



# SR 97/505 Traffic Circulation Study (Millcreek Township)

Erie Metropolitan Planning Organization, Erie County  
10.30.2021 (FINAL REPORT)



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10.30.2021 (FINAL REPORT)

## Prepared for:



Erie Metropolitan Planning Organization (MPO)

## In Coordination with:

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### **Credit/Disclaimer**

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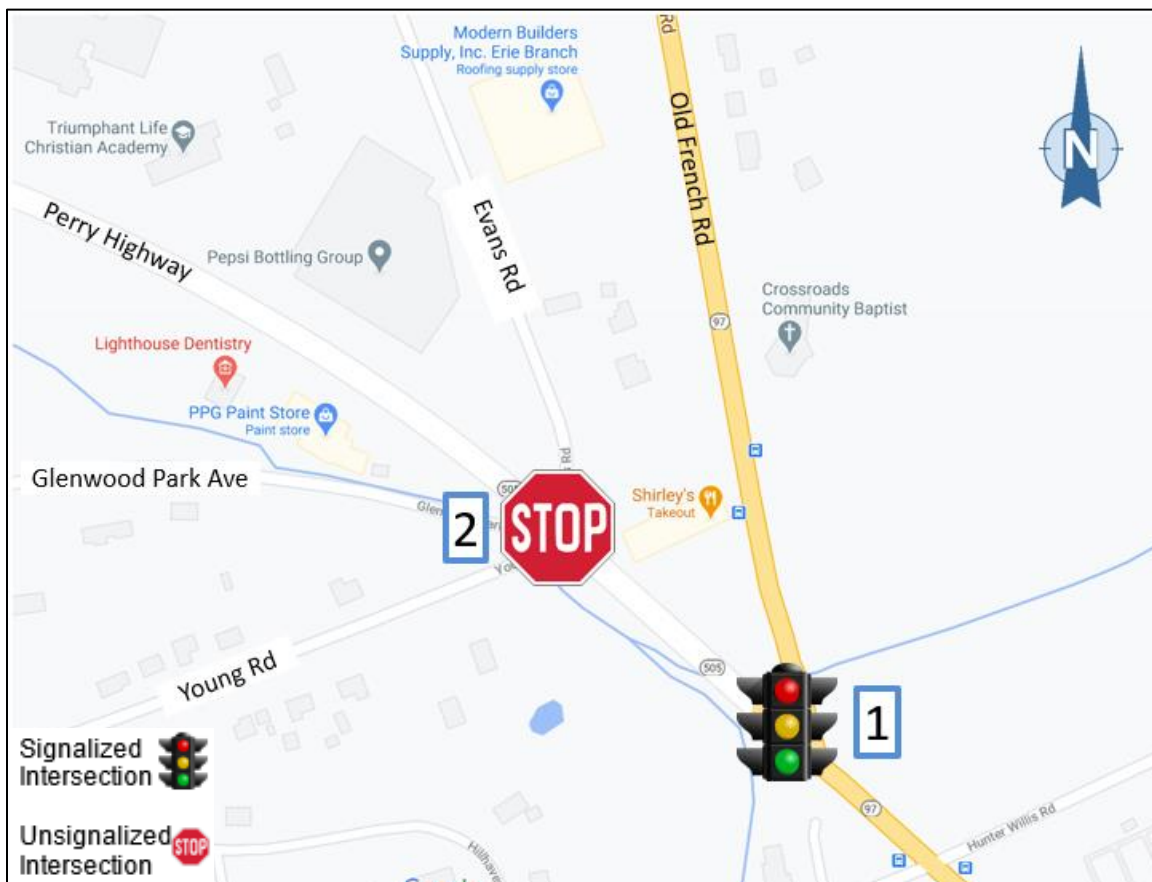
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## Executive Summary

The SR 97/505 (Millcreek Township) Traffic Circulation Study area is situated in Millcreek Township, Erie County, Pennsylvania. The study area encompasses two intersections along Perry Highway (SR 97/505). Intersection 1 is the signalized intersection of Perry Highway (SR 97/505) with Old French Road (SR 97). Intersection 2 is the unsignalized (two-way stop controlled) intersection of Perry Highway (SR 505) with Evans Road, Glenwood Park Avenue, and Young Road ([Exhibit ES - 1](#)).

Exhibit ES - 1: Project Location Map



The purpose of this project is to improve the overall safety and operations of the five-legged intersection of Perry Highway (SR 505) with Evans Road, Glenwood Park Avenue, and Young Road. A No-Build alternative and four long term alternatives were assessed for a Design Year of 2045. The study included an analysis of weekday AM and PM peak periods.

Based on analysis of the existing conditions, the two study intersections currently operate with acceptable overall Level of Service (LOS D or better) in both peak hours. Level of Service (LOS) is a letter grade ranging from A through F with A representing the best operating conditions and F representing the worst. Intersection 1 does not operate worse than LOS D during the AM or PM peak hour at any lane group or movement. Intersection 2 does not operate worse than LOS D in the AM peak hour at any lane group or movement, but the PM peak hour fails (LOS E/F) for all side street movements.

Crash data along the corridor was obtained from PennDOT's *Pennsylvania's Crash Information Tool* (PCIT) for a five-year period from January 1, 2015 through December 31, 2019. Based on PCIT summary crash data, a total of 32 reportable crashes occurred during the study period. The majority of the corridor's crashes (81%)

were reported at the intersection of Perry Highway and Evans Road/ Glenwood Park Avenue/ Young Road. A confidential Safety Study – submitted under separate cover ([Appendix E](#)) due to confidentiality requirements related to its data and content – was also completed for the project.

**No-Build** conditions assume that the existing geometry and traffic control remain at both intersections. LOS and Safety are expected to degrade as traffic volumes increase between the existing conditions and future year 2045 conditions.

**Alternative 1** installs a traffic signal at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road ([Exhibit ES - 2](#)). Proposed geometric changes include adding an eastbound right turn lane to Young Road, and a southbound left turn lane to Perry Highway. Additionally, Glenwood Park Avenue becomes one-way westbound. There are no geometric changes proposed to the Old French Road intersection for this alternative; however, both traffic signals are coordinated together, and a westbound right turn overlap phase is proposed for Old French Road.

Similar to the existing traffic operations analysis, the performance measurements evaluated include delay per vehicle and LOS for both intersections. According to the analysis, all movements at both intersections operate acceptably with a LOS D or better in both the AM and PM peak hours.

The installation of a new traffic signal at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will allow for protected left turns and enhance safety and combat sight distance issues. Converting Glenwood Park Avenue to one-way away from the intersection, changes the intersection to four approaches (instead of five), which is a more common and easier to navigate intersection type. According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes: converting an unsignalized intersection to a signalized intersection has shown a reduction in crashes approximately 44% per year (CMF ID 325) and converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

Exhibit ES - 2: Alternative 1 - Traffic Signal

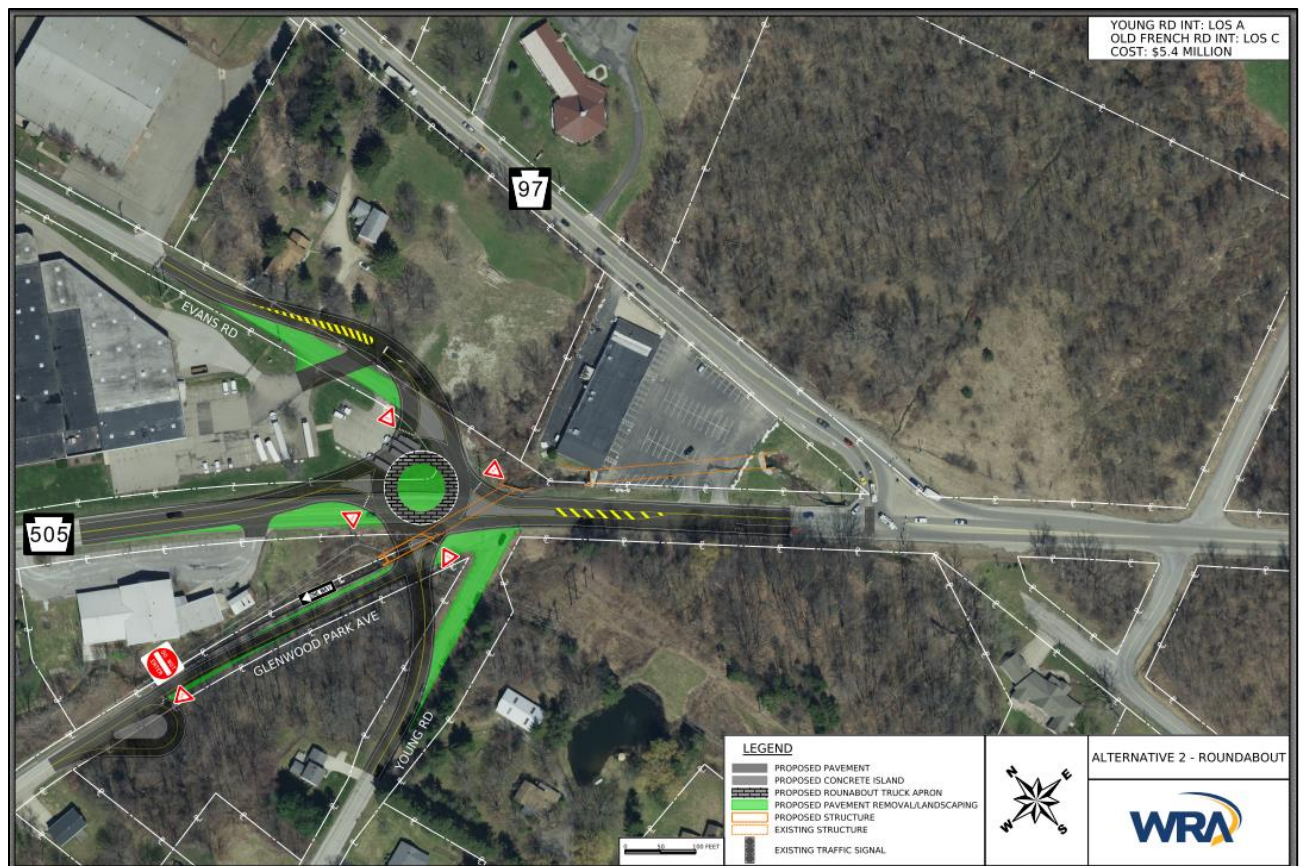


**Alternative 2** implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road in lieu of a traffic signal (**Exhibit ES - 3**). Additionally, Glenwood Park Avenue becomes one-way westbound. There are no geometric changes proposed to the Old French Road intersection for this alternative; however, a westbound right turn overlap phase is proposed for Old French Road.

The operations were evaluated with SIDRA (roundabout) and Synchro (traffic signal) and include delay per vehicle and LOS for all intersections. According to the analysis, all movements at both intersections operate acceptably with a LOS D or better in both the AM and PM peak hours. The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic. According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes: converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207) and converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

Exhibit ES - 3: Alterantive 2 - Single Lane Roundabout



**Alternative 3** implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road ([Exhibit ES - 4](#)). Under this alternative, the westbound approach is a new extension of Old French Road and Evans Road is realigned to connect to Old French Road instead of Perry Highway. Glenwood Park Avenue becomes one-way westbound. The intersection of Old French Road and Perry Highway becomes an unsignalized intersection with the northbound right turn movement free and the southbound left movement prohibited. Old French Road becomes one-way until it's connection with the newly constructed connection.

The operations were evaluated with SIDRA and include delay per vehicle and LOS for all intersections. According to the analysis, all movements operate acceptably with a LOS D or better in both the AM and PM peak hours.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic. The new connection of Old French Road to the intersection Glenwood Park Avenue and Young Road allows for the removal of the traffic signal at the existing intersection of Perry Highway and Old French and redirects the southbound left turns to Old French Road through the new roundabout. However, the realignment of Evans Road creates three very closely spaced intersections. According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes: converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207), prohibiting left-turns using a “No-Left Turn” sign has shown a reduction in crashes approximately 68% per year (CMF ID 391), removing an unwarranted signal has shown a reduction in crashes approximately 24% per year (CMF ID 332), and converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

Exhibit ES - 4: Alternative 3 - Intersection Modification 1 with Roundabout



**Alternative 4** implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road (**Exhibit ES - 5**). Under this alternative, the westbound approach is a new connection of Old French Road. Evans Road is realigned to connect to Old French Road instead of Perry Highway and is converted to one-way northbound. Traffic coming into the intersection has been rerouted to Arbuckle Road. Glenwood Park Avenue becomes one-way westbound. The intersection of Old French Road and Perry Highway is removed with access still provided to the shopping plaza.

The operations were evaluated with SIDRA and include delay per vehicle and LOS for all intersections. According to the analysis, all movements operate acceptably with a LOS D or better in both the AM and PM peak hours.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic. The new connection of Old French Road to the intersection Glenwood Park Avenue and Young Road allows for the removal of the traffic signal at the existing intersection of Perry Highway and Old French and redirects the southbound left turns to Old French Road through the new roundabout. However, the conversion of Evans Road to one-way northbound may create traffic diversions and added congestion to other roadways. According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes: converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207), removing an unwarranted signal has shown a reduction in crashes approximately 24% per year (CMF ID 332), and converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

Exhibit ES - 5: Alternative 4 - Intersection Modification 2 with Roundabout



Overall outreach and coordination for this study was accomplished in two major rounds that focused on eliciting input and blending perspectives from agency coordination and stakeholder meetings. The overall project was guided by a Project Advisory Committee while stakeholder and community engagement were accomplished through two virtual stakeholder meetings and one in-person public meeting. Additional public comments were solicited through an announcement on the Millcreek Township website.

During the final Project Advisory Committee Meeting conducted June 29, 2021, the PAC members met to initiate selection of the Locally Preferred Alternative (LPA) based upon the project purpose and need, goals and objectives, and input from previous public outreach. **The Project Advisory Committee selected Alternative 3 – Intersection Modification with a Roundabout as the locally preferred alternative.** This decision was supported in a separate email from the PennDOT District Traffic Engineer and District Design Services Engineer.

## Introduction

### Project Summary

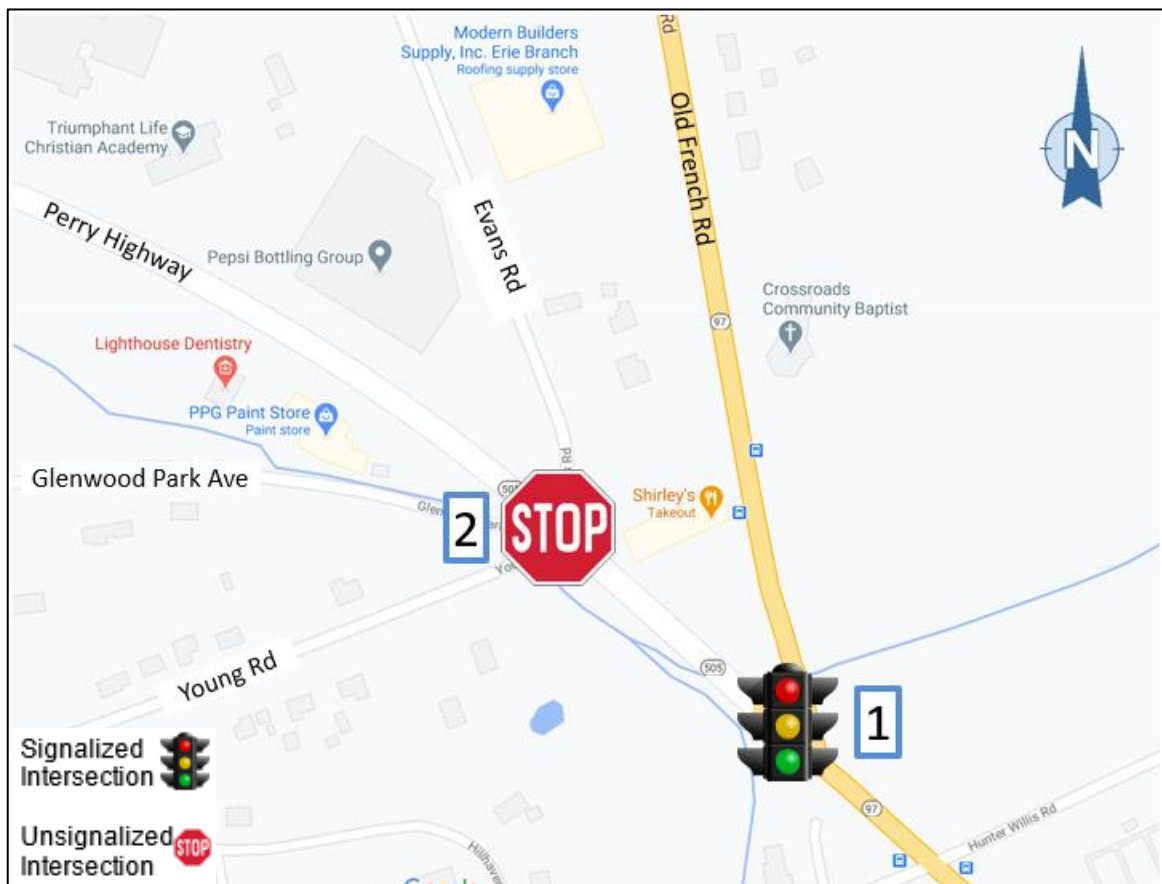
The purpose of the SR 97/505 (Millcreek Township) Traffic Circulation Study is to review the five-legged intersection of Perry Highway (SR 505) with Evans Road, Glenwood Park Avenue, and Young Road to further improve corridor operations and safety. All work is in accordance with policies, procedures, and specifications prepared or approved by PennDOT and the FHWA, where applicable.

### Location and Study Limits

The SR 97/505 (Perry Highway) Traffic Circulation Study is in Millcreek Township, Erie County, Pennsylvania. The study consists of one signalized intersection and one unsignalized (two-way stop controlled) intersection ([Exhibit 1](#)).

- Intersection 1: Perry Highway (SR 97/505) and Old French Road (SR 97)
- Intersection 2: Perry Highway (SR 505) and Evans Road / Glenwood Park Avenue / Young Road

Exhibit 1: Project Location Map



## Data Collection and Analysis

### Background Information

WRA conducted a field inventory of the corridor on November 4, 2020 and March 9, 2021. The inventory included:

- Lane configurations
- Lane widths
- Turn lane storage
- Approach grades
- Speed limits
- Signal Timings
- Signal Equipment
- Corridor Videos

The existing traffic signal permit plans were provided by PennDOT, and the existing signal timings were verified by WRA ([Appendix A](#)). Perry Highway (SR 97/505) is a two-lane undivided roadway, with auxiliary turn lanes on all approaches of the intersection of Perry Highway and Old French Road. The intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road only has one auxiliary left turn lane on the northbound Perry Highway approach. The corridor is an Urban Minor Arterial roadway and is a north to south route. There are no pedestrian or bicycle accommodations on the corridor within the study limits. Perry Highway runs parallel with US 19 connecting I-90 with Millcreek Township and the City of Erie. The posted speed limit along Perry Highway is 45 miles per hour (mph). The posted speed limit along Evans Road, Glenwood Park Avenue, and Young Road is 25 mph, 35 mph, and 40 mph, respectively.

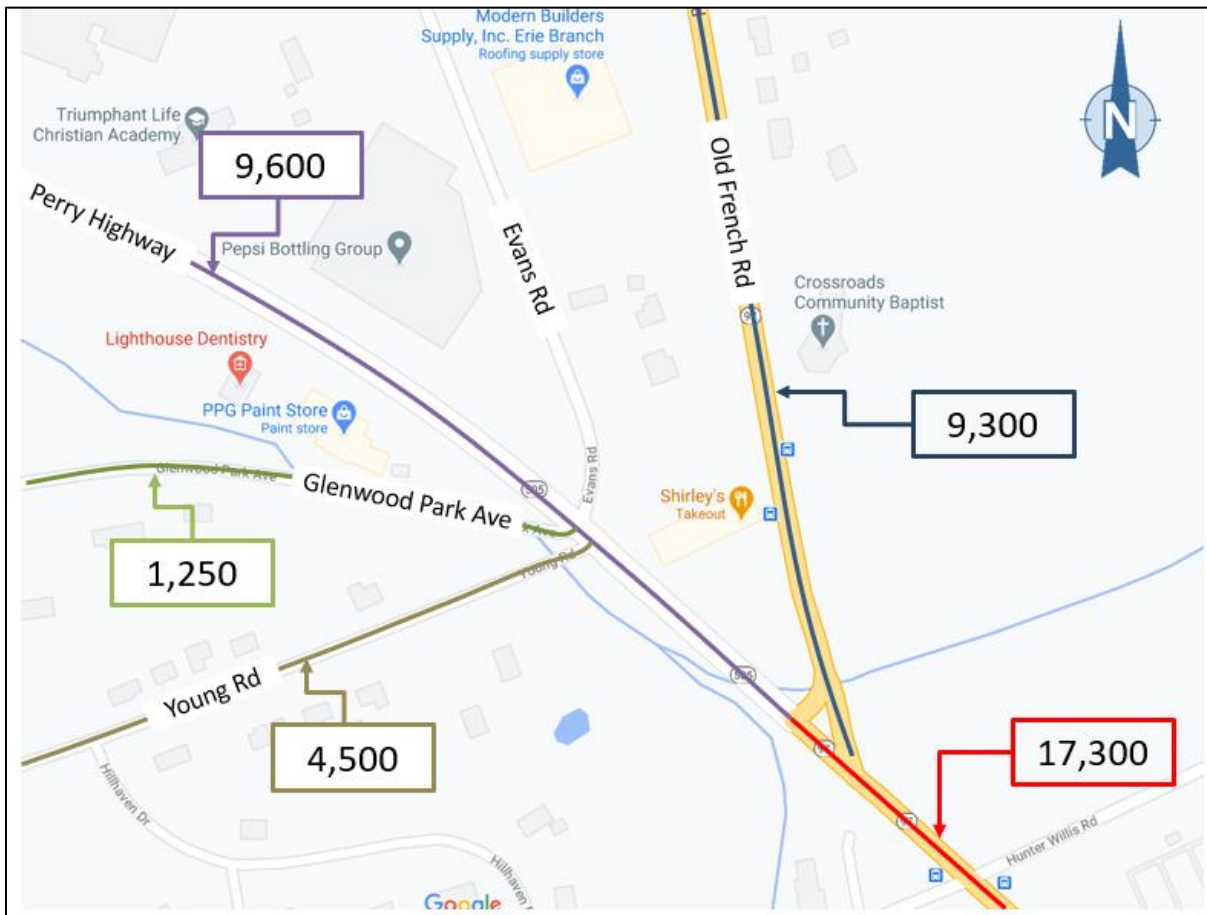
The two study intersections are spaced approximately 700 feet apart. Approach grades are relatively flat for the Perry Highway and Old French Road intersection. The Perry Highway and Evans Road / Glenwood Park Avenue / Young Road intersection has significant minor street approach grades which are +5.1%, +3.7%, and -5.6%, respectively. Perry Highway (SR 97) has an exit off I-90 approximately a mile south of these two intersections.

### Traffic Volumes and Projections

#### *Average Daily Traffic Volumes*

Average Daily Traffic (ADT) volumes were taken from PennDOT's Traffic Information Repository (TIRe) website ([Exhibit 2](#)) which reported on August 7, 2019, Perry Highway (SR 97) to have an ADT of approximately 17,300 vehicles per day (vpd) and an ADT of approximately 9,600 vpd on Perry Highway (SR 505). On November 14, 2017 TIRe reported an ADT of approximately 9,300 vpd on Old French Road (SR 97). On August 3, 2016 TIRe reported an ADT of approximately 4,500 vpd on Young Road. On May 20, 2019 TIRe reported an ADT of approximately 1,250 vpd on Glenwood Park Avenue ([Appendix B1](#)).

Exhibit 2: TIRe ADT Map



### Origin-Destination Study

Origin-destination (O-D) data was collected in order to determine traffic patterns between the study intersections (Exhibit 3). The data was collected November 5, 2020 and manually processed for the weekday AM and weekday PM peak periods. PennDOT's TIRe volumes were utilized as target values for the O-D iteration process to adjust the COVID-19 pandemic values to pre-pandemic conditions. The data was processed into the form of an O-D matrix and was summarized in a table for each peak period (Exhibit 4 and Exhibit 5). Traffic counts were collected during the following periods:

- AM Peak – 7:00 AM to 8:00 AM
- PM Peak – 3:30 PM to 4:30 PM

Exhibit 3: O-D Pairs of Interest

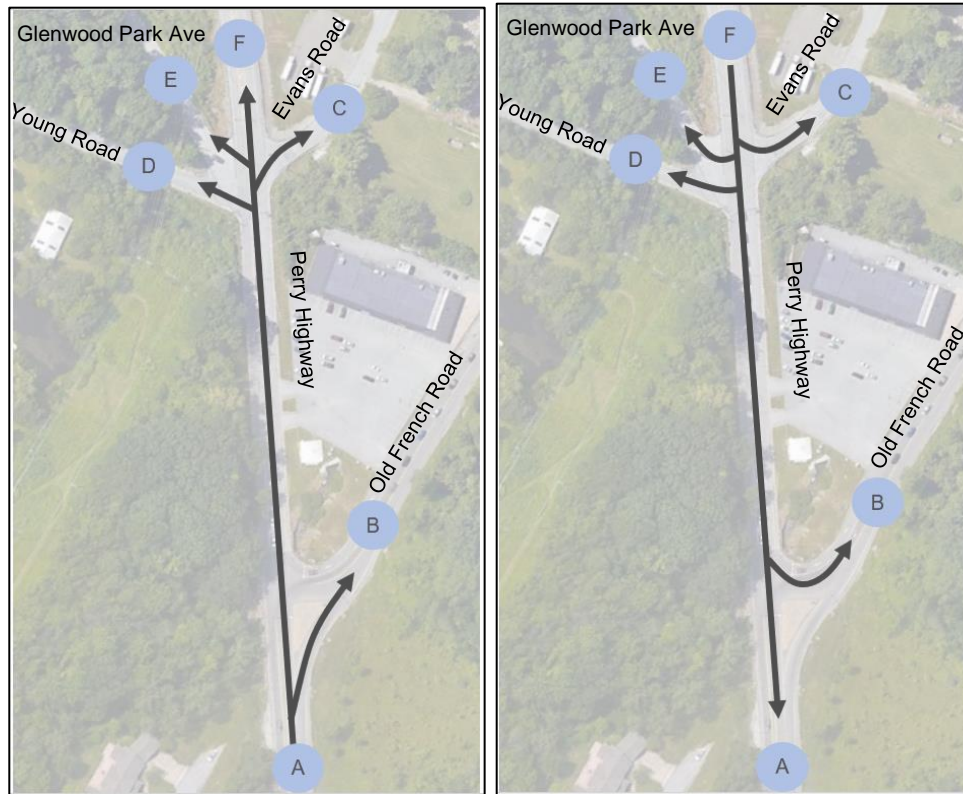


Exhibit 4: O-D Matrix for AM Peak

Origin	Destination						Total
	A	B	C	D	E	F	
A	0	385	10	10	55	385	845
B	160	0	0	45	15	5	225
C	5	0	0	15	5	10	35
D	65	85	50	0	0	40	240
E	10	0	5	0	0	0	15
F	210	15	10	10	5	0	250
<b>Total</b>	450	485	75	80	80	440	1610

Exhibit 5: O-D Matrix for PM Peak

Origin	Destination						Total
	A	B	C	D	E	F	
A	0	235	5	25	60	225	550
B	360	0	0	130	25	15	530
C	5	0	0	25	5	10	45
D	40	60	40	0	5	35	180
E	15	5	5	0	0	0	25
F	445	20	20	25	10	0	520
<b>Total</b>	865	320	70	205	105	285	1850

### *Intersection Turning Movement Volumes*

Turning Movement Counts (TMCs) were developed using the O-D study recorded above ([Appendix B2](#)). No pedestrian or bicycle traffic was recorded for this study.

### *COVID- 19 Pandemic Correction*

At the time of this analysis, the COVID-19 pandemic was ongoing, resulting in substantial traffic volume reductions nationwide, compared with pre-pandemic levels. Due to these impacts, real-time data collection was not to be used without an adjustment for the lower volumes (Strike-Off-Letter 494-20-04). To account for this drop-in traffic, volumes throughout the study area were estimated through other methods.

To create reasonable traffic volumes throughout the study area, historic traffic counts were utilized. PennDOT's TIRe ADT counts were compared to the collected volume data. This was then used to adjust the TMCs taken in November 2020.

### *Future Traffic Growth*

The 2020 traffic growth rate data that was obtained from PennDOT was utilized to grow future Opening Year 2025 and Design Year 2045 traffic volumes. A linear growth rate of 0.42% per year was given for Rural Non-Interstate roads in Erie County ([Appendix B3](#)).

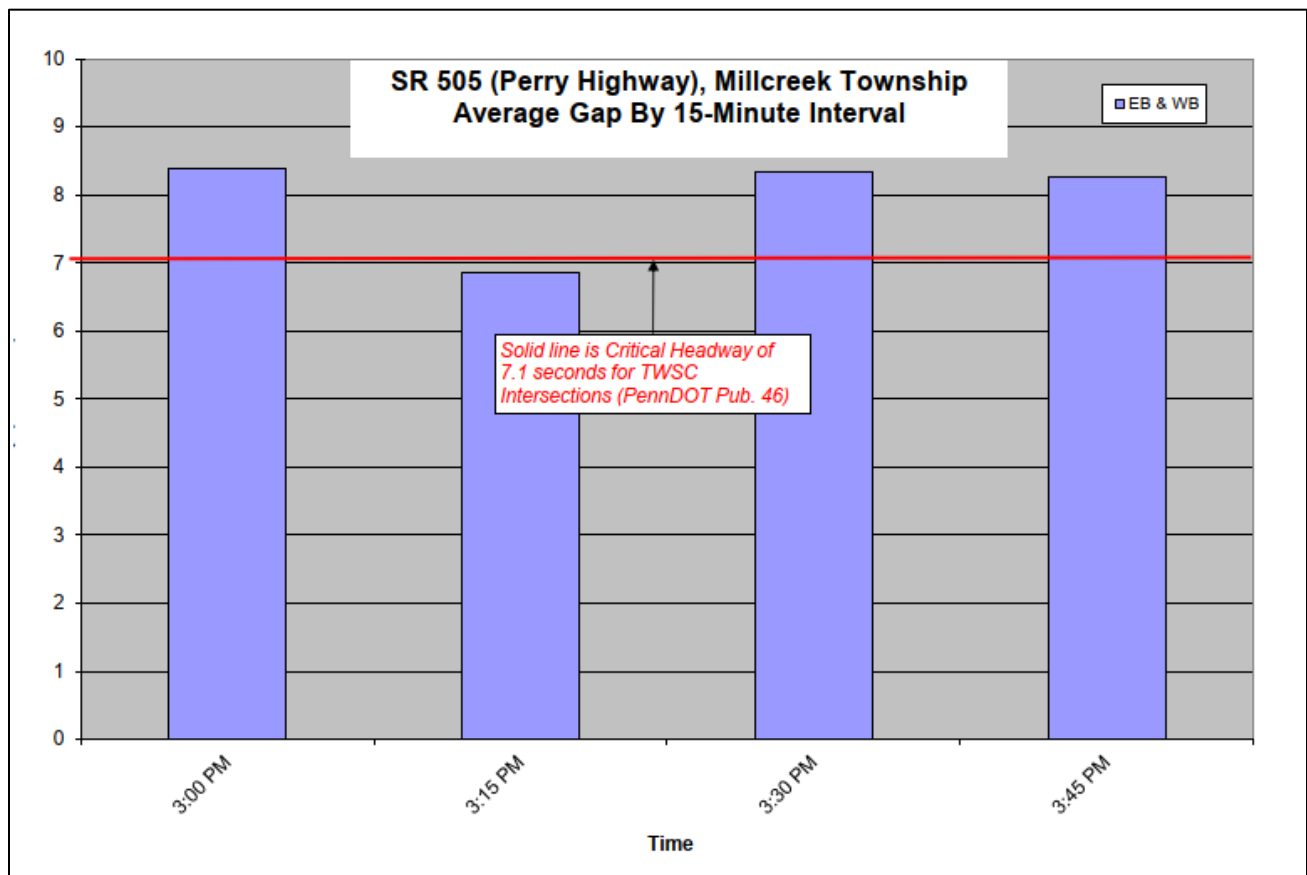
## Traffic Engineering Studies

### Gap Study

Gap studies are a measurement of the time between the rear bumper of one vehicle and the front bumper of the following vehicle. Gap studies are typically done at intersections without signals to determine if adequate time exists for vehicles to safely turn left from major streets onto driveways or minor streets, and also to determine if adequate time exists to safely turn left or right from driveways or minor streets onto major streets. A gap study was performed on Tuesday, March 9, 2021 with a manual count board in accordance with PennDOT Publication 46, Chapter 10 and Highway Capacity Manual (HCM) 2010 methodology (Appendix C1).

The minimum gap that all drivers are willing to comfortably accept is referred to as the critical gap. The gap study was performed at one location along the Perry Highway corridor for left turns onto the mainline from a minor road. The gap study was located at the Perry Highway and Evans Road / Glenwood Park Avenue / Young Road intersection. This study was completed between 3:00 PM and 4:00 PM to evaluate a range of conditions throughout the corridor (Exhibit 6). The critical gap was determined to be 7.1 seconds based off PennDOT Publication 46. As shown, the measured gap time is inadequate for one 15-minute interval for the study intersection.

Exhibit 6: Gap Study Summary Data



### Sight Distance Measurements

All locations along the study corridor were reviewed to determine where sight distance constraints may exist or if sight distance is adequate. Sight distance generally refers to the clear distance from the vehicle that is visible to the driver. This could include how far away the driver of one vehicle can see a second vehicle that may be approaching from the left or right if the driver is trying to pull onto the mainline from a side street, or the distance that a driver can stop their vehicle safely in advance of a stopped vehicle, pedestrian or any other object on the road. Distance, grade, and speed influence if or when the driver decides to complete their next maneuver (e.g. waiting, pulling out, passing, or slowing/stopping).

For both study intersections, the project team measured and compared sight distance looking left and/or right from side-street approaches based on typical criteria required by PennDOT's Design Manual Part 2: Highway Design (Publication 13M), PennDOT's Official Traffic Control Devices (Publication 212), and the applicable distances required per the AASHTO Green Book: A Policy on Geometric Design of Highways and Streets (7th Edition - 2018) ([Exhibit 7](#)). The following has been deemed **inadequate** when evaluated for sight distance on right and left turns ([Appendix C2](#)):

- Young Road (left and right turns)
- Evans Road (left and right turns)
- Glenwood Park Avenue (left and right turns)

#### Exhibit 7: Sample Sight Distance Conditions



*Evans Road looking Left*



*Glenwood Park Avenue looking Right*



*Glenwood Park Avenue looking Left*



*Young Road looking Right*

### Turn Lane Warrant Analyses

All turn lane warrants and storage lengths were evaluated based on Alternative 1 (Install a Traffic Signal at Perry Highway and Evans Road / Glenwood Park Avenue / Young Road) Design Year 2045 traffic parameters. The turn lane storage lengths were evaluated using PennDOT Publication 46 Section 11.16 and Chapter 11 Appendix. Additionally, a queuing analysis was performed wherein SimTraffic 95<sup>th</sup> Percentile queue lengths were used as a comparison to determine recommended turn lane storage lengths. Based on these evaluations, the suggested turn lane lengths are summarized below ([Exhibit 8](#) and [Appendix C3](#)).

Exhibit 8: Turn Lane Warrant Summary

Intersection / Approach	Movement	Existing Available Storage (ft)	2045 Design Year Warrant Satisfied? <sup>1</sup>		PennDOT Turn Lane Workbook Length (ft) <sup>1</sup>		SimTraffic 95 <sup>th</sup> Percentile Queue Length		Suggested Storage Length
			AM	PM	AM	PM	AM	PM	
<b>Intersection 1 - Perry Highway (SR 97/505) and Old French Road (SR 97)</b>									
WB Old French Road	Right	190	No	Yes	N/A	275	54	242	190 <sup>2</sup>
NB Perry Highway	Right	185	Yes	Yes	525	400	240	196	185 <sup>2</sup>
SB Perry Highway	Left	150	Yes	Yes	225	225	124	93	150 <sup>3</sup>
<b>Intersection 2 - Perry Highway (SR 505) and Evans Road / Glenwood Park Avenue / Young Road</b>									
EB Young Road	Right	0	Yes	No	250	N/A	95	88	150 <sup>4</sup>
NB Perry Highway	Left	150	Yes	Yes	250	400	107	242	150 <sup>5</sup>
SB Perry Highway	Left	0	No	No	N/A	N/A	53	71	75 <sup>6</sup>

- (1) Results from PennDOT Turn Lane Warrant and Length Analysis Workbook, Version 3.0.
- (2) Keep existing storage length to limit impacts to strip plaza parking lot along Old French Road and geometric changes to Perry Highway and Old French Road intersection.
- (3) Maximum distance available is 150' to not interfere with northbound left onto Glenwood Park Avenue / Young Road.
- (4) Maximum 150' turn lane to not impact utilities and right of way.
- (5) Maximum distance available is 150' to not interfere with southbound left onto Old French Road.
- (6) 75' turn lane can be provided with new pavement markings and no additional roadway widening.

### Traffic Signal Warrant Analyses

A traffic signal was evaluated for the Perry Highway and Evans Road / Glenwood Park Avenue / Young Road intersection for Base Year 2020 traffic parameters. The traffic signal warrants were evaluated using the Manual on Uniform Traffic Control Devices (MUTCD), PennDOT Publication 46, and Publication 212.

A confidential Traffic Engineering Study – submitted under separate cover ([Appendix E](#)) due to confidentiality requirements related to its data and content – was also completed for the project. That study provides a detailed summary and evaluation of traffic signal warrants for the subject intersection.

### Signal Clearance Calculations

Vehicle yellow change and red clearance intervals were reviewed as part of signal timing optimization. The computations were completed in accordance with PennDOT Publication 149M *Traffic Signal Design Handbook* procedures along with engineering judgment ([Appendix C5](#)).

The vehicle yellow change and red clearance intervals are dependent upon posted speed limits, grades, width of intersection, and engineering judgement. These intervals should be sufficient to allow a motorist to safely bring their vehicle to a stop under normal conditions, or if they are too close to stop, to proceed safely through the intersection.

The vehicle yellow change and red clearance intervals were modified in the optimized signal timing analysis ([Exhibit 9](#)). As documented above, a speed limit of 45 mph was used to calculate the yellow change and red clearance intervals along the entirety of Perry Highway. Any change in recommended clearance intervals are highlighted yellow.

Exhibit 9: Signal Clearance Summary

Approach / Movement	Existing CCI'S				Proposed CCI'S			
	Permit Plan		Controller		Calculated		Recommended	
	Yellow Change Interval	Red Clearance Interval	Yellow Change Interval	Red Clearance Interval	Yellow Change Interval	Red Clearance Interval	Yellow Change Interval	Red Clearance Interval
<b>Intersection 1 - Perry Highway (SR 97/505) at Old French Road (SR 97)</b>								
Old French Road WB	4.0	2.0	4.0	3.0	4.5	1.5	4.5	3.0
Perry Highway NB	4.0	2.0	4.0	3.0	4.6	2.4	4.5	2.5
Perry Highway SB	4.0	2.0	4.0	2.0	4.2	2.0	4.5	2.5
Perry Highway SBL	4.0	5.0	4.0	3.0	2.8	2.6	4.5	2.5
<b>Intersection 2 - Perry Highway (SR 505) at Evans Road / Glenwood Park Avenue / Young Road</b>								
Young Road EB	-	-	-	-	4.6	1.9	4.6	2.4
Evans Road WB	-	-	-	-	2.6	3.3	3.7	3.3
Perry Highway NB	-	-	-	-	4.3	2.2	4.5	2.5
Perry Highway NBL	-	-	-	-	2.9	2.5	4.5	2.5
Perry Highway SB	-	-	-	-	4.3	2.2	4.5	2.5

*Left Turn Phasing Calculations*

Left turn phasing calculations were evaluated for both study intersections. Currently, the southbound left turn onto Old French Road (SR 97) is a protected left turn. It is recommended if a signal is added to the Perry Highway (SR 505) with Evans Road / Glenwood Park Avenue / Young Road intersection the northbound left is protected ([Exhibit 10](#) and [Appendix C6](#)).

Exhibit 10: Left Turn Phasing Summary

Left Turn Phasing Calcs Summary					
<i>Results based on both the 2 vehicle / cycle &amp; Conflict Factor</i>					
Intersection	Movements	Existing Phasing	AM Peak	PM Peak	Recommendation
			Calculated		
Perry Highway at Old French Road	SB Left	Protected	Permitted	Permitted	Protected
Perry Highway at Evans Road / Young Road	NB Left	Unsignalized	Permitted	Protected	Protected
Perry Highway at Evans Road / Young Road	SB Left	Unsignalized	Permitted	Permitted	Permitted

## Traffic Operations Analyses

A traffic flow and capacity analysis was completed to establish Base Year 2020 and Design Year 2045 traffic conditions. The study area was modeled using Synchro 10 and SimTraffic traffic analysis software to replicate current conditions. Synchro is a macroscopic capacity analysis and signal optimization computer program whereas SimTraffic is a microscopic traffic simulation computer program capable of modeling individual driver behavior and traffic flow on roadway networks. Levels of Service (LOS) for the study intersections were obtained through the analyses to identify any current problem areas and develop the basis for future year comparisons. LOS is a letter grade ranging from A through F with A representing the best operating conditions and F representing the worst ([Appendix D](#)). Generally, LOS D or better is considered an acceptable range of operations for rural areas.

Due to limitations within the Highway Capacity Manual (HCM) methodology such as intersections with five or more approaches, complex controller operations, and detector placement; Synchro was unable to report HCM LOS. Instead, an average of five runs in SimTraffic was used to report the performance measures selected for this project which include delay per vehicle, and LOS, queue lengths.

### Base Traffic Operations

The base network of existing conditions was developed for the weekday AM and weekday PM peak hour traffic scenarios using the observed field data and traffic signal permit plans provided by PennDOT (i.e. for lane widths, auxiliary lane storage lengths, approach grades, traffic signal timings, etc.) coupled with project-specific data collection such as traffic volumes, traffic composition, and signal timing data ([Exhibit 11](#)).

Exhibit 11: Base Year 2020 Existing Conditions Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection 1:</b> Perry Highway at Old French Road	WB Old French Road (SR 97)	C (33)	D (38)
	NB Perry Highway (SR 97)	B (13)	B (14)
	SB Perry Highway (SR 505)	B (13)	B (15)
	<b>Intersection</b>	B (16)	C (22)
<b>Intersection 2:</b> Perry Highway at Evans Road/ Glenwood Park Avenue/ Young Road	EB Young Road	C (18)	F (132)
	SEB Glenwood Park Avenue	B (12)	E (41)
	WB Evans Road	B (15)	E (49)
	NB Perry Highway (SR 505)	A (4)	A (7)
	SB Perry Highway (SR 505)	A (2)	A (3)
	<b>Intersection</b>	A (7)	D (26)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;

ORANGE text represents LOS D;

RED text represents a failing LOS E or F.

Both intersections operate with acceptable overall LOS (LOS D or better) in both peak hours. Intersection 1 does not operate worse than LOS D in any peak hour for any lane group or movement. Intersection 2 does not operate worse than LOS D in the AM peak hour for any lane group or movement, but the PM peak hour fails (LOS E/F) for all side street movements ([Appendix D1](#)).

*No-Build Traffic Operations*

No-Build traffic conditions were simulated for the design year of 2045 volumes with no geometric or signal changes to the existing conditions (Exhibit 12).

Exhibit 12: Design Year 2045 No-Build Conditions Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection 1:</b> Perry Highway at Old French Road	WB Old French Road (SR 97)	C (32)	D (45)
	NB Perry Highway (SR 97)	B (15)	B (15)
	SB Perry Highway (SR 505)	B (14)	B (17)
	<b>Intersection</b>	B (17)	C (25)
<b>Intersection 2:</b> Perry Highway at Evans Road/ Glenwood Park Avenue/ Young Road	EB Young Road	D (28)	F (424)
	SEB Glenwood Park Avenue	C (16)	F (81)
	WB Evans Road	C (20)	F (142)
	NB Perry Highway (SR 505)	A (5)	B (11)
	SB Perry Highway (SR 505)	A (2)	A (3)
	<b>Intersection</b>	A (10)	F (61)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;  
 ORANGE text represents LOS D;  
 RED text represents a failing LOS E or F.

Overall intersection 2 fails in the PM peak hour along with all the side street movements. All intersection LOS degrade from the base conditions.

## Safety Analyses

Crash data along the corridor was obtained from PennDOT’s *Pennsylvania’s Crash Information Tool* (PCIT) for a five-year period from January 1, 2015 through December 31, 2019. Based on PCIT summary crash data, a total of 32 reportable crashes occurred during the study period. Reportable crashes are those that result in an injury or fatality, or where a vehicle is required to be towed from the scene. Non-reportable crashes are not included in the PCIT database; therefore, non-reportable crash data was requested from local police and municipal officials.

A confidential Safety Study – submitted under separate cover ([Appendix E](#)) due to confidentiality requirements related to its data and content – was also completed for the project. That study provides a detailed summary and evaluation of crash history and trends.

Of the 32 reportable crashes along the corridor, intersection crash activity included 31 crashes as follows:

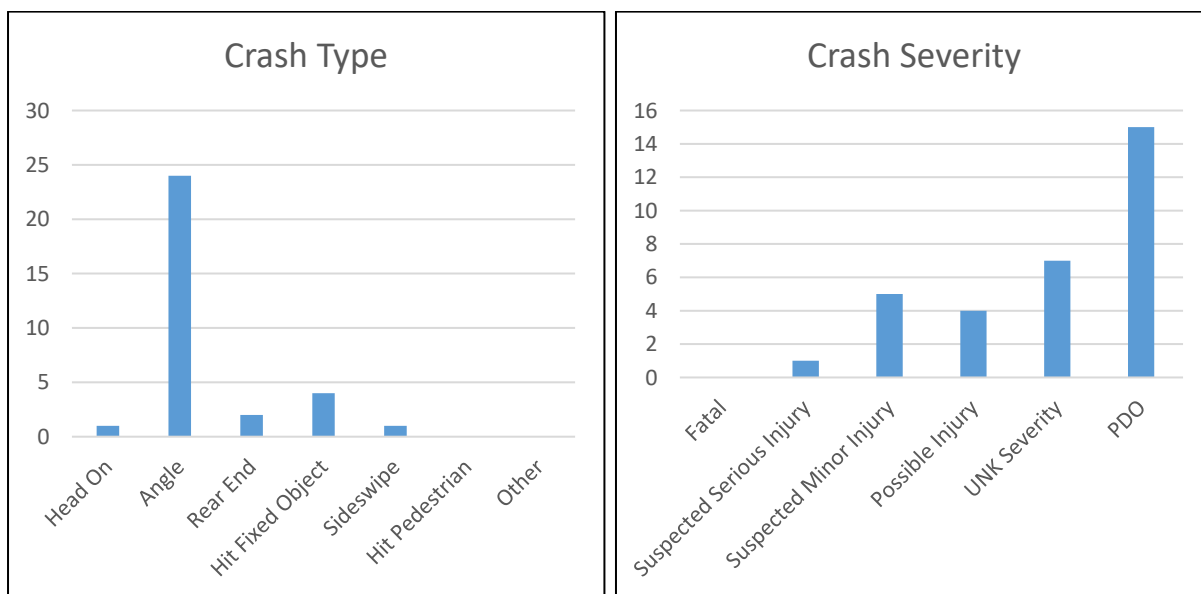
- Perry Highway (SR 97/505) and Old French Road (SR 97) (5 crashes),
- Perry Highway (SR 505) and Evans Road/ Glenwood Park Avenue/ Young Road (26 crashes),

Segment crash activity included one crash which was between the two study intersections.

For the 32 crashes compiled, there were 24 (75%) angle crashes, four (13%) fixed object crashes, and two (6%) rear end crashes reported during the study period ([Exhibit 13](#)). Most of the crashes (63%) occurred when the weather was clear and the pavement was dry, which is typical.

There was one serious injury crash and five minor injury crashes during the five-year period. Zero fatal crashes were recorded during this time period.

Exhibit 13: Crash Summary (2015 – 2019)



## Alternatives Development and Refinement

In response to the collective set of findings from field views, baseline technical analyses, and the initial outreach/coordination efforts, the project team conducted interdisciplinary brainstorming sessions to compile a list of alternatives that could be considered to address the transportation-related safety needs while keeping the project in mind.

### Project Purpose

The purpose of this project is to improve the overall safety and mobility of the five-legged intersection of Perry Highway (SR 505) with Evans Road, Glenwood Park Avenue, and Young Road.

### Project Needs

The project needs have been established through public and stakeholder outreach, crash evaluation, field measurements and traffic operations analysis and include:

- Inadequate gaps to safely turn left or right from driveways or minor streets onto major streets
- Insufficient sight distance to safely see approaching vehicles left or right from minor streets
- Operational deficiencies (LOS E/F) during the PM peak hour
- Documented history of crashes related to the conditions above

With the above discussions in mind, preliminary improvement concepts were developed to address the general and site-specific needs for the study intersection. The preliminary concepts were reviewed and discussed in May 2021 with Millcreek Township, Erie County MPO, and PennDOT. Based on feedback from these discussions, the Preliminary Alternatives were refined to create an overall set of Detailed Alternatives and related concept designs that would be the basis of information presented at the public open house. Short-Term Improvements were evaluated along with Long-Term Alternatives and Short-Term concepts were proved separately to Millcreek Township.

### Short Term Improvements

Short-Term Improvements evaluated are:

- ST 1. Make Glenwood Park Avenue one-way westbound
- ST 2. Update Pavement Markings (i.e. stop bars, center line, edge lines, advance warning markings)
- ST 3. Increase triangle sight distance (i.e. clear vegetation, trees, and other objects).

### Long Term Alternatives

Long-Term Alternatives evaluated were:

- Alterantive 1. Traffic Signal
- Alterantive 2. Single Lane Roundabout
- Alterantive 3. Intersection Modification 1 with Roundabout
- Alterantive 4. Intersection Modification 2 with Roundabout

Each alternative assumes Glenwood Park Avenue is one-way, this requires the installation of a cul-de-sac for residents, delivery drivers, and other users of Glenwood Park Avenue. When a conceptual alternative considered a roundabout, SIDRA was utilized as an additional screening tool to evaluate potential operations at a roundabout. A detailed traffic operations summary for each alternative can be found in [Appendix D3](#).

*Alternative 1 - Traffic Signal*

Alternative 1 installs a traffic signal at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road (Exhibit 14). Proposed geometric changes include adding an eastbound right turn lane to Young Road, and a southbound left turn lane to Perry Highway. Additionally, Glenwood Park Avenue becomes one-way westbound. There are no geometric changes proposed to the Old French Road intersection for this alternative; however, both traffic signals are coordinated together, and a westbound right turn overlap phase is proposed for Old French Road.

Exhibit 14: Alternative 1 - Traffic Signal



Similar to the existing traffic operations analysis, the performance measurements evaluated include delay per vehicle and LOS for all intersections. According to the analysis, all movements at both intersections operate acceptably with a LOS D or better in both the AM and PM peak hours (Exhibit 15).

## Exhibit 15: Design Year 2045 Alternative 1 Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection 1:</b> Perry Highway at Old French Road	WB Old French Road (SR 97)	C (35)	C (29)
	NB Perry Highway (SR 97)	B (15)	C (21)
	SB Perry Highway (SR 505)	B (17)	B (13)
	<b>Intersection</b>	B (18)	C (21)
<b>Intersection 2:</b> Perry Highway at Evans Road / Glenwood Park Avenue / Young Road	EB Young Road	B (20)	C (24)
	WB Evans Road	C (30)	C (32)
	NB Perry Highway (SR 505)	B (10)	C (24)
	SB Perry Highway (SR 505)	C (25)	D (43)
	<b>Intersection</b>	B (17)	C (32)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;  
 ORANGE text represents LOS D;  
 RED text represents a failing LOS E or F.

The installation of a new traffic signal at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will allow for protected left turns and enhance safety and combat sight distance issues. Converting Glenwood Park Avenue to one-way away from the intersection, changes the intersection to four approaches (instead of five), which is a more common and easier to navigate intersection type.

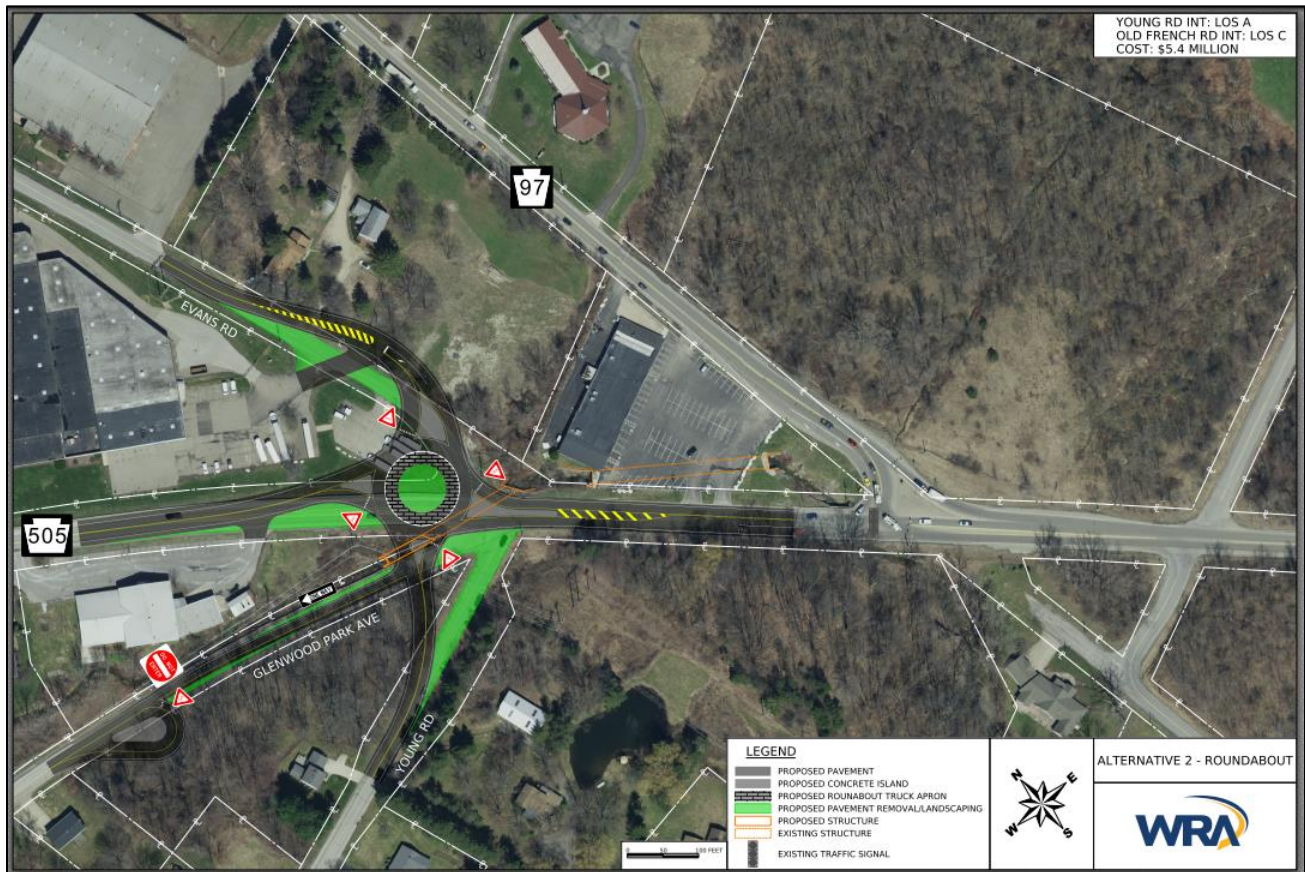
According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes:

- Converting an unsignalized intersection to a signalized intersection has shown a reduction in crashes approximately 44% per year (CMF ID 325).
- Converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

*Alternative 2 - Single Lane Roundabout*

Alternative 2 implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road in lieu of a traffic signal (Exhibit 16). Additionally, Glenwood Park Avenue becomes one-way westbound. There are no geometric changes proposed to the Old French Road intersection for this alternative; however, a westbound right turn overlap phase is proposed for Old French Road.

Exhibit 16: Alternative 2 – Single Lane Roundabout



The operations were evaluated with SIDRA (roundabout) and Synchro (traffic signal) and include delay per vehicle and LOS for all intersections. According to the analysis, all movements at both intersections operate acceptably with a LOS D or better in both the AM and PM peak hours (Exhibit 17).

Exhibit 17: Design Year 2045 Alternative 2 Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection 2:</b> Perry Highway at Evans Road / Glenwood Park Avenue / Young Road	EB Young Road	A (3)	A (4)
	WB Old French Road Ext.	A (4)	A (4)
	NB Perry Highway (SR 505)	A (2)	A (3)
	SB Perry Highway (SR 505)	A (1)	A (3)
	<b>Intersection</b>	A (2)	A (4)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;

ORANGE text represents LOS D;

RED text represents a failing LOS E or F.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic.

According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes:

- Converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207).
- Converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

*Alternative 3 - Intersection Modification 1 with Roundabout*

Alternative 3 implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road (Exhibit 18). Under this alternative, the westbound approach is a new extension of Old French Road and Evans Road is realigned to connect to Old French Road instead of Perry Highway. Glenwood Park Avenue becomes one-way westbound. The intersection of Old French Road and Perry Highway becomes an unsignalized intersection with the northbound right turn movement free and the southbound left movement prohibited. Old French Road becomes one way until it's connection with the newly constructed connection.

Exhibit 18: Alternative 3 - Intersection Modification 1 with Roundabout



The operations were evaluated with SIDRA and include delay per vehicle and LOS for all intersections. According to the analysis, all movements operate acceptably with a LOS D or better in both the AM and PM peak hours (Exhibit 19).

Exhibit 19: Design Year 2045 Alternative 3 Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection:</b> Perry Highway at Evans Road / Glenwood Park Avenue / Young Road	EB Young Road	A (4)	B (12)
	WB Old French Road	A (7)	A (9)
	NB Perry Highway (SR 505)	A (2)	A (2)
	SB Perry Highway (SR 505)	A (3)	D (32)
	<b>Intersection</b>	A (4)	B (16)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;  
 ORANGE text represents LOS D;  
 RED text represents a failing LOS E or F.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic. The new connection of Old French Road to the intersection Glenwood Park Avenue and Young Road allows for the removal of the traffic signal at the existing intersection of Perry Highway and Old French and redirects the southbound left turns to Old French Road through the new roundabout. However, the realignment of Evans Road creates three very closely spaced intersections.

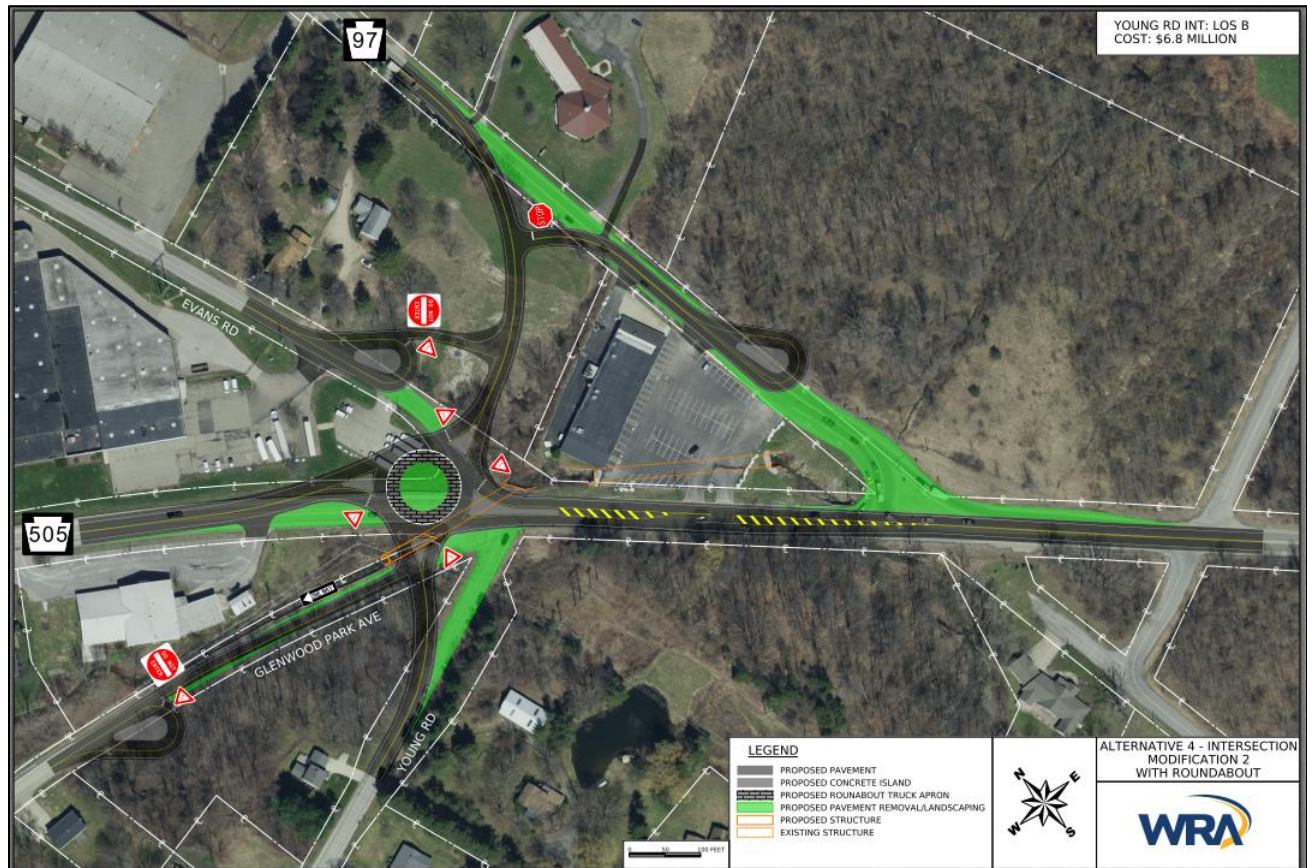
According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes:

- Converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207).
- Prohibiting left-turns using a “No-Left Turn” sign has shown a reduction in crashes approximately 68% per year (CMF ID 391).
- Removing an unwarranted signal has shown a reduction in crashes approximately 24% per year (CMF ID 332).
- Converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

*Alternative 4 - Intersection Modification 2 with Roundabout*

Alternative 4 implements a single lane roundabout at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road (Exhibit 20). Under this alternative, the westbound approach is a new connection of Old French Road. Evans Road is realigned to connect to Old French Road instead of Perry Highway and is converted to one-way northbound. Traffic coming into the intersection has been rerouted to Arbutle Road. Glenwood Park Avenue becomes one-way westbound. The intersection of Old French Road and Perry Highway is removed with access still provided to the shopping plaza.

Exhibit 20: Alternative 4 - Intersection Modification 2 with Roundabout



The operations were evaluated with SIDRA and include delay per vehicle and LOS for all intersections. According to the analysis, all movements operate acceptably with a LOS D or better in both the AM and PM peak hours (Exhibit 21).

Exhibit 21: Design Year 2045 Alternative 4 Delay and LOS

Intersection	Approach	LOS and Delay (sec)	
		AM	PM
<b>Intersection:</b> Perry Highway at Evans Road / Glenwood Park Avenue / Young Road	EB Young Road	A (4)	B (12)
	WB Old French Road	A (7)	A (9)
	NB Perry Highway (SR 505)	B (13)	A (3)
	SB Perry Highway (SR 505)	A (2)	D (32)
	<b>Intersection</b>	A (9)	B (14)

**Table Note:** GREEN text represents an acceptable LOS A, B, or C;  
 ORANGE text represents LOS D;  
 RED text represents a failing LOS E or F.

The installation of a new roundabout at the intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road will eliminate main street left turns and minor street left turns and cross traffic. The new connection of Old French Road to the intersection Glenwood Park Avenue and Young Road allows for the removal of the traffic signal at the existing intersection of Perry Highway and Old French and redirects the southbound left turns to Old French Road through the new roundabout. However, the conversion of Evans Road to one-way northbound may create traffic diversions and added congestion to other roadways.

According to the CMF Clearinghouse website and Pennsylvania CMF Guide, these improvements should improve safety and provide the following reductions in crashes:

- Converting an unsignalized intersection to a single lane roundabout intersection has shown a reduction in crashes approximately 58% per year (CMF ID 207).
- Removing an unwarranted signal has shown a reduction in crashes approximately 24% per year (CMF ID 332).
- Converting a two-way traffic road to a one-way traffic road has shown a reduction in crashes approximately 47% per year (CMF ID 5234).

## Outreach and Coordination

Overall outreach and coordination for this study was accomplished in two major rounds that focused on eliciting input and blending perspectives from agency coordination and stakeholder meetings.

### Project Advisory Committee

Throughout the entirety of the project, collaborative leadership, guidance, and agency-level feedback involved multiple planning and engineering staff from PennDOT District 1-0, Erie County Metropolitan Planning Organization (MPO), Millcreek Township, and the consultant study team ([Appendix F1](#)). These efforts included general review and discussion of overall project approach elements, pertinent assumptions, and key findings related to project data collection, analyses, definition of needs, and the development and refinement of improvement alternatives.

### Stakeholder Outreach and Coordination Round 1

The first round of public coordination was completed in February 2021 and focused on gathering feedback to support and better understand the identification of existing conditions and potential safety needs ([Appendix F2](#)). This effort included a stakeholder group meeting on February 26, 2021. A total of 14 individuals participated in the meeting. Specific stakeholders include: Millcreek Township Police, Belle Valley Volunteer Fire Department, Kearsarge Volunteer Fire Department, Pepsi Bottling Group, Lighthouse Dentistry, Millcreek Public Works Department, Grace of the Calvary Church, PPG Paints, and residents in the immediate area.

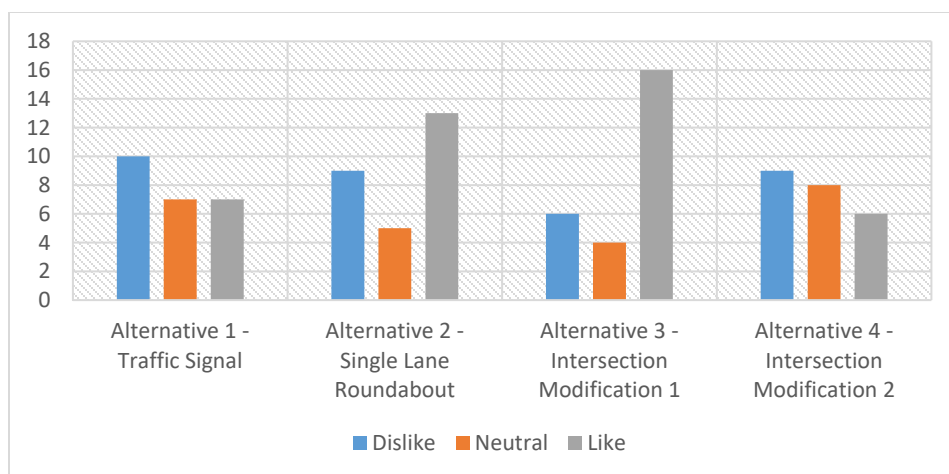
### Stakeholder Outreach and Coordination Round 2

The second round of stakeholder coordination was completed in May 2021 and focused on sharing findings from the study and reviewing alternative options that would help in the development of a long-range strategy for improving the study intersections ([Appendix F3](#)). This effort included a stakeholder group meeting on May 21, 2021 and included the same stakeholders listed in Round 1. Input taken from this meeting was then utilized to make updates to the alternative designs for the public open house.

### Public Outreach

On June 3, 2021, a public open house was held from 5:00 PM to 7:00 PM at Grace of Calvary Baptist Church in Erie, Pennsylvania. Approximately 35 people attended the open house, and 29 comment forms were filled out ([Exhibit 22 and Appendix F4](#)).

Exhibit 22: Public Input



## Locally Preferred Alternative

### Project Improvement Options and Planning Considerations

The project improvement options were compiled based on the above alternatives analysis, and the project needs determined by the Project Advisory Committee (PAC), local stakeholders, and through the public open house. The next step in the process would be to secure funding and advance the project through preliminary engineering, final design, and construction. Additional details to help support future project planning and decision-making relative to current or future implementation opportunities at the study intersection are summarized below ([Exhibit 23](#)). Relevant assumptions include the following:

#### *Timeframe*

Implementation timeframes were assumed as short-term (ST), medium-term (MT), or long-term (LT) with respect to a general opinion of the level of funding that would be required and the anticipated levels-of-effort that it may take to plan, program, design, permit, and construct each project. While specific timeframes are not proposed, the project team's perspective viewed short-term as approximately 1-3 years, medium-term as 4-6 years, and long-term as greater than 6 years.

#### *Estimated Cost*

Rough order-of-magnitude cost estimates were compiled for each project using high-level assumptions for major construction item quantities, unit costs, and reasonable allowances, contingencies, and escalation factors that affect the overall implementation cost for each improvement.<sup>1</sup> Specific allowances and contingencies encompassed percentage-based assumptions to account for: erosion & sediment control, drainage & stormwater management, maintenance & protection of traffic, construction mobilization, incidental construction items, additional signing, construction cost escalation, construction contingency, construction oversight, right-of-way, utilities, and engineering/design services ([Appendix G](#)).

#### *Maintenance Elements*

Beyond the estimated cost to implement each project, future costs will be incurred by PennDOT or municipal forces to complete periodic maintenance and upkeep. Given the unknown status of future project commitments, specific maintenance cost assumptions were not detailed at this time; however, anticipated maintenance elements were highlighted by category to be considered during future planning/programming discussions. Assumed categories generally recognized that future maintenance may be required to maintain barrier and guiderail (BG), clearing and grubbing (CG), power and lighting components (PL), roadway and shoulder paving (PV), signing and markings (SM), and traffic signal operations (TS).

#### *Design & Permitting*

Assumptions for anticipated design and permitting efforts that may be required for each project were noted as Simple, Moderate, or Complex. While no specific criteria were reviewed, these ratings generally attempted to account for the individual project scope/scale, need for engineering services, possible location-specific impacts (e.g. slopes, streams, wetlands), and their influence on lead times that may be required to realistically plan for, design, and implement a project.

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<sup>1</sup> References for cost and allowance assumptions include PennDOT's *Engineering and Construction Management System (ECMS)* "Item Price History" data and the PennDOT *Cost Estimating Guide* (Publication 352).

### *Right-of-Way and Utility Impacts*

Separate assumptions for right-of-way (ROW) and utility impacts were qualitatively based on brief reviews of available aerial imagery and historic construction plans throughout the corridor. Ratings were assumed as Low, Medium, or High based on the relative degree to which each project's implementation might affect adjacent properties (e.g. widening and shoulders) or observable utilities (e.g. utility poles alongside the roadway).

### *Safety Influence*

Safety Influence was rated as Low, Medium, or High based on the relative degree that each project might reduce or mitigate crash activity within the corridor. These ratings were based on a combination of two key considerations including (1) the existing number of crashes within the improvement area and (2) an assumed crash reduction percentage for the primary type of improvement being made.<sup>2</sup> All ratings here are relative to other improvements within the plan, but do not reflect safety enhancements beyond the existing crash counts (e.g., the positive benefit of turn-lane additions or sight-distance mitigation where existing crash counts may be low, but perceived concerns or "near-misses" may be high).

### *Operations Influence*

Operations Influence was rated as Low, Medium, or High based on the improvement in delay ([Exhibit 15](#), [Exhibit 17](#), [Exhibit 19](#), and [Exhibit 21](#)).

### *Public Buy-In*

Assumptions for public buy-in were qualitatively based on a review of survey responses from the public open house relative to the perceived benefit level of each improvement. Specifically, the assumptions for Low, Medium, or High buy-in were associated with the general range of Least to Most Benefit from the results of Question 4 on the open-house comment summary ([Exhibit 22](#)). While this input reflects only a limited sample and individual public opinions will certainly vary, it is intended to provide a high-level snapshot of the likelihood of public support or opposition for each project, which may also help to plan future public outreach and coordination efforts as the project planning and development process continues.

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<sup>2</sup> Crash reductions were estimated from available/comparable insights based on FHWA's *Crash Modification Clearinghouse* (<http://www.cmfclearinghouse.org/index.cfm>). Efforts in this study, however, are not intended to reflect a fully-detailed, quantitative crash benefit assessment given the number of CMF assumptions and approximations that were necessary (i.e., several improvement scenarios do not explicitly mesh with the currently-available CMF resources).

Exhibit 23: Alternatives Summary

Alternative / Description	Timeframe	Est Cost (\$ 000's)	Maintenance Elements <sup>(a)</sup>	Design & Permitting	ROW Impact	Utility Impact	Safety Influence	Operations Influence	Public Buy-In
ST 1: Glenwood Park Avenue One-Way	ST		(PV) (SM)	Simple	Low	Low	Low	Low	High
ST 2: Update Pavement Markings	ST		(SM)	Simple	n/a	n/a	Low	n/a	n/a
ST 3: Increase Triangle Sight Distance	ST		(CG)	Simple	n/a	n/a	Med-High	n/a	High
Alt 1: Traffic Signal	MT	\$2,164	(BG) (PL) (PV) (SM) (TS)	Simple-Mod	Low	Low	Med-High	Low	Low-Med
Alt 2: Single Lane Roundabout	MT-LT	\$5,378	(BG) (PV) (SM)	Moderate	Med	Low-Med	High	High	Med-High
Alt 3: Intersection Modification 1 with Roundabout	MT-LT	\$6,447	(BG) (PV) (SM)	Complex	High	Med-High	High	Med	High
Alt 4: Intersection Modification 2 with Roundabout	MT-LT	\$6.750	(BG) (PV) (SM)	Complex	High	Med-High	High	Med	Low

**Table Notes:**

- (a) Future maintenance elements may include: (BG) barrier and guiderail; (CG) clearing and grubbing; (PL) power & lighting; (PV) pavement; (SM) signing & markings; or (TS) traffic signal operations.
- (b) Color shading implies BLUE as least challenging or most relative benefit; YELLOW as medium; and ORANGE as most challenging or least relative benefit.

**Final Project Advisory Committee Meeting**

During the final Project Advisory Committee Meeting conducted June 29, 2021, the PAC members met to initiate selection of the Locally Preferred Alternative (LPA) based upon the project purpose and need, goals and objectives, and input from previous public outreach. **The Project Advisory Committee selected Alternative 3 – Intersection Modification with a Roundabout as the locally preferred alternative** (Exhibit 24). This decision was supported in a separate email from the PennDOT District Traffic Engineer and District Design Services Engineer.

Exhibit 24: Locally Preferred Alternative and Project Implementation Summary

<b>Project Location</b>	Intersection of Perry Highway (SR 505) and Evans Road / Glenwood Park Avenue / Young Road; and intersection of Perry Highway (SR 97/505) and Old French Road (SR 97)
<b>Project Description</b>	Construct a <b>single lane roundabout</b> at the five-legged intersection of Perry Highway and Evans Road / Glenwood Park Avenue / Young Road; where the westbound approach is a <b>new extension of Old French Road</b> and <b>Evans Road is realigned</b> to connect to Old French Road instead of Perry Highway. <b>Glenwood Park Avenue becomes one-way</b> westbound. The intersection of Old French Road and Perry Highway becomes an unsignalized intersection with the northbound right turn movement free and the southbound left movement prohibited. <b>Old French Road becomes one way</b> until it's connection with the newly constructed connection.
<b>Project Purpose</b>	Improve the overall <b>safety</b> and <b>mobility</b> of the five-legged intersection of Perry Highway (SR 505) with Evans Road, Glenwood Park Avenue, and Young Road
<b>Project Need</b>	<b>Inadequate gaps</b> to safely turn left or right from driveways or minor streets onto major streets; <b>insufficient sight distance</b> to safely see approaching vehicles left or right from minor streets; <b>operational deficiencies</b> (LOS E/F) during the PM peak hour; and <b>documented history of crashes</b> related to the conditions above
<b>Other Alternatives Studied</b>	Traffic signal with retiming and coordination, roundabout and traffic signal, roundabout with full closure of Old French Road intersection with Perry Highway
<b>Potential Challenges</b>	Funding, ROW impacts to commercial and residential properties and/or driveways, utility impacts, and culvert/structural impacts
<b>Estimated Cost</b>	<b>\$6.5 million</b> (Year 2021 dollars with 30% contingency, plus engineering, utilities, ROW and 5% annual escalation through 2026)
<b>Timeframe</b>	<b>Mid-Term to Long-Term</b> (pending funding availability)
<b>Responsible Party</b>	PennDOT District 1-0
<b>Project Partners</b>	Erie County MPO and Millcreek Township
<b>Funding Possibilities</b>	National Highway Performance Program (HNPP), Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), State Highway Capital Construction



It should be noted that further refinement of the LPA will likely be necessary during preliminary engineering and final design to determine how best to accommodate one-way street conversions (Glenwood Park Avenue and Old French Road) and mitigation strategies with Pepsi Bottling Group access, parking, and secure storage requirements.

### **Implementation Plan and Next Steps**

The collective findings of this study encompass concepts only and are not immediately linked with current or anticipated design or construction funding that would be required to implement the improvements. However, this document in conjunction with the formal Purpose and Need statements and the Locally Preferred Alternative and Project Implementation Summary reflect critical first steps toward identifying specific needs and ideas that the local, county, and state agencies may reference as they continue to plan for, prioritize, and implement transportation improvements throughout the broader region

Logical next steps could consider incorporating the LPA (where appropriate and based on funding) in the next iteration of the Erie County Long-Range Transportation Plan (LRTP) for the region, and/or in coordination PennDOT's next round of updates for the four-year Transportation Improvement Program (TIP) or Twelve Year Plan (TYP). Barring future phases of project planning and development and related funding availability, no improvements identified herein are currently committed or funded.

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