

CR 46 at Smith Road Intersection Improvements
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Video Presentation Narrative

Slide 1: Title Slide

Welcome to Ontario County's presentation on the County Road 46 at Smith Road Intersection Improvements. This is a federally aided, local safety project being progressed in partnership with the New York State Department of Transportation.

Slide 2: Ways to provide input

Your input is important to us and is a critical piece of the project development process. You may write, e-mail, or call the County's project manager, Tim McElligott, using the contact information displayed on your screen. You can also download a comment sheet from the project website and return it to our attention. Questions, comments, and suggestions will be accepted through Friday April 10, 2020.

Slide 3: Outline

This presentation will discuss the project location, existing safety concerns, and summarize its objectives. You'll also hear about what alternatives were considered before selecting a preferred alternative, why that alternative was selected, and gain an understanding of its key features. We'll give you information on the anticipated schedule, show you how the project would affect travel patterns during construction, and a breakdown of the estimated construction cost. Our presentation will conclude with a reminder of the different ways you can share questions, comments, and suggestions.

Slide 4: Background

Ontario County has studied its two-way, stop controlled intersections using crash data spanning the years 2008 through 2018. The intersection of County Road 46 and Smith Road was identified as an intersection experiencing more crashes than similar locations around the County. Ontario County sought and secured federal Highway Safety Improvement Program funding in 2018 with the goal of improving safety by reducing the number and severity of crashes.

Slide 5: Project Location

County Road 46 and Smith Road intersect to the east of the City of Canandaigua. County Road 46 is owned and maintained by Ontario County while Smith Road belongs to the Town of Hopewell. The County Government Complex is located just three quarters of a mile east of Smith Road off County Road 46. County Road 10 lies to the west. US Route 20 and New York State Route 5 are to the south and County Road 4 is to the north.

Slide 6: Existing Conditions

Both roads are generally straight and meet at a 90-degree angle. The Smith Road approaches are controlled by stop signs while vehicles on County Road 46 have the right of way. Travel lanes on County Road 46 are 11 feet wide and the shoulders are 4-feet wide, which is typical of many County roads. Travel lanes on Smith Road are just over 10-feet wide and shoulders vary from 2 to 3 feet wide.

Slide 7: Looking southbound on Smith Road toward CR 46

Ontario County installed reflective strips on signposts, added solar powered flashing beacons to highlight warning and regulatory signs, and added new pavement markings to the intersection as interim measures in 2018 after completion of a formal Safety Assessment.

Slide 8: Volumes

The intersection serves numerous passenger cars, agricultural vehicles, trucks, and buses. People traveling to and from Finger Lakes Community College and the CMAC performing arts center also use the intersection. County Road 46 carries over 4000 vehicles per day while Smith Road serves over 2000 vehicles per day. Trucks and buses make up between 10 and 20 percent of the daily traffic depending on location.

Slide 9: Speed Data

New York State's Statutory Speed Limit of 55 miles per hour applies to both County Road 46 and Smith Road. Measurements of vehicular speeds taken in 2019 show that 85 percent of drivers travel 60 miles per hour or less when approaching the intersection from the west, north, and east. Relatively high vehicular speeds increase the chance of an injury or fatality when a crash occurs.

Slide 10: Driver's perspective on eastbound CR 46, approaching Smith Road (Part 1)

The intersection doesn't necessarily stand out amongst its surroundings when traveling on County Road 46, particularly when you're moving at a high rate of speed.

Slide 11: Driver's perspective on eastbound CR 46, approaching Smith Road (Part 2)

If not for warning signs, it might be possible to remain completely unaware of the potential for crossing or turning vehicles.

Slide 12: Crest Vertical Curve

Three of the four intersection approaches are relatively flat; however, there's a crest vertical curve to the east of the intersection that limits stopping sight distance. Engineering calculations show that the safe operating speed, that is the speed at which the vertical curve provides adequate time to see and stop for an object in the roadway, is 40 miles per hour: 15 miles per hour below the speed limit.

Slide 13: Driver's perspective on westbound CR 46, approaching Smith Road

Here we see the upcoming Smith Road intersection from a westbound drivers' point of view in a typical passenger car. The surface of the road disappears beyond the curve. Can you make out the westbound vehicle at the intersection and the southbound vehicle waiting for it to pass on Smith Road?

Slide 14: Driver's perspective on southbound Smith Road, looking left

This is what a southbound vehicle's driver might see. Notice how the crest vertical curve limits the available sight distance to the left. If a vehicle were approaching at 55 to 60 miles per hour, and you decided to cross County Road 46, you'd have enough time to complete your movement; Should you hesitate, you could be at risk of becoming involved in a right-angle collision.

Slide 15: A history of severe crashes (Part 1)

Unfortunately, severe crashes have and occurred at the intersection and continue to do so.

Slide 16: A history of severe crashes (Part 2)

As part of the design process, Ontario County completed an updated crash study. Nearly two thirds of the crashes that occurred between January 1, 2013 and November 30, 2019 involved a right-angle collision. Police reports suggest failure to stop or failure to yield the right-of-way are contributing factors. Four of the crashes resulted in at least one personal injury. One claimed a life. A collision diagram was drawn to illustrate how and where the crashes happened.

Slide 17: Purpose & Objectives

Given the straight-line approaches, relatively high vehicular speeds, features that limit sight distance, traffic volumes, and a demonstrated history of severe right-angle crashes, Ontario County is progressing this project to enhance safety at the intersection. The objectives of the project are to

- (1) Mitigate the identified crash patterns and reduce the average annual crash rate to a level at or below what's expected for similar locations; and to
- (2) Implement a treatment that encourages motorists to lower their travel speeds upon approach to the intersection, thereby decreasing the potential for a high severity crash if one does occur.

Slide 18: Project Overview

The County's design team considered multiple ways to achieve these objectives.

Slide 19: Alternative 1 – No Action

The "no action" or "null" alternative would retain two-way stop control at the intersection of County Road 46 and Smith Road. Only routine pavement maintenance along with periodic replacement of pavement markings and signs would be done. This would not improve safety at the intersection.

Slide 20: Alternative 2 – Incremental Signing and Marking

Alternative 2 would install yellow signs with the text "Cross Traffic Does Not Stop" facing Smith Road. County Road 46 would get a new painted median to highlight the intersection while narrowing the travel lanes to approximately 9 feet. Rumble strips would be cut into the pavement along the edges of the median and the shoulder to encourage motorists to slow down and remain in their lane.

Most crashes at the intersection involve a right-angle collision. Many vehicles stop on Smith Road but fail to see or properly react to an approaching vehicle. The crest vertical curve to the east may be playing a role in some of the incidents. While this treatment could draw drivers' attention to the intersection and help in the near term, simply highlighting the intersection's location is unlikely to reduce the number of crashes. New signs and markings could lose their effectiveness over time as people get used to them, especially given the high proportion of familiar, local drivers in the area. Noise and vibration from rumble strips could be a nuisance for adjacent residents. Ontario County is committed to implementing a proven long-term safety treatment at this intersection; therefore, this alternative was dismissed.

Slide 21: Alternative 3 – All-Way Stop

Ontario County also considered an all-way stop. Assuming motorists obey the new stop signs, this treatment could reduce the frequency of right-angle collisions and mitigate the effects of poor intersection sight distance. According to the Federal Highway Administration, an all-way stop might result in up to a 48 percent reduction in total crashes. It would also be relatively cheap, coming in at under \$20,000 dollars.

The Federal Highway Administration also provides tools to assess the applicability of all-way stops. Only two of the applicable warrants for all way stop control would be satisfied over the next 20 years. The potential for high speed, rear-end crashes on County Road 46 would increase, particularly right after the regulation is put in place. All vehicles would be required to stop, including trucks and buses. Negative impacts could include air pollution, traffic noise, and fuel consumption associated with stopping, idling, and acceleration. An all-way stop would still allow the potential for right-angle crashes and it would be out of character along County Road 46. Ultimately Ontario County eliminated this alternative from further consideration.

Slide 22: Alternative 4 – Traffic Signal

Alternative 4 would install an actuated traffic signal at the intersection. Of the four warrants in the National Manual on Uniform Traffic Control Devices applicable to the intersection, only one would be satisfied today. A signal would not physically reduce the potential for high speed, right-angle collisions. It would result in additional delays and could, like the all-way stop, increase the potential for high speed rear-end crashes. It would also be out of character along County Road 46 and would require long-term maintenance by a contract. This alternative was dismissed as a result.

Slide 23: Alternative 5 – Roundabout

Alternative 5, Ontario County's preferred solution, would transform the intersection of County Road 46 and Smith Road into a roundabout similar to those found nearby on County Road 10. This "geometric intervention" would physically eliminate the potential for high speed, right-angle collisions by prohibiting left turns and crossing movements. The number of potential vehicular conflict points would be reduced from 32 to 8. The Federal Highway Administration estimates that a roundabout could reduce the total number of crashes at this location by up to 72 percent. Crashes at roundabouts are less likely to result in a serious injury as they generally involve low speeds and low angles of impact. This alternative would be highly visible from all intersection approaches.

Slide 24: Geometry

The new roundabout would have a diameter of 140 feet. The 18-foot wide circulatory roadway would be striped with a single 16-foot wide travel lane, which is typical of other roundabouts across Ontario County. As with all roundabouts, entering traffic would yield to vehicles already within the circulatory roadway. The design team looked at several options for placement of the circle during design, ultimately deciding upon an option that avoids impacts to nearby residential properties while limiting the amount of new roadway built off-alignment in adjacent farmland.

Slide 25: Accommodation

The intersection would accommodate tractor trailers and farm equipment. Trailers might ride up on the concrete truck apron or use an asphalt shoulder extension to complete their turn. Buses and emergency vehicles would be able to navigate the roundabout without using the aprons.

Portions of the raised splitter islands would be made flush to facilitate access to private driveways and to accommodate the occasional pedestrian.

Slide 26: Landscaping

The central island would be mounded three feet high to focus a drivers' attention on vehicles approaching from the left. It would be covered with a low-maintenance mix of grass, stone mulch, and plantings to make the new intersection both attractive and visible.

Slide 27: CR 46 Profile Adjustment

The crest vertical curve east of the roundabout on County Road 46 would be lowered, providing adequate stopping sight distance for vehicular speeds up to 60 miles per hour. Segments of Ontario County's granite traversable curb would be installed along the roadside to avoid substantial earthwork impacts to the residential property to the north and a buried waterline to the south.

Slide 28: Approach Geometry

Each entrance to the roundabout would feature a series of horizontal curves, geometrically designed to encourage motorists to reduce their speed from upwards of 55 miles per hour to 30 miles per hour by the time they approach the yield line. Ontario County's most recently constructed roundabout at County Road 23, Fort Hill Road, and McIvor Road in the Town of Phelps is an excellent example of this design.

Slide 29: Drainage (Part 1)

The roundabout would feature relatively flat slopes leading away from the pavement, enhancing overall safety. While some stormwater would be captured in specially engineered swales designed to allow for infiltration, runoff from rainfall or snow melt would be carried away from the intersection by a system of swales, ditches, and pipes. Rather than depositing stormwater onto adjacent properties, the system would carry it north.

Slide 30: Drainage (Part 2)

A new pipe would carry the stormwater north along the west side of Smith Road, within the existing right-of-way, and outlet to an existing stream.

Slide 31: Lighting (Part 1)

Ontario County has constructed 4 roundabouts and will see its fifth built in 2020. We understand that adding lights in rural locations is a big change for those that live nearby. We've reviewed the design and performance of our roundabout lighting systems after each successive project, continually looking for ways to improve and limit their impact.

Light poles would be set well behind the edge of pavement, reducing the chance of being knocked down. Each arm would be at least 15-feet long and the lights would be mounted 24-feet above the pavement. The lighting would not be as bright as what you might have seen at the intersection of County Road 8 and County Road 41, or even along County Road 10, but falls within accepted engineering and safety guidelines.

Slide 32: Lighting (Part 2)

County Road 23 was the County's first roundabout to have perimeter lighting supplemented with landscape lighting in the center island. The landscape lights illuminate trees in the middle of the roundabout. This helps drivers recognize that they are approaching a different kind of intersection without requiring substantially brighter overhead lights. So far the County and adjacent residents have been pleased with the system's performance. This feature will be replicated at the new County Road 28 and Shortsville Road roundabout and we anticipate using the same design for County Road 46 at Smith Road.

Slide 33: Property Acquisitions

The project would require three permanent easements (shown in yellow) and two temporary easements (shown in blue). Permanent easements would accommodate realigned roadways, grading, drainage, and relocated utilities. Temporary easements would be needed to facilitate grading during construction and these areas would be restored in-kind at the end of the project.

Ontario County has begun to personally reach out to affected property owners. Owners should also expect to be contacted by the County's real estate experts in the coming months. All acquisitions will follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 to ensure compliance with federal law and fair compensation.

Slide 34: Construction

Now let's spend just a few moments discussing the anticipated construction schedule, detour plans, and estimated cost.

Slide 35: Anticipated Schedule

Preliminary design began in 2019 and public documents have been made available online for review and comment. After all comments have been received and addressed, Ontario County will begin development of detailed plans and specifications in the summer of 2020. The project should be advertised for contractor bidding by early 2021. Public utility relocations, including overhead electric, telephone, and cable, should also take place in early 2021.

Construction is planned to start in the spring of 2021; however, the intersection would remain open to the traveling public until area public schools close in late June. At that time, the contractor would be allowed to close the intersection to all traffic with posted detours. They would need to complete all grading, curb, roadway, lighting, signing, and marking work prior to the start of the next school year in September 2021. Past projects have proven that allowing a contractor to fully close the intersection allows for faster construction, minimizing disruption to the traveling public, and a higher quality product. Landscaping and finish activities would be completed, with traffic routed through the new roundabout, in the fall of 2021.

Items critical to maintaining this schedule include completion of the property acquisition process, obtaining necessary approvals from the New York State Department of Transportation, and the completion of private utility relocations.

Slide 36: County Road 46 Detour

County Road 46 would be detoured along County Road 10, County Road 4, and County Road 47 while the intersection is closed to traffic.

Slide 37: Smith Road Detour

Smith Road would be detoured along Routes 5 and 20, County Road 10, and County Road 4 while the intersection is closed to traffic.

Slide 38: Project Cost

The estimated construction cost is \$2.56 million dollars. The roundabout and its approaches account for nearly 50% of that cost. Profile adjustment along County Road 46 is estimated to cost \$150,000 dollars. The project would be funded by federal, state, and local dollars. The construction cost estimate will be continually refined as the project moves from the preliminary design phase into detailed design and ultimately to contractor bidding.

Slide 39: How to Provide Input

Finally let's review how you can ask questions, offer comments, and provide suggestions to the project team. Your input is a critical piece of the project development process.

Slide 40: Ways to provide input

You may write, e-mail, or call the County's project manager, Tim McElligott, using the contact information displayed on your screen. You can also download a comment sheet from the project website and return it to our attention. Questions, comments, and suggestions will be accepted through Friday April 10, 2020.

Thank-you for your interest in this important safety project.