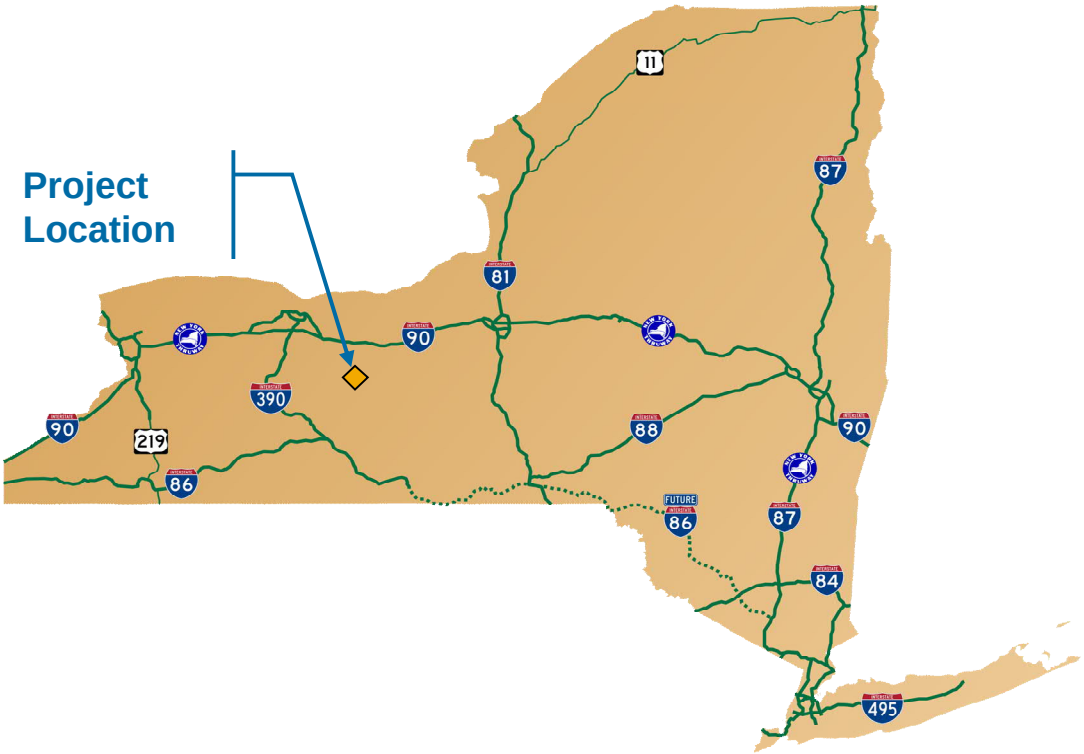
Transportation Project Report

[Draft] Initial Project Proposal/Final Design Report

January 2021

Tileyard Rd over Flint Creek Bridge Replacement
Project Identification Number (PIN): 4ON0.06
Bridge Identification Number (BIN): 3318320
Town Of Gorham
Ontario County



NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

Project Approval Sheet

Milestones	Signatures	Dates
A. IPP Approval:	The project cost and schedule are consistent with the Regional Capital Program. The IPP was signed by:	
	Kevin C. Bush, P.E. Kevin C. Bush, P.E. Regional Director, NYSDOT Region 4	5/5/2020 Date
B. Recommendation for Scoping, Design Approval:	The project cost and schedule are consistent with the Regional Capital Program.	
Environmental Determination & Federal Aid Process Concurrence:	The NYSDOT on behalf of the FHWA (based on the Federal Environmental Approval Worksheet) concurs with the classification of the project as a NEPA Call II, Categorical Exclusion (c list) as described in this document.	
	Christopher T. Reeve, P.E., Regional Planning & Program Manager, NYSDOT Region 4	Date
C. Recommendation for Scoping, Design, & Nonstandard Feature Approval:	Procedurally, the project was progressed using the NYSDOT Locally Administered Federal Aid Procedures Manual. All requirements requisite to these actions 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.	
	Mark R. Laistner, P.E., Director, Bridge Design, Popli Design Group	Date
D. Public Hearing Certification (23 USC 128):	A public hearing was not required. A project information brochure and slideshow were made available on the Ontario County web site.	
Nonstandard Feature Approval:	Nonstandard features have been appropriately justified and it is not prudent to eliminate them as part of this project.	
Scoping & Design Approval:	The required environmental determinations have been made, and the preferred alternative for this project is ready for final design.	
	William C. Wright, P.E., Commissioner of Public Works, Ontario County	Date

You may offer your comments by contacting:

Christopher D. Day P.E., Project Manager
Please include the six digit Project Identification Number (PIN) 4ON0.06
e-mail: christopher.day@co.ontario.ny.us
telephone: (585) 396-4282

Mailing Address:
Ontario County Highway Office
2962 County Road 48
Canandaigua

NY, 14424

List of Preparers

Group Director Responsible for Production of this Initial Project Proposal/Final Design Report (IPP/FDR):

Mark Laistner, P.E., Director of Bridge Design, Popli Design Group

Description of Work Performed:
Directed the preparation of the IPP/FDR in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

PLACE P.E. STAMP

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

1.1 PUBLIC FRIENDLY DESCRIPTION OF PROJECT

This project will replace the Tileyard Road Bridge over Flint Creek in the Town of Gorham, Ontario County. The new bridge will allow for full load capacity as well as accommodations for pedestrian and bicycle traffic.

1.2 PROJECT LOCATION

A. Route name: Tileyard Road
B. BIN (Bridge Identification Number) and feature crossed: 3318320 / Flint Creek
C. City/Village/Township: Town of Gorham
D. County: Ontario
E. Length: Bridge and approaches (approx. 900 ft to the east and west of the bridge)
F. Federal Aid System**:** Non-NHS
G. Functional Class: Rural Local
H. Existing AADT: 91
I. Trucks (%): 8%

1.3 PROJECT NEED

The project is needed to address the deficiencies that have reduced the service life of the bridge and to replace elements that no longer meet current standards. The existing bridge is nearing the end of its usable service life, with ongoing deterioration of the deck, girders, substructures and railing. In addition, the existing bridge does not provide 2-ft of freeboard, and at the 50-year design flood the water hits the steel girders.

The latest Biennial Bridge Inspection Report produced a NYS General Condition Rating of 4.0, which categorizes the existing bridge as “Deficient” according to the NYS definition of having a NYS Condition Rating of less than 5.

According to the AASHTO Manual for Bridge Element Inspection, a general definition for the different Condition States are as follows: CS-1 is “Good” condition; CS-2 is “Fair” condition; CS-3 is “Poor” condition; and CS-4 is “Severe” condition. The complete findings of the biennial inspection are contained in the *New York State Department of Transportation Bridge Inspection Report dated May 16, 2019* provided under separate cover.

Table 1.1 - Existing Characteristics of Concern

Element	Measure/Indicator			
BIN 3318320 (Overall)	NYS General Recommendation = 4.0 / 7.0 (2019)			
12 – Reinforced Concrete Deck	CS-1: 0%	CS-2: 0%	CS-3: 100%	CS-4: 0%
107 – Steel Open Girder/Beam	CS-1: 0%	CS-2: 55%	CS-3: 45%	CS-4: 0%
215 – Reinforced Concrete Abutment	CS-1: 0%	CS-2: 80%	CS-3: 20%	CS-4: 0%

Table 1.1 - Existing Characteristics of Concern				
Element	**Measure/Indicator**			
312 – Enclosed/Concealed Bearing *(Note: 80% of bearings are encased in concrete and are not visible)*	CS-1: 0%	CS-2: 0%	CS-3: 20%	CS-4: 0%
330 – Metal Bridge Railing	CS-1: 0%	CS-2: 40%	CS-3: 0%	CS-4: 60%
515 – Steel Protective Coating	CS-1: 0%	CS-2: 35%	CS-3: 30%	CS-4: 35%
850 - Backwall	CS-1: 0%	CS-2: 20%	CS-3: 80%	CS-4: 0%
851 – Abutment Pedestal	CS-1: 0%	CS-2: 70%	CS-3: 30%	CS-4: 0%
853 - Wingwall	CS-1: 0%	CS-2: 30%	CS-3: 70%	CS-4: 60%
Bridge Rail and Transitions	The existing bridge rail and transitions do not meet current standards.			
Hydraulics	The water elevation at the 50-year design storm impacts the existing bridge superstructure.			

Project Element(S) To Be Addressed:

☐ Highway Element-Specific
☐ Bridge Element-Specific
☒ Other: Bridge Replacement
☐ Operational Maintenance
☐ Where & When

Priority Results: ☒ Mobility & Reliability ☐ Safety ☐ Security ☐ Economic Competitiveness ☐ Environmental Stewardship

1.4 PURPOSE/OBJECTIVES

(1) Eliminate structural deficiencies and provide a safe crossing meeting current Federal, State and County standards using cost effective techniques to minimize the life cycle cost of maintenance and repair with a useful service life of at least 75 years.
(2) Improve safety by providing adequate accommodations for pedestrians and bicyclists.
(3) Improve the hydraulic performance of the structure to provide a minimum of 2-ft of freeboard at the 50-year design storm.
(4) Meet the objectives above in a socially, economically, and environmentally sensitive manner.

1.5 DESCRIPTION OF PROPOSED WORK

The following alternatives were considered for the project and are presented in this report:

Null or No Build Alternative: This alternative will result in the continued deterioration of the structure, resulting in increased maintenance and eventually requiring the structure to be closed to traffic. This alternative will not satisfy the project objectives and will be removed from further consideration.

Bridge Replacement – Under this alternative, the existing bridge will be removed and replaced with

a single-span steel multi-girder superstructure and reinforced concrete integral abutments founded on piles. The metalized steel girders would be approximately 90-ft from centerline of bearing/abutment to centerline of bearing/abutment. The fully integral abutment configuration would eliminate the need for deck expansion joints and girder bearings. The bridge would be constructed with a longer span than the existing 55-ft span bridge to increase the hydraulic opening, and the highway profile would be raised over the structure by approximately 2.75-ft to allow a minimum of 2-ft of freeboard at the 50-year design storm to be provided. The proposed bridge width would be 35'-4" out-to-out, to allow for two 11-ft travel lanes and two 5-ft shoulders.

Bridge replacement is the preferred alternative. This alternative is feasible and meets the project objectives.

2.1 DESIGN STANDARDS

Design Standards	
Project Type	**NYSDOT Design Guidance**
Bridge Replacement Projects	NYSDOT Bridge Manual & Highway Design Manual

See Table 2.2 – Critical Design Elements and Section 2.2 for additional information regarding design features of the project.

Critical Design Elements for Tileyard Road Bridge Replacement					
PIN	4ON0.06	**BIN** (if applicable)		3318320	
Functional Class:	Rural Local	**NHS**	☐	**Non-NHS**	☑
Design Class:	Local	**Context Class:**		Rural	
Project Type:	Bridge Replacement	**Terrain:**		Rolling	
Design Year AADT:	91	**Percent Trucks:**		8	
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[2]
1	Design Speed	55 mph[1] HDM Section 2.7.4.1.A	55 mph posted	55 mph
2	Lane Width	10 ft min.,11 ft max. BM Section 2.2.1 and Table 2-1	10 ft	11 ft
	Approach Lane Width		10 ft	11 ft
3	Shoulder Width	4 ft BM Section 2.2.1 and Table 2-1	0 ft **	5 ft
	Approach Shoulder Width		0 ft	4 ft
4	Horizontal Curve Radius	651 ft Min (at e_{max}= 8%) HDM Section 2.7.4.1.D	250 ft **	300 ft **
5	Superelevation	e_{max} = 8% HDM Section 2.7.4.1.E	Normal Crown **	Normal Crown **
6	Stopping Sight Distance (Horizontal and Vertical)	452 ft Min. HDM Section 2.7.4.1.F	175 ft **	215 ft ** (horizontal)
7	Maximum Grade	7% HDM Section 2.7.4.1.G	6.3%	6.3%
8	Cross Slope	1.5% Min., 2.5% Max. HDM Section 2.7.4.1.H	Varies 1% to 4%	2%
9	Vertical Clearance	14 ft Min.BM Section 2.3.1, Table 2-2	N/A	N/A
10	Design Loading Structural Capacity	NYSDOT LRFD Specifications AASHTO HL-93 Live Load & NYSDOT Design Permit Vehicle with LRFR 1.2 (min.) BM Sections 1.3 and 1.5	HS-20	HL-93 and NYSDOT Design Permit Vehicle
11	Americans with Disabilities Act Compliance[3]	HDM Chapter 18	No existing pedestrian facilities	Pedestrians will be accommodated on the 4 ft wide shoulders.

** Denotes non-standard feature

2.2 OTHER DESIGN PARAMETERS

Other Design Parameters			
Element	**Standard**	**Existing Conditions**	**Proposed Condition[1]**
Freeboard (BM 3.2.3.1)	2 ft for the 50-yr design storm	-1.09 ft	2.00 ft (min.)
Bridge Railing (BM 6)	BD-RS	Non-standard 2-rail with box beam guide rail attached	4-Rail Steel Bridge Rail

Hydraulics – A hydraulic analysis was performed to investigate the replacement of the Tileyard Road over Flint Creek structure. The Hydraulic Analysis utilized the US Army Corps of Engineers HEC-RAS 5.0.7 modelling software along with survey of the site, supplemented with Ontario County LiDAR data where necessary. Existing and proposed bridge models were created to compare the existing hydraulic conditions to the proposed conditions at the bridge.

Flow data for Flint Creek was determined using a TR-20 analysis using USGS StreamStats discharges. The discharges were increased by 10% to account for climate change adjustments. The FEMA Flood Insurance Study (FIS) for this area was also consulted, however the discharges from StreamStats were higher and therefore were used for the hydraulic analysis.

The proposed bridge increases the low chord elevation of the bridge and increases the waterway opening allowing for greater flow capacity at the bridge. As a result, the proposed Base Flood Elevations upstream of the bridge are reduced. The project meets the criteria of the local Floodplain Development Ordinance and Executive Order 11988.

The results of the analysis for both the existing and proposed conditions are contained in the memo entitled *Summary of Hydraulic Analysis for Tileyard Road Bridge over Flint Creek (BIN 3318320),* provided in Appendix D of this report.

Geotechnical – Soil borings were taken at the site to obtain the subsurface information needed for foundation design. Two holes were advanced to the underlying shale bedrock, which was encountered approximately 70 feet below the roadway surface. Boring logs and rock core data are included in Appendix D of this report.

2.3 NONSTANDARD/NONCONFORMING FEATURES

The following nonstandard/nonconforming roadway features are present within the project limits:

The existing bridge shoulder width of 0 ft does not meet the standard of 4 ft minimum.

The existing bridge rail and bridge rail transitions do not conform to the current NYSDOT guidelines for bridge rail and bridge rail transitions. The proposed alternative will utilize four-rail steel bridge railings and box beam guide rail transitions conforming to current standards.

The existing bridge's hydraulic freeboard of approximately -0.98 feet for the 50-year storm does not conform to the current NYSDOT requirement of 2 feet. The proposed bridge will have 2 feet (minimum) of freeboard for the 50-year storm.

The existing horizontal curve radius of 250 ft does not meet the standard of 651 ft minimum. The radius will be increased to 300 ft and will still be retained as a nonstandard feature.

The existing stopping sight distance of 175 ft does not meet the standard of 452 ft minimum. The stopping sight distance will be increased to 215 ft and will be retained as a nonstandard feature.

The existing superelevation is non-standard as the roadway has a normal crown. The normal crown will be retained over the proposed structure as a non-standard feature.

Non-standard feature justification forms are included in Appendix F.

2.4 SPECIAL TECHNICAL ACTIVITIES REQUIRED

There are no special technical activities as part of this project.

2.5 WORKZONE SAFETY AND MOBILITY

The Region has determined that this 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.

An off-site detour will be required to maintain traffic during construction. The shortest suitable detour utilizes Goose Street, Charlton Road, Old Mill Road and Mott Road and adds approximately 3.2 miles to the trip. Signs will be placed along the off-site detour in accordance with the NYSDOT Manual for Uniform Traffic Control Devices to guide the travelling public. See Appendix A for Detour Map.

2.6 ASSET MANAGEMENT

☐ Applies ☒ Not Applicable

2.7 POTENTIAL UTILITY INVOLVEMENT

☒ Yes ☐ No.

Potential Utility Impacts					
Owner	**Type**	**Location**	**Side**	**Length**	**Impact**
Frontier	UG Telecoms	North side of Tileyard Rd and in conduit on north fascia of bridge.	North	Within project limits	In conflict with construction of new bridge
NYSEG	OH Electric	South side of Tileyard Rd	South	Within project limits	May be in conflict with pile driving. Guy pole at Sta. 17+05 L in conflict with guiderail.

2.8 RIGHT OF WAY

The existing ROW on Tileyard Road is 66-ft wide within the project limits. It is anticipated that permanent easements will be required in the NE, SE and SW corners of the bridge to accommodate excavation and the proposed toes of slopes, and a permanent easement will be required in the NW corner to accommodate the required excavation. The proposed ROW acquisitions are anticipated to be de-minimus in nature and will not result in change of land use.

Anticipated Right-of-Way Acquisitions

Project Location	Reputed Owner	Type	Area to be Acquired (acres)	Total Parcel Area (acres)	Percent Acquisition (%)
Tileyard Road	John. R. Frey and Joanne A. Frey T.M. 130.00-1-13.1 L. 859 P. 1178	Permanent Easement	0.087	0.89	9.8
	Kimberlee J. Brown T.M. 130.00-1-12.00 L. 1186 P. 150	Permanent Easement	0.214	98.7	0.002
	Gordon E. Herod and Patricia H. Herod T.M. 130.00-1-44.200 L. 884 P. 728	Permanent Easement	0.050	15.8	0.030
	Hanson Land Holdings, LLC T.M. 130.00-1-11.000 T.M. 130.00-3-11.000 L. 1229 P. 588	Permanent Easement	0.008	17.6	0.004

3.1 ENVIRONMENTAL CLASSIFICATION

3.1.1 NEPA (National Environmental Policy Act):

This project is being progressed as a NEPA Class II action (Categorical Exclusion).

In accordance with the Federal Highway Administration's regulations in 23 CFR 771.117(c) this is an action which will not have significant environmental effects and does not normally require additional federal approval regarding NEPA. Specifically this action meets the description in 23 CFR 771.117(c)(28) described as "bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings" and meets the constraints listed in 23 CFR 771.117(e). This is further detailed in the Federal Environmental Approvals Worksheet (FEAW) included in Appendix B.

3.1.2 SEQRA (State Environmental Quality Review Act):

Ontario County is the SEQRA Lead Agency. Ontario County has classified this project as a SEQRA Type II Action in accordance with 6 NYSCRR 617.5. Additional information related to how the project meets the SEQR Type II criteria is included in Appendix B.

The following Checklist(s) are attached:

☒ Federal Environmental Approvals Worksheet (FEAW)

☒ Social, Economic and Environmental Resources Checklist

☒ Capital Projects Complete Streets Checklist

3.2 ENVIRONMENTAL DOCUMENTATION

The following section provides further information regarding the environmental resources that have been screened for further impacts. Additional documentation supporting these screenings can be found in Appendix B.

Neighborhoods and Community Cohesion
The project will require a temporary detour during construction. See Section 2.5 and Appendix A for a description of the detour. The impact will be temporary.

Community Services
The project will require a temporary detour during construction. See Section 2.5 and Appendix A for a description of the detour. The impact will be temporary. There are multiple routes available to the community and emergency personnel to gain access to homes near the anticipated road closure. The closure is not anticipated to impact response times.

Surface Waters
Flint Creek was determined to be the only regulatory waterway within the project area. Flint Creek is a mapped NYSDEC Class C stream according to the NYSDEC Environmental Resource Mapper.

The bridge construction work will require temporary and permanent impacts to the stream, as such it is anticipated that the proposed project will be authorized under a Section 404 Nationwide Permit and receive Blanket Water Quality Certification coverage from NYSDEC.

Floodplains
The project is located in a FEMA Special Flood Hazard Area, Zone A3 with a floodway. The area is depicted on FIRM 360301 0002/2B for the Town of Gorham, with an effective date of January 5, 1978. The Flood Insurance Study (FIS) indicates that the existing bridge passes the 50- and 100-year events without overtopping; however, both storms are passed under pressure flow.

A hydraulic analysis was conducted for the proposed bridge replacement. The proposed bridge increases the low chord elevation of the bridge and increases the waterway opening allowing for greater flow capacity at the bridge. As a result, the proposed Base Flood Elevations upstream of the bridge are reduced. The project meets the criteria of the local Floodplain Development Ordinance and Executive Order 11988. A No-Rise Analysis Report and a Floodplain Development Permit will be submitted to the Town of Gorham for approval.

Cultural Resources
The NYSDOT Regional Cultural Resource Coordinator completed a review of the Section 106 Project Submittal Package. BIN 3318320 has been previously evaluated and determined Not Eligible by the NYSDOT Historic Bridge Inventory, in consultation with the SHPO.

Based on the proposed scope of work, the project has no potential to cause effects on historic properties in accordance with 36 CFR 800.3(a)(1). There are no further obligations under

Section 106 of the National Preservation Act.

Asbestos
An asbestos screening was conducted on September 25, 2020. Asbestos containing materials were identified at locations on the bridge including joint fillers and paint. Asbestos abatement will be required for the demolition of the existing bridge.

3.3 ANTICIPATED PERMITS/CERTIFICATIONS/COORDINATION

Permits

New York State Department of Environmental Conservation (NYSDEC):

- Section 401 Water Quality Certification, Blanket Coverage

Army Corps of Engineers (USACE):

- Section 404/ Section 10 Nationwide Permit #3

Others

- Floodplain Development Permit (Town of Gorham)

Coordination

- New York State Department of Transportation Region 4
- New York State Historic Preservation Officer (SHPO)
- New York State Department of Environmental Conservation
- US Fish and Wildlife Services
- Ontario County
- Town of Gorham

3.4 NYS 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 was completed by the project Consultant on November 6, 2020 and reflects the current project scope.

4.1 FUNDING

FUNDING SOURCE: ☐ 100% State ☒ Federal

MPO INVOLVEMENT: ☐ No ☒ Yes
TIP Name: GTC TIP No.: B20-01-ON2

TIP AMENDMENT REQUIRED: ☒ No ☐ Yes; Needed by:

STIP STATUS: ☒ On STIP ☐ Not on STIP

4.2 COST AND SCHEDULE

☒ Public Meeting ☐ 4(f)/106 FHWA sign-off
☒ Permits ☒ Consultant for Design
☒ Other – ROW & utilities

Programmed Schedule and Cost				
Project Phase	**Activity Duration**	**Estimated Cost ($)**	**Fund Source**	**Obligation Date**
Design I-VI	30 months	0.274 M	STBG-OFF	May 2020
Construction	9 months	1.367 M	STBG-OFF	Oct. 2022
Construction Inspection	9 months	0.191 M	STBG-OFF	Oct. 2022
TOTAL ESTIMATED COST		**1.832 M**		

BASIS OF ESTIMATE: The above table shows the available funding for the project per the STIP. A detailed construction cost estimate is provided in another table later in this chapter.

PROGRAM DISPOSITION/LETTING: Scheduled for letting in SFY 2023

STATEWIDE SIGNIFICANCE: ☒ No Remarks:

Project Schedule	
Activity	**Date Occurred/Tentative**
Scope Approval	October 2020
Design Approval	March 2021
ROW Acquisition	October 2021
Construction Start	March 2023
Construction Complete	October 2023

Estimated Project Cost		
Activities		**Reasonable/Preferred Alternative**
Construction Costs	Bridge	$999,995
	Highway	$226,663
Mobilization (4%)		$49,066
Subtotal 1		$1,275,724
Contingency (10%)		$127,572
Subtotal 2		$1,403,297
Expected Award Amount		$1,403,297
Construction Inspection		$150,000
ROW Costs		$28,000
Total Alternative Costs		$1,581,297

An itemized construction cost estimate is included in Appendix D.

5.1 PUBLIC INVOLVEMENT

Notifications will be sent to public officials, emergency responders, schools, and other potential stakeholders regarding project information that will be published on the Ontario County web site.

Public Involvement Plan Schedule of Milestone Dates	
Activity	**Date Occurred/Tentative**
Publish project information on Ontario County web site	January 2021

Correspondence and comments received will be incorporated into this report and included in Appendix E.

6.1 LIST OF ATTACHMENTS / APPENDICES

APPENDICES	
A.	Location Map, Detour Map, Plans, Profiles and Typical Sections
B.	Environmental Information
C.	Traffic Information
D.	Structures Information • Cost Estimate • Subsurface Exploration • Hydraulic Analysis • Photographs of Existing Bridge
E.	Stakeholder and Public Input
F.	Miscellaneous • Non-Standard Feature Justification Forms

SEPARATE REPORTS
BIN 3318320 General Bridge Inspection Report, May 2019
Record Plans, Plans for Construction of County Bridge No. 33, Flint Creek, Town of Gorham, County of Ontario