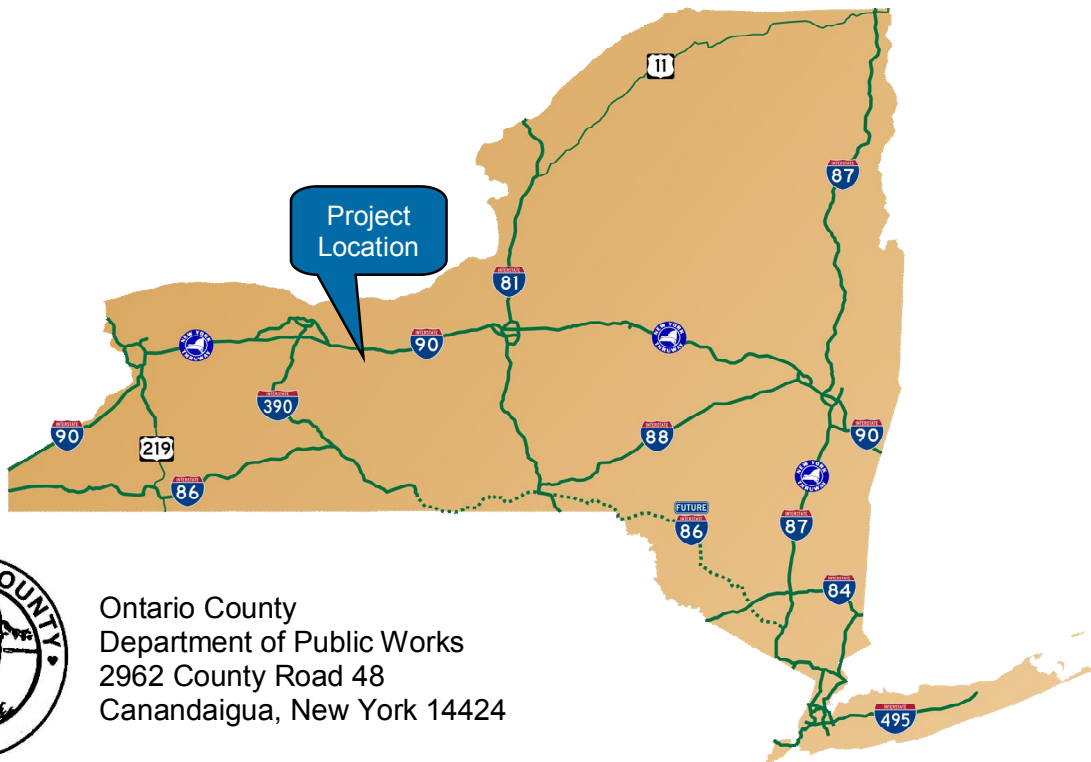


Transportation Project Report

DRAFT Design Report

March 2019

County Road 28 at Shortsville Road Intersection Improvement
PIN 4ON0.03
Town of Farmington
Ontario County



Ontario County
Department of Public Works
2962 County Road 48
Canandaigua, New York 14424



ANDREW M. CUOMO
Governor

Department of
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U.S. Department of Transportation
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Project Approval Sheet

<u>Milestones</u>	<u>Signatures</u>	<u>Date</u>
<p>A. IPP Approval:</p>	<p>The project is ready to be added to the Regional Capital Program and project scoping can begin. The IPP was approved by:</p> <p>Kevin C. Bush</p> <hr/> <p>Kevin C. Bush, Regional Director</p>	<p>11/16/17</p> <hr/> <p>Date</p>
<p>B. Scope Approval:</p>	<p>The project cost and schedule are consistent with the Regional Capital Program. The scope was approved by:</p> <hr/> <p>Kevin C. Bush, Regional Director</p>	<hr/> <p>Date</p>
<p>C. Categorical Exclusion Determination on Behalf of FHWA</p>	<p>This project qualifies as a Categorical Exclusion under the National Environmental Policy Act per the NYSDOT/FHWA Programmatic Agreement Regarding Categorical Exclusions.</p> <hr/> <p>Kevin C. Bush, Regional Director</p>	<hr/> <p>Date</p>
<p>D. Recommendation for Scope, Design, and Nonstandard Feature Approval:</p>	<p>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.</p> <p>The nonstandard features have been adequately justified and it is not prudent to eliminate them as part of this project.</p> <hr/> <p>Michael T. Croce, P.E. Senior Project Manager, Bergmann Associates</p>	<hr/> <p>Date</p>
<p>D. Public Hearing Certification (23 USC 128):</p>	<p>A public hearing was not required. A public information meeting will be held in March 2019.</p>	
<p>Local Project Nonstandard Feature Approval</p>	<p>No nonstandard features are proposed on Non-NHS local roadways.</p>	
<p>Local Project Scope and Design Approval</p>	<p>The required environmental determinations have been made, and the preferred alternative for this project is ready for final design.</p> <hr/> <p>William C. Wright, P.E. Commissioner, Ontario County Department of Public Works</p>	<hr/> <p>Date</p>

List of Preparers

Consultant Project Manager Responsible for Production of the Design Approval Document:

Michael T. Croce, P.E., Senior Project Manager, Bergmann Associates

Description of Work Performed by Firm: Directed the preparation of the Design Approval Document in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.



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.*

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CHAPTER 1 – PROJECT DEVELOPMENT

This report identifies the purpose and need for work at the intersection of County Road (CR) 28 and Shortsville Road along with its objectives and how they will be addressed. It also provides an assessment of the social, economic, and environmental impacts of the proposed action. The proposed project is located in the Town of Farmington, Ontario County, New York. The Project Identification Number (PIN) is 4ON0.03. This is a locally administered federal aid project.

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, and 23 CFR (Code of Federal Regulations) 771. Transportation needs have been identified (section 1.2.2), objectives established (1.2.3) to address the needs, and cost-effective alternatives developed (1.3). This project is federally funded.

1.1.1. Project Location

A Project Location Map is included as **Exhibit 1.2.1, Appendix A**. The following is a project location summary.

- (1) Route number: County Road (CR) 28
- (2) Route name(s): CR 28 and Shortsville Road
- (3) Municipality: Town of Farmington
- (4) County: Ontario
- (5) Limits: 750 feet east, 1,000 feet west, 750 feet south, and 1,250 north of the intersection.

1.2. Purpose and Need and Objectives

1.2.1. Project Need

CR 28 meets Shortsville Road at a skewed, 60° angle. All four approaches fall on tangent alignments and the intersection is elevated slightly above the surrounding terrain. Plantings in an agricultural field (southwest corner) and a residential home (southeast corner) prevent northbound drivers on CR 28 from seeing vehicles approaching on Shortsville Road. Similarly, an embankment and trees in Meeting House Park (northwest corner) and another residential house (northeast corner) make it difficult to see vehicles approaching on Shortsville Road from southbound CR 28. Intersection warning signs provide some notice on CR 28, but it can be difficult to locate the intersection on approach, particularly in the southbound direction. The intersection serves passenger cars, agricultural traffic, and a substantial number of heavy trucks. These factors are compounded by approach speeds near or in excess of the 55 mile per hour speed limit.

The intersection of CR 28 and Shortsville Road has experienced a high frequency of accidents. The accident rate is roughly 6 times the statewide average for rural a two-way, stop controlled, intersection. Accident severity is also a concern, with 11 of 22 accidents recorded during a 7-year study period involving injuries. The intersection has also been the site of two fatal accidents during that time. The predominant accident patterns involve right angle collisions. Typical causative factors include failure to yield the right of way. Contributing factors typically include failure to yield the right of way and failure to stop. As a result, this intersection presents a substantial ongoing safety concern.

1.2.2. Project Purpose

The purpose of this project is to enhance safety performance at the intersection of CR 28 and Shortsville Road.

1.2.3. Project Objectives

The objectives of the project are as follows:

- (1) Develop a design that incorporates effective crash reduction measures capable of addressing identified collision patterns and reducing the average annual accident rate to a level at or below the expected rate for similar locations throughout Ontario County and New York State.
- (2) Develop a treatment that encourages motorists to lower their travel speed on approach to the intersection, thereby decreasing the potential for a high severity crash.

1.3. Project Alternatives

The following alternatives were considered:

Alternative 1: No Action/Maintenance

Alternative 2: Incremental Signing and Pavement Marking Enhancements

Alternative 3: Multi-Way Stop Intersection Control

Alternative 4: Signalized Intersection Control

Alternative 5: Modern Roundabout

Alternative 1, The No Action / Maintenance Alternative or “null”, would retain two-way stop control at the intersection of CR 28 and Shortsville Road. No activities other than routine maintenance would be carried out. This alternative would not improve safety at the intersection. The null is retained only as a baseline for comparison and will not be discarded until a final decision is made regarding the selection of a build alternative.

Alternatives 2 through 4 were considered but eliminated from further study because they would not fully satisfy the project’s purpose and need nor meet the project objectives. Refer to **Section 3.1** for a discussion of these alternatives.

The feasible alternative is Alternative 5, which would convert the existing, four-legged, two-way stop-controlled intersection of CR 28 and Shortsville Road into a modern roundabout. The roundabout would feature an 18-foot wide circulatory roadway (striped to 16 feet wide) with an inscribed circle diameter of 140 feet. The roundabout would also feature a truck apron (for off-tracking by the rear wheels of turning tractor trailers) and a landscaped central island. All approaches would feature an elongated splitter island with a set of curves, each successively smaller as one approaches the circle. The purpose of the curvature would be to reduce vehicle speeds as they approach the roundabout from free flow conditions (higher than 55 miles per hour) to approximately 20 miles per hour or less by the time they reach circle.

The roundabout would physically eliminate left turns and crossing maneuvers, therefore mitigating documented accident patterns. A reduction in intersection approach speeds would also reduce the severity of any collisions that do occur. The design would provide adequate capacity to meet projected traffic demand throughout the year 2040 while also accommodating tractor trailer movements, buses, passenger cars, bicyclists, and the occasional pedestrian.

Drainage patterns around the intersection would remain consistent with those found today; however, improvements would be made to encourage more efficient flow and to prevent salt laden runoff from entering nearby agricultural parcels. All pavement within the project limits would be fully reconstructed. All

signs and markings would be upgraded to meet current standards. Several temporary and permanent easements would be required to construct and maintain the new intersection.

Refer to **Section 1.6** of this document for additional information on the anticipated cost and schedule. For a more in-depth discussion of the proposed improvements and detailed design criteria see **Section 3.2**. See **Section 3.3.3.2 (1)** for a summary of critical design elements that would not meet standards.

1.4 Project Effects

1.4.1 Environmental Classification

**Exhibit 1.4.1
Environmental Classification Summary**

NEPA Classification	Type II Categorical Exclusion	BY	NYSDOT	
SEQR Type:	Type II	BY	Ontario County	

NEPA: National Environmental Policy Act
 FHWA: Federal Highway Administration
 SEQR: State Environmental Quality Review

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1.4.2 Comparison of Considered Alternatives

Exhibit 1.4.2 Comparison of Alternatives		
Category	Alternatives Evaluated	
	Null	Alternative 5: Modern Roundabout
Environmental Impacts		
Wetlands	None	0.049 acres
Cultural Resources (Section 106)	None	TBD
Section 4(f)	None	TBD
Endangered/ Threatened Species	None	Not Likely to Adversely Affect the northern long eared bat
Noise	None	None
Social Impacts		
Property/Relocations	None	1.203 Acres PE 0.133 Acres TE
Visual	None	Negligible
Mobility (Pedestrian, bicycle, transit, etc.)	No Effect	Improved pedestrian and bicycle mobility
Environmental Justice	No Effect	No disproportionate high and adverse effects to minority or low-income populations
General Social Groups	No Effect	Beneficial impacts for elderly population and children's access to park
Crash Costs	High	Low
Economic and/or Operational Impacts		
Economic Impacts	No Effect	No change to vehicular access to businesses
Temporary Detours	No Effect	Travelers affected for 3 months
Intersection Control	Two-Way Stop	Modern Roundabout
Operation at ETC+20	LOS C or Better	LOS A (all approaches)
Pavement Condition	No Change	20 Year Surface Life 50 Year Overall Life
Drainage	No Change	Improved Flow
Utilities	None	Relocation required \$0.29M (Water)
Safety – Benefit / Cost Ratio	0	8.13
Construction Cost	None	\$2.339M

There are no mitigation measures proposed for this project (see **Chapter 4, Section 4.2.1.4**).

1.4.3 Anticipated Permits/Certifications/Coordination

Exhibit 1.4.3 Anticipated Permits/Certifications/Coordination	
<u>Permits</u>	
NYS Department of Environmental Conservation (NYSDEC):	
<ul style="list-style-type: none"> • State Pollutant Discharge Elimination System (SPDES) General Permit • Blanket Water Quality Certification (Section 401) of the FWPCA 	
Army Corps of Engineers (USACE):	
<ul style="list-style-type: none"> • Nationwide Permit #14 – Linear Transportation Projects 	
New York State Department of Transportation (NYSDOT):	
<ul style="list-style-type: none"> • Highway Work Permit 	
New York State Department of Health (NYSDOH):	
<ul style="list-style-type: none"> • Application for Approval of Plans for Public Water Supply Improvement (DOH 348) 	
<u>Coordination</u>	
Federal Highway Administration (via NYSDOT)	
New York State Historic Preservation Officer (SHPO) (via NYSDOT)	
US Fish and Wildlife Service	
New York Natural Heritage Program	
NYS Department of Agriculture & Markets	
Municipality(ies) – Town of Farmington	
Metropolitan Planning Organization – Genesee Transportation Council	
Utilities – Town of Farmington Water, RG&E, Windstream, Charter Communications	

1.5. Preferred Alternative

The reasonable and prudent alternative that best meets the project objectives is Alternative 5: Modern Roundabout. The decision to enter final design will not be made until after the environmental determination is finalized and a thorough evaluation of public and agency comments on the draft design approval document has been completed. See **Section 3.2.2** for a discussion of this alternative.

Design Approval is scheduled for April of 2019 with construction scheduled to last 9 months beginning in April of 2020.

For more detail on costs for each alternative refer to **Section 3.2.1**.

1.6. Project Schedule and Cost

Exhibit 1.6 - 1 Project Schedule	
Activity	Date Occurred/Tentative
Scoping Approval	November 2017
Public Information Meeting	April 2019
Design Approval	April 2019
Property Acquisition	Summer 2019
Letting (Bid Opening)	February 2020
Construction Start	April 2020
Construction Complete	October 2020

Exhibit 1.6 - 2 Project Costs – Design Bid Build		
Potential Alternative		Alternative 5: Modern Roundabout ¹
Highway		
Earthwork		\$139,200
Pavement and Subbase		\$972,222
Drainage		\$376,000
Landscape		\$80,000
Lighting		\$52,800
Water Main		\$286,565
Signs & Pavement Markings		\$34,530
Work Zone Traffic Control		\$50,000
Survey & Miscellaneous		\$53,000
Subtotal		\$2,044,317.00
Incidentals	0%	\$0
Contingency	10% ²	\$204,431.70
Subtotal		\$2,248,748.70
Field Change	0% ³	\$0
Subtotal		\$2,248,748.70
Mobilization	4%	\$89,949.95
Subtotal		\$2,338,698.65
Inflation/Escalation to Midpoint of Construction	0%	\$0
CONSTRUCTION COST^{4,5}		\$2,338,698.65
Final Design ⁶		\$112,000
QC & Administration of Final Design and Contract ⁶		\$262,000
Construction Inspection ⁷		\$19,000
Right-of-Way ⁸		\$19,000
TOTAL PROJECT COST		\$2,731,698.65
ROUNDED TO NEAREST \$10,000		\$2,730,000

Notes:

- Unit prices are in 2019 dollars.
- For unforeseen and untabulated items like restoration sawcutting, milling, joint adhesive, test pits, erosion & sediment control, stormwater treatment, shoulder backup, subbase daylighting, detectable warning units, miscellaneous landscaping, roadside ditching outside of cut/fill, guide rail, mailboxes, and asphalt/fuel price adjustments.
- Field Change Order would be 5% per the HDM Chapter 21 Section 21.4.3.3. Assume Field Change Order is included in the contingencies.
- Costs do not include any private utility relocations including overhead electric and telephone relocations. Reimbursable utility costs not anticipated for this project.
- Construction funding programmed in 2019-2022 GTC TIP at \$1,870,000. Ontario County is requesting additional funding or will be expected to cover project construction costs in excess of the GTC TIP value.
- Final design budget in the GTC TIP is \$112,000. Actual cost to be negotiated during scoping for final design phase service agreement.
- Construction inspection and support budget given in the GTC TIP is \$262,000. Actual cost to be negotiated during scoping for construction phase services agreement.
- ROW acquisition budget given in the GTC TIP is \$19,000. Actual cost pending appraisals.

1.7. Public Involvement

The intersection CR 28 and Shortsville road has been the site of numerous right-angle accidents resulting in personal injury. Two accidents within the last 7 years resulted in fatalities.

With the intent to improve safety at the intersection, an Initial Project Proposal (IPP) was drafted and approved in November 2017. The project was subsequently added to the Genesee Transportation Council (GTC) Transportation Improvement Program (TIP). Ontario County then began coordination with the Town of Farmington, who participated in the selection of a design team. Preliminary design began in the late spring of 2018. Utility coordination also began at that time and will continue throughout design. Coordination with the NYSDOT and other agencies is ongoing.

A series of one-on-one stakeholder meetings were held by Ontario County in early 2019. Ontario County representatives specifically reached out to local elected officials and affected property owners. A public information meeting is tentatively scheduled for March 2019. Project information will be made available for inspection by the public, a brief presentation will be given, and project representatives will be present to listen to comments and record additional input. A public comment period will follow. Comments received at the meeting and during the public comment period will be considered and addressed. Information from the public meeting and a summary of all comments received will be made available in **Appendix G**.

Exhibit 1.7 Public Involvement Plan Schedule of Milestone Dates	
Activity	Date Occurred/Tentative
Meetings with Stakeholders	January 2019 to April 2019
Meeting with Town of Farmington	January 2019
Public Information Meeting	April 2019
Current Project Letting	February 2020 (tentative)

For additional information or to provide comments, please contact:

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Please include the six-digit Project Identification Number (PIN) 4ON0.03 in any correspondence.

The deadline for submitting comments on this report circulation is April 12, 2019.

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 at the intersection of CR 28 and Shortsville Road.

2.1. Project History

In 2014, Ontario County Public Works updated its network screening of unsignalized, two-way stop-controlled intersections using the methods described in the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM). Data utilized covered a period from January 2010 to December 2014. At that time, the accident experience at the intersection of CR 28 and Shortsville Road was flagged as significant in comparison to other locations countywide.

A subsequent safety benefit evaluation completed for the period from January 2011 through March 2016 per New York State Department of Transportation (NYSDOT) procedures also suggested a significant accident experience. The calculated accident rate of 1.95 accidents per million entering vehicles (acc/mev) was 6 times higher than the average accident rate for similar locations statewide. Just over 75% of the accidents involved a right-angle collision. There were two fatal accidents and 6 injury accidents.

These accidents came despite tangent approaches, signs, and markings. Drivers reportedly fail to yield the right of way at the skewed, four-way intersection. The existing geometry includes a small hill just north of the intersection and trees, houses, and planted agricultural fields that limit available intersection sight distance on CR 28. Whether stopped motorists are misjudging the relatively high speed of approaching traffic or the length of available gaps, the result is often a serious injury crash. The intersection has also been the site of two fatal accidents.

With a desire to improve safety at the CR 28 and Shortsville Road intersection by reducing the number and severity of crashes, Ontario County sought and secured Highway Safety Improvement Program (HSIP) funding in 2016. The project was approved and added to the Genesee Transportation Council (GTC) 2017-2020 Transportation Improvement Plan (TIP). Design Phase Authorization was issued in November 2017 and preliminary design activities began in 2018.

Ontario County completed interim signing and striping improvements in summer 2018 using county forces and funding. This was done to satisfy public concerns and enhance short-term safety at the intersection while waiting for the larger project to be approved, designed, and constructed.

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 Town of Farmington’s local comprehensive plan as amended in 2011.

2.2.1.2. Local Private Development Plans

There are no planned or approved developments within the project area that would impact traffic operations at the intersection of CR 28 and Shortsville Road.

The South Farmington Cemetery Association has plans to renovate the existing, on-site chapel building. The goal is to make the building into usable meeting space for the cemetery association and to rent it out to community groups, families of those being buried, and the public. The Cemetery Association also purchased additional land to the east and south of the existing parcel and will be developing a plan for the allocation of future grave sites.

2.2.2. Transportation Corridor

2.2.2.1. Importance of the Project Route Segment

CR 28 travels north and south, connecting NY Route 332 in the City of Canandaigua with NY Route 31 in Wayne County, just east of the Village of Macedon. Shortsville Road travels east and west, connecting NY Route 332 (via a portion of CR 41) in the Town of Farmington's developing business center with NY Route 21 in the Village of Shortsville. CR 28 and Shortsville Road collect traffic from intersecting local roads and adjoining private properties and feed it to the connecting network of arterial roadways. Both roadways also accommodate commuter, residential, recreational, and agricultural traffic.

2.2.2.2. Alternate Routes

CR 8 (2.1 miles to the west) and NY Route 21 (2.4 miles to the east) are potential alternate routes for CR 28. Both connect NY Route 332 and NY Route 31.

A combination of Canandaigua-Farmington Townline Road, CR 28, Schoolhouse Road, Sand Hill Road, and Latting Road (0.8 miles to the south) could serve as a southern alternative to Shortsville Road. NY Route 96 (0.8 miles to the north) could serve as a northern alternative. Both routes connect NY Route 332 and NY Route 21.

2.2.2.3. Corridor Deficiencies and Needs

There are no elements within the corridor that limit mobility through the area. Intersection safety improvements are necessary to reduce the number and severity of crashes as outlined in **Section 2.3.1.8**.

2.2.2.4. Transportation Plans

This project is on the approved GTC TIP under PIN 4ON0.03. It is described as the CR 28 at Shortsville Road Intersection Improvement. Highway Safety Improvement Program (HSIP) funds have been programmed for design, construction, and property acquisition activities.

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

CR 28 is owned by Ontario County. It extends from NY Route 332 in the south to CR 312 (Alderman Road) at the Wayne County line. It is a two-way, two-lane rural minor collector roadway. The New York State statutory speed limit of 55 miles per hour applies. Travel lane and paved shoulder widths are typically 11 feet and 5 feet, respectively.

Shortsville Road is owned by the Town of Farmington. It begins at the intersection of CR 8 and CR 41 to the west and extends east to the Village of Shortsville. It is a two-way, two-lane rural local roadway with a combination of asphalt and gravel shoulders. The New York State statutory speed limit of 55 miles per hour applies. Lane and paved shoulder widths are typically 11 feet and 2 feet, respectively.

It's interesting to note that the intersection of CR 28 and Shortsville Road is the only location where Shortsville Road traffic must stop along the entire length of the roadway. Vehicles can start traveling on Shortsville Road at a roundabout located 2.2 miles west of the subject intersection, must stop at CR 28, and need not stop again until reaching a traffic signal at NY Route 21 in the Village of Shortsville.

Ontario County Public Works and the Town of Farmington Highway Department have each confirmed that there are no plans to reconstruct or widen these roadways within the next 20 years.

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)

Classification data for the roadways approaching the subject intersection are summarized in **Exhibit 2.3.1.1**.

Exhibit 2.3.1.1 CR 28 and Shortsville Road Classification Data		
Street Name	CR 28	Shortsville Road
Functional Classification	Rural Minor Collector	Rural Local Road
National Highway System (NHS)	No	No
Designated Truck Access Route	Yes	No
Qualifying Highway	No	No
Within 1 mile of a Qualifying Highway	No	No
Within the 16-foot vertical clearance network	No	No

2.3.1.2. Control of Access

There is no control of access along any approach roadways. Refer to **Section 2.3.3.1 (6)** for information on driveways within the project limits.

2.3.1.3. Traffic Control Devices

The intersection of CR 28 and Shortsville Road operates as a two-way stop. Stop signs (R1-1) are posted on both the eastbound and westbound (Shortsville Road) approaches. A stop sign is present on either side of the road on both approaches. Ontario County upgraded the stop signs with right-side, solar-powered, red, dual-flashing beacon assemblies and left-side, standard signs with red retro-reflective strips on the posts to enhance visibility in 2018 using county forces and funds. Additionally, stop ahead (W3-1) signs were upgraded on the eastbound and westbound approaches with right-side, solar-powered, amber, dual-flashing beacons and left side standard signs with yellow retro-reflective strips on the posts. There are advance intersection warning signs (W2-1) on the left and right sides of both the northbound and southbound (CR 28) approaches to the intersection. These were dual posted as part of the interim safety improvements. The existing 45 mile per hour advisory speed panels (W13-1P) were removed at that time. The warning sign posts include yellow retro-reflective strips to enhance visibility. There are street name signs (D3-1) for CR 28 and Shortsville Road in the southwest corner of the intersection.

Signs and sign posts within the project limits are in good condition based upon field inspection. Signs are also generally compliant with the National Manual on Uniform Traffic Control Devices, New York State

Supplement, and applicable revisions (MUTCD), except as follows: The street name signs have legends written in all capital letters. The stop ahead signs on Shortsville Road are located approximately 800 feet in advance of the stop line which exceeds the guidelines presented in the New York State Supplement. The advance intersection warning signs on CR 28 are located between 770 and 800 feet upstream of the intersection, also exceeding the guidelines presented in the New York State Supplement.

Pavement markings on CR 28 are in good condition based on field inspection. A double yellow (full barrier) line (prohibiting passing) separates traffic south of the intersection for approximately 645 feet. Passing is allowed in the southbound direction just south of the double yellow line. A double yellow line also prohibits passing in both directions for approximately 135 feet north of the intersection. Passing is allowed in the northbound direction just north of the double yellow line.

Pavement markings on Shortsville Road are in good condition based on field inspection. A yellow partial barrier line allows passing as one travels away from the intersection in both directions. There are also white stop lines on each Shortsville Road approach to CR 28. 24" stop bars were recently installed as part of the County's interim safety improvements.

2.3.1.4. Intelligent Transportation Systems (ITS)

There are no ITS systems in operation or planned for the project area.

2.3.1.5. Speeds and Delay

There are no speed limit signs within the project limits; therefore, New York State's statutory speed limit of 55 mph applies to all approach roadways as shown in **Exhibit 2.3.1.5**. Speed studies were conducted by Ontario County on all intersection approaches in May 2018. Speed data summaries are available in **Appendix C**. The 85th percentile speed is that speed at which or below 85 percent of all vehicles travel. The measured 85th percentile speed is higher than the posted speed limit of 55 mph on all approach roadways except westbound Shortsville Road. The results are summarized in **Exhibit 2.3.1.5**.

Exhibit 2.3.1.5 Speed Data				
Roadway (Approach)	CR 28 (South)	CR 28 (North)	Shortsville Road (West)	Shortsville Road (East)
Existing Speed Limit	55 mph	55 mph	55 mph	55 mph
85 th Percentile Speed	58 mph	63 mph	56 mph	53 mph

Note: Speed information given in the direction of travel approaching the intersection

2.3.1.6. Traffic Volumes

2.3.1.6. (1) Existing traffic volumes – Continuous 24-hour traffic volume counts were collected by Ontario County in May 2018. Two-way Average Daily Traffic (ADT) volumes for an average weekday (Tuesday through Thursday) were calculated from the data. Existing ADT volumes appear in **Exhibit 2.3.1.6 (1)-1**. Additional statistics are provided in **Exhibit 2.3.1.6 (1)-2**. Based upon field observation, no significant delays are currently experienced within the project limits; therefore, travel delay studies were not performed.

Exhibit 2.3.1.6 (1)-1 CR 28 and Shortsville Road Existing and Future Traffic Volumes				
Roadway (Approach)	CR 28 (South)	CR 28 (North)	Shortsville Road (West)	Shortsville Road (East)
Year	ADT	ADT	ADT	ADT
Existing (2018)	3660	3840	2140	2170
ETC (2020)	3740	3920	2190	2220
ETC+20 (2040)	4560	4780	2670	2710

Notes: 1. Refer to **Section 2.3.1.6. (2)** for growth rates.
 2. ETC is the Estimated Time of Completion

Exhibit 2.3.1.6 (1)-2 Traffic Composition Data				
Roadway (Approach)	CR 28 (South)	CR 28 (North)	Shortsville Road (West)	Shortsville Road (East)
Directional Split	50/50	51/49	53/47	59/41
% Trucks	8	15	8	8

Notes: 1. Splits and percentages are based on daily traffic
 2. Order of splits = EB/WB, SB/NB

Additionally, Ontario County conducted manual turning movement counts at the intersection of CR 28 and Shortsville Road. The traffic counts were collected on Thursday May 17, 2018 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. The weekday AM and PM peak hours at the intersection occurred from 7:00 AM to 8:00 AM and 4:30 PM to 5:30 PM, respectively. Count data and peak hour volume diagrams are contained in **Appendix C, Exhibit 2.3.1.6 (1)-3** through **Exhibit 2.3.1.6 (1)-5**.

2.3.1.6. (2) Future no-build design year traffic volume forecasts – The Estimated Time of Completion (ETC) is 2020. A design year of 2040 (ETC+20) was selected per Appendix 5 of the NYS DOT Project Development Manual. Traffic volume projections were completed for ETC (2020) and the design year ETC+20 (2040). A growth rate of 1.0% was calculated based on historic count information. This growth factor (annually compounded) was used to forecast ADT volumes for the years 2020 and 2040 which appear in **Exhibit 2.3.1.6 (1)-1**. ETC+30 projections were not required as this project does not involve a bridge or large culvert.

The growth rate described above was also applied to the weekday morning and evening peak hour volumes for ETC (2020) and ETC+20 (2040). Peak hour volume diagrams illustrating the ETC and ETC+20 projections are contained in **Appendix C**.

2.3.1.7. Level of Service and Mobility

2.3.1.7. (1) Existing level of service and capacity analysis – Level of Service (LOS) is a qualitative measure describing traveler satisfaction with various factors influencing the degree of traffic congestion including travel time, speed, maneuverability, and delay. The methodology for performing capacity analyses and determining level of service is documented in the Highway Capacity Manual, Sixth Edition: A Guide of Multimodal Mobility Analysis (HCM) (Transportation Research Board, 2016). Levels of service range from A to F. LOS A describes traffic operations with little or no delay while LOS F describes highly congested conditions with substantial delays. LOS D or better is generally considered acceptable for vehicular operations during peak traffic hours in urban areas. LOS C or better is desirable within Ontario County. Analyses (motor vehicle mode of travel) were completed using the Highway Capacity Software (HCS) for the unsignalized intersection of CR 28 and Shortsville Road. Copies of the analysis reports are provided in **Appendix C**.

Results of the level of service analyses for existing conditions during the weekday morning and evening peak hour periods are summarized in **Exhibit 2.3.1.7 (1)-1** and **Exhibit 2.3.1.7 (1)-2**. As shown, all stop controlled and critical movements (moves that must yield to oncoming traffic) currently operate at LOS B or better. The intersection is currently operating acceptably and has adequate capacity to serve all peak hour motor vehicle demand.

Exhibit 2.3.1.7 (1)-1 Morning Peak Hour Level of Service and Delay Existing and No Build Conditions									
Intersection	Approach	Movement	Control	2018 Existing		2020 No-Build		2040 No-Build	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
CR 28 / Shortsville Road	Northbound	Left	YIELD*	7.7	A	7.7	A	7.9	A
	Southbound	Left	YIELD*	7.5	A	7.5	A	7.6	A
	Eastbound	Left/Thru/Right	STOP	14.6	B	14.8	B	17.9	C
	Westbound	Left/Thru/Right	STOP	13.7	B	13.8	B	16.4	C

* - Movement has no sign control, however, left turns must yield to oncoming traffic when present.

Exhibit 2.3.1.7 (1)-2 Evening Peak Hour Level of Service and Delay Existing and No Build Conditions									
Intersection	Approach	Movement	Control	2018 Existing		2020 No-Build		2040 No-Build	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
CR 28 / Shortsville Road	Northbound	Left	YIELD*	7.5	A	7.5	A	7.6	A
	Southbound	Left	YIELD*	7.7	A	7.7	A	7.8	A
	Eastbound	Left/Thru/Right	STOP	13.6	B	13.7	B	16.3	C
	Westbound	Left/Thru/Right	STOP	13.2	B	13.3	B	15.7	C

* - Movement has no sign control, however, left turns must yield to oncoming traffic when present.

2.3.1.7. (2) Future no-build design year level of service – Level of service analyses were also completed for future no-build conditions at ETC (2020) and ETC+20 (2040). They are summarized in **Exhibit 2.3.1.7 (1)-1** and **Exhibit 2.3.1.7 (1)-2**. According to the projected future no-action analyses, all intersection approaches would experience negligible, if any, increases in delay. Both intersections are projected to have adequate capacity to meet the anticipated demand with acceptable levels of service throughout the design year (2040).

2.3.1.8. Safety Considerations, Accident History and Analysis

An accident analysis was performed in accordance with the NYSDOT Highway Design Manual Chapter 5, Section 5.3.

For this project, accident reports were compiled from New York State Accident Location Information System (ALIS) data. New York State Department of Motor Vehicles (NYSDMV) Police Accident Reports (MV-104A forms) were also obtained by Ontario County covering a five-year and two-month period from January 1, 2011 to March 31, 2016. There are no high accident locations (HALs), no Priority Investigation Locations (PILs), Safety Deficient Locations (SDLs), or Priority Investigation Intersections (PIIs) within the study area as those designations are made by the NYSDOT for state highways.

A total of 17 intersection-related collisions occurred over the five-year and two-month period from January 2011 to March 2016. Injuries resulted from 7 of the 17 accidents. Two resulted in a fatality. The predominant collision pattern (13 of 17) involved right angle crashes. The calculated average annual accident rate per million entering vehicles (ACC/MEV) is 1.95 ACC/MEV, which is 6 times higher than the regional 0.33 ACC/MEV threshold. Non-reportable accidents were not included in the accident rate calculation.

As stated above, 76% of the accidents were right angle collisions. Contributing factors typically included failure to yield the right of way and failure to stop. Several accident reports suggested that drivers on Shortsville Road stopped but then failed to notice an approaching vehicle and pulled into the intersection to generate the conflict. Time of day and roadway surface conditions did not appear to be contributing factors. Field observations confirm sight restrictions, resulting from a roadside embankment, mature trees, and adjacent residential homes. The intersection also appears hidden from the perspective of southbound drivers on CR 28 approximately 700 to 800 feet north of Shortsville Road. Relatively high northbound and southbound approach speeds may be complicating gap selection for eastbound and westbound drivers and contributing to the documented accident pattern.

More recent accident data covering a two-year period from April 1, 2016 to December 31, 2017 were also obtained by Ontario County. During this period, a total of 5 reportable intersection-related collisions occurred with 4 resulting in injury. All 5 accidents were right angle crashes with failure to yield the right of way as a contributing factor. This validates the earlier study and suggests there has been no change to the accident pattern or contributing factors.

A table summarizing the 22 intersection accidents is included in **Appendix C**. A collision diagram is also included in **Appendix C**.

2.3.1.9. Existing Police, Fire Protection and Ambulance Access

The Ontario County Sheriff's Office routinely passes through the project area. Their headquarters is in Canandaigua, which is approximately 3.7 miles south of the intersection. New York State Police, Troop E, also uses roadways within the project area. Their headquarters is located approximately 4.3 miles away on NY Route 332, north of Canandaigua.

Shortsville Fire and Ambulance provide primary coverage to properties at the subject intersection. Their facility is located on Sheldon Street approximately 3 miles east of the intersection in the Village of Shortsville. Victor-Farmington Ambulance, which is on East Victor Road approximately 6 miles west of the site, also passes through the intersection.

2.3.1.10. Parking Regulations and Parking Related Conditions

There are no areas regulated by parking restrictions within the project limits.

2.3.1.11. Lighting

There is no street lighting within the project limits.

2.3.1.12. Ownership and Maintenance Jurisdiction

Ontario County owns and maintains CR 28. The County has a contract with the Town of Farmington for snow and ice control services. Basic services provided under the contract include: snow watch and dispatching; purchase, storage and application of salt and abrasives from Town stockpiles; snow plowing and wingback work; field supervision of salting and plowing activities; and observance of customary practice for correction of snow plow damage. Shortsville Road is owned and maintained by the Town of Farmington. The existing maintenance jurisdiction within the project limits is summarized in **Exhibit 2.3.1.12**.

Exhibit 2.3.1.12 Existing Maintenance Jurisdiction							
Part No.	Highway	Limits	Feature(s) being Maintained	Centerline (mile)	Lane (mile)	Agency	Authority
1	CR 28	750 feet south of Shortsville Road	Pavement, drainage, landscaping, signs, and pavement markings	0.14	0.28	Ontario County	Highway Law Section 129
2	CR 28	1200 feet north of Shortsville Road	Pavement, drainage, landscaping, signs, and pavement markings	0.23	0.46	Ontario County	Highway Law Section 129
3	Shortsville Road	1000 feet west of CR 28	Pavement, drainage, landscaping, signs, and pavement markings	0.19	0.38	Town of Farmington	Highway Law Section 10 Subdivision 25
4	Shortsville Road	750 feet east of CR 28	Pavement, drainage, landscaping, signs, and pavement markings	0.14	0.28	Town of Farmington	Highway Law Section 10 Subdivision 25

2.3.2. Multimodal

2.3.2.1. Pedestrians

There are no separate pedestrian facilities or provisions within the project limits and no signs of frequent pedestrian activity. There is low-density residential development in the project area that generates infrequent pedestrian travel. Pedestrian trips that do exist are anticipated to be primarily recreational trips without a specific destination along with some residence to residence travel. There are no plans for substantial generators of pedestrian traffic within or adjacent to the project limits. The occasional pedestrian may legally use the paved shoulder per the provisions of NYS Vehicle and Traffic Law Section 1156(b). A Capital Projects Complete Streets Checklist is contained in **Appendix C**.

2.3.2.2. Bicyclists

There are no separate provisions for bicyclists along any of the roadways within the project limits. Bicyclists share the road with motor vehicles or may legally use the paved shoulder where available. The existing level of and potential for bicycling is characterized as low due to the rural nature of the project area. There are generators of infrequent bicycle traffic within and near the project limits, such as residential homes. The route is not a designated bicycle route.

2.3.2.3. Transit

There are no transit providers operating within the project limits.

2.3.2.4. Airports, Railroad Stations, and Ports

There are no airports, railroad stations or port entrances within or in the vicinity of the project limits. No conflicts exist with the flight paths of aircraft.

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

There is a vehicular entrance to Meeting House Park located within 60 feet of the western edge of CR 28. The entrance is approximately 40 feet wide and paved with gravel. The Town of Farmington Highway Department had considered paving the entrance in the past to create a more hospitable parking area; however, that action has been postponed allowing for coordination with this project.

2.3.3. Infrastructure

2.3.3.1. Existing Highway Section

Existing features within the project corridor appear on the typical sections, plan, and profile sheets contained in **Appendix A**.

2.3.3.1.(1) Lane and Shoulder Widths -

Travel lane and shoulder widths along CR 28 and Shortsville Road are summarized in **Exhibit 2.3.3.1 (1)**. Shoulders are paved with asphalt. The presence, condition, and width of stabilized shoulder backup material (e.g. crushed stone or compacted millings) varies throughout the project limits and in some areas, is missing. Shoulder edge drop-offs exist along portions of CR 28. Shoulders are generally flush with the backup material along Shortsville Road adjacent to the intersection.

Exhibit 2.3.3.1 (1) Lane and Shoulder Widths		
Street Name	CR 28	Shortsville Road
Travel Lane Width	11 feet typical, 12 feet (see Note 1)	11 feet
Shoulder Width	5 feet typical, 6 feet (see Note 1)	2 feet

Notes: 1. Within limits of 2006 Reconstruction. Wider shoulders and travel lanes extend approximately 500 feet north of CR 28's intersection with Shortsville Road.

2.3.3.1.(2) Horizontal Alignment -

Intersection approach roadways are generally straight (on a tangent alignment) within the project limits. There is a horizontal curve on CR 28 approximately 0.6 miles south of the intersection. There are horizontal curves on Shortsville Road approximately 0.5 miles west and 0.3 miles east of the intersection.

2.3.3.1.(3) Vertical Profiles -

All approach roadway profiles generally follow the level terrain found throughout the project limits. There is a 200-foot long vertical crest curve on CR 28 located approximately 900 feet south of the intersection with a 1.18% grade up from the south and a 0.94% grade down to the north. Heading from south to north, there is a short sag vertical curve just south of the intersection with Shortsville Road, leading into a 0.31% upgrade. From there, a 700-foot long crest vertical curve located approximately 323 feet north of the intersection. There is a 1.90% downgrade from that point north. The final sag vertical curve on CR 28 within the project limits is approximately 600-feet long and is located approximately 900 feet north of the intersection. The exit grade is 0.92%.

On Shortsville Road, starting at the western project limits, there is a crest vertical curve with an approximate 1.0% downgrade leading into the intersection with CR 28. Immediately east of the intersection, there is a small sag vertical curve prior to heading into a long ~0.5% upgrade to the eastern project limits.

2.3.3.1.(4) Intersection Geometry -

CR 28 and Shortsville Road intersect at a skewed (approximately 60°) angle. All intersection approaches consist of a single inbound lane and a single departure lane. There are no exclusive turn lanes. Relatively wide pavement aprons exist in the northwest and southeast corners of the intersection to accommodate turning trucks and buses.

2.3.3.1.(5) Roadside Elements -

Roadside elements include wooden utility poles, traversable granite curb, drainage ditches, and roadside embankments. The existing clearance from the edge of the travel lane to the face of utility poles is generally 12 feet or more. The locations of utility poles are shown on the plans in **Appendix A**. Other notable roadside elements include:

- A large, mature willow tree located immediately behind the southern ditch line of Shortsville Road approximately 130 feet east of the intersection;
- A stand of mature pine trees at the top of the western embankment along CR 28 in Meeting House Park between approximately 100 and 300 feet north of the intersection;
- Traversable granite curb along both the east and west sides of CR 28 for 750 feet north of the intersection;
- A 65-foot long segmental block retaining wall in front of the house at 1561 CR 28 located approximately 130 feet north of the intersection; and
- An existing Town of Farmington Water Department vault located approximately 75 feet south of the intersection along the west side of CR 28.

Other roadside areas are typically bordered by agricultural fields that are planted and rotated seasonally. The accident analysis summarized in **Section 2.3.1.8** revealed no patterns of accidents involving fixed objects along the roadside.

2.3.3.1.(6) Driveways -

Driveways within the project limits include the following:

Exhibit 2.3.3.1 (6) Driveway Summary				
Address / Location	Side	Apron Material	Function	Comments
1593 CR 28	East	Asphalt	Residential	
1561 CR 28	East	Asphalt	Residential	
1561 CR 28	East	Asphalt	Residential	
CR 28	East	Asphalt	Agricultural Access	
Shortsville Road	North	Gravel	Recreational Access	Meeting House Park
4899 Shortsville Road	South	Gravel	Cemetery Access	South Farmington Cemetery

Most of the driveways are generally in conformance with the written requirements specified in the NYS DOT Policy and Standards for the Design of Entrances to State Highways. The access to Meeting

House Park in the northwest corner of the intersection is approximately 35 feet wide and its closest edge is approximately 58 away from the edge of the southbound travel lane on CR 28. This access is closer to CR 28 than recommended by the NYSDOT Policy and Standards for the Design of Entrances to State Highways. Based on field observations, local farmers also access properties north and south of Shortsville Road, east and west of CR 28, directly from the shoulder without a formal access drive.

2.3.3.2. Geometric Design Elements Not Meeting Minimum Standards

Existing geometric elements were compared with the minimum standards used by the NYSDOT to make capital infrastructure improvements. This review helps ensure that project objectives and feasible alternatives consider key deficiencies. The relationship of features not meeting standards to the accident history is noted in **Section 2.3.3.2 (1)**.

2.3.3.2.(1) Critical Design Elements – Critical design elements are compared with the minimum design criteria for capital improvements. Any critical design element that fails to meet the minimum design standards is considered a “non-standard” feature and should be evaluated for remediation and mitigation. Non-standard features were identified based on the maximum allowable design speed for the roadway’s functional class and are summarized in **Exhibit 2.3.3.2 (1)**. This is supported by studies summarized in **Section 2.3.1.5**, which show that current operating speeds exceed the speed limit.

Exhibit 2.3.3.2 (1) Existing Nonstandard Features					
Critical Design Element	Operating Speed(s) ²	Standard ¹	Existing Condition	Adverse Accident History? (Yes/No)	Remarks
Lane Width: CR 28	58 to 63 mph	12 ft	11 ft	No	Accident rate is greater than state wide average. Lane width is not related to the accident experience.
Shoulder Width: CR 28	58 to 63 mph	6 ft	4 ft min. 5 ft max.	No	
Shoulder Width: Shortsville Road	53 to 56 mph	6 ft	4 ft	No	
Lane Cross Slope: CR 28	58 to 63 mph	1.5 min. / 3% max.	Varies from 2% to 4.5% max	No	
Lane Cross Slope: Shortsville Road	53 to 56 mph	1.5 min. / 3% max.	Varies from 1.5% to 5.0% max	No	

Notes: 1. Minimum standards based on NYSDOT HDM Chapter 7, Rural, Non-Freeway 3R standards.
 2. Design speed of 60 miles per hour (mph) for CR 28 and 55 mph for Shortsville Road was selected for determination of non-standard features based on operating speeds / 85th percentile speed. Refer to **Section 2.3.1.5**.

2.3.3.2.(2) Other Design Parameters - Design parameters that are not critical design elements but depart from typical design practice are identified as non-conforming features. These features can have a considerable effect on operational efficiency and safety. Existing non-conforming features within the project limits are described below.

Crest Vertical Curve Length – Based upon record plans, the crest vertical curve at the southern project limit has a length less than the recommended minimum stopping sight distance. Reviewing the stopping sight distance in the field, it is adequate. The minimum stopping sight distance is desired for appearance and comfort, however not meeting this guidance is not atypical for rural roads.

Intersection Sight Distance – Based on visual inspection, eastbound intersection sight distance is limited to the north by the roadside embankment and mature trees in and adjacent to Meeting House Park. Additionally, during the summer months, sight distance is often further limited to the north by roadside vegetation. Westbound intersection sight distance is limited to the north by the adjacent residential home.

Guide Rail – Existing box beam guide rail in the southwest corner has end sections that are no longer approved for use.

Clear Zone – Based upon a field review, utility pole offsets from the edge of traveled way vary throughout the project limits and define the operational clear zone. Utility pole offsets from the edge of the traveled way are as follows:

- CR 28 - Approximately 15 feet
- Shortsville Road – Approximately 12 feet

The clear zone at the intersection of CR 28 and Shortsville Road is limited by the box beam guide rail in the southwest corner, which is approximately 6 feet from edge of the traveled way.

Centerline Audible Roadway Delineators (CARDS) – CR 28 and Shortsville Road do not have CARDS installed along the roadway centerline. CR 28 is of sufficient width and traffic volume per the guidance provided in NYSDOT Engineering Instruction EI 13-021 to have CARDS installed. It is not standard practice for Ontario County to install CARDS along its roadways.

2.3.3.3. Pavement and Shoulder

CR 28, along with the intersection at Shortsville Road, was originally constructed in its current form in 1967. The pavement was last chip sealed in June 2018 and at periodic intervals before that according to Ontario County's pavement history maintenance reports. Prior to the chip seal treatment, the pavement surface appeared in good condition based on field observation, showing some signs of longitudinal cracking along the shoulder and minor rutting in the travel lanes. Signs of shoulder pavement repairs (asphalt shimming) were also visible. In 2006 Ontario County completed a project to lower the profile of CR 28 within 750 feet of Shortsville Road to improve sight distance. That project involved full depth reconstruction of the asphalt pavement and resurfacing of the remaining intersection approaches.

Shortsville Road's pavement surface is also in good condition based on field observation, showing signs of periodic oil and stone surface treatments.

A series of 17 test borings were taken by Ontario County at the intersection of CR 28 and Shortsville Road in 2005, in preparation for the 2006 reconstruction project. Fifteen of the 17 borings included roadway cores to examine the existing pavement structure.

Pavement thicknesses in CR 28's travel lanes range from 4.5 inches to 6.5 inches. Shoulder thicknesses range from 1.25 to 4.5 inches. Record plans for the 2006 reconstruction of CR 28, north of Shortsville Road, indicate a 9.5-inch pavement section was constructed on 6 inches of subbase. Cores taken from Shortsville Road, east and west of CR 28, revealed 3 to 5 inches of asphalt pavement. All core samples showed the existing pavement structure to be in relatively good condition, with adequate bonding between the individual asphalt layers.

A Pavement Evaluation and Treatment Selection Report (PETSRS) is included in **Appendix D**. Pavement core logs are included in **Appendix E**.

2.3.3.4. Drainage Systems

The existing drainage system primarily involves sheet flow that drains into open roadside ditches and underground cross culverts of varying sizes and materials. Based upon visual inspection, the existing ditches and pipes are in fair to good condition. Flow in open ditches is typically impeded by relatively flat grades.

South of the intersection, sheet flow from CR 28 drains toward a cross culvert just south of Shortsville Road. North of the intersection, CR 28 sheet flow is collected by drainage ditches on either side of the road that flow north to an unnamed tributary creek. Shortsville Road runoff, west of the intersection,

travels in shallow roadside ditches toward the intersection. In some cases, sheet flow can also be deposited directly into the adjacent agricultural properties. East of the intersection, Shortsville Road sheet flow is collected in roadside ditches and travels west toward the intersection.

Sheet flow captured in roadside ditches along the south, west, and east approaches is conveyed around the intersection by a combination of closed and open systems to the northeast quadrant. Aerial photography suggests flow is then carried to the northeast, though a meandering swale across adjacent farmland, eventually reaching the same unnamed tributary creek that crosses CR 28 at the project area's northern limit. Water often ponds in the low points and roadside ditches, particularly during the spring and fall, in the southwest, southeast, and north east quadrants. Ponding also occurs in the adjacent agricultural fields.

The closed system mentioned above consists of an existing 3-foot by 3-foot square drainage inlet that captures runoff in the northwest corner of the intersection. Water in that structure, and from the driveway culvert beneath the Meeting House Park driveway, drains south across Shortsville Road in an 18-inch reinforced concrete pipe (RCP) to the southwest corner. From there, flow is carried across CR 28 in another 18-inch RCP which outlets to a ditch in the southeast corner of the intersection. Flow is then carried east in a roadside ditch to an 18-inch HDPE pipe cross culvert located approximately 120 feet east of the intersection, conveying the flow to the northeast quadrant.

2.3.3.5. Geotechnical

A series of 17 test borings were taken by Ontario County at the intersection of CR 28 and Shortsville Road in 2005 in preparation for the 2006 reconstruction project. The geotechnical evaluation report and boring logs are included in **Appendix E**. Subgrade soils generally consisted of brown to reddish-brown silt, silt and sand, and silt and clay/clayey silt. The soils were generally found to be moist. Ground water was not encountered within the boring depths of 6 to 10 feet, although it was anticipated that it could be encountered at depths beyond 10 feet and be subject to seasonal variation. No bedrock was encountered; however, Ontario County and the Town of Farmington have anecdotally noted the presence of shallow bedrock along the northern approach. Ontario County plans additional borings to assess the potential for encountering bedrock in the spring of 2019. No special geotechnical concerns were noted within the project area and the underlying soils were deemed suitable for roadway construction.

2.3.3.6. Structure

There are no bridges within the project limits.

2.3.3.7. Hydraulics of Bridges and Culverts

There are no bridges or culverts over waterways within the project limits. There are no dams in the vicinity of the project that would be adversely affected.

2.3.3.8. Guide Railing, Median Barriers and Impact Attenuators

A summary of the existing guide railing within the project limits is provided in **Exhibit 2.3.3.8**.

Exhibit 2.3.3.8 Existing Guide Railing			
Type	Location/Side	Length	Condition
Box Beam	Southwest corner of the CR 28 and Shortsville Road intersection	190 ft	Good condition overall. Run includes a Type I end section at either end. These are no longer approved for use in new construction projects in New York State. Protects a 4-foot high 1:3 slope and existing pressure reducing valve vault.

2.3.3.9. Utilities

Utilities within the project limits include underground water mains. There are also overhead electric, telephone, and cable suspended from utility poles. The existing utilities within the vicinity of the project limits are described in **Exhibit 2.3.3.9**.

Exhibit 2.3.3.9 Existing Utilities		
Owner	Type	Location/Side
Town of Farmington	Water	West side of CR 28 throughout the project limits. North side of Shortsville Road, west of CR 28. Crossing of CR 28 along the north side of Shortsville Road, dead ends on east side. Existing pressure reducing valve vault along the west side of CR 28, south of Shortsville Rd.
RG&E	Electric	<u>Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the project limits. North side of Shortsville Road throughout the project limits.
Windstream	Telephone	<u>Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the project limits. North side of Shortsville Road throughout the project limits.
Charter Communications	Fiber Optic	<u>Proposed Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the northern project limits. North side of Shortsville Road, west of CR 28.

2.3.3.10. Railroad Facilities

There are no railroads within the project limits and no at-grade crossings within ½ mile that could impact traffic conditions.

2.3.4. Potential Enhancement Opportunities

This section focuses on the existing areas to identify potential enhancement opportunities related to the project and to help avoid and minimize impacts. Chapter 4 focuses on the impacts, enhancements, and mitigation.

2.3.4.1. Landscape

2.3.4.1. (1) Terrain - The terrain within the project limits is classified as level per Section 2.5.2 of the NYSDOT Highway Design Manual.

2.3.4.1. (2) Unusual Weather Conditions - There are no unusual weather conditions within the project area that would affect the design and construction of this project. Snow and ice events experienced within the project limits during the winter months are typical of New York State. The Town of Farmington noted drifting snow can hinder sight lines to the north for vehicles stopped on Shortsville Road.

2.3.4.1. (3) Visual Resources - Land uses within and around the project limits are residential, agricultural, and recreational. There is one residential structure located along the east side of CR 28, north of the intersection. There is another residential structure located along the east side of CR 28, south of the intersection. Both homes generally have large, mature trees located alongside and behind the houses. Meeting House Park is located in the northwest corner of the intersection and is home to a stand

of large, mature pine trees. South Farmington Cemetery is located approximately 650 feet west of the intersection on Shortsville Road. The remaining properties within and around the project limits are open fields for agricultural use. The surrounding terrain can be characterized as primarily level to rolling, therefore sight lines are generally open between all surrounding land uses except as blocked by trees.

2.3.4.2. Opportunities for Environmental Enhancements

Practical opportunities for environmental initiative actions that could be considered in conjunction with this project include enhanced landscaping and the construction of a new entrance and parking area for Meeting House Park.

2.3.5. Miscellaneous

None.

CHAPTER 3 – ALTERNATIVES

This chapter discusses the alternatives considered for the CR 28 and Shortsville Road Intersection Improvement project (hereafter “the project”) and examines the engineering aspects for alternatives that were determined to be feasible and practical to address the project objectives in **Chapter 1** of this report.

3.1. Alternatives Considered and Eliminated from Further Study

Alternative 1: No Action/Maintenance

The No Action/Maintenance or “null” alternative would retain the existing conditions at the intersection of CR 28 and Shortsville Road with no improvements other than routine maintenance activities. This would not improve vehicular safety at the intersection. This alternative does not satisfy the purpose and need of the project; however, it has been retained as a baseline for comparison to the feasible alternative(s).

Alternative 2: Incremental Signing and Pavement Marking Enhancements

A set of incremental signing and pavement marking enhancements (described below) were considered for the intersection of CR 28 and Shortsville Road. The intent of this progression would be to enhance the conspicuity of existing traffic control devices, highlight the intersection’s location, and reinforce the message to drivers on Shortsville Road that traffic on CR 28 is not required to stop.

- A. Add supplementary panels to the Shortsville Road stop signs with the text “Cross Traffic Does Not Stop”. One sign would be placed below the near right stop sign and the other on the far left;
- B. Add yellow flashing beacons to the right-side advance intersection warning signs on CR 28; and
- C. Install a lane narrowing treatment on CR 28 at Shortsville Road consistent with guidance contained in the Federal Highway Administration (FHWA) report Two Low-Cost Safety Concepts for Two-Way Stop-Controlled, Rural Intersections on High-Speed Two-Lane, Two-Way Roadways. This would consist of a painted yellow median on the CR 28 approaches preceded by a no passing zone, centerline rumble strips within the painted median, and rumble strips on the outside shoulders. Smaller painted islands could also be added to each Shortsville Road approach. Refer to **Appendix A** for a graphic illustrating this concept.

As described in **Section 2.3.1.8**, most accidents at the intersection involve a right-angle collision. Many vehicles stop on Shortsville Road but fail to perceive and/or react to an approaching vehicle, ultimately pulling out into the intersection and causing a crash. Simply highlighting the need to stop on Shortsville Road is therefore unlikely to lead to a substantial reduction in accidents. Incremental treatments along CR 28 would improve the intersection’s conspicuity. While initial studies of the FHWA concept have demonstrated some ability to reduce approach speeds and overall crash rates, long-term effectiveness remains unproven and further analysis is needed. While milled in audible roadway delineator strips (MIARDS) within the median and along the shoulders of CR 28 would encourage drivers to remain within the narrower lanes, they could also result in nuisance noise and vibration concerns for adjacent residents, Meeting House Park, and South Farmington Cemetery. This would be of concern given the substantial volume of heavy truck traffic on CR 28. In either case, vehicles on Shortsville Road would still need to select adequate gaps in CR 28 traffic to complete a crossing or turning maneuver. Sight distance limitations between intersection approaches would not be addressed.

While incremental signing and pavement marking enhancements may improve intersection safety performance in the near term, they may also lose their effectiveness over time, particularly at an intersection that is frequented by familiar, local drivers. More importantly, these features do not have the potential to physically prevent high-speed, right-angle collisions from occurring. Ontario County is committed to implementing a proven long-term safety improvement that will address the pattern of right-

angle collisions and maximize use of the available Highway Safety Improvement Program (HSIP) funding. This alternative would not accomplish either of those goals; therefore, it was dismissed from further consideration.

Alternative 3: Multi-Way Stop Intersection Control

Multi-way stop control was evaluated as a potential alternative for the intersection of CR 28 and Shortsville Road. This alternative would add stop signs on the CR 28 (northbound and southbound) approaches resulting in a four way stop. All vehicles approaching the intersection would be directed to stop by the regulatory signs. Detailed calculations and a summary document related to the evaluation of this alternative are included in **Appendix C**.

Assuming vehicles would obey the new regulations, this treatment would have the potential to reduce the frequency of right-angle accidents and mitigate the effects of poor intersection sight distance. It would also eliminate the need for drivers at the stop signs on Shortsville Road to identify adequate gaps to complete a crossing or turning maneuver. The relatively low anticipated initial cost of this alternative (estimated at \$18,000) would yield an anticipated safety cost-benefit ratio of 102.65. In comparison, this exceeds the projected safety cost-benefit ratio for the roundabout alternative (8.13 – **Appendix C**), although that number also represents a positive net benefit. The multi-way stop alternative would require no easement acquisitions as opposed to 1.336 acres of easements for the proposed roundabout.

The FHWA offers guidance in the MUTCD to assess the applicability of multi-way stops (refer to Section 2B.07 of the MUTCD). Based upon an engineering study (see **Appendix C**), 3 of the 5 criteria contained in the MUTCD would not be satisfied at the intersection of CR 28 and Shortsville Road throughout the design year, 2040. Only the accident experience and major street volume warrant would be met. Companion minor street volume and intersection delay warrants would not be met.

The multi-way stop alternative would involve placing warning signs, regulatory signs, and markings on the relatively high-speed CR 28 (northbound and southbound) approaches. In comparison, the roundabout alternative would change the geometry of these approaches to encourage motorists to lower their travel speed, thereby decreasing the potential for an injury or fatal accident. The “geometric intervention” proposed under Alternative 5 would have greater potential to result in lower approach speeds in comparison to the signs and markings of Alternative 3.

The FHWA, in their document Toolbox of Countermeasures and Their Potential Effectiveness for Intersection Crashes, suggests that converting a rural two-way stop-controlled intersection could result in up to a 48% reduction in total accidents. The potential for high-speed, rear-end accidents would be of concern at the new stop signs on CR 28 particularly during the adjustment period (immediately after the new regulation is put into effect). By way of comparison, the same FHWA document suggests that converting the two-way stop to a modern roundabout could result in up to an 72% reduction in total accidents, making it superior in that regard. The potential for high-speed rear-end accidents would be mitigated under Alternative 5 by the curvilinear approach geometry. The potential for high-speed, right angle accidents would also be eliminated under Alternative 5 by design.

All vehicles would be required to stop under Alternative 3, including trucks. Potential negative effects from the installation of a multi-way stop could include additional air pollution, noise impacts, and fuel consumption associated with vehicles stopping, idling, and accelerating. In comparison, Alternative 5 (roundabout) would not require vehicles to fully stop when conflicting traffic is absent. Furthermore, capacity analyses suggest that multi-way stop control at the CR 28 and Shortsville Road intersection would result in at least 4 seconds more delay per vehicle in comparison to the roundabout alternative.

While the multi-way stop would initially be less costly and require less property, it does not surpass the roundabout alternative with respect to its potential to reduce the frequency of accidents or meet the objective of encouraging motorists to lower their travel speed on approach to the intersection, thereby decreasing the potential for an injury or fatal accident. This coupled with the fact that 3 of 5 MUTCD warrant criteria for the multi-way stop would not be satisfied, and the fact that all vehicles, including

trucks, must stop at a multi-way stop intersection even in the absence of conflicting traffic, led to the multi-way stop alternative being dismissed from further consideration.

Alternative 4: Signalized Intersection Control

The Signalized Intersection Control alternative would install an actuated, two-phase traffic signal at the intersection of CR 28 and Shortsville Road. Applicable traffic signal warrants in accordance with the MUTCD were analyzed. Copies of the analyses are included in **Appendix C**. The criteria of Warrant 7, Crash Experience, is met, however criteria related to volumes (Warrants 1 thru 3, and the volume criteria of Warrant 7) would not be satisfied throughout the design year, 2040. The installation of a traffic signal would present similar safety and environmental concerns to Alternative 3. An increase in the probability of rear end accidents would also be expected. This would be of concern on the high-speed CR 28 approaches; therefore, this alternative was dismissed from further consideration.

3.2. Reasonable Build Alternatives

Based on the project purpose, objectives, needs and a comparison of all alternatives considered, a single reasonable (feasible and practical) alternative was identified and developed for further study in this Draft Design Report.

3.2.1. Description of Reasonable Alternatives

Alternative 5: Modern Roundabout

This alternative would reconstruct the intersection of CR 28 and Shortsville Road as a modern roundabout. A roundabout would physically eliminate the potential for high-speed, right angle collisions by prohibiting left turns and crossing movements. Crashes at modern roundabouts are less likely to result in a serious injury as they typically involve low speeds and low angles of impact. A roundabout at this location would also be consistent with changes made at the nearby intersection of CR 8, CR 41, and Shortsville Road in 2015. Key elements of Alternative 5 are as follows:

- | | |
|-------------|---|
| Geometry | <ul style="list-style-type: none">• Reconfigure the existing four-legged, two-way stop-controlled intersection of CR 28 and Shortsville Road into a modern roundabout.• Construct extended splitter islands with successive entry curves on each approach to “step down” vehicular speeds prior to reaching the yield line. |
| Operational | <ul style="list-style-type: none">• Require entering vehicles to yield to traffic within the circulating roadway as typical of modern roundabout control.• Provide adequate capacity to meet the projected traffic demand throughout the design year, 2040. |
| Pavement | <ul style="list-style-type: none">• Full-depth pavement reconstruction at the intersection of CR 28 with Shortsville Road and on all immediate approaches. |
| Curb | <ul style="list-style-type: none">• Install mountable and/or traversable curb, where appropriate, along the proposed roundabout’s central island, truck apron, and splitter islands.• Install traversable curb along the shoulders of the circulatory roadway and approaches immediately adjacent to the roundabout to facilitate drainage, maintain a stable roadside, and encourage drivers to remain on the pavement. Shoulders outside of the circulatory roadway and the immediate roundabout approaches would remain uncurbed. |

Pedestrian & Bicyclist	<ul style="list-style-type: none"> • Continue to accommodate occasional pedestrians on paved shoulders. • Construct 10-foot wide crossings through the splitter island on each approach to accommodate the occasional crossing pedestrian. • Continue shared accommodation for bicyclists within the travel lanes. Bicyclists may also choose to dismount and walk their bicycle across the roundabout using the accessible crossings.
Drainage	<ul style="list-style-type: none"> • Replace existing storm sewer pipe crossings and driveway pipes where in poor condition or alterations are needed to drain the proposed design. • Install toe ditches to prevent roadway runoff from sheeting into adjacent agricultural properties. • Redirect the intersection's primary drainage outlet from a path through agricultural fields to the northeast of the intersection to a path along the east side of CR 28. Both the existing and proposed drainage paths would end at the same unnamed tributary.
Signing and Pavement Marking	<ul style="list-style-type: none"> • Install new signage and pavement markings in accordance with MUTCD standards.
Landscaping and Enhancements	<ul style="list-style-type: none"> • Reestablish turf beyond the shoulders. • Install new roadway lighting at the modern roundabout • Install appropriately scaled landscaping in the modern roundabout's central island and strategically placed landscaping at its edges to promote proper sight lines and improve aesthetics. • Install strategically placed landscaping where curvature is introduced on Shortsville Road to reinforce the new alignment.
Right of Way	<ul style="list-style-type: none"> • Seven property acquisitions (7 permanent easements (PE) and 3 temporary easements) to accommodate construction of the modern roundabout; approach roadway realignment; and associated drainage improvements.
Construction Cost and Phasing	<ul style="list-style-type: none"> • The opinion of probable construction cost for Alternative 5 is \$2.339 million (M).
Project Goals	<ul style="list-style-type: none"> • These improvements satisfy the purpose, need, and objectives stated in Chapter 1 of this document.

3.2.2 Preferred Alternative

Alternative 5 has been identified as the preferred alternative because it best satisfies the project's purpose and need and objectives. Selection of the preferred alternative will not be finalized until the alternatives' impacts, comments on the draft design approval document, and comments from the public have been fully evaluated.

3.2.3. Design Criteria for Reasonable Alternative(s)

3.2.3.1. Design Standards

The following design standards and resources were consulted to develop the critical design element and other design element parameters for this project:

- NYSDOT *Highway Design Manual* (HDM)
- *National Manual on Uniform Traffic Control Devices for Streets and Highways*, Current Edition (MUTCD)
- *New York State Supplement to the National Manual on Uniform Traffic Control Devices for Streets and Highways*, 2009 Edition (2011)
- AASHTO *A Policy on Geometric Design of Highways and Streets* (Green Book) 2011
- NCHRP Report 672 *Roundabouts: An Informational Guide*, Second Edition

3.2.3.2. Critical Design Elements

The design criteria applicable to this project consist of critical elements as described in the NYSDOT HDM (Chapter 2). Other design parameters, such as design vehicle, are found either in the NYSDOT HDM, the AASHTO Green Book, or other references. A list of the typical critical design elements that apply to this project is included in **Exhibit 3.2.3.2-1**.

Exhibit 3.2.3.2-1 Critical Design Elements Summary	
1. Design Speed	9. Vertical Clearance
2. Lane Width	10. Structural Capacity
3. Shoulder Width	11. ADA Compliance
4. Horizontal Curve Radius	
5. Superelevation	
6. Stopping Sight Distance	
7. Maximum Grade	
8. Cross Slope	

Notes:

1. Rollover is the change of grade between the cross slope of adjacent lanes or between travel lanes and the shoulder.

Exhibit 3.2.3.2-2 and **Exhibit 3.2.3.2-3** summarize the critical design elements for CR 28 and Shortsville Road beyond the approaches to the proposed roundabout. Refer to **Section 3.2.3.3** for the Design Parameters associated with the proposed modern roundabout.

Exhibit 3.2.3.2-2 Critical Design Elements for CR 28				
PIN:	4ON0.03	NHS (Y/N):	No	
Route No. & Name:	CR 28	Functional Classification:	Rural Minor Collector	
Project Type:	Safety Improvement	Design Classification:	Rural Collector	
% Trucks (Max) ¹ :	15%	Terrain:	Level	
ADT (2040) ¹ :	4,780	Truck Access/Qualifying Hwy.	Yes / No	
Element	Standard		Existing Condition	Proposed Condition
1 Design Speed	60 mph ² <i>HDM Section 2.7.3.1.A.</i>		60 mph	60 mph
2 Lane Width	11 ft <i>HDM Section 2.7.3.1.B. Exhibit 2-5</i>		Varies 11 ft to 12 ft	11 ft
3 Shoulder Width	4 ft Minimum, 5 ft Desirable <i>HDM Section 2.7.3.1.C. Exhibit 2-5, Note 7</i>		Varies 4 ft to 6 ft	4 ft
4 Horizontal Curve Radius	800 ft Minimum (at e _{max} =8%) <i>HDM Section 2.7.3.1.D. Exhibit 2-5</i>		None	None
5 Superelevation	8% Maximum <i>HDM Section 2.7.3.1.E.</i>		Normal Crown	Normal Crown
6 Stopping Sight Distance (Horizontal and Vertical)	522 ft Minimum <i>HDM Section 2.7.3.1.F. Exhibit 2-5</i>		>522 ft	>522 ft
7 Maximum Grade	5% <i>HDM Section 2.7.3.1.G. Exhibit 2-5</i>		1.9% Maximum	3.58% Maximum
8 Cross Slope	1.5% Min. to 3% Max. <i>HDM Section 2.7.3.1.H.</i>		4.5% Maximum	2% Maximum
9 Vertical Clearance	14 ft Minimum 14 ft – 6 in Desirable <i>HDM Section 2.7.3.1.I. & BM Section 2.4.1. Table 2-2</i>		14 ft Minimum (to utilities)	14 ft Minimum (to utilities)
10 Design Loading Structural Capacity	<u>New and Replacement Bridges</u> NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle <u>Buried Structures</u> (Box Culverts, 3-sided Frames and Pipes) NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle <i>BM Section 2.6, HDM 19.5.3</i>		NA	NA
11 ADA Compliance	Shoulder <i>HDM Section 2.7.4.1.K., HDM Chapter 18, and PROWAG</i>		Shoulder ³	Shoulder ³
(1) Conditions for the critical segment of CR 28 shown. All design elements based upon this critical segment. (2) Ontario County has concurred that the use of a Design Speed of 60 mph is consistent with the anticipated off-peak 85 th percentile speed within the range of functional class speeds for the terrain and volume. (3) Given the project's surrounding area has a low population and there are no significant pedestrian generators, the occasional pedestrian may legally use the shoulder. See Section 3.3.2.1 for more information. **Denotes non-standard feature. NA – Not Applicable				

Exhibit 3.2.3.2-3 Critical Design Elements for Shortsville Road				
PIN:	4ON0.03	NHS (Y/N):	No	
Route No. & Name:	Shortsville Road	Functional Classification:	Rural Local	
Project Type:	Safety Improvement	Design Classification:	Rural Local	
% Trucks (Max) ¹ :	8%	Terrain:	Level	
ADT (2049) ¹ :	2,710	Truck Access/Qualifying Hwy.	No / No	
Element		Standard	Existing Condition	Proposed Condition
1	Design Speed	55 mph ² <i>HDM Section 2.7.4.1.A.</i>	55 mph	55 mph
2	Lane Width	11 ft <i>HDM Section 2.7.4.1.B. Exhibit 2-7</i>	11 ft	11 ft
3	Shoulder Width	4 ft Minimum, 5 ft Desirable <i>HDM Section 2.7.4.1.C. Exhibit 2-7, Note 6</i>	2 ft	4 ft
4	Horizontal Curve Radius	651 ft Minimum (at e _{max} =8%) <i>HDM Section 2.7.4.1.D. Exhibit 2-7</i>	None	None
5	Superelevation	8% Maximum <i>HDM Section 2.7.4.1.E.</i>	Normal Crown	Normal Crown
6	Stopping Sight Distance (Horizontal and Vertical)	452 ft Minimum <i>HDM Section 2.7.4.1.F. Exhibit 2-7</i>	>452 ft	>452 ft
7	Maximum Grade	6% <i>HDM Section 2.7.4.1.G. Exhibit 2-7</i>	1.0%	2%
8	Cross Slope	1.5% Min. to 3% Max. <i>HDM Section 2.7.4.1.H.</i>	5% Maximum	2% Maximum
9	Vertical Clearance	14 ft Minimum 14 ft – 6 in Desirable <i>HDM Section 2.7.3.1.I. & BM Section 2.4.1. Table 2-2</i>	14 ft Minimum (to utilities)	14 ft Minimum (to utilities)
10	Design Loading Structural Capacity	<u>New and Replacement Bridges</u> NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle <u>Buried Structures</u> (Box Culverts, 3-sided Frames and Pipes) NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle <i>BM Section 2.6, HDM 19.5.3</i>	NA	NA
11	ADA Compliance	Shoulder <i>HDM Section 2.7.4.1.K., HDM Chapter 18, and PROWAG</i>	Shoulder ³	Shoulder ³
<p>(1) Conditions for the critical segment of Shortsville Road shown. All design elements based upon this critical segment.</p> <p>(2) Ontario County has concurred that the use of a Design Speed of 55 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.</p> <p>(3) Given the project's surrounding area has a low population there are no significant pedestrian generators, the occasional pedestrian may legally use the shoulder. See the Complete Streets Checklist, Appendix C, for more information.</p> <p>**Denotes non-standard feature.</p> <p>NA – Not Applicable</p>				

3.2.3.3. Other Design Parameters

In addition to the critical design elements described in **Section 3.2.3.2**, other design parameters established by the NYSDOT and AASHTO that are typically used to design roadway projects include guidelines for roundabouts, design vehicles, rainfall amounts for drainage facilities, and others. **Exhibit 3.2.3.3-1** provides the design parameters for roundabouts.

Exhibit 3.2.3.3-1 Roundabout Controlling Features						
Element		Parameter ¹	Proposed Condition			
			North Leg	West Leg	South Leg	East Leg
1	Design Vehicle	Largest Expected Vehicle	Refer to Exhibit 3.2.3.3-3			
2	Maximum Entry Speed	30 mph NYS DOT EI 00-021 3.1.2.a	21 mph	23 mph	23 mph	22 mph
3	Entry Width	10 ft Minimum NYS DOT EI 00-021 3.1.2.d 14 ft to 18 ft typical Maximum 35 ft Single Lane Approach NCHRP 672 6.4.2 & NYSDOT EI 00-021 3.1.2.e	16.5 ft	15.9 ft	16.5 ft	16.2 ft
4	Entry Radius	33 ft minimum, 328 ft maximum 65 ft desirable NYS DOT EI 00-021 3.1.2.f and NYS DOT Intersection Design Unit Guidance 90'-110' typ.	100 ft	100 ft	100 ft	100 ft
5	Entry Angle	20° minimum, 60° maximum 30° to 40° desirable NYS DOT EI 00-021 3.1.2.g	23.6°	25.5°	24.5°	25.5°
6	Entry Angle of Visibility	≥75° NCHRP 672 6.7.4	~130°	~120°	~140°	~120°
7	Splitter Island Length	≥ 50 ft minimum, ≥ 100' desirable	170 ft	280 ft	160 ft	195 ft
8	Approach Stopping Sight Distance	112.4 ft @ 20 mph 197.8 ft @ 30 mph 362.5 ft @ 45 mph 496.7 ft @ 55 mph NCHRP 672 6.2.6 & 6.7.3.1	>112.4 ft >197.8 ft >362.5 ft >496.7 ft	>112.4 ft >197.8 ft >362.5 ft >496.7 ft	>112.4 ft >197.8 ft >362.5 ft >496.7 ft	>112.4 ft >197.8 ft >362.5 ft >496.7 ft
9	Circulating Roadway Sight Distance	77.0 ft @ 15 mph NCHRP 672 6.2.6 & 6.7.3.1	77.0 ft minimum	77.0 ft minimum	77.0 ft minimum	77.0 ft minimum
10	Intersection Sight Distance	146.8 ft @ 20 mph Conflicting Approach Speed NCHRP 672 6.2.6 & 6.7.3.4	146.8 ft minimum	146.8 ft minimum	146.8 ft minimum	146.8 ft minimum
11	Sight Distance to Crosswalk	146.8 ft @ 20 mph Conflicting Approach Speed NCHRP 672 6.2.6 & 6.7.3.4	146.8 ft minimum	146.8 ft minimum	146.8 ft minimum	146.8 ft minimum
12	Inscribed Circle Diameter	50 ft minimum, 328 ft maximum 130 ft to 150 ft typ, single lane, WB-67 NYS DOT EI 00-021 3.1.2.k & NCHRP 672	140 ft			
13	Circulatory Roadway Width	16 ft to 20 ft desirable ≥ Maximum Entry Width ≤ Maximum Entry Width x 1.2 Design Vehicle + 3 ft Horizontal Clearance NYS DOT EI 00-021 3.1.2.m	18 ft			

Exhibit 3.2.3.3-1 Roundabout Controlling Features						
Element		Parameter ¹	Proposed Condition			
			North Leg	West Leg	South Leg	East Leg
14	Minimum Exit Radius	65 ft minimum, 328 ft to 394 ft typical 656 ft desirable NYSDOT EI 00-021 3.1.2.p and NYSDOT Intersection Design Unit Guidance	300 ft	200 ft	300 ft	200 ft
15	Pedestrian Accommodations	Meet PROWAG NYSDOT EI 00-021 3.1.2.q, NYSDOT HDM Chapter 18, and PROWAG	Shoulder			
16	Control of Access	No Access within 80 ft of Yield Line Desirable NYSDOT EI 00-021 3.1.2.n	80 ft minimum			
17	Circulating Roadway Cross Slope	0.5% minimum, 2.5% maximum NYSDOT EI 00-021 3.1.2.l	2%			
18	Maximum Circulating Speed	25 mph NYSDOT EI 00-021 3.1.2.a & NCHRP 672	16 mph			
19	Maximum Entry Superelevation	5% NYSDOT EI 00-021 3.1.2.b	Normal Crown, 2%			
20	Horizontal Clearance - From Edge of Traveled Way (Splitter Islands)	Left (curbed): 0 ft minimum 1 ft to 2 ft desirable Right (uncurbed): 10 ft. without rail Along rail, use larger of 4 ft. or actual shoulder width <i>HDM Chapter 5</i>	1 ft (left) 4 ft (right, curbed)			
21	Approach Alignment	Radial Acceptable, Offset Left Desirable NYSDOT Intersection Design Unit Guidance	Offset Left			

- Parameters per NCHRP Report 672, "Roundabouts: An Informational Guide (Second Edition)" and/or Main Office Intersection Design Squad, as applicable.
- Not typical, desired or preferred, but within the general range of acceptance.
- Not typical, desired, or preferred and outside the general range of acceptance. These are nonconforming features.

Exhibit 3.2.3.3-2 Other Design Parameters: General			
	Element	Standard Criteria	Proposed Condition
1	Level of Service	LOS D Minimum LOS C Desirable	LOS A
2	Drainage Design Storm	10 Year Storm	10 Year Storm

Vehicle Turning Paths at Intersections (i.e. Design Vehicle) - Vehicle turning paths were analyzed for the proposed modern roundabout based on the ability of the design vehicle to complete various movements. All turning movements would accommodate the design turning paths as indicated in **Exhibit 3.2.3.3-3**.

Exhibit 3.2.3.3-3 Other Controlling Parameters: Design Vehicle			
Location	Turning Movement	Design Vehicle	Vehicle Accommodated
Roundabout	Northbound right	WB-40	WB-40/WB-50 ¹
	Northbound through	WB-67	WB-67
	Northbound left	WB-40	WB-67
	Southbound right	WB-40	WB-40/WB-50 ¹
	Southbound through	WB-67	WB-67
	Southbound left	WB-40	WB-67
	Eastbound right	WB-40	WB-50 ²
	Eastbound through	WB-67	WB-67
	Eastbound left	WB-40	WB-67
	Westbound right	WB-40	WB-50 ²
	Westbound through	WB-67	WB-67
	Westbound left	WB-40	WB-67

Notes:

1. WB-67/62 vehicles do not typically make a northbound / southbound right turn. The existing intersection accommodates a single unit truck within the travel lanes and shoulder. Ontario County has elected to provide accommodation up to a WB-40 design vehicle within the proposed concrete pavement, and an infrequent WB-50 on the asphalt apron beyond the proposed traversable curb (utilized for rear wheel tracking during the movement). The WB-50 is representative of the typical “crop hauler” used for agricultural activity around the intersection. Should an infrequent WB-67/62 approach the intersection and need to make a northbound / southbound right turn, it would need to circle the roundabout and then exit appropriately to complete its movement.
2. WB-67/62 vehicles do not typically make the eastbound / westbound right turn. The existing intersection accommodates a WB-40 within the travel lanes and shoulder. Ontario County has elected to provide accommodation for a WB-50 design vehicle. This is representative of the typical “crop hauler” used for agricultural activity around the intersection. Should an infrequent WB-67/62 approach the intersection and need to make a northbound / southbound right turn, it would need to circle the roundabout and then exit appropriately to complete its movement.

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 any approach roadways.

3.3.1.2. Control of Access

All highway boundaries will remain “with access”.

3.3.1.3. Traffic Control Devices

3.3.1.3. (1) Traffic Signals - No new traffic signals are proposed.

3.3.1.3. (2) Signs - Existing signs including but not limited to stop, regulatory, warning, and street name signs would be removed and replaced with new signs meeting current MUTCD and New York State Supplement standards. All entries into the modern roundabout would be signed with yield signs. Appropriate signage would be installed on each approach to and within the modern roundabout.

3.3.1.3. (2) Pavement Markings - New pavement markings would be installed throughout the project limits in accordance with current MUTCD and New York State Supplement. Applicable NYSDOT standard details would be followed.

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 existing (statutory) speed limit of 55 mph would be retained on CR 28 and Shortsville Road upon completion of the project. An advisory speed for negotiating the roundabout would be posted in advance of the reconfigured intersection.

3.3.1.5. (2) Travel Time Estimates – The feasible alternative would not significantly impact travel distances or capacity, therefore travel time estimates were not calculated.

3.3.1.6. Traffic Volumes

There would be no modifications to overall traffic patterns (i.e. movements allowed or travel routes at the intersection) under Alternative 5; therefore, the projected average daily traffic (ADT) volumes for Alternative 5 would be the same as those experienced under no-build conditions. Refer to **Section 2.3.1.6 (1)** for information on the design year and development of ADT and volumes. Turning movement diagrams are presented in **Appendix C**.

3.3.1.7. Level of Service and Mobility

Refer to **Section 2.3.1.7 (1)** for a discussion of Level of Service (LOS).

3.3.1.7 (1) At Project Completion & Design Year – Level of service analyses were completed using SIDRA software (HCM 6 roundabout capacity model) for future build conditions at ETC (2020) and the design year ETC+20 (2040). **Exhibit 3.3.1.7 (1)-1** and **Exhibit 3.3.1.7 (1)-2** summarize the results of morning and evening peak hour analyses, respectively. Detailed reports are contained in **Appendix C**. As shown, all approaches are projected to operate at LOS A throughout the design year. Overall, the modern roundabout would have adequate capacity to meet the projected demand with an acceptable level of service throughout the design year, ETC+20 (2040).

On average, the roundabout would result in 4 to 5 seconds less delay per vehicle on CR 28 and approximately 12 to 14 seconds less delay per vehicle on Shortsville Road in comparison to the no-build (two-way stop control) alternative. It also represents about 7 to 9 seconds less delay per vehicle on CR 28 and 5 to 6 seconds less delay per vehicle in comparison to the all-way stop control scenario (Alternative 3).

Exhibit 3.3.1.7 (1)-1 Morning Peak Hour Level of Service and Delay Proposed Roundabout							
Intersection	Approach	Movement	Control	2020 Build		2040 Build	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
CR 28 and Shortsville Road	Eastbound	Left/Thru/Right	YIELD	3.4	A	3.8	A
	Westbound	Left/Thru/Right	YIELD	2.9	A	3.1	A
	Northbound	Left/Thru/Right	YIELD	2.2	A	2.3	A
	Southbound	Left/Thru/Right	YIELD	2.2	A	2.4	A
	Overall			2.5	A	2.7	A

Exhibit 3.3.1.7 (1)-2 Evening Peak Hour Level of Service and Delay Proposed Roundabout							
Intersection	Approach	Movement	Control	2020 Build		2040 Build	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
CR 28 and Shortsville Road	Eastbound	Left/Thru/Right	YIELD	2.8	A	3.0	A
	Westbound	Left/Thru/Right	YIELD	3.1	A	3.4	A
	Northbound	Left/Thru/Right	YIELD	2.3	A	2.5	A
	Southbound	Left/Thru/Right	YIELD	2.4	A	2.6	A
	Overall			2.6	A	2.8	A

3.3.1.7 (2) – Work Zone Safety & Mobility –

A. Work Zone Traffic Control Plan - All work zones and detours would be set up in conformance with the MUTCD and New York State Supplement. A clearly marked travel way would be delineated with temporary pavement markings, traffic signage, barricades, drums, cones, etc. as applicable while traffic is maintained through the project area. Flaggers would be utilized to direct traffic where required.

Conceptual work zone traffic control schemes would allow the contractor to initially utilize one-way alternating traffic with flagging control while maintaining vehicular traffic through the project area to accomplish underground utility and drainage work along with the initial stages of approach reconstruction. Following the underground and approach work, the intersection of CR 28 and Shortsville Road would be fully closed to all traffic allowing for construction of the modern roundabout. This plan would minimize the overall construction schedule (reducing the duration of disturbance to the traveling public) and improve the quality of the finished product. The following offsite detours would be posted and maintained for up to 3 months:

- CR 28: Canandaigua-Farmington Town Line Road, CR 8, and NY Route 96 (6.2 miles)
- Shortsville Road: CR 8, NY Route 96, Sandhill Road (3.6 miles)

This would allow traffic to get from one side of the closed intersection to the other. Refer to detour routing diagrams in **Appendix C**. The detours have the necessary geometry, width, and condition (based upon field inspection) to safely accommodate detoured traffic.

Upon completion of the roundabout, its truck apron, and approaches up to the asphalt top course, the intersection would be reopened to traffic. The contractor would be required to have pavement markings, signing, and lighting (permanent or temporary) in place prior to opening. Remaining finish activities including any remaining signing, final grading, landscaping, and turf establishment would be completed using short term temporary shoulder closures.

There are no significant generators of pedestrian traffic within the project limits, therefore, special accommodations would not be necessary during construction. Through bicyclists would be expected to use the posted detour routes.

B. Special Provisions – Nighttime construction is not anticipated. Work zone traffic control would be coordinated with local officials, residents, utility owners, school districts, police, and local emergency service providers. Access to affected residential properties would be maintained throughout construction or alternate accommodations provided. Access to South Farmington Cemetery and Meeting House Park would also be maintained. Ontario County would coordinate with local farmers to accommodate their operations during construction to the greatest reasonable extent.

C. Significant Projects (per 23 CFR 630.1010) - This project is not classified as a Significant Project, therefore its Transportation Management Plan (TMP) would consist of a Temporary Traffic Control (TTC) plan consistent with 23 CFR 630.1012. To satisfy this requirement, the construction documents would include Work Zone Traffic Control notes, plans, and details. The requirements of Section 619 of the New York State Standard Specifications would apply to the contract.

3.3.1.8. Safety Considerations, Accident History and Analysis

The proposed modern roundabout at the intersection of CR 28 and Shortsville Road would improve safety by reducing the number of possible conflict points from 32 to 8 and eliminating the potential for high speed, right-angle collisions. The use of successive curvature on entry would also mitigate the potential for high speed, rear-end collisions at the yield line. Roundabouts are proven to reduce the rate of all accidents, but particularly injuries and fatalities. As documented in NCHRP Report 672, experience in the United States has shown that where modern roundabouts have replaced a rural two-way stop-controlled intersection, the rate of all accidents has declined by 72%. The combined rate of injury and fatal accidents has declined by 87%. The roundabout would be of particular benefit at this intersection given the frequency of injury accidents and two fatal crashes.

3.3.1.9. Impacts on Police, Fire Protection and Ambulance Access

Refer to **Section 3.3.1.7 (2)** for a discussion of anticipated impacts during construction. Alternative 5 would have no significant long-term impacts on police, fire protection, or ambulance access. Any full-size (40-foot) buses or fire protection equipment (40-foot) passing through the roundabout would be accommodated on the circulatory roadway (i.e. they would not need to mount the truck apron).

3.3.1.10. Parking Regulations and Parking Related Issues

No changes are proposed.

3.3.1.11. Lighting

New lighting would be installed at the proposed modern roundabout. At this time, it is anticipated that overhead lighting would be supported on arms mounted to poles located around the perimeter of the circle; however, final locations would be determined during detailed design. Poles and lights would be chosen considering Ontario County's preferences. Lighting levels would be consistent with guidelines from the illuminating Engineering Society's (IES) *Design Guide for Roundabout Lighting* and/or current best practices for roundabout design. The up-lighting landscape features within the central island would also be considered during detailed design.

3.3.1.12. Ownership and Maintenance Jurisdiction

Ownership and Maintenance Jurisdiction would not be altered by Alternative 5. Refer to **Section 2.3.1.12** for discussion of Ownership and Maintenance Jurisdiction. Ontario County would assume maintenance jurisdiction for the proposed modern roundabout to the limit of each splitter island.

3.3.1.13. Constructability Review

There are no unique circumstances or design features that would negatively impact the constructability of Alternative 5. Overall the anticipated level of construction complexity would be considered routine. The anticipated use of Portland Cement Concrete (PCC) pavement for the roundabout would add an element of specialty work to the project; however, the local contracting community is capable of the work based on past construction experience at the adjacent intersection of CR 8, CR 41, and Shortsville Road. Closing the intersection to all traffic during construction of the roundabout would accelerate that portion of the schedule (given a lack of interference with the contractor's operations). The lack of interference with construction activities is also anticipated to enhance the quality of the final product.

3.3.2. Multimodal Considerations

3.3.2.1. Pedestrians

No separate pedestrian facilities are planned or warranted based upon the low-density residential development and infrequent pedestrian travel. This is consistent with the NYSDOT Highway Design Manual Chapter 18 and the Capital Projects Complete Streets Checklist in **Appendix C**. The occasional pedestrian may legally use the shoulder per the provisions of NYS Vehicle and Traffic Law Section 1156(b). Accessible crossings, compliant with ADA standards, would be constructed at each splitter island to accommodate the occasional pedestrian. Each crossing would be longer than 6 feet to act as a pedestrian refuge.

3.3.2.2. Bicyclists

No special provisions are proposed to accommodate bicyclists. Given the rural nature of the roadway, the shoulder is the primary location for accommodating bicyclists. Bicyclists would share the travel lanes with motor vehicles and should ride along the outer edge of the circulatory roadway. Bicyclists may legally use the paved shoulder and roadway, which is consistent with the NYS Vehicle and Traffic Law Section 1234. Typical on-road bicycle speeds are between 12 and 20 mph. The geometry of the proposed roundabout would constrain motor vehicle speeds to 15 to 20 mph, therefore relative speed differences would be kept to a minimum which would thereby improve safety and usability for bicyclists.

3.3.2.3. Transit

There are no transit providers operating within the project limits; therefore, the proposed alternative would not affect their operations.

3.3.2.4. Airports, Railroad Stations, and Ports

No changes are proposed that would affect airports, railroad stations, or port entrances.

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

A new driveway would be constructed to connect Meeting House Park with Shortsville Road as shown on the plans in **Appendix A**. This would move the park's entrance away from the existing intersection, west of the proposed roundabout. A segment of the splitter island on Shortsville Road would be depressed in the vicinity of the driveway to permit two-way access. Ontario County prefers this treatment to the alternative of a dedicated turn lane (which would require additional width) or a full break in the extended splitter island (which would detract from positive guidance to through vehicles on Shortsville Road). It is anticipated that park patrons will quickly familiarize themselves with the proper use of the flush treatment. A new parking area would also be constructed, replacing the existing gravel pad in the park. The planned enhancements have been reviewed by and are acceptable to the Town of Farmington. Collectively these changes would enhance park patron access and accommodation.

3.3.3. Infrastructure

3.3.3.1. Proposed Highway Section

Refer to **Appendix A** for a plans, profiles, and typical sections illustrating the approach roadways, circulatory roadway, and all other roadways within the project limits. Additional details regarding **Alternative 5** are summarized in the following sections.

3.3.3.1. (1) Right of Way - Anticipated property acquisitions are summarized in **Exhibit 3.3.3.1 (1)**. They are also shown on the plans in **Appendix A**. In summary, the project would require seven (7) permanent easements and three (3) temporary easements. All takings would be de minimis.

Exhibit 3.3.3.1 (1) Anticipated Right-of-Way Acquisitions					
Number	Address	Reputed Owner Tax Map No.	Type of Take	Estimated Acquisition Area (SF / Acres)	Remarks
TE01	County Road 28	Town of Farmington 43.00-1-50.000	Temporary Easement	3492.60 / 0.080	Grading / Access Improvements
PE01	1561 County Road 28	Debra Ann Miller 43.00-1-38.000	Permanent Easement	1673.02 / 0.038	Roadway Realignment / Grading / Drainage
TE02			Temporary Easement	770.20 / 0.018	Grading / Drainage
PE02	Shortsville Road	John L & Georgiana Gerlock 43.00-1-41.210	Permanent Easement	5051.31 / 0.116	Roadway Realignment / Grading / Drainage
PE03	Shortsville Road	Robert C Gerlock 43.00-1-41.100	Permanent Easement	2574.54 / 0.059	Roadway Realignment / Grading / Drainage
PE04			Permanent Easement	1022.12 / 0.024	Roadway Realignment / Grading / Drainage
PE05	1593 County Road 28	Nicole L Moyer 43.00-1-40.000	Permanent Easement	1863.88 / 0.043	Roadway Realignment / Grading / Drainage
PE06			Permanent Easement	112.29 / 0.003	Roadway Realignment / Grading / Drainage
TE03			Temporary Easement	1508.31 / 0.035	Grading / Drainage
PE07	1702 County Road 28	Robert C & June B Gerlock 43.00-1-35.120	Permanent Easement	40086.71 / 0.920	Roadway Realignment / Grading / Drainage

3.3.3.1. (2) Curb – Granite barrier curb would be installed around the central island of the modern roundabout. Cast in place concrete truck apron curb would be installed at the inside edge of the circulatory roadway. Sloped granite curb would be installed along each splitter island. Additionally, sloped granite curb would be installed along the shoulders of the circulatory roadway and portions of the approaches immediately adjacent to the roundabout to facilitate drainage and maintain a stable roadside. Sloped granite curb would be extended along the southern approach, east side, and northern approach, east and west sides, to facilitate tying into the existing and proposed cut slopes. This curb would also provide a “traffic calming” effect, encouraging slower vehicle entry speeds and preventing the distribution of shoulder backup across the pavement as experienced at other rural roundabouts. Shoulders outside the circulatory roadway, immediate roundabout approaches, and outside the limits above would remain uncurbed.

3.3.3.1. (3) Grades – All maximum grades throughout the project limits would be in accordance with the standards contained in **Section 3.2.3.2**. Refer to the profiles in **Appendix A** for detailed grade information.

3.3.3.1. (4) Intersection Geometry and Conditions – Refer to plans in **Appendix A** for an illustration of the project's proposed intersection geometry.

Under Alternative 5, the 4-legged two-way stop-controlled intersection of CR 28 and Shortsville Road would be replaced with a modern roundabout. The roundabout would have an inscribed circle diameter of 140 feet, elongated splitter islands, a truck apron, and a landscaped central island. The roundabout would have a single approach lane in each direction, single departure lane in each direction, and a single circulating lane. Refer to **Exhibit 3.2.3.3-3** for a list of design vehicle turns that would be accommodated at the roundabout. Refer to the plans contained in **Appendix A** for the proposed intersection geometry.

As noted, all four approaches to the proposed roundabout would feature an elongated, raised splitter island. Each of these approaches would also feature a set of curves, each successively smaller in radius. The purpose of this feature, designed in accordance with guidance in NCHRP Report 672, would be to reduce vehicle speeds as they approach the roundabout from free flow (higher than 55 mph) to approximately 20 mph or less by the time they reach the roundabout's entry.

3.3.3.1. (5) Roadside Elements:

A. Sidewalks – There are no proposed sidewalks or shared use paths within the project limits.

B. Bikeways – There are no proposed bikeways or shared use paths within the project limits.

C. Snow Storage – Snow storage would be accommodated beyond the paved shoulders on all approach roadways. A 2-foot wide, relatively flat "bench" would be constructed along the back edge of curb along the east side of the southern approach and the west side of the northern approach. This would facilitate snow storage and reduce the chance of melting snow refreezing on pavement surface. Consideration was also given to winter conditions along to roadside slopes, particularly in cut sections, where it is desirable to minimize the potential for drifting snow to the greatest extent feasible. The proposed treatment includes flatter back slopes on ditches (1:4 instead of 1:3) in select locations.

D. Utility Strips – No new utility strips are anticipated within the project limits.

E. Bus Stops – There are no bus stops within the project limits.

F. Driveways – All driveways within the project limits would be replaced in kind, extended, or relocated as necessary to tie into the proposed work. This includes the existing asphalt and gravel driveways to the residential properties on the east side of CR 28, north and south of Shortsville Road, and all field access drives. The first residential driveway on CR 28, north of Shortsville Road would have a segment of the splitter island depressed in the vicinity of the driveway to permit two-way access. Though flush, the same median treatment would be carried through that area. This would provide full driveway access to the affected property owner while discouraging others from utilizing the physical break in the raised median.

Refer to **Section 3.3.2.5** for a discussion on the relocated access to Meeting House Park. A new access drive to the relocated water vault would be installed along the west side of CR 28, south of Shortsville Road. This paved access would allow the Town's maintenance vehicles to safely park off the roadway and turn around when completing weekly maintenance work.

Additional field access drives may be added during detailed design subsequent to discussion with individual property owners. Refer to the plans in **Appendix A** for proposed driveway locations and layout. Driveway culverts would be installed where necessary to facilitate drainage patterns.

G. Clear Zone – The target clear zone for all roadways within the project limits is 30 feet maximum from the edge of travel lane and varies depending on the design speed and fore slope. Existing horizontal clearances from the edge of travel lane to the line of fixed objects is generally set by the line of utility poles along the roadway. The utility poles along the north side of Shortsville Road and west side of CR 28 would be relocated as a result of the project. Ontario County would work with affected utility owners to ensure utility poles are located outside the desired clear zone for the roadway, considering the design

speed of the adjacent curve, fore slope, and location on the curve. Horizontal clearances would remain or be increased as part of the project. Existing (typical) horizontal clearances to utility poles on the approach roadways are listed below for reference.

- CR 28 - Approximately 15 feet
- Shortsville Road – Approximately 12 feet

3.3.3.2. Special Geometric Design Elements

3.3.3.2. (1) Nonstandard Features – No critical design elements that would not comply with the geometric features and cross section elements listed in **Section 3.2.3.2** are proposed within the study limits. For the purposes of this project, modern roundabout design parameters apply from the tips of the splitter islands through the central island on each approach.

3.3.3.2. (2) Non-Conforming Features – Other design features were taken into consideration in addition to the critical design elements contained in Chapter 2 of the NYSDOT HDM during the development of Alternative 5. Non-critical design elements with the project limits are presented in **Section 3.2.3.3**. Non-conforming features are design elements that depart from typical design practice but are not related to designated design criteria. No non-conforming features are proposed within the project limits. Refer to the Non-Conforming Features Checklist in **Appendix F**.

3.3.3.3. Pavement and Shoulder

A full depth pavement section is recommended given the proposed intersection improvements and roadway realignments as discussed in the Pavement Evaluation and Treatment Selection Report (PETSr) in **Appendix D**. A Portland Cement Concrete (PCC) pavement section was developed for the circulatory roadway and approaches to the modern roundabout under Alternative 5. It was generated per the Equivalent Single Axle Loading (ESAL) pavement design procedure as outlined in the NYSDOT Comprehensive Pavement Design Manual. The expected pavement service life would be 50 years. The recommended full depth PCC pavement reconstruction section for the CR 28 and Shortsville Road roundabout is as follows:

- 9-inch Portland Cement Concrete Pavement
- 12.0-inch Granular Subbase Course

A hot mix asphalt (HMA) pavement section was developed for Alternative 5, generated per the Equivalent Single Axle Loading (ESAL) pavement design procedure as outlined in the NYSDOT Comprehensive Pavement Design Manual, for approaches to the roundabout, outside the limits of the splitter islands, and other reconstruction segments throughout the project limits. The expected pavement surface life would be 20 years with an expected total pavement service life of 50 years. The recommended full depth asphalt pavement reconstruction section for CR 28 and Shortsville Road is as follows:

- 1.5-inch HMA Top Course
- 2.5-inch HMA Binder Course
- 5.0-inch HMA Base Course
- 12.0-inch Granular Subbase Course

All shoulders would be constructed to full depth and edges supported with a minimum of 2 ft of shoulder backup material or traversable curb. Asphalt backup material would be placed, as necessary, to accommodate occasional WB-50 tracking in the southeast and northwest quadrant of the proposed roundabout.

3.3.3.4. Drainage Systems

The overall drainage pattern throughout the project limits would be changed with the proposed roundabout. Curbing along the outside of the circulatory roadway and on its immediate approaches would

direct runoff to adjacent roadside ditches or the proposed closed drainage system. Similar to existing, curbing along the northern approach would direct runoff to a closed drainage system. Curb would be introduced along the east side cut section on the southern approach to facilitate drainage. New low-points on the roundabout approaches would be located at just outside the limits of the proposed curbing. Proposed grading would establish toe ditches at the bottom of roadway embankments to collect roadway runoff, preventing sheet flow from entering adjacent residential and agricultural properties. This would help limit crop damage due to salty winter and spring runoff as well as flooding of fields during heavy rain events.

Where possible, the roadway subbase would be day lighted to drain the roadbed. Underdrain would be installed in locations where the adjacent ditch bottom could not be made low enough to daylight the subbase. Each underdrain would be designed to outlet at a low point in the approach profile. The truck apron and circulating roadway would both be banked outward toward the edge of the roundabout. The proposed drainage design is summarized in **Exhibit 3.3.3.4** and also shown on the plans in **Appendix A**.

All existing pipes under the road would be replaced. The proposed closed drainage system would capture ditch flow and roadway surface flow at low points and consist of a series of end sections, drainage structures, pipes, and manholes. Proposed drainage pipes beneath the road would be appropriately sized reinforced concrete pipe (RCP). Additionally, new pipes outside the roadway would be smooth interior corrugated plastic pipe made of high-density polyethylene (SICPP, HDPE), all with appropriately sized drainage structures or manholes. All existing driveway pipes in poor condition would be replaced as part of the project. The proposed closed drainage system would be installed throughout the project limits as summarized in **Exhibit 3.3.3.4**. The system would outlet at the northeast corner of the proposed intersection, along the east side of CR 28, to its end point approximately ~1,100 feet north of the intersection at an unnamed tributary of Padelford Brook. This would eliminate the roadway runoff from heading north through a meandering swale, across adjacent farmland, to the same unnamed tributary.

Exhibit 3.3.3.4 Proposed Drainage Design Summary			
Leg / Roadway	Side	Ditch Section Slopes	Comments
West (Shortsville)	North	1:4 Fore 1:3 or Flatter Back 2 ft Bottom	Ditch would carry flow from the project limits to the approach low point and be picked up by the closed drainage system, outletting to the closed drainage system headed north.
	South	1:4 Fore 1:3 Back 2 ft Bottom	Ditch would carry flow from the project limits to the approach low point and be picked up by the closed drainage system, outletting to the closed drainage system headed north.
South (CR 28)	West	1:4 Fore 1:4 Back 2 ft Bottom	Ditch would carry flow from the project limits to the approach low point and be picked up by the closed drainage system, outletting to the closed drainage system headed north.
	East	1:5 Fore 1:4 Back 2 ft Bottom	Ditch would drain to the north / proposed catch basin adjacent to a residential driveway and outlet to the north into the trunk line. North of the driveway, a catch basin would be placed in the shoulder at the approach low point and outlet into the closed drainage system headed north.
East (Shortsville)	North	1:4 Fore 1:3 Back 2 ft Bottom	Ditch would carry flow from the project limits to the approach low point and be picked up by the closed drainage system, outletting to the closed drainage system headed north.

Exhibit 3.3.3.4 Proposed Drainage Design Summary			
Leg / Roadway	Side	Ditch Section Slopes	Comments
	South	1:4 Fore 1:3 Back 2 ft Bottom	Ditch would carry flow from the project limits to the approach low point and be picked up by the closed drainage system, outletting to the closed drainage system headed north.
North (CR 28)	West	NA	A catch basin would be placed in the shoulder at the approach low point and outlet into the closed drainage system headed north.
	East	NA	A catch basin would be placed in the shoulder at the approach low point and outlet into the closed drainage system headed north.

3.3.3.5. Geotechnical

Ontario County will be completing additional soil borings along the northern approach to determine the depth of existing bedrock in Spring 2019. This will be used to determine the feasibility of installing the proposed drainage outlet to the north along CR 28. No other special geotechnical considerations exist, and no special geotechnical construction techniques are anticipated within the project limits that would affect design or construction. A geotextile separation product would be installed between the prepared subgrade and new granular subbase in accordance with Ontario County design standards.

3.3.3.6. Structures

There are no proposed bridges within the project limits.

3.3.3.7. Hydraulics of Bridges and Culverts

There are no proposed bridges or culverts within the project limits. There are no dams in the vicinity of the project that would be adversely affected.

3.3.3.8. Guide Railing, Median Barriers and Impact Attenuators

Existing box beam guide rail in the southwest corner of CR 28 and Shortsville Road intersection would be removed. It would not require replacement in conjunction with the proposed intersection improvements and roadside grading.

3.3.3.9. Utilities

Public utility relocations would be required in order to complete the proposed construction. Potential utility impacts are summarized in **Exhibit 3.3.3.9**.

Exhibit 3.3.3.9 Location of Potential Utility Impacts			
Owner	Type	Location/Side	Proposed Modifications
Town of Farmington	Water	West side of CR 28 throughout the project limits. North side of Shortsville Road, west of CR 28. Crossing of CR 28 along the north side of Shortsville Road dead ends on east side. Existing pressure reducing valve vault along the west side of CR 28, south of Shortsville Rd.	Relocate / replace water main and vault in conflict with the proposed roundabout and approach roadways.
RG&E	Electric	<u>Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the project limits. North side of Shortsville Road throughout the project limits.	Relocate (5) utility poles and overhead wires in conflict with the proposed roundabout and approach roadways and to accommodate clear zone requirements.
Windstream	Telephone	<u>Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the project limits. North side of Shortsville Road throughout the project limits.	Relocate (5) utility poles and overhead wires in conflict with the proposed roundabout and approach roadways and to accommodate clear zone requirements.
Charter Communications	Fiber Optic	<u>Proposed Overhead</u> – West side of CR 28 for 300 ft north and south of Shortsville Road. East side of CR 28 from there to the northern project limits. North side of Shortsville Road, west of CR 28.	Relocate (3) utility poles and overhead wires in conflict with the proposed roundabout and approach roadways and to accommodate clear zone requirements.

3.3.3.10. Railroad Facilities

There are no railroad facilities within the project limits.

3.3.4. Landscape and Environmental Enhancements

Refer to Chapter 4 for complete discussion of environmental considerations.

3.3.4.1. Landscape Development and Other Aesthetics Improvements

Low maintenance, salt tolerant landscaping would be provided in the central island of the proposed roundabout to enhance its conspicuity, control sight lines, and enhance aesthetics. Ontario County has recently begun specifying stone mulch for the interior of its roundabouts. A small vegetated berm would be constructed on the eastbound Shortsville Road approach to the roundabout as the approach roadway curves to the south. The berm and landscaping would be placed in the “ghost” alignment of the existing roadway to help guide vehicles toward the reconfigured approach and intersections. The berm would be planted with trees to enhance its visual prominence and reduce the need for long-term maintenance (mowing).

All plantings would be of a self-sufficient and of a low maintenance variety. Although plantings would be considered low-maintenance, some maintenance would need to be performed, particularly in the roundabout’s central island, 1 to 2 times a year beyond the period of establishment.

A limited number of tree removals (4 inches or more in diameter at breast height) would be included in the project. These would take place in the along the south side of Shortsville Road and east side of CR 28, in the southeast quadrant of the intersection. The intent of the proposed design is to avoid impacts to mature trees located within the Meeting House Park. Temporary vegetation protection fencing would be installed during construction to protect the existing plantings in this corner. Any other plantings disturbed by the project would be replaced in-kind. Turf would also be reestablished upon completion of the project.

The surfaces of the splitter islands would be standard, colored concrete. The surface of the truck apron would also have an aesthetic treatment to visually offset it from the circulatory roadway pavement. This would both enhance aesthetics and discourage motorists from improperly using the splitter islands and apron.

3.3.4.2. Environmental Enhancements

The entrance to Meeting House Park in the northwest corner of CR 28 and Shortsville Road would be moved away from the intersection along with the construction of a paved parking area. This would enhance access and visitor accommodation.

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 and reflects the current project scope. A copy of the Smart Growth Screening Checklist is provided in **Appendix I**.

Other Miscellaneous Information

None.

CHAPTER 4 - SOCIAL, ECONOMIC and ENVIRONMENTAL CONDITIONS and CONSEQUENCES

4.1 Introduction

4.1.1 Environmental Classification

4.1.1.1 NEPA Classification

This project is being progressed as a Class II action (Categorical Exclusion) because it does not individually or cumulatively have a significant environmental impact and is excluded from the requirement to prepare an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) as documented in the Federal Environmental Approvals Worksheet (FEAW) and following discussion in this chapter.

Specifically, in accordance with the Federal Highway Administration's regulations in 23 CFR 771.117c(23), this project is one of the project types described in the 'C' list as primarily a "Federally-funded project that would receive less than \$5,000,000; or with total estimated cost of not more than \$30,000,000 and Federal Funds comprising less than 15% of total estimated project cost" and does not significantly impact the environment. Refer to **Appendix B** for the FEAW and the Environmental Checklist.

4.1.1.2 SEQR Classification

Ontario County is the SEQR Lead Agency. In accordance with 6 NYCRR, Part 617.5, "State Environmental Quality Review," Ontario County has determined that this project is a SEQR Type II Action. No further SEQR processing is required.

4.1.2 Coordination with Agencies

4.1.2.1 NEPA Cooperating and Participating Agencies

The following agencies are Cooperating Agencies in accordance with 23 CFR 771.111(d):

- US Army Corps of Engineers
- New York State Department of Environmental Conservation (NYSDEC)

4.2 Social

The proposed alternative is not anticipated to change or impact the land use, neighborhoods, community cohesion, elderly or disabled persons or environmental justice populations, in the vicinity of the project. This project involves the improvement of the intersection of CR 28 and Shortsville Road in a rural, lightly developed, section of the Town of Farmington. This project will not result in a residential relocation.

4.3 Economic

4.3.1 Regional and Local Economies

The project would improve safety for all persons who travel through the intersection and is therefore anticipated to benefit the regional and local economies.

4.4 Environmental

4.4.1 Wetlands

4.4.1.1 State Freshwater Wetlands

There are no NYSDEC regulated freshwater wetlands or regulated adjacent areas (100 feet) within the project area per the NYSDEC Environmental Resources Mapper as shown in **Appendix B**. A site visit was performed to verify this. No further investigation is required and Environmental Conservation Law, Article 24 is satisfied.

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

Federal jurisdictional wetlands exist within the project limits as shown in the wetland delineation report in **Appendix B**. It is anticipated that the proposed project will involve impacts to wetlands as noted in **Exhibit 4.4.1.3**. There is no alternative to construction in wetlands and avoidance is not practicable; however, all practicable measures to minimize impacts to wetlands will be utilized. Efforts to minimize and avoid wetland impacts were made during the design of the proposed roundabout, but the requirement to meet current design standards would result in minor impacts to wetlands. Impacts to delineated wetlands were minimized, as one delineated wetland would be completely avoided and another would only be partially impacted. Mitigation for these impacts is not anticipated, as the total wetland impact area is less than 0.10 acre. It is expected that work will be authorized under Nationwide Permit # 14 - Linear Transportation Projects. Work will not commence until the permit is acquired and work will adhere to all permit conditions.

A Blanket Section 401 Water Quality Certification (WQC) will likely apply to this project, since the work required would meet the requirements of Nationwide Permit # 14 - Linear Transportation Projects and it would comply with the NYSDEC General WQC Conditions. Permits will be obtained once the location and extent of the impacts are finalized.

Exhibit 4.4.1.3 Wetland Impacts					
Wetland		Identified Functional Values	Total Size (acre)	Impacts (acre)	
ID	Type			Temporary	Permanent
1	Emergent Swale	<ul style="list-style-type: none"> Highway & Roadside drainage/filtering Storm water drainage/storage 	0.003	0	0.003

Exhibit 4.4.1.3 Wetland Impacts					
Wetland		Identified Functional Values	Total Size (acre)	Impacts (acre)	
ID	Type			Temporary	Permanent
2	Emergent Ditch	<ul style="list-style-type: none"> Highway & Roadside drainage/filtering Storm water drainage/storage 	0.016	0	0.016
3	Emergent Ditch	<ul style="list-style-type: none"> Highway & Roadside drainage/filtering Storm water drainage/storage 	0.039	0	0.030
4	Emergent Ditch	<ul style="list-style-type: none"> Highway & Roadside drainage/filtering Storm water drainage/storage 	0.006	0	0
Total Impacts				0	0.049

4.4.1.4 Executive Order 11990

A programmatic Executive Order 11990 applies to this project, based on its classification as a Categorical Exclusion under 23 CFR 771.117 and its qualification for a U.S. Army Corps of Engineers Section 404 Nationwide Permit. Minor impacts to federal jurisdictional wetlands are proposed; however, there is no practicable alternative to construction in the wetlands and all practicable measures to minimize harm to the wetlands would be incorporated. The project satisfies the requirements of EO 11990. No further approval from FHWA is required.

4.4.1.5 Mitigation Summary

Impacts to wetlands are 1/10 of an acre or less and a Nationwide Permit applies to the proposed activities; therefore, no wetland mitigation/monitoring plan is required for this project.

4.4.2 Surface Waterbodies and Watercourses

4.4.2.1 Surface Waters

One tributary was identified within the project area: an unnamed tributary to Padelford Brook. The Ordinary High-Water Mark (OHWM) of this tributary was delineated during the Wetland Delineation and is included on the wetland mapping for the project. Project design will not require the placement of fill below the OHWM of the tributary and impacts to this tributary are not anticipated.

4.4.2.2 Surface Water Classification and Standards

The unnamed tributary is rated Class C and is not a 303(d) segment based upon a review of the NYSDEC GIS data maps for regulated streams.

The best usage for Class/Standard "C" waters is fishing. Water quality is suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

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 are no protected streams, nor 50-foot regulated stream banks (on either side of a regulated stream), in the project area.

4.4.3 Wild, Scenic, and Recreational Rivers

4.4.3.1 State Wild, Scenic and Recreational Rivers

There are no NYSDEC Designated, Study or Inventory State Wild, Scenic or Recreational Rivers within or adjacent to the proposed project site. No further review is required.

4.4.3.2 National Wild and Scenic Rivers

The project does not involve a National Wild and Scenic River as shown by the Nationwide Rivers Inventory List of National Wild and Scenic Rivers. No further review is required.

4.4.3.3 Section 4(f) Involvement

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

4.4.4 Navigable Waters

There are no state or federally regulated navigable waters located within the project area.

4.4.5 Floodplains

The project is not located within a regulated floodplain as shown on the GIS data base for 100-year floodplains. No work is proposed within floodplain areas.

4.4.6 Coastal Resources

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

According to the NYS DOS website of approved Local Waterfront Revitalization Programs, updated May 2017, the project is not located in a Local Waterfront Revitalization Area. No further action is required.

The 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

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.

A review of the EPA-designated Sole Source Aquifer Areas Federal Register Notices, Maps, and Fact Sheets indicates that the project is not located in a Sole Source Aquifer Project Review Area. No federal review and/or approvals are required pursuant to Section 1424(e) of the Safe Drinking Water Act. Refer to **Appendix B** for the documentation.

4.4.8 Stormwater Management

A SPDES General Permit for Stormwater Discharges from Construction Activity GP-0-15-002 would be required because the project has more than one acre of soil disturbance. Based on the preliminary design, it is anticipated that permanent stormwater features would be required to treat the water quality volume for the project site. The project is a redevelopment project that proposes an increase in impervious area, resulting in 0.073 acre-feet of water quality volume required for treatment. The project plans to meet this requirement through the construction of dry swales within the project corridor. While the project would result in a small increase in impervious area, downstream analyses show there would be no increase in discharge at the confluence with the nearest stream; therefore, no water quantity treatment is required.

A Stormwater Pollution Prevention Plan (SWPPP) with the appropriate sediment and erosion control measures would be developed. Based on the SWPPP, permanent stormwater management practices would be developed during detailed design.

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. Potential impacts to federal listed species are discussed below.

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

According to the NYSDEC GIS information database, there is potential for a Federally-protected, threatened, or endangered species to be located within the proposed project area.

Tree removal is proposed as part of the project. A review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system revealed that there is potential for the Northern Long Eared Bat (*Myotis septentrionalis*) to be present at the project site. The FHWA New York Division Environmental Procedures for Section 7 of the Endangered Species Act dated December 2018 were followed to determine potential impacts to this species.

As a result, it was determined that the project will conform to the USFWS/FHWA Programmatic Consultation for Transportation Projects affecting the Northern Long Eared Bat. A preliminary determination of May Affect, Not Likely to Adversely Affect (MA NLAA) for the species was reached. This is still pending finalization by NYSDOT staff and requires USFWS/FHWA concurrence. The USFWS Species list for the project, and Section 7 documentation, is 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.

4.4.9.5 Roadside Vegetation Management

Existing roadside vegetation consists primarily of maintained lawn areas, farmland, and wetland areas. Efforts would be made to replace wildlife-supporting vegetation that is removed during 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.

4.4.11 Historic and Cultural Resources

A Project Submittal Package (PSP) was submitted to the NYSDOT Regional Cultural Resources Coordinator, who uploaded the information to CRIS for SHPO for review. A Phase 1 Archaeological Survey was prepared for the project Area of Potential Effect. The SHPO staff completed a resource eligibility evaluation which determined the South Farmington Cemetery and Chapel to be eligible for the National Register of Historic Places. A Finding Documentation is being prepared for submission to the SHPO.

4.4.12 Parks and Recreational Resources

The proposed project would not impact areas identified as State or National Heritage Areas. The Town of Farmington's Meeting House Park is located in the northwest quadrant of the intersection. The park offers passive recreation and includes a parking area, a grassed area in a stand of evergreen trees, and a stone monument bearing a metal plate with the words:

"IN MEMORY OF THE FRIENDS MEETING HOUSE ERECTED ON THIS SITE IN 1823. THE LAND WAS GIVEN BY WELCOME HERENDEEN BEING ON THE ORIGINAL FARM OF HIS FATHER NATHAN HERENDEEN WHO SETTLED HERE IN 1790. THIS MEMORIAL PLACED BY THE HERENDEEN ASSOCIATION 1928."

The property was conveyed to the Town of Farmington in a document dated June 26, 1976 (Liber 757, Page 46 of the Ontario County Clerk) from the Religious Society of Friends, containing a restriction that the Town of Farmington shall improve and maintain said lands for recreational purposes and maintain a monument containing the inscription above.

The proposed project would avoid taking any permanent easements from the park property. A temporary easement covering approximately 0.08 acres would be required to construct the project and some minor grading would occur around the south and east boundaries of the park. The project would also require the relocation of water main owned by the Town of Farmington. It is proposed that the relocated water main would cut across the southeast corner of the park property. The water main would be completely below ground and would not alter the character or use of any land above it.

4.4.12.4 Section 4(f) Involvement

Section 4(f) of the USDOT Act of 1966 (49 USC § 303; 23 CFR §774) prohibits the Secretary of Transportation from approving any program or project that requires the "use" of (1) any publicly owned parkland, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; or (2) any land from a historic site of national, state, or local significance (collectively, "Section 4(f) properties"), unless there is no feasible and prudent alternative to the use of such land and such program or project

includes all possible planning to minimize harm to the park, recreation area, wildlife refuge, or historic site.

A project uses a Section 4(f) property when:

- It permanently incorporates land from the property into a transportation facility;
- It temporarily but adversely occupies land that is part of the property; or
- It “constructively” uses the property, which occurs “when the transportation project does not incorporate land from a Section 4(f) property, but the proximity impacts are so severe that the protected activities, features, or attributes that qualify property for protection under Section 4(f) are substantially impaired.”

The Meeting House Park may be considered to be a Section 4(f) resource.

As discussed above, construction of the project would require temporary use of Meeting House Park. Per above, this might be considered a Section 4(f) use; however, there are exceptions to this in the regulations (23 CFR Part 774.13) which include, “Temporary occupancies of land that are so minimal as to not constitute a use within the meaning of Section 4(f). The following conditions must be satisfied:

- (1) Duration must be temporary, *i.e.*, less than the time needed for construction of the project, and there should be no change in ownership of the land;
- (2) Scope of the work must be minor, *i.e.*, both the nature and the magnitude of the changes to the Section 4(f) property are minimal;
- (3) There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- (4) The land being used must be fully restored, *i.e.*, the property must be returned to a condition which is at least as good as that which existed prior to the project; and
- (5) There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.”

The construction use of the proposed project at the Meeting House Park would require only a portion of the total project construction duration for grading operations and construction of an enhanced parking area, desired by the Town of Farmington. There would be no permanent adverse physical impacts and any damage to the park as a result of construction activity would be repaired.

4.4.12.5 Section 6(f) Involvement

The project would 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 would 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

The project, which would involve intersection reconstruction converting a four-legged, two-way stop-controlled intersection to a roundabout, is adjacent to and surrounded by rural agricultural and residential properties as well as a local park, cemetery, and chapel. There are three primary viewer groups of the proposed project: roadway traffic users, residential occupants, and pedestrians.

The streetscape is rural in nature with no street trees, sidewalks, or other man-made visual elements typical of a developed roadside. The view shed consists almost entirely of flat agricultural fields with isolated hedgerows delineating fields and residential areas. There are two residential properties within the

project limits. Both of the properties, one located at the northeast corner of the intersection of CR 28 and Shortsville Road and one in the southeast corner, are single family residences.

The project is expected to have minimal impact to the existing view shed. While the alignment of the intersection approaches would be slightly altered, the overall result of the alterations would not change the function or the large-scale appearance of the project area to the residential users. Vehicular users would find the intersection easier to maneuver with appropriate signage directing motorists through the roundabout. Additional signage and lighting may be considered a negative impact on the visual corridor but will substantially increase overall safety during both daytime and nighttime hours.

4.4.14 Farmlands

4.4.14.1 State Farmland and Agricultural Districts -

The proposed project is located within NYS Agricultural District 1 for Ontario County based on a review of NYS Agricultural District Maps. Since the proposed project will not acquire more than one acre from an actively operated farm within the Agricultural District, or more than ten acres within the Agricultural District, the notification requirements of the NYS Agriculture and Markets Law do not apply.

4.4.14.2 Federal Prime and Unique Farmland

Acquisition of prime or unique farmland, or farmland of state or local significance will be required for this project. It has been determined that this project will qualify for a 'small acreage exemption' and is exempt from the requirements of the Federal Farmland Protection Act, as the project proposes to convert less than 3-acres of land classified as United States Farmland. Completion of the US Department of Agriculture Farmland Conversion Rating (Form AD 1006) will not be required.

4.4.15 Air Quality

This project is located in Ontario County which is considered an ozone attainment area. The project is considered an exempt project as per Table 2 in Section 93.126 of 40 CFR. In addition, this project is also exempt from Regional Emissions Analysis as per Table 3 in Section 93.127 of 40 CFR. No additional analysis is required for this project.

4.4.16 Energy

An energy assessment is not required for the proposed project since it is not expected to:

- a. Increase or decrease VMT;
- b. Generate additional vehicle trips;
- c. Significantly affect land use development patterns;
- d. Result in a shift in travel patterns; or
- e. Significantly increase or decrease vehicle operating speeds.

The project would not significantly affect energy consumption.

4.4.17 Noise

The project would not decrease the distance between the roadway and the closest receptors by more than 50%. The project would not significantly change either the horizontal or vertical alignment or increase the number of through-traffic lanes; therefore, this project is not a Type I project and does not require a traffic noise analysis as per 23 CFR 772.

4.4.18 Asbestos

An asbestos screening has been performed for this project and it has been determined that there are no areas of potential asbestos material present. The results of the full screening are included in **Appendix B**.

4.4.19 Hazardous Waste and Contaminated Materials

A Hazardous Waste/Contaminated Materials Site Screening was conducted in accordance with NYSDOT The Environmental Manual, Section 4.4.20, 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 NYSDEC regulatory data files and a site 'walkover' completed on July 5, 2018.

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. The potential risk for involvement with documented or undocumented inactive hazardous waste/contaminated materials is low.

The results of the full screening are included in **Appendix B**.