



PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

CITY OF CLARKSTON
DEKALB COUNTY, GEORGIA

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1. INTRODUCTION

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

This pedestrian crossing study was conducted to evaluate the pedestrian activity crossing North Indian Creek Drive at Rowland Street. This study analyzes the various options that can be utilized to provide a safer method of crossing North Indian Creek Drive. The study area is shown in Figure 1.

Figure 1 - Study Intersection Map



Methodology

Initial evaluations were made of the various types of pedestrian crossings utilized in Georgia. The Georgia Department of Transportation (GDOT) and the Manual on Uniform Traffic Control Devices (MUTCD) specify criteria for deciding where, if, and the type of marked crosswalk that should be installed. The applicable criteria required to warrant approved types of pedestrian crossings was gathered and was used in identifying the necessary data. The collected data included 12-hour (6:30 AM to 6:30 PM), Pedestrian count data, vehicular count data, and 24-hour vehicular speed data. All data was collected on a typical weekday with good weather to provide accurate count data for the analysis. The various types of pedestrian crossings were analyzed for potential operation at this location. The concept proposed by the PATH foundation was analyzed with comments provided for potential modifications.

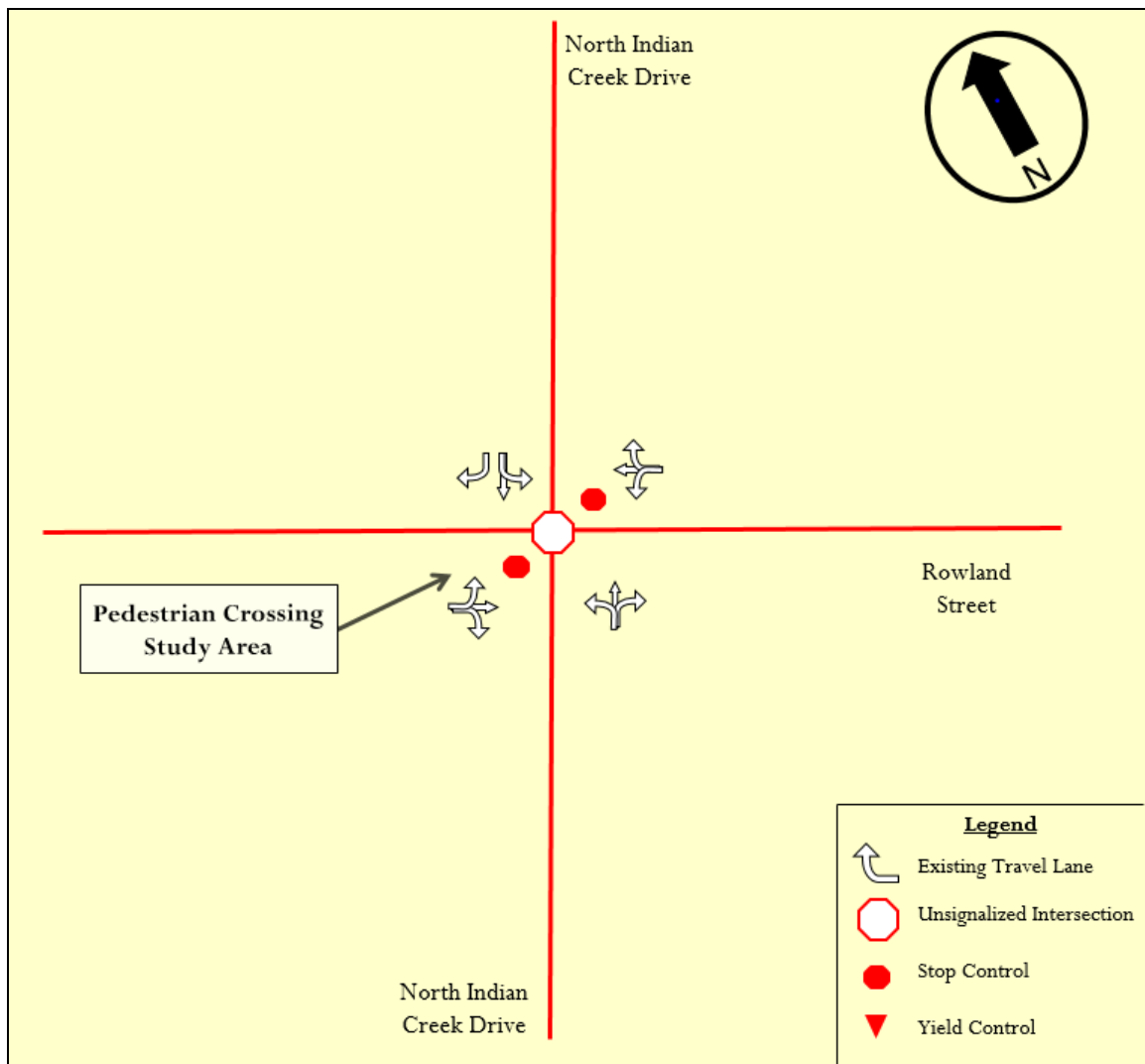
2. EXISTING CONDITIONS

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

Study Intersection Characteristics

The study intersection at North Indian Creek Drive and Rowland Street is located in Clarkston, GA. This intersection encompasses a major collector road and a local road. North Indian Trail Drive is a two-lane two-way roadway in the vicinity of the study area. The speed limit on North Indian Trail Drive is posted at 35 mph. Rowland Street is a two-lane two-way street with a speed limit of 25 mph in the vicinity of study area. The existing lane geometry and traffic control for the study intersection area are shown below in Figure 2.

Figure 2 - Study Intersection Existing Travel Lanes and Traffic Control



Rowland Street forms a four-legged intersection with North Indian Creek Drive. The Northbound approach serves as one of the two access points to a series of residential driveways, and the

Southbound approach serves as one of two access points to a series of residential properties located to Northeast of the study intersection. Both the Northbound and Southbound approaches of Rowland Street are stop sign controlled and North Indian Creek Drive is free flow.

Existing Traffic Flow Data

12-hour Vehicle tube counts, pedestrian counts and 24-hour vehicle speed data and were collected on Tuesday, February 7th, 2017 at the study intersection. Table 1 shows the pedestrian activity at North Indian Creek Drive and Rowland Street Intersection. During AM and PM peak periods pedestrian numbers corresponding to the directional column in the table are the pedestrians crossing the corresponding leg of the intersection.

Table 1 - Pedestrian Data Collection Results

North Indian Creek Drive & Rowland Street					
AM Peak Observed 2/7/2017 8:45 AM - 9:45 AM					
Time Period	East	West	North	South	Total
8:45 AM - 9:00 AM	4	0	2	2	8
9:00 AM - 9:15 AM	1	1	0	2	4
9:15 AM - 9:30 AM	0	0	0	5	5
9:30 AM - 9:45 AM	0	0	2	0	2
Total	5	1	4	9	19
PM Peak Observed 2/7/2017 1:30 PM - 2:30 PM					
Time Period	East	West	North	South	Total
1:30 PM - 1:45 PM	2	0	3	1	6
1:45 PM - 2:00 PM	1	1	2	3	7
2:00 PM - 2:15 PM	1	2	0	2	5
2:15 PM - 2:30 PM	4	1	0	2	7
Total	8	4	5	8	25

The pedestrians that did cross were observed to cross North Indian Creek Drive frequently during AM and PM peak hours. During the AM peak hour, 6 out of the total 19 pedestrians crossed North Indian Creek Drive. During the PM peak hour, 12 out of the total 25 pedestrians were observed to cross North Indian Creek Drive. The existing conditions show crosswalks located on north and south side of the intersection to cross Rowland Street. Crosswalks were not present on the east and west side of the intersection to cross North Indian Creek Drive.

Figure 3 - Crosswalks on North and South Side of the Intersection



3. POTENTIAL SOLUTIONS/ANALYSIS

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

There are various types of pedestrian crossings that can be utilized to allow for a safer pedestrian crossing than what currently exists in the study area today. The following is a list of the various types of crossings and descriptions of their operation. While GDOT’s approval of a pedestrian crossing treatment installation, if applicable, is not required since North Indian Creek Drive is not a designated state route, this report still uses GDOT’s criteria for installing a pedestrian crossing treatment. These various types of pedestrian crossings vary in amount of warning for the vehicle, the indications for the vehicle and pedestrian, and the method of activation.

Treatment #1: Pedestrian Sign with No Flashing Beacons

The pedestrian sign with no flashing beacons is comprised of a crosswalk with a static pedestrian sign (W11-2). This type of crossing advises the driver of potential pedestrian activity in the vicinity: It provides identification of a crosswalk, but does not give drivers a different message when there is a pedestrian present at the crosswalk. This type of crossing is utilized in lower pedestrian volume areas and sections of roadway that have no sight distance restrictions, thereby providing drivers with a clear line of sight to the crosswalk. It should be noted that there are no required pedestrian volumes or vehicular speeds and volumes to warrant this type of crossing treatment. However, this type of treatment is typically used in low pedestrian volume locations. The highest maximum pedestrian crossing volume at any hour of the day of pedestrian data collection is 12. Therefore, this type of pedestrian treatment can be utilized. Figure 4 shows the intersection of Peeler Road and Lakeside Drive in Dunwoody, which is an example of a pedestrian crossing with no flashing beacons.

Figure 4 - Example of Pedestrian Crossing with No Flashers



Treatment #2: Pedestrian Sign with Wig Wag Flashers

The pedestrian sign with wig wag flasher type crossing is comprised of a crosswalk with a pedestrian sign (W11-2) that includes wig wag flashers on both vehicular approaches. The wig wag flashers operate continuously (24-hours a day) and thus are not activated by the presence of a pedestrian. No pedestrian button is present at this type of crossing. This type of crossing warns the driver of a potential pedestrian crossing but does not operate any differently with a pedestrian present or absent. This type of crossing is installed in lower pedestrian volume areas and provides a warning to the driver that pedestrian activity is common in the area. However, there are no specific pedestrian volumes or vehicular volumes and speed criteria to warrant this type of crossing treatment. Since the maximum number of pedestrians crossing the North Indian Creek Drive at any hour of the day of pedestrian data collection is 12, this type of pedestrian treatment can be utilized. Figure 5 shows an example of a midblock pedestrian crossing in downtown Decatur, which has continuous wig wag flashers.

Figure 5 - Example of Pedestrian Crossing with Continuous Wig Wag Flashers



Treatment #3: Pedestrian Sign with Wig Wag Flashers Activated by Pedestrian

The pedestrian sign with wig wag flasher type crossing is comprised of a crosswalk with a pedestrian sign (W11-2) that includes wig wag flashers on both vehicular approaches. The wig wag flashers operate for a short duration of time only when there is the presence of a pedestrian. The flashers are activated by a pedestrian push button, which is present at this type of crossing. This type of crossing warns the driver of a pedestrian crossing at this location. This type of crossing is utilized in lower pedestrian volume areas and provides a warning to the driver that pedestrian activity is common in the area. The pushbutton activation feature warns a driver that a pedestrian is either waiting to cross, in the process of crossing, or has just finished crossing. This type of installation is no longer utilized, and has been replaced with Treatment #4. Figure 6 shows the midblock pedestrian crossing on Peachtree Corners Circle located just northeast of the intersection of with Eastman Trail in Peachtree Corners. Treatment #4, which consists of a Pedestrian sign with Rapid Flashing Beacon (RFB), is described next.

Figure 6 - Example of Pedestrian Crossing with Wig Wag Flashers Active by Push Button



Treatment #4: Pedestrian Sign with Rapid Flashing Beacon (RFB)

The pedestrian sign with RFB is comprised of a crosswalk with a pedestrian sign (W11-2) that includes an RFB. The beacon is activated by a pedestrian button located at each end of the crosswalk. The RFB remains dark until activated by the button. A center refuge island can be in the center of the roadway to shorten the crossing distance and provide a safer crossing. No indications are present for the pedestrian. This type of crossing can be used in lower to moderate pedestrian volume areas and provides a warning to the driver when a pedestrian is present. However, there are no specific pedestrian volumes or vehicular volume and speed criteria to warrant this type of crossing treatment. Figure 7 shows the midblock crossing with an RFB on Tilly Mill Road at the city limit of the city of Dunwoody. With 12 pedestrians during peak hour, an RFB could be one of the potential pedestrian crossings used at this intersection.

Figure 7 - Example of Pedestrian Crossing with Pedestrian Activated Rapid Flashing Beacon



Treatment #5: Hawk Signal

A Hawk signal is a High intensity Activated cross Walk. Depending upon the width of the roadway and the median size, the crossing can be a one or two stage crossing. A pedestrian utilizing the crossing presses the button to activate the first signal, when the traffic signal turns red, a “walk” indication allows the pedestrian to cross the first stage. Once reaching the center Refuge Island the pedestrian presses the second button to activate the second signal. The vehicular indication is a three section signal head with two side by side red indications above a yellow indication. The vehicular signals are dark until activated by the pedestrian, while the pedestrian signals are a solid orange hand (don’t walk) indication. Once activated by the pedestrian, the vehicular signal flashes yellow to warn drivers that the signal has been activated. The vehicular signal then turns to solid yellow to prepare the drivers to stop. Both red vehicular indications turn solid red while the pedestrian signal changes to a white walking man. After the walk time has elapsed the pedestrian clearance times out, the pedestrian signal changes to a flashing orange hand and a countdown timer, while the vehicular indication changes to a flashing red. The flashing red allows a vehicle to proceed through the crosswalk after the pedestrian has crossed its path. After the countdown time has elapsed, the signals revert back to solid orange hand for the pedestrian and dark for the vehicle.

Figure 8 shows the midblock signalized crossing along SR 155/Candler Road in Decatur, which is an example of a pedestrian crossing with a hawk signal.

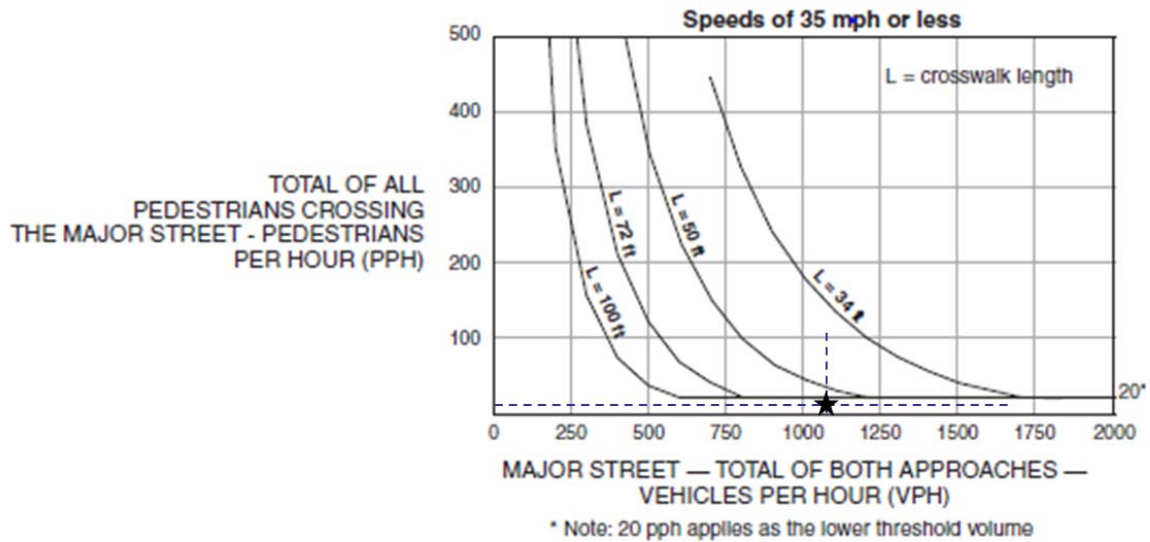
Figure 8 - Example of Pedestrian Crossing with Hawk Signal



Guidelines for the installation of pedestrian signals on Low-speed roadways (speeds of 35 MPH or less) were applied from the MUTCD for the observed crossing locations within the study area, and are shown below. The posted speed limit along this section of North Indian Creek Drive is 35 MPH and the overall 85th Percentile speed was measured to be 32 MPH. Therefore, Figure 9 is utilized for determining if a Hawk signal is warranted at this location. Each curve has an associated expected crosswalk length (L), if a marked crosswalk were to be installed. North Indian Creek Drive is a two-lane two-way roadway. The measured curb to curb crossing distance at the study intersection is approximately 50 feet. The highest one hour peak pedestrian crossings occur between 1:30 PM and 2:30 PM, and totaled 12 crossings. The bi-directional traffic volume between 1:30 PM and 2:30 PM is 1071 vehicles per hour.

As can be seen, the combination of the major street total bi-directional traffic and the number of pedestrians crossing in the peak hour falls below the applicable curve. Also, the number of pedestrian crossings during the peak hour does not currently meet the threshold of 20 pedestrian crossings per hour; therefore, warrant for installing a Hawk Signal was NOT met for installation.

Figure 9 - Guidelines for Installing HAWK Signal (Low-Speed Highways)



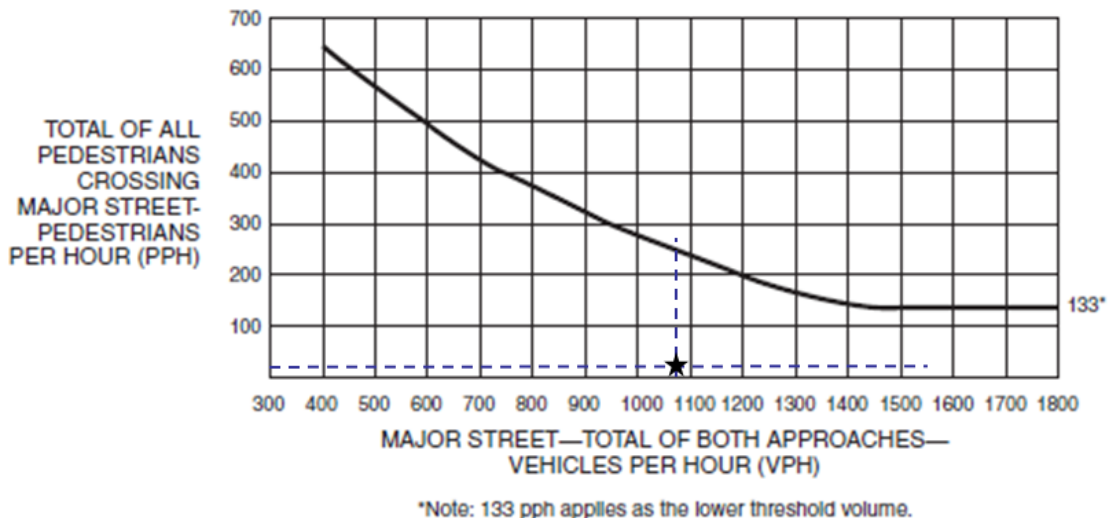
Treatment #6: Traffic Signal

A traffic signal provides the highest level of pedestrian crossing protection across all approaches to an intersection that are signalized. Both vehicles and pedestrians each have their own signal indication. A pedestrian utilizing a crossing at a signalized intersection presses the push button to place a call into the signal controller. Depending upon the programming of the signal at the intersection, the pedestrian is given a “walk” indication either at the same time as the adjacent vehicular movement (e.g. concurrent pedestrian phase) or by itself (e.g. exclusive pedestrian phase). After the “walk” indication is given, a flashing hand with or without a countdown of time remaining to cross before right of way is given to another direction and vehicular movement.

Warrant four (4) in the traffic signal warrants section of the MUTCD is shown below. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 10 . The highest one hour peak pedestrian crossings occurred between 1:30 PM and 2:30 PM, and totaled 25 crossings of which 12 were accounted crossing the North Indian Creek Drive. The bi-directional traffic volume between 1:30 PM and 2:30 PM is 1071 vehicles per hour.

As can be seen, the combination of the major street total bi-directional traffic and the number of pedestrians crossing the major street in the peak hour falls below the curve. Additionally, the number of pedestrian crossings during the peak hour falls below the minimum threshold of 133 pedestrian crossings per hour; therefore, Warrant 4 is NOT met for the installation of a standard traffic signal.

Figure 10 - Warrant 4 (Pedestrian Peak Hour), Traffic Signal Warrants Analysis



4. CONCEPT REVIEW

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

An analysis of the concept proposed by PATH foundation was performed to study the effect of restricting left-turns at the intersection. Synchro models were created for AM and PM peak hour conditions for both existing and proposed scenarios. The existing scenario was modeled with the exact lane configuration that exists at this intersection today. The proposed scenario was modelled with the lane configuration proposed by the path foundation.

It was observed that the proposed concept did not negatively affect the traffic operations at the intersection. In fact, eliminating the left turns on North Indian Creek Drive and right-in right-out treatment on Rowland street slightly improved the traffic operations at the intersection. The Northbound and Southbound approaches experienced lesser delays due to the elimination of through and left turn movements. Since the traffic control for the Eastbound and Westbound approaches is free and left turns are prohibited, these movements were shown to have zero delays. Table 2 and Table 3 shows the comparison of HCM delays between existing and proposed models for AM and PM peak hours respectively.

Table 2 - Operational Analysis Results AM Peak Hour

N Indian Creek Dr @ Rowland St AM Peak				
	HCM Control Delay (S)			
	Eastbound	Westbound	Northbound	Southbound
Existing	0.3	0.2	38.3	29.1
Proposed	0	0	11.4	12.9

Table 3 - Operational Analysis Results PM Peak Hour

N Indian Creek Dr @ Rowland St PM Peak				
	HCM Control Delay (S)			
	Eastbound	Westbound	Northbound	Southbound
Existing	0.1	0.3	40.9	42
Proposed	0	0	15.7	12

The existing conditions do not provide any protected pedestrian crossing across North Indian Creek Road. The concept proposed by PATH foundation provides protected pedestrian crossings with crosswalks on both the east and west side of the intersection. Few revisions were made to the concept proposed by the PATH, which will be discussed in the conclusions chapter.

5. CONCLUSIONS & RECOMMENDATIONS

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

Based upon the analyses of peak hour data, both a traffic signal (Treatment #6) and a Hawk Signal (Treatment #5) are not currently warranted. An argument could be made that this improvement to the safety of this crossing will increase the number of crossing per hour and therefore could warrant one of these options. Since Treatment #3 is no longer installed, the available remaining options are to install Treatments #1, #2, and #4. Installing Treatment #2 may not be effective given the continuous wig-wag flashers, thereby desensitizing drivers to the presence of a pedestrian. An RFB (Treatment #4) could be an effective installation, due to the pedestrian actuated nature of the device; however, this treatment has the following guidance provided in the MUTCD:

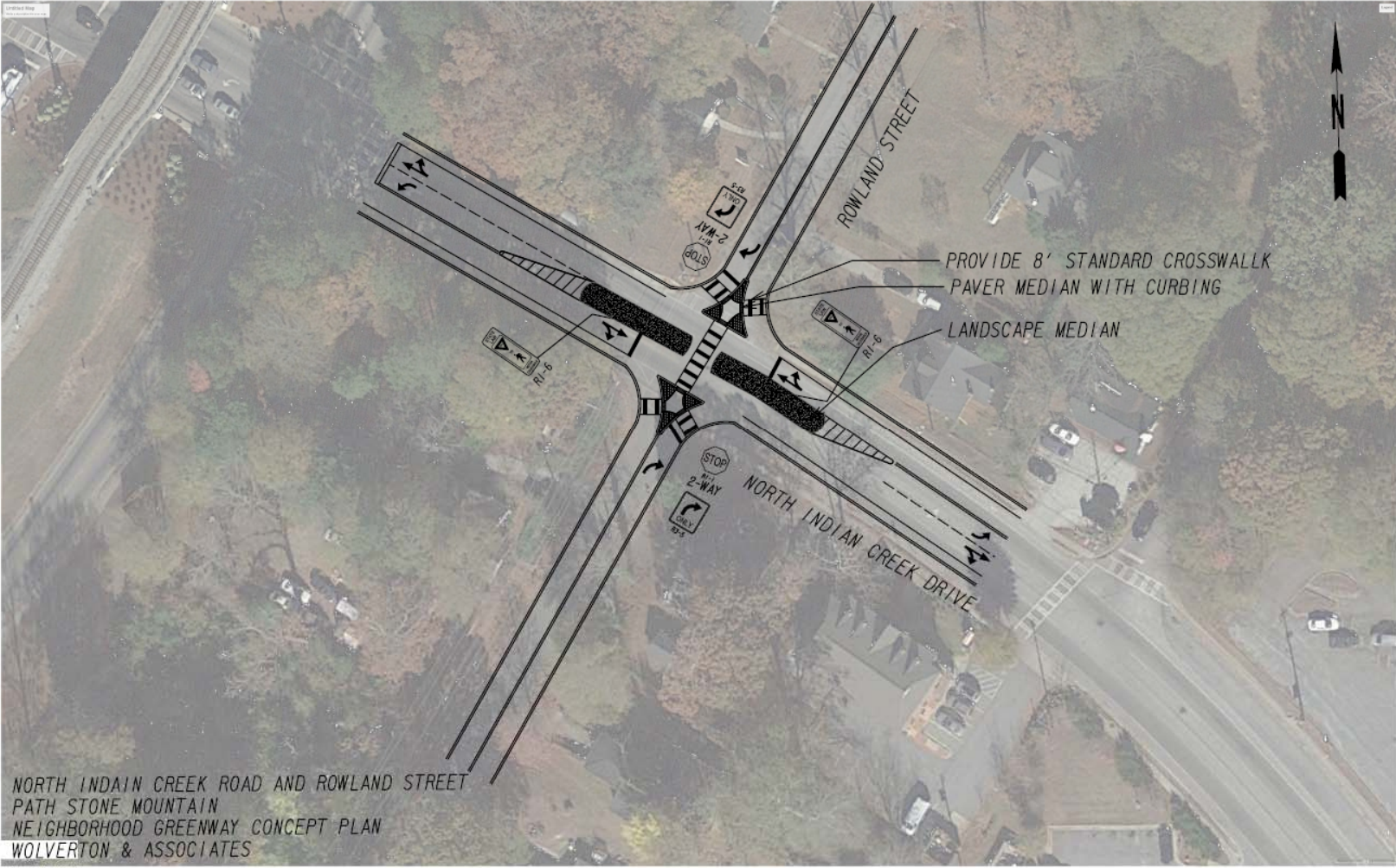
Guidance: When an engineering study finds that installation of a pedestrian hybrid beacon is justified, then:

- A. The pedestrian hybrid beacon should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs,*
- B. Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk, or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance,*
- C. The installation should include suitable standard signs and pavement markings, and*
- D. If installed within a signal system, the pedestrian hybrid beacon should be coordinated.*

Utilizing an RFB treatment could require the pedestrian crossing to be relocated at least 100 feet to the east or west of the intersection. Since the pedestrians and bicyclists use Rowland street to travel north and south, moving the crosswalk away from the intersection would not be practical. Installation of an RFB is a decision at the discretion of the City per the MUTCD guidelines. Wolverton supports this option for this specific use provided the right-in-right-out improvements are installed on both approaches of Rowland Street. A standalone crosswalk without any beacons (Treatment #1), with signs commanding vehicles to stop for pedestrians within the crosswalk is the other option for this location.

Few alterations were done to the concept proposed by the PATH foundation. A new concept was developed with one crosswalk to cross the North Indian Creek Drive. One crosswalk is expected to be efficient and provides the drivers with one pedestrian conflict point. Two crosswalks require drivers to watch for pedestrians crossing at two different locations. As per the revised proposed concept, the pedestrian crossing on North Indian Creek Drive are made in two stages. Pedestrians start crossing from the raised triangular islands on either the north or south side of the intersection. When there is an adequate gap they cross one travel lane of North Indian Creek Drive and reach the refuge island in the center. When an adequate gap is available they cross the second travel lane and reach the triangular island on the other side. The revised concept is shown in the Figure 11.

Figure 11 - Revised Concept Plan



REFERENCES

1. AASHTO A Policy on Geometric Design of Highways and Streets, 6th Edition, American Association of State Highway and Transportation Officials, Washington, DC, 2011.
2. Manual on Uniform Traffic Control Devices, 2009 Edition, Federal Highway Administration, Washington, DC, 2009.
3. Traffic Calming: State of the Practice, Chapter 3 – Toolbox of Traffic Calming Measures. Institute of Transportation Engineers (ITE), August 1999.
4. “Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines.” Research, Development, and Technology Turner-Fairbank Highway Research Center. U.S. Department of Transportation Federal Highway Administration. McLean, VA, 2005.

APPENDICES

PEDESTRIAN CROSSING STUDY NORTH INDIAN CREEK DRIVE AT ROWLAND STREET

APPENDIX A: TRAFFIC COUNTS

All Traffic Data Service, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

Site Code: 1
Station ID: 1
N INDIAN CREEK DRIVE WEST OF
ROWLAND STREET

EB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
02/07/17	0	0	0	0	0	0	1	7	7	2	0	2	0	0	19
00:15	0	0	0	0	0	0	4	7	1	1	2	2	0	1	18
00:30	0	0	0	0	0	0	1	3	3	3	0	0	2	0	12
00:45	0	0	0	0	0	0	0	3	5	4	2	0	0	1	15
01:00	0	0	0	0	0	0	6	20	16	10	4	4	2	2	64
01:15	0	0	0	0	1	1	1	2	1	1	1	0	0	1	9
01:30	0	0	0	0	0	1	1	3	2	3	0	0	0	0	10
01:45	0	0	0	0	0	0	1	3	3	4	1	0	1	0	13
02:00	0	0	0	0	1	2	6	11	8	9	3	0	1	1	42
02:15	0	0	0	0	0	0	1	5	4	2	0	0	1	0	13
02:30	0	0	0	0	0	0	0	4	1	4	1	0	0	0	10
02:45	0	0	0	0	0	0	5	7	5	2	0	0	0	1	20
03:00	0	0	0	0	0	0	1	2	4	1	1	1	0	0	10
03:15	0	0	0	0	0	0	7	18	14	9	2	1	1	1	53
03:30	0	0	0	0	0	0	1	2	3	3	0	0	1	0	10
03:45	0	0	0	0	0	1	1	1	5	5	3	0	0	0	16
04:00	0	0	0	0	0	2	1	2	1	1	1	0	0	1	9
04:15	0	0	0	0	0	0	3	1	2	1	0	0	0	0	7
04:30	0	0	0	0	0	3	6	6	11	10	4	0	1	1	42
04:45	0	0	0	0	1	1	2	1	2	0	1	0	0	0	8
05:00	0	0	0	0	0	0	2	0	4	0	0	0	0	0	6
05:15	0	0	0	0	0	2	2	4	1	7	1	0	0	0	17
05:30	0	0	0	0	0	2	3	6	3	3	2	1	0	0	22
05:45	0	0	0	0	1	4	9	11	13	10	4	1	0	0	53
06:00	0	0	0	0	0	2	2	0	4	4	1	1	2	0	14
06:15	0	0	0	0	0	0	3	1	3	1	2	1	0	0	13
06:30	0	0	0	0	0	3	3	3	3	4	4	0	0	1	21
06:45	0	0	0	0	1	2	3	7	3	1	0	1	2	0	20
07:00	0	0	0	0	1	7	11	11	13	10	7	3	4	1	68
07:15	0	0	0	0	1	0	0	4	7	4	6	1	1	1	25
07:30	0	0	0	0	0	0	5	6	15	7	3	0	0	0	36
07:45	2	0	0	3	2	4	3	9	8	7	2	2	0	1	43
08:00	1	0	0	3	0	6	4	14	14	12	2	2	1	0	56
08:15	3	0	0	3	3	10	12	33	44	30	13	5	2	2	160
08:30	1	0	0	0	0	5	12	13	9	7	3	1	2	1	54
08:45	0	0	0	0	0	7	15	16	20	3	5	0	0	0	66
09:00	7	0	3	1	11	6	16	14	9	8	1	3	1	0	80
09:15	4	0	0	0	1	9	13	24	10	11	3	4	1	1	81
09:30	12	0	3	1	12	27	56	67	48	29	12	8	4	2	281
09:45	1	0	0	1	0	5	21	23	33	16	4	2	3	0	109
10:00	1	0	1	4	1	9	23	32	29	16	6	1	0	1	124
10:15	2	0	1	3	4	7	12	19	13	9	8	6	0	0	84
10:30	4	0	0	4	9	7	22	22	22	10	4	0	1	0	105
10:45	8	0	2	12	14	28	78	96	97	51	22	9	4	1	422
11:00	2	0	1	5	3	7	14	21	18	5	2	3	3	2	86
11:15	4	0	0	1	4	13	22	20	16	7	3	2	2	0	94
11:30	4	0	1	9	10	6	17	24	19	12	3	3	1	2	111
11:45	2	0	0	5	2	6	17	31	16	19	4	3	1	0	106
12:00	12	0	2	20	19	32	70	96	69	43	12	11	7	4	397
12:15	0	0	0	2	2	9	21	28	18	5	0	2	1	3	91
12:30	0	0	0	1	7	15	18	17	13	8	3	2	0	0	84
12:45	0	0	0	0	0	10	19	16	22	9	5	6	2	0	89
13:00	5	0	0	6	10	12	29	24	18	4	2	2	0	0	112
13:15	5	0	0	9	19	46	87	85	71	26	10	12	3	3	376
13:30	2	1	0	2	9	15	21	42	23	5	1	2	3	5	131
13:45	2	0	1	1	7	21	19	16	17	7	5	3	0	0	99
14:00	5	1	1	5	15	27	26	16	9	5	1	2	0	0	113
14:15	2	0	2	1	4	12	21	28	32	4	5	1	1	0	113
14:30	11	2	4	9	35	75	87	102	81	21	12	8	4	5	456
Total	51	2	11	54	105	234	435	556	485	258	105	62	33	23	2414

All Traffic Data Service, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

Site Code: 1
Station ID: 1
N INDIAN CREEK DRIVE WEST OF
ROWLAND STREET

EB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
12 PM	5	0	0	0	2	11	22	36	21	13	4	3	3	1	121
12:15	5	0	0	9	11	13	27	39	11	5	2	2	0	0	124
12:30	11	0	0	1	4	19	29	30	15	13	4	0	0	1	127
12:45	6	1	2	5	14	17	25	43	21	12	2	0	0	2	150
	27	1	2	15	31	60	103	148	68	43	12	5	3	4	522
13:00	4	0	0	0	6	6	22	39	20	9	3	2	1	0	112
13:15	6	0	0	8	10	18	24	34	17	6	4	2	0	0	129
13:30	3	0	1	4	4	13	23	31	18	13	2	2	0	0	114
13:45	4	0	3	5	16	17	25	27	13	10	4	0	0	0	124
	17	0	4	17	36	54	94	131	68	38	13	6	1	0	479
14:00	1	0	0	0	2	11	20	31	11	5	6	0	1	1	89
14:15	5	0	2	3	9	18	20	34	20	6	7	1	0	0	125
14:30	7	0	4	4	33	26	31	17	6	3	0	1	0	0	132
14:45	3	0	4	3	9	20	42	38	15	7	5	0	0	0	146
	16	0	10	10	53	75	113	120	52	21	18	2	1	1	492
15:00	3	1	1	1	10	19	31	38	16	9	8	3	1	1	142
15:15	3	0	0	1	5	10	26	42	25	17	3	3	0	1	136
15:30	5	0	1	7	10	20	24	25	15	12	2	2	0	1	124
15:45	10	0	4	22	34	38	34	27	17	3	0	0	0	0	189
	21	1	6	31	59	87	115	132	73	41	13	8	1	3	591
16:00	8	0	0	6	14	19	31	27	24	5	2	0	1	1	138
16:15	4	1	0	7	12	26	24	47	18	6	0	1	0	0	146
16:30	9	0	1	6	13	39	35	24	15	5	2	0	0	0	149
16:45	15	0	2	8	21	53	41	30	20	6	2	0	0	0	198
	36	1	3	27	60	137	131	128	77	22	6	1	1	1	631
17:00	5	0	2	12	15	33	56	30	22	6	3	1	0	1	186
17:15	9	0	1	13	21	26	36	42	38	6	1	1	0	0	194
17:30	4	1	1	3	12	32	24	52	36	10	7	0	0	1	183
17:45	4	0	2	7	8	20	43	40	41	10	3	2	2	0	182
	22	1	6	35	56	111	159	164	137	32	14	4	2	2	745
18:00	7	0	1	8	5	24	56	46	29	6	1	0	0	0	183
18:15	3	0	2	1	7	23	39	40	19	11	3	3	1	0	152
18:30	4	0	0	1	11	27	38	36	23	7	4	0	0	0	151
18:45	2	0	0	0	6	8	23	50	31	14	5	2	0	0	141
	16	0	3	10	29	82	156	172	102	38	13	5	1	0	627
19:00	1	0	0	0	1	7	19	44	34	12	3	4	1	1	127
19:15	4	0	0	0	2	8	25	34	24	3	4	2	1	3	110
19:30	2	0	0	0	0	14	17	22	25	23	6	1	1	0	111
19:45	2	0	1	0	3	10	8	17	24	13	0	1	2	3	84
	9	0	1	0	6	39	69	117	107	51	13	8	5	7	432
20:00	1	0	0	0	1	5	8	7	17	3	4	6	4	0	56
20:15	4	0	0	0	0	1	9	15	17	17	6	1	3	0	73
20:30	0	0	0	0	0	1	13	11	17	7	8	2	1	4	64
20:45	2	0	0	1	0	0	7	15	19	9	5	3	1	1	63
	7	0	0	1	1	7	37	48	70	36	23	12	9	5	256
21:00	0	0	0	0	0	1	6	22	10	5	5	2	1	2	54
21:15	0	0	0	0	0	0	6	11	20	6	5	0	3	1	52
21:30	0	0	0	0	0	1	11	14	10	6	7	1	1	0	51
21:45	0	0	0	0	0	1	6	10	12	8	1	0	1	1	40
	0	0	0	0	0	3	29	57	52	25	18	3	6	4	197
22:00	3	0	0	0	1	2	6	12	8	6	5	3	2	0	48
22:15	0	0	0	0	1	6	9	12	7	6	3	1	0	0	45
22:30	0	0	0	0	0	0	2	9	5	7	4	1	1	1	30
22:45	0	0	0	0	0	1	4	6	9	6	3	0	0	0	29
	3	0	0	0	2	9	21	39	29	25	15	5	3	1	152
23:00	0	0	0	0	0	1	3	6	3	3	2	4	0	0	22
23:15	0	0	0	0	0	1	3	8	6	2	2	2	0	1	25
23:30	0	0	0	0	0	1	2	8	7	2	5	0	1	1	27
23:45	0	0	0	0	0	0	3	7	4	1	0	0	0	0	15
	0	0	0	0	0	3	11	29	20	8	9	6	1	2	89
Total	174	4	35	146	333	667	1038	1285	855	380	167	65	34	30	5213
Grand Total	225	6	46	200	438	901	1473	1841	1340	638	272	127	67	53	7627

15th Percentile : 15 MPH
50th Percentile : 21 MPH
85th Percentile : 27 MPH
95th Percentile : 30 MPH

Stats Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 18-27 MPH
Number in Pace : 4915
Percent in Pace : 64.9%

Number of Vehicles > 55 MPH :	0
Percent of Vehicles > 55 MPH :	0.0%

All Traffic Data Service, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

Site Code: 1.5
Station ID: 1.5
N INDIAN CREEK DRIVE WEST OF
ROWLAND STREET

WB	Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
	02/07/17	1	0	0	0	0	0	1	3	0	0	3	1	5	2	16
	00:15	2	0	0	0	0	0	3	1	2	2	1	2	1	2	16
	00:30	0	0	0	0	0	0	1	2	0	2	0	2	2	1	10
	00:45	0	0	0	0	0	1	2	2	1	0	0	0	2	2	10
		3	0	0	0	0	1	7	8	3	4	4	5	10	7	52
	01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3
	01:15	3	0	0	0	0	0	0	1	0	1	1	1	0	1	8
	01:30	2	0	0	0	0	1	0	0	0	0	3	2	2	3	13
	01:45	0	0	0	0	0	0	1	1	1	1	1	1	1	0	7
		6	0	0	0	0	1	1	2	1	2	5	4	3	6	31
	02:00	1	0	0	0	0	0	2	0	0	1	2	1	0	0	7
	02:15	2	0	0	0	1	1	2	2	5	2	0	2	1	1	19
	02:30	0	0	0	0	0	0	0	1	2	2	0	1	2	0	8
	02:45	0	0	0	0	0	0	2	3	4	3	2	4	2	3	23
		3	0	0	0	1	1	6	6	11	8	4	8	5	4	57
	03:00	1	0	0	0	0	0	1	0	2	2	0	1	1	1	9
	03:15	1	0	0	0	0	0	0	1	1	1	2	1	0	0	7
	03:30	4	0	0	0	0	1	0	0	0	2	0	1	2	1	11
	03:45	2	0	0	0	0	2	0	3	0	0	0	1	0	2	10
		8	0	0	0	0	3	1	4	3	5	2	4	3	4	37
	04:00	2	0	0	0	0	0	2	1	1	0	3	1	1	0	11
	04:15	8	0	0	0	0	1	0	0	0	1	1	2	1	1	15
	04:30	4	0	0	0	0	0	0	3	0	0	1	0	3	1	12
	04:45	8	0	0	0	1	1	1	3	3	2	0	3	2	4	28
		22	0	0	0	1	2	3	7	4	3	5	6	7	6	66
	05:00	3	0	0	1	0	1	1	1	1	3	3	1	3	4	22
	05:15	3	0	1	0	2	1	2	3	4	3	2	5	3	4	33
	05:30	3	0	0	0	0	2	3	5	6	9	6	1	3	3	41
	05:45	10	0	0	0	0	0	1	2	2	6	4	6	3	10	44
		19	0	1	1	2	4	7	11	13	21	15	13	12	21	140
	06:00	13	0	0	0	0	1	2	7	2	5	4	5	5	8	52
	06:15	27	0	0	0	1	1	6	10	5	6	3	5	3	3	70
	06:30	28	0	0	0	1	6	6	7	9	10	7	9	8	12	103
	06:45	29	0	0	6	8	7	7	9	15	13	15	13	9	17	148
		97	0	0	6	10	15	21	33	31	34	29	32	25	40	373
	07:00	27	0	2	4	6	10	9	10	12	9	4	3	8	17	121
	07:15	32	0	0	3	8	7	11	17	12	10	11	17	13	13	154
	07:30	40	2	5	7	5	9	12	13	14	17	13	9	5	10	161
	07:45	15	0	5	3	8	5	8	7	14	14	22	11	7	9	128
		114	2	12	17	27	31	40	47	52	50	50	40	33	49	564
	08:00	33	1	2	8	2	11	13	11	15	16	24	10	15	22	183
	08:15	30	1	1	4	7	4	17	10	16	10	4	9	13	16	142
	08:30	31	2	4	6	6	10	12	11	10	14	9	8	16	19	158
	08:45	31	1	3	6	5	7	8	13	11	7	12	14	8	13	139
		125	5	10	24	20	32	50	45	52	47	49	41	52	70	622
	09:00	22	0	3	6	13	12	7	6	9	14	12	8	7	12	131
	09:15	15	0	0	0	3	6	10	7	12	17	8	11	16	7	112
	09:30	14	0	2	4	7	8	14	14	8	7	9	11	8	7	113
	09:45	27	0	1	2	7	7	4	13	4	12	14	16	10	4	121
		78	0	6	12	30	33	35	40	33	50	43	46	41	30	477
	10:00	20	0	2	4	6	7	7	15	7	6	8	6	18	10	116
	10:15	21	0	0	2	6	9	16	9	8	10	9	8	4	4	106
	10:30	9	0	1	3	2	6	10	7	8	5	9	12	11	9	92
	10:45	19	0	1	1	5	4	8	7	10	11	17	7	12	5	107
		69	0	4	10	19	26	41	38	33	32	43	33	45	28	421
	11:00	19	0	1	1	7	10	9	13	14	14	11	12	5	6	122
	11:15	33	2	0	5	12	13	7	11	17	13	8	10	8	8	147
	11:30	33	0	3	1	11	11	12	7	10	10	17	9	4	2	130
	11:45	27	1	2	4	11	15	7	9	10	8	15	7	12	2	130
		112	3	6	11	41	49	35	40	51	45	51	38	29	18	529
	Total	656	10	39	81	151	198	247	281	287	301	300	270	265	283	3369

All Traffic Data Service, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

Site Code: 1.5
Station ID: 1.5
N INDIAN CREEK DRIVE WEST OF
ROWLAND STREET

WB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	999	Total
	12 PM	28	1	3	3	8	8	10	13	9	10	7	9	8	7		124
	12:15	32	0	2	3	6	8	6	12	6	18	11	17	9	4		134
	12:30	37	1	1	6	8	9	15	21	21	9	17	6	4	3		158
	12:45	41	0	4	8	10	7	13	16	11	16	7	9	7	9		158
	13:00	138	2	10	20	32	32	44	62	47	53	42	41	28	23		574
	13:15	29	2	1	6	9	3	17	17	6	18	11	18	7	4		148
	13:30	32	2	1	8	12	12	11	24	17	18	12	15	7	6		177
	13:45	22	1	3	3	8	11	13	11	12	15	14	10	2	3		128
	14:00	30	0	2	6	10	10	10	12	9	16	9	7	6	10		137
	14:15	113	5	7	23	39	36	51	64	44	67	46	50	22	23		590
	14:30	22	0	0	6	8	14	9	12	12	14	12	12	4	9		134
	14:45	37	1	2	5	6	12	14	5	15	9	15	13	6	11		151
	15:00	45	0	0	4	8	9	14	11	8	13	15	8	4	3		142
	15:15	33	2	8	11	15	18	17	14	27	19	11	13	3	2		193
	15:30	137	3	10	26	37	53	54	42	62	55	53	46	17	25		620
	15:45	24	0	4	6	12	14	10	20	17	7	16	11	8	6		155
	16:00	20	0	4	6	7	14	14	11	13	14	17	11	9	12		152
	16:15	40	2	5	5	8	6	13	20	18	29	13	4	2	6		171
	16:30	27	1	2	2	11	12	22	13	17	17	12	11	8	8		163
	16:45	111	3	15	19	38	46	59	64	65	67	58	37	27	32		641
	17:00	33	0	3	4	14	10	11	10	12	18	17	7	7	2		148
	17:15	33	1	7	7	7	9	12	18	16	18	13	15	6	3		165
	17:30	24	0	2	0	5	8	10	11	14	7	17	16	11	7		132
	17:45	33	0	2	0	9	11	13	14	14	7	13	6	8	5		135
	18:00	123	1	14	11	35	38	46	53	56	50	60	44	32	17		580
	18:15	36	1	3	5	9	10	14	23	18	23	10	6	6	2		166
	18:30	18	0	1	6	3	4	8	18	11	15	15	14	9	5		127
	18:45	30	0	2	8	6	11	12	4	13	12	16	10	4	5		133
	19:00	27	0	1	5	3	3	13	12	13	10	16	15	6	6		130
	19:15	111	1	7	24	21	28	47	57	55	60	57	45	25	18		556
	19:30	18	1	3	7	12	9	11	12	15	13	10	5	5	2		123
	19:45	31	0	0	1	3	5	9	10	10	7	8	10	5	6		105
	20:00	15	0	1	0	4	8	11	9	7	13	16	7	4	0		95
	20:15	17	0	1	2	5	10	7	12	14	6	7	7	6	5		99
	20:30	81	1	5	10	24	32	38	43	46	39	41	29	20	13		422
	20:45	17	0	1	3	1	9	9	14	10	17	5	5	9	2		102
	21:00	17	0	2	6	3	7	9	5	8	10	26	9	8	4		114
	21:15	8	0	1	2	5	5	6	14	16	8	6	6	5	4		86
	21:30	9	0	1	4	2	5	16	18	11	11	5	4	5	2		93
	21:45	51	0	5	15	11	26	40	51	45	46	42	24	27	12		395
	22:00	6	0	0	0	4	3	9	11	7	8	5	14	2	3		72
	22:15	17	0	2	3	4	6	7	16	9	5	8	5	6	2		90
	22:30	8	0	0	1	1	6	5	7	8	11	5	8	7	5		72
	22:45	9	0	0	2	2	0	6	7	9	7	6	11	6	6		71
	23:00	40	0	2	6	11	15	27	41	33	31	24	38	21	16		305
	23:15	11	0	1	0	3	5	8	10	6	6	4	7	5	4		70
	23:30	8	0	0	0	0	3	10	4	7	3	8	4	5	4		56
	23:45	5	0	0	0	1	2	4	6	5	2	4	4	2	5		40
	00:00	16	0	0	0	1	3	3	4	7	7	9	1	7	4		62
	00:15	40	0	1	0	5	13	25	24	25	18	25	16	19	17		228
	00:30	8	0	0	1	3	2	5	4	4	2	3	7	1	0		40
	00:45	0	0	0	0	0	1	1	3	4	3	5	4	5	1		27
	01:00	3	0	0	0	0	0	3	2	0	4	2	4	2	4		24
	01:15	0	0	0	0	0	2	3	1	6	4	5	5	2	3		31
	01:30	11	0	0	1	3	5	12	10	14	13	15	20	10	8		122
	01:45	5	0	0	0	0	0	3	1	6	1	3	3	1	1		24
	02:00	3	0	0	0	0	2	1	1	2	1	1	1	0	3		15
	02:15	3	0	0	0	1	0	3	2	2	2	1	0	1	3		18
	02:30	3	0	0	0	0	2	3	3	3	0	4	4	3	4		29
	02:45	14	0	0	0	1	4	10	7	13	4	9	8	5	11		86
	Total	970	16	76	155	257	328	453	518	505	503	472	398	253	215		5119
	Grand Total	1626	26	115	236	408	526	700	799	792	804	772	668	518	498		8488

15th Percentile : 2 MPH
50th Percentile : 22 MPH
85th Percentile : 32 MPH
95th Percentile : 35 MPH

Stats
Mean Speed(Average) : 21 MPH
10 MPH Pace Speed : 23-32 MPH
Number in Pace : 2799
Percent in Pace : 35.0%

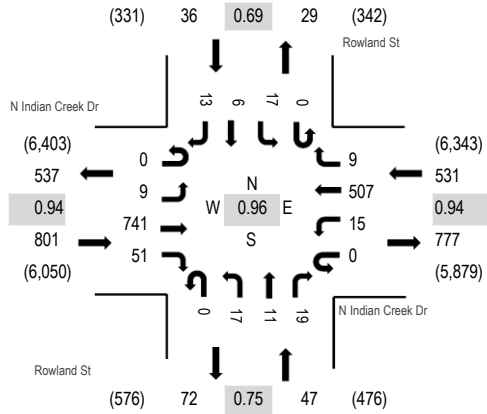
Number of Vehicles > 55 MPH :	0
Percent of Vehicles > 55 MPH :	0.0%



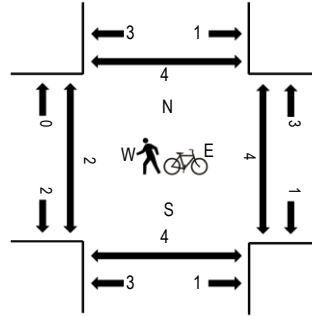
(303) 216-2439
www.alltrafficdata.net

Location: 1 Rowland St & N Indian Creek Dr AM
Date and Start Time: Tuesday, February 7, 2017
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	N Indian Creek Dr Eastbound				N Indian Creek Dr Westbound				Rowland St Northbound				Rowland St 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	36	3	0	1	100	1	0	6	1	3	0	3	0	2	158	785	0	0	1	0
6:45 AM	0	1	58	1	0	5	129	1	0	6	1	1	0	2	0	1	206	861	0	0	1	1
7:00 AM	0	2	49	3	0	2	112	1	0	6	0	5	0	0	3	2	185	906	0	0	1	1
7:15 AM	0	1	66	3	0	7	137	1	0	4	2	5	0	2	2	6	236	999	0	0	0	2
7:30 AM	0	1	62	5	0	2	148	2	0	4	4	1	0	0	0	5	234	1,042	0	1	2	0
7:45 AM	0	3	71	6	0	6	136	8	0	8	2	4	0	3	3	1	251	1,062	0	0	1	1
8:00 AM	0	3	103	4	0	5	153	5	0	3	0	0	0	0	1	1	278	1,063	0	1	1	0
8:15 AM	0	1	125	3	0	4	130	1	0	9	1	3	0	1	0	1	279	1,026	0	0	2	1
8:30 AM	0	6	85	1	0	3	139	5	0	7	3	0	0	4	0	1	254	940	0	0	1	2
8:45 AM	0	7	87	7	0	2	120	2	0	12	2	2	0	7	1	3	252	908	0	4	2	2
9:00 AM	0	8	88	4	0	2	127	2	0	4	2	0	0	3	0	1	241	915	1	1	2	0
9:15 AM	0	0	82	5	0	1	87	1	0	8	0	3	0	3	1	2	193	890	0	0	5	0
9:30 AM	0	4	90	3	0	2	104	6	0	6	1	2	0	1	2	1	222	889	0	0	0	2
9:45 AM	0	4	116	7	0	6	116	0	0	2	2	3	0	0	0	3	259	841	0	1	0	1
10:00 AM	0	1	95	5	0	1	101	0	0	4	0	4	0	0	1	4	216	834	0	0	1	0
10:15 AM	0	0	72	3	0	5	100	2	0	6	0	3	0	0	0	1	192	867	0	0	1	0
10:30 AM	0	1	81	4	0	3	71	1	0	3	4	3	0	3	0	0	174	965	0	0	3	5
10:45 AM	0	1	117	9	0	2	101	6	0	3	0	7	0	3	3	0	252	1,035	1	1	8	6
11:00 AM	0	1	108	9	0	3	107	8	0	5	1	2	0	5	0	0	249	1,033	0	1	2	1
11:15 AM	0	3	118	5	0	5	141	5	0	5	0	4	0	2	2	0	290	1,044	0	0	0	6
11:30 AM	0	2	103	9	0	5	106	2	0	6	3	4	0	1	0	3	244	1,020	0	0	1	4
11:45 AM	0	3	111	8	0	2	109	2	0	7	0	3	0	2	0	3	250	1,091	0	1	5	1
12:00 PM	0	2	110	5	0	5	114	4	0	5	1	1	0	4	2	7	260	1,176	0	1	2	3
12:15 PM	0	3	116	10	0	1	115	1	0	6	4	4	0	3	0	3	266	1,183	1	0	0	2
12:30 PM	0	2	122	8	0	3	147	11	0	4	1	3	0	8	6	0	315	1,238	1	2	0	1
12:45 PM	0	1	152	9	0	4	152	0	0	3	0	3	0	5	4	2	335	1,203	1	0	4	2
1:00 PM	0	0	109	6	0	4	133	3	0	6	0	2	0	2	1	1	267	1,127	0	0	6	5
1:15 PM	0	1	118	13	0	4	165	8	0	4	3	1	0	3	0	1	321	1,113	0	3	2	2
1:30 PM	0	4	121	10	0	3	123	1	0	5	1	2	0	4	4	2	280	1,071	0	2	1	3
1:45 PM	0	5	104	6	0	4	117	5	0	7	1	1	0	4	2	3	259	1,092	1	1	3	2
2:00 PM	0	1	91	7	0	3	127	5	0	8	2	1	0	2	1	5	253	1,169	2	1	2	0
2:15 PM	0	1	108	7	0	2	143	3	0	3	3	6	0	2	0	1	279	1,245	1	4	2	0
2:30 PM	0	0	132	13	0	3	131	4	0	7	3	0	0	3	2	3	301	1,283	0	0	2	3
2:45 PM	0	0	128	8	0	3	167	5	0	9	6	1	0	3	0	6	336	1,326	0	0	1	0
3:00 PM	0	2	134	11	0	5	151	7	0	3	3	2	0	6	2	3	329	1,332	0	0	2	1

3:15 PM	0	2	130	11	0	3	138	8	0	4	2	2	0	9	4	4	317	1,317	0	0	0	2
3:30 PM	2	2	137	14	0	3	166	1	0	5	3	1	0	5	2	3	344	1,320	0	1	2	2
3:45 PM	0	2	157	8	0	3	154	1	0	5	4	3	0	2	0	3	342	1,314	0	0	2	0
4:00 PM	0	3	154	6	0	3	122	5	0	5	1	5	0	2	4	4	314	1,319	0	1	1	5
4:15 PM	0	0	136	11	0	4	147	2	0	3	4	3	0	5	3	2	320	1,373	0	0	1	3
4:30 PM	0	2	171	9	0	1	134	2	0	6	1	3	0	4	0	5	338	1,403	2	3	1	0
4:45 PM	0	5	180	14	0	5	118	2	0	2	2	7	0	7	2	3	347	1,415	0	0	2	0
5:00 PM	0	0	178	8	0	1	150	3	0	9	2	6	0	4	3	4	368	1,364	2	3	1	0
5:15 PM	0	1	200	11	0	2	115	0	0	3	4	6	0	4	0	4	350	1,317	0	0	1	2
5:30 PM	0	3	183	18	0	7	124	4	0	3	3	0	0	2	1	2	350	1,244	0	0	0	2
5:45 PM	0	3	168	7	0	4	100	0	0	9	2	1	0	1	1	0	296		0	2	1	0
6:00 PM	0	1	176	6	0	3	116	3	0	4	0	5	0	3	0	4	321		0	0	0	1
6:15 PM	0	2	160	4	0	7	84	2	0	2	2	4	0	4	2	4	277		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	0	0	0	0	0	0	0
Lights	0	9	726	50	0	15	493	9	0	17	11	19	0	17	5	13	1,384
Mediums	0	0	15	1	0	0	14	0	0	0	0	0	0	0	1	0	31
Total	0	9	741	51	0	15	507	9	0	17	11	19	0	17	6	13	1,415

APPENDIX B: SYNCHRO REPORTS

Intersection												
Int Delay, s/veh	3.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	17	400	15	14	542	13	31	6	5	12	2	6
Future Vol, veh/h	17	400	15	14	542	13	31	6	5	12	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	87	87	87	66	66	66	45	45	45
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	476	18	16	623	15	47	9	8	27	4	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	476	0	0	1189	1187	476	1188	1180	630
Stage 1	-	-	-	-	-	-	517	517	-	663	663	-
Stage 2	-	-	-	-	-	-	672	670	-	525	517	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	946	-	-	1086	-	-	165	188	589	165	190	482
Stage 1	-	-	-	-	-	-	541	534	-	450	459	-
Stage 2	-	-	-	-	-	-	445	455	-	536	534	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	946	-	-	1086	-	-	151	178	589	150	180	482
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	178	-	150	180	-
Stage 1	-	-	-	-	-	-	525	519	-	437	448	-
Stage 2	-	-	-	-	-	-	419	445	-	505	519	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	38.3	29.1
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	170	946	-	-	1086	-	-	193
HCM Lane V/C Ratio	0.374	0.021	-	-	0.015	-	-	0.23
HCM Control Delay (s)	38.3	8.9	0	-	8.4	0	-	29.1
HCM Lane LOS	E	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0	-	-	0.9

Intersection												
Int Delay, s/veh	3.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	9	741	51	15	507	9	17	11	19	17	6	13
Future Vol, veh/h	9	741	51	15	507	9	17	11	19	17	6	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	75	75	75	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	788	54	16	539	10	23	15	25	25	9	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	549	0	0	788	0	0	1397	1388	788	1403	1383	544
Stage 1	-	-	-	-	-	-	807	807	-	576	576	-
Stage 2	-	-	-	-	-	-	590	581	-	827	807	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1021	-	-	831	-	-	118	143	391	117	144	539
Stage 1	-	-	-	-	-	-	375	394	-	503	502	-
Stage 2	-	-	-	-	-	-	494	500	-	366	394	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1021	-	-	831	-	-	105	136	391	97	137	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	105	136	-	97	137	-
Stage 1	-	-	-	-	-	-	368	387	-	493	488	-
Stage 2	-	-	-	-	-	-	455	486	-	323	387	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	40.9	42
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	161	1021	-	-	831	-	-	148
HCM Lane V/C Ratio	0.389	0.009	-	-	0.019	-	-	0.353
HCM Control Delay (s)	40.9	8.6	0	-	9.4	0	-	42
HCM Lane LOS	E	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	1.5

Intersection												
Int Delay, s/veh	0.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	408	15	0	549	13	0	0	11	0	0	8
Future Vol, veh/h	0	408	15	0	549	13	0	0	11	0	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	87	87	87	66	66	66	45	45	45
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	486	18	0	631	15	0	0	17	0	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	646	0	0	504	0	0	1134	1141	495	1134	1143	639
Stage 1	-	-	-	-	-	-	495	495	-	639	639	-
Stage 2	-	-	-	-	-	-	639	646	-	495	504	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	939	-	-	1061	-	-	180	201	575	180	200	476
Stage 1	-	-	-	-	-	-	556	546	-	464	470	-
Stage 2	-	-	-	-	-	-	464	467	-	556	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	939	-	-	1061	-	-	173	201	575	175	200	476
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	201	-	175	200	-
Stage 1	-	-	-	-	-	-	556	546	-	464	470	-
Stage 2	-	-	-	-	-	-	447	467	-	540	541	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.4	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	575	939	-	-	1061	-	-	476
HCM Lane V/C Ratio	0.029	-	-	-	-	-	-	0.037
HCM Control Delay (s)	11.4	0	-	-	0	-	-	12.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	745	51	0	507	9	0	0	30	0	0	19
Future Vol, veh/h	0	745	51	0	507	9	0	0	30	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	75	75	75	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	793	54	0	539	10	0	0	40	0	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	549	0	0	847	0	0	1364	1369	820	1364	1391	544
Stage 1	-	-	-	-	-	-	820	820	-	544	544	-
Stage 2	-	-	-	-	-	-	544	549	-	820	847	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1021	-	-	790	-	-	125	146	375	125	142	539
Stage 1	-	-	-	-	-	-	369	389	-	523	519	-
Stage 2	-	-	-	-	-	-	523	516	-	369	378	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1021	-	-	790	-	-	119	146	375	112	142	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	146	-	112	142	-
Stage 1	-	-	-	-	-	-	369	389	-	523	519	-
Stage 2	-	-	-	-	-	-	496	516	-	330	378	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	15.7	12
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	375	1021	-	-	790	-	-	539
HCM Lane V/C Ratio	0.107	-	-	-	-	-	-	0.051
HCM Control Delay (s)	15.7	0	-	-	0	-	-	12
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.2