

BEFORE

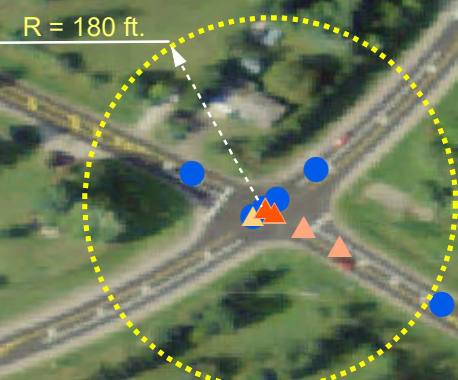
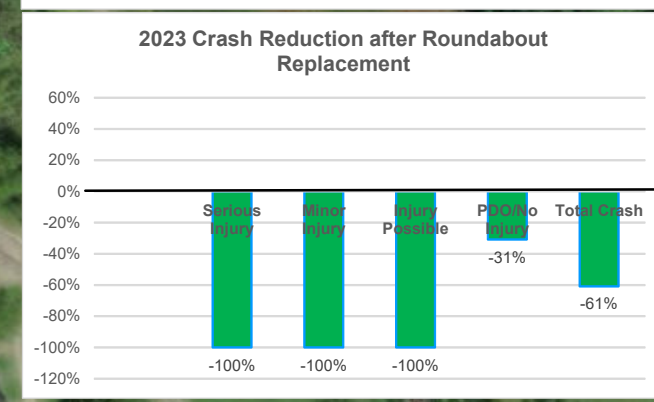
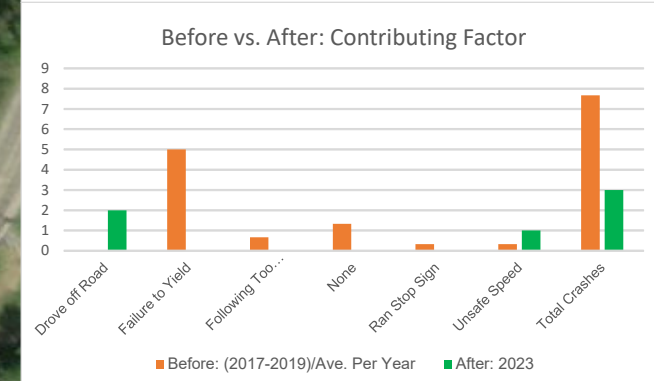
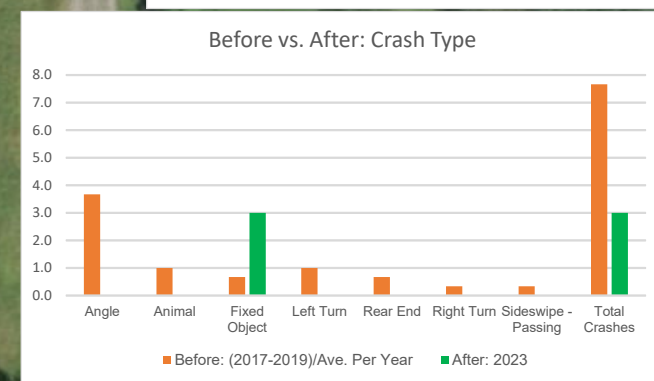
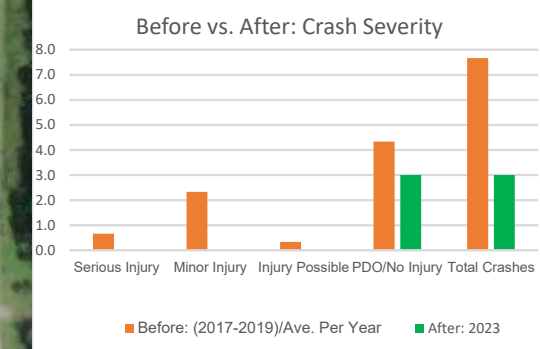
AFTER

Traffic Crash Stratified by Severity					
CRASH SEVERITY	BEFORE			AFTER	
	2017-2019 Total	Ave. Per Year	%	2023	Crash Reduction
Serious Injury	2	0.7	9%	0	-100%
Minor Injury	7	2.3	30%	0	-100%
Injury Possible	1	0.3	4%	0	-100%
PDO/No Injury	13	4.3	57%	3	-31%
<b>Total Crash</b>	<b>23</b>	<b>7.7</b>	<b>100%</b>	<b>3</b>	<b>-61%</b>

Traffic Crash Stratified by Crash Type					
CRASH TYPE	BEFORE			AFTER	
	2017-2019 Total	Ave. Per Year	%	2023	Crash Reduction
Angle	11	3.7	48%	0	-100%
Animal	3	1.0	13%	0	-100%
Fixed Object	2	0.7	9%	3	350%
Left Turn	3	1.0	13%	0	-100%
Rear End	2	0.7	9%	0	-100%
Right Turn	1	0.3	4%	0	-100%
Sideswipe - Passing	1	0.3	4%	0	-100%
<b>Total Crash</b>	<b>23</b>	<b>7.7</b>	<b>100%</b>	<b>3</b>	<b>-61%</b>

Traffic Crash Stratified by Contributing Factor					
CONTRIBUTING FACTOR	BEFORE			AFTER	
	2017-2019 Total	Ave. Per Year	%	2023	Crash Reduction
Drove off Road	0	0	0%	2	100%
Failure to Yield	15	5.0	65%	0	-100%
Following Too Closely/ACDA	2	0.7	9%	0	-100%
None	4	1.3	17%	0	-100%
Ran Stop Sign	1	0.3	4%	0	-100%
Unsafe Speed	1	0.3	4%	1	200%
<b>Total Crash</b>	<b>23</b>	<b>7.7</b>	<b>100%</b>	<b>3</b>	<b>-61%</b>

Crash Severity Stratified by Alcohol or Drug							
CRASH SEVERITY	Alcohol Related	Drug Related	BEFORE			AFTER	
			2017-2019 Total	Ave. Per Year	%	2023	Crash Reduction
Serious Injury Suspected	No	No	2	0.7	9%	0	-100%
Minor Injury Suspected	No	No	7	2.3	30%	0	-100%
Injury Possible	No	No	1	0.3	4%	0	-100%
PDO/No Injury	No	No	12	4.0		2	
	Yes	No	0	0.0		1	
POD/No Injury Sub-Total	No	Yes	1	0.3		0	
			13	4.3	57%	3	-31%
<b>Total Crash</b>			<b>23</b>	<b>7.7</b>	<b>100%</b>	<b>3</b>	<b>-61%</b>



Crashes overlaps at the same spot



- Legend**
- ▲ Serious Injury
  - ▲ Minor Injury
  - ▲ Injury Possible
  - Property Damage Only Crash

The Before/After analysis of the roundabouts at both E Cook Rd. & Mansfield-Lucas Rd. and Straub Rd. & Middle-Bellville Rd. , the only two roundabouts in our region, indicates that there has been a significant reduction in total crashes and injury related crashes at both intersections after the roundabout installations.

The analysis of the 2023 crash data at Cook Rd. & Mansfield-Lucas Rd. intersection indicated a 61% reduction in all crashes, and 100% drop in serious injury, minor injury and possible injury crashes after roundabout installation. There has been a 30% drop in Property Damage Only crashes, as well. These reductions have not only saved lives but also resulted in substantial cost savings to society.

The cost saving calculation table on right indicates that the investment (\$1,219,720.4) in building the roundabout in 2022 at intersection Cook Rd. & Mansfield-Lucas Rd. has clearly paid off in terms of both saving lives and money for the community.

The decrease in crashes translates to lower property damage, reduced medical bills, and decreased overall impact on individuals' time and resources. This success is a testament to the effectiveness of roundabouts in improving traffic safety and reducing accidents at busy intersections.

CRASH SEVERITY	NSC Ave. Crash Cost (2022)	Before: 2017 - 2019		After: 2023			
		Crashes	Three-Yr Crash Costs	Ave. Per Yr. Crash Cost	Crashes	Crash Costs	Crash Drops & Cost Savings
Fatal	\$13,111,000	0	\$ -	\$ -	0	\$ -	\$ -
Serious	\$1,066,000	2	\$ 2,132,000	\$ 710,667	0	\$ -	\$ (710,667)
Minor	\$232,000	7	\$ 1,624,000	\$ 541,333	0	\$ -	\$ (541,333)
Possible	\$126,000	1	\$ 126,000	\$ 42,000	0	\$ -	\$ (42,000)
PDO	\$17,500	13	\$ 227,500	\$ 75,833	3	\$ 52,500	\$ (23,333)
<b>TOTAL CRASH</b>		<b>23</b>	<b>\$ 4,109,500</b>	<b>\$ 1,369,833.33</b>	<b>3</b>	<b>\$ 52,500</b>	<b>\$ (1,317,333)</b>

Note: 1. The construction cost for this roundabout replacement was \$1,219,720.4 in 2022. Because the historical high crash intersection, the crash reduction (after) in 2023 has paid off in terms of both saving lives and saving money to the community.  
 2. Source for Average Comprehensive Crash Cost by crash severity: the National Safety Council (NSC) Injury Facts 2022