traffic calming within the study area for the Cities of Watervliet and Troy are proposed. Multiple recommended projects are identified and described in detail in this chapter. Each project recommendation has the potential to be broken down into individual, small-scale infrastructure improvements in the future. Implementation of any of these recommendations will move each City towards being more walkable, more bikable, and more vibrant. In addition, the creation of a loop trail between the City of Troy, Village of Green Island, and the City of Watervliet is recommended.

Watervliet

Watervliet offers a lot of opportunity within the study area, featuring a mix of land uses within close proximity to each other. Frequent turning movements into and out of driveways and the lack of appeal of pedestrian facilities are deterrents for walkers and cyclists and lack clarity for drivers. A series of recommendations have been made that go beyond but also tie into the priority projects. These include further enhancements to the 2nd Avenue corridor, implementing the median proposed in the DRI, and installing a cycle track for bicyclists and two roundabouts for vehicle movement, since lefts in and out of driveways will be restricted. A series of bicycle boulevards and enhancements to existing pedestrian connectivity are also recommended.

Troy

Similar to Watervliet, the City of Troy provides many opportunities to enhance bike and pedestrian access within the study area due to its urban layout and proximity to mixed land uses. The lack of bicycle-friendly infrastructure and traffic calming measures makes it difficult for both cyclists and pedestrians to safely navigate the City. A list of recommendations have been made to amplify the proposed priority projects listed in the previous chapter. These recommendations include traffic calming features, such as curb extensions at intersections and neighborhood traffic circles to improve pedestrian crossings and keep vehicle speeds slow, cycle tracks, bike lanes, and shared roadways where appropriate. Bike amenities such as bike racks and fix-it stations have also been recommended at different locations within the City.

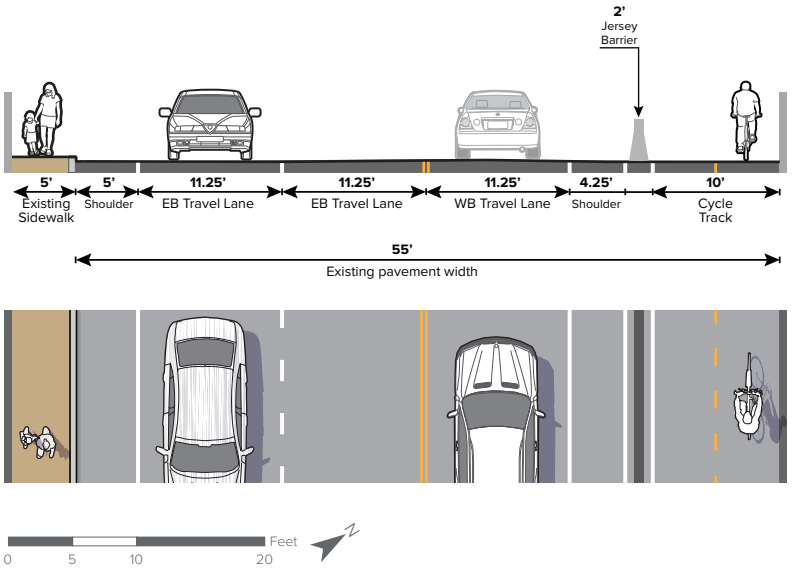
Loop Trail

Recommendation	Create a loop trail between Watervliet, Green Island, and Troy
Goals	Connect all three municipalities with a complete bicycle and pedestrian trail system.

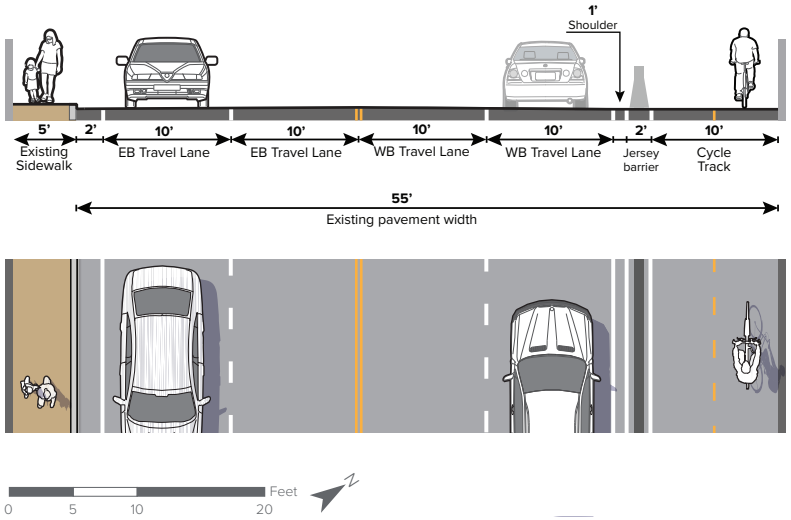
Project Description

The priority projects described in the previous chapter partially complete a trail loop through the City of Troy and City of Watervliet. By completing the connections through the Village of Green Island, across the Green Island Bridge, and filling the remaining riverfront promanade gap in the City of Troy, a roughly 2.5 mile loop trail is created. This trail will connect the three municipalities and their many recreational and commercial opportunities.

Each of the priority projects plays a role in completion of this loop. In addition, it is proposed that a bike lane be installed along Lower Hudson Avenue, between the northern entrance to Hudson Shores Park and the Green Island Bridge. Replacing the northern most westbound lane on the bridge with a protected cycle track creates the connection across the Green Island Bridge. Extending the riverfront park south to the State Street Parking Garage, with its waterfront promanade and trail, completes the loop.

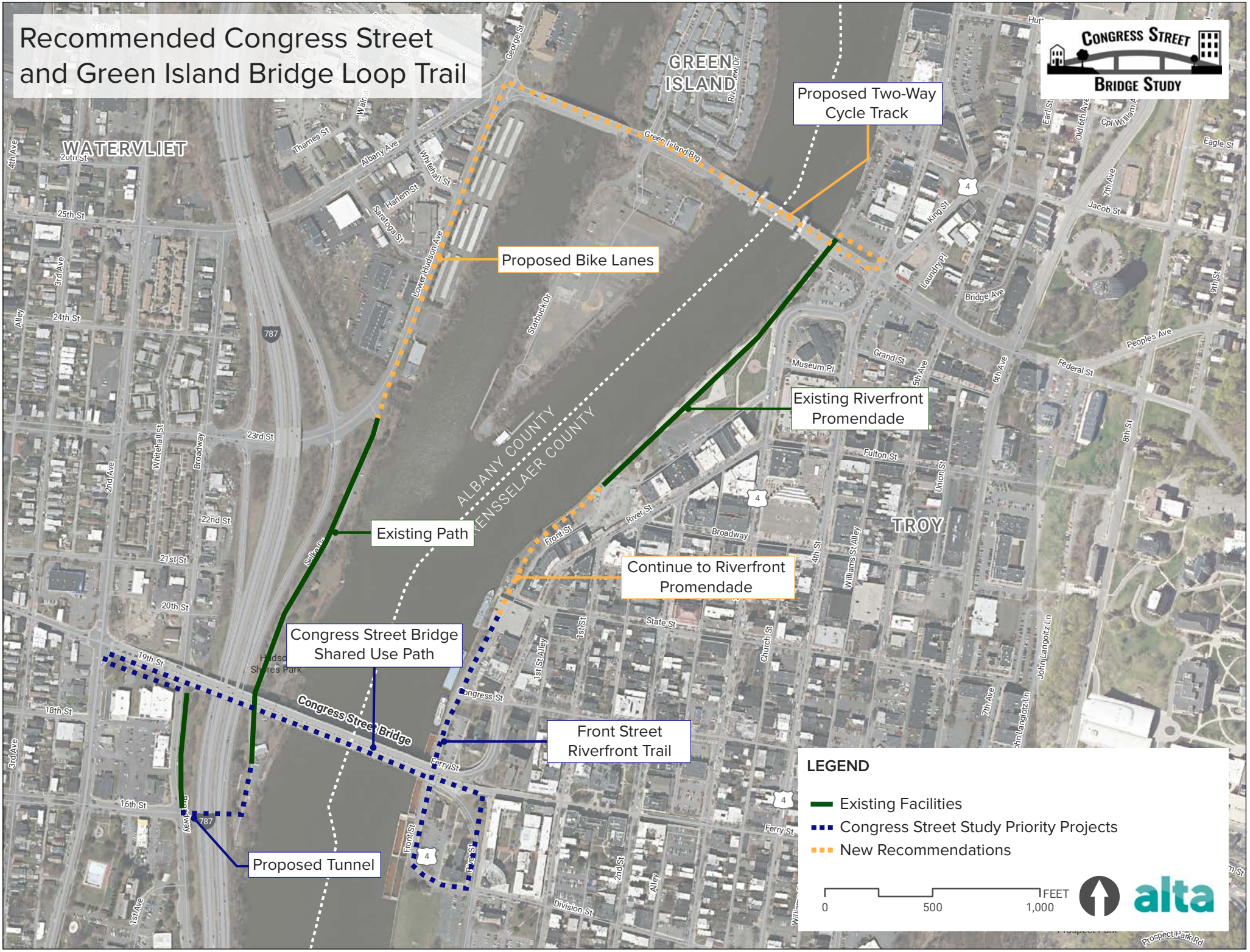


Option 1 converts the northern most westbound lane to a two-way cycle track. The jersey barrier separation is recommended; however, due to their weight, flexible delineators should be used across the lift portion of the bridge.



Option 2 converts the northern most westbound lane to a two-way cycle track across the Congress Street Bridge. Narrowing the travel lanes and shoulder widths would allow four travel lanes to be maintained.

**Note: these sections illustration the roadway across the bridge itself and are not representative of the entire roadway corridor.*


Recommended Congress Street and Green Island Bridge Loop Trail
Congress Street Bridge Study
Proposed Two-Way Cycle Track
Proposed Bike Lanes
Existing Riverfront Promenade
Existing Path
Continue to Riverfront Promenade
Congress Street Bridge Shared Use Path
Front Street Riverfront Trail
Proposed Tunnel
GREEN ISLAND
WATERVLIET
TROY
ALBANY COUNTY
RENSSELAER COUNTY
Congress Street Bridge
LEGEND
Existing Facilities
Congress Street Study Priority Projects
New Recommendations
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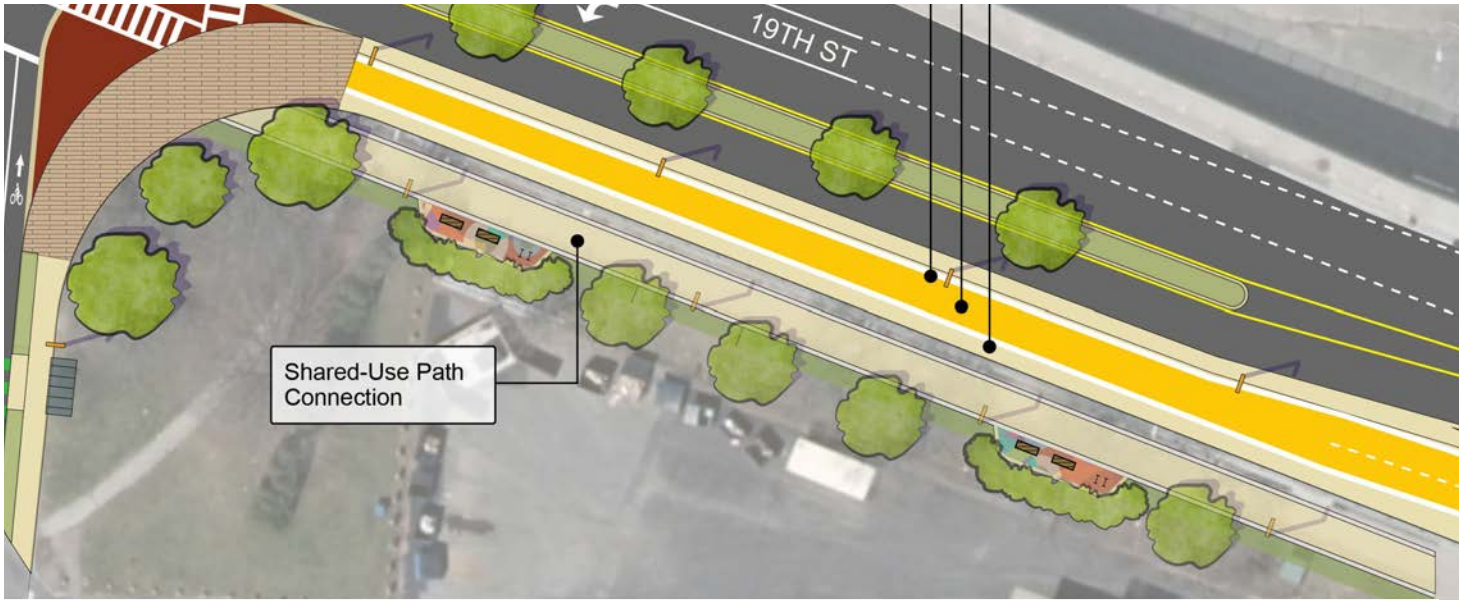
Watervliet

This section includes recommended projects on the west side of Congress Street Bridge.

W.A	Congress Street Bridge to Broadway Connection
Recommendation	Shared Use Path and Landscape improvements
Goals	Provide a comfortable, inviting, and safe route for pedestrians and cyclists to connect the shared use path over the bridge to the MHBHT / Empire State Trail along Broadway

Project Description

This project includes sidewalk improvements on either side of the Congress Street Bridge that connect Broadway to 2nd Avenue and the entrance to the Bridge. Improvements include widening the sidewalk, adequate lighting, and the installation of crosswalks across Broadway for access to the existing sidepath on the east side of Broadway. Landscape improvements will be included along the corridor to provide a vegetative screening between the adjacent loading docks. Murals can also be incorporated along the wall for the bridge approach as the shared use path descends to Broadway.



Widening the existing sidewalk and creating a welcoming environment between 2nd Avenue and Broadway creates a critical link between the Congress Street Bridge Shared Use Path and the Mohawk Hudson Bike Hike Trail.

W.B 2nd Avenue Improvements and Urban Roundabouts

Recommendation	Two-way cycle track, center median, and roundabouts
Goals	Provide a comfortable and safe route for pedestrians and cyclists along 2nd Avenue Reduce vehicular speeds along 2nd Avenue Mitigate left turn conflicts at driveways along 2nd Avenue

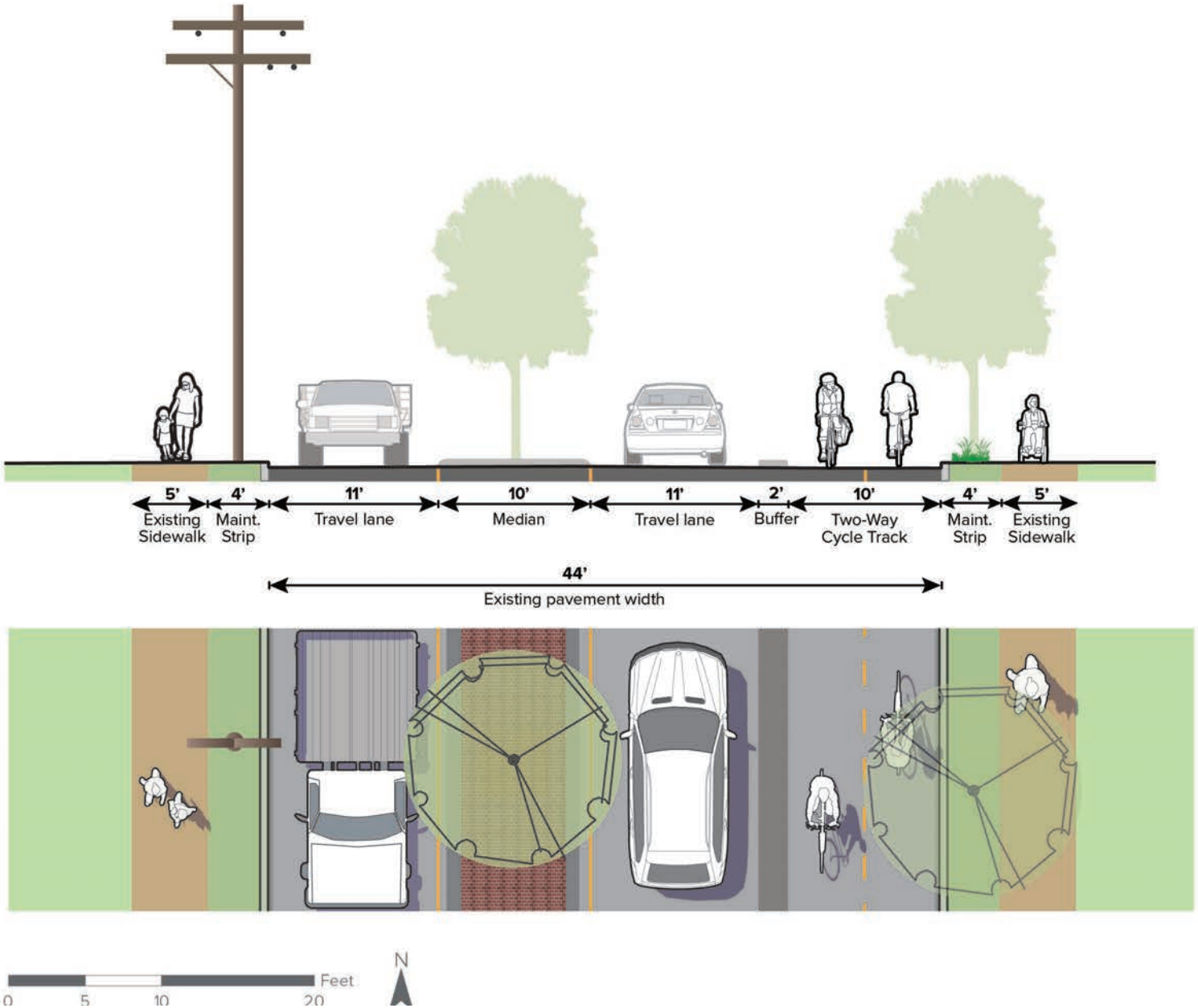
Project Description

This project includes the installation of a protected two-way cycle track along 2nd Avenue from 16th Street to 23rd Street. Existing sidewalks will remain in place for pedestrian access. A raised median is proposed for the center of 2nd Street with an urban roundabout at either end of the corridor. The proposed configuration maintains two lanes of vehicular traffic (one northbound and one southbound) between 23rd Street and 16th Street.

Bookending the corridor with the roundabouts will allow vehicles who intend to turn left in or out of their destinations along their corridor to still navigate the corridor efficiently while increasing safety and reducing conflicts.

Potential urban roundabout at 2nd Avenue and 16th Street

Potential urban roundabout at 2nd Avenue and 23rd Street



Cross-section of 2nd Avenue two-way cycle track and center median

W.G 16th Street / 5th Street Improvements

Recommendation	Bicycle Boulevard
Goals	Provide a comfortable bicycle route between 19th Street and community services

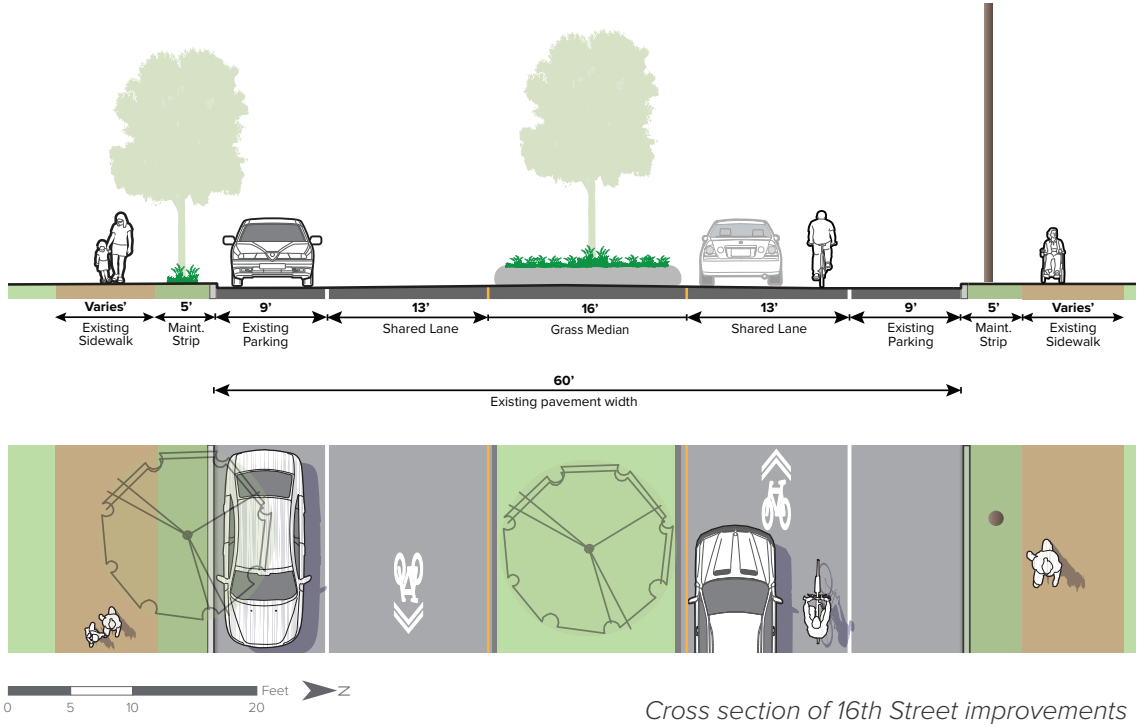
Project Description

Similar to the projects along 21st and 23rd Street, this recommendation is a proposed bicycle boulevard that includes the installation of traffic calming measures, such as curb extensions, at the intersections of 16th Street and 3rd and 5th Avenues, a nieghborhood traffic circle at 18th Street and 5th Avenue, and shared lane markings.

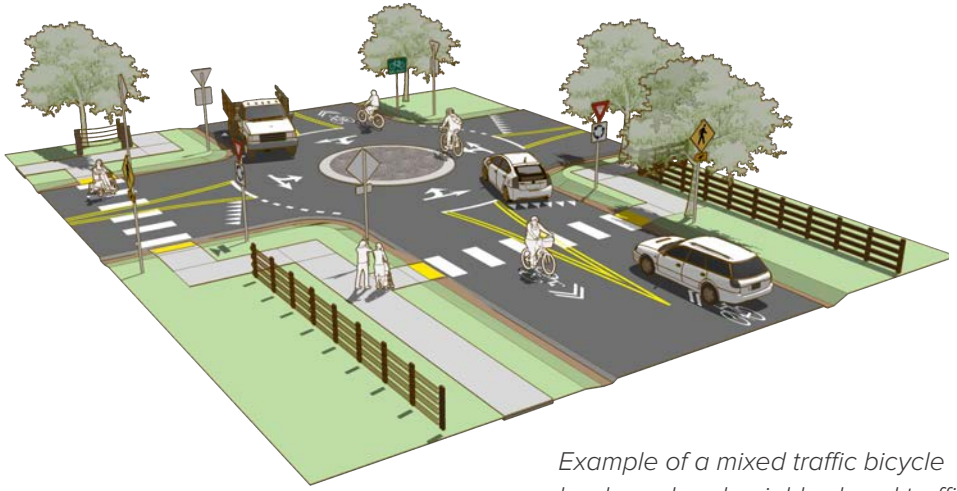
These enhancements may be extended beyond 6th Avenue to connect the Civic Center area to the High School by reconstructing the tunnel or creating an at-grade railroad crossing at the end of 16th Street.

Example of curb bump outs with minimal cost

Example of sharrows that can be added to bike boulevards



Cross section of 16th Street improvements



Example of a mixed traffic bicycle boulevard and neighborhood traffic circle

What is a Bicycle Boulevard?

Bicycle Boulevards (also known as Neighborhood Bikeways or Neighborhood Greenways), are low stress, active transportation corridors that have been optimized for bicycle and pedestrian travel. These corridors take advantage of the existing low speed and low volume local street network, and utilize enhanced crossings where routes cross major roadways. Due to their design, bicycle boulevards create a low-stress bicycling environment and have been shown to appeal to the widest range of bicyclists. Criteria includes:

- Streets that are direct and connect to destinations, and limit circuitous travel
- Streets that are low volume (<3000 vehicles per day) and low speed (ideally 25 mph or less)
- Connect to existing on-and-off street bicycle network

Enhancements to these existing roadways have two primary goals to make them even more comfortable for bicycle travel

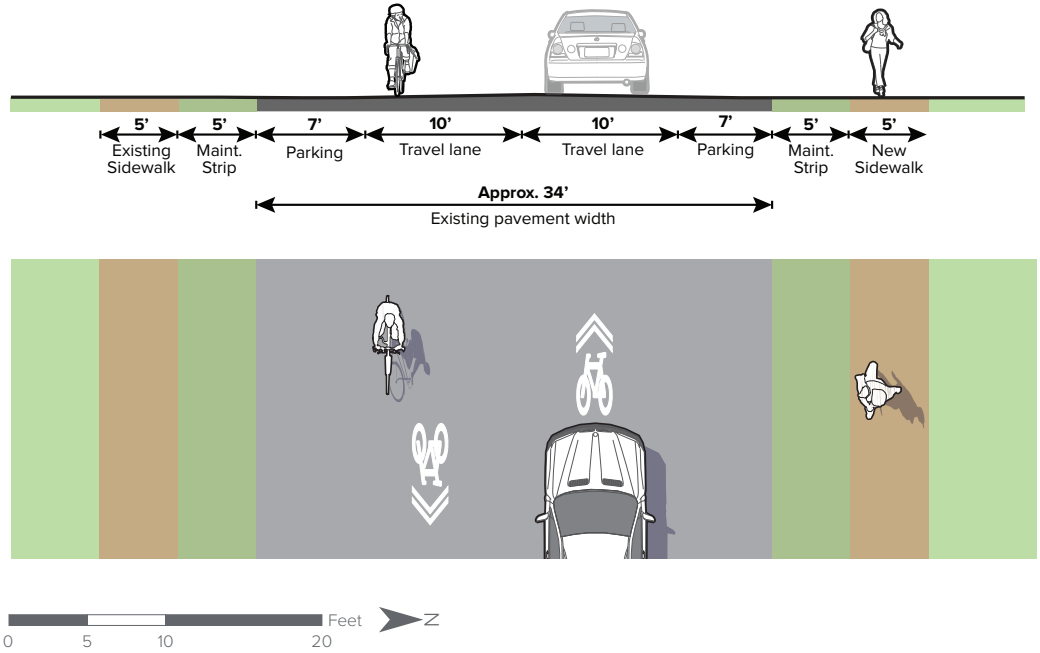
- Slow motor vehicles down
- Divert traffic away from the bicycle boulevards onto larger streets that can accommodate more traffic

These goals have been achieved through the use of signage, pavement markings, and traffic calming elements, such as curb extensions, speed humps, or neighborhood traffic circles.

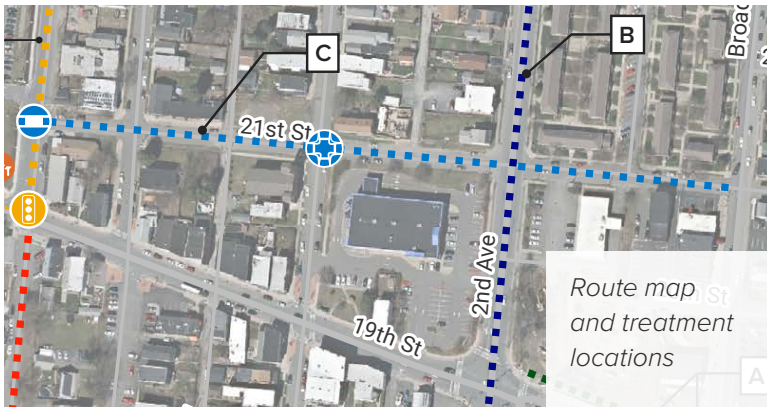
W.C	21st Street Improvements
Recommendation	Bicycle Boulevard
Goals	Provide a safe route to connect Broadway / MHBHT to 5th Avenue and Price Chopper

Project Description

This project is a proposed bicycle boulevard that includes sidewalk installations along 21st Street where they currently do not exist, curb extensions at the intersection of 21st Street and 3rd Avenue for traffic calming, shared road markings, and a raised crosswalk across 5th Avenue. Bicycle boulevards are streets with low motorized traffic volumes and speed with designated space for bicycle travel. Generally, these boulevards include signage, pavement markings, and traffic calming measures to discourage through trips by vehicles. The implementation of the median on 2nd Avenue will help to discourage use of this street for this purpose.



Cross section of 21st Street improvements

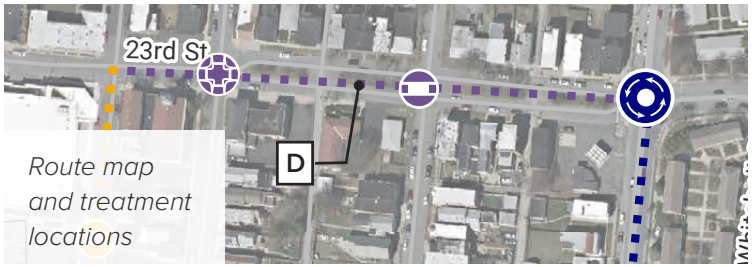


W.D 23st Street Improvements

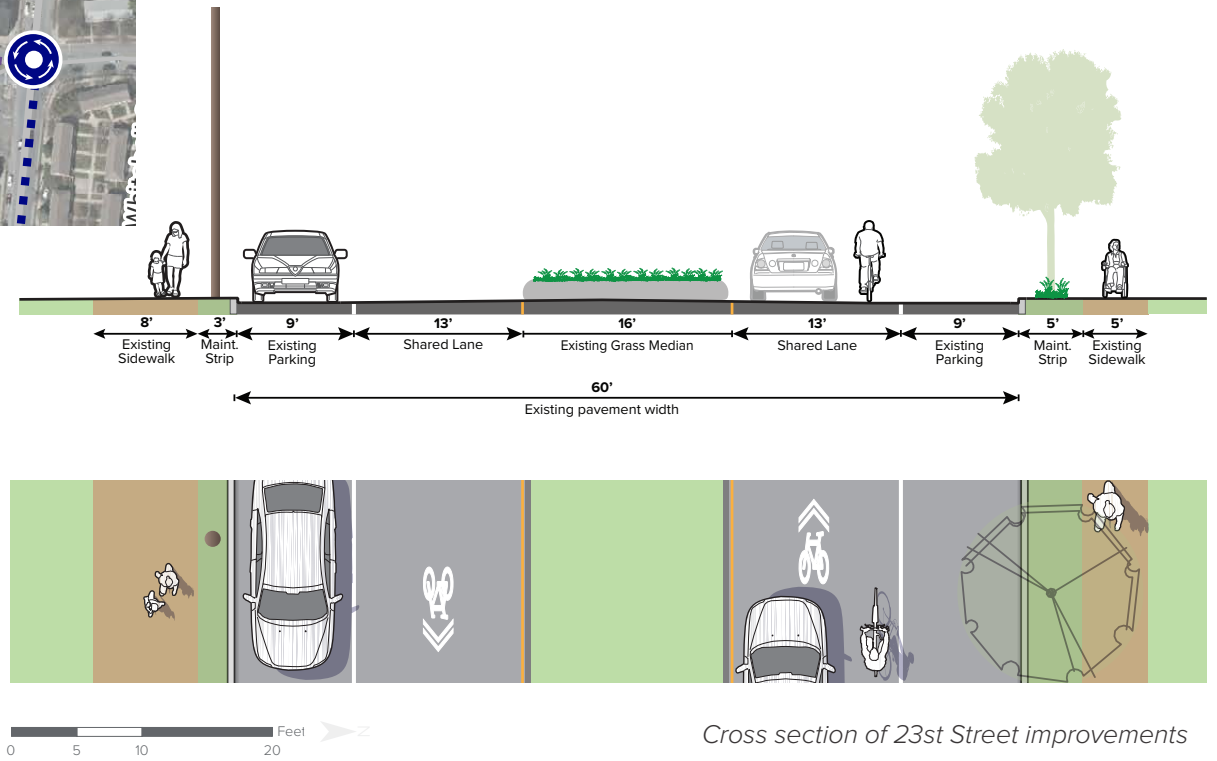
Recommendation	Bicycle Boulevard
Goals	Provide a comfortable and safe route to connect 2nd Avenue to 6th Avenue and 19th Street businesses

Project Description

This project was initially recommended in the Watervliet Bicycle Master Plan in 2013 as a bicycle boulevard. Similarly to the previous project on 21st Street, this recommendation will include enhancements such as traffic calming features, including curb extensions and raised crosswalks, and signage, and pavement markings, such as sharrows. The installation of crosswalks at the intersections of 3rd, 4th, and 5th Avenues are recommended.



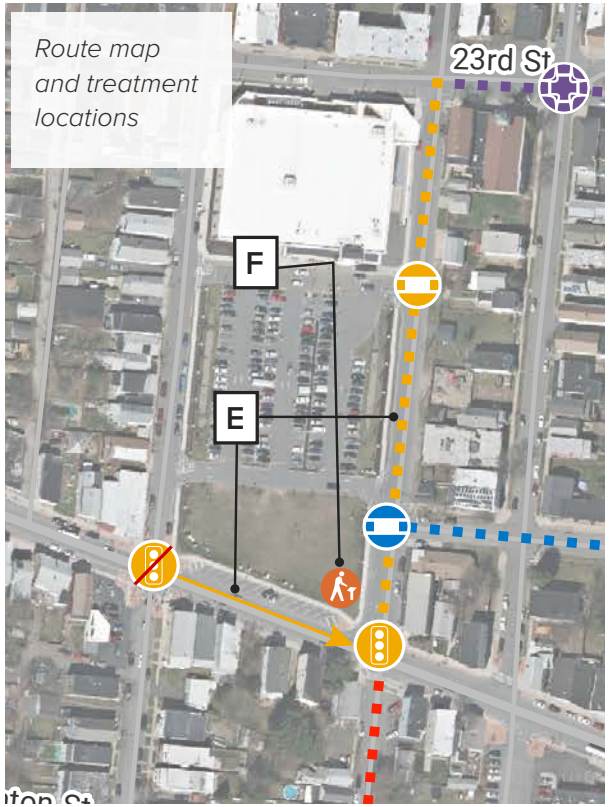
Route map and treatment locations



Cross section of 23st Street improvements

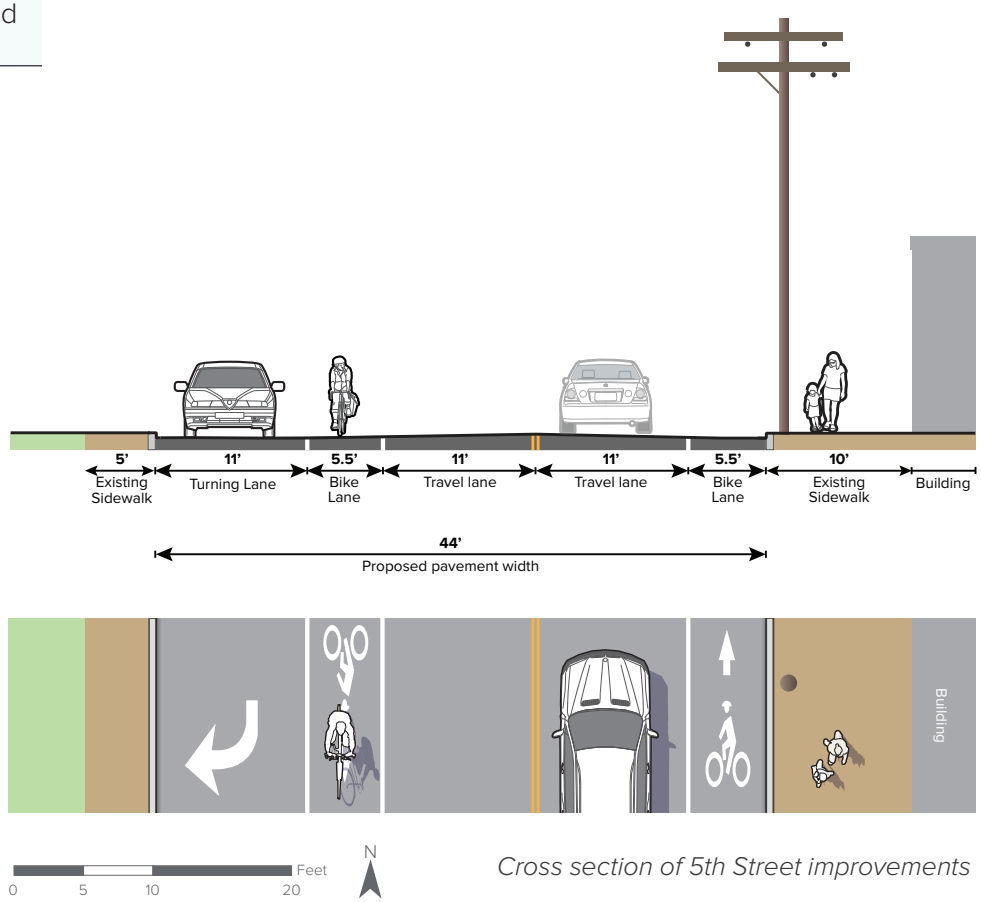
W.E 5TH AVENUE IMPROVEMENTS

Recommendation	Bike lanes, crosswalks, and signalization
Goals	Provide bicycle and pedestrian connection between 23rd Street and 19th Street Improve the intersection of 5th Avenue and 19th Street for all users



Project Description

This project prioritizes access to the Price Chopper development for all modes. It includes the installation of sharrow striping and signage, as well as a raised crosswalk across 5th Avenue to the parking lot entrance of Price Chopper. The project also includes the relocation of the traffic light at the intersection of 6th Avenue and 19th Street to 5th Avenue and 19th Street for improved flow of traffic involving cyclists and pedestrians.



Cross section of 5th Street improvements

W.F	Amenities
Recommendation	Install bike racks, fix-it stations, and benches
Goals	Provide bicycle and pedestrian amenities at common destinations

Project Description

This project will include the installation of bike amenities such as bike racks, bike fix-it stations, benches, and wayfinding north of 16th Street near the Civic Center and Watervliet Dome where the demand for these fixtures is high. It is also recommended that amenities be provided at Hudson Shores Park and at a point along 19th Street in the area of 5th Avenue.

Bike rack and bike fix-it station

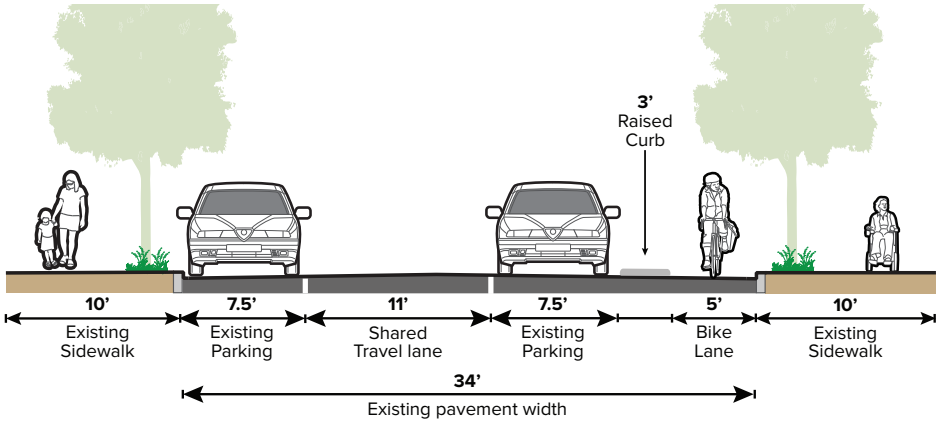
Bike parking at bus stop

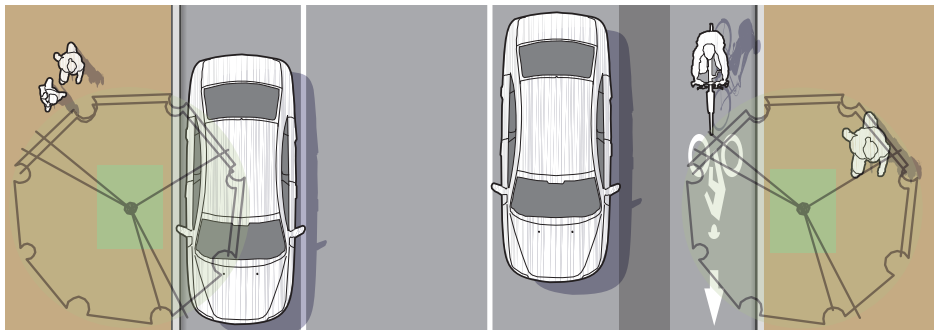
Troy

This section includes recommended projects on the east side of Congress Street Bridge.

T.A North / South Downtown Bike Route

Recommendation	Contraflow or Protected bike lanes
Goals	Provide bicycle facilities in the north/south direction through downtown Troy





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Cross section of 3rd Street improvements

Project Description

Two alternatives are proposed to provide a north / south bicycle facility through downtown Troy.

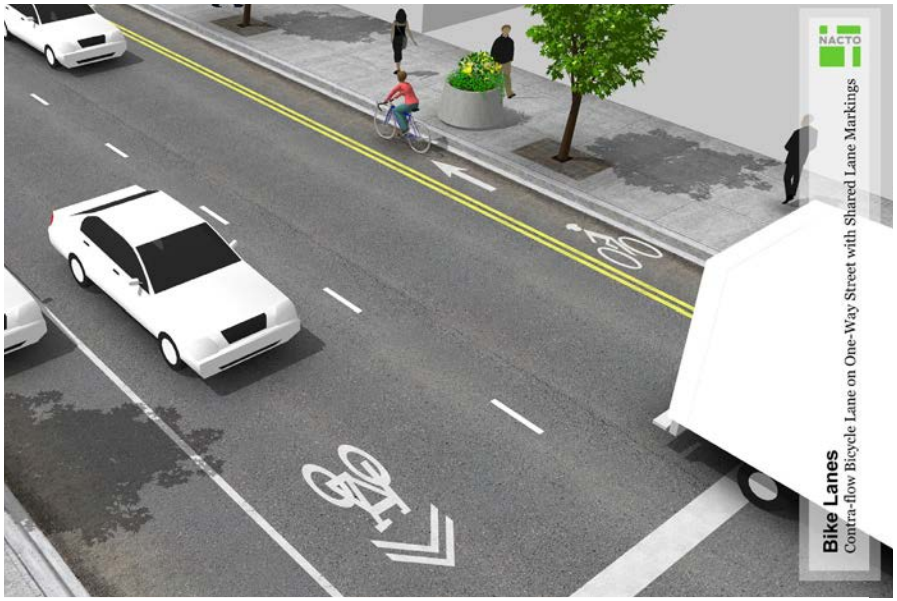
The first alternative includes the installation of a protected bike lane on one side of 3rd Street and 4th Street. 3rd and 4th Streets are parallel streets that travel in opposite directions of each other. Southbound cyclists would utilize the protected bike lane on 4th Street, while northbound cyclists would utilize the protected bike lane on 3rd Street.

Protected facilities would benefit a larger variety of cyclists and provide direct access to transit and the many businesses on 3rd and 4th Streets. Higher vehicle volumes, frequent parking turn over, and the volume of pedestrians should be considered.

Example one-way protected bike lane with raised median between the bike lane and on-street parking

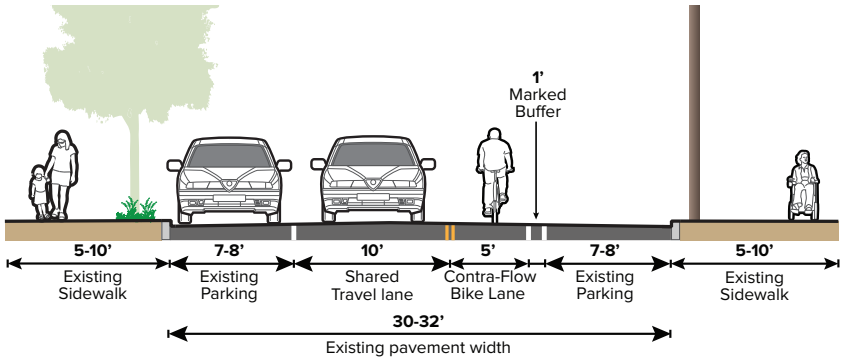
The second alternative includes the installation of contra-flow bike lanes on 2nd Street and 5th Street. It will also include a shared roadway for cyclists traveling in the same direction as vehicular traffic.

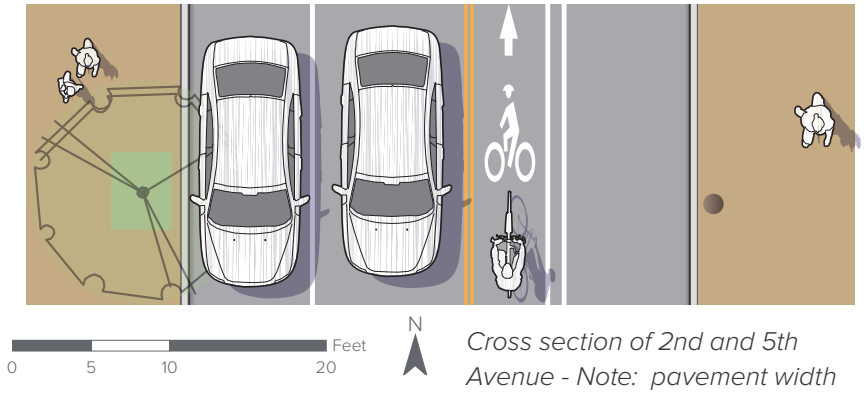
While these streets are one block off from the center of downtown, cyclists would be accommodated in both directions on each roadway, providing a direct connection to downtown to/from South Troy on the east and west sides of the city. Both roadways have lower speeds and significantly lower volumes than 3rd and 4th Streets. Installation and maintenance of these facilities is less costly, however, some cyclists may still feel uncomfortable in a facility that is not physically separated from the roadway.



Contra-flow bike lane on one way street with shared lane markings.

Image Source: NACTO





Cross section of 2nd and 5th Avenue - Note: pavement width varies from 30 - 32 ft.

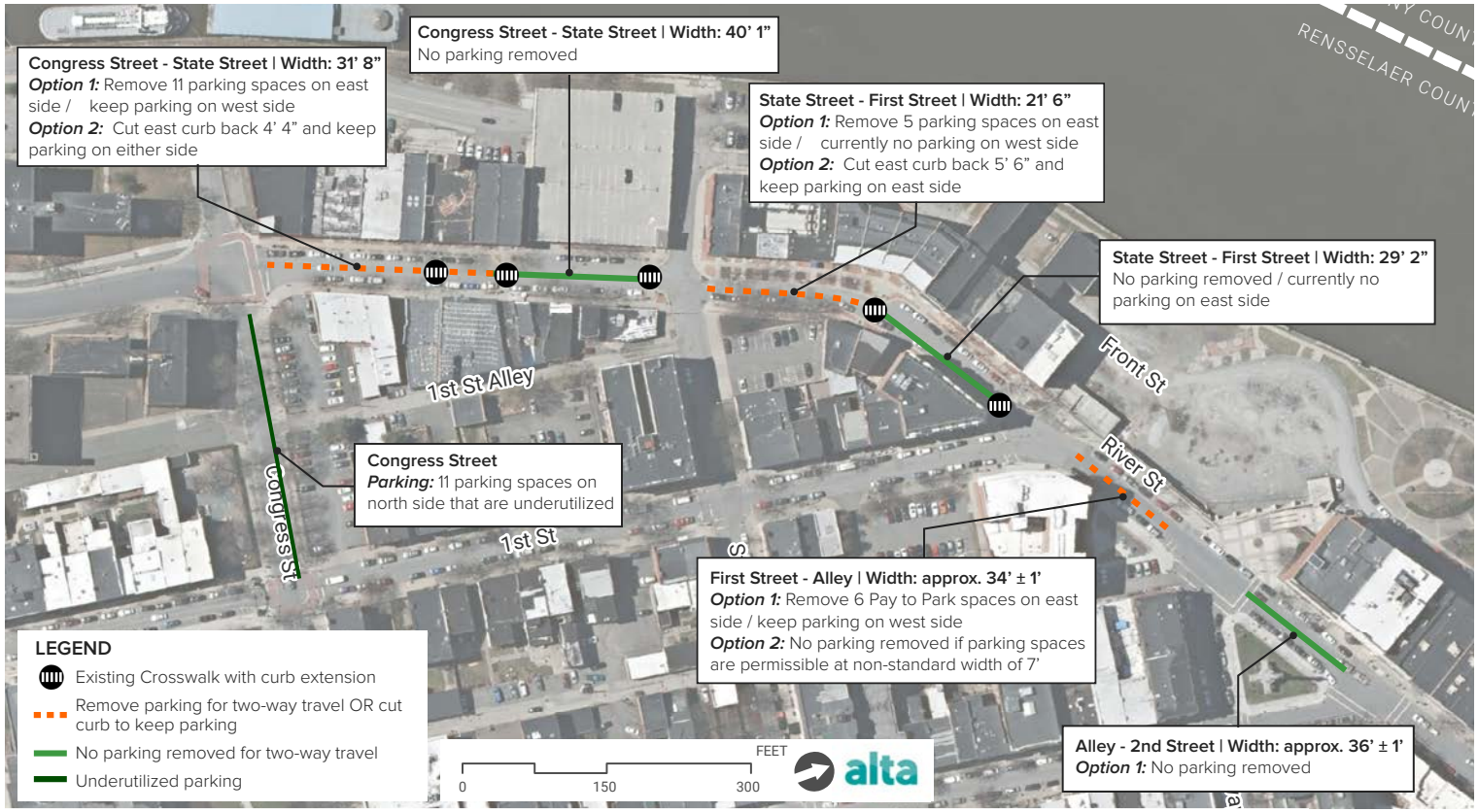
Example contra-flow bike lane in Portland, OR.

T.B River Street Conversion

Recommendation	Convert River Street to two-way traffic flow
Goals	Provide better connectivity and access to downtown

Project Description

This project will involve a traffic pattern change on River Street that will consist of bi-directional traffic flow. The map below indicates the locations along the corridor where parking will be restricted. Alternatively, if parking is maintained, the curb can be relocated to widen the roadway. Intersection treatments include a raised crosswalk at Monument Square and a neighborhood traffic circle at River Street and State Street. The project will extend from Monument Square south onto Congress Street. Since the parallel riverfront trail is directly adjacent to the corridor, additional space within the River Street corridor is best allocated towards facilitating better vehicular circulation. This concept is preliminary and should be studied further and additional outreach conducted.



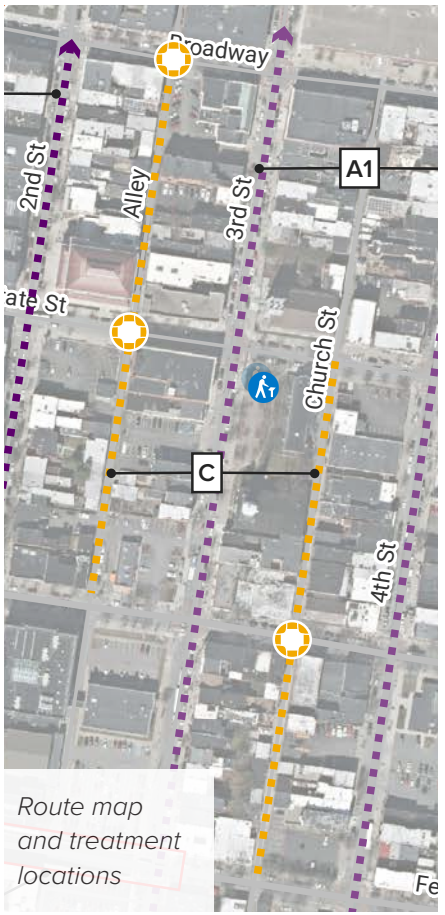
Map of River Street conversion with parking reduction or curb changes to be required to implement the project

T.C	Franklin and Church Street Walkway Extension
Recommendation	Roadway surface improvements and raised crosswalks at intersections
Goals	Provide an attractive and safe space for bicyclists and pedestrians along alleys that are underutilized

Project Description

This project will include bike and pedestrian enhancements along Franklin Street and Church Street alleys. Franklin Street treatments will extend an additional two blocks from Broadway to Congress Street. Church Street treatments will be installed from State Street to Ferry Street. Treatments will include surface enhancements along the alleyways and raised intersections where the alleys cross roadways. These include Franklin Alley at Broadway, Franklin Alley at State Street, and Church Street at Congress Street. Amenities such as pedestrian level lighting and murals may be incorporated into the design to make the relatively narrow corridors more inviting.

Examples of pedestrian oriented alleys. Artistic elements are commonly used to create an inviting space, as are gateway treatments.



Route map and treatment locations

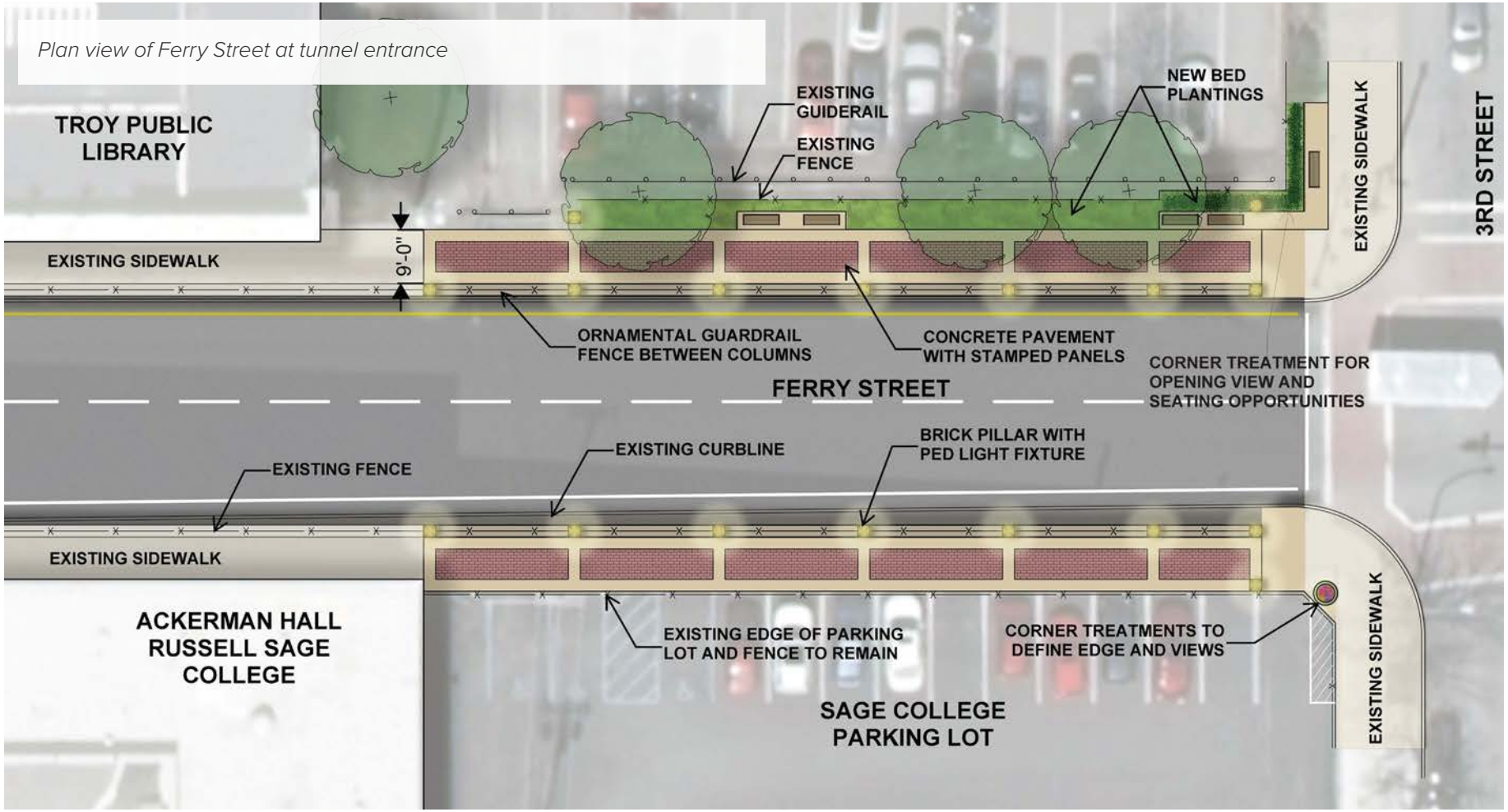
T.D Ferry Street Pedestrian improvements

Recommendation	Sidewalk and barrier improvements
Goals	Create a more inviting walkway along the Ferry Street Tunnel up to the Sage College Campus and 2nd Street

Project Description

This project will include sidewalk enhancements on either side of Ferry Street from 3rd Street to 2nd Street, improving and increasing visibility of the connection from 3rd Street to Sage College. New fencing and benches will be installed along the tunnel entrance and the sidewalk to improve the appearance of the corridor.

**This project does not allow pedestrian or bicyle access into the tunnel but rather improves connectivity over and parallel to the tunnel.*



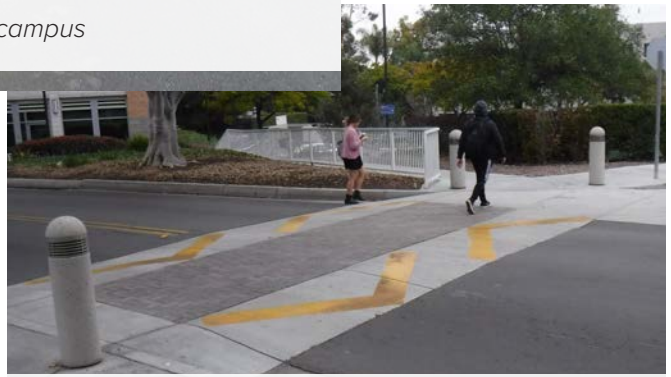
Plan view of Ferry Street at tunnel entrance

T.D	FERRY STREET PEDESTRIAN IMPROVEMENTS (CONTINUED)
Recommendation	Install raised crosswalks to increase pedestrian visibility and provide traffic calming
Goals	Increase crosswalk visibility for safe pedestrian crossing

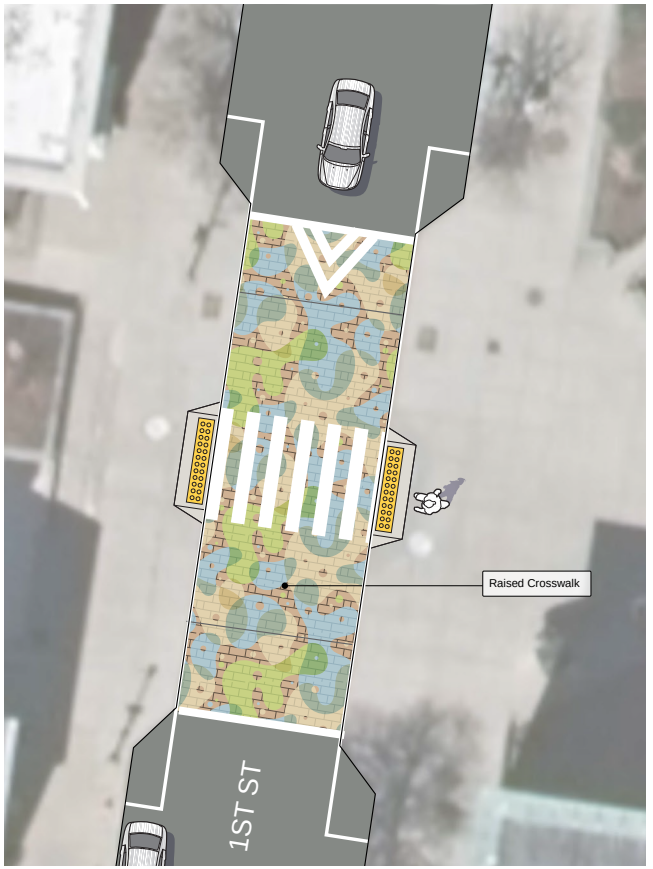
Project Description

This project will include raised crosswalks along 1st Street and 2nd Street in the Sage College campus area to increase pedestrian visibility and provide traffic calming within the campus. Crosswalks already exist in these locations but a more robust treatment will increase safety and efficacy. This further enhances the Ferry Street corridor as a connection between downtown and the waterfront.

Wide raised crosswalk on the USM campus



Raised crosswalk on the University of California Irvine Campus



Plan view of Sage College campus crosswalks

T.E	AMENITIES
Recommendation	Install bike racks, fix-it stations, and benches
Goals	Provide bicycle and pedestrian amenities at common destinations for ease of parking and wayfinding

Project Description

This project will include the installation of bike amenities such as bike racks, bike fix-it stations, benches, and wayfinding signage at multiple locations within the study area. Areas of high demand include 1st and Division Street, Barker Park, and the Riverfront Trail at the Congress Street Bridge.

Bike parking

Bike fix-it station

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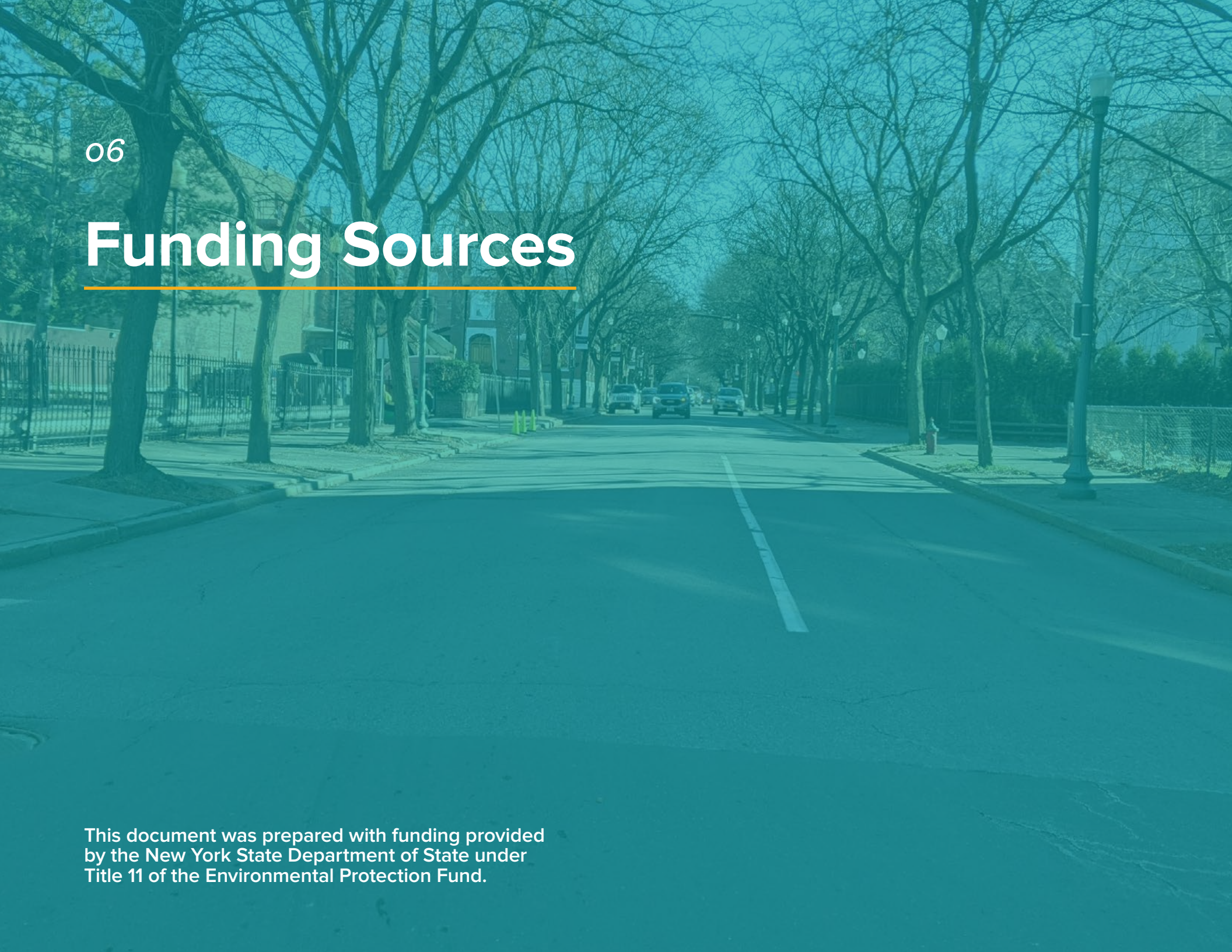

06

Funding Sources

This document was prepared with funding provided by the New York State Department of State under Title 11 of the Environmental Protection Fund.

Introduction

There are a variety of funding resources that exist for the infrastructure projects. This chapter provides a summary of various funding sources, what types of projects they can be applied to, and which funding sources apply to the specific recommendations of this study. it should be noted that this list is not all inclusive. New programs are created, others renamed, and funding allocations and limitations often change with new reauthorizations of transportation funding at the state and federal levels.

Federal Funding

Federal transportation programs provide the largest percentage of funding needed for bicycle and pedestrian infrastructure. Generally, state and local governments will match the federal funds using their own programs. Federal transportation funding is primarily secured through grant programs administered by state agencies, such as NYS Parks and NYSDOT. While the local match varies between grants, most federal grants provide 80% and require a 20% local match. Successful grant allocation is generally competitive. Support of both state and federal officials, and local representation at state agencies, will help to make grant applications more successful.

State Funding

State funds vary in match requirements but commonly are a 50/50 match and are smaller amounts relative to federal funds. State transportation funding is primarily secured through grant programs run by the state, such as NYS Parks and NYSDOT. Most grants can be applied for through the consolidated funding application, typically due in late summer each year. In some cases, state funds can be used as match to federal funding.

Local Funding

Local funding includes acquiring money from entities such as local capital improvement programs, property taxes, bonds, developer improvements, and impact/developer fees. Additionally, local funds can be allocated through municipal budgets.

Description of Federal Funding Sources

Activity	BUILD	INFRA	FTA	CMAQ	HSIP	NHPP	STBG	TA	RTP
• Shared use paths / transportation trails • Tunnels / under crossings for pedestrians and/or bicyclists • Bridges / over crossings for pedestrians and/or bicyclists	✓	✓		✓	✓	✓	✓	✓	✓
• On - Road Bicycle Facilities (including protrected) • Crosswalks (new or retrofit) • Curb cuts and ramps • Sidewalks (new or retrofit) • Signs / signals / signal improvements (including accessible pedestrian signals)	✓	✓		✓	✓	✓	✓	✓	
• Historic preservation (pedestrian and bicycle and transit facilities) • Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); related amenities (benches, water fountains); generally as part of a larger project	✓	✓	✓			✓	✓	✓	✓
• Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project) • Road Diets (pedestrian and bicycle portions)	✓	✓			✓		✓	✓	
• Signed pedestrian or bicycle routes	✓	✓		✓					
• Traffic calming	✓	✓			✓	✓	✓	✓	
• Access enhancements to public transportation (includes benches, bus pads, shelters) • Bicycle Amenities (parking, repair stations)	✓	✓	✓	✓		✓	✓	✓	

Grant Name Key:

BUILD: Better Utilizing Investments to Leverage Development

Funds multi-modal and multi-jurisdictional surface transportation projects that will provide a significant local or regional impact.

Application deadline: Typically May

Website: https://www.transportation.gov/BUILDgrants/about

Facilitated by: FHWA

INFRA: Infrastructure For Rebuilding America

Funds infrastructure projects that will influence economic development. In 2021, there was a specific focus on projects that addressed climate change and environmental justice.

Application deadline: Typically March

Website: https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america

Facilitated by: FHWA

FTA: Federal Transit Administration Capital Funds

Multiple grant sources through FTA fund transit and transit amenity improvements.

Website: https://www.transit.dot.gov/grants

CMAQ: Congestion Mitigation and Air Quality Improvement Program

Funds projects that provide an air quality benefit, including transit, bicycle, and pedestrian projects.

Application deadline: Typically October

Website: https://www.fhwa.dot.gov/environment/air_quality/cmaq/

Facilitated by: CDTC

HSIP: Highway Safety Improvement Program

Funds safety projects, consistent with New York's strategic highway safety plan and address safety problems.

Application deadline: Rolling

Website: https://safety.fhwa.dot.gov/hsip/about.cfm

Facilitated by: CDTC

NHPP: National Highway Performance Program

Funds improvements on the National Highway System (NHS), construction of new facilities on the NHS, supporting progress toward performance targets established in a State's asset management plan for the NHS.

Application deadline: Rolling

Website: https://www.fhwa.dot.gov/specialfunding/nhpp/160309.cfm#Funding

Facilitated by: CDTC / NYSDOT

STBG: Surface Transportation Block Grant Program

Funds maintainance and enhancement of surface transportation, including highway, transit, intercity bus, bicycle and pedestrian projects.

Application deadline: Occurs every other year

Website: https://www.fhwa.dot.gov/specialfunding/stp

Facilitated by: NYSDOT

TA: Transportation Alternatives Set-Aside

A set aside of STBG funding, these funds are specific to on and off road bicycle and pedestrian facilities.

Application deadline: Yearly

Website: https://www.fhwa.dot.gov/environment/transportation_alternatives/overview/

Facilitated by: NYSDOT

RTP: Recreational Trails Program

A set aside of TA funding, these funds are available to maintain and construction recreational motorized and non-motorized trails.

Application deadline: Mid-Summer, every other year

Website: https://www.fhwa.dot.gov/environment/recreational_trails/

Facilitated by: NYS OPRHP

Description of State Funding Sources

Activity	CHIPS	CDBG	CTG	EPF	LWRP	CSC
• Roadway resurfacing	✓					✓
• Waterfront access					✓	✓
• Shared use paths / transportation trails • Tunnels / under crossings for pedestrians and/or bicyclists • Bridges / over crossings for pedestrians and/or bicyclists			✓	✓	✓	✓
• On - Road Bicycle Facilities (including protrected) • Crosswalks (new or retrofit) • Curb cuts and ramps • Sidewalks (new or retrofit) • Signs / signals / signal improvements (including accessible pedestrian signals)		✓		✓		✓
• Historic preservation (pedestrian and bicycle and transit facilities) • Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); related amenities (benches, water fountains); generally as part of a larger project		✓		✓	✓	✓
• Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project) • Road Diets (pedestrian and bicycle portions)		✓			✓	✓
• Signed pedestrian or bicycle routes		✓				✓
• Traffic calming		✓				✓
• Access enhancements to public transportation (includes benches, bus pads, shelters) • Bicycle Amenities (parking, repair stations)	✓	✓	✓	✓	✓	✓

Grant Name Key:

CHIPS: Consolidated Local Street and Highway Improvement Program

Funds roadway resurfacing and associated pedestrian and bicycle improvements.

Annual funding allocation

Website: https://www.dot.ny.gov/programs/chips

Facilitated by: NYSDOT

CDBG: Community Block Grant Program

Funds infrastructure improvements that prevent or eliminate blight and/or address community development in low-moderate income areas.

Application Deadline: CFA application - typically July each year

Website: https://hcr.ny.gov/community-development-block-grant

Facilitated by: NYS Housing and Community Renewal

CTG: Conservancy Trail Grants

Funds are available for trail construction, improvement, education or interpretation projects. Grants are available to assist with planning efforts.

Application Deadline: Quarterly

Website: https://hudsongreenway.ny.gov/grants-funding

Facilitated by: Hudson River Valley Greenway

EPF: Environmental Protection Fund Grants Program for Parks, Preservation and Heritage

Funds planning and development of parks and recreational facilities.

Application Deadline: CFA application - typically July each year

Website: https://parks.ny.gov/grants/grant-programs.aspx

Facilitated by: NYS OPRHP

LWRP: Local Waterfront Revitalization Program

EPF Funding is available to assist communities with implementation of an approved LWRP.

Application Deadline: CFA application - typically July each year

Website: https://www.dos.ny.gov/opd/programs/lwrp.html

Facilitated by: NYSDOS

CSC: Climate for Smart Communities Grant Program

Funds climate change adaption and mitigation projects, including corridor projects that increase bicycle and pedestrian travel and reduce greenhouse gas emissions.

Application Deadline: CFA application - typically July each year

Website: https://www.dec.ny.gov/energy/109181.html

Facilitated by: NYS DEC

Potential Funding Sources for Priority Projects

The priority projects are eligable for a range of federal and state funding sources.

	Federal Funds									State Funds					
Project	**BUILD**	**INFRA**	**FTA**	**CMAQ**	**HSIP**	**NHPP**	**STBG**	**TA**	**RTP**	**CHIPS**	**CDBG**	**CTG**	**EPF**	**LWRP**	**CSC**
Congress Street Bridge Shared Use Path	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓
River Street Connection	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓
19th Street / 2nd Avenue Intersection	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓
Congress / Ferry Street	Funded														
Southern Hudson Shores Park Connection	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓
Front Street Trail Conversion	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23rd Street Traffic Calming	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓

Potential Funding Sources for General Recommendations

Most of the general recommendations are smaller projects that are better served by utilizaing state and local funding sources or federal funds that do not require a robust application and administration process.

	Federal Funds									State Funds					
Project	**BUILD**	**INFRA**	**FTA**	**CMAQ**	**HSIP**	**NHPP**	**STBG**	**TA**	**RTP**	**CHIPS**	**CDBG**	**CTG**	**EPF**	**LWRP**	**CSC**
Bridge to Broadway Connection											✓		✓		
2nd Avenue Improvements and Urban Roundabouts	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓
21st Street Improvements		✓	✓	✓						✓	✓				✓
23rd Street Bicycle Boulevard		✓	✓	✓						✓	✓				✓
5th Avenue Improvements and Traffic Signal Relocation						✓				✓	✓				✓
16th Street and 5th Avenue Traffic Calming		✓	✓	✓						✓	✓				✓
North/South Bike Route		✓	✓	✓						✓	✓				✓
River Street Two-Way Conversion				✓						✓					
Ferry Street Pedestrian Improvements				✓							✓				
Franklin Alley and Churt Street Walkable Alleys											✓				✓
Amenities		✓	✓	✓		✓	✓	✓			✓	✓		✓	