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DATE: December 16, 2016

RE: CRO Task Order 272, UPC 81373
US 250 Operation and Safety Study
HSIP Project Development
Goochland County

Executive Summary

As a part of the Highway Safety Improvement Program (HSIP) Project Development, a safety study was conducted along a section of the US 250 corridor in Goochland County, Virginia. This section of US 250 included the following intersections:

- US 250 & Cardwell Road (Rt 670)
- US 250 & Oilville Road (Rt 617)
- US 250 & Fairground Road (Rt 632)

Data was collected and analyzed to develop alternatives to improve safety throughout the corridor. Capacity and traffic control warrant analyses were conducted at each of the intersections. Crash data was evaluated throughout the corridor. Low, medium, and high cost options were developed to improve safety within the corridor. **Table 1** provides estimated project costs and benefit to cost ratios for the identified alternatives. The project costs are inclusive of engineering estimates for construction, preliminary engineering, and right-of-way/utilities. The benefit to cost ratios are representative of project benefits and costs, including annual maintenance, for a 20-year service life.

Table 1: Potential Safety Improvements at Study Intersections

Intersection	Option	Brief Description	Project Cost	Benefit to Cost Ratio
US 250 at Cardwell Road	High Cost	Single Lane Roundabout	$1,069,000	1.32
	Moderate Cost	Realign intersection	$302,600	2.35
	Low Cost	Increase Signage	$19,500	N/A
US 250 at Oilville Road	High Cost/ Moderate Cost	4-Section Flashing Yellow Signal Head	$14,600	2.24
	Low Cost	Backplates with Retro-Reflective Border	$8,600	8.62
US 250 at Fairground Road	High Cost	Single Lane Roundabout	$1,724,000	1.0
	Moderate Cost	Flashing Beacon	$305,900	0.36
	Low Cost	Increase Signage	$19,464	N/A

The alternatives that provide benefit to cost ratios exceeding 1.0 would qualify for funding through the Highway Safety Improvement Program (HSIP). These following options are recommended to address safety concerns within the study area:

Short-Term Improvements

- US 250 & Cardwell Road – Increase Signage
- US 250 & Oilville Road – Install 4-section flashing yellow signal head for the eastbound left-turn movement and install backplates with retro-reflective border on all signal heads.
- US 250 & Fairground Road – Increase signage.
- US 250 Passing Zone - Remove the westbound-only, eastbound-only, and a portion of the bi-directional passing zone in the vicinity of Bridgewater Drive

Long-Term Improvements

- US 250 & Cardwell Road – Realign intersection to eliminate the unconventional multi-leg configuration.
- US 250 & Fairground Road – Complete additional engineering work for the roundabout option to improve the precision of the cost estimate. Construct the roundabout option, if this additional engineering work confirms a project benefit to cost ratio exceeding 1.0.

Introduction

The purpose of this study was to perform a safety and operational analysis along W. Broad Street (US 250) between Cardwell Road (Rt 670) to Bridge Water Drive in Goochland County, Virginia. The study area included the following three intersections:

- US 250 & Cardwell Road (Rt 670) - Unsignalized
- US 250 & Oilville Road (Rt 617) - Signalized
- US 250 & Fairground Road (Rt 632) - Unsignalized

Crash records were obtained from VDOT for a 5.5 year period from 1/1/2011 through 6/30/2016. The crash records included crash severity, crash type, direction of travel for the impacting vehicle, roadway conditions, weather conditions, time of day, and location. Crash record summary tables are included in **Appendix A**.

An extensive field data collection effort was completed as part of this study. At each intersection, turning movement counts were completed using Miovision video recording equipment for a 12-hour period between 6AM and 6PM on a typical weekday. In conjunction with the intersection turn counts, queue lengths and gap time (headway between successive vehicles on US 250) were recorded by visual observation during the morning (7-9AM) and afternoon (4-6PM) peak periods. Speed data was collected at two points along US 250, east and west of Oilville Road.

A two-person field crew visited the project area in August, 2016. Pavement surface, pavement marking, and traffic control signs were observed to be in fair condition. Intersection and passing sight distance measurements were taken by the 2-person crew assuming a 3.5-ft driver eye height and 3.5-ft obstacle height.

The traffic data and field observations are included in **Appendix B.**

Traffic operations were analyzed at each intersection following the methodology presented in the Highway Capacity Manual (HCM 2010). Synchro 8 software was used to model the roadway network and perform the HCM 2010 calculations at stop-controlled and signalized intersections. Microscopic simulation with the SimTraffic software (10 randomly seeded runs with 15 minute seeding interval and 1 hour analysis interval) was completed to evaluate queue lengths. The Sidra software was used to evaluate level-of-service for the roundabout alternatives. Intersection sight distances were evaluated, and traffic signal warrant analysis were completed at existing unsignalized intersection locations. Capacity analysis print outs are included in **Appendix C.**

For the improvement options, construction costs were estimated using the VDOT Project Cost Estimating System (PCES). Project benefits in terms of reduced frequency for major injury, minor injury, and property damage only crashes were calculated by referencing crash modification factors from the Crash Modification Factor Clearinghouse. The HSIP application forms were completed for each improvement option and included in **Appendix E** of this report. All of the cost estimates include preliminary engineering, right-of-way, and construction for each alternative.

US 250 & Cardwell Road

The intersection of US 250 & Cardwell Road is an unconventional multi-point intersection with a "Y" configuration. Approximately 150-ft upstream of US 250, Cardwell Road splits into two separate bi-directional roadways, creating the following three intersection conflict points:

- US 250 at Cardwell Road (west-side) –A three leg, approximately 45 degree angle intersection with stop-sign traffic control provided on Cardwell Road. Although traffic-control signs are not provided to prohibit any turn movement, this intersection primarily accommodates northbound left-turns from Cardwell Road onto US 250 westbound and eastbound right-turns from US 250 onto Cardwell Road.

- US 250 at Cardwell Road (east-side) – A three leg, approximately 45 degree angle intersection with stop-sign traffic control provided on Cardwell Road. Although traffic-control signs are not provided to prohibit any turn movement, this intersection primarily accommodates northbound right-turns from Cardwell Road onto US 250 eastbound and westbound left-turns from US 250 onto Cardwell Road

- Cardwell Road (west-side) at Cardwell Road (east-side) – A three leg, approximately 45 degree angle intersection, with yield-sign traffic control on the east-side approach of Cardwell Road.

Within the intersection area, US 250 provides one travel lane of per direction with a posted speed limit of 55 mph. Cardwell Road provides one lane of travel per direction with a posted speed limit of 40 mph.

Over the past 5.5 years, a total of seven crashes have occurred within 200 feet of this intersection. Over half (57%) of the reported crashes involved minor or incapacitating injuries. The crash breakdown by type includes, five rear-end crashes and two head on crashes. Of the five rear-end

crashes, four of them occurred on westbound US 250. Half of the crashes occurred when the roadway surface was dry, the other half while it was wet. **Table 2** provides a summary of the crash history for the US 250 & Cardwell Road intersection.

Table 2: US 250 & Cardwell Road Crash Summary

Crash Severity		Crash Type		Direction	
Minor Injury	3	Rear End	5	US 250 EB	2
Incapacitating Injury	1	Head On	2	US 250 WB	4
Property Damage Only	3			Cardwell Road	1
Total	7	Total	7	Total	7

During the morning peak hour (7:30am-8:30am) the heaviest volume is eastbound on US 250. There is also moderate volume on northbound and westbound approaches. During the evening peak hour (4:45pm-5:45pm) the heaviest volume through the intersection is westbound on US 250. Cardwell Road is a collector for rural and residential land uses and this is shown in the higher northbound volume in the morning and higher southbound volume in the evening. Heavy vehicle percentages for the intersection are 7% in the morning and 2% in the evening. There were three pedestrians observed at this intersection during the 12-hour traffic count. Signal warrant analyses suggest that existing traffic volumes and crash frequency would not warrant the installation of a traffic signal at the intersection.

Table 3 provides a summary of the speed data taken along US 250 between the Cardwell Road and Oilville Road intersections. The speed data indicates good consistency between the posted speed limit and the prevailing 85th percentile operating speed on US 250.

Table 3: Speed Study Data Summary, US 250 West of Cardwell Road/East of Oilville Road

Location and Direction	Posted Speed	15th Percentile Speed	Median Speed	10 MPH Pace Speed	85th Percentile Speed	Average Speed
East of Oilville Rd (EB)	55 MPH	38 MPH	46 MPH	40 – 50 MPH	53 MPH	46 MPH
East of Oilville Rd (WB)	55 MPH	41 MPH	48 MPH	45 – 55 MPH	54 MPH	48 MPH

Table 4 provides a summary of field-measured and required intersection sight distances at the US 250/Cardwell Road intersection. The field measurements indicate that the available intersection sight distance is sufficient at the posted speed limit and 85th percentile operating speed for left-turns from the western leg of Cardwell Road onto US 250 westbound, right-turns from the eastern leg of Cardwell Road onto US 250 eastbound, and left-turns from US 250 westbound onto the eastern leg of Cardwell Road.

Table 4: Intersection Sight Distance, US 250 at Cardwell Road

Location	Field Measured (ft)	Posted Speed Limit (55 mph)		85th Percentile Speed (approximately 55 mph)	
		Stopping Sight Distance (ft)	Intersection Sight Distance (ft)	Stopping Sight Distance (ft)	Intersection Sight Distance (ft)
Left-Turn from Minor Street (from Cardwell Road, West Leg)	1000	495	610	495	610
Right-Turn from Minor Street (from Cardwell Road, East Leg)	750	495	530	495	530
Left-Turn from Major Street (to Cardwell Road East Leg)	575	495	445	495	445

Table 5 provides a comparison of counted traffic volumes versus the number of available gaps. The field measurements indicate the presence of sufficient gaps in traffic along US 250 to accommodate turning movements at the intersection. Minimal queuing was observed at the intersection during the peak hours.

Despite the low crash frequency, the intersection is a safety concern due to its unconventional layout and angles of intersections. The unconventional approach of Cardwell Road is poorly signed, difficult to maneuver, and creates unnecessary conflict points. The proposed safety improvements would aim to improve sight lines and reduce conflict points by converting the unconventional multi-leg configuration into a 3-leg intersection.

Potential options for the HSIP project include the following:

Option A: High Cost – Construct a one-lane roundabout with 130-ft inscribed diameter to accommodate a WB-67 design vehicle, as shown in **Figure 4** of **Appendix D**. A roundabout reduces conflict points and keeps vehicles moving through intersections in a much smoother and consistent manor reducing driver frustration and improving safety. Considering the location and direction of crashes at this intersection, a roundabout could potentially reduce the occurrence of rear end crashes resulting from vehicles slowing abruptly in reaction to turning traffic.

- Construction Cost = $1,069,000
- Present Value of Project Costs = $1,188,000
- Present Value of Project Benefits = $1,567,000
- Expected Benefit-to-Cost Ratio = 1.32

Option B: Moderate Cost – Realign the intersection to eliminate the unconventional multi-leg configuration on the northbound approach of Cardwell Road, as shown in **Figure 5** of **Appendix D**. Creating a more conventional T-intersection would improve sight lines by providing a perpendicular angle of intersection, eliminate confusion for drivers entering and exiting Cardwell Road, and reduce the number of conflict points. This option could be constructed either with or without channelized right-turn movements within the existing footprint of the intersection. The estimate below includes the channelized right-turn movements.

- Construction Cost = $302,6000
- Present Value of Project Costs = $368,000
- Present Value of Project Benefits = $866,500
- Expected Benefit-to-Cost Ratio = 2.35

Table 5: US 250 & Cardwell Road Gap Summary

Movement	Time	Turn Movement Demand	Number of Gaps
Westbound US 250 onto Cardwell Road	7:00 AM	11	338
	7:15 AM	9	309
	7:30 AM	10	287
	7:45 AM	15	271
	8:00 AM	29	274
	8:15 AM	37	289
	8:30 AM	13	313
	8:45 AM	8	293
	4:00 PM	10	359
	4:15 PM	12	343
	4:30 PM	15	361
	4:45 PM	13	301
	5:00 PM	13	336
	5:15 PM	8	343
	5:30 PM	9	329
	5:45 PM	7	340
Northbound Cardwell Road onto US 250	7:00 AM	2	165
	7:15 AM	9	137
	7:30 AM	6	133
	7:45 AM	12	104
	8:00 AM	16	126
	8:15 AM	6	140
	8:30 AM	4	154
	8:45 AM	4	136
	4:00 PM	8	137
	4:15 PM	8	121
	4:30 PM	8	157
	4:45 PM	7	94
	5:00 PM	14	95
	5:15 PM	17	96
	5:30 PM	4	106
	5:45 PM	8	109

Option C: Low Cost – Install regulatory and warning signs, as shown in **Figure 6** of **Appendix D**. As previously noted above, the unconventional northbound approach causes driver confusion while entering and exiting Cardwell Road. Increased signing and warning devices would help guide drivers to better maneuver the intersection. Regulatory signs to prohibit difficult to maneuver turn movements would reduce the exposure time for vehicles entering US 250 from a stopped position on Cardwell Road.

- Install "Watch for Turning Vehicles" (W11-V3) signs both east and west of the intersection.
- Install "Multiple Intersections Ahead" (W2-8) signs both east and west of the intersection.
- Install "No Left Turn" (R3-2) signs at both the western entrance to Cardwell Road and the eastern exit from Cardwell Road.
- Install "No Right Turn" (R3-1) signs at both the eastern entrance to Cardwell Road and the western exit from Cardwell Road.
- Estimated Project Cost = $19,500
- Estimated Benefit-to-Cost Ratio = N/A, crash modification factor is not available

Table 6 provides a summary of level of Service for existing and improved conditions at the intersection. With existing conditions, the overall intersection provides desirable LOS A conditions with the northbound approach of Cardwell Road providing minimally congested LOS B. The high cost option, a roundabout, would improve level-of-service on the northbound approach to LOS A.

Table 6: US 250 & Cardwell Road Level of Service (LOS) Summary

Scenario / Improvement	Level of Service (LOS), AM(PM)			
	Overall	**EB US 250**	**WB US 250**	**NB Cardwell Rd**
Existing 2016	A(A)	A(A)	A(A)	B(B)
Option A: High Cost - Roundabout	A(A)	A(A)	A(A)	A(A)
Option B: Moderate Cost - Realignment	A(A)	A(A)	A(A)	B(B)
Option C: Low Cost - Signage	A(A)	A(A)	A(A)	B(B)

US 250 & Oilville Road

US 250 & Oilville Road is a signalized T-intersection. The eastbound approach of US 250 has a left turn lane and a through lane. The westbound approach of US 250 has a through lane and a dedicated right turn lane. The southbound approach of Oilville Road has a dedicated left turn lane and right turn lane. The posted speed limit along US 250 is 55 mph. There is not a posted speed limit along Oilville Road within the vicinity of the intersection. Oilville Road is classified as a Major Collector and provides the only access to I-64 within 7 miles at Exit 167.

Over the past 5.5 years there were a total of 20 crashes within a 150-ft radius of the intersection. The majority (55%) of these crashes were property damage

only crashes. Seven of the crashes involved a minor injury and two of the crashes involved an incapacitating injury. By crash type, nine were rear-end crashes, eight were angle crashes, two were opposite direction sideswipe crashes, and in one crash a vehicle was backed into. Out of the 20 crashes, 90% occurred when the road surface was dry. **Table 7** provides a summary of the crash history at US 250 & Oilville Road intersection.

Table 7: US 250 & Oilville Road Crash Summary

Crash Severity		Crash Type		Direction	
Minor Injury	7	Rear End	9	US 250 EB	9
Incapacitating Injury	2	Angle	8	US 250 WB	11
Property Damage Only	11	Sideswipe	2		
		Backed Into	1		
Total	20	Total	20	Total	20

During the morning peak hour (7:30am-8:30am) the heaviest turning movement at the intersection is the eastbound left from US 250 onto Oilville Road. There is also heavy volume on the eastbound through and southbound right movements. During the evening peak hour (4:45pm-5:45pm) the heaviest turning movement is the southbound right turn. There is also heavy volume on the westbound through and eastbound left movements. Looking at the greater area, there is a large flow of traffic between Fairground Road to the west, along US 250, and up Oilville Road to the ramps at I-64. Heavy vehicle percentages for the intersection are 5% in the morning and 2% in the evening. There were two pedestrians observed at this intersection during the 12-hour traffic count.

Table 8 provides a summary of the speed study data. Field measurements of the standing queue at the beginning of green indicate that the existing 225-ft storage capacity for the eastbound left-turn lane on US 250 is occasionally exceeded, particularly during the morning peak hour. However, none of the crashes appear to be caused by excessive queuing in the eastbound left-turn lane.

Table 8: Speed Study Data Summary at Oilville Road

Location and Direction	**Posted Speed**	**15th Percentile Speed**	**Median Speed**	**10 MPH Pace Speed**	**85th Percentile Speed**	**Average Speed**
East of Oilville Rd (EB)	55 MPH	38 MPH	46 MPH	40 – 50	53 MPH	46 MPH
East of Oilville Rd (WB)	55 MPH	41 MPH	48 MPH	45 – 55	54 MPH	48 MPH
West of Oilville Rd (EB)	55 MPH	51 MPH	56 MPH	50 – 60	61 MPH	56 MPH
West of Oilville Rd (WB)	55 MPH	51 MPH	57 MPH	50 – 60	62 MPH	56 MPH

The intersection of US 250 & Oilville Road was modeled using Synchro 8 software. **Table 9** provides a summary of level of Service for existing and improved conditions at the intersection.

Table 9: US 250 & Oilville Road Level of Service (LOS) Summary

Scenario / Improvement	**Level of Service (LOS), AM(PM)**			
	Overall	**EB US 250**	**WB US 250**	**SB Oilville Rd**
Existing 2016	B(B)	B(B)	B(C)	B(C)
Option A: High Cost – 4-Section Flashing Yellow	B(B)	B(B)	B(C)	B(C)
Option B: Moderate Cost – Reflective Backplates				

The proposed safety improvements would aim to reduce crash frequency by improving signal head visibility. Potential options for the HSIP project include the following:

Option A: High Cost – Replace the existing (US 250 eastbound left turn lane) 5-section signal head with a 4-section flashing yellow arrow signal head, as shown in **Figure 7** of **Appendix D**. Revise traffic signal phasing to accommodate a flashing yellow arrow phasing scheme. As seen in **Table 2** of **Appendix C**, this does not improve the queuing. However, it does increase safety, flexibility, and the off-peak capacity at the intersection. The existing signal mast arm appears to be long enough to accommodate a 4-section flashing yellow signal head.

- Present Value of Project Costs = $14,600
- Present Value of Project Benefits = $32,600
- Expected Benefit-to-Cost Ratio = 2.24

Option B: Moderate Cost – Install backplates with retro-reflective borders on all signal heads to enhance visibility, as shown in **Figure 8** of **Appendix D**. Additional turn lane-use arrows are another low cost option that could help with driver awareness.

- Present Value of Project Costs = $8,600
- Present Value of Project Benefits = $74,000
- Expected Benefit-to-Cost Ratio = 8.62

Option A and Option B could be implemented as part of a combined project to maximize project benefits. A combination of revised pavement markings and traffic signal retiming could be implemented to reduce the occasional excessive queueing and potential for rear-end collisions along the eastbound US 250 left-turn lane. As noted previously, the crash history did not indicate any collisions that appeared to be caused by excessive queueing in the turn lane.

US 250 & Fairground Road

US 250 & Fairground Road is a skewed T-intersection with the northbound approach of Fairground Road under stop control. US 250 eastbound has a shared through and right turn lane. US 250 westbound has a dedicated left turn lane and a through lane. Fairground Road has a left turn lane and a right turn bypass lane that merges with US 250 eastbound approximately 500-ft east of the intersection. The posted speed limit along US 250 is 55 mph. Fairground Road has a posted speed limit of 55 mph and 45 mph for trucks. Both roads are classified as minor arterials.

Over the past five years there were total of 13 crashes reported at this intersection. Six were property damage only crashes, five of the crashes involved a minor injury, one crash involved an incapacitating injury, and one crash involved a fatality. By crash type, four were rear-end crashes, four impacted fixed objects, three were angle crashes, one hit a deer, and one was reported as other. Of the 13 crashes, 10 of them occurred when the road surface was dry. **Table 10** provides a summary of the crash history at US 250 & Fairground Road intersection.

Table 10: US 250 & Fairground Road Crash Summary

Crash Severity		Crash Type		Direction	
Minor Injury	5	Rear End	4	US 250 EB	7
Incapacitating Injury	1	Fixed Object	4	US 250 WB	6
Property Damage Only	6	Angle	3		
Fatality	1	Deer	1		
		Other	1		
Total	13	Total	13	Total	13

On June 4, 2016, a fatal crash occurred at the intersection of US 250 & Fairground Road. The left-turn (angle) crash occurred during daylight hours on a dry road surface. The impacted vehicle was travelling west on US 250 and attempted to make a left turn onto Fairground Road while not having the right-of-way. The left-turning vehicle was struck by a vehicle travelling eastbound on US 250. This crash resulted in one serious injury and one fatality.

Field measurements were taken to evaluate the time it takes a vehicle to complete a left-turn movement from US 250 westbound onto Fairground Road. The average time for completing this movement was 2.9 seconds. This value is lower than the design criteria for gap time suggested by *A Policy on the Geometric Design of Highways and Streets* and the *Highway Capacity Manual*, indicating that the time required to complete the left-turn maneuver would not have been a causal factor for this fatal crash. It was stated in the FR-300, that the only improper driving action, was that the vehicle making the left turn did not have the right-of-way.

During the morning peak hour (7:00am-8:00am) the heaviest turning movement at the intersection is the northbound right turn onto eastbound US 250. There is also heavy volume on the westbound left turn onto Fairground Road. During the evening peak hour (5:00pm-6:00pm) the flow of traffic reverses. The heaviest turning movement is the westbound left turn. Heavy vehicle percentages for the intersection are 6% in the morning and 1% in the evening. There were no pedestrians observed at this intersection during the 12-hour traffic count. Signal warrant analyses suggest that existing traffic volumes and crash frequency would not warrant the installation of a traffic signal at the intersection.

Table 11 provides a summary of the speed data taken along US 250 to the east of Fairground Road. The speed data indicates that the prevailing 85th percentile operating speed on US 250 exceeds the posted speed limit by more than 5 mph.

Table 11: Speed Study Data Summary, US 250 - East of Fairground Road

Location and Direction	Posted Speed	15th Percentile Speed	Median Speed	10 MPH Pace Speed	85th Percentile Speed	Average Speed
East of Fairgound Rd (EB)	55 MPH	51 MPH	56 MPH	50 – 60	61 MPH	56 MPH
East of Fairground Rd (WB)	55 MPH	51 MPH	57 MPH	50 – 60	62 MPH	56 MPH

Table 12 provides a summary of field-measured and required intersection sight distances at the US 250/Cardwell Road intersection. The field measurements indicate that intersection sight distance is sufficient at the posted speed limit and 85th percentile operating speed for left-turns and right-turns from Fairground Road, and for left-turns from US 250 westbound onto Fairground Road.

Table 12: Intersection Sight Distance, US 250 at Fairground Road

Location	Field Measured (ft)	Posted Speed Limit (55 mph)		85th Percentile Speed (approximately 60 mph)	
		Stopping Sight Distance (ft)	Intersection Sight Distance (ft)	Stopping Sight Distance (ft)	Intersection Sight Distance (ft)
Left-Turn from Minor Street	750	495	610	570	665
Right-Turn from Minor Street	750	495	530	570	575
Left-Turn from Major Street	750	495	445	570	490

Table 13 provides a comparison of counted traffic volumes versus the number of available gaps. The field measurements indicate the presence of sufficient gaps in traffic along US 250 to accommodate turning movements at the intersection.

The proposed safety improvements would address safety and operational issues by improving accommodations for turning vehicles at this intersection. Potential options for the HSIP project would include the following:

Option A: High Cost – Construct a one-lane roundabout with 130-ft inscribed diameter to accommodate at WB-67 design vehicle with right-turn bypass lane for the northbound approach of Fairground Road, as shown in **Figure 9** of **Appendix D**. Roundabouts eliminate turning movement conflict points and maintain more consistent vehicle speeds. A roundabout would be effective at reducing the angle and rear end crashes at this intersection, which represent 54% of the crash history.

- Construction Costs = $1,724,000
- Present Value of Project Costs (construction cost plus annualized maintenance) = $1,893,000
- Present Value of Project Benefits = $1,901,000
- Expected Benefit-to-Cost Ratio = 1.0

Option B: Moderate Cost – Install a flashing beacon to warn motorists traveling along US 250 about the intersection and the potential for slowed or stopped vehicles. As shown in **Table 10**, the installation of a flashing beacon is not expected to impact the LOS.

- Construction Costs =$305,900
- Present Value of Project Costs (construction cost plus annualized maintenance) = $372,000
- Present Value of Project Benefits = $134,500
- Expected Benefit-to-Cost Ratio = 0.36

Option C: Low Cost – Install Warning Signs, as shown in **Figure 11** of **Appendix D.**

- Install "Watch for Turning Vehicles" (W11-V3) signs both east and west of the intersection.
- Install "Intersection Ahead" (W2-2) signs both east and west of the intersection.
- Estimated Project Cost = $19,464
- Estimated Benefit-to-Cost Ratio = N/A, crash modification factor is not available

Table 13: US 250 & Fairground Road Gap Summary

Movement	Time	Turn Movement Demand	Number of Gaps
Westbound US 250 onto Fairground Road	7:00 AM	47	335
	7:15 AM	61	347
	7:30 AM	120	345
	7:45 AM	94	303
	8:00 AM	52	339
	8:15 AM	65	331
	8:30 AM	54	340
	8:45 AM	56	344
	4:00 PM	75	417
	4:15 PM	105	396
	4:30 PM	72	356
	4:45 PM	118	359
	5:00 PM	132	376
	5:15 PM	176	365
	5:30 PM	179	381
	5:45 PM	133	368
Northbound Fairground Road onto US 250	7:00 AM	2	119
	7:15 AM	1	125
	7:30 AM	0	71
	7:45 AM	3	65
	8:00 AM	3	106
	8:15 AM	2	112
	8:30 AM	0	116
	8:45 AM	0	122
	4:00 PM	2	125
	4:15 PM	1	76
	4:30 PM	3	108
	4:45 PM	1	64
	5:00 PM	1	53
	5:15 PM	0	34
	5:30 PM	2	37
	5:45 PM	0	54

Table 14 provides a summary of level of Service for existing and improved conditions at the intersection. The intersection and all approaches operate at desirable LOS A conditions with existing conditions. The improvement options would maintain the desirable LOS A conditions at the intersection.

Table 14: US 250 & Fairground Road Level of Service (LOS) Summary

Scenario / Improvement	Level of Service (LOS), AM(PM)			
	Overall	**EB US 250**	**WB US 250**	**NB Fairground Rd**
Existing 2016	A(A)	A(A)	A(A)	A(A)
Option A: High Cost - Roundabout	A(A)	A(A)	A(A)	A(A)
Option B: Moderate Cost Flashing Beacon	A(A)	A(A)	A(A)	A(A)
Option C: Low Cost Signage	A(A)	A(A)	A(A)	A(A)

US 250 - Passing Zone

Along US 250, west of the US 250 & Fairground Road intersection, there is a two lane segment of roadway where passing is permitted. Heading westbound along US 250, the passing zone begins 1285 feet west of Fairground Road and includes a 925 foot section where westbound passing is permitted; followed by a 1545 foot section for bidirectional passing; followed by a 940 foot section where eastbound passing is permitted. Beyond this segment, no passing is permitted. Field measurements, in **Appendix B,** indicate that there is sufficient sight distance throughout each of the three sections of the passing zone to meet or exceed the design criteria at the posted speed limit (55 mph, 900-ft minimum passing sight distance) and the 85th percentile operating speed (60 MPH, 1000-ft minimum passing sight distance).

Over the past five years there were six crashes reported within the passing zones. Most (67%) of the crashes reported in the area involved a minor or incapacitating injury. Half (50%) of the crashes were fixed object crashes, likely resulting from running off the road. There was also one angle crash, one involving a deer, and one involving a pedestrian. There were no crashes classified as head-on, the most likely type of crash that could occur as a result of unsafe conditions in a passing zone. See the table below for a summary of the crashes within the passing zones west of Fairground Road.

Table 15: US 250 Passing Zone (West of Fairground Road) Crash Summary

Crash Severity		Crash Type		Direction	
Minor Injury	3	Fixed Object	3	US 250 EB	4
Incapacitating Injury	1	Angle	1	US 250 WB	2
Property Damage Only	2	Deer	1		
		Pedestrian	1		
Total	6	Total	6	Total	6

Although the existing passing zones meet the design criteria for sight distance. Safety could potentially be improved by removing the westbound-only, eastbound-only, and a portion of the bi-directional passing zone in the vicinity of Bridgewater Drive, as shown in **Figures 12**, **13**, and **14** in **Appendix D**. Within these segments there are several entrances to US 250 and vehicles turning right onto US 250 run the risk of not accounting for a passing vehicle when entering US 250 from a stopped position.

US 250 – Sections Between Study Intersections

In the roadway segments of US 250 between the study locations there were a total of nine crashes. The segment between Cardwell Road and Oilville Road had four crashes; two were classified as fixed object, one as a rear end, and one as a non-collision. All of the crashes occurred on a dry road surface. The segment between Oilville Road and Fairground Road had five crashes; three were classified as fixed object, one as an angle, and one as a sideswipe in the opposite direction. Four of the crashes took place on dry roadway surface and one while wet. See the table below for a summary of the segment crashes.

Table 16: US 250 Segment Crash Summary

Segment	Crash Severity		Crash Type		Direction	
Between Cardwell Rd and Oilville Rd	Minor Injury	3	Fixed Object	3	US 250 EB	2
	Property Damage Only	2	Rear End	1	US 250 WB	2
			Non-Collision	1		
	Total	4	Total	4	Total	4
Between Oilville Rd and Fairground Rd	Property Damage Only	5	Fixed Object	3	US 250 EB	2
			Angle	1	US 250 WB	3
			Sideswipe	1		
	Total	5	Total	5	Total	5

At this time there are no recommendations to address crash frequency along the segments due to the lack of any distinct crash trend.

Recommendations

These following options are recommended to address safety concerns within the study area:

Short-Term Improvements

- US 250 & Cardwell Road – Increase Signage
- US 250 & Oilville Road – Install 4-section flashing yellow signal head for the eastbound left-turn movement and install backplates with retro-reflective border on all signal heads.

- US 250 & Fairground Road – Increase signage.
- US 250 Passing Zone - Remove the westbound-only, eastbound-only, and a portion of the bi-directional passing zone in the vicinity of Bridgewater Drive

Long-Term Improvements

- US 250 & Cardwell Road – Realign intersection to eliminate the unconventional multi-leg configuration.
- US 250 & Fairground Road – Complete additional engineering work for the roundabout option to improve the precision of the cost estimate. Construct the roundabout option, if this additional engineering work confirms a project benefit to cost ratio exceeding 1.0.

APPENDIX TABLE OF CONTENTS

APPENDIX A:
CRASH HISTORY

US 250 at Cardwell Road Crash History

Crash Severity	Crash Type	Direction	Roadway Condition	Weather Condition	Time of Day	Relation to Roadway
Property Damage Only	Rear End	US 250 WB	Wet	No Adverse Weather Condition	3PM TO 6PM	Intersection Related - Within 150 Feet
Property Damage Only	Rear End	US 250 WB	Dry	No Adverse Weather Condition	6PM TO 9PM	Intersection Related - Within 150 Feet
Non-Visible Injury	Rear End	US 250 WB	Wet	No Adverse Weather Condition	6AM TO 9AM	Within Intersection
Non-Visible Injury	Rear End	US 250 WB	Wet	No Adverse Weather Condition	6PM TO 9PM	Within Intersection
Non-Visible Injury	Rear End	US 250 EB	Dry	No Adverse Weather Condition	12PM TO 3PM	Within Intersection
Ambulatory Injury	Head On	US 250 EB	Dry	No Adverse Weather Condition	3PM TO 6PM	Intersection Related - Within 150 Feet
Property Damage Only	Head On	Cardwell Road	Dry	No Adverse Weather Condition	6PM TO 9PM	Intersection Related - Within 150 Feet

US 250 at Oilville Road Crash History

Crash Severity	Crash Type	Direction	Roadway Condition	Weather Condition	Time of Day	Relation to Roadway
Property Damage Only	Backed Into	US 250 EB	Wet	No Adverse Weather Condition	9AM TO 12PM	Within Intersection
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	3PM TO 6PM	Non-Intersection
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	6PM TO 9PM	Intersection Related - Within 150 Feet
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	3PM TO 6PM	Intersection Related - Within 150 Feet
Property Damage Only	Angle	US 250 EB	Dry	No Adverse Weather Condition	3PM TO 6PM	Within Intersection
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	9PM TO 12AM	Intersection Related - Within 150 Feet
Property Damage Only	Angle	US 250 EB	Dry	No Adverse Weather Condition	6PM TO 9PM	Within Intersection
Non-Visible Injury	Angle	US 250 EB	Dry	No Adverse Weather Condition	12PM TO 3PM	Within Intersection
Non-Visible Injury	Rear End	US 250 EB	Dry	No Adverse Weather Condition	12PM TO 3PM	Driveway, Alley-Access - Related
Property Damage Only	Rear End	US 250 WB	Dry	No Adverse Weather Condition	3PM TO 6PM	Intersection Related - Within 150 Feet
Property Damage Only	Angle	US 250 WB	Dry	No Adverse Weather Condition	6AM TO 9AM	Within Intersection
Property Damage Only	Angle	US 250 WB	Dry	No Adverse Weather Condition	6PM TO 9PM	Within Intersection
Property Damage Only	Angle	US 250 WB	Dry	No Adverse Weather Condition	6PM TO 9PM	Intersection Related - Within 150 Feet
Non-Visible Injury	Rear End	US 250 WB	Dry	No Adverse Weather Condition	3PM TO 6PM	Intersection Related - Within 150 Feet
Non-Visible Injury	Rear End	US 250 WB	Dry	No Adverse Weather Condition	3PM TO 6PM	Within Intersection
Non-Visible Injury	Rear End	US 250 WB	Dry	No Adverse Weather Condition	6PM TO 9PM	Within Intersection
Non-Visible Injury	Sideswipe - Opposite Direction	US 250 WB	Dry	No Adverse Weather Condition	3PM TO 6PM	Within Intersection
Non-Visible Injury	Angle	US 250 WB	Dry	No Adverse Weather Condition	12PM TO 3PM	Within Intersection
Visible Injury	Sideswipe - Opposite Direction	US 250 WB	Wet	Rain	3PM TO 6PM	Within Intersection
Visible Injury	Angle	US 250 WB	Dry	No Adverse Weather Condition	12PM TO 3PM	Within Intersection

US 250 at Fairground Road Crash History

Crash Severity	Crash Type	Direction	Roadway Condition	Weather Condition	Time of Day	Relation to Roadway
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	12PM TO 3PM	Acceleration/Deceleration Lanes
Property Damage Only	Angle	US 250 EB	Dry	No Adverse Weather Condition	6PM TO 9PM	Intersection Related - Within 150 Feet
Property Damage Only	Rear End	US 250 EB	Dry	No Adverse Weather Condition	0AM TO 3AM	Intersection Related - Within 150 Feet
Non-Visible Injury	Other	US 250 EB	Wet	Fog	6PM TO 9PM	Intersection Related - Within 150 Feet
Non-Visible Injury	Deer	US 250 EB	Dry	No Adverse Weather Condition	9AM TO 12PM	Acceleration/Deceleration Lanes
Non-Visible Injury	Rear End	US 250 EB	Dry	No Adverse Weather Condition	12PM TO 3PM	Intersection Related - Within 150 Feet
Fatal Injury	Angle	US 250 EB	Dry	No Adverse Weather Condition	3AM TO 6AM	Within Intersection
Property Damage Only	Angle	US 250 WB	Dry	No Adverse Weather Condition	6PM TO 9PM	Main-Line Roadway
Property Damage Only	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Weather Condition	9PM TO 12AM	Within Intersection
Property Damage Only	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Weather Condition	6AM TO 9AM	Within Intersection
Non-Visible Injury	Fixed Object - Off Road	US 250 WB	Wet	Fog	12PM TO 3PM	Within Intersection
Visible Injury	Rear End	US 250 WB	Wet	Rain	9PM TO 12AM	Within Intersection
A.Ambulatory Injury	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Weather Condition	9AM TO 12PM	Within Intersection

Segment Crash History

Crash Severity	Crash Type	Direction	Roadway Condition	Weather Condition	Time of Day	Segment
Property Damage Only	Fixed Object - Off Road	US 25 WB	Wet	Rain	3AM TO 6AM	Between Oilville Road and Fairground Road
Property Damage Only	Angle	US 250 WB	Dry	No Adverse Condition	6PM TO 9PM	Between Oilville Road and Fairground Road
Property Damage Only	Sideswipe - Opposite Direction	US 250 WB	Dry	No Adverse Condition	6PM TO 9PM	Between Oilville Road and Fairground Road
Property Damage Only	Fixed Object - Off Road	US 250 EB	Dry	No Adverse Condition	6AM TO 9AM	Between Oilville Road and Fairground Road
Property Damage Only	Fixed Object - Off Road	US 250 EB	Dry	No Adverse Condition	9PM TO 12AM	Between Oilville Road and Fairground Road
Property Damage Only	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Condition	9AM TO 12PM	Between Cardwell Road and Oilville Road
Non-Visible Injury	Rear End	US 250 EB	Dry	No Adverse Condition	12PM TO 3PM	Between Cardwell Road and Oilville Road
Non-Visible Injury	Non-Collision	US 250 EB	Dry	No Adverse Condition	3PM TO 6PM	Between Cardwell Road and Oilville Road
Visible Injury	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Condition	3PM TO 6PM	Between Cardwell Road and Oilville Road

Passing Zone Crash History

Crash Severity	Crash Type	Direction	Roadway Condition	Weather Condition	Time of Day
Property Damage Only	Fixed Object - Off Road	US 250 WB	Wet	Rain	12PM TO 3PM
Property Damage Only	Deer	US 250 WB	Dry	No Adverse Condition	0AM TO 3AM
Non-Visible Injury	Angle	US 250 EB	Dry	Fog	6AM TO 9AM
Non-Visible Injury	Fixed Object - Off Road	US 250 WB	Dry	No Adverse Condition	3PM TO 6PM
Visible Injury	Ped	US 250 EB	Dry	No Adverse Condition	6PM TO 9PM
Ambulatory Injury	Fixed Object - Off Road	US 250 WB	Wet	No Adverse Condition	3PM TO 6PM

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

CRASH DIAGRAM
CARDWELL ROAD

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

CRASH DIAGRAM
OILVILLE ROAD

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

CRASH DIAGRAM
FAIRGROUND ROAD

APPENDIX B:
FIELD MEASUREMENTS, VOLUME DATA, SPEED DATA & GAP DATA

FIELD MEASUREMENTS

US 250 Operational & Safety Study: Field Measurements

US 250 & Bridgewater Drive

- Unstriped, approx. 22’ pavement width increasing to 30’+ pavement width at the intersection
- Broad Street Rd
    - 10’ lanes at the intersection
    - 15’ paved shoulder to the North, as wide as 30’ at the right turn location into Bridgewater
- Passing Zones
    - WB ONLY (between Bridgewater Dr and Fairground Rd)
        - 925’ in length
        - Begins 1285’ West of Fairground Rd
    - DUAL
        - 1545’ in length
        - Begins 145’ West of Bridgewater Dr
        - Runs to beginning of WB Only passing zone
    - EB ONLY (West of Bridgewater Dr)
        - 940’ in length
        - Begins 1085’ West of Bridgewater Dr

US 250 & Fairground Rd (RT 632)

- 11-15’ dedicated Left Turn and Right Turn (slip) lanes
    - Left has approx. 200’ storage
- 615’ merge from Fairground Rd right turn lane to US 250 EB
- Broad Street Rd
    - 12’ lanes at Fairground Rd
    - Dedicated Left Turn lane with 415’ storage
- Measured Sight Distance, Minor Road, Looking Left = 750-ft
- Measured Sight Distance, Minor Road, Looking Right = 915-ft (re-measured, 11-10-2016)
- Measured Sight Distance, Major Street Left-Turn across Opposing Traffic = 750-ft

US 250 & Oilville Rd (RT 617)

- Dedicated Left lane and Dedicated Right lane with approx. 350’ storage apiece
- 11-12’ lanes
- Broad Street Rd (EB)
    - Thru lane and Dedicated Left lane with 225’ storage
    - 12’ lanes
- Broad Street Rd (WB)
    - Thru lane and Dedicated Right lane with 225’ storage
    - 12’ lanes
    - 250’ between
    - 340’ from Centerline Oilville Road to Centerline BP gas station
    - 250 EB Left Turn into BP - 100’ storage

Cardwell Road (RT 670)

- Broad Street Rd is Thru movement only (10’ lanes)
- Cardwell Rd approach
    - Separated Left and right
        - NB Left Turn Shares EB RT from US 250 to SB 670
        - NB Right Turn shares WB LT from US 250 to SB 670
        - Each 11-12’ lanes
        - LT has approx. 125’ storage
        - RT has approx. 150’ storage
- Measured Sight Distance, Minor Road, Looking Left, west side intersection =1000-ft
- Measured Sight Distance, Minor Road, Looking Right, east side intersection = 750-ft
- Measured Sight Distance, Major Street Left-Turn across Opposing Traffic, east side intersection = 575-ft

VOLUME DATA

US 250 AND CARDWELL ROAD

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 1

Groups Printed- Car

	US 250/Broad St. Westbound				Cardwell Rd. Northbound				US 250/Broad St. Eastbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	8	2	0	10	3	6	0	9	3	22	0	0	25	44
06:15 AM	5	3	0	8	2	7	0	9	4	24	0	0	28	45
06:30 AM	5	1	0	6	2	12	0	14	4	39	0	0	43	63
06:45 AM	9	5	0	14	3	8	0	11	9	38	0	0	47	72
Total	27	11	0	38	10	33	0	43	20	123	0	0	143	224
07:00 AM	12	2	0	14	4	11	0	15	5	48	0	0	53	82
07:15 AM	22	9	0	31	10	9	0	19	13	65	0	0	78	128
07:30 AM	31	6	0	37	11	9	0	20	10	77	0	0	87	144
07:45 AM	35	11	0	46	7	15	0	22	40	63	0	0	103	171
Total	100	28	0	128	32	44	0	76	68	253	0	0	321	525
08:00 AM	18	14	0	32	21	25	0	46	36	49	0	0	85	163
08:15 AM	14	6	0	20	16	36	0	52	16	61	0	0	77	149
08:30 AM	20	4	0	24	14	12	0	26	6	58	0	0	64	114
08:45 AM	29	3	0	32	12	8	0	20	6	61	0	0	67	119
Total	81	27	0	108	63	81	0	144	64	229	0	0	293	545
09:00 AM	21	7	0	28	6	3	0	9	3	37	0	0	40	77
09:15 AM	23	3	0	26	6	7	0	13	3	50	0	0	53	92
09:30 AM	35	2	0	37	6	14	0	20	4	44	0	0	48	105
09:45 AM	30	2	0	32	5	9	0	14	6	28	0	0	34	80
Total	109	14	0	123	23	33	0	56	16	159	0	0	175	354
10:00 AM	22	3	0	25	4	5	0	9	2	38	0	0	40	74
10:15 AM	21	3	0	24	0	8	0	8	2	36	0	0	38	70
10:30 AM	29	5	0	34	5	8	0	13	3	39	0	0	42	89
10:45 AM	38	3	0	41	5	6	0	11	12	44	0	0	56	108
Total	110	14	0	124	14	27	0	41	19	157	0	0	176	341
11:00 AM	38	3	0	41	5	6	0	11	4	43	0	0	47	99
11:15 AM	36	2	0	38	5	6	0	11	3	35	0	0	38	87
11:30 AM	37	3	0	40	4	7	0	11	4	39	0	0	43	94
11:45 AM	36	9	0	45	2	7	0	9	5	33	0	0	38	92
Total	147	17	0	164	16	26	0	42	16	150	0	0	166	372
12:00 PM	40	5	0	45	9	2	0	11	6	38	0	0	44	100
12:15 PM	44	9	0	53	4	12	0	16	4	32	0	0	36	105
12:30 PM	44	6	0	50	3	7	0	10	4	54	0	0	58	118
12:45 PM	46	5	0	51	3	5	0	8	7	46	0	0	53	112
Total	174	25	0	199	19	26	0	45	21	170	0	0	191	435
01:00 PM	54	6	0	60	5	4	0	9	2	36	0	0	38	107
01:15 PM	55	2	0	57	4	3	0	7	11	27	0	0	38	102
01:30 PM	58	5	0	63	6	5	0	11	7	36	1	0	44	118
01:45 PM	54	6	0	60	6	3	0	9	4	34	0	0	38	107
Total	221	19	0	240	21	15	0	36	24	133	1	0	158	434
02:00 PM	47	4	0	51	2	5	0	7	4	25	0	0	29	87
02:15 PM	44	10	0	54	7	9	1	17	9	43	0	0	52	123
02:30 PM	49	2	0	51	9	7	0	16	13	33	0	0	46	113
02:45 PM	50	13	0	63	4	4	0	8	21	36	0	0	57	128
Total	190	29	0	219	22	25	1	48	47	137	0	0	184	451
03:00 PM	67	11	0	78	12	24	0	36	16	27	0	0	43	157
03:15 PM	47	5	0	52	15	33	0	48	14	38	0	0	52	152
03:30 PM	58	9	0	67	11	16	0	27	12	43	0	0	55	149
03:45 PM	42	5	0	47	9	10	0	19	5	32	1	0	38	104
Total	214	30	0	244	47	83	0	130	47	140	1	0	188	562
04:00 PM	66	8	0	74	9	8	0	17	6	26	0	0	32	123
04:15 PM	75	6	0	81	2	12	0	14	17	30	0	0	47	142
04:30 PM	62	7	0	69	10	15	0	25	8	31	0	0	39	133
04:45 PM	91	7	0	98	8	13	0	21	12	46	0	0	58	177
Total	294	28	0	322	29	48	0	77	43	133	0	0	176	575
05:00 PM	119	14	0	133	7	9	0	16	12	36	0	0	48	197
05:15 PM	113	17	0	130	8	8	0	16	14	36	0	0	50	196
05:30 PM	105	4	0	109	8	9	0	17	21	35	0	0	56	182
05:45 PM	94	8	0	102	7	7	0	14	11	41	0	0	52	168
Total	431	43	0	474	30	33	0	63	58	148	0	0	206	743
Grand Total	2098	285	0	2383	326	474	1	801	443	1932	2	0	2377	5561
Apprch %	88	12	0		40.7	59.2	0.1		18.6	81.3	0.1	0		
Total %	37.7	5.1	0	42.9	5.9	8.5	0	14.4	8	34.7	0	0	42.7	

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

	US 250/Broad St. Westbound			Cardwell Rd. Northbound			US 250/Broad St. Eastbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	31	6	37	11	9	20	10	**77**	0	87	144
07:45 AM	**35**	11	**46**	7	15	22	**40**	63	0	**103**	**171**
08:00 AM	18	**14**	32	**21**	25	46	36	49	0	85	163
08:15 AM	14	6	20	16	**36**	**52**	16	61	0	77	149
Total Volume	98	37	135	55	85	140	102	250	0	352	627
% App. Total	72.6	27.4		39.3	60.7		29	71	0		
PHF	.700	.661	.734	.655	.590	.673	.638	.812	.000	.854	.917
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:45 PM											
04:45 PM	91	7	98	**8**	**13**	**21**	12	**46**	0	**58**	177
05:00 PM	**119**	14	**133**	7	9	16	12	36	0	48	**197**
05:15 PM	113	**17**	130	8	8	16	14	36	0	50	196
05:30 PM	105	4	109	8	9	17	**21**	35	0	56	182
Total Volume	428	42	470	31	39	70	59	153	0	212	752
% App. Total	91.1	8.9		44.3	55.7		27.8	72.2	0		
PHF	.899	.618	.883	.969	.750	.833	.702	.832	.000	.914	.954

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File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 1

Groups Printed- Truck

	US 250/Broad St. Westbound				Cardwell Rd. Northbound				US 250/Broad St. Eastbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1
06:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
06:30 AM	1	0	0	1	2	0	0	2	0	5	0	0	5	8
06:45 AM	1	0	0	1	2	1	0	3	1	2	0	0	3	7
Total	3	0	0	3	4	1	0	5	2	7	0	0	9	17
07:00 AM	1	0	0	1	1	0	0	1	1	1	0	0	2	4
07:15 AM	4	0	0	4	1	0	0	1	0	0	0	0	0	5
07:30 AM	0	0	0	0	0	1	0	1	0	3	0	0	3	4
07:45 AM	8	1	0	9	1	0	0	1	1	6	0	0	7	17
Total	13	1	0	14	3	1	0	4	2	10	0	0	12	30
08:00 AM	1	2	0	3	0	4	0	4	1	5	0	0	6	13
08:15 AM	0	0	0	0	0	1	0	1	2	9	0	0	11	12
08:30 AM	1	0	0	1	4	1	0	5	7	4	0	0	11	17
08:45 AM	3	1	0	4	1	0	0	1	2	2	0	0	4	9
Total	5	3	0	8	5	6	0	11	12	20	0	0	32	51
09:00 AM	2	1	0	3	0	0	0	0	1	4	0	0	5	8
09:15 AM	1	0	0	1	1	1	0	2	0	3	0	0	3	6
09:30 AM	3	0	0	3	0	2	0	2	0	2	0	0	2	7
09:45 AM	1	0	0	1	0	2	0	2	0	3	0	0	3	6
Total	7	1	0	8	1	5	0	6	1	12	0	0	13	27
10:00 AM	3	0	0	3	0	2	0	2	0	1	0	0	1	6
10:15 AM	1	0	0	1	1	1	0	2	1	2	0	0	3	6
10:30 AM	1	0	0	1	0	0	0	0	2	2	0	0	4	5
10:45 AM	3	0	0	3	0	1	0	1	1	2	0	0	3	7
Total	8	0	0	8	1	4	0	5	4	7	0	0	11	24
11:00 AM	2	0	0	2	0	2	0	2	0	3	0	0	3	7
11:15 AM	4	0	0	4	1	1	0	2	3	3	0	0	6	12
11:30 AM	5	1	0	6	0	0	0	0	1	4	0	0	5	11
11:45 AM	1	0	0	1	0	3	0	3	1	5	0	0	6	10
Total	12	1	0	13	1	6	0	7	5	15	0	0	20	40
12:00 PM	4	0	0	4	0	2	0	2	2	2	0	0	4	10
12:15 PM	1	0	0	1	0	2	0	2	1	1	0	0	2	5
12:30 PM	2	0	0	2	0	0	0	0	1	3	0	0	4	6
12:45 PM	4	2	0	6	0	0	0	0	1	3	0	0	4	10
Total	11	2	0	13	0	4	0	4	5	9	0	0	14	31
01:00 PM	2	0	0	2	0	0	0	0	1	4	0	0	5	7
01:15 PM	1	0	0	1	2	0	0	2	0	5	0	0	5	8
01:30 PM	1	0	0	1	0	1	0	1	0	3	0	0	3	5
01:45 PM	4	0	0	4	0	2	0	2	0	4	0	0	4	10
Total	8	0	0	8	2	3	0	5	1	16	0	0	17	30
02:00 PM	2	0	0	2	0	1	0	1	2	3	0	0	5	8
02:15 PM	1	0	0	1	1	2	0	3	2	4	0	0	6	10
02:30 PM	1	0	0	1	3	1	0	4	4	4	0	0	8	13
02:45 PM	12	5	0	17	0	1	0	1	4	1	0	0	5	23
Total	16	5	0	21	4	5	0	9	12	12	0	0	24	54
03:00 PM	1	0	0	1	0	2	0	2	2	2	0	0	4	7
03:15 PM	1	0	0	1	4	4	0	8	1	3	0	0	4	13
03:30 PM	1	0	0	1	1	1	0	2	0	5	0	0	5	8
03:45 PM	0	0	0	0	1	1	0	2	0	2	0	0	2	4
Total	3	0	0	3	6	8	0	14	3	12	0	0	15	32
04:00 PM	5	0	0	5	0	2	0	2	1	2	0	0	3	10
04:15 PM	2	2	0	4	0	0	0	0	1	2	0	0	3	7
04:30 PM	2	1	0	3	0	0	0	0	1	2	0	0	3	6
04:45 PM	1	0	0	1	0	0	0	0	0	1	0	0	1	2
Total	10	3	0	13	0	2	0	2	3	7	0	0	10	25
05:00 PM	2	0	0	2	2	4	0	6	0	1	0	0	1	9
05:15 PM	1	0	0	1	0	0	0	0	0	2	0	0	2	3
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	3	0	0	3	2	4	0	6	1	4	0	0	5	14
Grand Total	99	16	0	115	29	49	0	78	51	131	0	0	182	375
Apprch %	86.1	13.9	0		37.2	62.8	0		28	72	0	0		
Total %	26.4	4.3	0	30.7	7.7	13.1	0	20.8	13.6	34.9	0	0	48.5	

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File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
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	US 250/Broad St. Westbound			Cardwell Rd. Northbound			US 250/Broad St. Eastbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:45 AM											
07:45 AM	**8**	1	**9**	1	0	1	1	6	0	7	**17**
08:00 AM	1	**2**	3	0	**4**	4	1	5	0	6	13
08:15 AM	0	0	0	0	1	1	2	**9**	0	**11**	12
08:30 AM	1	0	1	**4**	1	**5**	**7**	4	0	11	17
Total Volume	10	3	13	5	6	11	11	24	0	35	59
% App. Total	76.9	23.1		45.5	54.5		31.4	68.6	0		
PHF	.313	.375	.361	.313	.375	.550	.393	.667	.000	.795	.868
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 02:30 PM											
02:30 PM	1	0	1	3	1	4	**4**	**4**	0	**8**	13
02:45 PM	**12**	**5**	**17**	0	1	1	4	1	0	5	**23**
03:00 PM	1	0	1	0	2	2	2	2	0	4	7
03:15 PM	1	0	1	**4**	**4**	**8**	1	3	0	4	13
Total Volume	15	5	20	7	8	15	11	10	0	21	56
% App. Total	75	25		46.7	53.3		52.4	47.6	0		
PHF	.313	.250	.294	.438	.500	.469	.688	.625	.000	.656	.609

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File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 1

Groups Printed- Combined

	US 250/Broad St. Westbound				Cardwell Rd. Northbound				US 250/Broad St. Eastbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	9	2	0	11	3	6	0	9	3	22	0	0	25	45
06:15 AM	5	3	0	8	2	7	0	9	5	24	0	0	29	46
06:30 AM	6	1	0	7	4	12	0	16	4	44	0	0	48	71
06:45 AM	10	5	0	15	5	9	0	14	10	40	0	0	50	79
Total	30	11	0	41	14	34	0	48	22	130	0	0	152	241
07:00 AM	13	2	0	15	5	11	0	16	6	49	0	0	55	86
07:15 AM	26	9	0	35	11	9	0	20	13	65	0	0	78	133
07:30 AM	31	6	0	37	11	10	0	21	10	80	0	0	90	148
07:45 AM	43	12	0	55	8	15	0	23	41	69	0	0	110	188
Total	113	29	0	142	35	45	0	80	70	263	0	0	333	555
08:00 AM	19	16	0	35	21	29	0	50	37	54	0	0	91	176
08:15 AM	14	6	0	20	16	37	0	53	18	70	0	0	88	161
08:30 AM	21	4	0	25	18	13	0	31	13	62	0	0	75	131
08:45 AM	32	4	0	36	13	8	0	21	8	63	0	0	71	128
Total	86	30	0	116	68	87	0	155	76	249	0	0	325	596
09:00 AM	23	8	0	31	6	3	0	9	4	41	0	0	45	85
09:15 AM	24	3	0	27	7	8	0	15	3	53	0	0	56	98
09:30 AM	38	2	0	40	6	16	0	22	4	46	0	0	50	112
09:45 AM	31	2	0	33	5	11	0	16	6	31	0	0	37	86
Total	116	15	0	131	24	38	0	62	17	171	0	0	188	381
10:00 AM	25	3	0	28	4	7	0	11	2	39	0	0	41	80
10:15 AM	22	3	0	25	1	9	0	10	3	38	0	0	41	76
10:30 AM	30	5	0	35	5	8	0	13	5	41	0	0	46	94
10:45 AM	41	3	0	44	5	7	0	12	13	46	0	0	59	115
Total	118	14	0	132	15	31	0	46	23	164	0	0	187	365
11:00 AM	40	3	0	43	5	8	0	13	4	46	0	0	50	106
11:15 AM	40	2	0	42	6	7	0	13	6	38	0	0	44	99
11:30 AM	42	4	0	46	4	7	0	11	5	43	0	0	48	105
11:45 AM	37	9	0	46	2	10	0	12	6	38	0	0	44	102
Total	159	18	0	177	17	32	0	49	21	165	0	0	186	412
12:00 PM	44	5	0	49	9	4	0	13	8	40	0	0	48	110
12:15 PM	45	9	0	54	4	14	0	18	5	33	0	0	38	110
12:30 PM	46	6	0	52	3	7	0	10	5	57	0	0	62	124
12:45 PM	50	7	0	57	3	5	0	8	8	49	0	0	57	122
Total	185	27	0	212	19	30	0	49	26	179	0	0	205	466
01:00 PM	56	6	0	62	5	4	0	9	3	40	0	0	43	114
01:15 PM	56	2	0	58	6	3	0	9	11	32	0	0	43	110
01:30 PM	59	5	0	64	6	6	0	12	7	39	1	0	47	123
01:45 PM	58	6	0	64	6	5	0	11	4	38	0	0	42	117
Total	229	19	0	248	23	18	0	41	25	149	1	0	175	464
02:00 PM	49	4	0	53	2	6	0	8	6	28	0	0	34	95
02:15 PM	45	10	0	55	8	11	1	20	11	47	0	0	58	133
02:30 PM	50	2	0	52	12	8	0	20	17	37	0	0	54	126
02:45 PM	62	18	0	80	4	5	0	9	25	37	0	0	62	151
Total	206	34	0	240	26	30	1	57	59	149	0	0	208	505
03:00 PM	68	11	0	79	12	26	0	38	18	29	0	0	47	164
03:15 PM	48	5	0	53	19	37	0	56	15	41	0	0	56	165
03:30 PM	59	9	0	68	12	17	0	29	12	48	0	0	60	157
03:45 PM	42	5	0	47	10	11	0	21	5	34	1	0	40	108
Total	217	30	0	247	53	91	0	144	50	152	1	0	203	594
04:00 PM	71	8	0	79	9	10	0	19	7	28	0	0	35	133
04:15 PM	77	8	0	85	2	12	0	14	18	32	0	0	50	149
04:30 PM	64	8	0	72	10	15	0	25	9	33	0	0	42	139
04:45 PM	92	7	0	99	8	13	0	21	12	47	0	0	59	179
Total	304	31	0	335	29	50	0	79	46	140	0	0	186	600
05:00 PM	121	14	0	135	9	13	0	22	12	37	0	0	49	206
05:15 PM	114	17	0	131	8	8	0	16	14	38	0	0	52	199
05:30 PM	105	4	0	109	8	9	0	17	21	36	0	0	57	183
05:45 PM	94	8	0	102	7	7	0	14	12	41	0	0	53	169
Total	434	43	0	477	32	37	0	69	59	152	0	0	211	757
Grand Total	2197	301	0	2498	355	523	1	879	494	2063	2	0	2559	5936
Apprch %	88	12	0		40.4	59.5	0.1		19.3	80.6	0.1	0		
Total %	37	5.1	0	42.1	6	8.8	0	14.8	8.3	34.8	0	0	43.1	

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File Name : 3-Cardwell Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
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	US 250/Broad St. Westbound			Cardwell Rd. Northbound			US 250/Broad St. Eastbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	31	6	37	11	10	21	10	**80**	0	90	148
07:45 AM	**43**	12	**55**	8	15	23	**41**	69	0	**110**	**188**
08:00 AM	19	**16**	35	**21**	29	50	37	54	0	91	176
08:15 AM	14	6	20	16	**37**	**53**	18	70	0	88	161
Total Volume	107	40	147	56	91	147	106	273	0	379	673
% App. Total	72.8	27.2		38.1	61.9		28	72	0		
PHF	.622	.625	.668	.667	.615	.693	.646	.853	.000	.861	.895
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:45 PM											
04:45 PM	92	7	99	8	**13**	21	12	**47**	0	**59**	179
05:00 PM	**121**	14	**135**	**9**	13	**22**	12	37	0	49	**206**
05:15 PM	114	**17**	131	8	8	16	14	38	0	52	199
05:30 PM	105	4	109	8	9	17	**21**	36	0	57	183
Total Volume	432	42	474	33	43	76	59	158	0	217	767
% App. Total	91.1	8.9		43.4	56.6		27.2	72.8	0		
PHF	.893	.618	.878	.917	.827	.864	.702	.840	.000	.919	.931

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Cardwell Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Passenger Cars and Heavy Vehicles																								
6:00	6:15	6		3		9					0		22	3		25	2	9			11	**45**	**45**	-
6:15	6:30	7		2		9					0		24	5		29	3	5			8	**46**	**91**	-
6:30	6:45	12		4		16					0		44	4		48	1	6			7	**71**	**162**	-
6:45	7:00	9		5		14					0		40	10		50	5	10			15	**79**	**241**	-
7:00	7:15	11		5		16					0		49	6		55	2	13			15	**86**	**282**	-
7:15	7:30	9		11		20					0		65	13		78	9	26			35	**133**	**369**	-
7:30	7:45	10		11		21					0		80	10		90	6	31			37	**148**	**446**	-
7:45	8:00	15		8		23					0		69	41		110	12	43			55	**188**	**555**	-
8:00	8:15	29		21		50					0		54	37		91	16	19			35	**176**	**645**	-
8:15	8:30	37		16		53					0		70	18		88	6	14			20	**161**	**673**	-
8:30	8:45	13		18		31					0		62	13		75	4	21			25	**131**	**656**	-
8:45	9:00	8		13		21					0		63	8		71	4	32			36	**128**	**596**	-
9:00	9:15	3		6		9					0		41	4		45	8	23			31	**85**	**505**	-
9:15	9:30	8		7		15					0		53	3		56	3	24			27	**98**	**442**	-
9:30	9:45	16		6		22					0		46	4		50	2	38			40	**112**	**423**	-
9:45	10:00	11		5		16					0		31	6		37	2	31			33	**86**	**381**	-
10:00	10:15	7		4		11					0		39	2		41	3	25			28	**80**	**376**	-
10:15	10:30	9		1		10					0		38	3		41	3	22			25	**76**	**354**	-
10:30	10:45	8		5		13					0		41	5		46	5	30			35	**94**	**336**	-
10:45	11:00	7		5		12					0		46	13		59	3	41			44	**115**	**365**	-
11:00	11:15	8		5		13					0		46	4		50	3	40			43	**106**	**391**	-
11:15	11:30	7		6		13					0		38	6		44	2	40			42	**99**	**414**	-
11:30	11:45	7		4		11					0		43	5		48	4	42			46	**105**	**425**	-
11:45	12:00	10		2		12					0		38	6		44	9	37			46	**102**	**412**	-
12:00	12:15	4		9		13					0		40	8		48	5	44			49	**110**	**416**	-
12:15	12:30	14		4		18					0		33	5		38	9	45			54	**110**	**427**	-
12:30	12:45	7		3		10					0		57	5		62	6	46			52	**124**	**446**	-
12:45	13:00	5		3		8					0		49	8		57	7	50			57	**122**	**466**	-
13:00	13:15	4		5		9					0		40	3		43	6	56			62	**114**	**470**	-
13:15	13:30	3		6		9					0		32	11		43	2	56			58	**110**	**470**	-
13:30	13:45	6		6		12					0		39	7		46	5	59			64	**122**	**468**	-
13:45	14:00	5		6		11					0		38	4		42	6	58			64	**117**	**463**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Cardwell Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15	6		2		8					0		28	6		34	4	49			53	**95**	**444**	**-**
14:15	14:30	11		8		19					0		47	11		58	10	45			55	**132**	**466**	**-**
14:30	14:45	8		12		20					0		37	17		54	2	50			52	**126**	**470**	**-**
14:45	15:00	5		4		9					0		37	25		62	18	62			80	**151**	**504**	**-**
15:00	15:15	26		12		38					0		29	18		47	11	68			79	**164**	**573**	**-**
15:15	15:30	37		19		56					0		41	15		56	5	48			53	**165**	**606**	**-**
15:30	15:45	17		12		29					0		48	12		60	9	59			68	**157**	**637**	**-**
15:45	16:00	11		10		21					0		34	5		39	5	42			47	**107**	**593**	**-**
16:00	16:15	10		9		19					0		28	7		35	8	71			79	**133**	**562**	**-**
16:15	16:30	12		2		14					0		32	18		50	8	77			85	**149**	**546**	**-**
16:30	16:45	15		10		25					0		33	9		42	8	64			72	**139**	**528**	**-**
16:45	17:00	13		8		21					0		47	12		59	7	92			99	**179**	**600**	**PEAK**
17:00	17:15	13		9		22					0		37	12		49	14	121			135	**206**	**673**	**PEAK**
17:15	17:30	8		8		16					0		38	14		52	17	114			131	**199**	**723**	**PEAK**
17:30	17:45	9		8		17					0		36	21		57	4	105			109	**183**	**767**	**PEAK**
17:45	18:00	7		7		14					0		41	12		53	8	94			102	**169**	**757**	**-**
18:00	18:15					0					0					0					0	**0**	**551**	**-**
18:15	18:30					0					0					0					0	**0**	**352**	**-**
18:30	18:45					0					0					0					0	**0**	**169**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**523**	**0**	**355**	**0**	**878**	**0**	**0**	**0**	**0**	**0**	**0**	**2063**	**494**	**0**	**2557**	**301**	**2197**	**0**	**0**	**2498**	**5933**	**767**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Cardwell Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Cardwell Rd																				Totals		
Orientation		Northbound					Southbound					US 250/Broad St Eastbound					US 250/Broad St Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Heavy Vehicles Only																								
6:00	6:15	0		0		0					0		0	0		0	0	1			1	**1**	**1**	-
6:15	6:30	0		0		0					0		0	1		1	0	0			0	**1**	**2**	-
6:30	6:45	0		2		2					0		5	0		5	0	1			1	**8**	**10**	-
6:45	7:00	1		2		3					0		2	1		3	0	1			1	**7**	**17**	-
7:00	7:15	0		1		1					0		1	1		2	0	1			1	**4**	**20**	-
7:15	7:30	0		1		1					0		0	0		0	0	4			4	**5**	**24**	-
7:30	7:45	1		0		1					0		3	0		3	0	0			0	**4**	**20**	-
7:45	8:00	0		1		1					0		6	1		7	1	8			9	**17**	**30**	-
8:00	8:15	4		0		4					0		5	1		6	2	1			3	**13**	**39**	-
8:15	8:30	1		0		1					0		9	2		11	0	0			0	**12**	**46**	-
8:30	8:45	1		4		5					0		4	7		11	0	1			1	**17**	**59**	-
8:45	9:00	0		1		1					0		2	2		4	1	3			4	**9**	**51**	-
9:00	9:15	0		0		0					0		4	1		5	1	2			3	**8**	**46**	-
9:15	9:30	1		1		2					0		3	0		3	0	1			1	**6**	**40**	-
9:30	9:45	2		0		2					0		2	0		2	0	3			3	**7**	**30**	-
9:45	10:00	2		0		2					0		3	0		3	0	1			1	**6**	**27**	-
10:00	10:15	2		0		2					0		1	0		1	0	3			3	**6**	**25**	-
10:15	10:30	1		1		2					0		2	1		3	0	1			1	**6**	**25**	-
10:30	10:45	0		0		0					0		2	2		4	0	1			1	**5**	**23**	-
10:45	11:00	1		0		1					0		2	1		3	0	3			3	**7**	**24**	-
11:00	11:15	2		0		2					0		3	0		3	0	2			2	**7**	**25**	-
11:15	11:30	1		1		2					0		3	3		6	0	4			4	**12**	**31**	-
11:30	11:45	0		0		0					0		4	1		5	1	5			6	**11**	**37**	-
11:45	12:00	3		0		3					0		5	1		6	0	1			1	**10**	**40**	-
12:00	12:15	2		0		2					0		2	2		4	0	4			4	**10**	**43**	-
12:15	12:30	2		0		2					0		1	1		2	0	1			1	**5**	**36**	-
12:30	12:45	0		0		0					0		3	1		4	0	2			2	**6**	**31**	-
12:45	13:00	0		0		0					0		3	1		4	2	4			6	**10**	**31**	-
13:00	13:15	0		0		0					0		4	1		5	0	2			2	**7**	**28**	-
13:15	13:30	0		2		2					0		5	0		5	0	1			1	**8**	**31**	-
13:30	13:45	1		0		1					0		3	0		3	0	1			1	**5**	**30**	-
13:45	14:00	2		0		2					0		4	0		4	0	4			4	**10**	**30**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Cardwell Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15	1		0		1					0		3	2		5	0	2			2	**8**	**31**	**-**
14:15	14:30	2		1		3					0		4	2		6	0	1			1	**10**	**33**	**-**
14:30	14:45	1		3		4					0		4	4		8	0	1			1	**13**	**41**	**-**
14:45	15:00	1		0		1					0		1	4		5	5	12			17	**23**	**54**	**-**
15:00	15:15	2		0		2					0		2	2		4	0	1			1	**7**	**53**	**-**
15:15	15:30	4		4		8					0		3	1		4	0	1			1	**13**	**56**	**-**
15:30	15:45	1		1		2					0		5	0		5	0	1			1	**8**	**51**	**-**
15:45	16:00	1		1		2					0		2	0		2	0	0			0	**4**	**32**	**-**
16:00	16:15	2		0		2					0		2	1		3	0	5			5	**10**	**35**	**-**
16:15	16:30	0		0		0					0		2	1		3	2	2			4	**7**	**29**	**-**
16:30	16:45	0		0		0					0		2	1		3	1	2			3	**6**	**27**	**-**
16:45	17:00	0		0		0					0		1	0		1	0	1			1	**2**	**25**	**PEAK**
17:00	17:15	4		2		6					0		1	0		1	0	2			2	**9**	**24**	**PEAK**
17:15	17:30	0		0		0					0		2	0		2	0	1			1	**3**	**20**	**PEAK**
17:30	17:45	0		0		0					0		1	0		1	0	0			0	**1**	**15**	**PEAK**
17:45	18:00	0		0		0					0		0	1		1	0	0			0	**1**	**14**	**-**
18:00	18:15					0					0					0					0	**0**	**5**	**-**
18:15	18:30					0					0					0					0	**0**	**2**	**-**
18:30	18:45					0					0					0					0	**0**	**1**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**49**	**0**	**29**	**0**	**78**	**0**	**0**	**0**	**0**	**0**	**0**	**131**	**51**	**0**	**182**	**16**	**99**	**0**	**0**	**115**	**375**	**59**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

Municipality:	Goochland County
Intersection:	US 250/Broad St & Cardwell Rd
Date:	Thu 8/25/16
Job No:	
Client Code:	
Counted by:	Peggy Malone

Factors	Season
Northbound	1.000
Southbound	1.000
Eastbound	1.000
Westbound	1.000

Street		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	End	LT	TH	RT	Peds	Total	LT	TH	RT	Peds	Total	LT	TH	RT	Peds	Total	LT	TH	RT	Peds	Total	15 Min	Hour	Peak

INTERSECTION PEAK HOUR

Time		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals	
Begin	End	Northbound					Southbound					Eastbound					Westbound						
16:45	17:45	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	Peds	Hour
Volume		43	0	33	0	**76**	0	0	0	0	**0**	0	158	59	0	**217**	42	432	0	0	**474**	**0**	**767**
HV Volume		4	0	2	0	**6**	0	0	0	0	**0**	0	5	0	0	**5**	0	4	0	0	**4**		**15**
Adjusted		43	0	33	0	**76**	0	0	0	0	**0**	0	158	59	0	**217**	42	432	0	0	**474**	**0**	**767**
PHF		0.83	---	0.92	---	**0.86**	---	---	---	---	**---**	---	0.84	0.70	---	**0.92**	0.62	0.89	---	---	**0.88**	---	**0.93**
HV%		9%	0%	6%		**8%**	0%	0%	0%		**0%**	0%	3%	0%		**2%**	0%	1%	0%		**1%**	**---**	

AM PEAK HOUR

Time		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals	
Begin	End	Northbound					Southbound					Eastbound					Westbound						
7:15	8:15	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	Peds	Hour
Volume		63	0	51	0	**114**	0	0	0	0	**0**	0	268	101	0	**369**	43	119	0	0	**162**	**0**	**645**
HV Volume		5	0	2	0	**7**	0	0	0	0	**0**	0	14	2	0	**16**	3	13	0	0	**16**		**39**
Adjusted		63	0	51	0	**114**	0	0	0	0	**0**	0	268	101	0	**369**	43	119	0	0	**162**	**0**	**645**
PHF		0.54	---	0.61	---	**0.57**	---	---	---	---	**---**	---	0.84	0.62	---	**0.84**	0.67	0.69	---	---	**0.74**	---	**0.86**
HV%		8%	0%	4%		**6%**	0%	0%	0%		**0%**	0%	5%	2%		**4%**	7%	11%	0%		**10%**	**---**	

PM PEAK HOUR

Time		Cardwell Rd										US 250/Broad St					US 250/Broad St					Totals	
Begin	End	Northbound					Southbound					Eastbound					Westbound						
16:30	17:30	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	LT	TH	RT	Ped	Total	Peds	Hour
Volume		49	0	35	0	**84**	0	0	0	0	**0**	0	155	47	0	**202**	46	391	0	0	**437**	**0**	**723**
HV Volume		4	0	2	0	**6**	0	0	0	0	**0**	0	6	1	0	**7**	1	6	0	0	**7**		**20**
Adjusted		49	0	35	0	**84**	0	0	0	0	**0**	0	155	47	0	**202**	46	391	0	0	**437**	**0**	**723**
PHF		0.82	---	0.88	---	**0.84**	---	---	---	---	**---**	---	0.82	0.84	---	**0.86**	0.68	0.81	---	---	**0.81**	---	**0.88**
HV%		8%	0%	6%		**7%**	0%	0%	0%		**0%**	0%	4%	2%		**3%**	2%	2%	0%		**2%**	**---**	

US 250 AND OILVILLE ROAD

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 1

Groups Printed- Car

	Oilville Rd. Southbound				US 250/Broad St. Westbound					US 250/Broad St. Eastbound				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	9	5	0	14	8	9	0	0	17	25	69	0	94	125
06:15 AM	12	3	0	15	8	4	0	0	12	31	79	0	110	137
06:30 AM	25	11	0	36	13	4	0	0	17	41	110	0	151	204
06:45 AM	33	17	0	50	13	8	0	0	21	36	101	0	137	208
Total	79	36	0	115	42	25	0	0	67	133	359	0	492	674
07:00 AM	42	14	0	56	19	9	0	0	28	52	113	0	165	249
07:15 AM	52	22	0	74	14	15	0	0	29	57	147	0	204	307
07:30 AM	87	39	0	126	13	28	0	0	41	54	166	0	220	387
07:45 AM	58	37	0	95	17	33	0	0	50	67	123	0	190	335
Total	239	112	0	351	63	85	0	0	148	230	549	0	779	1278
08:00 AM	42	26	0	68	21	24	0	0	45	60	127	0	187	300
08:15 AM	51	20	0	71	30	21	0	0	51	63	132	0	195	317
08:30 AM	45	14	0	59	14	15	0	0	29	53	91	0	144	232
08:45 AM	40	18	0	58	6	31	0	0	37	50	68	0	118	213
Total	178	78	0	256	71	91	0	0	162	226	418	0	644	1062
09:00 AM	30	9	0	39	7	21	0	0	28	38	64	0	102	169
09:15 AM	30	14	0	44	16	19	0	0	35	48	56	0	104	183
09:30 AM	39	12	0	51	15	30	0	0	45	32	47	0	79	175
09:45 AM	27	7	0	34	13	29	0	0	42	28	45	0	73	149
Total	126	42	0	168	51	99	0	0	150	146	212	0	358	676
10:00 AM	20	12	0	32	8	19	0	0	27	34	36	0	70	129
10:15 AM	26	6	0	32	13	18	0	0	31	30	55	0	85	148
10:30 AM	27	13	0	40	16	19	0	0	35	39	39	0	78	153
10:45 AM	23	15	0	38	13	26	0	0	39	45	36	0	81	158
Total	96	46	0	142	50	82	0	0	132	148	166	0	314	588
11:00 AM	27	8	0	35	13	32	0	0	45	41	39	0	80	160
11:15 AM	30	10	0	40	12	29	0	0	41	38	41	0	79	160
11:30 AM	22	15	0	37	18	34	0	0	52	26	43	0	69	158
11:45 AM	24	10	0	34	16	27	0	0	43	31	36	0	67	144
Total	103	43	0	146	59	122	0	0	181	136	159	0	295	622
12:00 PM	20	11	0	31	12	34	1	0	47	38	30	0	68	146
12:15 PM	37	11	0	48	13	38	0	0	51	33	41	0	74	173
12:30 PM	35	19	0	54	12	31	0	0	43	38	37	0	75	172
12:45 PM	26	12	0	38	13	38	0	0	51	38	30	0	68	157
Total	118	53	0	171	50	141	1	0	192	147	138	0	285	648
01:00 PM	39	11	0	50	17	38	0	0	55	23	39	0	62	167
01:15 PM	42	19	0	61	17	46	0	0	63	25	35	0	60	184
01:30 PM	37	14	0	51	16	44	0	0	60	35	45	0	80	191
01:45 PM	39	6	0	45	13	41	0	0	54	27	40	0	67	166
Total	157	50	0	207	63	169	0	0	232	110	159	0	269	708
02:00 PM	42	10	0	52	20	38	0	0	58	27	31	0	58	168
02:15 PM	32	16	0	48	19	42	0	0	61	44	31	0	75	184
02:30 PM	36	22	0	58	15	46	0	0	61	27	42	0	69	188
02:45 PM	49	18	0	67	14	44	0	0	58	42	42	0	84	209
Total	159	66	0	225	68	170	0	0	238	140	146	0	286	749
03:00 PM	55	16	0	71	32	64	0	0	96	34	42	0	76	243
03:15 PM	60	25	0	85	28	55	0	0	83	27	46	0	73	241
03:30 PM	62	18	0	80	24	51	0	0	75	39	52	0	91	246
03:45 PM	77	16	0	93	16	41	0	0	57	19	54	0	73	223
Total	254	75	0	329	100	211	0	0	311	119	194	0	313	953
04:00 PM	64	12	0	76	24	48	0	0	72	29	44	0	73	221
04:15 PM	88	14	0	102	21	68	0	0	89	38	69	0	107	298
04:30 PM	76	15	0	91	22	47	0	0	69	22	64	0	86	246
04:45 PM	109	23	0	132	32	77	0	0	109	38	60	0	98	339
Total	337	64	0	401	99	240	0	0	339	127	237	0	364	1104
05:00 PM	109	21	0	130	30	96	0	0	126	33	58	0	91	347
05:15 PM	143	21	0	164	27	100	0	0	127	34	33	0	67	358
05:30 PM	141	27	0	168	25	89	0	0	114	36	50	0	86	368
05:45 PM	115	16	1	132	25	83	0	1	109	43	44	0	87	328
Total	508	85	1	594	107	368	0	1	476	146	185	0	331	1401
Grand Total	2354	750	1	3105	823	1803	1	1	2628	1808	2922	0	4730	10463
Apprch %	75.8	24.2	0		31.3	68.6	0	0		38.2	61.8	0		
Total %	22.5	7.2	0	29.7	7.9	17.2	0	0	25.1	17.3	27.9	0	45.2	

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 2

	Oilville Rd. Southbound			US 250/Broad St. Westbound				US 250/Broad St. Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	Left	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	**87**	**39**	**126**	13	28	0	41	54	**166**	**220**	**387**
07:45 AM	58	37	95	17	**33**	0	50	**67**	123	190	335
08:00 AM	42	26	68	21	24	0	45	60	127	187	300
08:15 AM	51	20	71	**30**	21	0	**51**	63	132	195	317
Total Volume	238	122	360	81	106	0	187	244	548	792	1339
% App. Total	66.1	33.9		43.3	56.7	0		30.8	69.2		
PHF	.684	.782	.714	.675	.803	.000	.917	.910	.825	.900	.865
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:45 PM											
04:45 PM	109	23	132	**32**	77	0	109	**38**	**60**	**98**	339
05:00 PM	109	21	130	30	96	0	126	33	58	91	347
05:15 PM	**143**	21	164	27	**100**	0	**127**	34	33	67	358
05:30 PM	141	**27**	**168**	25	89	0	114	36	50	86	**368**
Total Volume	502	92	594	114	362	0	476	141	201	342	1412
% App. Total	84.5	15.5		23.9	76.1	0		41.2	58.8		
PHF	.878	.852	.884	.891	.905	.000	.937	.928	.838	.872	.959

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

Groups Printed- Truck

	Oilville Rd. Southbound				US 250/Broad St. Westbound					US 250/Broad St. Eastbound				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	0	0	1	2	1	0	0	3	0	3	0	3	7
06:15 AM	1	2	0	3	0	0	0	0	0	0	2	0	2	5
06:30 AM	2	0	0	2	0	1	0	0	1	3	5	0	8	11
06:45 AM	3	1	0	4	1	2	0	0	3	5	5	0	10	17
Total	7	3	0	10	3	4	0	0	7	8	15	0	23	40
07:00 AM	5	1	0	6	1	0	0	0	1	2	2	0	4	11
07:15 AM	8	0	0	8	2	1	0	0	3	0	0	0	0	11
07:30 AM	5	2	0	7	1	2	0	0	3	1	2	0	3	13
07:45 AM	5	0	0	5	3	5	0	0	8	6	1	0	7	20
Total	23	3	0	26	7	8	0	0	15	9	5	0	14	55
08:00 AM	3	0	0	3	1	4	0	0	5	4	0	0	4	12
08:15 AM	6	4	0	10	0	1	0	0	1	11	3	0	14	25
08:30 AM	4	5	0	9	0	4	0	0	4	2	3	0	5	18
08:45 AM	4	5	0	9	2	1	0	0	3	0	5	0	5	17
Total	17	14	0	31	3	10	0	0	13	17	11	0	28	72
09:00 AM	1	2	0	3	1	1	0	0	2	3	0	0	3	8
09:15 AM	3	0	0	3	2	2	0	0	4	3	2	0	5	12
09:30 AM	3	0	0	3	3	2	0	0	5	2	5	0	7	15
09:45 AM	3	0	0	3	4	0	0	0	4	2	1	0	3	10
Total	10	2	0	12	10	5	0	0	15	10	8	0	18	45
10:00 AM	1	0	0	1	4	2	0	0	6	1	3	0	4	11
10:15 AM	2	2	0	4	1	0	0	0	1	0	1	0	1	6
10:30 AM	4	2	0	6	0	0	0	0	0	2	3	0	5	11
10:45 AM	4	3	0	7	4	1	0	0	5	1	3	0	4	16
Total	11	7	0	18	9	3	0	0	12	4	10	0	14	44
11:00 AM	6	2	0	8	2	1	0	0	3	1	1	0	2	13
11:15 AM	4	4	0	8	2	3	0	0	5	0	1	0	1	14
11:30 AM	2	4	0	6	5	2	0	0	7	3	1	0	4	17
11:45 AM	4	2	0	6	3	0	0	0	3	3	3	0	6	15
Total	16	12	0	28	12	6	0	0	18	7	6	0	13	59
12:00 PM	5	3	0	8	4	3	0	0	7	1	5	0	6	21
12:15 PM	1	2	0	3	3	0	0	0	3	0	3	0	3	9
12:30 PM	2	1	0	3	0	1	0	0	1	2	5	0	7	11
12:45 PM	3	2	0	5	1	5	0	0	6	2	1	0	3	14
Total	11	8	0	19	8	9	0	0	17	5	14	0	19	55
01:00 PM	0	1	0	1	0	2	0	0	2	3	4	0	7	10
01:15 PM	2	2	0	4	0	1	0	0	1	5	1	0	6	11
01:30 PM	2	2	0	4	2	1	0	0	3	0	2	0	2	9
01:45 PM	3	0	0	3	3	2	0	0	5	3	2	0	5	13
Total	7	5	0	12	5	6	0	0	11	11	9	0	20	43
02:00 PM	3	5	0	8	1	3	0	0	4	1	0	0	1	13
02:15 PM	2	2	0	4	2	0	0	0	2	2	3	0	5	11
02:30 PM	1	1	0	2	2	0	0	0	2	5	4	0	9	13
02:45 PM	3	1	0	4	2	9	0	0	11	3	3	0	6	21
Total	9	9	0	18	7	12	0	0	19	11	10	0	21	58
03:00 PM	3	3	0	6	1	2	0	0	3	1	1	0	2	11
03:15 PM	2	0	0	2	4	2	0	0	6	3	2	0	5	13
03:30 PM	3	0	0	3	1	1	0	0	2	4	3	0	7	12
03:45 PM	2	1	0	3	1	1	0	0	2	1	4	0	5	10
Total	10	4	0	14	7	6	0	0	13	9	10	0	19	46
04:00 PM	7	3	0	10	2	1	0	0	3	0	2	0	2	15
04:15 PM	3	1	0	4	2	2	0	0	4	2	2	0	4	12
04:30 PM	0	1	0	1	0	1	0	0	1	2	1	0	3	5
04:45 PM	3	0	0	3	1	2	0	0	3	1	5	0	6	12
Total	13	5	0	18	5	6	0	0	11	5	10	0	15	44
05:00 PM	1	1	0	2	3	1	0	0	4	0	1	0	1	7
05:15 PM	3	1	0	4	0	1	0	0	1	2	0	0	2	7
05:30 PM	1	0	0	1	0	0	0	0	0	0	1	0	1	2
05:45 PM	2	1	0	3	0	0	0	0	0	0	2	0	2	5
Total	7	3	0	10	3	2	0	0	5	2	4	0	6	21
Grand Total	141	75	0	216	79	77	0	0	156	98	112	0	210	582
Apprch %	65.3	34.7	0		50.6	49.4	0	0		46.7	53.3	0		
Total %	24.2	12.9	0	37.1	13.6	13.2	0	0	26.8	16.8	19.2	0	36.1	

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File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
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	Oilville Rd. Southbound			US 250/Broad St. Westbound				US 250/Broad St. Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	Left	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:45 AM											
07:45 AM	5	0	5	**3**	**5**	0	**8**	6	1	7	20
08:00 AM	3	0	3	1	4	0	5	4	0	4	12
08:15 AM	**6**	4	**10**	0	1	0	1	**11**	**3**	**14**	**25**
08:30 AM	4	**5**	9	0	4	0	4	2	3	5	18
Total Volume	18	9	27	4	14	0	18	23	7	30	75
% App. Total	66.7	33.3		22.2	77.8	0		76.7	23.3		
PHF	.750	.450	.675	.333	.700	.000	.563	.523	.583	.536	.750
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 02:00 PM											
02:00 PM	**3**	**5**	**8**	1	3	0	4	1	0	1	13
02:15 PM	2	2	4	**2**	0	0	2	2	3	5	11
02:30 PM	1	1	2	2	0	0	2	**5**	**4**	**9**	13
02:45 PM	3	1	4	2	**9**	0	**11**	3	3	6	**21**
Total Volume	9	9	18	7	12	0	19	11	10	21	58
% App. Total	50	50		36.8	63.2	0		52.4	47.6		
PHF	.750	.450	.563	.875	.333	.000	.432	.550	.625	.583	.690

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File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 1

Groups Printed- Combined

	Oilville Rd. Southbound				US 250/Broad St. Westbound					US 250/Broad St. Eastbound				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	10	5	0	15	10	10	0	0	20	25	72	0	97	132
06:15 AM	13	5	0	18	8	4	0	0	12	31	81	0	112	142
06:30 AM	27	11	0	38	13	5	0	0	18	44	115	0	159	215
06:45 AM	36	18	0	54	14	10	0	0	24	41	106	0	147	225
Total	86	39	0	125	45	29	0	0	74	141	374	0	515	714
07:00 AM	47	15	0	62	20	9	0	0	29	54	115	0	169	260
07:15 AM	60	22	0	82	16	16	0	0	32	57	147	0	204	318
07:30 AM	92	41	0	133	14	30	0	0	44	55	168	0	223	400
07:45 AM	63	37	0	100	20	38	0	0	58	73	124	0	197	355
Total	262	115	0	377	70	93	0	0	163	239	554	0	793	1333
08:00 AM	45	26	0	71	22	28	0	0	50	64	127	0	191	312
08:15 AM	57	24	0	81	30	22	0	0	52	74	135	0	209	342
08:30 AM	49	19	0	68	14	19	0	0	33	55	94	0	149	250
08:45 AM	44	23	0	67	8	32	0	0	40	50	73	0	123	230
Total	195	92	0	287	74	101	0	0	175	243	429	0	672	1134
09:00 AM	31	11	0	42	8	22	0	0	30	41	64	0	105	177
09:15 AM	33	14	0	47	18	21	0	0	39	51	58	0	109	195
09:30 AM	42	12	0	54	18	32	0	0	50	34	52	0	86	190
09:45 AM	30	7	0	37	17	29	0	0	46	30	46	0	76	159
Total	136	44	0	180	61	104	0	0	165	156	220	0	376	721
10:00 AM	21	12	0	33	12	21	0	0	33	35	39	0	74	140
10:15 AM	28	8	0	36	14	18	0	0	32	30	56	0	86	154
10:30 AM	31	15	0	46	16	19	0	0	35	41	42	0	83	164
10:45 AM	27	18	0	45	17	27	0	0	44	46	39	0	85	174
Total	107	53	0	160	59	85	0	0	144	152	176	0	328	632
11:00 AM	33	10	0	43	15	33	0	0	48	42	40	0	82	173
11:15 AM	34	14	0	48	14	32	0	0	46	38	42	0	80	174
11:30 AM	24	19	0	43	23	36	0	0	59	29	44	0	73	175
11:45 AM	28	12	0	40	19	27	0	0	46	34	39	0	73	159
Total	119	55	0	174	71	128	0	0	199	143	165	0	308	681
12:00 PM	25	14	0	39	16	37	1	0	54	39	35	0	74	167
12:15 PM	38	13	0	51	16	38	0	0	54	33	44	0	77	182
12:30 PM	37	20	0	57	12	32	0	0	44	40	42	0	82	183
12:45 PM	29	14	0	43	14	43	0	0	57	40	31	0	71	171
Total	129	61	0	190	58	150	1	0	209	152	152	0	304	703
01:00 PM	39	12	0	51	17	40	0	0	57	26	43	0	69	177
01:15 PM	44	21	0	65	17	47	0	0	64	30	36	0	66	195
01:30 PM	39	16	0	55	18	45	0	0	63	35	47	0	82	200
01:45 PM	42	6	0	48	16	43	0	0	59	30	42	0	72	179
Total	164	55	0	219	68	175	0	0	243	121	168	0	289	751
02:00 PM	45	15	0	60	21	41	0	0	62	28	31	0	59	181
02:15 PM	34	18	0	52	21	42	0	0	63	46	34	0	80	195
02:30 PM	37	23	0	60	17	46	0	0	63	32	46	0	78	201
02:45 PM	52	19	0	71	16	53	0	0	69	45	45	0	90	230
Total	168	75	0	243	75	182	0	0	257	151	156	0	307	807
03:00 PM	58	19	0	77	33	66	0	0	99	35	43	0	78	254
03:15 PM	62	25	0	87	32	57	0	0	89	30	48	0	78	254
03:30 PM	65	18	0	83	25	52	0	0	77	43	55	0	98	258
03:45 PM	79	17	0	96	17	42	0	0	59	20	58	0	78	233
Total	264	79	0	343	107	217	0	0	324	128	204	0	332	999
04:00 PM	71	15	0	86	26	49	0	0	75	29	46	0	75	236
04:15 PM	91	15	0	106	23	70	0	0	93	40	71	0	111	310
04:30 PM	76	16	0	92	22	48	0	0	70	24	65	0	89	251
04:45 PM	112	23	0	135	33	79	0	0	112	39	65	0	104	351
Total	350	69	0	419	104	246	0	0	350	132	247	0	379	1148
05:00 PM	110	22	0	132	33	97	0	0	130	33	59	0	92	354
05:15 PM	146	22	0	168	27	101	0	0	128	36	33	0	69	365
05:30 PM	142	27	0	169	25	89	0	0	114	36	51	0	87	370
05:45 PM	117	17	1	135	25	83	0	1	109	43	46	0	89	333
Total	515	88	1	604	110	370	0	1	481	148	189	0	337	1422
Grand Total	2495	825	1	3321	902	1880	1	1	2784	1906	3034	0	4940	11045
Apprch %	75.1	24.8	0		32.4	67.5	0	0		38.6	61.4	0		
Total %	22.6	7.5	0	30.1	8.2	17	0	0	25.2	17.3	27.5	0	44.7	

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File Name : 2-Oilville Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
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	Oilville Rd. Southbound			US 250/Broad St. Westbound				US 250/Broad St. Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	Left	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	**92**	**41**	**133**	14	30	0	44	55	**168**	**223**	**400**
07:45 AM	63	37	100	20	**38**	0	**58**	73	124	197	355
08:00 AM	45	26	71	22	28	0	50	64	127	191	312
08:15 AM	57	24	81	**30**	22	0	52	**74**	135	209	342
Total Volume	257	128	385	86	118	0	204	266	554	820	1409
% App. Total	66.8	33.2		42.2	57.8	0		32.4	67.6		
PHF	.698	.780	.724	.717	.776	.000	.879	.899	.824	.919	.881
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:45 PM											
04:45 PM	112	23	135	**33**	79	0	112	**39**	**65**	**104**	351
05:00 PM	110	22	132	33	97	0	**130**	33	59	92	354
05:15 PM	**146**	22	168	27	**101**	0	128	36	33	69	365
05:30 PM	142	**27**	**169**	25	89	0	114	36	51	87	**370**
Total Volume	510	94	604	118	366	0	484	144	208	352	1440
% App. Total	84.4	15.6		24.4	75.6	0		40.9	59.1		
PHF	.873	.870	.893	.894	.906	.000	.931	.923	.800	.846	.973

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Oilville Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Oilville Rod										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Passenger Cars and Heavy Vehicles																								
6:00	6:15					0	5		10		15	72	25			97		10	10		20	**132**	**132**	-
6:15	6:30					0	5		13		18	81	31			112		4	8		12	**142**	**274**	-
6:30	6:45					0	11		27		38	115	44			159		5	13		18	**215**	**489**	-
6:45	7:00					0	18		36		54	106	41			147		10	14		24	**225**	**714**	-
7:00	7:15					0	15		47		62	115	54			169		9	20		29	**260**	**842**	-
7:15	7:30					0	22		60		82	147	57			204		16	16		32	**318**	**1018**	-
7:30	7:45					0	41		92		133	168	55			223		30	14		44	**400**	**1203**	-
7:45	8:00					0	37		63		100	124	73			197		38	20		58	**355**	**1333**	-
8:00	8:15					0	26		45		71	127	64			191		28	22		50	**312**	**1385**	-
8:15	8:30					0	24		57		81	135	74			209		22	30		52	**342**	**1409**	-
8:30	8:45					0	19		49		68	94	55			149		19	14		33	**250**	**1259**	-
8:45	9:00					0	23		44		67	73	50			123		32	8		40	**230**	**1134**	-
9:00	9:15					0	11		31		42	64	41			105		22	8		30	**177**	**999**	-
9:15	9:30					0	14		33		47	58	51			109		21	18		39	**195**	**852**	-
9:30	9:45					0	12		42		54	52	34			86		32	18		50	**190**	**792**	-
9:45	10:00					0	7		30		37	46	30			76		29	17		46	**159**	**721**	-
10:00	10:15					0	12		21		33	39	35			74		21	12		33	**140**	**684**	-
10:15	10:30					0	8		28		36	56	30			86		18	14		32	**154**	**643**	-
10:30	10:45					0	15		31		46	42	41			83		19	16		35	**164**	**617**	-
10:45	11:00					0	18		27		45	39	46			85		27	17		44	**174**	**632**	-
11:00	11:15					0	10		33		43	40	42			82		33	15		48	**173**	**665**	-
11:15	11:30					0	14		34		48	42	38			80		32	14		46	**174**	**685**	-
11:30	11:45					0	19		24		43	44	29			73		36	23		59	**175**	**696**	-
11:45	12:00					0	12		28		40	39	34			73		27	19		46	**159**	**681**	-
12:00	12:15					0	14		25		39	35	39			74		37	16		53	**166**	**674**	-
12:15	12:30					0	13		38		51	44	33			77		38	16		54	**182**	**682**	-
12:30	12:45					0	20		37		57	42	40			82		32	12		44	**183**	**690**	-
12:45	13:00					0	14		29		43	31	40			71		43	14		57	**171**	**702**	-
13:00	13:15					0	12		39		51	43	26			69		40	17		57	**177**	**713**	-
13:15	13:30					0	21		44		65	36	30			66		47	17		64	**195**	**726**	-
13:30	13:45					0	16		39		55	47	35			82		45	18		63	**200**	**743**	-
13:45	14:00					0	6		42		48	42	30			72		43	16		59	**179**	**751**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Oilville Rd	**Northbound**	1.000
Date:	Thu 8/25/16	**Southbound**	1.000
Job No:		**Eastbound**	1.000
Client Code:		**Westbound**	1.000
Counted by:	Peggy Malone		

Street		Oilville Rod					US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15					0	15		45		60	31	28			59		41	21		62	**181**	**755**	**-**
14:15	14:30					0	18		34		52	34	46			80		42	21		63	**195**	**755**	**-**
14:30	14:45					0	23		37		60	46	32			78		46	17		63	**201**	**756**	**-**
14:45	15:00					0	19		52		71	45	45			90		53	16		69	**230**	**807**	**-**
15:00	15:15					0	19		58		77	43	35			78		66	33		99	**254**	**880**	**-**
15:15	15:30					0	25		62		87	48	30			78		57	32		89	**254**	**939**	**-**
15:30	15:45					0	18		65		83	55	43			98		52	25		77	**258**	**996**	**-**
15:45	16:00					0	17		79		96	58	20			78		42	17		59	**233**	**999**	**-**
16:00	16:15					0	15		71		86	46	29			75		49	26		75	**236**	**981**	**-**
16:15	16:30					0	15		91		106	71	40			111		70	23		93	**310**	**1037**	**-**
16:30	16:45					0	16		76		92	65	24			89		48	22		70	**251**	**1030**	**-**
16:45	17:00					0	23		112		135	65	39			104		79	33		112	**351**	**1148**	**PEAK**
17:00	17:15					0	22		110		132	59	33			92		97	33		130	**354**	**1266**	**PEAK**
17:15	17:30					0	22		146		168	33	36			69		101	27		128	**365**	**1321**	**PEAK**
17:30	17:45					0	27		142		169	51	36			87		89	25		114	**370**	**1440**	**PEAK**
17:45	18:00					0	17		117		134	46	43			89		83	25		108	**331**	**1420**	**-**
18:00	18:15					0					0					0					0	**0**	**1066**	**-**
18:15	18:30					0					0					0					0	**0**	**701**	**-**
18:30	18:45					0					0					0					0	**0**	**331**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**0**	**0**	**0**	**0**	**0**	**825**	**0**	**2495**	**0**	**3320**	**3034**	**1906**	**0**	**0**	**4940**	**0**	**1880**	**902**	**0**	**2782**	**11042**	**1440**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Oilville Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Oilville Rod					US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Heavy Vehicles Only																								
6:00	6:15					0	0		1		1	3	0			3		1	2		3	**7**	**7**	-
6:15	6:30					0	2		1		3	2	0			2		0	0		0	**5**	**12**	-
6:30	6:45					0	0		2		2	5	3			8		1	0		1	**11**	**23**	-
6:45	7:00					0	1		3		4	5	5			10		2	1		3	**17**	**40**	-
7:00	7:15					0	1		5		6	2	2			4		0	1		1	**11**	**44**	-
7:15	7:30					0	0		8		8	0	0			0		1	2		3	**11**	**50**	-
7:30	7:45					0	2		5		7	2	1			3		2	1		3	**13**	**52**	-
7:45	8:00					0	0		5		5	1	6			7		5	3		8	**20**	**55**	-
8:00	8:15					0	0		3		3	0	4			4		4	1		5	**12**	**56**	-
8:15	8:30					0	4		6		10	3	11			14		1	0		1	**25**	**70**	-
8:30	8:45					0	5		4		9	3	2			5		4	0		4	**18**	**75**	-
8:45	9:00					0	5		4		9	5	0			5		1	2		3	**17**	**72**	-
9:00	9:15					0	2		1		3	0	3			3		1	1		2	**8**	**68**	-
9:15	9:30					0	0		3		3	2	3			5		2	2		4	**12**	**55**	-
9:30	9:45					0	0		3		3	5	2			7		2	3		5	**15**	**52**	-
9:45	10:00					0	0		3		3	1	2			3		0	4		4	**10**	**45**	-
10:00	10:15					0	0		1		1	3	1			4		2	4		6	**11**	**48**	-
10:15	10:30					0	2		2		4	1	0			1		0	1		1	**6**	**42**	-
10:30	10:45					0	2		4		6	3	2			5		0	0		0	**11**	**38**	-
10:45	11:00					0	3		4		7	3	1			4		1	4		5	**16**	**44**	-
11:00	11:15					0	2		6		8	1	1			2		1	2		3	**13**	**46**	-
11:15	11:30					0	4		4		8	1	0			1		3	2		5	**14**	**54**	-
11:30	11:45					0	4		2		6	1	3			4		2	5		7	**17**	**60**	-
11:45	12:00					0	2		4		6	3	3			6		0	3		3	**15**	**59**	-
12:00	12:15					0	3		5		8	5	1			6		3	4		7	**21**	**67**	-
12:15	12:30					0	2		1		3	3	0			3		0	3		3	**9**	**62**	-
12:30	12:45					0	1		2		3	5	2			7		1	0		1	**11**	**56**	-
12:45	13:00					0	2		3		5	1	2			3		5	1		6	**14**	**55**	-
13:00	13:15					0	1		0		1	4	3			7		2	0		2	**10**	**44**	-
13:15	13:30					0	2		2		4	1	5			6		1	0		1	**11**	**46**	-
13:30	13:45					0	2		2		4	2	0			2		1	2		3	**9**	**44**	-
13:45	14:00					0	0		3		3	2	3			5		2	3		5	**13**	**43**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Oilville Rd	**Northbound**	1.000
Date:	Thu 8/25/16	**Southbound**	1.000
Job No:		**Eastbound**	1.000
Client Code:		**Westbound**	1.000
Counted by:	Peggy Malone		

Street		Oilville Rod					US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15					0	5		3		8	0	1			1		3	1		4	**13**	**46**	**-**
14:15	14:30					0	2		2		4	3	2			5		0	2		2	**11**	**46**	**-**
14:30	14:45					0	1		1		2	4	5			9		0	2		2	**13**	**50**	**-**
14:45	15:00					0	1		3		4	3	3			6		9	2		11	**21**	**58**	**-**
15:00	15:15					0	3		3		6	1	1			2		2	1		3	**11**	**56**	**-**
15:15	15:30					0	0		2		2	2	3			5		2	4		6	**13**	**58**	**-**
15:30	15:45					0	0		3		3	3	4			7		1	1		2	**12**	**57**	**-**
15:45	16:00					0	1		2		3	4	1			5		1	1		2	**10**	**46**	**-**
16:00	16:15					0	3		7		10	2	0			2		1	2		3	**15**	**50**	**-**
16:15	16:30					0	1		3		4	2	2			4		2	2		4	**12**	**49**	**-**
16:30	16:45					0	1		0		1	1	2			3		1	0		1	**5**	**42**	**-**
16:45	17:00					0	0		3		3	5	1			6		2	1		3	**12**	**44**	**PEAK**
17:00	17:15					0	1		1		2	1	0			1		1	3		4	**7**	**36**	**PEAK**
17:15	17:30					0	1		3		4	0	2			2		1	0		1	**7**	**31**	**PEAK**
17:30	17:45					0	0		1		1	1	0			1		0	0		0	**2**	**28**	**PEAK**
17:45	18:00					0	1		2		3	2	0			2		0	0		0	**5**	**21**	**-**
18:00	18:15					0					0					0					0	**0**	**14**	**-**
18:15	18:30					0					0					0					0	**0**	**7**	**-**
18:30	18:45					0					0					0					0	**0**	**5**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**0**	**0**	**0**	**0**	**0**	**75**	**0**	**141**	**0**	**216**	**112**	**98**	**0**	**0**	**210**	**0**	**77**	**79**	**0**	**156**	**582**	**75**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Oilville Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		**Oilville Rod**					**US 250/Broad St**					**US 250/Broad St**					**Totals**		
Orientation		**Northbound**					**Southbound**					**Eastbound**					**Westbound**							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**

INTERSECTION PEAK HOUR

Time		**Oilville Rod**					**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
16:45	**17:45**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		0	0	0	0	**0**	94	0	510	0	**604**	208	144	0	0	**352**	0	366	118	0	**484**	**0**	**1440**
HV Volume		0	0	0	0	**0**	2	0	8	0	**10**	7	3	0	0	**10**	0	4	4	0	**8**		**28**
Adjusted		0	0	0	0	**0**	94	0	510	0	**604**	208	144	0	0	**352**	0	366	118	0	**484**	**0**	**1440**
PHF		---	---	---	---	**---**	0.87	---	0.87	---	**0.89**	0.80	0.92	---	---	**0.85**	---	0.91	0.89	---	**0.93**	---	**0.97**
HV%		0%	0%	0%		**0%**	2%	0%	2%		**2%**	3%	2%	0%		**3%**	0%	1%	3%		**2%**	**---**	

AM PEAK HOUR

Time		**Oilville Rod**					**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
7:15	**8:15**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		0	0	0	0	**0**	126	0	260	0	**386**	566	249	0	0	**815**	0	112	72	0	**184**	**0**	**1385**
HV Volume		0	0	0	0	**0**	2	0	21	0	**23**	3	11	0	0	**14**	0	12	7	0	**19**		**56**
Adjusted		0	0	0	0	**0**	126	0	260	0	**386**	566	249	0	0	**815**	0	112	72	0	**184**	**0**	**1385**
PHF		---	---	---	---	**---**	0.77	---	0.71	---	**0.73**	0.84	0.85	---	---	**0.91**	---	0.74	0.82	---	**0.79**	---	**0.87**
HV%		0%	0%	0%		**0%**	2%	0%	8%		**6%**	1%	4%	0%		**2%**	0%	11%	10%		**10%**	**---**	

PM PEAK HOUR

Time		**Oilville Rod**					**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
16:30	**17:30**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		0	0	0	0	**0**	83	0	444	0	**527**	222	132	0	0	**354**	0	325	115	0	**440**	**0**	**1321**
HV Volume		0	0	0	0	**0**	3	0	7	0	**10**	7	5	0	0	**12**	0	5	4	0	**9**		**31**
Adjusted		0	0	0	0	**0**	83	0	444	0	**527**	222	132	0	0	**354**	0	325	115	0	**440**	**0**	**1321**
PHF		---	---	---	---	**---**	0.90	---	0.76	---	**0.78**	0.85	0.85	---	---	**0.85**	---	0.80	0.87	---	**0.85**	---	**0.90**
HV%		0%	0%	0%		**0%**	4%	0%	2%		**2%**	3%	4%	0%		**3%**	0%	2%	3%		**2%**	**---**	

US 250 AND FAIRGOUND ROAD

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

Groups Printed- Car

	US 250/Broad St. Westbound				Fairground Rd. Northbound				US 250/Broad St. Eastbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	3	11	0	14	63	0	0	63	1	29	0	30	107
06:15 AM	2	17	0	19	75	0	0	75	1	33	0	34	128
06:30 AM	4	24	0	28	110	0	0	110	1	40	0	41	179
06:45 AM	6	29	0	35	89	2	0	91	0	46	0	46	172
Total	15	81	0	96	337	2	0	339	3	148	0	151	586
07:00 AM	7	43	0	50	124	1	0	125	1	50	0	51	226
07:15 AM	9	54	0	63	147	1	0	148	1	54	0	55	266
07:30 AM	1	113	0	114	158	0	0	158	1	67	0	68	340
07:45 AM	11	86	0	97	128	2	0	130	2	63	0	65	292
Total	28	296	0	324	557	4	0	561	5	234	0	239	1124
08:00 AM	15	46	0	61	137	3	0	140	3	52	0	55	256
08:15 AM	17	60	0	77	144	2	0	146	0	53	0	53	276
08:30 AM	13	49	0	62	91	0	0	91	1	48	0	49	202
08:45 AM	14	49	0	63	73	0	0	73	3	40	0	43	179
Total	59	204	0	263	445	5	0	450	7	193	0	200	913
09:00 AM	17	44	0	61	71	2	0	73	0	34	0	34	168
09:15 AM	12	39	0	51	72	1	0	73	1	32	0	33	157
09:30 AM	17	44	0	61	53	1	0	54	1	25	0	26	141
09:45 AM	21	37	0	58	54	0	0	54	4	19	0	23	135
Total	67	164	0	231	250	4	0	254	6	110	0	116	601
10:00 AM	11	30	0	41	46	0	0	46	1	26	0	27	114
10:15 AM	12	29	0	41	59	0	0	59	1	29	0	30	130
10:30 AM	14	32	0	46	61	0	0	61	2	21	0	23	130
10:45 AM	20	37	0	57	52	3	0	55	0	23	0	23	135
Total	57	128	0	185	218	3	0	221	4	99	0	103	509
11:00 AM	14	45	0	59	59	1	0	60	1	21	0	22	141
11:15 AM	23	34	0	57	49	1	0	50	1	30	0	31	138
11:30 AM	18	38	0	56	48	0	0	48	1	20	0	21	125
11:45 AM	17	40	0	57	49	1	0	50	1	19	0	20	127
Total	72	157	0	229	205	3	0	208	4	90	0	94	531
12:00 PM	19	33	0	52	47	0	0	47	0	20	0	20	119
12:15 PM	21	47	0	68	49	1	0	50	1	24	0	25	143
12:30 PM	18	48	0	66	49	0	0	49	0	26	0	26	141
12:45 PM	17	48	0	65	50	0	0	50	0	18	0	18	133
Total	75	176	0	251	195	1	0	196	1	88	0	89	536
01:00 PM	27	44	0	71	48	0	0	48	1	14	0	15	134
01:15 PM	24	60	0	84	39	0	0	39	0	23	0	23	146
01:30 PM	32	47	0	79	57	0	0	57	2	23	0	25	161
01:45 PM	29	56	0	85	48	0	0	48	2	20	0	22	155
Total	112	207	0	319	192	0	0	192	5	80	0	85	596
02:00 PM	30	47	0	77	44	2	0	46	0	15	0	15	138
02:15 PM	24	56	0	80	48	3	0	51	1	26	0	27	158
02:30 PM	31	55	0	86	50	0	0	50	1	19	0	20	156
02:45 PM	19	70	0	89	57	2	0	59	0	26	0	26	174
Total	104	228	0	332	199	7	0	206	2	86	0	88	626
03:00 PM	39	75	0	114	52	1	0	53	2	25	0	27	194
03:15 PM	35	72	0	107	62	1	0	63	2	13	0	15	185
03:30 PM	50	76	0	126	77	0	0	77	0	13	0	13	216
03:45 PM	36	81	0	117	57	1	0	58	3	14	0	17	192
Total	160	304	0	464	248	3	0	251	7	65	0	72	787
04:00 PM	37	70	0	107	65	2	0	67	0	13	0	13	187
04:15 PM	51	102	0	153	76	1	0	77	1	24	0	25	255
04:30 PM	55	72	0	127	75	3	0	78	2	12	0	14	219
04:45 PM	54	114	0	168	75	1	0	76	3	25	0	28	272
Total	197	358	0	555	291	7	0	298	6	74	0	80	933
05:00 PM	75	130	0	205	67	1	0	68	2	25	0	27	300
05:15 PM	60	175	0	235	46	0	0	46	1	23	0	24	305
05:30 PM	58	177	0	235	58	2	0	60	4	21	0	25	320
05:45 PM	71	133	0	204	72	0	0	72	2	19	0	21	297
Total	264	615	0	879	243	3	0	246	9	88	0	97	1222
Grand Total	1210	2918	0	4128	3380	42	0	3422	59	1355	0	1414	8964
Apprch %	29.3	70.7	0		98.8	1.2	0		4.2	95.8	0		
Total %	13.5	32.6	0	46.1	37.7	0.5	0	38.2	0.7	15.1	0	15.8	

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 2

	US 250/Broad St. Westbound			Fairground Rd. Northbound			US 250/Broad St. Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	1	**113**	**114**	**158**	0	**158**	1	**67**	**68**	**340**
07:45 AM	11	86	97	128	2	130	2	63	65	292
08:00 AM	15	46	61	137	**3**	140	**3**	52	55	256
08:15 AM	**17**	60	77	144	2	146	0	53	53	276
Total Volume	44	305	349	567	7	574	6	235	241	1164
% App. Total	12.6	87.4		98.8	1.2		2.5	97.5		
PHF	.647	.675	.765	.897	.583	.908	.500	.877	.886	.856
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**75**	130	205	67	1	68	2	**25**	**27**	300
05:15 PM	60	175	**235**	46	0	46	1	23	24	305
05:30 PM	58	**177**	235	58	**2**	60	**4**	21	25	**320**
05:45 PM	71	133	204	**72**	0	**72**	2	19	21	297
Total Volume	264	615	879	243	3	246	9	88	97	1222
% App. Total	30	70		98.8	1.2		9.3	90.7		
PHF	.880	.869	.935	.844	.375	.854	.563	.880	.898	.955

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

Groups Printed- Truck

	US 250/Broad St. Westbound				Fairground Rd. Northbound				US 250/Broad St. Eastbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	0	2	0	2	3	0	0	3	0	1	0	1	6
06:15 AM	0	1	0	1	1	1	0	2	0	3	0	3	6
06:30 AM	0	4	0	4	5	0	0	5	0	4	0	4	13
06:45 AM	1	5	0	6	4	0	0	4	0	4	0	4	14
Total	1	12	0	13	13	1	0	14	0	12	0	12	39
07:00 AM	1	4	0	5	2	1	0	3	0	2	0	2	10
07:15 AM	1	7	0	8	1	0	0	1	0	0	0	0	9
07:30 AM	0	7	0	7	1	0	0	1	2	3	0	5	13
07:45 AM	0	8	0	8	3	1	0	4	0	4	0	4	16
Total	2	26	0	28	7	2	0	9	2	9	0	11	48
08:00 AM	4	6	0	10	4	0	0	4	0	1	0	1	15
08:15 AM	2	5	0	7	12	0	0	12	0	1	0	1	20
08:30 AM	2	5	0	7	3	0	0	3	1	3	0	4	14
08:45 AM	1	7	0	8	4	0	0	4	0	2	0	2	14
Total	9	23	0	32	23	0	0	23	1	7	0	8	63
09:00 AM	1	1	0	2	2	1	0	3	0	1	0	1	6
09:15 AM	3	1	0	4	3	0	0	3	0	2	0	2	9
09:30 AM	1	5	0	6	5	0	0	5	0	2	0	2	13
09:45 AM	2	2	0	4	1	0	0	1	1	3	0	4	9
Total	7	9	0	16	11	1	0	12	1	8	0	9	37
10:00 AM	2	1	0	3	3	0	0	3	0	1	0	1	7
10:15 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
10:30 AM	2	2	0	4	2	0	0	2	0	3	0	3	9
10:45 AM	2	4	0	6	4	0	0	4	0	1	0	1	11
Total	6	8	0	14	10	0	0	10	0	5	0	5	29
11:00 AM	0	5	0	5	1	0	0	1	0	1	0	1	7
11:15 AM	1	6	0	7	1	0	0	1	0	0	0	0	8
11:30 AM	1	4	0	5	3	0	0	3	0	1	0	1	9
11:45 AM	3	3	0	6	3	1	0	4	0	3	0	3	13
Total	5	18	0	23	8	1	0	9	0	5	0	5	37
12:00 PM	0	6	0	6	6	1	0	7	0	1	0	1	14
12:15 PM	0	2	0	2	2	0	0	2	0	1	0	1	5
12:30 PM	2	1	0	3	5	0	0	5	0	2	0	2	10
12:45 PM	4	4	0	8	3	0	0	3	0	0	0	0	11
Total	6	13	0	19	16	1	0	17	0	4	0	4	40
01:00 PM	0	3	0	3	5	0	0	5	0	2	0	2	10
01:15 PM	1	2	0	3	5	0	0	5	0	1	0	1	9
01:30 PM	1	1	0	2	2	0	0	2	0	0	0	0	4
01:45 PM	3	2	0	5	3	0	0	3	0	1	0	1	9
Total	5	8	0	13	15	0	0	15	0	4	0	4	32
02:00 PM	0	5	0	5	1	0	0	1	0	0	0	0	6
02:15 PM	0	3	0	3	4	0	0	4	0	1	0	1	8
02:30 PM	0	0	0	0	8	0	0	8	0	2	0	2	10
02:45 PM	2	10	0	12	2	0	0	2	1	3	0	4	18
Total	2	18	0	20	15	0	0	15	1	6	0	7	42
03:00 PM	0	4	0	4	2	0	0	2	0	0	0	0	6
03:15 PM	1	3	0	4	4	0	0	4	1	1	0	2	10
03:30 PM	1	1	0	2	8	2	0	10	0	0	0	0	12
03:45 PM	2	3	0	5	2	1	0	3	0	2	0	2	10
Total	4	11	0	15	16	3	0	19	1	3	0	4	38
04:00 PM	3	5	0	8	1	0	0	1	1	1	0	2	11
04:15 PM	1	3	0	4	5	0	0	5	0	1	0	1	10
04:30 PM	2	0	0	2	3	0	0	3	0	0	0	0	5
04:45 PM	1	4	0	5	5	0	0	5	0	1	0	1	11
Total	7	12	0	19	14	0	0	14	1	3	0	4	37
05:00 PM	1	2	0	3	1	0	0	1	0	0	0	0	4
05:15 PM	1	1	0	2	1	0	0	1	0	1	0	1	4
05:30 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
05:45 PM	1	0	0	1	1	0	0	1	0	1	0	1	3
Total	3	5	0	8	4	0	0	4	0	2	0	2	14
Grand Total	57	163	0	220	152	9	0	161	7	68	0	75	456
Apprch %	25.9	74.1	0		94.4	5.6	0		9.3	90.7	0		
Total %	12.5	35.7	0	48.2	33.3	2	0	35.3	1.5	14.9	0	16.4	

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File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

	US 250/Broad St. Westbound			Fairground Rd. Northbound			US 250/Broad St. Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	**8**	8	3	**1**	4	0	**4**	**4**	16
08:00 AM	**4**	6	**10**	4	0	4	0	1	1	15
08:15 AM	2	5	7	**12**	0	**12**	0	1	1	**20**
08:30 AM	2	5	7	3	0	3	**1**	3	4	14
Total Volume	8	24	32	22	1	23	1	9	10	65
% App. Total	25	75		95.7	4.3		10	90		
PHF	.500	.750	.800	.458	.250	.479	.250	.563	.625	.813
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	**2**	**10**	**12**	2	0	2	**1**	**3**	**4**	**18**
03:00 PM	0	4	4	2	0	2	0	0	0	6
03:15 PM	1	3	4	4	0	4	1	1	2	10
03:30 PM	1	1	2	**8**	**2**	**10**	0	0	0	12
Total Volume	4	18	22	16	2	18	2	4	6	46
% App. Total	18.2	81.8		88.9	11.1		33.3	66.7		
PHF	.500	.450	.458	.500	.250	.450	.500	.333	.375	.639

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File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016

Groups Printed- Combined

	US 250/Broad St. Westbound				Fairground Rd. Northbound				US 250/Broad St. Eastbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	3	13	0	16	66	0	0	66	1	30	0	31	113
06:15 AM	2	18	0	20	76	1	0	77	1	36	0	37	134
06:30 AM	4	28	0	32	115	0	0	115	1	44	0	45	192
06:45 AM	7	34	0	41	93	2	0	95	0	50	0	50	186
Total	16	93	0	109	350	3	0	353	3	160	0	163	625
07:00 AM	8	47	0	55	126	2	0	128	1	52	0	53	236
07:15 AM	10	61	0	71	148	1	0	149	1	54	0	55	275
07:30 AM	1	120	0	121	159	0	0	159	3	70	0	73	353
07:45 AM	11	94	0	105	131	3	0	134	2	67	0	69	308
Total	30	322	0	352	564	6	0	570	7	243	0	250	1172
08:00 AM	19	52	0	71	141	3	0	144	3	53	0	56	271
08:15 AM	19	65	0	84	156	2	0	158	0	54	0	54	296
08:30 AM	15	54	0	69	94	0	0	94	2	51	0	53	216
08:45 AM	15	56	0	71	77	0	0	77	3	42	0	45	193
Total	68	227	0	295	468	5	0	473	8	200	0	208	976
09:00 AM	18	45	0	63	73	3	0	76	0	35	0	35	174
09:15 AM	15	40	0	55	75	1	0	76	1	34	0	35	166
09:30 AM	18	49	0	67	58	1	0	59	1	27	0	28	154
09:45 AM	23	39	0	62	55	0	0	55	5	22	0	27	144
Total	74	173	0	247	261	5	0	266	7	118	0	125	638
10:00 AM	13	31	0	44	49	0	0	49	1	27	0	28	121
10:15 AM	12	30	0	42	60	0	0	60	1	29	0	30	132
10:30 AM	16	34	0	50	63	0	0	63	2	24	0	26	139
10:45 AM	22	41	0	63	56	3	0	59	0	24	0	24	146
Total	63	136	0	199	228	3	0	231	4	104	0	108	538
11:00 AM	14	50	0	64	60	1	0	61	1	22	0	23	148
11:15 AM	24	40	0	64	50	1	0	51	1	30	0	31	146
11:30 AM	19	42	0	61	51	0	0	51	1	21	0	22	134
11:45 AM	20	43	0	63	52	2	0	54	1	22	0	23	140
Total	77	175	0	252	213	4	0	217	4	95	0	99	568
12:00 PM	19	39	0	58	53	1	0	54	0	21	0	21	133
12:15 PM	21	49	0	70	51	1	0	52	1	25	0	26	148
12:30 PM	20	49	0	69	54	0	0	54	0	28	0	28	151
12:45 PM	21	52	0	73	53	0	0	53	0	18	0	18	144
Total	81	189	0	270	211	2	0	213	1	92	0	93	576
01:00 PM	27	47	0	74	53	0	0	53	1	16	0	17	144
01:15 PM	25	62	0	87	44	0	0	44	0	24	0	24	155
01:30 PM	33	48	0	81	59	0	0	59	2	23	0	25	165
01:45 PM	32	58	0	90	51	0	0	51	2	21	0	23	164
Total	117	215	0	332	207	0	0	207	5	84	0	89	628
02:00 PM	30	52	0	82	45	2	0	47	0	15	0	15	144
02:15 PM	24	59	0	83	52	3	0	55	1	27	0	28	166
02:30 PM	31	55	0	86	58	0	0	58	1	21	0	22	166
02:45 PM	21	80	0	101	59	2	0	61	1	29	0	30	192
Total	106	246	0	352	214	7	0	221	3	92	0	95	668
03:00 PM	39	79	0	118	54	1	0	55	2	25	0	27	200
03:15 PM	36	75	0	111	66	1	0	67	3	14	0	17	195
03:30 PM	51	77	0	128	85	2	0	87	0	13	0	13	228
03:45 PM	38	84	0	122	59	2	0	61	3	16	0	19	202
Total	164	315	0	479	264	6	0	270	8	68	0	76	825
04:00 PM	40	75	0	115	66	2	0	68	1	14	0	15	198
04:15 PM	52	105	0	157	81	1	0	82	1	25	0	26	265
04:30 PM	57	72	0	129	78	3	0	81	2	12	0	14	224
04:45 PM	55	118	0	173	80	1	0	81	3	26	0	29	283
Total	204	370	0	574	305	7	0	312	7	77	0	84	970
05:00 PM	76	132	0	208	68	1	0	69	2	25	0	27	304
05:15 PM	61	176	0	237	47	0	0	47	1	24	0	25	309
05:30 PM	58	179	0	237	59	2	0	61	4	21	0	25	323
05:45 PM	72	133	0	205	73	0	0	73	2	20	0	22	300
Total	267	620	0	887	247	3	0	250	9	90	0	99	1236
Grand Total	1267	3081	0	4348	3532	51	0	3583	66	1423	0	1489	9420
Apprch %	29.1	70.9	0		98.6	1.4	0		4.4	95.6	0		
Total %	13.5	32.7	0	46.2	37.5	0.5	0	38	0.7	15.1	0	15.8	

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File Name : 1-Fairground Rd. and US 250_Broad St
Site Code :
Start Date : 8/25/2016
Page No : 2

	US 250/Broad St. Westbound			Fairground Rd. Northbound			US 250/Broad St. Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	1	**120**	**121**	**159**	0	**159**	**3**	**70**	**73**	**353**
07:45 AM	11	94	105	131	**3**	134	2	67	69	308
08:00 AM	**19**	52	71	141	3	144	3	53	56	271
08:15 AM	19	65	84	156	2	158	0	54	54	296
Total Volume	50	331	381	587	8	595	8	244	252	1228
% App. Total	13.1	86.9		98.7	1.3		3.2	96.8		
PHF	.658	.690	.787	.923	.667	.936	.667	.871	.863	.870
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**76**	132	208	68	1	69	2	**25**	**27**	304
05:15 PM	61	176	**237**	47	0	47	1	24	25	309
05:30 PM	58	**179**	237	59	**2**	61	**4**	21	25	**323**
05:45 PM	72	133	205	**73**	0	**73**	2	20	22	300
Total Volume	267	620	887	247	3	250	9	90	99	1236
% App. Total	30.1	69.9		98.8	1.2		9.1	90.9		
PHF	.878	.866	.936	.846	.375	.856	.563	.900	.917	.957

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Fairground Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Fairground Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Passenger Cars and Heavy Vehicles																								
6:00	6:15	0		66		66					0		30	1		31	13	3			16	**113**	**113**	-
6:15	6:30	1		76		77					0		36	1		37	18	2			20	**134**	**247**	-
6:30	6:45	0		115		115					0		44	1		45	28	4			32	**192**	**439**	-
6:45	7:00	2		93		95					0		50	0		50	34	7			41	**186**	**625**	-
7:00	7:15	2		126		128					0		52	1		53	47	8			55	**236**	**748**	-
7:15	7:30	1		148		149					0		54	1		55	61	10			71	**275**	**889**	-
7:30	7:45	0		159		159					0		70	3		73	120	1			121	**353**	**1050**	-
7:45	8:00	3		131		134					0		67	2		69	94	11			105	**308**	**1172**	-
8:00	8:15	3		141		144					0		53	3		56	52	19			71	**271**	**1207**	-
8:15	8:30	2		156		158					0		54	0		54	65	19			84	**296**	**1228**	-
8:30	8:45	0		94		94					0		51	2		53	54	15			69	**216**	**1091**	-
8:45	9:00	0		77		77					0		42	3		45	56	15			71	**193**	**976**	-
9:00	9:15	3		73		76					0		35	0		35	45	18			63	**174**	**879**	-
9:15	9:30	1		75		76					0		34	1		35	40	15			55	**166**	**749**	-
9:30	9:45	1		58		59					0		27	1		28	49	18			67	**154**	**687**	-
9:45	10:00	0		55		55					0		22	5		27	39	23			62	**144**	**638**	-
10:00	10:15	0		49		49					0		27	1		28	31	13			44	**121**	**585**	-
10:15	10:30	0		60		60					0		29	1		30	30	12			42	**132**	**551**	-
10:30	10:45	0		63		63					0		24	2		26	34	16			50	**139**	**536**	-
10:45	11:00	3		56		59					0		24	0		24	41	22			63	**146**	**538**	-
11:00	11:15	1		60		61					0		22	1		23	50	14			64	**148**	**565**	-
11:15	11:30	1		50		51					0		30	1		31	40	24			64	**146**	**579**	-
11:30	11:45	0		51		51					0		21	1		22	42	19			61	**134**	**574**	-
11:45	12:00	2		52		54					0		22	1		23	43	20			63	**140**	**568**	-
12:00	12:15	1		53		54					0		21	0		21	39	19			58	**133**	**553**	-
12:15	12:30	1		51		52					0		25	1		26	49	21			70	**148**	**555**	-
12:30	12:45	0		54		54					0		28	0		28	49	20			69	**151**	**572**	-
12:45	13:00	0		53		53					0		18	0		18	52	21			73	**144**	**576**	-
13:00	13:15	0		53		53					0		16	1		17	47	27			74	**144**	**587**	-
13:15	13:30	0		44		44					0		24	0		24	62	25			87	**155**	**594**	-
13:30	13:45	0		59		59					0		23	2		25	48	33			81	**165**	**608**	-
13:45	14:00	0		51		51					0		21	2		23	58	32			90	**164**	**628**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Fairground Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Fairground Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15	2		45		47					0		15	0		15	52	30			82	**144**	**628**	**-**
14:15	14:30	3		52		55					0		27	1		28	59	24			83	**166**	**639**	**-**
14:30	14:45	0		58		58					0		21	1		22	55	31			86	**166**	**640**	**-**
14:45	15:00	2		59		61					0		29	1		30	80	21			101	**192**	**668**	**-**
15:00	15:15	1		54		55					0		25	2		27	79	39			118	**200**	**724**	**-**
15:15	15:30	1		66		67					0		14	3		17	75	36			111	**195**	**753**	**-**
15:30	15:45	2		85		87					0		13	0		13	77	51			128	**228**	**815**	**-**
15:45	16:00	2		59		61					0		16	3		19	84	38			122	**202**	**825**	**-**
16:00	16:15	2		66		68					0		14	1		15	75	40			115	**198**	**823**	**-**
16:15	16:30	1		81		82					0		25	1		26	105	52			157	**265**	**893**	**-**
16:30	16:45	3		78		81					0		12	2		14	72	57			129	**224**	**889**	**-**
16:45	17:00	1		80		81					0		26	3		29	118	55			173	**283**	**970**	**-**
17:00	17:15	1		68		69					0		25	2		27	132	76			208	**304**	**1076**	**PEAK**
17:15	17:30	0		47		47					0		24	1		25	176	61			237	**309**	**1120**	**PEAK**
17:30	17:45	2		59		61					0		21	4		25	179	58			237	**323**	**1219**	**PEAK**
17:45	18:00	0		73		73					0		20	2		22	133	72			205	**300**	**1236**	**PEAK**
18:00	18:15					0					0					0					0	**0**	**932**	**-**
18:15	18:30					0					0					0					0	**0**	**623**	**-**
18:30	18:45					0					0					0					0	**0**	**300**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**51**	**0**	**3532**	**0**	**3583**	**0**	**0**	**0**	**0**	**0**	**0**	**1423**	**66**	**0**	**1489**	**3081**	**1267**	**0**	**0**	**4348**	**9420**	**1236**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Fairground Rd		
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		Fairground Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
Heavy Vehicles Only																								
6:00	6:15	0		3		3					0		1	0		1	2	0			2	**6**	**6**	-
6:15	6:30	1		1		2					0		3	0		3	1	0			1	**6**	**12**	-
6:30	6:45	0		5		5					0		4	0		4	4	0			4	**13**	**25**	-
6:45	7:00	0		4		4					0		4	0		4	5	1			6	**14**	**39**	-
7:00	7:15	1		2		3					0		2	0		2	4	1			5	**10**	**43**	-
7:15	7:30	0		1		1					0		0	0		0	7	1			8	**9**	**46**	-
7:30	7:45	0		1		1					0		3	2		5	7	0			7	**13**	**46**	-
7:45	8:00	1		3		4					0		4	0		4	8	0			8	**16**	**48**	-
8:00	8:15	0		4		4					0		1	0		1	6	4			10	**15**	**53**	-
8:15	8:30	0		12		12					0		1	0		1	5	2			7	**20**	**64**	-
8:30	8:45	0		3		3					0		3	1		4	5	2			7	**14**	**65**	-
8:45	9:00	0		4		4					0		2	0		2	7	1			8	**14**	**63**	-
9:00	9:15	1		2		3					0		1	0		1	1	1			2	**6**	**54**	-
9:15	9:30	0		3		3					0		2	0		2	1	3			4	**9**	**43**	-
9:30	9:45	0		5		5					0		2	0		2	5	1			6	**13**	**42**	-
9:45	10:00	0		1		1					0		3	1		4	2	2			4	**9**	**37**	-
10:00	10:15	0		3		3					0		1	0		1	1	2			3	**7**	**38**	-
10:15	10:30	0		1		1					0		0	0		0	1	0			1	**2**	**31**	-
10:30	10:45	0		2		2					0		3	0		3	2	2			4	**9**	**27**	-
10:45	11:00	0		4		4					0		1	0		1	4	2			6	**11**	**29**	-
11:00	11:15	0		1		1					0		1	0		1	5	0			5	**7**	**29**	-
11:15	11:30	0		1		1					0		0	0		0	6	1			7	**8**	**35**	-
11:30	11:45	0		3		3					0		1	0		1	4	1			5	**9**	**35**	-
11:45	12:00	1		3		4					0		3	0		3	3	3			6	**13**	**37**	-
12:00	12:15	1		6		7					0		1	0		1	6	0			6	**14**	**44**	-
12:15	12:30	0		2		2					0		1	0		1	2	0			2	**5**	**41**	-
12:30	12:45	0		5		5					0		2	0		2	1	2			3	**10**	**42**	-
12:45	13:00	0		3		3					0		0	0		0	4	4			8	**11**	**40**	-
13:00	13:15	0		5		5					0		2	0		2	3	0			3	**10**	**36**	-
13:15	13:30	0		5		5					0		1	0		1	2	1			3	**9**	**40**	-
13:30	13:45	0		2		2					0		0	0		0	1	1			2	**4**	**34**	-
13:45	14:00	0		3		3					0		1	0		1	2	3			5	**9**	**32**	-

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

			Factors
Municipality:	Goochland County		**Season**
Intersection:	US 250/Broad St & Fairground Rd	**Northbound**	1.000
Date:	Thu 8/25/16	**Southbound**	1.000
Job No:		**Eastbound**	1.000
Client Code:		**Westbound**	1.000
Counted by:	Peggy Malone		

Street		Fairground Rd										US 250/Broad St					US 250/Broad St					Totals		
Orientation		Northbound					Southbound					Eastbound					Westbound							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**
14:00	14:15	0		1		1					0		0	0		0	5	0			5	**6**	**28**	**-**
14:15	14:30	0		4		4					0		1	0		1	3	0			3	**8**	**27**	**-**
14:30	14:45	0		8		8					0		2	0		2	0	0			0	**10**	**33**	**-**
14:45	15:00	0		2		2					0		3	1		4	10	2			12	**18**	**42**	**-**
15:00	15:15	0		2		2					0		0	0		0	4	0			4	**6**	**42**	**-**
15:15	15:30	0		4		4					0		1	1		2	3	1			4	**10**	**44**	**-**
15:30	15:45	2		8		10					0		0	0		0	1	1			2	**12**	**46**	**-**
15:45	16:00	1		2		3					0		2	0		2	3	2			5	**10**	**38**	**-**
16:00	16:15	0		1		1					0		1	1		2	5	3			8	**11**	**43**	**-**
16:15	16:30	0		5		5					0		1	0		1	3	1			4	**10**	**43**	**-**
16:30	16:45	0		3		3					0		0	0		0	0	2			2	**5**	**36**	**-**
16:45	17:00	0		5		5					0		1	0		1	4	1			5	**11**	**37**	**-**
17:00	17:15	0		1		1					0		0	0		0	2	1			3	**4**	**30**	**PEAK**
17:15	17:30	0		1		1					0		1	0		1	1	1			2	**4**	**24**	**PEAK**
17:30	17:45	0		1		1					0		0	0		0	2	0			2	**3**	**22**	**PEAK**
17:45	18:00	0		1		1					0		1	0		1	0	1			1	**3**	**14**	**PEAK**
18:00	18:15					0					0					0					0	**0**	**10**	**-**
18:15	18:30					0					0					0					0	**0**	**6**	**-**
18:30	18:45					0					0					0					0	**0**	**3**	**-**
18:45	19:00					0					0					0					0	**0**	**0**	**-**
Totals		**9**	**0**	**152**	**0**	**161**	**0**	**0**	**0**	**0**	**0**	**0**	**68**	**7**	**0**	**75**	**163**	**57**	**0**	**0**	**220**	**456**	**65**	

TRAFFIC COUNT SUMMARY PERFORMED BY McCORMICK TAYLOR

Municipality:	Goochland County		**Factors**
Intersection:	US 250/Broad St & Fairground Rd		**Season**
Date:	Thu 8/25/16	**Northbound**	1.000
Job No:		**Southbound**	1.000
Client Code:		**Eastbound**	1.000
Counted by:	Peggy Malone	**Westbound**	1.000

Street		**Fairground Rd**										**US 250/Broad St**					**US 250/Broad St**					**Totals**		
Orientation		**Northbound**					**Southbound**					**Eastbound**					**Westbound**							
Begin	**End**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**LT**	**TH**	**RT**	**Peds**	**Total**	**15 Min**	**Hour**	**Peak**

INTERSECTION PEAK HOUR

Time		**Fairground Rd**										**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
17:00	**18:00**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		3	0	247	0	**250**	0	0	0	0	**0**	0	90	9	0	**99**	620	267	0	0	**887**	**0**	**1236**
HV Volume		0	0	4	0	**4**	0	0	0	0	**0**	0	2	0	0	**2**	5	3	0	0	**8**		**14**
Adjusted		3	0	247	0	**250**	0	0	0	0	**0**	0	90	9	0	**99**	620	267	0	0	**887**	**0**	**1236**
PHF		0.38	---	0.85	---	**0.86**	---	---	---	---	**---**	---	0.90	0.56	---	**0.92**	0.87	0.88	---	---	**0.94**	---	**0.96**
HV%		0%	0%	2%		**2%**	0%	0%	0%		**0%**	0%	2%	0%		**2%**	1%	1%	0%		**1%**	**---**	

AM PEAK HOUR

Time		**Fairground Rd**										**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
7:15	**8:15**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		7	0	579	0	**586**	0	0	0	0	**0**	0	244	9	0	**253**	327	41	0	0	**368**	**0**	**1207**
HV Volume		1	0	9	0	**10**	0	0	0	0	**0**	0	8	2	0	**10**	28	5	0	0	**33**		**53**
Adjusted		7	0	579	0	**586**	0	0	0	0	**0**	0	244	9	0	**253**	327	41	0	0	**368**	**0**	**1207**
PHF		0.58	---	0.91	---	**0.92**	---	---	---	---	**---**	---	0.87	0.75	---	**0.87**	0.68	0.54	---	---	**0.76**	---	**0.85**
HV%		14%	0%	2%		**2%**	0%	0%	0%		**0%**	0%	3%	22%		**4%**	9%	12%	0%		**9%**	**---**	

PM PEAK HOUR

Time		**Fairground Rd**										**US 250/Broad St**					**US 250/Broad St**					**Totals**	
Begin	**End**	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
16:30	**17:30**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**LT**	**TH**	**RT**	**Ped**	**Total**	**Peds**	**Hour**
Volume		5	0	273	0	**278**	0	0	0	0	**0**	0	87	8	0	**95**	498	249	0	0	**747**	**0**	**1120**
HV Volume		0	0	10	0	**10**	0	0	0	0	**0**	0	2	0	0	**2**	7	5	0	0	**12**		**24**
Adjusted		5	0	273	0	**278**	0	0	0	0	**0**	0	87	8	0	**95**	498	249	0	0	**747**	**0**	**1120**
PHF		0.42	---	0.85	---	**0.86**	---	---	---	---	**---**	---	0.84	0.67	---	**0.82**	0.71	0.82	---	---	**0.79**	---	**0.91**
HV%		0%	0%	4%		**4%**	0%	0%	0%		**0%**	0%	2%	0%		**2%**	1%	2%	0%		**2%**	**---**	

SPEED DATA

Station #: Site A-EB
Site ID: 000000020181
Location: US 250/Broad St., E of Fairground Rd.
Direction: EAST
Lane: 1

File: D0825002.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
00:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
01:00	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
Hour Total	0	0	0	0	0	0	0	0	0	2	4	2	0	0	8
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	1	0	3	1	0	0	5
01:45	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4
02:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Hour Total	0	0	0	0	0	0	0	1	2	0	6	1	0	0	10
02:15	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
02:30	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
02:45	0	0	0	0	0	0	0	0	0	1	3	1	0	0	5
03:00	0	0	0	0	0	0	0	0	0	2	3	1	1	0	7
Hour Total	0	0	0	0	0	0	0	0	0	4	9	2	2	0	17
03:15	0	0	0	0	0	0	0	0	0	1	2	2	1	0	6
03:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
03:45	0	0	0	0	0	0	0	0	1	2	0	3	0	0	6
04:00	0	0	0	0	0	0	0	0	0	0	2	2	1	0	5
Hour Total	0	0	0	0	0	0	0	0	1	4	4	7	2	0	18
04:15	0	0	0	0	0	0	0	1	0	1	0	1	0	0	3
04:30	0	0	0	0	0	0	0	1	0	5	2	2	1	0	11
04:45	0	0	0	0	0	0	0	0	0	2	6	4	0	0	12
05:00	0	0	0	0	0	0	0	0	0	2	11	5	1	0	19
Hour Total	0	0	0	0	0	0	0	2	0	10	19	12	2	0	45
05:15	0	0	0	0	0	0	0	0	0	4	9	3	1	1	18
05:30	0	0	0	0	0	0	0	0	0	9	22	8	2	1	42
05:45	0	0	0	0	0	0	0	0	2	14	25	9	1	0	51
06:00	0	0	0	0	0	0	0	0	0	3	23	26	0	0	52
Hour Total	0	0	0	0	0	0	0	0	2	30	79	46	4	2	163
06:15	0	0	0	0	0	0	0	3	4	21	45	22	1	1	97
06:30	0	0	0	0	0	0	0	0	3	9	60	33	4	0	109
06:45	0	0	0	0	0	0	0	0	5	56	71	21	4	0	157
07:00	0	0	0	0	0	0	0	0	6	37	67	33	1	0	144
Hour Total	0	0	0	0	0	0	0	3	18	123	243	109	10	1	507
07:15	0	0	0	0	0	0	0	2	3	36	82	51	1	0	175
07:30	0	0	0	0	0	0	2	19	15	66	81	20	4	0	207
07:45	0	0	0	0	0	0	0	0	20	72	113	19	1	0	225
08:00	0	0	0	0	0	0	1	22	12	48	80	24	3	0	190
Hour Total	0	0	0	0	0	0	3	43	50	222	356	114	9	0	797
08:15	0	0	0	0	0	0	0	5	17	65	79	28	1	0	195
08:30	0	0	0	0	0	0	4	20	62	74	28	21	2	0	211
08:45	0	0	0	0	0	0	0	0	11	67	55	18	1	0	152
09:00	0	0	0	0	0	0	0	1	11	40	43	23	1	0	119

Station #: Site A-EB
Site ID: 000000020181
Location: US 250/Broad St., E of Fairground Rd.
Direction: EAST
Lane: 1

File: D0825002.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
Hour Total	0	0	0	0	0	0	4	26	101	246	205	90	5	0	677
09:15	0	0	0	0	0	0	0	0	1	32	45	19	4	1	102
09:30	0	0	0	0	0	0	0	5	5	34	52	10	1	0	107
09:45	0	0	0	0	0	0	0	2	5	13	38	33	2	0	93
10:00	0	0	0	0	0	0	1	6	7	20	26	12	1	1	74
Hour Total	0	0	0	0	0	0	1	13	18	99	161	74	8	2	376
10:15	0	0	0	0	0	0	0	0	2	28	32	11	3	0	76
10:30	0	0	0	0	0	0	0	1	4	27	44	16	2	0	94
10:45	0	0	0	0	0	0	0	8	12	29	24	8	0	0	81
11:00	0	0	0	0	0	0	0	0	3	28	36	17	1	0	85
Hour Total	0	0	0	0	0	0	0	9	21	112	136	52	6	0	336
11:15	0	0	0	1	0	0	0	0	5	29	38	10	0	2	85
11:30	0	0	0	0	0	0	0	1	7	19	35	12	5	0	79
11:45	0	0	0	0	0	0	1	5	7	10	31	18	3	0	75
12:00	0	0	0	0	0	0	0	0	13	34	19	8	1	0	75
Hour Total	0	0	0	1	0	0	1	6	32	92	123	48	9	2	314
12:15	0	0	0	0	0	0	0	0	11	23	23	14	1	0	72
12:30	0	0	0	0	0	0	0	0	6	24	26	16	2	0	74
12:45	0	0	0	0	0	0	0	1	2	26	33	21	1	0	84
13:00	0	0	0	0	0	0	0	0	3	17	32	16	3	0	71
Hour Total	0	0	0	0	0	0	0	1	22	90	114	67	7	0	301
13:15	0	0	0	0	0	0	0	0	8	19	27	11	0	0	65
13:30	0	0	0	0	0	0	0	4	18	20	25	1	1	0	69
13:45	0	0	0	0	0	0	0	0	5	26	31	17	2	1	82
14:00	0	0	0	0	0	0	0	0	7	22	30	8	6	2	75
Hour Total	0	0	0	0	0	0	0	4	38	87	113	37	9	3	291
14:15	0	0	0	3	2	0	0	2	6	14	18	7	3	0	55
14:30	0	0	0	0	0	0	0	1	8	23	34	14	3	0	83
14:45	0	0	0	0	0	0	0	2	7	21	31	15	1	0	77
15:00	0	0	0	0	0	0	0	0	9	27	43	14	0	1	94
Hour Total	0	0	0	3	2	0	0	5	30	85	126	50	7	1	309
15:15	0	0	0	0	0	0	0	0	2	22	36	13	3	0	76
15:30	0	0	0	0	0	0	0	2	4	26	35	15	2	1	85
15:45	0	0	0	0	0	0	0	0	20	32	41	7	0	0	100
16:00	0	0	0	0	0	0	0	8	9	23	24	12	1	0	77
Hour Total	0	0	0	0	0	0	0	10	35	103	136	47	6	1	338
16:15	0	0	0	0	0	0	0	6	11	17	28	10	1	0	73
16:30	0	0	0	0	0	0	0	0	6	29	60	12	3	1	111
16:45	0	0	0	0	0	0	0	0	3	27	38	21	2	1	92
17:00	0	0	0	0	0	0	0	0	2	36	51	15	2	0	106
Hour Total	0	0	0	0	0	0	0	6	22	109	177	58	8	2	382

Station #: Site A-EB
Site ID: 000000020181
Location: US 250/Broad St., E of Fairground Rd.
Direction: EAST
Lane: 1

File: D0825002.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
17:15	0	0	0	0	0	0	0	3	13	29	35	13	1	0	94
17:30	0	0	0	1	0	1	0	0	15	12	29	11	1	0	70
17:45	0	0	0	0	0	0	0	1	6	28	35	11	1	0	82
18:00	0	0	0	0	0	0	0	0	7	33	38	11	0	0	89
Hour Total	0	0	0	1	0	1	0	4	41	102	137	46	3	0	335
18:15	0	0	0	0	0	0	0	0	0	22	37	11	5	0	75
18:30	0	0	0	0	0	0	0	0	8	45	37	18	2	0	110
18:45	0	0	0	0	0	0	0	0	1	24	45	7	0	0	77
19:00	0	0	0	0	0	0	0	0	2	13	21	6	0	1	43
Hour Total	0	0	0	0	0	0	0	0	11	104	140	42	7	1	305
19:15	0	0	0	0	0	0	0	1	10	8	23	6	2	1	51
19:30	0	0	0	0	0	0	0	1	0	11	19	8	2	0	41
19:45	0	0	0	0	0	0	0	2	4	17	23	12	2	0	60
20:00	0	0	0	0	0	0	0	0	3	14	21	5	0	0	43
Hour Total	0	0	0	0	0	0	0	4	17	50	86	31	6	1	195
20:15	0	0	0	0	0	0	0	0	0	12	21	6	0	0	39
20:30	0	0	0	0	0	0	0	0	1	10	13	3	0	0	27
20:45	0	0	0	0	0	0	0	1	3	23	12	3	0	0	42
21:00	0	0	0	0	0	0	4	1	4	8	11	4	0	0	32
Hour Total	0	0	0	0	0	0	4	2	8	53	57	16	0	0	140
21:15	0	0	0	0	0	0	0	0	1	14	11	7	0	0	33
21:30	0	0	0	0	0	0	0	0	0	6	14	4	0	0	24
21:45	0	0	0	0	0	0	0	0	0	10	9	1	0	0	20
22:00	0	0	0	0	0	0	0	1	1	2	3	2	0	0	9
Hour Total	0	0	0	0	0	0	0	1	2	32	37	14	0	0	86
22:15	0	0	0	0	0	0	0	1	1	4	4	1	0	0	11
22:30	0	0	0	0	0	0	0	1	3	5	8	5	0	0	22
22:45	0	0	0	0	0	0	0	0	0	5	5	2	1	0	13
23:00	0	0	0	0	0	0	0	1	0	1	4	2	0	0	8
Hour Total	0	0	0	0	0	0	0	3	4	15	21	10	1	0	54
23:15	0	0	0	0	0	0	0	0	1	2	1	2	2	0	8
23:30	0	0	0	0	0	0	0	1	1	1	2	0	0	0	5
23:45	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
24:00	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4
Hour Total	0	0	0	0	0	0	0	1	4	4	7	2	2	0	20
DAY TOTAL	0	0	0	5	2	1	13	144	479	1778	2496	977	113	16	6024
PERCENTS	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	2.4%	7.9%	29.5%	41.4%	16.2%	1.8%	0.2%	100%

Station #: Site A-EB
Site ID: 000000020181
Location: US 250/Broad St., E of Fairground Rd.
Direction: EAST
Lane: 1

File: D0825002.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
GRAND TOTAL	0	0	2	13	479	2496	113	0	5	1	144	1778	977	16	6024
PERCENTS	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	2.4%	7.9%	29.5%	41.4%	16.2%	1.8%	0.2%	100%

Statistical Information...

15th Percentile Speed
50.7 mph

85th Percentile Speed
61.0 mph

Median Speed
56.2 mph

Average Speed
55.8 mph

10 MPH Pace Speed
50 mph to 60 mph
4274 vehicles in pace
Representing 70.9% of the total vehicles

Vehicles > 60 MPH
1106
18.4%

Station #: Site A-WB
Site ID: 000000009363
Location: US 250/Broad St., E of Fairground Rd.
Direction: WEST
Lane: 1

File: D0825004.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
00:15	0	0	0	0	0	0	0	1	3	2	1	2	0	0	9
00:30	0	0	0	0	0	0	0	0	1	1	1	4	0	0	7
00:45	0	0	0	0	0	0	0	0	0	3	2	2	1	0	8
01:00	0	0	0	0	0	0	0	0	0	1	1	1	0	0	3
Hour Total	0	0	0	0	0	0	0	1	4	7	5	9	1	0	27
01:15	0	0	0	0	0	0	0	0	0	1	4	1	0	0	6
01:30	0	0	0	0	0	0	0	0	2	4	2	1	0	0	9
01:45	0	0	0	0	0	0	0	0	2	0	3	0	0	0	5
02:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Hour Total	0	0	0	0	0	0	0	0	4	5	10	2	0	0	21
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	1	1	1	1	1	0	0	5
Hour Total	0	0	0	0	0	0	0	1	1	1	1	2	0	0	6
03:15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
03:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
03:45	0	0	0	0	0	0	0	0	0	3	2	0	0	0	5
04:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Hour Total	0	0	0	0	0	0	0	0	1	3	6	0	0	0	10
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
04:45	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
05:00	0	0	0	0	0	0	0	1	0	1	2	0	0	0	4
Hour Total	0	0	0	0	0	0	0	1	0	2	6	1	0	0	10
05:15	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3
05:30	0	0	0	0	0	0	0	0	0	1	2	1	1	0	5
05:45	0	0	0	0	0	0	0	1	0	0	7	2	2	1	13
06:00	0	0	0	0	0	0	0	0	5	3	7	0	0	0	15
Hour Total	0	0	0	0	0	0	0	1	5	6	17	3	3	1	36
06:15	0	0	0	0	0	0	0	0	0	7	3	4	1	0	15
06:30	0	0	0	0	0	0	0	1	2	10	4	4	1	0	22
06:45	0	0	0	0	0	0	0	3	1	7	16	5	2	0	34
07:00	0	0	0	0	0	0	0	2	5	12	17	4	1	0	41
Hour Total	0	0	0	0	0	0	0	6	8	36	40	17	5	0	112
07:15	0	0	0	0	0	0	0	1	8	18	22	8	1	0	58
07:30	0	0	0	0	0	0	2	3	5	23	26	8	1	0	68
07:45	0	0	0	0	0	0	0	3	10	47	48	13	0	1	122
08:00	0	0	0	0	0	1	0	6	18	38	28	14	1	1	107
Hour Total	0	0	0	0	0	1	2	13	41	126	124	43	3	2	355
08:15	0	0	0	0	0	0	0	2	13	20	26	11	1	0	73
08:30	0	0	0	0	0	0	0	4	6	30	26	16	0	0	82
08:45	0	0	0	0	0	0	0	3	13	28	20	9	1	0	74
09:00	0	0	0	0	0	0	3	4	9	26	28	4	1	0	75

Station #: Site A-WB
Site ID: 000000009363
Location: US 250/Broad St., E of Fairground Rd.
Direction: WEST
Lane: 1

File: D0825004.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
Hour Total	0	0	0	0	0	0	3	13	41	104	100	40	3	0	304
09:15	0	0	0	0	0	0	0	0	2	18	28	13	0	0	61
09:30	0	0	0	0	0	0	0	0	2	18	27	7	0	1	55
09:45	0	0	0	0	0	0	0	0	1	24	35	11	0	1	72
10:00	0	0	0	0	0	0	0	2	10	22	19	9	0	0	62
Hour Total	0	0	0	0	0	0	0	2	15	82	109	40	0	2	250
10:15	0	0	0	0	0	0	0	0	2	13	19	10	1	0	45
10:30	0	0	0	0	0	0	0	0	7	12	13	8	2	0	42
10:45	0	0	0	0	0	0	0	0	3	15	24	9	3	0	54
11:00	0	0	0	0	0	0	0	0	2	19	29	11	0	0	61
Hour Total	0	0	0	0	0	0	0	0	14	59	85	38	6	0	202
11:15	0	0	0	0	0	0	0	1	10	12	25	14	2	0	64
11:30	0	0	0	0	0	0	0	5	7	17	30	11	0	0	70
11:45	0	0	0	0	0	0	0	0	7	16	17	14	0	0	54
12:00	0	0	0	0	0	0	0	0	8	18	27	12	0	0	65
Hour Total	0	0	0	0	0	0	0	6	32	63	99	51	2	0	253
12:15	0	0	0	0	0	0	2	2	1	17	23	9	2	0	56
12:30	0	0	0	0	0	0	0	0	5	26	29	11	0	0	71
12:45	0	0	0	0	0	0	0	0	2	19	36	10	2	0	69
13:00	0	0	0	0	0	0	0	0	6	20	33	10	3	1	73
Hour Total	0	0	0	0	0	0	2	2	14	82	121	40	7	1	269
13:15	0	0	0	0	0	0	0	0	4	27	35	10	0	0	76
13:30	0	0	0	0	5	3	2	1	9	27	28	12	2	1	90
13:45	0	0	0	0	0	0	0	2	9	28	34	6	1	0	80
14:00	0	0	0	0	0	0	0	1	4	28	37	14	2	0	86
Hour Total	0	0	0	0	5	3	2	4	26	110	134	42	5	1	332
14:15	0	0	0	0	1	0	0	1	4	27	33	18	4	0	88
14:30	0	0	0	0	0	0	0	0	1	19	39	16	3	0	78
14:45	0	0	0	0	0	0	0	0	1	20	42	23	2	1	89
15:00	0	0	0	0	0	0	0	4	22	24	35	17	1	0	103
Hour Total	0	0	0	0	1	0	0	5	28	90	149	74	10	1	358
15:15	0	0	0	0	0	0	0	4	6	40	47	21	2	0	120
15:30	0	0	0	0	0	0	0	1	6	23	48	31	2	0	111
15:45	0	0	0	0	0	0	0	0	4	28	62	29	5	0	128
16:00	0	0	0	0	0	0	1	3	7	28	39	36	6	0	120
Hour Total	0	0	0	0	0	0	1	8	23	119	196	117	15	0	479
16:15	0	0	0	0	0	0	0	6	14	28	37	24	6	0	115
16:30	0	0	0	0	0	0	0	0	7	38	69	37	8	1	160
16:45	0	0	0	0	0	0	0	1	6	28	56	34	3	0	128
17:00	0	1	0	0	1	1	1	3	18	32	80	36	5	0	178
Hour Total	0	1	0	0	1	1	1	10	45	126	242	131	22	1	581

Station #: Site A-WB
Site ID: 000000009363
Location: US 250/Broad St., E of Fairground Rd.
Direction: WEST
Lane: 1

File: D0825004.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
17:15	0	0	0	0	0	2	4	4	14	57	90	37	4	0	212
17:30	0	0	0	0	0	0	0	7	14	55	104	51	9	0	240
17:45	0	0	0	0	0	0	0	0	4	52	98	71	5	4	234
18:00	0	0	0	0	0	0	0	1	9	62	83	42	7	0	204
Hour Total	0	0	0	0	0	2	4	12	41	226	375	201	25	4	890
18:15	0	0	0	0	0	0	0	3	3	30	84	39	10	1	170
18:30	0	0	0	0	0	0	0	0	9	32	70	49	8	1	169
18:45	0	0	0	0	0	0	0	0	10	44	66	27	2	0	149
19:00	0	0	0	0	0	0	0	0	7	20	53	33	6	0	119
Hour Total	0	0	0	0	0	0	0	3	29	126	273	148	26	2	607
19:15	0	0	0	0	0	0	0	2	2	13	45	28	6	2	98
19:30	0	0	0	0	0	0	0	2	7	36	41	17	1	0	104
19:45	0	0	0	0	1	1	1	1	3	25	39	27	3	0	101
20:00	0	0	0	0	0	0	0	0	3	13	28	23	3	1	71
Hour Total	0	0	0	0	1	1	1	5	15	87	153	95	13	3	374
20:15	0	0	0	0	0	0	0	1	8	27	42	9	1	0	88
20:30	0	0	0	0	1	0	0	2	9	13	28	11	5	0	69
20:45	0	0	0	0	0	0	0	2	5	10	23	14	1	0	55
21:00	0	0	0	0	0	0	0	1	3	18	23	10	2	0	57
Hour Total	0	0	0	0	1	0	0	6	25	68	116	44	9	0	269
21:15	0	0	0	0	0	0	0	2	4	19	30	11	0	0	66
21:30	0	0	0	0	0	0	0	1	5	18	28	18	4	0	74
21:45	0	0	0	0	0	0	0	3	1	10	22	14	1	0	51
22:00	0	0	0	0	0	0	0	1	5	13	26	10	1	0	56
Hour Total	0	0	0	0	0	0	0	7	15	60	106	53	6	0	247
22:15	0	0	0	0	0	0	0	0	2	9	16	11	1	0	39
22:30	0	0	0	0	0	0	0	0	2	10	10	5	0	0	27
22:45	0	0	0	0	0	0	0	0	4	9	11	8	1	1	34
23:00	0	0	0	0	0	0	0	0	4	5	7	8	1	1	26
Hour Total	0	0	0	0	0	0	0	0	12	33	44	32	3	2	126
23:15	0	0	0	0	0	0	0	0	2	2	8	5	0	0	17
23:30	0	0	0	0	0	0	0	2	2	3	7	2	0	0	16
23:45	0	0	0	0	0	0	0	0	2	6	7	3	2	0	20
24:00	0	0	0	0	0	0	0	0	3	0	1	1	0	0	5
Hour Total	0	0	0	0	0	0	0	2	9	11	23	11	2	0	58
DAY TOTAL	0	1	0	0	9	8	16	108	448	1632	2534	1234	166	20	6176
PERCENTS	0.0%	0.1%	0.0%	0.0%	0.2%	0.2%	0.3%	1.8%	7.2%	26.4%	41.0%	19.9%	2.6%	0.3%	100%

Station #: Site A-WB
Site ID: 000000009363
Location: US 250/Broad St., E of Fairground Rd.
Direction: WEST
Lane: 1

File: D0825004.prn
City: 16-223 KL max
County: 37.70714, -77.79351

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
GRAND TOTAL	0	0	9	16	448	2534	166	1	0	8	108	1632	1234	20	6176
PERCENTS	0.0%	0.1%	0.0%	0.0%	0.2%	0.2%	0.3%	1.8%	7.2%	26.4%	41.0%	19.9%	2.6%	0.3%	100%

Statistical Information...

15th Percentile Speed
51.0 mph

85th Percentile Speed
62.0 mph

Median Speed
56.7 mph

Average Speed
56.4 mph

10 MPH Pace Speed
50 mph to 60 mph
4166 vehicles in pace
Representing 67.4% of the total vehicles

Vehicles > 60 MPH
1420
23.0%

Station #: Site B-EB
Site ID: 000000003562
Location: US 250/Broad St., E of Oilville Rd.
Direction: EAST
Lane: 1

File: D0825006.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	2	1	1	0	0	0	0	0	4
Hour Total	0	0	0	0	1	0	2	2	1	0	0	0	0	0	6
01:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
01:30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
01:45	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Hour Total	0	0	0	0	0	0	0	2	1	3	0	0	0	0	6
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
02:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Hour Total	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
03:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Hour Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	1	0	1	1	0	0	0	0	3
04:45	0	0	0	0	0	0	1	0	1	1	1	0	0	0	4
05:00	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
Hour Total	0	0	0	0	0	0	2	1	2	2	2	0	0	0	9
05:15	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
05:30	0	0	0	0	0	0	0	1	1	5	1	0	0	0	8
05:45	0	0	0	0	0	1	3	1	7	7	1	2	0	0	22
06:00	0	0	0	0	0	0	1	3	5	5	2	1	0	0	17
Hour Total	0	0	0	0	0	1	4	5	13	18	5	3	0	0	49
06:15	0	0	0	0	0	0	1	1	8	11	3	1	0	0	25
06:30	0	0	0	0	1	0	0	6	7	11	3	2	0	0	30
06:45	0	0	0	0	0	1	2	5	12	24	4	1	0	0	49
07:00	0	0	0	0	0	2	5	5	18	9	8	5	0	0	52
Hour Total	0	0	0	0	1	3	8	17	45	55	18	9	0	0	156
07:15	0	0	0	0	0	0	5	13	13	15	9	1	0	0	56
07:30	0	0	0	0	0	0	2	18	28	24	6	2	0	0	80
07:45	0	0	0	0	1	3	11	20	28	21	5	1	0	0	90
08:00	0	0	0	0	0	2	20	39	29	18	4	1	0	0	113
Hour Total	0	0	0	0	1	5	38	90	98	78	24	5	0	0	339
08:15	0	0	0	0	0	2	6	27	31	24	6	0	0	0	96
08:30	0	0	0	0	0	2	16	23	23	19	5	0	0	0	88
08:45	0	0	0	0	6	6	14	11	19	16	7	1	0	0	80
09:00	0	0	0	1	2	3	3	12	32	13	6	0	0	0	72

Station #: Site B-EB
Site ID: 000000003562
Location: US 250/Broad St., E of Oilville Rd.
Direction: EAST
Lane: 1

File: D0825006.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
Hour Total	0	0	0	1	8	13	39	73	105	72	24	1	0	0	336
09:15	0	0	0	0	0	1	4	20	7	10	6	0	0	0	48
09:30	0	0	0	0	0	1	8	12	15	17	6	0	0	0	59
09:45	0	0	0	0	1	2	7	11	12	14	4	2	0	0	53
10:00	0	0	0	0	0	1	4	4	13	12	2	0	0	0	36
Hour Total	0	0	0	0	1	5	23	47	47	53	18	2	0	0	196
10:15	0	0	0	0	0	4	6	11	10	7	3	0	0	0	41
10:30	0	0	0	1	3	4	4	5	12	8	6	0	0	0	43
10:45	0	0	0	0	2	0	9	13	12	9	2	0	0	0	47
11:00	0	0	0	0	2	5	4	11	22	14	1	1	0	0	60
Hour Total	0	0	0	1	7	13	23	40	56	38	12	1	0	0	191
11:15	0	0	0	0	0	1	5	10	16	12	5	1	0	0	50
11:30	0	0	0	0	0	3	7	13	11	12	1	0	0	0	47
11:45	0	0	0	3	5	5	4	14	8	4	4	0	0	0	47
12:00	0	0	0	0	2	2	11	7	10	9	3	0	0	0	44
Hour Total	0	0	0	3	7	11	27	44	45	37	13	1	0	0	188
12:15	0	0	0	0	1	2	10	12	17	8	2	0	0	0	52
12:30	0	0	0	0	0	3	4	7	13	8	4	0	0	0	39
12:45	0	0	1	0	3	3	12	19	13	10	6	0	0	0	67
13:00	0	0	1	0	4	7	11	6	15	10	3	0	0	0	57
Hour Total	0	0	2	0	8	15	37	44	58	36	15	0	0	0	215
13:15	0	0	0	0	1	3	8	10	7	12	3	0	0	0	44
13:30	0	0	0	1	4	4	10	6	13	2	4	0	0	0	44
13:45	0	0	0	1	2	4	6	10	11	12	1	0	0	0	47
14:00	0	0	0	0	0	0	6	16	11	8	4	0	0	0	45
Hour Total	0	0	0	2	7	11	30	42	42	34	12	0	0	0	180
14:15	0	0	0	0	0	3	2	12	8	5	3	0	0	0	33
14:30	0	0	0	0	0	3	8	11	9	17	10	1	2	0	61
14:45	0	0	0	0	4	4	11	22	9	7	3	0	0	0	60
15:00	0	0	0	0	1	1	13	21	16	9	3	0	0	0	64
Hour Total	0	0	0	0	5	11	34	66	42	38	19	1	2	0	218
15:15	0	0	0	0	1	2	9	7	11	15	3	0	0	0	48
15:30	0	1	1	0	2	5	7	16	11	14	2	2	0	0	61
15:45	0	0	0	0	1	4	6	21	20	5	4	0	0	0	61
16:00	0	0	0	0	0	2	4	15	11	9	1	0	0	0	42
Hour Total	0	1	1	0	4	13	26	59	53	43	10	2	0	0	212
16:15	0	0	0	0	2	4	3	6	10	10	1	0	0	0	36
16:30	0	0	0	0	0	6	9	11	20	5	4	0	0	0	55
16:45	0	0	0	0	2	2	10	7	13	7	4	0	0	0	45
17:00	0	0	0	1	1	0	6	11	21	16	6	1	0	0	63
Hour Total	0	0	0	1	5	12	28	35	64	38	15	1	0	0	199

Station #: Site B-EB
Site ID: 000000003562
Location: US 250/Broad St., E of Oilville Rd.
Direction: EAST
Lane: 1

File: D0825006.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
17:15	0	0	0	1	1	4	5	8	15	13	5	1	0	0	53
17:30	0	0	0	0	0	1	2	13	18	16	4	0	0	0	54
17:45	0	0	0	0	0	7	4	20	19	9	3	0	0	0	62
18:00	0	0	0	0	1	2	9	21	11	11	3	0	0	0	58
Hour Total	0	0	0	1	2	14	20	62	63	49	15	1	0	0	227
18:15	0	0	1	0	4	2	10	9	18	10	3	0	0	0	57
18:30	0	0	0	0	0	5	10	23	18	9	4	1	0	0	70
18:45	0	0	0	0	0	3	12	14	13	14	5	0	0	0	61
19:00	0	0	0	0	1	5	9	16	7	6	1	1	0	0	46
Hour Total	0	0	1	0	5	15	41	62	56	39	13	2	0	0	234
19:15	0	1	0	0	0	6	13	8	14	4	1	0	0	0	47
19:30	0	0	1	0	2	2	8	9	6	3	1	0	0	0	32
19:45	0	0	0	0	0	1	5	7	13	4	2	0	0	0	32
20:00	0	0	0	0	3	5	9	9	5	9	1	0	0	0	41
Hour Total	0	1	1	0	5	14	35	33	38	20	5	0	0	0	152
20:15	0	0	0	0	4	0	4	5	7	4	2	0	0	0	26
20:30	0	0	0	0	1	3	0	3	7	5	0	1	0	0	20
20:45	0	0	0	0	0	1	4	3	7	7	0	0	0	0	22
21:00	0	0	0	0	1	2	1	6	3	4	2	0	0	0	19
Hour Total	0	0	0	0	6	6	9	17	24	20	4	1	0	0	87
21:15	0	0	0	0	0	0	2	4	4	3	1	1	0	0	15
21:30	0	0	0	0	0	0	3	3	3	5	2	0	0	0	16
21:45	0	0	0	0	0	4	1	6	1	4	0	0	0	0	16
22:00	0	0	0	0	2	1	3	4	1	1	0	0	0	0	12
Hour Total	0	0	0	0	2	5	9	17	9	13	3	1	0	0	59
22:15	0	0	0	0	0	2	0	1	4	3	0	0	0	0	10
22:30	0	0	0	1	0	2	0	1	3	2	1	0	0	0	10
22:45	0	0	0	0	0	0	0	1	2	1	3	0	0	0	7
23:00	0	0	0	0	1	1	0	1	1	0	0	0	0	0	4
Hour Total	0	0	0	1	1	5	0	4	10	6	4	0	0	0	31
23:15	0	0	0	0	0	0	1	1	1	1	0	0	0	0	4
23:30	0	0	0	0	0	0	3	2	0	0	0	0	0	0	5
23:45	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
24:00	0	0	0	0	0	1	0	0	2	1	0	0	0	0	4
Hour Total	0	0	0	0	0	1	4	4	4	2	0	0	0	0	15
DAY TOTAL	0	2	5	10	76	173	440	767	877	695	232	31	2	0	3310
PERCENTS	0.0%	0.1%	0.2%	0.4%	2.3%	5.3%	13.3%	23.2%	26.4%	20.9%	7.0%	0.9%	0.0%	0.0%	100%

Station #: Site B-EB
Site ID: 000000003562
Location: US 250/Broad St., E of Oilville Rd.
Direction: EAST
Lane: 1

File: D0825006.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
GRAND TOTAL	0	5	76	440	877	232	2	2	10	173	767	695	31	0	3310
PERCENTS	0.0%	0.1%	0.2%	0.4%	2.3%	5.3%	13.3%	23.2%	26.4%	20.9%	7.0%	0.9%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
37.6 mph

85th Percentile Speed
53.3 mph

Median Speed
46.0 mph

Average Speed
45.5 mph

10 MPH Pace Speed
40 mph to 50 mph
1644 vehicles in pace
Representing 49.6% of the total vehicles

Vehicles > 45 MPH
1837
55.5%

Station #: Site B-WB
Site ID: 000000009357
Location: US 250/Broad St., E of Oilville Rd.
Direction: WEST
Lane: 1

File: D0825008.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
00:15	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3
00:30	0	0	0	0	1	0	0	3	0	0	0	2	0	0	6
00:45	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
01:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Hour Total	0	0	0	0	1	0	0	3	1	2	2	3	0	0	12
01:15	0	0	0	0	0	0	0	0	0	3	2	0	0	0	5
01:30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
01:45	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	0	0	0	0	0	0	0	1	7	2	0	0	0	10
02:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Hour Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
03:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
04:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Hour Total	0	0	0	0	0	0	1	0	1	2	0	0	0	0	4
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
Hour Total	0	0	0	0	0	0	0	0	1	0	2	0	0	0	3
05:15	0	0	0	0	0	0	0	1	0	4	0	0	0	0	5
05:30	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
05:45	0	0	0	0	0	0	2	1	1	3	1	0	0	0	8
06:00	0	0	0	0	0	0	0	2	4	5	2	2	0	0	15
Hour Total	0	0	0	0	0	0	2	4	6	12	4	2	0	0	30
06:15	0	0	0	0	0	2	0	1	5	4	2	1	0	0	15
06:30	0	0	0	0	0	1	0	0	6	3	1	1	0	0	12
06:45	0	0	0	0	0	1	0	0	8	8	1	0	0	0	18
07:00	0	0	0	1	0	0	0	3	6	7	3	0	0	0	20
Hour Total	0	0	0	1	0	4	0	4	25	22	7	2	0	0	65
07:15	0	1	0	0	0	0	1	2	11	5	4	0	0	0	24
07:30	0	0	0	0	0	0	1	3	16	9	4	0	0	0	33
07:45	0	0	0	0	0	0	0	3	13	19	4	1	1	0	41
08:00	0	1	0	0	0	7	9	14	12	12	4	1	0	0	60
Hour Total	0	2	0	0	0	7	11	22	52	45	16	2	1	0	158
08:15	0	0	0	0	0	1	3	15	19	9	2	0	0	0	49
08:30	0	0	0	0	0	1	1	9	23	16	1	0	0	0	51
08:45	0	0	0	0	0	0	3	5	12	9	5	0	0	0	34
09:00	0	0	0	0	0	0	10	10	11	8	0	0	0	0	39

Station #: Site B-WB
Site ID: 000000009357
Location: US 250/Broad St., E of Oilville Rd.
Direction: WEST
Lane: 1

File: D0825008.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
Hour Total	0	0	0	0	0	2	17	39	65	42	8	0	0	0	173
09:15	0	0	0	0	0	2	0	4	5	13	5	1	0	0	30
09:30	0	0	0	0	0	0	4	9	8	13	1	1	0	0	36
09:45	0	0	0	0	0	0	1	14	24	9	4	0	0	0	52
10:00	0	0	0	0	1	2	9	11	16	10	1	0	0	0	50
Hour Total	0	0	0	0	1	4	14	38	53	45	11	2	0	0	168
10:15	0	0	0	0	0	0	6	7	14	2	5	0	0	0	34
10:30	0	0	0	0	0	1	3	4	10	13	2	0	0	0	33
10:45	0	0	0	0	0	0	4	8	11	12	4	0	0	0	39
11:00	0	0	0	0	0	1	3	12	18	13	1	0	0	0	48
Hour Total	0	0	0	0	0	2	16	31	53	40	12	0	0	0	154
11:15	0	0	0	0	1	3	3	7	13	17	2	1	0	0	47
11:30	0	0	0	0	0	1	3	12	19	11	0	0	0	0	46
11:45	0	0	0	0	2	3	2	14	13	14	3	0	0	0	51
12:00	0	0	0	1	0	1	2	15	19	8	3	1	0	0	50
Hour Total	0	0	0	1	3	8	10	48	64	50	8	2	0	0	194
12:15	0	0	0	0	0	2	5	13	14	14	2	1	0	0	51
12:30	0	0	0	0	1	0	2	16	21	14	4	0	0	0	58
12:45	0	0	0	0	0	0	6	18	10	15	2	0	0	0	51
13:00	0	0	0	1	0	1	6	13	18	16	4	1	0	0	60
Hour Total	0	0	0	1	1	3	19	60	63	59	12	2	0	0	220
13:15	0	0	0	0	0	1	5	10	24	15	2	0	0	0	57
13:30	0	0	0	0	1	2	0	9	19	27	7	0	0	0	65
13:45	0	0	0	0	0	0	2	13	25	17	2	0	0	0	59
14:00	0	0	0	0	0	0	9	14	27	13	4	0	0	0	67
Hour Total	0	0	0	0	1	3	16	46	95	72	15	0	0	0	248
14:15	0	0	0	0	1	0	0	14	22	13	9	1	0	0	60
14:30	0	0	0	0	0	3	2	6	15	21	6	1	0	0	54
14:45	0	0	0	0	1	2	3	14	26	11	5	1	0	0	63
15:00	0	0	0	0	0	1	4	17	23	18	3	0	0	0	66
Hour Total	0	0	0	0	2	6	9	51	86	63	23	3	0	0	243
15:15	0	0	0	0	1	0	4	20	36	23	9	0	0	0	93
15:30	0	0	0	0	1	4	9	15	30	23	6	0	0	0	88
15:45	0	0	0	0	2	0	2	13	31	22	6	1	0	0	77
16:00	0	0	0	0	0	0	0	6	23	25	6	0	0	0	60
Hour Total	0	0	0	0	4	4	15	54	120	93	27	1	0	0	318
16:15	0	0	0	0	0	2	5	7	20	31	15	0	0	0	80
16:30	0	0	0	0	1	2	0	15	28	31	8	1	0	0	86
16:45	0	0	0	0	1	0	1	19	31	21	6	1	0	0	80
17:00	0	0	0	1	1	1	4	21	26	34	11	0	0	0	99
Hour Total	0	0	0	1	3	5	10	62	105	117	40	2	0	0	345

Station #: Site B-WB
Site ID: 000000009357
Location: US 250/Broad St., E of Oilville Rd.
Direction: WEST
Lane: 1

File: D0825008.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
17:15	0	0	0	0	1	1	7	19	48	48	11	1	0	0	136
17:30	0	0	0	0	0	2	3	16	45	55	4	0	0	0	125
17:45	0	0	0	0	1	1	2	14	42	49	6	2	0	0	117
18:00	0	0	0	0	1	4	3	14	41	35	4	1	0	0	103
Hour Total	0	0	0	0	3	8	15	63	176	187	25	4	0	0	481
18:15	0	0	0	0	2	3	7	8	31	30	6	1	0	0	88
18:30	0	0	0	0	3	3	3	20	26	35	3	1	0	0	94
18:45	0	0	0	0	5	4	4	19	31	12	8	1	0	0	84
19:00	0	0	0	0	1	7	3	7	14	26	8	0	0	0	66
Hour Total	0	0	0	0	11	17	17	54	102	103	25	3	0	0	332
19:15	0	0	0	0	6	3	2	11	19	11	12	1	0	0	65
19:30	0	0	0	0	0	1	4	15	24	15	6	2	0	0	67
19:45	0	0	0	0	0	4	7	20	17	15	2	0	0	0	65
20:00	0	0	0	0	0	3	0	5	18	11	4	1	0	0	42
Hour Total	0	0	0	0	6	11	13	51	78	52	24	4	0	0	239
20:15	0	0	0	0	0	3	2	9	21	16	6	1	0	0	58
20:30	0	0	0	0	2	2	3	9	13	8	2	1	0	0	40
20:45	1	0	0	0	0	2	0	11	7	8	3	0	0	0	32
21:00	0	0	0	1	0	4	3	5	12	13	3	1	0	0	42
Hour Total	1	0	0	1	2	11	8	34	53	45	14	3	0	0	172
21:15	0	0	0	0	2	2	1	2	13	5	1	0	0	0	26
21:30	1	0	0	0	2	6	4	9	17	1	7	1	0	0	48
21:45	0	0	0	1	1	2	1	4	7	7	5	1	0	0	29
22:00	0	0	0	2	1	2	2	6	6	14	2	0	0	0	35
Hour Total	1	0	0	3	6	12	8	21	43	27	15	2	0	0	138
22:15	0	0	0	0	1	0	0	9	7	6	3	0	0	0	26
22:30	0	0	1	0	0	1	0	3	3	8	2	0	0	0	18
22:45	0	0	0	0	0	1	0	2	5	6	2	1	0	0	17
23:00	0	0	0	0	2	0	0	3	2	9	2	0	0	0	18
Hour Total	0	0	1	0	3	2	0	17	17	29	9	1	0	0	79
23:15	0	0	0	1	0	4	0	1	3	1	0	1	0	0	11
23:30	0	0	0	0	1	0	0	1	1	0	1	0	0	0	4
23:45	0	0	0	1	1	0	0	3	1	1	1	0	0	0	8
24:00	0	0	0	1	0	3	0	1	0	1	0	0	0	0	6
Hour Total	0	0	0	3	2	7	0	6	5	3	2	1	0	0	29
DAY TOTAL	2	2	1	11	49	116	201	709	1265	1117	303	40	1	0	3817
PERCENTS	0.1%	0.1%	0.1%	0.3%	1.3%	3.1%	5.3%	18.5%	33.1%	29.2%	7.9%	1.0%	0.0%	0.0%	100%

Station #: Site B-WB
Site ID: 000000009357
Location: US 250/Broad St., E of Oilville Rd.
Direction: WEST
Lane: 1

File: D0825008.prn
City: 16-223 KL Max
County: 37.70380, -77.78509

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
GRAND TOTAL	2	1	49	201	1265	303	1								
	2	11	116	709	1117	40	0								3817
PERCENTS	0.1%	0.1%	0.1%	0.3%	1.3%	3.1%	5.3%	18.5%	33.1%	29.2%	7.9%	1.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
41.4 mph

85th Percentile Speed
54.0 mph

Median Speed
48.2 mph

Average Speed
47.6 mph

10 MPH Pace Speed
45 mph to 55 mph
2382 vehicles in pace
Representing 62.4% of the total vehicles

Vehicles > 45 MPH
2726
71.4%

GAP DATA

Study Name	**Cardwell Rd. and US 250/Broad St.**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Eastbound Left from Major (WB thru traffic on US250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (4.1 sec)	Follow-up Gaps (2.2 sec)	Total Gaps
7:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	1	11	15	381	396
7:15 AM	2	2	1	1	2	1	2	2	0	1	0	2	0	9	23	361	384
7:30 AM	2	3	0	2	2	1	0	1	0	0	1	0	1	11	22	333	355
7:45 AM	7	2	1	2	2	0	1	1	1	2	2	1	0	12	27	318	345
8:00 AM	1	1	0	1	0	0	1	0	0	1	0	1	2	9	16	375	391
8:15 AM	1	0	0	0	0	2	0	0	0	0	1	0	0	10	13	403	416
8:30 AM	2	1	1	1	0	0	0	0	1	0	0	2	0	10	16	349	365
8:45 AM	1	1	2	1	2	0	2	1	1	0	1	0	0	9	20	337	357
4:00 PM	17	5	2	5	5	4	1	3	0	2	0	1	0	10	37	286	323
4:15 PM	16	4	8	6	2	2	4	3	1	0	0	0	1	12	43	279	322
4:30 PM	8	0	4	3	0	2	4	1	1	1	0	2	1	13	32	307	339
4:45 PM	16	11	4	5	5	4	4	1	3	2	1	1	1	6	48	234	282
5:00 PM	22	6	15	9	6	4	3	6	2	0	1	0	1	5	56	210	266
5:15 PM	19	9	9	7	6	1	1	6	4	2	2	2	0	5	54	221	275
5:30 PM	23	9	7	5	3	1	5	2	2	4	0	2	0	8	48	237	285
5:45 PM	18	5	6	5	5	5	0	4	2	2	1	0	0	8	43	247	290

Study Name	**Cardwell Rd. and US 250/Broad St**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Westbound Left from Major (EB thru traffic on US250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (4.1 sec)	Follow-up Gaps (2.2 sec)	Total Gaps
7:00 AM	5	5	3	4	3	4	3	2	4	0	1	1	1	9	40	298	338
7:15 AM	13	7	9	4	4	4	4	4	1	4	0	0	0	8	48	261	309
7:30 AM	17	6	8	2	5	2	2	3	4	1	2	1	1	8	45	242	287
7:45 AM	22	13	6	3	3	2	2	3	3	3	3	1	1	6	48	223	271
8:00 AM	18	7	3	7	6	8	1	0	3	2	2	3	0	6	48	226	274
8:15 AM	20	13	3	7	4	4	3	1	1	2	1	2	1	6	47	242	289
8:30 AM	13	3	4	2	10	3	2	2	2	1	0	1	1	11	42	271	313
8:45 AM	20	6	6	4	4	1	0	3	3	2	0	1	0	10	40	253	293
4:00 PM	8	2	3	2	3	1	0	2	1	0	1	0	0	11	26	333	359
4:15 PM	8	4	8	2	2	0	0	0	1	0	2	3	0	15	37	306	343
4:30 PM	2	8	2	3	4	3	0	1	0	0	1	1	0	13	34	327	361
4:45 PM	8	8	11	3	3	3	0	0	3	1	2	2	1	10	47	254	301
5:00 PM	7	4	3	3	1	1	1	1	1	5	1	1	1	12	35	301	336
5:15 PM	2	6	3	2	3	5	3	1	0	2	3	1	1	11	41	302	343
5:30 PM	4	6	7	6	1	3	4	0	3	3	0	1	0	11	44	285	329
5:45 PM	6	4	1	6	2	3	1	1	1	5	1	3	1	9	37	303	340

Study Name	**Cardwell Rd. and US 250/Broad St.**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Left from Minor (Combined Gaps thru traffic EB/WB on US250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (7.1 sec)	Follow-up Gaps (3.5 sec)	Total Gaps
7:00 AM	7	11	5	6	2	7	2	3	2	2	2	0	3	6	37	128	165
7:15 AM	15	9	13	6	7	5	5	3	1	4	1	2	1	4	45	92	137
7:30 AM	25	6	11	4	7	2	4	4	4	2	2	0	0	6	42	91	133
7:45 AM	27	17	7	10	3	4	5	3	1	4	1	0	0	3	37	67	104
8:00 AM	20	11	6	9	9	7	3	1	4	1	0	1	0	5	43	83	126
8:15 AM	23	15	3	9	6	2	4	0	1	1	3	1	1	5	33	107	140
8:30 AM	18	8	6	4	10	2	1	1	2	2	0	1	1	10	37	117	154
8:45 AM	21	7	9	9	4	1	2	2	3	3	1	1	1	6	36	100	136
4:00 PM	27	11	6	8	5	5	1	3	0	3	1	1	0	8	38	99	137
4:15 PM	30	12	15	10	1	5	0	2	2	0	4	0	2	5	39	82	121
4:30 PM	16	7	5	6	7	5	5	1	1	2	0	2	2	7	42	115	157
4:45 PM	30	23	12	8	4	5	1	2	4	1	1	1	0	3	34	60	94
5:00 PM	30	16	18	11	3	6	2	4	2	2	2	0	2	0	41	54	95
5:15 PM	26	23	15	9	5	4	1	6	1	3	2	1	0	1	40	56	96
5:30 PM	32	16	14	12	5	2	6	2	2	2	0	2	0	2	44	62	106
5:45 PM	33	16	8	12	7	8	1	2	0	2	0	2	0	3	42	67	109

Study Name	**Fairground Rd. and US 250/Broad St.**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Eastbound Left from Major (WB Thru Traffic on US 250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (4.1 sec)	Follow-up Gaps (2.2 sec)	Total Gaps
7:00 AM	10	2	6	2	4	0	2	3	3	2	1	1	2	10	38	283	321
7:15 AM	13	7	2	6	3	0	2	2	2	1	1	0	4	9	39	275	314
7:30 AM	29	10	6	3	5	3	0	6	3	1	3	0	1	5	46	182	228
7:45 AM	22	5	13	6	4	8	7	1	1	1	0	0	2	5	53	193	246
8:00 AM	11	2	7	9	1	4	1	1	3	0	3	1	1	7	40	263	303
8:15 AM	20	7	2	6	10	0	1	0	4	2	1	2	3	7	45	262	307
8:30 AM	12	6	5	4	1	0	3	4	1	3	1	2	0	10	40	263	303
8:45 AM	13	7	4	4	3	3	0	4	0	1	1	1	0	12	39	264	303
4:00 PM	27	14	8	4	4	3	5	1	2	3	2	0	2	6	54	218	272
4:15 PM	33	19	12	5	5	4	4	1	2	1	0	1	0	5	58	156	214
4:30 PM	23	13	9	6	6	5	3	6	4	1	1	3	0	3	60	197	257
4:45 PM	41	20	22	8	3	2	2	4	1	1	2	0	1	1	66	128	194
5:00 PM	41	27	8	9	9	4	5	2	0	1	0	1	0	0	62	110	172
5:15 PM	54	27	14	12	4	4	1	0	0	0	0	0	0	1	60	72	132
5:30 PM	55	12	18	7	5	7	2	2	0	1	0	0	0	0	54	94	148
5:45 PM	50	22	10	4	9	7	3	4	0	0	2	0	0	0	59	111	170

Study Name	**Fairground Rd. and US 250/Broad St.**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Westbound Left from Major (EB Thru Traffic on US250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (4.1 sec)	Follow-up Gaps (2.2 sec)	Total Gaps
7:00 AM	5	2	4	3	2	3	1	3	3	3	1	1	3	10	39	296	335
7:15 AM	5	3	2	6	1	2	4	2	2	2	1	1	1	9	35	312	347
7:30 AM	10	7	2	1	0	0	1	3	0	4	2	1	1	12	34	311	345
7:45 AM	13	6	6	2	4	1	1	1	2	2	1	3	0	11	39	264	303
8:00 AM	10	5	3	2	2	2	2	2	3	0	3	2	1	11	38	301	339
8:15 AM	3	7	2	2	2	4	3	1	2	1	2	0	3	9	37	294	331
8:30 AM	7	5	3	7	2	1	1	1	1	3	1	0	1	10	36	304	340
8:45 AM	1	4	4	1	2	3	1	3	1	1	3	0	2	11	35	309	344
4:00 PM	2	0	0	0	0	0	0	0	0	0	2	0	0	10	12	405	417
4:15 PM	3	0	2	1	0	2	0	1	0	2	0	1	0	12	21	375	396
4:30 PM	0	0	1	0	0	0	1	0	1	0	0	0	0	11	14	342	356
4:45 PM	2	0	0	0	1	1	2	1	0	0	0	1	0	16	22	337	359
5:00 PM	1	1	1	1	1	0	1	2	1	0	3	0	0	11	22	354	376
5:15 PM	1	4	0	0	0	0	1	0	1	0	2	0	0	13	21	344	365
5:30 PM	0	1	0	0	1	0	1	1	0	2	0	2	0	15	23	358	381
5:45 PM	2	0	0	0	1	0	2	0	2	0	0	0	0	12	17	351	368

Study Name	**Fairground Rd. and US 250/Broad St.**
Start Date	**08/25/2016**
Start Time	**7:00 AM**

Left from Minor (Combined Gaps thru Traffic EB/WB on US250)

	2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 10.0	10.0 - 12.0	12.0 - 14.0	14.0 - 16.0	16.0 - 18.0	18.0 - 20.0	20.0 - 22.0	22.0 - 24.0	24.0 - 26.0	26.0 - 28.0	28.00 +	Critical Gaps (7.1 sec)	Follow-up Gaps (3.5 sec)	Total Gaps
7:00 AM	25	10	8	10	6	4	4	2	6	2	2	0	1	3	42	77	119
7:15 AM	39	12	6	8	0	4	3	4	2	1	0	0	2	5	32	93	125
7:30 AM	58	18	5	6	7	5	2	2	3	0	1	1	0	1	32	39	71
7:45 AM	56	19	22	6	2	4	4	2	1	2	0	0	0	1	32	33	65
8:00 AM	37	14	10	8	4	7	0	1	2	0	1	0	1	5	31	75	106
8:15 AM	45	12	7	13	8	1	2	1	4	2	1	1	3	2	41	71	112
8:30 AM	31	18	9	9	1	3	6	4	2	1	0	2	1	3	34	82	116
8:45 AM	37	9	3	5	5	6	4	5	3	0	2	0	1	4	35	87	122
4:00 PM	37	16	7	4	5	4	5	1	1	3	2	0	2	5	34	91	125
4:15 PM	47	20	12	9	10	4	0	2	3	1	0	1	0	1	36	40	76
4:30 PM	29	14	11	7	8	5	5	4	3	2	1	1	0	2	43	65	108
4:45 PM	55	25	18	6	5	3	1	2	1	2	1	0	0	1	32	32	64
5:00 PM	54	30	8	11	8	3	3	0	0	1	0	1	0	0	30	23	53
5:15 PM	66	27	12	11	4	3	0	0	0	0	0	1	0	0	23	11	34
5:30 PM	67	18	17	8	3	6	1	1	0	0	0	0	0	0	25	12	37
5:45 PM	61	25	10	8	10	4	2	2	0	0	1	0	0	0	30	24	54

Gap Summary: US 250 and Cardwell Road

Movement	Time	Turn Movement Demand	Number of Gaps
Westbound US 250 onto Cardwell Road	7:00 AM	11	338
	7:15 AM	9	309
	7:30 AM	10	287
	7:45 AM	15	271
	8:00 AM	29	274
	8:15 AM	37	289
	8:30 AM	13	313
	8:45 AM	8	293
	4:00 PM	10	359
	4:15 PM	12	343
	4:30 PM	15	361
	4:45 PM	13	301
	5:00 PM	13	336
	5:15 PM	8	343
	5:30 PM	9	329
	5:45 PM	7	340
Northbound Cardwell Road onto US 250	7:00 AM	2	165
	7:15 AM	9	137
	7:30 AM	6	133
	7:45 AM	12	104
	8:00 AM	16	126
	8:15 AM	6	140
	8:30 AM	4	154
	8:45 AM	4	136
	4:00 PM	8	137
	4:15 PM	8	121
	4:30 PM	8	157
	4:45 PM	7	94
	5:00 PM	14	95
	5:15 PM	17	96
	5:30 PM	4	106
	5:45 PM	8	109

Gap Summary: US 250 and Fairground Road

Movement	Time	Turn Movement Demand	Number of Gaps
Westbound US 250 onto Fairground Road	7:00 AM	47	335
	7:15 AM	61	347
	7:30 AM	120	345
	7:45 AM	94	303
	8:00 AM	52	339
	8:15 AM	65	331
	8:30 AM	54	340
	8:45 AM	56	344
	4:00 PM	75	417
	4:15 PM	105	396
	4:30 PM	72	356
	4:45 PM	118	359
	5:00 PM	132	376
	5:15 PM	176	365
	5:30 PM	179	381
	5:45 PM	133	368
Northbound Fairground Road onto US 250	7:00 AM	2	119
	7:15 AM	1	125
	7:30 AM	0	71
	7:45 AM	3	65
	8:00 AM	3	106
	8:15 AM	2	112
	8:30 AM	0	116
	8:45 AM	0	122
	4:00 PM	2	125
	4:15 PM	1	76
	4:30 PM	3	108
	4:45 PM	1	64
	5:00 PM	1	53
	5:15 PM	0	34
	5:30 PM	2	37
	5:45 PM	0	54

QUEUE DATA

US 250 AND CARDWELL ROAD

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16	Observer: Todd		
Intersection Name: **Site 3: Cardwell Rd./Rt. 670 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: Cardwell Rd. NB			
	Left (1 lane)		Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
7:00	0	-	1	25
	1	25	0	-
	1	25	0	-
	1	25	1	25
	1	25	0	-
	1	25	0	-
	0	-	0	-
7:15	1	25	1	25
	1	25	0	-
	0	-	2	50
	1	25	2	50
	1	25	1	50
	1	25	1	25
	1	25	1	25
	1	25	1	25
7:30	1	25	1	25
	2	50	1	25
	0	-	2	50
	0	-	1	25
	1	25	1	25
	1	25	0	-
	1	25	2	50
7:45	2	50	1	25
	3	75	0	-
	1	25	1	50
	1	25	0	-
	1	25	0	-
	2	50	1	25
	3	75	1	25
	1	25	1	25

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16	Observer: Todd		
Intersection Name: **Site 3: Cardwell Rd./Rt. 670 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: Cardwell Rd. NB			
	Left (1 lane)		Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
8:00	2	50	0	-
	3	75	1	25
	3	75	2	50
	3	100	2	50
	2	50	1	25
	1	50	0	-
	2	75	2	50
8:15	1	25	1	25
	5	125	1	25
	4	100	1	25
	2	50	1	25
	3	75	1	25
	2	100	1	25
	1	25	1	25
	1	25	0	-
8:30	1	50	2	100
	2	50	2	75
	1	25	1	25
	0	-	0	-
	0	-	1	25
	3	75	1	25
	0	-	1	25
8:45	0	-	0	-
	1	25	1	25
	1	50	1	50
	1	25	2	50
	0	-	1	25
	1	25	1	25
	1	25	1	25
	1	25	1	25

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16	Observer: Todd		
Intersection Name: **Site 3: Cardwell Rd./Rt. 670 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: Cardwell Rd. NB			
	Left (1 lane)		Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
16:00	1	25	1	25
	1	25	0	-
	0	-	1	25
	2	50	1	25
	1	25	1	25
	1	25	1	25
	1	25	1	25
16:15	0	-	1	25
	1	25	0	-
	0	-	0	-
	2	50	0	-
	1	25	0	-
	1	25	1	25
	1	25	0	-
	1	25	1	25
16:30	0	-	0	-
	0	-	0	-
	1	25	1	25
	2	50	1	25
	1	25	1	25
	2	50	1	25
	1	25	1	25
16:45	1	25	1	25
	1	25	1	25
	1	25	1	25
	0	-	1	25
	1	25	1	25
	1	25	1	25
	1	25	0	-
	0	-	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16	Observer: Todd		
Intersection Name: **Site 3: Cardwell Rd./Rt. 670 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: Cardwell Rd. NB			
	Left (1 lane)		Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
17:00	1	25	1	25
	1	25	2	75
	1	25	0	-
	1	25	0	-
	1	25	0	-
	3	100	0	-
	1	25	1	25
17:15	0	-	0	-
	2	50	1	25
	0	-	0	-
	2	50	1	25
	0	-	1	25
	0	-	0	-
	1	25	1	25
	0	-	0	-
17:30	1	25	0	-
	1	25	1	25
	1	25	1	25
	2	50	1	25
	1	25	1	25
	0	-	0	-
	2	50	0	-
17:45	0	-	0	-
	0	-	1	25
	2	50	1	25
	1	25	1	25
	1	25	0	-
	0	-	0	-
	1	25	1	25
	0	-	1	25

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

US 250 AND OILVILLE ROAD

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16 | Observer: Kevin

Intersection Name: **Site 2: Oilville Rd./Rt. 617 & US250/Broad Street Rd.**

Shifts: 7-9am, 4-6pm

	Approach: Oilville Rd./Rt. 617				Approach: US250 EB	
	Left (1 lane)		Right (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)	# veh	distance (feet)
7:00	0	-	0	-	2	50
	1	25	2	50	4	100
	1	25	1	25	4	100
	2	75	0	-	0	-
	0	-	2	50	0	-
	1	25	1	25	5	125
	2	50	0	-	4	100
7:15	1	25	1	25	1	25
	1	25	1	75	12	300
	1	25	2	50	4	100
	1	25	3	75	5	125
	1	25	1	50	8	200
	3	75	0	-	6	150
	3	75	2	50	5	125
	6	175	2	75	10	250
7:30	4	150	0	-	8	200
	0	-	1	75	13	325
	1	25	1	25	9	225
	7	175	0	-	10	250
	1	25	6	175	21	525
	6	150	0	-	8	200
	4	100	1	25	13	325
7:45	3	75	1	25	7	175
	6	150	3	75	0	-
	4	100	0	-	7	175
	3	100	0	-	0	-
	3	75	1	25	5	125
	2	50	3	75	20	500
	2	50	2	50	1	25
	1	25	1	25	2	50

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes cou

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16 | Observer: Kevin

Intersection Name: **Site 2: Oilville Rd./Rt. 617 & US250/Broad Street Rd.**

Shifts: 7-9am, 4-6pm

	Approach: Oilville Rd./Rt. 617				Approach: US250 EB	
	Left (1 lane)		Right (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)	# veh	distance (feet)
8:00	5	150	1	50	10	250
	3	75	1	50	4	100
	0	-	3	75	2	50
	3	75	0	-	4	100
	2	50	0	-	13	325
	1	25	3	125	6	150
	1	25	0	-	12	300
8:15	3	75	0	-	13	325
	0	-	3	125	8	200
	1	25	1	25	18	450
	5	150	0	-	8	200
	3	75	2	100	8	200
	2	50	1	25	0	-
	2	50	0	-	8	200
	1	25	0	-	0	-
8:30	1	25	0	-	6	150
	3	100	1	25	7	175
	2	75	1	25	4	100
	1	25	2	50	5	125
	2	75	1	25	0	-
	4	150	0	-	5	125
	1	25	0	-	0	-
8:45	0	-	0	-	0	-
	2	100	0	-	8	225
	1	25	0	-	5	125
	2	50	0	-	1	25
	0	-	1	25	2	50
	1	50	0	-	2	50
	2	100	1	25	0	-
	0	-	1	25	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes co

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16 | Observer: Kevin

Intersection Name: **Site 2: Oilville Rd./Rt. 617 & US250/Broad Street Rd.**

Shifts: 7-9am, 4-6pm

	Approach: Oilville Rd./Rt. 617				Approach: US250 EB	
	Left (1 lane)		Right (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)	# veh	distance (feet)
16:00	1	25	2	50	0	-
	1	25	3	75	2	50
	0	-	0	-	7	175
	1	25	1	50	1	25
	0	-	3	225	0	-
	4	125	3	150	2	50
	1	50	1	50	0	-
16:15	1	25	2	50	0	-
	2	50	0	-	4	100
	3	75	0	-	5	150
	1	25	2	75	8	200
	2	50	3	75	1	25
	3	75	1	25	0	-
	1	25	1	25	1	25
	1	50	3	75	3	75
16:30	1	25	0	-	1	25
	2	50	4	100	8	200
	1	25	0	-	0	-
	1	25	0	-	1	25
	1	25	1	25	1	25
	0	-	2	50	0	-
	3	75	1	25	1	25
16:45	2	50	2	50	0	-
	1	25	3	75	1	25
	2	50	0	-	5	125
	0	-	3	75	4	100
	3	75	6	150	6	250
	1	25	2	50	11	275
	1	25	0	-	0	-
	3	75	2	75	1	25

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes cou

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16 | Observer: Kevin

Intersection Name: **Site 2: Oilville Rd./Rt. 617 & US250/Broad Street Rd.**

Shifts: 7-9am, 4-6pm

	Approach: Oilville Rd./Rt. 617				Approach: US250 EB	
	Left (1 lane)		Right (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)	# veh	distance (feet)
17:00	1	25	4	150	0	-
	2	75	1	25	3	75
	1	25	4	100	0	-
	1	25	5	150	2	50
	5	125	0	-	0	-
	3	75	11	275	0	-
	3	75	5	125	3	75
17:15	1	25	5	125	7	175
	0	-	2	50	1	25
	1	25	2	50	2	50
	1	25	10	250	1	25
	1	25	9	225	0	-
	3	75	1	25	0	-
	1	25	2	50	0	-
	7	175	0	-	1	25
17:30	2	50	8	200	1	25
	2	50	2	50	1	25
	2	50	6	150	1	25
	3	75	5	125	1	25
	0	-	9	225	4	100
	2	50	6	150	3	75
	2	50	2	50	1	25
17:45	1	25	6	150	2	50
	0	-	5	125	3	75
	1	25	1	25	2	50
	2	50	5	125	2	50
	1	25	7	175	3	100
	1	25	2	50	0	-
	1	25	2	75	2	50
	0	-	1	25	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes cou

US 250 AND FAIRGOUND ROAD

QUEUE STUDY Peggy Malone and Associates

Date: 8/25/16	Observer: Ron		
Intersection Name: **Site 1: Fairground Rd./Rt. 632 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: US250 WB		Approach: Fairground Rd. NB	
	Left (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
7:00	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
7:15	0	-	0	-
	0	-	0	-
	0	-	0	-
	1	50	0	-
	0	-	0	-
	2	50	0	-
	1	25	0	-
	0	-	0	-
7:30	0	-	0	-
	2	50	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	2	50	0	-
7:45	1	25	0	-
	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	1	25

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY

Peggy Malone and Associates

Date: 8/25/16	Observer: Ron		
Intersection Name: **Site 1: Fairground Rd./Rt. 632 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: US250 WB		Approach: Fairground Rd. NB	
	Left (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
8:00	0	-	0	-
	0	-	0	-
	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	1	25
8:15	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
8:30	0	-	0	-
	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
8:45	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY Peggy Malone and Associates

Date: 8/25/16	Observer: Ron		
Intersection Name: **Site 1: Fairground Rd./Rt. 632 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: US250 WB		Approach: Fairground Rd. NB	
	Left (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
16:00	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	1	25	0	-
	0	-	0	-
16:15	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
16:30	3	75	0	-
	0	-	1	25
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
16:45	0	-	0	-
	0	-	0	-
	0	-	0	-
	1	25	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

QUEUE STUDY Peggy Malone and Associates

Date: 8/25/16	Observer: Ron		
Intersection Name: **Site 1: Fairground Rd./Rt. 632 & US250/Broad Street Rd.**			
Shifts: 7-9am, 4-6pm			

	Approach: US250 WB		Approach: Fairground Rd. NB	
	Left (1 lane)		Left (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
17:00	0	-	0	-
	4	150	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	3	75	0	-
	0	-	0	-
17:15	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
17:30	0	0	0	-
	0	-	0	-
	0	-	0	-
	0	-	1	25
	0	-	0	-
	0	-	0	-
	0	-	0	-
17:45	0	-	0	-
	0	-	0	-
	4	100	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-
	0	-	0	-

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both lanes counted

APPENDIX C:
VOLUME FIGURES, WARRANT ANALYSIS, CAPCITY ANALYSIS & LOS SUMMARIES

VOLUME FIGURES

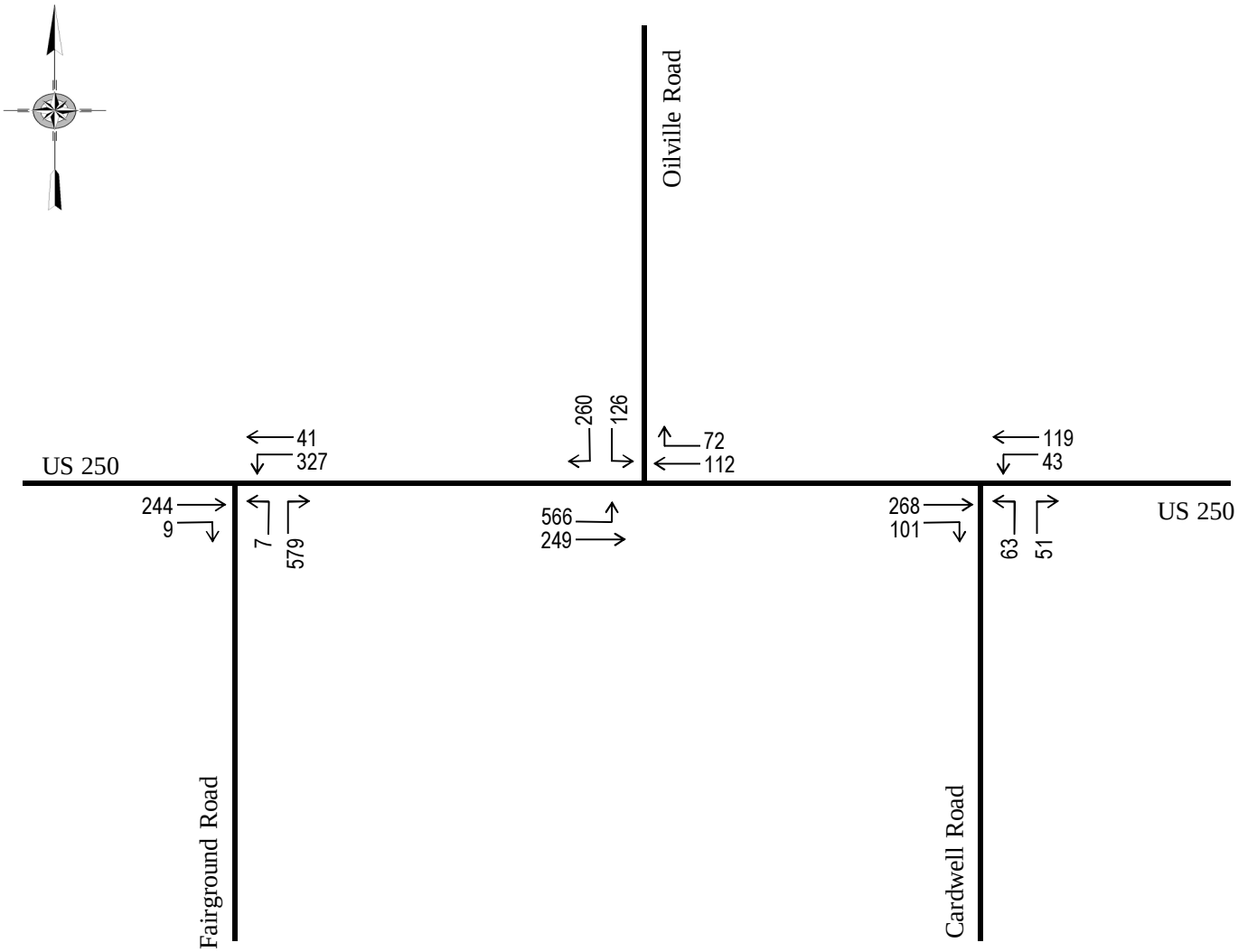
McCORMICK TAYLOR

JOB: US 250 Safety Study

FIGURE : 1

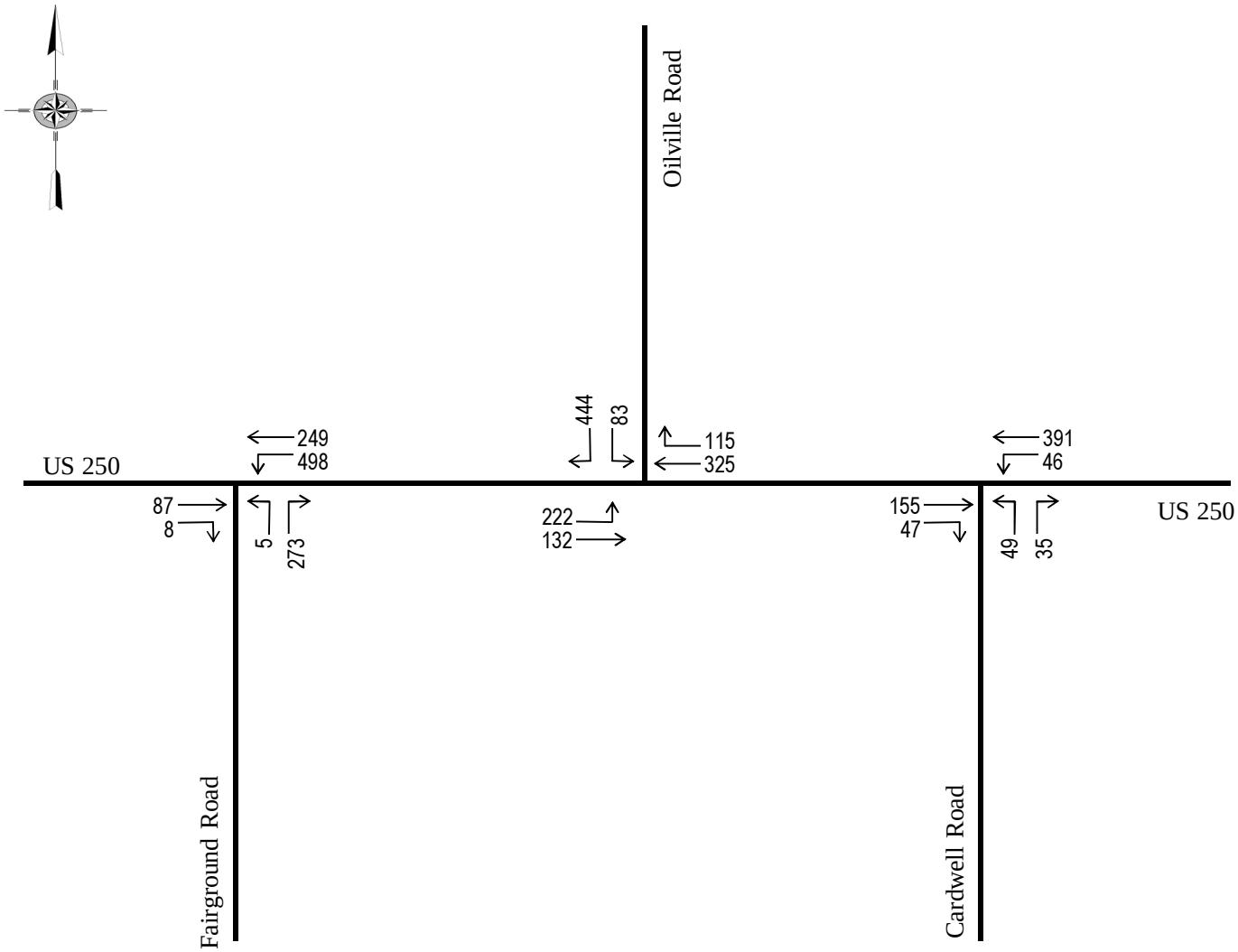
AM_Count

Referenced from Traffic Counts



McCORMICK TAYLOR	**JOB:** US 250 Safety Study
	FIGURE : 2
	PM_Count

Referenced from Traffic Counts



WARRANT ANALYSIS

US 250 AND CARDWELL ROAD

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	9/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Cardwell Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		Yes		

McCORMICK TAYLOR

NODE 3

Hour	Major Street					Minor Street					Hourly Threshold Satisfied?		
	Volume	Volume Threshold				Volume	Volume Threshold						
		Single		Combo			Single		Combo		Single		Combo
		A	B	A	B		A	B	A	B	A	B	A&B
0:00	0					0					NO	NO	NO
1:00	0					0					NO	NO	NO
2:00	0					0					NO	NO	NO
3:00	0					0					NO	NO	NO
4:00	0					0					NO	NO	NO
5:00	0					0					NO	NO	NO
6:00	193					48					NO	NO	NO
7:00	475					80					NO	NO	NO
8:00	441					155					YES	NO	YES
9:00	319					62					NO	NO	NO
10:00	319					46					NO	NO	NO
11:00	363	350	525	280	420	49	105	53	84	42	NO	NO	NO
12:00	417					49					NO	NO	NO
13:00	422					41					NO	NO	NO
14:00	448					56					NO	NO	NO
15:00	449					144					YES	NO	YES
16:00	521					79					NO	NO	NO
17:00	688					69					NO	YES	NO
18:00	0					0					NO	NO	NO
19:00	0					0					NO	NO	NO
20:00	0					0					NO	NO	NO
21:00	0					0					NO	NO	NO
22:00	0					0					NO	NO	NO
23:00	0					0					NO	NO	NO
Signal warrant satisfied?											**NO**	**NO**	**NO**

Signal warrant satisfied if either Condition A, Condition B, or Combination is satisfied for each of any 8 hours of an average day.

= User Entry

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	LS
	Approach Lanes:	1	**Date:**	6/17/16
Minor Street	**Name:**	Cardwell Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

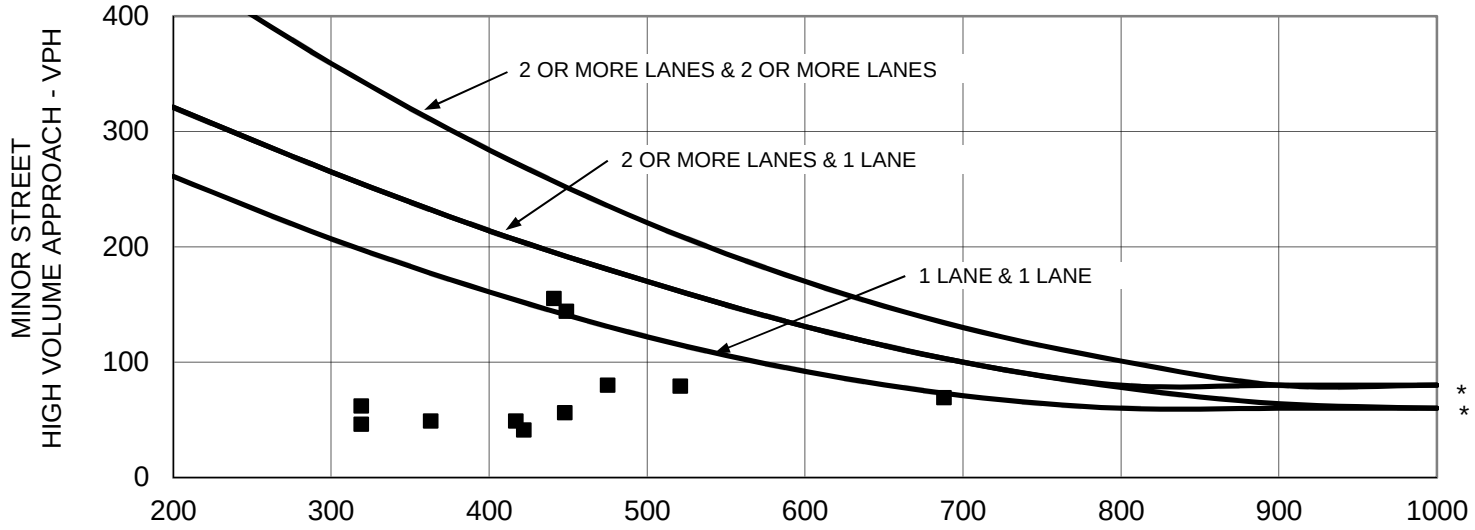
NODE 3

Warrant 2 - Four Hour Vehicular Volume

Signal Warrant Satisfied? [ ] Yes [X] No

Warrant 2, Four Hour Vehicular Volume

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies at the lower threshold volume for a minor-street approach with one lane.

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	LS
	Approach Lanes:	1	**Date:**	6/17/16
Minor Street	**Name:**	Cardwell Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

NODE 3

Hour	Major Street	Minor Street	Hourly Threshold	Hourly Threshold Satisfied?
0:00	0	0	391	NO
1:00	0	0	391	NO
2:00	0	0	391	NO
3:00	0	0	391	NO
4:00	0	0	391	NO
5:00	0	0	391	NO
6:00	193	48	265	NO
7:00	475	80	131	NO
8:00	441	155	144	YES
9:00	319	62	198	NO
10:00	319	46	198	NO
11:00	363	49	177	NO
12:00	417	49	154	NO
13:00	422	41	151	NO
14:00	448	56	141	NO
15:00	449	144	141	YES
16:00	521	79	115	NO
17:00	688	69	73	NO
18:00	0	0	391	NO
19:00	0	0	391	NO
20:00	0	0	391	NO
21:00	0	0	391	NO
22:00	0	0	391	NO
23:00	0	0	391	NO
Signal warrant satisfied?				**NO**

Signal warrant satisfied if hourly threshold satisfied for each of any 4 hours of an average day.

= User Entry

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Cardwell Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

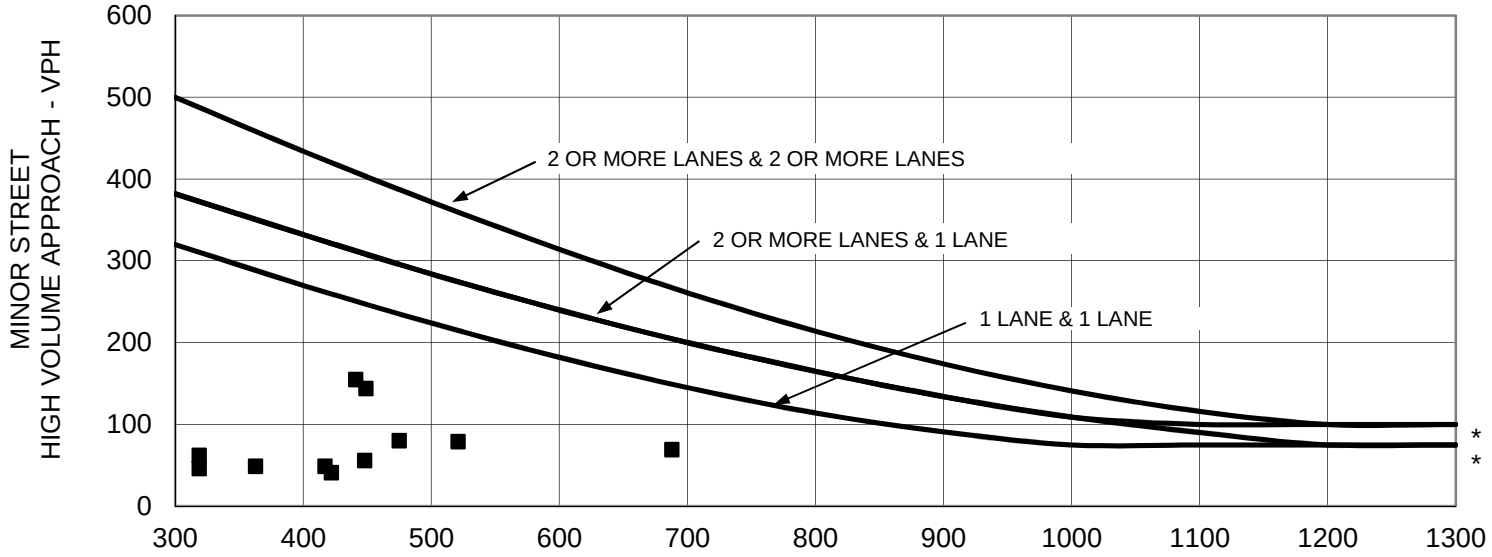
NODE 3

Warrant 3 - Peak Hour Vehicular Volume

Signal Warrant Satisfied? [ ] Yes [X] No

Warrant 3, Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



MAJOR STREET - TOTAL OF BOTH APPROACHES--
VEHICLES PER HOUR (VPH)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies at the lower threshold volume for a minor-street approach with one lane.

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Cardwell Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

NODE 3

Scenario	Major Street	Minor Street	Warrant Volume	Warrant Satisfied?
0:00	0	0	481	NO
1:00	0	0	481	NO
2:00	0	0	481	NO
3:00	0	0	481	NO
4:00	0	0	481	NO
5:00	0	0	481	NO
6:00	193	48	376	NO
7:00	475	80	235	NO
8:00	441	155	251	NO
9:00	319	62	310	NO
10:00	319	46	310	NO
11:00	363	49	288	NO
12:00	417	49	262	NO
13:00	422	41	260	NO
14:00	448	56	247	NO
15:00	449	144	247	NO
16:00	521	79	214	NO
17:00	688	69	149	NO
18:00	0	0	481	NO
19:00	0	0	481	NO
20:00	0	0	481	NO
21:00	0	0	481	NO
22:00	0	0	481	NO
23:00	0	0	481	NO

Signal warrant satisfied if hourly threshold satisfied for any 1 hour of an average day.

= User Entry

US 250 AND FAIRGOUND ROAD

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	9/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		Yes		

NODE 1

Warrant 1 - Eight Hour Vehicular Volume

Signal Warrant Satisfied - Condition A?		Yes	X	No
Signal Warrant Satisfied - Condition B?		Yes	X	No
Signal Warrant Satisfied - Combination Conditions?		Yes	X	No

Condition A - Minimum Vehicular Volume

Number of lanes for		Vehicles per hour on major street				Vehicles per hour on			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2	1	600	480	420	336	150	120	105	84
2	2	600	480	420	336	200	160	140	112
1	2	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for		Vehicles per hour on major street				Vehicles per hour on			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2	1	900	720	630	504	75	60	53	42
2	2	900	720	630	504	100	80	70	56
1	2	750	600	525	420	100	80	70	56

Threshold = 100% for basic minimum hourly volume
Threshold = 80% for combination of Conditions A and B after adequate trail of other remedial measures.
Threshold = 70% when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000.
Threshold = 56% for combination of Conditions A and B after adequate trail of other remedial measures when the major-street speed exceeds 40 mph or in an isolated

Applicable Threshold
Single = 70%
Combo = 56%

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	9/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		Yes		

NODE 1

Hour	Major Street					Minor Street					Hourly Threshold Satisfied?		
	Volume	Volume Threshold				Volume	Volume Threshold						
		Single		Combo			Single		Combo		Single		Combo
		A	B	A	B		A	B	A	B	A	B	A&B
0:00	0					0					NO	NO	NO
1:00	0					0					NO	NO	NO
2:00	0					0					NO	NO	NO
3:00	0					0					NO	NO	NO
4:00	0					0					NO	NO	NO
5:00	0					0					NO	NO	NO
6:00	272					3					NO	NO	NO
7:00	602					6					NO	NO	NO
8:00	503					5					NO	NO	NO
9:00	372					5					NO	NO	NO
10:00	307					3					NO	NO	NO
11:00	351	350	525	280	420	4	105	53	84	42	NO	NO	NO
12:00	363					2					NO	NO	NO
13:00	421					0					NO	NO	NO
14:00	447					7					NO	NO	NO
15:00	555					6					NO	NO	NO
16:00	658					7					NO	NO	NO
17:00	986					3					NO	NO	NO
18:00	0					0					NO	NO	NO
19:00	0					0					NO	NO	NO
20:00	0					0					NO	NO	NO
21:00	0					0					NO	NO	NO
22:00	0					0					NO	NO	NO
23:00	0					0					NO	NO	NO
Signal warrant satisfied?											**NO**	**NO**	**NO**

Signal warrant satisfied if either Condition A, Condition B, or Combination is satisfied for each of any 8 hours of an average day.

= User Entry

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	LS
	Approach Lanes:	1	**Date:**	6/17/16
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

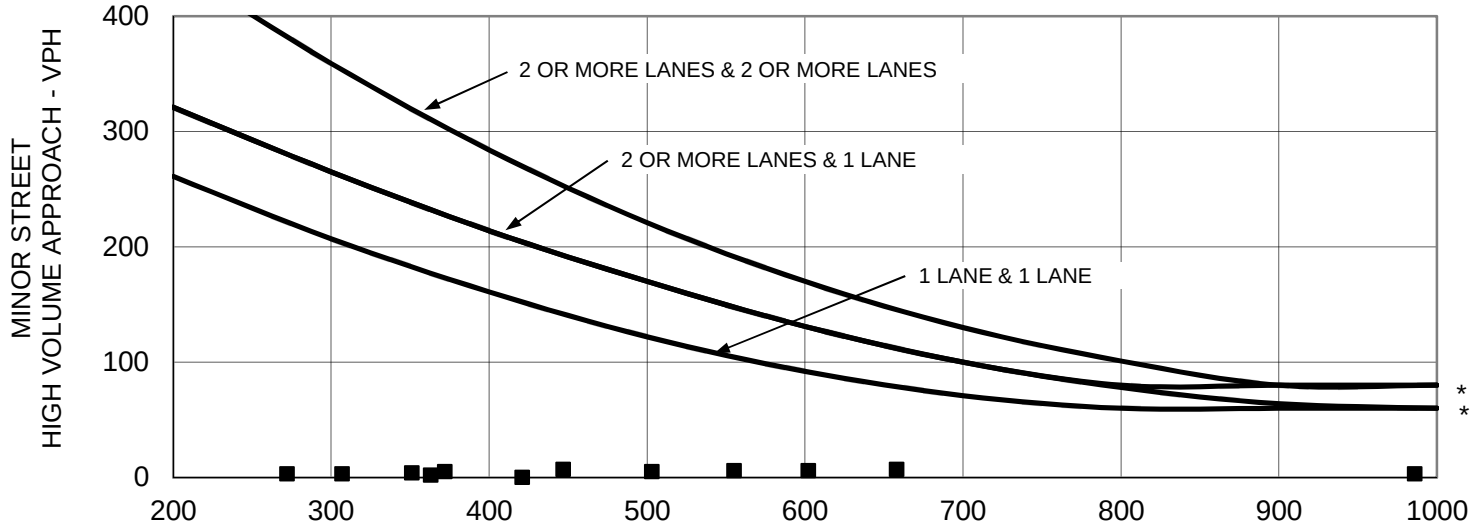
NODE 1

Warrant 2 - Four Hour Vehicular Volume

Signal Warrant Satisfied? [ ] Yes [X] No

Warrant 2, Four Hour Vehicular Volume

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies at the lower threshold volume for a minor-street approach with one lane.

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	LS
	Approach Lanes:	1	**Date:**	6/17/16
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

NODE 1

Hour	Major Street	Minor Street	Hourly Threshold	Hourly Threshold Satisfied?
0:00	0	0	391	NO
1:00	0	0	391	NO
2:00	0	0	391	NO
3:00	0	0	391	NO
4:00	0	0	391	NO
5:00	0	0	391	NO
6:00	272	3	221	NO
7:00	602	6	92	NO
8:00	503	5	121	NO
9:00	372	5	173	NO
10:00	307	3	203	NO
11:00	351	4	182	NO
12:00	363	2	177	NO
13:00	421	0	152	NO
14:00	447	7	142	NO
15:00	555	6	105	NO
16:00	658	7	79	NO
17:00	986	3	60	NO
18:00	0	0	391	NO
19:00	0	0	391	NO
20:00	0	0	391	NO
21:00	0	0	391	NO
22:00	0	0	391	NO
23:00	0	0	391	NO
Signal warrant satisfied?				**NO**

Signal warrant satisfied if hourly threshold satisfied for each of any 4 hours of an average day.

= User Entry

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

McCORMICK TAYLOR

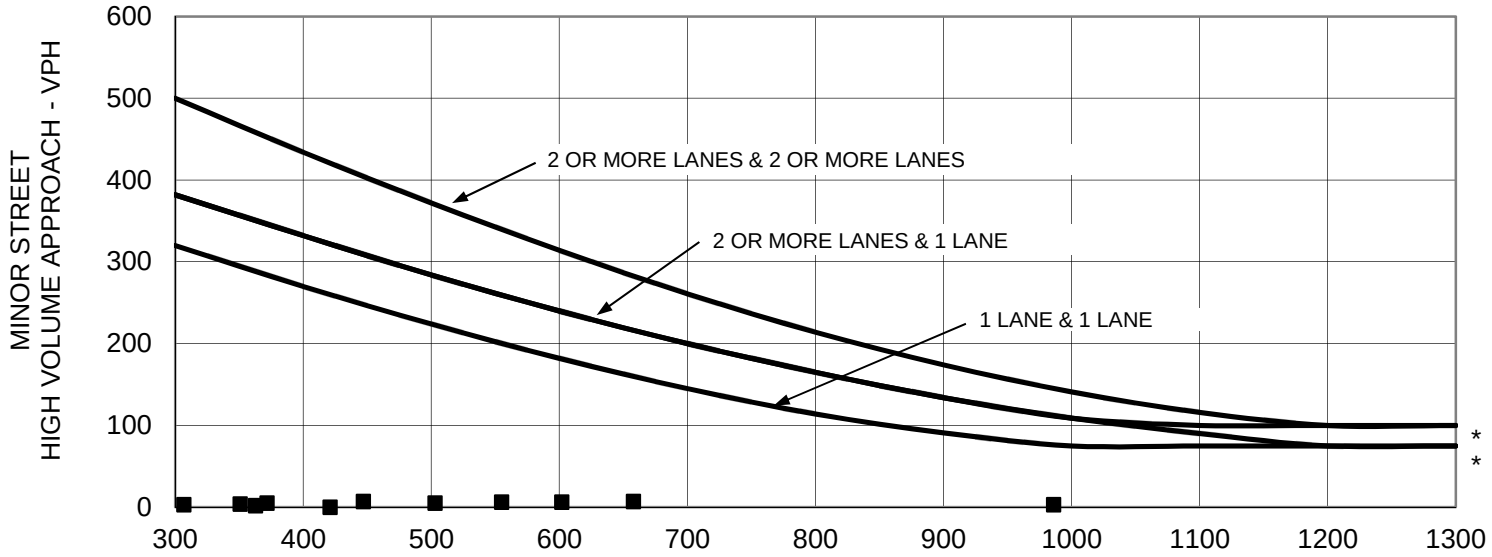
NODE 1

Warrant 3 - Peak Hour Vehicular Volume

Signal Warrant Satisfied? [ ] Yes [X] No

Warrant 3, Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



MAJOR STREET - TOTAL OF BOTH APPROACHES--
VEHICLES PER HOUR (VPH)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies at the lower threshold volume for a minor-street approach with one lane.

Project:		US 250 Safety Study	**Calculations:**	JTC
Major Street	**Name:**	US 250	**Date:**	6/16/16
	Speed Limit (mph):	55	**Checked by:**	
	Approach Lanes:	1	**Date:**	
Minor Street	**Name:**	Fairgrounds Road	**Scenario**	
	Speed Limit (mph):	55		
	Approach Lanes:	1		
Population < 10000?		No		

NODE 1

Scenario	Major Street	Minor Street	Warrant Volume	Warrant Satisfied?
0:00	0	0	481	NO
1:00	0	0	481	NO
2:00	0	0	481	NO
3:00	0	0	481	NO
4:00	0	0	481	NO
5:00	0	0	481	NO
6:00	272	3	335	NO
7:00	602	6	181	NO
8:00	503	5	222	NO
9:00	372	5	284	NO
10:00	307	3	316	NO
11:00	351	4	294	NO
12:00	363	2	288	NO
13:00	421	0	260	NO
14:00	447	7	248	NO
15:00	555	6	200	NO
16:00	658	7	160	NO
17:00	986	3	77	NO
18:00	0	0	481	NO
19:00	0	0	481	NO
20:00	0	0	481	NO
21:00	0	0	481	NO
22:00	0	0	481	NO
23:00	0	0	481	NO

Signal warrant satisfied if hourly threshold satisfied for any 1 hour of an average day.

= User Entry

CAPACITY ANALYSIS

US 250 AND CARDWELL ROAD

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	268	101	43	119	63	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	150
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1664	0	0	1616	1550	0
Flt Permitted				0.987	0.973	
Satd. Flow (perm)	1664	0	0	1616	1550	0
Link Speed (mph)	55			55	40	
Link Distance (ft)	2398			1626	1004	
Travel Time (s)	29.7			20.2	17.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	7%	11%	8%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	0	0	188	132	0
Sign Control	Yield			Yield	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 47.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Right Turn Channelized						
Volume (veh/h)	268	101	43	119	63	51
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	312	117	50	138	73	59
Approach Volume (veh/h)	429			188	133	
Crossing Volume (veh/h)	50			73	312	
High Capacity (veh/h)	1332			1308	1084	
High v/c (veh/h)	0.32			0.14	0.12	
Low Capacity (veh/h)	1113			1091	889	
Low v/c (veh/h)	0.39			0.17	0.15	

Intersection Summary			
Maximum v/c High	0.32		
Maximum v/c Low	0.39		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	429	188	132
Demand Flow Rate, veh/h	447	207	140
Vehicles Circulating, veh/h	54	79	328
Vehicles Exiting, veh/h	232	389	173
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.1	5.7	6.5
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	447	207	140
Cap Entry Lane, veh/h	1071	1044	814
Entry HV Adj Factor	0.961	0.907	0.943
Flow Entry, veh/h	429	188	132
Cap Entry, veh/h	1028	947	767
V/C Ratio	0.418	0.198	0.172
Control Delay, s/veh	8.1	5.7	6.5
LOS	A	A	A
95th %tile Queue, veh	2	1	1

HCM research expects at least one 'Stop' controlled approach at the intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	87	8	498	249	5	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	0		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1746	0	0	1719	1710	1471
Flt Permitted				0.968	0.950	
Satd. Flow (perm)	1746	0	0	1719	1710	1471
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			462	781	
Travel Time (s)	9.8			5.7	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	1%	2%	0%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	0	821	5	300
Sign Control	Yield			Yield	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Right Turn Channelized						Yes
Volume (veh/h)	87	8	498	249	5	273
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	96	9	547	274	5	300
Approach Volume (veh/h)	104			821	5	
Crossing Volume (veh/h)	547			5	96	
High Capacity (veh/h)	899			1379	1285	
High v/c (veh/h)	0.12			0.60	0.00	
Low Capacity (veh/h)	724			1156	1071	
Low v/c (veh/h)	0.14			0.71	0.01	

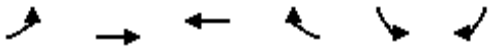
Intersection Summary			
Maximum v/c High	0.60		
Maximum v/c Low	0.71		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	105	821	305
Demand Flow Rate, veh/h	107	831	317
Vehicles Circulating, veh/h	552	5	98
Vehicles Exiting, veh/h	284	98	561
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.6	15.5	6.7
Approach LOS	A	C	A

Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Yield
Lane Util	1.000	1.000	1.000	
Critical Headway, s	5.193	5.193	5.193	
Entry Flow, veh/h	107	831	5	312
Cap Entry Lane, veh/h	651	1124	1024	1024
Entry HV Adj Factor	0.982	0.987	1.000	0.962
Flow Entry, veh/h	105	821	5	300
Cap Entry, veh/h	639	1110	1024	985
V/C Ratio	0.164	0.739	0.005	0.305
Control Delay, s/veh	7.6	15.5	3.6	6.8
LOS	A	C	A	A
95th %tile Queue, veh	1	7	0	1

HCM research expects at least one 'Stop' controlled approach at the intersection.

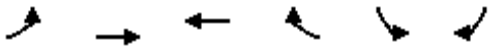


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.362				0.950	
Satd. Flow (perm)	633	1731	1765	1485	1644	1500
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				128		332
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2398		1232	
Travel Time (s)		17.7	29.7		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	147	361	128	92	493
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	43.8	43.7	20.9	37.1	8.9	30.5
Actuated g/C Ratio	0.68	0.68	0.32	0.57	0.14	0.47
v/c Ratio	0.36	0.13	0.63	0.14	0.41	0.56
Control Delay	5.5	4.0	25.7	2.1	34.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	4.0	25.7	2.1	34.6	6.8
LOS	A	A	C	A	C	A
Approach Delay		4.9	19.5		11.1	
Approach LOS		A	B		B	
Queue Length 50th (ft)	28	16	116	0	33	33
Queue Length 95th (ft)	62	37	249	22	91	120
Internal Link Dist (ft)		1349	2318		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	843	1694	1282	1289	689	1071
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.09	0.28	0.10	0.13	0.46

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 64.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			

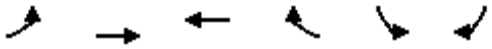
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	632	1731	1765	1485	1644	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	247	147	361	128	92	493
RTOR Reduction (vph)	0	0	0	68	0	205
Lane Group Flow (vph)	247	147	361	60	92	288
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	43.7	43.7	21.2	30.1	8.9	24.5
Effective Green, g (s)	43.7	43.7	21.2	30.1	8.9	24.5
Actuated g/C Ratio	0.68	0.68	0.33	0.47	0.14	0.38
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	681	1180	583	697	228	706
v/s Ratio Prot	0.09	0.08	c0.20	0.01	0.06	c0.10
v/s Ratio Perm	0.16			0.03		0.09
v/c Ratio	0.36	0.12	0.62	0.09	0.40	0.41
Uniform Delay, d1	4.8	3.5	18.1	9.4	25.2	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	3.4	0.0	0.9	0.4
Delay (s)	5.1	3.7	21.5	9.4	26.0	14.9
Level of Service	A	A	C	A	C	B
Approach Delay (s)		4.6	18.3		16.6	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	18.4
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	222	132	325	115	83	444
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1748	1731	1765	1748	1731	1765
Adj Flow Rate, veh/h	247	147	361	128	92	493
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	4	2	3	4	2
Cap, veh/h	429	890	542	919	514	661
Arrive On Green	0.13	0.51	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1664	1731	1765	1485	1648	1500
Grp Volume(v), veh/h	247	147	361	128	92	493
Grp Sat Flow(s),veh/h/ln	1664	1731	1765	1485	1648	1500
Q Serve(g_s), s	6.8	3.3	13.0	2.6	3.0	20.0
Cycle Q Clear(g_c), s	6.8	3.3	13.0	2.6	3.0	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	429	890	542	919	514	661
V/C Ratio(X)	0.58	0.17	0.67	0.14	0.18	0.75
Avail Cap(c_a), veh/h	783	1821	1087	1378	586	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	9.4	22.0	5.8	18.3	17.0
Incr Delay (d2), s/veh	1.2	0.3	5.0	0.2	0.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.6	7.1	2.0	1.4	16.2
LnGrp Delay(d),s/veh	15.7	9.7	27.1	6.1	18.5	20.5
LnGrp LOS	B	A	C	A	B	C
Approach Vol, veh/h		394	489		585	
Approach Delay, s/veh		13.5	21.6		20.2	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.6		28.5	15.1	29.4		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		5.3		22.0	8.8	15.0		
Green Ext Time (p_c), s		8.6		0.8	0.7	7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	155	47	46	391	49	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	150
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1685	0	0	1756	1541	0
Flt Permitted				0.995	0.972	
Satd. Flow (perm)	1685	0	0	1756	1541	0
Link Speed (mph)	55			55	40	
Link Distance (ft)	2398			1626	1004	
Travel Time (s)	29.7			20.2	17.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	8%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	229	0	0	496	96	0
Sign Control	Yield			Yield	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 51.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Right Turn Channelized						
Volume (veh/h)	155	47	46	391	49	35
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	176	53	52	444	56	40
Approach Volume (veh/h)	230			497	95	
Crossing Volume (veh/h)	52			56	176	
High Capacity (veh/h)	1329			1326	1207	
High v/c (veh/h)	0.17			0.37	0.08	
Low Capacity (veh/h)	1111			1108	999	
Low v/c (veh/h)	0.21			0.45	0.10	

Intersection Summary			
Maximum v/c High	0.37		
Maximum v/c Low	0.45		
Intersection Capacity Utilization	51.2%	ICU Level of Service	A

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	229	496	96
Demand Flow Rate, veh/h	237	506	102
Vehicles Circulating, veh/h	53	60	183
Vehicles Exiting, veh/h	513	225	107
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.6	8.9	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	237	506	102
Cap Entry Lane, veh/h	1072	1064	941
Entry HV Adj Factor	0.966	0.980	0.941
Flow Entry, veh/h	229	496	96
Cap Entry, veh/h	1035	1043	886
V/C Ratio	0.221	0.476	0.108
Control Delay, s/veh	5.6	8.9	5.1
LOS	A	A	A
95th %tile Queue, veh	1	3	0

HCM research expects at least one 'Stop' controlled approach at the intersection.

MOVEMENT SUMMARY

Site: AM - US 250 & Cardwell Road - No NB RT Lane

US 250 & Cardwell Road - AM Peak Hour

Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Cardwell Road											
3	L2	73	8.0	0.145	11.6	LOS B	0.7	19.4	0.48	0.66	35.5
18	R2	59	4.0	0.145	6.3	LOS A	0.7	19.4	0.48	0.66	34.8
Approach		133	6.2	0.145	9.3	LOS A	0.7	19.4	0.48	0.66	35.2
East: US 250											
1	L2	50	7.0	0.172	10.2	LOS B	1.0	27.1	0.28	0.49	36.7
6	T1	138	11.0	0.172	4.6	LOS A	1.0	27.1	0.28	0.49	35.9
Approach		188	9.9	0.172	6.1	LOS A	1.0	27.1	0.28	0.49	36.2
West: US 250											
2	T1	312	5.0	0.358	4.8	LOS A	2.5	63.6	0.26	0.43	36.7
12	R2	117	2.0	0.358	4.4	LOS A	2.5	63.6	0.26	0.43	36.5
Approach		429	4.2	0.358	4.7	LOS A	2.5	63.6	0.26	0.43	36.6
All Vehicles		750	6.0	0.358	5.9	LOS A	2.5	63.6	0.30	0.48	36.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

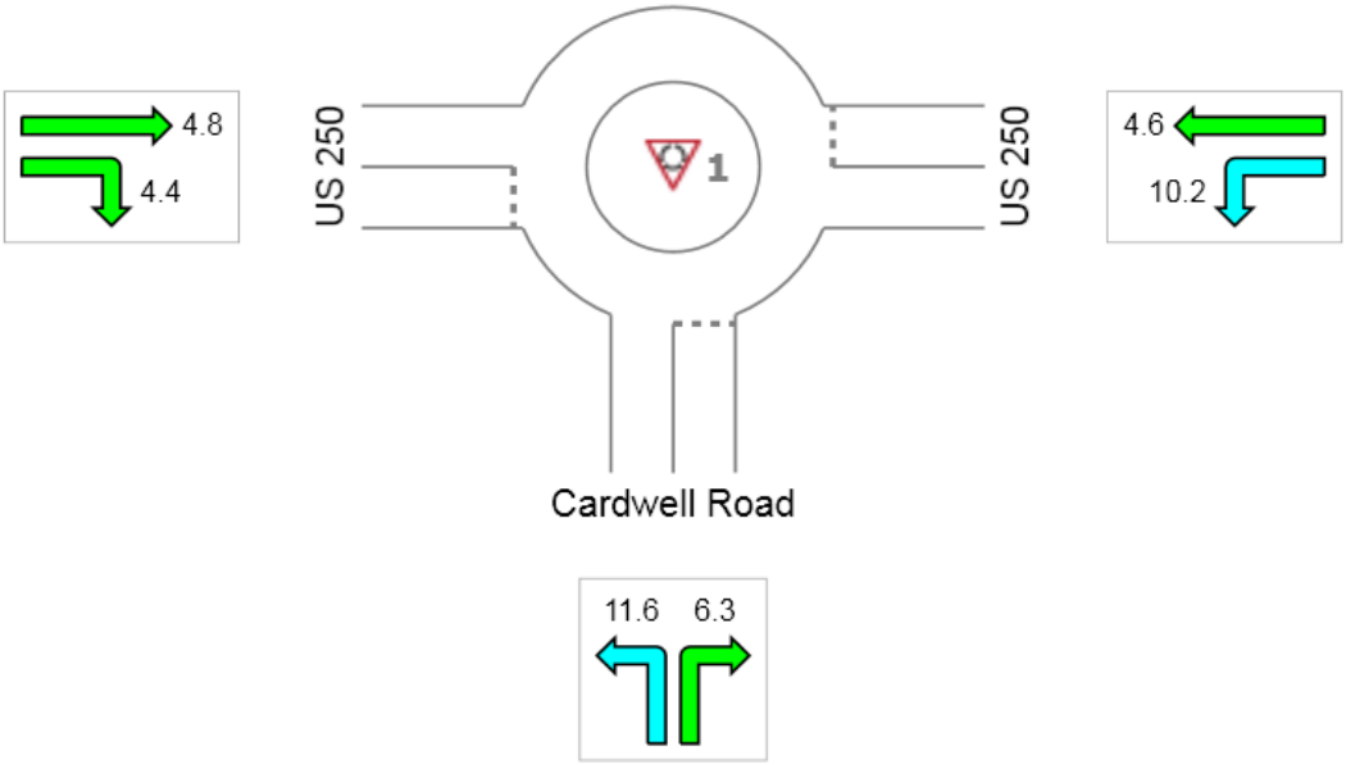
Site: AM - US 250 & Cardwell Road - No NB RT Lane

US 250 & Cardwell Road - AM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
	9.3	6.1	4.7	5.9
LOS	A	A	A	A



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Signalised Intersections
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

LEVEL OF SERVICE

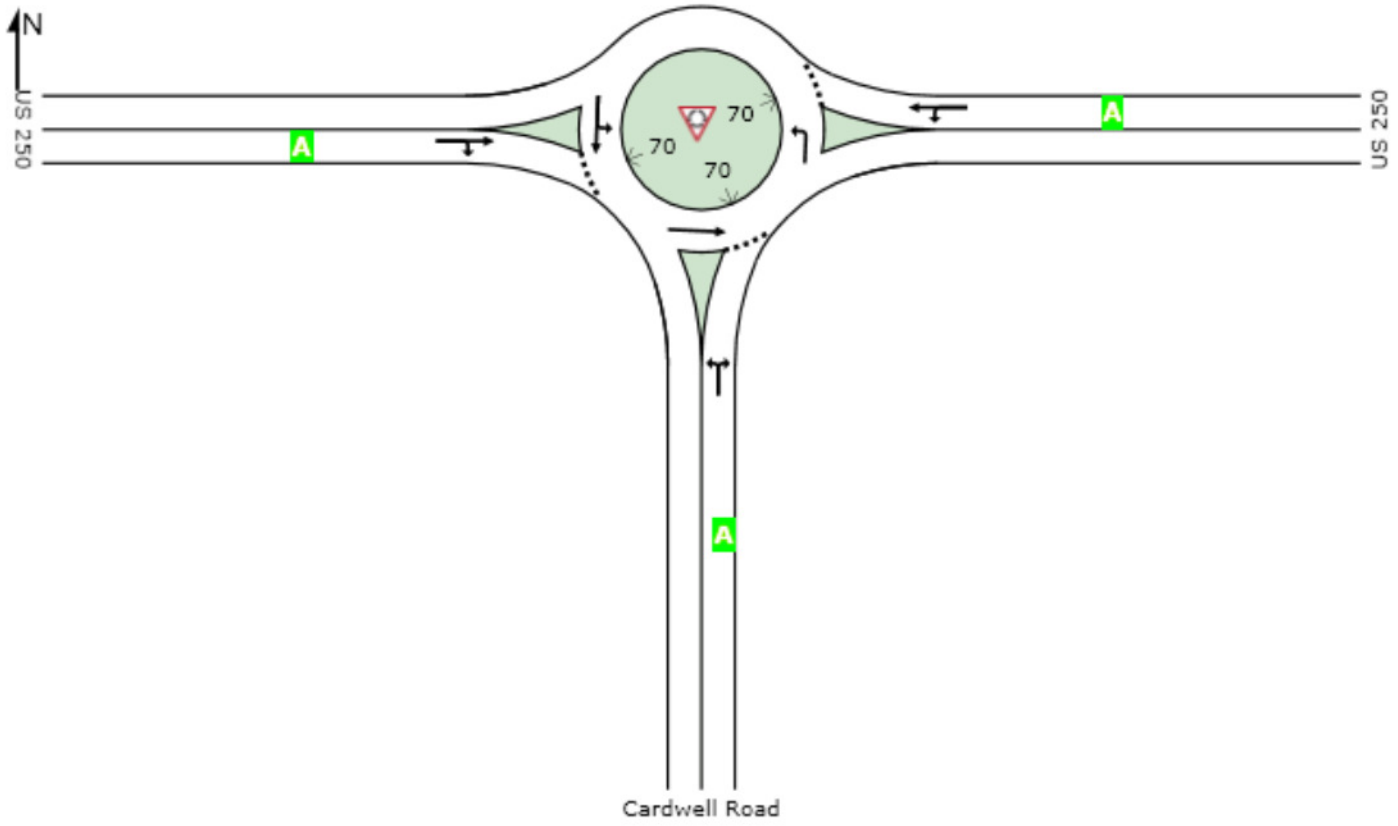
Site: AM - US 250 & Cardwell Road - No NB RT Lane

US 250 & Cardwell Road - AM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
LOS	A	A	A	A



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: PM - US 250 & Cardwell Road - No NB RT

US 250 & Cardwell Road - PM Peak Hour

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Cardwell Road											
3	L2	56	8.0	0.093	10.7	LOS B	0.5	12.6	0.37	0.60	35.7
18	R2	40	6.0	0.093	5.4	LOS A	0.5	12.6	0.37	0.60	33.9
Approach		95	7.2	0.093	8.5	LOS A	0.5	12.6	0.37	0.60	35.0
East: US 250											
1	L2	52	2.0	0.409	10.1	LOS B	3.1	77.7	0.29	0.44	36.5
6	T1	444	2.0	0.409	4.5	LOS A	3.1	77.7	0.29	0.44	37.1
Approach		497	2.0	0.409	5.1	LOS A	3.1	77.7	0.29	0.44	37.1
West: US 250											
2	T1	176	4.0	0.190	4.7	LOS A	1.0	26.8	0.20	0.42	37.4
12	R2	53	2.0	0.190	4.3	LOS A	1.0	26.8	0.20	0.42	36.7
Approach		230	3.5	0.190	4.6	LOS A	1.0	26.8	0.20	0.42	37.3
All Vehicles		822	3.0	0.409	5.4	LOS A	3.1	77.7	0.28	0.45	36.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

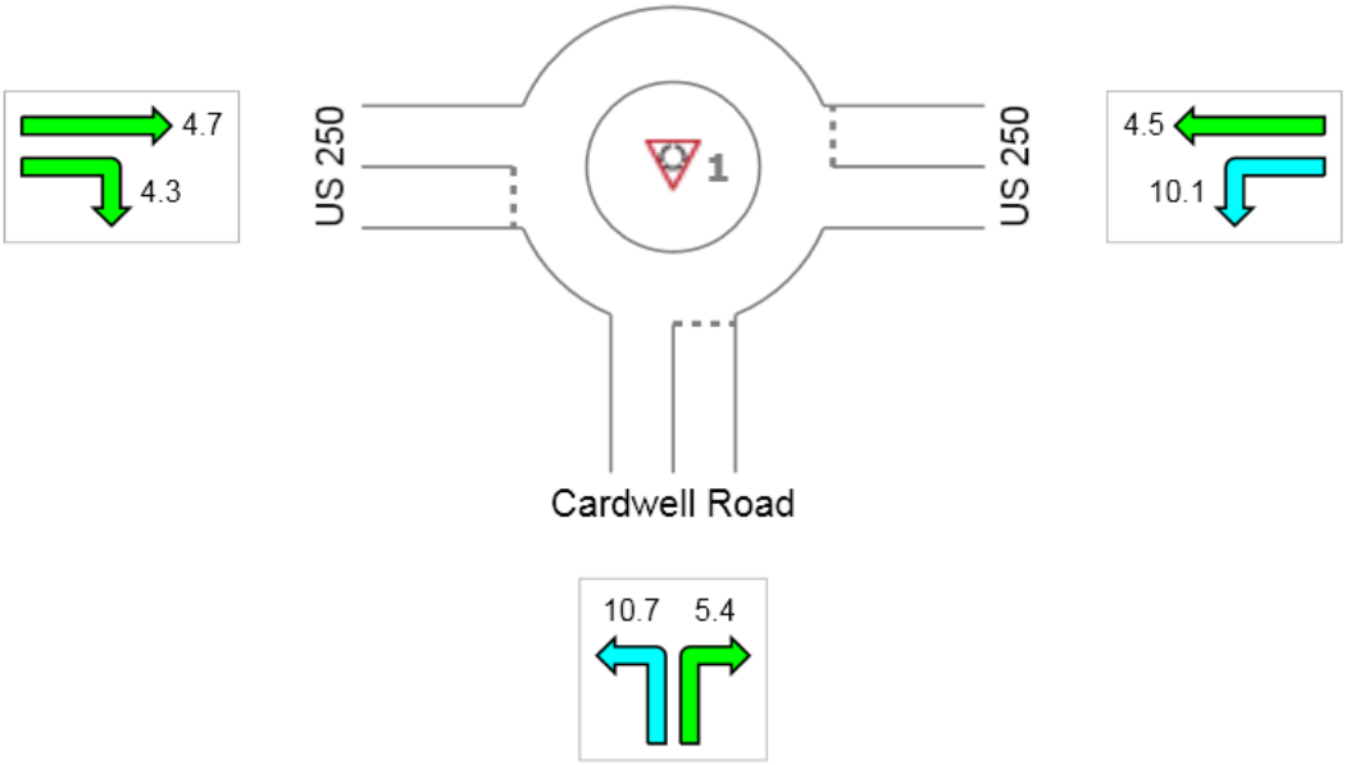
Site: PM - US 250 & Cardwell Road - No NB RT

US 250 & Cardwell Road - PM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
	8.5	5.1	4.6	5.4
LOS	A	A	A	A



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Signalised Intersections
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

LEVEL OF SERVICE

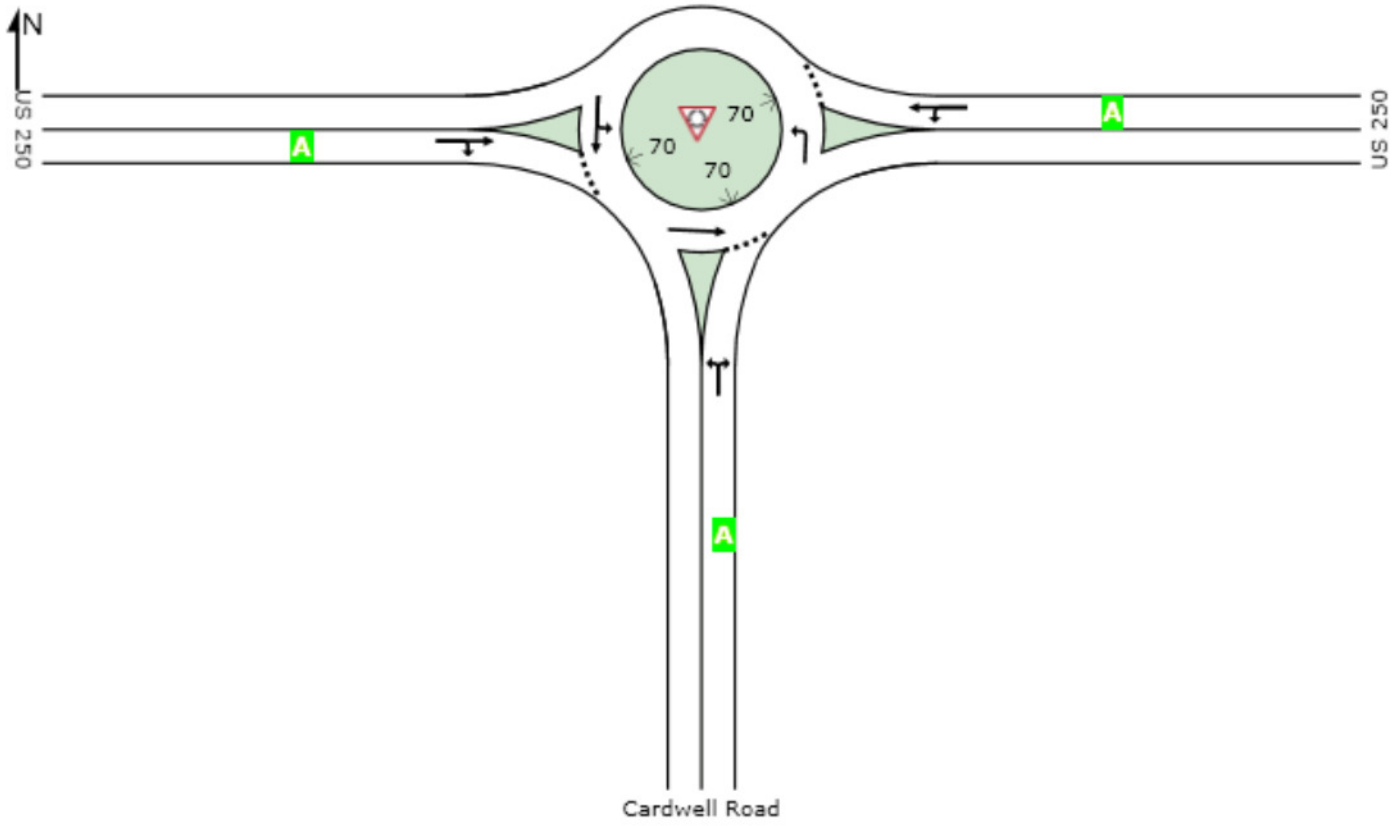
Site: PM - US 250 & Cardwell Road - No NB RT

US 250 & Cardwell Road - PM Peak Hour

Roundabout

All Movement Classes

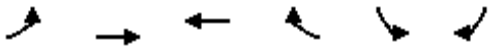
	South	East	West	Intersection
LOS	A	A	A	A



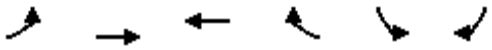
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

SIDRA INTERSECTION 6

US 250 AND OILVILLE ROAD



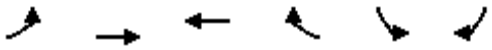
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.362				0.950	
Satd. Flow (perm)	633	1731	1765	1485	1644	1500
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				128		332
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2306		1232	
Travel Time (s)		17.7	28.6		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	147	361	128	92	493
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	43.8	43.7	20.9	37.1	8.9	30.5
Actuated g/C Ratio	0.68	0.68	0.32	0.57	0.14	0.47
v/c Ratio	0.36	0.13	0.63	0.14	0.41	0.56
Control Delay	5.5	4.0	25.7	2.1	34.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	4.0	25.7	2.1	34.6	6.8
LOS	A	A	C	A	C	A
Approach Delay		4.9	19.5		11.1	
Approach LOS		A	B		B	
Queue Length 50th (ft)	28	16	116	0	33	33
Queue Length 95th (ft)	62	37	249	22	91	120
Internal Link Dist (ft)		1349	2226		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	843	1694	1282	1289	689	1071
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.09	0.28	0.10	0.13	0.46

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 64.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			

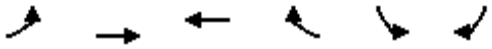
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	632	1731	1765	1485	1644	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	247	147	361	128	92	493
RTOR Reduction (vph)	0	0	0	68	0	205
Lane Group Flow (vph)	247	147	361	60	92	288
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	43.7	43.7	21.2	30.1	8.9	24.5
Effective Green, g (s)	43.7	43.7	21.2	30.1	8.9	24.5
Actuated g/C Ratio	0.68	0.68	0.33	0.47	0.14	0.38
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	681	1180	583	697	228	706
v/s Ratio Prot	0.09	0.08	c0.20	0.01	0.06	c0.10
v/s Ratio Perm	0.16			0.03		0.09
v/c Ratio	0.36	0.12	0.62	0.09	0.40	0.41
Uniform Delay, d1	4.8	3.5	18.1	9.4	25.2	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	3.4	0.0	0.9	0.4
Delay (s)	5.1	3.7	21.5	9.4	26.0	14.9
Level of Service	A	A	C	A	C	B
Approach Delay (s)		4.6	18.3		16.6	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	18.4
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	222	132	325	115	83	444
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1748	1731	1765	1748	1731	1765
Adj Flow Rate, veh/h	247	147	361	128	92	493
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	4	2	3	4	2
Cap, veh/h	429	890	542	919	514	661
Arrive On Green	0.13	0.51	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1664	1731	1765	1485	1648	1500
Grp Volume(v), veh/h	247	147	361	128	92	493
Grp Sat Flow(s),veh/h/ln	1664	1731	1765	1485	1648	1500
Q Serve(g_s), s	6.8	3.3	13.0	2.6	3.0	20.0
Cycle Q Clear(g_c), s	6.8	3.3	13.0	2.6	3.0	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	429	890	542	919	514	661
V/C Ratio(X)	0.58	0.17	0.67	0.14	0.18	0.75
Avail Cap(c_a), veh/h	783	1821	1087	1378	586	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	9.4	22.0	5.8	18.3	17.0
Incr Delay (d2), s/veh	1.2	0.3	5.0	0.2	0.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.6	7.1	2.0	1.4	16.2
LnGrp Delay(d),s/veh	15.7	9.7	27.1	6.1	18.5	20.5
LnGrp LOS	B	A	C	A	B	C
Approach Vol, veh/h		394	489		585	
Approach Delay, s/veh		13.5	21.6		20.2	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.6		28.5	15.1	29.4		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		5.3		22.0	8.8	15.0		
Green Ext Time (p_c), s		8.6		0.8	0.7	7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	155	47	0	391	49	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1685	0	0	1765	1583	0
Flt Permitted					0.950	
Satd. Flow (perm)	1685	0	0	1765	1583	0
Link Speed (mph)	55			55	40	
Link Distance (ft)	2306			212	164	
Travel Time (s)	28.6			2.6	2.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	0%	2%	8%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	229	0	0	444	56	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	155	47	0	391	49	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	176	53	0	444	56	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			230		647	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			230		647	203
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		87	100
cM capacity (veh/h)			1350		426	843

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	230	444	56
Volume Left	0	0	56
Volume Right	53	0	0
cSH	1700	1700	426
Volume to Capacity	0.14	0.26	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.0	0.0	14.7
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.7
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	155	47	0	391	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	2	0	2	8	0
Mvmt Flow	176	53	0	444	56	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	230	0	647	203
Stage 1	-	-	-	-	203	-
Stage 2	-	-	-	-	444	-
Critical Hdwy	-	-	4.1	-	6.48	6.2
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.2	-	3.572	3.3
Pot Cap-1 Maneuver	-	-	1350	-	426	843
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1350	-	426	843
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	634	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	426	-	-	1350	-
HCM Lane V/C Ratio	0.131	-	-	-	-
HCM Control Delay (s)	14.7	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	155	0	46	391	0	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	1731	0	0	1756	0	1469
Flt Permitted				0.995		
Satd. Flow (perm)	1731	0	0	1756	0	1469
Link Speed (mph)	55			55	40	
Link Distance (ft)	212			1590	174	
Travel Time (s)	2.6			19.7	3.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	0%	2%	2%	0%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	0	0	502	0	40
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	155	0	46	391	0	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	178	0	53	449	0	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			178		733	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			178		733	178
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			96		100	95
cM capacity (veh/h)			1398		376	855

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	178	502	40
Volume Left	0	53	0
Volume Right	0	0	40
cSH	1700	1398	855
Volume to Capacity	0.10	0.04	0.05
Queue Length 95th (ft)	0	3	4
Control Delay (s)	0.0	1.2	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.2	9.4
Approach LOS			A

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization		39.7%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	155	0	46	391	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	4	0	2	2	0	6
Mvmt Flow	178	0	53	449	0	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	178	0	733	178
Stage 1	-	-	-	-	178	-
Stage 2	-	-	-	-	555	-
Critical Hdwy	-	-	4.12	-	6.4	6.26
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.354
Pot Cap-1 Maneuver	-	-	1398	-	391	855
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1398	-	371	855
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	549	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	855	-	-	1398	-
HCM Lane V/C Ratio	0.047	-	-	0.038	-
HCM Control Delay (s)	9.4	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	46	0	49	35	0	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1676	0	1586	0	0	1765
Flt Permitted	0.950					
Satd. Flow (perm)	1676	0	1586	0	0	1765
Link Speed (mph)	40		40			40
Link Distance (ft)	174		877			164
Travel Time (s)	3.0		14.9			2.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	8%	6%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	91	0	0	51
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	46	0	49	35	0	47
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	0	53	38	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	123	72			91	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123	72			91	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	872	995			1516	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	91	51
Volume Left	50	0	0
Volume Right	0	38	0
cSH	872	1700	1700
Volume to Capacity	0.06	0.05	0.03
Queue Length 95th (ft)	5	0	0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	46	0	49	35	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	8	6	0	2
Mvmt Flow	50	0	53	38	0	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	123	72	0	0	91	0
Stage 1	72	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	872	996	-	-	1517	-
Stage 1	951	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	872	996	-	-	1517	-
Mov Cap-2 Maneuver	872	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	872	1517	-
HCM Lane V/C Ratio	-	-	0.057	-	-
HCM Control Delay (s)	-	-	9.4	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	244	9	327	41	7	579
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	1		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1727	0	1569	1607	1500	1500
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1727	0	1569	1607	1500	1500
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			538	781	
Travel Time (s)	9.8			6.7	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	22%	9%	12%	14%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	385	48	8	681
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	244	9	327	41	7	579
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	287	11	385	48	8	681
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		1110	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		1110	292
tC, single (s)			4.2		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.3
p0 queue free %			69		95	9
cM capacity (veh/h)			1225		151	747

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	298	385	48	689
Volume Left	0	385	0	8
Volume Right	11	0	0	681
cSH	1700	1225	1700	756
Volume to Capacity	0.18	0.31	0.03	0.91
Queue Length 95th (ft)	0	34	0	311
Control Delay (s)	0.0	9.3	0.0	38.6
Lane LOS		A		E
Approach Delay (s)	0.0	8.2		38.6
Approach LOS				E

Intersection Summary			
Average Delay	21.3		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

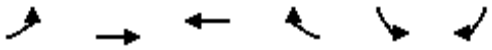
Intersection	
Int Delay, s/veh	21.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	244	9	327	41	7	579
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	400	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	22	9	12	14	2
Mvmt Flow	287	11	385	48	8	681

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	1110	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	-	-	4.19	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	2.281	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	1224	-	220	747
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1224	-	151	747
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	284	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.2	38.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	747	-	-	1224	-
HCM Lane V/C Ratio	0.055	0.912	-	-	0.314	-
HCM Control Delay (s)	30.2	38.7	-	-	9.3	-
HCM Lane LOS	D	E	-	-	A	-
HCM 95th %tile Q(veh)	0.2	12.4	-	-	1.4	-

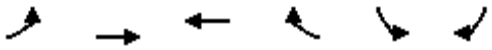


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.505				0.950	
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				83		299
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2398		1232	
Travel Time (s)		17.7	29.7		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	651	286	129	83	145	299
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	47.3	47.2	15.7	33.5	10.8	41.0
Actuated g/C Ratio	0.68	0.68	0.23	0.48	0.16	0.59
v/c Ratio	0.73	0.24	0.35	0.12	0.56	0.31
Control Delay	12.3	5.3	26.8	2.9	36.1	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	5.3	26.8	2.9	36.1	1.8
LOS	B	A	C	A	D	A
Approach Delay		10.2	17.5		13.0	
Approach LOS		B	B		B	
Queue Length 50th (ft)	119	39	47	0	58	0
Queue Length 95th (ft)	228	79	95	17	110	25
Internal Link Dist (ft)		1349	2318		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	898	1730	1055	1002	629	968
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.17	0.12	0.08	0.23	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 69.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

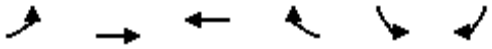
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.51	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	651	286	129	83	145	299
RTOR Reduction (vph)	0	0	0	51	0	147
Lane Group Flow (vph)	651	286	129	32	145	152
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	47.2	47.2	15.8	26.6	10.8	35.3
Effective Green, g (s)	47.2	47.2	15.8	26.6	10.8	35.3
Actuated g/C Ratio	0.68	0.68	0.23	0.38	0.16	0.51
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	890	1175	368	532	260	835
v/s Ratio Prot	c0.26	0.17	0.08	0.01	c0.09	0.06
v/s Ratio Perm	c0.24			0.01		0.04
v/c Ratio	0.73	0.24	0.35	0.06	0.56	0.18
Uniform Delay, d1	6.3	4.3	22.5	13.6	27.1	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.3	1.6	0.0	2.1	0.1
Delay (s)	9.4	4.6	24.2	13.6	29.2	9.4
Level of Service	A	A	C	B	C	A
Approach Delay (s)		8.0	20.0		15.9	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.4
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	566	249	112	72	126	260
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1731	1622	1636	1765	1667
Adj Flow Rate, veh/h	651	286	129	83	145	299
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	4	11	10	2	8
Cap, veh/h	832	1087	366	566	304	704
Arrive On Green	0.32	0.63	0.23	0.23	0.18	0.18
Sat Flow, veh/h	1697	1731	1622	1391	1681	1417
Grp Volume(v), veh/h	651	286	129	83	145	299
Grp Sat Flow(s),veh/h/ln	1697	1731	1622	1391	1681	1417
Q Serve(g_s), s	17.7	4.9	4.4	2.5	5.1	8.9
Cycle Q Clear(g_c), s	17.7	4.9	4.4	2.5	5.1	8.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	832	1087	366	566	304	704
V/C Ratio(X)	0.78	0.26	0.35	0.15	0.48	0.42
Avail Cap(c_a), veh/h	935	2005	1099	1194	658	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	5.5	21.6	12.4	24.4	10.6
Incr Delay (d2), s/veh	3.9	0.5	2.1	0.4	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	2.4	2.2	1.3	2.4	8.3
LnGrp Delay(d),s/veh	14.5	6.0	23.7	12.9	25.2	11.0
LnGrp LOS	B	A	C	B	C	B
Approach Vol, veh/h		937	212		444	
Approach Delay, s/veh		11.9	19.4		15.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		48.7		17.7	26.7	22.0		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		6.9		10.9	19.7	6.4		
Green Ext Time (p_c), s		6.3		1.1	1.3	5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	268	101	43	119	63	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	150
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	1664	0	0	1616	1583	1471
Flt Permitted				0.987	0.950	
Satd. Flow (perm)	1664	0	0	1616	1583	1471
Link Speed (mph)	55			55	40	
Link Distance (ft)	2398			1626	1004	
Travel Time (s)	29.7			20.2	17.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	7%	11%	8%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	0	0	188	73	59
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	268	101	43	119	63	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	312	117	50	138	73	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			312		609	370
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			312		609	370
tC, single (s)			4.2		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.3
p0 queue free %			96		83	91
cM capacity (veh/h)			1221		430	671

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	429	188	133
Volume Left	0	50	73
Volume Right	117	0	59
cSH	1700	1221	779
Volume to Capacity	0.25	0.04	0.17
Queue Length 95th (ft)	0	3	15
Control Delay (s)	0.0	2.4	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	2.4	13.2
Approach LOS			B

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	268	101	43	119	63	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	-	-	-	0	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	5	2	7	11	8	4
Mvmt Flow	312	117	50	138	73	59

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	312	0	550	312
Stage 1	-	-	-	-	312	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	-	-	4.17	-	6.48	6.24
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.263	-	3.572	3.336
Pot Cap-1 Maneuver	-	-	1221	-	486	724
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1221	-	465	724
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	465	724	-	-	1221	-
HCM Lane V/C Ratio	0.158	0.082	-	-	0.041	-
HCM Control Delay (s)	14.2	10.4	-	-	8.1	0
HCM Lane LOS	B	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	0.3	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	87	8	498	249	5	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	1		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1746	0	1693	1765	1710	1471
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1746	0	1693	1765	1710	1471
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			538	781	
Travel Time (s)	9.8			6.7	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	1%	2%	0%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	547	274	5	300
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	87	8	498	249	5	273
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	96	9	547	274	5	300
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			104		1468	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			104		1468	100
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			63		94	68
cM capacity (veh/h)			1493		90	950

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	104	547	274	305
Volume Left	0	547	0	5
Volume Right	9	0	0	300
cSH	1700	1493	1700	967
Volume to Capacity	0.06	0.37	0.16	0.32
Queue Length 95th (ft)	0	43	0	34
Control Delay (s)	0.0	8.8	0.0	11.2
Lane LOS		A		B
Approach Delay (s)	0.0	5.9		11.2
Approach LOS				B

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

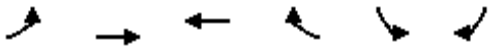
Intersection	
Int Delay, s/veh	6.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	87	8	498	249	5	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	400	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	1	2	0	4
Mvmt Flow	96	9	547	274	5	300

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	104	0	1468	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	1368	-
Critical Hdwy	-	-	4.11	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	1494	-	142	950
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	239	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1494	-	90	950
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	151	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	90	950	-	-	1494	-
HCM Lane V/C Ratio	0.061	0.316	-	-	0.366	-
HCM Control Delay (s)	47.6	10.5	-	-	8.8	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	1.4	-	-	1.7	-

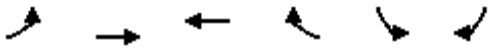


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.362				0.950	
Satd. Flow (perm)	633	1731	1765	1485	1644	1500
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				128		332
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2398		1232	
Travel Time (s)		17.7	29.7		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	147	361	128	92	493
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	43.8	43.7	20.9	37.1	8.9	30.5
Actuated g/C Ratio	0.68	0.68	0.32	0.57	0.14	0.47
v/c Ratio	0.36	0.13	0.63	0.14	0.41	0.56
Control Delay	5.5	4.0	25.7	2.1	34.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	4.0	25.7	2.1	34.6	6.8
LOS	A	A	C	A	C	A
Approach Delay		4.9	19.5		11.1	
Approach LOS		A	B		B	
Queue Length 50th (ft)	28	16	116	0	33	33
Queue Length 95th (ft)	62	37	249	22	91	120
Internal Link Dist (ft)		1349	2318		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	843	1694	1282	1289	689	1071
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.09	0.28	0.10	0.13	0.46

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 64.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			

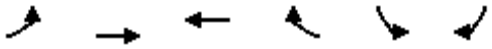
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	222	132	325	115	83	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1660	1731	1765	1485	1644	1500
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	632	1731	1765	1485	1644	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	247	147	361	128	92	493
RTOR Reduction (vph)	0	0	0	68	0	205
Lane Group Flow (vph)	247	147	361	60	92	288
Heavy Vehicles (%)	3%	4%	2%	3%	4%	2%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	43.7	43.7	21.2	30.1	8.9	24.5
Effective Green, g (s)	43.7	43.7	21.2	30.1	8.9	24.5
Actuated g/C Ratio	0.68	0.68	0.33	0.47	0.14	0.38
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	681	1180	583	697	228	706
v/s Ratio Prot	0.09	0.08	c0.20	0.01	0.06	c0.10
v/s Ratio Perm	0.16			0.03		0.09
v/c Ratio	0.36	0.12	0.62	0.09	0.40	0.41
Uniform Delay, d1	4.8	3.5	18.1	9.4	25.2	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	3.4	0.0	0.9	0.4
Delay (s)	5.1	3.7	21.5	9.4	26.0	14.9
Level of Service	A	A	C	A	C	B
Approach Delay (s)		4.6	18.3		16.6	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	18.4
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	222	132	325	115	83	444
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1748	1731	1765	1748	1731	1765
Adj Flow Rate, veh/h	247	147	361	128	92	493
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	4	2	3	4	2
Cap, veh/h	429	890	542	919	514	661
Arrive On Green	0.13	0.51	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1664	1731	1765	1485	1648	1500
Grp Volume(v), veh/h	247	147	361	128	92	493
Grp Sat Flow(s),veh/h/ln	1664	1731	1765	1485	1648	1500
Q Serve(g_s), s	6.8	3.3	13.0	2.6	3.0	20.0
Cycle Q Clear(g_c), s	6.8	3.3	13.0	2.6	3.0	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	429	890	542	919	514	661
V/C Ratio(X)	0.58	0.17	0.67	0.14	0.18	0.75
Avail Cap(c_a), veh/h	783	1821	1087	1378	586	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	9.4	22.0	5.8	18.3	17.0
Incr Delay (d2), s/veh	1.2	0.3	5.0	0.2	0.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.6	7.1	2.0	1.4	16.2
LnGrp Delay(d),s/veh	15.7	9.7	27.1	6.1	18.5	20.5
LnGrp LOS	B	A	C	A	B	C
Approach Vol, veh/h		394	489		585	
Approach Delay, s/veh		13.5	21.6		20.2	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.6		28.5	15.1	29.4		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		5.3		22.0	8.8	15.0		
Green Ext Time (p_c), s		8.6		0.8	0.7	7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	155	47	46	391	49	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	150
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	1685	0	0	1756	1583	1443
Flt Permitted				0.995	0.950	
Satd. Flow (perm)	1685	0	0	1756	1583	1443
Link Speed (mph)	55			55	40	
Link Distance (ft)	2398			1626	1004	
Travel Time (s)	29.7			20.2	17.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	8%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	229	0	0	496	56	40
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	155	47	46	391	49	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	176	53	52	444	56	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			176		752	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			176		752	203
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			96		84	95
cM capacity (veh/h)			1400		356	828

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	230	497	95
Volume Left	0	52	56
Volume Right	53	0	40
cSH	1700	1400	610
Volume to Capacity	0.14	0.04	0.16
Queue Length 95th (ft)	0	3	14
Control Delay (s)	0.0	1.2	13.9
Lane LOS		A	B
Approach Delay (s)	0.0	1.2	13.9
Approach LOS			B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		49.4%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	155	47	46	391	49	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	-	-	-	0	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	2	2	2	8	6
Mvmt Flow	176	53	52	444	56	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	176	0	725	176
Stage 1	-	-	-	-	176	-
Stage 2	-	-	-	-	549	-
Critical Hdwy	-	-	4.12	-	6.48	6.26
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.218	-	3.572	3.354
Pot Cap-1 Maneuver	-	-	1400	-	383	857
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	567	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1400	-	364	857
Mov Cap-2 Maneuver	-	-	-	-	364	-
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	364	857	-	-	1400	-
HCM Lane V/C Ratio	0.153	0.046	-	-	0.037	-
HCM Control Delay (s)	16.7	9.4	-	-	7.7	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	244	9	327	41	7	579
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	0		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1727	0	0	1576	1500	1500
Flt Permitted				0.957	0.950	
Satd. Flow (perm)	1727	0	0	1576	1500	1500
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			462	781	
Travel Time (s)	9.8			5.7	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	22%	9%	12%	14%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	0	433	8	681
Sign Control	Yield			Yield	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Right Turn Channelized						Yes
Volume (veh/h)	244	9	327	41	7	579
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	287	11	385	48	8	681
Approach Volume (veh/h)	298			433	8	
Crossing Volume (veh/h)	385			8	287	
High Capacity (veh/h)	1023			1376	1106	
High v/c (veh/h)	0.29			0.31	0.01	
Low Capacity (veh/h)	834			1153	908	
Low v/c (veh/h)	0.36			0.38	0.01	

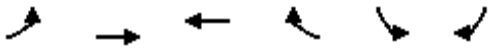
Intersection Summary			
Maximum v/c High	0.31		
Maximum v/c Low	0.38		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B

Intersection	
Intersection Delay, s/veh	17.0
Intersection LOS	C

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	298	433	689
Demand Flow Rate, veh/h	309	474	704
Vehicles Circulating, veh/h	420	9	296
Vehicles Exiting, veh/h	63	296	433
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	10.6	8.2	25.3
Approach LOS	B	A	D

Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Yield
Lane Util	1.000	1.000	1.000	
Critical Headway, s	5.193	5.193	5.193	
Entry Flow, veh/h	309	474	9	695
Cap Entry Lane, veh/h	742	1120	840	840
Entry HV Adj Factor	0.966	0.914	0.889	0.980
Flow Entry, veh/h	298	433	8	681
Cap Entry, veh/h	717	1023	747	824
V/C Ratio	0.416	0.423	0.011	0.826
Control Delay, s/veh	10.6	8.2	4.9	25.6
LOS	B	A	A	D
95th %tile Queue, veh	2	2	0	9

HCM research expects at least one 'Stop' controlled approach at the intersection.

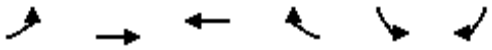


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.505				0.950	
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				83		299
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2398		1232	
Travel Time (s)		17.7	29.7		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	651	286	129	83	145	299
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	47.3	47.2	15.7	33.5	10.8	41.0
Actuated g/C Ratio	0.68	0.68	0.23	0.48	0.16	0.59
v/c Ratio	0.73	0.24	0.35	0.12	0.56	0.31
Control Delay	12.3	5.3	26.8	2.9	36.1	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	5.3	26.8	2.9	36.1	1.8
LOS	B	A	C	A	D	A
Approach Delay		10.2	17.5		13.0	
Approach LOS		B	B		B	
Queue Length 50th (ft)	119	39	47	0	58	0
Queue Length 95th (ft)	228	79	95	17	110	25
Internal Link Dist (ft)		1349	2318		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	898	1730	1055	1002	629	968
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.17	0.12	0.08	0.23	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 69.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

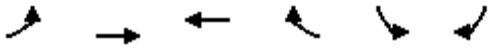
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.51	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	651	286	129	83	145	299
RTOR Reduction (vph)	0	0	0	51	0	147
Lane Group Flow (vph)	651	286	129	32	145	152
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	47.2	47.2	15.8	26.6	10.8	35.3
Effective Green, g (s)	47.2	47.2	15.8	26.6	10.8	35.3
Actuated g/C Ratio	0.68	0.68	0.23	0.38	0.16	0.51
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	890	1175	368	532	260	835
v/s Ratio Prot	c0.26	0.17	0.08	0.01	c0.09	0.06
v/s Ratio Perm	c0.24			0.01		0.04
v/c Ratio	0.73	0.24	0.35	0.06	0.56	0.18
Uniform Delay, d1	6.3	4.3	22.5	13.6	27.1	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.3	1.6	0.0	2.1	0.1
Delay (s)	9.4	4.6	24.2	13.6	29.2	9.4
Level of Service	A	A	C	B	C	A
Approach Delay (s)		8.0	20.0		15.9	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.4
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	566	249	112	72	126	260
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1731	1622	1636	1765	1667
Adj Flow Rate, veh/h	651	286	129	83	145	299
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	4	11	10	2	8
Cap, veh/h	832	1087	366	566	304	704
Arrive On Green	0.32	0.63	0.23	0.23	0.18	0.18
Sat Flow, veh/h	1697	1731	1622	1391	1681	1417
Grp Volume(v), veh/h	651	286	129	83	145	299
Grp Sat Flow(s),veh/h/ln	1697	1731	1622	1391	1681	1417
Q Serve(g_s), s	17.7	4.9	4.4	2.5	5.1	8.9
Cycle Q Clear(g_c), s	17.7	4.9	4.4	2.5	5.1	8.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	832	1087	366	566	304	704
V/C Ratio(X)	0.78	0.26	0.35	0.15	0.48	0.42
Avail Cap(c_a), veh/h	935	2005	1099	1194	658	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	5.5	21.6	12.4	24.4	10.6
Incr Delay (d2), s/veh	3.9	0.5	2.1	0.4	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	2.4	2.2	1.3	2.4	8.3
LnGrp Delay(d),s/veh	14.5	6.0	23.7	12.9	25.2	11.0
LnGrp LOS	B	A	C	B	C	B
Approach Vol, veh/h		937	212		444	
Approach Delay, s/veh		11.9	19.4		15.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		48.7		17.7	26.7	22.0		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		6.9		10.9	19.7	6.4		
Green Ext Time (p_c), s		6.3		1.1	1.3	5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

US 250 AND FAIRGOUND ROAD

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	244	9	327	41	7	579
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	1		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1727	0	1569	1607	1500	1500
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1727	0	1569	1607	1500	1500
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			516	781	
Travel Time (s)	9.8			6.4	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	22%	9%	12%	14%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	385	48	8	681
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	244	9	327	41	7	579
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	287	11	385	48	8	681
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		1110	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		1110	292
tC, single (s)			4.2		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.3
p0 queue free %			69		95	9
cM capacity (veh/h)			1225		151	747

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	298	385	48	689
Volume Left	0	385	0	8
Volume Right	11	0	0	681
cSH	1700	1225	1700	756
Volume to Capacity	0.18	0.31	0.03	0.91
Queue Length 95th (ft)	0	34	0	311
Control Delay (s)	0.0	9.3	0.0	38.6
Lane LOS		A		E
Approach Delay (s)	0.0	8.2		38.6
Approach LOS				E

Intersection Summary			
Average Delay	21.3		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

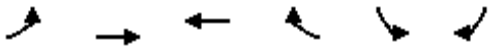
Intersection	
Int Delay, s/veh	21.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	244	9	327	41	7	579
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	400	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	22	9	12	14	2
Mvmt Flow	287	11	385	48	8	681

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	1110	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	-	-	4.19	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	2.281	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	1224	-	220	747
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1224	-	151	747
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	284	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.2	38.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	747	-	-	1224	-
HCM Lane V/C Ratio	0.055	0.912	-	-	0.314	-
HCM Control Delay (s)	30.2	38.7	-	-	9.3	-
HCM Lane LOS	D	E	-	-	A	-
HCM 95th %tile Q(veh)	0.2	12.4	-	-	1.4	-

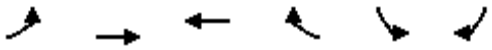


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	250			250	0	400
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.505				0.950	
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				83		299
Link Speed (mph)		55	55		55	
Link Distance (ft)		1429	2306		1232	
Travel Time (s)		17.7	28.6		15.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	651	286	129	83	145	299
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	6.0
Minimum Split (s)	11.7	21.8	23.0	21.7	21.7	11.7
Total Split (s)	30.7	82.7	52.0	31.7	31.7	30.7
Total Split (%)	26.8%	72.3%	45.5%	27.7%	27.7%	26.8%
Maximum Green (s)	25.0	76.9	45.0	26.0	26.0	25.0
Yellow Time (s)	3.5	4.3	5.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1.5	1.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Minimum Gap (s)	3.0	3.5	3.5	3.0	3.0	3.0
Time Before Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	0.0	0.0
Recall Mode	None	Min	Min	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)						
Act Effct Green (s)	47.3	47.2	15.7	33.5	10.8	41.0
Actuated g/C Ratio	0.68	0.68	0.23	0.48	0.16	0.59
v/c Ratio	0.73	0.24	0.35	0.12	0.56	0.31
Control Delay	12.3	5.3	26.8	2.9	36.1	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	5.3	26.8	2.9	36.1	1.8
LOS	B	A	C	A	D	A
Approach Delay		10.2	17.5		13.0	
Approach LOS		B	B		B	
Queue Length 50th (ft)	119	39	47	0	58	0
Queue Length 95th (ft)	228	79	95	17	110	25
Internal Link Dist (ft)		1349	2226		1152	
Turn Bay Length (ft)	250			250		400
Base Capacity (vph)	898	1730	1055	1002	629	968
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.17	0.12	0.08	0.23	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.4			
Actuated Cycle Length: 69.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

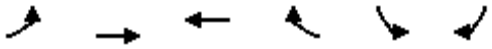
Splits and Phases: 2: US 250 & Oilville Road



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	566	249	112	72	126	260
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1693	1731	1622	1391	1676	1417
Flt Permitted	0.51	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	900	1731	1622	1391	1676	1417
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	651	286	129	83	145	299
RTOR Reduction (vph)	0	0	0	51	0	147
Lane Group Flow (vph)	651	286	129	32	145	152
Heavy Vehicles (%)	1%	4%	11%	10%	2%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	47.2	47.2	15.8	26.6	10.8	35.3
Effective Green, g (s)	47.2	47.2	15.8	26.6	10.8	35.3
Actuated g/C Ratio	0.68	0.68	0.23	0.38	0.16	0.51
Clearance Time (s)	5.7	5.8	7.0	5.7	5.7	5.7
Vehicle Extension (s)	3.0	6.0	6.0	2.5	2.5	3.0
Lane Grp Cap (vph)	890	1175	368	532	260	835
v/s Ratio Prot	c0.26	0.17	0.08	0.01	c0.09	0.06
v/s Ratio Perm	c0.24			0.01		0.04
v/c Ratio	0.73	0.24	0.35	0.06	0.56	0.18
Uniform Delay, d1	6.3	4.3	22.5	13.6	27.1	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.3	1.6	0.0	2.1	0.1
Delay (s)	9.4	4.6	24.2	13.6	29.2	9.4
Level of Service	A	A	C	B	C	A
Approach Delay (s)		8.0	20.0		15.9	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	18.4
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	566	249	112	72	126	260
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1731	1622	1636	1765	1667
Adj Flow Rate, veh/h	651	286	129	83	145	299
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	4	11	10	2	8
Cap, veh/h	832	1087	366	566	304	704
Arrive On Green	0.32	0.63	0.23	0.23	0.18	0.18
Sat Flow, veh/h	1697	1731	1622	1391	1681	1417
Grp Volume(v), veh/h	651	286	129	83	145	299
Grp Sat Flow(s),veh/h/ln	1697	1731	1622	1391	1681	1417
Q Serve(g_s), s	17.7	4.9	4.4	2.5	5.1	8.9
Cycle Q Clear(g_c), s	17.7	4.9	4.4	2.5	5.1	8.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	832	1087	366	566	304	704
V/C Ratio(X)	0.78	0.26	0.35	0.15	0.48	0.42
Avail Cap(c_a), veh/h	935	2005	1099	1194	658	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	5.5	21.6	12.4	24.4	10.6
Incr Delay (d2), s/veh	3.9	0.5	2.1	0.4	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	2.4	2.2	1.3	2.4	8.3
LnGrp Delay(d),s/veh	14.5	6.0	23.7	12.9	25.2	11.0
LnGrp LOS	B	A	C	B	C	B
Approach Vol, veh/h		937	212		444	
Approach Delay, s/veh		11.9	19.4		15.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		48.7		17.7	26.7	22.0		
Change Period (Y+Rc), s		* 7		* 5.7	* 5.7	7.0		
Max Green Setting (Gmax), s		* 77		* 26	* 25	45.0		
Max Q Clear Time (g_c+I1), s		6.9		10.9	19.7	6.4		
Green Ext Time (p_c), s		6.3		1.1	1.3	5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	268	101	0	119	63	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1664	0	0	1622	1583	0
Flt Permitted					0.950	
Satd. Flow (perm)	1664	0	0	1622	1583	0
Link Speed (mph)	55			55	40	
Link Distance (ft)	2306			212	164	
Travel Time (s)	28.6			2.6	2.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	0%	11%	8%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	450	0	0	145	77	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	268	101	0	119	63	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	327	123	0	145	77	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			450		534	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			450		534	388
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		85	100
cM capacity (veh/h)			1121		497	664

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	450	145	77
Volume Left	0	0	77
Volume Right	123	0	0
cSH	1700	1700	497
Volume to Capacity	0.26	0.09	0.15
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.0	0.0	13.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.6
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	268	101	0	119	63	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	5	2	0	11	8	0
Mvmt Flow	327	123	0	145	77	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	450	0	533	388
Stage 1	-	-	-	-	388	-
Stage 2	-	-	-	-	145	-
Critical Hdwy	-	-	4.1	-	6.48	6.2
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.2	-	3.572	3.3
Pot Cap-1 Maneuver	-	-	1121	-	497	665
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1121	-	497	665
Mov Cap-2 Maneuver	-	-	-	-	497	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	497	-	-	1121	-
HCM Lane V/C Ratio	0.155	-	-	-	-
HCM Control Delay (s)	13.6	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	268	0	43	119	0	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	1714	0	0	1616	0	1497
Flt Permitted				0.987		
Satd. Flow (perm)	1714	0	0	1616	0	1497
Link Speed (mph)	55			55	40	
Link Distance (ft)	212			1590	174	
Travel Time (s)	2.6			19.7	3.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	7%	11%	0%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	0	0	178	0	56
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	268	0	43	119	0	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	295	0	47	131	0	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			295		520	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			295		520	295
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	92
cM capacity (veh/h)			1239		500	740

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	295	178	56
Volume Left	0	47	0
Volume Right	0	0	56
cSH	1700	1239	740
Volume to Capacity	0.17	0.04	0.08
Queue Length 95th (ft)	0	3	6
Control Delay (s)	0.0	2.4	10.3
Lane LOS		A	B
Approach Delay (s)	0.0	2.4	10.3
Approach LOS			B

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		30.7%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	268	0	43	119	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	0	7	11	0	4
Mvmt Flow	295	0	47	131	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	295	0	520	295
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	225	-
Critical Hdwy	-	-	4.17	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.263	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	1238	-	520	740
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1238	-	499	740
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	784	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	-	-	1238	-
HCM Lane V/C Ratio	0.076	-	-	0.038	-
HCM Control Delay (s)	10.3	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	43	0	63	51	0	101
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1598	0	1593	0	0	1765
Flt Permitted	0.950					
Satd. Flow (perm)	1598	0	1593	0	0	1765
Link Speed (mph)	40		40			40
Link Distance (ft)	174		877			164
Travel Time (s)	3.0		14.9			2.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	0%	8%	4%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	181	0	0	160
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	43	0	63	51	0	101
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	68	0	100	81	0	160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	301	140			181	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301	140			181	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	680	913			1407	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	68	181	160
Volume Left	68	0	0
Volume Right	0	81	0
cSH	680	1700	1700
Volume to Capacity	0.10	0.11	0.09
Queue Length 95th (ft)	8	0	0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.9	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	43	0	63	51	0	101
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	7	0	8	4	0	2
Mvmt Flow	68	0	100	81	0	160

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	300	140	0	0	181	0
Stage 1	140	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.47	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	681	913	-	-	1407	-
Stage 1	875	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	681	913	-	-	1407	-
Mov Cap-2 Maneuver	681	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	681	1407	-
HCM Lane V/C Ratio	-	-	0.1	-	-
HCM Control Delay (s)	-	-	10.9	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	87	8	498	249	5	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	400		0	50
Storage Lanes		0	1		1	1
Taper Length (ft)			100		25	
Satd. Flow (prot)	1746	0	1693	1765	1710	1471
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1746	0	1693	1765	1710	1471
Link Speed (mph)	55			55	55	
Link Distance (ft)	794			516	781	
Travel Time (s)	9.8			6.4	9.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	1%	2%	0%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	547	274	5	300
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	87	8	498	249	5	273
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	96	9	547	274	5	300
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			104		1468	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			104		1468	100
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			63		94	68
cM capacity (veh/h)			1493		90	950

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	104	547	274	305
Volume Left	0	547	0	5
Volume Right	9	0	0	300
cSH	1700	1493	1700	967
Volume to Capacity	0.06	0.37	0.16	0.32
Queue Length 95th (ft)	0	43	0	34
Control Delay (s)	0.0	8.8	0.0	11.2
Lane LOS		A		B
Approach Delay (s)	0.0	5.9		11.2
Approach LOS				B

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	6.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	87	8	498	249	5	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	400	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	1	2	0	4
Mvmt Flow	96	9	547	274	5	300

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	104	0	1468	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	1368	-
Critical Hdwy	-	-	4.11	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	1494	-	142	950
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	239	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1494	-	90	950
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	151	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	90	950	-	-	1494	-
HCM Lane V/C Ratio	0.061	0.316	-	-	0.366	-
HCM Control Delay (s)	47.6	10.5	-	-	8.8	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	1.4	-	-	1.7	-

MOVEMENT SUMMARY

Site: AM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - AM Peak Hour

Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fairgrounds Road											
3	L2	8	14.0	0.013	12.3	LOS B	0.1	1.7	0.51	0.64	33.0
18	R2	681	2.0	0.579	6.6	LOS A	5.1	129.4	0.70	0.68	34.5
Approach		689	2.1	0.579	6.7	LOS A	5.1	129.4	0.70	0.68	34.5
East: US 250											
1	L2	385	9.0	0.362	9.8	LOS A	2.7	73.7	0.11	0.61	34.6
6	T1	48	12.0	0.362	4.2	LOS A	2.7	73.7	0.11	0.61	34.6
Approach		433	9.3	0.362	9.2	LOS A	2.7	73.7	0.11	0.61	34.6
West: US 250											
2	T1	287	3.0	0.336	7.4	LOS A	2.0	51.5	0.62	0.67	35.3
12	R2	11	22.0	0.336	7.2	LOS A	2.0	51.5	0.62	0.67	34.0
Approach		298	3.7	0.336	7.4	LOS A	2.0	51.5	0.62	0.67	35.3
All Vehicles		1420	4.7	0.579	7.6	LOS A	5.1	129.4	0.50	0.65	34.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

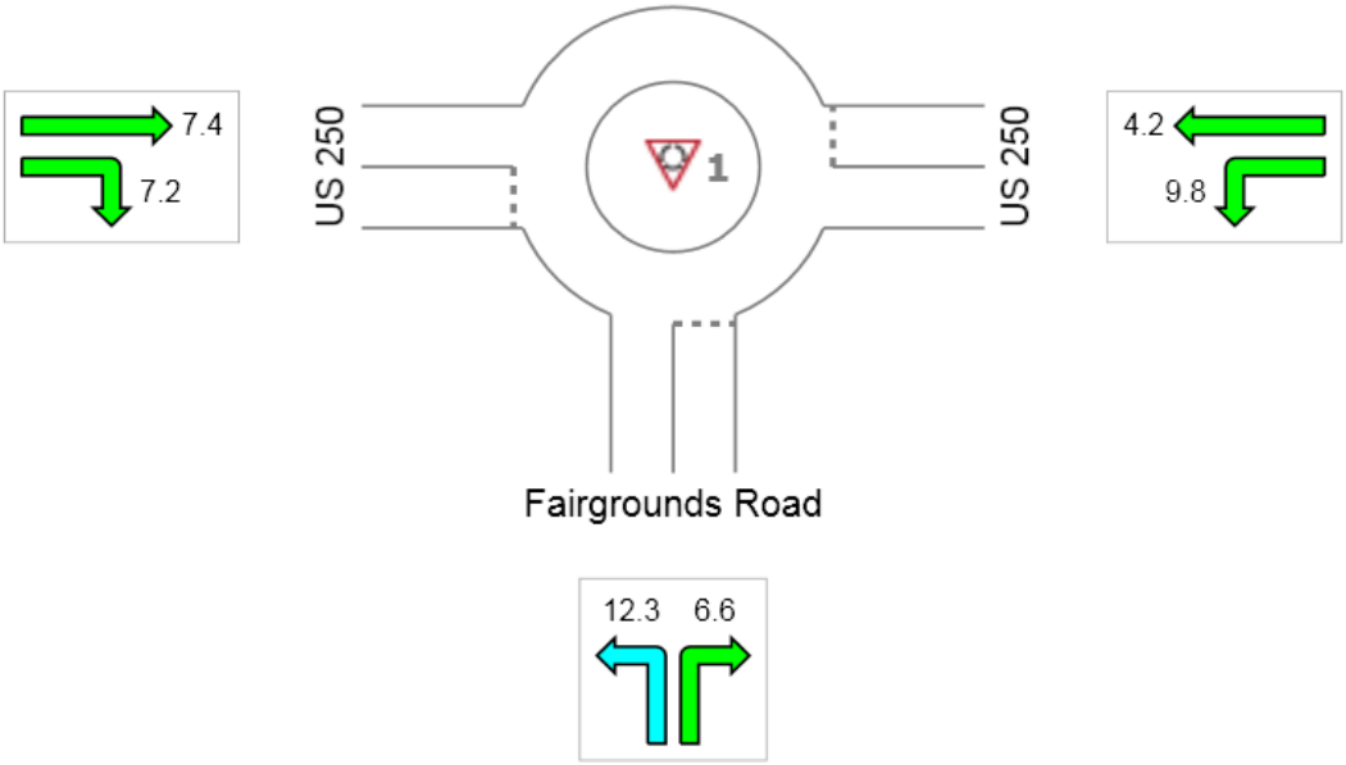
Site: AM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - AM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
	6.7	9.2	7.4	7.6
LOS	A	A	A	A



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Signalised Intersections
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

LEVEL OF SERVICE

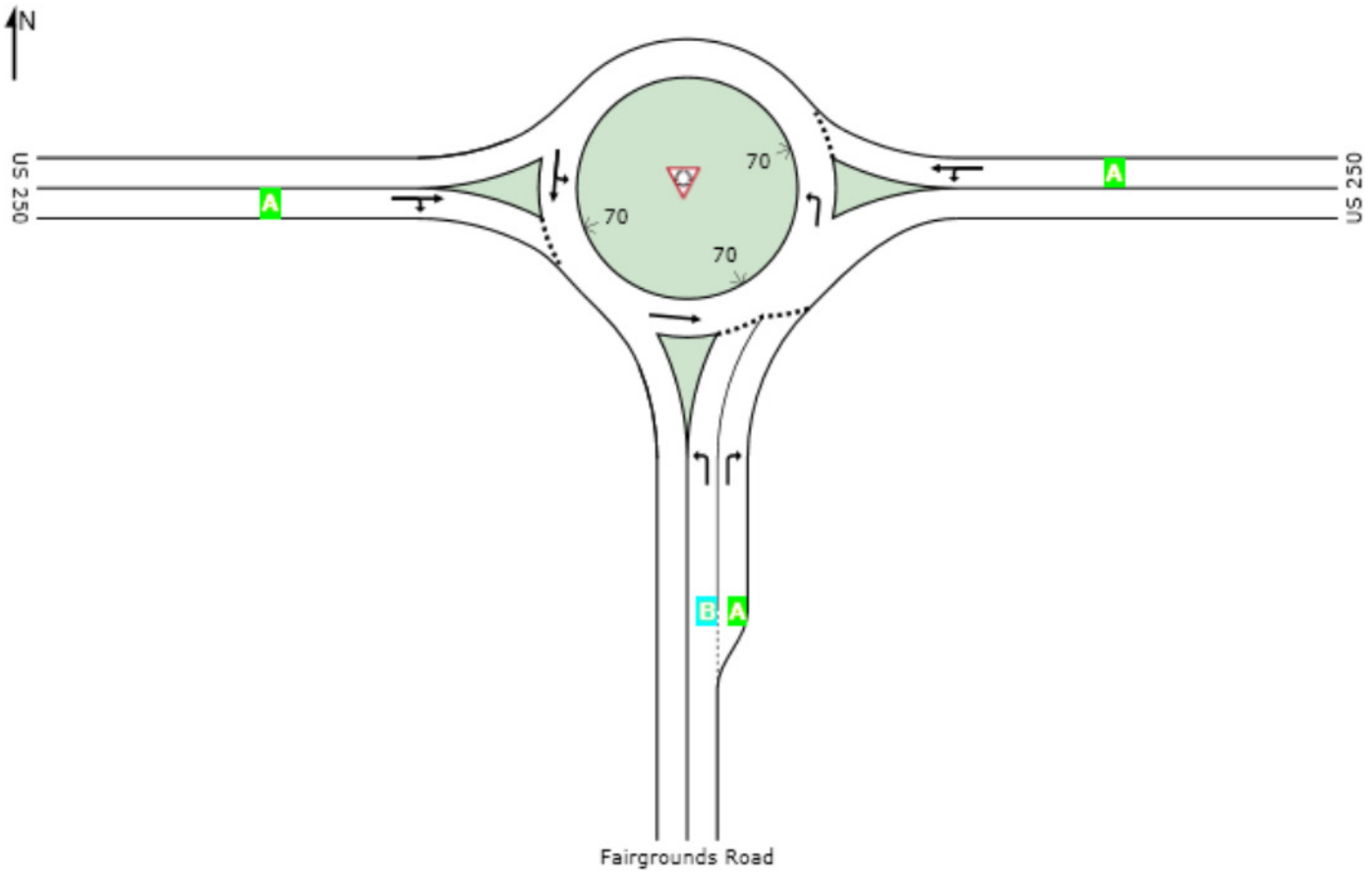
Site: AM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - AM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
LOS	A	A	A	A



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: PM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - PM Peak Hour

Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fairgrounds Road											
3	L2	5	0.0	0.006	10.2	LOS B	0.0	0.7	0.29	0.59	34.1
18	R2	300	4.0	0.221	5.0	LOS A	1.4	36.7	0.30	0.50	35.4
Approach		305	3.9	0.221	5.1	LOS A	1.4	36.7	0.30	0.50	35.3
East: US 250											
1	L2	547	1.0	0.633	9.7	LOS A	7.4	187.1	0.11	0.57	35.5
6	T1	274	2.0	0.633	4.1	LOS A	7.4	187.1	0.11	0.57	35.5
Approach		821	1.3	0.633	7.8	LOS A	7.4	187.1	0.11	0.57	35.5
West: US 250											
2	T1	96	2.0	0.128	7.7	LOS A	0.7	17.2	0.61	0.65	35.4
12	R2	9	0.0	0.128	7.3	LOS A	0.7	17.2	0.61	0.65	34.6
Approach		104	1.8	0.128	7.7	LOS A	0.7	17.2	0.61	0.65	35.3
All Vehicles		1231	2.0	0.633	7.1	LOS A	7.4	187.1	0.20	0.56	35.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

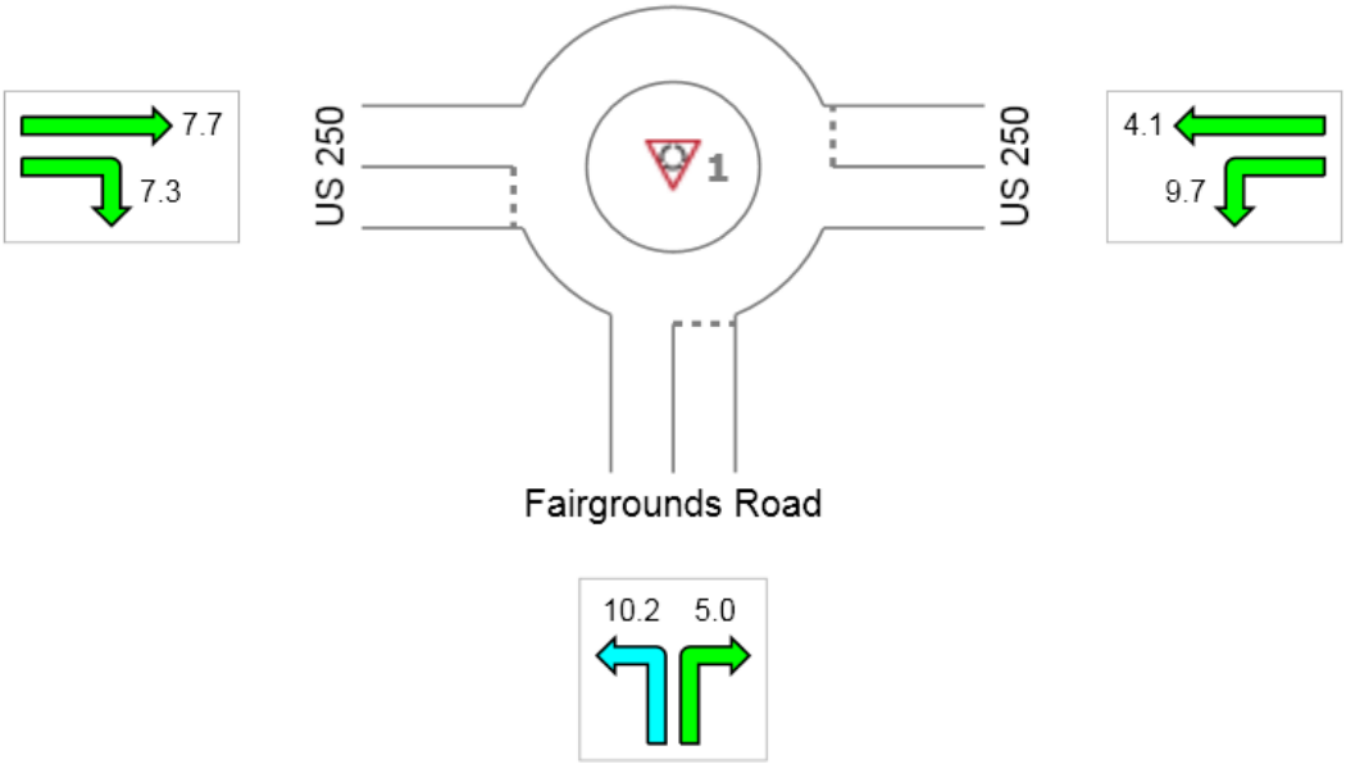
Site: PM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - PM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
	5.1	7.8	7.7	7.1
LOS	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Signalised Intersections
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

LEVEL OF SERVICE

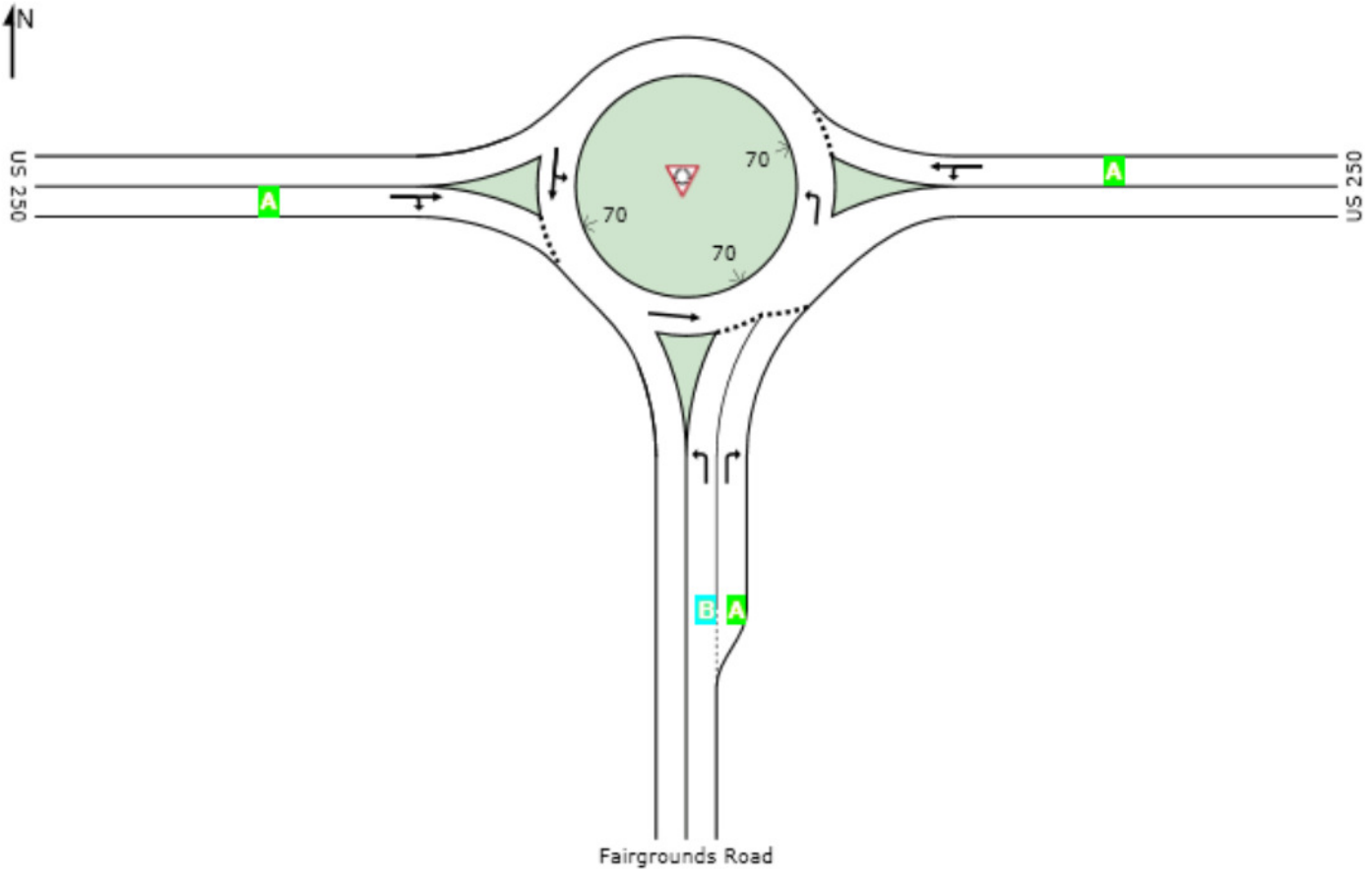
Site: PM - US 250 & Fairgrounds Road

US 250 & Fairgrounds Road - PM Peak Hour

Roundabout

All Movement Classes

	South	East	West	Intersection
LOS	A	A	A	A



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

LOS SUMMARIES

Table 1. Level-of-Service Comparison

SCENARIO				Existing & Low-Cost		Moderate-Cost		High-Cost	
PEAK HOUR				AM	PM	AM	PM	AM	PM
Node	Intersection	Approach	Lane						
1	US 250/Broad St & Fairground Rd	Eastbound	EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (7.4)	A (7.7)
1			EBR					A (7.2)	A (7.3)
1			EB AVG	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (7.4)	A (7.7)
1		Westbound	WBL	A (9.3)	A (8.8)	A (9.3)	A (8.8)	A (9.8)	A (9.7)
1			WBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (4.2)	A (4.1)
1			WB AVG	A (8.2)	A (5.9)	A (8.2)	A (5.9)	A (9.2)	A (7.8)
1		Northbound	NBL	D (30.2)	E (47.6)	D (30.2)	E (47.6)	B (12.3)	B (10.2)
1			NBR	A (5.6)	A (3.7)	A (5.6)	A (3.6)	A (6.6)	A (5.0)
1			NB AVG	A (5.9)	A (4.5)	A (5.9)	A (4.4)	A (6.7)	A (5.1)
1		OVERALL	AVG	A (5.4)	A (5.0)	A (5.4)	A (5.0)	A (7.6)	A (7.1)
2	US 250/Broad St & Oilville Rd	Eastbound	EBL	B (14.5)	B (15.7)	B (14.5)	B (15.7)	B (14.5)	B (15.7)
2			EBT	A (6.0)	A (9.7)	A (6.0)	A (9.7)	A (6.0)	A (9.7)
2			EB AVG	B (11.9)	B (13.5)	B (11.9)	B (13.5)	B (11.9)	B (13.5)
2		Westbound	WBT	C (23.7)	C (27.1)	C (23.7)	C (27.1)	C (23.7)	C (27.1)
2			WBR	B (12.9)	A (6.1)	B (12.9)	A (6.1)	B (12.9)	A (6.1)
2			WB AVG	B (19.4)	C (21.6)	B (19.4)	C (21.6)	B (19.4)	C (21.6)
2		Southbound	SBL	C (25.2)	B (18.5)	C (25.2)	B (18.5)	C (25.2)	B (18.5)
2			SBR	B (11.0)	C (20.5)	B (11.0)	C (20.5)	B (11.0)	C (20.5)
2			SB AVG	B (15.6)	C (20.2)	B (15.6)	C (20.2)	B (15.6)	C (20.2)
2		OVERALL	AVG	B (13.9)	B (18.9)	B (13.9)	B (18.9)	B (13.9)	B (18.9)
3	US 250/Broad St & Cardwell Rd	Eastbound	EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (4.8)	A (4.7)
3			EBR	A (0.0)	A (0.0)			A (4.4)	A (4.3)
3			EB AVG	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (4.7)	A (4.6)
3		Westbound	WBL	B (18.9)	B (17.1)	A (8.1)	A (7.7)	B (10.2)	B (10.1)
3			WBT	A (0.0)	A (0.0)			A (4.6)	A (4.5)
3			WB AVG	A (5.0)	A (1.8)	A (2.1)	A (0.8)	A (6.1)	A (5.1)
3		Northbound	NBL	B (13.6)	B (14.7)	B (14.2)	C (16.7)	B (11.6)	B (10.7)
3			NBR	B (10.3)	A (9.4)	B (10.4)	A (9.4)	A (6.3)	A (5.4)
3			NB AVG	B (12.1)	B (12.5)	B (12.5)	B (13.7)	A (9.3)	A (8.5)
3		OVERALL	AVG	A (3.4)	A (2.5)	A (2.7)	A (2.1)	A (5.9)	A (5.4)

Note: HCM analysis is not applicable for the NB right-turn acceleration lane at Node 1. The results reported for this movement are from SimTraffic Simulation.

Table 2. Maximum Queue

SCENARIO				Existing		Moderate-Cost		High-Cost	
PEAK HOUR				AM	PM	AM	PM	AM	PM
Node	Intersection	Approach	Lane						
1	US 250/Broad St & Fairground Rd	Eastbound	EBT	9	9	6	4	77	47
1			EBR						
1		Westbound	WBL	176	124	159	107	45	158
1			WBT	0	0	0	0		
1		Northbound	NBL	20	12	17	6	18	4
1			NBR	0	0	0	0	21	0
2	US 250/Broad St & Oilville Rd	Eastbound	EBL	259	118	274	124	259	121
2			EBT	132	72	101	55	126	58
2		Westbound	WBT	126	211	127	200	146	302
2			WBR	74	63	78	66	80	68
2		Northbound	SBL	130	111	142	112	134	105
2			SBR	95	188	100	218	103	208
3	US 250/Broad St & Cardwell Rd	Eastbound	EBT	0	0	0	0	51	43
3			EBR						
3		Westbound	WBL	63	54	64	62	46	61
3			WBT						
3		Northbound	NBL	73	57	69	72	53	49
3			NBR	48	50				

Note: Results based on the average of 10 random runs of SimTraffic simulation (15 minute seeding interval and 1 hour analysis interval

APPENDIX D:
ALTERNATIVE FIGURES

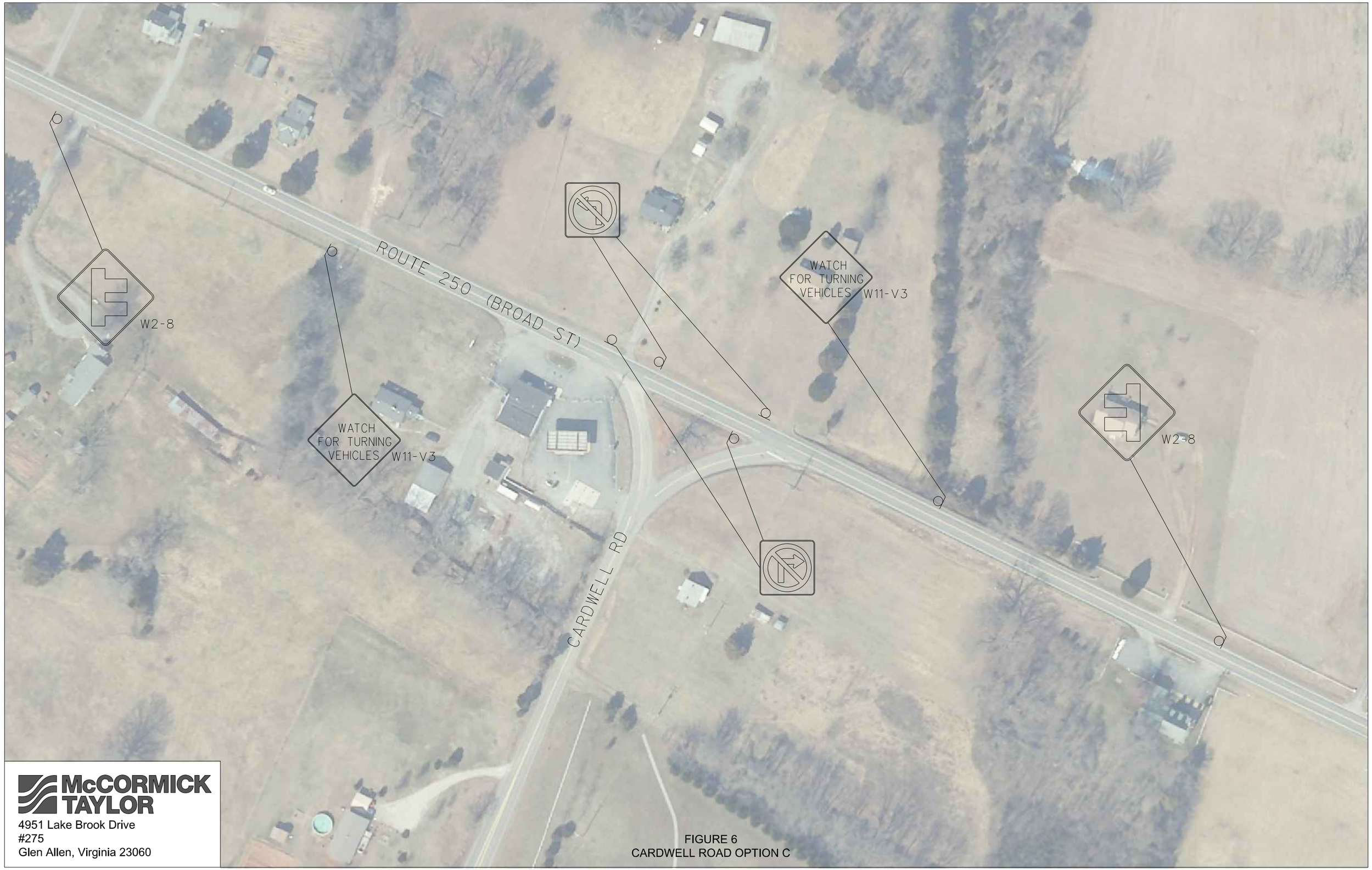
US 250 AND CARDWELL ROAD

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 4
CARDWELL ROAD OPTION A

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 5
CARDWELL ROAD OPTION B

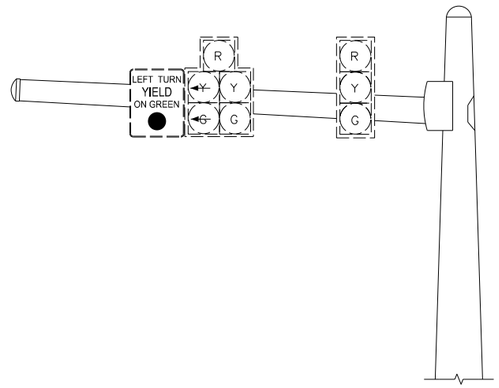


McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

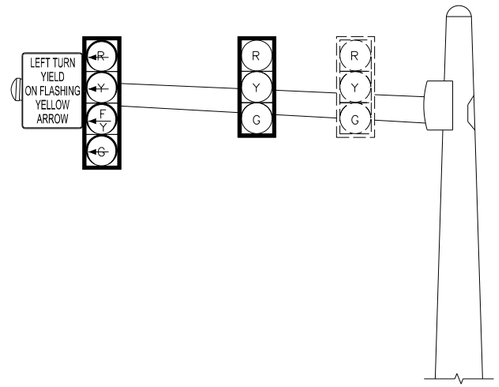
FIGURE 6
CARDWELL ROAD OPTION C

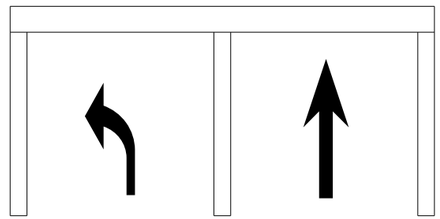
US 250 AND OILVILLE ROAD

EASTBOUND US 250
EXISTING CONFIGURATION



EASTBOUND US 250
PROPOSED CONFIGURATION





McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 7
OILVILLE ROAD OPTION A

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 8
OILVILLE ROAD OPTION B

US 250 AND FAIRGOUND ROAD

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 9
FAIRGROUND ROAD OPTION A

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 8
CARDWELL ROAD OPTION B

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 11
FAIRGROUND ROAD OPTION C

PASSING ZONES

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 12
REMOVAL OF EASTBOUND PASSING ZONE

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 13
REMOVAL OF WESTBOUND PASSING ZONE

McCORMICK TAYLOR
4951 Lake Brook Drive
#275
Glen Allen, Virginia 23060

FIGURE 14
SHORTENING OF DUAL PASSING ZONE

APPENDIX E:
PROJECT COST ESTIMATING SYSTEM

Low Cost Alternatives - Firground & Cardwell					
ENGINEERS ESTIMATE					**10/6/2016**
ITEM #	**DESCRIPTION**	**UNIT**	**EST. QUANTITY**	**UNIT PRICE ($)**	**AMOUNT ($)**
50108	SIGN PANEL	SF	128	$30	$3,840
50434	SIGN POST STP-1, 2 1/2"	LF	96	$50	$4,800
50490	CONCRETE FOUNDATION STP-1	EA	8	$600	$4,800
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
	SUBTOTAL				$13,440

PROJECT TOTAL (WITHOUT CONTINGENCY)					**$13,440**
CONSTURCTION SURVEY (1%)					**$500**
MOBILIZATION					**$2,500**
CONTINGENCY (5%)					**$672**
CEI (17.5%)					**$2,352**
PROJECT TOTAL (WITH CONTINGENCY)					**$19,464**

US 250 AND CARDWELL ROAD

High Cost - Roundabout

Highway Safety Improvement Program

FOR OFFICE USE ONLY
Project #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

View Read-Me File for methodology for considering multiple CMFs

PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route (Include Name)	System	Traffic Control	From / Major Road	To / Cross Street (RNS Node-Offset If Applicable)
Goochland	US-250 at Cardwell Road	Primary	> 35MPH Segment	US-250	Cardwell Road

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	8	0	1	4	3	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	0	0	0	0	0	0	Yes	
	Run off road	2	0	0	1	1	0	Yes	
	Head on	1	0	1	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	0	0	0	0	0	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	5	0	0	3	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	2	0	0	1	1	0	Yes	
	Wet weather	3	0	0	2	1	0	Yes	
Number of Vehicles	Single vehicle	2	0	0	1	1	0	Yes	
	Multiple vehicle	6	0	1	3	2	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	
	Alcohol related	0	0	0	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)		Yes	Yes	Yes	Yes	Yes	Yes		

Number of years in crash history:	5.49486653	Discount Rate:	3%

High Cost - Roundabout

VDOT Virginia Department of Transportation Highway Safety Improvement Program

FOR OFFICE USE ONLY
UPC #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Initiate Date: Month x, 2014

View Read-Me File for methodology for considering multiple CMFs

STEP 2 :: COST (Compute the economic cost of each improvement)

Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Roundabout	20	$226,063	$81,220	$766,506	$1,073,789	$76,651	$2,500	$37,194	$1,187,633
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Roundabout	0.28	All	K, A, B+C	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
	0.58	All	O	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Roundabout	Yes	$1,567,105	$1,187,633	1.32	**1.32**	1	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

SIGNATURE OF SPONSOR

Please submit an electronic copy of this spreadsheet and a scanned digital copy with signature to HSIProgram@virginiadot.org. Paper copies of reference materials may be mailed Attn: HSP BCR Improvement Proposal Mr. Raymond Khoury , P.E., State Traffic Engineer, Virginia Department of Transportation 1401 East Broad Street, Richmond, Virginia 23219.

Name (Print):
Signature: **Date:**

UPC: ****

Project Cost Estimating System

Draft Estimate

ENTER PROJECT DATA REQUIRED TO COMPUTE A DRAFT ESTIMATE

District:	RICHMOND
Project Number:	
UPC:	
Project Manager:	
Project Description:	Cardwell - High Cost Option

Version 5.00

UPC: ****

Project Cost Estimating System

SUMMARY PAGE

DISTRICT	RICHMOND		
PROJECT NUMBER	** MISSING DATA **		
CONSTRUCTION END YEAR	FY2018	UPC	****
AD YEAR	FY2017	RATE OF INFLATION TO AD	2.20%
ESTIMATE YEAR	FY2016	INFLATION RATE DURING CN	N/A
Date of previous estimate	N/A		
PROJECT MANAGER / DESIGNER	** MISSING DATA **		
Preliminary Engineering Estimate:	PCES		
Construction Estimate:	PCES		
Right-of-Way Estimate:	PCES		
Utilities Estimate:	PCES		
DATE	*10/19/2016*		

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE **CONST**, **RW**, & **UTIL** TABS BELOW

CONSTRUCTION ESTIMATE	*$766,506*
PRELIMINARY ENGINEERING ESTIMATE	*$221,063*
RIGHT-OF-WAY & UTILITIES ESTIMATE	*$81,220*
TOTAL PROJECT ESTIMATE	*$1,068,789*

Revised 06/16/15

Estimate Class: Blank

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	No		
Route Number	250	670	Primary Highway	

	CONST-1	CONST-2	Bridges (0)	Total
Geometric Standard	GS-2	GS-3		
Construction Base	$543,065	$95,238	$0	$638,303
Bridge Removal			$0	$0
CE	$111,703		$0	$111,703
Construction Estimate (2016)	$750,006		$0	$750,006
To AdYear Inflation				$16,500
Mid-point construction Inflation				$0
Total Construction Estimate			$0	**$766,506**
Preliminary Engineering Cost	$221,063		$0	$221,063

CONSTRUCTION & PE TOTALS

Total Construction Estimate (Roadway plus Bridge)	*$766,506*	*PCES*
Total Preliminary Engineering Estimate (Roadway plus Bridge)	*$221,063*	*PCES*

Virginia Department of Transportation 2005

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Maintenance Project ?	No	*		
Route Number	250	*	Primary Highway	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	2,600	*	Projected ADT = Minimum	5,200
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)	0.05	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)	0.07	*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)	C&G	*	Enter Lane Width (ft) >	
Median Type - Graded, Raised, or None ?	R	*	Normal Lane Width(ft)	12
Number of Crossovers (Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)	980			
Length - Sidewalk - Left PLUS Right Side (ft.)	0	*		
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)	150			
Number of Right Turn Lanes - Left PLUS Right Side	0	*		
Number of Left Turn Lanes - (Undivided Only)	0	*		

RICHMOND
105% *Cost Factor used*

Construction Costs

Signals, ITS, Signs and Lighting Costs*	$0	Base #1 (PCES)	$543,065
Cost of Large Drainage Structures	$75,000	Base #2	$95,238
In-Plan Utility Costs*	$0	Enter Const CE Cost >	$0
Adjustment for Unusual Construction Costs	$130,000	CE (17.5%)	$111,703
* Totals include district factor calculations		Estimate (2016)	$750,006

Additional (or Unusual) P. E. Costs			
Select % of PE to be performed by Consultants	100%	PE Cost (PCES)	$221,063

Note: Do Not Include Bridge P. E. Costs Here

Roadway P. E. / Roadway Const. = 28.8%

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Route Number	670	*	Secondary	
Geometric Standard	GS-3	*	Rural Collector Road System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	1,000	*	Projected ADT =	1,400
			Minimum	
Box Must Be Empty	40		Design Speed =	40 MPH
RRR Guidelines ? (Enter Yes or No)	No	*		
Surface Treat Only ?	No	*		
Project Length (mi.)	0.04	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)	0.04	*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)	C&G	*	Enter Lane Width (ft.)	
Median Type - Graded, Raised, or None ?	R	*	Normal Lane Width (ft.)	12
Number of Crossovers(Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None	*		
Total Length - Raised Median (ft.)	60	*		
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

Project Location:
RICHMOND

Construction Costs

Base #2	*$95,238*

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
Miscellaneous Cost Estimates

COST OF LARGE DRAINAGE STRUCTURES

Job#	Description	Cost ()
	SWM	$75,000
		$75,000

ADJUSTMENT FOR UNUSUAL CONSTRUCTION COSTS

Type	Description	Cost ()
Maintenance of Traffic	MOT	$85,000
Other	Additional Pavement	$45,000
		$130,000

Version 5.00

UPC: ****

Project Cost Estimating System
RIGHT-OF-WAY ESTIMATE

Project No.: *** MISSING DATA ***

VDOT Construction District : *RICHMOND* # *4*

Select Project Area Real Estate Costs : Somewhat Above Average

Define Project Land Use Characteristics :

Agricultural :	80%
Residential :	0%
Industrial :	0%
Commercial :	20%
	100%

Instructions: Please fill-in all applicable White Boxes or make a choice from the Drop-down Lists

Enter the Approximate Number of Parcels on the Project : 5

1. LAND VALUE

Prop. Right-of-Way

Total Right-of-Way Project Length (ML + Connections)	440	ft	Computed RW Cost per sq ft =	$1.92
Average width of Existing RW		ft	Enter Right-of-Way Estimator's Right-of-Way Cost per sq ft :	
Average width of Proposed RW		ft		
Total area of all additional Prop. Right-of-Way		sf	Enter total sq ft (override calculation):	6,200
			6,200 sq ft = 0.000 Ac.	
Approx. % of Prop. CL within		ft	of Exist. CL	100%
Approx. % of Prop. CL between		ft	& ft of Exist. CL	
Approx. % of Prop. CL greater than		ft	from Exist. CL	

Temp. Ease.

Average Width of parallel Temporary Easements Left	10	ft	Comp. Temp. Ease. Cost / sq ft =	$0.48
Total Length of parallel Temporary Easements Left	440	ft	Enter Right-of-Way Estimator's Temp. Ease. Cost per sq ft :	
Average Width of parallel Temporary Easements Right	10	ft		
Total Length of parallel Temporary Easements Right	440	ft	Enter total sq ft (override calculation):	
			8,800 sq ft = 0.202 Ac.	

Perm. & Util. Ease.

Total Area of All Replacement Utility Easements	7,350	sf	Comp. Utility Ease. Cost / sq ft =	$0.77
AND Select % of RW Cost for Util. Ease.	40%		RW Est's. Utility Ease. Cost per sq ft :	
			7,350 sq ft = 0.169 Ac.	
This Box Must Be Empty >		ea	Comp. Perm. Ease. Cost / sq ft =	$1.53
			RW Est's. Perm. Ease. Cost per sq ft :	
Total area of All Permanent Easements		sf	0 sq ft = 0.000 Ac.	

COST OF LAND (Item # 1) $21,722

2. BUILDING VALUE

Based upon comparison to similar, occupied **Residential Dwellings** **in the Project Area**, enter the Number of:

		Computed:
A. Low Cost Residential Dwellings :		$0
B. Moderately Low Cost Dwellings :		$0
C. Average Cost Residential Dwellings :		$0
D. Moderately High Cost Dwellings :		$0
E. High Cost Residential Dwellings :		$0

Computed Total Residential Dwelling Costs :	$0
Estimator's Total Residential Dwelling Costs :	

Enter the total estimated cost of ALL **COMMERCIAL & INDUSTRIAL BUILDINGS** to be taken:

Note: No Computed Costs Available. Use User Defined Costs Below:	
Estimator's Total Commercial / Industrial Buildings Costs :	

3. OTHER IMPROVEMENTS

Enter the estimated cost of ALL **OTHER IMPROVEMENTS** on the Project:

Computed Total Other Improvements Costs :	$2,172
Estimator's Total Other Improvements Costs :	

4. DAMAGES

Anticipated % of Parcels Affected by Damages to Remainder :	20%
Anticipated Relative Cost Impact of Damages to Remainder :	Moderately Low
Approximate Number of Parcels Affected :	1
Computed Cost of Damages to Remainder :	$10,430
Estimator's Total Cost of Damages to Remainder :	

TOTAL ACQUISITIONS (Items # 1 - 4) $34,324

5. ADMINISTRATIVE SETTLEMENTS

Anticipated % of Parcels Affected by Administrative Settlements :	20%
Anticipated Relative Cost Impact of Administrative Settlements :	Moderately Low
Approximate Number of Parcels Affected :	1
Computed Cost of Administrative Settlements :	*$10,430*
Estimator's Total Cost of Administrative Settlements :	

6. CONDEMNATION INCREASES

Anticipated % of Parcels Affected by Condemnation Increases :	
Anticipated Relative Cost Impact of Condemnation Increases :	
Approximate Number of Parcels Affected :	0
Computed Cost of Condemnation Increases :	*$0*
Estimator's Total Cost of Condemnation Increases :	

7. ADMINISTRATIVE COSTS & INCIDENTAL EXPENSES

Anticipated Relative Cost Impact of Admin. Costs & Incidental Expenses :	
Computed Administrative Costs & Incidental Expenses :	*$0*
Estimator's Total Administrative Costs & Incidental Expenses :	

8. DEMOLITION CONTRACTS

Anticipated Relative Cost Impact of Demolition Contracts :	
Computed Costs of Demolition Contracts :	*$0*
Estimator's Total Cost of Demolition Contracts :	

9. HAZARDOUS MATERIALS REMOVAL

Anticipated Number of Demolished Buildings Requiring Asbestos Removal :	
Anticipated Relative Cost of Asbestos Removal from Demolished Buildings :	
Anticipated Number of Other Hazardous Materials Removal Sites :	
Anticipated Relative Cost Impact of Other Hazardous Materials Removal :	
Computed Cost of Hazardous Materials Removal :	*$0*
Estimator's Total Costs of Hazardous Materials Removal :	

10. PROPERTY MANAGEMENT

Anticipated Relative Cost Impact of Property Management :	
Computed Costs of Property Management :	*$0*
Estimator's Total Cost of Property Management :	

TOTAL OTHER ITEMS (Items # 5 - 10) ***$10,430***

11. RELOCATION ASSISTANCE

Residential Relocation Costs:

Anticipated Relative Cost Impact of Residential Relocation Expenses :	
Computed Residential Relocation Costs :	*$0*
Estimator's Total Residential Relocation Costs :	

Commercial Relocation Costs:

Note: No Computed Costs Available. Use User Defined Costs Below:	
Estimator's Total Comm/Indust Relocation Costs :	

Total Displacements:		Farms:	
Families:		Non-Profit:	
Businesses:		Personal Property Only:	

TOTAL RELOCATION ASSISTANCE (Item # 11) ***$0***

12. YEAR OF RIGHT-OF-WAY AUTHORIZATION	FY2017	< Req'd.
13. MANUAL INFLATION RATE		

		Today's Cost	Factor	Inflated Cost
SUB-TOTAL RIGHT-OF-WAY COSTS		$44,754	2.20%	$45,739
UTILITY COSTS TO RIGHT-OF-WAY PROJECT *	(PCES)	$34,717	2.20%	$35,481
TOTAL RIGHT-OF-WAY COSTS	(PCES)	$79,471		$81,220

* Utility Data display requires completion of Utilities Estimate Worksheet (tab below)

COMMENTS:

RW-238 Data :

Right-of-Way Estimate Date :

Based on Approved / Unapproved Plans ? :

Participating Cost / Non-Participating Cost ? :

Today's Date : **10/19/16**

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UPC: ****

Project Cost Estimating System
UTILITIES ESTIMATE

Project No.: ** *MISSING DATA* **

A. ELECTRICAL

Transmission

	Computed or User	RW or Const	Type of Pole	No Entry Required	Number of Poles	Rural or Urban	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				Rural	100%	$0	$0	$0
B	Computed	RW				Rural	100%	$0	$0	$0
C	Computed	RW				Rural	100%	$0	$0	$0
D	Computed	RW				Rural	100%	$0	$0	$0
								$0	**$0**	**$0**

Distribution - Aerial

	Computed or User	RW or Const	Type of Pole	No Entry Required	Number of Poles	Rural or Urban	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW	Three Phase		2	Rural	100%	$23,573	$23,573	$0
F	Computed	RW				Rural	100%	$0	$0	$0
G	Computed	RW				Rural	100%	$0	$0	$0
H	Computed	RW				Rural	100%	$0	$0	$0
I	Computed	RW				Rural	100%	$0	$0	$0
J	Computed	RW				Rural	100%	$0	$0	$0
								$23,573	**$23,573**	**$0**

Distribution - Underground - by Linear Foot

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
K	Computed	RW				100%	$0	$0	$0
L	Computed	RW				100%	$0	$0	$0
M	Computed	RW				100%	$0	$0	$0
N	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Underground - by Pole Equivalent

	Computed or User	RW or Const	Equivalent Type of Pole	No Entry Required	Equiv. # of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
O	Computed	RW				100%	$0	$0	$0
P	Computed	RW				100%	$0	$0	$0
Q	Computed	RW				100%	$0	$0	$0
R	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Conduit for Underground Electrical

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
S	Computed	RW				100%	$0	$0	$0
T	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Underground - Manholes

	Computed or User	RW or Const	Size / Price Range of Manhole	No Entry Required	Number of MH's	Percent VDOT	Total Cost	to RW Project	to Const Project
U	Computed	RW				100%	$0	$0	$0
V	Computed	RW				100%	$0	$0	$0
W	Computed	RW				100%	$0	$0	$0
X	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Electrical Costs

Y	Misc. Electrical Costs Charged to RW Project:	
Z	Misc. Electrical Costs Charged to Const. Project:	

TOTAL ELECTRICAL	Total to RW Proj	Total to Const Proj
$23,573	$23,573	$0

B. TELEPHONE

Aerial - Copper Wire

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Number of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW	300		2	100%	$9,223	$9,223	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$9,223	**$9,223**	**$0**

Aerial - Fiber Optic

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Number of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Copper Wire

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
I	Computed	RW				100%	$0	$0	$0
J	Computed	RW				100%	$0	$0	$0
K	Computed	RW				100%	$0	$0	$0
L	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Fiber Optic

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
M	Computed	RW				100%	$0	$0	$0
N	Computed	RW				100%	$0	$0	$0
O	Computed	RW				100%	$0	$0	$0
P	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Copper Wire - In Conduit

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
Q	Computed	RW				100%	$0	$0	$0
R	Computed	RW				100%	$0	$0	$0
S	Computed	RW				100%	$0	$0	$0
T	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Fiber Optic - In Conduit

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
U	Computed	RW				100%	$0	$0	$0
V	Computed	RW				100%	$0	$0	$0
W	Computed	RW				100%	$0	$0	$0
X	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Manholes for UG Telephone Service

	Computed or User	RW or Const	Item	No Entry Required	Quantity	Percent VDOT	Total Cost	to RW Project	to Const Project
Y	Computed	RW	Telephone Manhole			100%	$0	$0	$0
Z	Computed	RW	Telephone Manhole			100%	$0	$0	$0

Misc. Telephone Costs

AA	Misc. Telephone Costs Charged to RW Project:	
BB	Misc. Telephone Costs Charged to Const. Project:	

TOTAL TELEPHONE	Total to RW Proj	Total to Const Proj
$9,223	$9,223	$0

C. CATV

Aerial CATV

	Computed or User	RW or Const	Type of Service	No Entry Required	Number of Pole Att'mnts	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW	1.00 Coax		2	100%	$1,921	$1,921	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$1,921	**$1,921**	**$0**

Underground CATV

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Power Units

	Computed or User	RW or Const	Item	No Entry Required	Quantity	Percent VDOT	Total Cost	to RW Project	to Const Project
I	Computed	RW	CATV Power Supply			100%	$0	$0	$0
J	Computed	RW	CATV Power Supply			100%	$0	$0	$0

Misc. CATV Costs

Misc. CATV Costs Charged to RW Project:

Misc. CATV Costs Charged to Const. Project:

TOTAL CATV	Total to RW Proj	Total to Const Proj
$1,921	$1,921	$0

D. WATER

Water Line

	Computed or User	RW or Const	Diameter of Water Pipe (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	Const				100%	$0	$0	$0
B	Computed	Const				100%	$0	$0	$0
C	Computed	Const				100%	$0	$0	$0
D	Computed	Const				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Water Costs

E Misc. Water Costs Charged to Const. Project:

F Misc. Water Costs Charged to RW Project:

TOTAL WATER	Total to RW Proj	Total to Const Proj
$0	$0	$0

E. SANITARY SEWER

Sewer Line

	Computed or User	RW or Const	Diameter of Sewer Pipe (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	Const				100%	$0	$0	$0
B	Computed	Const				100%	$0	$0	$0
C	Computed	Const				100%	$0	$0	$0
D	Computed	Const				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Sewer Costs

E Misc. Sewer Costs Charged to Const. Project:

F Misc. Sewer Costs Charged to RW Project:

TOTAL SEWER	Total to RW Proj	Total to Const Proj
$0	$0	$0

F. NATURAL GAS / PROPANE

Distribution

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				100%	$0	$0	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Transmission

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Natural Gas / Propane Costs

I — Misc. Gas / Pro Costs Charged to RW Project:

J — Misc. Gas / Pro Costs Charged to Const. Project:

TOTAL GAS / PROPANE	Total to RW Proj	Total to Const Proj
$0	$0	$0

G. PETROLEUM

Transmission

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				100%	$0	$0	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Petroleum Costs

E — Misc. Petroleum Costs Charged to RW Project:

F — Misc. Petroleum Costs Charged to Const. Project:

TOTAL PETROLEUM	Total to RW Proj	Total to Const Proj
$0	$0	$0

H. CELLULAR

Cellular Telephone Costs

A — Total Cellular Costs Charged to RW Project:

B — Total Cellular Costs Charged to Const. Project:

TOTAL CELLULAR	Total to RW Proj	Total to Const Proj
$0	$0	$0

I. ADDITIONAL COSTS

Additional Utility Costs to Right-of-Way Project :

Comments:

Additional Utility Costs to Construction Project :

Comments:

Additional Utility Costs to Utility Owners/Others :

Comments:

TOTAL UTILITY COST - RIGHT-OF-WAY PROJECT	*$34,717*
TOTAL UTILITY COST - CONSTRUCTION PROJECT	*$0*
TOTAL UTILITY COST - UTILITY OWNER / OTHERS	*$0*
GRAND TOTAL UTILITY COSTS (PCES)	***$34,717***

Version 5.00

Moderate Cost - Realignment

Highway Safety Improvement Program

FOR OFFICE USE ONLY
Project #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

View Read-Me File for methodology for considering multiple CMFs

PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route (Include Name)	System	Traffic Control	From / Major Road	To / Cross Street (RNS Node-Offset If Applicable)
Goochland	US-250 at Cardwell Road	Primary	> 35MPH Segment	US-250	Cardwell Road

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	8	0	1	4	3	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	0	0	0	0	0	0	Yes	
	Run off road	2	0	0	1	1	0	Yes	
	Head on	1	0	1	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	0	0	0	0	0	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	5	0	0	3	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	2	0	0	1	1	0	Yes	
	Wet weather	3	0	0	2	1	0	Yes	
Number of Vehicles	Single vehicle	2	0	0	1	1	0	Yes	
	Multiple vehicle	6	0	1	3	2	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	
	Alcohol related	0	0	0	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)		Yes	Yes	Yes	Yes	Yes	Yes		

Number of years in crash history:	5.49486653	Discount Rate:	3%

Moderate Cost - Realignment

VDOT Highway Safety Improvement Program

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View Read-Me File for methodology for considering multiple CMFs

STEP 2 :: COST (Compute the economic cost of each improvement)

Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Realignment	20	$74,755	$0	$232,817	$307,572	$23,282	$2,500	$37,194	$368,047
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Realignment	0.60	All	K, A, B+C	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Realignment	Yes	$866,534	$368,047	2.35	**2.35**	0	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

SIGNATURE OF SPONSOR

Please submit an electronic copy of this spreadsheet and a scanned digital copy with signature to HSIProgram@virginiadot.org. Paper copies of reference materials may be mailed Attn: HSP BCR Improvement Proposal Mr. Raymond Khoury , P.E., State Traffic Engineer, Virginia Department of Transportation 1401 East Broad Street, Richmond, Virginia 23219.

Name (Print):

Signature: **Date:**

UPC: ****

Project Cost Estimating System

SUMMARY PAGE

DISTRICT	RICHMOND		
PROJECT NUMBER	** MISSING DATA **		
CONSTRUCTION END YEAR	FY2018	UPC	****
AD YEAR	FY2017	RATE OF INFLATION TO AD	2.20%
ESTIMATE YEAR	FY2016	INFLATION RATE DURING CN	N/A
Date of previous estimate	N/A		
PROJECT MANAGER / DESIGNER	** MISSING DATA **		
Preliminary Engineering Estimate:	PCES		
Construction Estimate:	PCES		
Right-of-Way Estimate:	PCES		
Utilities Estimate:	PCES		
DATE	*10/19/2016*		

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE **CONST**, **RW**, & **UTIL** TABS BELOW

CONSTRUCTION ESTIMATE	*$232,817*
PRELIMINARY ENGINEERING ESTIMATE	*$69,755*
RIGHT-OF-WAY & UTILITIES ESTIMATE	*$0*
TOTAL PROJECT ESTIMATE	*$302,572*

Revised 06/16/15

Estimate Class: Blank

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	No		
Route Number	250	670	Primary Highway	

	CONST-1	CONST-2	Bridges (0)	Total
Geometric Standard	GS-2	GS-3		
Construction Base	$125,000	$68,877	$0	$193,877
Bridge Removal			$0	$0
CE	$33,928		$0	$33,928
Construction Estimate (2016)	$227,806		$0	$227,806
To AdYear Inflation				$5,012
Mid-point construction Inflation				$0
Total Construction Estimate			$0	**$232,817**
Preliminary Engineering Cost	$69,755		$0	$69,755

CONSTRUCTION & PE TOTALS

Total Construction Estimate (Roadway plus Bridge)	*$232,817*	*PCES*
Total Preliminary Engineering Estimate (Roadway plus Bridge)	*$69,755*	*PCES*

Virginia Department of Transportation 2005

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Maintenance Project ?	No	*		
Route Number	250	*	Primary Highway	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	2,600	*	Projected ADT = Minimum	5,200
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)	0.06	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)		*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)		*	Enter Lane Width (ft) >	
Median Type - Graded, Raised, or None ?		*	Normal Lane Width(ft)	12
Number of Crossovers (Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)				
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

RICHMOND
105% *Cost Factor used*

Construction Costs

Signals, ITS, Signs and Lighting Costs*	$0	Base #1 (PCES)	$125,000
Cost of Large Drainage Structures	$75,000	Base #2	$68,877
In-Plan Utility Costs*	$0	Enter Const CE Cost >	$0
Adjustment for Unusual Construction Costs	$50,000	CE (17.5%)	$33,928
* Totals include district factor calculations		Estimate (2016)	$227,806

Additional (or Unusual) P. E. Costs			
Select % of PE to be performed by Consultants	100%	PE Cost (PCES)	$69,755

Note: Do Not Include Bridge P. E. Costs Here

Roadway P. E. / Roadway Const. = 30.0%

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Route Number	670	*	Secondary	
Geometric Standard	GS-3	*	Rural Collector Road System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	1,000	*	Projected ADT = Minimum	1,400
Box Must Be Empty	40		Design Speed =	40 MPH
RRR Guidelines ? (Enter Yes or No)		*		
Surface Treat Only ?	No	*		
Project Length (mi.)	0.03	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)	0.03	*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)	S	*	Enter Lane Width (ft.)	
Median Type - Graded, Raised, or None ?	N	*	Normal Lane Width (ft.)	12
Number of Crossovers(Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)				
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

Project Location:
RICHMOND

Construction Costs

Base #2	*$68,877*

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
Miscellaneous Cost Estimates

COST OF LARGE DRAINAGE STRUCTURES

Job#	Description	Cost ()
	Storm Water Management	$75,000
		$75,000

ADJUSTMENT FOR UNUSUAL CONSTRUCTION COSTS

Type	Description	Cost ()
	Maintanence of Traffic	$50,000
		$50,000

Version 5.00

UPC: ****

Project Cost Estimating System

Draft Estimate

ENTER PROJECT DATA REQUIRED TO COMPUTE A DRAFT ESTIMATE

District:	RICHMOND
Project Number:	
UPC:	
Project Manager:	
Project Description:	Cardwell - Moderate Cost Option

Version 5.00

US 250 AND FAIRGOUND ROAD

High Cost - Roundabout

VDOT Virginia Department of Transportation — Highway Safety Improvement Program

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Project #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

View Read-Me File for methodology for considering multiple CMFs

PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route (Include Name)	System	Traffic Control	From / Major Road	To / Cross Street (RNS Node-Offset If Applicable)
Goochland	US-250 at Fairgrounds Road	Primary	> 35MPH Segment	US-250	Fairgrounds Road

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	12	1	1	4	6	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	1	0	0	1	0	0	Yes	
	Run off road	4	0	1	1	2	0	Yes	
	Head on	0	0	0	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	3	1	0	0	2	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	4	0	0	2	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	7	0	1	3	3	0	Yes	
	Wet weather	3	0	0	3	0	0	Yes	
Number of Vehicles	Single vehicle	7	0	1	3	3	0	Yes	
	Multiple vehicle	6	1	0	2	3	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	✓
	Alcohol related	1	0	1	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)		Yes	Yes	Yes	Yes	Yes	Yes	1 Crash classified as other not counted in totals	

Number of years in crash history: 5.49486653 — Discount Rate: 3%

High Cost - Roundabout

VDOT Virginia Department of Transportation Highway Safety Improvement Program

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UPC #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Initiate Date: Month x, 2014

View Read-Me File for methodology for considering multiple CMFs

STEP 2 :: COST (Compute the economic cost of each improvement)

Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Roundabout	20	$357,784	$101,050	$1,269,759	$1,728,593	$126,976	$2,500	$37,194	$1,892,763
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Roundabout	0.28	All	K, A, B+C	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
	0.58	All	O	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Roundabout	Yes	$1,900,798	$1,892,763	1.00	**1.00**	1	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

SIGNATURE OF SPONSOR

Please submit an electronic copy of this spreadsheet and a scanned digital copy with signature to HSIProgram@virginiadot.org. Paper copies of reference materials may be mailed Attn: HSP BCR Improvement Proposal Mr. Raymond Khoury , P.E., State Traffic Engineer, Virginia Department of Transportation 1401 East Broad Street, Richmond, Virginia 23219.

Name (Print):

Signature: **Date:**

UPC: ****

Project Cost Estimating System

Draft Estimate

ENTER PROJECT DATA REQUIRED TO COMPUTE A DRAFT ESTIMATE

District:	RICHMOND
Project Number:	
UPC:	
Project Manager:	
Project Description:	Fairground Road - High Cost Option

Version 5.00

UPC: ****

Project Cost Estimating System

SUMMARY PAGE

DISTRICT	RICHMOND		
PROJECT NUMBER	** MISSING DATA **		
CONSTRUCTION END YEAR	FY2018	UPC	****
AD YEAR	FY2017	RATE OF INFLATION TO AD	2.20%
ESTIMATE YEAR	FY2016	INFLATION RATE DURING CN	N/A
Date of previous estimate	N/A		
PROJECT MANAGER / DESIGNER	** MISSING DATA **		
Preliminary Engineering Estimate:	PCES		
Construction Estimate:	PCES		
Right-of-Way Estimate:	PCES		
Utilities Estimate:	PCES		
DATE	*10/19/2016*		

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE **CONST**, **RW**, & **UTIL** TABS BELOW

CONSTRUCTION ESTIMATE	*$1,269,759*
PRELIMINARY ENGINEERING ESTIMATE	*$352,784*
RIGHT-OF-WAY & UTILITIES ESTIMATE	*$101,050*
TOTAL PROJECT ESTIMATE	*$1,723,593*

Revised 06/16/15

Estimate Class: Blank

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	No		
Route Number	250	632	Primary Highway	

	CONST-1	CONST-2	Bridges (0)	Total
Geometric Standard	GS-2	GS-2		
Construction Base	$649,859	$412,044	$0	$1,061,903
Bridge Removal			$0	$0
CE	$180,523		$0	$180,523
Construction Estimate (2016)	$1,242,426		$0	$1,242,426
To AdYear Inflation				$27,333
Mid-point construction Inflation				$0
Total Construction Estimate			$0	**$1,269,759**
Preliminary Engineering Cost	$352,784		$0	$352,784

CONSTRUCTION & PE TOTALS

Total Construction Estimate (Roadway plus Bridge)	*$1,269,759*	*PCES*
Total Preliminary Engineering Estimate (Roadway plus Bridge)	*$352,784*	*PCES*

Virginia Department of Transportation 2005

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Maintenance Project ?	No	*		
Route Number	250	*	Primary Highway	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	2,600	*	Projected ADT = Minimum	5,200
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)	0.13	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)	0.12	*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)	C&G	*	Enter Lane Width (ft) >	
Median Type - Graded, Raised, or None ?	R	*	Normal Lane Width(ft)	12
Number of Crossovers (Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)	902			
Length - Sidewalk - Left PLUS Right Side (ft.)		*		
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)	120			
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

RICHMOND
105% *Cost Factor used*

Construction Costs

Signals, ITS, Signs and Lighting Costs*	$0	Base #1 (PCES)	$649,859
Cost of Large Drainage Structures	$75,000	Base #2	$412,044
In-Plan Utility Costs*	$0	Enter Const CE Cost >	$0
Adjustment for Unusual Construction Costs	$60,000	CE (17%)	$180,523
* Totals include district factor calculations		Estimate (2016)	$1,242,426

Additional (or Unusual) P. E. Costs			
Select % of PE to be performed by Consultants	100%	PE Cost (PCES)	$352,784

Note: Do Not Include Bridge P. E. Costs Here

Roadway P. E. / Roadway Const. = 27.8%

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Route Number	632	*	Secondary	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2017		Design Year =	2039
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	6,900	*	Projected ADT = Minimum	9,660
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)	0.11	*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)	0.11	*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)	C&G	*	Enter Lane Width (ft.)	
Median Type - Graded, Raised, or None ?	R	*	Normal Lane Width (ft.)	12
Number of Crossovers(Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None	*		
Total Length - Raised Median (ft.)	120	*		
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

Project Location:
RICHMOND

Construction Costs

Base #2	*$412,044*

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
Miscellaneous Cost Estimates

COST OF LARGE DRAINAGE STRUCTURES

Job#	Description	Cost ()
	SWM	$75,000
		$75,000

ADJUSTMENT FOR UNUSUAL CONSTRUCTION COSTS

Type	Description	Cost ()
Maintenance of Traffic	MOT	$50,000
Other	Obscuring Roadway	$10,000
		$60,000

Version 5.00

UPC: ****

Project Cost Estimating System
RIGHT-OF-WAY ESTIMATE

Project No.:	** MISSING DATA **
VDOT Construction District :	RICHMOND # 4
Select Project Area Real Estate Costs :	Somewhat Above Average

Define Project Land Use Characteristics :

Agricultural :	0%
Residential :	100%
Industrial :	0%
Commercial :	0%
	100%

Instructions: Please fill-in all applicable White Boxes or make a choice from the Drop-down Lists

Enter the Approximate Number of Parcels on the Project : 4

1. LAND VALUE

Prop. Right-of-Way

Total Right-of-Way Project Length (ML + Connections)	1,268	ft	Computed RW Cost per sq ft =	$1.20
Average width of Existing RW		ft	Enter Right-of-Way Estimator's Right-of-Way Cost per sq ft :	
Average width of Proposed RW		ft		
Total area of all additional Prop. Right-of-Way	17,640	sf	Enter total sq ft (override calculation):	17,640
			17,640 sq ft = 0.000 Ac.	
Approx. % of Prop. CL within		ft	of Exist. CL	100%
Approx. % of Prop. CL between		ft	& ft of Exist. CL	
Approx. % of Prop. CL greater than		ft	from Exist. CL	

Temp. Ease.

Average Width of parallel Temporary Easements Left	10	ft	Comp. Temp. Ease. Cost / sq ft =	$0.30
Total Length of parallel Temporary Easements Left	680	ft	Enter Right-of-Way Estimator's Temp. Ease. Cost per sq ft :	
Average Width of parallel Temporary Easements Right	10	ft		
Total Length of parallel Temporary Easements Right	680	ft	Enter total sq ft (override calculation):	
			13,600 sq ft = 0.312 Ac.	

Perm. & Util. Ease.

Total Area of All Replacement Utility Easements	6,900	sf	Comp. Utility Ease. Cost / sq ft =	$0.48
AND Select % of RW Cost for Util. Ease.	40%		RW Est's. Utility Ease. Cost per sq ft :	
			6,900 sq ft = 0.158 Ac.	
This Box Must Be Empty >		ea	Comp. Perm. Ease. Cost / sq ft =	$0.96
			RW Est's. Perm. Ease. Cost per sq ft :	
Total area of All Permanent Easements		sf	0 sq ft = 0.000 Ac.	

COST OF LAND (Item # 1) $28,493

2. BUILDING VALUE

Based upon comparison to similar, occupied **Residential Dwellings** in the Project Area, enter the Number of:

		Computed:
A. Low Cost Residential Dwellings :		$0
B. Moderately Low Cost Dwellings :		$0
C. Average Cost Residential Dwellings :		$0
D. Moderately High Cost Dwellings :		$0
E. High Cost Residential Dwellings :		$0
Computed Total Residential Dwelling Costs :		$0
Estimator's Total Residential Dwelling Costs :		

Enter the total estimated cost of ALL **COMMERCIAL & INDUSTRIAL BUILDINGS** to be taken:

Note: No Computed Costs Available. Use User Defined Costs Below:

Estimator's Total Commercial / Industrial Buildings Costs :

3. OTHER IMPROVEMENTS

Enter the estimated cost of ALL **OTHER IMPROVEMENTS** on the Project:

Computed Total Other Improvements Costs :	$2,849
Estimator's Total Other Improvements Costs :	

4. DAMAGES

Anticipated % of Parcels Affected by Damages to Remainder :	25%
Anticipated Relative Cost Impact of Damages to Remainder :	Moderately Low
Approximate Number of Parcels Affected :	1
Computed Cost of Damages to Remainder :	$10,430
Estimator's Total Cost of Damages to Remainder :	

TOTAL ACQUISITIONS (Items # 1 - 4) $41,772

5. ADMINISTRATIVE SETTLEMENTS

Anticipated % of Parcels Affected by Administrative Settlements :	25%
Anticipated Relative Cost Impact of Administrative Settlements :	Low
Approximate Number of Parcels Affected :	1
Computed Cost of Administrative Settlements :	*$5,215*
Estimator's Total Cost of Administrative Settlements :	

6. CONDEMNATION INCREASES

Anticipated % of Parcels Affected by Condemnation Increases :	
Anticipated Relative Cost Impact of Condemnation Increases :	
Approximate Number of Parcels Affected :	0
Computed Cost of Condemnation Increases :	*$0*
Estimator's Total Cost of Condemnation Increases :	

7. ADMINISTRATIVE COSTS & INCIDENTAL EXPENSES

Anticipated Relative Cost Impact of Admin. Costs & Incidental Expenses :	
Computed Administrative Costs & Incidental Expenses :	*$0*
Estimator's Total Administrative Costs & Incidental Expenses :	

8. DEMOLITION CONTRACTS

Anticipated Relative Cost Impact of Demolition Contracts :	
Computed Costs of Demolition Contracts :	*$0*
Estimator's Total Cost of Demolition Contracts :	

9. HAZARDOUS MATERIALS REMOVAL

Anticipated Number of Demolished Buildings Requiring Asbestos Removal :	
Anticipated Relative Cost of Asbestos Removal from Demolished Buildings :	
Anticipated Number of Other Hazardous Materials Removal Sites :	
Anticipated Relative Cost Impact of Other Hazardous Materials Removal :	
Computed Cost of Hazardous Materials Removal :	*$0*
Estimator's Total Costs of Hazardous Materials Removal :	

10. PROPERTY MANAGEMENT

Anticipated Relative Cost Impact of Property Management :	
Computed Costs of Property Management :	*$0*
Estimator's Total Cost of Property Management :	

TOTAL OTHER ITEMS (Items # 5 - 10) ***$5,215***

11. RELOCATION ASSISTANCE

Residential Relocation Costs:

Anticipated Relative Cost Impact of Residential Relocation Expenses :	
Computed Residential Relocation Costs :	*$0*
Estimator's Total Residential Relocation Costs :	

Commercial Relocation Costs:

Note: No Computed Costs Available. Use User Defined Costs Below:	
Estimator's Total Comm/Indust Relocation Costs :	

Total Displacements:		Farms:	
Families:		Non-Profit:	
Businesses:		Personal Property Only:	

TOTAL RELOCATION ASSISTANCE (Item # 11) ***$0***

12. YEAR OF RIGHT-OF-WAY AUTHORIZATION	FY2017		*< Req'd.*
13. MANUAL INFLATION RATE			

		Today's Cost	*Factor*	*Inflated Cost*
SUB-TOTAL RIGHT-OF-WAY COSTS		*$46,987*	*2.20%*	*$48,021*
UTILITY COSTS TO RIGHT-OF-WAY PROJECT *	*(PCES)*	*$51,888*	*2.20%*	*$53,029*
TOTAL RIGHT-OF-WAY COSTS	*(PCES)*	$98,875		$101,050

*** Utility Data display requires completion of Utilities Estimate Worksheet (tab below)**

COMMENTS:

RW-238 Data :

Right-of-Way Estimate Date :

Based on Approved / Unapproved Plans ? :

Participating Cost / Non-Participating Cost ? :

Today's Date : **10/19/16**

Revised 06/16/15

Version 5.00

UPC: ****

Project Cost Estimating System
UTILITIES ESTIMATE

Project No.: ** *MISSING DATA* **

A. ELECTRICAL

Transmission

	Computed or User	RW or Const	Type of Pole	No Entry Required	Number of Poles	Rural or Urban	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				Rural	100%	$0	$0	$0
B	Computed	RW				Rural	100%	$0	$0	$0
C	Computed	RW				Rural	100%	$0	$0	$0
D	Computed	RW				Rural	100%	$0	$0	$0
								$0	**$0**	**$0**

Distribution - Aerial

	Computed or User	RW or Const	Type of Pole	No Entry Required	Number of Poles	Rural or Urban	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW	Three Phase		3	Rural	100%	$35,360	$35,360	$0
F	Computed	RW				Rural	100%	$0	$0	$0
G	Computed	RW				Rural	100%	$0	$0	$0
H	Computed	RW				Rural	100%	$0	$0	$0
I	Computed	RW				Rural	100%	$0	$0	$0
J	Computed	RW				Rural	100%	$0	$0	$0
								$35,360	**$35,360**	**$0**

Distribution - Underground - by Linear Foot

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
K	Computed	RW				100%	$0	$0	$0
L	Computed	RW				100%	$0	$0	$0
M	Computed	RW				100%	$0	$0	$0
N	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Underground - by Pole Equivalent

	Computed or User	RW or Const	Equivalent Type of Pole	No Entry Required	Equiv. # of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
O	Computed	RW				100%	$0	$0	$0
P	Computed	RW				100%	$0	$0	$0
Q	Computed	RW				100%	$0	$0	$0
R	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Conduit for Underground Electrical

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
S	Computed	RW				100%	$0	$0	$0
T	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Distribution - Underground - Manholes

	Computed or User	RW or Const	Size / Price Range of Manhole	No Entry Required	Number of MH's	Percent VDOT	Total Cost	to RW Project	to Const Project
U	Computed	RW				100%	$0	$0	$0
V	Computed	RW				100%	$0	$0	$0
W	Computed	RW				100%	$0	$0	$0
X	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Electrical Costs

Y	Misc. Electrical Costs Charged to RW Project:	
Z	Misc. Electrical Costs Charged to Const. Project:	

TOTAL ELECTRICAL	Total to RW Proj	Total to Const Proj
$35,360	$35,360	$0

B. TELEPHONE

Aerial - Copper Wire

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Number of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW	400		3	100%	$14,220	$14,220	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$14,220	**$14,220**	**$0**

Aerial - Fiber Optic

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Number of Poles	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Copper Wire

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
I	Computed	RW				100%	$0	$0	$0
J	Computed	RW				100%	$0	$0	$0
K	Computed	RW				100%	$0	$0	$0
L	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Fiber Optic

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
M	Computed	RW				100%	$0	$0	$0
N	Computed	RW				100%	$0	$0	$0
O	Computed	RW				100%	$0	$0	$0
P	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Copper Wire - In Conduit

	Computed or User	RW or Const	Type of Cable (Pair Cable)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
Q	Computed	RW				100%	$0	$0	$0
R	Computed	RW				100%	$0	$0	$0
S	Computed	RW				100%	$0	$0	$0
T	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Underground - Fiber Optic - In Conduit

	Computed or User	RW or Const	Type of Cable (Optical Fiber)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
U	Computed	RW				100%	$0	$0	$0
V	Computed	RW				100%	$0	$0	$0
W	Computed	RW				100%	$0	$0	$0
X	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Manholes for UG Telephone Service

	Computed or User	RW or Const	Item	No Entry Required	Quantity	Percent VDOT	Total Cost	to RW Project	to Const Project
Y	Computed	RW	Telephone Manhole			100%	$0	$0	$0
Z	Computed	RW	Telephone Manhole			100%	$0	$0	$0

Misc. Telephone Costs

AA	Misc. Telephone Costs Charged to RW Project:	
BB	Misc. Telephone Costs Charged to Const. Project:	

TOTAL TELEPHONE	Total to RW Proj	Total to Const Proj
$14,220	$14,220	$0

C. CATV

Aerial CATV

	Computed or User	RW or Const	Type of Service	No Entry Required	Number of Pole Att'mnts	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW	.750 Coax		3	100%	$2,308	$2,308	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$2,308	**$2,308**	**$0**

Underground CATV

	Computed or User	RW or Const	Type of Service	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Power Units

	Computed or User	RW or Const	Item	No Entry Required	Quantity	Percent VDOT	Total Cost	to RW Project	to Const Project
I	Computed	RW	CATV Power Supply			100%	$0	$0	$0
J	Computed	RW	CATV Power Supply			100%	$0	$0	$0

Misc. CATV Costs

Misc. CATV Costs Charged to RW Project:

Misc. CATV Costs Charged to Const. Project:

TOTAL CATV	Total to RW Proj	Total to Const Proj
$2,308	$2,308	$0

D. WATER

Water Line

	Computed or User	RW or Const	Diameter of Water Pipe (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	Const				100%	$0	$0	$0
B	Computed	Const				100%	$0	$0	$0
C	Computed	Const				100%	$0	$0	$0
D	Computed	Const				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Water Costs

E Misc. Water Costs Charged to Const. Project:

F Misc. Water Costs Charged to RW Project:

TOTAL WATER	Total to RW Proj	Total to Const Proj
$0	$0	$0

E. SANITARY SEWER

Sewer Line

	Computed or User	RW or Const	Diameter of Sewer Pipe (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	Const				100%	$0	$0	$0
B	Computed	Const				100%	$0	$0	$0
C	Computed	Const				100%	$0	$0	$0
D	Computed	Const				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Sewer Costs

E Misc. Sewer Costs Charged to Const. Project:

F Misc. Sewer Costs Charged to RW Project:

TOTAL SEWER	Total to RW Proj	Total to Const Proj
$0	$0	$0

F. NATURAL GAS / PROPANE

Distribution

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				100%	$0	$0	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Transmission

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
E	Computed	RW				100%	$0	$0	$0
F	Computed	RW				100%	$0	$0	$0
G	Computed	RW				100%	$0	$0	$0
H	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Natural Gas / Propane Costs

I	Misc. Gas / Pro Costs Charged to RW Project:	
J	Misc. Gas / Pro Costs Charged to Const. Project:	

TOTAL GAS / PROPANE	Total to RW Proj	Total to Const Proj
$0	$0	$0

G. PETROLEUM

Transmission

	Computed or User	RW or Const	Diameter of Gas Line (in)	No Entry Required	Total Length(ft)	Percent VDOT	Total Cost	to RW Project	to Const Project
A	Computed	RW				100%	$0	$0	$0
B	Computed	RW				100%	$0	$0	$0
C	Computed	RW				100%	$0	$0	$0
D	Computed	RW				100%	$0	$0	$0
							$0	**$0**	**$0**

Misc. Petroleum Costs

E	Misc. Petroleum Costs Charged to RW Project:	
F	Misc. Petroleum Costs Charged to Const. Project:	

TOTAL PETROLEUM	Total to RW Proj	Total to Const Proj
$0	$0	$0

H. CELLULAR

Cellular Telephone Costs

A	Total Cellular Costs Charged to RW Project:	
B	Total Cellular Costs Charged to Const. Project:	

TOTAL CELLULAR	Total to RW Proj	Total to Const Proj
$0	$0	$0

I. ADDITIONAL COSTS

Additional Utility Costs to Right-of-Way Project :

Comments:

Additional Utility Costs to Construction Project :

Comments:

Additional Utility Costs to Utility Owners/Others :

Comments:

TOTAL UTILITY COST - RIGHT-OF-WAY PROJECT	*$51,888*
TOTAL UTILITY COST - CONSTRUCTION PROJECT	*$0*
TOTAL UTILITY COST - UTILITY OWNER / OTHERS	*$0*
GRAND TOTAL UTILITY COSTS (PCES)	***$51,888***

Version 5.00

Moderate Cost - Flashing Beacon

VDOT Virginia Department of Transportation Highway Safety Improvement Program

FOR OFFICE USE ONLY
Project #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

View Read-Me File for methodology for considering multiple CMFs

PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route	System	Traffic Control	From / Major Road	To / Cross Street
Goochland	US-250 at Fairgrounds Road	Primary	> 35MPH Segment	US-250	Fairgrounds Road
	(Include Name)			(RNS Node-Offset If Applicable)	

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	12	1	1	4	6	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	1	0	0	1	0	0	Yes	
	Run off road	4	0	1	1	2	0	Yes	
	Head on	0	0	0	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	3	1	0	0	2	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	4	0	0	2	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	7	0	1	3	3	0	Yes	
	Wet weather	3	0	0	3	0	0	Yes	
Number of Vehicles	Single vehicle	7	0	1	3	3	0	Yes	
	Multiple vehicle	6	1	0	2	3	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	✓
	Alcohol related	1	0	1	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)									
		Yes	Yes	Yes	Yes	Yes	Yes	1 Crash classified as other not counted in totals	

Number of years in crash history:	5.49486653	Discount Rate:	3%

Moderate Cost - Flashing Beacon

VDOT Highway Safety Improvement Program

FOR OFFICE USE ONLY
UPC #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Initiate Date: Month x, 2014

View Read-Me File for methodology for considering multiple CMFs

STEP 2 :: COST (Compute the economic cost of each improvement)

Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Flashing Beacon	20	$75,500	$0	$235,349	$310,849	$23,535	$2,500	$37,194	$371,578
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Flashing Beacon	0.95	All	K, A, B+C	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
	0.95	All	O	Yes		
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Flashing Beacon	Yes	$134,514	$371,578	0.36	**0.36**	0	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

SIGNATURE OF SPONSOR

Please submit an electronic copy of this spreadsheet and a scanned digital copy with signature to HSIProgram@virginiadot.org. Paper copies of reference materials may be mailed Attn: HSP BCR Improvement Proposal Mr. Raymond Khoury , P.E., State Traffic Engineer, Virginia Department of Transportation 1401 East Broad Street, Richmond, Virginia 23219.

Name (Print):

Signature: **Date:**

UPC: ****

Project Cost Estimating System

Draft Estimate

ENTER PROJECT DATA REQUIRED TO COMPUTE A DRAFT ESTIMATE

District:	RICHMOND
Project Number:	
UPC:	
Project Manager:	
Project Description:	Fairground Road - Moderate Cost Option

Version 5.00

UPC: ****

Project Cost Estimating System

SUMMARY PAGE

DISTRICT	RICHMOND		
PROJECT NUMBER	** MISSING DATA **		
CONSTRUCTION END YEAR	FY2022	UPC	****
AD YEAR	FY2020	RATE OF INFLATION TO AD	9.32%
ESTIMATE YEAR	FY2016	INFLATION RATE DURING CN	N/A
Date of previous estimate	N/A		
PROJECT MANAGER / DESIGNER	** MISSING DATA **		
Preliminary Engineering Estimate:	PCES		
Construction Estimate:	PCES		
Right-of-Way Estimate:	PCES		
Utilities Estimate:	PCES		
DATE	*10/19/2016*		

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE **CONST**, **RW**, & **UTIL** TABS BELOW

CONSTRUCTION ESTIMATE	*$235,349*
PRELIMINARY ENGINEERING ESTIMATE	*$70,500*
RIGHT-OF-WAY & UTILITIES ESTIMATE	*$0*
TOTAL PROJECT ESTIMATE	*$305,849*

Revised 06/16/15

Estimate Class: Blank

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	No		
Route Number	250	632	Primary Highway	

	CONST-1	CONST-2	Bridges (0)	Total
Geometric Standard	GS-2	GS-2		
Construction Base	$183,222	$0	$0	$183,222
Bridge Removal			$0	$0
CE	$32,064		$0	$32,064
Construction Estimate (2016)	$215,286		$0	$215,286
To AdYear Inflation				$20,062
Mid-point construction Inflation				$0
Total Construction Estimate			$0	**$235,349**
Preliminary Engineering Cost	$70,500		$0	$70,500

CONSTRUCTION & PE TOTALS

Total Construction Estimate (Roadway plus Bridge) — ***$235,349*** ***PCES***

Total Preliminary Engineering Estimate (Roadway plus Bridge) — ***$70,500*** ***PCES***

Virginia Department of Transportation 2005

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Maintenance Project ?	No	*		
Route Number	250	*	Primary Highway	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2020		Design Year =	2042
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	2,600	*	Projected ADT = Minimum	5,200
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)		*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)		*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)		*	Enter Lane Width (ft) >	
Median Type - Graded, Raised, or None ?		*	Normal Lane Width(ft)	12
Number of Crossovers (Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)				
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

RICHMOND — *105%* *Cost Factor used*

Construction Costs			
Signals, ITS, Signs and Lighting Costs*	$183,222	Base #1 (PCES)	$183,222
Cost of Large Drainage Structures	$0	Base #2	$0
In-Plan Utility Costs*	$0	Enter Const CE Cost >	$0
Adjustment for Unusual Construction Costs	$0	CE (17.5%)	$32,064
* Totals include district factor calculations		Estimate (2016)	$215,286

Additional (or Unusual) P. E. Costs			
Select % of PE to be performed by Consultants	100%	PE Cost (PCES)	$70,500

Note: Do Not Include Bridge P. E. Costs Here

Roadway P. E. / Roadway Const. = 30.0%

Revised 06/16/15

Today's Date: 10/19/16

Version 5.00

UPC: ****

Project Cost Estimating System
CONSTRUCTION / BRIDGE / PE

Project No.	** MISSING DATA **			
Interstate Project ?	No	*		
Route Number	632	*	Secondary	
Geometric Standard	GS-2	*	Rural Minor Arterial System	
Ad Date	2020		Design Year =	2042
Design Year ADT			Project Terrain	Gently Rolling
OR				
Current (Recent) ADT	6,900	*	Projected ADT = Minimum	9,660
Enter Design Speed (MPH) (Enter 50 or 60)	60	*	Design Speed =	60 MPH
Box Must Be Empty				
Box Must Be Empty				
Project Length (mi.)		*	*Number of Additional Lanes:*	*Length of Add'l. Lanes (mi.):*
Total Length -Adding or Building Two Lanes (mi.)		*	*None*	
Total Length - Adding or Building Four Lanes (mi.)		*	*None*	
Total Length - Building Ramps and Loops (mi.)		*	*None*	
Shoulder or Curb & Gutter ? (Select S or C&G)		*	Enter Lane Width (ft.)	
Median Type - Graded, Raised, or None ?		*	Normal Lane Width (ft.)	12
Number of Crossovers(Divided Highways ONLY)		*		
Length - Curb & Gutter - Left PLUS Right Side (ft.)				
Length - Sidewalk - Left PLUS Right Side (ft.)				
Bike / Pedestrian Type	None			
Total Length - Raised Median (ft.)				
Number of Right Turn Lanes - Left PLUS Right Side		*		
Number of Left Turn Lanes - (Undivided Only)		*		

Construction Costs

Base #2	*$0*

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SIGNALS, ITS, SIGNS and LIGHTING COST WORKSHEET

Stand Alone Traffic Project:	Yes	(line items include mobilization,contingency and MOT)	UPC: ****

SIGNALS

Permanent Signals

	Location/Description	New/ Mod.	Intersection Type	Major Direction	Major Lanes	Major Direction	Major Lanes	Cross Direction	Cross Lanes	Cross Direction	Cross Lanes	Poles	Detection	Pre-emption	Cost
1	250/Fairground	New	Tee	East	2	West	2	North	2			Mast Arm			$174,497
2															$0
3															$0
4															$0
5															$0
6															$0
7															$0
8															$0
9															$0
10															$0

	Quantity	Cost
Temporary Signals - New Equipment		$0
Temporary Signals - Modified Equipment		$0

		Location/Description	Cost
MISCELLANEOUS	1		
SIGNAL WORK	2		

Signals Construction Subtotal $174,497

ITS

		Location/Description	Cost
ITS WORK	1		
	2		

ITS Construction Subtotal $0

MAJOR SIGN STRUCTURES

	Type of Sign	Comment	Quantity	Unit	Lighted Y/N	Cost/Sign	Extended Cost
1				Ea.			
2				Ea.			
3				Ea.			
4				Ea.			
5				Ea.			
6				Ea.			
7				Ea.			

		Location/Description	Cost
MISCELLANEOUS	1		
SIGN WORK	2		

Signs Construction Subtotal $0

LIGHTING

Continuous Roadway

	Urban Type of Lighting	Comments	No. Lanes	Number of Miles	Cost
1					$0

	Freeway Type of Lighting	Comments	No. Lanes	Number of Miles	Cost
1					$0

Interchange	Interchange Type	Type of Lighting	Number of Interchanges	Cost
1				$0
2				$0
3				$0

Miscellaneous		Location/Description	Cost
	1		
	2		

Lighting Construction Subtotal $0

CONSTRUCTION TOTAL $174,497

District factor will be applied when the total cost is passed to the const-1 worksheet

PROJECT COMMENTS

Prepared by **Date Prepared/Modified:**

Version 5.00

US 250 AND OILVILLE ROAD

High Cost - Flashing Yellow Arrow

Highway Safety Improvement Program

FOR OFFICE USE ONLY
Project #: xxxxxxxxxxx
Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

View Read-Me File for methodology for considering multiple CMFs

PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route (Include Name)	System	Traffic Control	From / Major Road	To / Cross Street (RNS Node-Offset If Applicable)
Goochland	US-250 at Oilville Road	Primary	> 35MPH Segment	US-250	Oilville Road

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	8	0	1	4	3	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	0	0	0	0	0	0	Yes	
	Run off road	2	0	0	1	1	0	Yes	
	Head on	1	0	1	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	0	0	0	0	0	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	5	0	0	3	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	2	0	0	1	1	0	Yes	
	Wet weather	3	0	0	2	1	0	Yes	
Number of Vehicles	Single vehicle	2	0	0	1	1	0	Yes	
	Multiple vehicle	6	0	1	3	2	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	
	Alcohol related	0	0	0	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)		Yes	Yes	Yes	Yes	Yes	Yes		

Number of years in crash history: 5.49486653

Discount Rate: 3%

High Cost - Flashing Yellow Arrow

VDOT Virginia Department of Transportation Highway Safety Improvement Program

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UPC #: xxxxxxxxxxx
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Initiate Date: Month x, 2014

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STEP 2 :: COST (Compute the economic cost of each improvement)

Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Flashing Yellow Arrow	20	$6,000	$0	$1,010	$7,010	$101	$500	$7,439	$14,550
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Flashing Yellow Arrow	0.934	All	All	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Flashing Yellow Arrow	Yes	$32,580	$14,550	2.24	**2.24**	0	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

SIGNATURE OF SPONSOR

Please submit an electronic copy of this spreadsheet and a scanned digital copy with signature to HSIProgram@virginiadot.org. Paper copies of reference materials may be mailed Attn: HSP BCR Improvement Proposal Mr. Raymond Khoury , P.E., State Traffic Engineer, Virginia Department of Transportation 1401 East Broad Street, Richmond, Virginia 23219.

Name (Print):
Signature: **Date:**

Low Cost - Backplates

Highway Safety Improvement Program

FOR OFFICE USE ONLY
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Receive #:xxxxxxxx
HSIP File:xxxxxxxxx
Date Received: Month x, 2015

Safety Improvement Proposal (FY16-17)

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PROJECT INFORMATION

Agency	Project Sponsor	Address	City	State	Zip

Email Address	Phone	Priority Number	State Milepoint	VDOT District	VDOT Region
				Richmond	Northwest

Program Type	Project Type	Functional Class Code	Area Location Code	Fed. Sys. Code	Study Period Begins	Study Period Ends
Regular	Intersection	Rural Collector	Rural (1 - 4,999)	Non-NHS	1/1/2011	6/30/2016

County	Safety Proposal Location / Route	System	Traffic Control	From / Major Road	To / Cross Street
Goochland	US-250 at Oilville Road	Primary	> 35MPH Segment	US-250	Oilville Road
	(Include Name)			(RNS Node-Offset If Applicable)	

STEP 1 :: CRASH HISTORY (Define crashes by type and severity)

APPLICABLE CRASH TYPE AND SEVERITY

Crash Type Categories		Crash Severity: All	Fatal (K)	Incapacitating Injury (A)	Minor Injury (B+C)	Property Damage (O)	Not specified	Automated Check	Link to SHSP
Total Crashes	All	8	0	1	4	3	0	Yes	
Primary Crash Categories (sum of all 3 must equal total crashes)									
Roadway Departure or Intersection	Cross median	0	0	0	0	0	0	Yes	
	Fixed object	0	0	0	0	0	0	Yes	
	Run off road	2	0	0	1	1	0	Yes	
	Head on	1	0	1	0	0	0	Yes	
	Non-Collision	0	0	0	0	0	0	Yes	✓
	Sideswipe	0	0	0	0	0	0	Yes	
	Angle	0	0	0	0	0	0	Yes	
	Left turn	0	0	0	0	0	0	Yes	
	Right turn	0	0	0	0	0	0	Yes	
	Rear end	5	0	0	3	2	0	Yes	
Non-Motorized	Pedestrian	0	0	0	0	0	0	Yes	
	Bicycle	0	0	0	0	0	0	Yes	
Secondary Crash Categories									
Environmental Factors	Nighttime	2	0	0	1	1	0	Yes	
	Wet weather	3	0	0	2	1	0	Yes	
Number of Vehicles	Single vehicle	2	0	0	1	1	0	Yes	
	Multiple vehicle	6	0	1	3	2	0	Yes	
Driver Behavior	Speed related	0	0	0	0	0	0	Yes	
	Unbelted	0	0	0	0	0	0	Yes	
	Alcohol related	0	0	0	0	0	0	Yes	
Automated Check (i.e., does total crashes match the sum of RD, INT, and NM crash types?)		Yes	Yes	Yes	Yes	Yes	Yes		

Number of years in crash history:	5.49486653	Discount Rate:	3%

Low Cost - Backplates

VDOT Virginia Department of Transportation Highway Safety Improvement Program

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Proposed Improvement	Service Life	PE Cost + $5000 (*)	Right-of-Way & Utility Cost	Construction Cost	Total Construction Cost (PV)	Contingency (10%)	Annual Maintenance	Maintenance Cost (PV)	Total Cost (PV)
Backplates with Retroreflective Border	20	$6,000	$0	$1,000	$7,000	$100	$100	$1,488	$8,588
					$0	$0		$0	$0
					$0	$0		$0	$0

STEP 3 :: BENEFIT (Compute the economic benefit of each improvement)

Proposed Improvement	CMF Value	Applicable Crash Type	Applicable Crash Severity Type	Include CMF in Final Analysis? (Yes/No)	Reference Link to CMF ID from CMF Clearinghouse	Other Notes
Backplates with Retroreflective Border	0.85	All	All	Yes	http://www.cmfclearinghouse.org/detail.cfm?faci	
0						
0						

STEP 4 :: B/C RATIO (Compute the B/C ratio for specific combinations of CMFs)

Proposed Improvement	Include in Analysis? (Yes/No)	Present Value of Benefit	Present Value of Cost	B/C by CMF	B/C Ratio	Annual Estimated Lives Saved and Injuries Prevented	Other Notes
Backplates with Retroreflective Border	Yes	$74,045	$8,588	8.62	**8.62**	0	1. VDOT District and Central Office personnel charge review and administration time to project managed by localities. Safety Projects not managed by VDOT shall include a minimum of $5,000 for VDOT PE costs.
0	Yes	$0	$0	-		0	
0	Yes	$0	$0	-		0	

PROJECT SCHEDULE (AFTER STIP APPROVAL)

Begin PE	Target Advert.	Begin Construction	Estimated Complete Date	Type of Plan	Project Administered By

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