



# Federal Street Corridor Study

*Final Report*

*February 2023*

Prepared for:



**CDTC**  
CAPITAL DISTRICT  
TRANSPORTATION COMMITTEE

By:



**alta**

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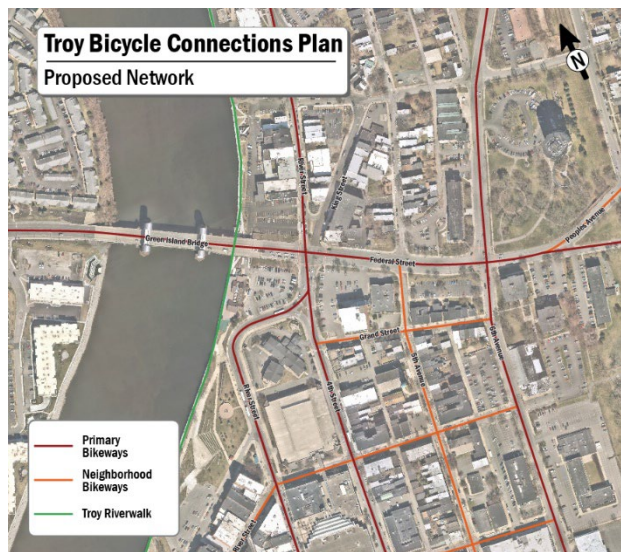
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## 1.1 Introduction

The Federal Street Corridor Study was sponsored by the City of Troy and the Capital District Transportation Committee (CDTC) to develop a redesign concept for Federal Street to calm traffic and improve pedestrian and bicycle connections in the city's core. This study addresses concerns about the current form of Federal Street being out of character with the city's downtown environment. The five lane arterial presents long crossing distances for pedestrians, with crossings only available at the traffic signals at River Street and 6<sup>th</sup> Avenue. The nearly 1,000 foot segment between the existing signals is a barrier for pedestrians. Bicycle accommodations are also lacking in the corridor, an area with an expanding bicycle network. The intent of this study is to inform the scoping of a future multi-modal transportation improvement project, through the development of a Purpose and Need Statement, alternatives analysis, and stakeholder involvement. This study is formatted similar to a NYSDOT project scoping report to guide subsequent phases of project development including a future design report.

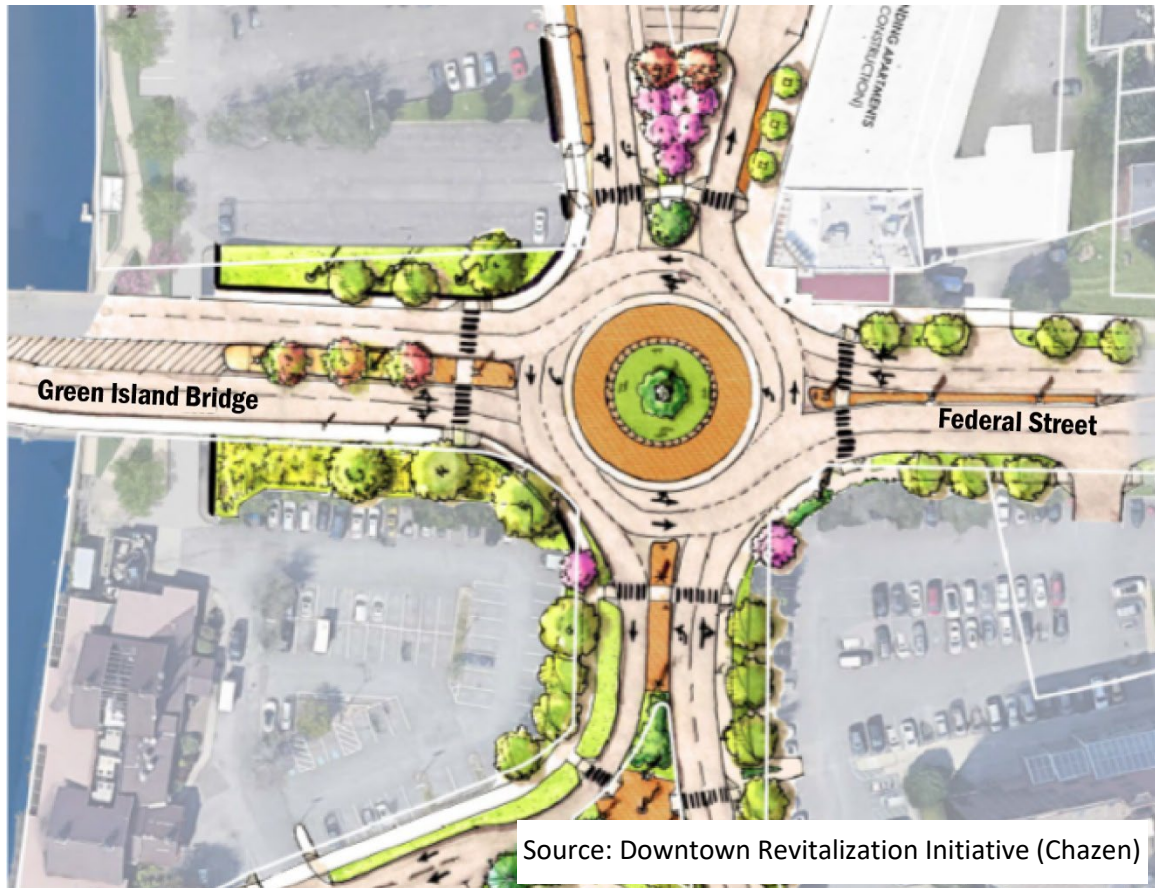
The Federal Street Corridor study builds on previous studies that have identified conceptual improvements for the corridor.

- The Realize Troy Comprehensive Plan identifies Federal Street as a key connection between Rensselaer Polytechnic Institute (RPI) and the City Center as well as the Green Island Bridge. Specific recommendations in the comprehensive plan include enhanced streetscapes and modifications to “The Forks” or triangular open spaces that could be used for public gatherings. Likewise, the plan recommends a trail along Federal Street to connect to the Green Island Bridge. It is noted that the Empire State Trail Connector is currently in design and proposed to provide two-way bicycle and pedestrian accommodations on the north side of the Green Island Bridge.
- The trails identified in Realize Troy are further supported in the Capital District Trails Plan and Troy Bicycle Connections Plan which both identify Federal Street, River Street, and 6th Avenue as primary bikeways and important connectors to the existing waterfront trails.





- The Hoosick Hillside Study proposed a potential two-way separated bicycle lane on the east side of 6th Avenue.
- The Downtown Revitalization Initiative proposed to replace the intersection at River Street and Federal Street with a roundabout, creating a welcoming gateway at the foot of the Green Island Bridge and improving pedestrian safety and connectivity. The concept includes streetscape enhancements, supported by Realize Troy, and could facilitate the bicycle connections proposed above.



The Federal Street Corridor Study builds off these previous concepts and plans, specifically evaluating the roundabout concept in more detail.

This report was funded in part by the Federal Highway Administration, U.S. Department of Transportation. The views and opinions expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation. The recommendations in this study are conceptual in nature and do not commit NYSDOT or the City of Troy to the proposed project or project elements. The concepts and illustrations presented in this report may need to be investigated in more detail before any funding commitment is made. Additional engineering or follow up work will be based upon funding availability.

## 1.2 Purpose and Need

### WHERE IS THE PROJECT LOCATED?

The Project is located along Federal Street in the City of Troy, in Rensselaer County. The length of the corridor is approximately 1,000 feet extending east-west from River Street to 6th Avenue. The study area is centrally located within downtown Troy with a mix of surrounding business, residential uses, institutions, and recreational trails. Immediately west of the study area, the Green Island Bridge (BIN 1095910) extends east-west over the Hudson River and connects the Village of Green Island to the City of Troy.

A picture depicting the Project area is shown below in Figure 1.

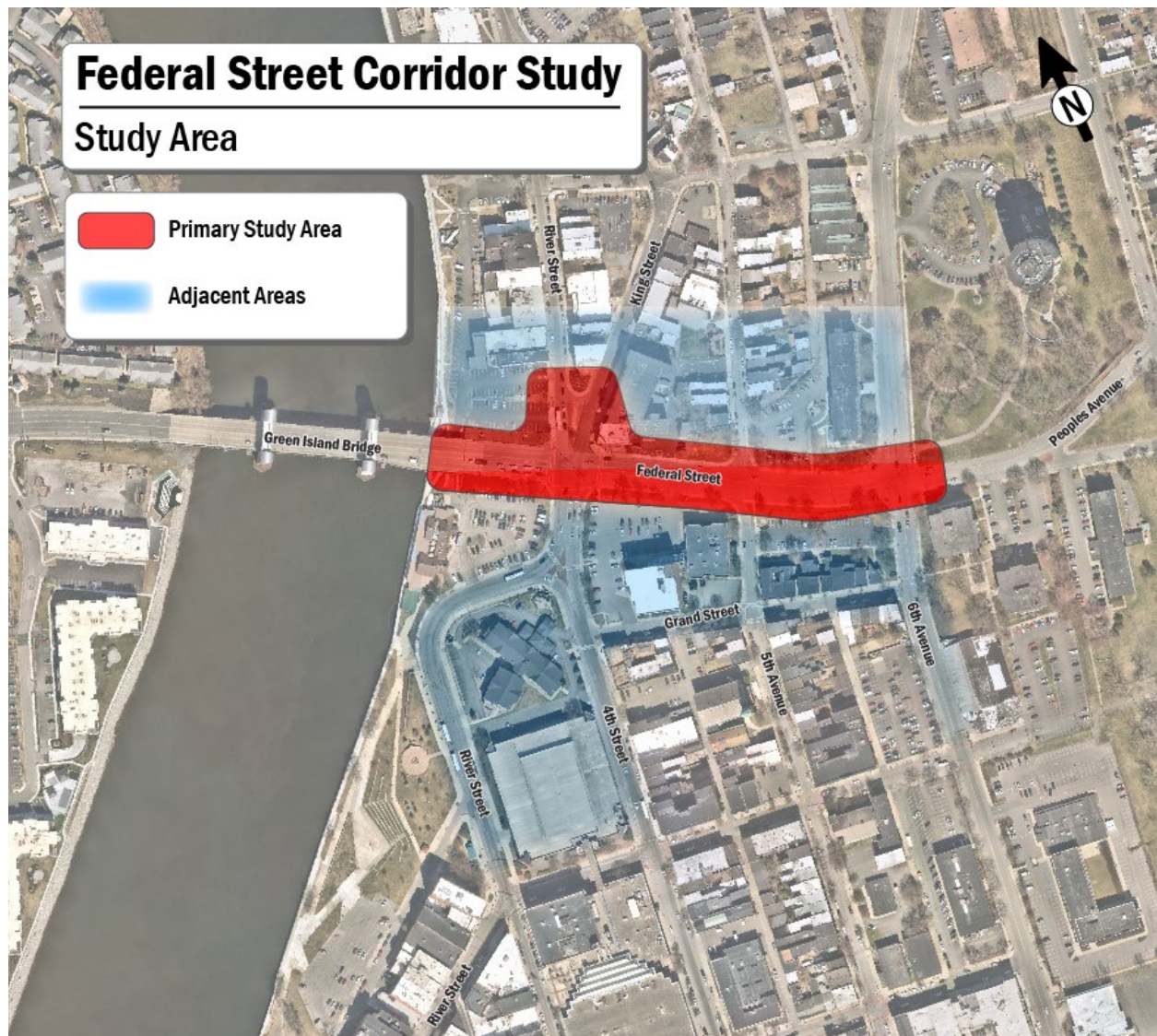


FIGURE 1 – STUDY AREA MAP

## WHY IS THE PROJECT NEEDED?

The project supports the ongoing rebirth of downtown Troy in an equitable manner by providing multimodal infrastructure for all users and reducing transportation barriers experienced by disadvantaged populations. Recent development and construction of the Empire State Trail has created a need for better pedestrian and bicycle connections between downtown Troy and across and along Federal Street. With this understanding, the City of Troy established the following Project Need Statement:

- Provide multimodal infrastructure for all users
- Reduce transportation barriers among disadvantaged populations
- Improve pedestrian and bicycle connections between downtown Troy and across and along Federal Street

## WHAT ARE THE OBJECTIVES/PURPOSES OF THE PROJECT?

The general purpose of the project is to calm traffic, improve pedestrian connectivity and access management, and provide bicycle connections within the City and to the Empire State Trail.

Objectives to further refine the study purpose include:

- Redesign Federal Street as a complete street
- Assess a boulevard bookended by roundabouts at River Street and 6th Avenue
- Provide bicycle and pedestrian access to the Empire State Trail
- Improve air quality by reducing vehicle emissions and idling

## WHAT ARE THE EXISTING CONDITIONS?

Need for the project is driven by existing conditions, previous studies, and plans. Federal Street is an approximately 65-foot wide minor arterial with pavements in fair condition (surface rating 6 out of 10) under the jurisdiction of the City of Troy. The roadway provides two travel lanes in each direction with an auxiliary turn lane in the center, resulting in a five lane typical cross-section. Five-foot wide sidewalks are provided on both sides of the road with little to no buffer space between the roadway and pedestrians. Figure 2 shows a typical view of Federal Street looking west from 6<sup>th</sup> Avenue and reveals the automobile-oriented nature of the corridor. Note that there are no crossing accommodations for pedestrians at 5<sup>th</sup> Avenue, where the pedestrian can be seen in the photo.

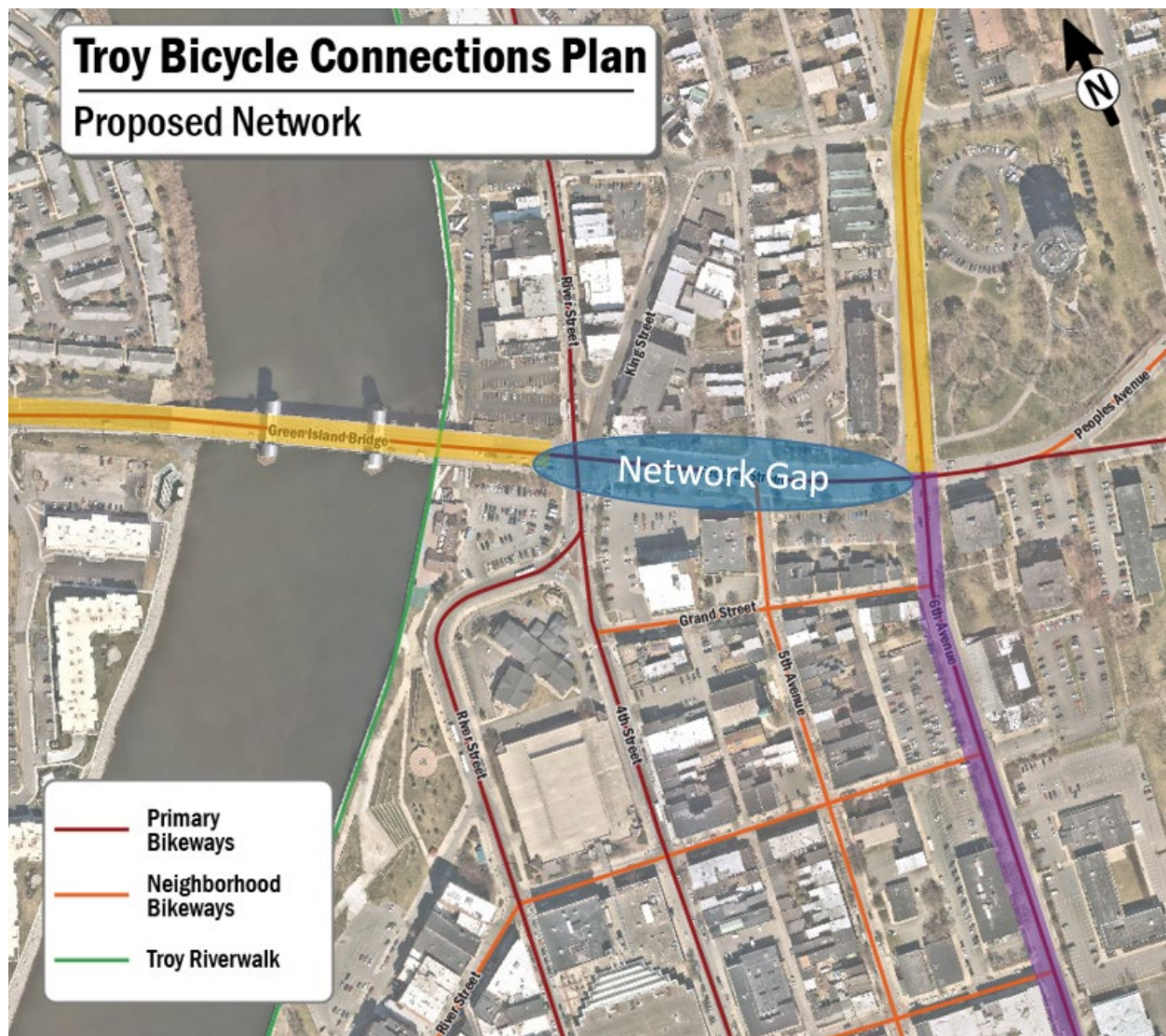




**FIGURE 2 – FEDERAL STREET CORRIDOR LOOKING WEST FROM 6<sup>TH</sup> AVENUE**

At the signalized intersections, marked crosswalks and pedestrian signals with countdown timers are provided across all intersection legs. Due to additional turn lanes at these signals, pedestrian crossing distances typically range from 70 to 100 feet in length. Such long crossing distances increase pedestrian exposure to vehicle traffic and reduce pedestrian comfort, resulting in a preference to cross mid-block where the distance is shorter, or avoid the intersections altogether by utilizing the Troy Riverwalk in the western part of the corridor to cross underneath the Green Island Bridge.

No bicycle-specific accommodations exist on Federal Street, resulting in a gap in the proposed bicycle network. Figure 3 shows the proposed network as outlined in the Troy Bicycle Connections Plan and denotes the network gap between the proposed separated bicycle infrastructure on the Green Island Bridge and 6<sup>th</sup> Avenue, indicating that the Federal Street corridor is a critical connection within this network.



**FIGURE 3 – BICYCLE NETWORK GAP IN PLANNED NETWORK**

Crash data was provided by the CDTC for the most recent three years of available data (January 1, 2018 to December 31, 2020) from the New York State Department of Transportation (NYSDOT) Accident Location Information System (ALIS). In total, 101 crashes occurred over this three year period within the Federal Street Corridor. A safety screening was performed on the crash data to identify crash patterns and locations with notable crash history. Table 1 summarizes the crash analysis.



**TABLE 1 – CRASH ASSESSMENT**

Location	Collision Severity				Collision Type										Total
	Non-Reportable	Property Damage	Injury	Fatality	Rear-End	Right Angle	Left Turn	Overtaking/Sideswip	Right Turn	Head On	Fixed Object/Parking	Bicycle	Pedestrian	Other/Unknown	
Federal Street/River Street	13	32	14	0	25	11	2	10	4	0	2	0	3	2	59
North Turnaround	1	0	1	0	1	0	0	0	0	0	0	0	0	1	2
South Turnaround	1	2	0	0	0	0	0	1	0	1	1	0	0	0	3
Federal Street/5 <sup>th</sup> Avenue	0	4	2	0	0	0	2	0	2	0	1	0	1	0	6
Federal Street/6 <sup>th</sup> Avenue	4	15	7	0	11	3	1	5	0	0	1	2	2	1	26
Federal Street Mid-block	2	3	0	0	2	2	0	1	0	0	0	0	0	0	5
<b>Federal Street Corridor Total</b>	<b>21</b>	<b>56</b>	<b>24</b>	<b>0</b>	<b>39</b>	<b>16</b>	<b>5</b>	<b>17</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>101</b>

Review of this crash data shows a number of characteristics summarized below:

- The majority of crashes in the corridor resulted in property-damage or were coded as non-reportable (property damage less than \$1,000). Injury crashes accounted for approximately 25% of all crashes and occurred predominantly at the signalized intersections.
- The majority of crashes in the corridor (58%) occurred at the Federal Street/River Street intersection, followed by the Federal Street/6<sup>th</sup> Avenue intersection. Of these intersection crashes, rear-end collisions were the most common (42%) followed by overtaking/sideswipe and right angle collisions.
- There were six pedestrian crashes, half of which occurred at the Federal Street/River Street intersection. Four of the six crashes occurred with pedestrians in the crosswalk. Three of the six crashes coded the vehicle action as turning.
- Two bicycle crashes, both of which occurred at the Federal Street/6<sup>th</sup> Avenue intersection, occurred with bicycles traveling westbound.

Table 2 summarizes existing traffic characteristics on Federal Street. The road is posted at 30 miles per hour and carries about 14,000 vehicles per day based on the daily traffic volume data collected by NYSDOT in October 2020, and a pre-pandemic count by NYSDOT in 2011. This traffic volume data was compared to new I counts conducted in March of 2022 for this study and showed that the 2022 peak hour traffic volumes are approximately 20 percent lower than pre-pandemic conditions. The daily counts also showed that mid-day traffic volumes are greater than the traditional morning peak period, so in consultation with the Technical Committee, the weekday mid-day and PM peak hour time periods were selected for analysis. Peak hour intersection turning movement counts conducted at the study area intersections in March of 2022 were increased by 20 percent to account for reduced travel resulting from the Covid-19 pandemic. A supplemental intersection count from April 2021 at the Federal Street/River Street intersection was also used and factored accordingly and balanced with the new two-hour peak period counts that included bicycle and pedestrian observations at the two

turnaround movements on River Street north and south of Federal Street, as well as the Federal Street/5<sup>th</sup> Avenue and Federal Street/6<sup>th</sup> Avenue. Table 3 summarizes the Federal Street traffic volume data collection and indicates how each count was used to inform the development of the 2022 factored traffic volumes which form the basis of the traffic forecasts and the resulting level of service analysis. The development of the traffic forecasts were coordinated with the City of Troy and the Capital District Transportation Committee and are based on the 2022 factored traffic volumes that account for an approximate 20 percent increase to the raw 2022 traffic volumes to account for reduced travel resulting from the Covid-19 pandemic, as well as a 0.6 percent per year growth rate.

**TABLE 2 – FEDERAL STREET CHARACTERISTICS**

Functional Class	Minor Arterial
Posted Speed	30 mph
AADT	14,300

**TABLE 3 – TRAFFIC VOLUME DATA SUMMARY**

Count Type	Count Location	Date	Time	Use
ATR	Federal Street west of River Street	August 2011	Daily	Volume Factoring
	Federal Street west of River Street	October 2020	Daily	Volume Factoring
	Federal Street west of River Street	March 2022	Daily	Volume Factoring
TMC	Federal Street/River Street	March 2022	12:00 p.m. to 1:00 p.m.	Base Volume
		April 2021	4:30 p.m. to 5:30 p.m.	Base Volume
	Federal Street/6 <sup>th</sup> Avenue	March 2022	12:00 p.m. to 1:00 p.m.	Base Volume
		March 2022	4:30 p.m. to 5:30 p.m.	Base Volume

## 1.3 What Concepts are Being Considered?

Based on the Project Need, Purpose, and Objectives, the following concepts have been developed for this study.

### No-BUILD

The no-build concept maintains the existing traffic signals and five lane cross-section on Federal Street. Under this concept, traffic operations would remain largely unchanged. Bicycle and pedestrian connectivity issues would remain and the potential to calm traffic is small.



## **BUILD CONCEPT - BOULEVARD BOOKENDED BY ROUNDABOUTS**

The concept proposed in this study reduces the number of vehicle lanes on Federal Street to provide space for a median, bicycle accommodations, on-street parking, and buffer space between the sidewalk and travel way. To accommodate these segment changes, the concept includes roundabouts at the Federal Street/River Street and Federal Street/6<sup>th</sup> Avenue intersections. Specifically, the roundabouts enable a raised median on Federal Street while maintaining access to the driveways on Federal Street by allowing motorists to use the roundabouts for U-turns in place of left turns. Likewise, the additional capacity provided by roundabouts enable a reduction in the number of approach lanes at the 6<sup>th</sup> Avenue and River Street intersections. The following elements were considered as part of the study:

- **Median Design** – The basic conceptual design includes a raised median along Federal Street between River Street and 6<sup>th</sup> Avenue. The median would provide the opportunity for landscaping and aesthetic improvements. Fencing or other solid barriers are not proposed. It would also offer improved pedestrian safety by providing a pedestrian crossing with refuge island near 5<sup>th</sup> Avenue and enabling a two-stage crossing for pedestrians. Pedestrian/vehicle conflicts would be reduced and traffic operations would improve through access management by restricting left turns at driveways and at 5<sup>th</sup> Avenue. A sub-alternative to include a break in the median to accommodate turning movements at 5<sup>th</sup> Avenue was also considered. A review of the traffic volumes at 5<sup>th</sup> Avenue show that peak hour traffic volumes are low and a median break is not necessary to accommodate traffic. Additionally, the traffic analysis showed motorists destined to enter 5<sup>th</sup> Avenue could use the roundabouts to reach that destination. However, a median break would provide more direct emergency service access to 5<sup>th</sup> Avenue southbound and the final design of a median break should be coordinated with Troy Fire Department.
- **Bicycle Treatments** – A key goal of this study is to provide bicycle access to the Empire State Trail and downtown Troy by providing dedicated cycling infrastructure. One potential design includes curbside bicycle lanes on both sides of Federal Street with a painted buffer between the bicycle lane and travel way. The buffered bicycle lane concept would provide one-way bicycle flow in the same direction as vehicle traffic. Under this concept, bicycle exit ramps should be considered at the roundabouts as part of detailed design. Another option for bicycle accommodations is a two-way separated bicycle lane on the north side of Federal Street that would connect to the planned bicycle infrastructure on the Green Island Bridge and 6<sup>th</sup> Avenue. A third concept is a multi-use path on the north side of Federal Street.
- **Pedestrian Crossings** – The conceptual design includes pedestrian crossings on all legs of the proposed roundabouts. While the basic design includes marked crosswalks and warning signs to alert motorists to pedestrian crossing opportunities, additional elements may be incorporated into the design such as flashing beacons and raised crosswalks. Special attention to the design of two-lane crossings at roundabouts should be taken to accommodate older adults living in nearby senior housing and people who have disabilities. It is noted that in order to achieve the benefit of shorter pedestrian crossing distance provided by roundabouts, pedestrians may be required to walk a longer distance overall around the perimeter of the roundabout due to the increased footprint when compared to a signalized intersection.
- **On-Street Parking** – Reducing the number of travel lanes on Federal Street allows on-street parking to be incorporated into the design. While Federal Street currently does not provide on-street parking, adding parking would increase the overall parking supply, or potentially offset parking spaces lost due to the construction of the roundabouts. Further proposed developments in the vicinity of the Federal Street corridor may result in an increased parking

demand. Parked vehicles could calm traffic and provide a physical buffer between bicycles and pedestrians and motor vehicles.

- **River Street Turnarounds** – The northbound and southbound turnaround movements provided on River Street approaching Federal Street are a unique feature that could be eliminated with construction of a roundabout at the Federal Street/River Street intersection since the roundabouts would allow the same U-turn movements. Eliminating these turnarounds would provide additional pedestrian space and reduce potential vehicle-pedestrian conflicts. It is noted that the northbound turnaround is heavily utilized by CDTA to serve the Riverfront Station, and maintaining this northbound turnaround is preferred.
- **Roundabout Geometry** – The design of the roundabouts will have a direct impact on their ability to accommodate traffic and improve conditions for bicycles and pedestrians. Specifically, careful consideration of the number of entry and exit lanes is necessary in order to balance the competing needs of vehicle capacity and multi-modal connectivity. While a multi-lane roundabout may be necessary to adequately accommodate future traffic volumes, a single lane roundabout alternative should be considered during design phases to determine if the roundabouts could be opened as single lane roundabouts, with provisions for future expansion if and when needed. Single lane roundabouts would shorten crossing distances, further improving conditions for pedestrians.

Figure 4 shows a cross-section of the Build concept with the complete concept shown in Figure 5. The combined total width of the travel lane and the traversable portion of the center island is 20 feet to accommodate passing by emergency vehicles.

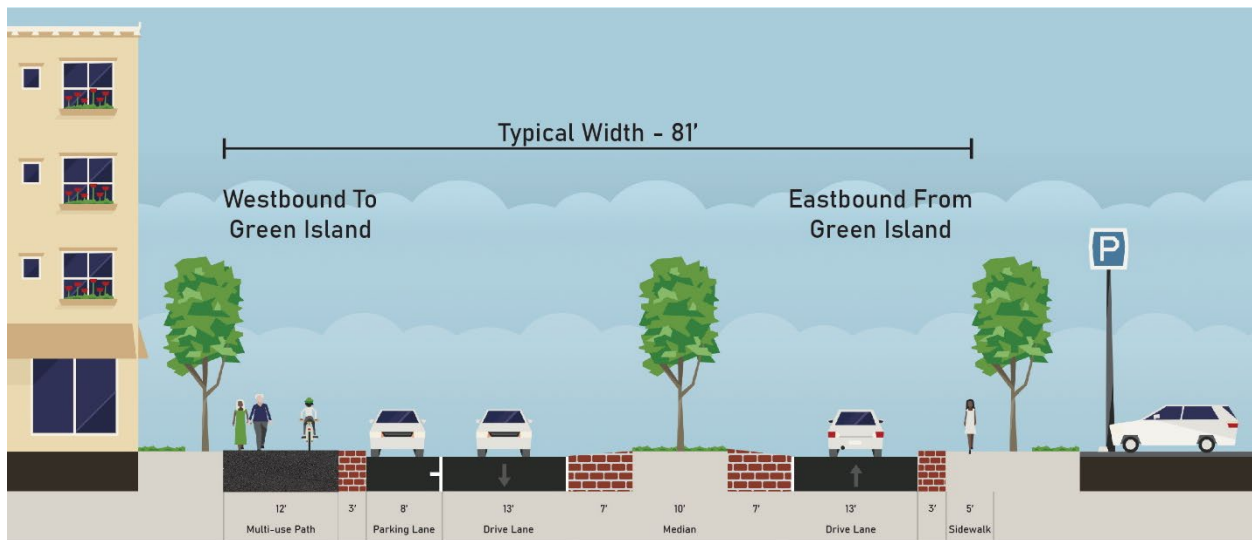


FIGURE 4 – BUILD CONCEPT CROSS-SECTION





BUILD CONCEPT PLAN

FEDERAL STREET CORRIDOR STUDY  
CITY OF TROY  
RENSSELAER COUNTY, NEW YORK





## 1.4 How will the Concepts Affect the Environment?

Assuming Federal funding is secured for design and construction, it is expected that the Federal Street Project will be progressed as a NEPA Class II project. Class II Categorical Exclusion (CE) is a category of actions that FHWA has found do not typically cause a significant effect on the human environment, either individually or cumulatively. Most locally administered, federal-aid transportation projects are classified as Class II CE under NEPA.

Similarly, it is expected that the project will be progressed as SEQRA Type II. Type II projects have been determined by the NYSDOT not to have a significant effect on the environment.

The Federal Street Corridor improvements will comply with applicable environmental legislation and regulations and NYSDOT policies and procedures, including, but not limited to those shown in Table 4.

**TABLE 4 – EXPECTED ENVIRONMENTAL CLASSIFICATION**

NEPA Classification	Class II CE	BY	New York State Department of Transportation
SEQRA Type:	Type II	BY	City of Troy

The following potential effects on the environment were identified and assessed as part of the Federal Street Corridor Study:

**VEHICLE OPERATIONS** – A level of service analysis was conducted at the Federal Street/River Street and Federal Street/6<sup>th</sup> Avenue intersections for the No-Build and Build concepts based on a 2025 estimated year of completion (ETC) and 2045 ETC+20 for both single-lane and multi-lane roundabout sub-alternatives. Level of service is a measure of the quality of travel and is expressed in terms of delay ranging from LOS A (little delay), to LOS F (long delay). The development of the traffic forecasts were coordinated with the City of Troy and the Capital District Transportation Committee and are based on the 2022 factored traffic volumes that account for an approximate 20% increase to the raw 2022 traffic volumes to account for reduced travel resulting from the covid-19 pandemic, as well as a 0.6 percent per year growth rate. Table 5 summarizes the entering traffic volumes relative to roundabout capacity, while Table 6 summarizes the overall delay at the Federal Street/River Street and Federal Street/6<sup>th</sup> Avenue intersections and Table 7 summarizes queuing on the eastbound approach that may impact the Green Island Bridge.



**TABLE 5 – TRAFFIC VOLUMES AND ROUNDABOUT CAPACITY**

Intersection	Total Entering Volume *(Veh/Day)		
	2022	2025	2045
Single Lane Threshold**	20,000	20,000	20,000
Federal Street/River Street	23,000	23,800	27,000
Federal Street/6 <sup>th</sup> Avenue	19,200	19,900	22,700

\*Entering volumes based on the factored 2022 PM Peak hour turning movement count with a 10% K-Factor applied.

\*\*Source: Roundabouts an Informational Guide (FHWA)

**TABLE 6 – OVERALL LEVEL OF SERVICE SUMMARY**

Intersection	Peak Hour	2022	2025 (ETC)			2045 (ETC +20)		
		Existing	No-Build	Build (Multi-Lane)	Build (Single Lane)	No-Build	Build (Multi-Lane)	Build (Single Lane)
Federal Street/River Street	Noon	C (20.9)	C (22.4)	A (6.4)	A (9.9)	C (24.6)	A (7.2)	B (13.7)
	PM	C (26.0)	C (28.0)	A (8.7)	D (38.4)*	C (31.8)	B (13.0)	F (81.7)*
Federal Street/6 <sup>th</sup> Avenue	Noon	C (27.6)	C (27.7)	A (5.5)	A (6.9)	C (28.4)	A (6.3)	A (8.3)
	PM	C (32.8)	C (33.3)	A (9.2)	C (20.1)	D (36.7)	B (16.5)	D (49.6)*

\*Individual lane groups experience LOS E/F

**TABLE 7 – GREEN ISLAND BRIDGE AVERAGE QUEUES (FEET)**

Intersection Approach	Peak Hour	2022	2025 (ETC)			2045 (ETC +20)		
		Existing	No-Build	Build (Multi-Lane)	Build (Single Lane)	No-Build	Build (Multi-Lane)	Build (Single Lane)
Federal Street/River Street - Eastbound	Noon	48	58	27.7	63.6	76	38.0	103.9
	PM	125	140	83.5	490.3	187	176.2	962.8

The tables show that traffic volumes on Federal Street are currently at or near the threshold for a single lane roundabout and are anticipated to exceed the threshold in 2045. Construction of the multi-lane

roundabouts will result in improved vehicle operations and a reduction in overall delay compared to Existing and No-Build conditions with the intersections operating under signal control. In contrast, the single-lane roundabout sub-alternative is projected to operate at LOS D overall during the evening peak period in 2025, and LOS F in 2045, with longer vehicle queues on the Green Island Bridge and individual approaches experiencing LOS E/F. However, it may be possible to initially construct single lane roundabouts, with provisions to expand the roundabouts to accommodate future traffic growth as necessary, pending further study.

**MULTI-MODAL MOBILITY** – Multi-modal mobility was assessed both quantitatively and qualitatively for bicycles, pedestrians, and public transit. Bicyclist stress was assessed using the Level of Traffic Stress (LTS) model developed by the Mineta Transportation Institute. The LTS classifies roadway segments into four levels of stress cyclists are expected to experience based upon roadway and bicycle facility design characteristics. To determine a cyclist's exposure to traffic, the LTS model considers the number of travel lanes, vehicle speeds, presence of on-street parking and bicycle facilities, and available space for bicyclists. Roadway segments in which cyclists experience higher levels of exposure result in a higher LTS classification (LTS 3 or 4) and are considered higher stress for cyclists. Conversely, roadway segments with lower levels of cyclist exposure, including separated bicycle facilities, result in a lower LTS classification (LTS 1 or 2) and are considered friendlier to cyclists. Cyclists in the Federal Street Corridor currently experience LTS 3 or 4 and will continue to do so under the No-Build concept. Under the Build concept, construction of dedicated bicycle infrastructure will result in LTS 1 with a separated path or LTS 1/2 under a buffered bike lane alternative, depending on the final design of lane widths and parking. Relative to the roundabouts themselves, cyclists are expected to experience LTS 1 under single lane alternatives and LTS 4 under the multi-lane alternative if they travel within the roundabout.

From a pedestrian mobility standpoint, no changes are expected under the No-Build concept, with sidewalks remaining close to the traveled way, and no crossing opportunities between River Street and 6<sup>th</sup> Street. Conversely, the Build concept will result in improved pedestrian mobility by providing shorter pedestrian crossings, a pedestrian refuge island, and mid-block crossing near 5<sup>th</sup> Avenue, which could include enhancements such as a rectangular rapid flashing beacon (RRFB) subject to further study. Note: A single lane roundabout would provide shorter pedestrian crossing distances than a multi-lane alternative. Additionally, the Build concept includes buffer space between the sidewalk and travel way and streetscape enhancements that will make walking along the corridor more comfortable.

Relative to public transit, no changes are expected under the No-Build concept. Under the Build concept, the existing queue jump signal on the northbound approach at the Federal Street/River Street intersection will be removed to accommodate the proposed roundabout. While this may increase transit travel times, it is noted that the overall reduction in vehicle delay and improvement to vehicle operations could offset this change. Likewise, the northbound turnaround at the 4<sup>th</sup> Street/Federal Street intersection is maintained so as not to force buses to circulate through the roundabout. It is noted that under the Build concept, existing bus stops on Federal Street may be relocated and incorporated into the design of the proposed mid-block crossing at 5<sup>th</sup> Avenue, resulting in an enhanced facility and overall transit improvement.

**SAFETY** – A safety assessment was conducted to determine the benefits of the proposed concept. Under the No-Build concept, no safety benefits are anticipated. Under the Build concept safety is expected to improve. According to the Federal Highway Association (FHWA) and American Association



of State Highway and Transportation Officials (AASHTO), converting a signalized intersection to a roundabout is a proven safety countermeasure that can result in a 78 percent reduction in fatal and injury crashes. This is because roundabouts reduce the number of conflict points for vehicles and pedestrians and result in lower vehicle speed which has been proven to correlate to improved safety. According to the FHWA Office of Safety – Proven Safety Countermeasures, “The lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling.” Converting the existing five-lane segment of Federal Street to one-lane each way will also result in lower speeds between the roundabouts. As cited in the FHWA Road Diet Informational Guide, “85th percentile<sup>1</sup> and average speed along conversions are likely to decrease by 3 to 5 mph”. Reducing vehicle speeds to save lives and reduce fatal and injury crashes is a cornerstone of current roadway safety planning.

**ACCESS MANAGEMENT** – Access management seeks to reduce the number of curb cuts and vehicle conflict points for individual driveways along a roadway segment. Under the No-Build concept, no changes in access are expected. Under the Build concept, access management will be improved by providing a raised median on Federal Street. The median restricts left turns from driveways, but accommodates them through U-turn movements at the proposed roundabouts. Likewise, the proposed roundabouts would eliminate the current southbound left turn restriction at the Federal Street/River Street intersection. It is noted that the Troy Fire Department indicated a desire to maintain a median break at 5<sup>th</sup> Avenue to allow emergency access to 5<sup>th</sup> Avenue from the north, and the final design of the median break should account for the turning path of the City’s ladder truck.

**PARKING** – There is currently no on-street parking on this segment of Federal Street. Under the No-Build concept, on-street parking will remain unchanged. Under the Build concept, there is the potential to impact off-street parking, and add on-street parking along Federal Street. The final numbers of parking spaces to change are not confirmed at this time. Provision of on-street parking can also calm traffic by providing a physical buffer between bicycles and pedestrians and motor vehicles.

**AIR QUALITY** – Vehicle emissions have a negative impact on air quality. Under the No-Build concept, air quality may degrade due to general traffic growth and increases in vehicle delay. In contrast, the Build concept will result in improved air quality by reducing vehicle idling though reduction in delay could induce additional traffic. Note: A single lane roundabout will result in emissions comparable to No-Build conditions. The multi-modal improvements have the potential to reduce vehicle trips in favor of alternative transportation, further reducing emissions and improving air quality. Advances in vehicle technology and reduced emissions due to more electric vehicles on the road in the future would benefit both concepts equally.

**PROPERTY IMPACTS** – Construction of roadway improvements to achieve the project goals may result in impacts to private property. While the No-Build concept will not have any property impacts, the construction of the Build concept with roundabouts at River Street and 6<sup>th</sup> Street will extend beyond existing right of way. Based on tax maps that show parcel boundaries, the project is expected to result in

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<sup>1</sup> 85<sup>th</sup> percentile speed is the speed at or below which 85 percent of motorists travel and is often used to establish posted speed limits.

impacts to an estimated eight (8) properties with small property takings at the corners of both intersections.

**ENVIRONMENTAL JUSTICE** – The Federal Street corridor is located in a potential environmental justice area (PEJA) as defined by the New York State Department of Environmental Conservation (NYSDEC), and in a regionally-specific Environmental Justice area for both minority and low-income residents as defined by CDTC. Under the No-Build concept, no changes are expected to environmental justice populations. The Build concept will result in a positive impact to environmental justice populations, through improved walking and bicycling accommodations, and reduced vehicle speeds.

**GENERAL SOCIAL GROUPS** – In addition to environmental justice populations, the Federal Street corridor serves a number of social groups with distinct transportation needs. Special consideration should be given to elderly and disabled populations due to the presence of several key generators in the corridor including the O’Neil Apartments, Kennedy Towers, Social Security Administration, Troy Housing Authority, and the Troy Medical Plaza. Under the No-Build concept, no changes are expected to impact the elderly or disabled. Under the Build concept, these groups are expected to receive a net benefit due to reduced vehicle speeds and improved multi-modal access. Design treatments of pedestrian crossings will be an important consideration for these groups.

**UTILITIES** – Transportation projects have the potential to impact existing utilities in the area. The No-Build concept will have no utility impacts. Under the Build concept, proposed curb relocation will result in impacts to storm water collection. Specifically, while the proposed concept maintains the curb on the south side to the extent possible to minimize potential utility conflicts, modification to the curb on the north side of Federal Street will require additional utility coordination. Likewise, modification of the Federal Street/River Street and Federal Street/6<sup>th</sup> Avenue intersections will likely impact overhead utilities. It is noted that the City may be able to coordinate additional utility improvements to coincide with a construction project on Federal Street.

**CONSTRUCTION COSTS** – The No-Build concept will not have any construction costs. Costs for the Build concept were estimated at approximately \$5.8 million, including design and construction inspection.

**TABLE 8 – CONCEPTS ASSESSMENT SUMMARY**

<b>Metric</b>	<b>No-Build Concept</b>	<b>Build Concept</b>
Level of Service/Vehicle Delay	2 to 5 seconds of additional delay per vehicle on average	15 to 20 second delay reduction per vehicle on average*
Mobility (Pedestrian, bicycle, transit, etc.)	No Effect	Improved pedestrian, bicycle, and transit mobility
Safety	No Improvement	Net Improvement
Access Management	No Change	Net Improvement
Parking Impacts	No Change	Unknown
Air Quality	No Improvement	Net Improvement*
Property Impacts	None	8 properties (~0.1 to 0.2 acre total)
Environmental Justice	No Change	Net Improvement
General Social Groups	No Change	Net Benefit for disabled and elderly populations
Utilities	None	Utility relocation anticipated.
Construction Cost	None	\$5.8 (2022 estimate)

\*Impacts may vary under single lane vs. multi-lane roundabout concepts



Anticipated Permits/Certifications/Coordination:

**TABLE 9 – ANTICIPATED PERMITS/COORDINATION**

<u>Permits</u>
<b>NYS Department of Environmental Conservation:</b>
<ul style="list-style-type: none"> <li>State Pollutant Discharge Elimination System (SPDES) General Permit</li> <li>Floodplain Variance</li> </ul>
<b>Others</b>
<ul style="list-style-type: none"> <li>City Permit</li> </ul>
<u>Coordination</u>
NYSDEC (pursuant to the “NYSDEC/NYS DOT Memorandum of Understanding Regarding ECL Articles 15 & 24”)
Federal Highway Administration
New York State Historic Preservation Officer (SHPO)
US Fish and Wildlife Service
New York Natural Heritage Program
Municipalities – City of Troy, Village of Green Island
Metropolitan Planning Organization - CDTC
Utilities – National Grid, Verizon, Charter

## 1.5 What are the Costs and Schedules?

The estimated cost inclusive of design, ROW acquisition, construction, and construction inspection is \$5,800,000 as shown in the following Table. Funding for design has been programmed (TIP# R350, PIN 176238 with \$668,000) and is scheduled for Federal Fiscal Year 2023. Funding for construction has not been programmed and the overall schedule is subject to securing the construction funding, with the goal of completing the project in the next five to eight years, or by 2030.

**TABLE 10 – ESTIMATED COSTS (MILLIONS OF DOLLARS)**

Construction Sub-total	\$4,520,000
Design and construction inspection	\$1,280,000
Project Total	\$5,800,000

## 1.6 Which Concept is Preferred?

The concept that best meets the project objectives is Concept 1 – Boulevard bookended by roundabouts. The roundabout and boulevard geometry will be confirmed during design, with further analysis to determine if the roundabouts could be opened as single lane roundabouts, with provisions to expand the roundabouts to accommodate future traffic growth as necessary. Additional coordination is also needed with City Public Works Department regarding snow removal in the roundabout truck aprons and portions of the flush median intended for emergency vehicle bypass. Coordination with Troy Fire Department will be needed to confirm accommodations for their ladder truck including any reduced radii and the median break at 5<sup>th</sup> Ave.

## 1.7 What are the Opportunities for Public Involvement?

### NEIGHBORHOOD MEETING

At the request of the Federal Street neighborhood, an initial meeting was held on Monday May 23, 2022 to introduce the study and inform the residents of the study goals, preliminary analysis, and draft concept. The meeting was attended by over 25 individuals who were provided the opportunity to ask questions of the project team and provide initial feedback. In general, the group was supportive of the study goals to calm traffic on Federal Street and improve bicycle and pedestrian connectivity, with several commenters supporting a potential reduction in vehicle lanes and streetscape enhancements on Federal Street. Although the meeting attendees generally supported the study goals and segment options presented, the group expressed concerns with roundabouts and pedestrian safety at roundabouts. The project team responded with several studies that show a reduction in fatal and injury crashes for roundabouts as compared to traffic signals, and FHWA literature that noted “the lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling”.

The meeting concluded by informing the neighborhood group of the upcoming public workshop and further opportunities to learn about the study and provide additional comments.

## **PUBLIC WORKSHOP #1**

The first public workshop for the Federal Street Corridor Study was held online as a “Join at Your Own Pace” presentation. The online presentation was available for review and public comment on the study website [www.fixfederalstreet.com](http://www.fixfederalstreet.com) from Wednesday, June 15, 2022, through Friday, July 15, 2022. The meeting was well advertised with flyers distributed to businesses and residences near the study area, email blasts to over 2,000 email addresses from Downtown Revitalization Initiative (DRI) and Troy Rehabilitation and Improvement Program (TRIP) databases, and a press-release, resulting in attendance from over 345 unique visits to the site. The online presentation began with an introduction by Chris Nolin, City of Troy Deputy Mayor, and Sandy Misiewicz, CDTC Executive Director. An overview of the study goals, analysis, and preliminary concepts was presented by Jesse Vogl (Creighton Manning).

The purpose of the public workshop was to:

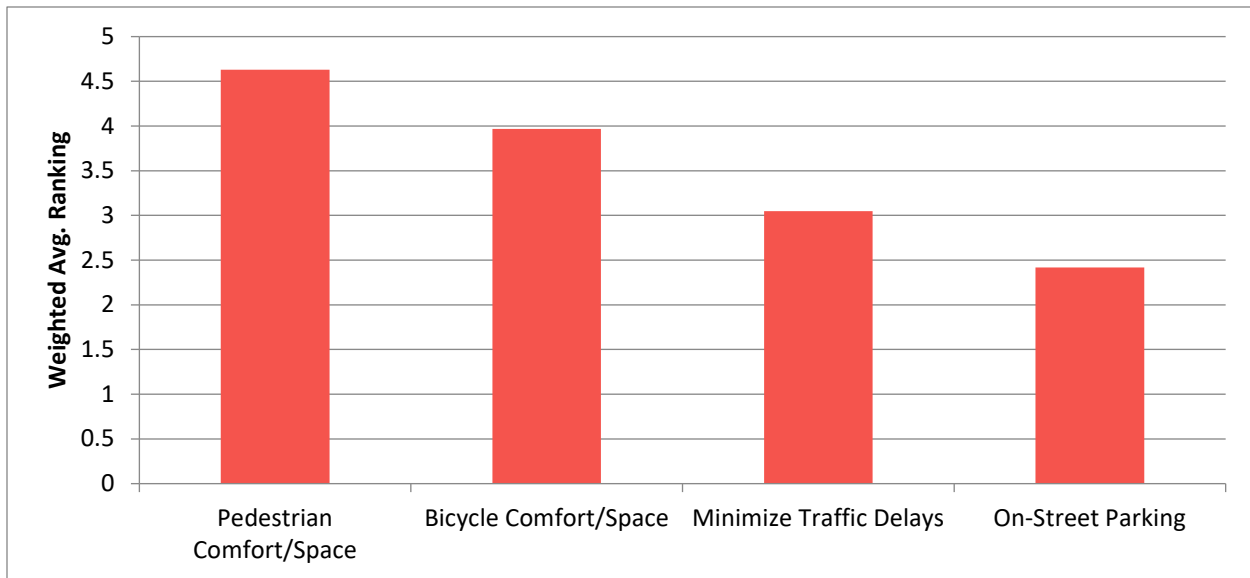
- Inform the public about the scope and objectives of the study,
- Review existing conditions and transportation needs in the Federal Street corridor,
- Present draft intersection and roadway concept for the Federal Street corridor, and
- Obtain input on the initial concepts to guide the next iteration of refinements.

Meeting attendees had several opportunities to provide input and offer comments including a survey with open-ended response questions and a comment section on the project website. Participants were also encouraged to review the material on the website and provide additional comments via the project email [fixfederalstreet@cmellp.com](mailto:fixfederalstreet@cmellp.com).

The online presentation and advertising materials directed the public to complete an online survey to provide input on the draft recommendations. As of the close of the public comment period (July 15, 2022) 86 surveys were completed. The survey prompted respondents to provide input for the following three categories: 1) Project Goals, 2) Proposed Roadway Segment Concepts, and 3) Draft Concept Plan

In general, the majority of survey respondents (approximately 75 to 80 percent) agreed or strongly agreed with the draft purpose, need, and objective statements. Goals that focused on pedestrian and bicycle connectivity across and along Federal Street ranked highest, while more auto-oriented goals (such as minimizing traffic delay and providing parking) were regarded as less important. When asked about priorities, pedestrian comfort/space ranked highest, followed by bicycle comfort/space, while providing on-street parking ranked lowest. Other priorities listed included landscape treatments to improve aesthetics and create a gateway, accessibility for mobility impaired, elderly, and disabled populations, and improved connectivity. Figure 6 shows the level of support for each of the preliminary project objectives using a weighted average ranking scale of one to five with one representing least important and five representing the most important.

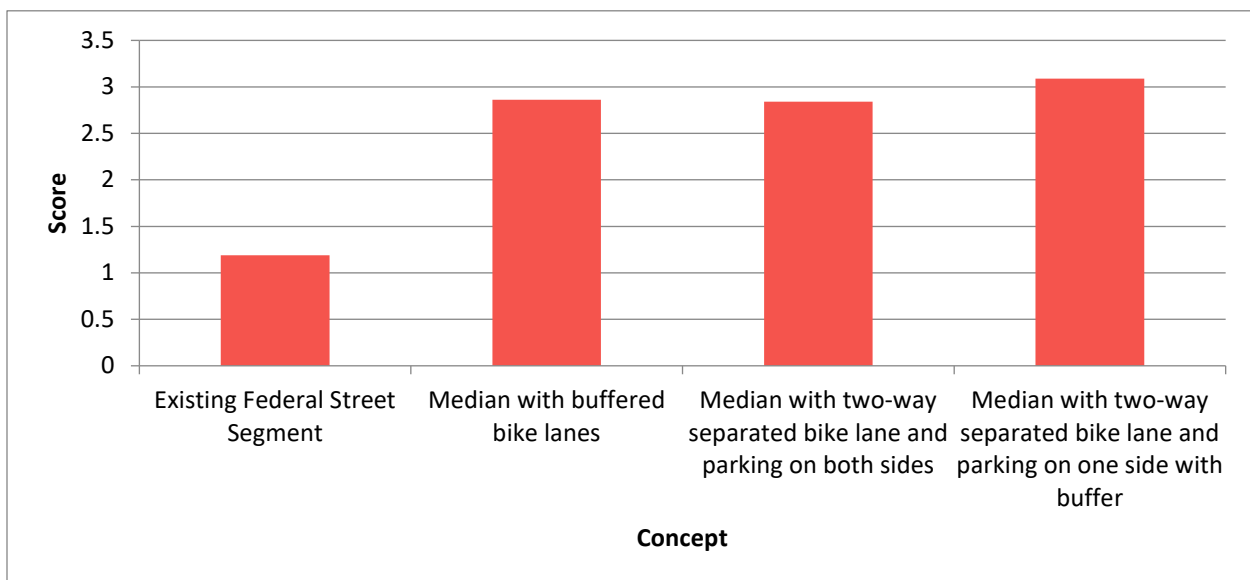




**FIGURE 6 –WHAT’S MOST IMPORTANT TO YOU?**

Survey respondents were also asked to rank the proposed roadway segment sub-alternatives and provide feedback for what they liked and disliked about the roadway options. The existing Federal Street cross-section was ranked as the least favorite option by over 90 percent of respondents, indicating that the overwhelming majority of the public agrees that there is a need for the identified improvements. Of the improvement concepts, the two-way separated bike lane with parking on one-side ranked highest. The shared path option was not presented at the meeting, but is comparable, and is a refinement to the concept that will be presented at the 2<sup>nd</sup> public meeting. Figure 7 shows the level of support for each concept using a ranking of one to four with one representing least favorite and four representing the most favorite.

**FIGURE 7 – SEGMENT CONCEPT RANKINGS**



The open ended response questions indicate that the public generally supports bicycle lanes, space between vehicles and non-motorized modes, opportunities for pedestrian crossings, improved sidewalks and landscaping, reduced vehicle lanes, and narrower pavement widths. In contrast, elements that the public disliked included two-way bicycle lanes, painted buffers, and parking. Specifically, several comments noted that two-way bicycle lanes could be more difficult for pedestrians to cross as compared to conventional buffered bicycle lanes. However, there was no consensus from the public as to which type of bicycle treatment is preferred, with a number of commenters in favor of a two-way bicycle lane.

Survey respondents were asked to provide comments on what they liked and disliked about the overall concept plan, as well as provide input on any additional elements they would like added. While many elements of the plan can be found in both the like and dislike categories, the following themes are evident:

- Many people stated that they like the boulevard concept bookended by roundabouts. About ten percent of respondents stated that they liked everything about the concept and had no dislikes. In contrast, approximately five percent of respondents noted that they disliked the entirety of the plan.
- A review of comments relative to roundabouts indicate that about 50 percent of respondents are in favor of roundabouts, with an additional 15 percent in favor of roundabouts if they are limited to a single lane. Approximately 15 percent of respondents indicated they were opposed to roundabouts.
- Many respondents liked the proposed concept for improved traffic flow, shorter pedestrian crossings, and the overall enhanced aesthetic and place making opportunities.
- Some respondents indicated concern with the ability for pedestrians and cyclists to safely cross the roundabouts and requested that additional design elements (such as speed bumps) be incorporated.
- Many respondents noted that pedestrian wayfinding and amenities should be incorporated into the plan to improve the overall pedestrian experience and make the corridor more inviting.

## **STAKEHOLDER MEETINGS**

In addition to the above neighborhood and public workshops, stakeholder meetings were held with the New York State Department of Transportation and City of Troy Fire Department to present the Build concept and solicit their feedback. Both departments provided constructive comments that have been incorporated into the report to further inform the development of the preferred concept.

## PUBLIC WORKSHOP #2

The second public workshop for the Federal Street Corridor Study was held online as a “Join at Your Own Pace” presentation. The online presentation was available for review and public comment on the study website [www.fixfederalstreet.com](http://www.fixfederalstreet.com) from Thursday, December 8, 2022, through Friday, December 23, 2022. The meeting was well advertised with flyers distributed to businesses and residences near the study area, email blasts to over 2,000 email addresses from Downtown Revitalization Initiative (DRI) and Troy Rehabilitation and Improvement Program (TRIP) databases, and a press-release, resulting in attendance from over 700 unique visits to the site. The online presentation began with an introduction by Steve Strichman, Commissioner of Planning and Economic Development for the City of Troy, and Sandy Misiewicz, CDTC Executive Director. Jesse Vogl (Creighton Manning) presented an overview of the study goals, public input on the preliminary concept, and concept updates. The purpose of the public workshop was to update the public about the concepts developed for the study area, and to receive input from the public about the study recommendations.

Meeting attendees had several opportunities to provide input and offer comments including a survey with multiple choice and open-ended response questions and a comment section on the project website. Participants were also encouraged to review the material on the website and provide additional comments via the project email [fixfederalstreet@cmellp.com](mailto:fixfederalstreet@cmellp.com).

The online presentation and advertising materials directed the public to complete an online survey to provide input on the draft recommendations. As of the close of the public comment period (December 23, 2022) 146 surveys were completed. Figure 8 summarizes the results of the multiple choice questions and indicates that public opinion of the proposed concept remains evenly split. Specifically, while slightly more than half of respondents support the proposed concept, further input on the potential for traffic calming and improved bicycle and pedestrian comfort indicates that respondents are generally skeptical of the multi-modal benefits. Further, a review of the open ended comment fields indicate a desire to limit the roundabouts to a single entering vehicle lane on each approach and narrow lane widths on Federal Street in order to promote bicycle and pedestrian comfort.

Additional coordination will be needed with the public and involved agencies during design.

### “Join at Your Own Pace” Public Workshop #2

Click [here](#) first to watch the “Join at Your Own Pace” Public Workshop #2 presentation and [read the draft final report \(PDF\)](#).

After you finish watching and reading the report, please provide feedback by filling out our [new Public Input Survey](#).

**FEDERAL STREET CORRIDOR STUDY**

Online Presentation  
December 8 - December 22

[www.FixFederalStreet.com](http://www.FixFederalStreet.com)

**We Need Your Input!**

The City of Troy and the Capital District Transportation Committee (CDTC) are studying how to reimagine the Federal Street corridor and invite you to review the draft report and submit your thoughts on the proposed concept.

**Study Goals**

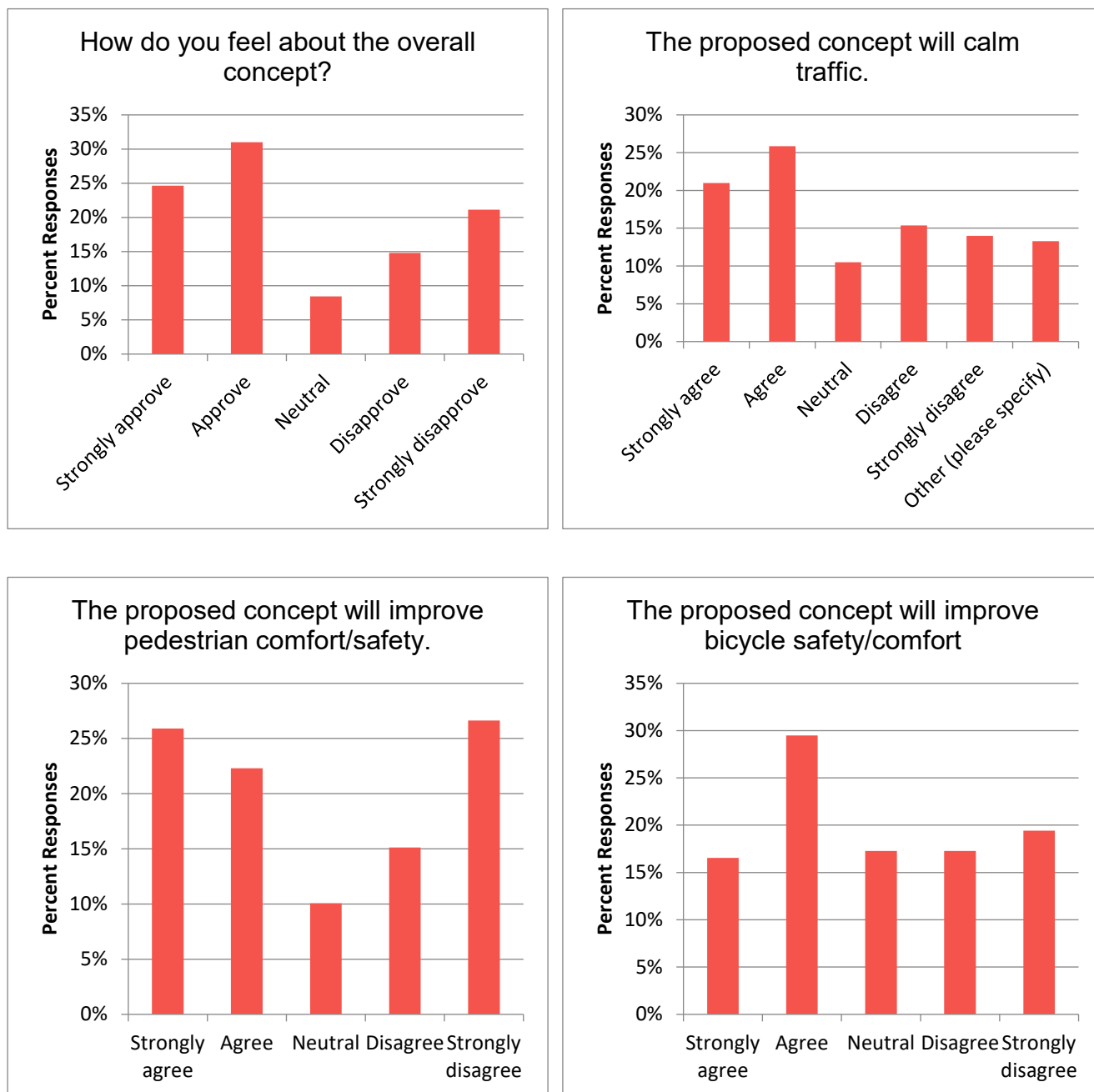
- Calm Traffic
- Improve Pedestrian Access
- Provide Bicycle Connections

**CONTACT US**  
[FixFederalStreet@cmellp.com](mailto:FixFederalStreet@cmellp.com)

Visit the website to learn more and take the survey!  
[www.FixFederalStreet.com](http://www.FixFederalStreet.com)



**FIGURE 8 – PUBLIC INPUT ON PROPOSED CONCEPT**



The following summarizes the additional demographic data collected through the survey:

- The majority of respondents (75%) live outside of the study area
- Approximately 95% of respondents identified as white, non-Latino.
- Approximately 15% of respondents indicated they have a disability.
- The approximate household income of respondents is generally above the poverty line with approximately 55% of households earning over \$100 thousand per year, and an additional 40% earning over \$35 thousand per year.