

SR 61 at Collins Dr

The intersection of SR 61 at Collins Drive was identified by the City of Cartersville due to a high number of angle crashes. The intersection ranked 26 in Bartow County based on ePDO ranking. A total of 72 crashes were reported from 2013 – 2022, including 4 visible injury, 21 complaint injury, and 47 property damage only crashes. Angle crashes accounted for 58% of the reported crashes. The angle crashes between westbound left and northbound through (WBL x NBT) movement accounted for 80% (33 crashes) of the total angle crashes. The WBL x NBT angle crash reports do not indicate any factors other than side street (WB) traffic failing to yield to through (NB) traffic. However, based on the Google Map, there is a limited sight distance for side street traffic towards northbound movement, and the northbound movement has the down slope to the intersection. The recommended alternative for this intersection is to install an offset right turn for northbound movement.

Recommendation: Offset Right Turn (NBR)	Safety B/C: 3.7 (4.2 with last 5 yrs crashes)
Delivery Mechanism: GDOT PDP	Estimated Cost: \$400,000

SR 61 at Gentilly Blvd

Summary

A total of 46 crashes were reported from 2013 – 2023 July, including 3 visible injury crashes, 7 complaint injury crashes, and 36 property damage-only crashes. The rear end and angle crashes accounted for 65% and 24% of those crashes reported, respectively. The recommended alternative for this intersection is to install a single lane roundabout.

Recommendation: Single Lane Roundabout	Safety B/C: 1.2
Delivery Mechanism: GDOT PDP	Estimated Cost: \$2,500,000

For the Safety B/C of 10, local contribution of 2,390,000 is required for the construction of a single lane roundabout at the intersection of SR 61 and Gentilly Boulevard.

For Safety B/C of 10:		
Annual Benefit:	\$	293,040
Annual Cost:	\$	29,304
Annual B/C Ratio:		10.00
GDOT Funding	\$	110,000
Local Participation Required	\$	2,390,000

SR 61 at Collins Dr

The intersection is a minor stop-controlled three-leg intersection. SR 61, which runs north-south, is an undivided two-lane minor arterial. Collins Drive is a four-lane major collector that runs east-west. Left turn and right turn storage lane along southbound and northbound SR 61, respectively, are present at this intersection. The westbound movement has one left turn and one right turn lane.

The westbound movement has a yield sign along with stop sign and the northbound right movement has a yield sign as well. There are no other existing safety measures present at this intersection.

The Google Earth and desktop screening show the intersection is lighted, and no major utility and grading constraints were noted. However, the northbound SR 61 approach has a small down slope, which may impact the sight distance. A stream was observed approximately 350 feet north of the intersection as shown in Figure 2.

Project
Location and
Existing
Conditions



Figure 1. SR 61 at Collins Dr Intersection Aerial

Project Location and Existing Conditions



Figure 2. SR 61 at Collins Dr Intersection – NEPA

Other Projects in the Area

There are no current projects in the area.

Analysis Origin

This intersection was identified by the City of Cartersville due to a high number of angle crashes. The intersection ranked 26 in Bartow County based on ePDO ranking.

The intersection elevation profile from Google Earth is shown in Figure 3. The northbound SR 61 has a small down slope approaching the intersection, which may impact the intersection sight distance for westbound traffic. Figure 4 shows the available sight distance for the southbound Collins Drive towards east along SR 61. Based on Google Earth, the estimated intersection sight distance for southbound Collins Drive towards east on SR 61 is approximately 850 feet, which is more than the required sight distance of 500 feet for passenger cars and 765 feet for combination trucks.

Sight Distance

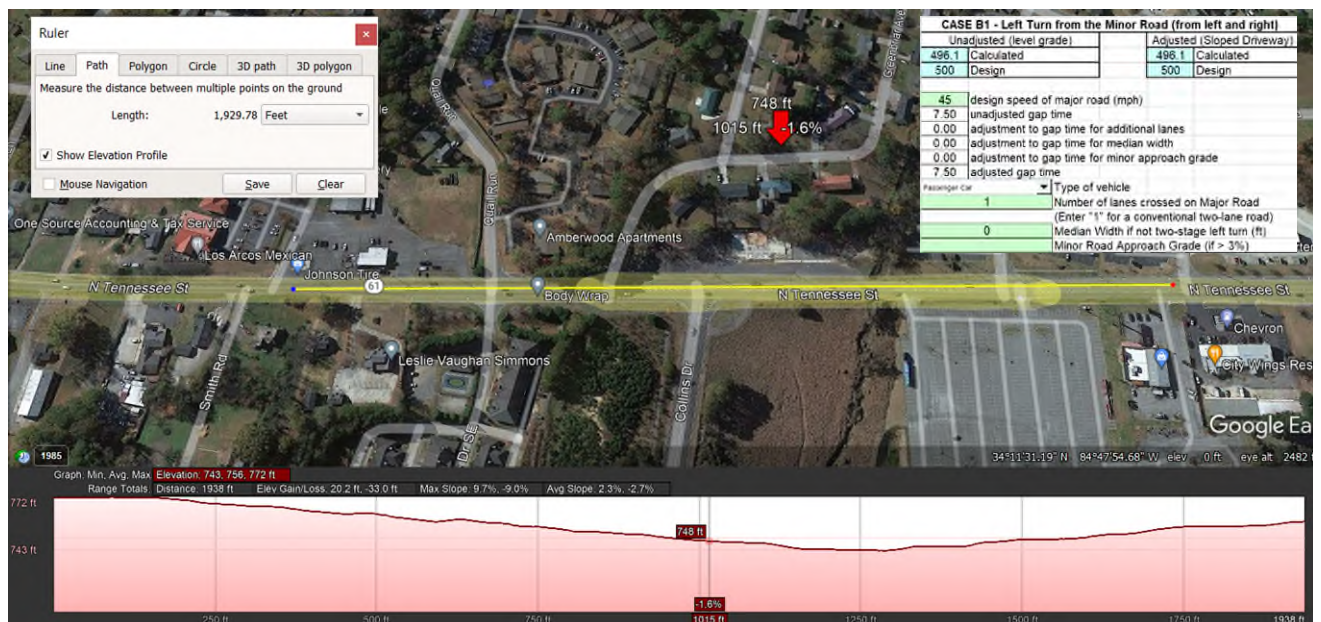


Figure 3. SR 61 at Collins Drive Intersection Elevation Profile



Figure 4. Sight Distance from westbound approach looking South on SR 61

Historical Speed Data

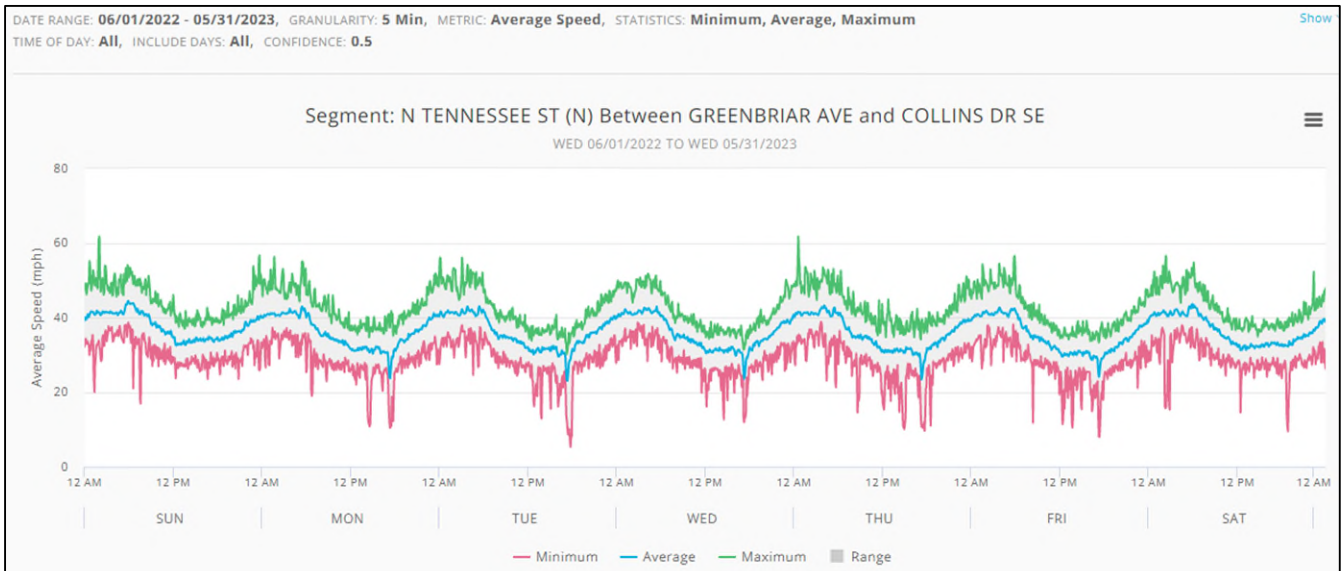


Figure 5. Historical Speed Data – Northbound SR 61

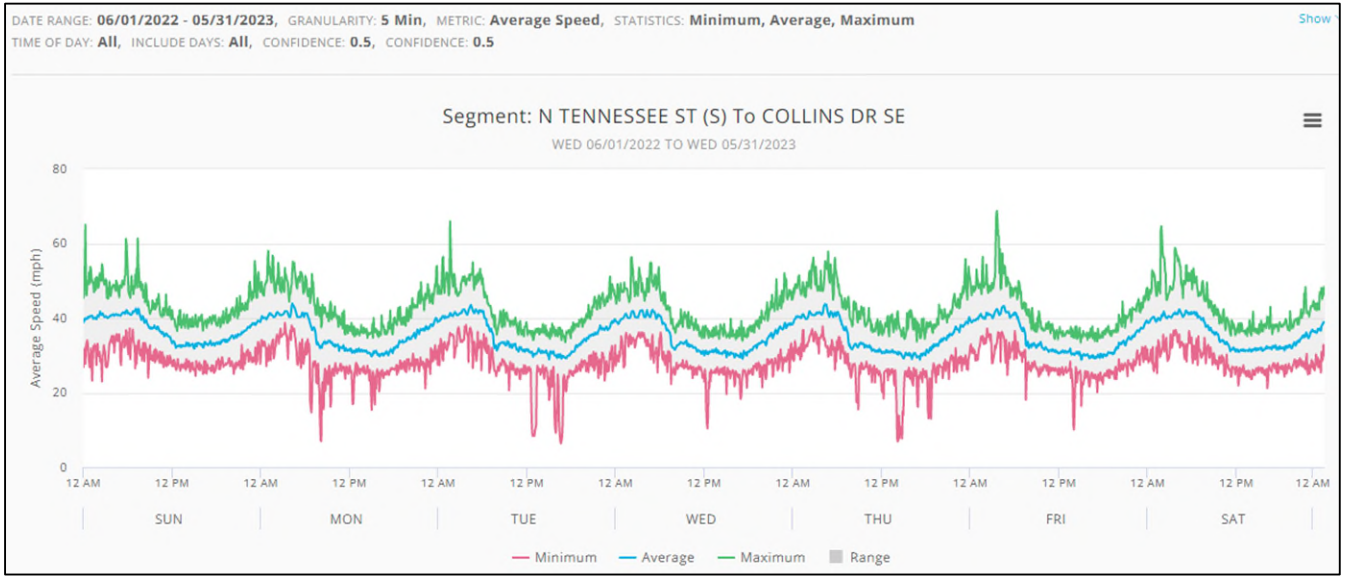


Figure 6. Historical Speed Data – Southbound SR 61

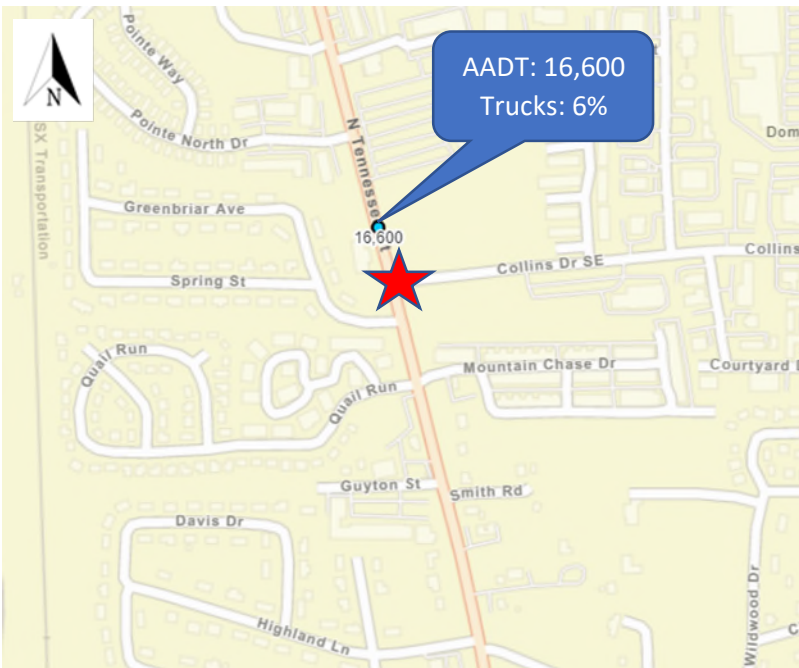
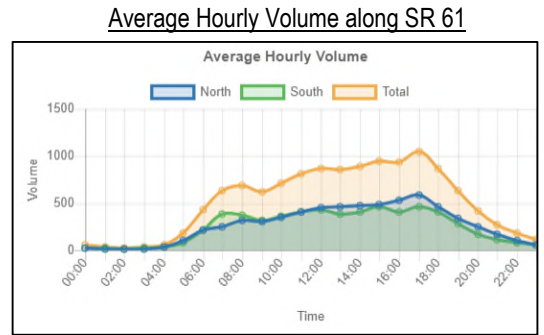


Figure 7. TADA Counts



Volumes

Intersection Ranking Table

Geographical Bounds	ePDO Ranking	Crash Rate Ranking
County (Bartow)	26	58
Metropolitan Planning Organization (Cartersville)	26	58
GDOT District 6	202	Not Ranked
State of Georgia	2660	Not Ranked

Intersection
Rankings

Social Vulnerability Index (SVI) Table

Social Vulnerability Index Group (Overall)		Social Vulnerability Index Group (Economic)		Social Vulnerability Index Group (Household)		Social Vulnerability Index Group (Minority)		Social Vulnerability Index Group (Transportation)	
0.9 to 1.0	100.00%	0.7 to 0.8	100.00%	0.8 to 0.9	100.00%	0.8 to 0.9	100.00%	0.9 to 1.0	100.00%

Crash
Analysis

There were 72 crashes reported at the intersection from 2013 to 2022, resulting in 4 visible injury crashes, 21 complaint injury crashes, and 47 property damage-only crashes. The intersection has had a crash frequency of 7.2 crashes per year, with 58% of those crashes reported resulting in angle crashes, and another 32% of those crashes reported resulting in rear end crashes. The angle crashes between westbound left and northbound through (WBL x NBT) movement accounted for 80% (33 crashes) of the total angle crashes. The WBL x NBT angle crash reports do not indicate any factors other than side street (WB) traffic failing to yield to through (NB) traffic. However, based on the Google Map, a limited sight distance for the side street traffic towards northbound movement and a down slope for northbound movement to the intersection may have contributed to the higher WBL x NBT collisions. There were no pedestrian or bicycle crashes reported at the intersection. The crashes during dark lighted condition accounted for 8%, consistent with the District average of 8%.

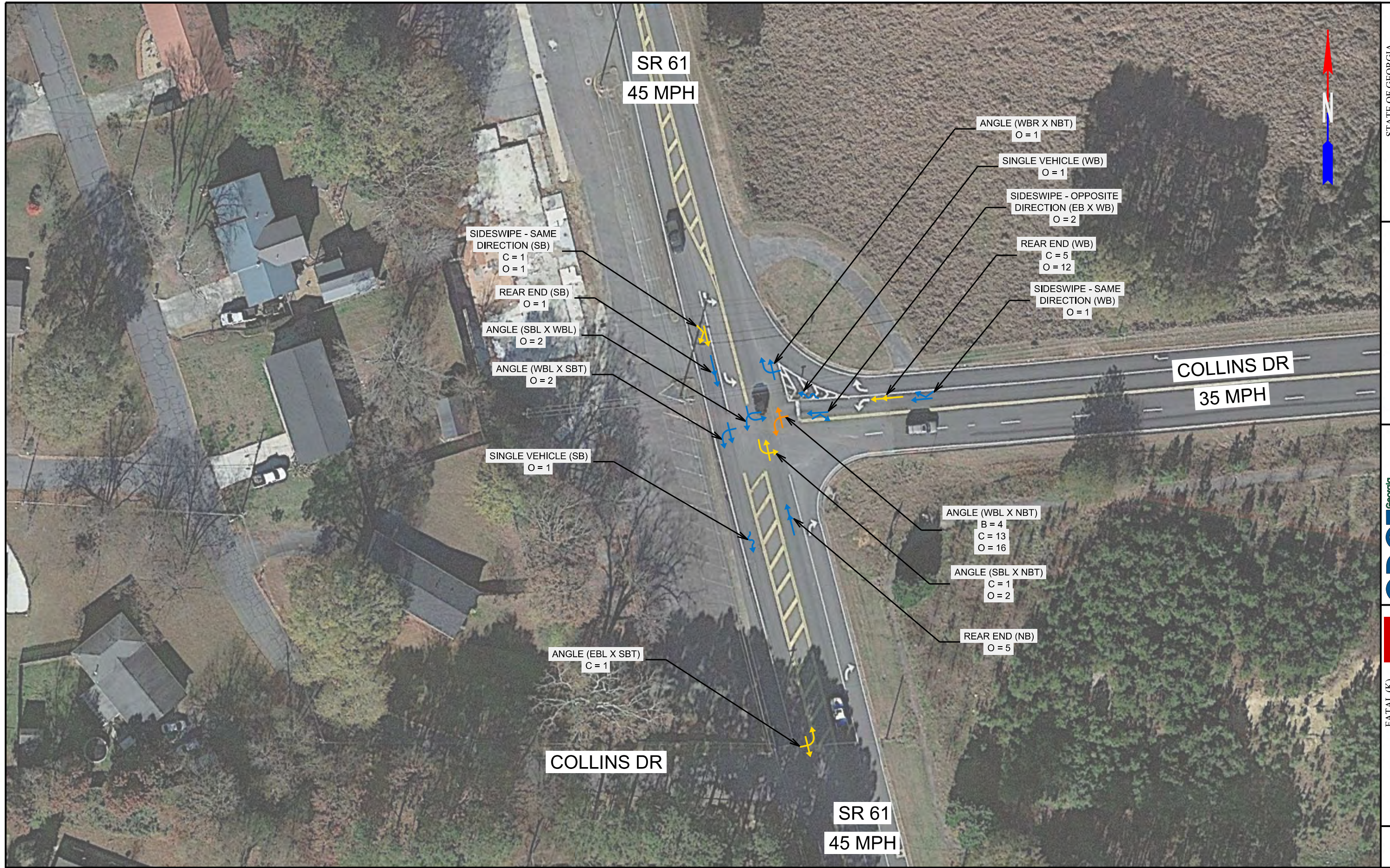
Crash
Tables

SR 61 at Collins Dr		Year												
Manner of Collision	Crash Severity	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total		
Left Angle	C									1		1	3	4%
	O	1									1	2		
Angle	B	1					1			2	0	4	38	53%
	C			2		2	1			3	6	13		
	O	4	3		2	1	1		4	5	1	21		
Rear End	C	1	1	1	1				1			5	23	32%
	O	1	1		3	2	3	2	2	3	1	18		
Sideswipe – Same direction	C					1						1	3	4%
	O	1						1				2		
Sideswipe – Opposite direction	O				1				1			2	2	3%
Single Vehicle	O		1								1	2	2	3%
Total	B	1					1			2		4	72	100%
	C	1	1	3	1	3	1		1	4	6	21		
	O	7	5		6	3	4	3	7	8	4	47		
	All	9	6	3	7	6	6	3	8	14	10			

Angle Maneuvers		Year												
Manner of Collision	Crash Severity	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total		
SBL x NBT	C									1		1	3	7%
	O	1									1	2		
WBL x NBT	B	1					1			2		4	33	79%
	C			1		2	1			3	6	13		
	O	3	2		1	1	1		4	3	1	16		
WBL x SBT	O									2		2	2	5%
WBR x NBT	O		1									1	1	2%
WBL x SBL	O	1			1							2	2	5%
OTHER	C			1								1	1	2%
Total	B	1					1			2		4	42	100%
	C			2		2	1			4	6	15		
	O	5	3		2	1	1		4	5	2	23		
	All	6	3	2	2	3	3		4	11	8			

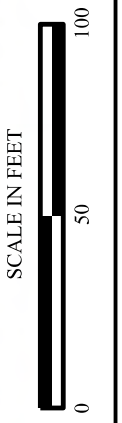
Crash
Tables

Lighting Conditions	Crash Severity	Year												
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total		
Daylight	B	1					1			2		4	66	92%
	C	1	1	3	1	3	1		1	4	6	21		
	O	7	5		5	3	3	3	6	6	3	41		
Dark Lighted	O				1		1		1	2	1	6	6	8%
Total	B	1					1			2		4	72	100%
	C	1	1	3	1	3	1		1	4	6	21		
	O	7	5		6	3	4	3	7	8	4	47		
	All	9	6	3	7	6	6	3	8	14	10			



STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
SR 61 AT COLLINS DR
2013 - 2022 CRASH DATA

P.I. NUMBER
N/A



FATAL (K)
SERIOUS INJURY (A)
MINOR INJURY (B)
COMPLAINT INJURY (C)
PROPERTY DAMAGE ONLY (O)

SHEET
1/1

Install Offset Northbound Right Turn Lane (To Increase sight distance)

Anticipated delivery mechanism: PDP

Benefits

- Targets documented angle crashes between westbound and northbound movements
- Improves sight distance for side street

Concerns

- Maintains maneuvers with other crash patterns.
- Possible R/W impact

Estimated Cost

PE	\$50,000
UTL	\$50,000
ROW	\$100,000
CST	\$200,000
Total	\$400,000

Estimated Safety Benefit Cost

CRF ID #307 = 48% (Fatal/Inj.)
CRF ID #308 = 11% (PDO)

** Applied to angle crashes between NB and WB movements

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$4,030,960}{\$1,096,000}$$

Safety B/C = 3.7
(Safety B/C = 4.2 with last 5 years crashes)

Install Single Lane Roundabout (130'-140' ICD)

Anticipated delivery mechanism: GDOT PDP

Alternatives

Benefits

- Mitigates documented angle/rear-end crash patterns
- Increases intersection visibility
- Slows mainline speed at the intersection

Concerns

- Anticipated utility impacts
- Possible R/W impacts
- Drainage and grading concerns

Estimated Cost

PE	\$650,000
UTL	\$100,000
ROW	\$250,000
CST	\$1,500,000
Total	\$2,500,000

Estimated Safety Benefit Cost

CRF ID #210 = 88% (Fatal/Inj.)
CRF ID #206 = 72% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$10,886,880}{\$4,750,000}$$

For B/C of 10, local participation of \$2,100,000 is required.

For Safety B/C of 10:		
Annual Benefit:	\$	544,344
Annual Cost:	\$	54,434
Annual B/C Ratio:		10.00
GDOT Funding	\$	400,000
Local Participation Required	\$	2,100,000

Safety B/C = 2.3

Install Compact Roundabout (90'-100' ICD)

Anticipated delivery mechanism: GDOT PDP

Benefits

- Mitigates documented angle/rear-end crash patterns
- Increases intersection visibility
- Slows mainline speed at the intersection

Concerns

- Anticipated utility impacts
- Possible R/W impacts
- Drainage and grading concerns

Estimated Cost

PE	\$450,000
UTL	\$50,000
ROW	\$150,000
CST	\$1,200,000
Total	\$1,850,000

Estimated Safety Benefit Cost

CRF ID #210 = 88% (Fatal/Inj.)
CRF ID #206 = 72% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$10,886,880}{\$3,619,000}$$

For B/C of 10, local participation of \$1,450,000 is required.

For Safety B/C of 10:		
Annual Benefit:	\$	544,344
Annual Cost:	\$	54,434
Annual B/C Ratio:		10.00
GDOT Funding	\$	400,000
Local Participation Required	\$	1,450,000

Safety B/C = 3.0

Signing and Marking Improvements

Install Advance Warning Signs (W3-1, W2-2), Increase Southbound SR 61 Left Turn Storage Length

Anticipated delivery mechanism: QR

Benefits

- Targets documented stop sign running
- No R/W impacts
- Low Cost

Concerns

- Maintains maneuvers with documented crash patterns.
- Does not improve sight distance for side street approach

Estimated Cost

PE	\$0
UTL	\$0
ROW	\$0
CST	\$25,000
Total	\$25,000

Estimated Safety Benefit Cost

CRF ID #8867 = 10% (Fatal/Inj.)
CRF ID #8866 = 8% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$1,232,360}{\$443,500}$$

Safety B/C = 2.8

Install RCUT (Stop Controlled)

Anticipated delivery mechanism: GDOT PDP

Benefits

- Mitigates documented angle crash patterns

Concerns

- Maintains other crashes
- Possible utility & R/W impacts
- Increased delay for left turns from side street

Estimated Cost

PE	\$250,000
UTL	\$100,000
ROW	\$300,000
CST	\$750,000
Total	\$1,400,000

Estimated Safety Benefit Cost

NC/MO Table 4-7 = 53% (Fatal/Inj.)
NC/MO Table 4-7 = 31% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$6,231,460}{\$2,836,000}$$

Safety B/C = 2.2

Install High-T Intersection

Anticipated delivery mechanism: PDP

Benefits

- Mitigates documented angle crashes
- Improves side street left turn delay

Concerns

- Sideswipe crashes may increase
- Possible utility impacts
- Maintains maneuvers with other crash patterns

Estimated Cost

PE	\$250,000
UTL	\$50,000
ROW	\$200,000
CST	\$600,000
Total	\$1,100,000

Estimated Safety Benefit Cost

CRF ID #2755 = 45% (Fatal/Inj.)
CRF ID #2753 = 23% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$5,203,460}{\$2,314,000}$$

Safety B/C = 2.2

Install Dynamic Speed Feedback Sign

Anticipated delivery mechanism: QR

Benefits

- Mitigates documented crash patterns
- Controls speeds along the corridor
- No R/W impacts
- Low Cost

Concerns

- Maintains maneuvers with documented crash patterns.

Estimated Cost

PE	\$0
UTL	\$0
ROW	\$0
CST	\$35,000
Total	\$35,000

Estimated Safety Benefit Cost

CRF ID #6886 = 7% (Fatal/Inj.)
CRF ID #6886 = 7% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$899,500}{\$460,900}$$

Safety B/C = 2.0

SR 61 at Gently Blvd

The intersection is a minor stop-controlled three-leg intersection. SR 61, which runs north-south, is an undivided two-lane minor arterial. Gently Boulevard is a two-lane major collector that runs east-west. Left turn and right turn storage lane along southbound and northbound SR 61, respectively, are present at this intersection. The westbound movement has one left turn and one right turn lane.

The westbound movement has a yield sign along with stop sign and the northbound right movement has a yield sign as well. There are no other existing safety measures present at this intersection.

The Google Earth and desktop screening show the intersection is lighted, and no major utility and grading constraints were noted.

Project
Location
and Existing
Conditions



Figure 8. SR 61 at Gently Blvd

Crash
Analysis

There were 46 crashes reported at the SR 61 at Gently Boulevard intersection from 2013 to 2023 July, resulting in 3 visible injury crashes, 7 complaint injury crashes, and 36 property damage-only crashes. The intersection has had a crash frequency of 4.3 crashes per year, with 65% of those crashes reported resulting in rear end collisions, and another 24% of those crashes reported resulting in angle crashes. There were no pedestrian or bicycle crashes reported at the intersection. The crashes during the nighttime accounted for 11%.

SR 61 at Gentilly Blvd		Year											Total		
Manner of Collision	Crash Severity	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*			
Angle	B					1							1	11	24%
	C		1								2		3		
	O		1			1	2	2		1			7		
Head On	B	2											2	2	4%
Rear End	C	1					1					1	3	30	65%
	O	3	1	1	4	4	4	2	1	1	3	3	27		
Sideswipe – Same direction	C					1							1	2	4%
	O	1											1		
Single Vehicle	O					1							1	1	2%
Total	B	2				1							3	46	100%
	C	1	1			1	1				2	1	7		
	O	4	2	1	4	6	6	4	1	2	3	3	36		
	All	7	3	1	4	8	7	4	1	2	5	4			

* 2023 Crash Data includes from January to July

Crash Tables

Angle Maneuvers		Year											Total		
Manner of Collision	Crash Severity	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*			
WBL x SBL	C										1		1	4	36%
	O		1				1	1					3		
WBL x NBT	C										1		1	2	18%
	O					1							1		
SBL x NBT	B					1							1	2	18%
	C		1										1		
WBL x EBT	O						1	1					2	2	18%
SBL x EBL	O									1			1	1	9%
Total	B					1							1	11	100%
	C		1								2		3		
	O		1			1	2	2		1			7		
	All		2			2	2	2		1	2				

* 2023 Crash Data includes from January to July

Lighting Conditions	Crash Severity	Year											Total		
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*			
Daylight	B	2				1							3	41	89%
	C	1				1	1				2	1	6		
	O	4	1	1	3	5	6	4	1	2	2	3	32		
Dark Lighted	C		1										1	3	7%
	O				1	1							2		
Dark Not Lighted	O		1								1		2	2	4%
Total	B	2				1							3	46	100%
	C	1	1			1	1				2	1	7		
	O	4	2	1	4	6	6	4	1	2	3	3	36		
	All	7	3	1	4	8	7	4	1	2		4			

* 2023 Crash Data includes from January to July

Install Single Lane Roundabout

Anticipated delivery mechanism: GDOT PDP

Benefits

- Mitigates documented angle/rear-end crash patterns
- Increases intersection visibility
- Slows mainline speed at the intersection

Concerns

- Anticipated utility impacts
- Possible R/W impacts
- Drainage and grading concerns

Estimated Cost

PE	\$650,000
UTL	\$100,000
ROW	\$250,000
CST	\$1,500,000
Total	\$2,500,000

Alternative

Estimated Safety Benefit Cost

CRF ID #210 = 88% (Fatal/Inj.)
CRF ID #206 = 72% (PDO)

** Applied to all crash types

$$\frac{\text{Design Life Benefit}}{\text{Design Life Cost}} = \frac{\$5,860,800}{\$4,750,000}$$

For B/C of 10, local participation of \$2,390,000 is required.

For Safety B/C of 10:	
Annual Benefit:	\$ 293,040
Annual Cost:	\$ 29,304
Annual B/C Ratio:	10.00
GDOT Funding	\$ 110,000
Local Participation Required	\$ 2,390,000

Safety B/C = 1.2

Surface Condition*	Total	%	(K) Fatal Injury	(A) Suspected Serious Injury	(B) Suspected Minor/Visible Injury	(C) Possible Injury / Complaint	(O) No Injury	Unknown
Dry	129,464	76.66%	647	2,563	11,906	22,408	91,290	650
Wet	36,353	21.53%	135	499	3,060	6,145	26,342	172
(None)	1,455	0.86%	1	19	54	134	1,183	64
Ice/Frost	826	0.49%	1	7	47	107	655	9
Water (standing or moving)	292	0.17%	1	4	19	37	231	-
Snow	285	0.17%	-	-	17	34	230	4
Slush	75	0.04%	-	-	1	12	62	-
Other	85	0.05%	1	1	10	16	53	4
Mud	32	0.02%	1	1	5	3	22	-
Oil	11	0.01%	-	1	1	4	5	-
Sand	7	0.00%	-	-	1	2	4	-

Light Conditions*	Total	%	(K) Fatal Injury	(A) Suspected Serious Injury	(B) Suspected Minor/Visible Injury	(C) Possible Injury / Complaint	(O) No Injury	Unknown
Daylight	124,011	73.43%	471	1,979	10,603	21,558	88,956	444
Dark-Not Lighted	25,420	15.05%	243	779	3,025	4,013	17,104	256
Dark-Lighted	13,374	7.92%	42	226	992	2,336	9,653	125
Dawn	2,836	1.68%	13	46	238	467	2,061	11
Dusk	2,824	1.67%	18	58	245	477	2,009	17
(None)	420	0.25%	-	7	18	51	294	50

*District 6 Intersection Related Crashes for 2013-21