

PEQUONNOCK RIVER TRAIL EXTENSION ALIGNMENT STUDY in the City of Bridgeport



PEQUONNOCK
RIVER TRAIL



Image: Bing



April 15 2015
DRAFT

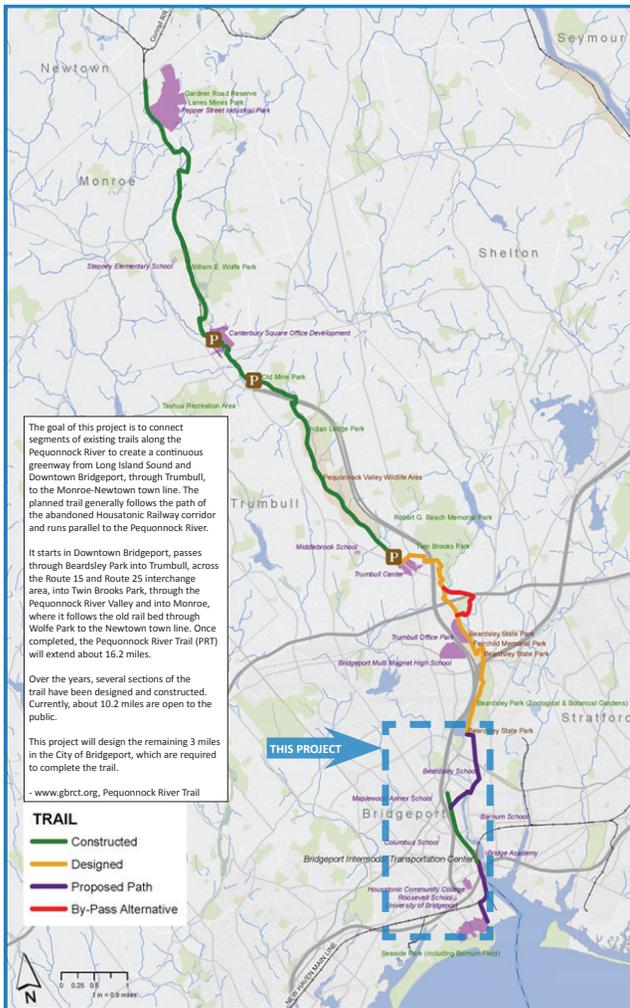


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Project Overview

The City of Bridgeport has undertaken an alignment study to identify an alignment for the extension of the of Pequonnock River Trail, which exists to the north for 11 miles, mostly along a former railroad alignment. Within Bridgeport, the connection is approximately 3 miles, between the northern entrance of Seaside Park (at University Avenue) and southern entrance of Beardsley Park (at the intersection of Noble Avenue and Crown Street).



The purpose of this study is to determine the feasibility of connecting the existing trail that terminates in Beardsley Park (which has been designed by not yet constructed), to form a continuous, designated means of passage through Bridgeport's neighborhoods and downtown area for cyclists and pedestrians. As part of the larger trail network, the section running through Bridgeport is an important connection to the destinations that are anchored at the southern terminus (see list of key destinations below).

The study area is bounded by Route 127 (East Main Street) to the east, Route 8 to the west, Beardsley Park to the north and Seaside Park to the south. A physical inventory and intensive study of the entire area was conducted.

Key Destinations

- Beardsley Park and Zoo
- Housatonic Rail Trail (existing shared use path along east side of Housatonic Avenue)
- Knowlton Park (recently completed)
- Bridgeport Bus Terminal
- Bridgeport Amtrak and Metro-North station
- Bridgeport Civic Center (including museums, court and civic amenities)
- Housatonic Community College
- Webster Bank Arena
- Bridgeport Bluefish Ballfield
- University of Bridgeport
- Access to the Long Island Sound at Seaside Park

Planning Considerations

Facility Type

The criteria for route analysis focused on providing a comfortable bicycle facility for recreational cyclists, which is the widest range of potential users a trail can serve. Most of the roads in Bridgeport that were considered have pedestrian accommodations. Unlike sections of this trail to the north that are off-street and follow the former Housatonic rail line, much of the trail alignment through downtown Bridgeport will need to be implemented on-street. With the comfort of the maximum number of trail users in mind, dedicated bicycle lanes were pursued, with buffers (3 foot typical) where available space allows. Alignments that would allow the trail to be completely separated from moving traffic between intersections were considered where there was additional on-street space, in addition to the existing shared-use path on Housatonic Avenue.

Connections

In addition to the facility type that could be accommodated in each right-of-way, other factors considered include:

Connecting to the key destinations listed on the previous page

The potential use of 'paper streets' to provide a continuous trail connection

The use of the existing non-motorized tunnel under the Metro-North tracks (to the east of Webster Bank Arena)

Constraints

The following physical/technical constraints were factored into the analysis:

Complex intersection of Noble Avenue and Crown Street (at Beardsley Park entrance)

Complex intersections along Route 1 (Boston Avenue)

Lack of connectivity of 'paper streets'

Heavy through truck traffic and/or access to specific parcels

Complex intersections along Water Street

Crossing beneath the Metro-North tracks

Facility Type examples

CLASS 1



CLASS 2



CLASS 3



Public Outreach

There were two opportunities for public outreach during the course of this study.

The first was a public meeting open to all interested parties, held on March 2, 2015 at the Margaret E. Morton Government Center. During this first meeting, the consultant team provided an overview of the project and provided maps for site-specific input. The input gathered from this meeting was used to inform the analysis of route alternatives.

The second was at a regularly scheduled meeting of the Upper East Side Neighborhood Revitalization Zone (NRZ) held on March 26, 2015. Members of the City's Office of Planning and Economic Development presented the relevant roadway configurations to the NRZ group and polled participants to determine which configuration was desired for each segment under considerations within the NRZ's area. Meeting participants were unanimous about this trail providing a dedicated bicycle lane, even at the expense of parking removal.

Photos from public meeting



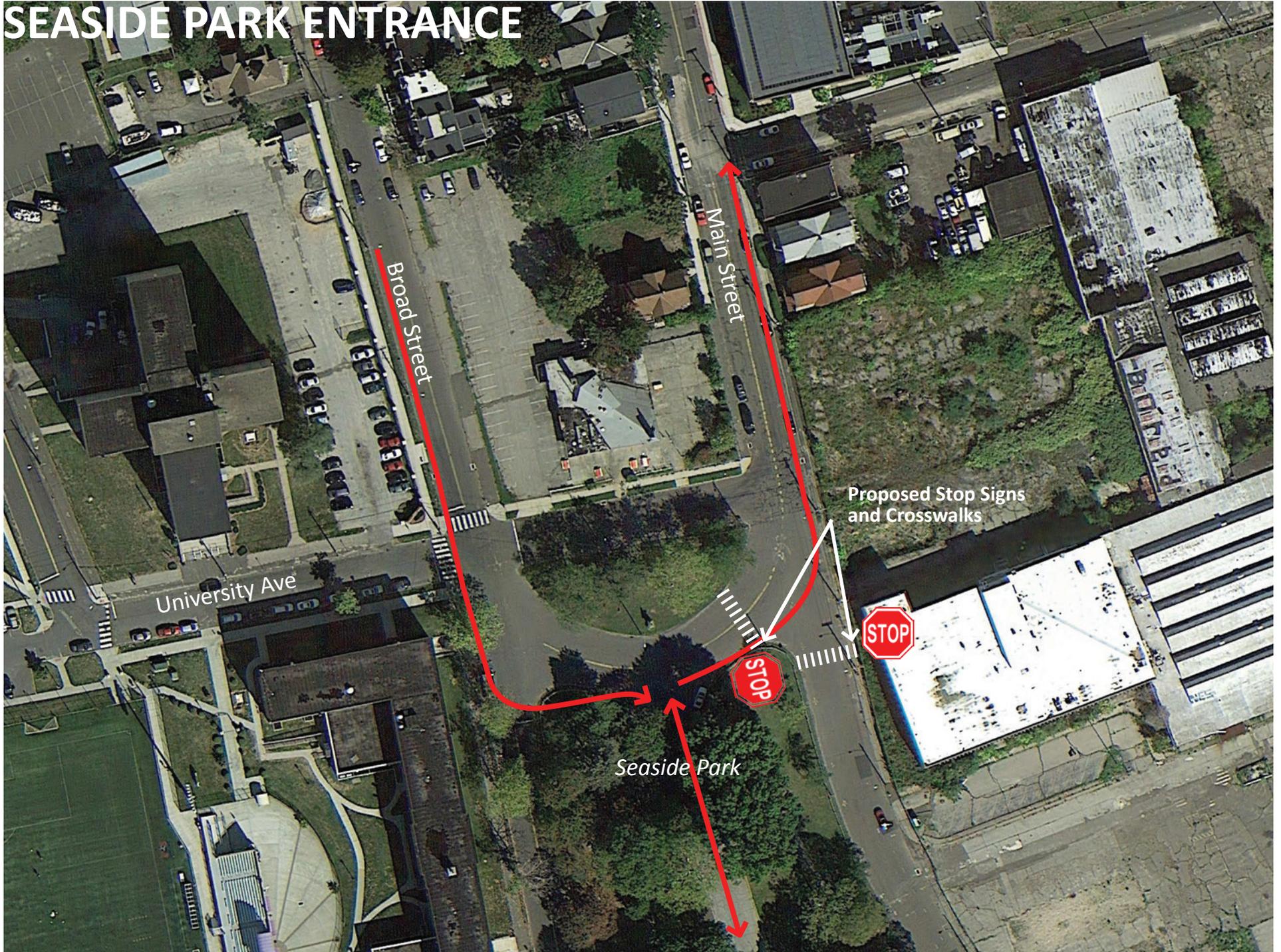
Working map activity for site-specific public input



Project materials displayed, including overview map of Pequonnock River Trail, bicycle facility types and routes considered

Proposed Conceptual Design

SEASIDE PARK ENTRANCE



BROAD STREET & MAIN STREET

One-way Bike Lane on adjacent two-way streets

Seaside Park to Railroad Ave

Class 2

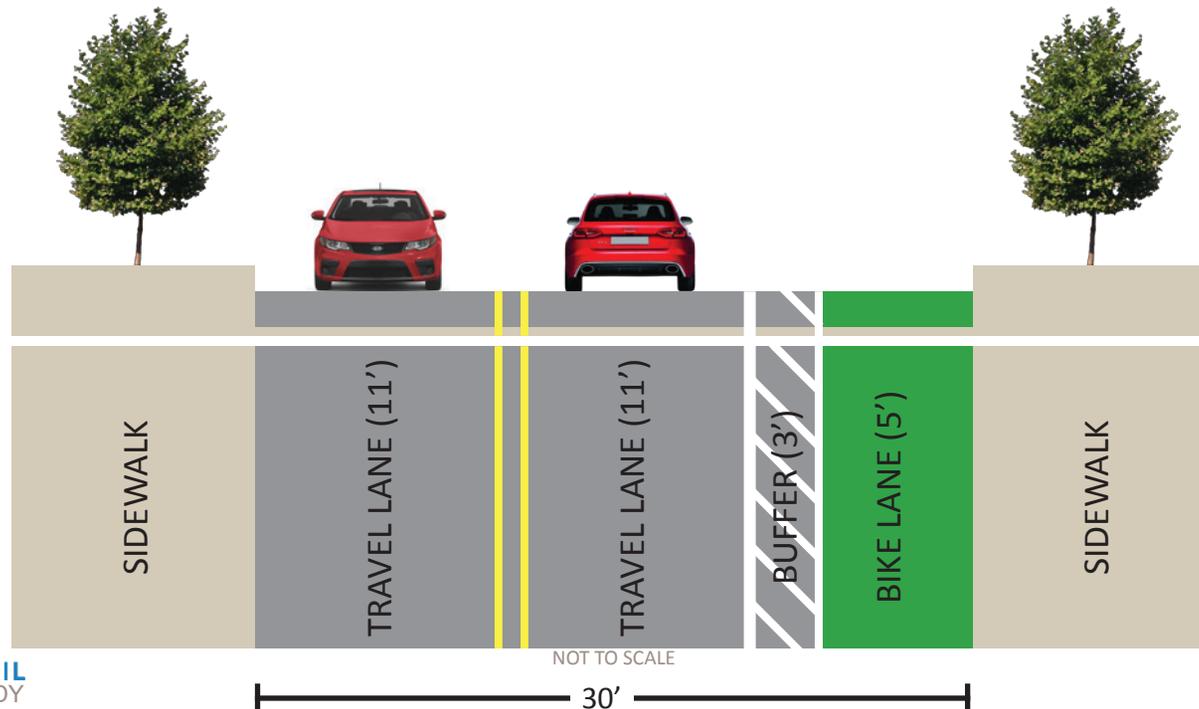
Advantages:

- Leads cyclists from Main Street to the waterfront and the railroad station.
- A separated bike lane is more desirable, safe and aesthetically pleasing.

Disadvantages:

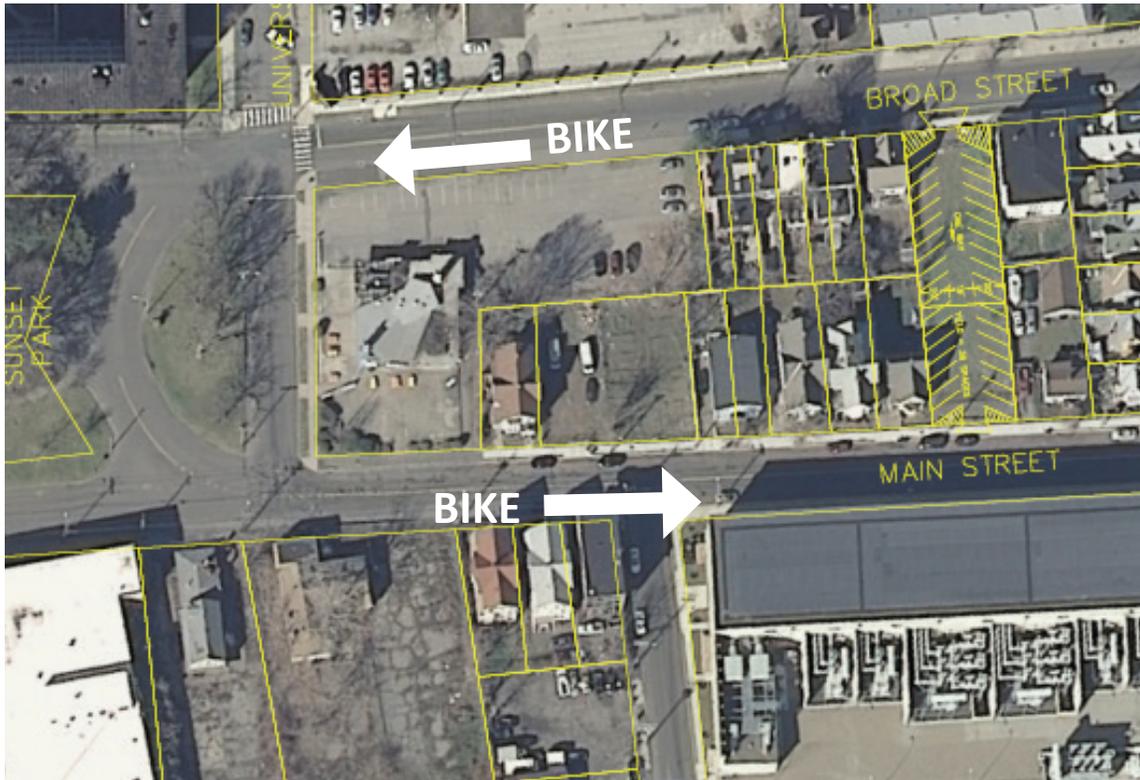
- Loss of on-street parking on Broad and Main Streets.

*Approximate Construction Cost = \$50,000



BROAD STREET & MAIN STREET

Potential Parking Mitigation



PROPOSED PARKING LOT TO ACCOMMODATE
LOSS OF ON-STREET PARKING

NOT TO SCALE

RAILROAD CORRIDOR TO WATERFRONT

Along Ferry Access Road to Water Street
Class 1



Existing



Proposed

*Approximate Construction Cost = \$325,000

WATER STREET

South Frontage to Fairfield Golden Hill Road
 Class 2 from Fairfield Ave to Golden Hill Road;
 Class 3 from South Frontage Rd to Fairfield Ave

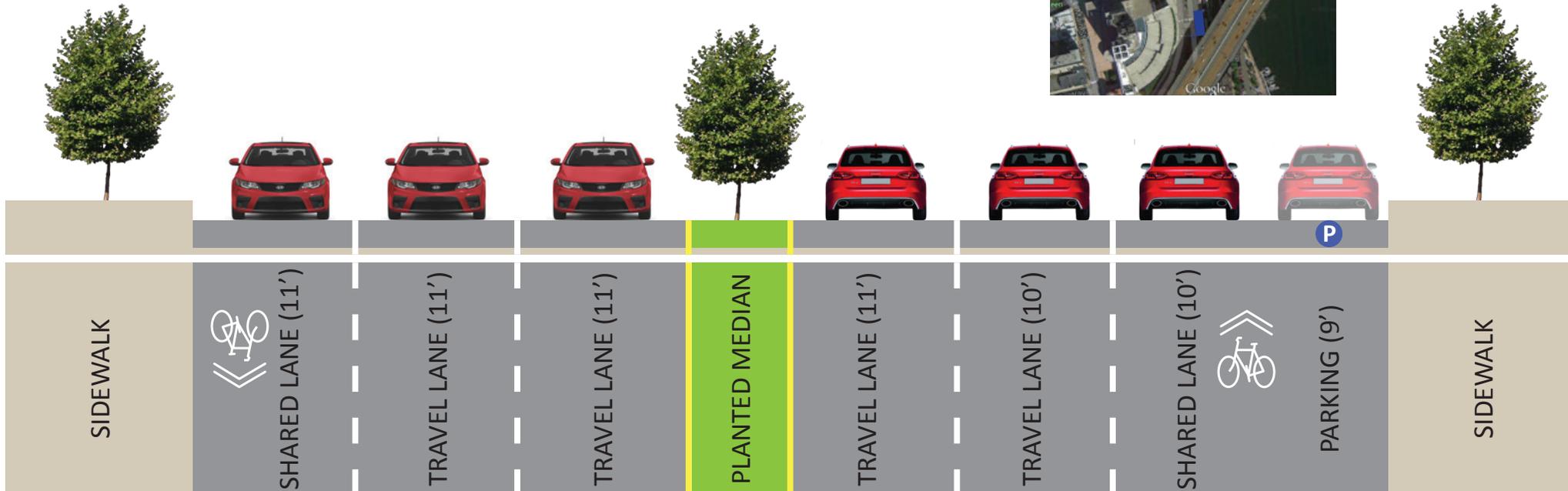
Advantages:

- Connects to transit hub.

Disadvantages:

- Route consists of Class 3 Shared Roadway along busy corridor.

*Approximate Construction Cost = \$20,000



NOT TO SCALE

EAST WASHINGTON AVENUE

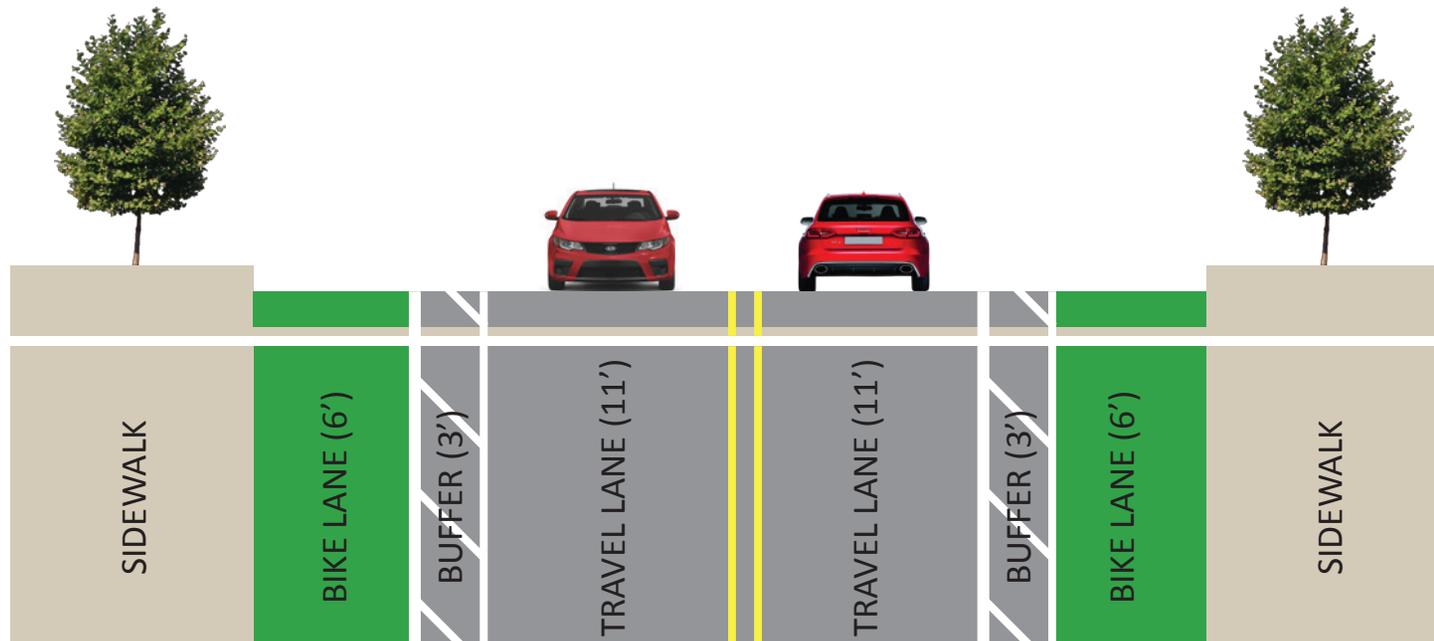
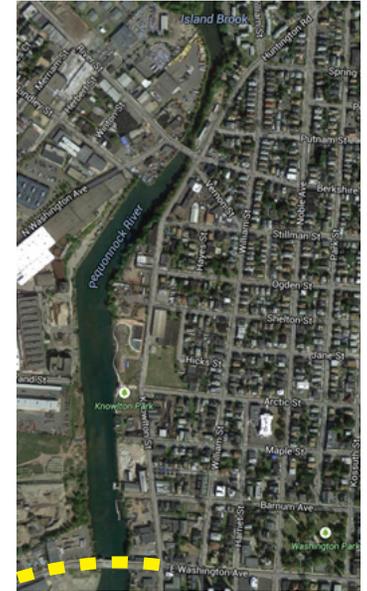
Housatonic Ave to Knowlton St
Class 2

Advantages:

- The proposed route can act as a collector of local bicyclists in the neighborhood to the east of Knowlton Street and provide them with north-south destinations.
- Route connects users to the newly constructed Knowlton Park.
- Route is classified as Class II Buffered Bike Lanes, which provides a designated space for bicyclists on the roadway.
- The construction cost is expected to be low due to the nature of the improvements being limited to signing and pavement markings.
- No right-of-way impact is anticipated.

Disadvantages:

- Bicyclists are on-road as opposed to being on a separated path.



EAST WASHINGTON STREET TRANSITION



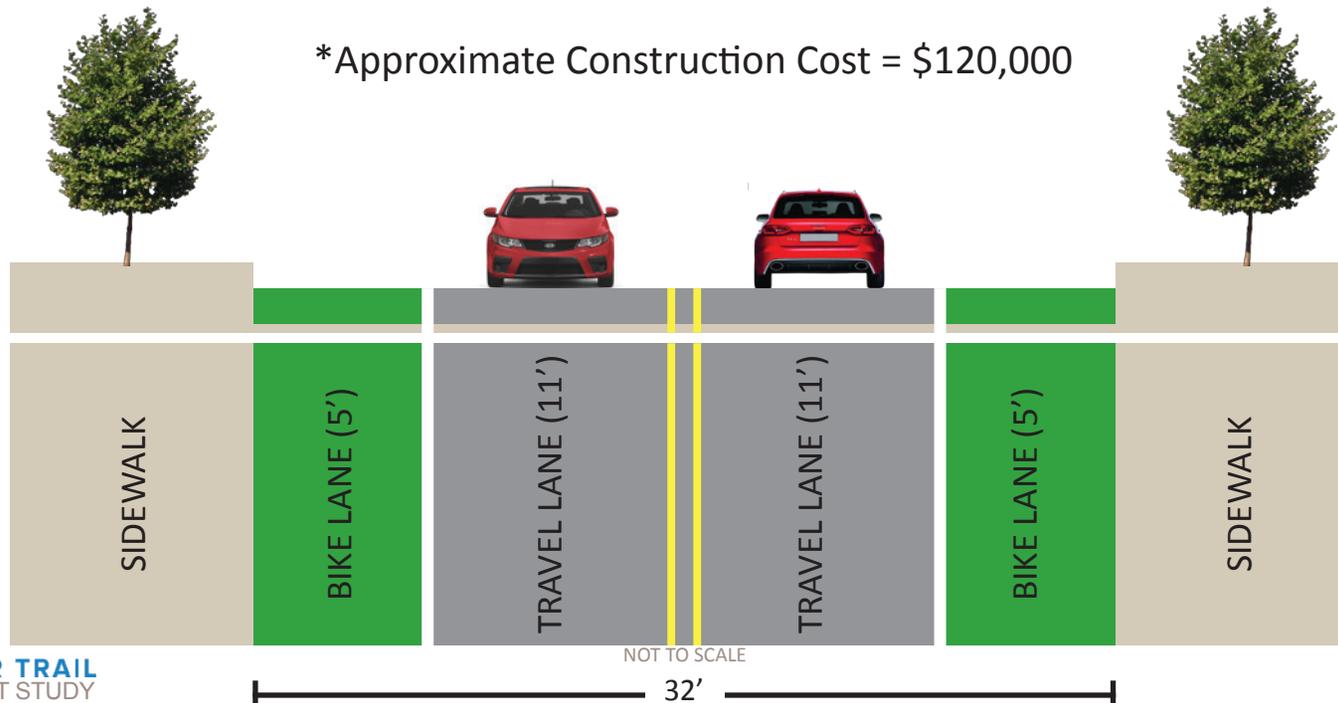
KNOWLTON STREET/HUNTINGTON ROAD via E Washington Ave to Noble St - Class 2

Advantages:

- The proposed route can act as a collector of local bicyclists in the neighborhood to the east of Knowlton Street and provide them with north-south destinations.
- Route connects users to the newly constructed Knowlton Park.
- Route is classified as Class II Bike Lanes, which provides a designated space for bicyclists on the roadway.
- The construction cost is expected to be low due to the nature of the improvements being limited to signing and pavement markings.
- No right-of-way impact is anticipated.

Disadvantages:

- Bicyclists are on-road as opposed to being on a separated path.
- Loss of on-street parking.



NOBLE AVENUE

Huntington Road to Beardsley Park



NOBLE AVENUE

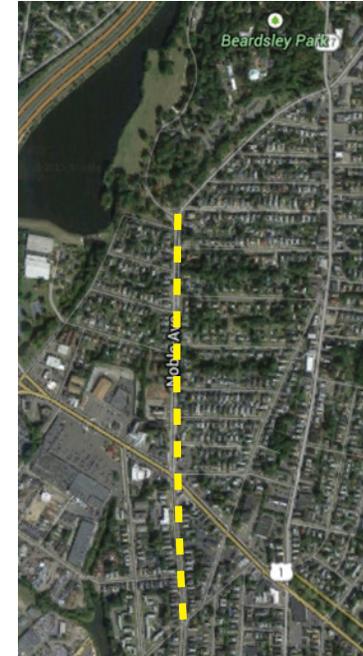
Huntington Road to Beardsley Park
Class 2 with buffer

Advantages:

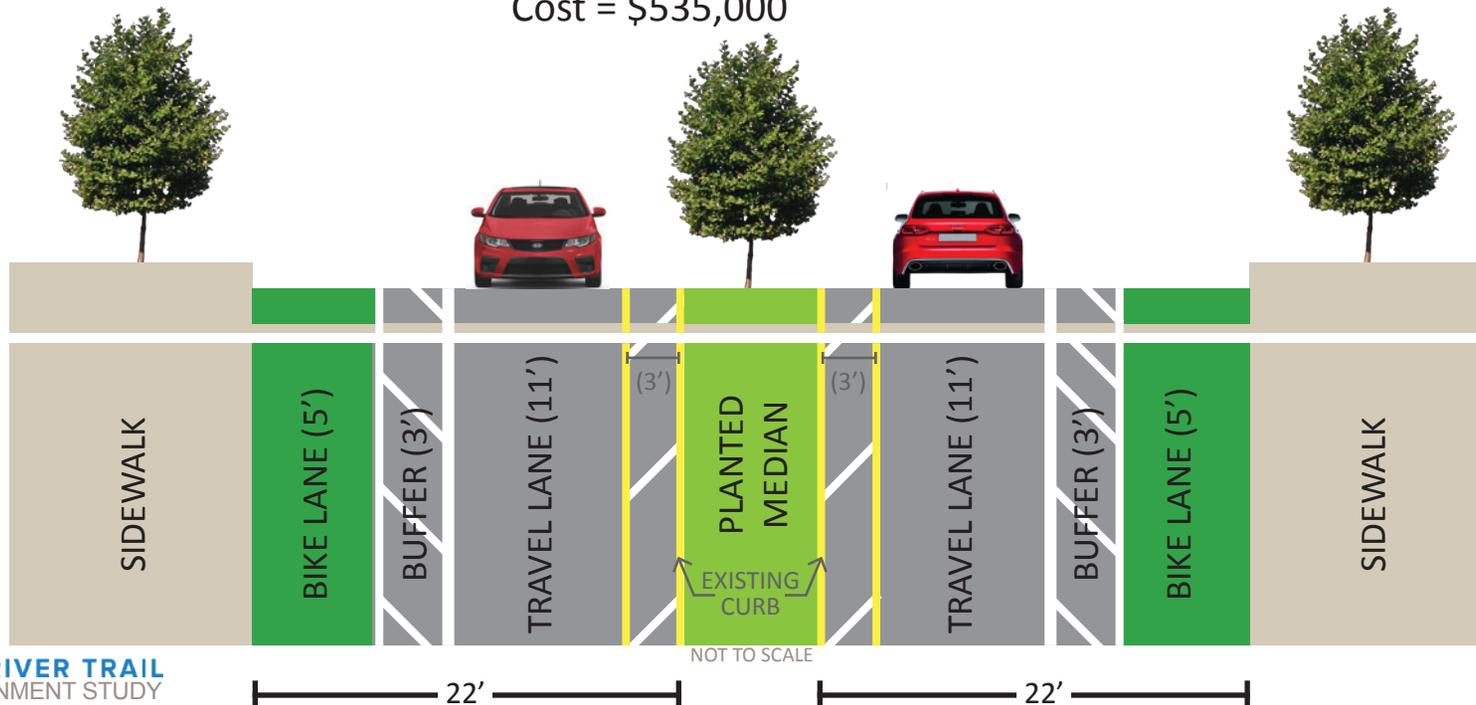
- The completed route is a more of a single straight line from River Road to Beardsley Park.
- Noble Avenue has an existing center planted median which provides for a visually enjoyable environment.
- No property takings or easements will be required.

Disadvantages:

- Loss of on-street parking.
- Requires full width pavement resurfacing.



*Approximate Construction
Cost = \$535,000

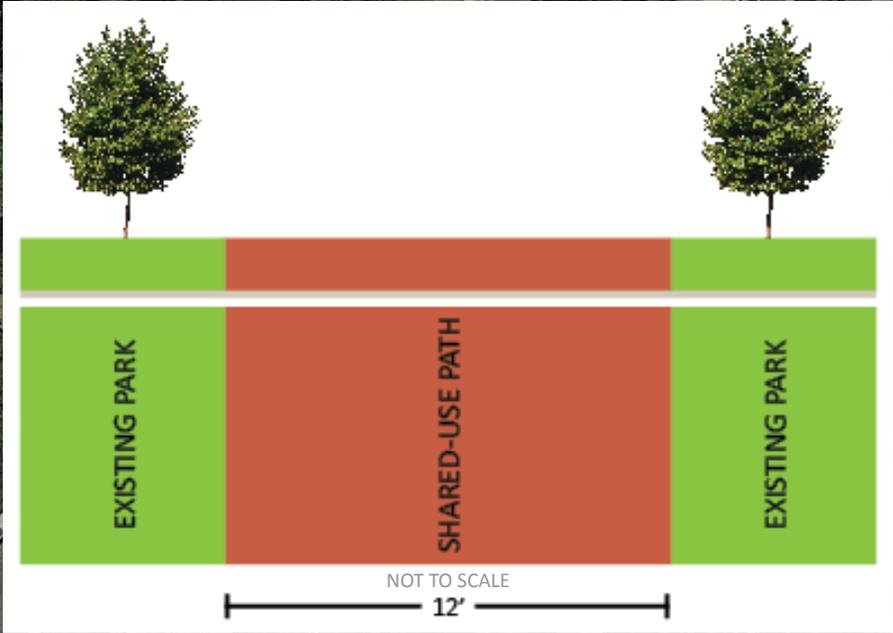


NOBLE AVENUE

Potential pedestrian improvements
at Crown Street



BEARDSLEY PARK ENTRANCE



*Approximate Construction Cost = \$30,000

Preferred Route

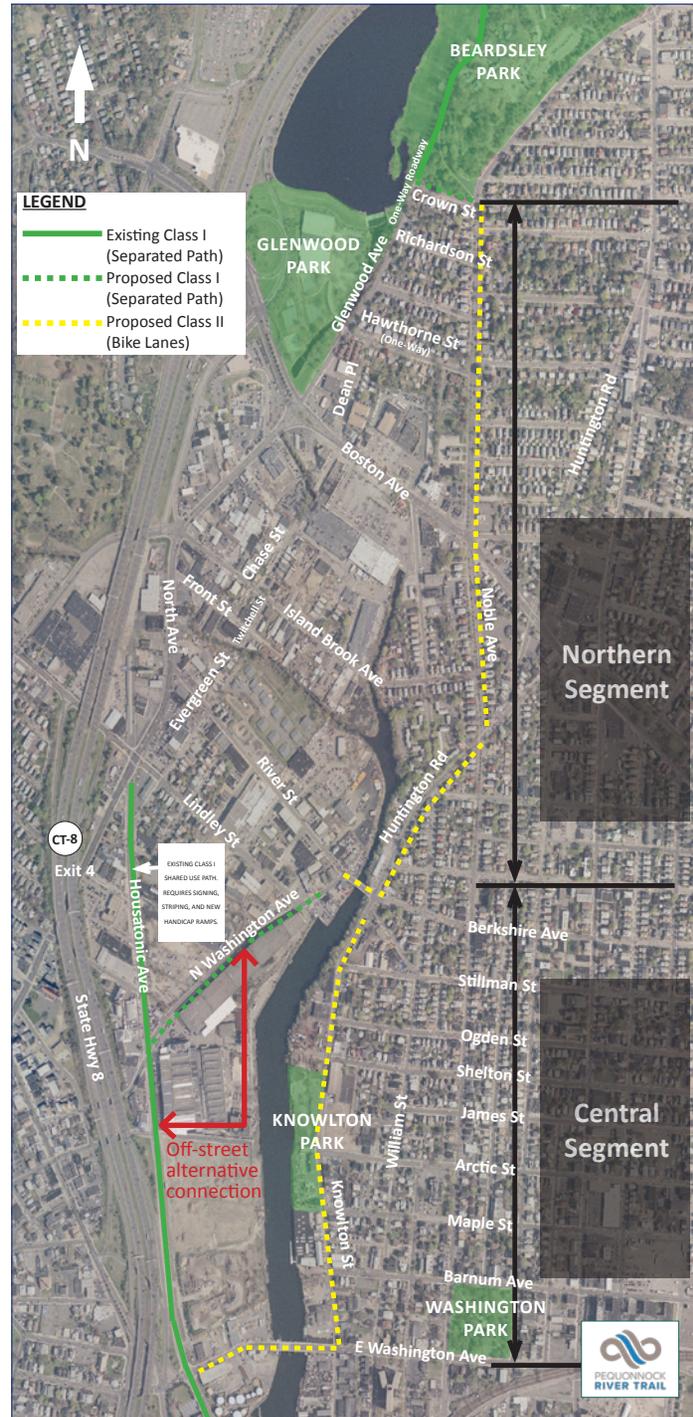
The possible alignments were presented to and reviewed by representatives of the City's Office of Planning and Economic Development, Engineering and Department of Public Works. Based on the City's design criteria for roadway improvements (including minimum lane widths), input gathered at public meetings and the Planning Considerations listed previously, a preferred route was proposed. This alignment was continually refined based on public input and technical feasibility, as new information was provided to the project team. It should be noted that all of the routes under consideration have existing sidewalks and many crossings have crosswalks, so pedestrian accommodations were considered to be existing and not the focus of route alignment selection. However, intersections with difficult pedestrian crossings were considered as part of the overall analysis.

The resulting preferred route includes almost exclusively dedicated bicycle lanes, with a key off-street connection from Main and Broad Streets at Railroad Avenue to Water Street at North Frontage Road. This connection would take advantage of an unused corridor between Ferry Access Road and the Metro-North railroad corridor, crossing under the railroad tracks via an existing non-motorized tunnel. Shared lanes are proposed on Water Street from North Frontage Road to Gold Street based on the need to maintain all existing travel lanes for vehicular use. Furthermore, the City was in the final stages of contract documents for the Water Street Traffic Calming Project and as such, modifications to proposed medians and layout was deemed impractical.

On the following pages, a map of the preferred route with facility type can be found. This map includes the type of facility proposed for each route segment. A detailed breakdown of street width as well as cost estimates can be found in the appendix.

Many of the route segments that were not selected do not satisfy the goals of this study for the Pequonnock River Trail are suitable for commuter or utilitarian bicycle routes and could be considered in the future. Please refer to the 'Alternatives not Selected' section of the Appendix for details about those route segments. The 'Alternatives not Selected' section also includes the configurations considered but not selected for the preferred route.

Preferred Route North and Central segments



Preferred Route South segment



Aerial Photo 2007

Cost Estimates

ENGINEER'S CONCEPTUAL ESTIMATE OF PROBABLE CONSTRUCTION COSTS
for
PEQUONNOCK RIVER TRAIL
BRIDGEPORT, CONNECTICUT
4/6/2015

ITEM #	DESCRIPTION	UNIT	UNIT PRICE	1. Broad/Main St		2. Broad St		3. S. Frontage Rd		4. Ferry Access Rd		5. Water Street		6. Knowlton/Hunt		7. N. Washington		8. Noble St		9. Beardsley Park	
				Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost	Quant.	Cost
0000152	UNCLASSIFIED EXCAVATION	CY	\$13.00		\$0.00	150	\$1,950.00	196	\$2,548.00	375	\$4,875.00		\$0.00		\$0.00	605	\$7,865.00		\$0.00	167	\$2,171.00
0202447	COLD MILLING REMOVAL OF BITUMINOUS CONCRETE	SY	\$7.50		\$0.00	3,000	\$22,500.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	11,620	\$87,150.00		\$0.00
0202529	CUT BITUMINOUS CONCRETE PAVEMENT	LF	\$2.00		\$0.00	900	\$1,800.00	950	\$1,900.00	1,400	\$2,800.00		\$0.00		\$0.00	1,920	\$3,840.00		\$0.00		\$0.00
0212302	PROCESSED AGGREGATE SUBBASE	CY	\$25.40		\$0.00	8	\$203.20	7	\$177.80	19	\$482.60		\$0.00		\$0.00	47	\$1,193.80		\$0.00		\$0.00
0214000	COMPACTED GRAVEL FILL	CY	\$35.00		\$0.00		\$0.00	106	\$3,710.00	130	\$4,550.00		\$0.00		\$0.00	300	\$10,500.00		\$0.00	13	\$455.00
0406236	MATERIAL FOR TACK COAT	GAL	\$6.50		\$0.00	272	\$1,768.00	58	\$377.00	156	\$1,014.00		\$0.00		\$0.00		\$0.00	1,390	\$9,035.00	107	\$695.50
0406441	SUPERPAVE .375" (BINDER)	TON	\$100.00		\$0.00	71	\$7,100.00	32	\$3,200.00	87	\$8,700.00		\$0.00		\$0.00	226	\$22,600.00		\$0.00	59	\$5,900.00
0406449	SUPERPAVE 0.25" (TOP)	TON	\$100.00		\$0.00	389	\$38,900.00	32	\$3,200.00	87	\$8,700.00		\$0.00		\$0.00	226	\$22,600.00	2,020	\$202,000.00	59	\$5,900.00
	TREE REMOVAL 8"-20" DIA	EA	\$1,000.00		\$0.00	2	\$2,000.00	6	\$6,000.00	10	\$10,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
	ALTER MANHOLE/DRAINAGE STRUCTURE	EA	\$1,000.00		\$0.00	3	\$3,000.00		\$0.00		\$0.00		\$0.00		\$0.00	4	\$4,000.00		\$0.00		\$0.00
	RELOCATE LIGHT POLE	EA	\$1,000.00		\$0.00		\$0.00	11	\$11,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
	CONCRETE CURB	LF	\$30.00		\$0.00		\$0.00	950	\$28,500.00	1,400	\$42,000.00		\$0.00		\$0.00	1,920	\$57,600.00		\$0.00		\$0.00
0901005	BOLLARD	EA	\$800.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
	RELOCATE UTILITY POLE	EA	\$5,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	4	\$20,000.00		\$0.00		\$0.00
	LIGHTING	LS			\$0.00		\$0.00		\$0.00	1	\$50,000.00		\$0.00		\$0.00	3	\$0.00		\$0.00		\$0.00
	RELOCATE FIRE HYDRANT	EA	\$1,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	3	\$3,000.00		\$0.00		\$0.00
0921001	CONCRETE SIDEWALK	SF	\$11.50		\$0.00		\$0.00	4,750	\$54,625.00	11,200	\$128,800.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
0944000	FURNISHING AND PLACING TOPSOIL	SY	\$5.00		\$0.00		\$0.00	528	\$2,640.00		\$0.00		\$0.00		\$0.00	1,280	\$6,400.00		\$0.00		\$0.00
0949998	FURNISHING AND PLANTING TREES	EA	\$1,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	40	\$40,000.00		\$0.00		\$0.00
0950005	TURF ESTABLISHMENT	SY	\$2.50		\$0.00		\$0.00	528	\$1,320.00		\$0.00		\$0.00		\$0.00	1,280	\$3,200.00		\$0.00		\$0.00
1208928	SIGN FACE - SHEET ALUMINUM (TYPE III REFLECTIVE SHEETING)	SF	\$51.00	93	\$4,743.00	37	\$1,887.00	36	\$1,836.00	37	\$1,887.00	55	\$2,805.00	172	\$8,772.00	31	\$1,581.00	200	\$10,200.00	6	\$306.00
1208996	METAL SIGN POST	EA	\$260.00	20	\$5,200.00	9	\$2,340.00	12	\$3,120.00	8	\$2,080.00	15	\$3,900.00	41	\$10,660.00	9	\$2,340.00	47	\$12,220.00	2	\$520.00
	REMOVE & RELOCATE SIGN	EA	\$200.00		\$0.00	9	\$1,800.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
1210101	4" WHITE EPOXY RESIN PAVEMENT MARKINGS	LF	\$0.35		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
1210102	4" YELLOW EPOXY RESIN PAVEMENT MARKINGS	LF	\$0.35		\$0.00	1,800	\$630.00	675	\$236.25	700	\$245.00		\$0.00	11,720	\$4,102.00	960	\$336.00	7,000	\$2,450.00	250	\$87.50
1210103	6" WHITE EPOXY RESIN PAVEMENT MARKINGS	LF	\$0.51	3,800	\$1,938.00	1,800	\$918.00		\$0.00	1,000	\$510.00	900	\$459.00	11,720	\$5,977.20		\$0.00	14,000	\$7,140.00		\$0.00
1210104	8" WHITE EPOXY RESIN PAVEMENT MARKINGS	LF	\$0.80		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
	EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGENDS	EA	\$250.00	20	\$5,000.00	6	\$1,500.00	24	\$6,000.00	24	\$6,000.00	14	\$3,500.00	52	\$13,000.00	16	\$4,000.00	60	\$15,000.00	4	\$1,000.00
1210106	12" WHITE EPOXY RESIN PAVEMENT MARKINGS	LF	\$3.00	150	\$450.00		\$0.00		\$0.00		\$0.00		\$0.00	352	\$1,056.00		\$0.00	2,940	\$8,820.00		\$0.00
1211001	REMOVAL OF PAVEMENT MARKINGS	LF	\$1.00	6,800	\$6,800.00		\$0.00		\$0.00		\$0.00		\$0.00	11,720	\$11,720.00		\$0.00		\$0.00		\$0.00
	PAVEMENT SURFACE TREATMENT - GREEN	SY	\$250.00	28	\$7,000.00		\$0.00		\$0.00		\$0.00	12	\$3,000.00	73	\$18,250.00		\$0.00	90	\$22,500.00		\$0.00
	SUBTOTAL				\$31,131.00		\$88,296.20		\$130,390.05		\$272,643.60		\$13,664.00		\$73,537.20		\$211,055.60		\$376,515.00		\$17,035.00
	CLEARING & GRUBBING (AS % OF CONTRACT ITEMS)		4%		\$1,250.00		\$3,530.00		\$5,220.00		\$10,910.00		\$550.00		\$2,940.00		\$8,440.00		\$15,060.00		\$680.00
	M.P.T. (AS % OF CONTRACT ITEMS)		6%		\$1,870.00		\$5,300.00		\$7,820.00		\$16,360.00		\$820.00		\$4,410.00		\$12,660.00		\$22,590.00		\$1,020.00
	CONSTRUCTION STAKING (AS % OF CONTRACT ITEMS)		1%		\$310.00		\$880.00		\$1,300.00		\$2,730.00		\$140.00		\$2,110.00		\$3,770.00		\$2,590.00		\$170.00
	MOBILIZATION (AS % OF CONTRACT ITEMS)		7.5%		\$2,330.00		\$6,620.00		\$9,780.00		\$20,450.00		\$1,020.00		\$5,520.00		\$15,830.00		\$28,240.00		\$1,280.00
	BASE TOTAL				\$36,891.00		\$104,626.20		\$154,510.05		\$323,093.60		\$16,194.00		\$87,147.20		\$250,095.60		\$446,175.00		\$20,185.00
	CONTINGENCY		20%		\$7,380.00		\$20,930.00		\$30,900.00		\$64,620.00		\$3,240.00		\$17,430.00		\$50,020.00		\$89,240.00		\$4,040.00
	TOTAL ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS				\$44,271.00		\$125,556.20		\$185,410.05		\$387,713.60		\$19,434.00		\$104,577.20		\$300,115.60		\$535,415.00		\$24,225.00

TOTAL
\$1,726,717.85

Location Descriptions

1. Broad St/Main St (University to RR) - One Way Bike Lanes - Approx 2,000 LF
2. Broad Street (RR to S. Frontage Road) - Widen 2' to provide Bike Lanes - Approx 900 LF
3. S. Frontage (Broad to Water St) - Separated path in grass area and sidewalk area at garage - Approx 1,400 LF
4. Ferry Access Road (Main St to Water Street) - Separated Path - Approx 2,500 LF
5. Water Street - Bike Route and 450' of Bike Lanes - Approx 1,600 LF
6. E. Washington/Knowlton/Huntington/River St - Bike Lanes - Approx 5,900 LF
7. N. Washington - Separated 12' path with 6' Mow/Utility Strip - Approx 1,900 LF
8. Noble Street (Huntington Road to Beardsley Park) - Bike Lanes with no on-street parking - Approx 3,500 LF
9. Beardsley Park Path (Noble Road to connect to existing path in grass) - Separated Path - Approx 500 LF

Minus rest of Broad & S Frontage
if going with Ferry Road option
-\$310,966.25
\$1,415,751.60

NOT TO SCALE



Routes Considered

All Segments Considered



1 Noble Ave at Beardsley Park Entrance



2 Noble Ave (Looking NB)



3 Noble Ave at Boston Rd (Looking SB)



4 Noble Ave at Huntington Rd (Looking WB)



4A Evergreen St (Looking NB)



5 Huntington Rd (Looking SB)



6 River St Bridge (Looking WB)



7 N. Washington Ave (Looking SB) - at River St



7A River St (Looking WB)



8 N. Washington Ave (Looking SB) - south of Lindley St



9 N. Washington Ave at Housatonic Ave (Looking SB)



10 Housatonic Ave (Looking SB)



10A Knowlton St (Looking NB)



11 Housatonic Ave (Looking SB) at commercial driveway



12 Housatonic Ave (Looking NB) at E. Washington Ave

Northern Segment

OPTIONS:
 A. Bike Route
 B. Bike Lanes

Central Segment

OPTIONS:
 A. N. Washington Ave
 B. E. Washington Ave to Knowlton St



Aerial Photo 2007



All Segments Considered



13 Housatonic Ave (Looking SB) - South of E. Washington Ave



14 Water St (Looking NB) - at Bridgeport Transportation Center



15 Water St (Looking SB) - between Bridgeport Transportation Center and Train Station



16 Water St (Looking SB) - at Ferry Access Rd and I-95



16A Water St (Looking NB)



17 N. Frontage Rd (Looking WB) approaching Main St



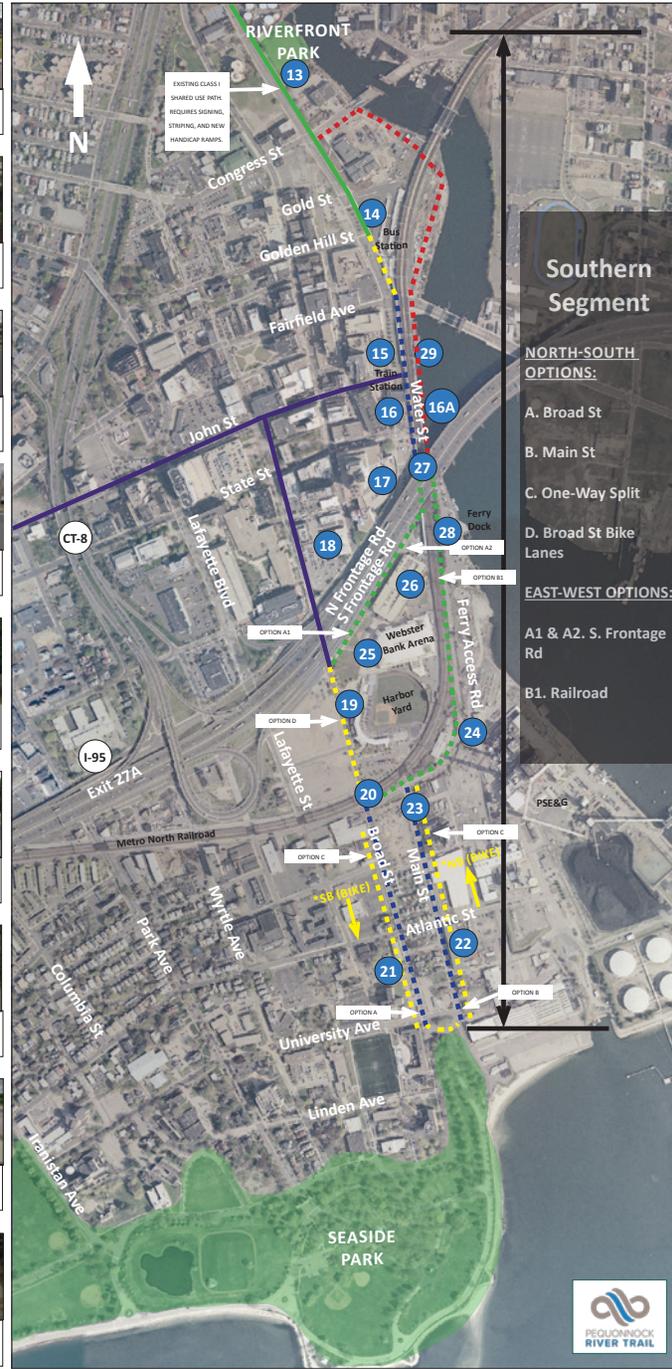
18 N. Frontage Rd (Looking WB) approaching Broad St



19 Broad St (Looking SB) adjacent to Baseball Stadium



20 Broad St (Looking SB) under Metro North Rail Road trestle



21 Broad St (Looking SB) between Atlantic St and University Ave



22 Main St (Looking NB) between Atlantic St and University Ave



23 Main St (Looking NB) at Ferry Access Rd



24 Ferry Access Rd - between Guard Booth and Ferry Terminal



25 Shipping/Receiving Access Rd - at Harbor Yard / S Frontage Rd



26 Water St (Looking NB) - at I-95 / Harbor Yard Shipping / Receiving



27 Water St (Looking NB) - at Ferry Terminal Driveway / Train Station / Taxi



28 Metro North Underpass to Water St and Ferry



29 Riverwalk adjacent to Train Platform

Aerial Photo 2007



Road Name	From	To	Approx. Distance [Miles]	Existing Speed Limit [MPH]	Proposed Facility	Improvement Classification	Widening Required (Y/N)	Number of Lanes	Comments	How is parking affected?	LAND USE	Approximate Cost
SOUTHERN SEGMENT - NORTH-SOUTH OPTIONS FOR PROPOSED BICYCLING FACILITIES												
OPTION A												
UNIVERSITY AVENUE	BROAD STREET	LAFAYETTE STREET	0.05	25 MPH	CLASS III	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ONE SIDE OF ON STREET PARKING	32' WIDE ROADWAY. PROVIDE CLASS III BIKE ROUTE.	NO IMPACT	COMMERCIAL	
LAFAYETTE STREET	UNIVERSITY AVENUE	SOUTH FRONTAGE ROAD	0.48	25 MPH	CLASS III	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ONE SIDE OF ON STREET PARKING	32' WIDE ROADWAY. PROVIDE CLASS III BIKE ROUTE.	NO IMPACT	MIXED USE	
LAFAYETTE STREET	SOUTH FRONTAGE ROAD	NORTH FRONTAGE ROAD	0.08	25 MPH	CLASS III	SIGNING & STRIPING	N	5 LANES - 2 NORTHBOUND AND 3 SOUTHBOUND	UNDER ROUTE 95 OVERPASS. PROPOSED CLASS III BIKE ROUTE.	NO IMPACT	N/A	
LAFAYETTE STREET	NORTH FRONTAGE ROAD	PARKING GARAGE ENTRANCE	0.17	25 MPH	CLASS III	SIGNING & STRIPING	N	6 LANES - 3 IN EACH DIRECTION	36' WIDE ROADWAY EACH DIRECTION. PROVIDE TWO 11' TRAVEL LANES AND ONE 14' OUTSIDE SHARED LANE. PROVIDE CLASS III BIKE ROUTE.	NO IMPACT	COMMERCIAL	
LAFAYETTE STREET	PARKING GARAGE ENTRANCE	STATE STREET	0.07	25 MPH	CLASS II	SIGNING & STRIPING	N	5 LANES - 2 NORTHBOUND TRAVEL LANE AND A RIGHT TURN LANE AND 2 SOUTHBOUND TRAVEL LANES AND ONE PARKING LANE	36' WIDE ROADWAY EACH DIRECTION. PROVIDE TWO 12' TRAVEL LANES AND ONE BUFFERED BIKE LANE SOUTHBOUND AND TWO NORTHBOUND LANES WITH A BIKE LANE IN THE RIGHT TURN LANE.	ELIMINATE SOUTHBOUND PARKING LANE	COMMERCIAL	
LAFAYETTE STREET	STATE STREET	JOHN STREET	0.07	25 MPH	CLASS II	SIGNING & STRIPING	N	4 LANES - 2 LANES IN EACH DIRECTION AND TWO PARKING LANES	36' WIDE ROADWAY EACH DIRECTION. PROVIDE TWO 12' TRAVEL LANES AND TWO BUFFERED BIKE LANES	ELIMINATE SOUTHBOUND & NORTHBOUND PARKING LANE	COMMERCIAL	
OPTION B												
BROAD STREET	UNIVERSITY AVENUE	RAILROAD AVENUE	0.30	25 MPH	CLASS III	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ON-STREET PARKING	30' WIDE ROADWAY WITH ON STREET PARKING. PROPOSED CLASS III BIKE ROUTE.	NO IMPACT	PREDOMINATELY RESIDENTIAL, SOME COMMERCIAL	
BROAD STREET	RAILROAD AVENUE	SOUTH FRONTAGE ROAD	0.17	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	30' WIDE ROADWAY. PROPOSED 5' WIDE CLASS II BIKE LANES AND 10' WIDE TRAVEL LANES.	NO IMPACT	COMMERCIAL	
BROAD STREET	SOUTH FRONTAGE ROAD	NORTH FRONTAGE ROAD	0.08	25 MPH	CLASS III	SIGNING & STRIPING	N	4 LANES - 2 IN EACH DIRECTION	UNDER ROUTE 95 OVERPASS. PROPOSED CLASS III BIKE ROUTE.	NO IMPACT	N/A	
BROAD STREET	NORTH FRONTAGE ROAD	JOHN STREET	0.25	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ON-STREET PARKING	50' WIDE ROADWAY. PROPOSED 5' WIDE CLASS II BIKE LANES, 8' PARKING LANES AND 12' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
OPTION C												
MAIN STREET	UNIVERSITY AVENUE	RAILROAD AVENUE	0.30	25 MPH	CLASS III	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ON-STREET PARKING	35' WIDE ROADWAY WITH ON STREET PARKING. PROPOSED CLASS III BIKE ROUTE.	NO IMPACT	MIXED USE	
OPTION D												
RAILROAD AVENUE	BROAD STREET	STRATFORD AVENUE	0.72	N/A	CLASS I	CONSTRUCTION	Y	N/A	UTILIZE GRASS STRIP AREA ALONG EAST SIDE OF RAILROAD TRACKS TO PROVIDE CLASS I BIKE PATH. CONSTRUCT BIKE PATH/PROMENADE OVER THE WATER AND ADJACENT TO THE TRAIN STATION.	N/A	OPEN SPACE	

EXISTING/PROPOSED FACILITIES

CLASS I - A PATH FOR THE EXCLUSIVE USE OF BICYCLISTS, PHYSICALLY SEPARATED FROM MOTORIZED VEHICULAR TRAFFIC EITHER WITHIN AN EXISTING RIGHT-OF-WAY OR ON A COMPLETELY NEW LOCATION
CLASS II - A PORTION OF A ROADWAY THAT HAS BEEN DESIGNATED BY STRIPING, SIGNING, AND PAVEMENT MARKINGS FOR THE PREFERENTIAL OR EXCLUSIVE USE OF BICYCLISTS
CLASS III - A SHARED RIGHT-OF-WAY IDENTIFIED ONLY BY SIGNING. BIKE ROUTES ARE PROPOSED ALONG LOW SPEED (<35 MPH), LOWER VOLUME ROADWAYS WHERE THERE IS INSUFFICIENT WIDTH TO PROVIDE BICYCLE LANES

DESIGN CRITERIA

MIN. REQUIREMENTS FOR CLASS II (DEDICATED BIKE LANE)
IF CURB EXISTS, A MINIMUM OF 6' IS REQUIRED FOR THE BIKE LANE/SHOULDER. HOWEVER, ON EXTREMELY CONSTRAINED, LOW-SPEED ROADWAYS (45 MPH OR LESS) WITH CURBS BUT NO GUTTER, A 4 FT WIDE BIKE LANE CAN BE USED.
IF NO CURB EXISTS, A MINIMUM OF 4' IS REQUIRED FOR THE BIKE LANE/SHOULDER



Road Name	From	To	Approx. Distance [Miles]	Existing Speed Limit [MPH]	Proposed Facility	Improvement Classification	Widening Required (Y/N)	Number of Lanes	Comments	How is parking affected?	LAND USE	Approximate Cost
SOUTHERN SEGMENT - EAST-WEST OPTIONS FOR PROPOSED BICYCLING FACILITIES												
OPTION A1												
SOUTH FRONTAGE ROAD	LAFAYETTE STREET	BROAD STREET	0.11	25 MPH	CLASS I	RECONSTRUCTION	Y	2 LANES - 2 IN SAME DIRECTION	BUILD 10' WIDE PATH AT EDGE OF EXISTING PARKING LOT. MAINTAIN SIDEWALK FOR PEDS.	NO IMPACT	COMMERCIAL	
SOUTH FRONTAGE ROAD	BROAD STREET	MAIN STREET	0.09	25 MPH	CLASS I	RECONSTRUCTION	Y	2 LANES - 2 IN SAME DIRECTION	BUILD 10' WIDE PATH BEHIND EXISTING SIDEWALK AREA IN GRASS FOR BICYCLES. MAINTAIN SIDEWALK FOR PEDS.	NO IMPACT	COMMERCIAL	
SOUTH FRONTAGE ROAD/WATER STREET	MAIN STREET	NORTH FRONTAGE ROAD/WATER STREET	0.20	25 MPH	CLASS I	RECONSTRUCTION	Y	1 LANE	32' WIDE ROADWAY. BUILD 10' WIDE PATH INTO ROADWAY AREA. MAINTAIN SIDEWALK FOR PEDS.	NO IMPACT	COMMERCIAL	
END AT BUS/TRAIN STATION												
OPTION B2												
JOHN STREET	LAFAYETTE STREET	BROAD STREET	0.13	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	36' WIDE ROADWAY. PROVIDE TWO 12' TRAVEL LANES AND TWO 6' WIDE CLASS II BIKE LANES.	NO IMPACT	COMMERCIAL	
JOHN STREET	BROAD STREET	MAIN STREET	0.09	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION & ONE SIDE ON-STREET PARKING	35' WIDE ROADWAY. PROPOSED 5' WIDE DESIGNATED CLASS II BIKE LANES, ONE 8' PARKING LANE AND TWO 11' TRAVEL LANES	NO IMPACT	COMMERCIAL	
JOHN STREET	MAIN STREET	MIDDLE STREET	0.04	25 MPH	CLASS III	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION WITH ON-STREET PARKING	40' WIDE ROADWAY WITH ON-STREET PARKING. PROPOSED CLASS III WITH SHARROWS.	NO IMPACT	COMMERCIAL	
JOHN STREET	MIDDLE STREET	WATER STREET/TRAIN STATION	0.06	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	40' WIDE ROADWAY. PROPOSED 5' WIDE CLASS II BIKE LANES AND 15' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
END AT BUS/TRAIN STATION												
AT BUS/TRAIN STATION												
WATER STREET	NORTH FRONTAGE ROAD	STATE STREET	0.06	25 MPH	CLASS III	SIGNING & STRIPING	N	6 TRAVEL LANES & 1 PARKING LANE. 2 LANES TRAVEL NORTH & 4 LANES TRAVEL SOUTH.	42' WIDE ROADWAY SOUTHBOUND, PROPOSE THREE 11' TRAVEL LANES AND ONE 9' U-TURN LANE. 31' WIDE ROADWAY NORTHBOUND, PROPOSE ONE 11' LANE & TWO 10' TRAVEL LANES. OUTSIDE LANES TO INCLUDE SHARROWS.	NO IMPACT	COMMERCIAL	
WATER STREET	STATE STREET	JOHN STREET	0.08	25 MPH	CLASS III	SIGNING & STRIPING	N	PARKING LANE. 2 LANES TRAVEL NORTH WITH PARKING LANE & 3 LANES TRAVEL SOUTH.	42' WIDE ROADWAY NORTHBOUND, PROPOSE THREE 11' TRAVEL LANES AND ONE 9' PARKING LANE. 32' WIDE ROADWAY SOUTHBOUND, PROPOSE ONE 11' LANE & TWO 10' TRAVEL LANES. OUTSIDE LANES TO INCLUDE SHARROWS.	NO IMPACT	COMMERCIAL	
WATER STREET	JOHN STREET	FAIRFIELD AVENUE	0.09	25 MPH	CLASS III	SIGNING & STRIPING	N	PARKING LANE. 2 LANES TRAVEL NORTH WITH PARKING LANE & 3 LANES TRAVEL SOUTH.	32' WIDE ROADWAY NORTHBOUND, PROPOSE TWO 11' TRAVEL LANES AND ONE 10' TRAVEL LANE. 32' WIDE ROADWAY SOUTHBOUND, PROPOSE TWO 11' LANES & ONE 10' TRAVEL LANE. OUTSIDE LANES TO INCLUDE SHARROWS.	NO IMPACT	COMMERCIAL	
WATER STREET	FAIRFIELD AVENUE	BUS STATION	0.04	25 MPH	CLASS II	SIGNING & STRIPING	N	4 LANES - 1 NORTHBOUND & 3 SOUTHBOUND	58' WIDE ROADWAY. PROPOSE 5' WIDE CLASS II BIKE LANES AND FOUR 12' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
WATER STREET	BUS STATION	GOLDEN HILL STREET	0.05	25 MPH	CLASS II	SIGNING & STRIPING	N	5 LANES - 3 NORTHBOUND & 2 SOUTHBOUND	58' WIDE ROADWAY. 27' WIDE SOUTHBOUND ROADWAY PROPOSE 5' WIDE CLASS II BIKE LANE AND TWO 11' TRAVEL LANES. 36' WIDE NORTHBOUND ROADWAY. PROPOSE 5' WIDE CLASS II BIKE LANE & ONE 11' TRAVEL LANE & TWO 10' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
EXISTING CLASS I PATH												
WATER STREET/HOUSATONIC AVENUE	GOLDEN HILL STREET	NORTH AVENUE/LINDLEY STREET	1.10	25 MPH	CLASS I	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	CLASS I PATH CURRENTLY EXISTS. PROPOSE SIGNING & STRIPING TO IDENTIFY PATH.	NO IMPACT	COMMERCIAL	

EXISTING/PROPOSED FACILITIES
CLASS I - A PATH FOR THE EXCLUSIVE USE OF BICYCLISTS, PHYSICALLY SEPARATED FROM MOTORIZED VEHICULAR TRAFFIC EITHER WITHIN AN EXISTING RIGHT-OF-WAY OR ON A COMPLETELY NEW LOCATION
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CLASS III - A SHARED RIGHT-OF-WAY IDENTIFIED ONLY BY SIGNING. BIKE ROUTES ARE PROPOSED ALONG LOW SPEED (<35 MPH), LOWER VOLUME ROADWAYS WHERE THERE IS INSUFFICIENT WIDTH TO PROVIDE BICYCLE LANES

DESIGN CRITERIA
MIN. REQUIREMENTS FOR CLASS II (DEDICATED BIKE LANE)
IF CURB EXISTS, A MINIMUM OF 5' IS REQUIRED FOR THE BIKE LANE/SHOULDER. HOWEVER, ON EXTREMELY CONSTRAINED, LOW-SPEED ROADWAYS (45 MPH OR LESS) WITH CURBS BUT NO GUTTER, A 4 FT WIDE BIKE LANE CAN BE USED.
IF NO CURB EXISTS, A MINIMUM OF 4' IS REQUIRED FOR THE BIKE LANE/SHOULDER

CENTRAL SEGMENT - OPTIONS FOR PROPOSED BICYCLING FACILITIES

CENTRAL SEGMENT - OPTIONS FOR PROPOSED BICYCLING FACILITIES												
OPTION A												
N WASHINGTON AVE	HOUSATONIC AVENUE	RIVER STREET	0.36	25 MPH	CLASS I	RECONSTRUCTION	Y	2 LANES - 1 IN EACH DIRECTION	40' WIDE INCLUDING EASTERN SIDEWALK AREA. PROPOSE 10' WIDE CLASS I BIKE PATH, 6' GRASS/PLANTING/UTILITY POLE STRIP AND TWO 12' TRAVEL LANES	ELIMINATE ON-STREET PARKING	COMMERCIAL	
RIVER STREET	N WASHINGTON AVENUE	HUNTINGTON ROAD	0.04	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	32' WIDE ROADWAY. PROPOSE 5' WIDE CLASS II BIKE LANES AND TWO 11' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
OPTION B												
EAST WASHINGTON AVENUE	HOUSATONIC AVENUE	KNOWLTON STREET	0.22	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION	40' WIDE ROADWAY. PROPOSED 6' WIDE CLASS II BIKE LANES, 3' BUFFER AND 11' TRAVEL LANES.	NO IMPACT	COMMERCIAL	
KNOWLTON STREET	EAST WASHINGTON AVENUE	RIVER STREET	0.58	25 MPH	CLASS II	SIGNING & STRIPING	N	2 LANES - 1 IN EACH DIRECTION, SOME ON-STREET PARKING	32' WIDE ROADWAY. PROPOSE TWO 11' WIDE TRAVEL LANES AND TWO 5' WIDE CLASS II BIKE LANES.	ELIMINATE ON-STREET PARKING	PREDOMINATELY COMMERCIAL, SOME RESIDENTIAL	

EXISTING/PROPOSED FACILITIES

- CLASS I** - A PATH FOR THE EXCLUSIVE USE OF BICYCLISTS, PHYSICALLY SEPARATED FROM MOTORIZED VEHICULAR TRAFFIC EITHER WITHIN AN EXISTING RIGHT-OF-WAY OR ON A COMPLETELY NEW LOCATION
- CLASS II** - A PORTION OF A ROADWAY THAT HAS BEEN DESIGNATED BY STRIPING, SIGNING, AND PAVEMENT MARKINGS FOR THE PREFERENTIAL OR EXCLUSIVE USE OF BICYCLISTS
- CLASS III** - A SHARED RIGHT-OF-WAY IDENTIFIED ONLY BY SIGNING. BIKE ROUTES ARE PROPOSED ALONG LOW SPEED (<35 MPH), LOWER VOLUME ROADWAYS WHERE THERE IS INSUFFICIENT WIDTH TO PROVIDE BICYCLE LANES

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 IF NO CURB EXISTS, A MINIMUM OF 4' IS REQUIRED FOR THE BIKE LANE/SHOULDER



Alternatives Not Selected

BROAD STREET

Option 1

Seaside Park to Railroad Ave

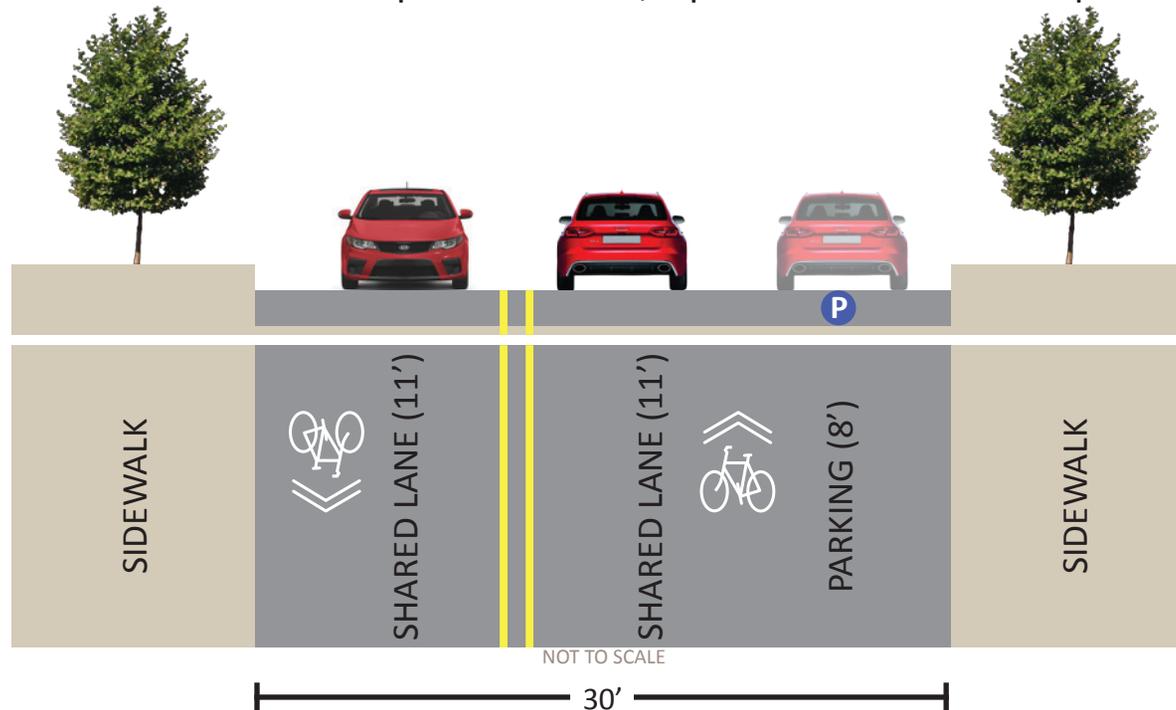
Class 2 or 3

Advantages:

- Route connects to the front of the Harbor Yard Stadium and Webster Bank Arena.
- Route brings the user into downtown Bridgeport.
- Construction cost is expected to be low - improvements limited to signing and markings.
- No right-of-way impact is anticipated.
- Options 2 and 3 could be Class 2 bike lanes.

Disadvantages:

- The segment south of the rail road will be a Class 3 Shared Roadway.
- Bicyclists are on-road sharing the travel lane with motor vehicles.
- On-street parking would be affected in Options 1 and 3; Option 2 maintains two parking lanes.

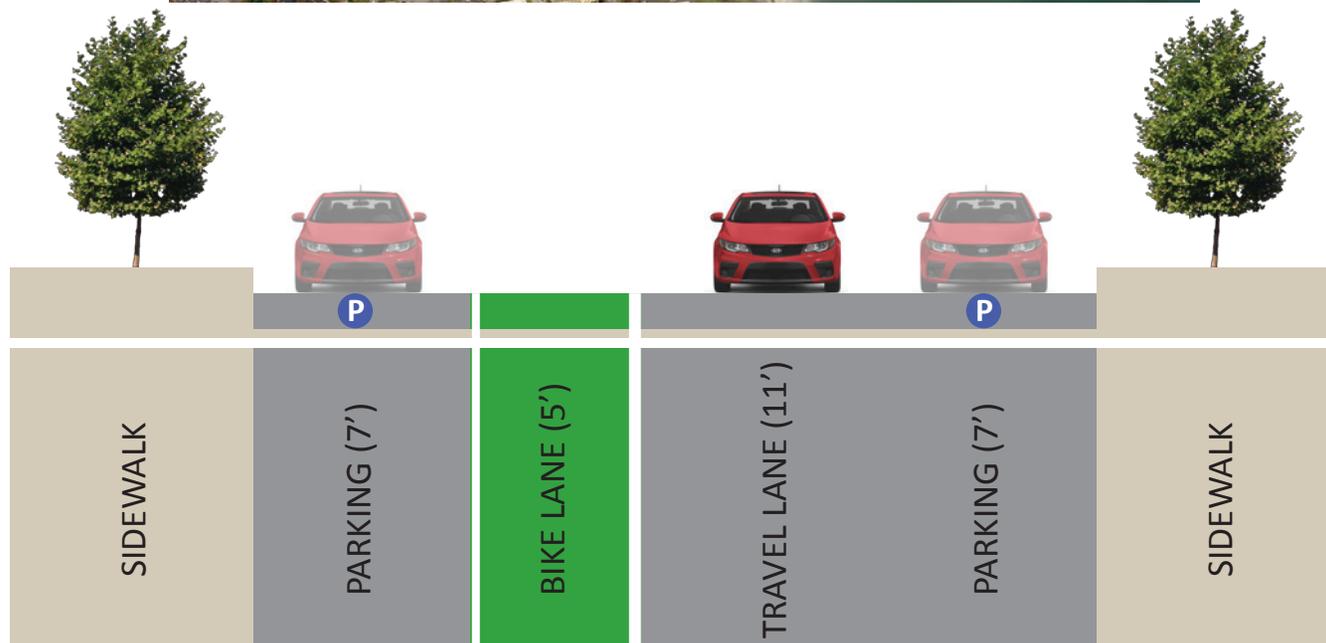


BROAD STREET & MAIN STREET

Option 2 - One-way pair on one-way conversion

Seaside Park to Railroad Ave

Class 2



NOT TO SCALE



BROAD STREET

Option 1

Railroad Ave to South Frontage Ave

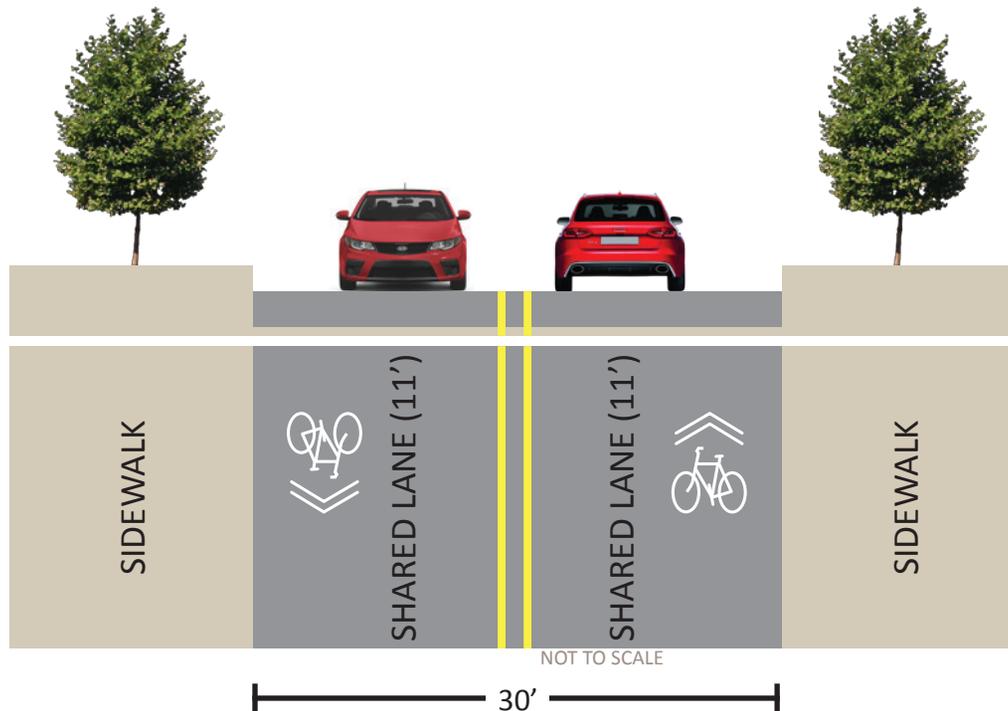
Class 3

Advantages:

- Brings trail to stadium and future development sites.

Disadvantages:

- Parking on one side only.
- Class 3 Shared Roadway.



BROAD STREET

Railroad Ave to South Frontage Ave
Class 2

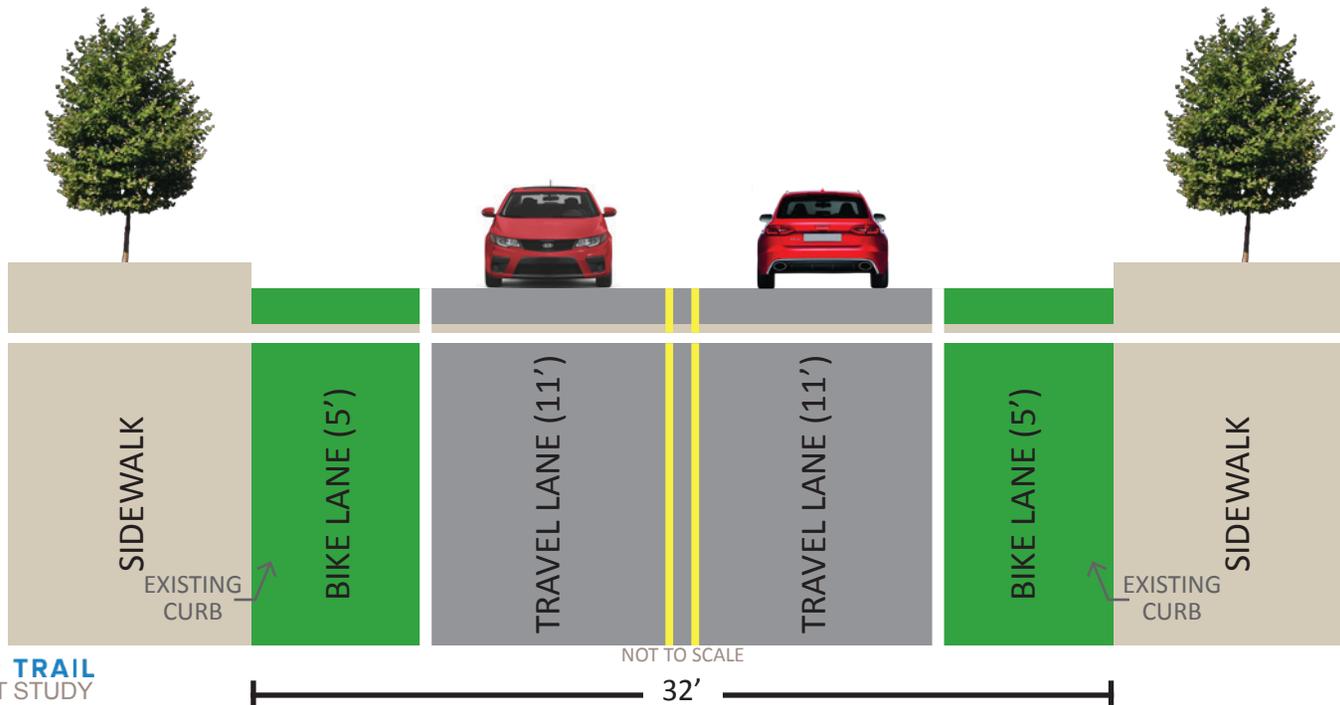
Advantages:

- Brings trail to stadium and future development sites.
- Dedicated Class 2 Bike Lane.

Disadvantages:

- Requires 2' widening for 11' lanes (sidewalk reduction or reconfiguration).
- Impacts to drainage structures.

*Approximate Construction Cost = \$150,000



S FRONTAGE RD/RAILROAD AVE

Broad Street to Water Street
Class 1

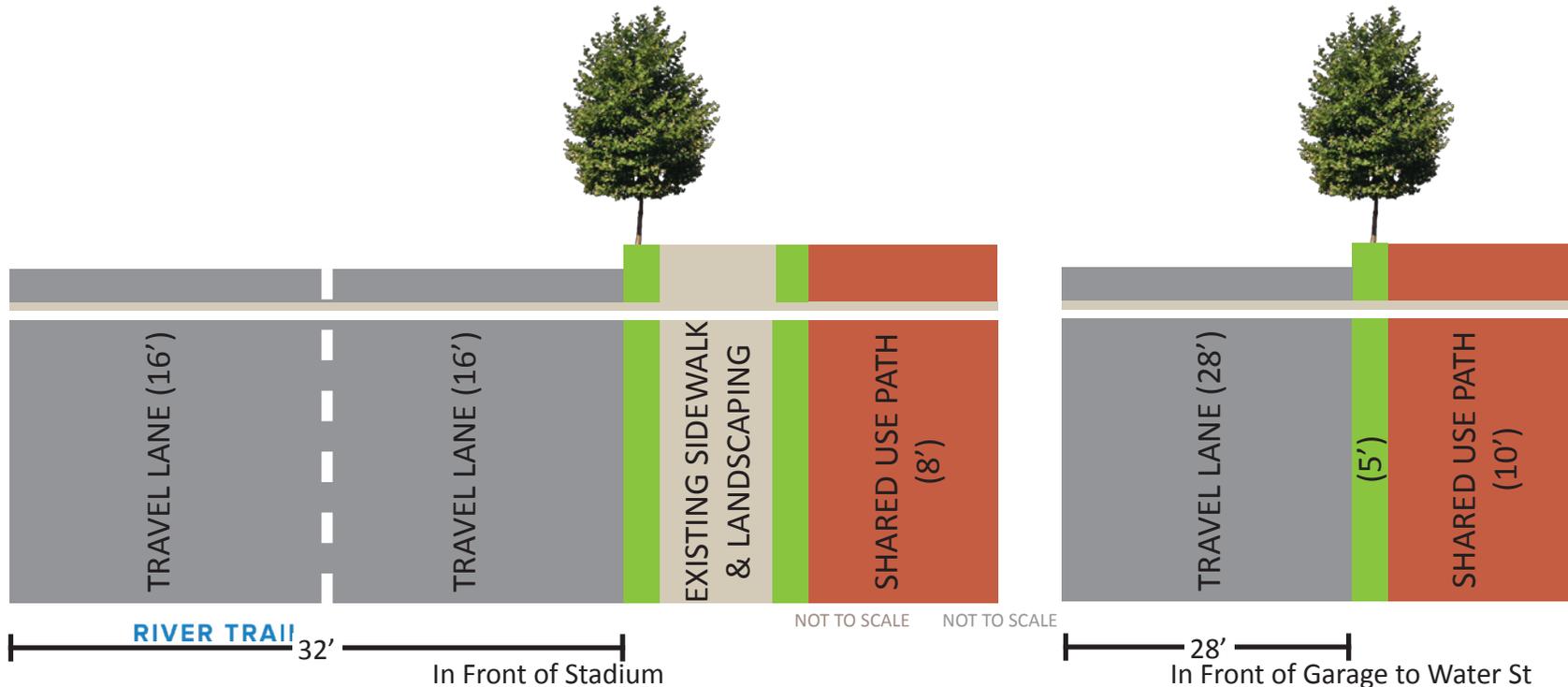
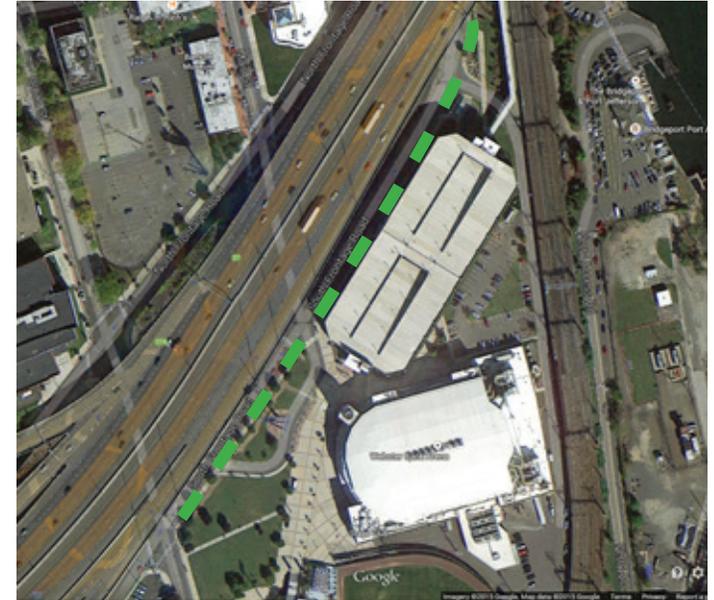
Advantages:

- Off-street shared-use path.
- No lane reduction required.

Disadvantages:

- The construction cost is expected to be moderate due to the construction of a separated use path.

*Approximate Construction Cost = \$200,000



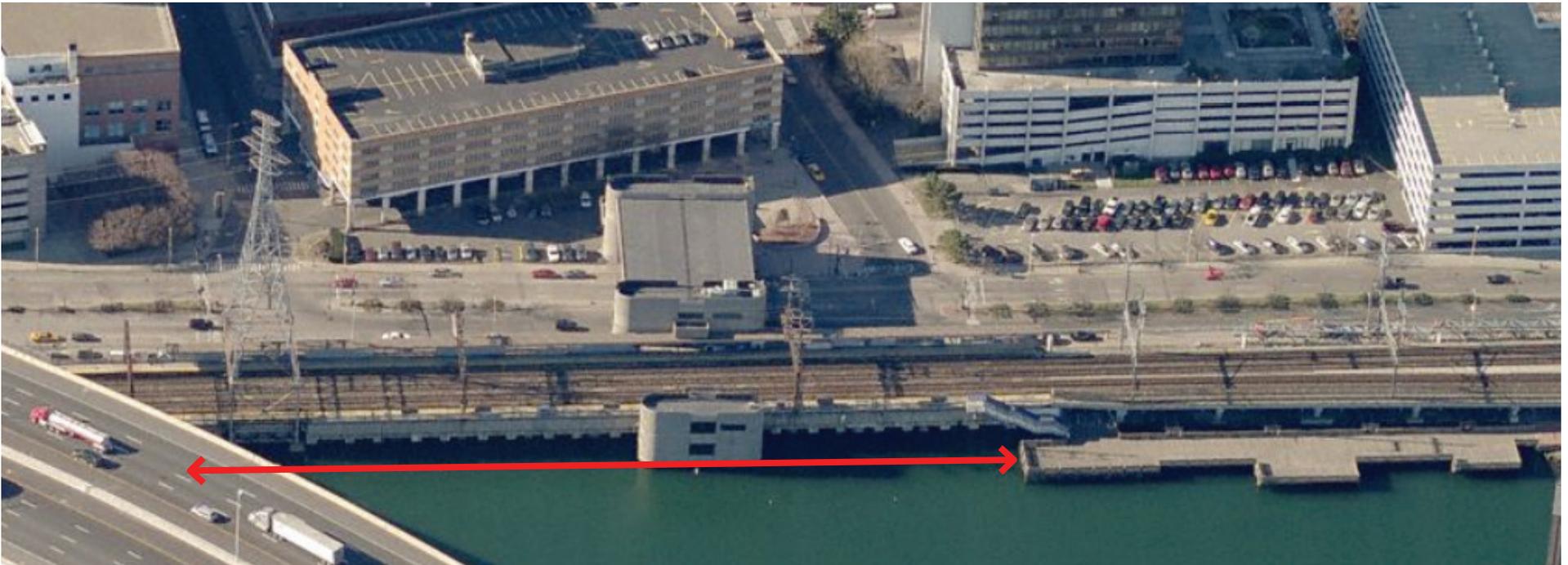
RAILROAD CORRIDOR TO WATERFRONT

Continuation from Ferry Access Road to
Housatonic Ave - Class 1



RAILROAD CORRIDOR TO WATERFRONT

Along Ferry Access Road to Housatonic Ave
Class 1 - Long Term



RAILROAD CORRIDOR TO WATERFRONT

Along Ferry Access Road to Housatonic Ave
Class 1 - Long Term



Advantages

- Off-street connection with river access.
- Takes advantage of unused space along railroad right of way and behind bus station.
- Potential for future riverfront access north of Bus Station.
- Potential connection to proposed Congress Street Bike-Ped bridge.

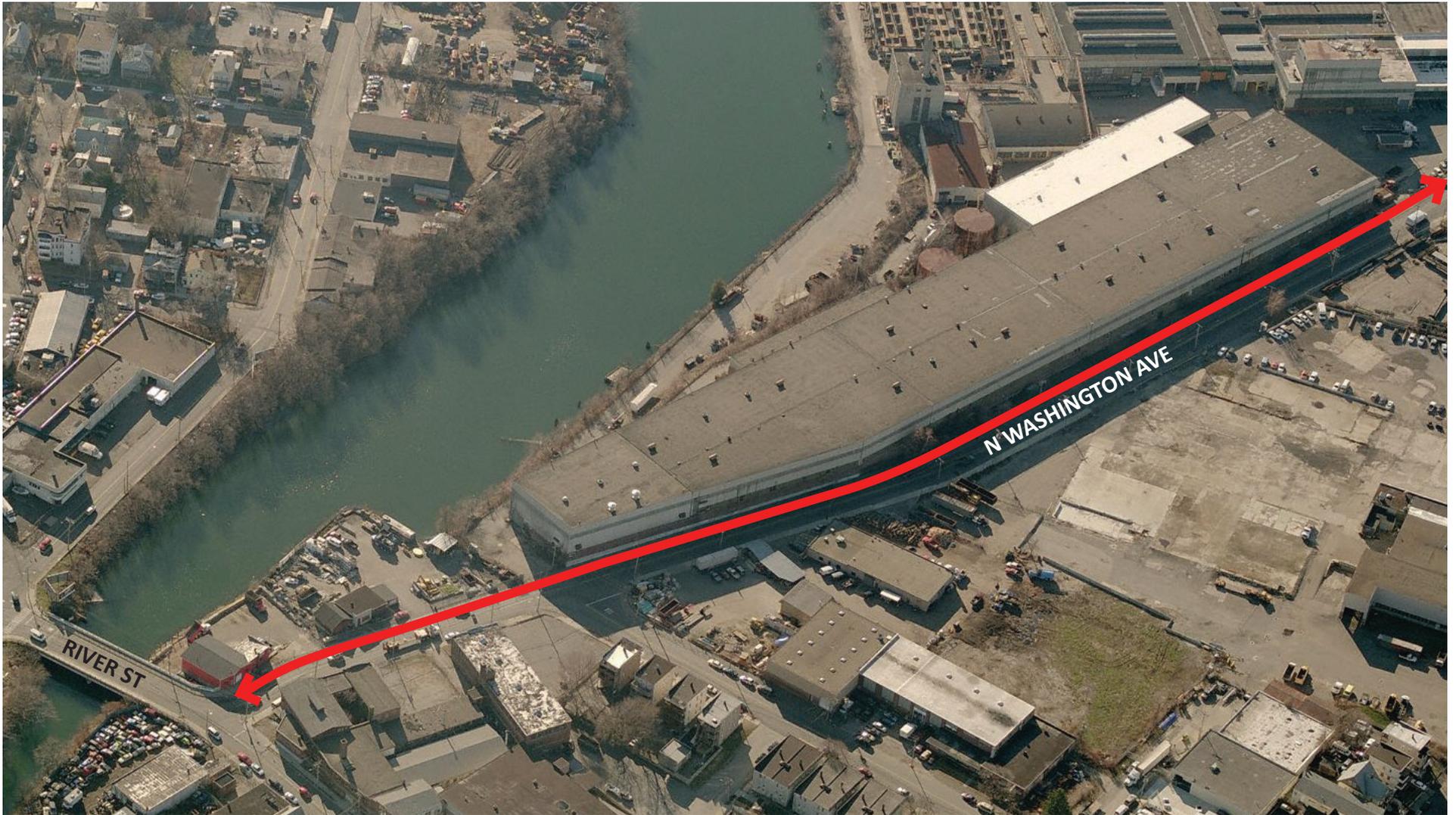
Disadvantages

- The separated path only provides access through a tunnel to Harbor Yard Stadium and Webster Bank Arena at the rear of the property.
- Short term plan would bring trail along railroad embankment to Water Street (on-street).
- Segments of the separated path require new construction over water in the long term plan.
- The construction cost is expected to be high due to the construction of a separated use path.
- Route will require right-of-way taking or easements.



N WASHINGTON AVENUE

Housatonic Avenue to River Street



N WASHINGTON AVENUE

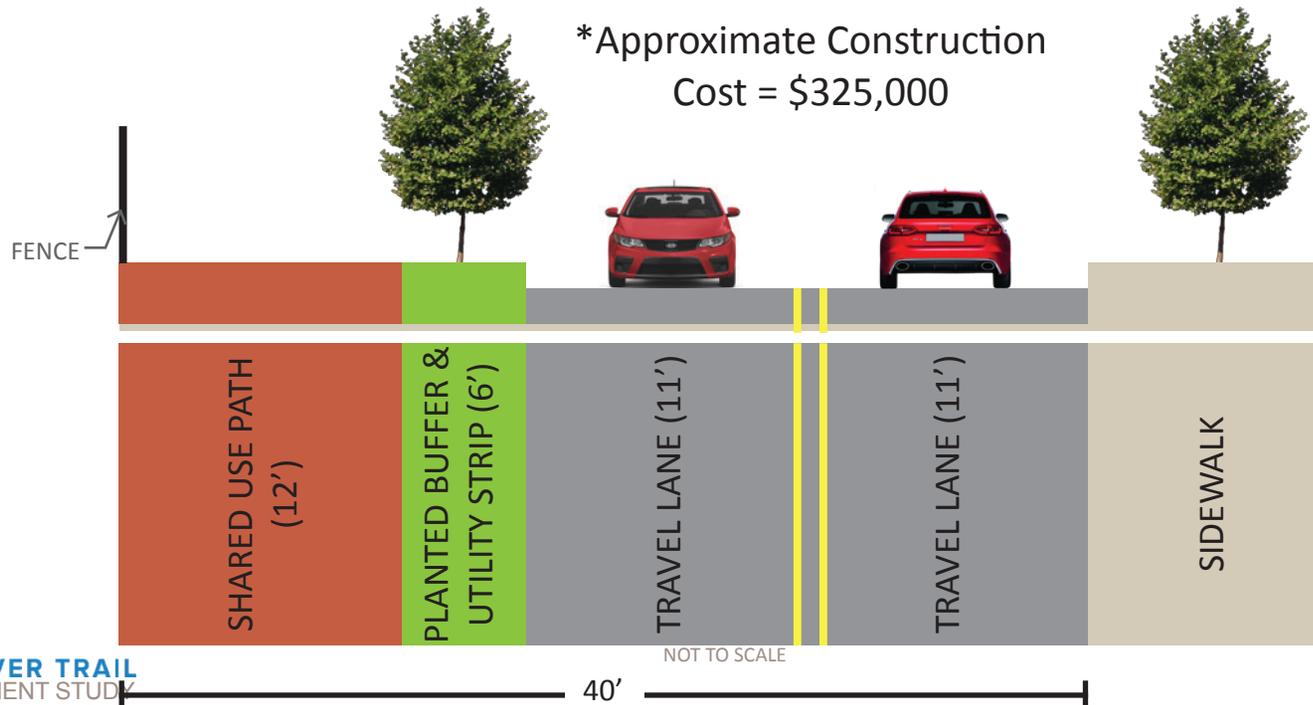
Housatonic Avenue to River Street
Class 1 with buffer

Advantages:

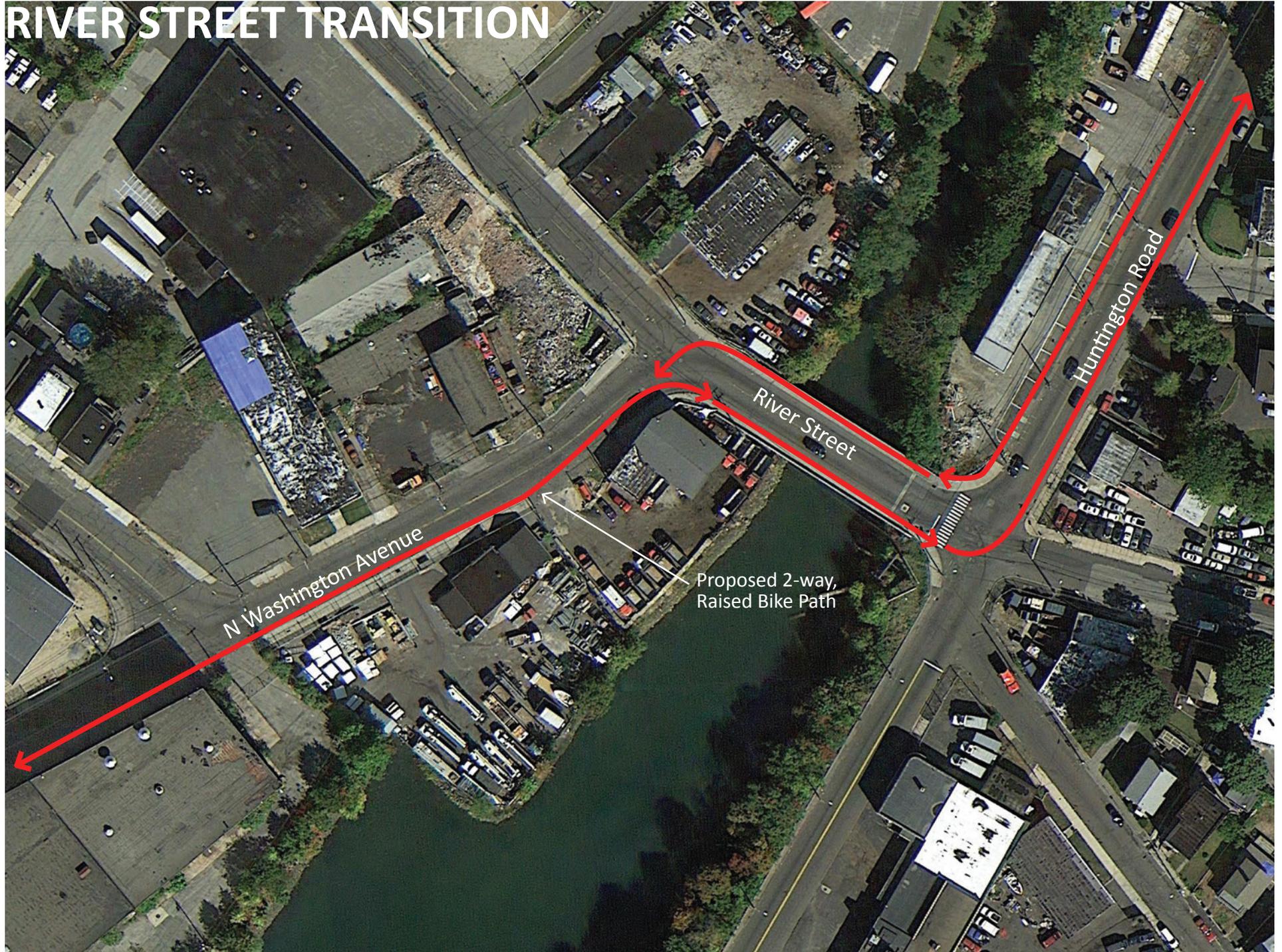
- Route is classified as a Class I Separated Use Path.
- Route provides connection to the existing path on Housatonic Avenue.
- Route would improve N Washington lane designation and on-street parking configuration.
- Provides connection to Riverfront Park via Housatonic Avenue.
- No right-of-way impacts are anticipated.
- Shared use path can be designed to separate pedestrians from cyclists.

Disadvantages:

- Route does not directly connect to Knowlton Park.
- The construction cost is expected to be high due to the construction of a separated use path. Construction would typically require drainage and utility modification as well.



RIVER STREET TRANSITION



HUNTINGTON ROAD

Option 1

Noble Avenue to River Street

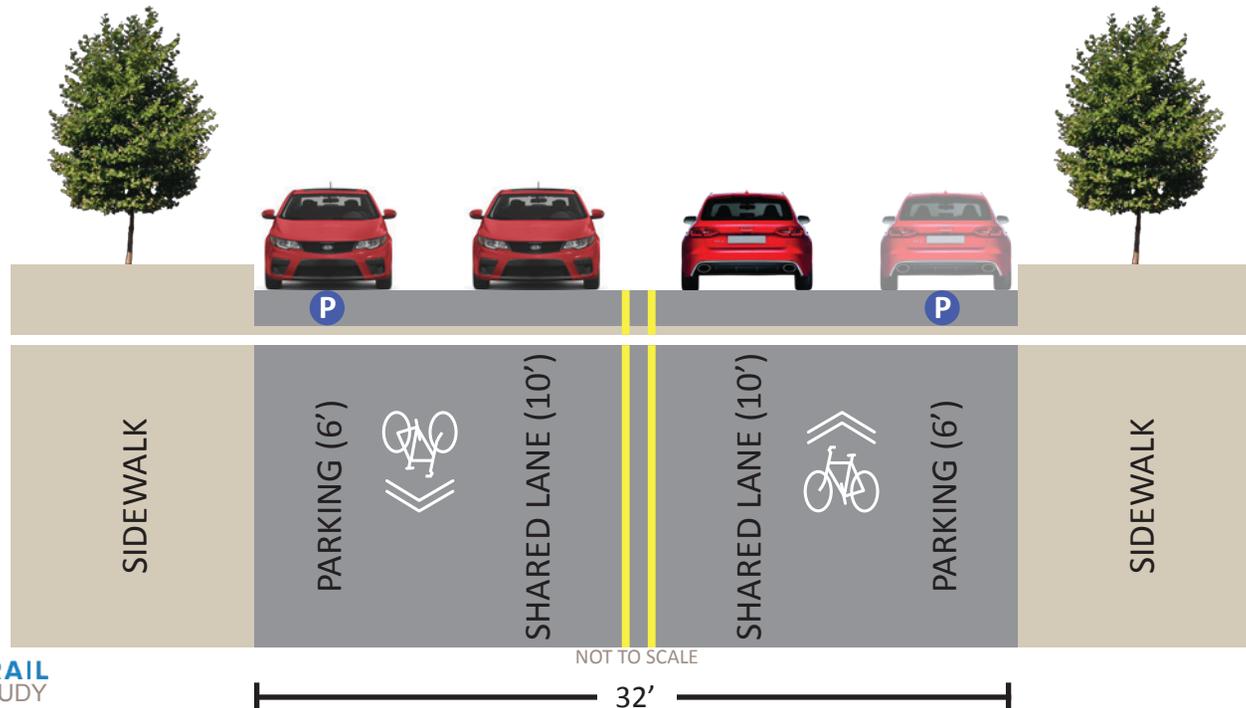
Class 3

Advantages:

- Retains parking on both sides.

Disadvantages:

- No dedicated space for cyclists.



HUNTINGTON ROAD

Option 3

Noble Avenue to River Street

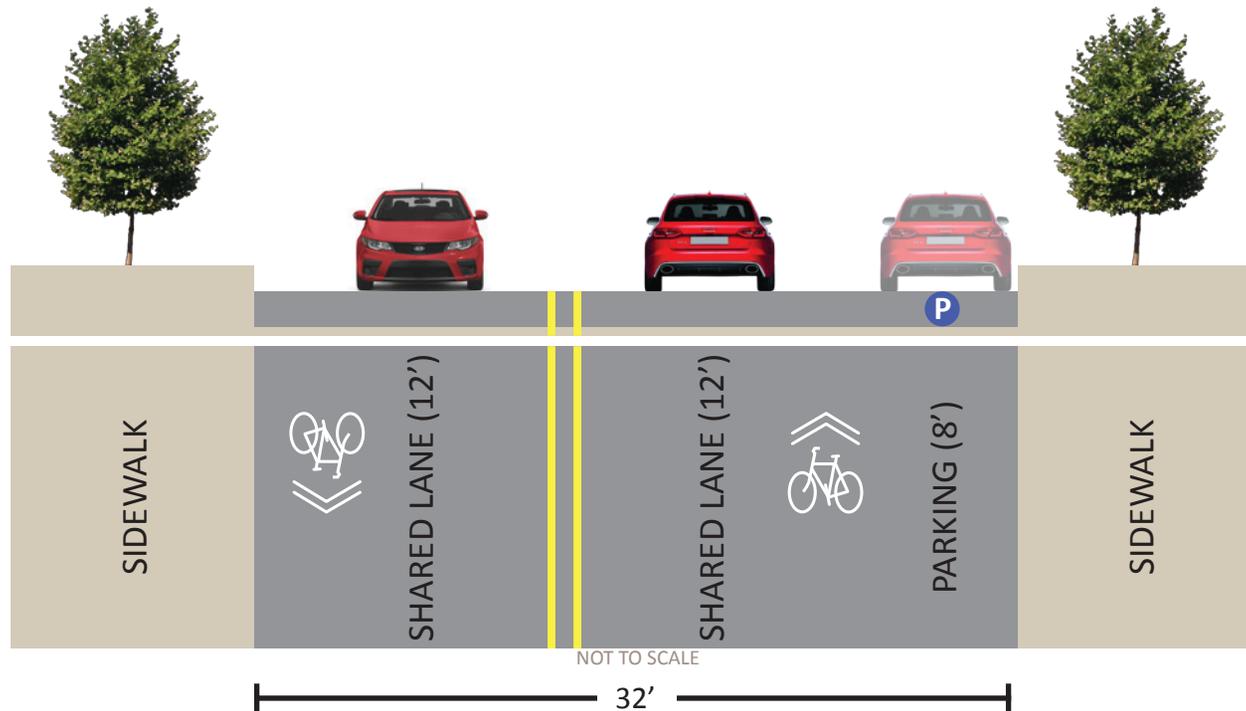
Class 3

Advantages:

- Retains parking on east side (mostly single family homes).
- More comfortable lane widths than other options.

Disadvantages:

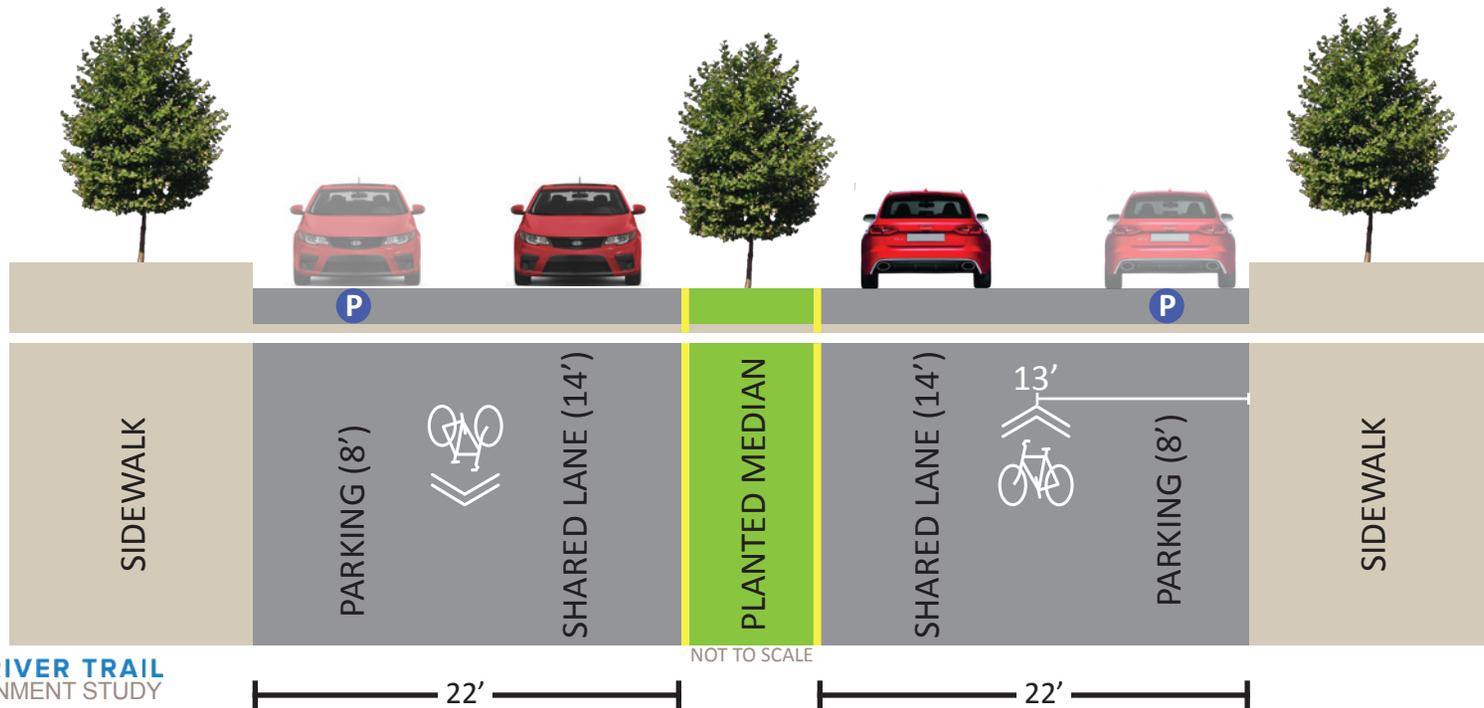
- No dedicated space for cyclists.



NOBLE AVENUE

Option 1

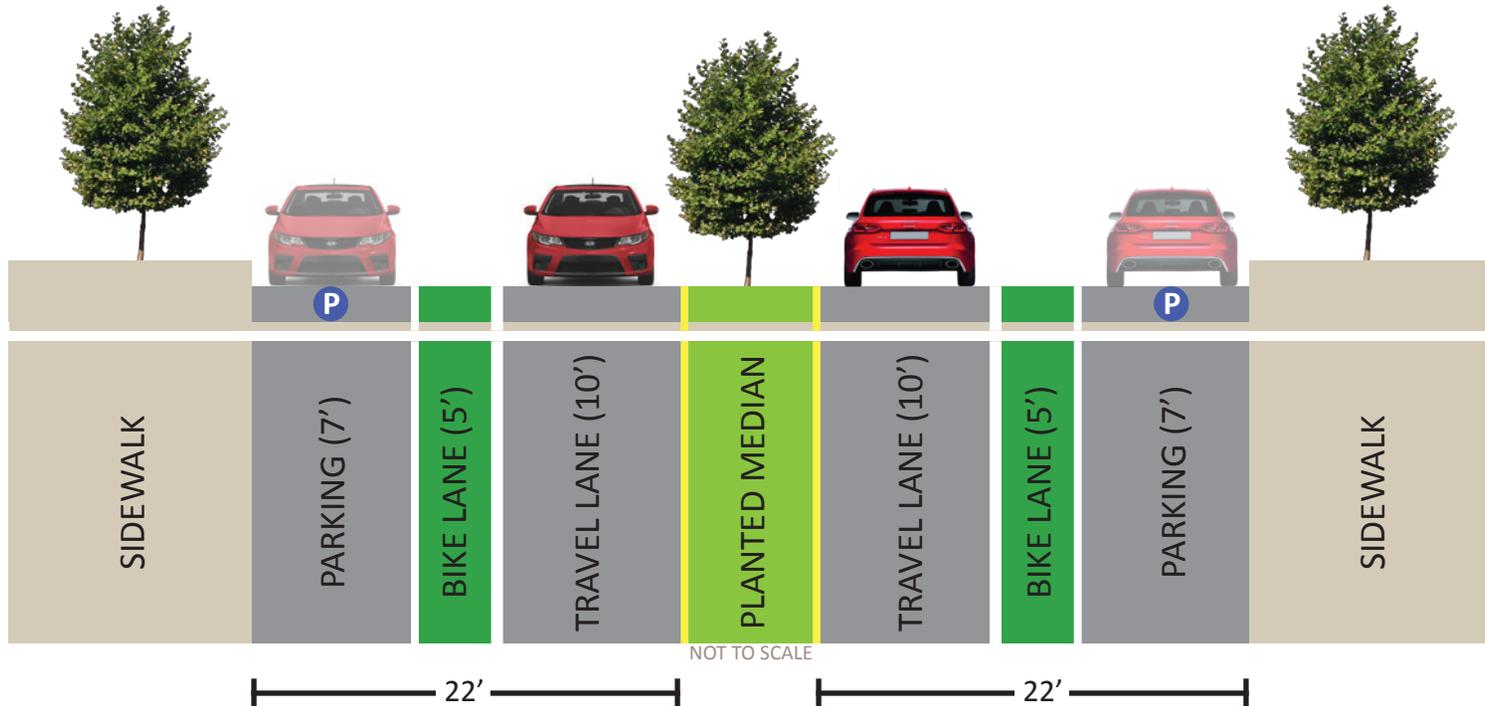
Huntington Road to Beardsley Park
Class 3



NOBLE AVENUE

Option 2

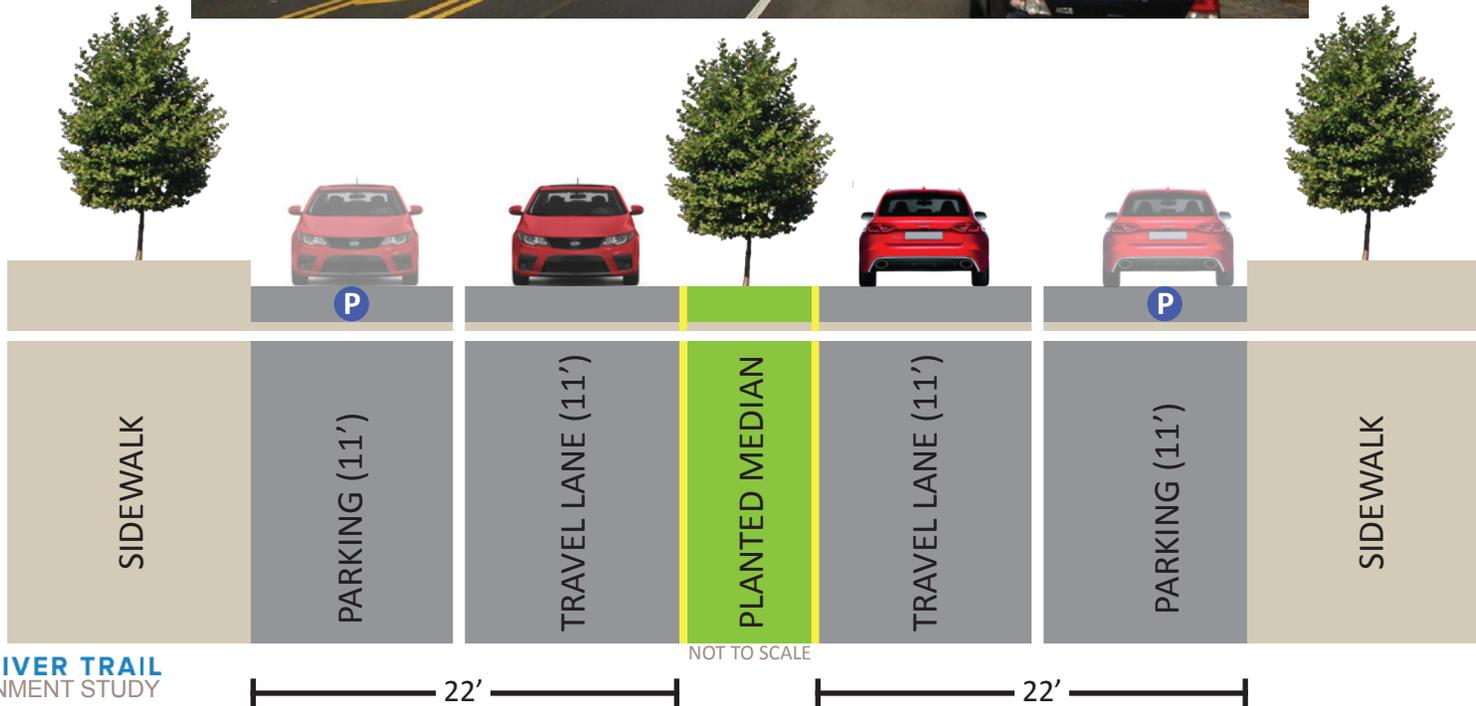
Huntington Road to Beardsley Park
Class 2



NOBLE AVENUE

Option 3

Huntington Road to Boston Avenue
Class 3



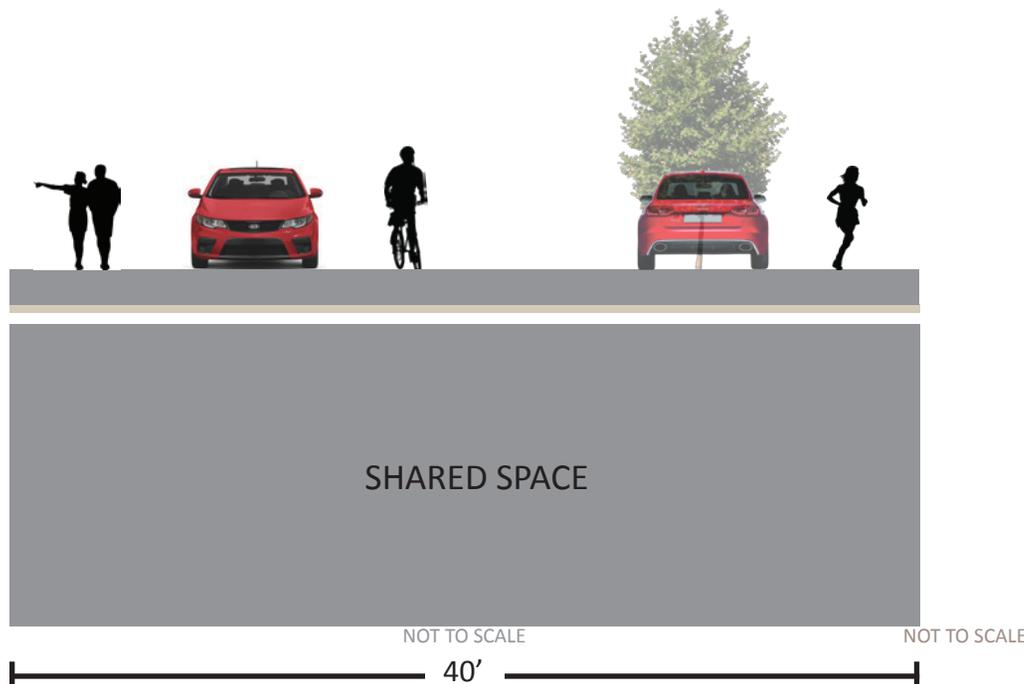
ISLAND BROOK CONNECTION

Housatonic Ave to Beardsley Park
Class 3



Advantages:

- Crosses an otherwise hidden and forgotten about section of the Pequonnock River offering opportunity for discovery and interpretation.
- With takings and/or easements, offers opportunity for possible connection to long-term future riverfront trail along southern Island Brook and western Pequonnock River shorelines confluence area, and connection to North Washington Avenue at River Street intersection.
- Offers opportunity to create an urban on-street route along very low-volume roadways that do not have through traffic. Per AASHTO, less than 600 ADT may be specially designed and designated as low-speed (20mph) single-lane two-way bicycle priority streets.
- Some of these streets could potentially be designed as curb-less shared-space streets.
- Takes advantage of existing side-path on Housatonic Avenue connecting to Evergreen Street.



ISLAND BROOK CONNECTION

Housatonic Ave to Beardsley Park
Class 3

Disadvantages:

- Current land use along the route is industrial/commercial, visually unappealing and visually and physically isolated, thus it may be unsafe, or perceived by the public to be unsafe, from a crime perspective.
- Existing condition of many of the subject roadways is poor, significant reconstruction required. Portions of the route lack basic infrastructure such as curbs and sidewalks and are used as private property.
- There is a lot of truck traffic and loading/unloading on in the subject streets currently.
- Chase Street intersects south side of Boston Ave at an un-signalized mid-block location (approximately opposite Dean Place) requiring a difficult diversion west along the south side of Boston Avenue to reach the nearest signalized intersection (Glenwood Avenue) which is a very complex intersection.
- Public ROW is not continuous throughout, some taking of property or easements will be required, and possibly demolition of one structure.
- Requires removal of some on-street parking.
- Most, if not all of the route will be classified as a Class III Shared Roadway, though there may be an opportunity to design some roadway segments as 'shared-space'.
- The complete route can potentially be constructed as a single straight line from Housatonic Avenue all the way north to Boston Avenue but for one very small (50 feet or so) 'jog' required on Island Brook Avenue to get from Chase Street to Twitchell Street.
- Pequonnock River and Island Brook crossings will require environmental (wetland and flood plain) reviews and permits.
- Building on some sites may trigger requirement for Hazmat investigations and remediation.
- Historic/Cultural resources will likely need to be researched and documented. Particularly in the vicinity of water bodies.
- The construction cost is expected to be moderate to high due to the two bridges for the river crossings, property takings/easements and potential hazmat work.