

# Highway Safety Improvement Program

## Formal Funding Application

General Project Information	
Project Sponsoring Agency	ODOT District 12
Project Name	GEA-422-11.56
PID	Not Yet Programmed
Applicant Name	Brian Blayney, PE
Contact Phone	216-584-2108
Contact Email	<a href="mailto:brian.blayney@dot.ohio.gov">brian.blayney@dot.ohio.gov</a>

Location Information			
ODOT District	12	County	GEA
Route Number	US-422R	Road Name	US 422 at Rapids Road
Begin Logpoint	11.562	End Logpoint	0.000
Begin Latitude	41.380	Begin Longitude	-81.170
End Latitude	41.380	End Longitude	-81.170

Project Description
<b>Summary of Crash Patterns</b>
<p>Between 2019 and 2021 a total of 16 crashes and 6 injuries occurred at the intersection. Rear-end crashes accounted for most (81%) of all crashes and 100% of all injuries. One of the rear-end crashes included a commercial vehicle traveling eastbound. Assured clear distance or following too closely was the contributing factor in all of the rear-end crashes. When compared to statewide averages, rear-end crashes occur more frequently than similar intersections in Ohio.</p> <p>The traffic signal installed in 2015 has been effective in mitigating severe angle crashes but rear-end crashes continue to occur. D12 has been operating the signal with a short lead-left arrow in the weekday PM peak to prevent a single left turner at the head of the queue from blocking EB through vehicles. This has helped mitigate some of the historical problems with queuing on this approach, but it is inefficient and adds delay to the three other legs of the intersection. Adding left turn lanes on US 422 is the next step in the implementation of progressively more costly countermeasures on a busy section of 2-lane highway carrying high numbers of commercial vehicles.</p>
<b>Summary of Recommended Countermeasures</b>
<p>The recommended countermeasures include:</p> <ol style="list-style-type: none"> <li>1. Add left turn lanes on US 422</li> <li>2. Add a WB left turn signal phase</li> <li>3. Implement flashing yellow arrows (FYA) signal operation for the left turn movements on US 422</li> </ol> <p>Three studies completed in the last 8 years have recommended adding left turn lanes on US 422: (1) the 2014 ODOT GEA-422-10.93/13.31 Corridor Study, (2) the 2017 GEA-422 (11.11-11.55) Abbreviated Safety Study, and (3) the 2022 GEA-422 TOAST Study.</p>
<b>Project Priority Information</b>
<p>The intersection of US 422 and Rapids Road has appeared on ODOT's safety priority lists for rural intersections since 2014 when it ranked #60. In 2015, the intersection reached its highest ranking, #17, when ODOT converted the existing overhead flasher to a 3-phase traffic signal. The most recent rankings are listed below, by year.</p> <p>2018 - #161 2020 - #165</p>

## Highway Safety Improvement Program Formal Funding Application

Crash Data					
Crash Totals (average per year)					
	Fatal & Serious Injury (KA)	Visible Injury (B)	Non-Visible (C)	Property Damage Only (O)	Total
Existing Conditions: Predicted Crash Frequency	0.3432	1.4597	1.8450	11.0258	14.67
Existing Conditions: Expected Crash Frequency	0.2719	1.1562	1.4616	7.3578	10.25
Potential for Safety Improvement	-0.0713	-0.3035	-0.3834	-3.6680	-4.43
Proposed Conditions: Expected Crash Frequency	0.2444	1.0393	1.3135	7.8501	10.45
Observed Crashes	0.3333	0.6667	0.0000	4.3333	5.33
Observed People Injury Totals					
	Fatal Injury (K)	Serious Injury (A)	Visible Injury (B)	Non-Visible (C)	Total
Observed People Injury Totals	0.0000	0.6667	1.3333	1.0000	3.00

Application Scoring				
Category	Scoring Value	Points Awarded	Points Possible	
Ratio of Observed Fatal and Serious Injuries to Observed Total Crashes	0.13	26	30	
Percentage of the Potential for Safety Improvement to Total Expected Crashes	0.00%	0	20	
Relative Severity Index	45,573.45	20	20	
Equivalent Property Damage Only Index	4.92	16	20	
Location Equity Measure	1.00%	0	10	
<b>Total</b>		<b>62</b>	<b>100</b>	

Safety Key Metrics			
Functional Class	3 - Other Principal Arterial Roadway	Active Transportation Need	3
Major Route AADT	15,876	Active Transportation Demand	1
Maximum Posted Speed Limit	45	Bicycle Level of traffic stress (if available)	5
		TOAST Score (if available)	1.00

Strategic Highway Safety Plan	
Ohio Emphasis Area	Serious Crash Types
Ohio Emphasis Area Subcategory	Intersection
FHWA Emphasis Area	Improving the design and operation of highway intersections
FHWA Improvement Category	Intersection geometry
FHWA Improvement Subcategory	Auxiliary lanes - add left-turn lane

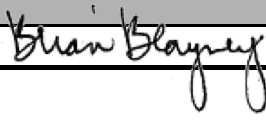
Work Locations					
NLFID	Begin Logpoint	End Logpoint	Begin Latitude	Begin Longitude	Location Termini (i.e. from Street 1 to Street 2)
SGEAUS00422**C	11.562	0.000	41.380	-81.1700	US 422 at Rapids Road

## Highway Safety Improvement Program Formal Funding Application

Project Funding							
Project Phase	Safety Study	Interchange Mod. Study	PE - Environmental	PE - Detailed Design	Right of Way /Utilities	Construction	Total
Fiscal Year	2022			2024	2025	2026	
Project Phase Completed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Previous Safety							\$0.00
New Safety	\$30,000.00		\$80,000.00	\$90,000.00	\$100,000.00	\$902,016.00	\$1,202,016.00
Sponsor Funding							\$0.00
<b>Total</b>	<b>\$30,000.00</b>	<b>\$0.00</b>	<b>\$80,000.00</b>	<b>\$90,000.00</b>	<b>\$100,000.00</b>	<b>\$902,016.00</b>	<b>\$1,202,016.00</b>
Additional Funding Detail							

Safety Economic Analysis Results			
Net Present Value of Project	\$376,527.00	Net Benefit	\$767,258.12
Net Present Value of Safety Benefits	\$1,143,785.12	Benefit / Total Project Cost Ratio	0.98
		Benefit / Safety Funding Request Ratio	0.95

Project Development		
Project Phase	Completed by	Completion Date
Safety Study	Arcadis	Aug-22

Applicant Information		
Name	Title	Phone Number
Brian Blayney, PE	Traffic Planning Engineer	216-584-2108
Signature		Date
		August 31, 2022

Version: 20210621

The following information should be included in submission of the safety project application:

1. An electronic copy of the Safety Engineering Study
2. All Excel Analysis Files  
     May include Crash Analysis Module (CAM) Tool, Economic Crash Analysis Tool (ECAT), HSIP Application and Scoring Tool.
3. Benefit-Cost Results (Economic Analysis)
4. DSRT approval signatures