

# INTERSECTION EVALUATION FAIRVIEW ROAD AND ROLLINS ROAD

COLUMBIA, MISSOURI  
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# **INTRODUCTION**

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## **OBJECTIVES:**

This report is a summary of the traffic analysis performed for the City of Columbia on the intersection of Fairview Road and Rollins Road.

The objectives of this study are:

1. Analyze the existing and anticipated traffic flow through the intersection.
2. Evaluate options for traffic control and/or geometric improvements to reduce intersection delay and improve safety.

## **PROJECT BACKGROUND:**

In the past decade, the intersection of Fairview Road with Rollins Road has been the subject of discussion and study related to the capacity and operations of the intersection. In 2012, The Columbia City Council directed city staff to evaluate the intersection to determine if the installation of traffic signals would be appropriate. A study titled “Traffic Signal Warrant Analysis and Recommendations at Fairview Road and Rollins Road” was prepared by Sam Budzyna, E.I.T. in January of 2012. This study concluded that, at that time, a traffic signal did not meet any warrants as required by the Manual on Uniform Traffic Control Devices (MUTCD). The study did, however, recommend consideration of a mini-roundabout. Plans for the proposed mini-roundabout were produced in early 2013 and the mini-roundabout was subsequently constructed.

Since the construction of the mini-roundabout, it has been the subject of public scrutiny. There has been confusion about the necessity of the roundabout and about the ability of drivers to navigate it correctly.

In June of 2016, after conducting a public hearing about the intersection of nearby Fairview Road and Chapel Hill Road, the City Council directed city staff to conduct further analysis of both the Rollins Road and the Chapel Hill Road intersections with Fairview Road. This report is a result of further study of the intersection of Fairview Road and Rollins Road.

## **PROJECT APPROACH:**

In order to properly analyze current conditions at the subject intersection, this study followed these steps:

**Establish and Analyze Existing Conditions.** Manual traffic counts were conducted via video for each intersection movement as well as pedestrian crossing volumes. These counts were tabulated for 15 minute increments for a 24 hour period on April 5, 2022. The traffic volumes were then analyzed utilizing Synchro 11 software that applies the methodologies for intersection analysis as outlined in the Highway Capacity Manual (HCM) published by the Transportation Research Board. In addition, roadway tube counters were placed at the approaches to the intersection to get estimates of approach speeds.

**Project and Analyze Future Conditions.** The existing traffic volumes were projected for 20 years at a rate of 1.5% increase per year to estimate future volumes in the year 2042.



**Evaluate Potential Intersection Control Options.** Varying intersection control methods and geometries were analyzed with the existing and projected traffic volumes to determine which options were feasible for this intersection.

**Conduct a Traffic Signal Warrants Analysis.** The traffic volumes and existing intersection geometry were reviewed using methods described in the Manual for Uniform Traffic Control Devices (MUTCD) published by U.S. Department of Transportation Federal Highway Administration to determine the appropriateness of a traffic signal at this location.

## ***BASE CONDITIONS***

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### **EXISTING ROADWAY DATA:**

**Rollins Road:** Rollins Road is a 36' wide neighborhood collector consisting of one vehicle lane in each direction. There is a 4' sidewalk at the back of curb along the south side of the east portion of Rollins Road and a 5' sidewalk along the south side of the west portion.

**Fairview Road:** Fairview Road is a major collector consisting of one vehicle lane in each direction. It is approximately 38' wide north of Rollins and 36' wide south of Rollins. Sidewalks at varying widths are present along both sides of Fairview Road. Bicycle striping varies in the vicinity of the intersection with lanes present north of Fairview's intersection with Rollins Road.



*Rollins Road (facing east)*







*Rollins Road (facing west)*



*Fairview Road (facing north)*





*Fairview Road (facing south)*

All four approaches are controlled by a mini-roundabout (yield control).

#### **EXISTING TRAFFIC DATA:**

Allstate Consultants conducted manual traffic counts in April of 2022. The results of these traffic counts are shown in Appendix B.

#### **INTERSECTION LEVEL OF SERVICE ANALYSIS:**

The existing traffic volumes were analyzed using Synchro 11, a macroscopic traffic modeling software package. The Synchro 11 method of analysis used for this study is based on procedures detailed in the *Highway Capacity Manual* published by the Transportation Research Board. The *Highway Capacity Manual*, which is widely accepted as the standard method for determining roadway capacity, uses Levels of Service to rank facility performance. There are six Levels of Service ranging from 'A' representing the best operating conditions to 'F' which represents the worst operating conditions.

Level of Service directly corresponds to the amount of delay a driver experiences at an intersection (control delay). Tables 1 and 2 illustrate the ranges of control delay that constitute each Level of Service at unsignalized and signalized intersections. Drivers have different expectations of delay at signalized intersections vs. unsignalized intersections and thus the delay ranges differ between the two. For highway





design, Level of Service C is generally used. However, during peak periods in urban and suburban areas, Level of Service D is normally considered acceptable.

**Table 1**

**HCM Unsignalized Intersection Level of Service Criteria**

<i>Level of Service</i>	<i>Delay Range (seconds)</i>
A	<10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

**Table 2**

**HCM Signalized Intersection Level of Service Criteria**

<i>Level of Service</i>	<i>Delay Range (seconds)</i>
A	<10
B	>10 and <20
C	>20 and <35
D	>35 and <55
E	>55 and <80
F	>80

The HCM Levels of Service and delay for the 2022 Existing Conditions and the 2042 Projected Conditions as calculated via Synchro 11 are reported in Tables 3 and 4. Level of Service is reported per approach as well as overall for this intersection.

HCM Roundabout analysis completed via Synchro 11 is macroscopic in nature and assumes compliance from drivers. Lack of compliance in the form of unnecessary stopping and yielding were observed and will reduce the operational capacity of the roundabout (sometimes significantly). An approximation of this actual operational capacity could be generated using a microscopic traffic simulation model (such as VISSIM) but this analysis would be very costly and likely inaccurate due to the number of assumptions required. Allstate Consultants can perform microscopic analysis on this intersection if desired, but we do not believe it is necessary at this time.

A review of Tables 3 and 4 indicate that with the existing traffic volumes the intersection operates with high levels of service with regards to delay. However, observations of the intersection revealed that a noticeable portion of drivers did not navigate the intersection as designed. Some drivers were observed treating the intersection more like an all-way stop controlled (AWSC) intersection. Therefore, we believe that the intersection is not likely operating with delays as low as are indicated in the roundabout control analysis. In reality, the intersection delays are probably between the calculated delays for a roundabout and the calculated delays for all way stop control. Nevertheless, we did not observe conditions that made us believe that intersection capacity is a major issue at this time.



**Table 3****HCM Intersection Level of Service****Existing Volumes with Roundabout Control (April 2022)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	A (7.2)	A (7.6)
	Westbound Rollins Rd.	A (7.6)	A (8.7)
	Northbound Fairview Rd.	B (11.8)	A (8.3)
	Southbound Fairview Rd.	A (7.1)	B (12.9)
	Intersection	A (9.3)	B (10.3)

**Table 4****HCM Intersection Level of Service****Projected Volumes with Roundabout Control (2042)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	A (9.8)	B (10.8)
	Westbound Rollins Rd.	B (10.8)	B (13.3)
	Northbound Fairview Rd.	C (12.8)	B (11.8)
	Southbound Fairview Rd.	A (9.5)	D (29.3)
	Intersection	C (16.1)	C 19.5)

**EXISTING SPEED DATA:**

Speed is a major component of intersection safety. Controlling speeds is critical for any intersection to protect the safety of pedestrians, drivers, and passengers that use the intersection. All intersections rely on driver compliance with the signage to control speeds and movements through the intersections. Roundabouts and mini roundabouts utilize intersection geometry in addition to signage to control speeds and movements. There has been concern at this intersection about lack of speed compliance. In an effort to adequately determine the speed characteristics of this intersection, Allstate utilized two separate methods to obtain speed information.

**Method 1: Tube Counters**

Tube counters were set near the crosswalks at each approach. The tube counter setup included two tubes spaced 10' apart that allowed speeds to be determined based on the time differential of the axle hits.



This is an effective way to determine speeds, but it also has some limitations due to the strength of the axle hits at slow speeds as well as the potential for misinterpreting multiple hits from different axle configurations or from the vehicle hitting the tubes at an angle. We generally have high confidence in the speeds derived from the tube counts, but the data is better looked at as a set of data than as individual vehicle speeds.

**Table 5**  
**Approach Speeds (measured at cross walks)**  
**Measured with Tube Counters June 28, 2022**

Movement	Mean Speed	Pace Range (mph) (% within Pace)	% Exceeding
AM Eastbound Rollins Rd.	13.0	11.0-21.0 (70.1%)	0.5%
PM Eastbound Rollins Rd.	12.6	11.5-21.5 (68.9%)	0.0%
AM Westbound Rollins Rd.	15.4	11.0-21.0 (85.2%)	0.4%
PM Westbound Rollins Rd.	14.6	11.2-21.2 (81.3%)	0.1%
AM Northbound Fairview Rd.	13.0	10.2-20.2 (64.5%)	0.7%
PM Northbound Fairview Rd.	12.7	9.4-19.4 (65.0%)	0.5%
AM Southbound Fairview Rd.	13.0	8.3-18.3 (77.5%)	0.4%
PM Southbound Fairview Rd.	12.0	8.8-18.8 (69.7%)	1.0%

#### **Method 2: Video Analysis**

Video footage was taken via static drone of the intersection on June 28, 2022. A desktop review of this video footage determined speed based on the amount of time that it took to traverse a known distance within the roundabout. This information was reduced via spreadsheet to get average speeds at two points for each approach. The first point (labeled mean speed-thru) was taken within the circle at the point when the vehicle passed the first splitter island (i.e., this is after the right turn movements are made but before the left turn movements separate from the thru movement). The second point (labeled as mean speed-left turn) when the vehicle passed the second splitter island (i.e., this is after the left turning movements separated from the thru movements). The speeds determined via this method are shown in Table 6.



**Table 6**  
**Speeds within roundabout**  
**Measured with Drone assistance June 28, 2022**

Movement	Mean Speed- Thru (mph)	Mean Speed- Left Turn
Approach from Eastbound Rollins Rd.	11.3	8.4
Approach from Westbound Rollins Rd.	11.3	8.7
Approach from Northbound Fairview Rd.	12.6	7.1
Approach from Southbound Fairview Rd.	12.5	7.6

As can be seen from Tables 5 and 6, average speeds range from 12.0mph to 15.4mph at the crosswalks, 11.3mph-12.6mph for the thru movements in the roundabout, and 7.1mph-8.7mph for the left turning movements in the roundabout.

#### **EXISTING INTERSECTION OBSERVATIONS:**

Field observation and video capture were utilized to observe operations at the existing mini-roundabout to gauge operations and determine any compliance issues. Compliance issues were observed and fall into the following categories:

**Unnecessary stopping/yielding:** Vehicles approaching the intersection and treating the intersection as a stop controlled intersection was the most commonly observed occurrence of driver confusion. We observed this happening several times and even observed drivers waiting for vehicles to enter and traverse the intersection from the opposite direction prior to entering the intersection. This type of driver confusion reduces the efficiency of the intersection but likely does not significantly reduce the safety of the intersection.

**Proceeding without the right of way:** There were a few occasions of vehicles entering the intersection when there was already a circulating vehicle in the intersection that was close enough that it was forced to slow or stop when the subject vehicle entered. This type of driver confusion is more dangerous because it directly contradicts the yielding priorities and has the potential to cause crashes if the circulating driver does not have time to stop.

**Standard vehicles traversing the center island:** There are occasions when standard passenger vehicles (cars and pickups) drive directly over the center island when making a thru or left movement. These instances tended to occur when traffic was very light and did not conflict with other movements. Therefore, this does not present a significant safety concern unless it starts happening when the intersection is busy enough to have conflicting movements.

**Speed:** The most noticeable speed related issue observed in the field and on video is a few near miss crashes at the point within the roundabout where left turning vehicles separate from the thru movements. The sharp geometry of the roundabout creates a differential speed that is sometimes unexpected by the trailing thru driver. We observed a few instances of near misses when two vehicles traversing the





roundabout were closely spaced and nearly had a rear-end type collision when the leading driver slowed to make the left turn.

The issues identified in the above paragraphs above can be caused by a number of contributing factors. These include:

- The lack of horizontal deflection on the approaches. Approach deflection promotes speed control at cross walks and at the point of merging into the circulating traffic. The lack of horizontal deflection approaching the roundabout allows vehicles to not slow down until the last possible second prior to deciding to merge or waiting for the next gap in the circulating traffic. The result is driver confusion at the merge point from both the circulating drivers and the approaching drivers.
- The relatively close spacing along the circulatory pavement of the approaches limits the decision time for approaching drivers. The only effective way to address this is to increase the size of the roundabout circulatory pavement.
- The center island and the splitter islands are all constructed of a mountable concrete pavement. This is necessary for large vehicle to be able to use this space to traverse the tight geometry of the roundabout. Utilizing a more aggressive profile for the mountable islands may provide better speed control and reduce the amount of passenger vehicles traversing the center island. However, this makes it more difficult and uncomfortable for large vehicles to utilize the intersection.

## **ANALYSIS OF ALTERNATIVES**

In addition to the existing mini-roundabout control, this study examined the potential for signal control, all-way stop control, and two-way stop control. As noted in the project background section, a signal warrant analysis was performed in 2012 and determined that signals were not warranted at that time. Prior to performing a HCM Level of Service analysis on a signalized intersection we performed an updated warrant analysis with 2022 traffic volumes.

### **TRAFFIC SIGNAL WARRANT ANALYSIS:**

Traffic signals are one of the methods of intersection control that is often considered when unsignalized intersections are not operating satisfactorily. However, it is possible for traffic signals that are installed prior to demonstrated need may create more problems than they solve. For instance, certain types of crashes such as rear-end collisions often increase when a traffic signal is installed. For this reason, the Manual on Uniform Traffic Control Devices contains nine possible traffic signal warrants ensure that traffic signals are justified prior to them being installed.

**Warrant 1, Eight-Hour Vehicular Volume:** This warrant identifies minimum volumes that must be met for a minimum of 8 hours during a day. This warrant has two conditions: Condition A – Minimum Vehicular Volume, and Condition B – Interruption of Continuous Traffic. This warrant is met if either condition is

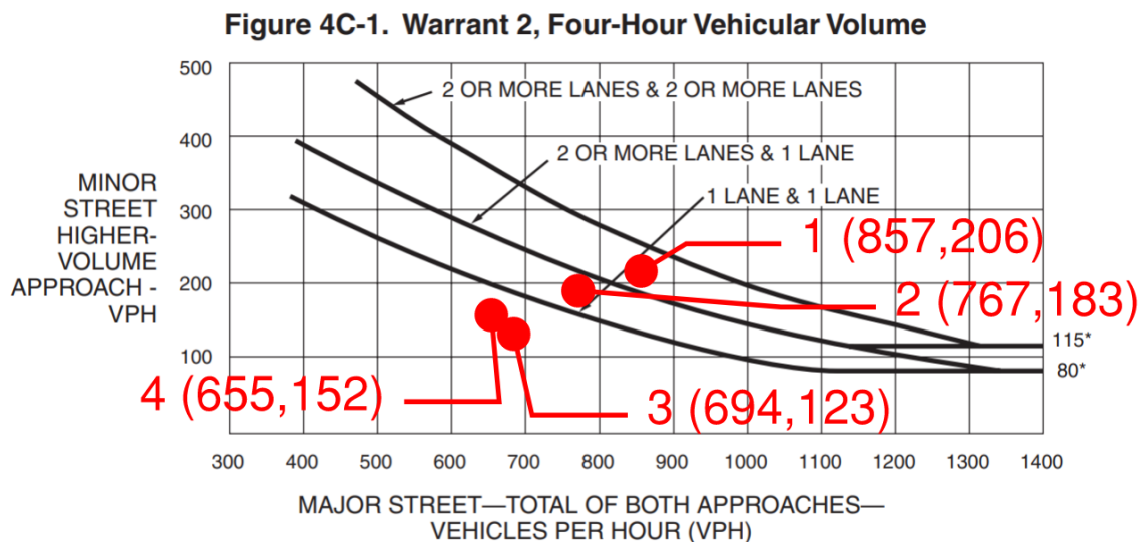


met or if both conditions are met to the 80% level. As can be seen in Table 7, the existing traffic does not meet the requirements of this warrant.

**Table 7**  
**MUTCD Traffic Signal Warrant 1**

	<b>Major Street</b> (Total of Both Approaches)	<b>Minor Street</b> (Higher Approach)
<b>Actual 8th Hour Volume</b>	552	91
<b>Required 8th Hour Volumes</b>		
Condition A	500	150
Condition B	750	75
Combined Conditions A&B	600	120

**Warrant 2, Four-Hour Vehicular Volume:** This warrant identifies minimum volumes that must be met for each of the highest four hours of a day. This warrant is met when the plotted points of any of four hours of a day fall above the applicable curve in Figure 4C-1 of the MUTCD. This curve has been referenced and the applicable four points plotted in Figure 4C-1. As can be seen from Figure 1, this warrant is not met because the third and fourth highest hours fall below the “1 Lane & 1 Lane” curve that applies to the subject intersection.



\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.



**Warrant 3, Peak Hour:** This warrant is only intended to be applied to entrances of high peak hour generators such as large office complexes or manufacturing plants. Therefore, this warrant does not apply to the subject intersection.

**Warrant 4, Pedestrian Volume:** While there are pedestrian facilities at this intersection, there were not enough to meet this warrant. The lowest threshold for pedestrian volume is 107 pedestrians in an hour and the highest hourly pedestrian volume was 49 pedestrians.

**Warrant 5, School Crossing:** This warrant requires a study of the frequency and adequacy of gaps in the vehicular traffic stream is not sufficient to allow school children to cross the major street. Observations of this intersection revealed that school children had adequate gaps in vehicular traffic. We did not observe any issues with pedestrians having to wait more than just briefly to cross. Therefore, we do not consider that this warrant has been met.

**Warrant 6, Coordinated Signal System:** This warrant is for intersections that are part of a coordinated signal system. This warrant does not apply to the subject intersection.

**Warrant 7, Crash Experience:** Warrant 7 requires five or more crashes susceptible to correction by a traffic signal within one year. This warrant is not met in terms of total number of crashes and most of the reported crashes are not of the type that would be anticipated to be corrected with a traffic signal. Therefore, this warrant does not apply to the subject intersection.

**Warrant 8, Roadway Network:** This warrant is intended to encourage “concentration and organization of traffic flow on a roadway network.” Since this is not a stated goal for this intersection, this warrant was not considered.

**Warrant 9, Intersection near a Grade Crossing:** This warrant is intended to be used when the intersection is adjacent to a railroad crossing and therefore does not apply to this intersection.

The existing intersection does not meet any warrants. Based on this, signalization was not analyzed as an alternative.

#### **CAPACITY ANALYSIS OF ALL WAY STOP CONTROL ALTERNATIVE:**

Prior to the installation of the mini-roundabout, this intersection operated with all-way stop control. A capacity analysis of an all-way stop control alternative was performed using Synchro 11; the results can be found in the tables below:



**Table 8**  
**HCM Intersection Level of Service**  
**Existing Volumes with All Way Stop Control (April 2022)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	B (12.4)	B (12.0)
	Westbound Rollins Rd.	B (11.8)	C (15.5)
	Northbound Fairview Rd.	C (24.2)	C (21.3)
	Southbound Fairview Rd.	C (15.1)	<b>E (37.5)</b>
	Intersection	C (18.4)	D (26.5)

**Table 9**  
**HCM Intersection Level of Service**  
**Projected Volumes with All Way Stop Control (2042)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	C (18.7)	C (16.5)
	Westbound Rollins Rd.	C (17.1)	D (28.3)
	Northbound Fairview Rd.	<b>F (151.5)</b>	<b>F (85.6)</b>
	Southbound Fairview Rd.	<b>E (35.3)</b>	<b>F (212.9)</b>
	Intersection	<b>F (82.9)</b>	<b>F (124.3)</b>

Based on the analysis above, all way stop control would provide acceptable Levels of Service (except for E on southbound Fairview in the PM Peak) for existing traffic volumes, but projected volumes would overwhelm the intersection leading to significant delay.

**CAPACITY ANALYSIS OF TWO WAY STOP CONTROL ALTERNATIVE:**

We also checked a two-way stop control alternative. Capacity analysis of this alternative was performed using Synchro 11; the results can be found in the tables below:





**Table 10**  
**HCM Intersection Level of Service**  
**Existing Volumes with Two Way Stop Control (April 2022)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	<b>E (38.1)</b>	D (34.4)
	Westbound Rollins Rd.	<b>E (37.4)</b>	<b>F (118.0)</b>
	Northbound Fairview Rd.	A (0.4)	A (0.4)
	Southbound Fairview Rd.	A (1.6)	A (0.7)
	Intersection	B (10.8)	D (25.1)

**Table 11**  
**HCM Intersection Level of Service**  
**Projected Volumes with Two Way Stop Control (2042)**

Intersection	Movement	AM Peak LOS (Delay)	PM Peak LOS (Delay)
Fairview Road and Rollins Road	Eastbound Rollins Rd.	<b>F (312.7)</b>	<b>F (927.3)</b>
	Westbound Rollins Rd.	<b>F (700.4)</b>	<b>F (940.2)</b>
	Northbound Fairview Rd.	A (0.5)	A (0.5)
	Southbound Fairview Rd.	A (1.7)	A (0.8)
	Intersection	<b>F (91.3)</b>	<b>F (240.1)</b>

Based on the analysis above, two-way stop control is not a viable option. The stop-controlled approaches (Rollins) would have very high delays with today's traffic and would completely fail with the projected volumes.

### **POTENTIAL IMPROVEMENTS TO THE MINI-ROUNDBABOUT:**

With signal control ruled out due to lack of warrants and both all-way stop control and two-way stop control introducing capacity issues, this section examines what improvements, if any, could be made the existing mini-roundabout to address the challenges observed and noted above.

**Reconstruction as a full-sized roundabout:** Reconstruction of this mini-roundabout to a full sized roundabout would allow the incorporation of standard roundabout items that would likely address the operational challenges observed. The current mini-roundabout has a diameter of approximately 60' - 70'. A standard roundabout would increase this diameter to at least 110' with 120' – 130' being preferable. This increased diameter would allow for a raised island in the center, horizontal deflection upon entry, and greater spacing between entry lanes. All these items would be anticipated to greatly increase compliance and efficiency. However, right of way is limited at this location and the properties at each



corner of the intersection would be impacted. Preliminary design could be completed to gauge these impacts.

**Horizontal adjustments to the mini-roundabout:** Based on the site constraints and the small diameter of the existing mini-roundabout, there are limited options to improve the geometry. Reducing approach lane widths to 12' and reducing the splitter island widths to 6' or less could allow the existing mini-roundabout to incorporate a small amount of horizontal deflection. The deflection would be small and located very near the entrance (without much length to develop an offset). This deflection has the potential to encourage compliance and reduce speed, but it is likely it would have no quantifiable impact. A conceptual layout of these modifications is shown in Appendix

**Education/Enforcement:** If intersection remains as a mini-roundabout, a combination of education and enforcement could increase compliance.

## **CONCLUSIONS AND RECOMMENDATIONS:**

This study examined the existing mini-roundabout control as well as all way stop control, two way stop control, and signal control alternatives. All way and two way stop control have operational disadvantages as traffic increases and signal control does not meet warrants. Compliance issues were observed with the intersection in its current configuration which will likely continue to frustrate motorists and could lead to crashes. However, historically, crash numbers have been low and crashes have been minor in nature.

The existing intersection as configured does not have capacity issues, significant crash history, or major speed issues. However, based on our field and video observations of driver confusion, we believe the actual Level of Service is likely lower than the calculated Level of Service for Roundabout control but is also higher than the calculated Level of Service for all way stop control. Even with somewhat reduced roundabout capacity, the intersection will likely operate adequately for many years without significant modifications.

We recommend that when safety or capacity issues begin to be a significant problem, a modern roundabout should be constructed with a larger circulatory roadway and better approach and exit geometry. This will likely be a significant investment due to the necessary property acquisition and pavement reconstruction.

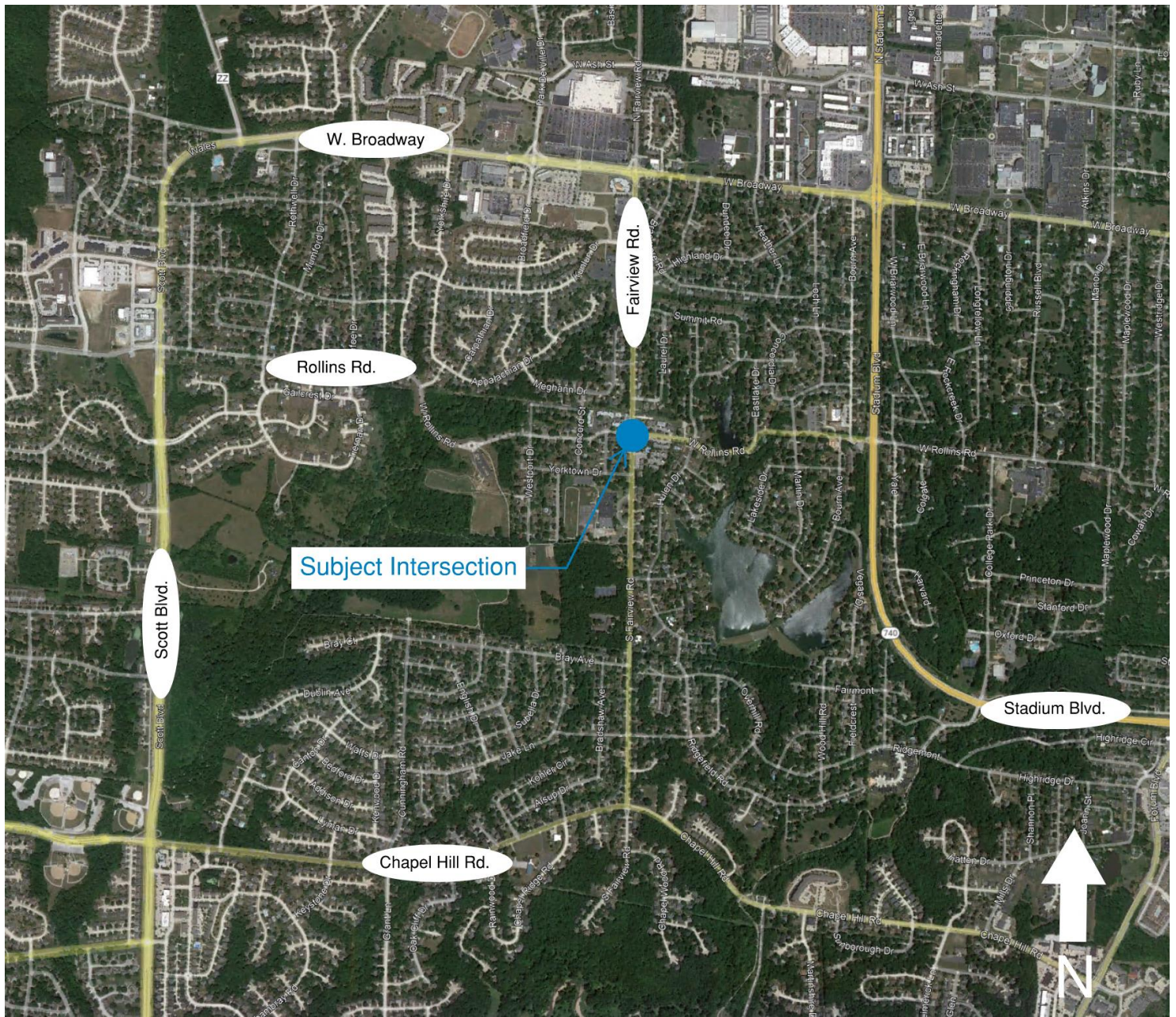
If the modern roundabout is not feasible then minor reconstruction of the islands as shown conceptually in Appendix E could help reduce driver confusion and encourage speed compliance.



## **APPENDIX A: SITE LOCATION MAP**







**Site Location Map**  
**Fairview Rd. and Rollins Rd.**





## **APPENDIX B: TRAFFIC VOLUME DISPLAYS**



# Turning Movement Counts

Fairview and Rollins

Columbia, MO





File Name: Fairview and Rollins-4-5-22





Site Code:

Location:





All Vehicles





Study Date: 04/05/2022

Rollins Road	0	U-Turn	
	38	Left	
	84	Thru	
	33	Right	

Fairview Road			
24	218	54	0
Right	Thru	Left	U-Turn
			

AM Peak Hour Statistics  
AM Peak Hour Begins: 07:45  
AM Peak Hour Volume: 1051  
AM Peak Hour Factor: 0.831

			
U-Turn	Left	Thru	Right
14	13	369	76
Fairview Road			

Rollins Road	44	Right	
	34	Thru	
	50	Left	
	0	U-Turn	

# Turning Movement Counts

Fairview and Rollins

Columbia, MO



File Name: Fairview and Rollins-4-5-22





Site Code:

Location:





All Vehicles





Study Date: 04/05/2022

Rollins Road	0	U-Turn	
	18	Left	
	40	Thru	
	18	Right	

Fairview Road			
33	422	44	0
Right	Thru	Left	U-Turn
			

PM Peak Hour Statistics  
PM Peak Hour Begins: 16:30  
PM Peak Hour Volume: 1175  
PM Peak Hour Factor: 0.915

			
U-Turn	Left	Thru	Right
0	19	311	46
Fairview Road			

	Right	60	Rollins Road
	Thru	83	
	Left	80	
	U-Turn	1	

# Turning Movement Counts

Fairview and Rollins

Columbia, MO





File Name:





Location:

All Vehicles





Site Code:





Study Date:

Rollins Road			
44	Right		
113	Thru		
51	Left		
1	U-Turn		

Fairview Road			
32	Right		
294	Thru		
73	Left		
0	U-Turn		

Projected 2042  
AM Peak Hour

Fairview Road			
19	U-Turn		
18	Left		
497	Thru		
102	Right		

Rollins Road			
59	Right		
46	Thru		
67	Left		
1	U-Turn		



# Turning Movement Counts

Fairview and Rollins  
Columbia, MO





File Name:





Site Code:

Location:





All Vehicles





Study Date:

Rollins Road			
1	24	54	24
U-Turn	Left	Thru	Right
			

Fairview Road			
44	568	59	0
Right	Thru	Left	U-Turn
			

Projected 2042  
PM Peak Hour

			
U-Turn	Left	Thru	Right
1	26	419	62
Fairview Road			

Rollins Road			
81	112	108	1
Right	Thru	Left	U-Turn
			

## **APPENDIX C: SYNCHRO ANALYSIS**



Intersection				
Intersection Delay, s/veh	9.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	169	140	513	323
Demand Flow Rate, veh/h	173	143	523	330
Vehicles Circulating, veh/h	374	482	198	124
Vehicles Exiting, veh/h	80	239	349	501
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.2	7.6	11.8	7.1
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	173	143	523	330
Cap Entry Lane, veh/h	777	698	927	998
Entry HV Adj Factor	0.978	0.981	0.980	0.980
Flow Entry, veh/h	169	140	513	323
Cap Entry, veh/h	760	684	909	978
V/C Ratio	0.223	0.205	0.564	0.331
Control Delay, s/veh	7.2	7.6	11.8	7.1
LOS	A	A	B	A
95th %tile Queue, veh	1	1	4	1

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	ULTR	ULTR	ULTR	ULTR
Maximum Queue (ft)	53	50	49	78
Average Queue (ft)	17	22	27	28
95th Queue (ft)	52	55	54	75
Link Distance (ft)	233	628	402	340
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection				
Intersection Delay, s/veh	10.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	84	243	410	544
Demand Flow Rate, veh/h	85	248	418	555
Vehicles Circulating, veh/h	609	389	116	205
Vehicles Exiting, veh/h	151	145	578	432
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.6	8.7	8.3	12.9
Approach LOS	A	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	85	248	418	555
Cap Entry Lane, veh/h	615	766	1006	921
Entry HV Adj Factor	0.990	0.981	0.981	0.980
Flow Entry, veh/h	84	243	410	544
Cap Entry, veh/h	608	751	987	902
V/C Ratio	0.138	0.324	0.415	0.603
Control Delay, s/veh	7.6	8.7	8.3	12.9
LOS	A	A	A	B
95th %tile Queue, veh	0	1	2	4



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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	ULTR	ULTR	ULTR	ULTR
Maximum Queue (ft)	100	54	50	180
Average Queue (ft)	26	33	16	88
95th Queue (ft)	90	64	50	173
Link Distance (ft)	233	628	402	340
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection				
Intersection Delay, s/veh	16.1			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	227	188	692	435
Demand Flow Rate, veh/h	231	191	705	444
Vehicles Circulating, veh/h	504	650	265	168
Vehicles Exiting, veh/h	108	320	470	673
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.8	10.8	23.8	9.5
Approach LOS	A	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	231	191	705	444
Cap Entry Lane, veh/h	683	590	867	955
Entry HV Adj Factor	0.981	0.984	0.981	0.979
Flow Entry, veh/h	227	188	692	435
Cap Entry, veh/h	669	581	851	935
V/C Ratio	0.338	0.324	0.813	0.465
Control Delay, s/veh	9.8	10.8	23.8	9.5
LOS	A	B	C	A
95th %tile Queue, veh	1	1	9	3

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	ULTR	ULTR	ULTR	ULTR
Maximum Queue (ft)	138	31	98	76
Average Queue (ft)	69	24	57	49
95th Queue (ft)	133	44	111	77
Link Distance (ft)	233	628	402	340
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection				
Intersection Delay, s/veh	19.5			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	112	328	551	730
Demand Flow Rate, veh/h	115	334	562	744
Vehicles Circulating, veh/h	816	523	155	275
Vehicles Exiting, veh/h	203	194	776	582
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.8	13.3	11.8	29.3
Approach LOS	B	B	B	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	115	334	562	744
Cap Entry Lane, veh/h	500	670	968	858
Entry HV Adj Factor	0.972	0.981	0.980	0.981
Flow Entry, veh/h	112	328	551	730
Cap Entry, veh/h	486	657	949	842
V/C Ratio	0.230	0.499	0.581	0.867
Control Delay, s/veh	10.8	13.3	11.8	29.3
LOS	B	B	B	D
95th %tile Queue, veh	1	3	4	11

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	ULTR	ULTR	ULTR	ULTR
Maximum Queue (ft)	53	97	55	301
Average Queue (ft)	29	66	30	153
95th Queue (ft)	57	102	59	297
Link Distance (ft)	233	628	402	340
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection

Intersection Delay, s/veh 18.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	84	33	50	34	44	27	369	76	54	218	24
Future Vol, veh/h	38	84	33	50	34	44	27	369	76	54	218	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	91	36	54	37	48	29	401	83	59	237	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.4	11.8	24.2	15.1
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	25%	39%	18%
Vol Thru, %	78%	54%	27%	74%
Vol Right, %	16%	21%	34%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	472	155	128	296
LT Vol	27	38	50	54
Through Vol	369	84	34	218
RT Vol	76	33	44	24
Lane Flow Rate	513	168	139	322
Geometry Grp	1	1	1	1
Degree of Util (X)	0.767	0.306	0.254	0.523
Departure Headway (Hd)	5.494	6.533	6.573	5.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	551	548	621
Service Time	3.494	4.558	4.6	3.849
HCM Lane V/C Ratio	0.775	0.305	0.254	0.519
HCM Control Delay	24.2	12.4	11.8	15.1
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	7.2	1.3	1	3

# Queuing and Blocking Report

## Baseline

04/03/2023

### Intersection: 3: Fairview Road & Rollins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	95	49	121	149
Average Queue (ft)	49	36	93	76
95th Queue (ft)	95	53	123	142
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Network Summary

Network wide Queuing Penalty: 0

Intersection

Intersection Delay, s/veh 26.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	40	18	81	83	60	19	311	46	44	422	33
Future Vol, veh/h	18	40	18	81	83	60	19	311	46	44	422	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	43	20	88	90	65	21	338	50	48	459	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12	15.5	21.3	37.5
HCM LOS	B	C	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	24%	36%	9%
Vol Thru, %	83%	53%	37%	85%
Vol Right, %	12%	24%	27%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	376	76	224	499
LT Vol	19	18	81	44
Through Vol	311	40	83	422
RT Vol	46	18	60	33
Lane Flow Rate	409	83	243	542
Geometry Grp	1	1	1	1
Degree of Util (X)	0.685	0.169	0.459	0.882
Departure Headway (Hd)	6.038	7.374	6.794	5.853
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	597	484	528	618
Service Time	4.089	5.453	4.852	3.899
HCM Lane V/C Ratio	0.685	0.171	0.46	0.877
HCM Control Delay	21.3	12	15.5	37.5
HCM Lane LOS	C	B	C	E
HCM 95th-tile Q	5.3	0.6	2.4	10.4

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	78	99	164
Average Queue (ft)	41	52	66	92
95th Queue (ft)	59	87	95	154
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection

Intersection Delay, s/veh 82.9

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	51	113	44	67	46	59	37	497	102	73	294	32
Future Vol, veh/h	51	113	44	67	46	59	37	497	102	73	294	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	123	48	73	50	64	40	540	111	79	320	35
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18.7	17.1	151.5	35.3
HCM LOS	C	C	F	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	25%	39%	18%
Vol Thru, %	78%	54%	27%	74%
Vol Right, %	16%	21%	34%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	636	208	172	399
LT Vol	37	51	67	73
Through Vol	497	113	46	294
RT Vol	102	44	59	32
Lane Flow Rate	691	226	187	434
Geometry Grp	1	1	1	1
Degree of Util (X)	1.257	0.48	0.404	0.817
Departure Headway (Hd)	6.545	8.31	8.464	7.287
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	553	436	428	499
Service Time	4.594	6.31	6.464	5.287
HCM Lane V/C Ratio	1.25	0.518	0.437	0.87
HCM Control Delay	151.5	18.7	17.1	35.3
HCM Lane LOS	F	C	C	E
HCM 95th-tile Q	27.1	2.5	1.9	7.9

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	137	51	308	183
Average Queue (ft)	83	42	203	105
95th Queue (ft)	134	59	310	177
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection

Intersection Delay, s/veh 124.3

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	54	24	108	112	81	26	419	62	59	568	44
Future Vol, veh/h	24	54	24	108	112	81	26	419	62	59	568	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	59	26	117	122	88	28	455	67	64	617	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.5	28.3	85.6	212.9
HCM LOS	C	D	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	24%	36%	9%
Vol Thru, %	83%	53%	37%	85%
Vol Right, %	12%	24%	27%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	507	102	301	671
LT Vol	26	24	108	59
Through Vol	419	54	112	568
RT Vol	62	24	81	44
Lane Flow Rate	551	111	327	729
Geometry Grp	1	1	1	1
Degree of Util (X)	1.059	0.269	0.687	1.401
Departure Headway (Hd)	7.615	9.918	8.534	7.17
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	479	365	425	511
Service Time	5.615	7.918	6.534	5.17
HCM Lane V/C Ratio	1.15	0.304	0.769	1.427
HCM Control Delay	85.6	16.5	28.3	212.9
HCM Lane LOS	F	C	D	F
HCM 95th-tile Q	15.6	1.1	5	33.1

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	97	140	319
Average Queue (ft)	46	61	91	208
95th Queue (ft)	74	91	139	327
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection												
Int Delay, s/veh	10.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	84	33	50	34	44	27	369	76	54	218	24
Future Vol, veh/h	38	84	33	50	34	44	27	369	76	54	218	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	91	36	54	37	48	29	401	83	59	237	26
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	911	910	250	933	882	443	263	0	0	484	0	0
Stage 1	368	368	-	501	501	-	-	-	-	-	-	-
Stage 2	543	542	-	432	381	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	255	275	789	246	285	615	1301	-	-	1079	-	-
Stage 1	652	621	-	552	543	-	-	-	-	-	-	-
Stage 2	524	520	-	602	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	195	249	789	157	258	615	1301	-	-	1079	-	-
Mov Cap-2 Maneuver	195	249	-	157	258	-	-	-	-	-	-	-
Stage 1	632	581	-	535	526	-	-	-	-	-	-	-
Stage 2	435	504	-	453	574	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	38.1		37.4		0.4		1.6					
HCM LOS	E		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1301	-	-	270	245	1079	-	-				
HCM Lane V/C Ratio	0.023	-	-	0.624	0.568	0.054	-	-				
HCM Control Delay (s)	7.8	0	-	38.1	37.4	8.5	0	-				
HCM Lane LOS	A	A	-	E	E	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	3.8	3.2	0.2	-	-				

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	77	90	28	54
Average Queue (ft)	50	53	6	23
95th Queue (ft)	84	86	24	56
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0
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Intersection												
Int Delay, s/veh	25.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	40	18	81	83	60	19	311	46	44	422	33
Future Vol, veh/h	18	40	18	81	83	60	19	311	46	44	422	33
Conflicting Peds, #/hr	3	0	3	2	0	2	6	0	6	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	43	20	88	90	65	21	338	50	48	459	36
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1065	1015	486	1019	1008	372	501	0	0	394	0	0
Stage 1	579	579	-	411	411	-	-	-	-	-	-	-
Stage 2	486	436	-	608	597	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	200	238	581	215	240	674	1063	-	-	1165	-	-
Stage 1	501	501	-	618	595	-	-	-	-	-	-	-
Stage 2	563	580	-	483	491	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	114	216	576	164	218	668	1057	-	-	1158	-	-
Mov Cap-2 Maneuver	114	216	-	164	218	-	-	-	-	-	-	-
Stage 1	485	469	-	598	576	-	-	-	-	-	-	-
Stage 2	416	561	-	398	460	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	34.4		118		0.4		0.7					
HCM LOS	D		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1057	-	-	203	232	1158	-	-				
HCM Lane V/C Ratio	0.02	-	-	0.407	1.049	0.041	-	-				
HCM Control Delay (s)	8.5	0	-	34.4	118	8.2	0	-				
HCM Lane LOS	A	A	-	D	F	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	1.8	10.3	0.1	-	-				

---

Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	54	116
Average Queue (ft)	32	75
95th Queue (ft)	64	127
Link Distance (ft)	256	652
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection

Int Delay, s/veh 132.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	113	44	68	46	59	37	497	102	73	294	32
Future Vol, veh/h	52	113	44	68	46	59	37	497	102	73	294	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	123	48	74	50	64	40	540	111	79	320	35

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	1229	1227	338	1257	1189	596	355	0	0	651	0	0
Stage 1	496	496	-	676	676	-	-	-	-	-	-	-
Stage 2	733	731	-	581	513	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	155	178	704	148	188	504	1204	-	-	935	-	-
Stage 1	556	545	-	443	453	-	-	-	-	-	-	-
Stage 2	412	427	-	499	536	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	91	151	704	~ 40	159	504	1204	-	-	935	-	-
Mov Cap-2 Maneuver	91	151	-	~ 40	159	-	-	-	-	-	-	-
Stage 1	527	487	-	420	429	-	-	-	-	-	-	-
Stage 2	301	404	-	311	479	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 12.7	\$ 700.4	0.5	1.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1204	-	-	151	82	935	-	-
HCM Lane V/C Ratio	0.033	-	-	1.504	2.293	0.085	-	-
HCM Control Delay (s)	8.1	0	\$ 312	\$ 700.4	9.2	0	-	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	15.1	17.3	0.3	-	-

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	217	51	53	71
Average Queue (ft)	118	50	17	31
95th Queue (ft)	209	51	52	77
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Intersection

Int Delay, s/veh 240.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	54	24	109	112	81	27	419	62	59	568	44
Future Vol, veh/h	25	54	24	109	112	81	27	419	62	59	568	44
Conflicting Peds, #/hr	3	0	3	2	0	2	6	0	6	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	59	26	118	122	88	29	455	67	64	617	48

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1430	1361	650	1368
Stage 1	775	775	-	553
Stage 2	655	586	-	815
Critical Hdwy	7.12	6.52	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	6.12
Follow-up Hdwy	3.518	4.018	3.318	3.518
Pot Cap-1 Maneuver	112	148	469	124
Stage 1	391	408	-	517
Stage 2	455	497	-	371
Platoon blocked, %				
Mov Cap-1 Maneuver	13	126	465	~ 66
Mov Cap-2 Maneuver	13	126	-	~ 66
Stage 1	371	366	-	491
Stage 2	275	472	-	264

Approach	EB	WB	NB	SB
HCM Control Delay, s	92.3	\$ 940.2	0.5	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	914	-	-	43	113	1033	-	-
HCM Lane V/C Ratio	0.032	-	-	2.604	2.905	0.062	-	-
HCM Control Delay (s)	9.1	0	\$ 927.5	\$ 940.2	8.7	0	-	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	12.1	30.9	0.2	-	-

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Intersection: 3: Fairview Road & Rollins Road

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	89	508	73	51
Average Queue (ft)	57	372	20	22
95th Queue (ft)	91	586	67	54
Link Distance (ft)	256	652	426	363
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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## **APPENDIX D: SPEED DATA**



## 12 Hour Speed

mph		W Rollins EB																			
	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200			
12:00 AM	8	1	0	1	1	4	1	0	0	0	0	0	0	0	0	0	0	0	Average (Mean)	13.0 mph	
12:15 AM	5	1	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0			
12:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
12:45 AM	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:00 AM	3	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	Maximum	35.7 mph	
1:15 AM	3	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0			
1:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
1:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Pace Range	11.0 - 21.0 mph    709 vehicles (70.1%)	
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:30 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Percentile Speeds		
3:15 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	15.4	
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Speeds Exceeded		
5:15 AM	5	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0			
5:30 AM	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 AM	5	0	0	0	1	1	0	1	1	0	0	0	0	0	1	0	0	0			
6:00 AM	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	25	0.4%	4
6:15 AM	9	0	1	0	3	0	3	2	0	0	0	0	0	0	0	0	0	0			
6:30 AM	12	0	0	1	2	5	2	1	0	1	0	0	0	0	0	0	0	0			
6:45 AM	22	4	1	3	7	1	2	3	0	1	0	0	0	0	0	0	0	0			
7:00 AM	33	3	1	4	6	8	9	1	0	1	0	0	0	0	0	0	0	0	35	0.1%	1
7:15 AM	37	11	3	5	5	6	5	2	0	0	0	0	0	0	0	0	0	0			
7:30 AM	47	12	0	5	11	12	5	0	2	0	0	0	0	0	0	0	0	0			
7:45 AM	53	16	2	5	7	17	4	2	0	0	0	0	0	0	0	0	0	0			
8:00 AM	70	32	1	12	8	10	7	0	0	0	0	0	0	0	0	0	0	0	45	0.0%	0
8:15 AM	62	29	0	2	7	16	5	1	1	0	1	0	0	0	0	0	0	0			
8:30 AM	47	16	0	4	11	8	7	1	0	0	0	0	0	0	0	0	0	0			
8:45 AM	39	7	2	3	7	12	5	2	1	0	0	0	0	0	0	0	0	0			
9:00 AM	31	5	0	2	8	8	4	4	0	0	0	0	0	0	0	0	0	0	65	0.0%	0
9:15 AM	37	10	1	3	7	9	5	1	1	0	0	0	0	0	0	0	0	0			
9:30 AM	38	6	1	4	6	13	6	1	1	0	0	0	0	0	0	0	0	0			
9:45 AM	49	14	3	4	8	7	7	4	2	0	0	0	0	0	0	0	0	0			
10:00 AM	42	14	1	3	10	6	6	1	0	1	0	0	0	0	0	0	0	0	75	0.0%	0
10:15 AM	51	13	0	5	9	12	8	3	0	1	0	0	0	0	0	0	0	0			
10:30 AM	44	8	1	6	7	13	6	2	0	0	1	0	0	0	0	0	0	0			
10:45 AM	46	15	1	7	5	10	7	1	0	0	0	0	0	0	0	0	0	0			
11:00 AM	42	6	1	5	10	10	7	3	0	0	0	0	0	0	0	0	0	0			
11:15 AM	49	13	2	2	9	10	10	1	2	0	0	0	0	0	0	0	0	0			
11:30 AM	44	8	2	2	9	8	11	3	1	0	0	0	0	0	0	0	0	0			
11:45 AM	64	14	4	6	12	16	9	2	1	0	0	0	0	0	0	0	0	0			
Total	1011	258	32	98	180	228	152	42	13	5	2	0	0	0	1	0	0	0			
%		25.5	3.2	9.7	17.8	22.6	15.0	4.2	1.3	0.5	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0			

## 12 Hour Speed

mph		W Rollins EB																			
	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200			
12:00 PM	57	16	1	2	14	13	8	2	0	0	1	0	0	0	0	0	0	0	Average (Mean)	12.6 mph	
12:15 PM	57	14	2	2	12	13	12	2	0	0	0	0	0	0	0	0	0	0			
12:30 PM	58	16	2	8	12	16	4	0	0	0	0	0	0	0	0	0	0	0			
12:45 PM	45	8	1	4	8	15	7	2	0	0	0	0	0	0	0	0	0	0			
1:00 PM	62	20	2	6	7	15	7	4	1	0	0	0	0	0	0	0	0	0	Minimum	1.0 mph	
1:15 PM	66	15	2	3	10	17	17	2	0	0	0	0	0	0	0	0	0	0			
1:30 PM	41	12	1	6	13	4	4	1	0	0	0	0	0	0	0	0	0	0			
1:45 PM	61	16	5	10	15	11	4	0	0	0	0	0	0	0	0	0	0	0			
2:00 PM	45	13	2	7	9	6	4	3	1	0	0	0	0	0	0	0	0	0	Maximum	27.8 mph	
2:15 PM	61	14	0	4	15	14	8	5	1	0	0	0	0	0	0	0	0	0			
2:30 PM	55	7	0	3	9	20	13	2	1	0	0	0	0	0	0	0	0	0			
2:45 PM	72	19	2	6	12	14	16	1	1	1	0	0	0	0	0	0	0	0			
3:00 PM	72	21	1	3	25	13	6	3	0	0	0	0	0	0	0	0	0	0	Pace Range	11.5 - 21.5 mph    1603 vehicles (68.9%)	
3:15 PM	69	26	0	4	12	18	6	2	1	0	0	0	0	0	0	0	0	0			
3:30 PM	67	25	0	3	7	14	14	3	1	0	0	0	0	0	0	0	0	0			
3:45 PM	68	29	0	0	14	11	10	2	2	0	0	0	0	0	0	0	0	0			
4:00 PM	66	23	2	4	9	17	6	5	0	0	0	0	0	0	0	0	0	0	Percentile Speeds		
4:15 PM	68	23	2	5	10	12	10	4	2	0	0	0	0	0	0	0	0	0			
4:30 PM	58	16	0	1	12	16	10	2	1	0	0	0	0	0	0	0	0	0			
4:45 PM	86	41	1	2	11	18	8	5	0	0	0	0	0	0	0	0	0	0			
5:00 PM	82	35	1	1	8	19	10	8	0	0	0	0	0	0	0	0	0	0	Speeds Exceeded		
5:15 PM	87	31	0	2	14	25	12	2	1	0	0	0	0	0	0	0	0	0			
5:30 PM	88	39	1	4	15	12	10	4	3	0	0	0	0	0	0	0	0	0			
5:45 PM	73	19	1	5	11	15	17	5	0	0	0	0	0	0	0	0	0	0			
6:00 PM	59	22	1	3	8	18	6	0	0	1	0	0	0	0	0	0	0	0	mph	%	Count
6:15 PM	66	18	0	3	11	17	12	5	0	0	0	0	0	0	0	0	0	0			
6:30 PM	46	13	0	4	11	10	6	0	2	0	0	0	0	0	0	0	0	0			
6:45 PM	50	9	1	3	11	7	14	3	2	0	0	0	0	0	0	0	0	0			
7:00 PM	55	15	1	3	12	16	7	0	1	0	0	0	0	0	0	0	0	0	55	0.0%	0
7:15 PM	47	8	1	3	8	13	10	3	1	0	0	0	0	0	0	0	0	0			
7:30 PM	56	16	0	1	9	19	8	2	1	0	0	0	0	0	0	0	0	0			
7:45 PM	53	15	2	6	9	7	9	4	1	0	0	0	0	0	0	0	0	0			
8:00 PM	46	8	1	5	8	11	9	4	0	0	0	0	0	0	0	0	0	0	65	0.0%	0
8:15 PM	50	13	2	5	16	4	6	4	0	0	0	0	0	0	0	0	0	0			
8:30 PM	31	7	0	4	4	12	3	1	0	0	0	0	0	0	0	0	0	0			
8:45 PM	31	2	0	6	10	9	2	2	0	0	0	0	0	0	0	0	0	0			
9:00 PM	31	6	1	3	7	5	4	4	0	1	0	0	0	0	0	0	0	0	75	0.0%	0
9:15 PM	21	3	0	1	4	7	3	3	0	0	0	0	0	0	0	0	0	0			
9:30 PM	28	3	2	1	9	8	4	1	0	0	0	0	0	0	0	0	0	0			
9:45 PM	16	1	1	2	6	4	0	2	0	0	0	0	0	0	0	0	0	0			
10:00 PM	20	1	0	2	3	5	6	3	0	0	0	0	0	0	0	0	0	0	10:00 PM		
10:15 PM	8	0	1	1	3	1	2	0	0	0	0	0	0	0	0	0	0	0			
10:30 PM	12	0	0	2	3	2	3	2	0	0	0	0	0	0	0	0	0	0			
10:45 PM	4	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0			
11:00 PM	16	1	1	4	2	6	0	1	1	0	0	0	0	0	0	0	0	0	11:00 PM		
11:15 PM	6	0	0	1	3	0	0	2	0	0	0	0	0	0	0	0	0	0			
11:30 PM	5	0	0	0	1	1	2	1	0	0	0	0	0	0	0	0	0	0			
11:45 PM	4	0	0	0	0	2	1	0	0	1	0	0	0	0	0	0	0	0			
Total	2325	659	44	158	442	534	340	118	25	4	1	0	0	0	0	0	0	0			
%		28.3	1.9	6.8	19.0	23.0	14.6	5.1	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			



## 12 Hour Speed

mph		E Rollins WB																
	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200
12:00 AM	4	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12:30 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
3:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 AM	3	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0
4:45 AM	13	0	0	2	3	5	3	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	3	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	6	0	0	0	3	1	2	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	4	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
5:45 AM	12	0	1	1	5	1	3	1	0	0	0	0	0	0	0	0	0	0
6:00 AM	13	1	0	1	5	3	2	0	0	0	0	0	0	1	0	0	0	0
6:15 AM	13	0	1	2	3	2	2	2	0	1	0	0	0	0	0	0	0	0
6:30 AM	36	2	0	2	10	13	3	5	1	0	0	0	0	0	0	0	0	0
6:45 AM	42	0	3	3	8	12	12	3	1	0	0	0	0	0	0	0	0	0
7:00 AM	54	1	3	8	10	15	13	3	1	0	0	0	0	0	0	0	0	0
7:15 AM	50	3	0	4	12	10	19	1	1	0	0	0	0	0	0	0	0	0
7:30 AM	68	4	1	5	17	14	18	4	5	0	0	0	0	0	0	0	0	0
7:45 AM	98	13	3	10	11	29	23	7	1	1	0	0	0	0	0	0	0	0
8:00 AM	91	16	2	8	22	21	17	4	1	0	0	0	0	0	0	0	0	0
8:15 AM	59	1	4	12	9	20	10	3	0	0	0	0	0	0	0	0	0	0
8:30 AM	56	6	3	7	12	12	11	2	3	0	0	0	0	0	0	0	0	0
8:45 AM	65	7	1	7	10	23	13	4	0	0	0	0	0	0	0	0	0	0
9:00 AM	53	7	2	5	10	14	10	3	2	0	0	0	0	0	0	0	0	0
9:15 AM	54	9	3	4	6	8	14	6	3	1	0	0	0	0	0	0	0	0
9:30 AM	57	5	2	8	13	16	10	3	0	0	0	0	0	0	0	0	0	0
9:45 AM	41	6	3	5	7	10	5	3	2	0	0	0	0	0	0	0	0	0
10:00 AM	44	11	2	3	8	8	10	1	1	0	0	0	0	0	0	0	0	0
10:15 AM	43	3	1	4	11	10	11	2	0	1	0	0	0	0	0	0	0	0
10:30 AM	45	1	4	4	10	13	11	2	0	0	0	0	0	0	0	0	0	0
10:45 AM	46	5	3	2	12	13	8	3	0	0	0	0	0	0	0	0	0	0
11:00 AM	56	5	1	8	10	22	8	2	0	0	0	0	0	0	0	0	0	0
11:15 AM	65	12	0	6	15	18	11	3	0	0	0	0	0	0	0	0	0	0
11:30 AM	57	10	4	6	12	16	8	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	61	7	5	8	9	16	9	5	1	1	0	0	0	0	0	0	0	0
Total	1327	136	55	137	267	354	271	75	25	5	0	1	0	1	0	0	0	0
%		10.2	4.1	10.3	20.1	26.7	20.4	5.7	1.9	0.4	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0

## 12 Hour Speed

mph	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200	E Rollins WB
<b>12:00 PM</b>	61	12	3	7	11	15	10	1	1	0	0	0	0	1	0	0	0	0	<b>Average (Mean)</b> 14.6 mph <b>Minimum</b> 1.0 mph <b>Maximum</b> 32.2 mph
12:15 PM	43	11	3	6	10	6	4	2	1	0	0	0	0	0	0	0	0	0	
12:30 PM	53	9	1	9	15	10	6	3	0	0	0	0	0	0	0	0	0	0	
12:45 PM	72	12	1	13	11	20	9	6	0	0	0	0	0	0	0	0	0	0	
<b>1:00 PM</b>	73	18	1	9	10	25	9	1	0	0	0	0	0	0	0	0	0	0	<b>Pace Range</b> 11.2 - 21.2 mph    1693 vehicles (81.3%)
1:15 PM	64	16	4	4	15	14	10	0	1	0	0	0	0	0	0	0	0	0	
1:30 PM	58	13	2	3	12	20	6	2	0	0	0	0	0	0	0	0	0	0	
1:45 PM	46	10	4	12	7	7	3	3	0	0	0	0	0	0	0	0	0	0	
<b>2:00 PM</b>	45	5	2	9	14	11	4	0	0	0	0	0	0	0	0	0	0	0	<b>Percentile Speeds</b> %      mph 10      2.7 15      10.8 50      16.0 85      18.9 90      19.6
2:15 PM	49	7	0	5	16	11	7	3	0	0	0	0	0	0	0	0	0	0	
2:30 PM	54	5	4	9	13	17	1	4	1	0	0	0	0	0	0	0	0	0	
2:45 PM	57	9	1	6	20	7	7	6	1	0	0	0	0	0	0	0	0	0	
<b>3:00 PM</b>	68	7	5	6	13	20	12	5	0	0	0	0	0	0	0	0	0	0	<b>Speeds Exceeded</b> mph      %      Count 25      0.1%      2 35      0.0%      0 45      0.0%      0 55      0.0%      0 65      0.0%      0 75      0.0%      0
3:15 PM	72	14	6	10	13	13	11	4	0	1	0	0	0	0	0	0	0	0	
3:30 PM	66	7	3	9	12	15	12	7	1	0	0	0	0	0	0	0	0	0	
3:45 PM	65	19	2	3	9	16	12	3	0	1	0	0	0	0	0	0	0	0	
<b>4:00 PM</b>	70	18	3	9	10	12	11	5	2	0	0	0	0	0	0	0	0	0	
4:15 PM	67	12	3	5	9	16	11	11	0	0	0	0	0	0	0	0	0	0	
4:30 PM	73	9	5	5	11	17	15	8	2	1	0	0	0	0	0	0	0	0	
4:45 PM	66	11	2	11	9	14	9	6	2	2	0	0	0	0	0	0	0	0	
<b>5:00 PM</b>	70	14	3	7	8	23	11	3	1	0	0	0	0	0	0	0	0	0	
5:15 PM	70	14	1	5	13	17	12	6	2	0	0	0	0	0	0	0	0	0	
5:30 PM	70	4	1	4	12	30	15	4	0	0	0	0	0	0	0	0	0	0	
5:45 PM	57	1	1	5	7	21	16	4	2	0	0	0	0	0	0	0	0	0	
<b>6:00 PM</b>	50	1	1	5	11	16	10	4	1	1	0	0	0	0	0	0	0	0	
6:15 PM	41	2	1	6	8	12	7	4	1	0	0	0	0	0	0	0	0	0	
6:30 PM	50	2	3	6	10	21	5	3	0	0	0	0	0	0	0	0	0	0	
6:45 PM	49	1	3	9	12	13	9	2	0	0	0	0	0	0	0	0	0	0	
<b>7:00 PM</b>	46	4	1	4	14	12	9	2	0	0	0	0	0	0	0	0	0	0	
7:15 PM	38	0	5	4	11	9	7	2	0	0	0	0	0	0	0	0	0	0	
7:30 PM	22	1	2	3	6	6	3	1	0	0	0	0	0	0	0	0	0	0	
7:45 PM	38	5	0	5	9	8	10	1	0	0	0	0	0	0	0	0	0	0	
<b>8:00 PM</b>	38	4	1	3	16	5	8	1	0	0	0	0	0	0	0	0	0	0	
8:15 PM	25	2	2	4	5	7	5	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	25	0	1	3	4	8	3	6	0	0	0	0	0	0	0	0	0	0	
8:45 PM	28	1	1	3	6	10	4	2	1	0	0	0	0	0	0	0	0	0	
<b>9:00 PM</b>	28	1	5	2	6	7	5	2	0	0	0	0	0	0	0	0	0	0	
9:15 PM	14	1	1	2	0	4	3	2	1	0	0	0	0	0	0	0	0	0	
9:30 PM	20	0	1	2	2	10	2	3	0	0	0	0	0	0	0	0	0	0	
9:45 PM	16	0	2	3	4	6	0	1	0	0	0	0	0	0	0	0	0	0	
<b>10:00 PM</b>	9	0	0	1	3	3	0	1	1	0	0	0	0	0	0	0	0	0	
10:15 PM	9	0	0	2	2	2	3	0	0	0	0	0	0	0	0	0	0	0	
10:30 PM	10	1	0	1	2	3	2	0	0	1	0	0	0	0	0	0	0	0	
10:45 PM	10	0	0	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	
<b>11:00 PM</b>	13	0	3	4	1	1	2	1	1	0	0	0	0	0	0	0	0	0	
11:15 PM	4	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	
11:30 PM	4	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	
11:45 PM	6	0	0	1	1	3	0	0	1	0	0	0	0	0	0	0	0	0	
Total	2082	284	94	247	417	547	325	136	24	7	0	0	0	1	0	0	0	0	
%		13.6	4.5	11.9	20.0	26.3	15.6	6.5	1.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

## 12 Hour Speed

mph		S Fair NB																			
	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200			
12:00 AM	4	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	Average (Mean)	13.0 mph	
12:15 AM	2	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0			
12:30 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Minimum	1.0 mph	
1:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
1:30 AM	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0			
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Maximum	32.1 mph	
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:30 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Pace Range	10.2 - 20.2 mph    699 vehicles (64.5%)	
3:15 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0			
3:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Percentile Speeds		
4:15 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0			
4:30 AM	3	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0			
4:45 AM	6	0	0	0	1	3	1	0	1	0	0	0	0	0	0	0	0	0			
5:00 AM	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	Speeds Exceeded		
5:15 AM	6	0	0	0	0	3	2	1	0	0	0	0	0	0	0	0	0	0			
5:30 AM	5	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0			
5:45 AM	9	0	0	1	1	3	1	1	2	0	0	0	0	0	0	0	0	0			
6:00 AM	11	1	0	1	1	2	3	2	0	0	0	0	0	1	0	0	0	0	mph	%	Count
6:15 AM	12	1	0	1	3	1	5	1	0	0	0	0	0	0	0	0	0	0			
6:30 AM	34	4	2	5	7	8	6	2	0	0	0	0	0	0	0	0	0	0			
6:45 AM	36	4	6	3	5	9	4	4	0	1	0	0	0	0	0	0	0	0			
7:00 AM	44	7	3	4	14	8	5	3	0	0	0	0	0	0	0	0	0	0	%	%	Count
7:15 AM	46	8	3	7	9	9	3	5	1	1	0	0	0	0	0	0	0	0			
7:30 AM	58	24	5	8	8	6	4	1	0	1	1	0	0	0	0	0	0	0			
7:45 AM	73	26	7	9	10	9	7	4	1	0	0	0	0	0	0	0	0	0			
8:00 AM	60	40	6	5	6	2	1	0	0	0	0	0	0	0	0	0	0	0	Count		
8:15 AM	47	17	2	7	7	4	3	3	4	0	0	0	0	0	0	0	0	0			
8:30 AM	47	8	6	6	9	6	9	2	1	0	0	0	0	0	0	0	0	0			
8:45 AM	55	15	2	5	7	11	5	8	1	1	0	0	0	0	0	0	0	0			
9:00 AM	42	13	1	2	7	9	7	1	1	1	0	0	0	0	0	0	0	0	Count		
9:15 AM	41	11	3	5	4	9	5	1	1	2	0	0	0	0	0	0	0	0			
9:30 AM	51	16	3	6	6	14	4	2	0	0	0	0	0	0	0	0	0	0			
9:45 AM	34	8	2	6	7	5	2	2	1	0	1	0	0	0	0	0	0	0			
10:00 AM	34	14	1	1	8	5	3	0	1	0	1	0	0	0	0	0	0	0	Count		
10:15 AM	36	5	4	4	2	6	7	5	3	0	0	0	0	0	0	0	0	0			
10:30 AM	42	7	4	4	13	7	4	3	0	0	0	0	0	0	0	0	0	0			
10:45 AM	42	6	6	7	11	3	6	2	1	0	0	0	0	0	0	0	0	0			
11:00 AM	42	12	3	8	6	10	2	0	1	0	0	0	0	0	0	0	0	0	Count		
11:15 AM	61	17	7	11	9	12	4	0	1	0	0	0	0	0	0	0	0	0			
11:30 AM	42	16	4	8	4	7	3	0	0	0	0	0	0	0	0	0	0	0			
11:45 AM	48	13	3	3	5	11	8	5	0	0	0	0	0	0	0	0	0	0			
Total	1084	295	84	130	171	187	116	64	22	10	3	1	0	1	0	0	0	0			
%		27.2	7.7	12.0	15.8	17.3	10.7	5.9	2.0	0.9	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0			

## 12 Hour Speed

mph	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200	S Fair NB			
12:00 PM	46	22	1	5	5	7	6	0	0	0	0	0	0	0	0	0	0	0	Average (Mean)	12.7 mph		
12:15 PM	47	16	4	9	8	7	1	1	1	0	0	0	0	0	0	0	0	0				
12:30 PM	46	17	3	3	6	8	2	5	1	1	0	0	0	0	0	0	0	0				
12:45 PM	58	15	9	4	4	15	7	2	1	0	1	0	0	0	0	0	0	0		Minimum		
1:00 PM	54	22	5	5	6	10	3	3	0	0	0	0	0	0	0	0	0	0	Maximum	1.0 mph		
1:15 PM	60	23	5	3	10	13	3	3	0	0	0	0	0	0	0	0	0	0				
1:30 PM	46	11	5	9	4	11	4	0	2	0	0	0	0	0	0	0	0	0				
1:45 PM	32	14	7	5	1	4	1	0	0	0	0	0	0	0	0	0	0	0		Pace Range		
2:00 PM	38	14	4	9	5	4	1	1	0	0	0	0	0	0	0	0	0	0	9.4 - 19.4 mph	1142 vehicles (65.0%)		
2:15 PM	47	12	7	7	8	6	2	4	1	0	0	0	0	0	0	0	0	0				
2:30 PM	40	10	5	3	8	5	5	3	1	0	0	0	0	0	0	0	0	0				
2:45 PM	53	17	4	9	10	4	3	3	2	1	0	0	0	0	0	0	0	0		Percentile Speeds		
3:00 PM	47	16	4	9	6	8	2	1	1	0	0	0	0	0	0	0	0	0	%	mph		
3:15 PM	60	24	8	13	3	6	3	3	0	0	0	0	0	0	0	0	0	0	10	2.0		
3:30 PM	61	11	3	9	12	16	5	5	0	0	0	0	0	0	0	0	0	0	15	5.6		
3:45 PM	60	21	4	7	8	6	8	5	0	1	0	0	0	0	0	0	0	0	50	13.9		
4:00 PM	67	20	6	9	13	5	10	4	0	0	0	0	0	0	0	0	0	0	85	18.3		
4:15 PM	61	29	4	11	5	7	1	4	0	0	0	0	0	0	0	0	0	0	90	19.2		
4:30 PM	63	24	4	6	6	9	10	3	1	0	0	0	0	0	0	0	0	0				
4:45 PM	54	15	3	4	7	11	9	2	3	0	0	0	0	0	0	0	0	0				
5:00 PM	60	22	4	6	6	13	5	2	2	0	0	0	0	0	0	0	0	0	Speeds Exceeded			
5:15 PM	61	26	7	6	11	7	1	1	0	2	0	0	0	0	0	0	0	0		mph	%	Count
5:30 PM	59	23	9	14	4	4	5	0	0	0	0	0	0	0	0	0	0	0		25	0.5%	8
5:45 PM	43	14	8	3	3	7	3	5	0	0	0	0	0	0	0	0	0	0		35	0.0%	0
6:00 PM	36	8	1	4	5	12	5	1	0	0	0	0	0	0	0	0	0	0	45	0.0%	0	
6:15 PM	35	6	2	5	9	2	5	3	2	1	0	0	0	0	0	0	0	0	55	0.0%	0	
6:30 PM	35	9	1	7	7	7	1	2	1	0	0	0	0	0	0	0	0	0	65	0.0%	0	
6:45 PM	48	9	3	8	7	11	6	3	0	1	0	0	0	0	0	0	0	0	75	0.0%	0	
7:00 PM	34	7	0	6	7	8	4	1	1	0	0	0	0	0	0	0	0	0				
7:15 PM	29	5	4	3	5	6	5	1	0	0	0	0	0	0	0	0	0	0				
7:30 PM	19	0	3	4	8	4	0	0	0	0	0	0	0	0	0	0	0	0				
7:45 PM	32	6	2	1	9	7	4	2	0	1	0	0	0	0	0	0	0	0				
8:00 PM	31	4	3	4	10	5	3	2	0	0	0	0	0	0	0	0	0	0				
8:15 PM	17	3	2	2	4	2	3	1	0	0	0	0	0	0	0	0	0	0				
8:30 PM	27	2	4	3	7	3	3	2	2	1	0	0	0	0	0	0	0	0				
8:45 PM	26	3	0	5	6	7	3	1	0	1	0	0	0	0	0	0	0	0				
9:00 PM	26	1	1	1	4	8	8	2	1	0	0	0	0	0	0	0	0	0				
9:15 PM	9	0	1	0	2	1	2	3	0	0	0	0	0	0	0	0	0	0				
9:30 PM	18	2	1	2	3	5	3	1	0	1	0	0	0	0	0	0	0	0				
9:45 PM	11	1	1	1	3	2	3	0	0	0	0	0	0	0	0	0	0	0				
10:00 PM	10	0	2	0	4	2	1	1	0	0	0	0	0	0	0	0	0	0				
10:15 PM	10	1	1	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0				
10:30 PM	10	2	0	2	2	2	0	1	0	1	0	0	0	0	0	0	0	0				
10:45 PM	10	1	1	1	2	1	2	0	2	0	0	0	0	0	0	0	0	0				
11:00 PM	9	2	0	1	1	2	1	0	1	1	0	0	0	0	0	0	0	0				
11:15 PM	4	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0				
11:30 PM	3	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0				
11:45 PM	5	1	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0				
Total	1757	511	157	228	267	294	171	89	26	13	1	0	0	0	0	0	0	0				
%		29.1	8.9	13.0	15.2	16.7	9.7	5.1	1.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

## 12 Hour Speed

mph	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200	N Fair SB		
<b>12:00 AM</b>	9	1	0	1	2	2	2	0	0	1	0	0	0	0	0	0	0	0			
12:15 AM	6	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0			
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
12:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<b>1:00 AM</b>	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:15 AM	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0			
1:30 AM	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<b>2:00 AM</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<b>3:00 AM</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3:15 AM	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<b>4:00 AM</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<b>5:00 AM</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:15 AM	5	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0			
5:30 AM	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0			
5:45 AM	5	0	0	0	1	0	1	2	0	0	1	0	0	0	0	0	0	0			
<b>6:00 AM</b>	4	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
6:15 AM	6	0	0	1	0	2	2	1	0	0	0	0	0	0	0	0	0	0			
6:30 AM	7	1	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0			
6:45 AM	19	2	5	4	3	3	2	0	0	0	0	0	0	0	0	0	0	0			
<b>7:00 AM</b>	26	7	1	5	5	2	4	1	0	1	0	0	0	0	0	0	0	0			
7:15 AM	39	7	6	7	7	8	3	1	0	0	0	0	0	0	0	0	0	0			
7:30 AM	38	8	5	9	3	8	4	0	0	1	0	0	0	0	0	0	0	0			
7:45 AM	45	11	8	7	7	5	4	2	0	1	0	0	0	0	0	0	0	0			
<b>8:00 AM</b>	57	24	10	11	5	5	2	0	0	0	0	0	0	0	0	0	0	0			
8:15 AM	58	19	7	11	6	7	5	2	1	0	0	0	0	0	0	0	0	0			
8:30 AM	48	15	3	7	8	12	2	1	0	0	0	0	0	0	0	0	0	0			
8:45 AM	38	7	3	7	6	8	4	3	0	0	0	0	0	0	0	0	0	0			
<b>9:00 AM</b>	26	3	2	8	5	5	2	1	0	0	0	0	0	0	0	0	0	0			
9:15 AM	36	9	1	7	7	7	5	0	0	0	0	0	0	0	0	0	0	0			
9:30 AM	31	5	6	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0			
9:45 AM	43	11	7	7	7	4	4	0	2	0	0	1	0	0	0	0	0	0			
<b>10:00 AM</b>	33	6	2	6	6	12	1	0	0	0	0	0	0	0	0	0	0	0			
10:15 AM	48	11	5	9	10	6	4	3	0	0	0	0	0	0	0	0	0	0			
10:30 AM	42	6	5	11	11	6	3	0	0	0	0	0	0	0	0	0	0	0			
10:45 AM	49	9	6	8	7	15	2	2	0	0	0	0	0	0	0	0	0	0			
<b>11:00 AM</b>	42	5	4	14	9	6	2	1	0	1	0	0	0	0	0	0	0	0			
11:15 AM	46	12	8	7	8	8	2	1	0	0	0	0	0	0	0	0	0	0			
11:30 AM	50	10	7	9	18	3	3	0	0	0	0	0	0	0	0	0	0	0			
11:45 AM	54	15	12	10	7	8	2	0	0	0	0	0	0	0	0	0	0	0			
Total	925	205	116	180	162	154	75	22	4	5	1	1	0	0	0	0	0	0			
%		22.2	12.5	19.5	17.5	16.6	8.1	2.4	0.4	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0			

Average (Mean) 13.0 mph

Minimum 1.0 mph

Maximum 29.6 mph

Pace Range

8.3 - 18.3 mph 717 vehicles (77.5%)

## Percentile Speeds

% mph

10 6.2

15 8.5

50 13.7

85 17.4

90 18.3

## Speeds Exceeded

mph % Count

25 0.4% 4

35 0.0% 0

45 0.0% 0

55 0.0% 0

65 0.0% 0

75 0.0% 0

## 12 Hour Speed

mph		N Fair SB																
	Total	< 10	10 - < 12	12 - < 14	14 - < 16	16 - < 18	18 - < 20	20 - < 22	22 - < 24	24 - < 26	26 - < 28	28 - < 30	30 - < 32	32 - < 34	34 - < 36	36 - < 38	38 - < 40	40 - < 200
12:00 PM	46	23	2	9	4	4	3	1	0	0	0	0	0	0	0	0	0	0
12:15 PM	60	19	5	13	11	7	4	1	0	0	0	0	0	0	0	0	0	0
12:30 PM	51	18	8	8	9	5	3	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	46	16	6	8	8	2	6	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	52	14	7	8	10	10	3	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	51	21	6	9	8	4	3	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	41	11	5	5	8	6	5	1	0	0	0	0	0	0	0	0	0	0
1:45 PM	53	25	11	10	2	2	2	1	0	0	0	0	0	0	0	0	0	0
2:00 PM	45	12	6	11	7	5	3	0	0	0	0	0	0	0	0	0	0	1
2:15 PM	55	13	5	6	15	9	5	0	2	0	0	0	0	0	0	0	0	0
2:30 PM	48	8	4	9	11	12	2	2	0	0	0	0	0	0	0	0	0	0
2:45 PM	68	18	6	23	10	10	0	0	1	0	0	0	0	0	0	0	0	0
3:00 PM	63	26	6	11	8	9	2	1	0	0	0	0	0	0	0	0	0	0
3:15 PM	59	22	7	13	10	4	3	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	72	25	9	7	15	10	5	1	0	0	0	0	0	0	0	0	0	0
3:45 PM	64	22	10	8	10	7	6	1	0	0	0	0	0	0	0	0	0	0
4:00 PM	55	17	12	14	5	5	2	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	62	23	8	9	13	2	5	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	53	13	4	10	11	9	4	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	74	40	8	5	14	6	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	81	34	7	9	13	9	5	3	0	0	0	0	0	0	0	0	0	1
5:15 PM	86	44	3	6	12	14	4	2	0	0	0	0	0	0	0	0	0	1
5:30 PM	62	34	2	8	4	11	3	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	58	17	3	7	11	13	5	1	1	0	0	0	0	0	0	0	0	0
6:00 PM	53	11	5	9	9	9	7	3	0	0	0	0	0	0	0	0	0	0
6:15 PM	70	11	11	9	16	15	4	3	1	0	0	0	0	0	0	0	0	0
6:30 PM	43	9	7	4	11	8	2	2	0	0	0	0	0	0	0	0	0	0
6:45 PM	56	10	6	11	16	7	4	2	0	0	0	0	0	0	0	0	0	0
7:00 PM	57	11	2	13	12	10	3	5	0	0	1	0	0	0	0	0	0	0
7:15 PM	45	11	5	8	11	6	3	1	0	0	0	0	0	0	0	0	0	0
7:30 PM	52	11	6	9	15	7	2	1	1	0	0	0	0	0	0	0	0	0
7:45 PM	51	10	6	11	11	10	3	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	38	8	6	8	10	2	3	0	0	1	0	0	0	0	0	0	0	0
8:15 PM	50	10	7	13	11	7	1	1	0	0	0	0	0	0	0	0	0	0
8:30 PM	30	3	6	6	8	4	2	1	0	0	0	0	0	0	0	0	0	0
8:45 PM	31	4	5	6	9	5	2	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	32	5	2	5	10	6	3	0	1	0	0	0	0	0	0	0	0	0
9:15 PM	20	1	2	4	6	4	2	0	1	0	0	0	0	0	0	0	0	0
9:30 PM	29	5	4	9	3	6	2	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	18	5	2	4	5	1	0	1	0	0	0	0	0	0	0	0	0	0
10:00 PM	22	1	2	3	2	8	5	0	0	0	0	0	0	0	1	0	0	0
10:15 PM	7	0	3	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	12	1	2	0	1	7	0	1	0	0	0	0	0	0	0	0	0	0
10:45 PM	7	0	1	0	2	1	2	0	1	0	0	0	0	0	0	0	0	0
11:00 PM	13	1	0	4	2	4	2	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	8	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	6	0	2	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Total	2157	645	242	366	403	305	139	40	10	1	1	0	0	0	1	0	0	4
%		29.9	11.2	17.0	18.7	14.1	6.4	1.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

## **APPENDIX E: CONCEPTUAL MINI ROUNDABOUT MODIFICATIONS**





