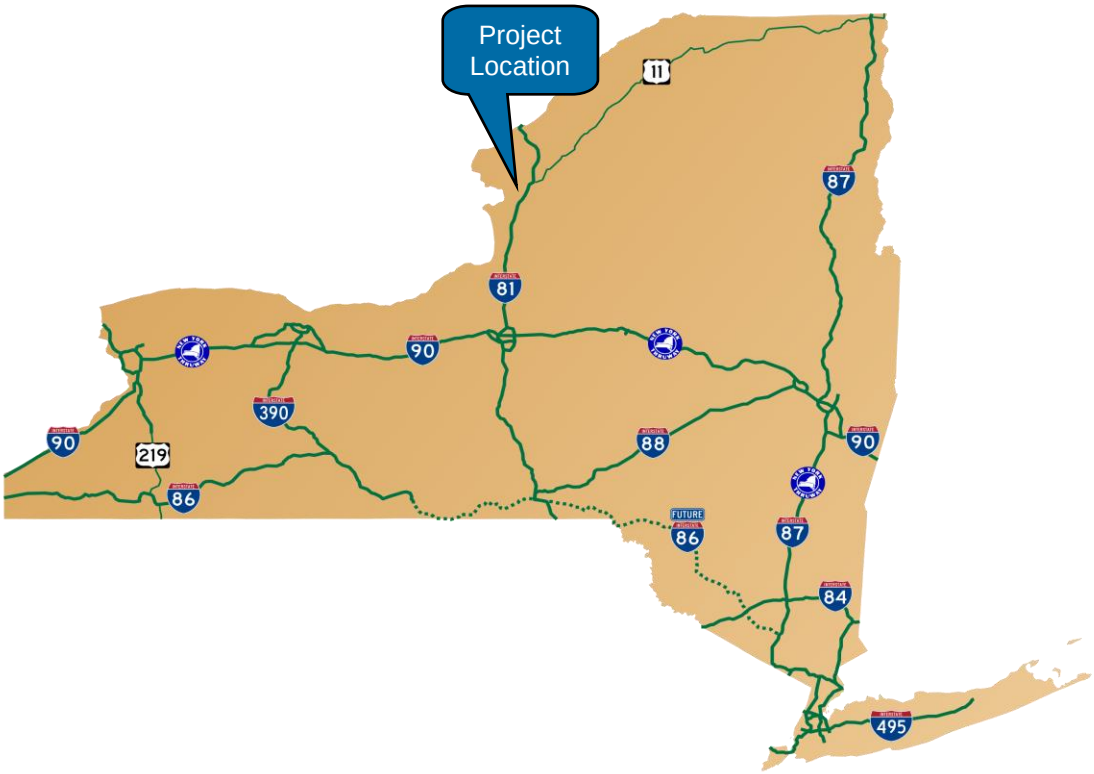
Transportation Project Report

Final Design Report

January 2023

New York Route 12E over Black River Bridge Replacement
Project Identification Number (PIN): 7780.09
Bridge Identification Number: (BIN): 3338900
Towns of Brownville and Hounsfield, Village of Brownville
Jefferson County, NY



NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

Project Approval Sheet

Milestones	Signatures	Date
A. IPP Approval:	The project is ready to be added to the Regional Capital Program and project scoping can begin. The IPP was approved by: Kenneth M. Bibbins P.E, Regional Director	
B. Scope Approval:	The project cost and schedule are consistent with the Regional Capital Program. The scope was approved by: Kenneth M. Bibbins P.E, Regional Director	
C. Public Hearing Certification (Pursuant to 23 USC 128 and 23 CFR 771.111):	A public hearing was held on January XX, 2022. Kent E. Collier P.E., Project Manager	Date
D. Recommendations for Design, and Nonstandard Feature Approval:	All requirements requisite to these actions and approvals have been met, the required independent quality control reviews separate from the functional group reviews have been accomplished, and the work is consistent with established standards, policies, regulations and procedures, except as otherwise noted and explained. The nonstandard features have been adequately justified and it is not prudent to eliminate them as part of this project. Ernie Reape, P.E., Regional Design Engineer	Date
E. Design, and Nonstandard Feature Approval:	The required environmental determinations have been made, and the preferred alternative for this project is ready for final design. Nonstandard features have been appropriately justified. Richard Wilder, P.E., Deputy Chief Engineer Design	Date

List of Preparers

Group Director Responsible for Production of this Final Design Report (FDR):

Jeffrey W. Pangburn, PE, Principal, Creighton Manning Engineering LLP
Description of Work Performed: Directed the preparation of the FDR in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document. The designer/project manager visited the site on October 23, 2019.

Note: *It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, architect, landscape architect, or land surveyor, to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering engineer, architect, landscape architect, or land surveyor shall stamp the document and include the notation "altered by" followed by their signature, the date of such alteration, and a specific description of the alteration.*

Table of Contents

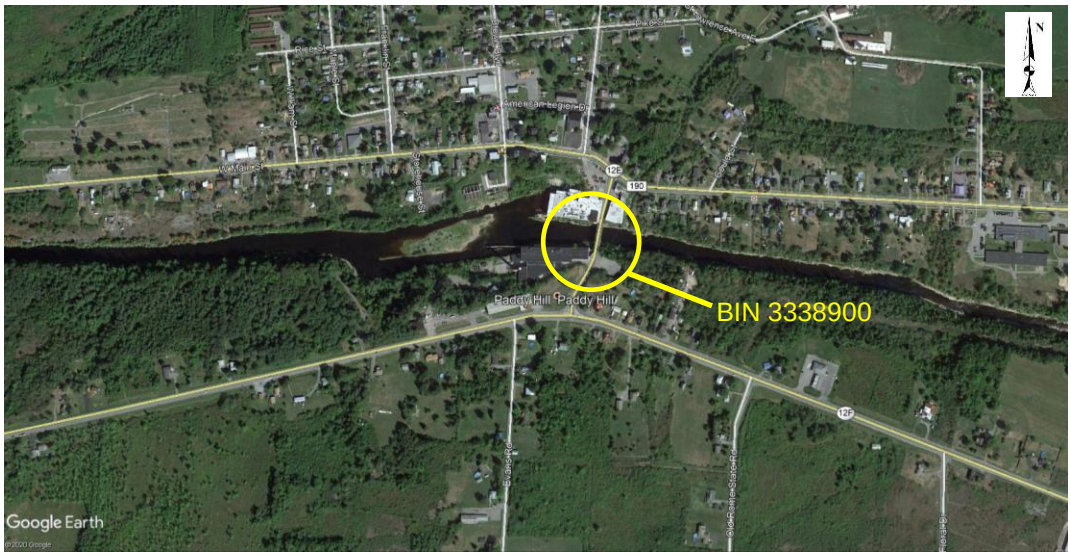
Table of Appendices

CHAPTER 1 – PROJECT DEVELOPMENT

1.1. Introduction

This report was prepared in accordance with the NYSDOT Project Development Manual, 17 NYCRR (New York Codes, Rules and Regulations) Part 15, 40 CFR (Code of Federal Regulations) Parts 1500 through 1508 and 23 CFR (Code of Federal Regulations) 771. Transportation needs have been identified (section 1.2.1), objectives established (1.2.3) to address the needs, and reasonable alternatives developed (1.3). This project is federally funded. The existing bridge has been deemed deficient, and a new bridge crossing location was chosen from the 2019 Planning Study conducted by Watertown-Jefferson County Area Transportation Council (WJCTC).

1.1.1. Project Location



(1) Route number: NY Route 971HX. The proposed bridge will be at a new location on NY Route 12E
(2) Route name: Bridge Street
(3) SH (state highway) number and official highway description: NY Route 12E (S.H.'s 1845 & 9439) and NY Route 12F (S.H 1182)
(4) BIN (Bridge Identification Number) and feature crossed: BIN 3338900 over Black River
(5) City/Village/Township: Towns of Brownville and Hounsfield, Village of Brownville
(6) County: Jefferson County
(7) RM 12F 7301 1024 to 1033; RM 971H 7301 1000 to 1002; RM 12E 7301 2028 to 2037

1.2. Purpose and Need and Objectives

1.2.1. Project Need

The planning study conducted by WJCTC, examined the existing crossing of NY Route 12E (Bridge Street) over the Black River along with alternative crossing locations to identify the most suitable location for the replacement structure. The existing bridge over the Black River, between NY Routes 12E and 12F, was given a general recommendation of 4 (2021) and issued five (5) flags (1 red and 4 yellow). The bridge's superstructure type is a field-welded thru-truss and was last rehabilitated in 1983. A failure in any member of the truss could lead to the total collapse of the bridge which would create a gap in the transportation network. Additionally, there are also operational issues associated with the highway geometry and signal operations. Businesses located on either side of the bridge have also expressed concerns about access and safety issues associated with queueing traffic. These factors combined

support the need for a replacement structure, and a preferred location was identified through the aforementioned planning study which is being carried into Preliminary Design. Several other locations were evaluated and removed from consideration within the planning study.

1.2.2. Project Purpose

The purpose of this project is to replace the bridge carrying NY 971HX over the Black River to solve existing structural, operational, and access issues while maintaining connectivity for residents, regional travelers, and businesses, between the Towns of Brownville and Hounsfield.

1.2.3. Project Objectives

The main objectives of this project are to:

(1) Restore the bridge crossing which provides a minimum 75 year service life using cost effective techniques to minimize the life cycle cost of maintenance and repair
(2) Address geometric deficiencies to improve traffic flow and facilitate traffic operations
(3) Serve the community, accommodate existing users and minimize property and environmental impacts.

1.3. Project Alternatives

Alternatives under Consideration:

No Build: The no build alternative will maintain the existing structure, roadway section and geometry. There will be no improvements made to the structure other than routine maintenance and no physical deficiencies will be corrected. This alternative does not meet the project objectives; as such it is discarded from further consideration but will be used as a baseline to evaluate the impacts of the Build Alternative.

1.3.1 Alternative 1 – Replacement on new alignment

Alternative 1: This alternative will replace the existing bridge with a new structure on a new alignment approximately 0.61 miles to the west. The new structure will have a span of approximately 200 feet with both abutments founded on rock.

The proposed highway approaches along NY Routes 12E and 12F will be widened to accommodate 16'-0" right turn lanes onto the new highway along with a 12-0" left turn lane on the NY Route 12F eastbound approach. A 5'-2" wide concrete sidewalk with a 5" curb, for a total width of 5'-7", will be provided on the east side of the bridge for future use. The roadway alignment and width along NY Routes 12E and 12F will generally match the existing roadway orientation and the new roadway will intersect NY Routes 12E and 12F perpendicularly. Additionally, the existing bridge will be removed and the roadway will be turned over for private use. The roadway will be re-striped and the signal will be removed at the intersection of NY Route 12E and NY Route 12E (Bridge Street). Right-of-way acquisitions will be required for the new roadway, along with temporary easements for construction access at the existing bridge.

For a more in-depth discussion of the design criteria and nonstandard features for the reasonable alternative(s) under construction see Section 3.2.3 of this report.

1.4 Project Effects

1.4.1 Environmental Classification

Exhibit 1.4.1
Environmental Classification Summary

NEPA Classification	Class II CE	BY	Federal Highway Administration (FHWA)
SEQR Type:	Non-Type II	BY	NYSDOT

1.4.2 Comparison of Considered Alternatives

Exhibit 1.4.2
Environmental Classification Summary

Category	Alternatives Evaluated	
	Null	**Alternative 1**
Environmental Impacts		
Wetlands	None	None
Cultural Resources (Section 106)	None	No Historic Properties Affected
Endangered/ Threatened Species	None	Likely to Adversely Affect
Noise	None	None
Social Impacts		
Property/Relocations	None	8 T.E.'s 6 Fee's
Mobility (Pedestrian, bicycle, transit, etc.)	No Improvements	Improved pedestrian and bicycle mobility along proposed roadway
Economic and/or Operational Impacts		
Economic Impacts	No Effect	Modification to vehicular access to businesses
Operation at ETC +20	LOS C or better	LOS D or better
Utilities	None	Relocations required
Construction Cost	None	$15.33 M

An assessment of comparative impacts for all dismissed alternatives can be found in the 2019 Planning Study conducted by Watertown-Jefferson County Area Transportation Council (WJCTC); refer to Appendix F of this report.

1.4.3 Anticipated Permits/Certifications/Coordination

Exhibit 1.4.3 Anticipated Permits/Certifications/Coordination
Permits
NYS Department of Environmental Conservation (NYSDEC):
• State Pollutant Discharge Elimination System (SPDES) General Permit
• Section 401 Water Quality Certification
Certifications
Endangered Species Act Section 7 Concurrence (FHWA and USFWS)
New York State Department of State (NYSDOS)
Blanket Section 401 Water Quality Certification (WQC)
Coordination
NYSDEC (pursuant to the "NYSDEC/NYSDOT Memorandum of Understanding Regarding ECL Articles 15 & 24")
New York State Historic Preservation Officer (SHPO)
US Fish and Wildlife Service
New York State Department of State (NYSDOS)
New York Natural Heritage Program
Municipality(ies) – Village of Brownville, Towns of Brownville and Hounsfield
Metropolitan Planning Organization – Watertown Jefferson County Area Transportation Council
Utility(ies) – National Grid

1.5. Preferred Alternative

The reasonable alternative that best meets the project objectives as per the WJCTC scoping study (included in Appendix G) is Alternative 1. See Section 3.2.2 for a discussion of this alternative.

1.6. Project Schedule and Cost

Exhibit 1.6-1 Project Schedule	
Activity	**Date Occurred/Tentative**
Scoping Approval	Winter 2019
Design Approval	Winter 2022
ROW Acquisition	Winter 2022-2023
Construction Start	Spring 2024
Construction Complete	Fall 2025

Exhibit 1.6-2 Summary of Alternative Costs for BIN 3338900			
Activities		**No Build**	**Bridge Replacment**
Earthwork		$0.00	$1,279,000
Pavement and Subbase		$0.00	$2,274,000
Drainage		$0.00	$233,000
Guide Rail		$0.00	$28,000
Landscaping		$0.00	$140,000
Signs & Pavement Markers		$0.00	$123,000
Survey		$0.00	$131,000
Work Zone Traffic Control		$0.00	$209,000
Bridge (new alignment)		$0.00	$4,571,000
Bridge - Utility Structure (old alignment)		$0.00	$634,000
Structures Demolition		$0.00	$265,000
Stormwater/SPDES		$0.00	$134,000
Miscellaneous/Incidentals (Hwy & Utility Truss)		$0.00	$279,000
Field Change Order		$0.00	$460,000
Mobilization	4%	$0.00	$430,000
Subtotal (2022 dollars)		**$0.00**	**$11,190,000**
Contingency/Risk (See Note 1)		0.0%	15.0%
		$0.00	$1,680,000
Subtotal (2022 dollars)		**$0.00**	**$12,870,000**
Mid-Point of Construction Year		*2022*	*2025*
Inflation/Escalation to Midpoint of Construction (See Note 2)	6%	$0.00	$2,460,000
Estimate Year	2022		
Award/Construction Cost		**$0.00**	**$15,330,000**
Final Design		0.0%	12.5%
		$0.00	$1,920,000
QC & Administration of Final Design and Contract	3%	$0.00	$460,000
Construction Inspection	9%	$0.00	$1,380,000.00
ROW Costs (2022 dollars)		$0.00	$147,000
Total Project Cost		**$0.00**	**$19,240,000**
Notes:		1. HDM Table 21-9 recommends standard contingencies: 20%-25% Scoping stage, 15%-20% Design Approval stage, 5%-10% Advanced Detail Plans stage. 2. The escalation rate of 6% is to account for potential future increases in labor, material, equipment and other costs associated with Capital Program work.	

1.7. Public Involvement

Refer to Appendix F for the project's Public Involvement Plan and for related project correspondence.

Exhibit 1.7
Public Involvement Plan Schedule of Milestone Dates

Activity	Date Occurred/Tentative
Press Release	2017
Door-to-door Outreach and Project Website Updates	Ongoing
Stakeholder Workshop	January 31, 2018
Public Meeting #1	May 10, 2018
Pop up Booth	June 2, 2018
Public Meeting #2	November 1, 2018
Public Info Meeting/EDPL Public Hearing	Fall 2022

For additional information or to provide comments, please contact.

Mailing Address: Kent Collier, Project Manager
New York State Department of Transportation
Region 7 Design
317 Washington Street
Watertown, New York 13601

Email Address: Kent.Collier@dot.ny.gov

Telephone: (315) 785-7962

Please include the six-digit Project Identification Number (PIN) 7780.09 in any correspondence.

Project website: https://www.wjctc.org/projects/proposed-projects/item/14-rt-12e-brownville-black-river-bridge.html

The remainder of this report is a detailed technical evaluation of existing conditions, anticipated impacts of the one reasonable/preferred alternative and comparison to the null alternative, copies of technical reports and plans and other supporting information.

CHAPTER 2 - PROJECT CONTEXT: HISTORY, TRANSPORTATION PLANS, CONDITIONS AND NEEDS

This chapter addresses the history and existing context of the project site, including the existing conditions, deficiencies, and needs for this part of the NY Route 12E corridor.

2.1. Project History

BIN 3338900, NY Route 12E (Bridge Street) over the Black River was built in 1954 and is currently owned by the New York State Department of Transportation. The structure was last rehabilitated in 1983 which involved a deck replacement, the retrofitting of trusses with tie rods and updating steel details. This rehabilitation has outlived its intended service life. There are limited bridge crossings in the immediate area and a closure of this bridge would lead to a gap in the transportation network and potential loss of life. An inspection of the existing structure in December 2021 yielded a General Recommendation of 4, indicating that the bridge is deficient.

In addition to the structural deficiencies, there are also operational issues, as noted in the planning study, associated with inadequate highway geometry. Accessibility and safety issues also exist due to the close proximity of the existing structure to properties on each side of the bridge. Replacing the structure in-kind would not solve the operational, safety or accessibility issues. Therefore, it was decided to conduct a planning study to identify the best alternative for a replacement bridge. In addition to evaluating the existing crossing, the planning study evaluated several alternative locations for the proposed bridge. In concert with extensive public outreach and stakeholder involvement, a preferred location (Alternative 1) was identified through the planning study and is being advanced. A copy of the final study is available in Appendix G of this report.

2.2. Transportation Plans and Land Use

2.2.1. Local Plans for the Project Area

2.2.1.1. Local Comprehensive Plans (“Master Plan”) -

This project is consistent with the WJCTC Jefferson County Coordinated Transportation Plan for Mobility Services prepared in 2016, which was prepared to help improve the coordination of transportation services for persons with disabilities, older residents and individuals with lower incomes. This project is also consistent with the recently completed WJCTC planning study which evaluated several bridge replacement locations and does not conflict with any local comprehensive plans.

2.2.2. Transportation Corridor

2.2.2.1. Importance of the Project Route Segment -

The existing bridge connects the Village and Town of Brownville with the Town of Hounsfield, which are separated by the Black River. The bridge serves as one of the few crossing locations over the Black River between Watertown and Lake Ontario. NY Route 12E serves as an important commuter connector between points north and south of the river and is also an important tourist route to St. Lawrence River communities.

2.2.2.2. Alternate Routes –

There are no alternate routes that would be suitable as a permanent detour. A permanent detour would require traffic traveling into Watertown to get across the river; an additional 8 miles of travel.

2.2.2.3. Corridor Deficiencies and Needs -

BIN 3338900 is a vital link for commuters in the area. The bridge is deficient, in need of corrective action and is currently posted for no vehicles with R permits. Additionally, the bridge lacks multi modal accommodations. There is a sidewalk on the west side of the bridge; however, there are no shoulders or pedestrian facilities that lead up to this sidewalk. There are also no shoulders on the bridge, which forces bicyclists to share the 12'-0" wide travel lane with motorists. There is a need in the immediate project area to accommodate pedestrians and bicyclists.

2.2.2.4. Transportation Plans -

This project is on the approved Watertown Jefferson County Area Transportation Council 2019 – 2024 State Transportation Improvement Program (STIP); PIN 7780.09.

2.2.2.5. Abutting Highway Segments and Future Plans for Abutting Highway Segments -

The character of the highway segment (NY Route 12E) on the north side is primarily urban with curbing and closed drainage systems while the southern side (NY Route 12F) is rural with open ditches. As part of this project, the abutting highway segments will be widened at the proposed intersections to accommodate right turn lanes, and a left turn lane from NY Route 12F, onto the new highway. Abutting highway segments will match the typical section of the existing highways within the project limits. There is an industrial park currently under development by Jefferson County on NY Route 12F just west of the project site.

2.3. Transportation Conditions, Deficiencies and Engineering Considerations

2.3.1. Operations (Traffic and Safety) & Maintenance

2.3.1.1. Functional Classification and National Highway System (NHS) –

Exhibit - 2.3.1.1
Classification Data

Route(s)	NY Routes 12E, 971HX and 12F (S.H.'s 1845, 9439 & 1182)
Functional Classification	(16) Urban Minor Arterial
National Highway System (NHS)	No
Designated Truck Access Route	Yes (NY Route 12F); No (NY Routes 12E & 971HX)
Qualifying Highway	No
Within 1 mile of a Qualifying Highway	No
Within the 16 ft vertical clearance network	No

2.3.1.2. Access Control -

There is no control of access on NY Route 12E (East Main Street & Bridge Street), or NY Route 12F. There will be no change in the control of access on the roadways associated with the project.

2.3.1.3. Traffic Control Devices –

The traffic control devices within the project limits include pavement markings, traffic signs and three traffic signals. A 35-mph speed limit sign is located on the northbound side of NY Route 12E (Bridge Street), south of the bridge. The following intersections are located in the project area:

- NY Route 12E (Bridge Street)/Jefferson County Route 190 – This is a "T" intersection operating under an actuated traffic signal that provides a single lane on each approach for shared travel

movements. This signal is approximately 200 feet from a traffic signal at the intersection of NY Route 12E (East Main Street)/Washington Street.

- NY Route 12E (Bridge Street)/NY Route 12F – This is a "T" intersection with the southbound left-turn movement on NY Route 12E (Bridge Street) operating under stop-sign control. The flared southbound right-turn movement on NY Route 12E (Bridge Street) operates under yield sign control even though a free-flow lane is provided onto NY Route 12F. The eastbound NY Route 12F approach provides a shared left-turn/through lane and a separate bypass lane while the westbound NY Route 12F approach provides a through lane and a separate flared right-turn lane.

2.3.1.4. Intelligent Transportation Systems (ITS) –

There are currently ITS features at the NY Route 12E (Bridge Street)/Jefferson County Route 190 intersection. The traffic signal at this intersection uses video detection to actuate traffic signal control.

2.3.1.5. Speeds and Delay –

The posted speed limit for NY Route 12E (Bridge Street) and NY Route 12E within the Village limits are 35-mph and 40-mph for NY Route 12F. The posted speed limit for NY Routes 12E and 12F outside the village limits are 55 mph. Speed measurements were taken by NYSDOT in June 2014, 2017 and 2022. The results of the speed study conducted, including the 85th percentile operating speeds, are shown in Exhibit 2.3.1.5.

Exhibit – 2.3.1.5
Speed Data (mph)

Location	Posted Speed Limit	Average Speed		85th Percentile Speed	
NY Route 12E (Bridge Street)	35	28.5 (NB)	28.7 (SB)	33.4 (NB)	33.6 (SB)
NY Route 12E	35	32.8 (EB)	30.8 (WB)	38.7 (EB)	36.7 (WB)
NY Route 12F	40	54.5 (EB)	52.9 (WB)	59.9 (EB)	58.8 (WB)
NY Route 12E	55	47.7		53.0	
NY Route 12F	55	57.8		62.0	

2.3.1.6. Traffic Volumes -

2.3.1.6. (1) Existing and no-build traffic volumes –
Intersection turning movement counts were conducted in May 2017 during the weekday AM and PM peak hours at the NY Route 12E (Bridge Street)/Jefferson County Route 190 and NY Route 12E (Bridge Street)/NY Route 12F intersections. The worst-case morning and afternoon traffic operating conditions occur from approximately 7:30 to 8:30 a.m. and from 4:00 to 5:00 p.m., respectively. The traffic volumes were factored to Existing 2020 traffic conditions. Refer to Appendix C of this report for traffic flow diagrams.

In addition, a continuous 24-hour automatic traffic recorder (ATR) count was conducted by NYSDOT in June 2014 (speed and classification) and October 2018 (volume only) on NY Route 12E (Bridge Street) between NY Route 12E/Jefferson County Route 190 and NY Route 12F. The existing traffic data was used to develop future traffic volumes at the study area intersections. Refer to Exhibit 2.3.1.6-1 for a summary of the traffic data collected.

Exhibit - 2.3.1.6-1
Traffic Data

NY Route 12E (Bridge Street)	Northbound	Southbound

Directional Distribution	29 % AM, 62 % PM	71 % AM, 38 % PM
Peak Hour Factor	0.75 AM, 0.95 PM	0.89 AM, 0.87 PM
% Peak Hour Trucks	4.2 % AM, 2.1 % PM	3.4 % AM, 3.4 % PM
% Daily Trucks	2.7 %	3.7 %

Note: Directional Distribution, Peak Hour Factor, and % Peak Hour Trucks from May 2017 Turning Movement Counts. Daily Truck % from June 2014 NYSDOT classification count (Station 730901)

Traffic volume forecasts were prepared for the ETC (2025), ETC+10 (2035), and ETC+20 (2045) design years. The design year was selected per the NYSDOT *Highway Design Manual – Chapters 2 and 5.* In order to conservatively estimate future traffic, a ½ percent per year growth rate was applied to the Existing 2020 traffic volumes, based on a review of historic traffic volumes in the project area. The existing and forecast traffic volumes are shown in Exhibit 2.3.1.6-2. The turning movement forecasts are shown on the diagrams included in Appendix C.

Exhibit - 2.3.1.6-2
Existing and Forecast Traffic Volumes

Route	**NY Route 12E (Bridge Street) from E. Main Street to NY Route 12F**		
Year	ADT	DHV	DDHV
Existing (2020)	7,070	665	425
ETC (2025)	7,250	690	440
ETC+10 (2035)	7,620	725	465
ETC+20 (2045)	8,010	760	485
Route	**NY Route 12F from NY Route 180 to NY Route 12E (Bridge Street)**		
Existing (2020)	4,585	450	275
ETC (2025)	4,700	465	285
ETC+10 (2035)	4,940	490	300
ETC+20 (2045)	5,195	515	315
Route	**NY Route 12E from CR 190 to CR 53**		
Existing (2020)	5,165	46	310
ETC (2025)	5,295	475	320
ETC+10 (2035)	5,570	500	335
ETC+20 (2045)	5,850	525	355

Note: ETC is the Estimated Time of Completion

2.3.1.7. Level of Service and Mobility -

2.3.1.7. (1) Existing and no-build level of service and capacity analysis –
Level of Service (LOS) is a description of the quality of an intersection's operation ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed capacity, resulting in long queues and delays). A detailed discussion of the LOS methodology is included in Appendix C.

Existing and No-Build condition operational analyses were conducted for the study area intersections for the Existing (2020), ETC (2025), ETC+10 (2035), and ETC+20 (2045) design years using the Synchro Software which automates the procedures contained in the *Highway Capacity Manual*. The Existing and No-Build level of service values for the intersections presented on Exhibit 2.3.1.7-1 reflect average delay on each of the approaches. The detailed LOS assessment is summarized in Appendix C.

Exhibit - 2.3.1.7-1
Existing and No-Build Intersection Level of Service and Delays (sec)

Intersection	AM Peak				PM Peak			
	Existing (2020)	ETC (2025)	ETC+10 (2035)	ETC+20 (2045)	Existing (2020)	ETC (2025)	ETC+10 (2035)	ETC+20 (2045)
NY Route 12E/NY Route 12E (Bridge Street)								
NY Route 12E EB TR NY Route 12E WB LT NY Route 12E (Bridge Street) NB LR	A (6.8) A (4.1) B (18.8)	A (6.9) A (4.2) B (18.9)	A (7.2) A (4.4) B (19.2)	A (7.6) A (4.7) B (19.6)	B (10.6) A (9.3) B (11.6)	B (10.8) A (9.5) B (11.8)	B (11.4) A (10.0) B (12.3)	B (12.0) B (10.5) B (12.9)
Overall	A (8.5)	A (8.6)	A (8.8)	A (9.2)	B (10.6)	B (10.9)	B (11.4)	B (12.0)
NY Route 12E (Bridge Street)/NY Route 12F								
NY Route 12F EB LT NY Route 12E (Bridge Street) SB LR	A (7.4) B (14.8)	A (7.4) C (15.4)	A (7.4) C (16.3)	A (7.4) C (17.7)	A (7.9) B (14.4)	A (7.9) B (14.8)	A (8.0) C (15.8)	A (8.0) C (17.1)

L, T, R = Left-Turn, Through, and/or Right Turn movements

The following summarizes the detailed level of service analysis of Existing and No-Build conditions:

- NY Route 12E (Bridge Street)/Jefferson County Route 190 – The analysis indicates that this intersection will operate at an overall LOS A/B during the AM and PM peak hours with all approaches operating at LOS B or better for Existing through ETC+20 design year conditions.

- NY Route 12E (Bridge Street)/NY Route 12F – The analysis indicates that the eastbound NY Route 12F approach will operate at LOS A during both peak hours for Existing through ETC+20 design year conditions. In addition, the southbound left-turn movement will operate at LOS C or better for Existing through ETC+10 design year conditions and will operate at LOS C during ETC+20 design year conditions during both peak hours.

2.3.1.8. Safety Considerations, Accident History and Analysis –

A highway safety investigation study was performed in accordance with the Highway Design Manual Chapter 5. The study was performed between January 1, 2019 and December 31, 2021 and between reference markers 12E 7301 7301 2028 to 2040, 12F 7301 1022 to 1039 and 971H 7301 1000 to 1002. The calculated crash rates for NY Routes 12E and 12F are below the statewide crash rate for similar roadways. The calculated crash rates for the NY Route 12E (Bridge Street), NY Route 12E (Bridge Street) Intersections with NY Routes 12E and 12F are above the statewide crash rate for similar intersections. There are no high accident locations (HALs) within the study area.

During the three-year period, there were a total of 61 crashes on NY Route 12E (East and West St.), NY Route 12F and NY Route 12E (Bridge Street). Exhibit 2.3.1.8-1 compares the crash rates to the statewide crash rate for similar facilities.

Exhibit - 2.3.1.8-1
Crash Rate

Location	Number of Crashes	Calculated Rate	Statewide Rate
NY Route 12E	13	1.79	2.38
NY Route 12F	30	2.09	2.38
NY Route 12E (Bridge Street)	4	2.62	2.38
NY Route 12E/NY Route 12E (Bridge Street) Intersection	9	1.05	0.32
NY Route 12F/NY Route 12E (Bridge Street) Intersection	5	0.42	0.19

The predominate crash types are:

Exhibit - 2.3.1.8-2 Collision Summary		
Type of Collision	**Number**	**Percentage**
NY Route 12E		
Rear End	5	38
Deer	3	23
Left Turn	2	15
Right Angle	1	8
Run Off Road	1	8
Debris	1	8
NY Route 12F		
Deer/Animal	17	58
Rear End	3	10
Run Off Road	3	10
Sideswipe	2	7
Head On	1	3
Right Angle	1	3
Overtaking	1	3
Backing	1	3
Debris	1	3
NY Route 12E (Bridge Street)		
Rear End	2	50
Sideswipe	1	25
Run Off Road	1	25
NY Route 12E/NY Route 12E (Bridge Street) Intersection		
Rear End	4	45
Run Off Road	2	22
Right Angle	1	11
Pedestrian	1	11
Left Turn	1	11
NY Route 12F/NY Route 12E (Bridge Street) Intersection		
Rear End	2	40
Right Angle	2	40
Run Off Road	1	40

Exhibit - 2.3.1.8-3 Crash Severity		
Severity of Crash	**Number**	**Percentage**
Fatal	1	2
Injury A & B	6	10
Injury C	11	18
Property Damage Only & Non-Reportable	43	70

A highway safety investigation study (TE-156a) including crash summary and collision diagrams is available in Appendix C. The study does not recommend any countermeasures as the replacement of the existing bridge with a new structure on a new alignment will solve existing operational issues.

2.3.1.9. Existing Police, Fire Protection and Ambulance Access -

Law enforcement is provided by the Brownville Police Department (Brownville, NY), Jefferson County Sheriff's Department (Watertown, NY) and the NYS Police Department (Watertown, NY). Fire protection and emergency medical services are provided by the Brownville Volunteer Fire Department (Brownville, NY), located approximately 1,000 feet north of the existing bridge. This department utilizes the existing bridge to also provide fire protection to the Town of Hounsfield.

2.3.1.10. Parking Regulations and Parking Related Conditions –

There is a "No Parking- 2:00 AM to 6:00 AM" sign that is attached to the Village of Brownville destination sign, located on the northbound bridge approach; however, there are no officially adopted parking ordinances within the Town of Hounsfield. Parking is also restricted along NY Routes 12E and 12F as part of NYS Vehicle and Traffic Law.

2.3.1.11. Lighting –

Street lighting is currently mounted to utility poles and exists along both approaches to the existing bridge and within the Village.

2.3.1.12. Ownership and Maintenance Jurisdiction –

NY Routes 12E and 12F, NY Route 12E (Bridge Street), BIN 3338900 and the traffic signal are owned by New York State and maintained by the New York State Department of Transportation. The lighting is owned by National Grid and the Village of Brownville pays for the energy. Jefferson County Route 190 is owned and maintained by Jefferson County, and existing water and gas mains are owned and maintained by the Town of Hounsfield.

2.3.2. Multimodal

2.3.2.1. Pedestrians –

There are generators of pedestrian traffic within the Village of Brownville on the north side of the bridge. Existing pedestrian facilities consist of concrete sidewalks throughout the village, connecting commercial eateries and other generators. However, the sidewalks are discontinued at the existing bridge. There are little to no pedestrian generators on the south side of the bridge, which is located in the Town of Hounsfield. The south side of the bridge is primarily residential and industrial.

2.3.2.2. Bicyclists –

The existing level of and potential for bicycling is characterized as low due to the mostly rural nature of the project area. There are generators of infrequent bicycle traffic within the Village of Brownville limits, such as local eateries, the post office, and institutional land uses. Currently, there are no separate provisions for bicyclists on the bridge. NY Routes 12E and 12F are not mapped as designated bicycle routes and are part of the Black River scenic byway. The occasional bicyclist may legally use the paved shoulder, when available, and/or the roadway. Refer to the Capital Projects Complete Streets Checklist in Appendix C.

2.3.2.3. Transit –

There are no transit providers operating within the project limits.

2.3.2.4. Airports, Railroad Stations, and Ports –

The Watertown International Airport is located 2 miles west of the existing bridge location. No conflicts currently exist with the flight paths of aircraft using this airport. There are no railroad stations or port entrances within or in the vicinity of the project limits.

2.3.2.5. Access to Recreation Areas (Parks, Trails, Waterways, State Lands) –

There are no entrances to recreation areas within or immediately adjacent to the project limits.

2.3.3. Infrastructure

2.3.3.1. Existing Highway/Bridge Plan and Section –

See Existing Bridge Section in Appendix A - Typical Sections, Plan and Profile.

The existing highway sections approaching the bridge consist of two 12'-0" wide travel lanes with varying shoulder widths of 2'-0" to 6'-0". The bridge consists of two 12'-0" wide travel lanes with no shoulders. The vertical clearance is 15'-0" with 2% or normal crown cross slope. There is a 4'-6" pedestrian walkway that is located outside of the truss on the west (downstream) side of the bridge. A longitudinal grade of 2.0% is maintained across the bridge.

2.3.3.2. Nonstandard/Nonconforming Features –

The following nonstandard/nonconforming feature(s) exist within the project limits:

Horizontal Curve Radius:
The existing horizontal curve at the intersection with NY Route 12F is 170 feet, which is less than the design standard of 356 feet for urban minor arterials.

Bridge Railing:
The existing bridge railing and tuning fork transitions are no longer considered adequate and are nonconforming features.

2.3.3.3. Pavement and Shoulder -

The existing roadway consists of asphalt paved travel lanes and asphalt paved shoulders. This roadway is currently in good to fair condition with locations exhibiting alligator cracking, a load-related distress, in the pavement. The most recent pavement sufficiency scores from 2017 were a 6 (NY Route 12E (Bridge Street)) and a 7 (NY Routes 12E and 12F). The rating is based on a 1 to 10 scale where "1" is the worst and "10" is the best. A rating of 6 is defined as a pavement in fair condition where surface distress is clearly visible and 7 is defined as a pavement in good condition where surface distress is beginning to show.

2.3.3.4. Drainage Systems -

Existing drainage within the vicinity of the bridge includes both open and closed drainage systems. Storm water runoff on the south and north side of the bridge generally sheet flows off of the roadway, collecting at the edge of pavement where it is channelized and flows down to the Black River. There are natural made erosional gullies and gutters that have been formed at the edge of pavement on the southeast side of the bridge, adjacent to the NY Route 12E (Bridge Street)/NY Route 12F intersection. There are two drainage structures located on the north side of the bridge approximately 50 to 100 feet from the NY Route 12E (Bridge Street)/East Main Street intersection. Curbing on East Main Street is continued on NY Route 12E (Bridge Street) and terminates just prior to the two existing drainage structures. These drainage structures are connected and outlet into the Black River.

2.3.3.5. Geotechnical –

A preliminary geotechnical evaluation was conducted in 2011 which indicates surficial deposits are bedrock. The mapped bedrock is of the Black River Group. The existing north abutment is supported by rock and the south abutment is supported by rock and earth. The evaluation also noted vertical rock conditions on the north side, native soil and/or shallow rock on the south side, rock slopes on the southeast side of the highway and some pavement distress in the form of joints cracking. Boring records were not available at the time of this evaluation. It was recommended that a geotechnical evaluation be performed for the proposed foundations, retaining structures, possible rock treatments and slope treatments.

A geotechnical investigation will be performed for this project during detailed design. There are no special geotechnical concerns with the soils or rock slopes within the project area.

2.3.3.6. Structure –

2.3.3.6. (1) Description:

Exhibit 2.3.3.6
Structure Data

Data	Existing Structure
BIN	3338900
Feature Carried/Crossed	NY Route 971HX over Black River
Type of Bridge	Steel Truss
Number and Length of Spans	One 180’-0” span
Lane Width(s)	12’-0”
Shoulder Width(s)	0’-0”
Sidewalk(s)	4’-6” on west side
Utilities Carried	8” Gas Main and 8” Waterline
Horizontal Clearance(s)	24’-0”
Vertical Clearance(s)	15’-0”
General Recommendation	4
Load Rating	R Posted
Year Built	1954

2.3.3.6. (2) History & Deficiencies –

BIN 3338900 was constructed in 1954 and is comprised of a steel truss superstructure supported by concrete abutments founded on continuous spread footings. The last major bridge rehabilitation occurred in 1983 under contract D250562 where the deck was replaced and tension tie rods were installed in the lower chords and diagonals of the truss to help carry additional live load. Structural steel details were also updated in the contract. Since the rehabilitation, the bridge has received numerous repairs, in addition to standard maintenance and cleaning activities that have greatly increased in frequency over time. Some of these repairs include the removal of the wearing surface (2003), repair of the steel superstructure (2007), joint mechanisms repair (2013) and sidewalk and railing repair (2014).

The bridge was most recently inspected in December 2021 and the following flags were issued:

- Red Flag (7B21N6W016) was issued for heavy section loss with perforations on a right truss outer gusset plate.
- Repeat Yellow Flag (7B21N6W017) was issue for undermining of the begin left wingwall.
- Repeat Yellow Flag (7B21N6W018) was issued for heavy section loss with perforations in the steel channel at left deck fascia throughout the length of the bridge
- Yellow Flag (7B21N6W019) was issued due to continued heavy section losses of a right and left truss vertical member.
- Yellow Flag (7B21N6W021) was issued due to heavy section loss on right truss vertical member.

Additionally, in 2018, the 65 year-old bridge was inspected and revealed significant repairs were needed to the structure. A vertical member had a slight bend and a lower truss member had anywhere from 5-30% section loss. Floor beams had 5-10% section loss in some areas, erosion had exposed the left wing wall and the adjacent sidewalk was in poor condition.

2.3.3.6. (3) Inspection – Bridge Inspection Ratings Table

State Condition Rating 3.902

The 2021 Biennial inspection gave the bridge a general recommendation of a “4”. The definition of a “4” from the NYSDOT Bridge Inspection Manual is “Moderate deterioration of primaries, secondaries, and substructures has occurred, but bridge load capacity is not substantially reduced. Considerable reconditioning of secondary members, substructures, and other components may be needed. Primary members do not yet need extensive reconditioning. There may be some minor substructure undermining”.

In general, the majority of the bridge elements are in fair to poor condition, including the steel deck, steel stringer, steel truss, bearings, bridge railing, abutments and wing walls. Protective coatings and scour had condition states of severe. Steel superstructure components exhibit areas of issuing paint and section loss and/or rusting while bedrock below the beginning of the left wing wall is eroding away.

2.3.3.6. (4) Restrictions –

The bridge is currently R posted as of September 2019.

2.3.3.6. (5) Future Conditions –

With the continued deterioration of the bridge, it is anticipated if no improvements are made then ultimately the bridge will be closed.

2.3.3.6. (6) Waterway –

Black River is neither a USACE nor Coast Guard navigable waterway; but it is often used by canoes, kayaks and whitewater rafters. A Coast Guard Checklist is not required.

2.3.3.7. Hydraulics of Bridges and Culverts –

There are no current concerns with hydraulics and/or freeboard as the bridge abutments are perched on top of the rock gorge high above the river. The low chord elevation of the existing bridge is located well above the documented high flow event for the Black River. The existing bridge is founded on rock, has not experienced any scour related issues and will be removed as part of the project."

2.3.3.8. Guide Railing, Median Barriers and Impact Attenuators –

The existing bridge rail system is a two-rail box beam on both sides of the bridge that transitions to box beam guide railing on the southeast and northeast approaches. There are no transitions on the southwest and northwest approaches, rather the bridge rail transitions to an end section prior to the end of the bridge. The bridge railing is in fair condition and the 2021 Biennial Bridge Inspection noted deficiencies associated with the bridge railing due to some locations missing anchor bolts and an isolated spall exposing anchor bolts. The existing railing contains a turning fork transition which is considered a non-conforming feature.

2.3.3.9. Utilities –

Exhibit - 2.3.3.9
Existing Utilities

Owner	Type	Location/Side	Length	Condition/Conflict
National Grid	8" Gas	191+50 to 198+50 LT	700 ft	Relocation required
National Grid	Aerial Electric Distribution	194+50 to 200+50 RT/LT	550 ft	Relocation required
Verizon	Aerial Telecommunication	194+50 to 200+50 RT/LT	550 ft	Relocation required
Spectrum	Aerial Telecommunication	194+50 to 200+50 RT/LT	550 ft	Relocation required
Development Authority of the North Country	Aerial Telecommunication	194+50 to 200+50 RT/LT	550 ft	Relocation required
National Grid	Aerial Electric Distribution	BS 12+85 RT/LT	250 ft	Relocation required
National Grid	10" Gas?	BSR 5+00 TO BSR 7+00 /LT	200 ft	Relocation required
Town of Hounsfield	8" Watermain	BSR 5+00 TO BSR 7+00 /RT	200 ft	Water line to be retained in place and carried on new utility structure

2.3.3.10. Railroad Facilities –

There are no railroads within the project limits and no at-grade crossings within 1 mile that could impact traffic conditions.

2.3.4. Potential Enhancement Opportunities

2.3.4.1. Landscape -

2.3.4.1. (1) Terrain –

The bridge and adjacent highways are located along the Black River. The river is set in a deep gorge and the terrain on both sides of the River have relatively rolling grades. The adjacent roadways surrounding the bridge have no current terrain issues and there is currently dense vegetation on both sides of the River.

2.3.4.1. (2) Unusual Weather Conditions-

There are no unusual weather conditions within the project area.

2.3.4.1. (3) Visual Resources

This project is located within and just west of the small Village of Brownville, which is located just north of the Black River. There is a mix of rural, urban and dense woods on either side of the Black River within the project location. On the outskirts of the Village of Brownville the area becomes more rural with dense wooded areas and primarily private land use.

2.3.4.2. Opportunities for Environmental Enhancements –

There have been no opportunities for environmental enhancements identified during the planning study. Coordination with the project stakeholders during subsequent design phases will be ongoing to determine if there are potential environmental improvements that can be incorporated into the construction of this project.

2.3.5. Miscellaneous

There are no other relevant features or conditions not already addressed in this Section.

CHAPTER 3 – ALTERNATIVES

This chapter discusses the alternatives considered and examines the engineering aspects for all reasonable alternatives to address project objectives in Chapter 1 of this report.

3.1. Alternatives Considered and Eliminated from Further Study

Null or No-Build (no action)
The no-build/maintenance alternative will eventually result in a continued deterioration of the existing structure. This will lead to increased maintenance activities; and could eventually lead to the structure being closed to the traveling public. This alternative will not satisfy the project objectives but will be carried forward for comparison purposes.

Rehabilitation
Rehabilitating the existing bridge will not provide a minimum 75-year service life or reduce the cost of maintenance and repair. Additionally, rehabilitation will not address the existing geometric deficiencies which cause traffic operations issues at the existing intersections. These reasons combined make this alternative not feasible, as such it is eliminated from further discussion.

3.2. Reasonable Build Alternatives

3.2.1. Description of Reasonable Alternatives

Alternative 1 – Replacement on new alignment

This alternative will replace the existing bridge with a new structure on a new alignment approximately 0.61 miles to the west from the existing location. The new structure will have a span of approximately 200 feet with both abutments founded on rock and parallel with the Black River.

The proposed intersections along NY Routes 12E and 12F to the new structure will be widened to accommodate 16’-0” right turn lanes onto the new alignment along with a 12-0” left turn lane on the eastbound NY Route 12F approach. A 5’-2” wide concrete sidewalk with a 5” curb, for a total width of 5’-7”, will be provided on the east side of the bridge to accommodate future corridor development. The roadway alignment and width along NY Routes 12E and 12F will generally match the existing roadway orientation and the new roadway will intersect NY Routes 12E and 12F perpendicularly. The vertical profile of the proposed roadway and bridge will have a 4.0% maximum grade; and will tie into intersecting roads at grades of 0.75% (NY Route 12F) and 0.54% (NY Route 12E). Right-of-way acquisitions will be required for the new roadway, along with FEE’s and TE’s for grading at the new alignment location and a TE for construction access at the existing bridge.

Construction will be progressed utilizing the existing bridge to maintain access while the new bridge is being constructed. When the new bridge is constructed and open to traffic the existing bridge will be removed and a utility structure erected in its place.

This alternative is consistent with the Brownville Bridge Replacement Planning Study and meets the overall objectives.

3.2.2 Preferred Alternative

Alternative 1 has been identified as the preferred alternative as a result of the planning study because it will meet all of the project objectives and is being advanced for Design Approval. Comments on the draft design approval document and from the public hearing (when held) will be fully evaluated and addressed in this design approval document.

3.2.3 Design Criteria for Reasonable Alternative(s)

3.2.3.1 Critical Design Elements -

Exhibit 3.2.3.2-1
Critical Design Elements for NY Route 12E (Proposed) over Black River

PIN:	7780.09	**BIN**		1080440	
Functional Class:	Urban Minor Arterial	**NHS**	☐	**Non-NHS**	☑
Design Class:	Arterial	**Context Class:**		Rural	
Project Type:	Bridge Replacement	**Terrain:**		Rolling	
Design Year AADT:	7,405 (ETC +20)	**Percentage of Trucks:**		4.0%	
Truck Access or Qualifying Highway (QH)?	Neither	**If not a QH, is project within 1 mi of a QH?**		No	
Existing or Proposed Bicycle Route?	No	**Anticipated level of bicycle activity**		Low	

	Element	Standard	Existing Condition	Proposed Condition
1	Design Speed	45 mph (min.) 60 mph (max.) HDM Section 2.7.2.1 A	35 mph posted	45 mph[1]
2	Bridge Lane Width	11'-0" Minimum BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 B, Exhibit 2-3	12'-0"	12'-0"
	Highway Lane Width	11'-0" Minimum HDM Section 2.7.2.1 B, Exhibit 2-3	12'-0"	12'-0"
3	Bridge Shoulder Width	4'-0" Minimum; 5'-0" Desirable BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 C, Exhibit 2-3	Varies 0'-0" to 6'-0"	6'-0"
	Highway Shoulder Width	4'-0" Minimum; 5'-0" Desirable HDM Section 2.7.2.1 C, Exhibit 2-3	Varies 0'-0" to 6'-0"	6'-0"
4	Horizontal Curve Radius	409 ft Min (at e_{max}=8%) HDM Section 2.7.2.1 D, Exhibit 2-3	170'-0"	800'-0" Min.
5	Superelevation	8% Max. HDM Section 2.7.2.1 E and Exhibit 2-1b	Normal Crown	3.5%**
6	Stopping Sight Distance (Horizontal and Vertical)	327'-0" Min. HDM Section 2.7.2.1 F, Exhibit 2-3	> 327'-0"	> 327'-0"
7	Maximum Grade	6% HDM Section 2.7.2.1 G, Exhibit 2-3	2.5%	-4.0%
8	Cross Slope	1.5% Min. to 3% Max. HDM Section 2.7.2.1 H	2%	2%
9	Vertical Clearance	14'-0" Minimum; 14'-6" Desirable HDM Section 2.7.2.1 I, BM Section 2.3.1, Table 2-2	> 15'-0"	> 14'-0"
10	Design Loading Structural Capacity	NYSDOT LRFD Specifications AASHTO HL-93 Live Load with LRFR 1.2 or higher HDM Section 2.7.2.1 J; BM Sections 1.3 & 1.5	Unposted	NYSDOT LRFD Specifications AASHTO LRFD HL-93 Design Live Load with LRFR 1.2 or higher
11	ADA Compliance[2]	HDM Chapter 18, HDM 2.7.2.1 K	Existing pedestrian facilities do not comply with HDM Chapter 18 standards (4'-6" Sidewalk on existing bridge)	Proposed pedestrian facilities will comply with HDM Chapter 18 (5'-2" Sidewalk on proposed bridge)

1. The Regional Traffic Engineer has concurred that the use of a Design Speed of 45 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume, due to the short length of roadway segment (approximately ¼ mile).
2. ** Denotes non-standard feature.

Exhibit 3.2.3.2-2
Critical Design Elements for NY Route 12E

PIN:	7780.09	**BIN**		N/A	
Functional Class:	Urban Minor Arterial	**NHS**	☐	**Non-NHS**	☑
Design Class:	Arterial	**Context Class:**		Rural	
Project Type:	Bridge Replacement	**Terrain:**		Rolling	
Design Year AADT:	12,530 (ETC +20)	**Percentage of Trucks:**		4.0%	
Truck Access or Qualifying Highway (QH)?	No	**If not a QH, is project within 1 mi of a QH?**		No	
Existing or Proposed Bicycle Route?	No	**Anticipated level of bicycle activity**		Low	

	Element	Standard	Existing Condition	Proposed Condition
1	Design Speed	45 mph (min.) 60 mph (max.) HDM Section 2.7.2.1 A	55 mph posted	60 mph[1]
2	Lane Width	12'-0" Minimum BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 B, Exhibit 2-3	12'-0"	12'-0"
3	Turning Lane Width	11'-0" Minimum; 12'-0" Desirable HDM Section 2.7.2.1 B, Exhibit 2-4	N/A	12'-0"
4	Shoulder Width	6'-0" Minimum BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 C, Exhibit 2-3	4'-0" Minimum	4'-0"**
5	Horizontal Curve Radius	800 ft Min (at e_{max}=8%) HDM Section 2.7.2.1 D, Exhibit 2-3	1637'-0"	1850'-0"
6	Superelevation	8% Max. HDM Section 2.7.2.1 E and Exhibit 2-1b	2.5%**	6%
7	Stopping Sight Distance (Horizontal and Vertical)	522'-0" Min. HDM Section 2.7.2.1 F, Exhibit 2-3	769'-0" Minimum	769'-0" Minimum
8	Maximum Grade	4% HDM Section 2.7.2.1 G, Exhibit 2-3	0.95%	0.95%
9	Cross Slope	1.5% Min. to 3% Max. HDM Section 2.7.2.1 H	2%	2%
10	Vertical Clearance	14'-0" Minimum; 14'-6" Desirable HDM Section 2.7.2.1 I, BM Section 2.3.1, Table 2-2	> 14'-0"	> 14'-0"
11	Design Loading Structural Capacity	NYSDOT LRFD Specifications AASHTO HL-93 Live Load with LRFR 1.2 or higher HDM Section 2.7.2.3 J; BM Sections 1.3 & 1.5	N/A	N/A
12	ADA Compliance[3]	HDM Chapter 18, HDM 2.7.2.1 K	No existing pedestrian facilities	No new proposed pedestrian facilities

1. The Regional Traffic Engineer has concurred that the use of a Design Speed of 60 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
2. ** Denotes non-standard feature.

Exhibit 3.2.3.2-3
Critical Design Elements for NY Route 12F

PIN:	7780.09	**BIN**		N/A	
Functional Class:	Urban Minor Arterial	**NHS**	☐	**Non-NHS**	☑
Design Class:	Arterial	**Context Class:**		Rural	
Project Type:	Bridge Replacement	**Terrain:**		Rolling	
Design Year AADT:	6,810 (ETC +20)	**Percentage of Trucks:**		4.0%	
Truck Access or Qualifying Highway (QH)?	Truck Access Highway	**If not a QH, is project within 1 mi of a QH?**		No	
Existing or Proposed Bicycle Route?	No	**Anticipated level of bicycle activity**		Low	

	Element	Standard	Existing Condition	Proposed Condition
1	Design Speed	45 mph (min.) 60 mph (max.) HDM Section 2.7.2.1 A	55 mph posted	60 mph[1]
2	Lane Width	12'-0" Minimum BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 B, Exhibit 2-3	12'-0"	12'-0"
3	Turning Lane Width	11'-0" Minimum; 12'-0" Desirable HDM Section 2.7.2.1 B, Exhibit 2-4	12'-0"	12'-0"
4	Shoulder Width	4'-0" Minimum BM Section 2.2.1, Table 2-1 HDM Section 2.7.2.1 C, Exhibit 2-3	8'-0" Minimum	8'-0"
5	Horizontal Curve Radius	800 ft Min (at e_{max}=8%) HDM Section 2.7.2.1 D, Exhibit 2-3	2,000'-0"	2,000'-0"
6	Superelevation	8% Max. HDM Section 2.7.2.1 E and Exhibit 2-1b	6%	6%
7	Stopping Sight Distance (Horizontal and Vertical)	522'-0" Min. HDM Section 2.7.2.1 F, Exhibit 2-3	740'-0" Minimum	740'-0" Minimum
8	Maximum Grade	4% HDM Section 2.7.2.1 G, Exhibit 2-3	1.3%	1.3%
9	Cross Slope	1.5% Min. to 3% Max. HDM Section 2.7.2.1 H	2%	2%
10	Vertical Clearance	14'-0" Minimum; 14'-6" Desirable HDM Section 2.7.2.1 I, BM Section 2.3.1, Table 2-2	> 14'-0"	> 14'-0"
11	Design Loading Structural Capacity	NYSDOT LRFD Specifications AASHTO HL-93 Live Load with LRFR 1.2 or higher HDM Section 2.7.2.3 J; BM Sections 1.3 & 1.5	N/A	N/A
12	ADA Compliance[3]	HDM Chapter 18, HDM 2.7.2.1 K	No existing pedestrian facilities	No new proposed pedestrian facilities

1. The Regional Traffic Engineer has concurred that the use of a Design Speed of 60 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.

3.2.3.2 Other Design Parameters –

Other Design Parameters Exhibit 3.2.3.3-1		
Element	**Criteria**	**Proposed Condition**
Freeboard (BM 2.4.3)	Q_{50} + 2 ft	> Q_{50} + 2 ft
Level of Service	C or better	D or better
Drainage Design Storm	50-year – Culverts 5-year – Storm Drainage Systems 10-year – Ditches and Lining Material	50-year – Culverts 5-year – Storm Drainage Systems 10-year – Ditches and Lining Material

Exhibit 3.2.3.3-2 Other Design Parameter: Design Vehicles		
Location	**Design Vehicle**	**Vehicle Accommodated**
NY Route 12E	WB-67	WB-67
NY Route 12F	WB-67	WB-67

3.3. Engineering Considerations

3.3.1 Operations (Traffic and Safety) & Maintenance

3.3.1.1 Functional Classification and National Highway System

This project will not change the functional classification of the highways, urban minor arterials.

3.3.1.2 Control of Access

Access to the highways will be uncontrolled.

3.3.1.3 Traffic Control Devices -

3.3.1.3. (1) Traffic Signals

No new traffic signals are proposed. The existing signals at the NY Route 12E (Bridge Street)/Jefferson County Route 190 and East Main Street/Washington Street intersections will be removed.

3.3.1.3. (2) Signs

Existing signs will be evaluated and replaced as necessary. New signs will be added where required and will be compliant with the current MUTCD and NYSDOT supplement.

3.3.1.4 Intelligent Transportation Systems (ITS)

No ITS measures are proposed.

3.3.1.5 Speeds and Delay -

3.3.1.5. (1) Proposed Speed Limit - The posted speed limits of 35 and 55 mph along NY Route 12E, and 55 mph along NY Route 12F, will remain the same. NY Route 12E Proposed will not be posted for speed and the anticipated off-peak 85th percentile speed on NY Route 12E Proposed is 45 mph.

3.3.1.5. (2) Travel Time Estimates –
Travel time estimates are not applicable for a bridge replacement project.

Exhibit - 3.3.1.5 Speed Data		
Route	NY Route 12E Proposed	NY Routes 12E and 12F
Posted Speed Limit	Unposted	55 mph (at new alignment)
Operating Speed and Method Used to Measure	45 mph anticipated off-peak 85th percentile speed	57.5 mph avg. (Radar)
Design Speed Approved by Regional Traffic Engineer	45 mph	60 mph

3.3.1.6 Traffic Volumes –

Forecast Alternative 1 build design year traffic volumes – It is anticipated that the provision of a new crossing over the Black River located approximately 2/3 of a mile west of the existing crossing will change traffic conditions in the project area. Traffic volume information in the project area was redistributed to the new bridge crossing based on a review of NYSDOT information, population centers, and probable distribution patterns of existing motorists. The ETC (2025), ETC+10 (2035), and ETC+20 (2045) traffic forecast conditions on the new bridge after relocation of the crossing are shown in Exhibit 3.3.1.6 while the future AM and PM peak hour turning movement volumes for the new project area intersections are included for the design years in Appendix C.

Exhibit - 3.3.1.6 Alternative 1 Build Traffic Volumes			
Route	**NY Route 12E Proposed from NY Route 12E to NY Route 12F**		
Year	ADT	DHV	DDHV
ETC (2025)	6,700	630	405
ETC+10 (2035)	7,045	660	425
ETC+20 (2045)	7,405	695	445
Route	**NY Route 12F from NY Route 180 to NY Route 12E (Bridge Street)**		
ETC (2025)	6,165	605	305
ETC+10 (2035)	6,480	635	320
ETC+20 (2045)	6,810	670	335
Route	**NY Route 12E from CR 190 to CR 53**		
ETC (2025)	11,340	1,010	645
ETC+10 (2035)	11,920	1,060	680
ETC+20 (2045)	12,530	1,115	715

Note: ETC is the Estimated Time of Completion

3.3.1.7 Level of Service and Mobility –

3.3.1.7 (1) At Project Completion & Design Year –
Alternative 1 Build level of service and capacity analysis –

Build analyses were conducted for the new study area intersections created by the relocation of the Black River crossing for the ETC (2025), ETC+10 (2035), and ETC+20 (2045) design years. The Level of service summaries for the ETC through ETC+20 design years for three intersection options associated with the alternative roadway condition are presented in Exhibit 3.3.1.7 which includes LOS and vehicle

delay for each intersection approach. The detailed LOS assessment and signal warrants analysis for Option 2 is summarized in Appendix C. The intersection options are as follows:

- Option 1 – Unsignalized Intersections
  - NY Route 12E/NY Route 12E Proposed – Install a stop-sign on the northbound NY Route 12E Proposed approach and provide separate left and right turn lanes. In addition, provide a shared left-turn/through lane on the westbound NY Route 12E approach and provide a through lane and a separate right-turn lane on the eastbound NY Route 12E approach.
  - NY Route 12F/NY Route 12E Proposed – Install a stop-sign on the southbound NY Route 12E Proposed approach and provide separate left and right turn lanes. In addition, provide an exclusive eastbound left-turn lane and a through lane on the eastbound NY Route 12F approach and provide a through lane and a separate right-turn lane on the westbound NY Route 12F approach.
- Option 2 – Signalized Intersections
  - NY Route 12E/NY Route 12E Proposed – The same geometry would be provided as summarized for Option 1; however, an actuated traffic signal would be installed at this intersection.
  - NY Route 12F/NY Route 12E Proposed – The same geometry would be provided as summarized for Option 1; however, an actuated traffic signal would be installed at this intersection.
- Option 3 – Roundabout Intersections
  - NY Route 12E/NY Route 12E Proposed – Construct a single lane roundabout.
  - NY Route 12F/NY Route 12E Proposed – Construct a single lane roundabout.

Exhibit - 3.3.1.7
Alternative 1 Build Intersection Level of Service and Delays (sec)

Intersection	AM Peak			PM Peak		
	ETC (2025)	ETC+10 (2035)	ETC+20 (2045)	ETC (2025)	ETC+10 (2035)	ETC+20 (2045)
Option 1 – Unsignalized Intersections						
NY Route 12E/NY Route 12E Proposed						
NY Route 12E WB L NY Route 12E Proposed L NB R	A (8.9) C (15.8) B (10.1)	A (9.0) C (16.7) B (10.2)	A (9.2) C (17.6) B (10.3)	A (8.0) D (25.4) A (9.9)	A (8.1) D (29.8) B (10.0)	A (8.1) E (36.2) B (10.2)
NY Route 12F/NY Route 12E Proposed						
NY Route 12F EB L NY Route 12E Proposed L SB R	A (7.8) C (17.4) A (8.7)	A (7.8) C (19.0) A (8.7)	A (7.8) C (21.0) A (8.8)	A (9.2) C (19.0) B (10.0)	A (9.4) C (21.1) B (10.1)	A (9.5) C (23.6) B (10.2)
Option 2 – Signalized Intersections						
NY Route 12E/NY Route 12E Proposed						
NY Route 12E EB TR NY Route 12E WB LT NY Route 12E Proposed LR NB	A (4.6) A (4.9) B (10.1)	A (4.7) A (5.1) B (10.1)	A (4.8) A (5.4) B (10.1)	A (5.7) A (6.6) A (9.8)	A (5.8) A (6.9) A (9.7)	A (6.0) A (7.2) A (9.7)
Overall	A (5.6)	A (5.7)	A (5.8)	A (7.7)	A (7.8)	A (8.0)
NY Route 12F/NY Route 12E Proposed						
NY Route 12F EB LT NY Route 12F WB TR NY Route 12E Proposed LR SB	A (7.0) A (6.3) B (10.7)	A (7.3) A (6.6) B (10.6)	A (7.6) A (6.8) B (10.6)	A (5.2) A (6.4) B (11.8)	A (5.4) A (6.6) B (12.0)	A (5.5) A (6.8) B (12.4)
Overall	A (8.5)	A (8.6)	A (8.8)	A (7.4)	A (7.6)	A (7.8)
Option 3 – Roundabout Intersections						
NY Route 12E/NY Route 12E Proposed						
NY Route 12E EB TR NY Route 12E WB LT NY Route 12E Proposed LR NB	A (8.0) A (5.4) A (5.9)	A (8.2) A (5.4) A (6.0)	A (8.4) A (5.5) A (6.1)	A (5.5) A (7.6) A (6.9)	A (5.5) A (7.8) A (7.1)	A (5.6) A (8.1) A (7.3)
Overall	A (7.0)	A (7.1)	A (7.3)	A (6.8)	A (6.9)	A (7.1)

NY Route 12F/NY Route 12E Proposed						
NY Route 12F EB NY Route 12F WB NY Route 12E Proposed SB	LT TR LR	A (7.7) A (4.0) A (6.7)	A (7.9) A (6.8) A (4.0)	A (8.1) A (6.9) A (4.0)	A (6.3) A (7.3) A (7.0)	A (6.4) A (7.5) A (7.1)	A (6.6) A (7.7) A (7.3)
Overall		A (6.4)	A (6.5)	A (6.6)	A (7.0)	A (7.2)	A (7.4)

The following summarizes the detailed level of service analysis of Alternative 1 build conditions:

- NY Route 12E/NY Route 12E Proposed & NY Route 12F/NY Route 12E Proposed–
    - Option 1 – The analysis indicates that all movements at these unsignalized intersections will operate at LOS D or better during both peak hours for ETC through, but not including ETC+20 design year conditions.
    - Option 2 – The analysis indicates that these signalized intersections will operate at an overall LOS A during both peak hours with all approaches operating at LOS B or better for ETC through ETC+20 design year conditions.
    - Option 3 – The analysis indicates that these roundabout intersections will operate at an overall LOS A during both peak hours with all approaches operating at LOS A or better for ETC through ETC+20 design year conditions.

  The assessment indicates that all three intersection options will operate adequately after relocation of the bridge. Option 1 (Unsignalized Intersections) is recommended as the preferred alternative, with monitoring by the NYSDOT after the project is complete to determine if traffic signal control should be implemented at these intersections. The other two options (signalized intersections and roundabouts) were determined inappropriate as part of this project.

  Specifically, the roundabout at the intersection of NY Route 12F and NY Route 12E Proposed was rejected because of the presence of two residences in close proximity to the intersection. A roundabout would most likely require relocations and extensive ROW acquisitions. In addition, the presence of the horizontal curve on NY Route 12F could be a safety concern because traffic would be traveling at full speed and need to slow to a stop at the roundabout. An intersection with stop control (for NY Route 12E Proposed) and dedicated turn lanes allows traffic traveling on NY Route 12F to traverse through the intersection at speed. A roundabout was rejected at the intersection of NY Route 12E and NY Route 12E Proposed because of the limited space available between the existing highway alignment and the black river gorge. The roundabout would have to be located south of NY Route 12E because of the presence of a cemetery on the north side of the highway. Constructing a roundabout south of NY Route 12E was determined to not be a feasible alternative. The dedicated turn lanes at both stop controlled intersections will accommodate the major turning movements and will have good levels of service with the intersections provided.

3.3.1.7 (2) – Work Zone Safety & Mobility –

A. Work Zone Traffic Control Plan –

Vehicular traffic will be maintained during construction. The proposed bridge is on a new alignment and can be built without impacting the existing bridge. Alternating one-way traffic with flagging operations will be utilized for construction of the intersections and widening of the highways for turning lanes. Once the new roadway and bridge are constructed, the existing bridge will be closed and removed, and a utility structure will be erected in its place to carry the existing water line across the river.

The use of a temporary detour structure or off-site detour were deemed unnecessary since the proposed roadway and bridge are on a new alignment; and the existing bridge can be utilized to maintain traffic.

Routes for emergency service vehicles will be maintained and open during construction. The details for the work zone traffic control will be prepared and evaluated during final design.

B. Special Provisions –

Due to the close proximity to residences and the ability to maintain traffic with acceptable delays during the daylight hours, nighttime construction will not be utilized. The use of time related provisions will be evaluated during final design.

C. Significant Projects (per 23 CFR 630.1010) -

The Region has determined that the subject project is not significant per 23 CFR 630.1010.

A Transportation Management Plan (TMP) will be prepared for the project consistent with 23 CFR 630.1012. The TMP will consist of a Temporary Traffic Control (TTC) plan. Transportation Operations (TO) and Public Information (PI) components of a TMP will be considered during final design.

3.3.1.8 Safety Considerations, Crash History and Analysis –

No crash reduction or prevention considerations are included with this project. A highway safety investigation study (TE-156a) including crash summary and collision diagrams is available in Appendix C.

3.3.1.9 Impacts on Police, Fire Protection and Ambulance Access –

Emergency service vehicles will be required to plan accordingly in order to cross at the new location. Routes for emergency service vehicles will be maintained and open during construction. Emergency services will be contacted during design and construction for additional coordination.

3.3.1.10 Parking Regulations and Parking Related Issues –

There are no changes to parking regulations and there are no parking related issues to address.

3.3.1.11 Lighting –

There is no lighting proposed on the new bridge and no changes proposed for the project.

3.3.1.12 Ownership and Maintenance Jurisdiction –

Ownership Changes:
The portion of NY Route 12E between NY Route 12E (Bridge Street) and NY Route 12E (Proposed) will become County Route 190 and be owned by Jefferson County. NY Route 12E (Bridge Street) will be abandoned by the State to a new owner upon completion. The proposed utility structure will be owned and maintained by the Town of Hounsfield.

Maintenance Jurisdiction Change:
The NY Route 12E (Bridge Street) will no longer be maintained by the state and will become the responsibility of the new owner. Abandoned portion of NY Route 12E will be taken over by Jefferson County and maintained by the county as County Route 190. NY Route 12E (Proposed) will be maintained by the state.

3.3.1.13 Constructability Review –

The preferred alternative proposes to construct the new bridge approximately 3,300 feet downstream of the existing bridge. Proposed abutments will be accessed from the adjacent roadways; and it is assumed there will be sufficient space on both sides of the proposed bridge for placement of a crane. The existing bridge will remain open during construction of the new bridge. The new utility structure may need to be slid into place while existing truss is still standing. Deck and floor beams can be removed but truss bracing will be required. The utility structure will then be slid in and old truss removed. Proposed roadway

construction will require staging and alternating one way traffic to tie into existing roadways. The Regional Construction Group has reviewed the project and their concerns have been addressed.

3.3.2. Multimodal Considerations

3.3.2.1 Pedestrians –

The Village of Brownville has been identified as a pedestrian generator and is approximately 0.5 miles from the proposed bridge location. An existing sidewalk system exists on NY Route 12E that is approximately 0.2 miles from the proposed bridge. In order to accommodate future development along the corridor, a 5'-2" wide sidewalk will be included on the proposed bridge. Based on the infrequent pedestrian traffic, no specific accommodations are required on the approach roadways. This is consistent with HDM Chapter 18 and the Capital Projects Complete Streets Checklist in Appendix C. Pedestrians may legally use the 4'-0" to 8'-0" foot paved shoulders per the provisions of NYS Vehicle and Traffic Law Section 1156(b).

3.3.2.2 Bicyclists –

The potential for bicycling on NY Routes 12E and 12F is relatively low due to the mostly rural nature of the project area. There are generators of infrequent bicycle traffic near the project limits, as you get closer to the Village of Brownville. These routes are not designated bicycle routes.

Given the mostly rural nature of the roadway, a shoulder is the primary means of accommodating bicyclists. Bicyclists may legally use the paved shoulder and roadway consistent with the NYS Vehicle and Traffic Law Section 1234. The Capital Projects Complete Streets Checklist is provided in Appendix C and indicates the proposed shoulder widths are adequate for bicycling.

3.3.2.3 Transit –

There are no transit accommodations within the project limits and none are proposed.

3.3.2.4 Airports, Railroad Stations, and Ports –

The Watertown International Airport is in the vicinity of the project limits and potential conflicts exist between construction equipment (cranes) and flight traffic. These conflicts will be considered during construction of the project.

3.3.2.5 Access to Recreation Areas (Parks, Trails, Waterways, and State Lands) –

There are no recreation areas located within or adjacent to the project area and none are proposed.

3.3.3 Infrastructure

3.3.3.1 Proposed Highway Section –

The proposed bridge will consist of two 12'-0" wide travel lanes, two 6'-0" wide shoulders w/ 5" wide curbing, a 5'-2" wide sidewalk on the east side of the bridge and 1'-8" from face of rail to bridge overhang on both sides for an out-to-out width of 45'-4". The proposed highway section will consist of two 12'-0" wide travel lanes and 12'-0" wide turning lanes where necessary. Two 16'-0" wide turning roadways onto the new road from NY Routes 12E and 12F will also be constructed. NY Route 12E, the proposed NY Route 12E Proposed and NY Route 12F will be constructed with 4'-0", 6'-0" and 8'-0" wide shoulders, respectively.

NY Route 12E (Bridge Street) will be narrowed to two 12'-0" wide travel lanes and converted into a commercial driveway. Upon completion of the bridge removal, the roadway will be barricaded on both sides to prevent traffic from accessing the river. Additionally, fencing will be installed to prevent pedestrians from accessing the gorge.

NY Route 12F at NY Route 12E (Bridge Street) will be re-striped from a four lane section to two 12 foot lanes with 6 foot wide shoulders.

Refer to Appendix A for typical sections.

3.3.3.1. (1) Right of Way -

Construction of the preferred alternative will require temporary easements and fee acquisitions. Construction releases may also be obtained from adjacent properties within the project limits to grade driveways and/or lawns to match the proposed highway approach. The anticipated acquisitions are summarized in the table below. A public hearing will be required due to non de minimus right-of-way takings under the Eminent Domain Procedure Law (EDPL).

Exhibit 3.3.3.1-1
Anticipated Temporary and Permanent Right-of-Way Acquisitions

Reputed Owner	Tax Map No.	Type of Acquisition	Estimated Acquisition Area	Parcel Size	% of Acquisition
19009 12E LLC	73.17-1-17	T.E.	0.04	1.40	2.5%
EUGENE J PARKER REV TRUST, SR	73.17-1-25	T.E.	0.08	2.50	65.4%
		FEE	1.56		
	73.17-1-26	T.E.	0.14	52.80	2.9%
		FEE	0.47		
		FEE	0.91		
GENERAL BROWN CSD	73.17-1-28	FEE	0.16	4.60	7.0%
		FEE	0.16		
FLORELLE TISSUE CORP	73.18-1-2.32	T.E.	0.41	6.11	6.7%
VIET NGO	73.18-1-49	T.E.	0.01	5.40	0.1%
COLLEEN B RICHARDSON	73.18-1-50	T.E.	0.06	0.49	12.5%
RUSELL McCULLOUGH LINDA DEMION	73.18-1-51	FEE	2.94	29.29	10.0%
ROSCOE A EISENHAUER, JR	82.00-3-6.2	T.E.	0.09	145.30	0.2%
		T.E.	0.14		

3.3.3.1. (2) Curb –

Vertical faced curb, 6 inches high, will be provided on the bridge and bridge approaches only.

3.3.3.1. (3) Grades –

The proposed maximum grade throughout the project is 4.0%, which is within the current standards and does not warrant any special provisions.

3.3.3.1. (4) Intersection Geometry and Conditions –

The intersections of NY Route 12E Proposed with NY Routes 12E and 12F will occur at approximately 90 degrees and are consistent with the NY Route 12E (Bridge Street) intersections. NY Route 12F at NY Route 12E Proposed will have an exclusive eastbound left-turn lane and a through lane on the eastbound approach and provide a through lane and a separate right-turn lane on the westbound approach. NY Route 12E at NY Route 12E Proposed will provide a shared left-turn/through lane on the westbound approach and provide a through lane and a separate right-turn lane on the eastbound approach.

3.3.3.1. (5) Roadside Elements:

(a) Snow Storage, Sidewalks, Utility Strips, Bikeways, Bus Stops –
A 5'-2" wide sidewalk will be provided on the east side of the new bridge, to allow for future development. Snow storage will be located along the roadside and utility strips are not proposed as part of this project.

Bicycles will be accommodated on the paved shoulders and in the travel lanes per NYS Vehicle and Traffic Law Section 1234.

There are no existing bus stops within the project limits and none are proposed as part of this project.

(b) Driveways –

The driveways along the reconstructed roadway will be replaced and adjusted as necessary to comply with the current NYSDOT driveway standards.

(c) Clear Zone –

The clear zone widths along each highway were designed to accommodate for slopes, roadway curvature, etc. and can be found in the table below.

Exhibit 3.3.3.2
Clear Zone Table

Highway Name	Start Station to End Station	Side	Design Clear Zone Width (ft)
NY Route 12E	BS 1+00.00 to BS 6+65.06	Left	21.0
	BS 6+65.06 to BS 15+68.42	Left	16.0
	BS 1+00.00 to BS 8+31.24	Right	16.0
	BS 8+31.24 to BS 15+68.42	Right	21.0
	191+50.00 to 193+20.00	Left	13.0
	193+20.00 to 200+10.00	Left	39.0
	200+10.00 to 205+40.00	Left	25.0
	191+50.00 to 205+40.00	Right	10.0
NY Route 12F	1102+50.00 to 1116+00.00	Left	30.0
	1116+00.00 to 1119+96.00	Left	18.9
	1119+96.00 to 1124+00.00	Left	30.0
	1102+50.00 to 1124+00.00	Right	32.0

3.3.3.2 Special Geometric Design Elements -

3.3.3.2. (1) Nonstandard Features –

The proposed superelevation on NY Route 12E (proposed) is 3.5% while the standard superelevation rate for the curve should be 7%. This non-standard feature will be introduced.

The proposed shoulder width on NY Route 12E is 4 feet and the minimum design standard is 6 feet based on the Design Criteria table. This non-standard feature will be retained.

3.3.3.2. (2) Non-Conforming Features –

The intersection sight distance for combination trucks taking a left turn (looking right) from NY Route 12E Proposed onto NY Route 12F is 889 feet and the recommended minimum is 930 feet. In order to mitigate this issue slightly, vegetation located within the right-of-way will be cleared to maximize the sight distance at this location.

The proposed level of service for NY Route 12E Proposed for PM peak at ETC+20 is an E and the standard design year LOS for rural highway is C.

3.3.3.3 Pavement and Shoulder –

Full depth pavement sections will be required for the new highway and approaches on either side of the proposed bridge. Pavement section will consist of the following materials:

- 1 ½ inch Asphalt 12.5 F2 Top Course
- 2 ½ inch Asphalt 19.0 F9 Binder Course
- 4 inch Asphalt 37.5 F9 Base course
- 12 inch Gravel Subbase Course

The proposed typical sections are included in Appendix A.

Excess pavement on the roadway south of the existing bridge will be removed to convert the section into a commercial driveway. The roadway north of the bridge will remain unchanged but the pavement markings will be removed as it will also be converted into a commercial driveway. The roadway will be barricaded on both sides to prevent traffic from accessing the river and fencing will be installed to prevent pedestrians from accessing the gorge.

3.3.3.4 Drainage Systems –

The proposed project will utilize open channels, ditches and cross culverts to collect surface runoff and discharge it to the Black River. New cross culverts will be installed on the proposed alignment, and existing cross culverts located within the project limits will be replaced. These systems will be designed in accordance with Highway Design Manual Chapter 8 and are shown on the general plans included in Appendix A.

3.3.3.5 Geotechnical –

In general, there are no known unusual soil conditions within the project limits which would affect the design or construction of the proposed project. However, it has been determined that there is little to no cover over bedrock for much of the new roadway. Additionally, karst rock formations exist within the project limits; which have deep fissures. These fissures will need to be grouted in the vicinity of the bridge abutments. A geologist has confirmed that the proposed abutment footing locations are sufficiently setback from the top of gorge.

3.3.3.6 Structures –

This project includes the removal of BIN 3338900 and construction of a new single span structure over Black River.

Exhibit - 3.3.3.6 Proposed Structure Data	
Data	**Proposed Structure**
BIN	1080440
Type of Bridge	Simple span steel multi-girder with monolithic concrete deck with integral wearing surface
Number and Length of Spans	1 Span @ 200'-0"
Lane Width(s)	2 @ 12'-0"
Shoulder Width(s)	2 @ 6'-0"
Sidewalk(s)	1 @ 5'-2" on east side
Utilities Carried	None on proposed structure
Horizontal Clearance	42'-0" face of rail to face of rail
Vertical Clearance	Minimum of 2'-0" freeboard for 50 year storm > 14'-0" Above Structure

3.3.3.7 Hydraulics of Bridges and Culverts –

The low chord elevation of the proposed bridge will be approximately 17 feet higher than the low chord elevation at the existing bridge site. The proposed bridge (BIN 1080440) will be constructed at the top of the rock gorge which will provide a clearance of over 50 feet above normal Black River flows. The low chord elevation of the proposed utility structure will be approximately the same as the existing bridge which has ample freeboard (as mentioned in Section 2.3.3.7). Scour will not be an issue for either site because the bridges are founded on rock at the top of the gorge where they will be well above flows from high water events. A hydraulic analysis is not required due to the height of the bridge above the river and the bridges being founded on rock. The Main Office Hydraulic Engineering Unit has concurred, and a hydraulic evaluation memorandum is included in Appendix D.

3.3.3.8 Guide Railing, Median Barriers and Impact Attenuators –

The guide railing on the proposed bridge will be steel three-rail with brush curb on the west side of the bridge and steel four-rail on sidewalk on the east side of the bridge. The bridge rail will transition to box beam guide railing along NY Route 12E Proposed and terminate using appropriate end treatments. Box beam guide railing will also be installed on the north side of NY Route 12F to protect a residential property at Sta. 1119+50.

3.3.3.9 Utilities –

There will not be any utilities on the new bridge however four (4) 2.5" diameter PVC conduits are to be provided for future use in the sidewalk on the proposed bridge. There is an 8" gas main on the existing truss that will be relocated by National Grid prior to start of construction. An existing sanitary line that crosses beneath NY Route 12E (approx. Sta. 195+70) will be relocated to the north side of the highway and the property owner compensated for relocation. Other potential relocations that exist are a National Grid gas main on the south side of NY Route 12E and a 10" water main on the north side of NY Route 12F. In order to maintain water service to the Town of Hounsfield, a utility bridge will be installed in the location of the existing bridge. These relocations will be coordinated with National Grid and the Town of Hounsfield during final design. Additional utility relocations, including overhead, will be identified during final design.

3.3.3.10 Railroad Facilities –

There are no railroad facilities within or near the project limits and none are proposed.

3.3.4 Landscape and Environmental Enhancements –

Landscaping and environmental enhancements will be further evaluated during final design in an effort to provide a more aesthetically pleasing corridor.

3.3.5 Miscellaneous

NYS Smart Growth Public Infrastructure Policy Act (SGPIPA)

Pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act (SGPIPA).

To the extent practicable this project has met the relevant criteria as described in ECL § 6-0107. The Smart Growth Screening Tool was used to assess the project's consistency and alignment with relevant Smart Growth criteria. The tool is included in Appendix G.

CHAPTER 4 - SOCIAL, ECONOMIC and ENVIRONMENTAL CONDITIONS and CONSEQUENCES

4.1 Introduction

This chapter documents the assessment of social, economic and environmental effects of the Build Alternative. The No Build Alternative assumes no future improvements in the Study Area other than those planned by others and/or implemented as part of routine maintenance.

4.1.1 Environmental Classification

4.1.1.1 NEPA Classification -

Per the Federal Highway Administration's regulations in 23 CFR 771.117, this project qualifies as a NEPA Class II Action which authorizes a bridge rehabilitation, reconstruction or replacement or the construction of grade separation to replace existing at-grade railroad crossings (23 CFR 771.117(d)(13)) and does not significantly impact the environment. In accordance with the NYSDOT/FHWA Programmatic Agreement Regarding Categorical Exclusions, FHWA will make the NEPA environmental determination. Refer to the FEAW in Appendix B for the details of this determination.

4.1.1.2 SEQR Classification -

The Department has determined that this project is not exempt from SEQRA and does not qualify as a SEQRA Type II Action in accordance with 17 NYCRR Part 15 - Procedures for Implementation of State Environmental Quality Review Act for the reasons cited below. The project does not qualify as a Type II Action because of potential effects to protected areas for rare, endangered or threatened species (Section 15.14(d)). A determination of significance will be filed based on the results of this Design Report before the action may be undertaken.

The following environmental classification Checklist(s)/Forms are attached:

☒ Federal Environmental Approval Worksheet (FEAW)

4.1.2 Coordination with Agencies

4.1.2.1 NEPA Cooperating and Participating Agencies -

No impacts to Waters of the US or freshwater wetlands are anticipated. However, the reconfiguration of the existing bridge for use as a utility bridge will be conducted under United States Army Corps of Engineers Nationwide Permit #3 – Maintenance. It is anticipated that the New York State Department of Environmental Conservation (NYSDEC), the New York State Office of Parks and Recreation State Historic Preservation Officer (SHPO), the United States Fish and Wildlife Service (USFWS), the New York Natural Heritage Program (NYNHP) and the New York State Department of State (NYSDOS) will be involved and/or interested agencies during the SEQR review.

4.2 Social

The purpose of this section is to discuss the social environment in the vicinity of the project. This project involves the construction of a new bridge carrying NY Route 12E over the Black River in Brownville, New York. The project corridor is located in a rural, undeveloped area with a few adjacent residential properties. The replacement bridge will be built 3,300 feet west of the existing bridge on a new alignment and includes the reconstruction of the highway approaches of NY Route 12E to the north and NY Route 12F to the south. No residential relocation or other negative social impacts are anticipated for this project.

4.2.1 Land Use

4.2.1.1 Demographics and Affected Population -

The project area is located in the Village of Brownville, and Towns of Brownville and Hounsfield, New York. The project area is mostly rural, undeveloped forest on either side of the Black River which runs through the center of the proposed project area. There are sparsely developed residential homes, commercial property and a cemetery in the vicinity of the project area.

The 2018 US Census American Community Survey reports that the Village of Brownville has a population of 1,047 persons. The median reported age was 42.3, with 21% of the population being reported at age 65 or older. 98.0% of the population was identified as white.

Based on data collected from the 2010 US Census, approximately 13.9% of the Jefferson County's population identified as disabled. There was no data available for the Village of Brownville specifically.

The Town's had 3.3% of its population reported to be below the poverty level, which is below that year's national average of 12.4%. This project is not located in a potential NYSDEC Environmental Justice Area.

The US Census reported that in 2010, 77.8% of the Town's working population commuted individually by car or truck to work with an average travel time of 15.2 minutes. This is approximately 11.9 minutes shorter than the national average and considered by many to be reasonable for a work commute or shopping. The proximity of Watertown and Interstate 81 provides reasonable commuting times for many residents to employment centers.

4.2.1.2 Comprehensive Plans and Zoning -

Construction of the new bridge carrying NY Route 12E over the Black River on a new alignment approximately 3,300 feet downstream of the existing bridge is consistent with the community's comprehensive plan and local planning goals.

4.2.2 Neighborhoods and Community Cohesion

4.2.2.1 Community Cohesion -

The project will not divide neighborhoods, isolate part of a neighborhood, generate new development or otherwise affect community cohesion. The age and ethnic background of the affected population is of a similar composition as the rest of the Village of Brownville and Towns of Brownville and Hounsfield. There are no occupied dwellings to be acquired.

The project corridor is predominately rural, undeveloped wooded area with a few residential homes along NY Route 12F at the south end of the project corridor. The corridor on the north side is also rural but more developed with more residential homes along NY Route 12E. Sidewalks exist on NY Route 12E approximately 850 feet to the east of the proposed intersection with NY Route 12E (Proposed) and extend into the Village. There are no schools or churches located along NY Routes 12E or 12F near the project corridor. The project corridor is not located near downtown Brownville and thus, automobiles will be the primary mode of transportation along the new highway approaches and bridge alignment. There is no pedestrian activity in the area.

4.2.2.2 Home and Business Relocations -

Since this project involves the replacement of the existing bridge on a new alignment, it will not cause adverse impacts upon neighborhood character and stability. The proposed alternative would require no displacement of residences or businesses and there would be no relocation impacts.

4.2.3 Social Groups Benefited or Harmed

4.2.3.1 Elderly and/or Disabled Persons or Groups -

A review of US Census data in Section 4.2.1.1 indicates that there is no significant concentration of elderly or disabled persons in the project area. The area does not currently have pedestrian sidewalks or crosswalks, therefore accessibility for pedestrians will not be impacted.

4.2.3.2 Transit Dependent -

Existing transit facilities such as bus/train/light rail lines transit boarding locations, stations, stops, park and ride lots, etc. do not exist.

4.2.3.3 Low Income, Minority and Ethnic Groups (Environmental Justice) -

No minority or low-income populations have been identified that would be adversely impacted by the proposed project. Therefore, no further analysis regarding Disproportionate High and Adverse Effects is required.

4.2.4 School Districts, Recreational Areas, and Places of Worship.

4.2.4.1 School Districts -

The proposed project is within the General Brown Central School District. There are no schools or school properties within or near the project corridor.

4.2.4.2 Recreational Areas -

The Black River, located in the center of the project area, is not identified by the NYSDEC as a Recreational River but is used for recreational activity. No adverse impacts to the Black River are anticipated due to the project. No other recreational areas exist within the project corridor.

4.2.4.3 Places of Worship -

There are no places of worship within or near the project corridor.

4.3 Economic

4.3.1 Regional and Local Economies

The Town of Brownville does not see high traffic volume, and as such is not ideally situated for general commercial development. However, potential for business growth lies within the form of smaller locally-owned establishments that may meet the needs of local residents as well as provide seasonal business related to recreation and tourism. Improving the road may increase accessibility of these local businesses. The construction of the proposed bridge may also benefit the local economy by providing temporary employment opportunities.

The proposed project is unlikely to have any negative effects on local community cohesion or character.

The Project Review Area is not located in an Economic Development Zone.

4.3.2 Business District Impacts

The proposed project is not located within a Business District. The existing traffic volume is low, and the proposed improvements are not expected to greatly affect the transportation or overall character of the location. Walking and bicycling opportunities will remain the same, and there is no need to adjust the amount or accessibility of parking opportunities.

4.3.3 Specific Business Impacts

Businesses are unlikely to be affected by the proposed project, as the changes being made are replacing an existing commuter bridge and not adjustments to general accessibility.

4.4 Environmental

4.4.1 Wetlands

The project site was initially screened for wetlands using available online information and is summarized below.

4.4.1.1 State Freshwater Wetlands -

There are no NYSDEC regulated freshwater wetlands or regulated adjacent areas (100ft) within the project area, as per the NYSDEC ERM Freshwater Wetlands Maps. A site visit was performed to verify this. The Black River, located in the center of the project area is a federally regulated Riverine system. No other freshwater wetlands were identified. It is not anticipated that the Black River would be impacted as part of the proposed project. No further investigation is required.

4.4.1.2 State Tidal Wetlands -

A review of the NYSDEC GIS wetland data files indicates that there are no NYSDEC jurisdictional tidal wetlands or regulated adjacent areas within or near the project limits, and ECL Article 25 does not apply.

4.4.1.3 Federal Jurisdiction Wetlands -

The project site has been reviewed for wetlands in accordance with the criteria defined in the 1987 US Army Corps of Engineers Wetland Delineation Manual. According to the USFWS National Wetlands Inventory (NWI), the Black River is identified as a federally regulated permanently flooded upper perennial Riverine system with an unconsolidated bottom (R3UBH). No additional freshwater wetlands were identified within the project corridor during the site visit. It has been determined the project will not impact the federally regulated Riverine system or any other wetlands. A copy of the USFWS NWI mapping application research is available in ProjectWise.

After reviewing available resources for the project corridor and surrounding area, a wetland assessment and wetland delineation was completed on September 30, 2019 (Wetland Assessment Summary Report is included in Appendix B). The assessment was conducted in accordance with the 1987 “U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual”, the 2012 “Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region”, and the NYSDEC 1995 “New York State Freshwater Wetlands Delineation Manual”. These documents were used as guidance to evaluate jurisdictional wetland limits under the ACOE and the NYSDEC regulatory programs. Wetland-upland boundaries were determined based on a three-parameter approach of vegetation, soil, and hydrology assessments. Soil profiles were taken on either side of the wetland-upland boundary using a Dutch Auger and evaluated in accordance with the 2010 “Field Indicators of Hydric Soils in the United

States" manual. Soil colors were identified using a Munsell color chart and hydric indicators were recorded on an ACOE Wetland Determination Data Form for the Northcentral and Northeast Region. Dominant species of vegetation were identified, and their wetland indicator status was determined using the ACOE "Northcentral and Northeast 2016 Regional Wetland Plant List". Wetland-upland boundaries were delineated in the field using a Trimble® Geo 7x handheld GPS unit and are noted on the Wetland Delineation Map included in ProjectWise.

During the site inspection on September 30, 2019, one (1) Riverine system (Black River) was identified within the Project Review Area. No additional wetland areas were observed within the Project Review Area. Two test pits were advanced as part of the wetland assessment. No evidence of hydrology was observed in Test Pit One (TP1) to the north of the Black River and in Test Pit Two (TP2) to the South of the Black River.

Provisions to maintain water quality and erosion control measures during construction have been incorporated into the design of the project. A summary of the wetland losses is shown below in Exhibit 4.4.1.3.

It is expected that the replacement bridge and conversion of the existing bridge to a utility bridge will be authorized under Nationwide Permit # 3. A Blanket Section 401 Water Quality Certification (WQC) applies since the proposed project will meet the requirements of Nationwide Permit # 3 and it will comply with the NYSDEC General WQC Conditions. Work will not commence until the permit is acquired, and work will adhere to all permit conditions. Provisions to maintain water quality and erosion control measures during construction have been incorporated into the design of the project. No impacts to Waters of the U.S. (WOTUS) are anticipated as a result of this project. A summary of the impact to WOTUS is shown below in Exhibit 4.4.1.3.

Exhibit 4.4.1.3
Wetland Impacts

Wetland		Identified Functional Values	Impacts (acre)
ID	Type		
Black River	Riverine	• Upland drainage/ filtration • Flood mitigation & water storage	0
Total Impacts			0

4.4.1.4 Executive Order 11990 -

Based on a site visit, there are no wetlands located within the project's area of potential effect. Executive Order 11990 does not apply to this project.

4.4.1.5 Mitigation Summary -

No wetland mitigation/monitoring plan is required for this project, since no wetlands are impacted.

4.4.2 Surface Waterbodies and Watercourses

Based upon a review of the NYSDEC GIS data maps for regulated streams, there is one regulated river (Black River) within the project limits. According to the NYSDEC Environmental Resource Mapper (ERM), the portion of the Black River within the project area has been designated with a Stream Classification/Standard of "C". However, the proposed project does not involve any in-water work, and therefore will have no impact on the Black River. No further consultation is required.

The portion of the Black River within the project area qualifies as "Waters of the United States" by USEPA and USACE definition. During construction erosion and sediment control measures such as surface

stabilization and silt fencing should be implemented to prevent contamination of surface waters by sediment or debris. All temporary erosion and sediment controls will be inspected and maintained in accordance with Section 209 of NYSDOT's 2022 Standard Specification and all addendums.

A copy of the NYSDEC ERM mapping application research is presented in Appendix B.

4.4.2.1 Surface Waters -

The project activities do not involve excavation in or the discharge of dredged or fill material into, Waters of the U.S. No permits under this Section are anticipated.

4.4.2.2 Surface Water Classification and Standards -

Based upon a review of the NYSDEC GIS data maps for regulated streams, there is one regulated river (Black River) within the project limits. According to the NYSDEC Environmental Resource Mapper (ERM), the portion of the Black River within the project area has been designated with a Stream Classification/Standard of "C". However, the proposed project does not involve any in-water work, and therefore will have no impact on the Black River. No further consultation is required.

The portion of the Black River within the project area qualifies as "Waters of the United States" by USEPA and USACE definition. During construction erosion and sediment control measures such as surface stabilization and silt fencing should be implemented to prevent contamination of surface waters by sediment or debris. All temporary erosion and sediment controls will be inspected and maintained in accordance with Section 209 of NYSDOT's most current Standard Specification and all addendums.

A copy of the NYSDEC ERM mapping application research is presented in Appendix B.

4.4.2.3 Stream Bed and Bank Protection -

Based upon a review of the NYSDEC GIS database, and as verified by a site visit, there is one protected stream in the proposed project area- the Black River- which flows into Lake Ontario.

NYSDOT ERM information indicates that the Black River is designated as Class C Surface Waters as defined by Title 6, Part 701 of the Water Quality Regulations. Coordination with NYSDEC will continue pursuant to 1997 "DEC/DOT MOU Regarding ECL Articles 15 and 24".

No temporary or permanent impacts to the stream bed or bank are anticipated.

4.4.2.4 Airport and Airway Improvement -

This project does not include any improvements to airports or airways.

4.4.3 Wild, Scenic, and Recreational Rivers:

4.4.3.1 State Wild, Scenic and Recreational Rivers -

The Black River is not listed as a Scenic and Recreational River on the NYSDEC State Wild, Scenic and Recreational River System. The River is used locally for recreational purposes only. The project has been reviewed for adverse impacts and the project activities will not adversely affect the free-flowing characteristics of the river or alter or preclude the river's status. No further review is required.

4.4.3.2 National Wild and Scenic Rivers -

The Black River is located within the project area and is not a designated river on the National, Wild and Scenic River System. The proposed project activities will not adversely affect the river's free-flowing character and/or involves normal maintenance of existing structures.

4.4.3.3 Section 4(f) Involvement -

The proposed project does not involve work in a public park, in or adjacent to a wildlife or waterfowl refuge. No further consideration is required.

4.4.4 Navigable Waters

4.4.4.1 State Regulated Waters -

The Black River does not meet the definition of a navigable water body as set forth in NYSDEC's regulations as the shallow depth of the river contributes to its inability to support navigation.

4.4.4.2 Office of General Services Lands and Navigable Waters -

There are no OGS underwater holdings, waterfalls or hydro dam impoundments located within the project's area of potential effect that will be impacted by the work.

4.4.4.3 Rivers and Harbors Act – Section 9 -

Rivers and Harbors Act – Section 9

The project will involve the modification of a bridge over a navigable water of the United States, the Black River. The modification of the bridge will not reduce the existing vertical clearance or affect the navigability of the river. The US Coast Guard has been consulted and a USCG Section 9 Permit will not be required. Correspondence with the US Coast Guard is included in Appendix B.

4.4.4.4 Rivers and Harbors Act – Section 10 -

Rivers and Harbors Act – Section 10

The project will involve the construction of a bridge over a navigable water of the United States, the Black River. However, the construction will not involve any dredging or discharge of fill into the river and therefore a USACOE Section 10 Permit will not be required. Correspondence with the USACOE is included in Appendix B.

4.4.5 Floodplains

4.4.5.1 Federal Flood Insurance Compliance Program -

Floodplain mapping exists for the project area and the project disturbance is not located within the 1% annual chance floodplain (100-year floodplain) as mapped per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community number 361063 C revised June 2, 1992 and 3603400015C dated November 20, 1991. No additional Part 502 information is needed. Flood maps are in included in Appendix B.

4.4.5.2 Executive Order 11988 -

The project will not impact any floodplains. EO 11988 does not apply.

4.4.6 Coastal Resources

4.4.6.1 State Coastal Zone Management Program -

The proposed project is a SEQR non-Type II action; therefore, the proposed project is subject to state coastal consistency review requirements. The proposed project will utilize federal funds. A federal consistency determination from the NYSDOS, dated October 12, 2022, stated that there was no objection to the release of Federal Highway Administration funding in support of the proposed project. A copy of the determination is located in Appendix B.

4.4.6.2 State Coastal Erosion Hazard Area -

The proposed project is not located in or near a Coastal Erosion Hazard Area.

4.4.6.3 Waterfront Revitalization and Coastal Resources Program -

According to NYS DOS "List of Approved Coastal Local Waterfront Revitalization Programs (LWRPs)," dated March 2007, the proposed project is not located in a Local Waterfront Revitalization Area. No further action is required.

4.4.6.4 Federal Coastal Barrier Resources Act (CBRA) and Coastal Barrier Improvement Act (CBIA) -

The proposed project is not located in, or near a coastal area under the jurisdiction of the Coastal Barrier Resources Act (CBRA) or the Coastal Barrier Improvement Act (CBIA).

4.4.7 Groundwater Resources, Aquifers, and Reservoirs

4.4.7.1 Aquifers -

NYSDEC aquifer GIS data files have been reviewed and it has been determined that the proposed project is not located in an identified Primary Water Supply or Principal Aquifer Area. No further investigation for NYSDEC designated aquifers is required.

4.4.7.2 Drinking Water Supply Wells (Public and Private Wells) and Reservoirs -

There are no municipal drinking water wells, wellhead influence zones, or reservoirs within or near the project area.

4.4.8 Stormwater Management

Erosion and sedimentation control plans will be developed and incorporated into the project. Erosion and sedimentation control measures may include: erosion control fabric, temporary seeding, silt fence, compost filter socks, check dams, and inlet protection.

A SPDES General Permit GP-0-20-001 will be required because the project has more than one acre of soil disturbance. A Stormwater Pollution Prevention Plan (SWPPP) with the appropriate sediment and erosion control measures will be developed. Based on the SWPPP, permanent stormwater management practices may be required depending on the total amount of disturbance and changes in total impervious area.

Stormwater quantity controls are not required since the project outlets into a fifth order stream.

All proposed areas of disturbance for the project ultimately drain to the Black River. The project corridor is not adjacent to or discharging runoff to a TMDL Watershed or a listed 303(d) water body.

The project will employ effective erosion and sediment control practices during construction, as set forth in NYSDOT's statewide stormwater and erosion and sedimentation control specifications, standard construction details, and design and construction guidance procedures.

Since the limits of grading associated with the proposed construction of this project are expected to exceed 1 acre, a State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities (GP-0-20-001), issued by the NYS Department of Environmental Conservation (NYSDEC), will be required.

Potential impact on surface water quality associated with the project would be the result of stormwater runoff and associated pollutants. Pollutants associated with the project could include deicing salts, particulates, nutrients, heavy metals, and hydrocarbons, including polynuclear aromatic hydrocarbons (PAH's). Pollutant sources may include road surface material, vehicle exhaust and degradation, lubrication system losses, roadway maintenance activities, and by-products of combustion. Of these pollutants, deicing salts are considered a primary pollutant due to the potential quantity of salts applied to the roadway during snow removal operations, and because they are potentially the most difficult to mitigate. Because this project involves replacement-in-kind of an existing bridge and negligible increase in impervious area, an analysis quantifying the effects of deicing salts was not performed for the project.

Soil erosion control plans will be developed during the Advance Detail Design of the project in accordance with NYSDOT Highway Design Manual Chapter 8, including Appendix B. Details and plans will comply with NYSDEC's most recent Stormwater Management Design Manual and NYS Standards and Specifications for Erosion and Sediment Control, commonly referred to as the "Blue Book". These plans and details will include both temporary and permanent measures to prevent soil erosion and provide fences, seeding, mulching, and stabilized construction access points. These measures will serve to minimize the potential for pollutants from the proposed project to reach the Black River.

Preliminary geologic investigation showed that site is generally dominated by shallow karst bedrock. The shallow bedrock limits water quality treatment options, as there may not be sufficient depth to bedrock for preferred treatment options like dry swales to be installed. The road in this area features swales that could be modified to meet some of the treatment requirements.

Because of the poor geologic conditions at the site, offsite mitigation treatment options to meet NYSDEC water quality and quantity mitigation requirements. A site along NY Route 812 within the Black River watershed was identified as the mitigation site and approved by the NYSDEC (see Appendix B for proposed location). Infiltration trenches approximately 4'-0" wide and 4'-8" deep will be constructed at the bottom of the existing roadside ditches and within the state right-of-way to treat the required water quality volume for the project. Per the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) Cultural Resource Information System (CRIS), all areas in this location are located outside of areas identified as Archaeological Sensitive Areas (see Appendix B for CRIS mapping). Per preliminary tax map investigation, all areas where infiltration trenches are proposed are the property of NYSDOT.

Depending on the final site/grading layout, implementation of additional green infrastructure practices, including bioretention areas, may be required. This determination will be made once the area of disturbance/grading limits are determined during the ADP phase.

4.4.9 General Ecology and Wildlife Resources

4.4.9.1 Fish, Wildlife, and Waterfowl -

A cursory review of the project's area of potential effect indicates that there is not a special habitat or breeding area for certain species of plants or animals.

4.4.9.2 Habitat Areas, Wildlife Refuges, and Wildfowl Refuges -

The proposed project does not involve work in, or adjacent to, a wildlife or waterfowl refuge. No further consideration is required.

4.4.9.3 Endangered and Threatened Species -

Federal Species

A US Fish and Wildlife Services (USFWS) Information, Planning, and Consultation System (IPaC) Key review was conducted on July 29, 2022 for both the existing bridge location as well as the proposed bridge location (the Project Code for the proposed bridge is 2022-0069251; the Project Code for the existing bridge is 2022-0069293) for the project.

The review of the both the existing and proposed bridge locations indicated that there are three (3) federally listed, endangered or threatened species identified within both of the project locations. There were no Critical Habitats identified through IPaC within the project area. The following federally-listed, proposed, or candidate species information was provided through the IPaC system official species list:

Indiana Bat (*Myotis sodalis*) – Endangered. The Indiana bat typically hibernates in caves/mines in the winter and roosts under bark or in tree crevices in the spring, summer and fall. Suitable potential summer roosting habitat is characterized by trees (dead, dying, or alive) or snags with exfoliating or defoliating bark or containing cracks or crevices that could potentially be used by Indiana bats as a roost.

Northern Long-Eared Bat (*Myotis septentrionalis*) - Threatened. The Northern Long-Eared Bat typically hibernates in caves/mines in the winter and roosts under bark or in tree crevices in spring, summer and fall. Potential summer roosting habitat is characterized by dead, dying or alive trees or snags with exfoliating or defoliating bark and/or trees containing cracks or crevices. Larger trees are preferred over smaller trees because they afford a larger thermal mass for heat retention. Roosting trees are typically greater than 3 inches dbh and located within approximately 12 to 40 miles of a hibernacula.

Monarch Butterfly (*Danaus plexippus*) – Candidate. The monarch butterfly is typically found in open grass areas during the breeding season and requires milkweed (Asclepias spp.) for breeding. The eastern population migrates north to the United States and Canada in March, and back to overwintering sites in Mexico from August to November. Adults use a wide variety of trees and flowering plants throughout migration and breeding. Monarchs need nighttime roosting sites during migration. Roosting generally occurs in both native and nonnative deciduous and evergreen trees. There are many potential reasons for the butterfly's decline, including habitat loss at breeding and overwintering sites, disease, pesticides, logging at overwintering sites and climate change.

The monarch butterfly is currently a candidate for listing under the Endangered Species Act. While the monarch butterfly may be identified through the USFWS IPaC program official species list requests, there is no requirement to coordinate with the USFWS on candidate, proposed, or listed species. However, it is encouraged that project sponsors/ consultants consider incorporating habitat restoration or enhancement measures into project plans that benefits the monarch butterfly and other pollinator species.

Bald Eagle (*Haliaeetus leucocephalus*): Although the bald eagle was delisted in 2007 from the Endangered Species Act (ESA), it is still afforded federal protection under the Bald and Golden Eagle Protection Act (BGEPA). The bald eagle is listed as threatened in New York State and is a USFWS Bird of Conservation Concern (BCC).

Bald eagle populations are often associated with forested areas adjacent to major river systems; however, consultation of the NYNHP indicated that breeding Bald eagles have not been documented within or adjacent to the project site.

The cutting/trimming of 3.40 acres of trees is proposed for this project. A Tree and Bat Survey was conducted on April 22, 2020. Visual signs of potential and/or current suitable roosting habitats indicative of the Northern Long-Eared Bat or the Indiana Bat were not observed within the existing bridge; however, within the proposed bridge corridor, where the majority of proposed tree-cutting will occur, some trees were observed that may be suitable for both species of bat.

During the tree survey, approximately 2,604 trees above four (4) diameter at breast height (dbh) were identified, some of which were dead/dying and displayed loose bark, beneath which bats may roost. Three natural communities were sampled to the south of the river (Communities A, B, and C), and two were sampled to the north (Communities D and E). To the south of the Black River, the dominant tree species in Community A were Eastern Hemlock and Oak; Black Locust and Black Cherry dominated Community B; and Black Cherry was the primary tree species in Community C. To the north of the river, the dominant tree species in both Communities D and E was Cedar, with Oak, Black Cherry, and Eastern White Pine additionally present. Based on observations made during the Tree Survey, the overall composition of the proposed project area is comprised of coniferous softwoods immediately adjacent to the river (Eastern Hemlock, Cedar), a primarily hardwood forest extending south to NY Route 12F, and mixed hardwood and softwood forest extending north to NY Route 12E.

Due to the scale and the distance from existing roads of the proposed tree removal required for the project consultation with the USFWS was initiated. The NYSDOT, in coordination with the USFWS and FHWA, prepared a Biological Evaluation in order to determine the impact that the project and proposed tree cutting will have on the Indiana Bat (*Myotis sodalis)* and the Northern Long-Eared Bat (*Myotis septentrionalis*)*.*

In a letter dated September 23, 2021 the USFWS determined that the project may rely on the February 5, 2018 Programmatic Biological Opinion for federally funded or approved transportation projects that may affect the federally listed endangered Indiana bat (*Myotis sodalis*) and/or federally listed threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). Additionally, the USFWS determined that the project is "*Likely to Adversely Affect"* the Indiana Bat and the Northern Long-Eared Bat, and Incidental Take of these species is likely to occur based on the proposed tree cutting and resulting habitat removal. In a letter dated September 24, 2021, the FHWA concurred with the NYSDOT's determination of "*May Affect, but Not Likely to Adversely Affect",* when appropriate avoidance, minimization, and mitigation measures are employed, and went on to acknowledge the USFWS's determination of "*Likely to Adversely Affect".* The FHWA has approved mitigation for tree removal for the project, to offset the adverse effects according to the Biological Opinion.

The proposed Project will remove a total of 3.40 acres of trees of habitat that is suitable for the Indiana bat. It was determined that 1.26 acres of tree removal is located within 100 feet of the existing road and 2.139 acres are located outside the 100 ft of the roadway (1.03 acres are greater than 100 feet of the road but less than 300 feet of the road, and 1.11 acres are greater than 300 feet from the road). All tree removal will occur in winter (October 1 through March 31) and comply with all other conservation measures in the Biological Opinion (attached).

Based on the Biological Opinion, 2.139 acres of impact are anticipated, therefore mitigation is required to compensate for the adverse effects. The FHWA used the mitigation ratio of 1.5 to calculate the compensatory mitigation required to offset these adverse impacts for a total of 3.21 acres of trees that is suitable for the Indiana bat, resulting in a fee of $19,308.15 that will be paid prior to the completion of construction. No conclusions were provided on the other above mentioned threatened or endangered species with respect to this project.

The Bridge/Bat Survey Form, the Tree Survey mapping, the letter from the USFWS dated September 23, 2021, and the letter from the FHWA dated September 24, 2021 are included in Appendix B.

State Species

In addition to site observation, screenings for state listed rare plants or animals were additionally researched using the NYSDEC ERM, the NYSDEC Natural Heritage Program, and the NYSDEC Nature Explorer mapping applications. In a letter dated December 10, 2019 the NYSDEC Natural Heritage Program (NYNHP) confirmed the documented presence of both Northern Long-Eared and Indiana bats within 1.75 miles of the project area. The NYSDEC Natural Heritage Program identified two (2) additional threatened or endangered species: the Short-Eared Owl (*Asio flammeus,* endangered) and Back's Sedge (*Carex backii*, threatened). The NYSDEC Nature Explorer identified the possible presence within the project site and areas adjacent to the project site three (3) additional threatened or endangered species: Calypso (*Calypso bulbosa var. americana*, endangered, possible but not confirmed), Drummond's Rock Sedge (*Boechera stricta*, threatened, recently confirmed), and Northern Stickseed (*Hackelia deflexa ssp. americana*, endangered, historically confirmed).

Short-Eared Owl (*Asio flammeus*) - One of the world's most widely distributed owls, *Asio flammeus* can be found throughout much of North America and Eurasia. Their preferred habitat consists of large fields with high vegetation density, such as grasslands, meadows, marshes and open agricultural areas. The cutting/trimming of 3.40 acres of trees within a forested area is proposed for the completion of this project. As a result, it is unlikely that this action will cause harm or result in incidental take of the species. The NYSDEC Natural Heritage Program database indicates there are no known locations of the owl within the vicinity of the 1.5- mile radius of concern of the project, only potential locations in the grasslands surrounding the nearby Watertown Airport. Previous site visits resulted in zero detections as well.

Back's Sedge (*Carex backii)* – This sedge grows primarily in dry, rocky deciduous, mixed, or evergreen open forests or woodlands, often over limestone. It occurs on or adjacent to rocky ledges, rock outcrops, ridges, calcareous pavement barrens and woodlands, thickets, and sand plain thickets. Open canopied forests are preferred but it also grows in more forested as well as more open habitats (New York Natural Heritage Program 2005). This species prefers dry, rocky, open, or shaded slopes, ridges, and barrens, in hardwood, mixed, or coniferous forests, including pine plantations, on acidic and calcareous substrates (Crins et al. 2002). In quite varied habitats, the species frequently occurs in mesic deciduous forests near streams and rivers. Soils often have a high organic content with an abundance of leaf litter. Signs of localized, natural disturbance are usually evident. It also grows in open, prairie habitats with scattered *Quercus macrocarpa*, on open granite outcrops, and along disturbed roadsides (Saarela and Ford 2001). Dry rocky or sandy woods and bluffs (Fernald 1970). This species is associated with Calcareous cliff communities, Calcareous shoreline outcrops, and Limestone woodlands.

According to the NHP database, there are 3 known locations of Back's sedge within the 1.5-mile vicinity of the project area. These were last observed in 2004, and it is unknown if they are still present. They were not observed during any previous site visits.

Calypso (*Calypso bulbosa var. americana*) - This orchid has not been seen in New York since 1969, and was likely never very abundant in the state. There are historical records from bogs, Northern White-cedar swamps, and the edges of Hemlock swamps (New York Natural Heritage Program 2011). This plant prefers Mesic to wet coniferous forests, mixed forests, and bogs.

Due to the nature of the habitat available at the proposed bridge site, it is unlikely that this plant would be present within or adjacent to the project area.

Calypso has no confirmed locations within the areas adjacent to the project area and has not been observed on any previous visits.

Drummond's Rock Sedge (*Boechera stricta*) - This species has been collected most often from rocky ledges, cliffs, or ravines, though it also has been found at disturbed sites including trails, mowed areas, and sandy roadsides (New York Natural Heritage Program 2007). This species has also been found on basic or circumneutral ledges, gravels and thickets (Fernald 1970), and various habitats (Gleason & Cronquist 1991). Drummond's Rock Sedge is associated with Calcareous cliff communities, Shale cliff and talus communities, and Shale talus slope woodlands.

Drummond's Rock Sedge, although recently confirmed in the vicinity is unlikely to result in incidental take as the closest known location is approximately 0.7 miles from the boundaries of the project area.

Northern Stickseed (*Hackelia deflexa ssp. americana*) - Northern stickseed has a wide distribution in northern North America, but in New England it is very rare. It inhabits open, dry, calcareous habitats including rocky forests and cliff bases. Despite two new populations being found in Maine in 2000, this plant appears to be in decline in New England, chiefly due to loss of habitat in Vermont's Champlain Valley. This species is associated with cliffs, balds, ledges, forests, talus and rocky slopes.

Northern stickseed was confirmed within the vicinity previously, but the most recent conformation is in 1951. As a result, it is unlikely if still present, to be taken during construction activities.

Should any of the species listed above be encountered during construction, immediate contact would be initiated with the local NYSDEC office for their recommendation on procedure.

Correspondence from the NYNHP on February 12, 2021, further clarified that the existing bridge location is 1.2 miles from the nearest documented bat hibernaculum, and the proposed bridge is 1.9 miles from the nearest documented bat hibernaculum, and that as a result, all tree clearing activities must adhere to the allowed removal dates between November 1 and March 31. The nearest known hibernaculum is located far enough from both projects sites that any tree clearing, drilling, grouting, or blasting that may need to occur either in the woodlands or karst cliffs adjacent to the Black River are acceptable within the allotted removal date range. No conclusions were provided on the other above mentioned threatened or endangered species in respect to this project.

Copies of the NYSDEC ERM, the NYSDEC Nature Explorer, the NYSDEC Natural Heritage Program letter dated December 10, 2019, and additional correspondence dated February 12, 2021 is included in Appendix B.

Additional correspondence from the DOT dated August 30, 2022, and from the DEC dated September 15, 2022 are included in Appendix B.

4.4.9.4 Invasive Species -

A review of the existing corridor did not indicate any significant presence of known invasive species within the right-of-way. Precautions will be taken to prevent the introduction of invasive species during project design and construction. If invasive species are present, the contract documents should include context appropriate preventive measures to prevent their spread and context appropriate control practices as described in TEM 4.4.9.4.

4.4.9.5 Roadside Vegetation Management -

Existing roadside vegetation consists primarily of wooded areas and maintained lawns. Efforts will be made to replace wildlife-supporting vegetation that is removed in the course of construction.

4.4.10 Critical Environmental Areas

4.4.10.1 State Critical Environmental Areas -

According to information obtained from NYSDEC, the proposed project does not involve work in or near a Critical Environmental Area.

4.4.10.2 State Forest Preserve Lands -

According to information obtained from NYSDEC, the proposed project does not involve work in or near state forest preserve lands.

4.4.11 Historic and Cultural Resources

Initial review of the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) Cultural Resource Information System (CRIS) GIS Database was performed. According to the database, the project site is not located within a NYSOPRHP defined “Archeo-Sensitive Area”. However, based on what was observed from the database, a number of Phase I Archeological Surveys have been conducted in the project area (it appears mainly for a water and sewer district projects).

This project requires ROW acquisition and earth moving activities in previously undisturbed areas that have the potential to contain archeological resources. A Phase I Cultural Resources Survey was conducted by Hartgen Archeological Associates (Hartgen) in October 2021 to determine the presence of such resources. According to the Survey, the shovel testing program did not find any evidence of precontact occupation. Based on the historic map review, the Southward/Witt House at #18953 NY Route 12F is potentially eligible for state or national historic property registries. The shovel testing program indicates that any historic scatter associated with the house is limited to within 80 feet of the east side of the house. Further archeological work may be needed for the site if ground disturbing impacts are proposed within 80 feet of the house. Otherwise, no additional archeological study is required.

Hartgen is in the process of submitting the Phase 1 Cultural Resources Survey to the NYSHPO CRIS system.

4.4.11.1 National Heritage Areas Program -

The proposed project will not impact areas identified as National Heritage Areas.

4.4.11.2 National Historic Preservation Act – Section 106 / State Historic Preservation Act – Section 14.09 -

Because the project is a federally funded action, the Department will be following the Section 106 Process of the National Historic Preservation Act. This ensures compliance with the NYSHPA Section 14.09 process.

This project requires ROW acquisition and earth moving activities in previously undisturbed areas that have the potential to contain archeological resources. A Phase I Cultural Resources Survey was conducted by Hartgen Archeological Associates in October 2021 to determine the presence of such resources. According to the Survey, the shovel testing program did not find any evidence of precontact occupation. Based on the historic map review, the Southward/Witt House at #18953 NY Route 12F is potentially eligible for state or national historic property registries. The shovel testing program indicates that any historic scatter associated with the house is limited to within 80 feet of the east side of the house. Further archeological work may be needed for the site if ground disturbing impacts are proposed within 80 feet of the house. Otherwise, no additional archeological study is required.

The Phase 1 Cultural Resources Survey (Hartgen, October 2021) is included in Appendix B.

FHWA has reviewed the project and concurs with the determination that there will be "*No Historic Properties Affected*" by the proposed project. A letter dated March 8, 2022 is included in Appendix B.

4.4.11.3 Architectural Resources -

A Phase I survey was conducted by Hartgen to determine the presence of resources. Five (5) properties were identified as National Register eligible however NYSDOT determined, and FHWA concurred, that there will be *"No Historic Properties Affected"* by the proposed project. A copy of the report and FHWA concurrence is included in ProjectWise.

4.4.11.4 Archaeological Resources -

A Phase I Cultural Resource Survey was conducted by Hartgen to determine the presence of resources. One site at 18953 NY Route 12F (Southward/Witt House) was identified and recommended for investigation, as it was potentially eligible for state or national historic property registries. However, ground disturbance is not proposed within 80 feet of the property, as such no additional archeological study is recommended. A copy of the report is included in ProjectWise.

4.4.11.5 Historic Bridges -

There are no bridges listed on NYSDOT's Historic Bridge Inventory, including the existing bridge, which are located within the project's area of potential effect.

4.4.11.6 Historic Parkways -

This project does not have the potential to impact any Historic Parkways.

4.4.11.7 Native American Involvement -

The Department will be following the Section 106 Process of the National Historic Preservation Act (36 CFR 800). This ensures compliance with this Act. In addition, places or artifacts of religious importance to Native Americans were not found within the project impact area.

4.4.11.8 Section 4(f) Involvement -

The Department has determined that there are no properties on, or eligible for, the National Register of Historic Places, or properties over 50 years old that may be eligible within the project's area of potential effect. Therefore, a Section 4(f) evaluation for historical resources is not required.

4.4.12 Parks and Recreational Resources:

4.4.12.1 State Heritage Area Program -

The proposed project will not impact areas identified as State Heritage Areas.

4.4.12.2 National Heritage Areas Program -

The proposed project will not impact areas identified as National Heritage Areas.

4.4.12.3 National Registry of Natural Landmarks -

There are no listed nationally significant natural areas within, or adjacent to, the project area.

4.4.12.4 Section 4(f) Involvement -

There are no publicly owned parks or recreational facilities, protected under Section 4(f) of the USDOT Act, in or adjacent to the project area. No further action is required under this section.

4.4.12.5 Section 6(f) Involvement -

The project does not impact parklands or facilities that have been partially or fully federally funded through the Land and Water Conservation Act. No further consideration under Section 6(f) is required.

4.4.12.6 Section 1010 Involvement -

This project does not involve the use of land from a park to which Urban Park and Recreation Recovery Program funds have been applied.

4.4.13 Visual Resources

4.4.13.1 Introduction –

This project will have negligible effects on the existing visual corridor. The project corridor is located in a primarily rural, undeveloped wooded area.

4.4.13.2 Effects Assessment -

The proposed project is a bridge replacement on a new alignment. There will be two primary viewer/user groups of the proposed project: local residents and river users. The project will be visible from areas within a ¼ mile visual zone, as identified in the Visual Impact Assessment (included in ProjectWise). Visually sensitive areas, such as users of the river, will be impacted most by the project. Other sites within the project area, including the Hamlet of Brownville, NY Routes 12E and 12F, will not be able to view the new bridge due to vegetation.

It is determined that the new bridge has a greater visual contrast than the surrounding area and should be mitigated. A few mitigation options to be considered in final design include screening, abutment/beam texture and bridge coloring. It is anticipated that the mitigation options, if completed, will generally be perceived as a positive change by most viewer groups.

4.4.14 Farmlands

4.4.14.1 State Farmland and Agricultural Districts -

Based on a review of the NYS Agricultural District Maps for Jefferson County, the proposed project is not located in or adjacent to an Agricultural District.

4.4.14.2 Federal Prime and Unique Farmland -

Acquisition of soil classified as prime or unique farmland, or farmland of state or local significance, will be required for this project. Approximately 83,357.16 SF (1.91 acres) of permanent conversion is expected. A US Department of Agriculture Farmland Conversion Rating (Form AD 1006) was prepared and submitted to the NRCS (Natural Resources Conservation Service). A response from NRCS, dated January 3, 2023, indicated that the Site Assessment (SA) score for this project is 39 points and the total Land Evaluation and Site Assessment (LESA) score would not exceed 160. Therefore, “no further action

is required regarding the Farmland Protection Policy Act for this project". The letter from NRCS is included in Appendix B.

4.4.15 Air Quality

4.4.15.1 Regulatory Framework -

Jefferson County is designated non-attainment for the revoked 1997 ozone standard and is designated attainment for all other National Ambient Air Quality Standards. Per the *South Coast II* 2018 court decision, projects in Jefferson County are subject to transportation conformity requirements but do not require regional emissions analyses to comply with the conformity requirements. To comply with the NEPA and SEQRA, various air quality screening procedures, summarized below, were performed.

4.4.15.2 Transportation Conformity –

The project is classified exempt for transportation conformity purposes on the Watertown-Jefferson County Area Transportation Council (WJCTC) long range metropolitan transportation plan and Transportation Improvement Program (TIP). The conformity determination for the WJCTC TIP and long rage plan was adopted by the WJCTC on June 4, 2019 and approved by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) on August 22, 2019. The project's design scope and concept have not changed since the conformity determination was made.

4.4.15.3 Carbon Monoxide (CO) Microscale Analysis -

An air quality analysis for CO is not required since this project will not increase traffic volumes, reduce source-receptor distances by 10% or more, or change other existing conditions to such a degree as to jeopardize attainment of the National Ambient Air Quality Standards. The project does not require a project-level conformity determination.

4.4.15.4 Mesoscale Analysis -

A Mesoscale Analysis is not required for this project since it does not substantially affect air quality conditions over a large area and is not a regionally significant project.

4.4.15.5 Mobile Source Air Toxics (MSATs) Analysis -

A Mobile Source Air Toxics (MSAT) Analysis is not required for this project, since it is exempt under the Clean Air Act conformity rule under 40 CFR 93.126.

4.4.15.6 Particulate Matter (PM) Analysis -

A Particulate Matter (PM) Analysis is not required for this project since it does not substantially affect air quality conditions over a large area and is not a regionally significant project. As such, the project actions do not individually or cumulatively have a substantial effect on PM emissions. It can therefore be concluded that the project will have no adverse impact on ambient PM levels.

The air quality within the proposed roadway corridor may experience minor short-term impacts due to the construction of the project. During construction, airborne particulates will increase as dust is raised by construction vehicles in motion. This increase is expected to be sporadic and short-term in nature and will be most noticeable in the area immediately adjacent to the active construction work zone. The impacts will be minimized by the use of dust inhibitors in accordance with the NYSDOT Standard Specifications for construction.

4.4.16 Energy and Greenhouse Gases

Energy and greenhouse gas analyses are not warranted or required for this project since it would not substantially affect energy consumption or greenhouse gas emissions.

4.4.17 Noise

The proposed project is classified as a Noise Regulation Type 1 project under 23 CFR 772 since the project proposes to construct a new bridge on a new horizontal and vertical alignment which will be located closer to potentially noise sensitive developed receptors. Type 1 Noise Projects are projects that involve:

1. The construction of a highway on a new location; or,
2. The physical alteration of an existing highway where there is either:
    i. Substantial Horizontal Alteration. A project that halves the distance between traffic noise source and the closest receptor between the existing condition and the future build condition; or,
    ii. Substantial Vertical Alteration. A project that removes shielding, and therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a High Occupancy Vehicle (HOV) lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,
6. Restriping existing pavement for the purpose of adding a through-lane or an auxiliary lane; or,
7. The addition of a new/substantial alteration of weight station, rest stop, ride-share lot or toll plaza.

Specifically, this project meets requirements 1, 2(i), and 2(ii); therefore, a Noise Study was completed for the existing condition and for the preferred alternative build condition. The results of the Noise Study demonstrate that no significant increase in sound levels will occur at the nearest developed receptors due to the preferred alternative. All noise increases will be below the limits set forth as per 23 CFR part 772, Noise Abatement Criteria (NAC) and will not exceed the existing levels by 6 dBA or more; therefore, no mitigation measures are proposed. See ProjectWise for a copy of the Noise Study.

4.4.18 Asbestos

4.4.18.1 Screening -

An Asbestos Assessment Survey was conducted by Shumaker Consulting, Engineering, and Land Surveying, P.C. for the NYSDOT in April 2011, none of the samples collected from the existing bridge had a positive return for asbestos.

4.4.18.2 Mitigation Summary -

No asbestos was detected during previous assessments (included in ProjectWise). No mitigation will be required for this project.

4.4.19 Hazardous Waste and Contaminated Materials

4.4.19.1 Screening and Site Assessment -

A Hazardous Waste/Contaminated Materials Site Screening has been conducted in accordance with NYSDOT Environmental Procedures Manual, Chapter 5, in order to document the likely presence or absence of hazardous/contaminated environmental conditions. A hazardous/contaminated environmental condition is the presence or likely presence of any hazardous substances or petroleum products (including products currently in compliance with applicable regulations) on a property under conditions

that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.

The Hazardous Waste/Contaminated Materials Site Screening included a review of relevant, readily available and practically reviewable State and Federal regulatory environmental databases/records and a site 'walkover' conducted on September 30, 2019.

No hazardous waste/contaminated materials were identified within or adjacent to the project area during the course of the Hazardous Waste/Contaminated Materials Site Screening walkover. The above referenced *Fibermark DSI Inc*. state regulated facility is situated adjacent to the existing bridge north of Black River at NY Route 12E (Bridge Street) and NY Route 12E- however, the area is deed-restricted and limited to industrial use; therefore, project activities will not take place within the area in question. Based on the history/current regulatory status of *Fibermark DSI Inc*. and the scope of the proposed project, the potential risk for involvement with documented or undocumented inactive hazardous waste/contaminated materials during contract execution is low. Should contaminated soil be encountered, proper hazardous materials assessment should be conducted.

A copy of the September 26, 2019 EDR Radius Map Report and supplemental February 12, 2021 EDR Site Report are both available in ProjectWise.

4.4.19.2 Mitigation Summary -

No hazardous waste/contaminated materials were identified in the Hazardous Waste/Contaminated Materials Site Screening. No remediation activities are likely warranted for this project.

4.5 Construction Effects

4.5.1 Construction Impacts

Construction effects are expected as a result of this project including:

- Tree removals are required for this project
- Recreational river use may be disrupted during construction
- Construction work in vicinity of residences will be required with this project.
- Traffic will experience minor delays when intersections are constructed.

4.5.2 Mitigation Measures

- Trees will be removed during the winter hibernation season from October 1 to March 31 to protect federally listed, endangered/threatened bat species.
- Recreational kayaking will still be accommodated during construction to the greatest extent possible. However, it could be limited during the bridge construction.
- Coordination with property owners during construction will be required to reduce impacts/inconvenience.