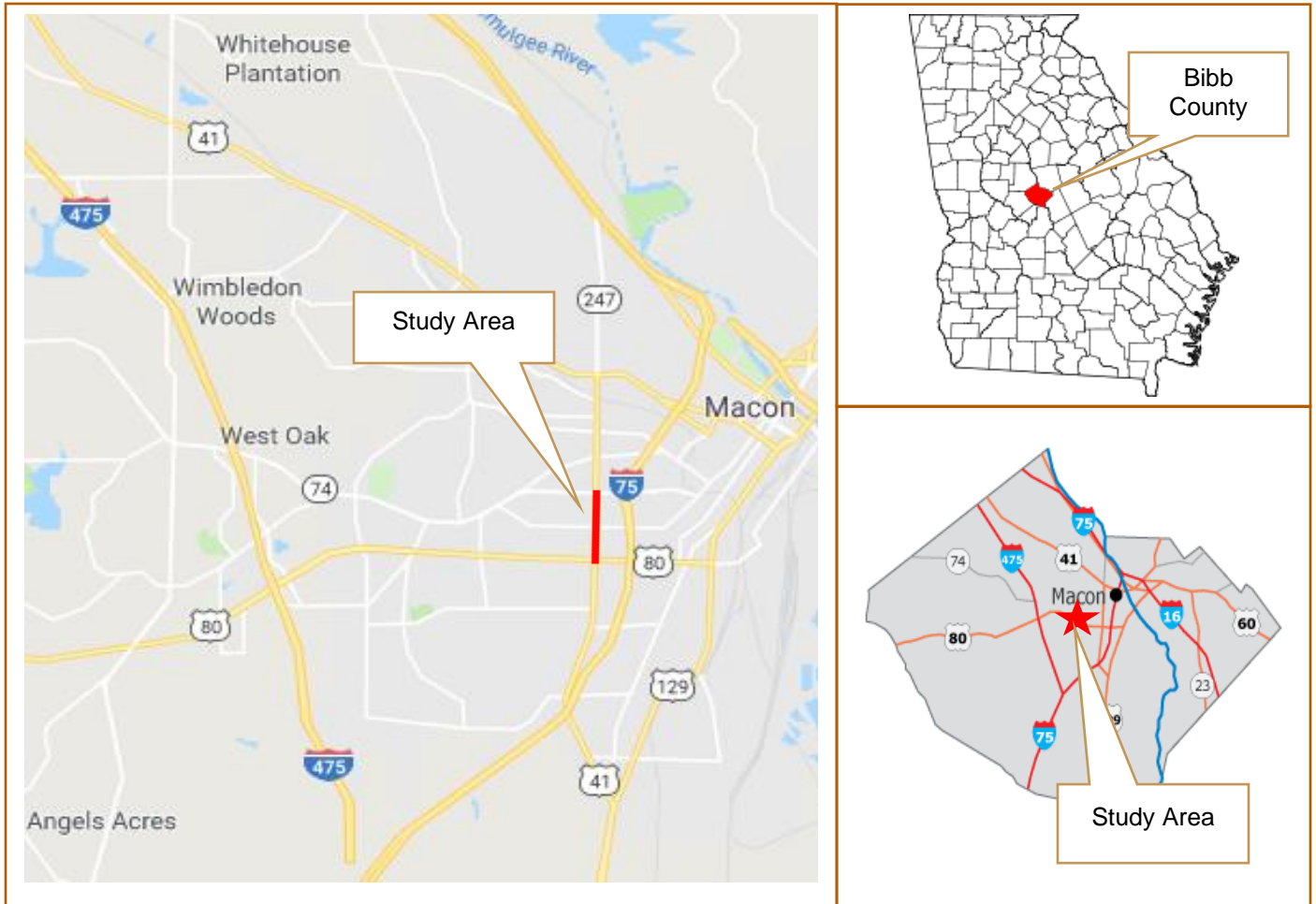


DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
TRAFFIC ENGINEERING STUDY

January 2020



PRIMARY ROUTE: SR 247/Pio Nono Avenue

SECONDARY ROUTE: From SR 22/Eisenhower Parkway to SR 74/Mercer University Drive

MILEPOINT:

GDOT DISTRICT: 3

CONGRESSIONAL DISTRICT 2

COUNTY: Bibb

CITY: Macon

PREPARED BY: ARCADIS

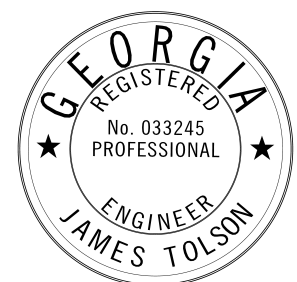


TABLE OF CONTENTS

Study Request 1

Project Location 1

Reason For Investigation 1

Field Visit 3

Crash Analysis 5

 Total Crashes 5

 Time of Day Analysis 6

 Day of the Week Analysis 7

 Intersection Crash History 8

 Roadway Segment Crash History 11

Operational Analysis 12

 Traffic Volume Counts 12

 Existing Operations 12

 Signal Warrant Analysis 12

Intersection Control Evaluation (ICE) 13

 Intersection Crash Reduction Factors 15

Roadway Segment Safety Countermeasures 16

 Roadway Segment Crash Reduction Factors 16

Expected Operational Results 17

 Intersection Delay and Level of Service 17

 Roadway Segment Level of Service 18

Safety Benefit-Cost Analysis 19

Project Risk Analysis 20

 Environmental Screening 20

 Utility Risk Assessment 20

 Other Risks 20

Conclusion 21

 Recommendations 21

- Appendix A: Crash Data
- Appendix B: Intersection and Roadway Segment Crash Diagrams
- Appendix C: Traffic Data
- Appendix D: Existing Intersection Analyses
- Appendix E: Signal Warrant Analyses
- Appendix F: Intersection Control Evaluations (ICE)
- Appendix G: Alternatives Operation Analyses
- Appendix H: Summary of Right-of-way and Construction Costs Estimates
- Appendix I: Safety Benefit-Cost Analyses
- Appendix J: Environmental Screening Report

Appendix K: Existing and Preferred Alternative Sketches
 Appendix L: Agency Coordination

LIST OF FIGURES

Figure 1: Aerial View of the Study Area.....2
 Figure 2: SR 247/Pio Nono Avenue at SR 74/ Mercer University Drive Westbound Approach4
 Figure 3: SR 247/Pio Nono Avenue at SR 74/ Mercer University Drive Eastbound Approach4
 Figure 4: Distribution of Intersection Crashes by Time of Day.....6
 Figure 5: Distribution of Roadway Segment Crashes by Time of Day7
 Figure 6: Distribution of Intersection Crashes by Day of the Week.....7
 Figure 7: Distribution of Roadway Segment Crashes by Day of the Week.....8

LIST OF TABLES

Table 1: Study Area Crash Summary by Crash Severity (2014-2018)5
 Table 2: Intersection Crash History – SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway.....9
 Table 3: Intersection Crash History – SR 247/Pio Nono Avenue at Anthony Road.....9
 Table 4: Intersection Crash History – SR 247/Pio Nono Avenue at SR 74/Mercer University Drive..10
 Table 5: Roadway Segment Crash History by Crash Severity (2014-2018) – SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road 11
 Table 6: Roadway Segment Crash History by Crash Severity (2014-2018) – SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive..... 11
 Table 7: Existing AM / PM Peak Hour Intersection Operations..... 12
 Table 8: Summary of Current Conditions Signal Warrant Analysis..... 13
 Table 9: Intersection Crash Reduction Factors (CRFs) 16
 Table 10: Roadway Segment Crash Reduction Factors (CRFs) 17
 Table 11: SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway (Design Year 2044)..... 17
 Table 12: SR 247/Pio Nono Avenue at Anthony Road (Design Year 2044) 18
 Table 13: SR 247/Pio Nono Avenue at SR 74/Mercer University Drive (Design Year 2044) 18
 Table 14: Benefit / Cost (B/C) Ratio Analysis Results..... 19
 Table 15: Intersection and Roadway Segment Safety Improvements Delivery Mechanisms22

STUDY REQUEST

The study location was identified during a Road Safety Audit (RSA) which was conducted on Wednesday, September 27th, 2017 along the SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Dora Street in Macon, Bibb County. In response to this RSA, this Traffic Engineering (TE) Study was performed along SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to SR 74/Mercer University Drive.

PROJECT LOCATION

The corridor along SR 247/ Pio Nono Avenue is about 1.13 miles long and runs in a north/south direction. The study area is located in the city of Macon, Bibb County, Georgia. The major portion of SR 247/Pio Nono Ave in the study area is a four-lane road, two lanes each direction with a Two-Way Left-Turn Lane (TWLTL) in the center from SR 22/Eisenhower Parkway to Anthony Road. SR 247/Pio Nono Avenue has a posted speed of 35 miles per hour (MPH) and is classified as an urban minor arterial. The land use along SR 247/Pio Nono Avenue in the study limits is primarily auto-centric commercial and residential properties and driveways. **Figure 1** provides an aerial view of the existing intersections and roadway segments conditions along the corridor.

REASON FOR INVESTIGATION

Observed crash data for the most recent five years (2014 to 2018) of the study area was obtained from GDOT. This roadway section experienced high crash rates along the corridor and at each of the signalized intersections of SR 247/Pio Nono Avenue with SR 22/Eisenhower Parkway, Anthony Road, and SR 74/ Mercer University Drive. The corridor experienced a total of 630 crashes resulting in 207 reported injury crashes and 423 property damage only crashes. There were no fatal crashes reported. During the same time period reported, there were six pedestrian crashes resulting in five injury crashes and one bicycle crash reporting an injury. Of the pedestrian crashes, four pedestrian crashes occurred while pedestrians were crossing SR 247/Pio Nono Avenue, not within the crosswalk.

Crashes for each of the signalized intersections for the same period include 243 crashes at the intersection of SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway, 86 crashes at SR 247/Pio Nono Avenue at Anthony Road, and 163 crashes at the intersection of SR 247/Pio Nono Avenue at SR 74/Mercer University Drive. The highest crash rate noted was at the intersection of SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway which experienced 48.6 crashes per year. This is over ten times higher than intersections with similar characteristics which typically experience 4.0 crashes per year.

In addition to the high crash rate at each of the signalized intersections. The roadway segments between the signalized intersections also show an elevated crash rate. The corridor has been separated into two roadway segments for reporting purposes. The roadway segment along SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road is approximately 2000 feet long and it experienced a total 71 crashes of which 34 percent were injury crashes. Most of the crashes in the segment were angle crashes (49 percent of the total). The roadway segment along SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive is approximately 1900 feet long and it has reported a total 67 crashes of which 39 percent were injury crashes. The majority of the crashes recorded were rear end crashes (63%) followed by angle crashes (15%). The crash data provided is included in tabular form in **Appendix A**.



Figure 1: Aerial View of the Study Area

FIELD VISIT

A field visit was conducted on Wednesday, September 27th, 2017. The site visit included observing the current site conditions as well as identifying and documenting conditions that could affect safety and operations of the corridor and intersections. Field visit observations included:

A. Intersection Control and Geometry:

1. SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway is a signalized four-legged intersection. The northbound and southbound approaches on SR 247/ Pio Nono Avenue have two dedicated left turn lanes, two dedicated through lanes, and a dedicated right turn lane. The eastbound and westbound approaches on SR 22/ Eisenhower Pkwy each have two dedicated left turn lanes, three dedicated through lanes, and a dedicated right turn bay.
2. SR 247/Pio Nono Avenue at Anthony Road is a signalized four-legged intersection. The southbound approach on SR 247/Pio Nono Avenue has one dedicated left turn lane, two dedicated through lanes, and a right turn bay. The northbound approach on SR 247/ Pio Nono Ave has one dedicated left turn lane and two through lanes. The eastbound approach on Anthony Rd has one dedicated left turn lane, one dedicated through lane, and one dedicated right turn lane. The westbound approach on Anthony Rd has one dedicated left turn lane and one through lane.
3. SR 247/Pio Nono Avenue at SR 74/ Mercer University Drive is a signalized four-legged intersection. The eastbound, westbound, and southbound approaches each have a dedicated left turn lane and two through lanes. The northbound approach has a dedicated left turn lane, two through lanes, and a dedicated right turn lane. The eastbound and westbound left-turns are protected only movements. There is a slight vertical crest as the intersection is approached from the east and west directions. **Figure 2** and **Figure 3** show the street view of these approaches where the opposite side of the intersection cannot be seeing.

B. Horizontal/Vertical Grades: The study area along SR 247/Pio Nono Avenue is basically straight without any significant horizontal curvature. There are several uphill and downhill segments in the study area. The grades are generally less than five percent.

C. Intersection Delay / Queuing: There is no visible queueing during the AM and PM peak hours along the corridor. Traffic in the study area generally operates under capacity and moves smoothly.

D. Sight Distance / Obstruction Concerns: Despite a few crests along SR 247/Pio Nono Avenue in the study area, there is an adequate sight-triangle of vision for all approaches at each study intersection. There is no vegetation that could obstruct views either.

E. Pavement/Signs/Striping Conditions: The pavement showed some signs of wearing and cracking along the SR 247/Pio Nono Avenue study section. In some segments, the white skip striping separating adjacent lanes is not visible. Signal heads appeared adequate with normal wear. Based on information collected from the District and Maintenance Office, the corridor is currently planned for resurfacing between the 2022 and 2025 fiscal years. The current pavement condition rating is 72.00 (dTIMS data provided by GDOT District 3).



Figure 2: SR 247/Pio Nono Avenue at SR 74/ Mercer University Drive Westbound Approach



Figure 3: SR 247/Pio Nono Avenue at SR 74/ Mercer University Drive Eastbound Approach

- F. Pedestrian Accommodations: Pedestrian crosswalks, pushbuttons, and signals are accessible at all the signalized intersections. There are well-maintained sidewalks on both sides of SR 247/ Pio Nono Avenue at each unsignalized intersection, with the notable exception of SR 247/ Pio Nono Avenue at Ell Street, where there is a gap in sidewalk connectivity on the south side of the intersection.
- G. Lighting: Street lights are present on the corners of SR 247/ Pio Nono Avenue at SR 74/ Mercer University Drive and SR 247/ Pio Nono Avenue at Anthony Road, as well as along SR 247/Pio Nono Avenue on sidewalks near places of business. The traffic signal heads along the corridor do not have retroreflective backplates.
- H. Parking: There are no on-street parking accommodations near the study intersections or along the study SR 247/Pio Nono Avenue roadway segments.
- I. Potential Environmental Impacts: Based on field observations, no environmental concerns were noted.
- J. Other Modes of Transportation: There are Macon-Bibb County Transit Authority (MTA) bus stops located along the study corridor, primarily located at the entrances to residential roads. There are no bike lanes throughout the corridor.

CRASH ANALYSIS

Crash data for the most recent five years (2014 to 2018) of the area of influence were obtained from Georgia Electronic Accident Reporting System (GEARS). A crash data analysis was performed to quantify the frequency and severity of crashes along SR 74/Mercer University Drive within the project study area. This analysis helps to understand the crash trends and identify improvement(s) that will best correct safety concerns. Results from this analysis are highlighted below.

Total Crashes

Over the five-year span, this corridor experienced a total of 630 crashes, of which 207 were injury crashes and 67 percent (423 crashes) involved property damage only (PDO) with no reported injuries. There were no fatal crashes reported. **Table 1** summarizes the crash data for the study area.

Table 1: Study Area Crash Summary by Crash Severity (2014-2018)

Manner of Collision	Crash Severity			Total	Percent Total	Yearly Average
	PDO	Injury	Fatal			
Angle	97	73	0	170	27%	34.0
Head On	4	2	0	6	1%	1.2
Rear End	219	103	0	322	51%	64.4
Sideswipe-Opposite Direction	7	4	0	11	2%	2.2
Sideswipe-Same Direction	91	18	0	109	17%	21.8
Not A Collision with Motor Vehicle	4	1	0	5	1%	1.0
- Pedestrian Crashes	1	5	0	6	1%	1.2
- Pedalcycle Crashes	0	1	0	1	0%	0.2
Total	423	207	0	630		
<i>Percent Total</i>	67%	33%	0%		100%	
<i>Yearly Average</i>	84.6	41.4	0			126

As shown in table 1, the most common manner of collision along the corridor is rear end crashes accounting for 51 percent of the total crashes followed by angle crashes with 27 percent (170 crashes) of all crashes reported. Based on the crash reports, there were 12 crashes classified as Not a Collision with a Motor Vehicle which include six pedestrian crashes resulting in five injuries and one bicycle crash resulting in one injury.

Time of Day Analysis

The time of the day each incident occurred was analyzed and summarized. **Figure 4** below shows the distribution of intersection crashes by time of day for each of the signalized intersections in the corridor. The total number of crashes reported at the three intersections was 492 crashes. The figure shows that approximately 22 percent of the crashes (45+33+29) occurred during the PM peak hours from 4:00 to 6:00 pm. However, a high frequency of crashes was recorded during the midafternoon hours between 2:00 and 3:00 pm resulting in a total of 82 crashes. The distribution shows 77 percent of the crashes occurred during daytime hours.

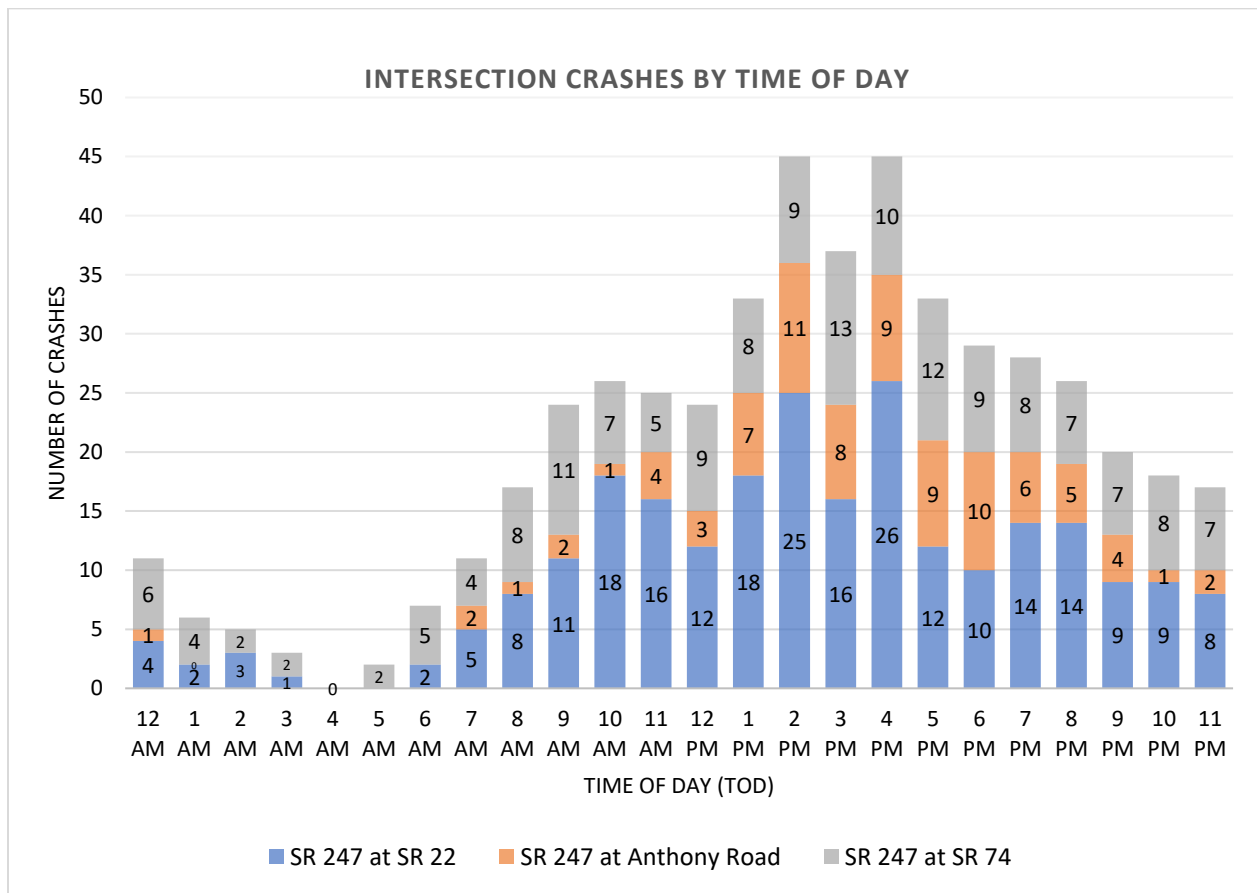


Figure 4: Distribution of Intersection Crashes by Time of Day

The distribution of the time of day crashes for the SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road and SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive road segments are summarized in **Figure 5** below. The data shows a total of 138 crashes reported between the two roadway segments. Approximately 28 percent of the crashes (17+8+14) occurred during the PM peak hours from 4:00 to 6:00 pm. The data shows that the highest occurrence of crashes was recorded during the midafternoon hours at 2:00 pm resulting in a total of 18 crashes or 13 percent of the total for both roadway segments.

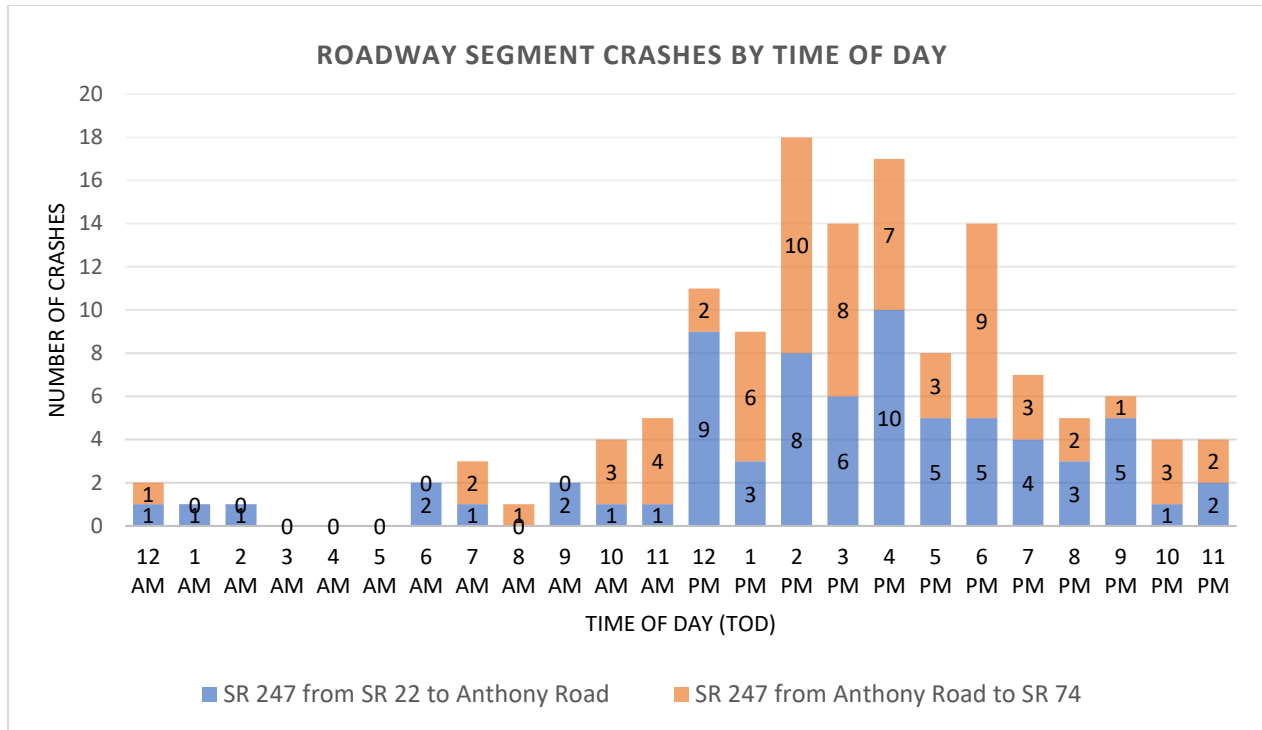


Figure 5: Distribution of Roadway Segment Crashes by Time of Day

Day of the Week Analysis

The number of crashes occurring each day of the week were analyzed to identify high crash frequency days. The signalized intersections' data is summarized on **Figure 6** and crashes for the two roadway segments are summarized on **Figure 7**.

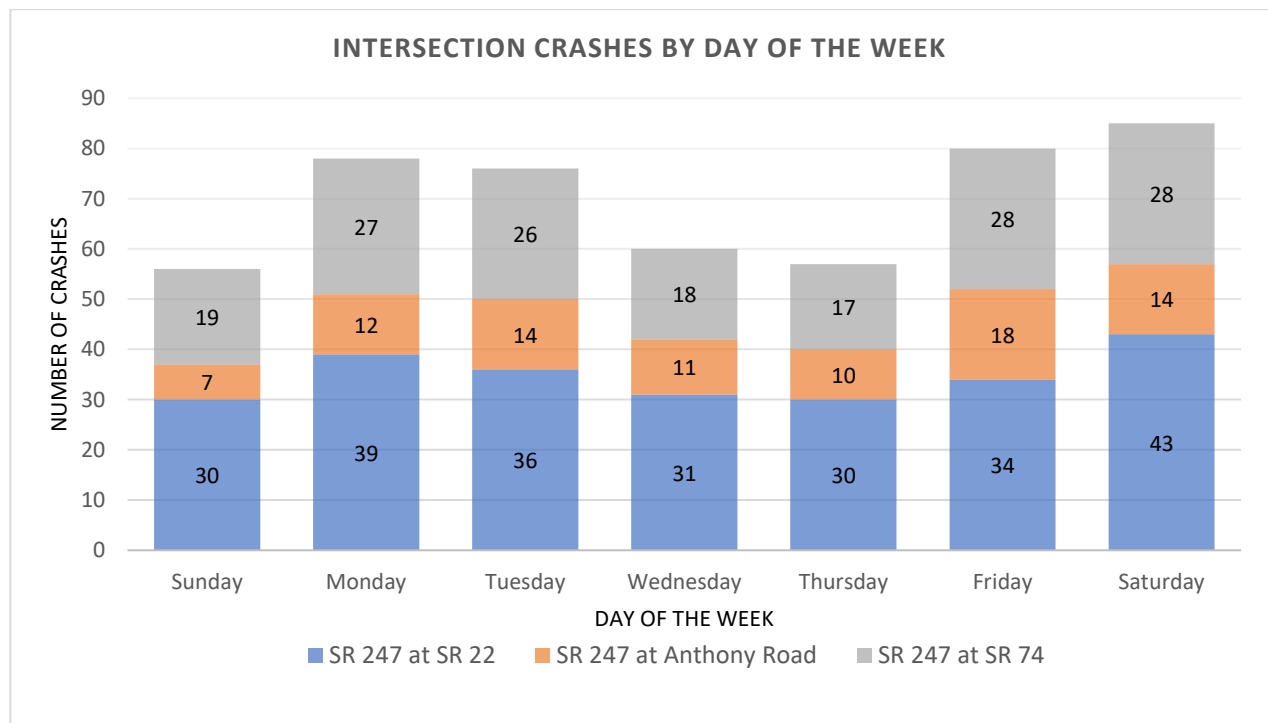


Figure 6: Distribution of Intersection Crashes by Day of the Week

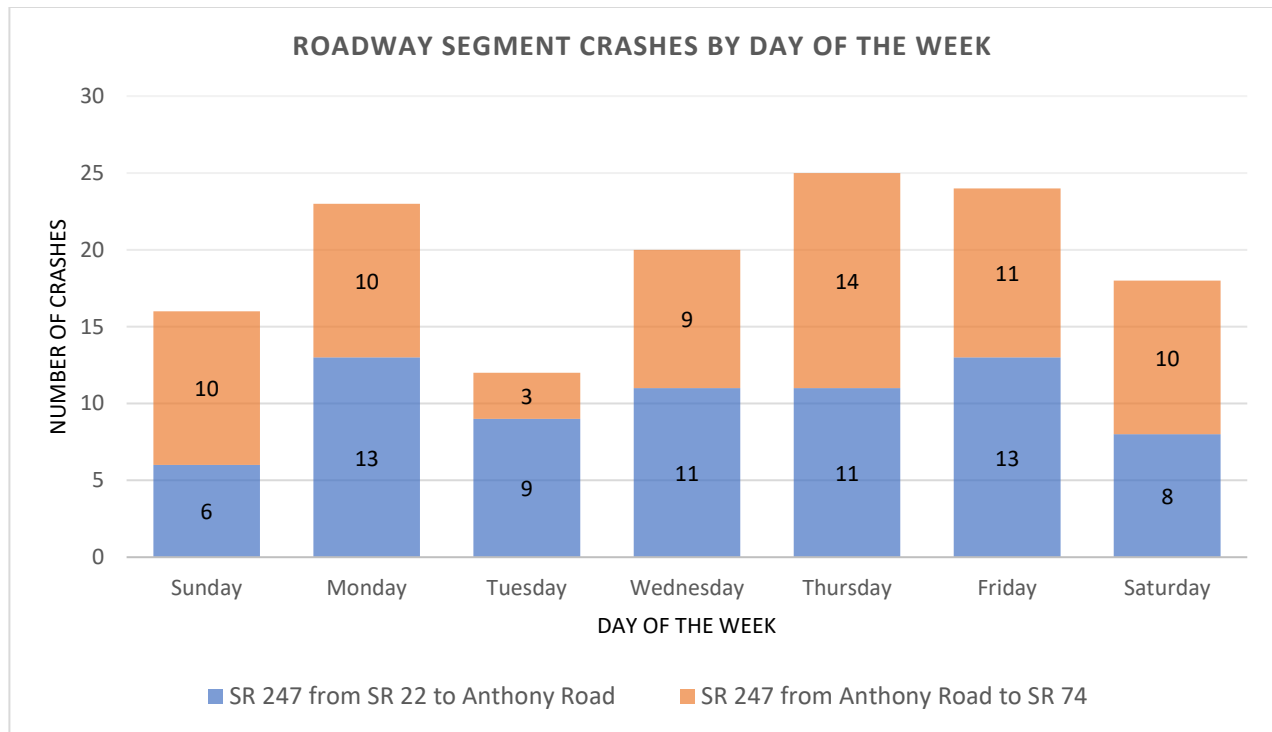


Figure 7: Distribution of Roadway Segment Crashes by Day of the Week

The distribution of crashes by day of the week shown in Figure 6 shows that approximately 39 percent of the crashes (76+60+57) occurred during typical weekdays (Tuesday to Thursday) and the highest crash occurrence on Fridays and Saturdays with 80 and 85 crashes, respectively. The crash distribution presented in Figure 7 shows that 41 percent of the crashes along the SR 247/Pio Nono Avenue roadway segments occurred during typical weekdays.

Intersection Crash History

Crash data for each of the three signalized intersections was collected for the most recent five-year period (2014-2018). **Table 2** to **Table 4** below present a comparison of crash rates, injury rates, and fatality rates in each of the signalized intersections within the study area. The number and types of crashes are provided in tabular form in **Appendix A**. Intersection crash diagrams are included in **Appendix B**.

Table 2 below shows the majority of crashes were rear end crashes with 130 crashes (53%) followed by angle and sideswipe same direction crashes with 21% of all crashes each collision type. Using the Highway Safety Manual (HSM) methodology, intersections with similar characteristics typically experience 4.0 crashes per year compares to the 48.6 crashes per years at this location. There were 60 injury crashes reported and no fatal crashes during the analysis time period. As shown in the crash diagram in Appendix B, 53 (41%) of 130 rear end crashes occurred along SR 247/Pio Nono Avenue northbound approach. Based on the reports, most of the rear end crashes were caused by drivers following too close and distracted driving. The reports for angle crashes (52 total crashes) indicate that drivers failed to yield and disregarded the traffic signal. Additionally, the left turns are protected movements and each approach has dual left-turn lanes; However, there were 15 left-turn angle crashes involving vehicles turning left and vehicles crossing the intersection. The 51 crashes classified as sideswipes same direction crashes were caused by drivers failing to yield, misjudging clearances, and improper lane changing. Also, there were 5 sideswipes opposite direction crashes that occurred when

vehicles turning left from SR 22/Eisenhower Parkway onto SR 247/Pio Nono Avenue or vehicles crossing the intersection struck vehicles waiting at the SR 247/Pio Nono Avenue left turn bays. This was caused by drivers disregarding the traffic signal, failing to yield, and driving on the wrong side of the road.

Table 2: Intersection Crash History – SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway

Collision Type	Year					Total	Percent Total
	2014	2015	2016	2017	2018		
Angle	4	11	10	13	14	52	21%
Head On	0	0	0	2	1	3	1%
Rear End	19	21	33	33	24	130	53%
Sideswipe Same Direction	6	10	16	7	12	51	21%
Sideswipe Opposite Direction	1	2	0	0	2	5	2%
Not a Collision with Motor Vehicle	2	0	0	0	0	2	1%
Total Crashes	32	44	59	55	53	243	
Total Injury Crashes	7	12	15	15	11	60	25%
Total Fatal Crashes	0	0	0	0	0	0	0%
Average Crashes (per year)						48.6	
HSM Predicted Crashes (per year)						4.0	
Average Daily Traffic (ADT)	41,000	39,800	38,900	40,000	39,700		
Crash Rate (per 100 MEV)	214	303	416	377	366		
Injury Rate (per 100 MEV)	47	83	106	103	76		
Fatality Rate (per 100 MEV)	0	0	0	0	0		

ADT = average daily traffic; MEV = million entering vehicles

Table 3: Intersection Crash History – SR 247/Pio Nono Avenue at Anthony Road

Collision Type	Year					Total	Percent Total
	2014	2015	2016	2017	2018		
Angle	6	9	4	7	4	30	35%
Head On	0	0	0	0	0	0	0%
Rear End	5	9	12	10	4	40	47%
Sideswipe Same Direction	1	1	2	6	2	12	14%
Sideswipe Opposite Direction	0	0	1	0	2	3	3%
Not a Collision with Motor Vehicle	0	0	0	1	0	1	1%
Total Crashes	12	19	19	24	12	86	
Total Injury Crashes	4	10	10	8	4	36	42%
Total Fatal Crashes	0	0	0	0	0	0	0%
Average Crashes (per year)						17.2	
HSM Predicted Crashes (per year)						3.0	
Average Daily Traffic (ADT)	25,100	23,430	24,220	24,990	24,660		
Crash Rate (per 100 MEV)	131	222	215	263	133		
Injury Rate (per 100 MEV)	44	117	113	88	44		
Fatality Rate (per 100 MEV)	0	0	0	0	0		

ADT = average daily traffic; MEV = million entering vehicles

Table 3 shows the signalized intersection of SR 247/ Pio Nono Avenue and Anthony Road experienced 17.2 crashes per year from 2014 to 2018 for a total of 86 crashes. Using Highway Safety Manual methodology, intersections with similar characteristics typically experience 3.0 crashes per year. Among those 86 crashes, the predominant crashes involved 30 angle crashes and 40 were rear end crashes. There were 36 (42%) injury crashes and no fatal crashes from 2014 to 2018. There was a crash classified as not a collision with a motor vehicle which involved a pedestrian and resulted in a pedestrian injury. According to the data, the pedestrian crash occurred during the daytime and under dry conditions when the vehicle was turning onto SR 247/Pio Nono Avenue from Anthony Road northbound and struck the pedestrian within the north leg crosswalk of the intersection. Angle crashes accounted for 35 percent of all crashes at the intersection. These crashes were caused on the most part by drivers failing to yield and disregarding the traffic signal. The observed rear end crashes (40) show that drivers following too close as the most common contributing for this type of crash.

Table 4: Intersection Crash History – SR 247/Pio Nono Avenue at SR 74/Mercer University Drive

Collision Type	Year					Total	Percent Total
	2014	2015	2016	2017	2018		
Angle	6	14	7	9	7	43	26%
Head On	0	0	0	0	0	0	0%
Rear End	17	18	22	13	21	91	56%
Sideswipe Same Direction	6	7	3	3	6	25	15%
Sideswipe Opposite Direction	0	0	0	1	0	1	1%
Not a Collision with Motor Vehicle	0	1	0	1	1	3	2%
Total Crashes	29	40	32	27	35	163	
Total Injury Crashes	15	13	11	6	16	61	37%
Total Fatal Crashes	0	0	0	0	0	0	0%
Average Crashes (per year)						32.6	
HSM Predicted Crashes (per year)						4.7	
Average Daily Traffic (ADT)	35,200	36,300	39,500	39,800	38,100		
Crash Rate (per 100 MEV)	226	302	222	186	252		
Injury Rate (per 100 MEV)	117	98	76	41	115		
Fatality Rate (per 100 MEV)	0	0	0	0	0		

ADT = average daily traffic; MEV = million entering vehicles

As shown in Table 4, the signalized intersection of SR 247/ Pio Nono Avenue at SR 74/ Mercer University Drive experienced 32.6 crashes per year from 2014 to 2018 for a total of 163 crashes. Using Highway Safety Manual methodology, intersections with similar characteristics typically experience 4.7 crashes per year. The majority of the crashes reported involved rear end cashes (56%) caused mostly by drivers following too close. There were 43 angle crashes reported (26%) with 24 of these crashes resulting in injuries. Records show that angle crashes were caused by drivers failing to yield and disregarding the traffic signal. Four angle crashes resulted from drivers driving under the influence. There were two crashes classified as not a collision with a motor vehicle which involved pedestrians and resulted in two pedestrian injuries. According to the data, one pedestrian crash occurred while the pedestrian was crossing SR 74/Mercer University Drive and the second occurred when the pedestrian was crossing SR 247/Pio Nono Avenue. Both crashes occurred in the nighttime and while pedestrians not using the crosswalk.

Roadway Segment Crash History

Crash data for the 1.13-mile-long corridor (not including the three signalized intersections) was analyzed in two segments and summarized in **Table 5** and **Table 7** below. The number and types of crashes are provided in tabular form in **Appendix A**.

Table 5: Roadway Segment Crash History by Crash Severity (2014-2018) – SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road

Manner of Collision	Crash Severity			Total	Percent Total	Yearly Average
	PDO	Injury	Fatal			
Angle	24	11	0	35	49%	7.0
Head On	0	1	0	1	1%	0.2
Not A Collision with Motor Vehicle	1	1	0	2	3%	0.4
Rear End	12	7	0	19	27%	3.8
Sideswipe-Opposite Direction	1	1	0	2	3%	0.4
Sideswipe-Same Direction	9	3	0	12	17%	2.4
Total	47	24	0	71		
<i>Percent Total</i>	66%	34%	0%		100%	
<i>Yearly Average</i>	9.4	4.8	0			14.2

Review of the historic crash records showed that 71 crashes (shown in Table 5) have been reported in this road segment from 2014 to year 2018. The AADT for the roadway segment is 16,400 vehicles per day. A crash rate analysis was performed to substantiate the existing safety problem on this corridor. The segment crash rate is 7.4 crashes per million vehicle miles traveled (MVMT). The roadway segment has an average of 14.2 crashes per year which is almost 3 times higher than the 5.1 crashes per year (predictive average crash frequency) from the Highway Safety Manual (HSM) predictive methodology for roadway segments with similar characteristics. This roadway segment shows a high rate of angle crashes reported (49 percent) which resulted from vehicles turning left entering and leaving driveways and failing to yield as the major contributing factor along this roadway segment.

Table 6: Roadway Segment Crash History by Crash Severity (2014-2018) – SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive

Manner of Collision	Crash Severity			Total	Percent Total	Yearly Average
	PDO	Injury	Fatal			
Angle	3	7	0	10	15%	2.0
Head On	1	1	0	2	3%	0.4
Not A Collision with Motor Vehicle	2	2	0	4	6%	0.8
Rear End	28	14	0	42	63%	8.4
Sideswipe-Opposite Direction	0	0	0	0	0%	0.0
Sideswipe-Same Direction	7	2	0	9	13%	1.8
Total	41	26	0	67		
<i>Percent Total</i>	61%	39%	0%		100%	
<i>Yearly Average</i>	8.2	5.2	0			13.4

Table 6 shows a summary of the 67 crashes reported in the SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive road segment. The AADT for this roadway segment is 14,400 vehicles per day. The calculated segment crash rate is 7.7 crashes per million vehicle miles traveled (MVMT). The roadway segment has an average of 13.4 crashes per year which is almost 4 times higher than the 3.3 crashes per year (predictive average crash frequency) from the Highway Safety Manual (HSM) predictive methodology for roadway segments with similar characteristics. This roadway segment shows a high rate of rear end crashes reported (63 percent) which resulted from drivers following too close and reckless driving.

OPERATIONAL ANALYSIS

Traffic Volume Counts

A 12-hour intersection turning movement counts were collected on Wednesday, May 16, 2018. All cars, trucks or other motorized vehicles passing through the intersections were counted between the hours of 6:30AM and 6:30PM. The traffic counts were broken into 15-minute intervals to determine peak morning, mid-day and afternoon peak hours. The percentage of trucks on each intersection leg was also reported. Queue length observations were made for critical movements during the AM and PM peak periods. The traffic volume counts collected for the study are included in **Appendix C**.

Existing Operations

A Synchro 9 model with intersection geometry, traffic volumes, and control specifics was calibrated based on observed queuing conditions and used for analysis of the existing conditions. The Synchro model reports for existing intersection conditions are include in **Appendix D** and the results are summarized in **Table 7** below.

Table 7: Existing AM / PM Peak Hour Intersection Operations

Intersection	Peak Period	Overall Delay (seconds) /LOS	V/C Ratio	Approach							
				Eastbound		Westbound		Northbound		Southbound	
				Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway	AM	26.8 / C	0.65	21.6	C	20.0	C	31.5	C	34.9	C
	PM	35.0 / C	0.76	28.7	C	29.4	C	38.5	D	44.2	D
SR 247/Pio Nono Avenue at Anthony Road	AM	17.6 / B	0.53	24.5	C	32.7	C	12.3	B	11.8	B
	PM	19.7 / B	0.53	22.5	C	36.3	C	15.0	B	15.9	B
SR 247/Pio Nono Avenue at SR 74/Mercer University Drive	AM	30.4 / C	0.81	43.0	D	31.2	C	19.5	B	21.2	C
	PM	33.6 / C	0.77	43.5	D	41.0	D	23.2	C	24.8	C

Signal Warrant Analysis

The Manual of Uniform Traffic Control Devices 2009 Edition (MUTCD) is the established source for evaluating warrants for installing a traffic signal. The MUTCD established nine traffic signal warrants that define minimum conditions under which signal installations may be justified.

A signal warrant analysis for each intersection was evaluated based on the existing 12-hour turning movement counts that were used as inputs into the analysis model. The full warrants report is included in **Appendix E** and the results summarized in **Table 8** below.

Table 8: Summary of Current Conditions Signal Warrant Analysis

Intersection	Signalized?	Warrant 1a	Warrant 1b	Warrant 2	Warrant 3	Warrant 4	Warrant 5	Warrant 6	Warrant 7	Warrant 8	Warrant 9
SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	n/a	n/a
SR 247/Pio Nono Avenue at Anthony Road	Yes	Yes	Yes	No	Yes	No	No	No	Yes	n/a	n/a
SR 247/Pio Nono Avenue at SR 74/Mercer University Drive	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	n/a	n/a

As shown in Table 8, the signal warrant analyses show that all the signalized intersections within the study area meet warrants for vehicular volumes and intersection crash history.

INTERSECTION CONTROL EVALUATION (ICE)

GDOT’s Intersection Control Evaluation (ICE) policies were developed to further leverage safety advancements as part of intersection improvements. The ICE process consists of two distinct stages. Stage 1 identifies potential Intersection Control Types that may provide safety benefits based on the existing conditions. Stage 2 further evaluates those alternatives inclusive of safety, operations, cost, environmental impacts and project support. The following alternatives were evaluated in Stage 2 for each signalized intersection in the study area and are included in **Appendix F**. The operational analyses for each alternative are included in **Appendix G**.

1. SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway

- **Multi-lane Roundabout:** A multi-lane roundabout was considered for this intersection because it would provide fewer conflict points than the existing signal control. The multi-lane roundabout would help decrease crash frequency and severity while increasing operation efficiency and would help reduce speeds for vehicles entering the intersection. The multi-lane roundabout would help mitigate all the rear end crashes associated with signal timing and signal visibility. Additionally, this alternative eliminates the possibility for left turn angle crashes and head on crashes potentially reducing the history of 52 angle crashes and 3 head on crashes. This alternative was ranked second in the ICE Stage 2 and had an estimated construction cost of \$4,416,000.
- **Systemic Signing and Visibility Improvements and Install FYA:** This alternative proposes the implementation of systemic and visibility improvements to the existing signal which includes upgrading all signal heads, replacing pedestrian signal heads, installing backplates and retroreflective borders, re-striping stop lines and crosswalks, installing pedestrian signs, installing advance warning signs, and overhead signs, and installing curb ramps. The flashing yellow arrow (FYA) signal would replace the existing protected only left-turns to protected/permissive left-turns with time of day operations for all approaches. The FYA can be operated as protected only by time of the day and can potentially help mitigate 15 left angle

crashes. Additionally, the existing dual left-turn bays will be converted to single left-turn bays. This would allow the installation of a median separation along the SR 247/Pio Nono Avenue approaches. This median would help mitigate the history of five sideswipe opposite direction crashes and would help deter drivers from turning left to enter and exit driveways thus potentially reducing angle crashes. The estimated construction cost for this alternative is \$275,000. The stage 2 screening showed this alternative was ranked the highest, which made it become the best option when looking at safety, operations, cost, environmental, and political factors.

2. SR 247/Pio Nono Avenue at Anthony Road

- **Single-lane Roundabout:** A single-lane roundabout was considered for this intersection because it would provide fewer conflict points than the existing signal control. Additionally, this alternative would help decrease crash frequency and severity, increase operation efficiency compared to signalized intersections, and would help reduce speeds for vehicles entering the proposed road-diet north of the intersection. The installation of a single-lane roundabout at this location would help reduce the predominant angle and rear end crash history at the intersection. This alternative will also help pedestrians by simplifying the task of crossing the street by providing space to pause on the splitter islands. As a result, fewer pedestrian crashes can be expected. The estimated construction cost for this alternative is \$2,855,000. The stage 2 screening showed that the proposed roundabout alternative was ranked the highest, which made it become the best option when looking at safety, operations, cost, environmental, and political factors.
- **Signal Improvements and Install FYA:** This alternative proposes the implementation of systemic and visibility improvements to the existing signal which includes upgrading all signal heads, replacing pedestrian signal heads, installing backplates and retroreflective borders, re-striping stop lines and crosswalks, installing pedestrian signs, installing advance warning signs, and overhead signs, and installing curb ramps. The flashing yellow arrow (FYA) signal would replace the existing 5-section “doghouse” signal for all approaches. This alternative was ranked second in the ICE stage 2 screening and had an estimated construction cost of \$250,000.
- **Add Right-Turn Lanes:** This alternative proposes installing right-turn lanes at the northbound (SR 247/Pio Nono Avenue) and westbound (Anthony Road) approaches. These approaches meet the minimum requirements for right-turn deceleration lanes. Providing the right-turn lanes on these approaches would potentially help reduce 18 rear end crashes and 5 sideswipe crashes and improve operations by providing a physical separation between through vehicles and turning vehicles that are slowing or stopped. These would provide deceleration space and storage for right-turning traffic. The estimated construction cost for this alternative is \$996,000 and ranked last in the ICE stage 2 screening.

3. SR 247/Pio Nono Avenue at SR 74/Mercer University Drive

- **Multi-lane Roundabout:** A multi-lane roundabout was considered for this intersection because it would provide fewer conflict points than the existing signal control. The multi-lane roundabout would help decrease crash frequency and severity while increasing operation efficiency and would help reduce speeds for vehicles entering the intersection. The installation of a multilane roundabout at this location would help mitigate the history of 43 angle crashes and 91 rear end

crashes. There are ROW and grade constraints that make this a high cost alternative bringing the total estimated construction cost for this alternative to \$5,430,000 and ranking second in the ICE stage 2 screening.

- **Add Right-Turn Lanes:** This alternative proposes installing a right-turn lane in the westbound approach along SR 74/Mercer University Drive. This approach meets the minimum requirements for right-turn deceleration lane, the right-turn movement shows a demand of 1,275 vehicles in 12-hour period and a high rate of rear end and sideswipe crashes compared to other approaches at the intersection. Providing the right-turn lane on this approach would potentially help reduce 34 rear end crashes and 8 sideswipe crashes and improve operations by providing a physical separation between through and westbound right turning vehicles. The estimated construction cost for this alternative is \$996,000 and ranked last in the ICE stage 2 screening.
- **Signal Improvements and Install FYA:** This alternative proposes the implementation of systemic and visibility improvements to the existing signal which includes upgrading all signal heads, replacing pedestrian signal heads, installing backplates and retroreflective borders, re-striping stop lines and crosswalks, installing pedestrian signs, installing advance warning signs, and overhead signs, and installing curb ramps. The flashing yellow arrow (FYA) signal would replace the existing 5-section “doghouse” signal on the northbound and southbound approaches along SR 247/Pio Nono Avenue. The FYA can be operated as protected only by time of the day and can potentially help mitigate 14 left angle crashes. The estimated construction cost for this alternative is \$250,000. The stage 2 screening showed that the proposed signal and visibility improvements alternative was ranked the highest, which made it become the best option when looking at safety, operations, cost, environmental, and political factors.

Intersection Crash Reduction Factors

Corridor-wide improvements as well as individual intersection improvements were both considered to generate the final potential alternatives for the study corridor. The Crash Reduction Factors (CRF) used in the ICE Stage 2 analysis and roadway segment analysis were determined from the FHWA’s CMF Clearinghouse website (<http://www.cmfclearinghouse.org/>) and are provided in **Table 9**.

Table 9: Intersection Crash Reduction Factors (CRFs)

Intersection	Intersection Alternative and Safety Countermeasures	PDO (CRF)	Injury/Fatal (CRF)
SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway	Alternative 1: - Install Multi-lane Roundabout	26% (CMF Id: 4195)	71% (CMF Id:4196)
	Alternative 2: - Implement systemic signing and visibility improvements - Change from protected only to FYA protected/permissive left-turn with time of day operation	5.1% (CMF Id: 8927) 9.9% (CMF Id: 7690)	14.6% (CMF Id: 8928) 7.4% (CMF Id: 7691)
SR 247/Pio Nono Avenue at Anthony Road	Alternative 1: - Install Single-lane Roundabout	24% (CMF Id: 4192)	71% (CMF Id:4255)
	Alternative 2: - Implement systemic signing and visibility improvements - Change from 5-section “doghouse” protected/permissive left-turns to FYA protected/permissive left-turns	5.1% (CMF Id: 8927) 16.2% (CMF Id: 7696)	14.6% (CMF Id: 8928) 25.3% (CMF Id: 7697)
	Alternative 3: - Provide a right-turn lane on one major road approach	4% (CMF Id: 286)	9% (CMF Id: 288)
SR 247/Pio Nono Avenue at SR 74/Mercer University Drive	Alternative 1: - Install Multi-lane Roundabout	26% (CMF Id: 4195)	71% (CMF Id:4196)
	Alternative 2: - Provide a right-turn lane on one major road approach	4% (CMF Id: 286)	9% (CMF Id: 288)
	Alternative 3: - Implement systemic signing and visibility improvements - Change from protected only to FYA protected/permissive left-turn with time of day operation	5.1% (CMF Id: 8927) 9.9% (CMF Id: 7690)	14.6% (CMF Id: 8928) 7.4% (CMF Id: 7691)

ROADWAY SEGMENT SAFETY COUNTERMEASURES

In addition to the intersection analyses, roadway segment improvements were considered to generate the final potential alternatives for the corridor that would help improve safety for all users.

Roadway Segment Crash Reduction Factors

The Crash Reduction Factors used in the roadway segment analysis were determined from the FHWA’s Crash Modification Factors Clearinghouse website and are provided in **Table 10**.

Table 10: Roadway Segment Crash Reduction Factors (CRFs)

Roadway Segment	Roadway Segment Safety Countermeasures	PDO (CRF)	Injury/Fatal (CRF)
SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road	1. Resurface pavement * 2. Install Pedestrian Midblock Crossing with Pedestrian Safety Island	7.1% (CMF Id:9289)	14.2% (CMF Id:9288)
SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive	1. Convert four-lane roadway to three-lane roadway with center turn lane (Road Diet) * 2. Install Pedestrian Midblock Crossing with Pedestrian Safety Island	18.8% (CMF Id: 5554)	18.8% (CMF Id: 5554)

Note: The installation of the Pedestrian Midblock Crossing with Pedestrian Safety Island is not included in the B/C calculation.

As shown in Table 10, based on existing geometry, accessibility, and traffic demand, the roadway segment between SR 22/Eisenhower Parkway and Anthony Road would benefit from a pavement resurfacing providing an expected 7.1% and 14.2% crash reductions for PDO and injury/fatal crashes, respectively. The roadway segment between Anthony Road and SR 74/Mercer University Drive is expected to see a higher crash mitigation by installing the Road Diet which would help mitigate all crash types by reducing vehicular conflicts while enhancing mobility and access for all road users.

EXPECTED OPERATIONAL RESULTS

Intersection Delay and Level of Service

The expected intersection delay and LOS results for the design year (2044) for all alternatives considered in the ICE Stage 2 analyses are summarized in **Tables 11** through **13**. The summary of the expected operations analyses reports is provided in **Appendix G**. Although the growth rate analysis for the corridor shows the AADT has been trending down in recent years, a conservative approach was used in developing the design year traffic demand thus a 0.5% growth rate was applied.

Table 11: SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway (Design Year 2044)

Approach		Alternative 1: Multi-lane Roundabout				Alternative 2: Signing and Visibility Improvements/Install FYAs			
		AM		PM		AM		PM	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS
NB	SR 247/Pio Nono Avenue	8.7	A	15.6	C	38.3	D	44.5	D
SB	SR 247/Pio Nono Avenue	9.8	A	49.3	E	48.6	D	48.3	D
EB	SR 22/Eisenhower Parkway	8	A	22.2	C	31.9	C	41.3	D
WB	SR 22/Eisenhower Parkway	10.3	B	25.7	D	30.8	C	43.3	D
Intersection		9.3	A	28.3	D	36.4	D	44.1	D

Note: Alternative 2 includes the conversion of dual left-turn lanes into single left-turn lanes on all approaches.

As shown in Table 11, installing the signing and visibility improvements along with installing the flashing yellow arrows (FYA) at the SR 22/Eisenhower Parkway intersection would provide more efficient operations and improved safety benefits than the No-Build alternative shown in the ICE report. The No-Build alternative is expected to operate in 2044 with 34.9 seconds (LOS C) in the AM peak and 41.2 seconds (LOS D) in the PM peak hour (previously shown in Table 7). The expected intersection delays for the preferred alternative, which includes protected left-turn movements on all approaches, are 36.4 seconds (LOS D) and 44.1 seconds (LOS D) in the AM and PM peak hours, respectively.

Table 12: SR 247/Pio Nono Avenue at Anthony Road (Design Year 2044)

Approach		Alternative 1: Single-lane Roundabout				Alternative 2: Signing and Visibility Improvements/Install FYAs				Alternative 3: Install NB and WB Right-Turn Lanes			
		AM		PM		AM		PM		AM		PM	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS
NB	SR 247/Pio Nono Avenue	11.0	B	12.2	B	16.8	B	16.9	B	17.1	B	17.3	B
SB	SR 247/Pio Nono Avenue	5.5	A	8.4	A	29.1	C	17.0	B	27.7	C	15.2	B
EB	Anthony Road	4.7	A	6.5	A	26.5	C	25.1	C	27.3	C	28.1	C
WB	Burton Avenue	8.7	A	11.9	B	44.2	D	46.0	D	32.9	C	38.8	D
Intersection		7.8	A	9.8	A	26.2	C	22.6	C	24.5	C	21.6	C

The preferred alternative for the intersection of SR 247/Pio Nono Avenue at Anthony Road, single-lane roundabout, would significantly help improve the operational efficiency of the intersection in comparison to the other two alternatives shown in Table 12. The expected intersection delay in the design year is 7.8 seconds (LOS A) and 9.8 seconds (LOS A) in the AM and PM peak hours, respectively.

Table 13: SR 247/Pio Nono Avenue at SR 74/Mercer University Drive (Design Year 2044)

Approach		Alternative 1: Multi-lane Roundabout				Alternative 2: Install WB Right-Turn Lane				Alternative 3: Signing and Visibility Improvements/Install FYAs			
		AM		PM		AM		PM		AM		PM	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS
NB	SR 247/Pio Nono Avenue	10.2	B	9.5	A	24.1	C	23.1	C	16.3	B	27.1	C
SB	SR 247/Pio Nono Avenue	7.8	A	15.5	C	29.0	C	27.9	C	28.5	C	38.4	D
EB	SR 74/ Mercer University Drive	9.8	A	10.0	B	38.8	D	35.6	D	42.6	D	43.4	D
WB	SR 74/ Mercer University Drive	8.0	A	13.2	B	25.0	D	32.9	C	33.1	C	46.7	D
Intersection		9.0	A	12.3	B	29.9	C	30.1	C	31.6	C	39.8	D

As shown in Table 13, installing the signing and visibility improvements along with installing the flashing yellow arrows (FYA) at the intersection would improve the safety and operations resulting in an expected intersection delay is 31.6 seconds (LOS C) and 39.8 seconds (LOS D) in the AM and PM peak hours, respectively. Additionally, this alternative includes the delay from converting the southbound shared through/right-turn lane, outermost lane, into a dedicated right-turn only.

Roadway Segment Level of Service

A roadway segment operation analysis was conducted for the roadway segment along SR 247/Pio Nono Avenue where the road diet is being recommended. The analysis shows this segment is expected to

operate with a LOS C in the AM peak and LOS D in the PM peak hours. A summary of the segment analysis report is included in **Appendix G**.

SAFETY BENEFIT-COST ANALYSIS

To conduct the Safety Benefit/Cost (B/C) analysis, a detailed cost estimate including pay items and right-of-way impacts was conducted for the single lane roundabout improvement recommended at the intersection of SR 247/Pio Nono Avenue at Anthony Road. A summary of the Right-of-way cost estimate and the construction costs is included in **Appendix H**. The estimated costs shown for Implementing the systemic signing and visibility improvements and installing the FYAs at the intersections of SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway and SR 74/ Mercer University Drive are consistent with similar projects in the state. A summary of the Safety B/C for the preferred alternatives is presented in **Table 14** and the B/C ratio calculations are shown in **Appendix I**.

Table 14: Benefit / Cost (B/C) Ratio Analysis Results

Location		Preferred Alternative	Total Improvement Cost	B/C Ratio
Intersection	SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway	Implement systemic signing and visibility improvements and change from protected only to FYA protected/permissive left turn with time of day operation	\$275,000	40.3
	SR 247/ Pio Nono Avenue at Anthony Road	Install single lane roundabout	\$2,855,000	18.4
	SR 247/ Pio Nono Avenue at SR 74/Mercer University Drive	Implement systemic signing and visibility improvements and change from 5-section "doghouse" protected/permissive left-turns to FYA protected/permissive left-turns	\$250,000	50.4
Roadway Segment	SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road	Resurface pavement * Install Pedestrian Midblock Crossing with Pedestrian Safety Island	\$550,000	2.4
	SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive	Convert four-lane roadway to three-lane roadway with center turn lane (Road Diet) * Install Pedestrian Midblock Crossing with Pedestrian Safety Island	\$525,000	14.9

Note: The installation of the Pedestrian Midblock Crossing with Pedestrian Safety Island is not included in the B/C calculation.

As shown in Table 14, merging the recommended intersection improvements with the proposed median improvements along SR 247/Pio Nono Avenue is estimated to have a total cost of \$4,455,000 and a project B/C of 20.3, if the corridor improvements were delivered as a single project. However, for faster implementation, the corridor improvements can be implemented in different stages as it will be discussed in the recommendations section.

The addition of the two Midblock Crossings with Pedestrian Safety Islands, as shown in the preferred alternative sketch in Appendix K, will facilitate crossing and reduce the exposure time for pedestrians in locations that have shown a history of crashes involving pedestrians.

PROJECT RISK ANALYSIS

In order to determine the feasibility and constructability of the proposed corridor improvements, an environmental screening, utility risk assessment, and other risks were completed as part of this traffic engineering study.

Environmental Screening

To assist GDOT in understanding the potential environmental constraints within the corridor, Arcadis staff conducted a desktop survey using National Wetland Inventory (NWI) maps, Georgia's Natural, Archaeological, and Historic Geographic Information System (GNAHRGIS), the U.S. Environmental Protection Agency's (USEPA) EnviroMapper, and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for identifying environmental resources that may be afforded protection under the National Environmental Policy Act (NEPA). The environmental screening report is included in **Appendix J**. The screening findings are summarized below:

- The project would likely qualify for a Categorical Exclusion (CE) Environmental Documentation.
- There were 28 historic resources (50 years of age or older) identified of which 2 were listed with additional right of way being proposed.
- Five locations show Underground Storage Tanks (USTs), however no additional ROW is anticipated from any of these locations.
- A Public Information Open House (PIOH) may be held for Public Involvement.

Utility Risk Assessment

A utility cost estimate with GDOT was not completed in this study. However, based on field observations, it was determined that no electrical distribution lines nor pipelines are present within the study corridor.

Other Risks

- Grades: No survey has been completed with this study, however a high-level observation of the grades at the intersections with proposed control changes was completed. It was observed at the intersection of SR 247/Pio Nono Avenue at Anthony Road where the single lane roundabout is being proposed, there are no major grade changes.
- Adjacent Projects: An examination of GDOT's GeoPI website and information provided by the local authority led to conclusion that no projects are presently under construction or scheduled for construction within the corridor or vicinity that could impact the construction of the proposed preferred alternatives discussed.

CONCLUSION

Based on the observed crash data for the five years analyzed 2014-2018, the study area has experienced a high crash frequency with a total of 630 crashes and a high crash occurrence in rear-end crashes and angle crashes. In addition to vehicle to vehicle crashes, there were six crashes involving pedestrians. Three of these pedestrian crashes occurred at or near the signalized intersections and three pedestrian crashes occurred while the pedestrians were crossing SR 247/Pio Nono Avenue, not within the crosswalks. Of all the crashes reported, there have been 207 injury crashes and 423 PDO crashes during this time period. The three signalized intersections in the corridor have shown average crash rates exceedingly higher than the HSM predicted crash rates for similar intersections. The highest average crash rate of 48.6 was observed at the intersection of SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway, which is almost 12 times higher than the HSM predicted average crash rate of 4.0 crashes per year for similar intersections. Safety along the study area is expected to continue deteriorating with congestion extending well beyond the a.m. and p.m. peak hours as shown in **Figure 4** and **Figure 5** and as a result of the increase in traffic anticipated by the Design Year 2044.

As discussed throughout the document, the proposed intersection and corridor improvements are expected to provide some of the highest crash mitigation and operational benefits while enhancing the safety of all roadway users. The proposed systemic signing and visibility improvements and FYA installation at the intersections of SR 247/Pio Nono Avenue with SR 22/Eisenhower Parkway and SR 74/Mercer University Drive can potentially provide a safety B/C of 40.3 and 50.3, respectively. The proposed four-legged, single-lane roundabout at the intersection of SR 247/Pio Nono Avenue at Anthony Road is expected to provide a crash reduction of 24 percent for PDO crashes and 71 percent for injury/fatal crashes and a potential safety B/C of 18.4. The existing conditions sketch and the layout showing the recommended improvements along the corridor are included in **Appendix K**.

Recommendations

The intersection and roadway segments recommended safety improvements along with their delivery mechanisms are shown in **Table 15**. The roadway segment safety recommendations which include the pavement resurfacing and re-striping are expected to be installed by the State Maintenance Office during their next resurfacing project taking place between FY 2022-2025. Other delivery mechanisms include Quick Response from the District, Indefinite Delivery Indefinite Quantity (IDIQ), and local funds.

Table 15: Intersection and Roadway Segment Safety Improvements Delivery Mechanisms

Location		Safety Improvement	Delivery Method
Intersection	SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway	Implement systemic signing and visibility improvements and change from protected only to FYA protected/permissive left turn with time of day operation	Signal maintenance contract, Quick Response, or IDIQ
	SR 247/ Pio Nono Avenue at Anthony Road	* <u>Short-term improvement</u> : Implement systemic signing and visibility improvements and change from 5-section “doghouse” protected/permissive left-turns to FYA protected/permissive left-turns	Installed by signal maintenance contract or District/local forces
		<u>Long-term improvement</u> : Install single-lane roundabout	Safety Contract
	SR 247/ Pio Nono Avenue at SR 74/Mercer University Drive	Implement systemic signing and visibility improvements and change from 5-section “doghouse” protected/permissive left-turns to FYA protected/permissive left-turns	Installed by signal maintenance contract or District/local forces
Roadway Segment	SR 247/Pio Nono Avenue from SR 22/Eisenhower Parkway to Anthony Road	Resurface pavement	State Maintenance
		Install Pedestrian Midblock Crossing with Pedestrian Safety Island	Quick Response or local funds
	SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive	Convert four-lane roadway to three-lane roadway with center turn lane (Road Diet)	State Maintenance
		Install Pedestrian Midblock Crossing with Pedestrian Safety Island	Quick Response or local funds

Note: The implementation of systemic signing and visibility improvements and installing the FYAs at the intersection of SR 247/Pio Nono Avenue at Anthony Road are considered a short-term safety and operational improvement until the preferred single-lane roundabout alternative is programmed and installed.

RECOMMENDED BY: Jim Tolson DATE 01/10/2020
Jim Tolson, PE
Consultant Project Manager

RECOMMENDED BY: _____ DATE _____
Samuel Harris, PE
State Safety Engineer

RECOMMENDED BY: Tyler Peek DATE 1/28/20
Tyler Peek, PE
District Traffic Engineer

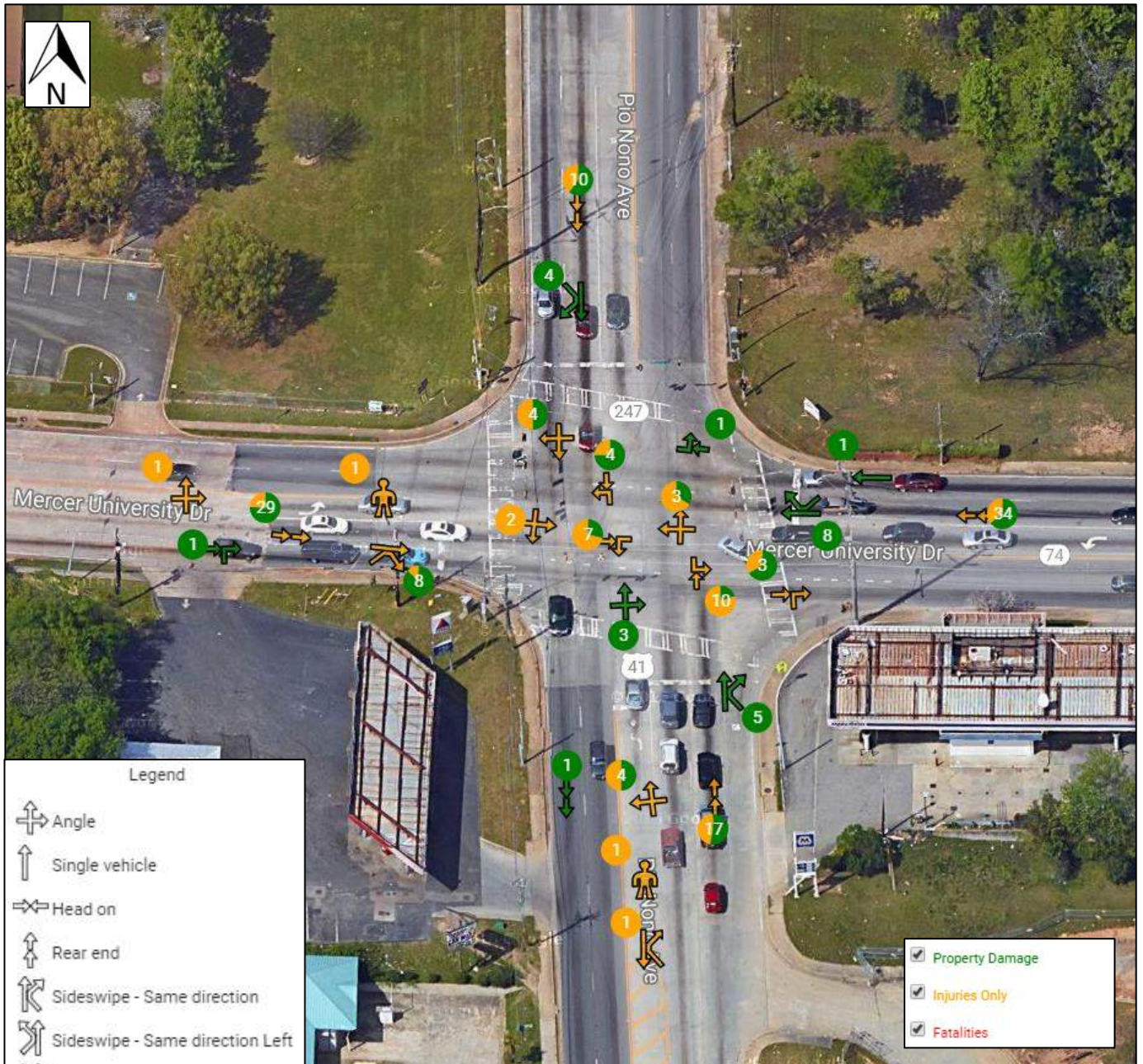
Appendix A: Crash Data

5374048	Bibb Co Sheriff's Office	7/30/2015	12:47:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY DR	PIO NONO AVE	0	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Straight	Motor Vehicle In Motion	
5374278	Bibb Co Sheriff's Office	7/30/2015	9:03:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.48	DENT ST	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	South	South	Straight	Straight	Motor Vehicle In Motion	
5380288	Bibb Co Sheriff's Office	8/4/2015	8:49:00 AM	BIBB	STATE ROUTE	PIONONO AVE	EISENHOWER PKWY	C	1	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	None	South	Stopped	Straight	Motor Vehicle In Motion	
5383629	Bibb Co Sheriff's Office	8/7/2015	4:25:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	0	0	Angle	On Roadway - Non-Intersection	Daylight	Dry	South	West	Straight	Turning Right	Motor Vehicle In Motion	
5385636	Bibb Co Sheriff's Office	8/10/2015	9:21:00 PM	BIBB	COUNTY ROAD	ANTHONY RD	0.00	PIO NONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	East	South	Straight	Turning Left	Motor Vehicle In Motion	
5385497	Bibb Co Sheriff's Office	8/10/2015	11:43:00 AM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIONONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Stopped	Straight	Motor Vehicle In Motion	
5386855	Bibb Co Sheriff's Office	8/11/2015	2:13:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Changing Lanes	Straight	Motor Vehicle In Motion	
5386518	Bibb Co Sheriff's Office	8/11/2015	12:40:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Straight	Stopped	Motor Vehicle In Motion	
5386696	Bibb Co Sheriff's Office	8/11/2015	3:50:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIONONO AVE	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Changing Lanes	Motor Vehicle In Motion	
5398183	Bibb Co Sheriff's Office	8/20/2015	8:52:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	EISENHOWER PKWY	0	0	0	Rear End	On Roadway - Non-Intersection	DarkLighted	Wet	South	South	Straight	Stopped	Motor Vehicle In Motion	
5453372	Bibb Co Sheriff's Office	8/20/2015	12:46:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	11.97	PIO NONO AVE	C	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Straight	Straight	Motor Vehicle In Motion
5450094	Bibb Co Sheriff's Office	8/22/2015	11:00:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	C	4	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	East	East	Straight	Straight	Motor Vehicle In Motion
5432139	Bibb Co Sheriff's Office	8/25/2015	10:55:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	C	1	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	Southeast	Southeast	Turning Left	Turning Left	Motor Vehicle In Motion
5408441	Bibb Co Sheriff's Office	8/28/2015	2:19:00 PM	BIBB	STATE ROUTE	PIONONO AVE	MOSLEY AVE	0	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Changing Lanes	Motor Vehicle In Motion	
5419202	Bibb Co Sheriff's Office	9/2/2015	2:30:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	ANTHONY RD	0	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Stopped	Straight	Motor Vehicle In Motion	
5414455	Bibb Co Sheriff's Office	9/3/2015	7:09:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	EISENHOWER PKWY	B	1	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Turning Right	Turning Right	Motor Vehicle In Motion	
5417792	Bibb Co Sheriff's Office	9/5/2015	6:52:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	EISENHOWER PKWY	0	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Stopped	Changing Lanes	Motor Vehicle In Motion	
5416319	Bibb Co Sheriff's Office	9/5/2015	7:17:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	South	South	Straight	Stopped	Motor Vehicle In Motion	
5458101	Bibb Co Sheriff's Office	9/12/2015	4:10:00 PM	BIBB	STATE ROUTE	ANTHONY ROAD RD	0.00	PIO NONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Stopped	Parked Motor Vehicle	
5427625	Bibb Co Sheriff's Office	9/16/2015	4:45:00 PM	BIBB	STATE ROUTE	US 80 E	11.18	PIO NONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Stopped	Straight	Motor Vehicle In Motion	
5429971	Bibb Co Sheriff's Office	9/19/2015	4:21:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.97	MERCER UNIVERSITY DRO	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Changing Lanes	Motor Vehicle In Motion	
5452538	Bibb Co Sheriff's Office	9/24/2015	6:03:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	North	South	Stopped	Turning Left	Motor Vehicle In Motion	
5444003	Bibb Co Sheriff's Office	9/26/2015	4:53:00 PM	BIBB	STATE ROUTE	PIONONO AVE	11.78	MOSLEY AVE	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	South	East	Straight	Turning Left	Motor Vehicle In Motion
5461113	Bibb Co Sheriff's Office	9/29/2015	8:47:00 PM	BIBB	STATE ROUTE	PIONONO AVE	11.18	EISENHOWER PKWY	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	South	South	Straight	Stopped	Motor Vehicle In Motion	
5455196	Bibb Co Sheriff's Office	10/4/2015	9:37:00 AM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	0	0	Sideways-Opposite Direction	On Roadway - Roadway Intersection	DarkLighted	Wet	North	N/A	Straight	N/A	Motor Vehicle In Motion	
5462614	Bibb Co Sheriff's Office	10/9/2015	9:33:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	A	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	East	Straight	Straight	Motor Vehicle In Motion
5464990	Bibb Co Sheriff's Office	10/11/2015	3:45:00 PM	BIBB	COUNTY ROAD	PIONONO AVE	0.31	STRAIGHT ST	B	1	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Straight	Changing Lanes	Motor Vehicle In Motion
5470962	Bibb Co Sheriff's Office	10/13/2015	5:43:00 PM	BIBB	COUNTY ROAD	ANTHONY RD	0.00	PIO NONO AVE	0	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Turning Right	Motor Vehicle In Motion
5474234	Bibb Co Sheriff's Office	10/19/2015	5:36:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Straight	Motor Vehicle In Motion	
5477382	Bibb Co Sheriff's Office	10/21/2015	8:21:00 AM	BIBB	STATE ROUTE	PIONONO AVE	11.18	EISENHOWER PKWY	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Straight	Motor Vehicle In Motion	
5505191	Bibb Co Sheriff's Office	10/22/2015	2:50:00 PM	BIBB	STATE ROUTE	PIONONO AVE	11.97	MERCER UNIV. DR	C	2	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	South	Straight	Turning Left	Motor Vehicle In Motion
5482245	Bibb Co Sheriff's Office	10/23/2015	9:51:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	C	1	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	South	N/A	Straight	N/A	Motor Vehicle In Motion
5487740	Bibb Co Sheriff's Office	10/28/2015	5:56:00 PM	BIBB	STATE ROUTE	PIONONO AVE	11.18	EISENHOWER PKWY	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	N/A	Stopped	N/A	Motor Vehicle In Motion	
5493225	Bibb Co Sheriff's Office	10/29/2015	9:37:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	11.97	MERCER UNIV (74) DR	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Turning Left	Turning Left	Motor Vehicle In Motion	
5492264	Bibb Co Sheriff's Office	11/1/2015	1:31:00 PM	BIBB	COUNTY ROAD	PIONONO AVE	0.57	STEPHENS DR	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	North	North	Stopped	Straight	Motor Vehicle In Motion	
5501421	Bibb Co Sheriff's Office	11/2/2015	3:18:00 PM	BIBB	STATE ROUTE	EISENHOWER (HWY 8)	11.18	PIO NONO AVE	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	West	West	Entering/Leaving	Straight	Motor Vehicle In Motion	
5496189	Bibb Co Sheriff's Office	11/2/2015	12:59:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	South	South	Straight	Changing Lanes	Motor Vehicle In Motion	
5502328	Bibb Co Sheriff's Office	11/8/2015	9:37:00 AM	BIBB	STATE ROUTE	PIONONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	North	East	Straight	Turning Left	Motor Vehicle In Motion	
5506062	Bibb Co Sheriff's Office	11/9/2015	6:48:00 PM	BIBB	COUNTY ROAD	DENT ST	0.00	PIO NONO AVE	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Wet	South	South	Straight	Turning Left	Motor Vehicle In Motion	
5508672	Bibb Co Sheriff's Office	11/12/2015	6:30:00 PM	BIBB	COUNTY ROAD	ANTHONY RD	0.00	PIO NONO AVE	C	2	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	East	East	Straight	Stopped	Motor Vehicle In Motion
5512296	Bibb Co Sheriff's Office	11/16/2015	2:59:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Stopped	Changing Lanes	Motor Vehicle In Motion	
5518987	Bibb Co Sheriff's Office	11/19/2015	2:57:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	HOLLY ST	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	South	Northeast	Straight	Turning Left	Motor Vehicle In Motion	
5518942	Bibb Co Sheriff's Office	11/22/2015	1:58:00 AM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	0	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	East	West	Straight	Turning Left	Motor Vehicle In Motion
5522465	Bibb Co Sheriff's Office	11/24/2015	1:56:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	ELL ST	0	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	North	West	Straight	Straight	Motor Vehicle In Motion
5526890	Bibb Co Sheriff's Office	11/24/2015	4:44:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.19	CARROLL ST	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Changing Lanes	Straight	Motor Vehicle In Motion	
5533964	Bibb Co Sheriff's Office	11/28/2015	6:03:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY ST	C	3	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Stopped	Motor Vehicle In Motion	
5523227	Bibb Co Sheriff's Office	11/30/2015	2:10:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	East	West	Entering/Leaving	Straight	Motor Vehicle In Motion
5533969	Bibb Co Sheriff's Office	12/1/2015	3:34:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	South	North	Turning Left	Straight	Motor Vehicle In Motion	
5533881	Bibb Co Sheriff's Office	12/2/2015	5:58:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.86	MOORE ST	C	1	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	West	North	Straight	Straight	Motor Vehicle In Motion
5538635	Bibb Co Sheriff's Office	12/5/2015	12:00:00 AM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Straight	Stopped	Motor Vehicle In Motion	
5540354	Bibb Co Sheriff's Office	12/7/2015	12:00:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIONONO AVE	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Straight	Motor Vehicle In Motion	
5541183	Bibb Co Sheriff's Office	12/7/2015	6:58:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Stopped	Changing Lanes	Motor Vehicle In Motion	
5542523	Bibb Co Sheriff's Office	12/7/2015	6:55:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Changing Lanes	Straight	Motor Vehicle In Motion	
5544670	Bibb Co Sheriff's Office	12/9/2015	4:54:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	East	North	Straight	Straight	Motor Vehicle In Motion
5558998	Bibb Co Sheriff's Office	12/18/2015	11:47:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	Stopped	Motor Vehicle In Motion	
5560441	Bibb Co Sheriff's Office	12/20/2015	11:00:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	Southeast	North	Turning Left	Straight	Motor Vehicle In Motion	
5567738	Bibb Co Sheriff's Office	12/21/2015	6:06:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	ANTHONY RD	C	3	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	West	West	Stopped	Stopped	Motor Vehicle In Motion	
5629655	Macon Police Department	12/31/2015	11:33:00 AM	BIBB	COUNTY ROAD	PIONONO AVE	0.00	MOORE STREET	C	2	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	None	West	Stopped	Straight	Motor Vehicle In Motion
5576367	Bibb Co Sheriff's Office	1/1/2016	12:45:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	C	3	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	Stopped	Motor Vehicle In Motion
5628374	Macon Police Department	1/14/2016	2:02:00 PM	BIBB	STATE ROUTE	PIONONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Turning Right	Motor Vehicle In Motion	
5616243	Bibb Co Sheriff's Office	1/26/2016	1:57:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	12.95	MERCER UNIVERSITY DRO	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Changing Lanes	Motor Vehicle In Motion	
5613031	Bibb Co Sheriff's Office	1/27/2016	12:46:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	C	2	0	Angle	On Roadway - Non-Intersection	DarkLighted	Dry	North	South	Turning Right	Straight	Motor Vehicle In Motion - Int
5612961	Bibb Co Sheriff's Office	1/27/2016	12:46:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.57	STEPHENS ST	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Wet	South	South	Straight	Turning Left	Motor Vehicle In Motion	
5638436	Bibb Co Sheriff's Office	2/5/2016	2:50:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	C	4	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Turning Left	Straight	Motor Vehicle In Motion
5625734	Bibb Co Sheriff's Office	2/6/2016	12:59:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	EISENHOWER PKWY	0	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	DarkLighted	Dry	South	South	Turning Left	Turning Left	Motor Vehicle In Motion	
5631337	Bibb Co Sheriff's Office	2/9/2016	10:07:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Straight	Motor Vehicle In Motion	
5634536	Bibb Co Sheriff's Office	2/11/2016	8:38:00 PM	BIBB	COUNTY ROAD	ANTHONY RD	0.00	PIO NONO AVE	C	1	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	West	N/A	Stopped	N/A	Motor Vehicle In Motion
5641293	Bibb Co Sheriff's Office	2/11/2016	3:49:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.24	HOLLY ST	0	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	Northwest	South	Turning Left	Straight	Motor Vehicle In Motion
5638442	Bibb Co Sheriff's Office	2/11/2016	2:07:00 PM</																	

6043208	Bibb Co Sheriff's Office	12/16/2016	4:01:00 PM	BIBB	MERCER UNIVERSITY DR	PIONONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Stopped	Straight	Motor Vehicle In Motion		
6053836	Bibb Co Sheriff's Office	12/20/2016	5:45:00 PM	BIBB	MERCER UNIVERSITY DR	PIO NONO AVE	C	1	0	Angle	On Roadway - Roadway Intersection	Dusk	Dry	West	East	Turning Left	Straight	Motor Vehicle In Motion		
6048418	Bibb Co Sheriff's Office	12/20/2016	6:20:00 PM	BIBB	STATE ROUTE	PIONONO AVE	12.95	MERCER UNIVERSITY DRO	O	0	Angle	On Roadway - Roadway Intersection	Dawn	Wet	North	Southeast	Turning Left	Turning Left	Motor Vehicle In Motion	
6049696	Bibb Co Sheriff's Office	12/21/2016	3:39:00 PM	BIBB	EISENHOWER PKWY	PIONONO AVE	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Straight	Turning Right	Motor Vehicle In Motion		
6062244	Bibb Co Sheriff's Office	12/31/2016	7:23:00 PM	BIBB	COUNTY ROAD	PIO NO NO AVE	0.00	MOORE ST	C	1	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Wet	South	South	Stopped	Straight	Motor Vehicle In Motion
6063322	Bibb Co Sheriff's Office	1/2/2017	12:20:00 PM	BIBB	COUNTY ROAD	PIONONO AVE	0.19	HARRIS ST	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	South	South	Changing Lanes	Straight	Motor Vehicle In Motion
6070395	Bibb Co Sheriff's Office	1/6/2017	6:00:00 PM	BIBB	ANTHONY RD	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Wet	West	West	Stopped	Turning Right	Motor Vehicle In Motion		
6071203	Bibb Co Sheriff's Office	1/7/2017	4:24:00 PM	BIBB	EISENHOWER PKWY	PIONONO AVE	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Changing Lanes	Straight	Motor Vehicle In Motion		
6075032	Bibb Co Sheriff's Office	1/11/2017	10:07:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	C	3	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	Southeast	North	Turning Left	Straight	Motor Vehicle In Motion
6082525	Bibb Co Sheriff's Office	1/12/2017	6:48:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	C	2	0	Sideways-Opposite Direction	On Roadway - Roadway Intersection	DarkLighted	Dry	East	West	Stopped	Turning Left	Motor Vehicle In Motion
6077272	Bibb Co Sheriff's Office	1/12/2017	1:47:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.15	ALINE ST	C	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Straight	Motor Vehicle In Motion
6079344	Bibb Co Sheriff's Office	1/15/2017	8:22:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	South	West	Straight	Turning Left	Motor Vehicle In Motion
6083482	Bibb Co Sheriff's Office	1/17/2017	2:52:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.19	HARRIS ST	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Straight	Stopped	Motor Vehicle In Motion
6086828	Bibb Co Sheriff's Office	1/18/2017	8:38:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIO NONO AVE	O	0	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	West	North	Straight	Turning Left	Motor Vehicle In Motion
6087697	Bibb Co Sheriff's Office	1/18/2017	8:32:00 PM	BIBB	PIONONO AVE	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	Straight	Motor Vehicle In Motion		
6085494	Bibb Co Sheriff's Office	1/19/2017	8:12:00 AM	BIBB	STATE ROUTE	EISENHOWER PKWY	11.18	PIONONO AVE	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Changing Lanes	Motor Vehicle In Motion
6090145	Bibb Co Sheriff's Office	1/19/2017	12:03:00 PM	BIBB	COUNTY ROAD	PIONONO AVE	0.00	ELL ST	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Turning Left	Motor Vehicle In Motion
6090535	Bibb Co Sheriff's Office	1/23/2017	12:24:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	C	2	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Stopped	Straight	Motor Vehicle In Motion
6100729	Bibb Co Sheriff's Office	1/29/2017	6:24:00 PM	BIBB	PIO NO NO AVE	EISENHOWER PKWY	C	1	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	South	N/A	Stopped	N/A	Motor Vehicle In Motion		
6098886	Bibb Co Sheriff's Office	1/30/2017	6:00:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	N/A	Straight	N/A	Motor Vehicle In Motion
6100396	Bibb Co Sheriff's Office	1/31/2017	4:10:00 PM	BIBB	COUNTY ROAD	ANTHONY RD	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Straight	Stopped	Motor Vehicle In Motion
6105215	Bibb Co Sheriff's Office	2/3/2017	1:49:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	O	0	0	Sideways-Same Direction	On Roadway - Non-Intersection	Daylight	Dry	South	South	Changing Lanes	Stopped	Motor Vehicle In Motion
6106768	Bibb Co Sheriff's Office	2/3/2017	1:12:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY	12.95	PIO NONO AVE	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	East	Turning Left	Straight	Motor Vehicle In Motion
6105851	Bibb Co Sheriff's Office	2/4/2017	4:35:00 PM	BIBB	STATE ROUTE	PIONONO AVE	11.18	EISENHOWER PKWY	O	0	0	Head On	On Roadway - Roadway Intersection	Daylight	Dry	North	South	Changing Lanes	Straight	Motor Vehicle In Motion
6106773	Bibb Co Sheriff's Office	2/4/2017	11:41:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	South	Southeast	Straight	Turning Right	Motor Vehicle In Motion
6106590	Bibb Co Sheriff's Office	2/5/2017	1:25:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Wet	North	North	Changing Lanes	Straight	Motor Vehicle In Motion
6107755	Bibb Co Sheriff's Office	2/6/2017	2:08:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Stopped	Motor Vehicle In Motion
6110551	Bibb Co Sheriff's Office	2/8/2017	8:38:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ELL ST	O	0	0	Sideways-Same Direction	On Shoulder	DarkNot Lighted	Dry	South	South	Straight	Straight	Motor Vehicle In Motion
6115774	Bibb Co Sheriff's Office	2/19/2017	5:55:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Head On	On Roadway - Non-Intersection	Daylight	Dry	North	South	Straight	Straight	Motor Vehicle In Motion
6118297	Bibb Co Sheriff's Office	2/14/2017	9:25:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	11.18	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	N/A	Motor Vehicle In Motion
6120129	Bibb Co Sheriff's Office	2/15/2017	5:31:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	B	6	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	South	West	Straight	Turning Left	Motor Vehicle In Motion
6122991	Gsp Post 00	2/16/2017	5:47:00 PM	BIBB	STATE ROUTE	PIO NONO AVENUE	11.59	ANTHONY ROAD A	A	1	0	Not A Collision with Motor Vehicle	On Roadway - Non-Intersection	Daylight	Dry	South	West	Straight	Turning Left	Pedestrian
6122733	Bibb Co Sheriff's Office	2/18/2017	12:35:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	South	South	Straight	Straight	Motor Vehicle In Motion
6124157	Bibb Co Sheriff's Office	2/20/2017	1:39:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	VINING CIR	C	1	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	Turning Left	Motor Vehicle In Motion
6127991	Bibb Co Sheriff's Office	2/23/2017	11:02:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	VINING CIR	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Straight	Stopped	Motor Vehicle In Motion
6149070	Bibb Co Sheriff's Office	2/24/2017	8:12:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	C	2	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Dry	North	Northeast	Straight	Turning Left	Motor Vehicle In Motion
6135445	Bibb Co Sheriff's Office	3/2/2017	11:25:00 AM	BIBB	STATE ROUTE	PIONONO AVE	0.00	EISENHOWER PKWY	C	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	East	South	Turning Right	Straight	Motor Vehicle In Motion
6137392	Bibb Co Sheriff's Office	3/3/2017	6:37:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	MERCER UNIVERSITY DRO	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Straight	Straight	Motor Vehicle In Motion
6141446	Bibb Co Sheriff's Office	3/4/2017	7:49:00 PM	BIBB	PIO NONO / GA HWY 247 AVE	EISENHOWER / GA-22 PIO	O	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	North	North	Straight	Straight	Motor Vehicle In Motion		
6138111	Bibb Co Sheriff's Office	3/4/2017	2:47:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	None	None	Straight	Changing Lanes	Motor Vehicle In Motion
6138890	Bibb Co Sheriff's Office	3/5/2017	4:48:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	11.78	MOSELEY AVE	O	0	0	Angle	Off Roadway	Daylight	Dry	North	South	Turning Left	Straight	Motor Vehicle In Motion
6140298	Bibb Co Sheriff's Office	3/6/2017	3:49:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	C	6	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Turning Left	Turning Left	Motor Vehicle In Motion
6139528	Bibb Co Sheriff's Office	3/6/2017	9:04:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	EISENHOWER PKWY	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	East	South	Turning Left	Straight	Motor Vehicle In Motion
6148011	Bibb Co Sheriff's Office	3/8/2017	12:45:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	North	N/A	Turning Left	Straight	Motor Vehicle In Motion
6150243	Bibb Co Sheriff's Office	3/7/2017	2:04:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	East	East	Straight	Straight	Motor Vehicle In Motion
6158701	Bibb Co Sheriff's Office	3/17/2017	7:05:00 PM	BIBB	STATE ROUTE	PIO NONO	0.00	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	Northeast	East	Turning Right	Changing Lanes	Motor Vehicle In Motion
6156429	Bibb Co Sheriff's Office	3/19/2017	7:23:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY DR	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Straight	Straight	Motor Vehicle In Motion
6165766	Bibb Co Sheriff's Office	3/26/2017	10:30:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	MERCER DR	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	West	West	Changing Lanes	Straight	Motor Vehicle In Motion
6176469	Bibb Co Sheriff's Office	4/3/2017	4:36:00 PM	BIBB	PIO NONO AVE	EISENHOWER PKWY	O	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Wet	West	North	Turning Left	Straight	Motor Vehicle In Motion		
6182859	Bibb Co Sheriff's Office	4/4/2017	2:26:00 PM	BIBB	PIO NONO AVE	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Stopped	Motor Vehicle In Motion		
6189082	Bibb Co Sheriff's Office	4/11/2017	1:40:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	C	1	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	Northwest	Northwest	Turning Left	Turning Left	Motor Vehicle In Motion
6205610	Bibb Co Sheriff's Office	4/16/2017	1:25:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Straight	Stopped	Motor Vehicle In Motion
6199571	Bibb Co Sheriff's Office	4/16/2017	1:49:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	EISENHOWER PKWY	C	1	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Straight	Stopped	Motor Vehicle In Motion
6195443	Bibb Co Sheriff's Office	4/16/2017	4:29:00 PM	BIBB	STATE ROUTE	MERCER UNIVERSITY DR	0.00	PIO NONO AVE	O	0	0	Angle	Off Roadway	Daylight	Dry	West	West	Straight	Stopped	Motor Vehicle In Motion
6202248	Bibb Co Sheriff's Office	4/21/2017	12:04:00 PM	BIBB	COUNTY ROAD	PIONONO AVE	0.00	ELL ST	B	1	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	East	North	Straight	Straight	Motor Vehicle In Motion
6202348	Bibb Co Sheriff's Office	4/21/2017	10:09:00 AM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	VINING CIR	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	South	Straight	Stopped	Motor Vehicle In Motion
6208183	Bibb Co Sheriff's Office	4/26/2017	10:27:00 AM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	East	East	Stopped	Straight	Motor Vehicle In Motion
6211874	Bibb Co Sheriff's Office	4/29/2017	1:58:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	MERCER UNIVERSITY DRC	1	0	0	Angle	On Roadway - Roadway Intersection	Daylight	Dry	Southeast	North	Entering/Leaving	Changing Lanes	Motor Vehicle In Motion
6212273	Bibb Co Sheriff's Office	4/29/2017	4:46:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	MERCER UNIVERSITY DRC	1	0	0	Sideways-Opposite Direction	On Roadway - Non-Intersection	Daylight	Dry	Southeast	Northeast	Entering/Leaving	Entering/Leaving Drive	Motor Vehicle In Motion
6214455	Bibb Co Sheriff's Office	5/1/2017	8:39:00 PM	BIBB	STATE ROUTE	EISENHOWER PKWY	0.00	PIO NONO AVE	O	0	0	Rear End	On Roadway - Roadway Intersection	DarkLighted	Dry	East	East	Straight	Stopped	Motor Vehicle In Motion
6215865	Bibb Co Sheriff's Office	5/1/2017	5:26:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	C	1	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Stopped	Straight	Motor Vehicle In Motion
6219161	Bibb Co Sheriff's Office	5/4/2017	7:13:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	North	North	Straight	Stopped	Motor Vehicle In Motion
6231092	Bibb Co Sheriff's Office	5/12/2017	4:16:00 PM	BIBB	COUNTY ROAD	PIO NONO AVE	0.00	ANTHONY RD	O	0	0	Sideways-Same Direction	On Roadway - Roadway Intersection	Daylight	Dry	South	South	Stopped	Turning Left	Parked Motor Vehicle
6235338	Bibb Co Sheriff's Office	5/16/2017	11:30:00 AM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	EISENHOWER (80) PKWYO	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Dry	North	North	Stopped	Straight	Motor Vehicle In Motion
6241574	Bibb Co Sheriff's Office	5/20/2017	2:23:00 PM	BIBB	STATE ROUTE	PIO NONO AVE	0.00	EISENHOWER PKWY	O	0	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	North	North	Entering/Leaving	Straight	Motor Vehicle In Motion
6244345	Bibb Co Sheriff's Office	5/22/2017	9:55:00 PM	BIBB	MERCER UNIVERSITY DR	PIO NONO AVE	C	4	0	Angle	On Roadway - Roadway Intersection	DarkLighted	Wet	East	South	Straight	Straight	Motor Vehicle In Motion		
6247827	Bibb Co Sheriff's Office	5/22/2017	8:35:00 AM	BIBB	MERCER UNIVERSITY DR	PIO NONO AVE	O	0	0	Not A Collision with Motor Vehicle	On Roadway - Roadway Intersection	Daylight	Dry	Southeast	West	Straight	Stopped	Motor Vehicle In Motion		
6245367	Bibb Co Sheriff's Office	5/23/2017	10:26:00 AM	BIBB	EISENHOWER PKWY	PIO NONO AVE	C	1	0	Rear End	On Roadway - Roadway Intersection	Daylight	Wet	East	East	Stopped	Straight	Motor Vehicle In Motion		
6251481	Bibb Co Sheriff's Office	5/26/2017	7:51																	

Appendix B: Intersection and Roadway Segments Crash Diagrams

SR 247/Pio Nono Avenue at SR 74/Mercer University Drive Crash Diagram (2014-2018)



Legend

- Angle
- Single vehicle
- Head on
- Rear end
- Sideswipe - Same direction
- Sideswipe - Same direction Left
- Sideswipe - Opposite direction
- U-turn involved
- Left turn angle
- Right turn angle
- Parking
- Driveway
- Pedestrian
- Bicycle
- User defined

- Property Damage
- Injuries Only
- Fatalities

Collision Type	Year					Total
	2014	2015	2016	2017	2018	
Angle	6	14	7	9	7	43
Head On	0	0	0	0	0	0
Rear End	17	18	22	13	21	91
Sideswipe Same Direction	6	7	3	3	6	25
Sideswipe Opposite Direction	0	0	0	1	0	1
Not a Collision with Motor Vehicle	0	1	0	1	1	3
Total Crashes	29	40	32	27	35	163
Total Injury Crashes	15	13	11	6	16	61
Total Fatal Crashes	0	0	0	0	0	0

SR 247/Pio Nono Avenue from SR 74/Mercer University Drive to Anthony Road Crash Diagram (2014-2018)



- Property Damage
- Injuries Only
- Fatalities

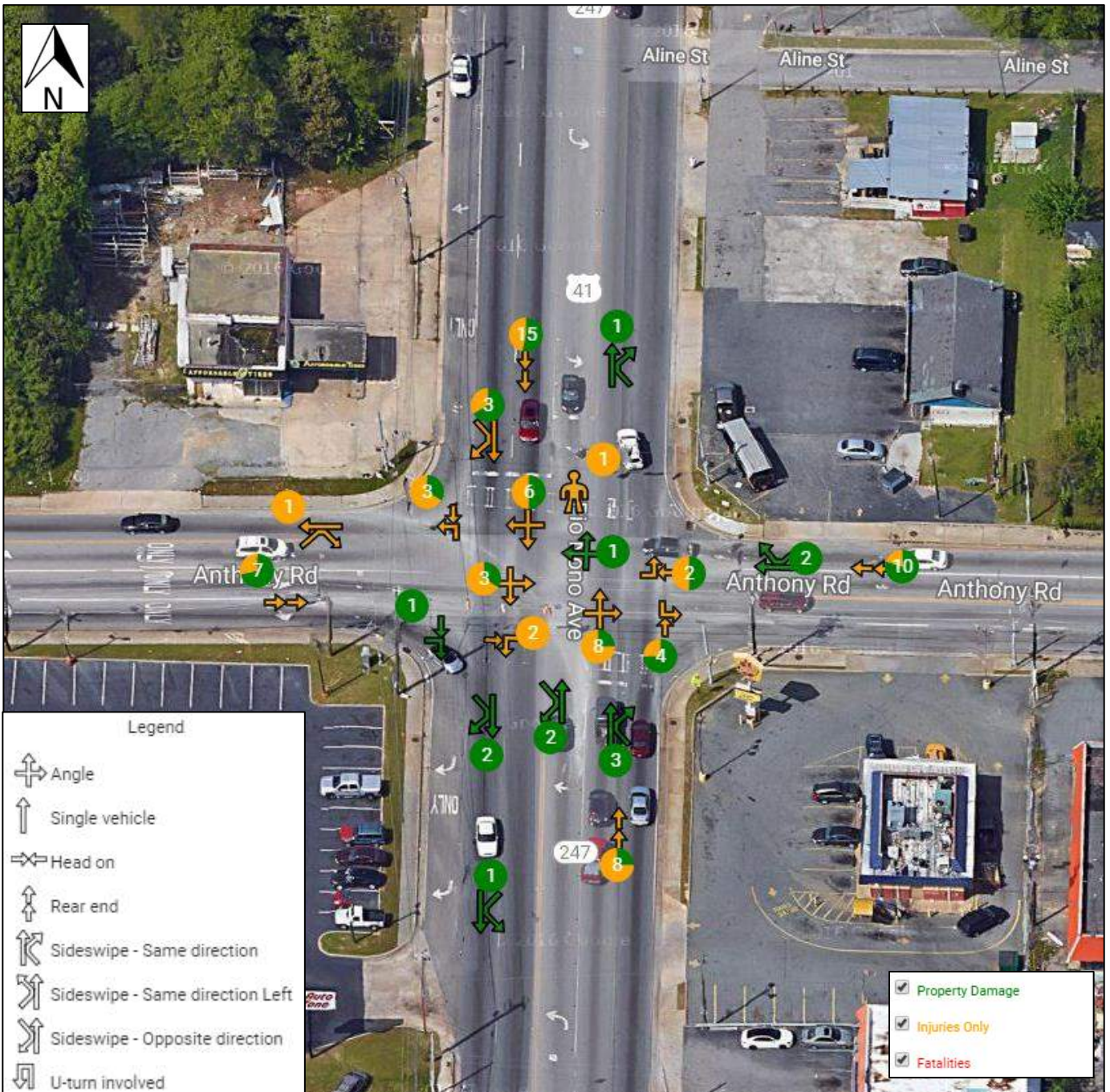
SR 247/Pio Nono Avenue from SR 74/Mercer University Drive to Anthony Road Crash Diagram (2014-2018)



<input checked="" type="checkbox"/> Property Damage
<input checked="" type="checkbox"/> Injuries Only
<input checked="" type="checkbox"/> Fatalities

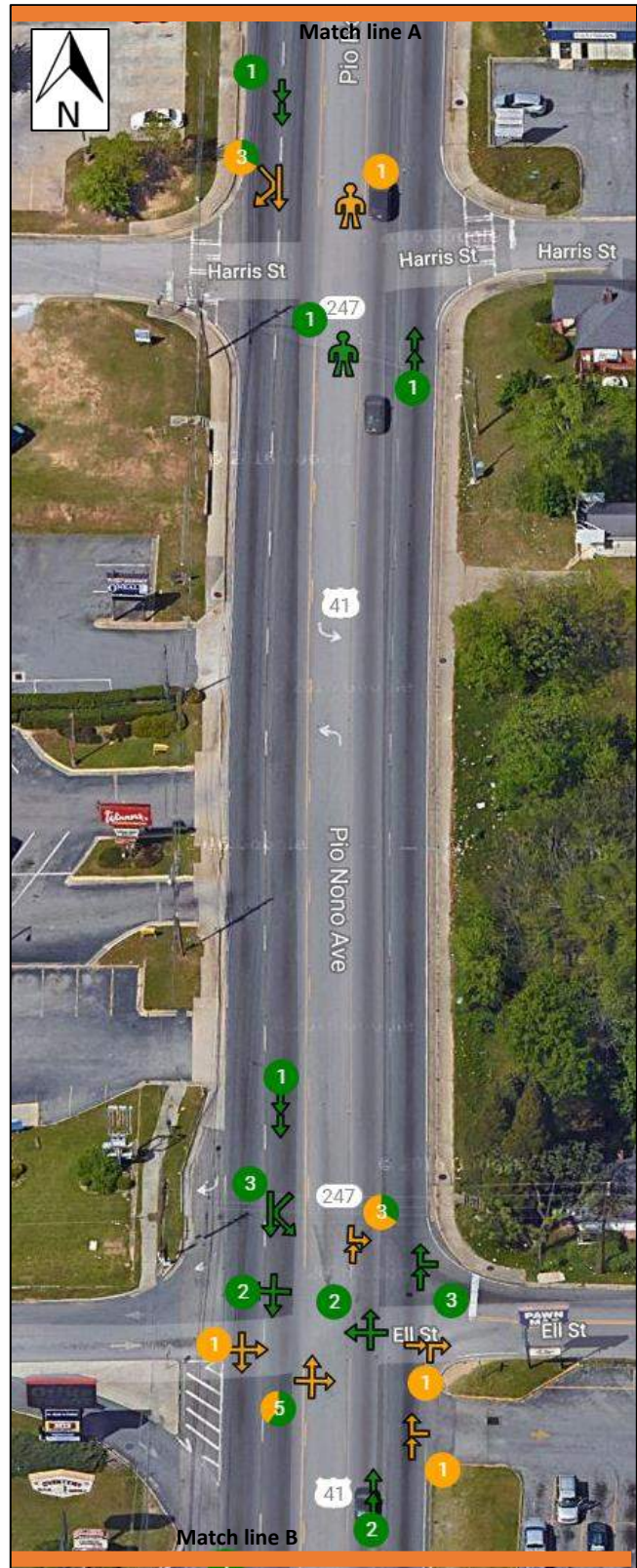
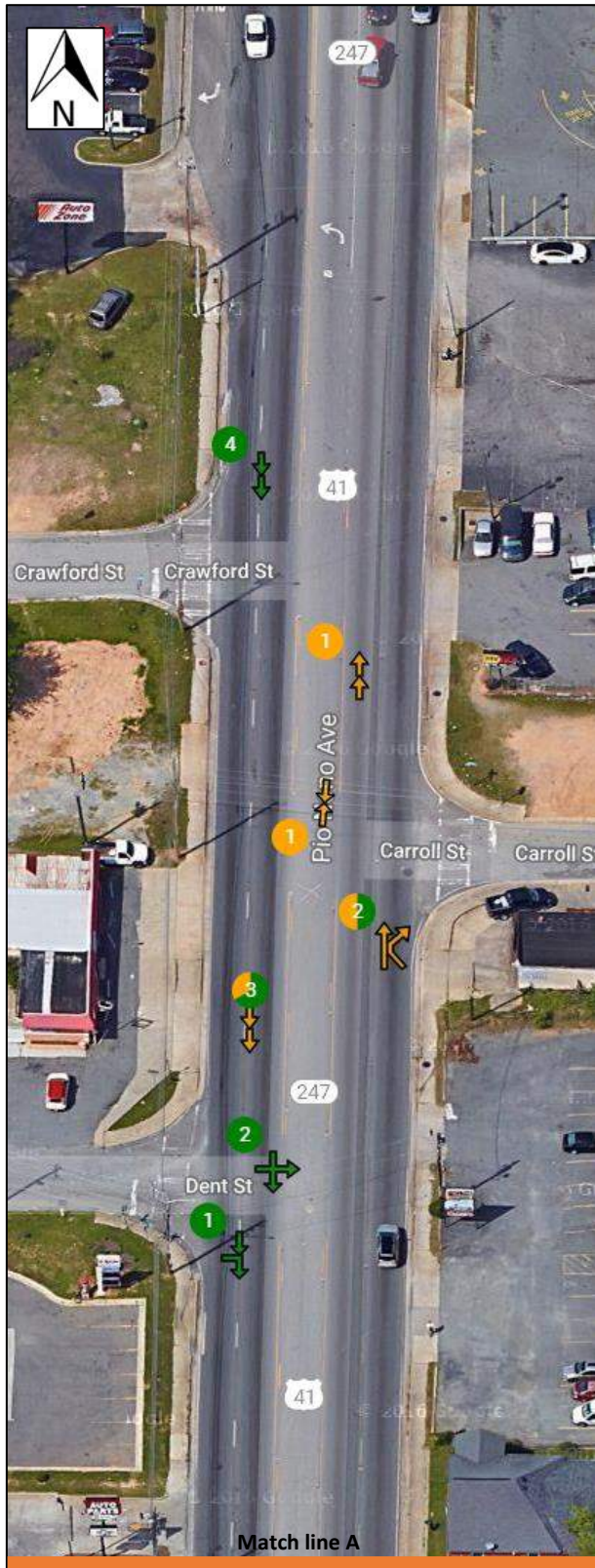
Collision Type	Year					Total
	2014	2015	2016	2017	2018	
Angle	2	3	2	1	2	10
Head On	0	0	0	1	1	2
Rear End	13	9	3	8	9	42
Sideswipe Same Direction	3	2	3	1	0	9
Sideswipe Opposite Direction	0	0	0	0	0	0
Not a Collision with Motor Vehicle	1	1	2	0	0	4
Total Crashes	19	15	10	11	12	67
Total Injury Crashes	10	7	4	2	3	26
Total Fatal Crashes	0	0	0	0	0	0

SR 247/Pio Nono Avenue at Anthony Road Crash Diagram (2014-2018)



Collision Type	Year					Total
	2014	2015	2016	2017	2018	
Angle	6	9	4	7	4	30
Head On	0	0	0	0	0	0
Rear End	5	9	12	10	4	40
Sideswipe Same Direction	1	1	2	6	2	12
Sideswipe Opposite Direction	0	0	1	0	2	3
Not a Collision with Motor Vehicle	0	0	0	1	0	1
Total Crashes	12	19	19	24	12	86
Total Injury Crashes	4	10	10	8	4	36
Total Fatal Crashes	0	0	0	0	0	0

SR 247/Pio Nono Avenue from Anthony Road to SR 22/Eisenhower Parkway Crash Diagram (2014-2018)



- Property Damage
- Injuries Only
- Fatalities

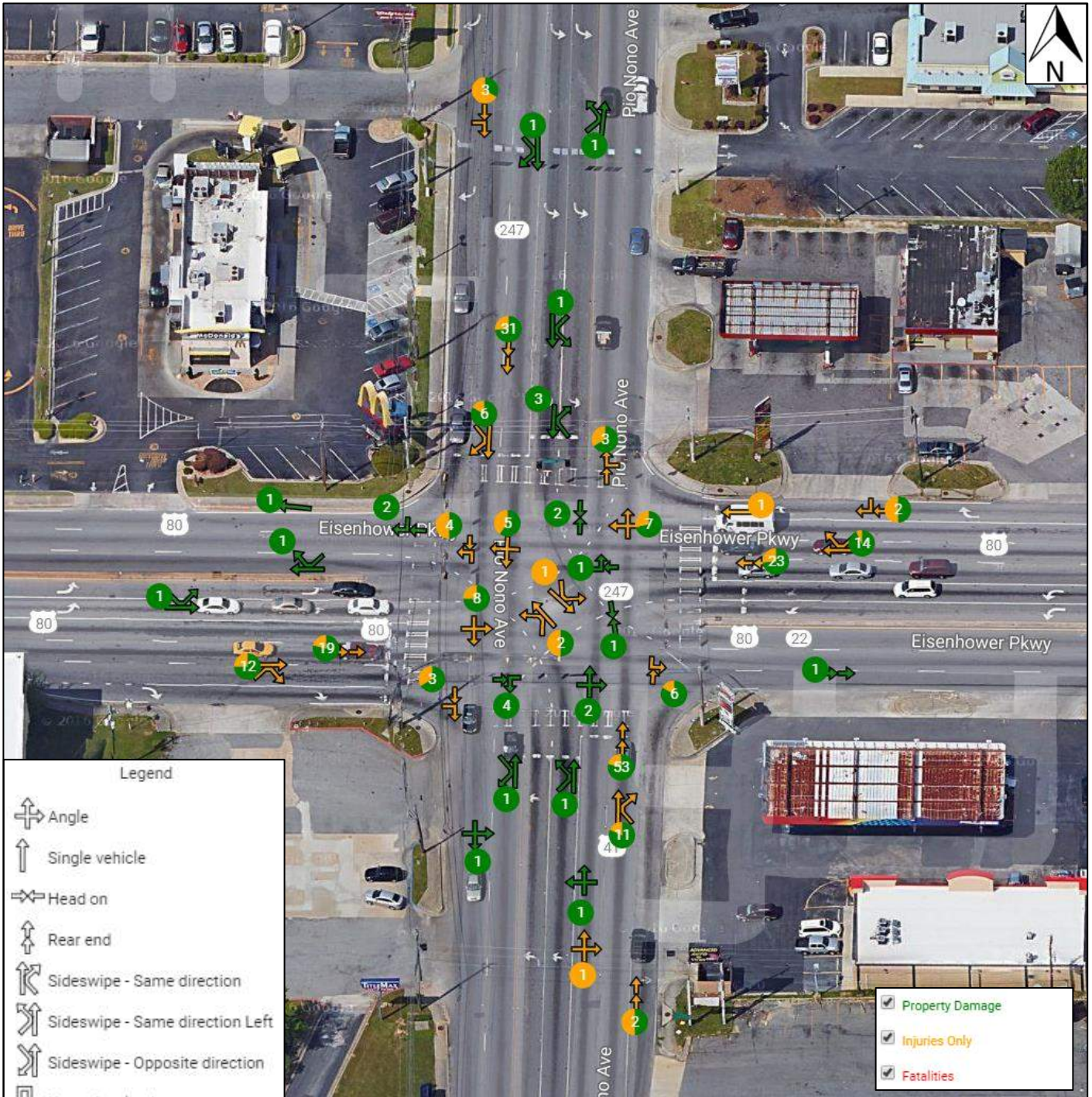
SR 247/Pio Nono Avenue from Anthony Road to SR 22/Eisenhower Parkway Crash Diagram (2014-2018)



<input checked="" type="checkbox"/>	Property Damage
<input checked="" type="checkbox"/>	Injuries Only
<input checked="" type="checkbox"/>	Fatalities

Collision Type	Year					Total
	2014	2015	2016	2017	2018	
Angle	8	9	5	7	6	35
Head On	1	0	0	0	0	1
Rear End	0	5	6	4	4	19
Sideswipe Same Direction	4	3	2	1	2	12
Sideswipe Opposite Direction	1	0	0	1	0	2
Not a Collision with Motor Vehicle	2	0	0	0	0	2
Total Crashes	16	17	13	13	12	71
Total Injury Crashes	5	4	5	5	5	24
Total Fatal Crashes	0	0	0	0	0	0

SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway Crash Diagram (2014-2018)



Collision Type	Year					Total
	2014	2015	2016	2017	2018	
Angle	4	11	10	13	14	52
Head On	0	0	0	2	1	3
Rear End	19	21	33	33	24	130
Sideswipe Same Direction	6	10	16	7	12	51
Sideswipe Opposite Direction	1	2	0	0	2	5
Not a Collision with Motor Vehicle	2	0	0	0	0	2
Total Crashes	32	44	59	55	53	243
Total Injury Crashes	7	12	15	15	11	60
Total Fatal Crashes	0	0	0	0	0	0

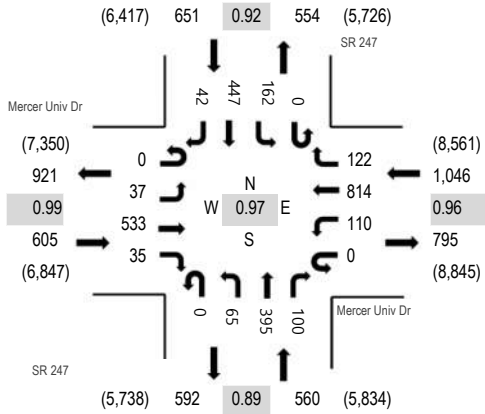
Appendix C: Traffic Data



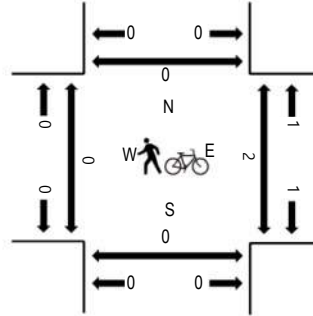
(303) 216-2439
www.alltrafficdata.net

Location: 1 SR 247 & Mercer Univ Dr AM
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Mercer Univ Dr Eastbound				Mercer Univ Dr Westbound				SR 247 Northbound				SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	1	113	2	0	5	55	20	0	4	23	17	0	18	35	6	299	1,612	0	1	0	0
6:45 AM	0	1	108	7	0	9	75	28	0	2	40	17	0	24	37	2	350	1,956	0	2	0	0
7:00 AM	0	3	124	4	0	8	97	25	0	5	59	13	0	26	44	2	410	2,272	0	0	0	0
7:15 AM	0	4	149	3	0	7	119	38	0	3	89	20	0	36	79	6	553	2,535	0	0	0	0
7:30 AM	0	4	208	4	0	10	123	29	0	7	96	29	0	39	88	6	643	2,611	1	0	0	0
7:45 AM	0	4	208	3	0	17	117	30	0	16	82	49	0	48	80	12	666	2,527	0	0	0	0
8:00 AM	0	3	197	10	0	18	136	38	0	18	90	32	0	42	80	9	673	2,421	0	1	0	0
8:15 AM	0	3	202	6	0	17	147	25	0	7	85	20	0	24	87	6	629		0	0	1	0
8:30 AM	0	4	138	7	0	13	122	30	0	7	90	17	0	31	95	5	559		1	0	0	0
8:45 AM	0	9	154	8	0	11	108	27	0	7	94	16	0	33	80	13	560		1	0	1	0
9:00 AM	0	3	125	1	0	13	108	35	0	7	74	21	0	27	73	7	494	1,899	0	0	0	0
9:15 AM	0	4	113	5	0	16	112	22	0	5	66	22	0	32	75	5	477	1,870	0	0	0	0
9:30 AM	0	3	128	7	0	20	102	28	0	5	58	20	0	20	78	7	476	1,852	1	1	0	0
9:45 AM	0	3	110	5	0	18	114	25	0	4	73	20	0	22	52	6	452	1,896	0	0	0	0
10:00 AM	0	3	104	5	0	21	97	19	0	12	75	24	0	25	76	4	465	1,913	0	0	1	0
10:15 AM	0	7	99	5	0	22	102	18	0	8	64	17	0	18	88	11	459	1,959	0	0	0	0
10:30 AM	0	3	112	11	0	20	124	23	0	7	87	18	0	27	80	8	520	1,975	0	0	0	0
10:45 AM	0	4	99	6	0	18	124	22	0	8	71	19	0	20	68	10	469	1,991	1	0	0	0
11:00 AM	0	10	99	7	0	23	122	18	0	13	89	24	0	24	76	6	511	2,069	0	0	0	0
11:15 AM	0	7	92	6	0	21	110	27	0	12	64	16	0	19	88	13	475	2,110	0	0	0	0
11:30 AM	0	5	113	6	0	26	112	22	0	11	80	17	0	23	110	11	536	2,202	2	1	0	1
11:45 AM	0	9	109	12	0	25	130	23	0	10	75	21	0	31	88	14	547	2,244	0	0	0	0
12:00 PM	0	9	108	3	0	15	116	25	0	6	83	25	0	35	113	14	552	2,278	0	0	0	0
12:15 PM	0	6	119	9	0	27	143	18	0	13	87	23	0	19	89	14	567	2,305	0	1	0	0
12:30 PM	0	12	116	13	0	15	134	28	0	13	89	26	0	31	93	8	578	2,360	0	0	0	0
12:45 PM	0	10	141	6	0	21	117	21	0	11	84	35	0	28	98	9	581	2,374	0	1	1	0
1:00 PM	0	11	145	11	0	13	119	26	0	15	97	15	0	35	82	10	579	2,379	0	1	2	1
1:15 PM	0	10	137	10	0	20	129	30	0	11	96	24	0	26	112	17	622	2,391	0	0	0	1
1:30 PM	0	9	115	5	0	21	124	24	0	11	102	22	0	33	114	12	592	2,382	0	1	0	0
1:45 PM	0	3	118	4	0	27	132	29	0	11	90	19	0	33	109	11	586	2,394	0	0	0	0
2:00 PM	0	5	133	4	0	15	135	19	0	11	96	31	0	34	99	9	591	2,432	0	0	1	0
2:15 PM	0	3	137	13	0	27	143	24	0	9	100	22	0	22	99	14	613	2,481	0	2	0	0
2:30 PM	0	8	140	8	0	19	133	32	0	13	103	28	0	20	91	9	604	2,595	0	0	0	0
2:45 PM	0	6	111	9	0	19	109	23	0	13	131	20	0	42	132	9	624	2,702	0	0	0	1
3:00 PM	0	6	121	7	0	26	169	32	0	15	78	31	0	51	95	9	640	2,787	0	1	0	0

3:15 PM	0	9	133	15	0	30	155	32	0	18	118	40	0	32	131	14	727	2,841	1	0	0	0
3:30 PM	0	10	116	10	0	24	196	24	0	19	96	47	0	26	131	12	711	2,791	0	1	0	0
3:45 PM	0	13	113	9	0	26	141	23	0	21	134	34	0	34	150	11	709	2,713	0	0	0	0
4:00 PM	0	8	116	6	0	23	198	31	0	5	115	29	0	46	104	13	694	2,703	0	2	0	0
4:15 PM	0	8	111	12	0	24	149	21	0	23	113	24	0	52	120	20	677	2,749	0	0	0	0
4:30 PM	0	4	113	12	0	17	196	35	0	8	84	31	0	35	90	8	633	2,804	0	0	0	0
4:45 PM	0	5	110	5	0	35	184	42	0	17	115	23	0	30	125	8	699	2,862	0	0	0	0
5:00 PM	0	13	152	15	0	21	202	29	0	20	96	29	0	54	100	9	740	2,793	0	0	0	0
5:15 PM	0	12	144	10	0	29	220	24	0	12	96	26	0	34	111	14	732	2,605	0	0	0	0
5:30 PM	0	7	127	5	0	25	208	27	0	16	88	22	0	44	111	11	691	2,385	0	2	0	0
5:45 PM	0	10	133	6	0	18	153	29	0	10	83	32	0	29	121	6	630		0	3	0	0
6:00 PM	0	7	146	14	1	15	102	29	0	17	81	11	0	36	83	10	552		0	0	0	0
6:15 PM	0	1	122	13	0	7	105	26	0	12	70	19	0	36	97	4	512		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	3	0	0	0	3	0	0	0	3	0	0	3	1	0	13
Lights	0	29	522	35	0	106	803	120	0	65	379	98	0	153	443	42	2,795
Mediums	0	8	8	0	0	4	8	2	0	0	13	2	0	6	3	0	54
Total	0	37	533	35	0	110	814	122	0	65	395	100	0	162	447	42	2,862

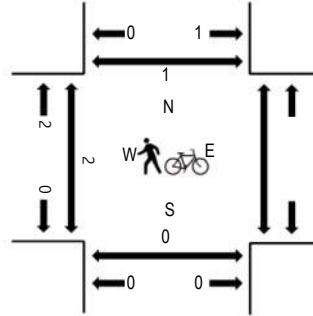
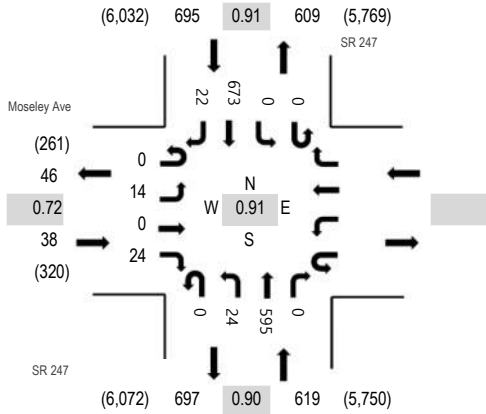


(303) 216-2439
www.alltrafficdata.net

Location: 2 SR 247 & Moseley Ave
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 03:15 PM - 04:15 PM
Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Moseley Ave Eastbound				Westbound			SR 247 Northbound				SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru Right	U-Turn	Left	Thru Right	U-Turn	Left	Thru	Right	West			East	South	North	
6:30 AM	0	0	0	1				0	1	42	0	0	0	40	1	85	514	0	0	0	
6:45 AM	0	5	0	0				0	0	54	0	0	0	44	0	103	672	0	0	0	
7:00 AM	0	5	0	0				0	0	73	0	0	0	66	3	147	824	0	0	0	
7:15 AM	0	3	0	1				0	0	87	0	0	0	87	1	179	923	1	0	0	
7:30 AM	0	4	0	0				0	0	125	0	0	0	113	1	243	955	0	0	0	
7:45 AM	0	7	0	2				0	2	119	0	0	0	121	4	255	946	1	0	2	
8:00 AM	0	3	0	2				0	2	119	0	0	0	119	1	246	908	0	0	0	
8:15 AM	0	2	0	0				0	1	100	0	0	0	104	4	211		0	0	0	
8:30 AM	0	5	0	2				0	3	110	0	0	0	112	2	234		2	0	0	
8:45 AM	0	0	0	0				0	1	115	0	0	0	99	2	217		2	0	0	
9:00 AM	0	4	0	1				0	0	87	0	0	0	96	1	189	762	0	0	0	
9:15 AM	0	1	0	2				0	3	92	0	0	0	91	1	190	766	1	0	1	
9:30 AM	0	1	0	2				0	1	76	0	0	0	112	1	193	795	0	0	0	
9:45 AM	0	2	0	1				0	1	99	0	0	0	85	2	190	827	1	0	0	
10:00 AM	0	6	0	0				0	1	89	0	0	0	96	1	193	866	0	0	0	
10:15 AM	0	0	0	3				0	2	95	0	0	0	117	2	219	900	0	0	0	
10:30 AM	0	2	0	3				0	2	108	0	0	0	109	1	225	905	0	0	0	
10:45 AM	0	3	0	5				0	4	111	0	0	0	104	2	229	943	4	0	0	
11:00 AM	0	1	0	7				0	5	119	0	0	0	95	0	227	972	1	0	0	
11:15 AM	0	4	0	6				0	2	91	0	0	0	118	3	224	1,016	2	0	0	
11:30 AM	0	1	0	0				0	3	110	0	0	0	146	3	263	1,060	1	0	0	
11:45 AM	0	2	0	5				0	6	117	0	0	0	125	3	258	1,060	0	0	0	
12:00 PM	0	4	0	4				0	2	127	0	0	0	130	4	271	1,087	0	0	0	
12:15 PM	0	4	0	1				0	2	115	0	0	0	143	3	268	1,067	0	0	0	
12:30 PM	0	3	0	4				0	3	125	0	0	0	127	1	263	1,101	0	0	0	
12:45 PM	0	4	0	4				0	2	129	0	0	0	142	4	285	1,128	0	0	0	
1:00 PM	0	1	0	4				0	4	130	0	0	0	110	2	251	1,117	2	0	0	
1:15 PM	0	5	0	7				0	7	130	0	0	0	149	4	302	1,136	0	0	0	
1:30 PM	0	7	0	6				0	3	128	0	0	0	140	6	290	1,119	0	0	0	
1:45 PM	0	4	0	1				0	3	111	0	0	0	153	2	274	1,110	1	0	0	
2:00 PM	0	0	0	2				0	2	141	0	0	0	125	0	270	1,169	0	0	0	
2:15 PM	0	3	0	7				0	1	137	0	0	0	133	4	285	1,187	0	0	0	
2:30 PM	0	0	0	4				0	5	153	0	0	0	118	1	281	1,232	0	0	0	
2:45 PM	0	3	0	2				0	4	167	0	0	0	156	1	333	1,278	0	0	0	
3:00 PM	0	2	0	8				0	0	131	0	0	0	142	5	288	1,315	0	0	0	

3:15 PM	0	2	0	6	0	7	147	0	0	0	165	3	330	1,352	0	0	0
3:30 PM	0	2	0	7	0	9	126	0	0	0	178	5	327	1,338	0	0	0
3:45 PM	0	6	0	2	0	4	167	0	0	0	185	6	370	1,291	0	0	1
4:00 PM	0	4	0	9	0	4	155	0	0	0	145	8	325	1,211	2	0	0
4:15 PM	0	8	0	9	0	3	143	0	0	0	146	7	316	1,211	0	0	0
4:30 PM	0	6	0	5	0	2	129	0	0	0	134	4	280	1,188	0	0	0
4:45 PM	0	2	0	4	0	3	138	0	0	0	137	6	290	1,189	0	0	0
5:00 PM	0	2	0	5	0	4	150	0	0	0	161	3	325	1,191	0	0	0
5:15 PM	0	6	0	7	0	7	122	0	0	0	149	2	293	1,115	0	0	0
5:30 PM	0	3	0	6	0	2	127	0	0	0	141	2	281	1,065	1	0	0
5:45 PM	0	6	0	5	0	4	124	0	0	0	149	4	292		0	0	0
6:00 PM	0	1	0	3	0	1	123	0	1	0	118	2	249		1	0	0
6:15 PM	0	2	0	4	0	5	104	0	0	0	128	0	243		0	0	0

Peak Rolling Hour Flow Rates

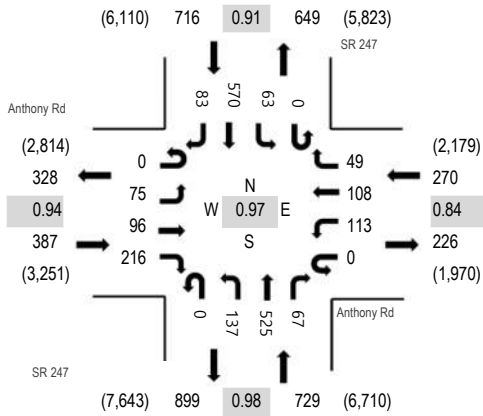
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0					0	0	1	0	0	0	3	0	4
Lights	0	14	0	23					0	24	583	0	0	0	653	22	1,319
Mediums	0	0	0	1					0	0	11	0	0	0	17	0	29
Total	0	14	0	24					0	24	595	0	0	0	673	22	1,352



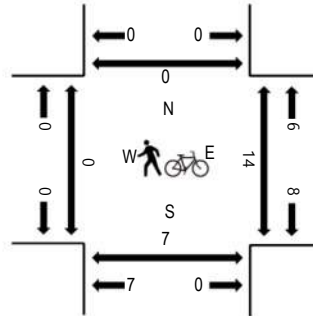
(303) 216-2439
www.alltrafficdata.net

Location: 3 SR 247 & Anthony Rd AM
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 03:15 PM - 04:15 PM
Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Anthony Rd Eastbound				Anthony Rd Westbound				SR 247 Northbound			SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South	North
6:30 AM	0	6	6	27	0	1	11	6	0	8	36	5	1	2	35	2	146	795	0	0	0	0
6:45 AM	0	5	10	22	0	2	4	5	0	9	40	5	0	0	45	6	153	994	0	1	0	0
7:00 AM	0	9	6	29	0	4	8	5	0	25	70	4	0	2	57	9	228	1,249	0	0	0	0
7:15 AM	0	10	24	21	0	7	8	0	0	20	78	7	0	7	75	11	268	1,434	0	0	0	0
7:30 AM	0	19	14	25	0	8	5	3	0	27	101	18	0	7	99	19	345	1,541	0	0	0	0
7:45 AM	0	15	28	39	0	15	24	8	0	32	99	26	0	11	82	29	408	1,568	2	0	0	0
8:00 AM	0	20	23	46	0	14	31	11	0	27	90	21	0	14	90	26	413	1,533	0	0	0	0
8:15 AM	0	4	27	37	0	24	25	12	0	32	86	21	0	8	84	15	375		0	3	0	0
8:30 AM	0	11	29	32	0	26	14	18	0	19	90	34	0	9	76	14	372		0	0	6	0
8:45 AM	0	10	26	31	0	29	26	23	0	19	84	25	0	7	87	6	373		0	0	0	0
9:00 AM	0	8	15	31	0	22	13	6	0	20	79	14	0	8	78	9	303	1,190	0	4	0	0
9:15 AM	0	5	22	36	0	11	18	10	0	20	78	13	0	5	81	10	309	1,167	0	3	0	1
9:30 AM	0	7	14	31	0	11	8	7	0	17	66	11	0	6	89	17	284	1,167	1	1	0	0
9:45 AM	0	15	13	32	0	7	12	1	0	17	96	6	0	4	78	13	294	1,218	0	4	2	0
10:00 AM	0	11	8	34	0	11	15	3	0	28	73	5	0	4	81	7	280	1,244	0	0	0	2
10:15 AM	0	7	10	30	0	17	9	6	0	17	82	9	1	5	109	7	309	1,254	0	1	0	0
10:30 AM	0	14	11	25	0	11	12	5	0	28	97	12	0	6	100	14	335	1,254	0	0	0	0
10:45 AM	0	8	10	27	0	19	11	4	0	29	96	7	1	9	94	5	320	1,313	3	0	0	0
11:00 AM	0	15	14	28	0	11	11	11	0	19	85	8	0	2	80	6	290	1,345	1	2	0	0
11:15 AM	0	6	17	26	0	13	13	6	0	18	81	9	0	6	102	12	309	1,441	2	2	1	4
11:30 AM	0	10	14	36	0	13	11	12	0	29	101	17	0	6	132	13	394	1,478	1	0	0	0
11:45 AM	0	8	8	43	0	19	9	11	0	28	89	8	0	7	110	12	352	1,461	0	3	0	0
12:00 PM	1	20	18	42	0	26	18	10	0	24	96	8	0	8	106	9	386	1,503	2	2	0	0
12:15 PM	0	13	15	20	0	14	15	10	0	25	89	16	0	12	102	15	346	1,517	1	0	0	0
12:30 PM	0	14	13	34	0	15	15	7	0	20	117	14	0	13	106	9	377	1,558	0	0	0	0
12:45 PM	0	12	14	31	0	16	22	11	0	28	105	12	0	19	115	9	394	1,563	0	0	0	0
1:00 PM	0	13	28	34	0	23	16	11	0	33	120	12	0	5	94	11	400	1,574	0	0	0	0
1:15 PM	0	14	22	26	0	18	21	7	0	21	102	16	0	4	123	13	387	1,612	0	0	0	0
1:30 PM	0	9	12	38	0	21	16	6	0	28	106	12	0	4	112	18	382	1,672	0	0	0	0
1:45 PM	0	10	31	39	0	15	24	11	0	26	93	16	0	9	114	17	405	1,711	0	0	0	0
2:00 PM	0	19	22	45	0	25	17	14	0	29	115	19	0	6	115	12	438	1,802	1	1	0	1
2:15 PM	0	14	11	54	0	15	20	16	0	30	127	10	0	12	120	18	447	1,786	0	0	1	0
2:30 PM	0	15	24	33	0	21	19	11	0	30	127	19	0	6	104	12	421	1,857	0	3	0	0
2:45 PM	0	16	19	40	0	22	19	18	0	34	143	24	0	6	139	16	496	1,970	0	2	0	0
3:00 PM	0	11	17	39	0	11	13	14	0	39	100	14	0	24	124	16	422	2,018	0	1	0	1

3:15 PM	0	19	26	58	0	20	23	11	0	44	126	13	0	19	141	18	518	2,102	0	2	0	0
3:30 PM	0	17	20	54	0	25	28	10	0	33	130	20	0	12	165	20	534	2,046	0	4	0	0
3:45 PM	0	22	28	51	0	35	37	15	0	29	128	20	0	18	138	23	544	1,971	0	5	5	0
4:00 PM	0	17	22	53	0	33	20	13	0	31	141	14	0	14	126	22	506	1,917	0	3	2	0
4:15 PM	0	17	10	39	0	37	27	10	0	38	107	11	0	12	135	19	462	1,878	0	0	0	0
4:30 PM	0	15	22	50	0	23	32	10	0	32	108	17	0	9	120	21	459	1,851	0	0	0	0
4:45 PM	0	15	36	41	0	36	32	18	0	30	122	12	0	7	125	16	490	1,853	1	0	0	0
5:00 PM	0	13	15	38	0	28	23	14	0	34	116	18	0	10	136	22	467	1,796	0	0	0	0
5:15 PM	0	24	23	41	0	25	23	11	0	32	97	13	0	13	120	13	435	1,715	1	2	0	0
5:30 PM	0	16	23	44	0	16	21	16	0	35	114	16	0	14	130	16	461	1,674	2	0	0	0
5:45 PM	0	16	22	42	0	13	13	11	0	32	108	12	0	16	131	17	433		0	1	0	0
6:00 PM	0	10	13	43	0	11	19	6	0	35	100	20	0	12	109	8	386		0	0	0	0
6:15 PM	0	10	16	48	0	20	12	13	0	44	95	14	0	3	105	14	394		0	0	1	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3
Lights	0	73	92	206	0	100	105	46	0	137	517	67	0	59	555	83	2,040
Mediums	0	2	4	10	0	13	3	3	0	0	7	0	0	3	14	0	59
Total	0	75	96	216	0	113	108	49	0	137	525	67	0	63	570	83	2,102

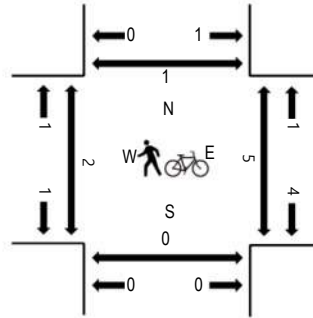
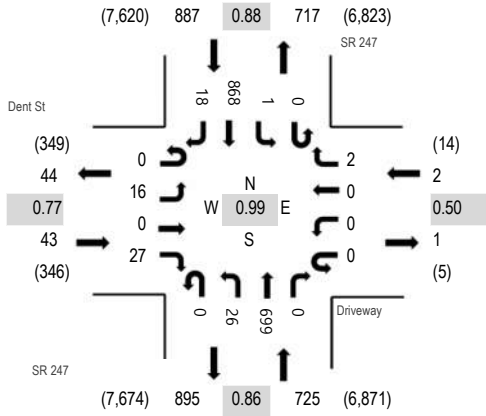


(303) 216-2439
www.alltrafficdata.net

Location: 4 SR 247 & Driveway AM
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 03:15 PM - 04:15 PM
Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Dent St Eastbound				Driveway Westbound				SR 247 Northbound			SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South	North	
6:30 AM	0	2	0	1	0	0	0	0	0	0	3	40	0	0	0	63	1	110	630	0	0	0	0
6:45 AM	0	2	0	4	0	0	0	1	0	0	0	52	0	0	0	65	1	125	806	0	1	0	1
7:00 AM	0	2	0	3	0	0	0	0	0	0	3	90	0	0	0	82	2	182	967	0	1	0	0
7:15 AM	0	0	0	2	0	0	0	0	0	0	3	101	0	0	0	105	2	213	1,085	0	1	0	0
7:30 AM	0	0	0	4	0	0	0	0	0	0	5	148	0	0	0	127	2	286	1,176	0	0	0	0
7:45 AM	0	6	0	2	0	0	0	0	0	0	5	148	0	0	0	124	1	286	1,178	0	0	0	0
8:00 AM	0	2	0	7	0	0	0	0	0	0	6	142	0	0	0	137	6	300	1,181	0	0	0	0
8:15 AM	0	2	0	4	0	0	0	0	0	0	2	138	0	0	0	153	5	304		0	0	0	0
8:30 AM	0	2	0	4	0	0	0	0	0	0	4	137	0	0	0	139	2	288		0	0	0	0
8:45 AM	0	6	0	1	0	0	0	0	0	0	1	135	0	0	0	143	3	289		0	0	0	0
9:00 AM	0	4	0	2	0	0	0	0	0	0	4	108	0	0	0	119	2	239	973	0	0	0	1
9:15 AM	0	0	0	3	0	0	0	0	0	0	1	116	0	0	0	121	6	247	982	3	0	0	1
9:30 AM	0	3	0	4	0	0	0	1	0	0	6	95	0	0	0	136	1	246	995	1	1	0	0
9:45 AM	0	2	0	5	0	0	0	0	0	0	3	116	0	0	1	113	1	241	1,028	0	1	0	0
10:00 AM	0	0	0	3	0	0	0	1	0	0	6	104	0	0	0	132	2	248	1,068	0	0	0	0
10:15 AM	0	4	0	2	0	0	0	0	0	0	3	105	0	0	0	143	3	260	1,067	1	1	1	0
10:30 AM	0	5	0	5	0	0	0	0	0	0	4	123	0	0	0	141	1	279	1,068	0	0	0	1
10:45 AM	0	1	0	2	0	0	0	1	0	0	1	137	0	0	0	138	1	281	1,106	3	3	0	1
11:00 AM	0	2	0	0	0	0	0	0	0	0	3	121	0	0	0	120	1	247	1,161	2	0	0	0
11:15 AM	0	3	0	4	0	0	0	0	0	0	5	113	0	0	1	134	1	261	1,216	1	1	0	0
11:30 AM	0	3	0	5	0	0	0	0	0	0	3	138	0	0	0	164	4	317	1,251	1	1	1	0
11:45 AM	0	3	0	2	0	0	0	0	0	0	5	147	0	0	0	179	0	336	1,224	1	1	0	0
12:00 PM	0	0	0	3	0	0	0	0	0	0	1	124	0	0	0	171	3	302	1,199	2	1	0	0
12:15 PM	0	2	0	5	0	0	0	0	0	0	3	130	0	0	0	152	4	296	1,221	0	2	0	0
12:30 PM	0	1	0	6	0	0	0	0	0	0	4	135	0	0	0	143	1	290	1,276	2	2	0	0
12:45 PM	0	1	0	2	0	0	0	2	0	0	1	146	0	0	0	155	4	311	1,320	1	0	0	1
1:00 PM	0	2	0	9	0	0	0	0	0	0	4	158	0	0	0	146	5	324	1,333	0	1	0	1
1:15 PM	0	4	0	4	0	0	0	1	0	0	5	154	0	0	0	180	3	351	1,368	0	2	0	2
1:30 PM	0	2	1	4	0	0	0	1	0	0	6	161	0	0	0	157	2	334	1,362	0	0	0	0
1:45 PM	0	4	0	4	0	0	1	0	0	0	1	137	0	0	0	172	5	324	1,375	0	0	0	0
2:00 PM	0	1	0	5	0	0	0	0	0	0	7	163	0	0	0	180	3	359	1,486	0	0	0	0
2:15 PM	0	1	0	7	0	0	0	0	0	0	3	155	0	0	0	172	7	345	1,467	0	1	0	0
2:30 PM	0	2	0	9	0	1	0	0	0	0	3	183	0	0	0	147	2	347	1,526	0	0	0	0
2:45 PM	0	1	0	2	0	0	0	0	0	0	5	214	0	0	0	212	1	435	1,597	0	0	0	0
3:00 PM	0	5	0	4	0	0	0	0	0	0	3	156	0	0	0	169	3	340	1,582	0	0	0	0

3:15 PM	0	6	0	6	0	0	0	1	0	10	177	0	0	0	199	5	404	1,657	0	0	0	0
3:30 PM	0	4	0	7	0	0	0	1	0	5	148	0	0	0	248	5	418	1,639	2	0	0	0
3:45 PM	0	3	0	6	0	0	0	0	0	3	195	0	0	0	211	2	420	1,574	0	2	0	0
4:00 PM	0	3	0	8	0	0	0	0	0	8	179	0	0	1	210	6	415	1,540	0	3	0	1
4:15 PM	0	8	0	4	0	0	0	0	0	4	159	0	0	0	207	4	386	1,510	1	0	0	1
4:30 PM	0	1	0	6	0	0	0	1	0	2	149	1	0	0	186	7	353	1,466	0	5	0	0
4:45 PM	0	3	0	9	0	0	0	0	0	7	172	0	0	0	189	6	386	1,490	4	0	0	0
5:00 PM	0	8	0	7	0	0	0	0	0	7	167	0	0	0	191	5	385	1,455	0	0	0	0
5:15 PM	0	4	0	4	0	0	0	0	0	4	141	0	0	0	181	8	342	1,408	2	0	0	0
5:30 PM	0	1	0	4	0	0	0	0	0	1	171	0	0	0	197	3	377	1,399	1	0	0	0
5:45 PM	0	7	0	6	0	0	0	0	0	10	148	0	0	0	176	4	351		1	0	0	2
6:00 PM	0	2	0	7	0	0	0	1	0	5	161	0	0	0	156	6	338		0	3	0	0
6:15 PM	0	3	0	5	0	0	0	0	0	4	141	0	0	0	176	4	333		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3
Lights	0	16	0	27	0	0	0	2	0	26	691	0	0	1	833	18	1,614
Mediums	0	0	0	0	0	0	0	0	0	0	7	0	0	0	33	0	40
Total	0	16	0	27	0	0	0	2	0	26	699	0	0	1	868	18	1,657

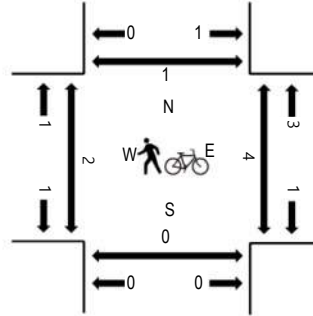
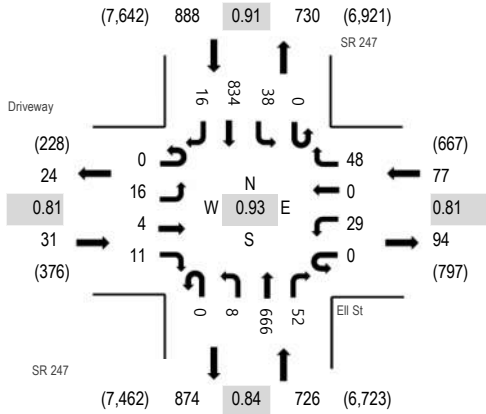


(303) 216-2439
www.alltrafficdata.net

Location: 5 SR 247 & EII St AM
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 03:15 PM - 04:15 PM
Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Driveway Eastbound				EII St Westbound			SR 247 Northbound			SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru Right	U-Turn	Left	Thru Right	U-Turn	Left	Thru	Right			West	East	South	North			
6:30 AM	0	0	0	0	0	0	3	0	2	0	0	41	1	0	1	60	0	108	646	1	0	0	0
6:45 AM	0	0	0	0	0	0	2	0	2	0	0	55	2	0	2	63	1	127	832	1	0	0	0
7:00 AM	0	1	0	1	0	4	0	6	0	0	87	4	0	5	83	1	192	987	2	1	0	0	
7:15 AM	0	2	0	0	0	1	1	2	0	0	102	4	0	7	96	4	219	1,088	1	0	0	0	
7:30 AM	0	1	1	1	0	0	0	1	0	2	152	6	0	4	126	0	294	1,179	1	0	0	0	
7:45 AM	0	3	0	3	0	3	1	4	0	2	143	4	0	10	108	1	282	1,198	0	0	0	0	
8:00 AM	0	4	0	0	0	1	0	8	0	1	138	3	0	6	126	6	293	1,222	0	0	0	0	
8:15 AM	0	3	1	2	0	2	1	6	0	3	128	11	0	8	143	2	310		0	1	0	0	
8:30 AM	0	1	1	2	0	8	0	9	0	2	128	15	0	11	135	1	313		0	0	1	0	
8:45 AM	0	2	0	2	0	7	0	2	0	1	138	12	0	9	131	2	306		0	0	0	0	
9:00 AM	0	2	2	3	0	4	0	5	0	1	102	8	0	8	101	5	241	976	0	1	0	0	
9:15 AM	0	4	0	1	0	5	0	4	0	0	106	5	0	7	106	3	241	999	2	1	0	0	
9:30 AM	0	2	0	0	0	8	0	7	0	0	91	9	0	3	136	2	258	1,028	0	1	0	0	
9:45 AM	0	6	0	2	0	2	0	4	0	0	107	3	0	2	105	5	236	1,062	1	1	0	0	
10:00 AM	0	1	1	3	0	8	0	6	0	2	104	4	0	10	123	2	264	1,112	0	1	1	0	
10:15 AM	0	2	1	2	0	9	0	5	0	0	104	5	0	4	130	8	270	1,103	1	0	1	0	
10:30 AM	0	4	2	3	0	9	0	8	0	2	122	3	0	6	128	5	292	1,107	1	1	1	0	
10:45 AM	0	5	1	2	0	3	0	7	0	2	123	8	0	11	119	5	286	1,146	2	3	0	0	
11:00 AM	0	8	1	3	0	2	1	6	0	0	109	3	0	7	114	1	255	1,215	1	0	0	0	
11:15 AM	0	6	0	2	0	4	0	12	0	2	103	2	0	10	130	3	274	1,266	1	3	0	0	
11:30 AM	0	7	0	9	0	4	1	4	0	0	135	6	0	16	139	10	331	1,304	0	0	0	0	
11:45 AM	0	4	0	2	0	5	0	15	0	1	136	10	0	8	170	4	355	1,283	1	1	0	0	
12:00 PM	0	3	0	4	0	6	1	7	0	2	112	4	0	7	156	4	306	1,233	2	0	0	0	
12:15 PM	0	8	2	2	0	2	0	5	0	1	125	12	0	6	147	2	312	1,263	1	2	0	0	
12:30 PM	0	5	2	5	0	4	0	9	0	1	128	11	0	4	140	1	310	1,308	0	1	1	0	
12:45 PM	0	6	0	2	0	2	1	8	0	1	129	8	0	2	144	2	305	1,353	0	0	0	0	
1:00 PM	0	6	0	8	0	4	1	7	0	0	148	6	0	14	138	4	336	1,394	1	1	1	0	
1:15 PM	0	10	0	4	0	2	0	8	0	2	142	8	0	8	170	3	357	1,437	1	1	1	0	
1:30 PM	0	3	2	5	0	5	0	11	0	1	153	6	0	8	160	1	355	1,447	0	0	0	0	
1:45 PM	0	12	1	4	0	3	1	8	0	3	121	8	0	9	172	4	346	1,456	0	2	0	0	
2:00 PM	0	4	0	4	0	5	2	14	0	2	149	10	0	9	179	1	379	1,573	0	0	0	0	
2:15 PM	0	5	0	3	0	10	0	6	0	1	155	6	0	11	166	4	367	1,540	2	0	0	0	
2:30 PM	0	4	0	9	0	4	0	7	0	3	173	6	0	9	146	3	364	1,590	0	1	0	0	
2:45 PM	0	5	1	6	0	3	1	20	0	0	194	9	0	11	208	5	463	1,647	0	0	0	0	
3:00 PM	0	2	0	5	0	7	0	12	0	1	143	10	0	7	157	2	346	1,648	1	1	1	0	

3:15 PM	0	5	2	5	0	6	0	20	0	2	159	8	0	5	200	5	417	1,722	1	0	0	0
3:30 PM	0	1	1	2	0	7	0	8	0	0	145	11	0	14	228	4	421	1,709	0	2	0	0
3:45 PM	0	3	1	2	0	9	0	8	0	2	192	22	0	7	213	5	464	1,659	1	1	0	1
4:00 PM	0	7	0	2	0	7	0	12	0	4	170	11	0	12	193	2	420	1,599	0	1	0	0
4:15 PM	0	7	1	3	0	5	0	10	0	1	152	8	0	10	205	2	404	1,581	1	2	1	0
4:30 PM	0	7	0	3	0	7	1	12	0	3	137	7	0	9	179	6	371	1,534	2	0	1	0
4:45 PM	0	5	1	5	0	7	1	16	0	2	165	10	0	16	175	1	404	1,561	0	0	0	0
5:00 PM	0	3	1	4	0	5	0	16	0	1	159	10	0	16	185	2	402	1,512	1	0	0	0
5:15 PM	0	4	0	2	0	4	1	13	0	2	136	9	0	8	174	4	357	1,460	0	1	0	0
5:30 PM	0	3	1	5	0	6	1	11	0	2	153	11	0	16	186	3	398	1,455	0	0	0	0
5:45 PM	0	7	0	4	0	7	0	10	0	0	135	8	0	8	173	3	355		0	0	0	0
6:00 PM	0	5	0	2	0	6	0	16	0	2	145	10	0	13	147	4	350		2	1	0	0
6:15 PM	0	6	1	1	0	6	0	19	0	1	125	6	0	12	172	3	352		1	0	0	0

Peak Rolling Hour Flow Rates

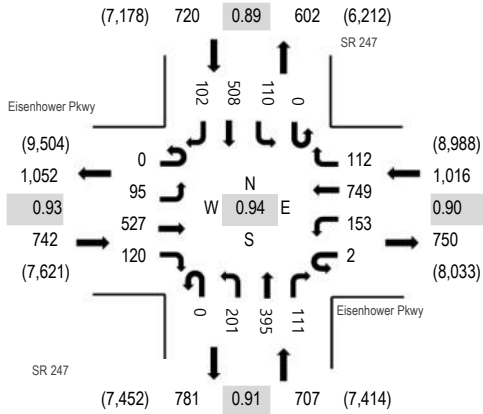
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	3
Lights	0	16	4	10	0	29	0	48	0	8	656	43	0	38	798	16	1,666
Mediums	0	0	0	0	0	0	0	0	0	0	9	9	0	0	35	0	53
Total	0	16	4	11	0	29	0	48	0	8	666	52	0	38	834	16	1,722



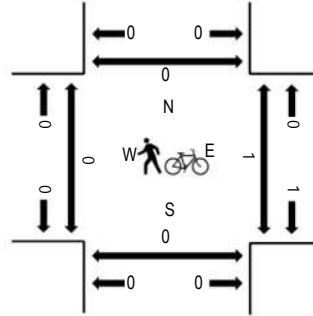
(303) 216-2439
www.alltrafficdata.net

Location: 6 SR 247 & Eisenhower Pkwy AM
Date and Start Time: Wednesday, May 16, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Eisenhower Pkwy Eastbound				Eisenhower Pkwy Westbound				SR 247 Northbound				SR 247 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	2	58	16	1	19	37	6	0	8	30	25	0	15	39	5	261	1,468	0	0	0	0
6:45 AM	0	6	101	15	0	11	55	8	0	20	41	21	0	17	46	2	343	1,766	0	0	0	0
7:00 AM	0	7	77	16	0	23	72	9	0	14	60	20	0	17	63	3	381	2,048	0	0	0	0
7:15 AM	0	4	115	6	1	22	89	16	0	24	83	30	0	22	62	9	483	2,255	0	0	0	0
7:30 AM	0	16	98	15	0	21	113	23	0	32	99	24	0	16	91	11	559	2,383	0	1	0	0
7:45 AM	0	15	143	10	1	24	148	19	0	36	97	28	0	19	74	11	625	2,469	0	0	0	0
8:00 AM	0	16	120	24	1	17	122	19	1	37	88	23	0	17	88	15	588	2,410	0	0	0	0
8:15 AM	0	11	132	11	0	23	114	18	0	36	93	29	0	16	104	24	611		0	0	0	0
8:30 AM	0	22	114	18	0	30	144	16	0	41	102	26	0	16	98	18	645		0	0	0	0
8:45 AM	0	18	101	18	0	29	128	13	0	28	97	17	0	15	79	23	566		0	0	0	0
9:00 AM	0	23	85	19	0	21	103	17	0	26	63	28	0	15	64	17	481	2,040	0	0	0	0
9:15 AM	0	18	64	21	0	21	126	14	0	31	66	23	0	20	70	22	496	2,102	0	0	0	0
9:30 AM	0	7	43	16	0	27	161	19	0	28	62	24	0	28	106	17	538	2,151	0	0	1	1
9:45 AM	0	10	91	22	0	22	134	16	0	28	74	36	0	11	72	9	525	2,200	0	1	1	0
10:00 AM	0	9	98	25	0	28	105	16	0	33	70	32	0	26	88	13	543	2,270	1	1	1	0
10:15 AM	0	24	117	21	0	28	95	15	0	35	62	27	0	12	87	22	545	2,292	0	0	0	0
10:30 AM	0	14	93	28	0	21	118	24	0	35	77	29	0	21	106	21	587	2,304	0	0	0	0
10:45 AM	0	21	87	20	0	29	130	25	0	49	88	24	0	24	80	18	595	2,381	0	0	0	0
11:00 AM	0	19	117	22	0	19	133	20	0	45	67	17	0	21	65	20	565	2,454	0	0	0	1
11:15 AM	0	17	97	19	0	20	121	23	0	35	63	24	0	19	96	23	557	2,552	0	0	0	0
11:30 AM	0	25	115	20	0	32	154	25	0	36	82	22	0	30	93	30	664	2,665	0	0	0	1
11:45 AM	0	25	117	15	0	21	161	27	0	40	83	21	0	27	101	30	668	2,739	0	0	0	0
12:00 PM	0	21	121	21	2	33	146	23	0	36	77	23	0	28	104	28	663	2,739	0	0	0	0
12:15 PM	0	23	110	36	0	37	152	16	0	41	80	25	0	27	97	26	670	2,871	0	0	0	0
12:30 PM	0	19	119	37	1	33	157	20	0	55	89	38	0	36	98	36	738	2,963	0	0	1	1
12:45 PM	1	34	129	30	1	38	132	22	0	46	71	27	0	30	86	21	668	2,934	0	0	0	1
1:00 PM	1	35	149	28	0	41	172	26	0	54	92	23	0	34	118	22	795	2,991	0	1	0	0
1:15 PM	1	19	159	36	2	36	140	29	0	56	86	32	0	29	113	24	762	2,947	1	0	0	0
1:30 PM	0	26	114	19	1	30	137	25	0	63	95	35	0	28	109	27	709	2,987	0	0	0	0
1:45 PM	0	23	112	32	1	36	134	17	0	44	84	43	0	35	125	39	725	2,983	1	0	0	0
2:00 PM	1	32	123	27	0	37	144	22	0	43	104	35	0	34	125	24	751	3,013	0	0	0	0
2:15 PM	0	32	154	35	0	34	166	33	0	42	97	37	0	32	112	28	802	2,974	0	1	0	0
2:30 PM	0	26	117	28	0	26	151	34	0	39	104	27	0	25	103	25	705	2,918	1	0	0	2
2:45 PM	0	26	100	32	1	26	138	25	0	41	136	41	0	34	129	26	755	2,996	0	0	0	0
3:00 PM	0	17	120	29	0	24	130	17	0	51	110	35	0	31	120	28	712	3,067	0	0	0	2

3:15 PM	0	26	124	33	0	38	141	25	0	42	119	25	0	28	120	25	746	3,149	0	1	0	2
3:30 PM	1	25	111	29	0	26	134	23	0	49	110	33	0	39	167	36	783	3,166	0	0	1	0
3:45 PM	0	29	118	27	0	44	179	37	0	39	131	23	0	30	136	33	826	3,157	0	2	0	0
4:00 PM	0	26	124	30	0	30	160	36	0	37	106	25	0	46	139	35	794	3,110	0	0	1	0
4:15 PM	1	17	124	27	2	42	140	16	0	45	113	33	0	27	142	34	763	3,164	0	0	0	0
4:30 PM	0	22	147	40	2	39	175	21	0	50	87	13	0	38	118	22	774	3,166	0	0	1	2
4:45 PM	0	20	134	26	0	41	156	28	0	35	108	28	0	26	148	29	779	3,185	0	1	0	0
5:00 PM	0	34	143	34	1	42	211	29	0	63	94	34	0	25	111	27	848	3,144	0	0	0	0
5:15 PM	0	17	101	31	0	40	190	29	0	49	98	26	0	28	130	26	765	2,965	0	0	0	0
5:30 PM	0	24	149	29	1	30	192	26	0	54	95	23	0	31	119	20	793	2,842	0	0	0	0
5:45 PM	0	16	141	36	1	25	137	25	0	41	103	28	0	28	124	33	738		0	0	0	0
6:00 PM	0	30	107	22	2	34	137	32	0	31	88	42	0	24	90	30	669		1	1	0	0
6:15 PM	0	22	127	34	1	27	110	20	0	39	74	29	0	20	114	25	642		0	1	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	10	0	1	0	14	1	0	0	1	0	0	2	0	0	29
Lights	0	93	507	120	1	152	731	107	0	200	385	111	0	108	505	100	3,120
Mediums	0	2	10	0	0	1	4	4	0	1	9	0	0	0	3	2	36
Total	0	95	527	120	2	153	749	112	0	201	395	111	0	110	508	102	3,185

All Traffic Data Services, Inc

alltrafficdata.net

Site Code: 1
 Station ID: 1
 SR247 - PIO NONO AVENUE SOUTH OF
 MERCER UNIV. DRIVE
 Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/16/18	0	28	1	0	0	0	0	0	0	0	0	0	0	29
00:15	0	25	0	0	0	0	0	0	0	0	0	0	0	25
00:30	0	26	0	0	0	0	0	0	0	0	0	0	0	26
00:45	0	18	0	0	0	0	0	0	0	0	0	0	0	18
	0	97	1	0	0	0	0	0	0	0	0	0	0	98
01:00	2	14	0	0	0	0	0	0	0	0	0	0	0	16
01:15	0	18	0	0	0	0	0	0	0	0	0	0	0	18
01:30	0	11	0	0	0	0	0	0	0	0	0	0	0	11
01:45	0	21	0	0	0	0	0	0	0	0	0	0	0	21
	2	64	0	0	0	0	0	0	0	0	0	0	0	66
02:00	2	9	0	0	0	0	0	0	0	0	0	0	0	11
02:15	0	11	0	0	0	0	0	0	0	0	0	0	0	11
02:30	0	10	0	0	0	0	0	0	0	0	0	0	0	10
02:45	1	12	0	0	0	0	0	0	0	0	0	0	0	13
	3	42	0	0	0	0	0	0	0	0	0	0	0	45
03:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:15	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:30	0	9	0	0	0	0	0	0	0	0	0	0	0	9
03:45	0	9	0	0	0	0	0	0	0	0	0	0	0	9
	0	34	0	0	0	0	0	0	0	0	0	0	0	34
04:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
04:15	0	7	1	0	0	0	0	0	0	0	0	0	0	8
04:30	1	4	0	0	0	0	0	0	0	0	0	0	0	5
04:45	0	10	0	0	0	1	0	0	0	0	0	0	0	11
	1	30	1	0	0	1	0	0	0	0	0	0	0	33
05:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
05:15	0	21	0	0	3	0	0	0	1	0	0	0	0	25
05:30	0	22	0	0	1	0	0	0	0	0	0	0	0	23
05:45	0	28	0	0	1	0	0	0	0	0	0	0	0	29
	0	83	1	0	5	0	0	0	1	0	0	0	0	90
06:00	0	19	2	0	3	0	0	0	0	0	0	0	0	24
06:15	1	24	0	0	0	0	0	0	0	0	0	0	0	25
06:30	1	32	4	0	4	0	0	0	0	0	0	0	0	41
06:45	0	49	2	0	4	0	0	0	0	0	0	0	0	55
	2	124	8	0	11	0	0	0	0	0	0	0	0	145
07:00	1	77	0	0	3	0	0	1	0	0	0	0	0	82
07:15	0	96	3	0	1	0	0	0	1	0	0	0	0	101
07:30	2	116	4	0	3	1	0	0	1	0	0	0	0	127
07:45	3	143	7	0	2	0	0	1	0	1	0	0	0	157
	6	432	14	0	9	1	0	2	2	1	0	0	0	467
08:00	2	121	3	0	5	0	1	0	0	0	0	0	0	132
08:15	3	99	1	0	3	1	0	0	0	0	0	0	0	107
08:30	0	103	4	1	3	0	0	1	0	1	0	0	0	113
08:45	3	101	3	0	16	1	1	0	0	0	0	0	0	125
	8	424	11	1	27	2	2	1	0	1	0	0	0	477
09:00	3	98	5	0	3	0	0	0	0	0	0	0	0	109
09:15	0	82	4	1	4	0	0	0	0	0	0	0	0	91
09:30	2	70	2	0	1	0	0	1	0	0	0	0	0	76
09:45	2	100	2	0	4	1	0	0	1	0	0	0	0	110
	7	350	13	1	12	1	0	1	1	0	0	0	0	386
10:00	2	78	7	0	2	0	0	2	1	0	0	0	0	92
10:15	1	87	9	0	1	1	0	0	0	0	0	0	0	99
10:30	5	98	3	0	0	0	0	0	0	0	0	0	0	106
10:45	0	109	2	0	2	2	0	0	0	0	0	0	0	115
	8	372	21	0	5	3	0	2	1	0	0	0	0	412
11:00	0	109	3	0	3	0	0	0	0	0	0	0	0	115
11:15	1	99	7	0	0	0	0	0	0	0	0	0	0	107
11:30	5	91	6	0	2	1	0	0	0	0	0	0	0	105
11:45	1	104	2	0	3	0	0	0	0	0	0	0	0	110
	7	403	18	0	8	1	0	0	0	0	0	0	0	437
Total	44	2455	88	2	77	9	2	6	5	2	0	0	0	2690
Percent	1.6%	91.3%	3.3%	0.1%	2.9%	0.3%	0.1%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	

All Traffic Data Services, Inc

alltrafficdata.net

Site Code: 1
 Station ID: 1
 SR247 - PIO NONO AVENUE SOUTH OF
 MERCER UNIV. DRIVE
 Latitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12 PM	2	108	2	0	7	0	0	0	0	0	0	0	0	119
12:15	2	105	6	0	2	0	0	0	0	0	0	0	0	115
12:30	1	103	8	0	3	0	0	0	0	0	0	0	0	115
12:45	3	125	10	0	1	1	0	0	0	0	0	0	0	140
	8	441	26	0	13	1	0	0	0	0	0	0	0	489
13:00	2	124	4	0	1	1	0	0	0	0	0	0	0	132
13:15	1	120	6	0	0	0	0	0	0	0	0	0	0	127
13:30	3	114	9	0	1	2	0	0	0	0	0	0	0	129
13:45	1	104	3	0	3	2	0	0	0	0	0	0	0	113
	7	462	22	0	5	5	0	0	0	0	0	0	0	501
14:00	3	121	8	0	3	1	0	0	0	0	0	0	0	136
14:15	8	128	3	0	3	0	0	1	0	0	0	0	0	143
14:30	2	147	2	1	0	2	0	0	0	0	0	0	0	154
14:45	6	155	3	0	0	0	0	0	1	0	0	0	0	165
	19	551	16	1	6	3	0	1	1	0	0	0	0	598
15:00	9	120	5	0	3	3	0	0	1	0	0	0	0	141
15:15	6	146	4	0	1	2	0	0	0	0	0	0	0	159
15:30	5	160	1	0	1	0	0	0	0	0	0	0	0	167
15:45	3	149	7	0	0	0	1	0	0	0	0	0	0	160
	23	575	17	0	5	5	1	0	1	0	0	0	0	627
16:00	0	143	2	0	2	1	0	0	0	0	0	0	0	148
16:15	3	131	6	0	3	1	0	0	0	0	0	0	0	144
16:30	0	109	5	0	9	2	0	1	0	0	0	0	0	126
16:45	2	135	1	0	3	1	0	0	0	0	0	0	0	142
	5	518	14	0	17	5	0	1	0	0	0	0	0	560
17:00	5	131	3	0	1	1	0	0	0	0	0	0	0	141
17:15	1	130	7	0	1	0	1	0	0	0	0	0	0	140
17:30	1	122	5	1	0	0	0	1	0	0	0	0	0	130
17:45	1	115	3	0	0	1	0	1	0	0	0	0	0	121
	8	498	18	1	2	2	1	2	0	0	0	0	0	532
18:00	3	108	3	0	0	0	0	0	0	0	0	0	0	114
18:15	2	94	5	0	2	0	0	0	0	0	0	0	0	103
18:30	4	134	2	0	1	0	0	0	0	0	0	0	0	141
18:45	1	95	4	0	1	0	0	0	0	0	0	0	0	101
	10	431	14	0	4	0	0	0	0	0	0	0	0	459
19:00	0	83	4	0	1	0	0	0	0	0	0	0	0	88
19:15	0	86	3	0	0	0	0	0	0	0	0	0	0	89
19:30	5	85	0	0	1	0	0	0	1	0	0	0	0	92
19:45	3	83	1	0	0	0	0	0	0	0	0	0	0	87
	8	337	8	0	2	0	0	0	1	0	0	0	0	356
20:00	3	89	2	1	0	0	0	0	0	0	0	0	0	95
20:15	0	101	3	0	1	0	0	0	0	0	0	0	0	105
20:30	1	91	1	1	0	0	0	0	0	0	0	0	0	94
20:45	0	77	0	0	0	0	0	0	0	0	0	0	0	77
	4	358	6	2	1	0	0	0	0	0	0	0	0	371
21:00	3	77	2	0	0	0	0	0	0	0	0	0	0	82
21:15	0	74	0	0	0	0	0	0	0	0	0	0	0	74
21:30	0	68	2	0	0	0	0	0	0	0	0	0	0	70
21:45	0	48	0	0	1	0	0	0	0	0	0	0	0	49
	3	267	4	0	1	0	0	0	0	0	0	0	0	275
22:00	2	48	0	0	0	0	0	0	0	0	0	0	0	50
22:15	0	39	1	0	0	0	0	0	0	0	0	0	0	40
22:30	0	39	2	0	0	0	0	0	0	0	0	0	0	41
22:45	0	32	2	0	0	0	0	0	0	0	0	0	0	34
	2	158	5	0	0	0	0	0	0	0	0	0	0	165
23:00	0	41	0	0	0	0	0	0	0	0	0	0	0	41
23:15	0	24	0	0	0	0	0	0	0	0	0	0	0	24
23:30	0	32	0	0	0	0	0	0	0	0	0	0	0	32
23:45	0	34	0	0	0	0	0	0	0	0	0	0	0	34
	0	131	0	0	0	0	0	0	0	0	0	0	0	131
Total	97	4727	150	4	56	21	2	4	3	0	0	0	0	5064
Percent	1.9%	93.3%	3.0%	0.1%	1.1%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
Grand Total	141	7182	238	6	133	30	4	10	8	2	0	0	0	7754
Percent	1.8%	92.6%	3.1%	0.1%	1.7%	0.4%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	

All Traffic Data Services, Inc

alltrafficdata.net

Site Code: 1
 Station ID: 1
 SR247 - PIO NONO AVENUE SOUTH OF
 MERCER UNIV. DRIVE
 Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/16/18	0	26	0	0	0	0	0	0	0	0	0	0	0	26
00:15	0	23	1	0	0	0	0	0	0	0	0	0	0	24
00:30	0	21	1	0	0	0	0	0	0	0	0	0	0	22
00:45	0	16	0	0	0	0	0	0	0	0	0	0	0	16
01:00	0	86	2	0	0	0	0	0	0	0	0	0	0	88
01:15	0	16	1	0	0	0	0	0	0	0	0	0	0	17
01:30	0	12	0	0	0	0	0	0	0	0	0	0	0	12
01:45	0	17	0	0	0	0	0	0	0	0	0	0	0	17
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
02:15	0	52	2	0	0	0	0	0	0	0	0	0	0	54
02:30	0	9	0	0	0	0	0	0	0	0	0	0	0	9
02:45	0	11	1	0	0	0	0	0	0	0	0	0	0	12
03:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:15	1	8	0	0	0	0	0	0	0	0	0	0	0	9
03:30	1	38	1	0	0	0	0	0	0	0	0	0	0	40
03:45	0	4	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	13	0	0	0	0	0	0	0	0	0	0	0	13
04:15	0	6	0	0	0	1	0	0	0	0	0	0	0	7
04:30	0	6	1	0	0	0	0	0	0	0	0	0	0	7
04:45	0	29	1	0	0	1	0	0	0	0	0	0	0	31
05:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
05:15	0	10	1	0	0	0	0	0	0	0	0	0	0	11
05:30	0	11	1	0	0	0	0	0	0	0	0	0	0	12
05:45	0	7	0	0	0	1	0	0	0	0	0	0	0	8
06:00	0	31	2	0	0	1	0	0	0	0	0	0	0	34
06:15	0	11	1	0	1	0	0	0	0	0	0	0	0	13
06:30	0	7	1	0	0	0	0	0	0	0	0	0	0	8
06:45	0	14	1	1	0	0	0	0	0	0	0	0	0	16
07:00	0	17	1	1	0	0	0	0	0	0	0	0	0	19
07:15	0	49	4	2	1	0	0	0	0	0	0	0	0	56
07:30	1	21	2	1	1	0	0	0	0	0	0	0	0	26
07:45	0	25	3	3	2	0	0	0	0	0	0	0	0	33
08:00	0	28	3	3	4	0	0	0	0	0	0	0	0	38
08:15	1	42	0	3	2	0	0	0	0	0	0	0	0	48
08:30	2	116	8	10	9	0	0	0	0	0	0	0	0	145
08:45	1	51	2	0	3	0	0	0	0	0	0	0	0	57
09:00	0	73	4	0	2	1	0	0	0	0	0	0	0	80
09:15	0	85	5	0	0	1	0	0	1	0	0	0	0	92
09:30	5	75	9	3	1	6	0	0	0	0	0	0	0	99
09:45	6	284	20	3	6	8	0	0	1	0	0	0	0	328
10:00	2	76	2	1	0	3	0	1	0	0	0	0	0	85
10:15	1	85	4	2	0	6	0	0	0	0	0	0	0	98
10:30	2	94	4	1	1	3	1	0	0	0	0	0	0	106
10:45	1	85	4	1	2	1	0	0	0	0	0	0	0	94
11:00	6	340	14	5	3	13	1	1	0	0	0	0	0	383
11:15	1	75	10	1	3	1	0	0	0	0	0	0	0	91
11:30	3	84	4	0	1	1	0	0	0	0	0	0	0	93
11:45	2	77	12	2	1	2	0	0	2	0	0	0	0	98
12:00	2	73	10	0	1	1	0	0	0	0	0	0	0	87
12:15	8	309	36	3	6	5	0	0	2	0	0	0	0	369
12:30	2	76	3	1	3	3	0	0	0	0	0	0	0	88
12:45	3	100	4	0	3	3	0	1	0	0	0	0	0	114
13:00	0	96	4	2	0	2	0	0	0	0	0	0	0	104
13:15	1	94	6	0	0	1	0	0	0	0	0	0	0	102
13:30	6	366	17	3	6	9	0	1	0	0	0	0	0	408
13:45	0	85	7	0	1	0	0	0	0	0	0	0	0	93
14:00	0	106	8	0	1	1	1	0	0	0	0	0	0	117
14:15	0	123	9	1	2	5	0	2	1	0	0	0	0	143
14:30	2	101	12	1	2	5	0	0	0	0	0	1	0	124
14:45	2	415	36	2	6	11	1	2	1	0	0	1	0	477
Total	31	2115	143	28	37	48	2	4	4	0	0	1	0	2413
Percent	1.3%	87.7%	5.9%	1.2%	1.5%	2.0%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	

All Traffic Data Services, Inc

alltrafficdata.net

Site Code: 1
 Station ID: 1
 SR247 - PIO NONO AVENUE SOUTH OF
 MERCER UNIV. DRIVE
 Latitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12 PM	1	102	14	1	1	1	0	1	0	0	0	0	0	121
12:15	2	99	5	1	2	4	0	0	0	0	0	1	0	114
12:30	2	95	12	0	1	5	0	0	0	0	0	0	0	115
12:45	1	107	6	0	2	1	0	0	0	0	0	0	0	117
	6	403	37	2	6	11	0	1	0	0	0	1	0	467
13:00	0	105	7	0	1	0	0	0	0	0	0	0	0	113
13:15	1	114	11	1	3	2	0	0	0	0	0	0	0	132
13:30	0	113	6	2	6	3	0	1	0	0	0	0	0	131
13:45	0	114	9	2	5	1	0	0	0	0	0	0	0	131
	1	446	33	5	15	6	0	1	0	0	0	0	0	507
14:00	0	91	11	0	6	3	0	0	0	0	0	1	0	112
14:15	3	122	14	0	2	3	0	0	0	0	0	0	0	144
14:30	2	98	16	1	0	0	0	0	0	0	1	0	0	118
14:45	1	135	16	1	4	0	0	0	1	0	0	0	0	158
	6	446	57	2	12	6	0	1	0	0	1	1	0	532
15:00	0	107	5	0	0	2	0	0	0	0	0	0	0	114
15:15	3	140	8	0	1	1	0	1	0	0	0	0	0	154
15:30	9	151	11	1	0	1	0	0	0	0	0	0	0	173
15:45	5	151	9	2	2	0	0	0	0	0	0	0	0	169
	17	549	33	3	3	4	0	1	0	0	0	0	0	610
16:00	3	120	5	1	0	2	0	0	0	1	0	0	0	132
16:15	0	133	9	0	1	2	0	0	1	0	0	0	0	146
16:30	0	120	7	0	2	0	0	0	0	0	0	0	0	129
16:45	6	132	6	1	1	0	0	0	0	0	0	0	0	146
	9	505	27	2	4	4	0	0	1	1	0	0	0	553
17:00	2	123	7	0	3	1	0	1	0	0	0	0	0	137
17:15	1	123	4	1	0	1	0	0	0	0	0	0	0	130
17:30	1	131	5	1	0	0	0	0	0	0	0	0	0	138
17:45	1	124	6	1	0	0	0	2	0	0	0	0	0	134
	5	501	22	3	3	2	0	3	0	0	0	0	0	539
18:00	0	112	8	0	0	0	0	0	0	0	0	0	1	121
18:15	0	100	4	1	1	0	0	0	0	0	0	0	0	106
18:30	3	95	7	0	0	0	0	0	0	0	0	0	0	105
18:45	1	95	6	0	1	1	0	0	0	0	0	0	0	104
	4	402	25	1	2	1	0	0	0	0	0	0	1	436
19:00	0	94	6	1	0	1	0	0	0	0	0	0	0	102
19:15	0	81	4	0	1	0	0	0	0	0	0	0	0	86
19:30	0	89	3	0	0	0	0	0	0	0	0	0	0	92
19:45	5	85	4	1	1	1	0	0	0	0	0	0	0	97
	5	349	17	2	2	2	0	0	0	0	0	0	0	377
20:00	0	95	5	0	0	0	0	0	0	0	0	0	0	100
20:15	0	78	3	0	0	0	0	0	0	0	0	0	0	81
20:30	0	63	1	0	0	0	0	0	0	0	0	0	0	64
20:45	0	62	4	0	0	0	0	0	0	0	0	0	0	66
	0	298	13	0	0	0	0	0	0	0	0	0	0	311
21:00	0	58	6	0	0	0	0	0	0	0	0	0	0	64
21:15	1	74	2	1	0	0	0	0	0	0	0	0	0	78
21:30	0	52	2	0	0	0	0	0	0	0	0	0	0	54
21:45	0	52	3	0	0	0	0	0	1	0	0	0	0	56
	1	236	13	1	0	0	0	0	1	0	0	0	0	252
22:00	0	43	6	0	0	0	0	0	0	0	0	0	0	49
22:15	0	33	2	0	0	0	0	0	0	0	0	0	0	35
22:30	0	24	2	0	0	0	0	0	0	0	0	0	0	26
22:45	1	29	0	0	0	1	0	0	0	0	0	0	0	31
	1	129	10	0	0	1	0	0	0	0	0	0	0	141
23:00	0	34	2	0	0	0	0	0	0	0	0	0	0	36
23:15	0	30	1	0	0	0	0	0	0	0	0	0	0	31
23:30	0	31	1	0	0	0	0	0	0	0	0	0	0	32
23:45	0	21	0	0	0	0	0	0	0	0	0	0	0	21
	0	116	4	0	0	0	0	0	0	0	0	0	0	120
Total	55	4380	291	21	47	37	0	6	3	1	1	2	1	4845
Percent	1.1%	90.4%	6.0%	0.4%	1.0%	0.8%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
Grand Total	86	6495	434	49	84	85	2	10	7	1	1	3	1	7258
Percent	1.2%	89.5%	6.0%	0.7%	1.2%	1.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	

Appendix D: Existing Intersection Analysis

Lanes, Volumes, Timings
 1: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

Existing 2018 AM
 10/14/2019

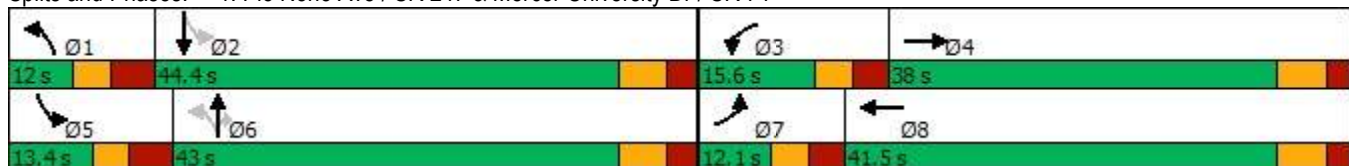


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		5.0	15.0	15.0	6.0	12.0	
Minimum Split (s)	12.1	38.0		12.1	38.0		12.0	41.0	41.0	12.6	41.0	
Total Split (s)	12.1	38.0		15.6	41.5		12.0	43.0	43.0	13.4	44.4	
Total Split (%)	11.0%	34.5%		14.2%	37.7%		10.9%	39.1%	39.1%	12.2%	40.4%	
Maximum Green (s)	6.0	31.8		9.5	35.3		5.3	36.6	36.6	6.8	38.0	
Yellow Time (s)	3.1	4.0		3.1	4.0		3.1	3.8	3.8	3.0	3.8	
All-Red Time (s)	3.0	2.2		3.0	2.2		3.6	2.6	2.6	3.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.2		6.1	6.2		6.7	6.4	6.4	6.6	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		20.0			25.0			29.0	29.0		29.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	6.1	27.1		8.4	34.2		42.2	37.1	37.1	47.6	43.9	
Actuated g/C Ratio	0.06	0.27		0.08	0.33		0.41	0.36	0.36	0.47	0.43	
v/c Ratio	0.12	0.81		0.46	0.54		0.10	0.27	0.18	0.31	0.25	
Control Delay	52.1	42.8		57.9	28.4		17.4	25.6	2.3	19.2	22.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	52.1	42.8		57.9	28.4		17.4	25.6	2.3	19.2	22.1	
LOS	D	D		E	C		B	C	A	B	C	
Approach Delay		43.0			31.2			19.5			21.2	
Approach LOS		D			C			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	102.1
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	30.4
Intersection LOS:	C
Intersection Capacity Utilization:	67.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Lanes, Volumes, Timings
 3: Anthony Rd & Pio Nono Ave / SR 247

Existing 2018 AM
 10/14/2019

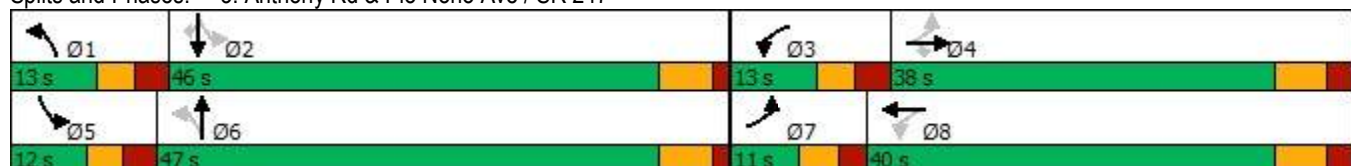


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	12.0		5.0	12.0	12.0
Minimum Split (s)	10.5	36.5	36.5	11.1	36.5		11.7	28.9		10.8	40.4	40.4
Total Split (s)	11.0	38.0	38.0	13.0	40.0		13.0	47.0		12.0	46.0	46.0
Total Split (%)	10.0%	34.5%	34.5%	11.8%	36.4%		11.8%	42.7%		10.9%	41.8%	41.8%
Maximum Green (s)	5.5	31.5	31.5	7.0	33.5		7.1	41.1		6.2	40.1	40.1
Yellow Time (s)	3.3	4.2	4.2	3.0	4.2		3.1	4.3		3.0	4.3	4.3
All-Red Time (s)	2.2	2.3	2.3	3.0	2.3		2.8	1.6		2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	6.5	6.5	6.0	6.5		5.9	5.9		5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	5.0
Flash Dont Walk (s)		25.0	25.0		25.0			18.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	15.7	10.5	10.5	17.8	12.0		48.4	44.5		46.1	41.5	41.5
Actuated g/C Ratio	0.19	0.12	0.12	0.21	0.14		0.58	0.53		0.55	0.49	0.49
v/c Ratio	0.21	0.47	0.48	0.28	0.53		0.16	0.26		0.07	0.19	0.09
Control Delay	26.1	43.4	11.2	27.3	35.7		9.1	13.0		8.7	14.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	26.1	43.4	11.2	27.3	35.7		9.1	13.0		8.7	14.8	0.2
LOS	C	D	B	C	D		A	B		A	B	A
Approach Delay		24.5			32.7			12.3			11.8	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	84.1
Natural Cycle:	100
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	17.6
Intersection LOS:	B
Intersection Capacity Utilization:	48.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Anthony Rd & Pio Nono Ave / SR 247



Lanes, Volumes, Timings
 6: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

Existing 2018 AM
 10/14/2019

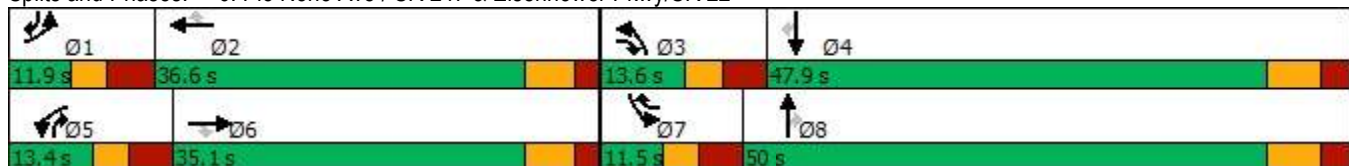


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	11.9	37.3	11.7	11.6	39.3	11.5	11.7	50.0	11.6	11.5	47.0	11.9
Total Split (s)	11.9	35.1	13.6	13.4	36.6	11.5	13.6	50.0	13.4	11.5	47.9	11.9
Total Split (%)	10.8%	31.9%	12.4%	12.2%	33.3%	10.5%	12.4%	45.5%	12.2%	10.5%	43.5%	10.8%
Maximum Green (s)	5.0	28.8	6.9	6.8	30.3	5.0	6.9	43.0	6.8	5.0	40.9	5.0
Yellow Time (s)	3.0	4.1	3.1	3.0	4.1	3.0	3.1	4.3	3.0	3.0	4.3	3.0
All-Red Time (s)	3.9	2.2	3.6	3.6	2.2	3.5	3.6	2.7	3.6	3.5	2.7	3.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.7	6.6	6.3	6.5	6.7	7.0	6.6	6.5	7.0	6.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	Max	None	None	None	None	None	None	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		26.0			28.0			38.0			35.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	5.0	31.5	44.7	6.6	35.3	46.6	6.9	20.1	33.7	5.0	15.5	27.6
Actuated g/C Ratio	0.06	0.36	0.51	0.08	0.40	0.53	0.08	0.23	0.39	0.06	0.18	0.32
v/c Ratio	0.36	0.26	0.07	0.36	0.25	0.09	0.53	0.51	0.15	0.40	0.65	0.14
Control Delay	46.1	20.6	0.7	43.2	18.8	1.8	47.0	32.7	4.8	47.0	38.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	20.6	0.7	43.2	18.8	1.8	47.0	32.7	4.8	47.0	38.5	3.8
LOS	D	C	A	D	B	A	D	C	A	D	D	A
Approach Delay		21.6			20.0			31.5			34.9	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	87.2
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	26.8
Intersection LOS:	C
Intersection Capacity Utilization:	51.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 6: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

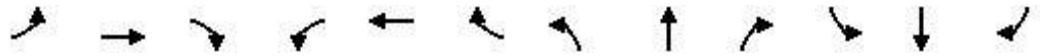


Lanes, Volumes, Timings

Existing 2018 PM

1: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

10/14/2019

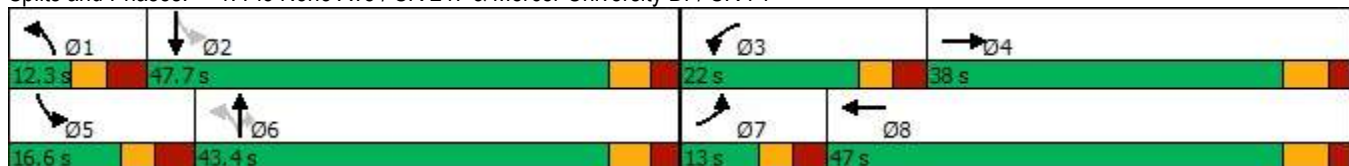


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		5.0	15.0	15.0	6.0	12.0	
Minimum Split (s)	12.1	31.2		12.1	36.2		11.7	40.4	40.4	12.6	40.4	
Total Split (s)	13.0	38.0		22.0	47.0		12.3	43.4	43.4	16.6	47.7	
Total Split (%)	10.8%	31.7%		18.3%	39.2%		10.3%	36.2%	36.2%	13.8%	39.8%	
Maximum Green (s)	6.9	31.8		15.9	40.8		5.6	37.0	37.0	10.0	41.3	
Yellow Time (s)	3.1	4.0		3.1	4.0		3.1	3.8	3.8	3.0	3.8	
All-Red Time (s)	3.0	2.2		3.0	2.2		3.6	2.6	2.6	3.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.2		6.1	6.2		6.7	6.4	6.4	6.6	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		20.0			25.0			29.0	29.0		29.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	6.7	24.2		12.2	35.3		43.0	37.6	37.6	51.4	44.1	
Actuated g/C Ratio	0.06	0.22		0.11	0.32		0.39	0.35	0.35	0.47	0.40	
v/c Ratio	0.31	0.66		0.60	0.77		0.19	0.36	0.16	0.36	0.38	
Control Delay	60.8	42.3		60.6	38.3		19.5	29.5	0.5	20.4	26.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.8	42.3		60.6	38.3		19.5	29.5	0.5	20.4	26.1	
LOS	E	D		E	D		B	C	A	C	C	
Approach Delay		43.5			41.0			23.2			24.8	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	108.9
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	33.6
Intersection LOS:	C
Intersection Capacity Utilization:	70.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Lanes, Volumes, Timings
 3: Anthony Rd & Pio Nono Ave / SR 247

Existing 2018 PM
 10/14/2019

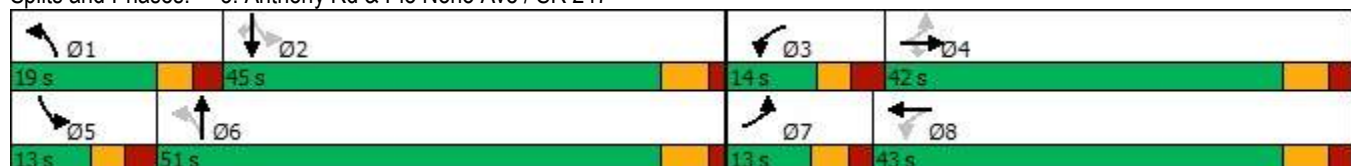


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	12.0		5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	36.5	11.0	36.5		11.0	28.9		11.0	29.9	29.9
Total Split (s)	13.0	42.0	42.0	14.0	43.0		19.0	51.0		13.0	45.0	45.0
Total Split (%)	10.8%	35.0%	35.0%	11.7%	35.8%		15.8%	42.5%		10.8%	37.5%	37.5%
Maximum Green (s)	7.5	35.5	35.5	8.0	36.5		13.1	45.1		7.2	39.1	39.1
Yellow Time (s)	3.3	4.2	4.2	3.0	4.2		3.1	4.3		3.0	4.3	4.3
All-Red Time (s)	2.2	2.3	2.3	3.0	2.3		2.8	1.6		2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	6.5	6.5	6.0	6.5		5.9	5.9		5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	5.0
Flash Dont Walk (s)		25.0	25.0		25.0			18.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	20.4	12.2	12.2	22.7	15.9		53.6	46.7		49.1	42.3	42.3
Actuated g/C Ratio	0.21	0.13	0.13	0.24	0.17		0.56	0.49		0.52	0.44	0.44
v/c Ratio	0.24	0.38	0.52	0.35	0.53		0.24	0.30		0.12	0.34	0.10
Control Delay	27.7	42.9	11.0	30.0	40.5		10.5	16.1		9.9	18.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	27.7	42.9	11.0	30.0	40.5		10.5	16.1		9.9	18.8	0.2
LOS	C	D	B	C	D		B	B		A	B	A
Approach Delay		22.5			36.3			15.0			15.9	
Approach LOS		C			D			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	95.1
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	19.7
Intersection LOS:	B
Intersection Capacity Utilization:	51.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Anthony Rd & Pio Nono Ave / SR 247



Lanes, Volumes, Timings
 6: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

Existing 2018 PM
 10/14/2019

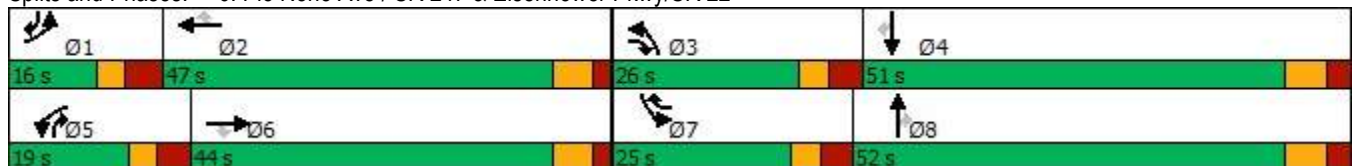


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	11.9	37.3	24.7	11.6	39.3	24.5	24.7	50.0	11.6	24.5	47.0	11.9
Total Split (s)	16.0	44.0	26.0	19.0	47.0	25.0	26.0	52.0	19.0	25.0	51.0	16.0
Total Split (%)	11.4%	31.4%	18.6%	13.6%	33.6%	17.9%	18.6%	37.1%	13.6%	17.9%	36.4%	11.4%
Maximum Green (s)	9.1	37.7	19.3	12.4	40.7	18.5	19.3	45.0	12.4	18.5	44.0	9.1
Yellow Time (s)	3.0	4.1	3.1	3.0	4.1	3.0	3.1	4.3	3.0	3.0	4.3	3.0
All-Red Time (s)	3.9	2.2	3.6	3.6	2.2	3.5	3.6	2.7	3.6	3.5	2.7	3.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.7	6.6	6.3	6.5	6.7	7.0	6.6	6.5	7.0	6.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	Max	None	None	None	None	None	None	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		26.0			28.0			38.0			35.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.2	39.2	57.4	10.2	40.9	56.9	11.9	27.0	44.2	9.7	24.6	39.8
Actuated g/C Ratio	0.07	0.35	0.51	0.09	0.36	0.51	0.11	0.24	0.39	0.09	0.22	0.35
v/c Ratio	0.39	0.29	0.14	0.50	0.40	0.16	0.55	0.53	0.16	0.44	0.76	0.20
Control Delay	56.7	28.6	5.4	55.8	28.7	3.4	54.8	39.7	4.4	55.1	48.5	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	28.6	5.4	55.8	28.7	3.4	54.8	39.7	4.4	55.1	48.5	10.7
LOS	E	C	A	E	C	A	D	D	A	E	D	B
Approach Delay		28.7			29.4			38.5			44.2	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	112.6
Natural Cycle:	130
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	35.0
Intersection LOS:	C
Intersection Capacity Utilization:	59.1%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 6: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22



Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		Location Information	
Analyst	AKL	Roadway	SR 247
Agency or Company	Arcadis	Intersection	SR 74
Date Performed	11/14/19	Jurisdiction	Bibb County
		Analysis Year	2018
Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT _{major} (veh/day)	AADT _{MAX} = 67,700 (veh/day)	--	23,700
AADT _{minor} (veh/day)	AADT _{MAX} = 33,400 (veh/day)	--	14,400
Intersection lighting (present/not present)		Not Present	Not Present
Calibration factor, C _i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	4
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	4
Type of left-turn signal phasing for Leg #1		Permissive	Protected / Permissive
Type of left-turn signal phasing for Leg #2		--	Protected
Type of left-turn signal phasing for Leg #3		--	Protected / Permissive
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Protected
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			75
Maximum number of lanes crossed by a pedestrian (n _{anesx})		--	6
Number of bus stops within 300 m (1,000 ft) of the intersection		0	1
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	2

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	Predicted average crash frequency, N _{predicted int} (crashes/year)
	(Total) from Worksheet 2K
Total	4.7
Fatal and injury (FI)	1.7
Property damage only (PDO)	3.0

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		Location Information	
Analyst	AKL	Roadway	SR 247
Agency or Company	Arcadis	Intersection	Anthony Rd
Date Performed	11/14/19	Jurisdiction	Bibb County
		Analysis Year	2018
Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT _{major} (veh/day)	AADT _{MAX} = 67,700 (veh/day)	--	16,400
AADT _{minor} (veh/day)	AADT _{MAX} = 33,400 (veh/day)	--	8,260
Intersection lighting (present/not present)		Not Present	Not Present
Calibration factor, C _i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	2
Number of major-road approaches with right-turn lanes (0,1,2)		0	1
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	4
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	2
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	4
Type of left-turn signal phasing for Leg #1		Permissive	Protected / Permissive
Type of left-turn signal phasing for Leg #2		--	Protected / Permissive
Type of left-turn signal phasing for Leg #3		--	Protected / Permissive
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Protected / Permissive
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			95
Maximum number of lanes crossed by a pedestrian (n _{anesx})		--	6
Number of bus stops within 300 m (1,000 ft) of the intersection		0	3
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	3

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	Predicted average crash frequency, N _{predicted int} (crashes/year)
	(Total) from Worksheet 2K
Total	3.0
Fatal and injury (FI)	1.1
Property damage only (PDO)	1.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		Location Information	
Analyst	AKL	Roadway	SR 247
Agency or Company	Arcadis	Intersection	SR 22
Date Performed	11/14/19	Jurisdiction	Bibb County
		Analysis Year	2018
Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT _{major} (veh/day)	AADT _{MAX} = 67,700 (veh/day)	--	24,950
AADT _{minor} (veh/day)	AADT _{MAX} = 33,400 (veh/day)	--	17,500
Intersection lighting (present/not present)		Not Present	Not Present
Calibration factor, C _i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	2
Number of major-road approaches with right-turn lanes (0,1,2)		0	1
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	4
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	4
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	4
Type of left-turn signal phasing for Leg #1		Permissive	Protected
Type of left-turn signal phasing for Leg #2		--	Protected
Type of left-turn signal phasing for Leg #3		--	Protected
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Protected
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			35
Maximum number of lanes crossed by a pedestrian (n _{anesx})		--	9
Number of bus stops within 300 m (1,000 ft) of the intersection		0	4
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	5

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	Predicted average crash frequency, N _{predicted int} (crashes/year)
	(Total) from Worksheet 2K
Total	4.0
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.5

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		Location Information	
Analyst	AKL	Roadway	SR 247
Agency or Company	Arcadis	Roadway Section	from SR 22 to Anthony Rd
Date Performed	11/14/19	Jurisdiction	Bibb
		Analysis Year	2018
Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	5T
Length of segment, L (mi)		--	0.322
AADT (veh/day)	AADT _{MAX} = 53,800 (veh/day)	--	16,400
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	6
Minor commercial driveways (number)		--	14
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	5
Minor residential driveways (number)		--	2
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	60
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	Predicted average crash frequency, N _{predicted rs} (crashes/year)	Roadway segment length, L (mi)	Crash rate (crashes/mi/year)
	(Total) from Worksheet 1K		(2) / (3)
Total	5.1	0.32	15.8
Fatal and injury (FI)	1.5	0.32	4.6
Property damage only (PDO)	3.6	0.32	11.2

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		Location Information	
Analyst	AKL	Roadway	SR 247
Agency or Company	Arcadis	Roadway Section	From SR 74 to anthony Rd
Date Performed	11/14/19	Jurisdiction	Bibb
		Analysis Year	2018
Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	0.33
AADT (veh/day)	AADT _{MAX} = 40,100 (veh/day)	--	14,400
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	2
Minor commercial driveways (number)		--	11
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	7
Minor residential driveways (number)		--	5
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	50
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	Predicted average crash frequency, N _{predicted rs} (crashes/year)	Roadway segment length, L (mi)	Crash rate (crashes/mi/year)
	(Total) from Worksheet 1K		(2) / (3)
Total	3.3	0.33	10.1
Fatal and injury (FI)	1.1	0.33	3.3
Property damage only (PDO)	2.2	0.33	6.7

Appendix E: Signal Warrant Analysis

Traffic Signal Warrant Summary Worksheet

Based on Manual of Uniform Traffic Control Devices (MUTCD) Warrant Analysis

Intersection Data:

Intersection: SR 247/ Pio Nono Ave @ SR 74/ Mercer University Dr
 County: Bibb
 City: Macon

Warrant Analysis Conducted By:

Date: 11/15/2019
 Project ID:
 Agency: Arcadis
 Analyst: AKL

Major Street:

Name: SR 247/ Pio Nono Ave
 Speed: 40 MPH
 Lanes: 2 or more lane

Minor Street:

Name: SR 74/ Mercer University Dr
 Speed: 40 MPH
 Lanes: 2 or more lane

Direction: N/S Major Rd Left Turn No
 as Minor Approach?

Is intersection in a built-up area of isolated
 community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

If T-intersection, inflate minor threshold to 150%? No

Volume Threshold used in analysis: **100%**

Manually set volume level? 100%

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	Yes
Condition A: Minimum Vehicular Volume	Yes
Condition B: Interruption of Continuous Traffic	Yes
Condition C: Combination: 80% of A and B	Yes
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak Hour Volume	Yes
Warrant 4: Pedestrian Volume	No
Criterion A: Four-Hour	No
Criterion B: Peak-Hour	No
Warrant 5: School Crossing	No
Warrant 6: Coordinated Signal System	No
Warrant 7: Crash Experience	Yes
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

% Right Turns Inc. (Default 0%)

From South (NB)	0%
From North (SB)	50%
From West (EB)	50%
From East (WB)	50%

Hourly Volume Data Input																					
One Hour Time Period Start Time	SR 247/ Pio Nono Ave										SR 74/ Mercer University Dr										Total Entering Volume
	Eastbound					Westbound					Northbound					Southbound					
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
6:30	0	9	494	16	519	0	29	346	111	486	0	14	211	67	292	0	104	195	16	315	1,612
7:30	0	14	815	23	852	0	62	523	122	707	0	48	353	130	531	0	153	335	33	521	2,611
8:30	0	20	530	21	571	0	53	450	114	617	0	26	324	76	426	0	123	323	30	476	2,090
9:30	0	16	441	22	479	0	81	415	90	586	0	29	270	81	380	0	85	294	28	407	1,852
10:30	0	24	402	30	456	0	82	480	90	652	0	40	311	77	428	0	90	312	37	439	1,975
11:30	0	29	449	30	508	0	93	501	88	682	0	40	325	86	451	0	108	400	53	561	2,202
12:30	0	43	539	40	622	0	69	499	105	673	0	50	366	100	516	0	120	385	44	549	2,360
13:30	0	20	503	26	549	0	90	534	96	720	0	42	388	94	524	0	122	421	46	589	2,382
14:30	0	29	505	39	573	0	94	566	119	779	0	59	430	119	608	0	145	449	41	635	2,595
15:30	0	39	456	37	532	0	97	684	99	880	0	68	458	134	660	0	158	505	56	719	2,791
16:30	0	34	519	42	595	0	102	802	130	1,034	0	57	391	109	557	0	153	426	39	618	2,804
17:30	0	25	528	38	591	1	65	568	111	745	0	55	322	84	461	0	145	412	31	588	2,385
18:30					0					0					0					0	0
19:30					0					0					0					0	0
20:30					0					0					0					0	0
21:30					0					0					0					0	0
16-hr total	0	302	6,181	364	6,847	1	917	6,368	1,275	8,561	0	528	4,149	1,157	5,834	0	1,506	4,457	454	6,417	27,659

Warrant 1: Eight - Hour Vehicular Volume **100%**

Warrant Evaluated? **Yes** Warrant 1 Satisfied? **Yes**

Condition A :		
Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	600	480
Minor Rd. Req	200	160
No. of Hours	12	12

Condition A Satisfied? **Yes**

Condition B:		
Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	900	720
Minor Rd. Req	100	80
No. of Hours	12	12

Condition B Satisfied? **Yes**

Condition C:		
Combination of A & B at 80%		

Condition C Satisfied? **Yes**

Time Period	From	To	Maj Road: Both App. (VPH)	Min Road: High App.	Total
1	6:30	7:30	934	299	1,233
2	7:30	8:30	1,475	488	1,963
3	8:30	9:30	1,110	446	1,556
4	9:30	10:30	998	379	1,377
5	10:30	11:30	1,033	402	1,435
6	11:30	12:30	1,116	508	1,624
7	12:30	13:30	1,203	505	1,708
8	13:30	14:30	1,195	543	1,738
9	14:30	15:30	1,254	594	1,848
10	15:30	16:30	1,326	663	1,989
11	16:30	17:30	1,522	579	2,101
12	17:30	18:30	1,243	557	1,800
13	18:30	19:30	0	0	0
14	19:30	20:30	0	0	0
15	20:30	21:30	0	0	0
16	21:30	22:30	0	0	0

Warrant 2: Four-Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **Yes**

Hour Start	16:30	15:30	7:30	14:30
Major Rd Vol.	1522	1326	1475	1254
Minor Rd Vol.	579	663	488	594

Warrant 3: Peak Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **Yes**

Condition justifying use of warrant:

Write in response here

Criteria	Met?
Delay on Minor Approach	5 Yes
Volume on Minor Approach	150 Yes
Total Entering Volume (veh/h)	800 Yes
Peak Hour	
Major Road Vol. (Both Approach)	Minor Road Vol. (High Approach)
16:30	1522 579

Warrant 4: Pedestrian Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **No**

Ped Data	
Hour (Start)	Ped Volume
6:00	3
7:00	1
8:00	5
9:00	2
10:00	2
11:00	4
12:00	3
13:00	6
14:00	4
15:00	3
16:00	2
17:00	5
18:00	0
19:00	0
20:00	0
21:00	0

Criterion A: Four Hour

Hour (Start)	Ped Volume	Maj Rd Volume
13:00	6	1203
8:00	5	1475
17:00	5	1522
11:00	4	1033

Criterion A Satisfied? **No**

Criterion B: Peak Hour

Peak Hour	Ped Volume	Maj Rd Volume
13:00	6	1203

Criterion B Satisfied? **No**

Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume

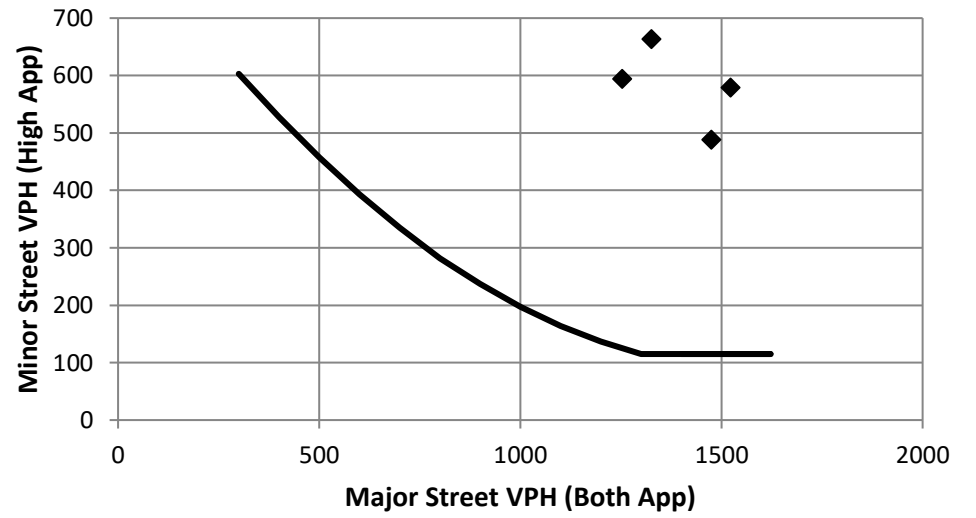


Figure 4C-3 Warrant 3, Peak Hour

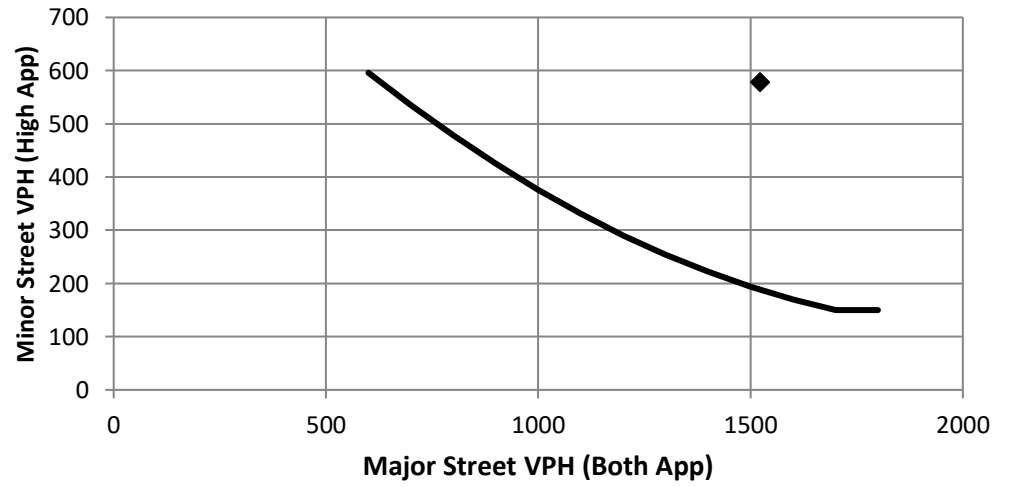


Figure 4C-5 Warrant 4, Pedestrian Four-Hour

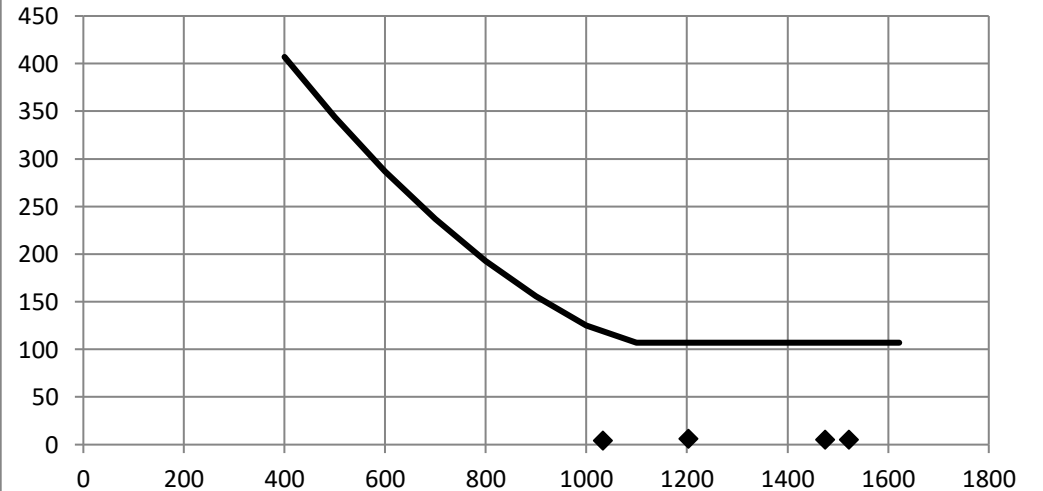
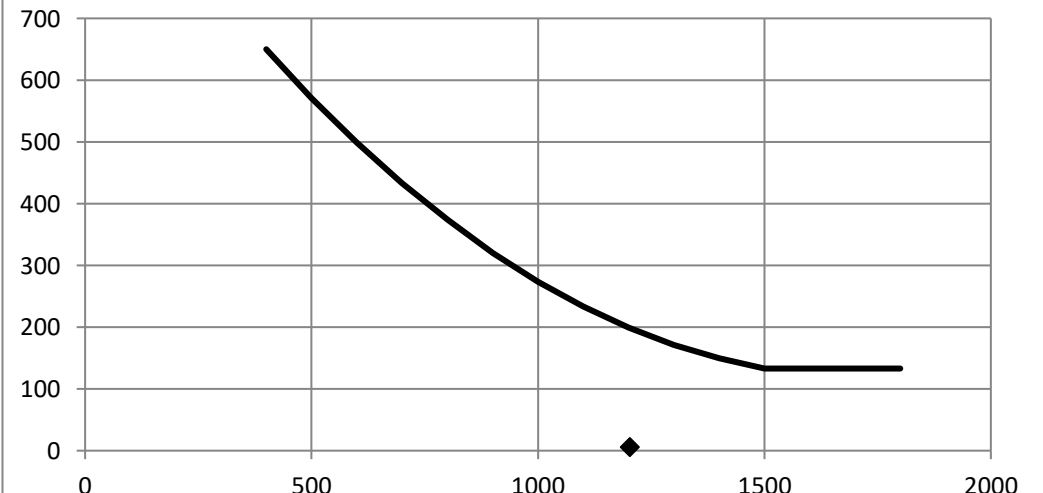


Figure 4C-7 Warrant 4, Pedestrian Peak Hour



Warrant 5: School Crossing

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **No**

Criteria	Fulfilled?
1 There are a MINIMUM of 20 school children during the highest crossing hour.	No
2 There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	No
3 The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	No

Warrant 6: Coordinated Signal System

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **No**

Criteria	Fulfilled?
1 Signal spacing > 1000 ft	Yes
2 On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	No
3 On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	No

Warrant 7: Crash Experience

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **Yes**

Criteria	Met?	Fulfilled?
1 Adequate trial of other remedial measures has failed to reduce crash frequency. Measures Tried:		Yes
2 Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period	# of correctible crashes: 141 Period (Years): 5	Yes
3	Warrant 1, Condition A (80%)	Yes
	Warrant 1, Condition B (80%)	Yes
	Warrant 4, Criterion A (80%)	No
	Warrant 4, Criterion B (80%)	No

Warrant 8: Roadway Network

100%

Warrant Evaluated? **No**

Warrant Satisfied? **N/A**

Criteria	Volume	Met?	Fulfilled?
1 Total entering volume of at least 1,000 veh/h during typical weekday peak hour	2101	Yes	Yes
2 5-yr vol projections satisfy Warrants 1, 2, or 3	1	Yes	
Hour			
Volume			

Answer YES if all intersecting routes have following characteristics: Fulfilled?

1 Part of hwy system serving as principal roadway for thru traffic?	No
2 Rural or suburban hwy outside of, entering, or traversing city	No
3 Appears as a major route on an official plan	No

Warrant 9: Intersection Near a Grade Crossing

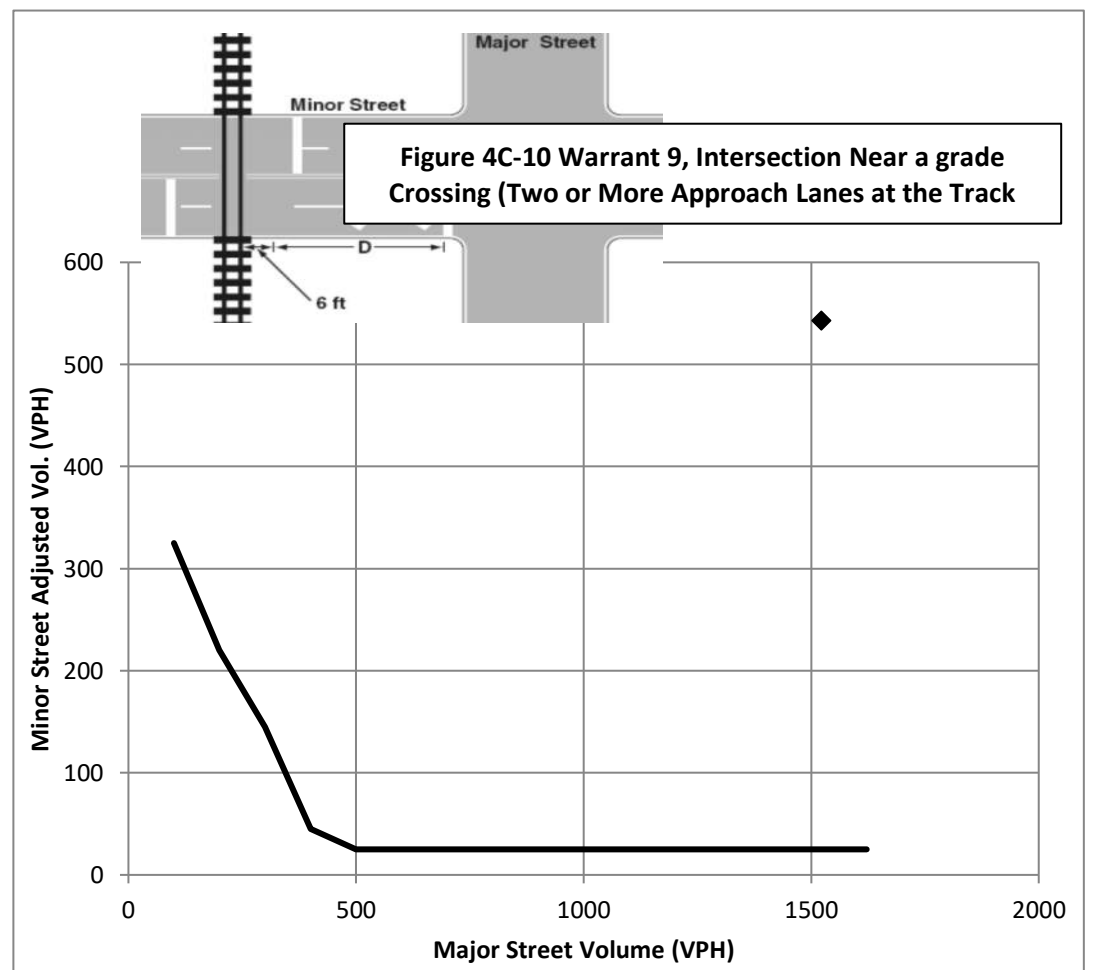
100%

Warrant Evaluated? **No**

Warrant Satisfied? **N/A**

Adjustment Factors							
Trains per Day	% Buses on Minor Road	% Trucks on Minor Road	D	Peak Hour	Maj Rd Vol.	Min Rd Vol.	Adj Min Vol.
9 to 11	0.02	2.6% to 7.5%	660	16:30	1522	579	543

Warrant Analysis Conclusions/Comments:



Traffic Signal Warrant Summary Worksheet

Based on Manual of Uniform Traffic Control Devices (MUTCD) Warrant Analysis

Intersection Data:

Intersection: SR 247/ Pio Nono Ave @ Anthony Rd
 County: Bibb
 City: Macon

Warrant Analysis Conducted By:

Date: 11/15/2019
 Project ID:
 Agency: Arcadis
 Analyst: AKL

Major Street:

Name: SR 247/ Pio Nono Ave
 Speed: 40 MPH
 Lanes: 2 or more lane

Minor Street:

Name: Anthony Rd
 Speed: 35 MPH
 Lanes: 2 or more lane

Direction: N/S Major Rd Left Turn No
 as Minor Approach?

Is intersection in a built-up area of isolated
 community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

If T-intersection, inflate minor threshold to 150%? No

Volume Threshold used in analysis: 100%

Manually set volume level? 100%

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	Yes
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	Yes
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	No
Warrant 3: Peak Hour Volume	Yes
Warrant 4: Pedestrian Volume	No
Criterion A: Four-Hour	No
Criterion B: Peak-Hour	No
Warrant 5: School Crossing	No
Warrant 6: Coordinated Signal System	No
Warrant 7: Crash Experience	Yes
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

% Right Turns Inc. (Default 0%)

From South (NB)	50%
From North (SB)	0%
From West (EB)	0%
From East (WB)	50%

Hourly Volume Data Input																					
One Hour Time Period Start Time	SR 247/ Pio Nono Ave										Anthony Rd										Total Entering Volume
	Northbound					Southbound					Eastbound					Westbound					
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
6:30	0	62	224	21	307	1	11	212	28	252	0	30	46	99	175	0	14	31	16	61	795
7:30	0	118	376	86	580	0	40	355	89	484	0	58	92	147	297	0	61	85	34	180	1,541
8:30	0	78	331	86	495	0	29	322	39	390	0	34	92	130	256	0	88	71	57	216	1,357
9:30	0	79	317	31	427	1	19	357	44	421	0	40	45	127	212	0	46	44	17	107	1,167
10:30	0	94	359	36	489	1	23	376	37	437	0	43	52	106	201	0	54	47	26	127	1,254
11:30	0	106	375	49	530	0	33	450	49	532	1	51	55	141	248	0	72	53	43	168	1,478
12:30	0	102	444	54	600	0	41	438	42	521	0	53	77	125	255	0	72	74	36	182	1,558
13:30	0	113	441	57	611	0	31	461	65	557	0	52	76	176	304	0	76	77	47	200	1,672
14:30	0	147	496	70	713	0	55	508	62	625	0	61	86	170	317	0	74	74	54	202	1,857
15:30	0	131	506	65	702	0	56	564	84	704	0	73	80	197	350	0	130	112	48	290	2,046
16:30	0	128	443	60	631	0	39	501	72	612	0	67	96	170	333	0	112	110	53	275	1,851
17:30	0	146	417	62	625	0	45	475	55	575	0	52	74	177	303	0	60	65	46	171	1,674
18:30					0					0					0					0	0
19:30					0					0					0					0	0
20:30					0					0					0					0	0
21:30					0					0					0					0	0
16-hr total	0	1,304	4,729	677	6,710	3	422	5,019	666	6,110	1	614	871	1,765	3,251	0	859	843	477	2,179	18,250

Warrant 1: Eight - Hour Vehicular Volume **100%**

Warrant Evaluated? **Yes** Warrant 1 Satisfied? **Yes**

Condition A :			Time Period	From	To	Maj Road: Both App. (VPH)	Min Road: High App.	Total
Min. Veh. Volume	100%	80%						
Volume Level	100%	80%	1	6:30	7:30	521	76	597
Major Rd. Req	600	480	2	7:30	8:30	932	150	1,082
Minor Rd. Req	200	160	3	8:30	9:30	803	159	962
No. of Hours	2	2	4	9:30	10:30	789	90	879
Condition A Satisfied? No			5	10:30	11:30	871	101	972
Condition B:			6	11:30	12:30	989	125	1,114
Interruption of Continuous Traffic			7	12:30	13:30	1,052	146	1,198
Volume Level	100%	80%	8	13:30	14:30	1,075	153	1,228
Major Rd. Req	900	720	9	14:30	15:30	1,241	148	1,389
Minor Rd. Req	100	80	10	15:30	16:30	1,290	242	1,532
No. of Hours	8	11	11	16:30	17:30	1,141	222	1,363
Condition B Satisfied? Yes			12	17:30	18:30	1,114	126	1,240
Condition C:			13	18:30	19:30	0	0	0
Combination of A & B at 80%			14	19:30	20:30	0	0	0
Condition C Satisfied? No			15	20:30	21:30	0	0	0
			16	21:30	22:30	0	0	0

Warrant 2: Four-Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **No**

Hour Start	15:30	14:30	16:30	13:30
Major Rd Vol.	1290	1241	1141	1075
Minor Rd Vol.	242	148	222	153

Warrant 3: Peak Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **Yes**

Condition justifying use of warrant:

Write in response here		
Criteria		Met?
Delay on Minor Approach	5	Yes
Volume on Minor Approach	150	Yes
Total Entering Volume (veh/h)	800	
Peak Hour	Major Road Vol. (Both Approach)	Minor Road Vol. (High Approach)
15:30	1290	242

Warrant 4: Pedestrian Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **No**

Ped Data

Hour (Start)	Ped Volume
6:00	1
7:00	2
8:00	9
9:00	16
10:00	6
11:00	16
12:00	5
13:00	0
14:00	9
15:00	18
16:00	6
17:00	6
18:00	1
19:00	0
20:00	0
21:00	0

Criterion A: Four Hour

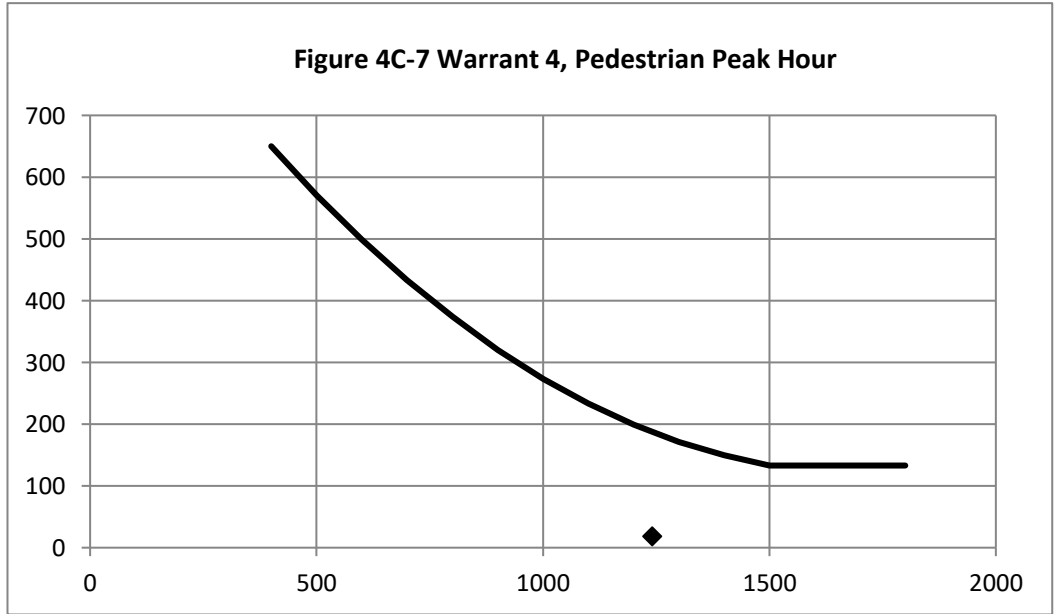
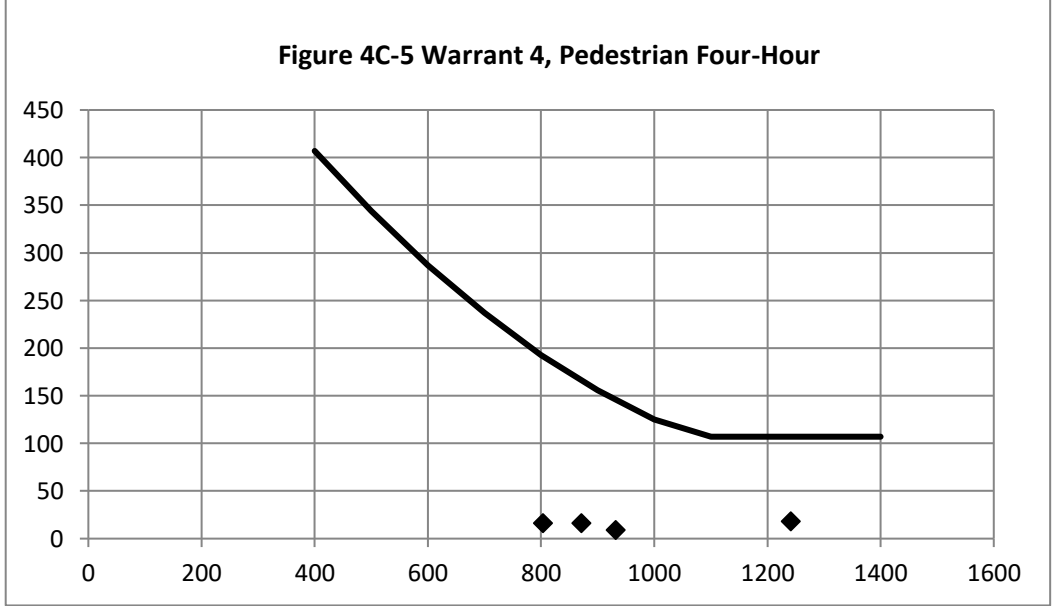
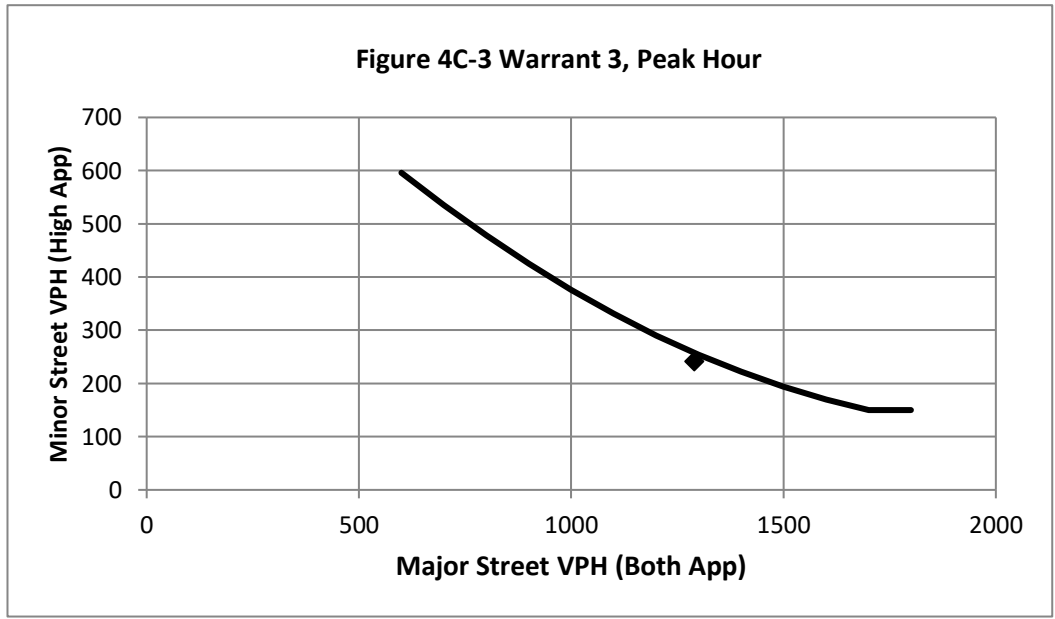
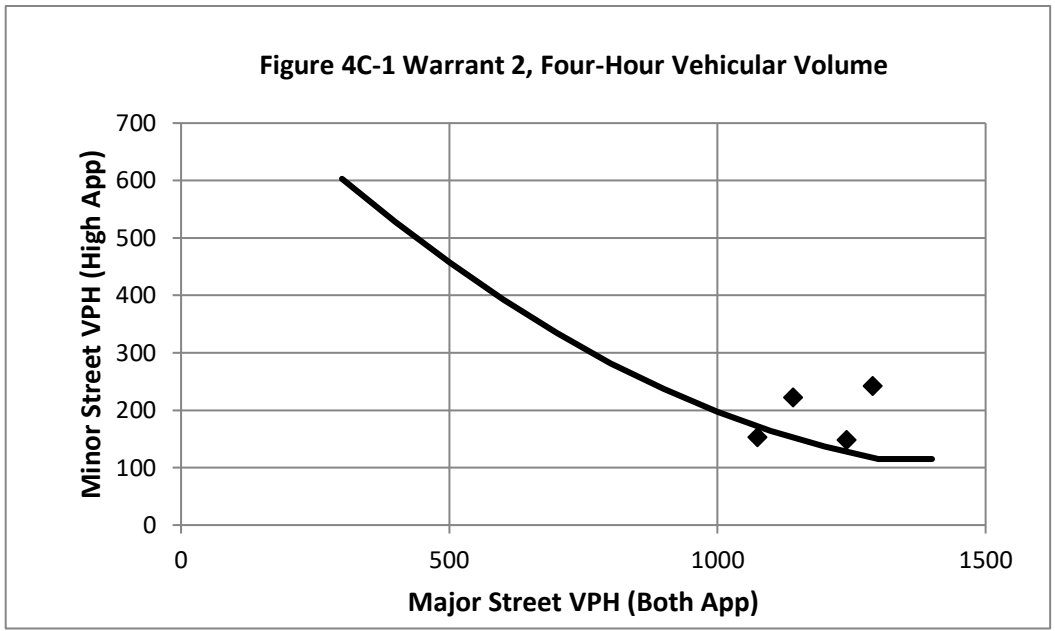
Hour (Start)	Ped Volume	Maj Rd Volume
15:00	18	1241
9:00	16	803
11:00	16	871
8:00	9	932

Criterion A Satisfied? No

Criterion B: Peak Hour

Peak Hour	Ped Volume	Maj Rd Volume
15:00	18	1241

Criterion B Satisfied? No



Warrant 5: School Crossing

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **No**

Criteria	Fulfilled?
1 There are a MINIMUM of 20 school children during the highest crossing hour.	No
2 There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	No
3 The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	No

Warrant 6: Coordinated Signal System

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **No**

Criteria	Fulfilled?
1 Signal spacing > 1000 ft	Yes
2 On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	No
3 On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	No

Warrant 7: Crash Experience

100%

Warrant Evaluated? **Yes**

Warrant Satisfied? **Yes**

Criteria	Met?	Fulfilled?
1 Adequate trial of other remedial measures has failed to reduce crash frequency. Measures Tried:		Yes
2 Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period	# of correctible crashes: 79 Period (Years): 5	Yes
3	Warrant 1, Condition A (80%)	No
	Warrant 1, Condition B (80%)	Yes
	Warrant 4, Criterion A (80%)	No
	Warrant 4, Criterion B (80%)	No

Warrant 8: Roadway Network

100%

Warrant Evaluated? **No**

Warrant Satisfied? **N/A**

Criteria	Volume	Met?	Fulfilled?
1 Total entering volume of at least 1,000 veh/h during typical weekday peak hour	1532	Yes	Yes
2 5-yr vol projections satisfy Warrants 1, 2, or 3	1	Yes	
Hour			
Volume			

Answer YES if all intersecting routes have following characteristics: Fulfilled?

1	Part of hwy system serving as principal roadway for thru traffic?	No
2	Rural or suburban hwy outside of, entering, or traversing city	No
3	Appears as a major route on an official plan	No

Warrant 9: Intersection Near a Grade Crossing

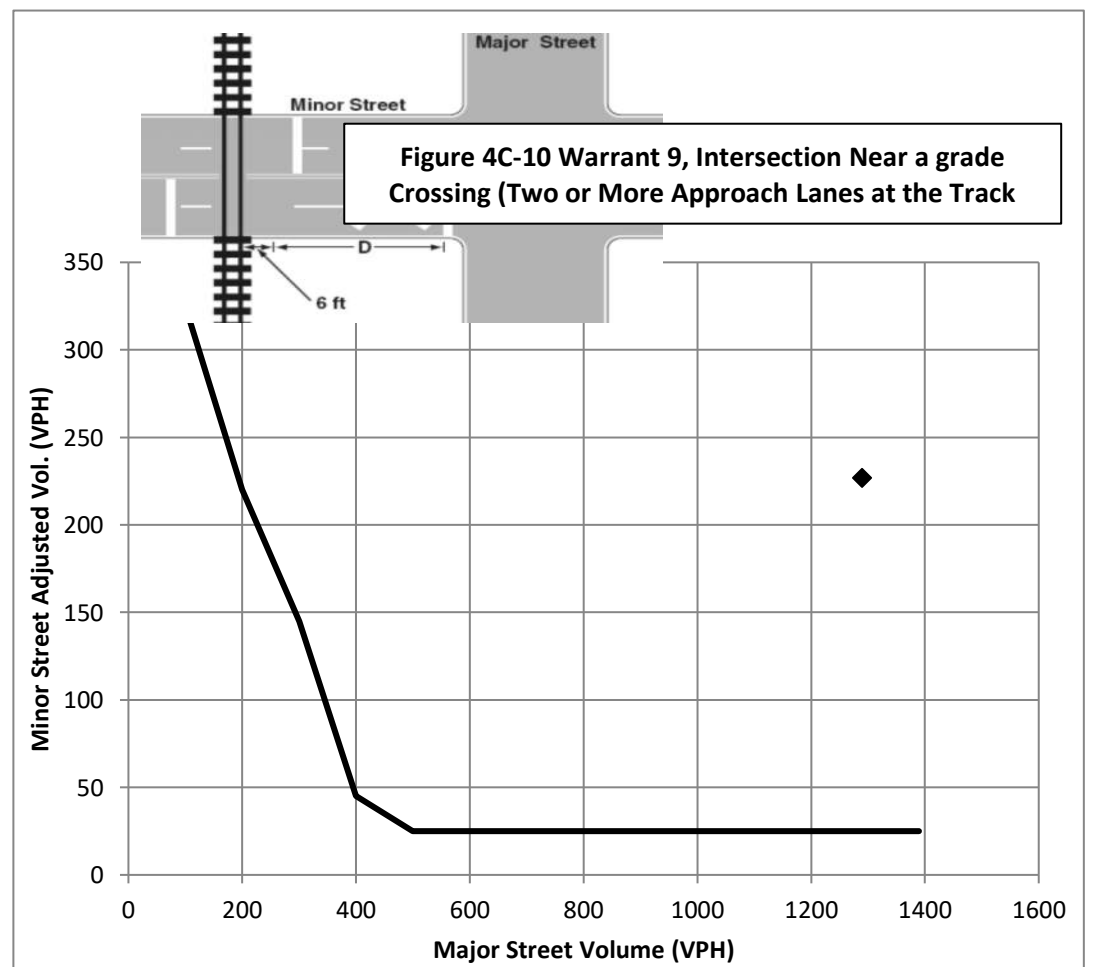
100%

Warrant Evaluated? **No**

Warrant Satisfied? **N/A**

Adjustment Factors							
Trains per Day	% Buses on Minor Road	% Trucks on Minor Road	D	Peak Hour	Maj Rd Vol.	Min Rd Vol.	Adj Min Vol.
9 to 11	0.02	2.6% to 7.5%	660	15:30	1290	242	227

Warrant Analysis Conclusions/Comments:



Traffic Signal Warrant Summary Worksheet

Based on Manual of Uniform Traffic Control Devices (MUTCD) Warrant Analysis

Intersection Data:

Intersection: SR 22/Eisenhower Pkwy @ SR 247/ Pio Nono Ave
 County: Bibb
 City: Macon

Warrant Analysis Conducted By:

Date: 9/4/2018
 Project ID:
 Agency: Arcadis
 Analyst: PK

Major Street:

Name: SR 22/Eisenhower Pkwy

Speed: 45 MPH

Lanes: 2 or more lane

Direction: E/W

Minor Street:

Name: SR 247/ Pio Nono Ave

Speed: 40 MPH

Lanes: 2 or more lane

Major Rd Left Turn No
 as Minor Approach?

Is intersection in a built-up area of isolated
 community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

If T-intersection, inflate minor threshold to 150%? No

Volume Threshold used in analysis: 100%

Manually set volume level? 100%

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	Yes
Condition A: Minimum Vehicular Volume	Yes
Condition B: Interruption of Continuous Traffic	Yes
Condition C: Combination: 80% of A and B	Yes
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak Hour Volume	Yes
Warrant 4: Pedestrian Volume	No
Criterion A: Four-Hour	No
Criterion B: Peak-Hour	No
Warrant 5: School Crossing	No
Warrant 6: Coordinated Signal System	No
Warrant 7: Crash Experience	Yes
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

% Right Turns Inc. (Default 0%)

From West (EB)	0%
From East (WB)	0%
From South (NB)	0%
From North (SB)	0%

Hourly Volume Data Input																					
One Hour Time Period Start Time	SR 22/Eisenhower Pkwy										SR 247/ Pio Nono Ave										Total Entering Volume
	Eastbound					Westbound					Northbound					Southbound					
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
6:30	0	19	351	53	423	2	75	253	39	369	0	66	214	96	376	0	71	210	19	300	1,468
7:30	0	58	493	60	611	2	85	497	79	663	1	141	377	104	623	0	68	357	61	486	2,383
8:30	0	81	364	76	521	0	101	501	60	662	0	126	328	94	548	0	66	311	80	457	2,188
9:30	0	50	349	84	483	0	105	495	66	666	0	124	268	119	511	0	77	353	61	491	2,151
10:30	0	71	394	89	554	0	89	502	92	683	0	164	295	94	553	0	85	347	82	514	2,304
11:30	0	94	463	92	649	2	123	613	91	829	0	153	322	91	566	0	112	395	114	621	2,665
12:30	3	107	556	131	797	4	148	601	97	850	0	211	338	120	669	0	129	415	103	647	2,963
13:30	1	113	503	113	730	2	137	581	97	817	0	192	380	150	722	0	129	471	118	718	2,987
14:30	0	95	461	122	678	1	114	560	101	776	0	173	469	128	770	0	118	472	104	694	2,918
15:30	2	97	477	113	689	2	142	613	112	869	0	170	460	114	744	0	142	584	138	864	3,166
16:30	0	93	525	131	749	3	162	732	107	1,004	0	197	387	101	685	0	117	507	104	728	3,166
17:30	0	92	524	121	737	5	116	576	103	800	0	165	360	122	647	0	103	447	108	658	2,842
18:30					0					0					0					0	0
19:30					0					0					0					0	0
20:30					0					0					0					0	0
21:30					0					0					0					0	0
16-hr total	6	970	5,460	1,185	7,621	23	1,397	6,524	1,044	8,988	1	1,882	4,198	1,333	7,414	0	1,217	4,869	1,092	7,178	31,201

Warrant 1: Eight - Hour Vehicular Volume **100%**

Warrant Evaluated? **Yes** Warrant 1 Satisfied? **Yes**

Condition A :			Time Period	From	To	Maj Road: Both App. (VPH)	Min Road: High App.	Total
Volume Level	100%	80%						
Major Rd. Req	600	480	1	6:30	7:30	700	281	981
Minor Rd. Req	200	160	2	7:30	8:30	1,135	518	1,653
No. of Hours	12	12	3	8:30	9:30	1,047	454	1,501
Condition A Satisfied? Yes			4	9:30	10:30	999	430	1,429
Condition B:			5	10:30	11:30	1,056	459	1,515
Interruption of Continuous Traffic			6	11:30	12:30	1,295	507	1,802
Volume Level	100%	80%	7	12:30	13:30	1,419	549	1,968
Major Rd. Req	900	720	8	13:30	14:30	1,337	600	1,937
Minor Rd. Req	100	80	9	14:30	15:30	1,231	642	1,873
No. of Hours	11	11	10	15:30	16:30	1,333	726	2,059
Condition B Satisfied? Yes			11	16:30	17:30	1,515	624	2,139
Condition C:			12	17:30	18:30	1,313	550	1,863
Combination of A & B at 80%			13	18:30	19:30	0	0	0
Condition C Satisfied? Yes			14	19:30	20:30	0	0	0
			15	20:30	21:30	0	0	0
			16	21:30	22:30	0	0	0

Warrant 2: Four-Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **Yes**

Hour Start	16:30	15:30	12:30	13:30
Major Rd Vol.	1515	1333	1419	1337
Minor Rd Vol.	624	726	549	600

Warrant 3: Peak Hour Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **Yes**

Condition justifying use of warrant:

Write in response here		
Criteria	Met?	
Delay on Minor Approach	5	Yes
Volume on Minor Approach	150	Yes
Total Entering Volume (veh/h)	800	
Peak Hour	Major Road Vol. (Both Approach)	Minor Road Vol. (High Approach)
16:30	1515	624

Warrant 4: Pedestrian Volume **100%**

Warrant Evaluated? **Yes** Warrant Satisfied? **No**

Hour (Start)	Ped Volume
6:00	0
7:00	0
8:00	0
9:00	1
10:00	2
11:00	3
12:00	1
13:00	2
14:00	0
15:00	6
16:00	1
17:00	1
18:00	0
19:00	0
20:00	0
21:00	0

Criterion A: Four Hour

Hour (Start)	Ped Volume	Maj Rd Volume
15:00	6	1231
11:00	3	1056
10:00	2	999
13:00	2	1419

Criterion A Satisfied? **No**

Criterion B: Peak Hour

Peak Hour	Ped Volume	Maj Rd Volume
15:00	6	1231

Criterion B Satisfied? **No**

Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume

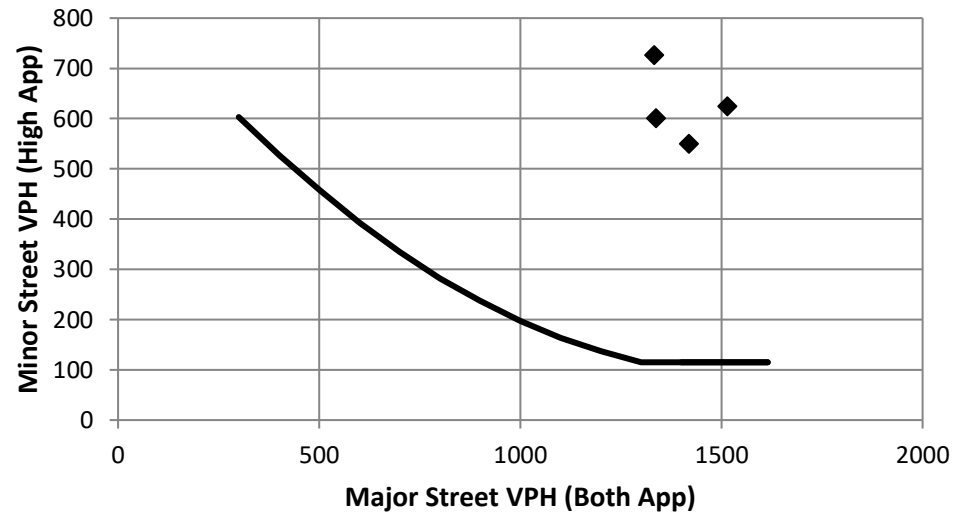


Figure 4C-3 Warrant 3, Peak Hour

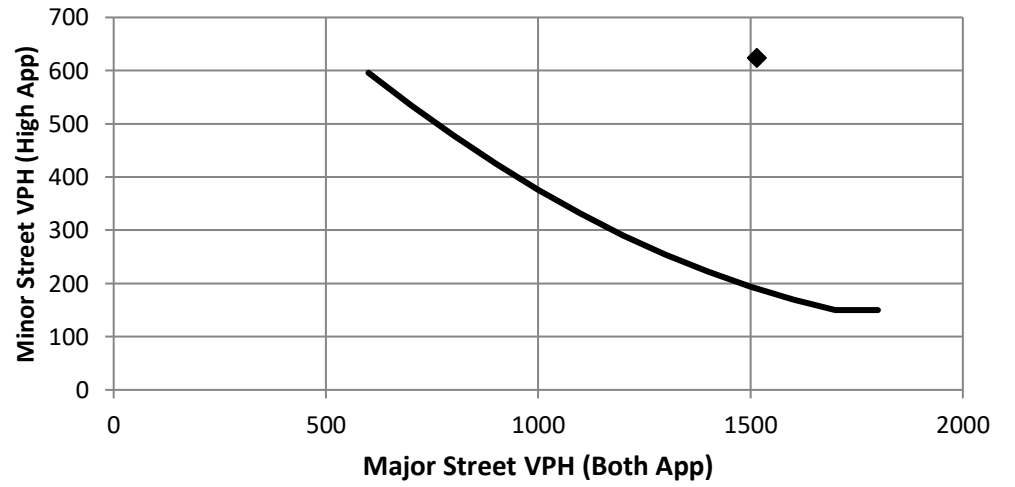


Figure 4C-5 Warrant 4, Pedestrian Four-Hour

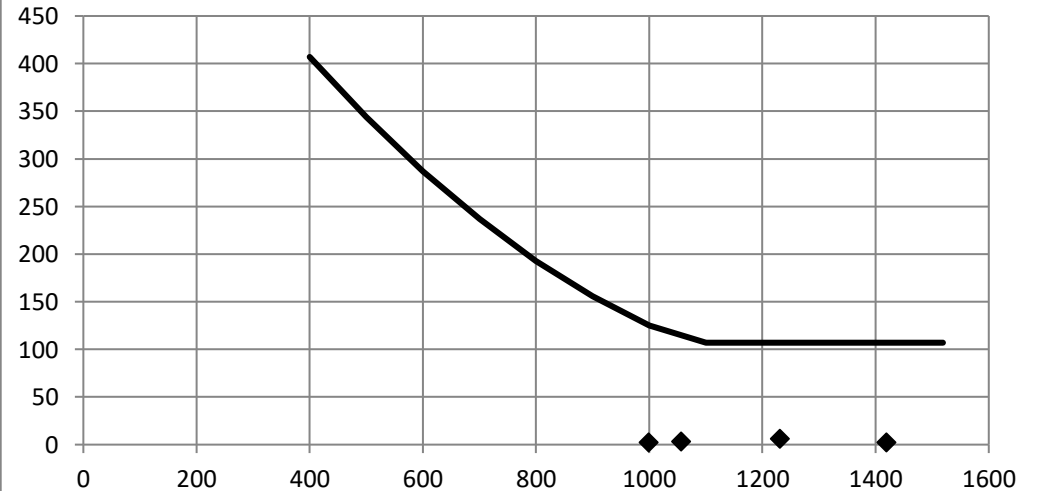
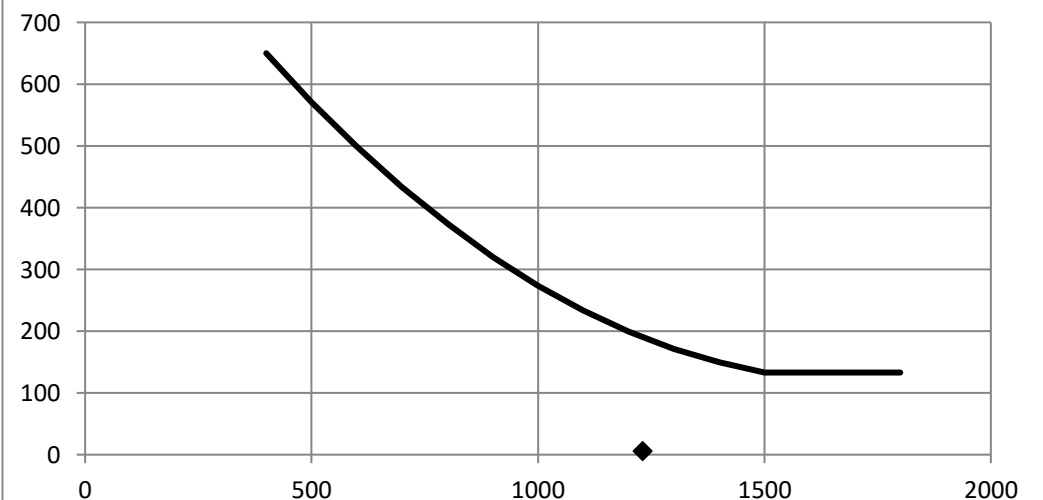


Figure 4C-7 Warrant 4, Pedestrian Peak Hour



Warrant 5: School Crossing

100%

Warrant Evaluated? Yes		Warrant Satisfied? No	
Criteria			Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	No	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	No	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	No	

Warrant 6: Coordinated Signal System

100%

Warrant Evaluated? Yes		Warrant Satisfied? No	
Criteria			
1	Signal spacing > 1000 ft	Yes	
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	No	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	No	

Warrant 7: Crash Experience

100%

Warrant Evaluated? Yes		Warrant Satisfied? Yes	
Criteria			Met? Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.	Yes	
Measures Tried:			
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period	# of correctible crashes	38
		Period (Years)	5
3	Warrant 1, Condition A (80%)	Yes	
	Warrant 1, Condition B (80%)	Yes	
	Warrant 4, Criterion A (80%)	No	
	Warrant 4, Criterion B (80%)	No	

Warrant 8: Roadway Network

100%

Warrant Evaluated? No		Warrant Satisfied? N/A	
Criteria			Volume Met? Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour	2139	Yes Yes
2	5-yr vol projections satisfy Warrants 1, 2, or 3	1	Yes
	Hour		
	Volume		

Answer YES if all intersecting routes have following characteristics: **Fulfilled?**

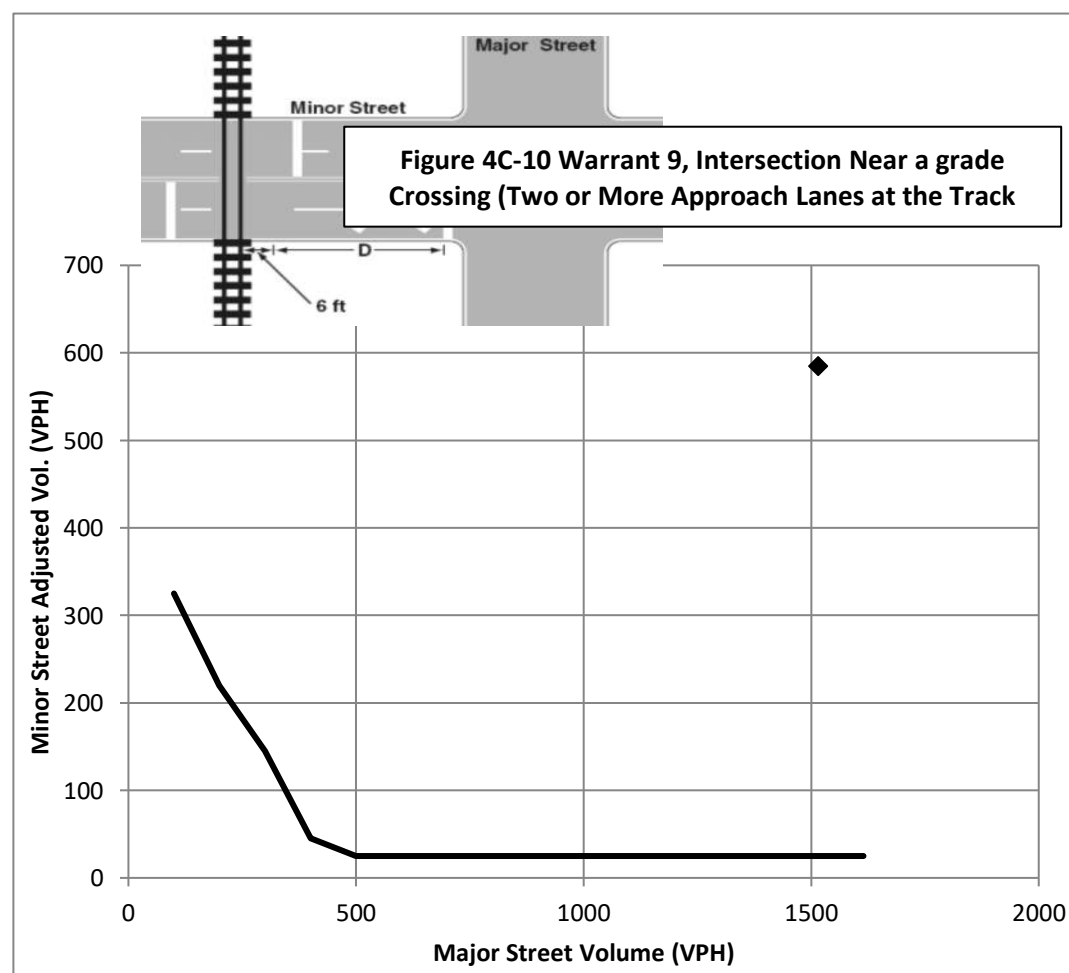
1	Part of hwy system serving as principal roadway for thru traffic?	No
2	Rural or suburban hwy outside of, entering, or traversing city	No
3	Appears as a major route on an official plan	No

Warrant 9: Intersection Near a Grade Crossing

100%

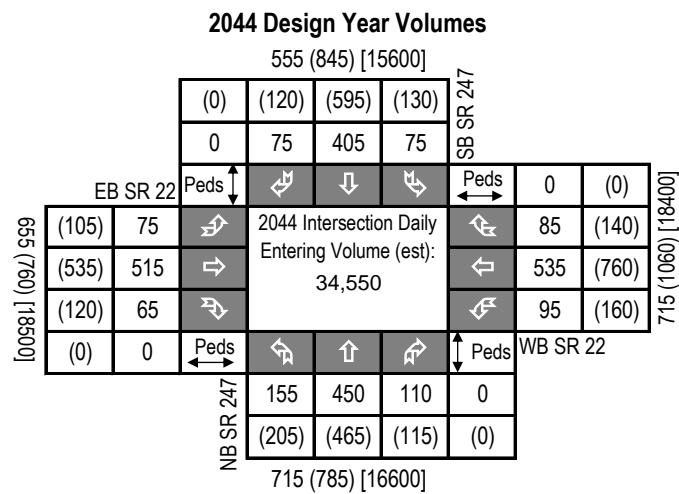
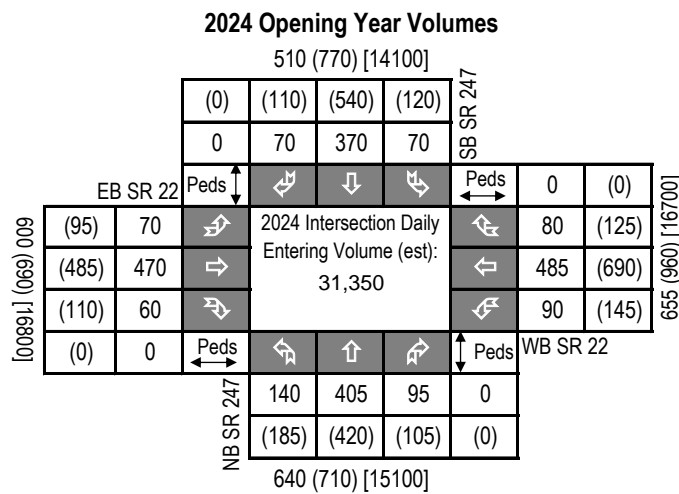
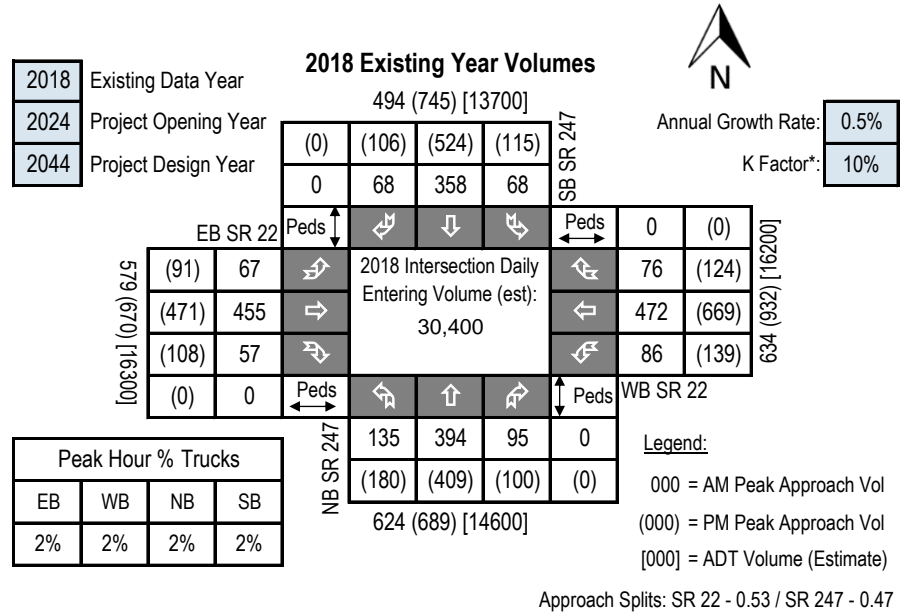
Warrant Evaluated? No		Warrant Satisfied? N/A					
Adjustment Factors							
Trains per Day	% Buses on Minor Road	% Trucks on Minor Road	D	Peak Hour	Maj Rd Vol.	Min Rd Vol.	Adj Min Vol.
9 to 11	0.02	2.6% to 7.5%	660	16:30	1515	624	585

Warrant Analysis Conclusions/Comments:



Appendix F: Intersection Control Evaluation (ICE)

GDOT PI # (or N/A): Request By:
 County: GDOT District:
 Major (State) Road: Speed Limit:
 Minor (Crossing) ST: Speed Limit:
 Major ST Direction: Area Type:
 Intersection Control:
 Prepared By: Analyst:
 Date: Project ID:
 Project Purpose:



Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT PI #	N/A	<p>Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;"> 1. Does alternative address the project need in a balanced manner and in scale with the project? 2. Does alternative improve safety performance in terms of reducing severe crashes? 3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists? 4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)? 5. Does alternative appear feasible given the site characteristics, constraints & location context? 6. Does alternative appear feasible with respect to other project factors? 7. Overall feasible alternative (select alternative for further evaluation in Stage 2)? </p>							
Project Location:	SR 22 @ SR 247								
Existing Control:	Signal (turn lanes on mainline)								
Prepared by:	Arcadis								
Date:	11/11/2019								
<p style="font-size: small;">Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p>		<p style="text-align: right;">Screening Decision Justification:</p>							
<p>Intersection Alternatives (see Intersections tab for description of each intersection/interchange type)</p>									
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Mini Roundabout	No	No	No	No	No	No	No	High traffic volume for a mini roundabout
	Single Lane Roundabout	No	No	No	No	No	No	No	High traffic volume for a single lane roundabout
	Multilane Roundabout	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Potential solution to evaluate
	RCUT (stop control)	No	No	No	No	No	No	No	Significant impact to create wide median
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	Significant impact to create wide median
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T-intersection
	Offset-T Intersections	No	No	No	No	No	No	No	Significant through volume
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	Not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	N/A
	No RT Lane Improvements	No	No	No	No	No	No	No	N/A
	Other unsignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	Yes	Yes	No	No	Yes	Yes	No	Existing Condition
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	High traffic volume
	RCUT (signalized)	No	No	No	No	No	No	No	High traffic volume
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	Significant impact to create wide median
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-intersection
	Jughandle	No	No	No	No	No	No	No	Significant impact in multiple quadrants
	Quadrant Roadway	No	No	No	No	No	No	No	Significant impact in multiple quadrants and low left turning volume demand
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	Not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	Not an interchange
	Single Point Interchange	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	N/A
	No RT Lane Improvements	No	No	No	No	No	No	No	N/A
Signal Improvement - Install FYAs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Road Diet with Existing Condition; Will add Retroreflective Background	

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A) N/A
 County: Bibb
 Project Location: SR 22 @ SR 247

GDOT District: 3 - Thomaston
 Area Type: Urban

Date: 11/11/2019
 Agency/Firm: Arcadis
 Analyst: JG

Existing Intersection Control: Signal (turn lanes on mainline)

Type of Analysis: **Safety Funded Project**

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 9	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2024 Opening Yr No-Build Peak Hr Intersection Delay	34.8 sec	40.3 sec
2024 Opening Yr No-Build Peak Hr Intersection V/C	0.72	0.78
2044 Design Yr No-Build Peak Hr Intersection Delay	34.9 sec	41.2 sec
2044 Design Yr No-Build Peak Hr Intersection V/C ratio	0.73	0.79

Complete Streets Warrants Met?

- PEDESTRIANS
- BICYCLES
- TRANSIT

Crash Type	Crash Severity			
	Crash Data: Enter most recent 5 years of crash data	PDO	Injury Crash*	Fatal Crash*
Angle	38	14	0	21%
Head-On	3	0	0	1%
Rear End	96	34	0	53%
Sideswipe - same	41	10	0	21%
Sideswipe - opposite	4	1	0	2%
Not Collision w/Motor Veh	1	1	0	1%
TOTALS:	183	60	0	243

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:

Proposed Control Type/Improvement:

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Multilane Roundabout	Signal Improvement - Install FYAs	N/A	N/A	N/A

Project Cost: (From CostEst Worksheet)

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Construction Cost	\$2,800,000	\$200,000			
ROW Cost	\$750,000	\$0			
Environmental Cost	\$66,000	\$0			
Reimbursable Utility Cost	\$150,000	\$25,000			
Design & Contingency Cost	\$650,000	\$50,000			
Cost Adjustment (justification req'd)	0%	0%			
Total Cost	\$4,416,000	\$275,000			

Traffic Operations:

	Alternative 1		Alternative 2		Alternative 3	Alternative 4	Alternative 5
Traffic Analysis Software Used	SIDRA 7		Synchro 9				
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr			
2044 Design Yr Build Intersection Delay	9.3 sec	28.3 sec	36.4 sec	44.1 sec			
2044 Design Yr Build Intersection V/C	0.50	0.92	0.68	0.82			

Safety Analysis:

Predefined CRF: PDO	26%	0%			
Predefined CRF: Fatal/Inj	71%	0%			
Predefined CRF Source:	FHWA Clearinghouse #s 4196 / 4195	Please provide user defined data below			
User Defined CRF: PDO		6%			
User Defined CRF: Fatal/Inj		15%			
User Defined CRF Source (write in if applicable):		CMF IDs: 8927,8928,7690,7691			

Environmental Impacts:¹

Historic District/Property	Minimal	None			
Archaeology Resources	None	None			
Graveyard	None	None			
Stream	None	None			
Underground Tank/Hazmat	None	None			
Park Land	None	None			
EJ Community	None	None			
Wooded Area	None	None			
Wetland	None	None			

Note: If environmental impact is significant (RED), provide justification impact won't jeopardize project delivery using "Env" worksheet

¹ Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

Stakeholder Posture:

Local Community Support	Neutral	Neutral			
GDOT Support	Neutral	Neutral			

Final ICE Stage 2 Score:	4.2	4.8			
Rank of Control Type Alternatives:	2	1			

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

GDOT PI # (or N/A): Request By:
 County: GDOT District: 3 - Thomaston
 Major (State) Road: Speed Limit:
 Minor (Crossing) ST: Speed Limit:
 Major ST Direction: Area Type:
 Intersection Control:
 Prepared By: Analyst:
 Date: Project ID:
 Project Purpose:

2018	Existing (current data) Year	398 (610) [8500]			
2024	Project Opening Year	(0)	(70)	(486)	(54)
2044	Project Design Year	0	68	296	34

Annual Growth Rate:
K Factor*:

		2018 Intersection Daily Entering Volume: 27,200					
286 (336) [4900]	EB Anthony Rd	(67)	48	↓	↓	↓	↓
	(86)	96	→	→	→	→	→
	(183)	142	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙
		2044 Intersection Daily Entering Volume: 27,200					
204 (234) [3600]	EB Anthony Rd	(67)	48	↓	↓	↓	↓
	(86)	96	→	→	→	→	→
	(183)	142	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙

Peak Hour % Trucks				
EB	WB	NB	SB	
2%	2%	2%	2%	

		2018 Intersection Daily Entering Volume: 27,200					
286 (336) [4900]	EB Anthony Rd	(67)	48	↓	↓	↓	↓
	(86)	96	→	→	→	→	→
	(183)	142	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙
		2044 Intersection Daily Entering Volume: 27,200					
204 (234) [3600]	EB Anthony Rd	(67)	48	↓	↓	↓	↓
	(86)	96	→	→	→	→	→
	(183)	142	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙

Legend:
 000 = AM Peak Approach Vol
 (000) = PM Peak Approach Vol
 [000] = ADT Volume (Estimate)

Approach Splits: SR 247 - 0.67 / Anthony Rd - 0.33

2024 Opening Year Volumes 410 (625) [8800]

		2024 Intersection Daily Entering Volume: 28,000					
295 (350) [5000]	EB Anthony Rd	(70)	50	↓	↓	↓	↓
	(90)	100	→	→	→	→	→
	(190)	145	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙
		2044 Intersection Daily Entering Volume: 28,000					
210 (240) [3700]	EB Anthony Rd	(70)	50	↓	↓	↓	↓
	(90)	100	→	→	→	→	→
	(190)	145	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙

2044 Design Year Volumes 450 (695) [9700]

		2044 Intersection Daily Entering Volume: 31,000					
325 (380) [5500]	EB Anthony Rd	(80)	55	↓	↓	↓	↓
	(95)	110	→	→	→	→	→
	(210)	160	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙
		2044 Intersection Daily Entering Volume: 31,000					
235 (265) [4100]	EB Anthony Rd	(80)	55	↓	↓	↓	↓
	(95)	110	→	→	→	→	→
	(210)	160	↘	↘	↘	↘	↘
	(0)	0	↙	↙	↙	↙	↙

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the **"Waiver"** tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT PI #	N/A	<p>Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;"> 1. Does alternative address the project need in a balanced manner and in scale with the project? 2. Does alternative improve safety performance in terms of reducing severe crashes? 3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists? 4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)? 5. Does alternative appear feasible given the site characteristics, constraints & location context? 6. Does alternative appear feasible with respect to other project factors? 7. Overall feasible alternative (select alternative for further evaluation in Stage 2)? </p> <p style="text-align: right;">Screening Decision Justification:</p>							
Project Location:	SR 247 @ Anthony Rd								
Prepared by:	Arcadis								
Analyst:	JG								
Date:	11/11/2019								
<p>Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p>									
<p>Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)</p>									
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Mini Roundabout	No	Yes	No	No	No	No	No	High traffic volume for a mini roundabout
	Single Lane Roundabout	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Potential solution to evaluate
	Multilane Roundabout	No	Yes	Yes	Yes	No	No	No	Potential solution to evaluate
	RCUT (stop control)	No	No	No	No	No	No	No	Significant impact to create wide median
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	Significant impact to create wide median
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T-intersection
	Offset-T Intersections	No	No	No	No	No	No	No	Significant through volume
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	Not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	Existing Condition
	No RT Lane Improvements	No	No	No	No	No	No	No	
	Other unignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Modification to existing signal
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Significant impact to create wide median
	RCUT (signalized)	No	No	No	No	No	No	No	Significant impact to create wide median
	Displaced Left Turn (CFI)	Yes	Yes	Yes	Yes	Yes	Yes	No	Significant impact to create wide median
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-intersection
	Jughandle	No	No	No	No	No	No	No	Significant impact in multiple quadrants
	Quadrant Roadway	No	No	No	No	No	No	No	Significant impact in one quadrants
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	Not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	Not an interchange
	Single Point Interchange	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	Yes	No	Yes	Yes	Yes	Yes	Potential solution to evaluate
	Add RT Lanes on Both Roads	No	Yes	No	Yes	Yes	Yes	Yes	
Other Signalized (provide description):	No	No	No	No	No	No	No	N/A	

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.14 | Revised 08/03/2018

GDOT PI # (or N/A) N/A
 County: Bibb
 Project Location: SR 247 @ Anthony Rd
 Existing Intersection Control: Signal (turn lanes on mainline)

GDOT District: 3 - Thomaston
 Area Type: Urban

Date: 11/11/2019
 Agency/Firm: Arcadis
 Analyst: JG

Type of Analysis: Safety Funded Project

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 9	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2024 Opening Yr No-Build Peak Hr Intersection Delay	22.1 sec	19.6 sec
2024 Opening Yr No-Build Peak Hr Intersection V/C	0.65	0.62
2044 Design Yr No-Build Peak Hr Intersection Delay	25.3 sec	20.8 sec
2044 Design Yr No-Build Peak Hr Intersection V/C ratio	0.60	0.64

Complete Streets Warrants Met?

- PEDESTRIANS
- BICYCLES
- TRANSIT

Crash Type	Crash Data: Enter 5 most recent years of intersection crash data	Crash Severity			
		PDO	Injury Crash*	Fatal Crash*	
Angle		13	17	0	35%
Head-On		0	0	0	0%
Rear End		24	16	0	47%
Sideswipe - same		11	1	0	14%
Sideswipe - opposite		2	1	0	3%
Not Collision w/Motor Veh		0	1	0	1%
TOTALS:		50	36	0	86

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Proposed Control Type/Improvement:	Single Lane Roundabout	Traffic Signal	Add Right Turn Lanes	N/A	N/A
Project Cost: (From CostEst Worksheet)	<i>& Road Diet North of Intersection</i>	<i>Add FYAs</i>	<i>NB and WB Approaches</i>		
Construction Cost	\$1,500,000	\$175,000	\$571,000		
ROW Cost	\$639,000	\$0	\$200,000		
Environmental Cost	\$66,000	\$0	\$25,000		
Reimbursable Utility Cost	\$100,000	\$25,000	\$50,000		
Design & Contingency Cost	\$550,000	\$50,000	\$150,000		
Cost Adjustment (justification req'd)	0%	0%	0%		
Total Cost	\$2,855,000	\$250,000	\$996,000		

Traffic Operations:

	User Cost Override		User Cost Override		User Cost Override	
Traffic Analysis Software Used	SIDRA 7		Synchro 9		Synchro 9	
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr
2044 Design Yr Build Intersection Delay	7.8 sec	9.8 sec	26.2 sec	22.6 sec	24.5 sec	21.6 sec
2044 Design Yr Build Intersection V/C	0.60	0.65	0.66	0.64	0.58	0.56

Safety Analysis:

Predefined CRF: PDO	24%	0%	0%		
Predefined CRF: Fatal/Inj	71%	0%	0%		
Predefined CRF Source:	FHWA Clearinghouse #s 4192 / 4255	N/A	N/A		
User Defined CRF: PDO		7%	4%		
User Defined CRF: Fatal/Inj		17%	9%		
User Defined CRF Source (write in if applicable):		CMF IDs: 8927,8928,7696,7697	CMF IDs: 286 & 288		

Environmental Impacts:¹

Historic District/Property	Minimal	None	Minimal		
Archaeology Resources	None	None	None		
Graveyard	None	None	None		
Stream	None	None	None		
Underground Tank/Hazmat	None	None	None		
Park Land	None	None	None		
EJ Community	None	None	None		
Wooded Area	None	None	None		
Wetland	None	None	None		

Note: If environmental impact is significant (RED), provide justification impact won't jeopardize project delivery using "Env" worksheet
¹ Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

Stakeholder Posture:

Local Community Support	Neutral	Neutral	Neutral		
GDOT Support	Supportive	Neutral	Neutral		

Final ICE Stage 2 Score:	4.6	4.5	3.8		
Rank of Control Type Alternatives:	1	2	3		

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

GDOT PI # (or N/A): Request By:

County: GDOT District:

Major (State) Road: Speed Limit:

Minor (Crossing) ST: Speed Limit:

Major ST Direction: Area Type:

Intersection Control:

Prepared By: Analyst:

Date: Project ID:

Project Purpose:

2018	Existing (current data) Year	484 (641) [9000]					Annual Growth Rate:	<input type="text" value="0.5%"/>
2024	Project Opening Year	(0)	(38)	(458)	(145)		K Factor*:	<input type="text" value="12%"/>
2044	Project Design Year	0	30	317	137			

764 (546) [1500]	EB SR 74		2018 Intersection Daily Entering Volume: 43,200				WB SR 74	
	(34)	13	↘	↙	↕	↗	↖	0 (0)
	(476)	728	→					467 (727)
	(36)	23	↘					61 (113)
	(0)	0	←	↗	↘	↕	↖	
NB SR 247		40	316	107	0			
		(63)	(391)	(99)	(0)			
		463 (553) [8700]						

Peak Hour % Trucks			
EB	WB	NB	SB
2%	2%	2%	2%

Legend:
 000 = AM Peak Approach Vol
 (000) = PM Peak Approach Vol
 [000] = ADT Volume (Estimate)

Approach Splits: SR 247 - 0.42 / SR 74 - 0.58

2024 Opening Year Volumes

		495 (660) [9200]						
		(0)	(40)	(470)	(150)		K Factor*:	<input type="text" value="12%"/>
		0	30	325	140			

790 (560) [11800]	EB SR 74		2024 Intersection Daily Entering Volume: 44,500				WB SR 74	
	(35)	15	↘	↙	↕	↗	↖	110 (110)
	(490)	750	→					480 (750)
	(35)	25	↘					60 (115)
	(0)	0	←	↗	↘	↕	↖	
NB SR 247		40	325	110	0			
		(65)	(400)	(100)	(0)			
		475 (565) [8900]						

2044 Design Year Volumes

		550 (730) [10200]						
		(0)	(45)	(520)	(165)		K Factor*:	<input type="text" value="12%"/>
		0	35	360	155			

870 (620) [13000]	EB SR 74		2044 Intersection Daily Entering Volume: 49,200				WB SR 74	
	(40)	15	↘	↙	↕	↗	↖	125 (125)
	(540)	830	→					530 (825)
	(40)	25	↘					70 (130)
	(0)	0	←	↗	↘	↕	↖	
NB SR 247		45	360	120	0			
		(70)	(445)	(110)	(0)			
		525 (625) [9800]						

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the **"Waiver"** tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT PI #	N/A	<p>Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;"> 1. Does alternative address the project need in a balanced manner and in scale with the project? 2. Does alternative improve safety performance in terms of reducing severe crashes? 3. Does alternative incorporate safety, convenience operations (congestion, delay, reliability, etc.)? 4. Does alternative improve (or preserve) traffic characteristics, constrains & location context? 5. Does alternative appear feasible given the site respect to other project factors? 6. Does alternative appear feasible with further evaluation in Stage 2? 7. Overall feasible alternative (select alternative) </p> <p style="text-align: right;">Screening Decision Justification:</p>							
Project Location:	SR 247 @ SR 74								
Prepared by:	Arcadis								
Analyst:	JG								
Date:	11/7/2019								
Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column									
Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)									
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	Multilane approaches, intersection is signalized
	Mini Roundabout	No	Yes	No	No	No	No	No	High traffic volume for a mini roundabout
	Single Lane Roundabout	No	Yes	No	No	No	No	No	High traffic volume for a single lane roundabout
	Multilane Roundabout	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Potential solution to evaluate
	RCUT (stop control)	No	No	No	No	No	No	No	Significant impact to create wide median
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	Significant impact to create wide median
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T-intersection
	Offset-T Intersections	No	No	No	No	No	No	No	Significant through volume
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	Not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	Not an interchange
	No LT Lane Improvements	No	No	No	No	No	No	No	Existing Condition
	No RT Lane Improvements	No	No	No	No	No	No	No	
Other unignalized (provide description):	No	No	No	No	No	No	No	N/A	
Signalized Intersections	Traffic Signal	Yes	Yes	Yes	Yes	Yes	Yes	No	Modification to existing signal (Protected left turn)
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Significant impact to create wide median
	RCUT (signalized)	No	No	No	No	No	No	No	Significant impact to create wide median
	Displaced Left Turn (CFI)	No	Yes	Yes	Yes	Yes	Yes	No	Significant impact to create wide median
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-intersection
	Jughandle	No	No	No	No	No	No	No	Significant impact in multiple quadrants
	Quadrant Roadway	No	No	No	No	No	No	No	Significant impact in one quadrants
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	Not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	Not an interchange
	Single Point Interchange	No	Yes	No	No	No	Yes	No	Significant impact in multiple quadrants
	No LT Lane Improvements	No	No	No	Yes	Yes	Yes	Yes	N/A
	Add one RT Lane on SR 74	No	No	No	Yes	Yes	Yes	Yes	
	Signal Improvement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Road Diet with retroreflective backplate, supplemental signal heads

= Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.14 | Revised 08/03/2018

GDOT PI # (or N/A) N/A
 County: Bibb
 Project Location: SR 247 @ SR 74
 Existing Intersection Control: Signal (turn lanes on mainline)

GDOT District: 3 - Thomaston
 Area Type: Urban

Date: 11/7/2019
 Agency/Firm: Arcadis
 Analyst: JG

Type of Analysis: Safety Funded Project

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 9	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2024 Opening Yr No-Build Peak Hr Intersection Delay	30.8 sec	34.8 sec
2024 Opening Yr No-Build Peak Hr Intersection V/C	0.74	0.76
2044 Design Yr No-Build Peak Hr Intersection Delay	31.0 sec	35.9 sec
2044 Design Yr No-Build Peak Hr Intersection V/C ratio	0.80	0.79

Complete Streets Warrants Met?

PEDESTRIANS

BICYCLES

TRANSIT

Crash Type	Crash Severity			
	PDO	Injury Crash*	Fatal Crash*	%
Angle	19	24	0	26%
Head-On	0	0	0	0%
Rear End	59	32	0	56%
Sideswipe - same	23	2	0	15%
Sideswipe - opposite	0	1	0	1%
Not Collision w/Motor Veh	1	2	0	2%
TOTALS:	102	61	0	163

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:

Proposed Control Type/Improvement:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Multilane Roundabout	Add Right Turn Lanes	Signal Improvement	N/A	N/A	

Project Cost: (From CostEst Worksheet)

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
<i>Add WB Right-Turn Lane</i>					
Construction Cost	\$3,500,000	\$466,000	\$175,000		
ROW Cost	\$911,000	\$125,000	\$0		
Environmental Cost	\$119,000	\$25,000	\$0		
Reimbursable Utility Cost	\$200,000	\$50,000	\$25,000		
Design & Contingency Cost	\$700,000	\$100,000	\$50,000		
Cost Adjustment (justification req'd)	0%	0%	0%		
Total Cost	\$5,430,000	\$766,000	\$250,000		

Traffic Operations:

	<i>User Cost Override</i>		<i>User Cost Override</i>		<i>User Cost Override</i>			
Traffic Analysis Software Used	SIDRA 7		Synchro 10		Synchro 10			
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr		
2044 Design Yr Build Intersection Delay	9.0 sec	12.3 sec	29.9 sec	30.1 sec	31.6 sec	39.8 sec		
2044 Design Yr Build Intersection V/C	0.48	0.62	0.76	0.72	0.81	0.83		

Safety Analysis:

Predefined CRF: PDO	26%	0%	0%		
Predefined CRF: Fatal/Inj	71%	0%	0%		
Predefined CRF Source:	FHWA Clearinghouse #s 4196 / 4195	N/A	N/A		
User Defined CRF: PDO		4%	6%		
User Defined CRF: Fatal/Inj		9%	18%		
User Defined CRF Source (write in if applicable):		CMF IDs: 286 & 288	CMF IDs: 7696,8927,7697,8928		

Environmental Impacts:¹

Historic District/Property	Minimal	Minimal	None		
Archaeology Resources	None	None	None		
Graveyard	None	None	None		
Stream	None	None	None		
Underground Tank/Hazmat	Minimal	None	None		
Park Land	Minimal	None	None		
EJ Community	None	None	None		
Wooded Area	None	None	None		
Wetland	None	None	None		

Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet
¹ Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

Stakeholder Posture:

Local Community Support	Neutral	Neutral	Neutral		
GDOT Support	Neutral	Neutral	Neutral		

Final ICE Stage 2 Score:	4.2	3.9	4.2		
Rank of Control Type Alternatives:	2	3	1		

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):
 Alternative 3 includes converting the southbound right-turn lane from shared through/right to right-turn only.

Appendix G: Alternatives Operation Analysis

LANE SUMMARY

 Site: [SR 22 at Pio Nono Ave - AM Peak 2044]

Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue Veh	Queue Dist	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Cap. veh/h	v/c	%	sec		ft	ft		ft	%	%
South: Pio Nono Ave / US 41/SR 247 NB													
Lane 1	342	2.0	829	0.412	100	9.4	LOS A	2.3	59.7	Full	1600	0.0	0.0
Lane 2 ^d	414	2.0	1004	0.412	100	8.1	LOS A	2.4	60.5	Full	1600	0.0	0.0
Approach	755	2.0		0.412		8.7	LOS A	2.4	60.5				
East: Eisenhower Pkwy / SR 22 WB													
Lane 1	408	2.0	821	0.497	100	11.1	LOS B	3.5	87.8	Full	1600	0.0	0.0
Lane 2 ^d	494	2.0	995	0.497	100	9.6	LOS A	3.6	91.4	Full	1600	0.0	0.0
Approach	902	2.0		0.497		10.3	LOS B	3.6	91.4				
North: Pio Nono Ave / US 41/SR 247 SB													
Lane 1	287	2.0	696	0.412	100	10.8	LOS B	2.4	60.6	Full	1600	0.0	0.0
Lane 2 ^d	363	2.0	879	0.412	100	9.0	LOS A	2.5	64.0	Full	1600	0.0	0.0
Approach	649	2.0		0.412		9.8	LOS A	2.5	64.0				
West: Eisenhower Pkwy / SR 22 EB													
Lane 1	318	2.0	849	0.375	100	8.6	LOS A	2.0	49.6	Full	1600	0.0	0.0
Lane 2 ^d	382	2.0	1017	0.375	100	7.5	LOS A	2.0	50.9	Full	1600	0.0	0.0
Approach	700	2.0		0.375		8.0	LOS A	2.0	50.9				
Intersection	3007	2.0		0.497		9.3	LOS A	3.6	91.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: ARCADIS U.S., INC. | Processed: Monday, January 20, 2020 2:22:56 PM

Project: G:\Trf\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\19-3007 - SR 22 Eisenhower Pkwy\Traffic Analysis\Sidra\SR 22 at Pio Nono Ave\SR 22 at Pio Nono Ave.sip7

LANE SUMMARY

 Site: [SR 22 at Pio Nono Ave - PM Peak 2044]

Roundabout

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue Veh	Queue Dist	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec			ft		ft	%	%
South: Pio Nono Ave / US 41/SR 247 NB													
Lane 1	365	2.0	609	0.600	100	17.4	LOS C	4.8	121.4	Full	1600	0.0	0.0
Lane 2 ^d	470	2.0	782	0.600	100	14.3	LOS B	5.3	134.6	Full	1600	0.0	0.0
Approach	835	2.0		0.600		15.6	LOS C	5.3	134.6				
East: Eisenhower Pkwy / SR 22 WB													
Lane 1	613	2.0	740	0.829	100	27.9	LOS D	12.4	314.2	Full	1600	0.0	0.0
Lane 2 ^d	756	2.0	913	0.829	100	23.9	LOS C	13.8	349.3	Full	1600	0.0	0.0
Approach	1370	2.0		0.829		25.7	LOS D	13.8	349.3				
North: Pio Nono Ave / US 41/SR 247 SB													
Lane 1	414	2.0	450	0.921	100	55.1	LOS F	13.3	338.6	Full	1600	0.0	0.0
Lane 2 ^d	569	2.0	617	0.921	100	45.0	LOS E	16.2	411.7	Full	1600	0.0	0.0
Approach	983	2.0		0.921		49.3	LOS E	16.2	411.7				
West: Eisenhower Pkwy / SR 22 EB													
Lane 1	460	2.0	618	0.744	100	24.5	LOS C	8.0	202.2	Full	1600	0.0	0.0
Lane 2 ^d	587	2.0	789	0.744	100	20.3	LOS C	9.0	227.4	Full	1600	0.0	0.0
Approach	1047	2.0		0.744		22.2	LOS C	9.0	227.4				
Intersection	4235	2.0		0.921		28.3	LOS D	16.2	411.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: ARCADIS U.S., INC. | Processed: Monday, January 20, 2020 2:18:55 PM

Project: G:\Trf\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\19-3007 - SR 22 Eisenhower Pkwy\Traffic Analysis\Sidra\SR 22 at Pio Nono Ave\SR 22 at Pio Nono Ave.sip7

Timings

1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	600	65	100	760	90	150	455	105	80	405	80
Future Volume (vph)	80	600	65	100	760	90	150	455	105	80	405	80
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.9	41.3	41.3	11.6	41.3	41.3	11.5	42.0	42.0	11.7	42.0	42.0
Total Split (s)	12.0	41.0	41.0	12.0	41.0	41.0	16.0	39.0	39.0	18.0	41.0	41.0
Total Split (%)	10.9%	37.3%	37.3%	10.9%	37.3%	37.3%	14.5%	35.5%	35.5%	16.4%	37.3%	37.3%
Yellow Time (s)	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.3	4.3	3.1	4.3	4.3
All-Red Time (s)	3.9	2.2	2.2	3.6	2.2	2.2	3.5	2.7	2.7	3.6	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.3	6.6	6.3	6.3	6.5	7.0	7.0	6.7	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	11.4	32.6	32.6	14.9	35.7	35.7	14.8	28.0	28.0	10.6	21.3	21.3
Actuated g/C Ratio	0.10	0.30	0.30	0.14	0.32	0.32	0.13	0.25	0.25	0.10	0.19	0.19
v/c Ratio	0.46	0.42	0.12	0.46	0.50	0.16	0.67	0.54	0.21	0.54	0.68	0.21
Control Delay	55.1	32.2	0.4	52.0	31.6	0.5	61.6	38.9	2.3	62.3	53.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	32.2	0.4	52.0	31.6	0.5	61.6	38.9	2.3	62.3	53.5	9.9
LOS	E	C	A	D	C	A	E	D	A	E	D	A
Approach Delay		31.9			30.8			38.3			48.6	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 36.4

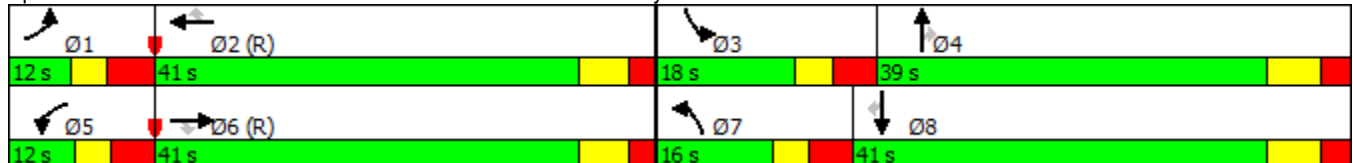
Intersection LOS: D

Intersection Capacity Utilization 60.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22



Timings

1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	770	140	160	980	155	205	465	115	135	595	125
Future Volume (vph)	130	770	140	160	980	155	205	465	115	135	595	125
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.9	37.3	37.3	11.6	39.3	39.3	11.5	47.0	47.0	11.7	50.0	50.0
Total Split (s)	15.0	40.0	40.0	17.0	42.0	42.0	28.0	32.0	32.0	36.0	40.0	40.0
Total Split (%)	12.0%	32.0%	32.0%	13.6%	33.6%	33.6%	22.4%	25.6%	25.6%	28.8%	32.0%	32.0%
Yellow Time (s)	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.3	4.3	3.1	4.3	4.3
All-Red Time (s)	3.9	2.2	2.2	3.6	2.2	2.2	3.5	2.7	2.7	3.6	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.3	6.6	6.3	6.3	6.5	7.0	7.0	6.7	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	13.6	33.5	33.5	16.3	35.9	35.9	19.4	32.6	32.6	16.0	29.4	29.4
Actuated g/C Ratio	0.11	0.27	0.27	0.13	0.29	0.29	0.16	0.26	0.26	0.13	0.24	0.24
v/c Ratio	0.73	0.61	0.26	0.77	0.75	0.28	0.82	0.55	0.22	0.67	0.81	0.29
Control Delay	77.2	42.3	2.3	76.1	44.3	3.2	74.0	42.3	0.9	65.9	53.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	42.3	2.3	76.1	44.3	3.2	74.0	42.3	0.9	65.9	53.0	6.7
LOS	E	D	A	E	D	A	E	D	A	E	D	A
Approach Delay		41.3			43.3			44.5			48.3	
Approach LOS		D			D			D			D	

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 125

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 44.1

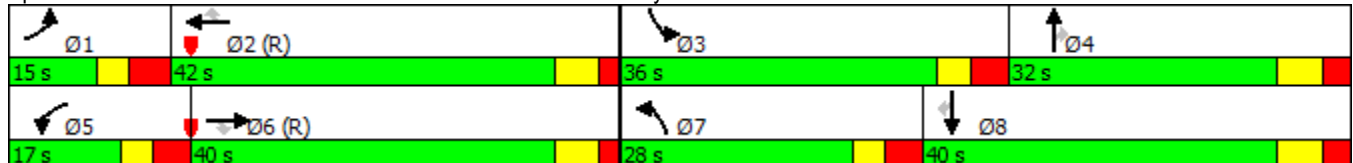
Intersection LOS: D

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22



Timings

1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

11/08/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (vph)	67	455	57	86	472	76	135	394	95	68	358	68
Future Volume (vph)	67	455	57	86	472	76	135	394	95	68	358	68
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	11.9	41.3	11.5	11.6	41.3	11.7	11.5	42.0	11.6	11.7	42.0	11.9
Total Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	48.0	15.0	15.0	48.0	15.0
Total Split (%)	12.5%	35.0%	12.5%	12.5%	35.0%	12.5%	12.5%	40.0%	12.5%	12.5%	40.0%	12.5%
Yellow Time (s)	3.0	4.1	3.0	3.0	4.1	3.1	3.0	4.3	3.0	3.1	4.3	3.0
All-Red Time (s)	3.9	2.2	3.5	3.6	2.2	3.6	3.5	2.7	3.6	3.6	2.7	3.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.5	6.6	6.3	6.7	6.5	7.0	6.6	6.7	7.0	6.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	None
Act Effct Green (s)	7.7	51.6	69.0	9.1	52.7	67.5	11.1	24.2	40.3	8.5	21.8	36.4
Actuated g/C Ratio	0.06	0.43	0.58	0.08	0.44	0.56	0.09	0.20	0.34	0.07	0.18	0.30
v/c Ratio	0.37	0.25	0.07	0.41	0.26	0.10	0.52	0.67	0.19	0.37	0.73	0.16
Control Delay	58.0	23.6	1.3	57.2	23.0	3.0	57.4	48.6	4.9	40.8	54.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	23.6	1.3	57.2	23.0	3.0	57.4	48.6	4.9	40.8	54.2	10.0
LOS	E	C	A	E	C	A	E	D	A	D	D	B
Approach Delay		25.4			25.3			43.9			46.3	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 34.9

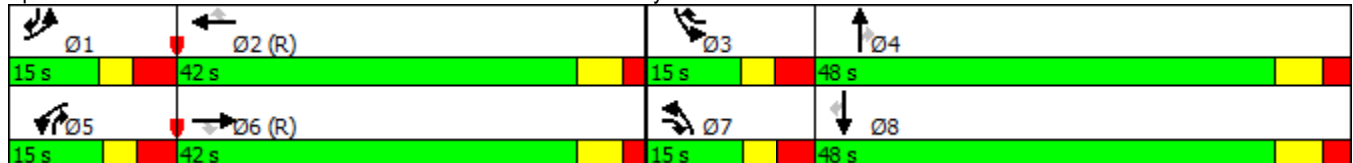
Intersection LOS: C

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22



Timings

1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22

11/08/2019

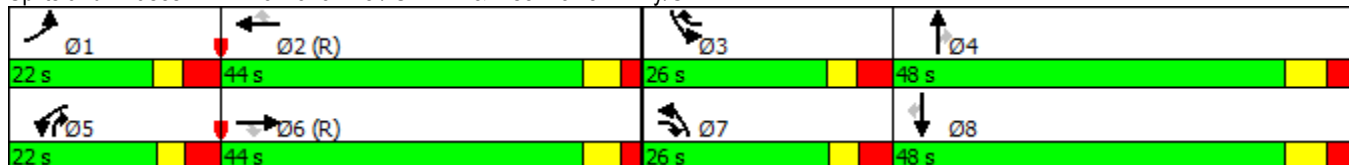


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↗	↖↗	↑↑	↗
Traffic Volume (vph)	91	471	108	139	669	124	180	409	100	115	524	106
Future Volume (vph)	91	471	108	139	669	124	180	409	100	115	524	106
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0	5.0	12.0	12.0
Minimum Split (s)	11.9	37.3	11.5	11.6	39.3	11.7	11.5	47.0	11.6	11.7	50.0	50.0
Total Split (s)	22.0	44.0	26.0	22.0	44.0	26.0	26.0	48.0	22.0	26.0	48.0	48.0
Total Split (%)	15.7%	31.4%	18.6%	15.7%	31.4%	18.6%	18.6%	34.3%	15.7%	18.6%	34.3%	34.3%
Yellow Time (s)	3.0	4.1	3.0	3.0	4.1	3.1	3.0	4.3	3.0	3.1	4.3	4.3
All-Red Time (s)	3.9	2.2	3.5	3.6	2.2	3.6	3.5	2.7	3.6	3.6	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.3	6.5	6.6	6.3	6.7	6.5	7.0	6.6	6.7	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	None
Act Effct Green (s)	9.4	53.1	73.9	12.5	55.9	73.5	14.5	36.5	55.9	11.3	33.5	33.5
Actuated g/C Ratio	0.07	0.38	0.53	0.09	0.40	0.52	0.10	0.26	0.40	0.08	0.24	0.24
v/c Ratio	0.48	0.30	0.15	0.58	0.42	0.17	0.63	0.56	0.18	0.53	0.79	0.28
Control Delay	69.7	32.9	8.3	68.5	32.8	3.7	68.2	46.5	3.9	68.4	57.0	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	32.9	8.3	68.5	32.8	3.7	68.2	46.5	3.9	68.4	57.0	8.1
LOS	E	C	A	E	C	A	E	D	A	E	E	A
Approach Delay		33.9			34.3			46.0			51.8	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 90 (64%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 41.2
 Intersection Capacity Utilization 63.5%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service B

Splits and Phases: 1: Pio Nono Ave / SR 247 & Eisenhower Pkwy/SR 22



LANE SUMMARY

 Site: 101 [Pio Nono Ave at Anthony Rd_2044 AM -Single Lane_Bypass]

2044 AM

0.5% Growth Rate

Roundabout

Design Life Analysis (Practical Capacity): Results for 26 years

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist ft				
South: Pio Nono Ave / SR 247/US 41													
Lane 1 ^d	656	2.0	1098	0.597	100	11.0	LOS B	5.3	133.4	Full	1600	0.0	0.0
Approach	656	2.0		0.597		11.0	LOS B	5.3	133.4				
East: Anthony Rd													
Lane 1 ^d	253	2.0	763	0.332	100	8.7	LOS A	2.3	57.5	Full	1600	0.0	0.0
Approach	253	2.0		0.332		8.7	LOS A	2.3	57.5				
North: Pio Nono Ave /SR 247/ US 41													
Lane 1 ^d	424	2.0	1268	0.334	100	5.9	LOS A	2.3	58.7	Full	1600	0.0	0.0
Lane 2	87	2.0	1364	0.064	100	3.1	LOS A	0.3	8.8	Short	200	0.0	NA
Approach	511	2.0		0.334		5.5	LOS A	2.3	58.7				
West: Anthony Rd													
Lane 1 ^d	187	2.0	1089	0.172	100	4.8	LOS A	1.1	28.0	Full	1600	0.0	0.0
Lane 2	184	2.0	1129	0.163	100	4.6	LOS A	1.0	26.0	Short	200	0.0	NA
Approach	371	2.0		0.172		4.7	LOS A	1.1	28.0				
Intersection	1792	2.0		0.597		7.8	LOS A	5.3	133.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: ARCADIS U.S., INC. | Processed: Monday, November 11, 2019 12:12:43 PM

Project: G:\TRF\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\18-3024 - SR 247 PioNono Ave from SR 22 to SR 74\Traffic Analysis
 \SIDRA\Pio Nono Ave at Anthony Rd.sip7

LANE SUMMARY

 **Site: 101 [Pio Nono Ave at Anthony Rd_2044 PM -Single Lane_Bypass]**

2044 PM

0.5 Growth Rate

Roundabout

Design Life Analysis (Practical Capacity): Results for 26 years

Lane Use and Performance													
	Demand Flows			Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h					Veh	Dist ft				
South: Pio Nono Ave / SR 247/US 41													
Lane 1 ^d	720	2.0	1111	0.648	100	12.2	LOS B	7.9	200.6	Full	1600	0.0	0.0
Approach	720	2.0		0.648		12.2	LOS B	7.9	200.6				
East: Anthony Rd													
Lane 1 ^d	315	2.0	685	0.459	100	11.9	LOS B	3.9	98.2	Full	1600	0.0	0.0
Approach	315	2.0		0.459		11.9	LOS B	3.9	98.2				
North: Pio Nono Ave /SR 247/ US 41													
Lane 1 ^d	671	2.0	1228	0.546	100	9.1	LOS A	4.8	122.8	Full	1600	0.0	0.0
Lane 2	87	2.0	1361	0.064	100	3.1	LOS A	0.4	9.0	Short	200	0.0	NA
Approach	757	2.0		0.546		8.4	LOS A	4.8	122.8				
West: Anthony Rd													
Lane 1 ^d	184	2.0	835	0.220	100	6.6	LOS A	1.7	43.3	Full	1600	0.0	0.0
Lane 2	220	2.0	903	0.244	100	6.5	LOS A	1.9	47.1	Short	200	0.0	NA
Approach	404	2.0		0.244		6.5	LOS A	1.9	47.1				
Intersection	2196	2.0		0.648		9.8	LOS A	7.9	200.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

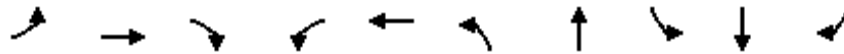
Organisation: ARCADIS U.S., INC. | Processed: Monday, November 11, 2019 12:28:05 PM

Project: G:\TRF\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\18-3024 - SR 247 PioNono Ave from SR 22 to SR 74\Traffic Analysis \SIDRA\Pio Nono Ave at Anthony Rd.sip7

Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/12/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↕	↖	↕	↗
Traffic Volume (vph)	48	96	142	73	84	92	356	34	296	68
Future Volume (vph)	48	96	142	73	84	92	356	34	296	68
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm
Protected Phases	3	8	1	7	4	1	6	5	2	
Permitted Phases	4		8	8		2		6		2
Detector Phase	3	8	1	7	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	10.9	10.5	36.5	10.9	28.9	10.8	29.9	29.9
Total Split (s)	15.0	39.0	17.0	15.0	39.0	17.0	41.0	15.0	39.0	39.0
Total Split (%)	13.6%	35.5%	15.5%	13.6%	35.5%	15.5%	37.3%	13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	3.1	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.8	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	21.4	13.4	27.8	22.3	14.1	66.0	62.1	67.3	58.1	58.1
Actuated g/C Ratio	0.19	0.12	0.25	0.20	0.13	0.60	0.56	0.61	0.53	0.53
v/c Ratio	0.26	0.56	0.35	0.31	0.66	0.18	0.28	0.08	0.21	0.10
Control Delay	32.0	54.3	5.9	33.0	50.4	14.4	17.2	21.2	32.8	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	54.3	5.9	33.0	50.4	14.4	17.2	21.2	32.8	16.7
LOS	C	D	A	C	D	B	B	C	C	B
Approach Delay		26.5			44.2		16.8		29.1	
Approach LOS		C			D		B		C	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 26.2

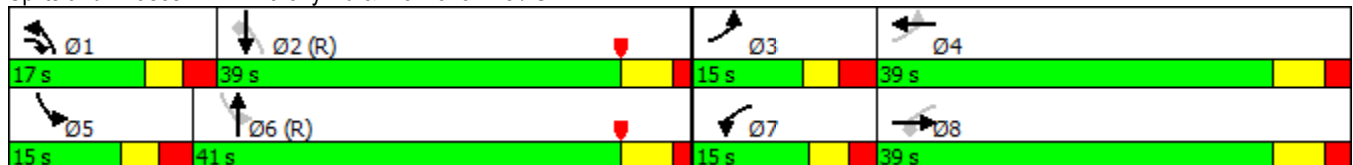
Intersection LOS: C

Intersection Capacity Utilization 51.2%

ICU Level of Service A

Analysis Period (min) 15

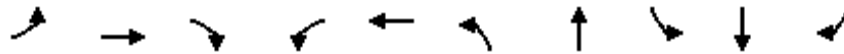
Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/12/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↕	↖	↕	↗
Traffic Volume (vph)	67	86	183	93	97	117	451	54	486	70
Future Volume (vph)	67	86	183	93	97	117	451	54	486	70
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm
Protected Phases	3	8	1	7	4	1	6	5	2	
Permitted Phases	4		8	8		2		6		2
Detector Phase	3	8	1	7	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	10.9	10.5	36.5	10.9	29.9	10.8	29.9	29.9
Total Split (s)	15.0	39.0	18.0	15.0	39.0	18.0	51.0	15.0	48.0	48.0
Total Split (%)	12.5%	32.5%	15.0%	12.5%	32.5%	15.0%	42.5%	12.5%	40.0%	40.0%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	3.1	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.8	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	27.5	14.9	30.3	27.3	19.1	69.9	65.3	71.3	61.0	61.0
Actuated g/C Ratio	0.23	0.12	0.25	0.23	0.16	0.58	0.54	0.59	0.51	0.51
v/c Ratio	0.31	0.45	0.41	0.37	0.64	0.28	0.31	0.14	0.34	0.10
Control Delay	34.4	53.7	8.2	35.6	52.8	13.4	17.7	11.1	19.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	53.7	8.2	35.6	52.8	13.4	17.7	11.1	19.9	1.0
LOS	C	D	A	D	D	B	B	B	B	A
Approach Delay		25.1			46.0		16.9		17.0	
Approach LOS		C			D		B		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 22.6

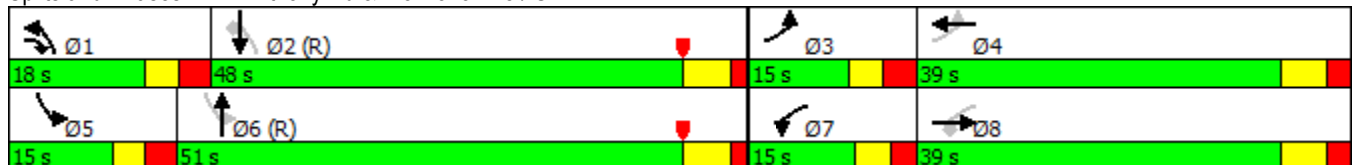
Intersection LOS: C

Intersection Capacity Utilization 56.1%

ICU Level of Service B

Analysis Period (min) 15

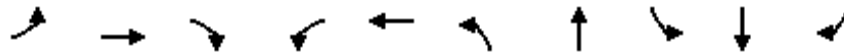
Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/08/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↕	↖	↕	↗
Traffic Volume (vph)	48	96	142	73	84	92	356	34	296	68
Future Volume (vph)	48	96	142	73	84	92	356	34	296	68
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	3	8	1	7	4	1	6	5	2	
Permitted Phases	8		8	4		6		2		2
Detector Phase	3	8	1	7	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	10.9	10.5	36.5	10.9	28.9	10.8	29.9	29.9
Total Split (s)	15.0	44.0	19.0	15.0	44.0	19.0	47.0	14.0	42.0	42.0
Total Split (%)	12.5%	36.7%	15.8%	12.5%	36.7%	15.8%	39.2%	11.7%	35.0%	35.0%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	3.1	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.8	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	22.7	14.0	28.6	26.8	17.3	75.4	68.5	70.6	64.4	64.4
Actuated g/C Ratio	0.19	0.12	0.24	0.22	0.14	0.63	0.57	0.59	0.54	0.54
v/c Ratio	0.25	0.58	0.36	0.32	0.59	0.18	0.28	0.08	0.20	0.10
Control Delay	35.4	60.1	6.5	36.5	50.0	4.1	11.7	24.7	35.4	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	60.1	6.5	36.5	50.0	4.1	11.7	24.7	35.4	18.1
LOS	D	E	A	D	D	A	B	C	D	B
Approach Delay		29.4			45.2		10.4		31.6	
Approach LOS		C			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 25.3

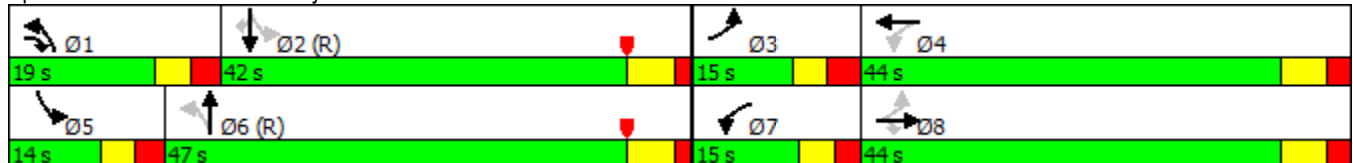
Intersection LOS: C

Intersection Capacity Utilization 51.2%

ICU Level of Service A

Analysis Period (min) 15

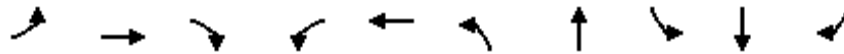
Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/08/2019

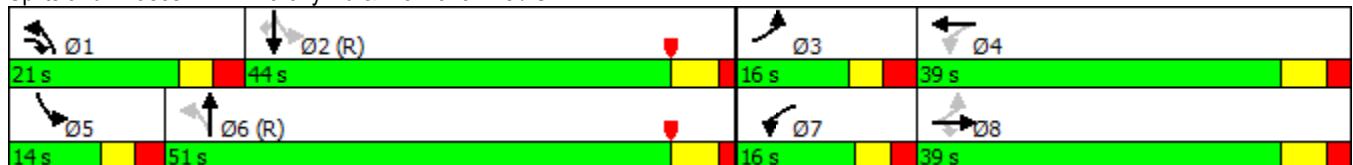


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↕	↖	↕	↗
Traffic Volume (vph)	67	86	183	93	97	117	451	54	486	70
Future Volume (vph)	67	86	183	93	97	117	451	54	486	70
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	3	8	1	7	4	1	6	5	2	
Permitted Phases	8		8	4		6		2		2
Detector Phase	3	8	1	7	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	10.9	10.5	36.5	10.9	29.9	10.8	29.9	29.9
Total Split (s)	16.0	39.0	21.0	16.0	39.0	21.0	51.0	14.0	44.0	44.0
Total Split (%)	13.3%	32.5%	17.5%	13.3%	32.5%	17.5%	42.5%	11.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	3.1	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.8	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	24.2	14.8	30.2	30.2	19.2	73.0	65.3	68.0	61.0	61.0
Actuated g/C Ratio	0.20	0.12	0.25	0.25	0.16	0.61	0.54	0.57	0.51	0.51
v/c Ratio	0.31	0.45	0.41	0.38	0.64	0.28	0.31	0.14	0.34	0.10
Control Delay	34.7	53.9	9.3	35.5	52.6	11.9	17.3	4.9	13.9	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	53.9	9.3	35.5	52.6	11.9	17.3	4.9	13.9	3.5
LOS	C	D	A	D	D	B	B	A	B	A
Approach Delay		25.8			45.8		16.3		11.9	
Approach LOS		C			D		B		B	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 80 (67%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 20.8
 Intersection LOS: C
 Intersection Capacity Utilization 56.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/12/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↕	↖	↖	↕	↖
Traffic Volume (vph)	48	96	142	73	84	47	92	356	86	34	296	68
Future Volume (vph)	48	96	142	73	84	47	92	356	86	34	296	68
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases	4		8	8		4	2		6	6		2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	7.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	36.5	10.9	10.5	36.5	36.5	10.9	28.9	28.9	10.8	29.9	29.9
Total Split (s)	15.0	39.0	17.0	15.0	39.0	39.0	17.0	41.0	41.0	15.0	39.0	39.0
Total Split (%)	13.6%	35.5%	15.5%	13.6%	35.5%	35.5%	15.5%	37.3%	37.3%	13.6%	35.5%	35.5%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	4.2	3.1	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.3	2.8	1.6	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	6.5	5.9	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	21.0	12.8	27.2	21.9	13.6	13.6	66.4	62.5	62.5	67.8	58.5	58.5
Actuated g/C Ratio	0.19	0.12	0.25	0.20	0.12	0.12	0.60	0.57	0.57	0.62	0.53	0.53
v/c Ratio	0.23	0.58	0.35	0.32	0.46	0.18	0.18	0.22	0.11	0.07	0.20	0.10
Control Delay	31.7	56.3	6.1	33.6	50.1	1.2	15.9	19.8	7.6	19.7	31.3	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	56.3	6.1	33.6	50.1	1.2	15.9	19.8	7.6	19.7	31.3	16.1
LOS	C	E	A	C	D	A	B	B	A	B	C	B
Approach Delay		27.3			32.9			17.1			27.7	
Approach LOS		C			C			B			C	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 24.5

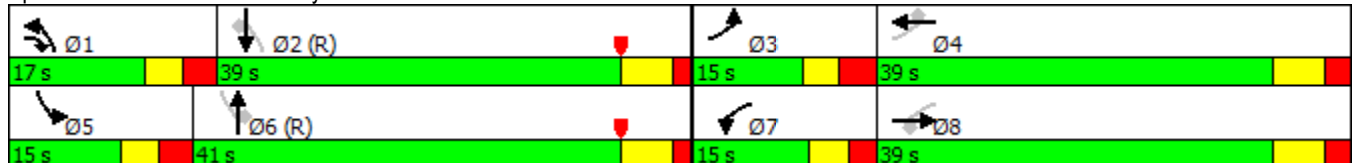
Intersection LOS: C

Intersection Capacity Utilization 42.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



Timings

2: Anthony Rd & Pio Nono Ave / SR 247

11/12/2019



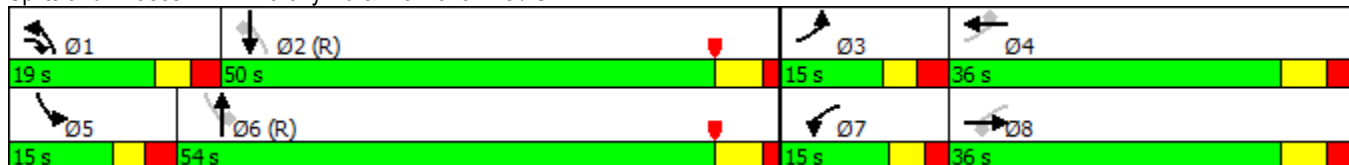
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	67	86	183	93	97	44	117	451	56	54	486	70
Future Volume (vph)	67	86	183	93	97	44	117	451	56	54	486	70
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases	4		8	8		4	2		6	6		2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	7.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.0	31.5	10.9	10.5	31.5	31.5	10.9	29.9	29.9	10.8	29.9	29.9
Total Split (s)	15.0	36.0	19.0	15.0	36.0	36.0	19.0	54.0	54.0	15.0	50.0	50.0
Total Split (%)	12.5%	30.0%	15.8%	12.5%	30.0%	30.0%	15.8%	45.0%	45.0%	12.5%	41.7%	41.7%
Yellow Time (s)	3.0	4.2	3.1	3.3	4.2	4.2	3.1	4.3	4.3	3.0	4.3	4.3
All-Red Time (s)	3.0	2.3	2.8	2.2	2.3	2.3	2.8	1.6	1.6	2.8	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.9	5.5	6.5	6.5	5.9	5.9	5.9	5.8	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	24.9	12.0	27.2	24.7	16.4	16.4	72.5	68.0	68.0	73.8	63.8	63.8
Actuated g/C Ratio	0.21	0.10	0.23	0.21	0.14	0.14	0.60	0.57	0.57	0.62	0.53	0.53
v/c Ratio	0.29	0.56	0.43	0.41	0.52	0.18	0.27	0.26	0.07	0.12	0.32	0.10
Control Delay	36.3	62.2	9.1	38.7	56.0	1.2	14.6	19.9	1.2	9.6	17.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	62.2	9.1	38.7	56.0	1.2	14.6	19.9	1.2	9.6	17.9	0.9
LOS	D	E	A	D	E	A	B	B	A	A	B	A
Approach Delay		28.1			38.8			17.3			15.2	
Approach LOS		C			D			B			B	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 21.6
 Intersection Capacity Utilization 50.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 2: Anthony Rd & Pio Nono Ave / SR 247



LANE SUMMARY

 **Site: 101 [Pio Nono Ave at Mercer University Dr SR 74_2044 AM- No Bypass]**

2044 AM

0.5% Growth Rate

Roundabout

Design Life Analysis (Practical Capacity): Results for 26 years

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV						Veh	Dist				
	veh/h	%	veh/h	v/c	%	sec					ft	%	%
South: Pio Nono Ave / SR 247/US 41													
Lane 1	261	2.0	654	0.400	100	11.1	LOS B	2.2	56.1	Full	1600	0.0	0.0
Lane 2 ^d	320	2.0	800	0.400	100	9.5	LOS A	2.3	58.8	Full	1600	0.0	0.0
Approach	581	2.0		0.400		10.2	LOS B	2.3	58.8				
East: Mercer University Dr/SR 74													
Lane 1	371	2.0	938	0.395	100	8.3	LOS A	2.1	53.8	Full	1600	0.0	0.0
Lane 2 ^d	412	2.0	1042	0.395	100	7.7	LOS A	2.2	55.2	Full	1600	0.0	0.0
Approach	782	2.0		0.395		8.0	LOS A	2.2	55.2				
North: Pio Nono Ave /SR 247/ US 41													
Lane 1	273	2.0	813	0.335	100	8.3	LOS A	1.6	41.1	Full	1600	0.0	0.0
Lane 2 ^d	315	2.0	940	0.335	100	7.4	LOS A	1.7	42.7	Full	1600	0.0	0.0
Approach	588	2.0		0.335		7.8	LOS A	1.7	42.7				
West: Mercer University Dr / SR 74													
Lane 1	407	2.0	854	0.477	100	10.4	LOS B	3.2	80.0	Full	1600	0.0	0.0
Lane 2 ^d	465	2.0	976	0.477	100	9.4	LOS A	3.2	81.4	Full	1600	0.0	0.0
Approach	872	2.0		0.477		9.8	LOS A	3.2	81.4				
Intersection	2824	2.0		0.477		9.0	LOS A	3.2	81.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: ARCADIS U.S., INC. | Processed: Monday, November 11, 2019 12:46:26 PM

Project: G:\TRF\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\18-3024 - SR 247 PioNono Ave from SR 22 to SR 74\Traffic Analysis
 \SIDRA\Pio Nono Ave at Mercer University Dr SR 74.sip7

LANE SUMMARY

 **Site: 101 [Pio Nono Ave at Mercer University Dr SR 74_2044 PM-No Bypass]**

2044 PM

0.5 Growth Rate

Roundabout

Design Life Analysis (Practical Capacity): Results for 26 years

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV						Veh	Dist				
	veh/h	%	veh/h	v/c	%	sec		Veh	ft		ft	%	%
South: Pio Nono Ave / SR 247/US 41													
Lane 1	324	2.0	772	0.419	100	10.1	LOS B	2.4	62.2	Full	1600	0.0	0.0
Lane 2 ^d	378	2.0	903	0.419	100	8.9	LOS A	2.5	63.6	Full	1600	0.0	0.0
Approach	702	2.0		0.419		9.5	LOS A	2.5	63.6				
East: Mercer University Dr/SR 74													
Lane 1	522	2.0	848	0.615	100	13.9	LOS B	5.8	147.3	Full	1600	0.0	0.0
Lane 2 ^d	595	2.0	967	0.615	100	12.6	LOS B	6.0	153.3	Full	1600	0.0	0.0
Approach	1117	2.0		0.615		13.2	LOS B	6.0	153.3				
North: Pio Nono Ave /SR 247/ US 41													
Lane 1	352	2.0	603	0.584	100	16.9	LOS C	4.4	110.9	Full	1600	0.0	0.0
Lane 2 ^d	435	2.0	745	0.584	100	14.3	LOS B	4.7	120.4	Full	1600	0.0	0.0
Approach	787	2.0		0.584		15.5	LOS C	4.7	120.4				
West: Mercer University Dr / SR 74													
Lane 1	284	2.0	692	0.410	100	10.8	LOS B	2.4	60.1	Full	1600	0.0	0.0
Lane 2 ^d	339	2.0	827	0.410	100	9.4	LOS A	2.5	62.4	Full	1600	0.0	0.0
Approach	623	2.0		0.410		10.0	LOS B	2.5	62.4				
Intersection	3230	2.0		0.615		12.3	LOS B	6.0	153.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: ARCADIS U.S., INC. | Processed: Monday, November 11, 2019 12:48:35 PM

Project: G:\TRF\TM160002_GDOT Safety\04 - Task Orders\TO#1 - TE Studies\18-3024 - SR 247 PioNono Ave from SR 22 to SR 74\Traffic Analysis
 \SIDRA\Pio Nono Ave at Mercer University Dr SR 74.sip7

Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

01/13/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	13	728	61	467	40	316	107	137	317	30
Future Volume (vph)	13	728	61	467	40	316	107	137	317	30
Turn Type	Prot	NA	Prot	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	3	8	7	4	1	6		5	2	
Permitted Phases					2		6	6		2
Detector Phase	3	8	7	4	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	13.1	36.2	13.1	31.2	13.7	40.4	40.4	13.6	40.4	40.4
Total Split (s)	15.0	38.0	15.0	38.0	14.0	43.1	43.1	13.9	43.0	43.0
Total Split (%)	13.6%	34.5%	13.6%	34.5%	12.7%	39.2%	39.2%	12.6%	39.1%	39.1%
Yellow Time (s)	3.1	4.0	3.1	4.0	3.1	3.8	3.8	3.0	3.8	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	3.6	2.6	2.6	3.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.7	6.4	6.4	6.6	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.2	33.3	8.7	40.0	46.3	37.6	37.6	45.1	40.8	40.8
Actuated g/C Ratio	0.07	0.30	0.08	0.36	0.42	0.34	0.34	0.41	0.37	0.37
v/c Ratio	0.13	0.81	0.55	0.56	0.16	0.33	0.21	0.40	0.56	0.05
Control Delay	50.8	42.5	63.8	29.9	14.5	21.5	1.5	22.3	34.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	42.5	63.8	29.9	14.5	21.5	1.5	22.3	34.0	0.1
LOS	D	D	E	C	B	C	A	C	C	A
Approach Delay		42.6		33.1		16.3			28.5	
Approach LOS		D		C		B			C	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 31.6

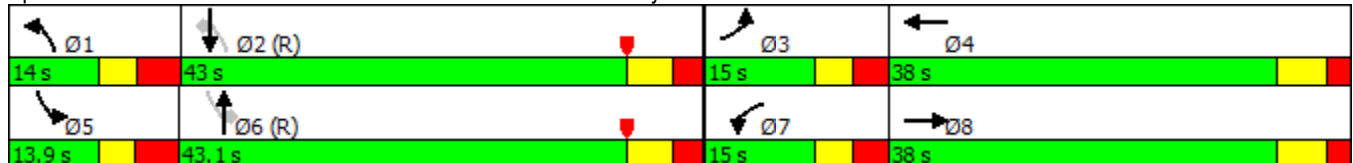
Intersection LOS: C

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

01/13/2020

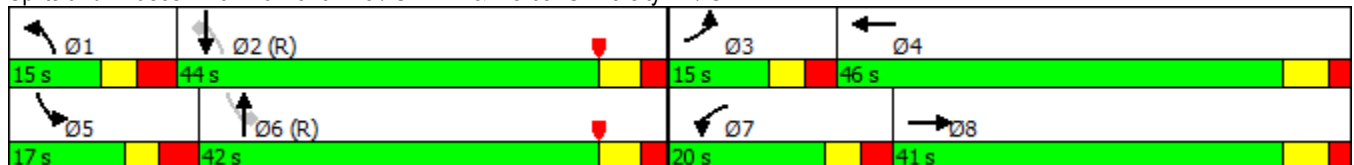


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↖	↕	↖
Traffic Volume (vph)	34	476	113	727	63	391	99	145	458	38
Future Volume (vph)	34	476	113	727	63	391	99	145	458	38
Turn Type	Prot	NA	Prot	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	3	8	7	4	1	6		5	2	
Permitted Phases					2		6	6		2
Detector Phase	3	8	7	4	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.1	36.2	11.1	31.2	11.7	40.4	40.4	11.6	40.4	40.4
Total Split (s)	15.0	41.0	20.0	46.0	15.0	42.0	42.0	17.0	44.0	44.0
Total Split (%)	12.5%	34.2%	16.7%	38.3%	12.5%	35.0%	35.0%	14.2%	36.7%	36.7%
Yellow Time (s)	3.1	4.0	3.1	4.0	3.1	3.8	3.8	3.0	3.8	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	3.6	2.6	2.6	3.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.7	6.4	6.4	6.6	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	7.6	31.1	12.6	41.0	51.9	41.2	41.2	50.8	45.8	45.8
Actuated g/C Ratio	0.06	0.26	0.10	0.34	0.43	0.34	0.34	0.42	0.38	0.38
v/c Ratio	0.35	0.65	0.72	0.83	0.40	0.41	0.20	0.47	0.80	0.07
Control Delay	61.9	42.2	73.4	43.1	30.8	31.8	5.8	24.7	45.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	42.2	73.4	43.1	30.8	31.8	5.8	24.7	45.9	0.2
LOS	E	D	E	D	C	C	A	C	D	A
Approach Delay		43.4		46.7		27.1			38.4	
Approach LOS		D		D		C			D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 110 (92%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 39.8
 Intersection LOS: D
 Intersection Capacity Utilization 83.9%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

11/08/2019

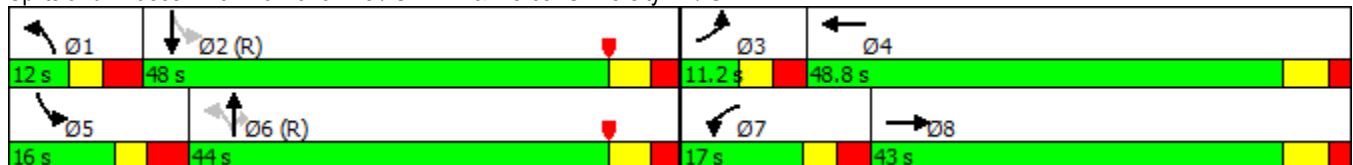


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↗	↖	↕
Traffic Volume (vph)	13	728	61	467	40	316	107	137	317
Future Volume (vph)	13	728	61	467	40	316	107	137	317
Turn Type	Prot	NA	Prot	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3	8	7	4	1	6		5	2
Permitted Phases					6		6	2	
Detector Phase	3	8	7	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	12.0	12.0	5.0	12.0
Minimum Split (s)	11.1	36.2	11.1	31.2	11.7	40.4	40.4	11.6	40.4
Total Split (s)	11.2	43.0	17.0	48.8	12.0	44.0	44.0	16.0	48.0
Total Split (%)	9.3%	35.8%	14.2%	40.7%	10.0%	36.7%	36.7%	13.3%	40.0%
Yellow Time (s)	3.1	4.0	3.1	4.0	3.1	3.8	3.8	3.0	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	3.6	2.6	2.6	3.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.7	6.4	6.4	6.6	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	6.6	36.9	10.3	45.4	46.0	39.7	39.7	54.3	45.6
Actuated g/C Ratio	0.06	0.31	0.09	0.38	0.38	0.33	0.33	0.45	0.38
v/c Ratio	0.15	0.80	0.50	0.54	0.13	0.34	0.22	0.40	0.32
Control Delay	57.1	44.2	63.0	29.8	9.7	14.9	1.4	24.1	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	44.2	63.0	29.8	9.7	14.9	1.4	24.1	29.3
LOS	E	D	E	C	A	B	A	C	C
Approach Delay		44.4		33.0		11.3			27.8
Approach LOS		D		C		B			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 52 (43%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 31.0
 Intersection LOS: C
 Intersection Capacity Utilization 67.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

11/08/2019



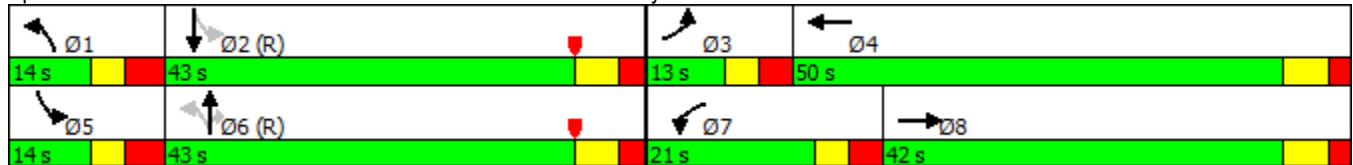
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗
Traffic Volume (vph)	34	476	113	727	63	391	99	145	458
Future Volume (vph)	34	476	113	727	63	391	99	145	458
Turn Type	Prot	NA	Prot	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3	8	7	4	1	6		5	2
Permitted Phases					6		6	2	
Detector Phase	3	8	7	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	12.0	12.0	5.0	12.0
Minimum Split (s)	11.1	36.2	11.1	31.2	11.7	40.4	40.4	11.6	40.4
Total Split (s)	13.0	42.0	21.0	50.0	14.0	43.0	43.0	14.0	43.0
Total Split (%)	10.8%	35.0%	17.5%	41.7%	11.7%	35.8%	35.8%	11.7%	35.8%
Yellow Time (s)	3.1	4.0	3.1	4.0	3.1	3.8	3.8	3.0	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	3.6	2.6	2.6	3.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.7	6.4	6.4	6.6	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	6.8	31.7	13.0	42.9	48.4	41.3	41.3	51.9	45.0
Actuated g/C Ratio	0.06	0.26	0.11	0.36	0.40	0.34	0.34	0.43	0.38
v/c Ratio	0.39	0.63	0.70	0.79	0.26	0.41	0.19	0.49	0.47
Control Delay	66.0	41.2	70.6	39.5	17.1	29.3	6.6	27.7	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	41.2	70.6	39.5	17.1	29.3	6.6	27.7	32.0
LOS	E	D	E	D	B	C	A	C	C
Approach Delay		42.8		43.2		23.9			31.0
Approach LOS		D		D		C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 35.9
 Intersection Capacity Utilization 73.6%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

11/12/2019



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖↗	↖	↖↗	↖	↖	↖↗	↖	↖	↖↗
Traffic Volume (vph)	13	728	61	467	109	40	316	107	137	317
Future Volume (vph)	13	728	61	467	109	40	316	107	137	317
Turn Type	Prot	NA	Prot	NA	Perm	D.P+P	NA	Perm	D.P+P	NA
Protected Phases	3	8	7	4		1	6		5	2
Permitted Phases					4	2		6	6	
Detector Phase	3	8	7	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	36.2	13.1	31.2	31.2	13.7	40.4	40.4	13.6	40.4
Total Split (s)	14.0	39.0	14.0	39.0	39.0	14.0	43.0	43.0	14.0	43.0
Total Split (%)	12.7%	35.5%	12.7%	35.5%	35.5%	12.7%	39.1%	39.1%	12.7%	39.1%
Yellow Time (s)	3.1	4.0	3.1	4.0	4.0	3.1	3.8	3.8	3.0	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	2.2	3.6	2.6	2.6	3.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.2	6.7	6.4	6.4	6.6	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	7.2	35.4	9.8	43.2	43.2	43.0	33.6	33.6	41.9	37.5
Actuated g/C Ratio	0.07	0.32	0.09	0.39	0.39	0.39	0.31	0.31	0.38	0.34
v/c Ratio	0.13	0.76	0.48	0.42	0.19	0.13	0.37	0.23	0.43	0.36
Control Delay	50.9	38.6	57.9	25.8	3.1	19.1	30.9	6.1	25.8	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	38.6	57.9	25.8	3.1	19.1	30.9	6.1	25.8	30.3
LOS	D	D	E	C	A	B	C	A	C	C
Approach Delay		38.8		25.0			24.1			29.0
Approach LOS		D		C			C			C

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 29.9

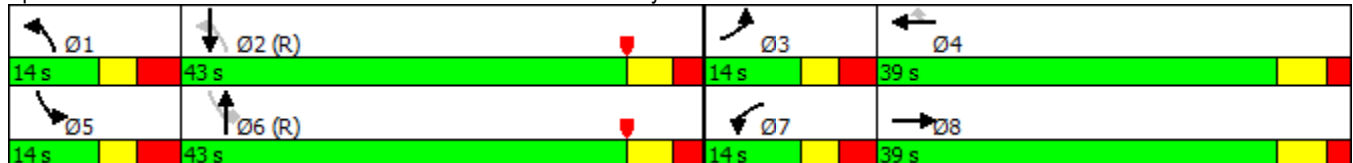
Intersection LOS: C

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



Timings

3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74

11/12/2019



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↗	↗	↖	↗
Traffic Volume (vph)	34	476	113	727	109	63	391	99	145	458
Future Volume (vph)	34	476	113	727	109	63	391	99	145	458
Turn Type	Prot	NA	Prot	NA	Perm	D.P+P	NA	Perm	D.P+P	NA
Protected Phases	3	8	7	4		1	6		5	2
Permitted Phases					4	2		6	6	
Detector Phase	3	8	7	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	12.0	12.0	5.0	12.0
Minimum Split (s)	11.1	36.2	11.1	31.2	31.2	11.7	40.4	40.4	11.6	40.4
Total Split (s)	11.2	36.2	11.1	36.1	36.1	11.7	41.1	41.1	11.6	41.0
Total Split (%)	11.2%	36.2%	11.1%	36.1%	36.1%	11.7%	41.1%	41.1%	11.6%	41.0%
Yellow Time (s)	3.1	4.0	3.1	4.0	4.0	3.1	3.8	3.8	3.0	3.8
All-Red Time (s)	3.0	2.2	3.0	2.2	2.2	3.6	2.6	2.6	3.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.2	6.1	6.2	6.2	6.7	6.4	6.4	6.6	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	6.2	26.8	10.6	36.1	36.1	38.2	30.8	30.8	37.1	34.1
Actuated g/C Ratio	0.06	0.27	0.11	0.36	0.36	0.38	0.31	0.31	0.37	0.34
v/c Ratio	0.36	0.62	0.72	0.68	0.19	0.29	0.46	0.21	0.55	0.51
Control Delay	54.7	34.4	69.4	31.9	2.2	19.3	29.0	2.2	27.1	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	34.4	69.4	31.9	2.2	19.3	29.0	2.2	27.1	28.1
LOS	D	C	E	C	A	B	C	A	C	C
Approach Delay		35.6		32.9			23.1			27.9
Approach LOS		D		C			C			C

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 30.1

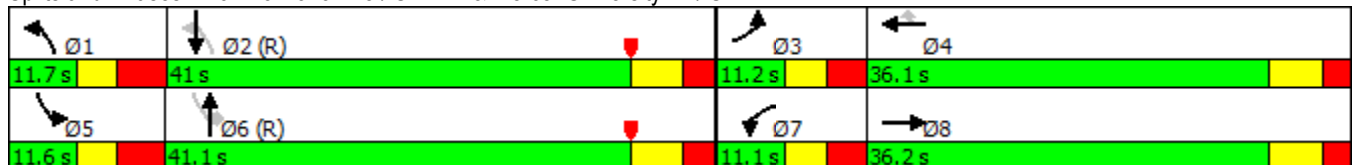
Intersection LOS: C

Intersection Capacity Utilization 69.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Pio Nono Ave / SR 247 & Mercer University Dr / SR 74



ARTPLAN 2009 Conceptual Planning Analysis

Project Information

Analyst	JG	Arterial Name	SR 247	Study Period	K100
Date Prepared	12/18/2019 12:22:06 PM	From	Anthony Road	Modal Analysis	Auto Only
Agency	GDOT D3	To	SR 74	Program	ARTPLAN 2009
Area Type	Other Urbanized	Peak Direction	Northbound	Version Date	12/12/10
Arterial Class	2				
File Name	C:\Users\jcgonzalez\AppData\Local\Temp\preview.xml				
User Notes					

Arterial Data

K	0.09	PHF	0.92	Control Type	Semiactuated
D	0.55	% Heavy Vehicles	3	Base Sat. Flow Rate	1950

Automobile Intersection and Segment Data

Segment #	Cycle Length	Thru g/C	Arr. Type	INT # Dir.Lanes	% Left Turns	% Right Turns	Left Turn Lanes	# Left Turn Lanes	LT Storage Length	Left g/C	Right Turn Lanes	Length	AADT	Hourly Vol.	SEG # Dir.Lanes	FFS	Median Type
1 (to SR 74)	120	0.44	4	2	12	12	Yes	1	235	0.15	No	1900	12000	594	2	40	Non-Restrictive

Automobile LOS

Segment #	Thru Mvmt Flow Rate	Adj. Sat. Flow Rate	v/c	Control Delay	Int. Approach LOS	Queue Ratio	Speed (mph)	Segment LOS			
1 (to SR 74)	568	3228	0.400	20.17	C	0.26	23.69	C			
Arterial Length	0.3598	Weighted g/C	0.44	FFS Delay	22.31	Threshold Delay	0.00	Auto Speed	23.69	Auto LOS	C

ARTPLAN 2009 Conceptual Planning Analysis

Project Information

Analyst	JG	Arterial Name	SR 247	Study Period	K100
Date Prepared	12/18/2019 12:22:06 PM	From	Anthony Road	Modal Analysis	Auto Only
Agency	GDOT D3	To	SR 74	Program	ARTPLAN 2009
Area Type	Other Urbanized	Peak Direction	Northbound	Version Date	12/12/10
Arterial Class	2				
File Name	C:\Users\jcgonzalez\AppData\Local\Temp\preview.xml				
User Notes	PM Peak				

Arterial Data

K	0.09	PHF	0.92	Control Type	Semiactuated
D	0.55	% Heavy Vehicles	3	Base Sat. Flow Rate	1950

Automobile Intersection and Segment Data

Segment #	Cycle Length	Thru g/C	Arr. Type	INT # Dir.Lanes	% Left Turns	% Right Turns	Left Turn Lanes	# Left Turn Lanes	LT Storage Length	Left g/C	Right Turn Lanes	Length	AADT	Hourly Vol.	SEG # Dir.Lanes	FFS	Median Type
1 (to SR 74)	100	0.31	4	2	11	18	Yes	1	75	0.10	No	1900	14500	718	2	40	Non-Restrictive

Automobile LOS

Segment #	Thru Mvmt Flow Rate	Adj. Sat. Flow Rate	v/c	Control Delay	Int. Approach LOS	Queue Ratio	Speed (mph)	Segment LOS			
1 (to SR 74)	695	3216	0.697	32.36	C	0.82	19.26	D			
Arterial Length	0.3598	Weighted g/C	0.31	FFS Delay	34.86	Threshold Delay	0.00	Auto Speed	19.26	Auto LOS	D

Appendix H: Summary of Right-of-way and Construction Costs Estimates

SR 247/PIO NONO AVENUE AT ANTHONY ROAD
CONSTRUCTION COST ESTIMATE - NOVEMBER 2019

LINE ITEM	PAY ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
5	150-1000	TRAFFIC CONTROL -	LS	1	\$ 150,000.00	\$ 150,000.00
10	150-5010	TRAFFIC CONTROL, PORTABLE IMPACT ATTENUATOR	EA	2	\$ 8,014.30	\$ 16,028.61
15	210-0100	GRADING COMPLETE -	LS	1	\$ 300,000.00	\$ 300,000.00
20	310-1101	GR AGGR BASE CRS, INCL MATL	TN	4280	\$ 30.49	\$ 130,513.67
25	318-3000	AGGR SURF CRS	TN	150	\$ 31.05	\$ 4,657.69
30	402-3121	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	TN	245	\$ 85.42	\$ 20,927.69
35	402-3190	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	TN	510	\$ 92.30	\$ 47,072.92
40	402-4510	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL	TN	95	\$ 88.71	\$ 8,427.41
45	413-0750	TACK COAT	GL	370	\$ 2.60	\$ 962.81
55	432-0212	MILL ASPH CONC PVMT, 3 IN DEPTH	SY	5000	\$ 6.70	\$ 33,500.00
60	439-0022	PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK	SY	400	\$ 94.13	\$ 37,650.22
70	441-0104	CONC SIDEWALK, 4 IN	SY	378	\$ 63.77	\$ 24,090.45
80	441-0748	CONCRETE MEDIAN, 6 IN	SY	920	\$ 66.96	\$ 61,606.76
95	441-5008	CONCRETE HEADER CURB, 6 IN, TP 7	LF	2210	\$ 17.28	\$ 38,183.27
100	441-5025	CONCRETE HEADER CURB, 4 IN, TP 9	LF	380	\$ 17.11	\$ 6,502.26
105	441-6222	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	LF	1760	\$ 31.00	\$ 54,568.12
120	441-7012	CURB CUT WHEELCHAIR RAMP, TYPE B	EA	7	\$ 2,766.29	\$ 19,364.02
130	441-7014	CURB CUT WHEELCHAIR RAMP, TYPE D	EA	1	\$ 2,183.60	\$ 2,183.60
135	446-1100	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	LF	475	\$ 5.97	\$ 2,834.97
190	632-0003	CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	EA	2	\$ 7,139.79	\$ 14,279.58
195	634-1200	RIGHT OF WAY MARKERS	EA	12	\$ 130.10	\$ 1,561.19
255	550-1180	STORM DRAIN PIPE, 18 IN, H 1-10	LF	700	\$ 52.91	\$ 37,035.14
260	550-1240	STORM DRAIN PIPE, 24 IN, H 1-10	LF	200	\$ 60.11	\$ 12,022.53
265	550-2180	SIDE DRAIN PIPE, 18 IN, H 1-10	LF	100	\$ 36.11	\$ 3,611.34
270	550-2240	SIDE DRAIN PIPE, 24 IN, H 1-10	LF	50	\$ 43.77	\$ 2,188.30
295	668-1100	CATCH BASIN, GP 1	EA	4	\$ 2,709.73	\$ 10,838.94
300	668-2100	DROP INLET, GP 1	EA	4	\$ 2,508.99	\$ 10,035.97
310	163-0240	MULCH	TN	10	\$ 303.10	\$ 3,031.05
315	163-0300	CONSTRUCTION EXIT	EA	2	\$ 1,612.65	\$ 3,225.30
320	163-0503	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 3	EA	2	\$ 491.01	\$ 982.01
330	163-0528	CONSTRUCT AND REMOVE FABRIC CHECK DAM - TYPE C SILT FENCE	LF	750	\$ 10.52	\$ 7,892.00
335	163-0529	CONSTRUCT AND REMOVE TEMPORARY SEDIMENT BARRIER OR BALED STRAW CHECK DAM	LF	500	\$ 5.85	\$ 2,926.72
340	163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	EA	10	\$ 211.87	\$ 2,118.69
345	165-0041	MAINTENANCE OF CHECK DAMS - ALL TYPES	LF	500	\$ 7.34	\$ 3,667.63
350	165-0071	MAINTENANCE OF SEDIMENT BARRIER - BALED STRAW	LF	500	\$ 2.76	\$ 1,381.36
355	165-0087	MAINTENANCE OF SILT CONTROL GATE, TP 3	EA	2	\$ 132.31	\$ 264.63
360	165-0101	MAINTENANCE OF CONSTRUCTION EXIT	EA	2	\$ 613.36	\$ 1,226.72
365	165-0105	MAINTENANCE OF INLET SEDIMENT TRAP	EA	8	\$ 79.60	\$ 636.77
370	167-1000	WATER QUALITY MONITORING AND SAMPLING	EA	8	\$ 337.55	\$ 2,700.42
375	167-1500	WATER QUALITY INSPECTIONS	MO	8	\$ 1,057.33	\$ 8,458.60
380	171-0030	TEMPORARY SILT FENCE, TYPE C	LF	400	\$ 3.66	\$ 1,462.59
400	700-6910	PERMANENT GRASSING	AC	2	\$ 1,240.82	\$ 2,481.63
405	700-7000	AGRICULTURAL LIME	TN	3	\$ 129.92	\$ 389.75
410	700-8000	FERTILIZER MIXED GRADE	TN	1	\$ 829.36	\$ 829.36
415	700-8100	FERTILIZER NITROGEN CONTENT	LB	100	\$ 4.92	\$ 492.09
425	500-3101	CLASS A CONCRETE	CY	47	\$ 1,125.18	\$ 52,883.25
430	511-1000	BAR REINF STEEL	LB	3600	\$ 1.24	\$ 4,454.19
435	647-2120	PULL BOX, PB-2	EA	10	\$ 495.65	\$ 4,956.53
440	681-4220	LIGHTING STD, 40 FT MH, POST TOP	EA	10	\$ 3,625.33	\$ 36,253.30
445	681-6470	LUMINAIRE, TP 4, 275 W, LED	EA	10	\$ 932.65	\$ 9,326.50
450	682-1406	CABLE, TP XHHW, AWG NO 6	LF	1250	\$ 1.58	\$ 1,970.54
460	682-6233	CONDUIT, NONMETL, TP 3, 2 IN	LF	1200	\$ 6.26	\$ 7,509.84
465	682-9000	MAIN SERVICE PICK UP POINT	LS	1	\$ 7,500.00	\$ 7,500.00
470	682-9010	SVC POLE RISER	EA	10	\$ 2,335.45	\$ 23,354.48
475	682-9950	DIRECTIONAL BORE -	LF	500	\$ 15.72	\$ 7,860.41
480	700-9300	SOD	SY	340	\$ 8.26	\$ 2,808.53
485	702-0212	CRATAEGUS VIRIDIS -	EA	3	\$ 631.89	\$ 1,895.67
490	702-0470	ILEX VOMITORIA NANA -	EA	90	\$ 53.62	\$ 4,825.51
495	702-9005	SPRING APPLICATION FERTILIZER	LB	150	\$ 11.59	\$ 1,739.22
500	702-9025	LANDSCAPE MULCH	SY	335	\$ 9.99	\$ 3,346.81
515	636-2070	GALV STEEL POSTS, TP 7	LF	260	\$ 8.46	\$ 2,200.10
530	653-0120	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	EA	4	\$ 90.51	\$ 362.04
535	653-0130	THERMOPLASTIC PVMT MARKING, ARROW, TP 3	EA	4	\$ 143.44	\$ 573.77
595	653-0296	THERMOPLASTIC PVMT MARKING, WORD, TP 15	EA	8	\$ 211.19	\$ 1,689.51
600	653-1501	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	LF	2750	\$ 1.04	\$ 2,852.45
605	653-1502	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	LF	3000	\$ 0.99	\$ 2,965.03
615	653-1804	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	LF	750	\$ 2.42	\$ 1,815.55
640	653-4830	THERMOPLASTIC SKIP TRAF STRIPE, 18 IN, WHITE	GLF	200	\$ 4.95	\$ 989.91
645	653-6004	THERMOPLASTIC TRAF STRIPING, WHITE	SY	20	\$ 4.73	\$ 94.52
650	653-6006	THERMOPLASTIC TRAF STRIPING, YELLOW	SY	400	\$ 4.61	\$ 1,843.87
655	654-1001	RAISED PVMT MARKERS TP 1	EA	30	\$ 5.08	\$ 152.33

SUBTOTAL \$ 1,281,038.65

ENGINEERING AND INSPECTION \$ 64,051.93
10% CONTINGENCY \$ 134,509.06
LIQUID AC \$ 20,000.00

TOTAL \$ 1,500,000.00

GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 9/23/2019 Project: SR 247 - Pio Nono Avenue
Revised: County: Bibb
PI: NA

Description: Intersection Improvements (Roundabout)
Project Termini: SR 247 / Pio Non Avenue at Anthony Road

Existing ROW: Varies
Required ROW: Varies
Parcels: 5

Land and Improvements \$282,390.00

Proximity Damage	\$0.00
Consequential Damage	\$20,000.00
Cost to Cures	\$0.00
Trade Fixtures	\$14,200.00
Improvements	\$65,000.00

Valuation Services \$36,875.00

Legal Services \$40,875.00

Relocation \$75,000.00

Demolition \$153,000.00

Administrative \$50,000.00

TOTAL ESTIMATED COSTS \$638,140.00

TOTAL ESTIMATED COSTS (ROUNDED) \$639,000.00

Prepared By:

John Albrycht
Print Name

John Albrycht
Signature

9/23/19
Date

Cost Estimation Supervisor : _____
Print Name Signature Date

NOTE: Supervisor is only attesting that the estimate was completed using the correct information provided for the the project. The Supervisor is not attesting to property values or the accuracy of the market value estimations provided in this report. No Market Appreciation is included in this Preliminary Cost Estimate.

Comments: One of the parcels appears to have been used as a gas station in the past and shows signs of still having gas tanks in place. This estimate assumes that 2 tanks will need to be removed.

Appendix I: Safety Benefit-Cost Analysis

Safety Benefits
SR 247 at SR 22 (Multilane Roundabout)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Install Multilane Roundabout	0.087	0.71	0.29	0.26	0.74

Description	Symbol	Value
Reduction Factor (F, I)	R	0.71
Reduction Factor (PDO)	Rp	0.26
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 4,416,000

Accident Data	Symbol	Value
PDO	P	36.6
Fatalities	F	0.0
Injuries	I	12.0

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 8,400,647

Annual Cost: \$ 404,192

Annual B/C Ratio: **20.78**

Design Life Benefit

$B = \$ 34,444,310$

Design Life Cost

$C = \$ 1,657,267$

Design Life Benefit/Cost Ratio

$B/C = 20.8$

Safety Benefits
SR 247 at SR 22 (Install FYAs and Improve Intersection Visibility)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
1 .Signal, Signing and visibility improvements 2. Change from protected only to FYA	0.087	0.15	0.85	0.06	0.00

Description	Symbol	Value
Reduction Factor (F, I)	R	0.15
Reduction Factor (PDO)	Rp	0.06
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 275,000

Accident Data	Symbol	Value
PDO	P	36.6
Fatalities	F	0.0
Injuries	I	12.0

Weighted cost of fatal and injury collisions

Q = \$ 955,500

Annual Benefit: \$ 1,768,919

Annual Cost: \$ 43,925

Annual B/C Ratio: **40.27**

Design Life Benefit

B = \$ 7,252,917

Design Life Cost

C = \$ 180,101

Design Life Benefit/Cost Ratio

B/C = **40.3**

Safety Benefits
SR 247 at Anthony Rd (Single Lane Roundabout)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Single Lane Roundabout	0.087	0.71	0.29	0.24	0.76

Description	Symbol	Value
Reduction Factor (F, I)	R	0.71
Reduction Factor (PDO)	Rp	0.24
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 2,855,000

Accident Data	Symbol	Value
PDO	P	10.0
Fatalities	F	0.0
Injuries	I	7.2

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 4,950,036

Annual Cost: \$ 268,385

Annual B/C Ratio: 18.44

Design Life Benefit

$B = \$ 20,296,125$

Design Life Cost

$C = \$ 1,100,431$

Design Life Benefit/Cost Ratio

B/C = 18.4

Safety Benefits

SR 247 at Anthony Rd (Signal Visibility Improvements and Install FYAs on all approaches)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
1. Signal, Signing and visibility improvements					
2. Change from 5-section portected/permisive left turn to FYA portected/permisive left turn	0.087	0.17	0.83	0.07	0.93

Description	Symbol	Value
Reduction Factor (F, I)	R	0.17
Reduction Factor (PDO)	Rp	0.07
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 250,000

Accident Data	Symbol	Value
PDO	P	10.0
Fatalities	F	0.0
Injuries	I	7.2

Weighted cost of fatal and injury collisions

$$Q = \$ 955,500$$

$$\text{Annual Benefit: } \$ 1,214,477$$

$$\text{Annual Cost: } \$ 41,750$$

$$\text{Annual B/C Ratio: } \mathbf{29.09}$$

Design Life Benefit

$$B = \$ 4,979,596$$

Design Life Cost

$$C = \$ 171,183$$

Design Life Benefit/Cost Ratio

$$B/C = \mathbf{29.1}$$

Safety Benefits
SR 247 at Anthony Road (Install NB and WB Right-Turn Lanes)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Provide a right-turn lane on one major-road approach	0.087	0.09	0.91	0.04	0.96

Description	Symbol	Value
Reduction Factor (F, I)	R	0.09
Reduction Factor (PDO)	Rp	0.04
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 996,000

Accident Data	Symbol	Value
PDO	P	3.2
Fatalities	F	0.0
Injuries	I	1.2

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 106,688

Annual Cost: \$ 106,652

Annual B/C Ratio: 1.00

Design Life Benefit

$B = \$ 437,444$

Design Life Cost

$C = \$ 437,294$

Design Life Benefit/Cost Ratio

$B/C = 1.00$

Safety Benefits
SR 247 at SR 74 (Multilane Roundabout)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Install a Multilane Roundabout	0.087	0.71	0.29	0.26	0.74

Description	Symbol	Value
Reduction Factor (F, I)	R	0.71
Reduction Factor (PDO)	Rp	0.26
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 5,470,000

Accident Data	Symbol	Value
PDO	P	20.4
Fatalities	F	0.0
Injuries	I	12.2

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 8,421,340

Annual Cost: \$ 495,890

Annual B/C Ratio: 16.98

Design Life Benefit

$B = \$ 34,529,157$

Design Life Cost

$C = \$ 2,033,247$

Design Life Benefit/Cost Ratio

$B/C = 17.0$

Safety Benefits
SR 247 at SR 74 (Install WB Right-Turn Lane)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Provide a right-turn lane on one major-road approach	0.087	0.09	0.91	0.04	0.96

Description	Symbol	Value
Reduction Factor (F, I)	R	0.09
Reduction Factor (PDO)	Rp	0.04
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 766,000

Accident Data	Symbol	Value
PDO	P	6.0
Fatalities	F	0.0
Injuries	I	2.4

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 212,940

Annual Cost: \$ 86,642

Annual B/C Ratio: 2.46

Design Life Benefit

$B = \$ 873,096$

Design Life Cost

$C = \$ 355,249$

Design Life Benefit/Cost Ratio

$B/C = 2.5$

Safety Benefits

SR 247 at SR 74 (Signal Visibility Improvements and Install FYAs on all approaches)

Type of Safety Counter-measure	Ek	R	r	Rp	rp
1. Signal, Signing and visibility improvements					
2. Change from 5-section portected/permisive left turn to FYA portected/permisive left turn	0.087	0.18	0.82	0.06	0.94

Description	Symbol	Value
Reduction Factor (F, I)	R	0.18
Reduction Factor (PDO)	Rp	0.06
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 250,000

Accident Data	Symbol	Value
PDO	P	20.4
Fatalities	F	0.0
Injuries	I	12.2

Weighted cost of fatal and injury collisions

$$Q = \$ 955,500$$

Annual Benefit: \$ 2,106,142

Annual Cost: \$ 41,750

Annual B/C Ratio: **50.45**

Design Life Benefit

$$B = \$ 8,635,596$$

Design Life Cost

$$C = \$ 171,183$$

Design Life Benefit/Cost Ratio

$$B/C = 50.4$$

Safety Benefits
SR 247 from SR 22 to Anthony Rd: Road Diet and Resurfacing

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Resurface Pavement	0.087	0.14	0.86	0.07	0.93

Description	Symbol	Value
Reduction Factor (F, I)	R	0.142
Reduction Factor (PDO)	Rp	0.071
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 550,000

Accident Data	Symbol	Value
PDO	P	13.2
Fatalities	F	0.0
Injuries	I	1.0

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 161,267

Annual Cost: \$ 67,850

Annual B/C Ratio: 2.38

Design Life Benefit

$B = \$ 661,225$

Design Life Cost

$C = \$ 278,198$

Design Life Benefit/Cost Ratio

$B/C = 2.4$

Safety Benefits
SR 247 from Anthony Rd to SR 74: Road Diet and Resurfacing

Type of Safety Counter-measure	Ek	R	r	Rp	rp
Convert four-lane roadway to three-lane roadway with center turn lane (Road Diet)	0.087	0.19	0.81	0.19	0.81

Description	Symbol	Value
Reduction Factor (F, I)	R	0.188
Reduction Factor (PDO)	Rp	0.188
Capital Recovery Factor	Ek	0.087
Initial Improvement Cost	Ci	\$ 525,000

Accident Data	Symbol	Value
PDO	P	8.2
Fatalities	F	0.0
Injuries	I	5.2

Weighted cost of fatal and injury collisions

$Q = \$ 955,500$

Annual Benefit: \$ 976,182

Annual Cost: \$ 65,675

Annual B/C Ratio: 14.86

Design Life Benefit

$B = \$ 4,002,541$

Design Life Cost

$C = \$ 269,280$

Design Life Benefit/Cost Ratio

$B/C = 14.9$

Appendix J: Environmental Screening Report

GDOT Office of Traffic Operations
 935 Confederate Ave., SE
 Atlanta, GA 30316

Arcadis U.S., Inc.
 2410 Paces Ferry Road
 #400
 Atlanta
 Georgia 30339
 Tel 770 431 8666
 Fax 770 435 2666

Subject: Environmental Screening Memo
 SR 247/Pio Nono Avenue
 From SR 22 to SR 74
 P.I. No. N/A, Bibb Co., Georgia

The Georgia Department of Transportation (GDOT) has identified the need for improvements to State Route (SR) 247 (Pio Nono Avenue) from its intersection with SR 22 (Eisenhower Parkway) north to its intersection with SR 74 (Mercer University Drive) in the City of Macon, Bibb County, Georgia. The proposed project is to be included in the GDOT Safety Lump Sum Program within the Office of Traffic Operations.

The study corridor is approximately 1.13 miles and includes three signalized intersections: SR 247/Pio Nono Avenue at SR 22/Eisenhower Parkway, SR 247/Pio Nono Avenue at Anthony Road, and SR 247/Pio Nono Avenue at SR 74/Mercer University Drive. The remaining intersections along the corridor are unsignalized. The major portion of SR 247/Pio Nono Avenue in the study corridor is a four-lane road, two lanes each direction with a two-way left-turn lane (TWLTL) in the center from SR 22/Eisenhower Parkway to Anthony Road. The remaining section of SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive continues with two lanes in each direction, however there is no TWLTL. State Route 247/Pio Nono Avenue has a posted speed of 35 MPH and is classified as an urban minor arterial throughout the study corridor.

The proposed project would implement a road diet on SR 247/Pio Nono Avenue from Anthony Road to SR 74/Mercer University Drive. The road diet would reduce SR 247/Pio Nono Avenue from two lanes in each direction to one lane in each direction with a TWLTL. Signal improvements at SR 22/Eisenhower Parkway and SR 74/Mercer University Drive are also proposed. Proposed improvements also include a single-lane roundabout at Anthony Road as well as resurfacing, median improvements, and sidewalk connections for improved pedestrian safety along the entire study corridor. Approximately 0.9 acres of right-of-way (ROW) would be required to implement the roundabout at Anthony Road. Table 1 below shows the location and amount of ROW required for the proposed improvements.

Table 1. Location and Quantity of Right-of-Way Required for the Proposed Improvements.

Location	Right-of-Way Required	Address
NE Corner of the Anthony Road and SR 247/Pio Nono Avenue Intersection (Saleems Fish Supreme)	Full Parcel Required 10,500 sq. ft. (0.23 acre) & 1 Structure	2196 Pio Nono Avenue

Location	Right-of-Way Required	Address
SE Corner of the Anthony Road and SR 247/Pio Nono Avenue Intersection (Church’s Chicken)	950 sq. ft (0.02 acre) & 1 Sign	2212 Pio Nono Avenue
SW Corner of the Anthony Road and SR 247/Pio Nono Avenue Intersection (Autozone)	625 sq. ft. (0.01 acre) & 3 Parking Spaces	2215 Pio Nono Avenue
NW Corner of the Anthony Road and SR 247/Pio Nono Avenue Intersection (JC Discount Tires)	Full Parcel Required; 26,550 sq. ft. (0.61 acre) & 1 Structure	2195 Pio Nono Avenue

To assist GDOT in understanding the potential environmental constraints within the corridor, Arcadis staff conducted a desktop survey using National Wetland Inventory (NWI) maps, Georgia’s Natural, Archaeological, and Historic Geographic Information System (GNAHRGIS), the U.S. Environmental Protection Agency’s (USEPA) EnviroMapper, and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for identifying environmental resources that may be afforded protection under the National Environmental Policy Act (NEPA). Based on the desktop survey, the following environmental concerns/constraints were observed in the corridor:

EPA

Environmental Justice/Community Impact

During this desktop survey, the presence of minority or low-income populations was not readily apparent within the study corridor. Proposed improvements would require approximately 0.9 acre of ROW. The area where ROW would be acquired, at the intersection of SR 247/Pio Nono Avenue and Anthony Road is commercial; residential properties would not be impacted. Given the location and scale of required ROW for the proposed project, disproportionate effects to minority or low-income residents are not likely.

Section 4(f) Properties

One public park, Frank Johnson Recreation Center, located at 2227 SR 74/Mercer University Drive is just outside the limits of the study corridor. This facility is a public park, which is owned and operated by Macon-Bibb County Parks and Recreation Department. No impacts or adverse effects to this park from the proposed project are anticipated. Therefore, there are no public parks or refuges that may be afforded protection under Section 4(f) within the project limits. However, during the desktop survey, 28 standing structures were identified that are at least 45 years old. These structures may be afforded protection under Section 4(f) as historic resources. Please see the History discussion on page 4 of this screening memo for more information.

Environmental Documentation

Based on the 2018 Programmatic Categorical Exclusion (PCE) Process Agreement, the required ROW for the proposed project exceeds the minor threshold allowance. Because two structures would be displaced, this project does not qualify for a PCE. The project’s environmental clearance would be obtained with a Categorical Exclusion (CE).

Ecology

Protected Species

The proposed project is located in Macon, GA. Protected species and their habitats may exist but are not likely to exist within the project corridor due to utility easements and proximity to the existing

roadway. An ecology resource survey for protected species and their habitats would be conducted to assess habitat suitability and species presence.

Bats

All bats are protected under Georgia state law and some species have additional protections under the federal Endangered Species Act of 1973. Bridges and culverts are often potential bat roosting locations and forested areas can serve as roosting and foraging habitat. However, during the desktop review we did not locate any bridges or culverts within the study corridor. Adjacent to the study corridor there are 21 non-maintained parcels with overgrown vegetation that may be bat habitat; however, a bat study is unlikely.

Waters of the United States

According to the NWI map (Figure 1), no Waters of the United States are within the study corridor. An ecological resource survey would be necessary to confirm the extent of jurisdictional and state waters within the project corridor and the potential for impacts.

Figure 1. Waters of the United States.



October 18, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Floodplain

FEMA FIRM Panel 13021C0133G, Macon-Bibb County (dated 06/07/2017) was reviewed to identify flood hazard zones within the project corridor. Based on this review, the entirety of the study corridor

is outside the flood zone area. Therefore, no impacts to the floodplain/floodway are anticipated and a hydraulic study is not likely to be necessary.

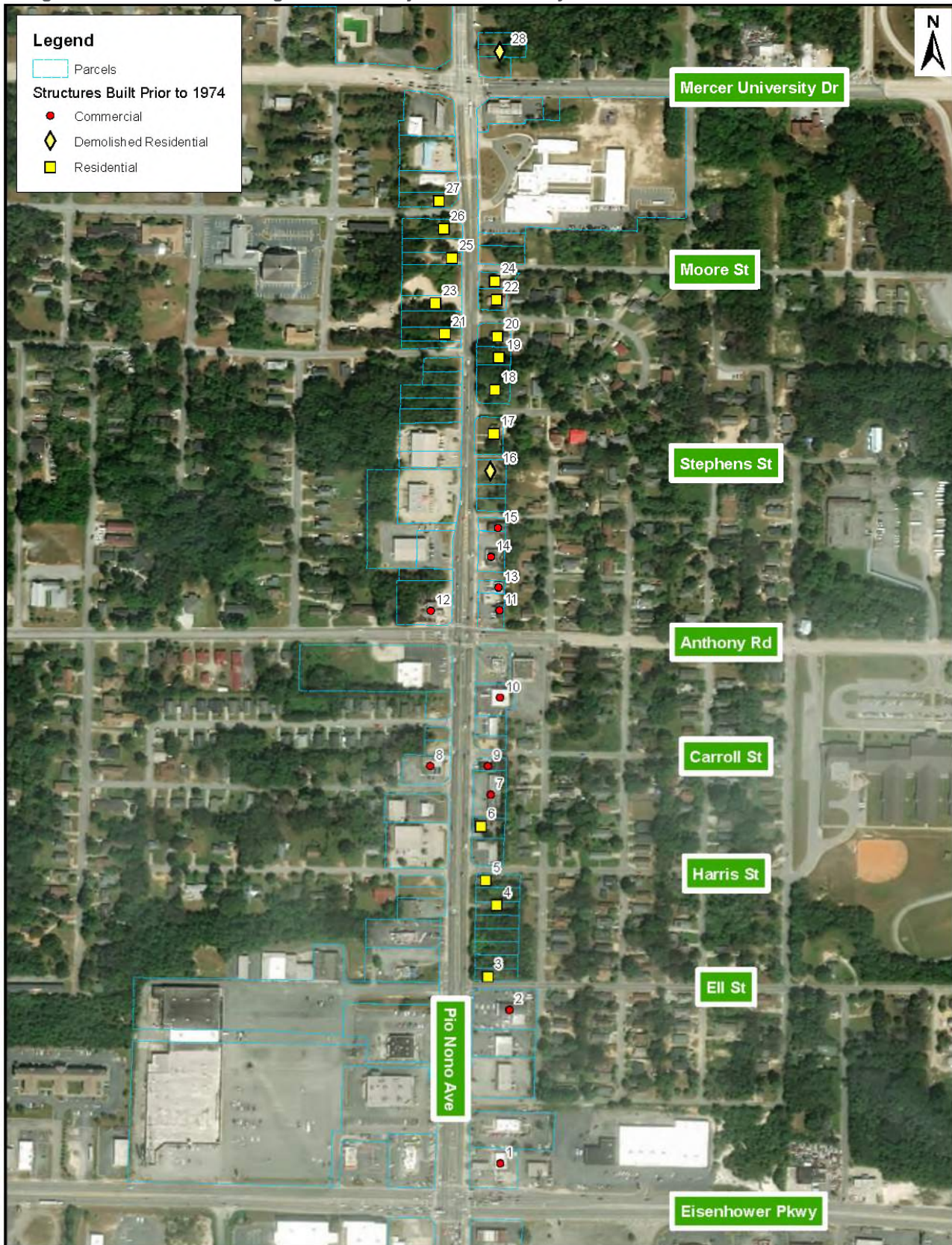
History

A GNAHRGIS query returned no results for historic resources within or adjacent to the required ROW for the proposed project. The same query showed 28 standing structures at least 45 years or older are adjacent to study corridor (Table 2 and Figure 2). Based on a review of aerial imagery and Google Street View, two of the structures listed on the GNAHRGIS website have been demolished prior to 2019 (ID 16 and 28 in Table 2). Two of the standing structures are within the required ROW for the proposed roundabout at Anthony Road (ID 11 and 12 in Table 2). Section 106 Coordination and a Historic Resources Survey Report by a certified historian would be necessary to confirm the full extent of historic resources and their eligibility for listing in the National Register of Historic Places (NRHP). A Cultural Resources Assessment of Effects Report would be necessary if the historic resources are determined to be eligible for listing in the NRHP.

Table 2. Standing Structures Within the Study Corridor Constructed Prior to 1974.

Id Number	Land Use	Additional ROW Proposed	Address	Year Constructed
1	Commercial	No	2490 PIO NONO AVE	1972
2	Commercial	No	2404 PIO NONO AVE	1969
3	Residential	No	2394 PIO NONO AVE	1951
4	Residential	No	2370 PIO NONO AVE	1935
5	Residential	No	2358 PIO NONO AVE	1942
6	Residential	No	2344 PIO NONO AVE	1930
7	Commercial	No	2324 PIO NONO AVE	1968
8	Commercial	No	2281 PIO NONO AVE	1945
9	Commercial	No	2290 PIO NONO AVE	1950
10	Commercial	No	2238 PIO NONO AVE	1969
11	Commercial	Yes – Proposed Roundabout	2196 PIO NONO AVE	1951
12	Commercial	Yes – Proposed Roundabout	2195 PIO NONO AVE	1953
13	Commercial	No	2148 PIO NONO AVE	1970
14	Commercial	No	2146 PIO NONO AVE	1971
15	Commercial	No	2104 PIO NONO AVE	1965
16	Demolished in 2018; Residential	No	2086 PIO NONO AVE	1955
17	Residential	No	2044 PIO NONO AVE	1950
18	Residential	No	2010 PIO NONO AVE	1954
19	Residential	No	2000 PIO NONO AVE	1964
20	Residential	No	1959 VINING CIR	1956
21	Residential	No	1959 VINING CIR	1942
22	Residential	No	1958 VINING CIR	1960
23	Residential	No	1973 PIO NONO AVE	1949
24	Residential	No	1954 PIO NONO AVE	1950
25	Residential	No	1935 PIO NONO AVE	1915
26	Residential	No	1915 PIO NONO AVE	1933
27	Residential	No	1883 PIO NONO AVE	1933
28	Demolished prior to 2018; Residential	No	1780 PIO NONO AVE	1900

Figure 2. Location of Standing Structures Adjacent to the Study Corridor.



No historic markers are located within or near the proposed project.

Archaeology

According to GNAHRGIS, no publicly documented archaeological resources are present and the possibility of encountering archaeological resources is low. The areas adjacent to the study corridor have been modified and disturbed by transportation facilities, utilities, and other development. Based on the desktop survey, Section 106 Coordination and an Archaeological Short Report appears to be the likely path for reporting; however, a site file search and field work by certified archaeologists may necessitate the preparation of a Management Summary and a Phase 1 Archaeology Resource Report if previously listed sites or newly uncovered sites are found.

Hazardous Waste/Underground Storage Tanks

Using the EPA's EnvironMapper, Georgia Environmental Protection Division's (GAEPD) underground storage tank (UST) database, and desktop surveys, five sites with UST(s) are present within or near the study corridor.

- Sunoco; 2510 Pio Nono Avenue. No additional ROW is anticipated.
- Lo Lo Food Mart; 2490 Pio Nono Avenue. No additional ROW is anticipated.
- Exxon; 2311 Pio Nono Avenue. No additional ROW is anticipated.
- Quickway Food (Citgo); 1803 Pio Nono Avenue. No additional ROW is anticipated.
- Quick Zip; 1800 Pio Nono Avenue. No additional ROW is anticipated.

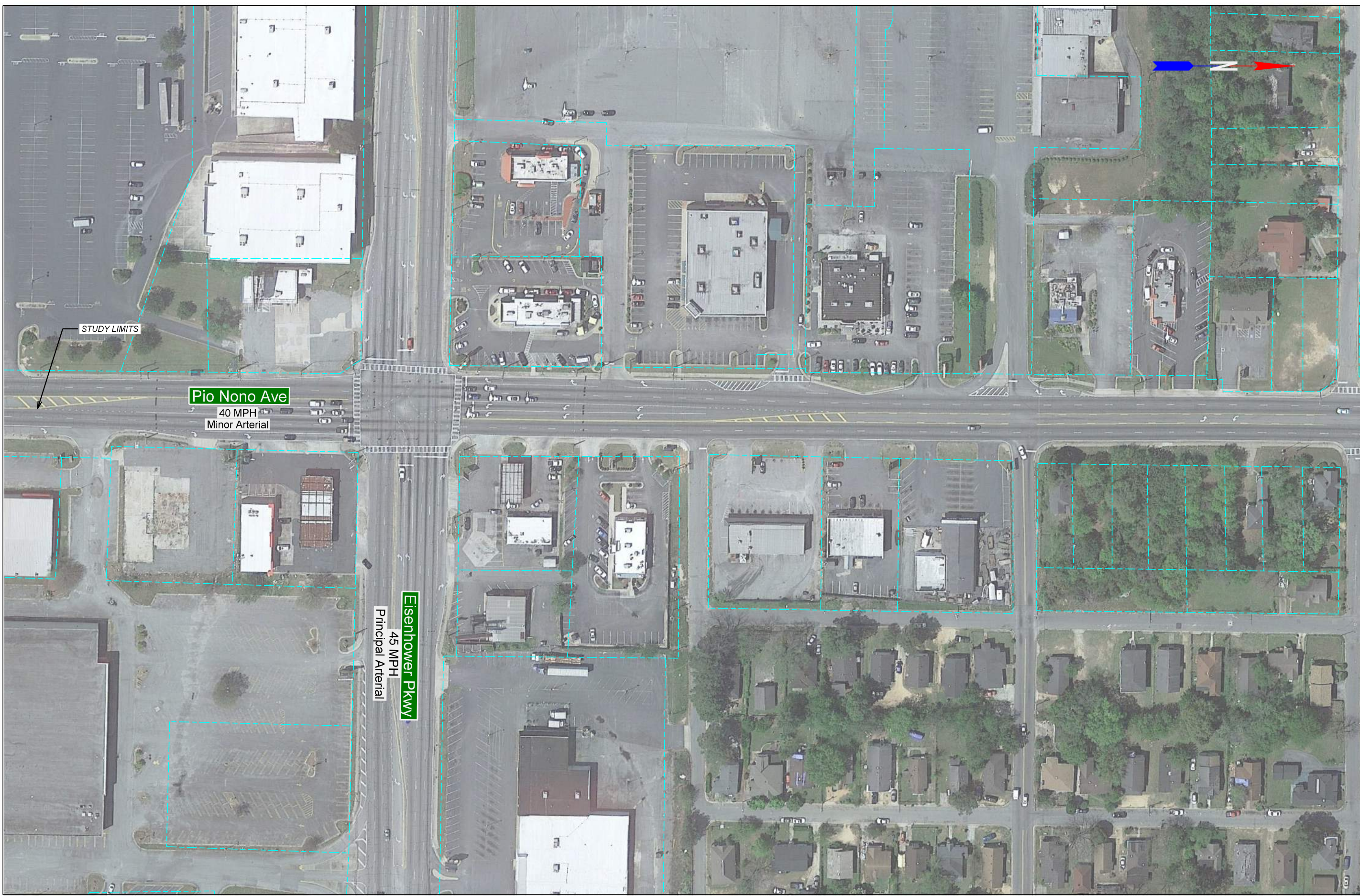
Public Involvement

A public information letter may be sent to property owners in the vicinity of the study corridor informing them of the proposed project and offering the opportunity to comment. Subsequently, a Public Information Open House (PIOH) may be held.

Anticipated Permits

- None

Appendix K: Existing and Preferred Alternative Sketches



STUDY LIMITS

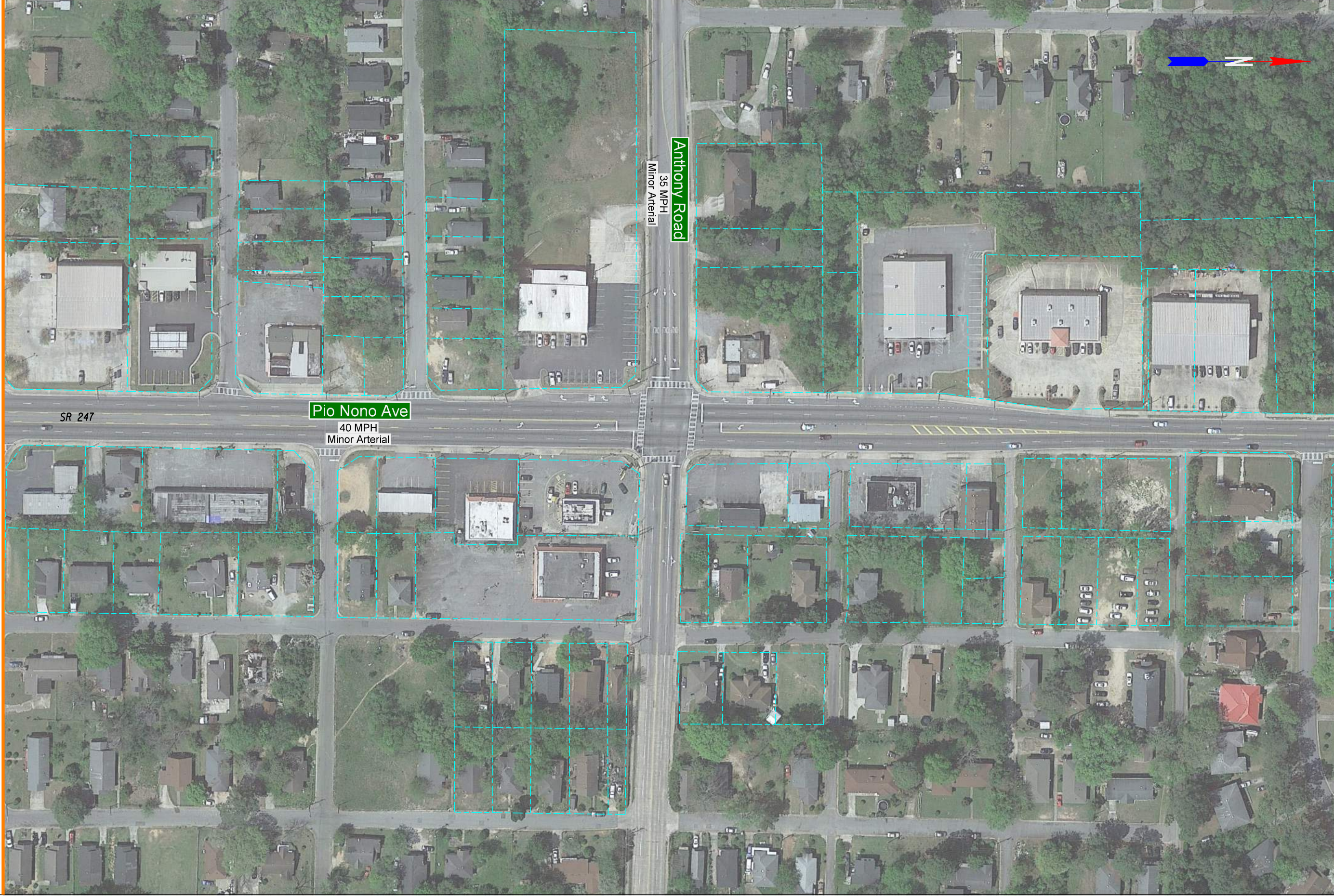
Pio Nono Ave
40 MPH
Minor Arterial

Eisenhower Pkwy
45 MPH
Principal Arterial

MATCH LINE A - SHEET 2

SHEET 1 OF 3		<p>SCALE IN FEET</p>	<p>STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION</p> <p>SR 247/PIO NONO AVENUE SR 22 TO SR 74 EXISTING CONDITIONS</p> <p>P.I. NUMBER N/A</p>
--------------	--	----------------------	--

MATCH LINE A - SHEET 1



MATCH LINE B - SHEET 3

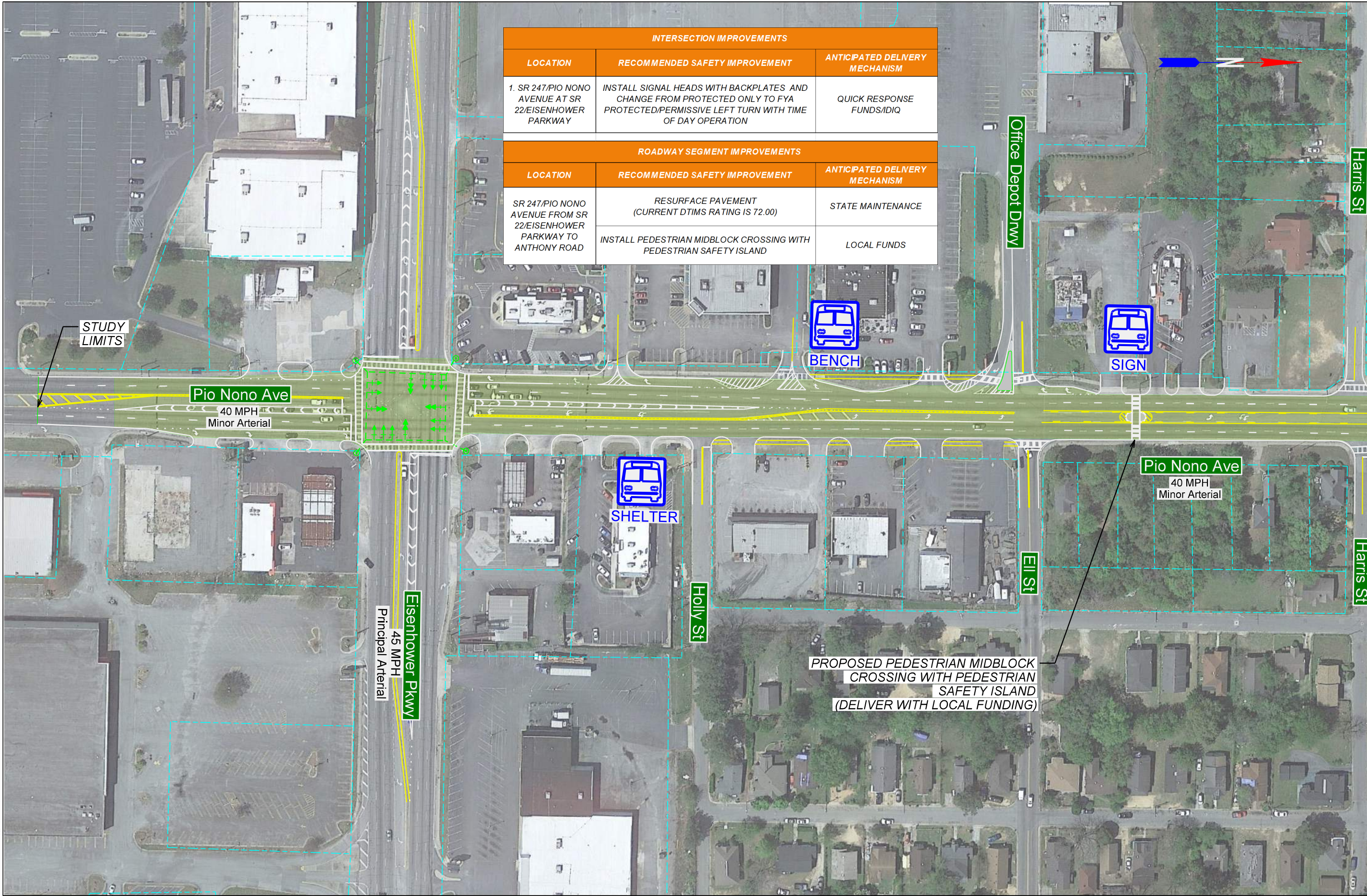
MATCH LINE B - SHEET 2



SHEET 3 OF 3



STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
SR 247/PIO NONO AVENUE
SR 22 TO SR 74
EXISTING CONDITIONS
P.I. NUMBER
N/A

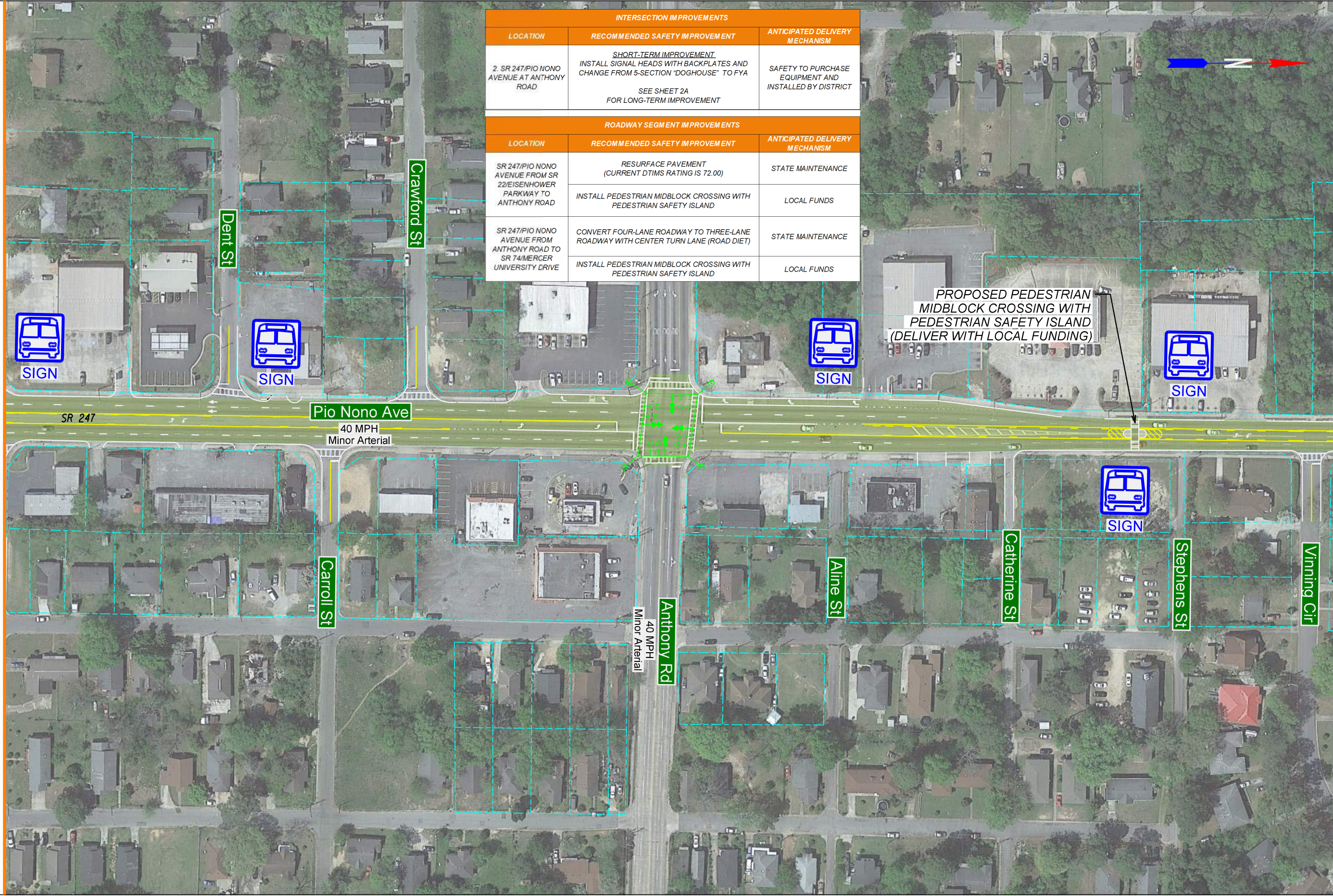


INTERSECTION IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
1. SR 247/PIO NONO AVENUE AT SR 22/EISENHOWER PARKWAY	INSTALL SIGNAL HEADS WITH BACKPLATES AND CHANGE FROM PROTECTED ONLY TO FYA PROTECTED/PERMISSIVE LEFT TURN WITH TIME OF DAY OPERATION	QUICK RESPONSE FUNDS/IDIQ
ROADWAY SEGMENT IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
SR 247/PIO NONO AVENUE FROM SR 22/EISENHOWER PARKWAY TO ANTHONY ROAD	RESURFACE PAVEMENT (CURRENT DTIMS RATING IS 72.00)	STATE MAINTENANCE
	INSTALL PEDESTRIAN MIDBLOCK CROSSING WITH PEDESTRIAN SAFETY ISLAND	LOCAL FUNDS

MATCH LINE A - SHEET 2

SHEET 1 OF 3	POTENTIAL RESURFACING BY STATE MAINTENANCE (FY 2022-2025)		SCALE IN FEET	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
			SR 247/PIO NONO AVENUE SR 22 TO SR 74 EXISTING CONDITIONS	
			0 120 240	P.I. NUMBER N/A

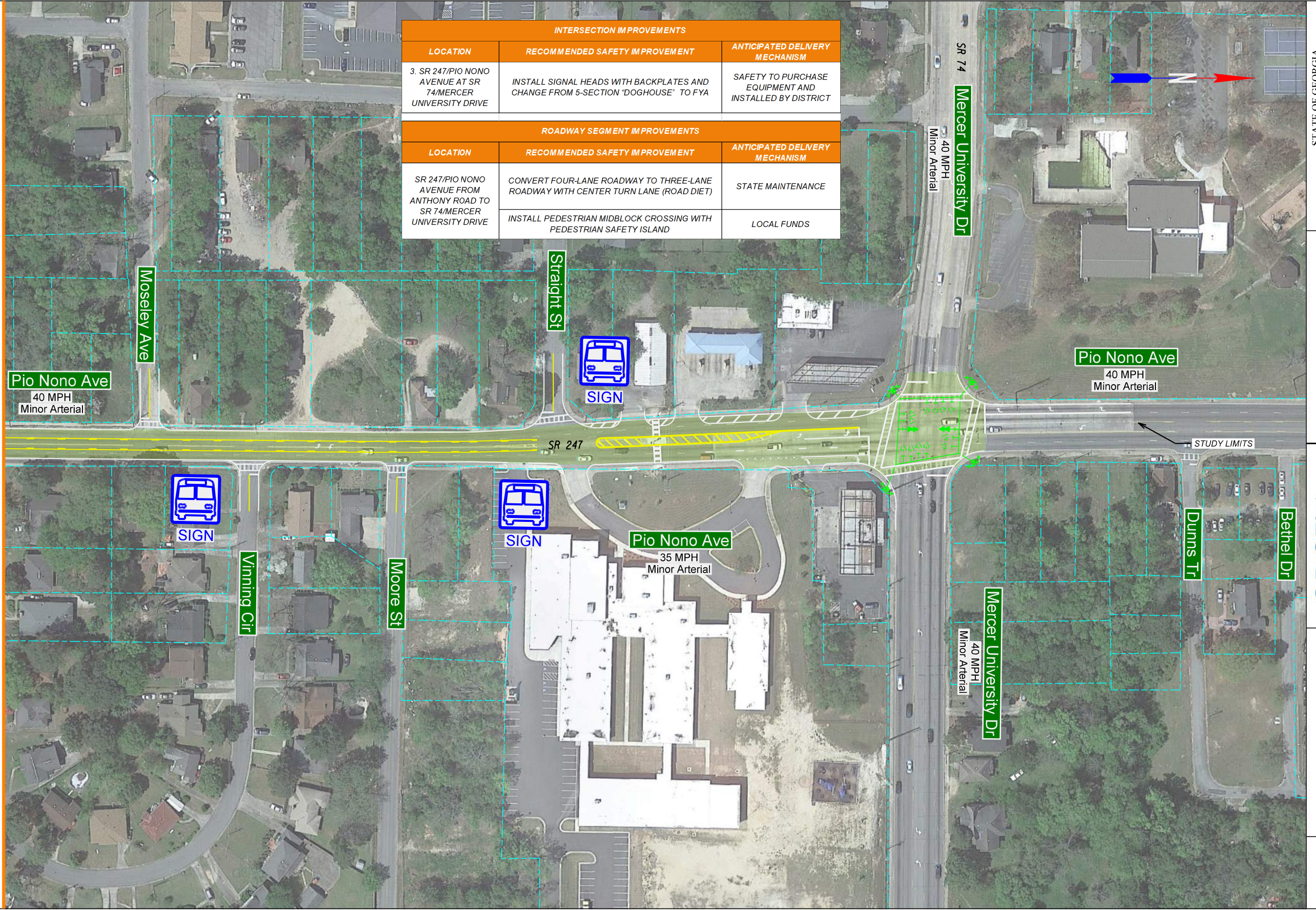
MATCH LINE A - SHEET 1



INTERSECTION IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
2. SR 247/PIO NONO AVENUE AT ANTHONY ROAD	SHORT-TERM IMPROVEMENT INSTALL SIGNAL HEADS WITH BACKPLATES AND CHANGE FROM 5-SECTION "DOGHOUSE" TO FYA SEE SHEET 2A FOR LONG-TERM IMPROVEMENT	SAFETY TO PURCHASE EQUIPMENT AND INSTALLED BY DISTRICT
ROADWAY SEGMENT IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
SR 247/PIO NONO AVENUE FROM SR 22/EISENHOWER PARKWAY TO ANTHONY ROAD	RESURFACE PAVEMENT (CURRENT DTMS RATING IS 72.00)	STATE MAINTENANCE
	INSTALL PEDESTRIAN MIDBLOCK CROSSING WITH PEDESTRIAN SAFETY ISLAND	LOCAL FUNDS
SR 247/PIO NONO AVENUE FROM ANTHONY ROAD TO SR 74/MERCER UNIVERSITY DRIVE	CONVERT FOUR-LANE ROADWAY TO THREE-LANE ROADWAY WITH CENTER TURN LANE (ROAD DIET)	STATE MAINTENANCE
	INSTALL PEDESTRIAN MIDBLOCK CROSSING WITH PEDESTRIAN SAFETY ISLAND	LOCAL FUNDS

MATCH LINE B - SHEET 3

MATCH LINE B - SHEET 2



INTERSECTION IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
3. SR 247/PIO NONO AVENUE AT SR 74/MERCER UNIVERSITY DRIVE	INSTALL SIGNAL HEADS WITH BACKPLATES AND CHANGE FROM 5-SECTION "DOGHOUSE" TO FYA	SAFETY TO PURCHASE EQUIPMENT AND INSTALLED BY DISTRICT
ROADWAY SEGMENT IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
SR 247/PIO NONO AVENUE FROM ANTHONY ROAD TO SR 74/MERCER UNIVERSITY DRIVE	CONVERT FOUR-LANE ROADWAY TO THREE-LANE ROADWAY WITH CENTER TURN LANE (ROAD DIET)	STATE MAINTENANCE
	INSTALL PEDESTRIAN MIDBLOCK CROSSING WITH PEDESTRIAN SAFETY ISLAND	LOCAL FUNDS

SHEET 3 OF 3

POTENTIAL RESURFACING BY STATE MAINTENANCE (FY 2022-2025)

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

SR 247/PIO NONO AVENUE SR 22 TO SR 74 EXISTING CONDITIONS

P.I. NUMBER N/A

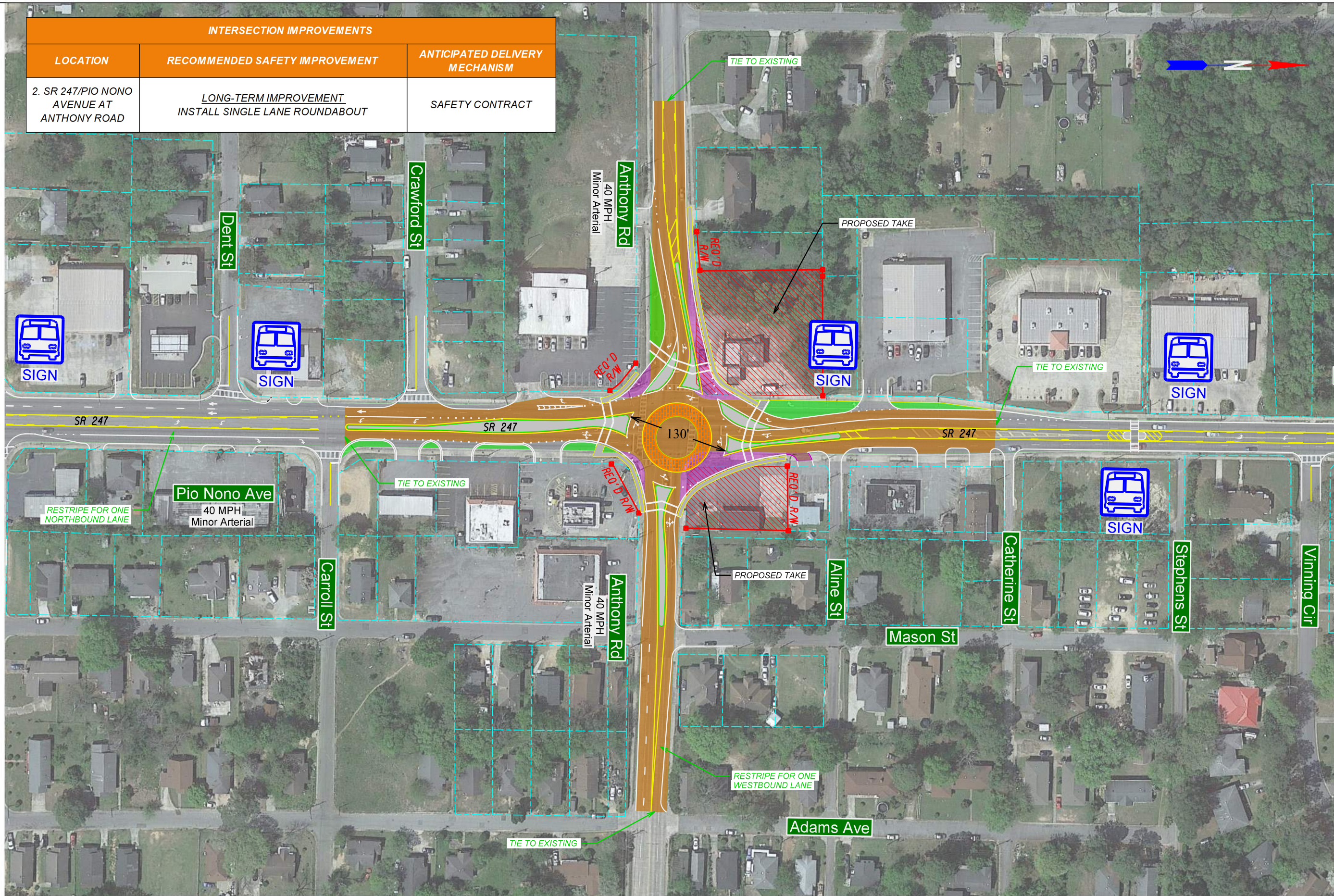
SCALE IN FEET

0 120 240

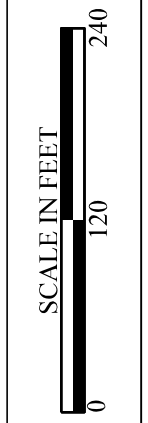
Georgia Department of Transportation

ARCADIS

INTERSECTION IMPROVEMENTS		
LOCATION	RECOMMENDED SAFETY IMPROVEMENT	ANTICIPATED DELIVERY MECHANISM
2. SR 247/PIO NONO AVENUE AT ANTHONY ROAD	<u>LONG-TERM IMPROVEMENT</u> INSTALL SINGLE LANE ROUNDABOUT	SAFETY CONTRACT



STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
SR 247/PIO NONO AVENUE
SR 22 TO SR 74
CORRIDOR STUDY DISPLAY



- PROPOSED FULL DEPTH PAVEMENT
- PROPOSED RESURFACING
- COLORED STAMPED CONC. TRUCK APRONS
- PROPOSED SIDEWALK
- PROPOSED GRASS STRIPS
- SCARIFY / REMOVE

SHEET 2A
PROPOSED
ROUNDABOUT
PROJECT

P.I. NUMBER
N/A

Appendix L: Agency Coordination

From: [Kellett, Ryan](#)
To: [Cressman, Norm](#)
Subject: RE: District 3 Resurfacing
Date: Thursday, June 6, 2019 8:34:07 AM
Attachments: [image001.png](#)

Currently nothing has been submitted to the State Maintenance Office past FY21. Looking at the past ratings I would suspect **FY22-25** that route would be going, from MP 8.2-15.29. This would fall in the limits, you are describing. The letting of that just depends on backlogs and funding.

Hopefully that helps...

From: Cressman, Norm <Normand.Cressman@arcadis.com>
Sent: Wednesday, June 5, 2019 3:37 PM
To: Kellett, Ryan <rkellett@dot.ga.gov>
Subject: District 3 Resurfacing

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Ryan. We are looking at a Safety project on SR 247 in Bibb County from SR 22 to Dora Street. I don't see a proposed resurfacing project for FY 20 or 21 here.

Can you tell me if this one is on the radar in the next 3-5 years? Thanks N

Norm Cressman | Normand.Cressman@arcadis.com

ARCADIS, Inc.

M: 678.907.9961

www.arcadis.com



Please consider the environment before printing this email.

This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please note that any form of distribution, copying or use of this communication or the information in it is strictly prohibited and may be unlawful. If you have received this communication in error, please return it to the sender and then delete the email and destroy any copies of it. While reasonable precautions have been taken to ensure that no software or viruses are present in our emails, we cannot guarantee that this email or any attachment is virus free or has not been intercepted or changed. Any opinions or other information in this email that do not relate to the official business of Arcadis are neither given nor endorsed by it.

Hands-free cell phone use is the law when driving in Georgia. When drivers use cell phones and other electronic devices it must be with hands-free technology. There are many facets to the law. For details, visit <https://www.gahighwaysafety.org/highway-safety/hands-free-law/>

Gonzalez, Juan (US)

From: Daniel, Jeremy <jedaniel@dot.ga.gov>
Sent: Thursday, December 5, 2019 9:40 AM
To: Gonzalez, Juan (US)
Cc: Wallace, Jonathan; Peek, Tyler
Subject: FW: TE Studies - Pavement Rating request

Juan,

Please see below. Thanks.

Jeremiah Daniel, P.E.
Assistant District Traffic Engineer



District 3
115 Transportation Blvd
Thomaston, GA, 30286
706.646.7513 office

From: Kellett, Ryan <rkellett@dot.ga.gov>
Sent: Thursday, December 5, 2019 8:27 AM
To: Daniel, Jeremy <jedaniel@dot.ga.gov>
Subject: RE: TE Studies - Pavement Rating request

1. SR 247 from SR 22 to SR 74 = dTims 72.00
2. SR 22 from Canterbury Road to I-75 NB Ramps = dTims 79.93 and 74.75

From: Daniel, Jeremy <jedaniel@dot.ga.gov>
Sent: Thursday, December 5, 2019 8:07 AM
To: Kellett, Ryan <rkellett@dot.ga.gov>
Subject: FW: TE Studies - Pavement Rating request

Do you have this information?

Jeremiah Daniel, P.E.
Assistant District Traffic Engineer



District 3
115 Transportation Blvd