

**Jefferson Road Improvements
Traffic Analysis
State Project U320-601-0.00 03**

Final Report



Prepared for:
TRC Engineers, Inc. and West
Virginia Department of
Transportation, Division of
Highways

Prepared by:
Stantec Consulting Services Inc.

August 2015

Table of Contents

EXECUTIVE SUMMARY	I
1.0 INTRODUCTION	1
1.1 PREVIOUS STUDIES	1
1.2 OBJECTIVES.....	1
2.0 DATA COLLECTION	3
2.1 INTERSECTION TURNING MOVEMENT COUNTS	3
2.2 TRAIN CROSSING DATA.....	4
3.0 DESIGN ALTERNATIVES.....	4
5.0 ANALYSES AND RESULTS	6
5.1 CAPACITY ANALYSIS.....	6
Capacity Analysis Conclusions.....	9
5.2 TRAFFIC SIMULATION.....	10
Average Travel Times.....	11
Average Intersection Delay.....	13
Maximum Queues.....	14
6.0 DESIGN CRITERIA	15
7.0 SUMMARY.....	16

LIST OF TABLES

Table 1. Train Crossing Summary (minutes:seconds)	4
Table 2. Intersection Level-of-Service Thresholds.....	7
Table 3. A.M. Peak Control Delay and Level of Service for Signalized Intersections.....	7
Table 4. A.M. Peak Control Delay and Level of Service for Unsignalized Intersections.....	8
Table 5. P.M. Peak Control Delay and Level of Service for Signalized Intersections	9
Table 6. P.M. Peak Control Delay and Level of Service for Unsignalized Intersections.....	9
Table 7. A.M. Peak Route Segment Average Travel Times.....	13
Table 8. P.M. Peak Route Segment Average Travel Times	13
Table 9. A.M. Peak Average Intersection Delay	13
Table 10. P.M. Peak Average Intersection Delay.....	14
Table 11. A.M. Peak Maximum Vehicle Queues.....	15
Table 12. P.M. Peak Maximum Vehicle Queues	15

LIST OF FIGURES

Figure 1. Initial Study Area	2
Figure 2. Jefferson Road Design Alternatives	5

**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

Figure 3. New or Modified Traffic Signals - Alternative 5 8
Figure 4. Travel Time Route Segments 12

LIST OF APPENDICES

APPENDIX A TRAIN CROSSING DATA.....A.1
APPENDIX B INTERSECTION LANE GROUP DELAYS AND LEVELS OF SERVICE..... B.4
APPENDIX C HIGHWAY CAPACITY SOFTWARE ANALYSIS RESULTS C.5
APPENDIX D TRAFFIC SIMULATION MODEL CALIBRATION D.6

Executive Summary

Jefferson Road (WV 601) provides an important connection between Interstate 64 and US 119 in South Charleston, West Virginia. Interstate 64 and US 119 (also referred to as Corridor G) are heavily traveled major routes that connect the Charleston area with Kentucky to the west. Additionally, US 119 has become a major retail corridor, placing an additional demand for connectivity with Interstate 64.

Two previous studies have been conducted that have involved the identification and evaluation of preliminary alternatives. This study is part of the next phase of the project development process for the preferred improvement to Jefferson Road from MacCorkle Avenue (US 60) to US 119 at Oakhurst Drive. The previous study incorporated the planned extension of RHL Boulevard from its current terminus at the South Charleston Ice Center to Jefferson Road near Kramer Street.

After conducting the evaluations and receiving public input, Alternatives 1 and 5 were advanced as preferred alternatives for which further analysis would be performed. In summary:

- Alternative 1 re-aligns the Jefferson Road/Kanawha Turnpike intersection to form a single, four-legged intersection. The CSX Railroad crossing over Jefferson Road remains just north of Kanawha Turnpike, but the discontinuity of Jefferson Road at Kanawha Turnpike is eliminated. For the sake of traffic analyses, two variations of the Alternative 1 scenario were considered: 1) with the extension of RHL Boulevard and its intersection with Jefferson Road south of Kanawha Turnpike; and 2) without the extension of RHL Boulevard.
- Alternative 5 provides a grade separation of Jefferson Road over Kanawha Turnpike, eliminating the existing "jogged" intersection. Access from Jefferson Road to Kanawha Turnpike is provided by a small connector road.

A combination of tools was used to evaluate anticipated traffic impacts associated with Alternatives 1 and 5. Methods prescribed in the 2010 Highway Capacity Manual (HCM) were used to perform capacity analyses of both signalized and key unsignalized intersections, from which average control delay and level of service were determined. As was done in the preceding analysis, traffic simulation software was used to simulate and quantify anticipated traffic conditions for the entire Jefferson Road corridor; specifically, average travel speeds, intersection approach queue lengths, and signalized intersection delays. The simulation software also was used to model the impacts of train crossings on corridor traffic conditions, which the HCM methods cannot do.

**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

From the capacity and LOS analyses, the following conclusions were reached:

- When comparing the existing scenario to the year 2030 No Build scenario, average control delay will increase and levels of service will worsen at most of the intersections in the study area.
- The Jefferson Road intersections with Kanawha Turnpike will remain as the problem spot in the corridor; average delay at these two intersections will increase significantly between now and 2030, based on projected future traffic demands.
- Alternatives 1 and 5 both would yield improved traffic conditions at study area intersections compared to the No Build scenario.
- Alternative 1 condenses the two “jogged” intersections of Jefferson Road with Kanawha Turnpike into a single, four-legged intersection. Delay and LOS are considerably better at this new intersection than either of the jogged intersections (both Existing and 2030 No Build).
- By constructing the Jefferson Road flyover, Alternative 5 removes north-south through traffic from Kanawha Turnpike.
- Under Alternative 5, delay and LOS at Jefferson Road/MacCorkle Avenue are worse than for Alternative 1 (though still acceptable). The Jefferson Road/Kanawha Turnpike intersection(s) – either the existing jogged intersections or the single reconfigured intersection in Alternative 1 – have a metering effect on the northbound Jefferson Road approach at MacCorkle Avenue. Under Alternative 5, this metering or “gating” effect is removed; the northbound approach demand volumes are more peaked, so the overall operations at this one intersection are a little worse under Alternative 5 than for Alternative 1.

The traffic simulation model originally developed in 2010 for the evaluation of improvement alternatives was updated for this subsequent study. The updated model included 2014 intersection turning movement counts and train crossing data. For the design alternatives evaluated (Alternative 1, Alternative 5, and No Build), the following performance measures were obtained from the model and compared:

- Average travel times over defined roadway segments
- Average signalized intersection delay
- Maximum vehicle queue lengths

In summary, the following conclusions from the simulation of traffic conditions under the design alternatives were reached:

- Compared with the No Build scenario, peak period travel times in the Jefferson Road corridor were lower for Alternative 1 and lowest for Alternative 5. This is due to the

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

simplification of the Jefferson Road/Kanawha Turnpike offset or “jogged” intersection in Alternative 1 or the elimination of this intersection in Alternative 5. Travel times are especially reduced for the north-south Jefferson Road trip and for the westbound Kanawha Turnpike-to-southbound Jefferson Road trip.

- Though computed differently, results from the comparison of signalized intersection delays from the simulation model are similar to the results achieved in the capacity and LOS analysis. Simplification of the Jefferson Road/Kanawha Turnpike intersection under Alternative 1 produces lower, acceptable delays when compared to the No Build, including those times when there are one or two train crossings during the peak period. For Alternative 5, the delays are significantly lower than for the No Build or Alternative 1, as this intersection would handle much less traffic.
- Most of the queueing problems that currently exist would be eliminated with either Alternative 1 or Alternative 5. Even the queue length on northbound Jefferson Road at MacCorkle Avenue would be reduced, as the widening of Jefferson Road would provide more queue storage.

Widening Jefferson Road would have little discernable impact on MacCorkle Avenue. Congestion at the current Jefferson Road/Kanawha Turnpike intersection does have a metering effect on the northbound Jefferson Road approach at MacCorkle Avenue; this metering effect would be reduced under Alternative 1 or eliminated under Alternative 5, which means that there would be a greater traffic “surge” on this approach leg during peak periods and the intersection might actually perform a little worse under Alternative 5. However, the overall effects of Alternative 5 on traffic flow along MacCorkle Boulevard would be negligible.

Construction of the RHL Boulevard Extension and its intersection with Jefferson Road would not adversely impact traffic conditions along Jefferson Road if Jefferson Road is widened to four lanes all the way from MacCorkle Avenue to US 119. Constructing the RHL Boulevard Extension actually improves traffic conditions at the US 119 interchange with Jefferson Road by diverting some of the northbound traffic away from this location.

1.0 INTRODUCTION

Jefferson Road (WV 601) provides an important connection between Interstate 64 and US 119 in South Charleston, West Virginia. Interstate 64 and US 119 (also referred to as Corridor G) are heavily traveled major routes that connect the Charleston area with Kentucky to the west. Additionally, US 119 has become a major retail corridor, placing an additional demand for connectivity with Interstate 64.

Jefferson Road is functionally classified as an Urban Minor Arterial and currently is identified as a Congested Corridor in the Regional Intergovernmental Council's 2040 Long Range Transportation Plan. Without improvement, congestion will become increasingly worse, particularly with anticipated future growth in the US 119 corridor.

1.1 PREVIOUS STUDIES

Two previous studies have been conducted that have involved the identification and evaluation of preliminary alternatives. In 2004, the West Virginia Department of Transportation, Division of Highways (WVDOT) conducted a study of potential alternatives for improving Jefferson Road. This included the intersection with Kanawha Turnpike, which in its current configuration consists of a pair of offset intersections. Six alternatives were evaluated from the engineering and cost perspective. No operational analyses of these alternatives were performed as part of the initial study.

In 2010, a subsequent study was initiated for the purpose of conducting more detailed analyses of alternatives. Those analyses included traffic operational analyses. The results of those analyses were documented in the *Jefferson Road Traffic Simulation Study Final Report*, which was submitted in January 2013. The *Jefferson Road Traffic Simulation Study, Addendum to the Final Report: Alternatives 5 and 6*, was submitted in March 2013. Among the alternatives studied, two were selected (Alternative 1 and Alternative 5) for further evaluation, upon which the selection of a preferred alternative could be made.

1.2 OBJECTIVES

This study is part of the next phase of the project development process for the preferred improvement to Jefferson Road from MacCorkle Avenue (US 60) to US 119 at Oakhurst Drive. A map of the original study area is shown in **Figure 1**. The previous study incorporated the planned extension of RHL Boulevard from its current terminus at the South Charleston Ice Center to Jefferson Road near Kramer Street. This analysis examines both the inclusion and exclusion of the RHL Boulevard Extension with Alternative 1; for Alternative 5, it was assumed that the RHL Boulevard Extension would be completed. Alternative 1 was evaluated with and without RHL Boulevard Extension because it was initially considered as an interim step to Alternative 5.

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

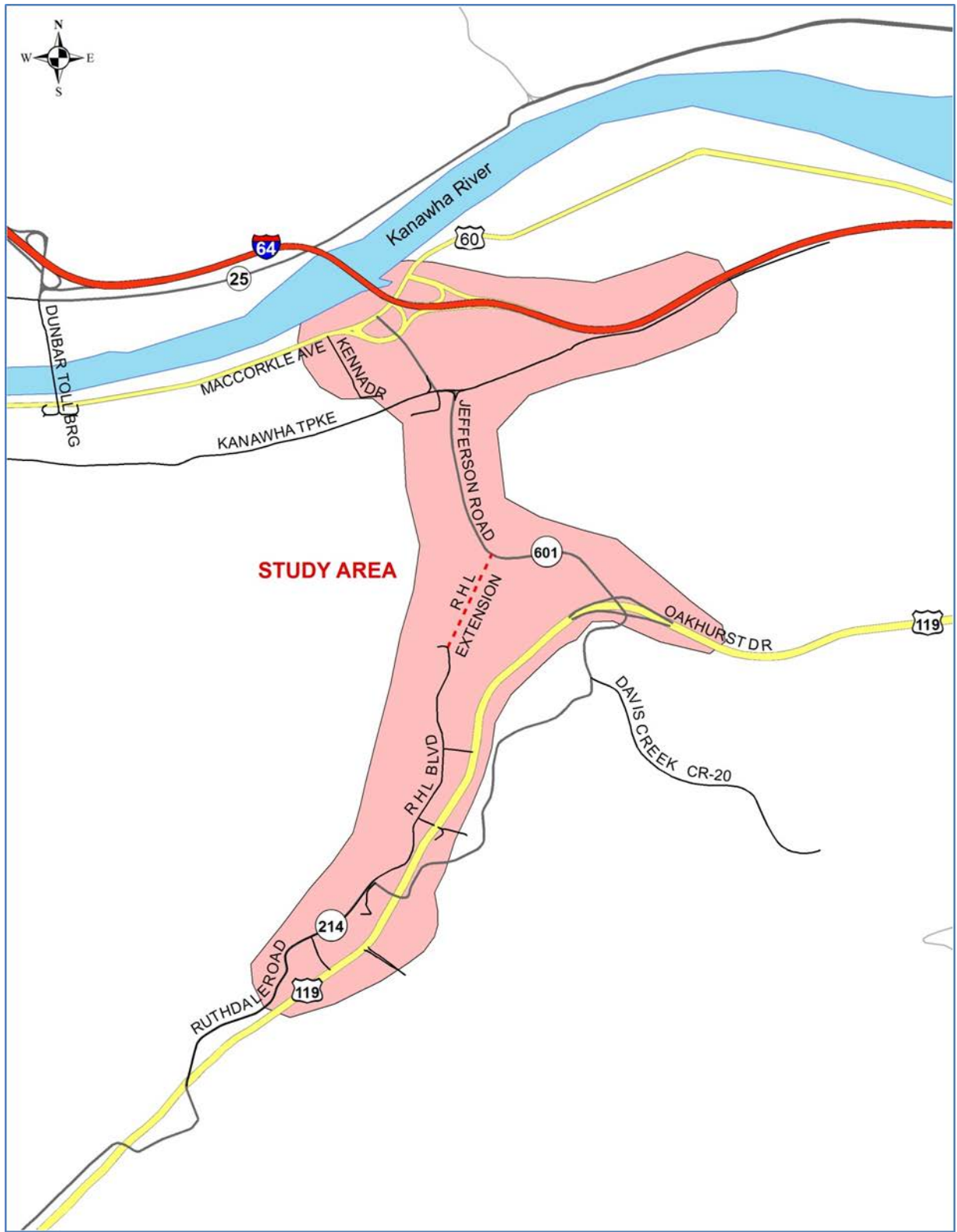


Figure 1. Initial Study Area



The objectives of the Jefferson Road Improvements Traffic Analysis were to:

- Update information in the traffic simulation models developed for the previous study, including information regarding train crossings of Jefferson Road near Kanawha Turnpike;
- Update the assessment of current traffic conditions and projected traffic conditions associated with Alternatives 1 and 5 using these simulation models;
- Perform intersection capacity and Level-of-Service (LOS) analyses of Alternatives 1 and 5 based on methods prescribed in the *2010 Highway Capacity Manual*; and
- Develop related design criteria – specifically, intersection approach geometry – for Alternatives 1 and 5.

2.0 DATA COLLECTION

2.1 INTERSECTION TURNING MOVEMENT COUNTS

Peak hour intersection turning movement counts had been collected for the previous study, but it was determined that new counts should be collected for this next phase of study to ensure that the more current traffic demand and travel patterns were being reflected. Turning movement counts were collected in October 2014 at the following locations:

1. MacCorkle Avenue at Kenna Drive
2. MacCorkle Avenue at I-64 eastbound ramps
3. MacCorkle Avenue at Jefferson Road (WV 601)
4. MacCorkle Avenue at I-64 westbound ramps
5. Jefferson Road at Bob Evans Restaurant access
6. Jefferson Road at McDonald's Restaurant access
7. Jefferson Road at South Charleston Community Center north access
8. Jefferson Road at South Charleston Community Center south access
9. Jefferson Road at Washington Street
10. Jefferson Road at Pennsylvania Avenue
11. Jefferson Road at Kanawha Turnpike/Mathias Lane
12. Jefferson Road at Kanawha Turnpike
13. Jefferson Road at Kramer Street
14. Jefferson Road at US 119 southbound ramps
15. Jefferson Road at US 119 northbound ramps/Oakhurst Drive

2.2 TRAIN CROSSING DATA

Along with the obvious safety issues, interruptions and associated delays to Jefferson Road traffic due to train crossings are a significant factor in the evaluation of alternatives under this study. To better quantify the impacts of train interruptions on the CSX Railroad line where it crosses Jefferson Road, train crossing data were collected for two weeks (September 29th through October 3rd and October 6th through 10th) in 2014. For the sake of data collection, the “crossing” or interruption was considered to extend from the time that lowering of the gates began to the time they returned to their upright position and traffic flow resumed. A summary of the data is provided in **Table 1** below:

Table 1. Train Crossing Summary (minutes:seconds)

	A.M. Peak Period (7:00 a.m. – 9:00 a.m.)	P.M. Peak Period (4:00 p.m. – 6:00 p.m.)	All Observations
Average (Mean)	01:58	02:13	02:16
85th Percentile	02:58	02:49	03:23

These data were used in the simulation of Jefferson Road improvement alternatives. The complete data set of train crossing observations is shown in **Appendix A**.

3.0 DESIGN ALTERNATIVES

Over the course of this project (including previous studies), several alternatives for improving Jefferson Road have been developed and evaluated. Those options, recognized as Alternatives 1 through 7, are shown in **Figure 2**.

After conducting the evaluations and receiving public input, Alternatives 1 and 5 were advanced as preferred alternatives for which further analysis would be performed. In summary:

- Alternative 1 re-aligns the Jefferson Road/Kanawha Turnpike intersection to form a single, four-legged intersection. The CSX Railroad crossing over Jefferson Road remains just north of Kanawha Turnpike, but the discontinuity of Jefferson Road at Kanawha Turnpike is eliminated. For the sake of traffic analyses, two variations of the Alternative 1 scenario were considered: 1) with the extension of RHL Boulevard and its intersection with Jefferson Road south of Kanawha Turnpike; and 2) without the extension of RHL Boulevard.
- Alternative 5 provides a grade separation of Jefferson Road over Kanawha Turnpike, eliminating the existing “jogged” intersection. Access from Jefferson Road to Kanawha Turnpike is provided by a small connector road.

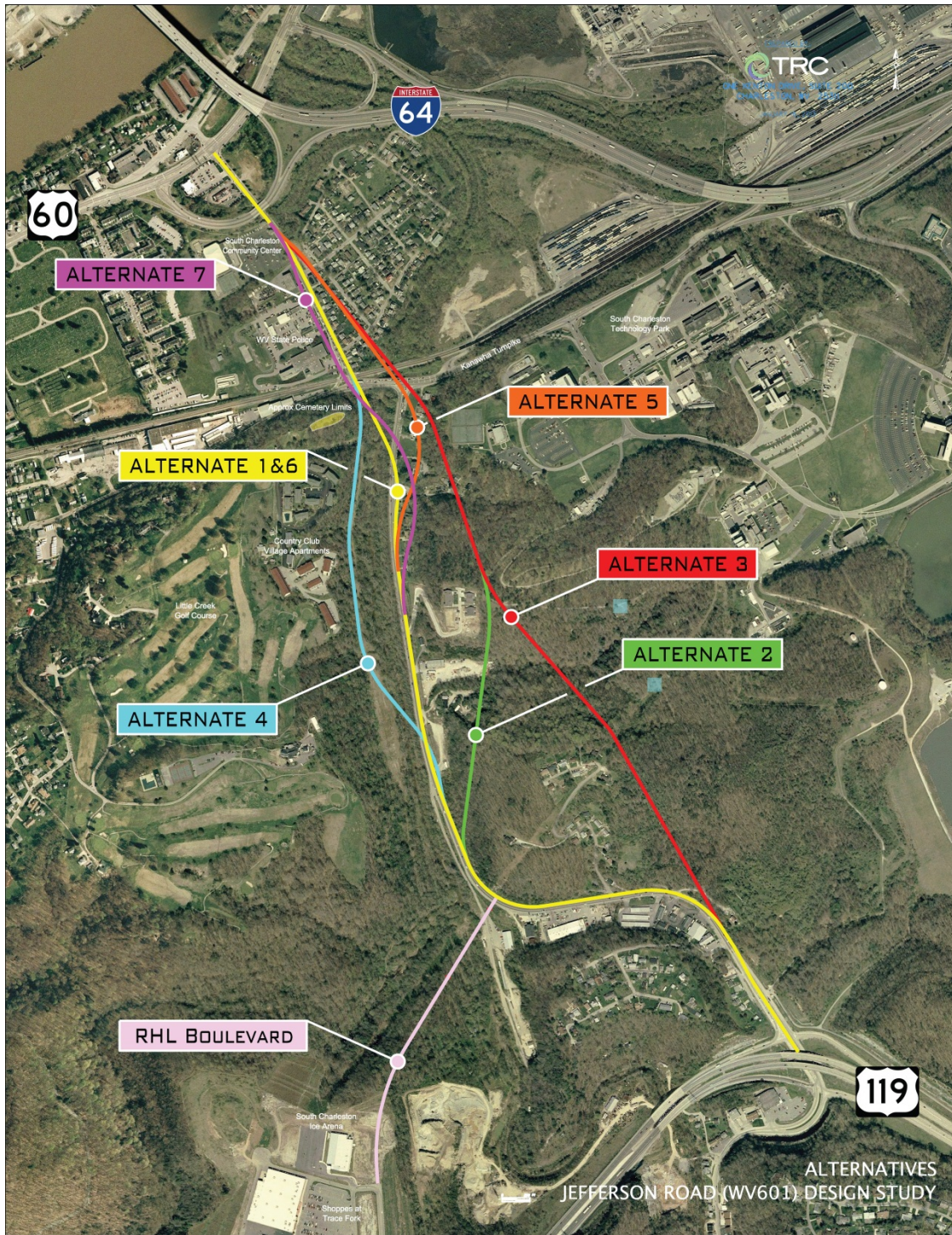


Figure 2. Jefferson Road Design Alternatives

5.0 ANALYSES AND RESULTS

A combination of tools was used to evaluate anticipated traffic impacts associated with Alternatives 1 and 5. Methods prescribed in the 2010 Highway Capacity Manual (HCM) were used to perform capacity analyses of both signalized and key unsignalized intersections, from which average control delay and level of service were determined. As was done in the preceding analysis, TransModeler® traffic simulation software by Caliper® Corporation was used to simulate and quantify anticipated traffic conditions for the entire Jefferson Road corridor; specifically, average travel speeds, intersection approach queue lengths, and signalized intersection delays. The simulation software also was used to model the impacts of train crossings on corridor traffic conditions, which the HCM methods cannot do.

Traffic analyses were conducted for representative weekday A.M. and P.M. peak hours; the peak 60 minutes typically occur sometime between 7:00 a.m. and 9:00 a.m. on weekday mornings and between 4:00 p.m. and 6:00 p.m. in the evenings.

For A.M. and P.M. peak hours, the following alternative scenarios were evaluated:

- Existing conditions (based on 2014 traffic demand data)
- Future No Build (Year 2030)
- Alternative 1 (Year 2030) with and without construction of the RHL Boulevard Extension
- Alternative 5 (Year 2030) with construction of the RHL Boulevard Extension

Year 2030 demand volume forecasts were developed during the previous comprehensive study of alternatives. The forecasts were developed using the Charleston Regional Intergovernmental Council (RIC) travel demand model. Growth rates were developed by comparing base year and year 2030 RIC model traffic projections; the growth rates were applied to traffic volumes from the base year traffic simulation model that was developed for the previous study. The year 2030 volumes included traffic associated with the new Kanawha Valley Technical Community College campus located at the West Virginia Regional Technology Park on Kanawha Turnpike east of Jefferson Road.

5.1 CAPACITY ANALYSIS

Capacity and level-of-service analyses were performed for at-grade intersections – signalized and unsignalized – according to methods in the 2010 Highway Capacity Manual. For these intersections, average control delay was computed and corresponding levels of service were determined. Control delay is defined in the HCM as the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed.



**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

Level-of-service thresholds for signalized and unsignalized intersections are shown in **Table 2**. According to the HCM, LOS criteria for unsignalized intersections are different from the criteria for signalized intersections primarily because traveler perceptions differ between these two intersection types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and therefore will experience higher delay than unsignalized intersections.

Table 2. Intersection Level-of-Service Thresholds

LOS	Control Delay (sec/veh)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

Source: 2010 Highway Capacity Manual

For signalized intersections in the study area, average control delay and levels of service for the A.M. peak period are provided in **Table 3**. The Access Road and Connector Road associated with Alternative 5 are shown in **Figure 3**. The new Access Road was assumed to be the existing Jefferson Road section that would remain and provide local accesses to the State Police facility and other properties that it currently serves. The intersection of the Access Road with Jefferson Road was assumed to be located between Washington Street and the I-64 eastbound loop ramps.

Table 3. A.M. Peak Control Delay and Level of Service for Signalized Intersections

Intersection	Existing		No Build		Alt 1 RHL		Alt 1 No RHL		Alt 5	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
MacCorkle Avenue at:										
Kenna Drive	2.7	A	4.5	A	4.3	A	3.9	A	3.9	A
I-64 EB	8.7	A	9.6	A	8.1	A	5.8	A	8.4	A
WV 601 (Jefferson Road)	21.6	C	25.3	C	11.8	B	11.7	B	16.6	B
I-64 WB	38.5	D	29.0	C	27.6	C	25.5	C	23.3	C
WV 601 (Jefferson Road) at:										
Access Road									5.0	A
Kanawha Turnpike/Mathias Lane	99.8	F	154.1	F	33.3	C	33.0	C		
Kanawha Turnpike	109.1	F	102.6	F					24.4	C
Connector Road									24.0	C
RHL Boulevard					6.5	A			7.4	A
Oakhurst Drive	44.1	D	46.1	D	39.0	D	46.7	D	44.1	D

Similarly, A.M. peak period average control delay and levels of service for unsignalized intersections are shown in **Table 4**. It should be noted that the performance measures in Table 4 are for the STOP-controlled minor street approach for these locations, each of which is a T-intersection.

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03



Figure 3. New or Modified Traffic Signals - Alternative 5

Table 4. A.M. Peak Control Delay and Level of Service for Unsignalized Intersections

Intersection	Existing		No Build		Alt 1 RHL		Alt 1 No RHL		Alt 5	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
WV 601 (Jefferson Road) at:										
Bob Evans Access	15.8	C	17.7	C	17.5	C	17.5	C	18.0	C
McDonalds Access	15.5	C	16.7	C	17.5	C	17.5	C	17.7	C
South Charleston Community Center North Access	21.2	C	27.8	D	24.1	C	23.7	C	10.8	B
South Charleston Community Center South Access	15.0	B	33.1	D	14.7	B	14.4	B		
Washington Street	14.9	B	15.8	C	10.6	B	10.3	B		
Pennsylvania Avenue	12.3	B	12.7	B	10.8	B	10.4	B	12.6	B
Kramer Street	23.2	C	43.2	E	25.0	C	30.7	D	11.0	B
US 119 Southbound	16.7	C	19.7	C	15.2	C	19.5	C	16.2	C

* Control delay on the minor approach

For signalized intersections in the study area, average control delay and levels of service for the P.M. peak period are provided in **Table 5**. P.M. peak period average control delay and levels of service for unsignalized intersections are shown in **Table 6**.

Summary tables of control delay and Level of Service by lane group for each intersection approach are located in **Appendix B**. Output reports from the individual HCS analyses are located in **Appendix C**.



JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

Table 5. P.M. Peak Control Delay and Level of Service for Signalized Intersections

Intersection	Existing		No Build		Alt 1 RHL		Alt 1 No RHL		Alt 5	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
MacCorkle Avenue at:										
Kenna Drive	4.9	A	4.8	A	7.3	A	7.3	A	4.7	A
I-64 EB	5.1	A	8.1	A	6.8	A	6.8	A	6.2	A
WV 601 (Jefferson Road)	49.2	D	80.3	F	18.1	B	18.3	C	20.8	C
I-64 WB	48.2	D	53.2	D	50.8	D	50.8	D	52.4	D
WV 601 (Jefferson Road) at:										
Access Road									8.9	A
Kanawha Turnpike/Mathias Lane	60.9	E	174.2	F	42.8	D	49.8	D	29.4	C
Kanawha Turnpike	55.1	E	169.0	F						
Connector Road									21.8	C
RHL Boulevard					17.8	B			16.0	B
Oakhurst Drive	44.2	D	69.7	E	35.2	D	89.2	F	43.8	D

Table 6. P.M. Peak Control Delay and Level of Service for Unsignalized Intersections

Intersection	Existing		No Build		Alt 1 RHL		Alt 1 No RHL		Alt 5	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
WV 601 (Jefferson Road) at:										
Bob Evans Access	19.8	C	36.5	E	19.3	C	19.3	C	35.2	E
McDonalds Access	20.4	C	34.5	D	19.2	C	19.2	C	22.2	C
South Charleston Community Center North Access	16.8	C	53.8	F	18.4	C	18.4	C	11.9	B
South Charleston Community Center South Access	12.5	B	18.1	C	12.7	B	11.6	B		
Washington Street	15.8	C	14.5	B	12.2	B	12.2	B		
Pennsylvania Avenue	13.1	B	18.8	C	14.7	B	15.0	C	15.3	C
Kramer Street	94.4	F	132.9	F	52.1	F	70.7	F	12.9	B
US 119 Southbound	24.3	C	98.6	F	148.3	F	148.3	F	31.4	D

* Control delay on the minor approach

Capacity Analysis Conclusions

From the capacity and LOS analyses, the following conclusions can be drawn:

- When comparing the existing scenario to the year 2030 No Build scenario, average control delay will increase and levels of service will worsen at most of the intersections in the study area.
- The Jefferson Road intersections with Kanawha Turnpike will remain as the problem spot in the corridor; average delay at these two intersections will increase significantly between now and 2030, based on projected future traffic demands.
- Alternatives 1 and 5 both would yield improved traffic conditions at study area intersections compared to the No Build scenario.
- Alternative 1 condenses the two “jogged” intersections of Jefferson Road with Kanawha Turnpike into a single, four-legged intersection (which is labeled as the “Kanawha Turnpike/Mathias Lane” intersection with Jefferson Road in Tables 3 and 5). Delay and LOS are considerably better at this new intersection than either of the jogged intersections (both Existing and 2030 No Build).

- The HCM methodology is not capable of analyzing conditions when a train crossing interrupts traffic flow on Jefferson Road. All of the results presented in Tables 3 through 6 are for “no train crossing” scenarios.
- By constructing the Jefferson Road flyover, Alternative 5 removes north-south through traffic from Kanawha Turnpike. Currently (and for the 2030 No Build scenario), north-south traffic follows a left-then-right movement through the Kanawha Turnpike intersections. Under Alternative 1, this trip pattern is simplified to a through movement at a single intersection. Under Alternative 5, north-south traffic passes over Kanawha Turnpike; the residual traffic passing through the Kanawha Turnpike intersection with the connector to Jefferson Road is either east-west through traffic or “turning” traffic between Jefferson Road and Kanawha Turnpike.
- Under Alternative 5, delay and LOS at Jefferson Road/MacCorkle Avenue are worse than for Alternative 1 (though still acceptable). The Jefferson Road/Kanawha Turnpike intersection(s) – either the existing jogged intersections or the single reconfigured intersection in Alternative 1 – have a metering effect on the northbound Jefferson Road approach at MacCorkle Avenue. Under Alternative 5, this metering or “gating” effect is removed; the northbound approach demand volumes are more peaked, so the overall operations at this one intersection are a little worse under Alternative 5 than for Alternative 1.
- Construction of the RHL Boulevard Extension and its intersection with Jefferson Road would not adversely impact traffic conditions along Jefferson Road if Jefferson Road is widened to four lanes all the way from MacCorkle Avenue to US 119. Constructing the RHL Boulevard Extension actually improves traffic conditions at the US 119 interchange with Jefferson Road by diverting some of the northbound traffic away from this location.
- Especially during the year 2030 P.M. peak, LOS E or F on STOP-controlled, minor street approaches to Jefferson Road could be experienced, primarily due to heavy traffic volumes along Jefferson Road. While not desirable, this is less significant when compared to the movement of traffic along Jefferson Road. This condition, which should be confined to the P.M. peak, will be worse if Jefferson Road is not widened.

5.2 TRAFFIC SIMULATION

A microscopic computer traffic simulation model was developed for the initial evaluation of alternatives for Jefferson Road improvements. This initial work was performed from 2011 to 2013. A discussion of the calibration of the base year model is provided in **Appendix D**. Simulations were run for the A.M. peak hour (7:00 to 8:00) and P.M. peak hour (5:00 to 6:00) for a 2010 base year and 2030 forecast year. Performance measures obtained from the model and used for evaluation/comparison of alternatives included:

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS STATE PROJECT U320-601-0.00 03

- Average travel times over defined roadway segments
- Average signalized intersection delay
- Maximum vehicle queue lengths

The simulation software is beneficial to the analysis in that it can model the impacts of train crossings during peak periods, something that the HCM methodology can't do.

For this phase of the project development process, the earlier traffic simulation model was updated and recalibrated. The updated model included recently collected intersection turning movement counts and train crossing data.

As was shown in Table 1, for the two-week period during which the data were collected, the average interruption to traffic due to train crossings was just under two minutes (01:58) during the A.M. peak and a little over two minutes (02:13) during the P.M. peak. There was a little more variability in the duration of crossing for the morning peak than the afternoon peak – the 85th-percentile observations were 02:58 (compared to the average of 01:58) and 02:49 (compared to the average of 02:13), respectively.

Upon examination of the train crossing data, it was observed that there were sometimes two crossings during the peak period, while at other times there was only one. On a few days there was no crossing activity during the morning peak period, but there was always at least one crossing during the afternoon peak.

To quantify and compare the impacts of simulated train crossings, models were run and each alternative was evaluated for three scenarios:

- No train crossings during the 60-minute simulation period
- One train crossing of average duration for the simulation period
- Two train crossings of average duration for the simulation period

The simulation models indicated that traffic queues returned to normal conditions within two to three subsequent cycles following an interruption due to train crossing.

Average Travel Times

Consistent with the previous alternatives evaluation, average travel times were predicted and compared among alternatives for key traffic patterns within the study area network:

1. The Jefferson Road through movement (both northbound and southbound) between MacCorkle Avenue and US 119;
2. The section of Jefferson Road and Kanawha Turnpike to the east that accommodates travel between the West Virginia Regional Technology Park and US 119; and
3. Kanawha Turnpike passing through the intersection with Jefferson Road.



4. MacCorkle Avenue (both eastbound and westbound) from Kenna Drive through the I-64 interchange.

A map of the network with these segments highlighted is shown as **Figure 4**. Summaries of the comparison of average travel times among the alternatives are shown in **Table 7** for the A.M. peak and in **Table 8** for the P.M. peak.



Figure 4. Travel Time Route Segments

**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

Table 7. A.M. Peak Route Segment Average Travel Times

AM Peak Hour Average Travel Times (min)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 - No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
MacCorkle WB	0.9	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
MacCorkle EB	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Jefferson NB	3.6	3.6	3.9	7.9	7.6	6.6	3.3	3.4	7.7	3.7	3.2	3.8	2.6
Jefferson SB	3.3	3.3	3.5	6.8	6.7	6.1	2.8	2.9	2.9	2.8	2.8	2.8	2.7
Kanawha Turnpike WB	1.9	1.9	2.0	2.1	2.1	2.2	1.7	1.7	1.8	1.7	1.8	1.8	1.3
Kanawha Turnpike EB	2.2	2.1	2.1	2.2	2.2	2.2	1.7	1.8	1.9	1.8	1.8	2.0	1.4
WB Kanawha -> SB Jefferson	3.0	3.0	3.3	4.2	4.3	5.3	3.8	3.6	3.9	3.4	3.5	4.3	2.5
NB Jefferson - EB Kanawha	2.7	2.7	2.7	6.2	5.9	4.7	2.6	2.8	3.0	2.6	2.6	3.1	2.6

Table 8. P.M. Peak Route Segment Average Travel Times

PM Peak Hour Average Travel Times (min)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 - No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
MacCorkle WB	1.3	1.2	1.3	1.5	1.5	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
MacCorkle EB	1.4	1.4	1.4	1.2	1.2	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.3
Jefferson NB	4.4	5.1	5.6	6.4	5.8	5.9	3.5	3.6	3.8	3.3	3.4	3.5	2.9
Jefferson SB	4.3	4.3	4.7	6.3	6.8	7.1	3.2	3.3	3.4	2.9	3.0	3.2	2.8
Kanawha Turnpike WB	2.1	2.2	2.3	3.9	4.3	4.6	1.9	2.1	2.1	1.9	2.1	2.1	1.2
Kanawha Turnpike EB	2.0	2.0	2.0	2.6	2.5	2.5	1.8	1.8	1.8	1.8	1.8	1.8	1.5
WB Kanawha -> SB Jefferson	4.1	5.0	5.3	10.1	10.6	11.2	4.2	4.3	4.1	3.7	3.9	3.7	2.5
NB Jefferson - EB Kanawha	2.9	3.2	3.5	4.5	4.1	4.0	2.8	2.8	2.9	2.6	2.7	2.7	2.7

Average Intersection Delay

Average signalized intersection delays (in seconds per vehicle) also were obtained from the simulation model for study area intersections. The TransModeler software defines intersection delay as the delay experienced approaching and executing the movement through the intersection – either straight or turning - averaged over all vehicles approaching or making that movement during the analysis period. Intersection delay from the simulation is similar to the control delay computed by the Highway Capacity Manual methodology, but technically it is computed differently. Thus, comparing results from the HCS vs. simulation will not give the exact same results, though they should be in general agreement.

The simulation software can quantify the impacts of train crossings on intersection delay; namely, the two Kanawha Turnpike intersections with Jefferson Road. As with the travel times, the simulation models were used to compare delay impacts for zero, one and two simulated train crossings during the A.M. and P.M. peak period for the various design alternatives. Summaries of the comparison of average intersection delays among the alternatives are shown in **Table 9** for the A.M. peak and in **Table 10** for the P.M. peak.

Table 9. A.M. Peak Average Intersection Delay

AM Peak Hour Average Intersection Delay (sec/veh)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 - No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
Jefferson/MacCorkle	28.1	27.9	28.2	20.1	19.2	20.2	14.3	14.3	14.4	13.9	14.1	14.4	10.7
Jefferson/Access													3.8
SB Jefferson/Kanawha/Mathias	25.0	32.2	34.6	60.2	57.6	64.5	40.6	45.0	64.3	34.4	38.6	55.8	
NB Jefferson/Kanawha	35.6	36.8	38.5	95.2	92.3	82.8							
Kanawha/Connector													22.1
Jefferson/Connector													16.1
Jefferson/RHL							9.5	9.5	9.9				9.8
Jefferson/Oakhurst	28.4	29.1	28.2	29.8	29.8	30.2	28.2	27.9	28.0	29.6	29.9	29.9	27.8



**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

Table 10. P.M. Peak Average Intersection Delay

PM Peak Hour Average Intersection Delay (sec/veh)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 - No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
Jefferson/MacCorkle	31.7	31.3	32.2	25.8	26.2	25.5	12.6	12.5	12.5	12.2	12.1	12.3	10.7
Jefferson/Access													5.5
SB Jefferson/Kanawha/Mathias	35.8	32.2	40.6	63.2	68.8	71.1	57.1	64.6	66.7	46.8	53.2	56.1	
NB Jefferson/Kanawha	61.3	81.8	92.6	138.2	140.2	145.6							
Kanawha/Connector													20.9
Jefferson/Connector													16.7
Jefferson/RHL							24.9	23.1	23.1				15.1
Jefferson/Oakhurst	30.7	30.7	31.5	39.3	39.4	36.6	31.1	30.1	31.3	37.0	37.1	36.6	31.7

The intersection delay results support the following conclusions:

- Alternative 1 results in lower delays for a single Jefferson Road/Kanawha Turnpike intersection than for either of the “jogged” intersections (when comparing the 2030 “No Build” scenario with Alternative 1 (with or without the construction of the RHL Boulevard Extension).
- Alternative 5 eliminates the Jefferson Road/Kanawha Turnpike intersection(s); the Kanawha Turnpike/Jefferson Road Connector intersection would accommodate residual turning traffic between Jefferson Road and Kanawha Turnpike and would operate with minimal average delay.
- Alternative 1 goes a long way toward improving peak hour congestion at Jefferson Road and Kanawha Turnpike, even where there are two train crossings during the peak hour. Alternative 5 goes even further, virtually eliminating the intersection of these two roads except for the local connector road.

Maximum Queues

Maximum queue lengths from the model simulation runs were recorded for each approach of the key intersections under analysis along Jefferson Road. Those approaches are:

- Northbound Jefferson Road at MacCorkle Avenue
- Southbound Jefferson Road at Kanawha Turnpike
- Northbound Jefferson Road at Kanawha Turnpike
- Westbound Kanawha Turnpike at Jefferson Road
- Eastbound Kanawha Turnpike at Jefferson Road
- Northbound Connector at Kanawha Turnpike (Alternative 5 only)
- Eastbound Kanawha Turnpike at Connector (Alternative 5 only)
- Westbound Kanawha Turnpike at Connector (Alternative 5 only)
- Northbound Jefferson Road at Connector (Alternative 5 only)
- Southbound Jefferson Road at Connector (Alternative 5 only)
- Eastbound Jefferson Road Connector at Jefferson Road (Alternative 5 only)
- Southbound Jefferson Road at RHL Boulevard Extension
- Northbound Jefferson Road at RHL Boulevard Extension
- RHL Boulevard Extension at Jefferson Road



**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

Maximum queue length is defined within the simulation software as the longest queue in each lane measured during the simulation period. Maximum queue lengths are summarized in **Tables 11 and 12** for the A.M. and P.M. peak hours, respectively.

Table 11. A.M. Peak Maximum Vehicle Queues

AM Peak Hour Maximum Vehicle Queue (ft)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
NB Jefferson @ MacCorkle	287	295	312	359	316	232	168	185	172	180	178	208	223
SB Jefferson @ Kanawha	449	577	566	1,564	1,360	1,511	308	593	784	329	606	567	
NB Jefferson @ Kanawha	363	332	336	1,986	1,793	1,838	298	349	658	297	285	670	
WB Kanawha @ Jefferson	202	201	214	423	489	578	245	368	598	227	322	566	
EB Kanawha @ Jefferson	233	240	235	256	250	259	230	249	441	223	223	424	
NB Connector @ Kanawha													321
EB Kanawha @ Connector													150
WB Kanawha @ Connector													157
SB Jefferson @ Connector													61
NB Jefferson @ Connector													154
EB Connector @ Jefferson													156
SB Jefferson @ RHL							84	87	81				122
NB Jefferson @ RHL							69	62	112				48
RHL @ Jefferson							98	116	171				101

Table 12. P.M. Peak Maximum Vehicle Queues

PM Peak Hour Maximum Vehicle Queue (ft)	Existing			2030 No Build			2030 Alt 1			2030 Alt 1 No RHL			2030 Alt 5
	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train	1 Train	2 Trains	No Train
NB Jefferson @ MacCorkle	339	299	332	239	230	222	192	187	189	148	180	176	201
SB Jefferson @ Kanawha	696	672	874	1,582	1,636	1,659	430	554	563	444	506	604	
NB Jefferson @ Kanawha	541	927	985	1,529	1,491	1,413	518	444	504	386	357	353	
WB Kanawha @ Jefferson	474	703	864	1,934	2,018	2,087	459	766	831	453	874	780	
EB Kanawha @ Jefferson	218	215	218	258	259	261	318	300	302	244	271	302	
NB Connector @ Kanawha													301
EB Kanawha @ Connector													148
WB Kanawha @ Connector													201
SB Jefferson @ Connector													61
NB Jefferson @ Connector													196
EB Jefferson @ Connector													106
SB Jefferson @ RHL							295	286	306				189
NB Jefferson @ RHL							149	155	177				153
RHL @ Jefferson							487	444	440				207

The simulation results show that queues will worsen considerably by 2030 - on both Jefferson Road and Kanawha Turnpike - if no improvements are made. Alternative 1 reduces peak hour queues significantly through the year 2030 when compared with the No Build scenario. The Jefferson Road queues at Kanawha Turnpike are eliminated under Alternative 5.

6.0 DESIGN CRITERIA

The revised traffic simulation model included the assumption that Jefferson Road would be widened in its entirety to four lanes (two in each direction) from MacCorkle Avenue (US 60) to US 119. For Alternative 1, which realigns the intersection with Kanawha Turnpike to a single, four-legged intersection, it was assumed that there will be a single left-turn lane on both the northbound and southbound approaches of Jefferson Road at Kanawha Turnpike, along with single, channelized right-turn lanes on both the northbound and southbound approaches. For Kanawha Turnpike, the eastbound approach would consist of a left-turn lane, a through lane, and a right-turn lane. The westbound Kanawha Turnpike approach would consist of dual left-turn lanes plus a combined through/right-turn lane. It should be noted that the existing westbound



Kanawha Turnpike approach contains only a single left-turn lane; due to the heavy westbound-to-southbound left-turn movement, dual left-turn lanes are recommended for the reconstructed intersection under Alternative 1.

The extension to RHL Boulevard was assumed to be constructed as a two-lane facility – one lane in each direction – that would intersect with Jefferson Road near Kramer Street. This was assumed to be a signalized intersection in the analyses. The Jefferson Road approaches would consist of two through lanes each in the northbound and southbound directions, plus a northbound left-turn lane and a southbound right-turn lane. RHL Boulevard would widen to two lanes at its approach to Jefferson Road – one left-turn lane and one-right-turn lane.

The intersection of the northbound US 119 exit at Jefferson Road/Oakhurst Drive currently consists of a single lane that widens to a left-turn lane and a right-turn lane at the intersection. This assumption was carried through the analyses. For the presumed “worst case” scenario (year 2030 traffic demand without the construction of the RHL Boulevard Extension), the simulation model predicted the maximum queue on the exit ramp to be 600 – 700 feet during peak periods. While significant, the simulation indicated that exiting traffic would be contained within the off ramp and should not spill back into the northbound through lanes of US 119. If the RHL Boulevard Extension is constructed, queues would be less, as some of the northbound traffic would divert to the RHL Boulevard Extension, bypassing the US 119/Jefferson Road interchange.

7.0 SUMMARY

In summary, this study has demonstrated that peak period traffic conditions along Jefferson Road will continue to worsen if no improvements are made. This is due to heavy travel along Jefferson Road as it connects major regional routes – Interstate 64 and US 60 (MacCorkle Avenue) to the north and US 119 (“Corridor G”) to the south. Future travel demands are projected to increase with increased development to the south of Jefferson Road.

At the core of the problem is the intersection of Jefferson Road with Kanawha Turnpike. Currently this exists as a pair of offset or “jogged” intersections; north-south through traffic on Jefferson Road must make a left-then-right movement at Kanawha Turnpike to continue this trip pattern. Exacerbating this condition is an active CSX Railroad crossing Jefferson Road just to the north of Kanawha Turnpike. One or two train crossings during peak traffic periods are a common event, which contributes to the congestion at this location.

Alternative 1 realigns Jefferson Road and Kanawha Turnpike into a single, four-legged intersection. This option improves traffic congestion considerably, at least for now. The analyses showed that Alternative 1 should be sufficient to handle peak period travel in the corridor until year 2030, even with the current level of train crossing activity.

Alternative 5 provides a grade separation of Jefferson Road and Kanawha Turnpike, with the junction between the two provided via a local connector road. This option eliminates the

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

congestion at Jefferson Road/Kanawha Turnpike; it also provides an added safety benefit by eliminating the at-grade railroad crossing for Jefferson Road. Alternative 5 should offer adequate peak period levels of service beyond the year 2030.

Both Alternatives 1 and 5 were assumed to be widened to four lanes from MacCorkle Avenue all the way to US 119. Alternative 1 was analyzed with and without the planned extension of RHL Boulevard to intersect with Jefferson Road near Kramer Street. This project was assumed to be in place for Alternative 5. The analyses demonstrated that construction of RHL Boulevard Extension will improve traffic congestion at US 119/Oakhurst Drive (the south side of the Jefferson Road interchange) by diverting some of the traffic away from this location.

APPENDICES

Appendix A TRAIN CROSSING DATA

Table A 1. Train Crossing Data Summary

Date	Gate Down Time	Gate Up Time	Duration (hrs:min:sec)	Crossing Direction
10/01/14 (Wed)	12:13:27 AM	12:17:02 AM	0:03:35	E→W
10/03/14 (Fri)	7:04:28 AM	7:07:37 AM	0:03:09	W→E
10/07/14 (Tue)	7:10:12 AM	7:12:25 AM	0:02:13	E→W
10/02/14 (Thu)	7:26:26 AM	7:30:13 AM	0:03:47	E→W
10/02/14 (Thu)	7:35:19 AM	7:36:05 AM	0:00:46	E→W
10/01/14 (Wed)	7:37:18 AM	7:40:13 AM	0:02:55	E→W
10/09/14 (Thu)	7:46:04 AM	7:46:37 AM	0:00:33	E→W
09/30/14 (Tue)	7:49:59 AM	7:52:17 AM	0:02:18	W→E
10/03/14 (Fri)	8:05:40 AM	8:08:06 AM	0:02:26	E→W
10/01/14 (Wed)	8:07:26 AM	8:07:57 AM	0:00:31	W→E
10/08/14 (Wed)	8:12:26 AM	8:15:08 AM	0:02:42	W→E
10/03/14 (Fri)	8:17:27 AM	8:19:17 AM	0:01:50	E→W
10/09/14 (Thu)	8:37:30 AM	8:39:21 AM	0:01:51	E→W
10/08/14 (Wed)	8:40:26 AM	8:40:57 AM	0:00:31	W→E
10/10/14 (Fri)	9:13:17 AM	9:13:45 AM	0:00:28	W→E
10/09/14 (Thu)	9:22:15 AM	9:22:44 AM	0:00:29	W→E
10/08/14 (Wed)	9:50:10 AM	9:50:42 AM	0:00:32	E→W
10/03/14 (Fri)	9:58:38 AM	9:59:00 AM	0:00:22	E→W
10/10/14 (Fri)	10:09:43 AM	10:10:16 AM	0:00:33	E→W
10/08/14 (Wed)	10:16:04 AM	10:16:29 AM	0:00:25	W→E
10/08/14 (Wed)	10:25:55 AM	10:26:19 AM	0:00:24	W→E
10/03/14 (Fri)	10:34:29 AM	10:36:02 AM	0:01:33	W→E
10/10/14 (Fri)	10:44:38 AM	10:46:22 AM	0:01:44	W→E
10/08/14 (Wed)	10:45:13 AM	10:46:53 AM	0:01:40	W→E
10/02/14 (Thu)	10:59:03 AM	11:01:41 AM	0:02:38	E→W
10/03/14 (Fri)	11:17:20 AM	11:17:51 AM	0:00:31	W→E
10/03/14 (Fri)	11:24:50 AM	11:25:23 AM	0:00:33	W→E
10/01/14 (Wed)	11:46:21 AM	11:48:27 AM	0:02:06	W→E
10/09/14 (Thu)	11:51:44 AM	11:55:01 AM	0:03:17	W→E
09/29/14 (Mon)	12:07:33 PM	12:11:48 PM	0:04:15	E→W
10/08/14 (Wed)	12:28:44 PM	12:32:21 PM	0:03:37	E→W
09/30/14 (Tue)	12:40:54 PM	12:42:49 PM	0:01:55	W→E
10/08/14 (Wed)	12:42:35 PM	12:44:45 PM	0:02:10	E→W
10/03/14 (Fri)	1:00:16 PM	1:03:55 PM	0:03:39	W→E

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

Date	Gate Down Time	Gate Up Time	Duration (hrs:min:sec)	Crossing Direction
10/03/14 (Fri)	1:17:35 PM	1:18:16 PM	0:00:41	W→E
10/08/14 (Wed)	1:28:26 PM	1:32:19 PM	0:03:53	W→E
10/01/14 (Wed)	1:45:31 PM	1:47:46 PM	0:02:15	W→E
10/02/14 (Thu)	1:45:48 PM	1:47:22 PM	0:01:34	W→E
10/09/14 (Thu)	1:50:20 PM	1:52:42 PM	0:02:22	W→E
10/07/14 (Tue)	1:58:28 PM	2:00:02 PM	0:01:34	W→E
10/02/14 (Thu)	2:00:35 PM	2:03:28 PM	0:02:53	E→W
09/29/14 (Mon)	2:05:40 PM	2:08:30 PM	0:02:50	W→E
10/02/14 (Thu)	2:05:49 PM	2:08:27 PM	0:02:38	W→E
10/01/14 (Wed)	2:14:11 PM	2:16:36 PM	0:02:25	W→E
10/02/14 (Thu)	2:19:37 PM	2:23:24 PM	0:03:47	W→E
10/07/14 (Tue)	2:24:10 PM	2:29:20 PM	0:05:10	W→E
09/30/14 (Tue)	2:27:13 PM	2:29:46 PM	0:02:33	W→E
10/08/14 (Wed)	2:34:28 PM	2:37:36 PM	0:03:08	W→E
10/02/14 (Thu)	2:58:30 PM	3:05:46 PM	0:07:16	W→E
10/03/14 (Fri)	3:04:26 PM	3:05:52 PM	0:01:26	E→W
10/09/14 (Thu)	3:21:53 PM	3:24:59 PM	0:03:06	E→W
09/29/14 (Mon)	3:28:26 PM	3:32:47 PM	0:04:21	E→W
10/03/14 (Fri)	3:33:56 PM	3:37:51 PM	0:03:55	E→W
10/01/14 (Wed)	3:34:22 PM	3:36:26 PM	0:02:04	E→W
10/10/14 (Fri)	3:34:49 PM	3:38:05 PM	0:03:16	W→E
09/29/14 (Mon)	3:39:23 PM	3:41:50 PM	0:02:27	E→W
10/03/14 (Fri)	3:56:03 PM	3:58:10 PM	0:02:07	E→W
10/03/14 (Fri)	4:04:32 PM	4:06:44 PM	0:02:12	E→W
10/09/14 (Thu)	4:05:15 PM	4:06:00 PM	0:00:45	W→E
10/10/14 (Fri)	4:15:43 PM	4:18:34 PM	0:02:51	E→W
10/02/14 (Thu)	4:21:14 PM	4:24:33 PM	0:03:19	E→W
09/30/14 (Tue)	4:41:49 PM	4:44:33 PM	0:02:44	E→W
10/08/14 (Wed)	4:45:38 PM	4:47:10 PM	0:01:32	W→E
10/13/14 (Mon)	4:51:38 PM	4:53:52 PM	0:02:14	W→E
10/03/14 (Fri)	4:52:20 PM	4:52:55 PM	0:00:35	E→W
10/09/14 (Thu)	5:13:45 PM	5:16:16 PM	0:02:31	E→W
10/07/14 (Tue)	5:15:08 PM	5:17:33 PM	0:02:25	E→W
09/30/14 (Tue)	5:22:33 PM	5:25:16 PM	0:02:43	E→W
10/02/14 (Thu)	5:41:14 PM	5:43:51 PM	0:02:37	E→W
09/29/14 (Mon)	5:45:07 PM	5:46:10 PM	0:01:03	E→W
10/09/14 (Thu)	5:53:44 PM	5:56:13 PM	0:02:29	E→W

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03

Date	Gate Down Time	Gate Up Time	Duration (hrs:min:sec)	Crossing Direction
10/01/14 (Wed)	5:55:43 PM	5:59:06 PM	0:03:23	W→E
10/02/14 (Thu)	6:00:54 PM	6:03:02 PM	0:02:08	E→W
09/30/14 (Tue)	6:19:13 PM	6:21:58 PM	0:02:45	W→E
10/02/14 (Thu)	6:20:09 PM	6:22:22 PM	0:02:13	W→E

Appendix B INTERSECTION LANE GROUP DELAYS AND LEVELS OF SERVICE

Appendix C HIGHWAY CAPACITY SOFTWARE ANALYSIS RESULTS

**Existing AM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing AM						
Project Description							
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	417			631	22	
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63	
Hourly Flow Rate, HFR (veh/h)	11	479	0	0	733	34	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	8		6				
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	8	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	11					8	8
C (m) (veh/h)	841					233	661
v/c	0.01					0.03	0.01
95% queue length	0.04					0.11	0.04
Control Delay (s/veh)	9.3					21.0	10.5
LOS	A					C	B
Approach Delay (s/veh)	--	--				15.8	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2014			
Analysis Time Period								
Project Description								
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	414			553	82		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	475	0	0	628	98		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2		1					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	4	0	4	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					4		4
C (m) (veh/h)	871					234		678
v/c	0.04					0.02		0.01
95% queue length	0.13					0.05		0.02
Control Delay (s/veh)	9.3					20.7		10.3
LOS	A					C		B
Approach Delay (s/veh)	--	--				15.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing AM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	6	369			522	22	
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47	
Hourly Flow Rate, HFR (veh/h)	12	479	0	0	636	46	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	6	0	4				
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	13	0	6	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	12						19
C (m) (veh/h)	905						241
v/c	0.01						0.08
95% queue length	0.04						0.25
Control Delay (s/veh)	9.0						21.2
LOS	A						C
Approach Delay (s/veh)	--	--					21.2
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing AM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	12	398			583	1	
Peak-Hour Factor, PHF	0.67	0.81	1.00	1.00	0.91	0.25	
Hourly Flow Rate, HFR (veh/h)	17	491	0	0	640	4	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	10				
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	6	0	14	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	17						20
C (m) (veh/h)	935						381
v/c	0.02						0.05
95% queue length	0.06						0.17
Control Delay (s/veh)	8.9						15.0
LOS	A						B
Approach Delay (s/veh)	--	--					15.0
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing AM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		382	6	11	576		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	477	6	15	632	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				15	0	22	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	25	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		15		45			
C (m) (veh/h)		1064		410			
v/c		0.01		0.11			
95% queue length		0.04		0.37			
Control Delay (s/veh)		8.4		14.9			
LOS		A		B			
Approach Delay (s/veh)	--	--	14.9				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing AM						
Project Description							
East/West Street: <i>Pennsylvania Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		401	2	1	570		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	483	2	2	587	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				3	0	7	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	3	0	10	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		2		13			
C (m) (veh/h)		1074		508			
v/c		0.00		0.03			
95% queue length		0.01		0.08			
Control Delay (s/veh)		8.4		12.3			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.3				
Approach LOS	--	--	B				

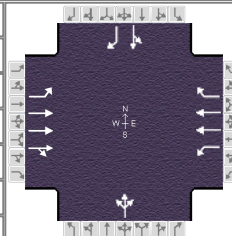
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2014		
Analysis Time Period	Existing AM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	687			578	2	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	2	808	0	0	614	2	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1	0	
Configuration	LT						TR
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	2				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	2	0	6	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	2						8
C (m) (veh/h)	945						206
v/c	0.00						0.04
95% queue length	0.01						0.12
Control Delay (s/veh)	8.8						23.2
LOS	A						C
Approach Delay (s/veh)	--	--					23.2
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	A SELLS				Intersection			
Agency/Co.					Jurisdiction			
Date Performed	12/3/2014				Analysis Year	2014		
Analysis Time Period	Existing AM Peak							
Project Description								
East/West Street: US 119					North/South Street: Jefferson Road			
Intersection Orientation: North-South					Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		565	0		165			
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00		
Hourly Flow Rate, HFR (veh/h)	0	634	0	0	198	0		
Percent Heavy Vehicles	4	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	1	0	1	0		
Configuration		T	R		T			
Upstream Signal		0			1			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				25		137		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78		
Hourly Flow Rate, HFR (veh/h)	0	0	0	36	0	175		
Percent Heavy Vehicles	0	0	0	5	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			L		R			
v (veh/h)			36		175			
C (m) (veh/h)			338		483			
v/c			0.11		0.36			
95% queue length			0.35		1.64			
Control Delay (s/veh)			16.9		16.6			
LOS			C		C			
Approach Delay (s/veh)	--	--	16.7					
Approach LOS	--	--	C					

**Existing AM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.87
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	MacCorkle Av & Kenna Dr	File Name	Existing AM - MacCorkle RTOR.xus		
Project Description	Existing AM_60 minute				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	1766	9	14	740	10	9	1	42	7	0	0

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		1.7	3.1	120.8	9.4	0.0	0.0				
		Yellow		3.0	0.0	4.0	4.0	0.0	0.0				
		Red		1.0	0.0	2.0	1.0	0.0	0.0				

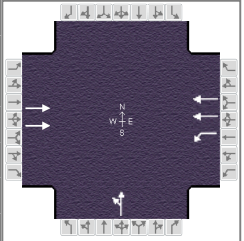
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	5.7	126.8	8.8	129.9		14.4		14.4
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	2.5		3.3			4.5		2.8
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0		0.0		0.0
Phase Call Probability	0.21		0.47			0.78		0.78
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18	
Adjusted Flow Rate (v), veh/h	6	1361	679	15	816	11		29			8	0	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1809	1727	1693	1537		1544			1389	1537	
Queue Service Time (g _s), s	0.5	0.0	0.0	1.3	7.3	0.2		0.0			0.0	0.0	
Cycle Queue Clearance Time (g _c), s	0.5	0.0	0.0	1.3	7.3	0.2		2.5			0.8	0.0	
Green Ratio (g/C)	0.01	0.81	0.81	0.03	0.83	0.83		0.06			0.06	0.06	
Capacity (c), veh/h	20	2921	1457	44	2797	1269		130			135	96	
Volume-to-Capacity Ratio (X)	0.293	0.466	0.466	0.353	0.292	0.009		0.222			0.060	0.000	
Available Capacity (c _a), veh/h	203	2921	1457	191	2797	1269		205			205	174	
Back of Queue (Q), veh/ln (95th percentile)	0.4	0.4	0.8	1.1	3.4	0.1		1.9			0.5	0.0	
Queue Storage Ratio (RQ) (95th percentile)	0.05	0.00	0.00	0.00	0.00	0.01		0.00			0.00	0.00	
Uniform Delay (d ₁), s/veh	73.3	0.0	0.0	73.2	2.6	1.9		67.1			66.3	0.0	
Incremental Delay (d ₂), s/veh	3.0	0.5	1.1	1.7	0.3	0.0		0.3			0.1	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	76.3	0.5	1.1	74.9	2.8	1.9		67.4			66.3	0.0	
Level of Service (LOS)	E	A	A	E	A	A		E			E		
Approach Delay, s/veh / LOS	0.9		A	4.1		A		67.4		E	66.3		E
Intersection Delay, s/veh / LOS	2.7						A						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.2	A	0.5	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.92
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Existing AM - MacCorkle RTOR.xus		
Project Description	Existing AM_60 minute				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1035		27	661		93	0				

Signal Information				Signal Phases									
Cycle, s	150.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.7	117.4	11.8	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

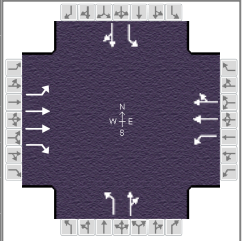
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		122.4	10.7	133.2		16.8		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.5			11.1		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.1		
Phase Call Probability			0.72			0.99		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		2086		30	741			101				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		42.3		0.5	3.9			9.1				
Cycle Queue Clearance Time (g _c), s		42.3		0.5	3.9			9.1				
Green Ratio (g/C)		0.78		0.83	0.85			0.08				
Capacity (c), veh/h		2704		208	2867			129				
Volume-to-Capacity Ratio (X)		0.772		0.145	0.258			0.786				
Available Capacity (c _a), veh/h		2704		347	2867			218				
Back of Queue (Q), veh/ln (95th percentile)		15.7		0.6	1.4			7.1				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.12	0.00			0.00				
Uniform Delay (d ₁), s/veh		6.2		10.1	1.2			67.8				
Incremental Delay (d ₂), s/veh		2.0		0.1	0.2			4.0				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		8.2		10.2	1.4			71.8				
Level of Service (LOS)		A		B	A			E				
Approach Delay, s/veh / LOS	8.2	A		1.7	A		71.8	E		0.0		
Intersection Delay, s/veh / LOS	8.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	1.1	A	0.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.88
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	MacCorkle Av & Jefferson	File Name	Existing AM - MacCorkle RTOR.xus		
Project Description	Existing AM_60 minute				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	23	1036	563	81	641	12	84	11	326	10	7	14

Signal Information				Signal Phases							
Cycle, s	150.0	Reference Phase	2								
Offset, s	0	Reference Point	End	Green	5.7	2.1	102.2	25.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	1.0	1.0	0.0	0.0	

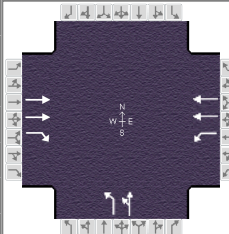
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		6.0		6.0
Phase Duration, s	10.7	107.2	12.8	109.3		30.0		30.0
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	2.8		4.1			27.0		27.0
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.0		0.0
Phase Call Probability	0.71		0.97			1.00		1.00
Max Out Probability	0.00		0.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	30	1337	673	83	337	335	95	272		11	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1646	1465	1678	1762	1750	1342	1504		1103	1619	
Queue Service Time (g _s), s	0.8	20.6	26.8	2.1	14.7	14.6	9.3	25.0		0.0	1.8	
Cycle Queue Clearance Time (g _c), s	0.8	20.6	26.8	2.1	14.7	14.6	11.1	25.0		25.0	1.8	
Green Ratio (g/C)	0.72	0.68	0.68	0.73	0.70	0.70	0.17	0.17		0.17	0.17	
Capacity (c), veh/h	559	2244	999	350	1225	1217	256	251		48	270	
Volume-to-Capacity Ratio (X)	0.053	0.596	0.674	0.238	0.275	0.275	0.373	1.084		0.237	0.088	
Available Capacity (c _a), veh/h	620	2244	999	442	1225	1217	256	251		48	270	
Back of Queue (Q), veh/ln (95th percentile)	0.5	7.4	8.1	1.3	9.6	9.4	5.5	21.7		0.8	1.3	
Queue Storage Ratio (RQ) (95th percentile)	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	7.0	5.9	6.4	7.5	13.1	12.9	53.7	58.3		70.8	49.3	
Incremental Delay (d ₂), s/veh	0.0	0.6	2.0	0.1	0.4	0.4	0.3	80.9		0.9	0.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	7.0	6.5	8.4	7.6	13.5	13.3	54.0	139.3		71.8	49.3	
Level of Service (LOS)	A	A	A	A	B	B	D	F		E	D	
Approach Delay, s/veh / LOS	7.1		A	12.7		B	117.1		F	56.6		E
Intersection Delay, s/veh / LOS	21.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.2	B	2.9	C	3.0	C
Bicycle LOS Score / LOS	2.0	A	1.2	A	1.1	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.83
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	MacCorkle Av & I 64 WB	File Name	Existing AM - MacCorkle RTOR.xus		
Project Description	Existing AM_60 minute				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1143	217	70	342		345	85				

Signal Information				Phase Diagram								
Cycle, s	150.0	Reference Phase	6									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	7.8	97.2	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

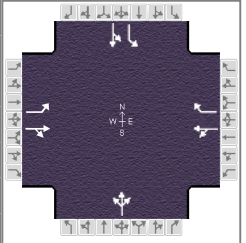
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		102.2	12.8	115.0		35.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			4.4			33.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.97			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		1430	199	84	412		416	102				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		34.7	4.5	2.4	0.5		31.0	7.0				
Cycle Queue Clearance Time (g _c), s		34.7	4.5	2.4	0.5		31.0	7.0				
Green Ratio (g/C)		0.65	0.65	0.71	0.73		0.21	0.21				
Capacity (c), veh/h		2196	977	277	2370		344	382				
Volume-to-Capacity Ratio (X)		0.651	0.203	0.304	0.174		1.210	0.268				
Available Capacity (c _a), veh/h		2196	977	409	2370		344	382				
Back of Queue (Q), veh/ln (95th percentile)		16.5	2.5	1.4	0.3		35.6	5.8				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		2.00	0.00				
Uniform Delay (d ₁), s/veh		13.0	5.5	12.2	0.5		59.5	50.0				
Incremental Delay (d ₂), s/veh		1.0	0.3	0.2	0.2		118.6	0.1				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		14.0	5.8	12.4	0.6		178.1	50.1				
Level of Service (LOS)		B	A	B	A		F	D				
Approach Delay, s/veh / LOS	13.0	B		2.6	A		152.8	F		0.0		
Intersection Delay, s/veh / LOS	38.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	1.9	A	2.9	C	3.0	C
Bicycle LOS Score / LOS	1.8	A	0.9	A	1.3	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	Jefferson & Mathias /Ka...	File Name	Existing AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	38	513	2	6	475	390	2	10	41	521	2	

Signal Information													
Cycle, s	136.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	85.0	29.0	8.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	3.0	0.0	0.0	0.0			
				Red	1.0	1.0	1.0	0.0	0.0	0.0			

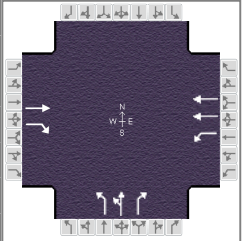
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		8		4
Case Number		6.0		7.0		12.0		10.0
Phase Duration, s		90.0		90.0		12.0		34.0
Change Period, (Y+R _c), s		5.0		5.0		4.0		5.0
Max Allow Headway (MAH), s		0.0		0.0		3.2		3.1
Queue Clearance Time (g _s), s						6.5		31.0
Green Extension Time (g _e), s		0.0		0.0		0.0		0.0
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	
Adjusted Flow Rate (v), veh/h	42	566			410	323		54		573	2	
Adjusted Saturation Flow Rate (s), veh/h/ln	976	1812			1807	1537		1594		1727	1814	
Queue Service Time (g _s), s	1.3	12.1			0.0	12.1		4.5		29.0	0.1	
Cycle Queue Clearance Time (g _c), s	13.9	12.1			12.1	12.1		4.5		29.0	0.1	
Green Ratio (g/C)	0.62	0.62			0.62	0.62		0.06		0.21	0.21	
Capacity (c), veh/h	576	1133			1156	961		94		368	387	
Volume-to-Capacity Ratio (X)	0.072	0.500			0.355	0.337		0.574		1.554	0.006	
Available Capacity (c _a), veh/h	576	1133			1156	961		94		368	387	
Back of Queue (Q), veh/ln (95th percentile)	0.6	6.6			7.7	7.1		3.5		60.1	0.1	
Queue Storage Ratio (RQ) (95th percentile)	0.06	0.00			0.00	0.00		0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	7.2	5.3			9.2	10.3		62.3		53.5	42.1	
Incremental Delay (d ₂), s/veh	0.2	1.6			0.8	0.9		5.5		262.5	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Control Delay (d), s/veh	7.5	6.8			10.0	11.2		67.8		316.0	42.1	
Level of Service (LOS)	A	A			A	B		E		F	D	
Approach Delay, s/veh / LOS	6.9		A	10.5		B	67.8		E	314.9		F
Intersection Delay, s/veh / LOS	99.8						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.5	A	2.0	B	0.6	A	1.4	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Kanawh...	File Name	Existing AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		571	496	143	362		510	0	128			

Signal Information														
Cycle, s	136.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	77.0	15.0	29.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
				Red	1.0	1.0	1.0	0.0	0.0	0.0				

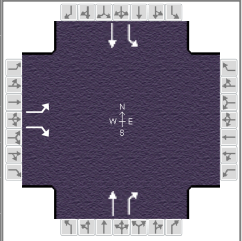
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	1.0	4.0		9.0		
Phase Duration, s		82.0	20.0	102.0		34.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			31.0		
Green Extension Time (g _e), s		0.0	1.1	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement		2	12	1	6		3	8	18				
Adjusted Flow Rate (v), veh/h		504	295	157	398		560	0	84				
Adjusted Saturation Flow Rate (s), veh/h/ln		1796	1537	1711	1710		1631	1814	1537				
Queue Service Time (g _s), s		28.7	14.9	0.0	0.9		29.0	0.0	6.1				
Cycle Queue Clearance Time (g _c), s		28.7	14.9	0.0	0.9		29.0	0.0	6.1				
Green Ratio (g/C)		0.57	0.57	0.66	0.71		0.21	0.21	0.21				
Capacity (c), veh/h		1017	870	542	2439		348	387	328				
Volume-to-Capacity Ratio (X)		0.496	0.339	0.290	0.163		1.611	0.000	0.255				
Available Capacity (c _a), veh/h		1017	870	542	2439		348	387	328				
Back of Queue (Q), veh/ln (95th percentile)		14.7	6.4	5.7	0.6		61.1	0.0	4.2				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		0.00	0.00	0.00				
Uniform Delay (d ₁), s/veh		26.5	17.3	23.7	1.0		53.5	0.0	44.5				
Incremental Delay (d ₂), s/veh		0.2	0.1	0.1	0.1		288.0	0.0	0.2				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0	0.0				
Control Delay (d), s/veh		26.7	17.4	23.8	1.1		341.5	0.0	44.7				
Level of Service (LOS)		C	B	C	A		F		D				
Approach Delay, s/veh / LOS	23.2	C		7.6	A		303.0	F		0.0			
Intersection Delay, s/veh / LOS		109.1						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	1.9	A	2.5	B	3.0	C
Bicycle LOS Score / LOS	2.1	B	0.9	A	1.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	Jefferson Rd/Oakhurst a...	File Name	Existing AM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	444		7					120	113	130	62	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.4	53.5	39.1	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		45.1				58.0	16.9	74.9
Change Period, (Y+R _c), s		6.0				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		38.2					12.2	
Green Extension Time (g _e), s		0.9				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	505		8				136	72	148	70		
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452				1762	1568	1711	1796		
Queue Service Time (g _s), s	36.2		0.4				5.6	3.2	10.2	2.0		
Cycle Queue Clearance Time (g _c), s	36.2		0.4				5.6	3.2	10.2	2.0		
Green Ratio (g/C)	0.33		0.33				0.45	0.45	0.10	0.59		
Capacity (c), veh/h	532		474				785	699	176	1053		
Volume-to-Capacity Ratio (X)	0.948		0.017				0.174	0.102	0.837	0.067		
Available Capacity (c _a), veh/h	734		653				785	699	433	1053		
Back of Queue (Q), veh/ln (95th percentile)	22.9		0.3				4.2	2.1	8.0	1.4		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.02				0.00	0.00	0.95	0.00		
Uniform Delay (d ₁), s/veh	39.4		27.4				20.0	19.3	52.8	10.7		
Incremental Delay (d ₂), s/veh	15.7		0.0				0.5	0.3	4.0	0.1		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	55.1		27.4				20.5	19.6	56.8	10.8		
Level of Service (LOS)	E		C				C	B	E	B		
Approach Delay, s/veh / LOS	54.7		D	0.0			20.2	C	42.0	D		
Intersection Delay, s/veh / LOS	44.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	0.8	A

**Existing PM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing PM						
Project Description							
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	575			579	43	
Peak-Hour Factor, PHF	0.95	0.96	1.00	1.00	0.90	0.69	
Hourly Flow Rate, HFR (veh/h)	10	598	0	0	643	62	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	19		21				
Peak-Hour Factor, PHF	0.32	1.00	0.88	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	59	0	23	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	10					59	23
C (m) (veh/h)	885					253	684
v/c	0.01					0.23	0.03
95% queue length	0.03					0.88	0.10
Control Delay (s/veh)	9.1					23.5	10.4
LOS	A					C	B
Approach Delay (s/veh)	--	--				19.8	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	11/25/2014				Analysis Year	2014		
Analysis Time Period	Existing PM							
Project Description								
East/West Street: <i>McDonalds entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	16	586			556	33		
Peak-Hour Factor, PHF	0.78	0.94	1.00	1.00	0.89	0.87		
Hourly Flow Rate, HFR (veh/h)	20	623	0	0	624	37		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	1		0					
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	1	0	0	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	20					1		0
C (m) (veh/h)	919					235		704
v/c	0.02					0.00		0.00
95% queue length	0.07					0.01		0.00
Control Delay (s/veh)	9.0					20.4		10.1
LOS	A					C		B
Approach Delay (s/veh)	--	--				20.4		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing PM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	581			584	33	
Peak-Hour Factor, PHF	0.83	0.98	1.00	1.00	0.98	0.75	
Hourly Flow Rate, HFR (veh/h)	12	592	0	0	595	44	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	7	0	10				
Peak-Hour Factor, PHF	0.88	1.00	0.79	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	7	0	12	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	12						19
C (m) (veh/h)	939						324
v/c	0.01						0.06
95% queue length	0.04						0.19
Control Delay (s/veh)	8.9						16.8
LOS	A						C
Approach Delay (s/veh)	--	--					16.8
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing PM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	11	581			566	1	
Peak-Hour Factor, PHF	0.79	0.96	1.00	1.00	0.92	0.25	
Hourly Flow Rate, HFR (veh/h)	13	605	0	0	615	4	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	3	0	22				
Peak-Hour Factor, PHF	0.63	1.00	0.72	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	4	0	30	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	13						34
C (m) (veh/h)	955						517
v/c	0.01						0.07
95% queue length	0.04						0.21
Control Delay (s/veh)	8.8						12.5
LOS	A						B
Approach Delay (s/veh)	--	--					12.5
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing PM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		549	13	21	551		
Peak-Hour Factor, PHF	1.00	0.94	0.89	0.88	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	584	14	23	605	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				10	0	27	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.63	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	0	15	0	30	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		23		45			
C (m) (veh/h)		968		378			
v/c		0.02		0.12			
95% queue length		0.07		0.40			
Control Delay (s/veh)		8.8		15.8			
LOS		A		C			
Approach Delay (s/veh)	--	--	15.8				
Approach LOS	--	--	C				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2014		
Analysis Time Period	Existing PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		544	10	4	559		
Peak-Hour Factor, PHF	1.00	0.94	0.59	1.00	0.89	1.00	
Hourly Flow Rate, HFR (veh/h)	0	578	16	4	628	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				3	0	3	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.42	1.00	0.30	
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	9	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		4		16			
C (m) (veh/h)		950		463			
v/c		0.00		0.03			
95% queue length		0.01		0.11			
Control Delay (s/veh)		8.8		13.1			
LOS		A		B			
Approach Delay (s/veh)	--	--	13.1				
Approach LOS	--	--	B				

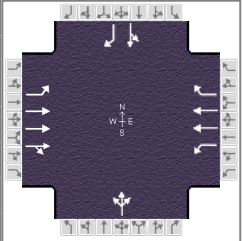
TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	A SELLS			Intersection				
Agency/Co.				Jurisdiction				
Date Performed	12/3/2014			Analysis Year	2014			
Analysis Time Period	Existing PM Peak							
Project Description								
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	738			1058	1		
Peak-Hour Factor, PHF	1.00	0.89	1.00	1.00	0.94	0.25		
Hourly Flow Rate, HFR (veh/h)	0	829	0	0	1125	4		
Percent Heavy Vehicles	3	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT			TR				
Upstream Signal		1			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	2					
Peak-Hour Factor, PHF	0.33	1.00	1.00	0.80	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	6	0	2	0	0	0		
Percent Heavy Vehicles	100	0	100	3	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	0						8	
C (m) (veh/h)	615						48	
v/c	0.00						0.17	
95% queue length	0.00						0.54	
Control Delay (s/veh)	10.9						94.4	
LOS	B						F	
Approach Delay (s/veh)	--	--					94.4	
Approach LOS	--	--					F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	A SELLS			Intersection				
Agency/Co.				Jurisdiction				
Date Performed	7/22/15			Analysis Year	2014			
Analysis Time Period	Existing PM Peak							
Project Description								
East/West Street: US 119				North/South Street: Jefferson Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	25	665			245			
Peak-Hour Factor, PHF	0.74	0.82	1.00	1.00	0.91	1.00		
Hourly Flow Rate, HFR (veh/h)	33	810	0	0	269	0		
Percent Heavy Vehicles	3	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T			T			
Upstream Signal		0			1			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				61		97		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.80	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	76	0	114		
Percent Heavy Vehicles	0	0	0	3	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L		R			
v (veh/h)	33		76		114			
C (m) (veh/h)	1308		202		383			
v/c	0.03		0.38		0.30			
95% queue length	0.08		1.64		1.23			
Control Delay (s/veh)	7.8		33.2		18.3			
LOS	A		D		C			
Approach Delay (s/veh)	--	--	24.3					
Approach LOS	--	--	C					

**Existing PM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.93
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	MacCorkle Av & Kenna Dr	File Name	Existing PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	8	1039	12	44	1752	10	14	2	24	12	0	1

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		2.1	0.2	94.2	8.5	0.0	0.0				
		Yellow		3.0	4.0	4.0	4.0	0.0	0.0				
		Red		1.0	1.0	2.0	1.0	0.0	0.0				

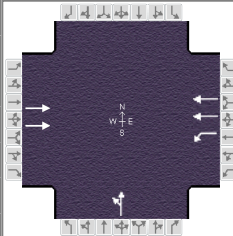
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.1	100.2	11.3	105.4		13.5		13.5
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g _s), s	2.6		5.2			3.6		3.1
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0		0.0		0.0
Phase Call Probability	0.26		0.79			0.71		0.71
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18	
Adjusted Flow Rate (v), veh/h	9	755	375	45	1776	10		22			13	1	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1803	1727	1693	1537		1498			1404	1537	
Queue Service Time (g _s), s	0.6	0.0	0.0	3.2	24.2	0.1		0.5			0.0	0.1	
Cycle Queue Clearance Time (g _c), s	0.6	0.0	0.0	3.2	24.2	0.1		1.6			1.1	0.1	
Green Ratio (g/C)	0.02	0.75	0.75	0.05	0.80	0.80		0.07			0.07	0.07	
Capacity (c), veh/h	29	2734	1358	87	2694	1223		151			153	105	
Volume-to-Capacity Ratio (X)	0.301	0.276	0.276	0.512	0.659	0.008		0.143			0.084	0.010	
Available Capacity (c _a), veh/h	311	2734	1358	297	2694	1223		286			282	246	
Back of Queue (Q), veh/ln (95th percentile)	0.5	0.2	0.3	2.6	8.3	0.1		1.2			0.7	0.1	
Queue Storage Ratio (RQ) (95th percentile)	0.06	0.00	0.00	0.00	0.00	0.01		0.00			0.00	0.00	
Uniform Delay (d ₁), s/veh	60.4	0.0	0.0	60.3	4.1	2.1		55.0			54.8	54.3	
Incremental Delay (d ₂), s/veh	2.2	0.3	0.5	1.3	1.0	0.0		0.2			0.1	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	62.6	0.3	0.5	61.6	5.1	2.1		55.1			54.9	54.3	
Level of Service (LOS)	E	A	A	E	A	A		E			D	D	
Approach Delay, s/veh / LOS	0.8		A	6.5		A		55.1		E	54.8		D
Intersection Delay, s/veh / LOS	4.9						A						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.1	A	2.1	B	0.5	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.93
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1> 4:30
Intersection	MacCorkle Av & I-64 EB	File Name	Existing PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		633		56	1562		42	0				

Signal Information				Phase Diagram								
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	7.1	93.4	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

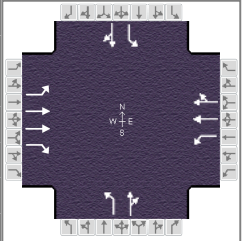
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		98.4	12.1	110.5		14.5		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.9			5.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.89			0.79		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		1156		64	1785			45				
Adjusted Saturation Flow Rate (s), veh/h/ln		1710		1678	1677			1762				
Queue Service Time (g _s), s		14.0		0.9	21.1			3.0				
Cycle Queue Clearance Time (g _c), s		14.0		0.9	21.1			3.0				
Green Ratio (g/C)		0.75		0.82	0.84			0.08				
Capacity (c), veh/h		2554		452	2831			134				
Volume-to-Capacity Ratio (X)		0.453		0.142	0.631			0.337				
Available Capacity (c _a), veh/h		2554		631	2831			282				
Back of Queue (Q), veh/ln (95th percentile)		7.0		0.4	6.2			2.4				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.07	0.00			0.00				
Uniform Delay (d ₁), s/veh		4.9		3.4	3.0			54.8				
Incremental Delay (d ₂), s/veh		0.6		0.0	0.7			0.5				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		5.4		3.5	3.6			55.3				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	5.4	A		3.6	A		55.3	E		0.0		
Intersection Delay, s/veh / LOS	5.1			A			A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	1.9	A	0.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.93
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	MacCorkle Av & Jefferso...	File Name	Existing PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	42	601	421	161	1608	37	150	11	415	52	24	65

Signal Information				Phase Diagrams							
Cycle, s	125.0	Reference Phase	2								
Offset, s	0	Reference Point	End	Green	6.4	1.6	77.0	25.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	1.0	1.0	0.0	0.0	

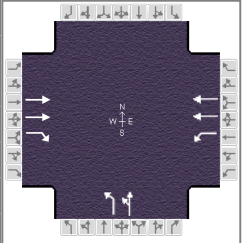
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		6.0		6.0
Phase Duration, s	11.4	82.0	13.0	83.6		30.0		30.0
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g _s), s	3.2		6.2			27.0		27.0
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.0		0.0
Phase Call Probability	0.80		1.00			1.00		1.00
Max Out Probability	0.01		0.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	46	654	352	162	829	826	161	445		56	69	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1646	1465	1678	1762	1748	1289	1499		941	1630	
Queue Service Time (g _s), s	1.2	7.1	9.3	4.2	37.2	37.4	14.3	25.0		0.0	4.1	
Cycle Queue Clearance Time (g _c), s	1.2	7.1	9.3	4.2	37.2	37.4	18.7	25.0		25.0	4.1	
Green Ratio (g/C)	0.67	0.62	0.62	0.68	0.63	0.63	0.20	0.20		0.20	0.20	
Capacity (c), veh/h	240	2029	903	586	1108	1100	273	300		58	326	
Volume-to-Capacity Ratio (X)	0.191	0.322	0.390	0.276	0.748	0.751	0.591	1.485		0.971	0.211	
Available Capacity (c _a), veh/h	276	2029	903	707	1108	1100	273	300		58	326	
Back of Queue (Q), veh/ln (95th percentile)	0.8	3.9	4.6	2.7	15.9	15.8	8.0	43.8		6.2	3.0	
Queue Storage Ratio (RQ) (95th percentile)	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	14.7	5.9	6.2	7.7	12.6	12.6	45.4	45.8		58.3	38.2	
Incremental Delay (d ₂), s/veh	0.1	0.4	1.1	0.0	1.9	1.9	2.3	235.1		107.3	0.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	14.8	6.3	7.3	7.7	14.5	14.5	47.8	281.0		165.6	38.3	
Level of Service (LOS)	B	A	A	A	B	B	D	F		F	D	
Approach Delay, s/veh / LOS	7.0		A	13.9		B	218.9		F	95.4		F
Intersection Delay, s/veh / LOS	49.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.9	C	3.1	C
Bicycle LOS Score / LOS	1.3	A	2.1	B	1.5	A	0.7	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.93
Urban Street	MacCorkle Avenue	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Existing PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		652	427	248	1156		655	0				

Signal Information				Phase Diagram								
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	13.4	52.6	44.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

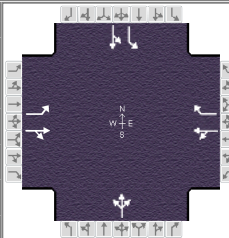
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		57.6	18.4	76.0		49.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			13.0			46.0		
Green Extension Time (g _e), s		0.0	0.4	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		608	342	267	1243		704	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727	1537	1678	1677		1631	1850				
Queue Service Time (g _s), s		15.6	17.9	11.0	22.2		44.0	0.0				
Cycle Queue Clearance Time (g _c), s		15.6	17.9	11.0	22.2		44.0	0.0				
Green Ratio (g/C)		0.42	0.42	0.54	0.57		0.35	0.35				
Capacity (c), veh/h		1453	647	470	1905		574	651				
Volume-to-Capacity Ratio (X)		0.418	0.529	0.567	0.652		1.226	0.000				
Available Capacity (c _a), veh/h		1453	647	626	1905		574	651				
Back of Queue (Q), veh/ln (95th percentile)		9.3	8.7	6.9	9.5		51.6	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		0.00	0.00				
Uniform Delay (d ₁), s/veh		25.8	20.7	16.6	9.2		40.5	0.0				
Incremental Delay (d ₂), s/veh		0.5	1.6	0.4	1.8		116.7	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		26.2	22.2	17.1	11.0		157.2	0.0				
Level of Service (LOS)		C	C	B	B		F					
Approach Delay, s/veh / LOS	24.8	C		12.1	B		157.2	F		0.0		
Intersection Delay, s/veh / LOS	48.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	1.9	A	2.9	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	1.7	A	1.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.97
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	Mathias Lane/Kanawha...	File Name	Existing PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	30	511	10	0	670	520	1	7	8	490	15	

Signal Information													
Cycle, s	136.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	91.2	29.0	1.8	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	3.0	0.0	0.0	0.0			
				Red	1.0	1.0	1.0	0.0	0.0	0.0			

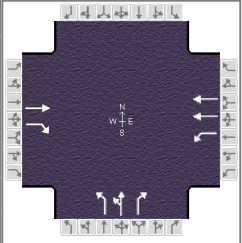
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		8		4
Case Number		6.0		7.0		12.0		10.0
Phase Duration, s		96.2		96.2		5.8		34.0
Change Period, (Y+R _c), s		5.0		5.0		4.0		5.0
Max Allow Headway (MAH), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g _s), s						2.7		31.0
Green Extension Time (g _e), s		0.0		0.0		0.0		0.0
Phase Call Probability						0.30		1.00
Max Out Probability						0.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	
Adjusted Flow Rate (v), veh/h	31	537			0	480		9		505	15	
Adjusted Saturation Flow Rate (s), veh/h/ln	796	1807			0	1537		1769		1727	1814	
Queue Service Time (g _s), s	0.9	7.1			0.0	18.0		0.7		29.0	0.9	
Cycle Queue Clearance Time (g _c), s	22.0	7.1			0.0	18.0		0.7		29.0	0.9	
Green Ratio (g/C)	0.67	0.67				0.67		0.01		0.21	0.21	
Capacity (c), veh/h	468	1212				1031		23		368	387	
Volume-to-Capacity Ratio (X)	0.066	0.443			0.000	0.465		0.402		1.371	0.040	
Available Capacity (c _a), veh/h	468	1212				1031		104		368	387	
Back of Queue (Q), veh/ln (95th percentile)	0.5	3.8			0.0	8.4		0.6		46.9	0.7	
Queue Storage Ratio (RQ) (95th percentile)	0.05	0.00			0.00	0.00		0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	6.8	2.7				8.9		66.6		53.5	42.5	
Incremental Delay (d ₂), s/veh	0.3	1.2			0.0	0.9		4.1		183.6	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Control Delay (d), s/veh	7.1	3.9				9.8		70.7		237.1	42.5	
Level of Service (LOS)	A	A				A		E		F	D	
Approach Delay, s/veh / LOS	4.1		A	9.7		A	70.7		E	231.3		F
Intersection Delay, s/veh / LOS	60.9						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.4	A	2.5	B	0.5	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.97
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	Kanawha Turnpike	File Name	Existing PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		329	684	320	644		541	0	116			

Signal Information														
Cycle, s	136.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	77.0	6.7	37.3	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
				Red	1.0	1.0	1.0	0.0	0.0	0.0				

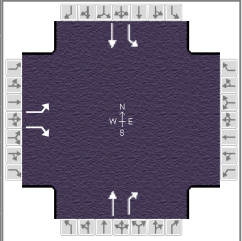
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	1.0	4.0		9.0		
Phase Duration, s		82.0	11.7	93.7		42.3		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			39.3		
Green Extension Time (g _e), s		0.0	0.7	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.02			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3	8	18			
Adjusted Flow Rate (v), veh/h		285	455	330	664		558	0	43			
Adjusted Saturation Flow Rate (s), veh/h/ln		1796	1537	1711	1710		1631	1814	1537			
Queue Service Time (g _s), s		15.6	27.1	0.0	4.7		37.3	0.0	2.9			
Cycle Queue Clearance Time (g _c), s		15.6	27.1	0.0	4.7		37.3	0.0	2.9			
Green Ratio (g/C)		0.57	0.57	0.60	0.65		0.27	0.27	0.27			
Capacity (c), veh/h		1017	870	609	2230		448	498	422			
Volume-to-Capacity Ratio (X)		0.280	0.522	0.542	0.298		1.246	0.000	0.103			
Available Capacity (c _a), veh/h		1017	870	714	2230		448	498	422			
Back of Queue (Q), veh/ln (95th percentile)		9.7	13.9	12.0	2.6		45.2	0.0	1.9			
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		0.00	0.00	0.00			
Uniform Delay (d ₁), s/veh		24.2	21.3	25.2	3.4		49.3	0.0	36.8			
Incremental Delay (d ₂), s/veh		0.2	0.7	0.3	0.3		128.3	0.0	0.0			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Control Delay (d), s/veh		24.5	22.0	25.5	3.7		177.6	0.0	36.9			
Level of Service (LOS)		C	C	C	A		F		D			
Approach Delay, s/veh / LOS	23.0	C		10.9	B		167.5	F		0.0		
Intersection Delay, s/veh / LOS	55.1						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.6	B	1.9	A	2.5	B	3.0	C
Bicycle LOS Score / LOS	1.9	A	1.3	A	1.5	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1> 4:30
Intersection	Jefferson Rd & Oakhurs...	File Name	Existing PM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	595		26					115	63	128	165	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	11.6	47.1	47.7	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		52.2				51.6	16.1	67.8
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		46.6					11.6	
Green Extension Time (g _e), s		1.1				0.0	0.2	0.0
Phase Call Probability		1.00					0.99	
Max Out Probability		0.07					0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	647		26				125	45	139	179		
Adjusted Saturation Flow Rate (s), veh/h/ln	1694		1507				1796	1568	1711	1796		
Queue Service Time (g _s), s	44.6		1.3				5.5	2.1	9.6	6.3		
Cycle Queue Clearance Time (g _c), s	44.6		1.3				5.5	2.1	9.6	6.3		
Green Ratio (g/C)	0.40		0.40				0.39	0.39	0.10	0.53		
Capacity (c), veh/h	674		600				705	616	166	947		
Volume-to-Capacity Ratio (X)	0.960		0.044				0.177	0.072	0.838	0.189		
Available Capacity (c _a), veh/h	784		697				705	616	332	947		
Back of Queue (Q), veh/ln (95th percentile)	28.9		0.8				4.3	1.5	7.6	4.7		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.05				0.00	0.00	0.91	0.00		
Uniform Delay (d ₁), s/veh	35.2		22.1				23.8	22.8	53.3	14.9		
Incremental Delay (d ₂), s/veh	20.3		0.0				0.5	0.2	4.3	0.4		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	55.5		22.2				24.3	23.0	57.5	15.3		
Level of Service (LOS)	E		C				C	C	E	B		
Approach Delay, s/veh / LOS	54.2		D	0.0			24.0	C	33.8	C		
Intersection Delay, s/veh / LOS	44.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	1.0	A

**No Build AM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	No Build AM							
Project Description								
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	445			776	25		
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63		
Hourly Flow Rate, HFR (veh/h)	11	511	0	0	902	39		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		1			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10		10					
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	11					11		14
C (m) (veh/h)	723					184		590
v/c	0.02					0.06		0.02
95% queue length	0.05					0.19		0.07
Control Delay (s/veh)	10.1					25.8		11.2
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	12/3/14			Analysis Year	2030			
Analysis Time Period	No Build AM							
Project Description								
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	445			776	5		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	511	0	0	881	6		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	757					167		611
v/c	0.05					0.06		0.03
95% queue length	0.15					0.19		0.10
Control Delay (s/veh)	10.0					27.9		11.1
LOS	A					D		B
Approach Delay (s/veh)	--	--				16.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	No Build AM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	6	442			776	22	
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47	
Hourly Flow Rate, HFR (veh/h)	12	574	0	0	946	46	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	3	0	4				
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	6	0	6	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	12						12
C (m) (veh/h)	691						170
v/c	0.02						0.07
95% queue length	0.05						0.23
Control Delay (s/veh)	10.3						27.8
LOS	B						D
Approach Delay (s/veh)	--	--					27.8
Approach LOS	--	--					D

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	No Build AM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	435			764	12	
Peak-Hour Factor, PHF	1.00	0.81	1.00	1.00	0.91	0.25	
Hourly Flow Rate, HFR (veh/h)	0	537	0	0	839	48	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration	LT				T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	7	0	4				
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	21	0	5	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	0						26
C (m) (veh/h)	757						154
v/c	0.00						0.17
95% queue length	0.00						0.59
Control Delay (s/veh)	9.8						33.1
LOS	A						D
Approach Delay (s/veh)	--	--					33.1
Approach LOS	--	--					D

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	No Build AM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		433	2	3	765		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	541	2	4	840	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				2	0	2	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	2	0	2	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		4		4			
C (m) (veh/h)		1010		336			
v/c		0.00		0.01			
95% queue length		0.01		0.04			
Control Delay (s/veh)		8.6		15.8			
LOS		A		C			
Approach Delay (s/veh)	--	--	15.8				
Approach LOS	--	--	C				

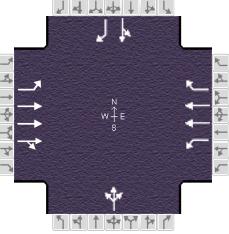
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		421	1	8	645		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	507	1	16	664	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				6	0	14	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	6	0	21	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		16		27			
C (m) (veh/h)		1053		497			
v/c		0.02		0.05			
95% queue length		0.05		0.17			
Control Delay (s/veh)		8.5		12.7			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.7				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	No Build AM						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	797			796	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	10	937	0	0	846	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1	0	
Configuration	LT						TR
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	10						21
C (m) (veh/h)	770						115
v/c	0.01						0.18
95% queue length	0.04						0.64
Control Delay (s/veh)	9.7						43.2
LOS	A						E
Approach Delay (s/veh)	--	--					43.2
Approach LOS	--	--					E

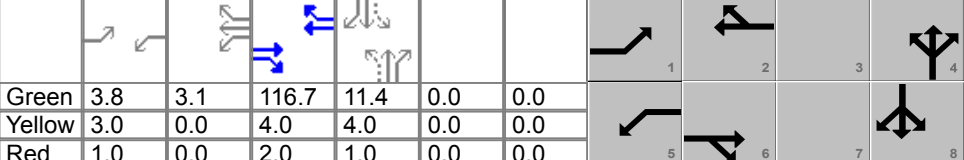
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	7/22/2015			Analysis Year	2030		
Analysis Time Period	No Build AM						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	25	667			194		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	41	749	0	0	233	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1	0	
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				16		130	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	166	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	1	0	1	
Configuration				L		R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	41		23		166		
C (m) (veh/h)	1339		228		415		
v/c	0.03		0.10		0.40		
95% queue length	0.09		0.33		1.89		
Control Delay (s/veh)	7.8		22.6		19.3		
LOS	A		C		C		
Approach Delay (s/veh)	--	--	19.7				
Approach LOS	--	--	C				

**No Build AM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency				Duration, h	0.25	
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other	
Jurisdiction		Time Period	No Build AM	PHF	0.91	
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30	
Intersection	MacCorkle Ave & Kenna...	File Name	No Build AM - MacCorkle.xus			
Project Description						

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	14	1841	9	30	1016	15	9	5	71	7	0	0

Signal Information												
Cycle, s	150.0	Reference Phase	2	Green	3.8	3.1	116.7	11.4	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	3.0	0.0	4.0	4.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On									

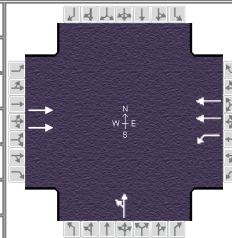
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	7.8	122.7	10.9	125.8		16.4		16.4
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g _s), s	3.3		4.8			7.8		2.9
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0		0.1		0.1
Phase Call Probability	0.47		0.74			0.95		0.95
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18	
Adjusted Flow Rate (v), veh/h	15	1355	676	32	1083	16		64			8	0	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1810	1727	1693	1537		1562			1262	1537	
Queue Service Time (g _s), s	1.3	0.0	0.0	2.8	12.6	0.2		0.8			0.0	0.0	
Cycle Queue Clearance Time (g _c), s	1.3	0.0	0.0	2.8	12.6	0.2		5.8			0.9	0.0	
Green Ratio (g/C)	0.03	0.78	0.78	0.04	0.80	0.80		0.08			0.08	0.08	
Capacity (c), veh/h	44	2823	1408	68	2706	1228		146			144	117	
Volume-to-Capacity Ratio (X)	0.353	0.480	0.480	0.472	0.400	0.013		0.436			0.053	0.000	
Available Capacity (c _a), veh/h	180	2823	1408	168	2706	1228		204			194	174	
Back of Queue (Q), veh/ln (95th percentile)	1.1	0.4	0.8	2.3	6.3	0.1		4.3			0.5	0.0	
Queue Storage Ratio (RQ) (95th percentile)	0.13	0.00	0.00	0.00	0.00	0.02		0.00			0.00	0.00	
Uniform Delay (d ₁), s/veh	71.3	0.0	0.0	72.7	3.8	2.4		66.7			64.5	0.0	
Incremental Delay (d ₂), s/veh	1.8	0.6	1.2	1.7	0.4	0.0		0.8			0.1	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	73.1	0.6	1.2	74.4	4.2	2.4		67.5			64.5	0.0	
Level of Service (LOS)	E	A	A	E	A	A		E			E		
Approach Delay, s/veh / LOS	1.3		A	6.2		A		67.5		E	64.5		E
Intersection Delay, s/veh / LOS	4.5						A						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.4	A	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 EB	File Name	No Build AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1104		40	956		111	0				

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	6.6	115.3	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

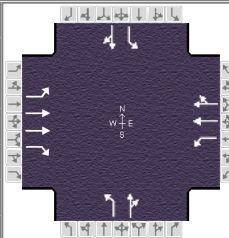
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		120.3	11.6	131.9		18.1		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.7			13.1		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.1		
Phase Call Probability			0.83			0.99		
Max Out Probability			0.00			0.01		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		2109		42	1009			122				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		46.2		0.7	6.6			11.1				
Cycle Queue Clearance Time (g _c), s		46.2		0.7	6.6			11.1				
Green Ratio (g/C)		0.77		0.83	0.85			0.09				
Capacity (c), veh/h		2654		208	2839			142				
Volume-to-Capacity Ratio (X)		0.794		0.203	0.356			0.858				
Available Capacity (c _a), veh/h		2654		323	2839			218				
Back of Queue (Q), veh/ln (95th percentile)		17.3		1.0	2.5			8.8				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.20	0.00			0.00				
Uniform Delay (d ₁), s/veh		7.0		12.8	1.5			67.5				
Incremental Delay (d ₂), s/veh		2.2		0.2	0.3			12.3				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		9.2		13.0	1.8			79.8				
Level of Service (LOS)		A		B	A			E				
Approach Delay, s/veh / LOS	9.2	A		2.2	A		79.8	E		0.0		
Intersection Delay, s/veh / LOS	9.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.5	A	1.4	A	0.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.25		
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other		
Jurisdiction		Time Period	No Build AM	PHF	0.91		
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30		
Intersection	MacCorkle Ave & Jeffers...	File Name	No Build AM - MacCorkle.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	21	1107	634	137	869	5	115	9	321	15	5	12

Signal Information				Phase Diagrams							
Cycle, s	150.0	Reference Phase	2								
Offset, s	0	Reference Point	End	Green	5.2	2.8	87.8	25.0	9.2	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	1.0	1.0	1.0	0.0	

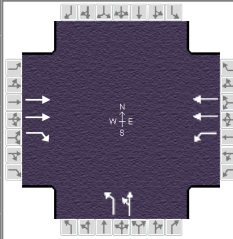
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	10.2	92.8	13.0	95.6		30.0		14.2
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.3
Queue Clearance Time (g _s), s	2.9		7.0			27.0		3.6
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.0		0.0
Phase Call Probability	0.65		1.00			1.00		0.77
Max Out Probability	0.00		0.00			1.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	25	1327	711	144	459	458	126	255		16	19	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1646	1465	1678	1762	1758	1678	1502		1762	1609	
Queue Service Time (g _s), s	0.9	30.2	46.9	5.0	23.9	23.8	9.8	25.0		1.3	1.6	
Cycle Queue Clearance Time (g _c), s	0.9	30.2	46.9	5.0	23.9	23.8	9.8	25.0		1.3	1.6	
Green Ratio (g/C)	0.62	0.59	0.59	0.64	0.60	0.60	0.17	0.17		0.06	0.06	
Capacity (c), veh/h	369	1927	858	291	1064	1062	280	250		108	99	
Volume-to-Capacity Ratio (X)	0.068	0.689	0.829	0.495	0.432	0.432	0.452	1.018		0.152	0.189	
Available Capacity (c _a), veh/h	618	1927	858	557	1064	1062	280	250		294	268	
Back of Queue (Q), veh/ln (95th percentile)	0.6	11.3	16.1	3.5	14.9	14.8	7.2	19.4		1.1	1.2	
Queue Storage Ratio (RQ) (95th percentile)	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	13.2	10.9	12.9	16.2	19.6	19.6	52.4	58.3		65.2	65.4	
Incremental Delay (d ₂), s/veh	0.0	1.0	4.9	0.4	1.0	1.0	0.4	61.7		0.2	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	13.3	12.0	17.8	16.6	20.6	20.5	52.8	120.0		65.4	65.7	
Level of Service (LOS)	B	B	B	B	C	C	D	F		E	E	
Approach Delay, s/veh / LOS	14.0		B	20.0		C	97.8		F	65.6		E
Intersection Delay, s/veh / LOS	25.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	2.9	C	3.1	C
Bicycle LOS Score / LOS	2.0	B	1.4	A	1.1	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 WB	File Name	No Build AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1086	357	77	663		348	0				

Signal Information				Signal Phases											
Cycle, s	150.0	Reference Phase	2	Green				1		2		3		4	
Offset, s	0	Reference Point	End	Yellow				5		6		7		8	
Uncoordinated	No	Simult. Gap E/W	On	Red											
Force Mode	Fixed	Simult. Gap N/S	On												

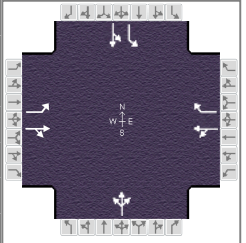
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		102.2	12.8	115.0		35.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			4.4			32.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.97			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		1277	352	85	729		382	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		30.3	10.1	2.4	1.1		30.0	0.0				
Cycle Queue Clearance Time (g _c), s		30.3	10.1	2.4	1.1		30.0	0.0				
Green Ratio (g/C)		0.65	0.65	0.71	0.73		0.20	0.20				
Capacity (c), veh/h		2196	977	312	2370		332	370				
Volume-to-Capacity Ratio (X)		0.582	0.360	0.271	0.307		1.150	0.000				
Available Capacity (c _a), veh/h		2196	977	444	2370		332	370				
Back of Queue (Q), veh/ln (95th percentile)		15.0	5.0	1.4	0.6		31.2	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		1.76	0.00				
Uniform Delay (d ₁), s/veh		13.5	6.5	10.7	0.5		60.0	0.0				
Incremental Delay (d ₂), s/veh		0.7	0.6	0.2	0.3		96.7	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		14.2	7.1	10.9	0.8		156.7	0.0				
Level of Service (LOS)		B	A	B	A		F					
Approach Delay, s/veh / LOS	12.7	B		1.8	A		156.7	F		0.0		
Intersection Delay, s/veh / LOS	29.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	1.9	A	2.9	C	3.0	C
Bicycle LOS Score / LOS	1.7	A	1.2	A	1.1	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build AM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Mathias Ln	File Name	No Build AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	25	582	2	0	629	391	2	6	38	644	7	

Signal Information												
Cycle, s	136.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	88.0	29.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

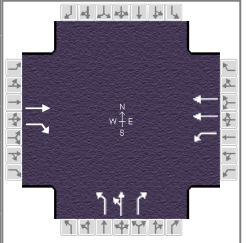
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		8		4
Case Number		6.0		7.0		12.0		10.0
Phase Duration, s		93.0		93.0		9.0		34.0
Change Period, (Y+R _c), s		5.0		5.0		4.0		5.0
Max Allow Headway (MAH), s		0.0		0.0		3.3		3.1
Queue Clearance Time (g _s), s						5.9		31.0
Green Extension Time (g _e), s		0.0		0.0		0.0		0.0
Phase Call Probability						0.83		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	
Adjusted Flow Rate (v), veh/h	27	642			0	328		46		708	8	
Adjusted Saturation Flow Rate (s), veh/h/ln	860	1813			0	1537		1580		1727	1814	
Queue Service Time (g _s), s	0.9	12.5			0.0	11.5		3.9		29.0	0.5	
Cycle Queue Clearance Time (g _c), s	19.6	12.5			0.0	11.5		3.9		29.0	0.5	
Green Ratio (g/C)	0.65	0.65			0.65			0.04		0.21	0.21	
Capacity (c), veh/h	495	1174			995			58		368	387	
Volume-to-Capacity Ratio (X)	0.056	0.547			0.000	0.329		0.803		1.921	0.020	
Available Capacity (c _a), veh/h	495	1174			995			93		368	387	
Back of Queue (Q), veh/ln (95th percentile)	0.4	6.3			0.0	4.4		3.1		87.1	0.4	
Queue Storage Ratio (RQ) (95th percentile)	0.04	0.00			0.00	0.00		0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	7.6	4.1				9.0		65.0		53.5	42.3	
Incremental Delay (d ₂), s/veh	0.2	1.8			0.0	0.1		9.2		424.6	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Control Delay (d), s/veh	7.8	6.0				9.1		74.3		478.1	42.3	
Level of Service (LOS)	A	A				A		E		F	D	
Approach Delay, s/veh / LOS	6.0		A	9.7		A	74.3		E	473.4		F
Intersection Delay, s/veh / LOS	154.1						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.6	A	2.3	B	0.6	A	1.7	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build AM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Kanawh...	File Name	No Build AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		727	537	259	401		619	0	171			

Signal Information														
Cycle, s	136.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	77.0	7.1	36.8	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
				Red	1.0	1.0	1.0	0.0	0.0	0.0				

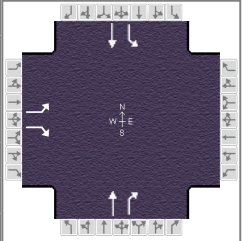
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	1.0	4.0		9.0		
Phase Duration, s		82.0	12.1	94.2		41.8		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			38.8		
Green Extension Time (g _e), s		0.0	0.6	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.01			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3	8	18			
Adjusted Flow Rate (v), veh/h		580	318	285	441		680	0	69			
Adjusted Saturation Flow Rate (s), veh/h/ln		1796	1537	1711	1710		1631	1814	1537			
Queue Service Time (g _s), s		33.2	15.5	0.0	2.7		36.8	0.0	4.7			
Cycle Queue Clearance Time (g _c), s		33.2	15.5	0.0	2.7		36.8	0.0	4.7			
Green Ratio (g/C)		0.57	0.57	0.60	0.66		0.27	0.27	0.27			
Capacity (c), veh/h		1017	870	396	2242		442	491	416			
Volume-to-Capacity Ratio (X)		0.570	0.366	0.718	0.197		1.539	0.000	0.166			
Available Capacity (c _a), veh/h		1017	870	495	2242		442	491	416			
Back of Queue (Q), veh/ln (95th percentile)		16.6	6.4	14.0	1.6		70.2	0.0	3.2			
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		0.00	0.00	0.00			
Uniform Delay (d ₁), s/veh		26.3	16.2	41.3	3.1		49.6	0.0	37.9			
Incremental Delay (d ₂), s/veh		0.2	0.1	2.5	0.2		253.8	0.0	0.1			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Control Delay (d), s/veh		26.5	16.3	43.8	3.3		303.3	0.0	37.9			
Level of Service (LOS)		C	B	D	A		F		D			
Approach Delay, s/veh / LOS	22.9	C		19.2	B		278.8	F		0.0		
Intersection Delay, s/veh / LOS	102.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.6	B	1.9	A	2.5	B	3.0	C
Bicycle LOS Score / LOS	2.5	B	1.1	A	1.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build AM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Oakhurs...	File Name	No Build AM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	546		10					146	101	130	80	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.3	46.6	47.5	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		52.0				51.1	16.8	68.0
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		46.5					12.2	
Green Extension Time (g _e), s		1.0				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.05					0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	620		11				166	58	148	91		
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452				1762	1568	1711	1796		
Queue Service Time (g _s), s	44.5		0.6				7.6	2.8	10.2	3.0		
Cycle Queue Clearance Time (g _c), s	44.5		0.6				7.6	2.8	10.2	3.0		
Green Ratio (g/C)	0.40		0.40				0.39	0.39	0.10	0.53		
Capacity (c), veh/h	646		575				685	609	176	950		
Volume-to-Capacity Ratio (X)	0.960		0.020				0.242	0.095	0.840	0.096		
Available Capacity (c _a), veh/h	755		671				685	609	335	950		
Back of Queue (Q), veh/ln (95th percentile)	28.0		0.3				5.9	1.9	8.0	2.2		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.02				0.00	0.00	0.95	0.00		
Uniform Delay (d ₁), s/veh	35.3		22.1				24.8	23.3	52.9	14.0		
Incremental Delay (d ₂), s/veh	20.9		0.0				0.8	0.3	4.1	0.2		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	56.3		22.1				25.6	23.6	56.9	14.2		
Level of Service (LOS)	E		C				C	C	E	B		
Approach Delay, s/veh / LOS	55.6		E	0.0			25.1	C	40.7	D		
Intersection Delay, s/veh / LOS	46.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.9	A	0.9	A

**No Build PM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	12/3/14				Analysis Year			
Analysis Time Period	No Build PM							
Project Description								
East/West Street: <i>Bob Evans entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	10	650			870	45		
Peak-Hour Factor, PHF	0.95	0.96	1.00	1.00	0.90	0.69		
Hourly Flow Rate, HFR (veh/h)	10	677	0	0	966	65		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		1			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	20		25					
Peak-Hour Factor, PHF	0.32	1.00	0.88	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	62	0	28	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	10					62		28
C (m) (veh/h)	666					144		555
v/c	0.02					0.43		0.05
95% queue length	0.05					1.91		0.16
Control Delay (s/veh)	10.5					47.7		11.8
LOS	B					E		B
Approach Delay (s/veh)	--	--				36.5		
Approach LOS	--	--				E		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	12/3/14			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	20	650			870	35	
Peak-Hour Factor, PHF	0.78	0.94	1.00	1.00	0.89	0.87	
Hourly Flow Rate, HFR (veh/h)	25	691	0	0	977	40	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5		0				
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	5	0	0	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	25					5	0
C (m) (veh/h)	674					127	559
v/c	0.04					0.04	0.00
95% queue length	0.12					0.12	0.00
Control Delay (s/veh)	10.5					34.5	11.4
LOS	B					D	B
Approach Delay (s/veh)	--	--				34.5	
Approach LOS	--	--				D	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	12/3/14			Analysis Year	2030			
Analysis Time Period	No Build PM							
Project Description								
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	10	607			801	69		
Peak-Hour Factor, PHF	0.83	0.98	1.00	1.00	0.98	0.75		
Hourly Flow Rate, HFR (veh/h)	12	619	0	0	817	92		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration	LT				T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	43	0	10					
Peak-Hour Factor, PHF	0.88	1.00	0.79	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	48	0	12	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	12						60	
C (m) (veh/h)	743						131	
v/c	0.02						0.46	
95% queue length	0.05						2.06	
Control Delay (s/veh)	9.9						53.8	
LOS	A						F	
Approach Delay (s/veh)	--	--					53.8	
Approach LOS	--	--					F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	12/3/14			Analysis Year	2030			
Analysis Time Period	No Build PM							
Project Description								
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	607			801	5		
Peak-Hour Factor, PHF	0.79	0.96	1.00	1.00	0.92	0.25		
Hourly Flow Rate, HFR (veh/h)	18	632	0	0	870	20		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration	LT				T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5	0	21					
Peak-Hour Factor, PHF	0.63	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	7	0	29	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	18						36	
C (m) (veh/h)	756						310	
v/c	0.02						0.12	
95% queue length	0.07						0.39	
Control Delay (s/veh)	9.9						18.1	
LOS	A						C	
Approach Delay (s/veh)	--	--				18.1		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	12/3/14			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		607	13	21	0		
Peak-Hour Factor, PHF	1.00	0.94	0.89	0.88	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	645	14	23	0	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				10	0	27	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.63	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	0	15	0	30	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		23		45			
C (m) (veh/h)		919		423			
v/c		0.03		0.11			
95% queue length		0.08		0.35			
Control Delay (s/veh)		9.0		14.5			
LOS		A		B			
Approach Delay (s/veh)	--	--	14.5				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	12/3/14			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		607	22	0	679		
Peak-Hour Factor, PHF	1.00	0.94	0.59	1.00	0.89	1.00	
Hourly Flow Rate, HFR (veh/h)	0	645	37	0	762	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	2	0	
Configuration			TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				12	0	3	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.42	1.00	0.30	
Hourly Flow Rate, HFR (veh/h)	0	0	0	28	0	9	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		0		37			
C (m) (veh/h)		907		297			
v/c		0.00		0.12			
95% queue length		0.00		0.42			
Control Delay (s/veh)		9.0		18.8			
LOS		A		C			
Approach Delay (s/veh)	--	--	18.8				
Approach LOS	--	--	C				

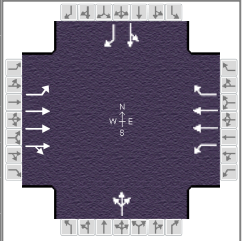
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	1106			1042	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	10	1301	0	0	1108	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1	0	
Configuration	LT						TR
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	10						21
C (m) (veh/h)	612						47
v/c	0.02						0.45
95% queue length	0.05						1.62
Control Delay (s/veh)	11.0						132.9
LOS	B						F
Approach Delay (s/veh)	--	--					132.9
Approach LOS	--	--					F

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	7/22/2015			Analysis Year	2030		
Analysis Time Period	No Build PM						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	39	876			330		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	64	984	0	0	397	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1		0
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				79		166	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	114	0	212	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	1	0	1	
Configuration				L		R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	64		114		212		
C (m) (veh/h)	1159		101		304		
v/c	0.06		1.13		0.70		
95% queue length	0.18		7.40		4.86		
Control Delay (s/veh)	8.3		207.2		40.1		
LOS	A		F		E		
Approach Delay (s/veh)	--	--	98.6				
Approach LOS	--	--	F				

**No Build PM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Kenna...	File Name	No Build PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	12	1500	20	59	2122	15	5	10	47	16	0	0

Signal Information				Signal Phases								
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	2.9	4.9	94.4	7.8	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	0.0	4.0	4.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	2.0	1.0	0.0	0.0		

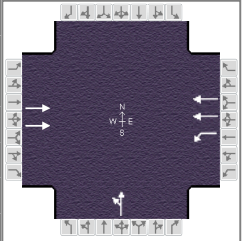
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.9	100.4	11.8	105.3		12.8		12.8
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g _s), s	2.9		6.0			3.8		3.5
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.0		0.0
Phase Call Probability	0.37		0.86			0.77		0.77
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	13	1116	554	56	2002	14		25			18	0
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1801	1727	1693	1537		1658			1387	1537
Queue Service Time (g _s), s	0.9	0.0	0.0	4.0	29.7	0.2		0.0			0.0	0.0
Cycle Queue Clearance Time (g _c), s	0.9	0.0	0.0	4.0	29.7	0.2		1.8			1.5	0.0
Green Ratio (g/C)	0.02	0.76	0.76	0.05	0.79	0.79		0.06			0.06	0.06
Capacity (c), veh/h	41	2740	1360	94	2690	1221		138			144	95
Volume-to-Capacity Ratio (X)	0.323	0.407	0.407	0.590	0.744	0.012		0.183			0.122	0.000
Available Capacity (c _a), veh/h	321	2740	1360	307	2690	1221		296			279	246
Back of Queue (Q), veh/ln (95th percentile)	0.8	0.3	0.6	3.3	8.2	0.1		1.4			1.0	0.0
Queue Storage Ratio (RQ) (95th percentile)	0.09	0.00	0.00	0.00	0.00	0.01		0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	59.6	0.0	0.0	60.3	4.1	1.8		55.8			55.7	0.0
Incremental Delay (d ₂), s/veh	1.7	0.5	0.9	1.4	1.3	0.0		0.2			0.1	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	61.2	0.5	0.9	61.7	5.3	1.8		56.0			55.8	0.0
Level of Service (LOS)	E	A	A	E	A	A		E			E	
Approach Delay, s/veh / LOS	1.1		A	6.8		A		56.0	E		55.8	E
Intersection Delay, s/veh / LOS	4.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.5	B	0.5	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	MacCorkle Ave & I-64 EB	File Name	No Build PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1007		40	2131		52	0				

Signal Information				Signal Phases									
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.8	95.5	8.6	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

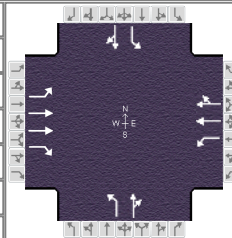
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		100.5	10.8	111.4		13.6		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.5			6.2		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.0		
Phase Call Probability			0.73			0.86		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		1718		38	2015			57				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		27.1		0.5	40.3			4.2				
Cycle Queue Clearance Time (g _c), s		27.1		0.5	40.3			4.2				
Green Ratio (g/C)		0.76		0.83	0.85			0.07				
Capacity (c), veh/h		2639		286	2854			113				
Volume-to-Capacity Ratio (X)		0.651		0.132	0.706			0.506				
Available Capacity (c _a), veh/h		2639		494	2854			261				
Back of Queue (Q), veh/ln (95th percentile)		11.6		0.4	14.4			3.2				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.08	0.00			0.00				
Uniform Delay (d ₁), s/veh		6.0		6.1	7.5			56.1				
Incremental Delay (d ₂), s/veh		1.2		0.0	0.1			1.3				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		7.2		6.1	7.6			57.4				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	7.2	A		7.6	A		57.4	E		0.0		
Intersection Delay, s/veh / LOS	8.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.5	B	0.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Jeffers...	File Name	No Build PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	33	752	740	106	1875	29	164	14	472	46	24	92

Signal Information											
Cycle, s	125.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

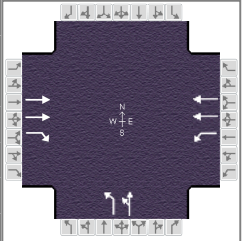
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	3.0	2.0	4.0		10.0		10.0
Phase Duration, s	10.8	65.3	14.8	69.2		30.0		15.0
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.4
Queue Clearance Time (g _s), s	4.6		9.9			27.0		9.6
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.0		0.2
Phase Call Probability	0.72		0.97			1.00		0.99
Max Out Probability	0.00		0.00			1.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	37	847	833	106	941	941	180	427		51	100	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1646	1465	1678	1762	1759	1678	1501		1727	1601	
Queue Service Time (g _s), s	2.6	18.6	59.3	7.9	63.2	63.2	11.5	25.0		3.4	7.6	
Cycle Queue Clearance Time (g _c), s	2.6	18.6	59.3	7.9	63.2	63.2	11.5	25.0		3.4	7.6	
Green Ratio (g/C)	0.05	0.47	0.47	0.08	0.51	0.51	0.20	0.20		0.08	0.08	
Capacity (c), veh/h	80	1560	695	131	891	890	336	300		138	128	
Volume-to-Capacity Ratio (X)	0.463	0.543	1.200	0.807	1.056	1.058	0.537	1.424		0.367	0.782	
Available Capacity (c _a), veh/h	332	1560	695	430	891	890	336	300		345	320	
Back of Queue (Q), veh/ln (95th percentile)	2.1	9.3	50.8	4.9	35.6	35.7	8.1	40.3		2.7	5.7	
Queue Storage Ratio (RQ) (95th percentile)	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	57.5	16.3	24.1	60.6	25.0	24.9	40.9	45.8		52.9	54.8	
Incremental Delay (d ₂), s/veh	1.1	1.0	100.0	0.9	31.4	32.0	0.9	209.0		0.6	3.9	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	58.6	17.2	124.1	61.5	56.4	56.9	41.8	254.8		53.5	58.7	
Level of Service (LOS)	E	B	F	E	F	F	D	F		D	E	
Approach Delay, s/veh / LOS	70.0		E	56.9		E	191.6		F	57.0		E
Intersection Delay, s/veh / LOS	80.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	2.9	C	3.0	C
Bicycle LOS Score / LOS	1.9	A	2.3	B	1.5	A	0.7	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.92
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 WB	File Name	No Build PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		707	563	193	1311		699	0				

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	10.9	55.1	44.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

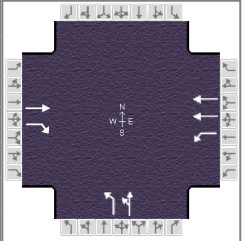
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		60.1	15.9	76.0		49.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			10.6			46.0		
Green Extension Time (g _e), s		0.0	0.3	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		718	511	210	1425		760	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1646	1465	1631	1631		1662	1850				
Queue Service Time (g _s), s		18.8	29.8	8.6	31.7		44.0	0.0				
Cycle Queue Clearance Time (g _c), s		18.8	29.8	8.6	31.7		44.0	0.0				
Green Ratio (g/C)		0.44	0.44	0.54	0.57		0.35	0.35				
Capacity (c), veh/h		1452	646	399	1853		585	651				
Volume-to-Capacity Ratio (X)		0.494	0.790	0.525	0.769		1.299	0.000				
Available Capacity (c _a), veh/h		1452	646	584	1853		585	651				
Back of Queue (Q), veh/ln (95th percentile)		10.1	10.0	5.3	12.1		60.5	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		3.41	0.00				
Uniform Delay (d ₁), s/veh		23.5	15.6	16.9	10.4		40.5	0.0				
Incremental Delay (d ₂), s/veh		0.6	4.8	0.4	3.1		146.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		24.1	20.4	17.3	13.5		187.1	0.0				
Level of Service (LOS)		C	C	B	B		F					
Approach Delay, s/veh / LOS	22.6	C		14.0	B		187.1	F		0.0		
Intersection Delay, s/veh / LOS	53.2						D					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.6	A		1.8	A		1.7	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	Jefferson Rd & Kanawh...	File Name	No Build PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		617	691	415	620		803	0				

Signal Information													
Cycle, s	136.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	76.9	7.3	36.8	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	1.0	1.0	1.0	0.0	0.0	0.0			

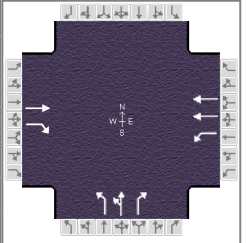
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		81.9	12.3	94.2		41.8		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			6.4			38.9		
Green Extension Time (g _e), s		0.0	0.8	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.17			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3	8				
Adjusted Flow Rate (v), veh/h		459	361	456	681		882	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1796	1537	1711	1710		1631	1814				
Queue Service Time (g _s), s		25.3	18.9	4.4	4.7		36.9	0.0				
Cycle Queue Clearance Time (g _c), s		25.3	18.9	4.4	4.7		36.9	0.0				
Green Ratio (g/C)		0.57	0.57	0.60	0.66		0.27	0.27				
Capacity (c), veh/h		1014	868	479	2240		443	492				
Volume-to-Capacity Ratio (X)		0.452	0.416	0.952	0.304		1.992	0.000				
Available Capacity (c _a), veh/h		1014	868	576	2240		443	492				
Back of Queue (Q), veh/ln (95th percentile)		13.0	8.1	24.4	2.5		111.2	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		6.57	0.00				
Uniform Delay (d ₁), s/veh		25.1	17.9	41.8	3.3		49.5	0.0				
Incremental Delay (d ₂), s/veh		0.1	0.1	22.5	0.4		454.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		25.2	18.0	64.3	3.6		504.1	0.0				
Level of Service (LOS)		C	B	E	A		F					
Approach Delay, s/veh / LOS	22.1	C		27.9	C		504.1	F		0.0		
Intersection Delay, s/veh / LOS	174.2						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	1.9	A	2.5	B	3.0	C
Bicycle LOS Score / LOS	2.5	B	1.4	A	1.9	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.91
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Kanawh...	File Name	No Build PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		617	691	415	620		803	0	223			

Signal Information														
Cycle, s	136.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	76.9	7.3	36.8	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
				Red	1.0	1.0	1.0	0.0	0.0	0.0				

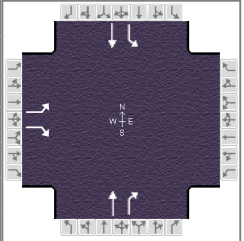
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	1.0	4.0		9.0		
Phase Duration, s		81.9	12.3	94.2		41.8		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			6.4			38.9		
Green Extension Time (g _e), s		0.0	0.8	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.17			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3	8	18			
Adjusted Flow Rate (v), veh/h		459	361	456	681		882	0	115			
Adjusted Saturation Flow Rate (s), veh/h/ln		1796	1537	1711	1710		1631	1814	1537			
Queue Service Time (g _s), s		25.3	18.9	4.4	4.7		36.9	0.0	8.0			
Cycle Queue Clearance Time (g _c), s		25.3	18.9	4.4	4.7		36.9	0.0	8.0			
Green Ratio (g/C)		0.57	0.57	0.60	0.66		0.27	0.27	0.27			
Capacity (c), veh/h		1015	868	479	2240		443	492	417			
Volume-to-Capacity Ratio (X)		0.452	0.416	0.952	0.304		1.993	0.000	0.277			
Available Capacity (c _a), veh/h		1015	868	576	2240		443	492	417			
Back of Queue (Q), veh/ln (95th percentile)		13.0	8.1	24.4	2.5		111.2	0.0	5.5			
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		6.57	0.00	0.00			
Uniform Delay (d ₁), s/veh		25.1	17.9	41.8	3.3		49.5	0.0	39.0			
Incremental Delay (d ₂), s/veh		0.1	0.1	22.4	0.4		455.0	0.0	0.1			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Control Delay (d), s/veh		25.2	18.0	64.2	3.6		504.6	0.0	39.2			
Level of Service (LOS)		C	B	E	A		F		D			
Approach Delay, s/veh / LOS	22.1	C		27.9	C		450.8	F		0.0		
Intersection Delay, s/veh / LOS	169.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.6	B	1.9	A	2.5	B	3.0	C
Bicycle LOS Score / LOS	2.5	B	1.4	A	2.1	B		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	No Build PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	Jefferson Rd & Oakhurs...	File Name	No Build PM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	790		32					125	55	153	256	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	13.5	37.5	55.5	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		60.0				42.0	18.0	60.0
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		57.5					13.5	
Green Extension Time (g _e), s		0.0				0.0	0.1	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		1.00					1.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	859		33				136	36	166	278		
Adjusted Saturation Flow Rate (s), veh/h/ln	1694		1507				1796	1568	1711	1796		
Queue Service Time (g _s), s	55.5		1.4				6.7	1.9	11.5	11.8		
Cycle Queue Clearance Time (g _c), s	55.5		1.4				6.7	1.9	11.5	11.8		
Green Ratio (g/C)	0.46		0.46				0.31	0.31	0.11	0.46		
Capacity (c), veh/h	784		697				562	490	192	831		
Volume-to-Capacity Ratio (X)	1.096		0.047				0.242	0.073	0.866	0.335		
Available Capacity (c _a), veh/h	784		697				562	490	221	831		
Back of Queue (Q), veh/ln (95th percentile)	47.4		0.9				5.5	1.4	10.1	8.7		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.05				0.00	0.00	1.21	0.00		
Uniform Delay (d ₁), s/veh	32.3		17.7				30.7	29.0	52.4	20.5		
Incremental Delay (d ₂), s/veh	61.6		0.0				1.0	0.3	23.7	1.1		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	93.8		17.7				31.7	29.3	76.1	21.6		
Level of Service (LOS)	F		B				C	C	E	C		
Approach Delay, s/veh / LOS	91.0		F	0.0			31.2	C	42.0	D		
Intersection Delay, s/veh / LOS	69.7						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	1.2	A

**Alt 1 Phase 2 RHL AM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	11/25/2014				Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL AM							
Project Description								
East/West Street: <i>Bob Evans entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	438			768	25		
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63		
Hourly Flow Rate, HFR (veh/h)	11	503	0	0	893	39		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		1			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10		10					
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	11					11		14
C (m) (veh/h)	728					187		594
v/c	0.02					0.06		0.02
95% queue length	0.05					0.19		0.07
Control Delay (s/veh)	10.0					25.5		11.2
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	11/25/2014				Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL AM							
Project Description								
East/West Street: <i>McDonalds entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	438			768	85		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	503	0	0	872	102		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	702					157		578
v/c	0.05					0.06		0.03
95% queue length	0.16					0.20		0.11
Control Delay (s/veh)	10.4					29.5		11.5
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 RHL AM							
Project Description								
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	2	431			760	8		
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47		
Hourly Flow Rate, HFR (veh/h)	4	559	0	0	926	17		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	7	0	3					
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	15	0	5	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	4						20	
C (m) (veh/h)	721						208	
v/c	0.01						0.10	
95% queue length	0.02						0.31	
Control Delay (s/veh)	10.0						24.1	
LOS	B						C	
Approach Delay (s/veh)	--	--					24.1	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 RHL AM							
Project Description								
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	12	429			762	1		
Peak-Hour Factor, PHF	0.67	0.81	1.00	1.00	0.91	0.25		
Hourly Flow Rate, HFR (veh/h)	17	529	0	0	837	4		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	4	0	1					
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	12	0	1	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	17						13	
C (m) (veh/h)	788						385	
v/c	0.02						0.03	
95% queue length	0.07						0.10	
Control Delay (s/veh)	9.7						14.7	
LOS	A						B	
Approach Delay (s/veh)	--	--					14.7	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL AM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		415	1	11	752		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	518	1	15	826	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				5	0	14	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	6	0	16	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		15		22			
C (m) (veh/h)		1031		669			
v/c		0.01		0.03			
95% queue length		0.04		0.10			
Control Delay (s/veh)		8.5		10.6			
LOS		A		B			
Approach Delay (s/veh)	--	--	10.6				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL AM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		412	2	3	641		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	496	2	6	660	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2		0
Configuration		T	TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				3	0	4	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	3	0	6	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		6		9			
C (m) (veh/h)		1062		635			
v/c		0.01		0.01			
95% queue length		0.02		0.04			
Control Delay (s/veh)		8.4		10.8			
LOS		A		B			
Approach Delay (s/veh)	--	--	10.8				
Approach LOS	--	--	B				

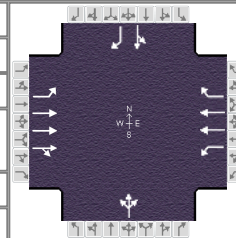
TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	A SELLS			Intersection				
Agency/Co.				Jurisdiction				
Date Performed	12/3/2014			Analysis Year		2030		
Analysis Time Period	Alt 1 Phase 2 RHL AM Peak							
Project Description								
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	795			779	5		
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75		
Hourly Flow Rate, HFR (veh/h)	10	935	0	0	828	6		
Percent Heavy Vehicles	6	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			1			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5	0	5					
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0		
Percent Heavy Vehicles	100	0	100	3	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	10						21	
C (m) (veh/h)	833						201	
v/c	0.01						0.10	
95% queue length	0.04						0.34	
Control Delay (s/veh)	9.4						25.0	
LOS	A						C	
Approach Delay (s/veh)	--	--					25.0	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	7/22/2015			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 AM Peak						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	19	506			191		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	31	568	0	0	230	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1		0
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				16		128	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	164	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	1	0		1
Configuration				L			R
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	31		23		164		
C (m) (veh/h)	1339		314		526		
v/c	0.02		0.07		0.31		
95% queue length	0.07		0.24		1.32		
Control Delay (s/veh)	7.8		17.4		14.9		
LOS	A		C		B		
Approach Delay (s/veh)	--	--	15.2				
Approach LOS	--	--	C				

**Alt 1 Phase 2 RHL AM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & Kenna...	File Name	Alt 1 Phase 2 RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	14	1841	9	31	1021	15	8	1	68	5	0	0

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	108.2	7.0	11.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	4.0	4.0	4.0	0.0	0.0		
				Red	1.0	2.0	1.0	1.0	0.0	0.0		

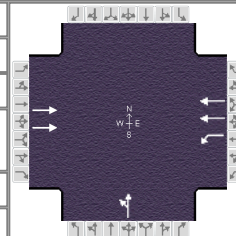
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	7.8	122.0	12.0	126.2		16.0		16.0
Change Period, (Y+R _c), s	4.0	6.0	6.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g _s), s	3.3		4.8			7.0		2.6
Green Extension Time (g _e), s	0.0	0.0	1.2	0.0		0.1		0.1
Phase Call Probability	0.47		0.75			0.92		0.92
Max Out Probability	0.00		0.97			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	15	1355	676	33	1098	16		55			5	0
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1810	1727	1693	1537		1547			1351	1537
Queue Service Time (g _s), s	1.3	0.0	0.0	2.8	12.9	0.2		0.0			0.0	0.0
Cycle Queue Clearance Time (g _c), s	1.3	0.0	0.0	2.8	12.9	0.2		5.0			0.6	0.0
Green Ratio (g/C)	0.03	0.77	0.77	0.04	0.80	0.80		0.07			0.07	0.07
Capacity (c), veh/h	44	2804	1399	69	2714	1231		142			147	113
Volume-to-Capacity Ratio (X)	0.353	0.483	0.483	0.482	0.405	0.013		0.388			0.037	0.000
Available Capacity (c _a), veh/h	184	2804	1399	92	2714	1231		202			201	174
Back of Queue (Q), veh/ln (95th percentile)	1.1	0.4	0.8	2.3	6.4	0.1		3.7			0.4	0.0
Queue Storage Ratio (RQ) (95th percentile)	0.13	0.00	0.00	0.00	0.00	0.02		0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	71.3	0.0	0.0	70.4	3.8	2.4		66.7			64.6	0.0
Incremental Delay (d ₂), s/veh	1.8	0.6	1.2	1.8	0.4	0.0		0.6			0.0	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	73.1	0.6	1.2	72.1	4.2	2.4		67.3			64.7	0.0
Level of Service (LOS)	E	A	A	E	A	A		E			E	
Approach Delay, s/veh / LOS	1.3		A	6.1		A	67.3		E	64.7		E
Intersection Delay, s/veh / LOS	4.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.5	A	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Alt 1 Phase 2 RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1102		26	967		106	0				

Signal Information											
Cycle, s	150.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

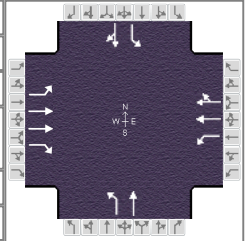
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		123.3	9.1	132.4		17.6		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			12.6		
Green Extension Time (g _e), s		0.0	1.3	0.0		0.1		
Phase Call Probability			0.68			0.99		
Max Out Probability			0.72			0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		2103		28	1031			116				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		39.3		0.0	7.0			10.6				
Cycle Queue Clearance Time (g _c), s		39.3		0.0	7.0			10.6				
Green Ratio (g/C)		0.79		0.80	0.85			0.08				
Capacity (c), veh/h		2724		191	2850			137				
Volume-to-Capacity Ratio (X)		0.772		0.145	0.362			0.853				
Available Capacity (c _a), veh/h		2724		212	2850			218				
Back of Queue (Q), veh/ln (95th percentile)		12.9		0.9	2.6			8.3				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.18	0.00			0.00				
Uniform Delay (d ₁), s/veh		5.2		18.6	1.5			67.8				
Incremental Delay (d ₂), s/veh		1.9		0.1	0.3			9.7				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		7.1		18.7	1.9			77.5				
Level of Service (LOS)		A		B	A			E				
Approach Delay, s/veh / LOS	7.1	A		2.3	A		77.5	E		0.0		
Intersection Delay, s/veh / LOS	8.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.5	A	1.4	A	0.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & Jeffers...	File Name	Alt 1 Phase 2 RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	1114	640	123	871	12	105	6		9	5	17

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	4.7	3.2	99.7	12.2	9.1	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0			
				Red	1.0	0.0	2.0	1.0	1.0	0.0			

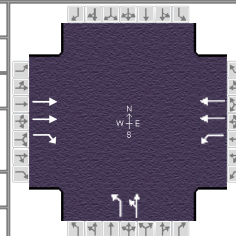
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	9.7	105.7	13.0	109.0		17.2		14.1
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	2.6		5.5			12.1		4.1
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.1		0.1
Phase Call Probability	0.59		1.00			0.99		0.76
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	21	1325	712	131	470	467	115	7		10	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1646	1465	1678	1762	1753	1678	1762		1762	1592	
Queue Service Time (g _s), s	0.6	19.1	29.4	3.5	19.5	19.4	10.1	0.5		0.8	2.1	
Cycle Queue Clearance Time (g _c), s	0.6	19.1	29.4	3.5	19.5	19.4	10.1	0.5		0.8	2.1	
Green Ratio (g/C)	0.70	0.66	0.66	0.72	0.69	0.69	0.08	0.08		0.06	0.06	
Capacity (c), veh/h	426	2189	974	352	1210	1204	136	143		107	97	
Volume-to-Capacity Ratio (X)	0.050	0.605	0.731	0.370	0.388	0.388	0.846	0.046		0.093	0.250	
Available Capacity (c _a), veh/h	829	2189	974	764	1210	1204	280	294		444	401	
Back of Queue (Q), veh/ln (95th percentile)	0.4	6.6	8.0	2.2	12.0	11.9	7.8	0.4		0.6	1.6	
Queue Storage Ratio (RQ) (95th percentile)	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	8.4	5.3	6.1	8.5	12.2	12.1	66.0	61.7		65.1	65.7	
Incremental Delay (d ₂), s/veh	0.0	0.7	2.7	0.2	0.7	0.7	5.4	0.0		0.1	0.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	8.4	6.0	8.8	8.7	13.0	12.9	71.4	61.7		65.2	66.2	
Level of Service (LOS)	A	A	A	A	B	B	E	E		E	E	
Approach Delay, s/veh / LOS	7.0	A		12.4	B		70.8	E		65.9	E	
Intersection Delay, s/veh / LOS	11.8						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.2	B		2.2	B		2.9	C		3.1	C	
Bicycle LOS Score / LOS	2.1	B		1.4	A		0.7	A		0.5	A	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Alt 1 Phase 2 RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1092	358	76	659		347	0				

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	98.4	6.6	31.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

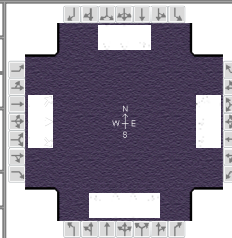
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		103.4	11.6	115.0		35.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			33.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.97			1.00		
Max Out Probability			0.25			1.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		997	274	84	724		381	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		17.6	9.2	0.0	1.1		31.0	0.0				
Cycle Queue Clearance Time (g _c), s		17.6	9.2	0.0	1.1		31.0	0.0				
Green Ratio (g/C)		0.66	0.66	0.69	0.73		0.21	0.21				
Capacity (c), veh/h		2221	989	396	2370		344	382				
Volume-to-Capacity Ratio (X)		0.449	0.277	0.211	0.306		1.110	0.000				
Available Capacity (c _a), veh/h		2221	989	411	2370		344	382				
Back of Queue (Q), veh/ln (95th percentile)		9.1	5.2	2.6	0.6		29.7	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		1.68	0.00				
Uniform Delay (d ₁), s/veh		9.3	8.2	16.2	0.5		59.5	0.0				
Incremental Delay (d ₂), s/veh		0.5	0.5	0.1	0.3		81.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		9.8	8.7	16.3	0.8		141.1	0.0				
Level of Service (LOS)		A	A	B	A		F					
Approach Delay, s/veh / LOS	9.6	A		2.4	A		141.1	F		0.0		
Intersection Delay, s/veh / LOS	27.6						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.7	A		1.2	A		1.1	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 RHL AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Kanawh...	File Name	Alt 1 Phase 2 RHL AM- Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	24	270	310	256	262	132	362	256	190	429	212	

Signal Information													
Cycle, s	115.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	19.6	3.2	38.0	3.4	3.4	22.4			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	0.0	3.0	3.0	3.0	3.0			
				Red	2.0	0.0	2.0	2.0	2.0	2.0			

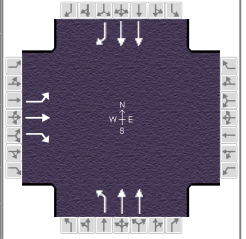
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	3.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	8.4	27.4	16.8	35.8	24.6	43.0	27.8	46.2
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
Queue Clearance Time (g _s), s	3.7	19.9	11.1	29.0	18.9		22.0	
Green Extension Time (g _e), s	0.0	1.8	0.6	1.8	0.7	0.0	0.9	0.0
Phase Call Probability	0.57	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	
Adjusted Flow Rate (v), veh/h	26	293	220	278	416		393	278	113	466	230	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1568	1711	1716		1727	1761	1537	1727	1727	
Queue Service Time (g _s), s	1.7	17.9	15.1	9.1	27.0		16.9	6.6	6.1	20.0	5.3	
Cycle Queue Clearance Time (g _c), s	1.7	17.9	15.1	9.1	27.0		16.9	6.6	6.1	20.0	5.3	
Green Ratio (g/C)	0.03	0.19	0.19	0.10	0.27		0.50	0.33	0.33	0.53	0.36	
Capacity (c), veh/h	51	354	306	350	460		697	1165	508	707	1238	
Volume-to-Capacity Ratio (X)	0.512	0.830	0.718	0.794	0.906		0.565	0.239	0.222	0.659	0.186	
Available Capacity (c _a), veh/h	270	1013	876	1755	1083		1211	1165	508	1113	1238	
Back of Queue (Q), veh/ln (95th percentile)	1.4	12.7	9.8	7.0	16.9		10.6	5.0	4.2	12.0	3.9	
Queue Storage Ratio (RQ) (95th percentile)	0.10	0.00	0.00	0.39	0.00		0.62	0.00	0.00	0.97	0.00	
Uniform Delay (d ₁), s/veh	55.0	44.5	43.3	50.4	40.7		18.6	28.0	27.8	17.7	25.4	
Incremental Delay (d ₂), s/veh	2.9	1.9	1.2	1.6	2.8		0.3	0.5	1.0	0.4	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	57.9	46.4	44.5	52.0	43.5		18.9	28.4	28.8	18.1	25.7	
Level of Service (LOS)	E	D	D	D	D		B	C	C	B	C	
Approach Delay, s/veh / LOS	46.2		D	46.9		D	23.7		C	20.6		C
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.1	C	2.8	C	2.5	B	2.6	B
Bicycle LOS Score / LOS	1.4	A	1.6	A	1.1	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 RHL AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	RHL Boulevard	File Name	Alt 1 Phase 2 RHL AM - Jefferson & RHL.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	161	0	2				2	634			743	36

Signal Information												
Cycle, s	70.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	51.2	8.8	0.0	0.0	0.0	0.0				
		Yellow	3.0	3.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	0.0	0.0	0.0	0.0				

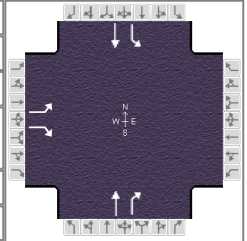
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8				6		2
Case Number		9.0				6.0		7.0
Phase Duration, s		13.8				56.2		56.2
Change Period, (Y+R _c), s		5.0				5.0		5.0
Max Allow Headway (MAH), s		3.1				0.0		0.0
Queue Clearance Time (g _s), s		8.9						
Green Extension Time (g _e), s		0.1				0.0		0.0
Phase Call Probability		0.97						
Max Out Probability		0.04						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18				1	6			2	12
Adjusted Flow Rate (v), veh/h	175	0	2				2	689			808	36
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1850	1537				672	1727			1727	1537
Queue Service Time (g _s), s	6.9	0.0	0.1				0.1	4.7			5.7	0.4
Cycle Queue Clearance Time (g _c), s	6.9	0.0	0.1				5.8	4.7			5.7	0.4
Green Ratio (g/C)	0.13	0.13	0.13				0.73	0.73			0.73	0.73
Capacity (c), veh/h	216	232	192				540	2528			2528	1125
Volume-to-Capacity Ratio (X)	0.809	0.000	0.011				0.004	0.273			0.320	0.032
Available Capacity (c _a), veh/h	370	396	329				540	2528			2528	1125
Back of Queue (Q), veh/ln (95th percentile)	5.1	0.0	0.1				0.0	1.6			2.0	0.2
Queue Storage Ratio (RQ) (95th percentile)	1.29	0.00	0.01				0.01	0.00			0.00	0.03
Uniform Delay (d ₁), s/veh	29.8	0.0	26.8				4.3	3.1			3.3	2.6
Incremental Delay (d ₂), s/veh	2.7	0.0	0.0				0.0	0.3			0.3	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh	32.5	0.0	26.8				4.3	3.4			3.6	2.6
Level of Service (LOS)	C						A			A		
Approach Delay, s/veh / LOS	32.5	C		0.0			3.4	A		3.6	A	
Intersection Delay, s/veh / LOS	6.5						A					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.9	C		2.9	C		1.8	A		2.3	B	
Bicycle LOS Score / LOS	0.8	A					1.1	A		1.2	A	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt1 Phase 2 RHL AM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Oakhurs...	File Name	Alt 1 Phase 2 RHL AM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	377		11					148	99	128	79	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.2	60.7	33.6	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		38.1				65.2	16.7	81.9
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		32.8					12.0	
Green Extension Time (g _e), s		0.8				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14					2	12	1	6	
Adjusted Flow Rate (v), veh/h	428		13					168	56	145	90	
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452					1762	1568	1711	1796	
Queue Service Time (g _s), s	30.8		0.8					6.3	2.2	10.0	2.2	
Cycle Queue Clearance Time (g _c), s	30.8		0.8					6.3	2.2	10.0	2.2	
Green Ratio (g/C)	0.28		0.28					0.51	0.51	0.10	0.65	
Capacity (c), veh/h	457		406					891	793	175	1159	
Volume-to-Capacity Ratio (X)	0.938		0.031					0.189	0.070	0.834	0.077	
Available Capacity (c _a), veh/h	755		671					891	793	533	1159	
Back of Queue (Q), veh/ln (95th percentile)	19.1		0.5					4.6	1.4	7.9	1.5	
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.03					0.00	0.00	0.94	0.00	
Uniform Delay (d ₁), s/veh	42.2		31.4					16.2	15.2	52.9	8.0	
Incremental Delay (d ₂), s/veh	9.2		0.0					0.5	0.2	3.9	0.1	
Initial Queue Delay (d ₃), s/veh	0.0		0.0					0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	51.4		31.4					16.7	15.4	56.8	8.1	
Level of Service (LOS)	D		C					B	B	E	A	
Approach Delay, s/veh / LOS	50.8		D	0.0				16.4	B	38.2	D	
Intersection Delay, s/veh / LOS	39.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.9	A	0.9	A

**Alt 1 Phase 2 RHL PM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM						
Project Description							
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	562			801	25	
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63	
Hourly Flow Rate, HFR (veh/h)	11	645	0	0	931	39	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10		10				
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	11					11	14
C (m) (veh/h)	705					159	579
v/c	0.02					0.07	0.02
95% queue length	0.05					0.22	0.07
Control Delay (s/veh)	10.2					29.3	11.4
LOS	B					D	B
Approach Delay (s/veh)	--	--				19.3	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 RHL PM							
Project Description								
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	562			801	85		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	645	0	0	910	102		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	679					132		564
v/c	0.05					0.08		0.04
95% queue length	0.17					0.24		0.11
Control Delay (s/veh)	10.6					34.5		11.6
LOS	B					D		B
Approach Delay (s/veh)	--	--				19.2		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	560			800	0	
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47	
Hourly Flow Rate, HFR (veh/h)	10	727	0	0	975	0	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	5				
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	4	0	8	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	10						12
C (m) (veh/h)	702						280
v/c	0.01						0.04
95% queue length	0.04						0.13
Control Delay (s/veh)	10.2						18.4
LOS	B						C
Approach Delay (s/veh)	--	--					18.4
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	560			800	1	
Peak-Hour Factor, PHF	0.67	0.81	1.00	1.00	0.91	0.25	
Hourly Flow Rate, HFR (veh/h)	1	691	0	0	879	4	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	4	0	25				
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	12	0	35	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	1						47
C (m) (veh/h)	760						517
v/c	0.00						0.09
95% queue length	0.00						0.30
Control Delay (s/veh)	9.7						12.7
LOS	A						B
Approach Delay (s/veh)	--	--					12.7
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 PM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		560	1	1	825		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	699	1	1	906	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				5	0	5	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	6	0	5	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		1		11			
C (m) (veh/h)		882		509			
v/c		0.00		0.02			
95% queue length		0.00		0.07			
Control Delay (s/veh)		9.1		12.2			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.2				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		560	1	1	674		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	674	1	2	694	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2		0
Configuration		T	TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				10	0	1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	10	0	1	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		2		11			
C (m) (veh/h)		912		382			
v/c		0.00		0.03			
95% queue length		0.01		0.09			
Control Delay (s/veh)		9.0		14.7			
LOS		A		B			
Approach Delay (s/veh)	--	--	14.7				
Approach LOS	--	--	B				

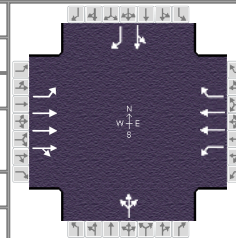
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	1032			1070	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	10	1214	0	0	1138	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	10						21
C (m) (veh/h)	649						97
v/c	0.02						0.22
95% queue length	0.05						0.77
Control Delay (s/veh)	10.6						52.1
LOS	B						F
Approach Delay (s/veh)	--	--					52.1
Approach LOS	--	--					F

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	A SELLS			Intersection				
Agency/Co.				Jurisdiction				
Date Performed	7/22/2015			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 NO RHL PM Peak							
Project Description								
East/West Street: US 119				North/South Street: Jefferson Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	45	975			311			
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00		
Hourly Flow Rate, HFR (veh/h)	74	1095	0	0	374	0		
Percent Heavy Vehicles	4	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	1	1	0	0	1		0	
Configuration	L	T			T			
Upstream Signal		0			1			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				79		157		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78		
Hourly Flow Rate, HFR (veh/h)	0	0	0	114	0	201		
Percent Heavy Vehicles	0	0	0	5	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L		R			
v (veh/h)	74		114		201			
C (m) (veh/h)	1186		83		262			
v/c	0.06		1.37		0.77			
95% queue length	0.20		8.76		5.67			
Control Delay (s/veh)	8.2		316.4		52.9			
LOS	A		F		F			
Approach Delay (s/veh)	--	--	148.3					
Approach LOS	--	--	F					

**Alt 1 Phase 2 RHL PM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Kenna...	File Name	Alt 1 Phase 2 RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	9	1488	31	93	2094	15	12	1	64	5	16	1

Signal Information																		
Cycle, s	125.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	2.3	2.3	89.6	10.8	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	4.0	4.0	4.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	2.0	1.0	0.0	0.0								

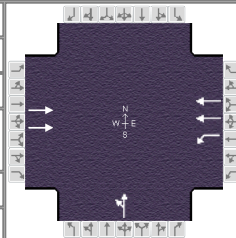
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.3	95.6	13.6	102.9		15.8		15.8
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	2.7		8.9			5.0		3.5
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.1		0.1
Phase Call Probability	0.29		0.96			0.90		0.90
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	10	1117	552	95	2145	15		42			23	1
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1779	1759	1727	1693	1537		1538			1744	1537
Queue Service Time (g _s), s	0.7	3.0	3.0	6.9	42.0	0.2		0.0			0.0	0.1
Cycle Queue Clearance Time (g _c), s	0.7	3.0	3.0	6.9	42.0	0.2		3.0			1.5	0.1
Green Ratio (g/C)	0.02	0.72	0.72	0.07	0.78	0.78		0.09			0.09	0.09
Capacity (c), veh/h	32	2549	1261	119	2625	1191		171			186	133
Volume-to-Capacity Ratio (X)	0.308	0.438	0.438	0.798	0.817	0.013		0.245			0.124	0.008
Available Capacity (c _a), veh/h	279	2549	1261	266	2625	1191		281			310	246
Back of Queue (Q), veh/ln (95th percentile)	0.6	1.4	1.8	5.4	12.1	0.1		2.3			1.2	0.1
Queue Storage Ratio (RQ) (95th percentile)	0.07	0.00	0.00	0.00	0.00	0.01		0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	60.2	0.9	0.9	61.0	6.0	2.3		53.6			52.9	52.2
Incremental Delay (d ₂), s/veh	2.0	0.5	1.1	2.6	1.7	0.0		0.3			0.1	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	62.1	1.4	2.0	63.6	7.7	2.3		53.8			53.0	52.2
Level of Service (LOS)	E	A	A	E	A	A		D			D	D
Approach Delay, s/veh / LOS	1.9	A		10.0	B		53.8	D		52.9	D	
Intersection Delay, s/veh / LOS	7.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.5	B	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Alt 1 Phase 2 RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		988		1	2100		88	0				

Signal Information												
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	0.2	100.7	9.1	0.0	0.0	0.0				
		Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
		Red	1.0	1.0	1.0	0.0	0.0	0.0				

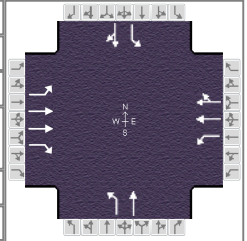
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		105.7	5.2	110.9		14.1		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			9.3		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.1		
Phase Call Probability			0.04			0.97		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		1711		1	2159			97				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		25.1		0.0	34.8			7.3				
Cycle Queue Clearance Time (g _c), s		25.1		0.0	34.8			7.3				
Green Ratio (g/C)		0.81		0.82	0.85			0.07				
Capacity (c), veh/h		2783		227	2843			118				
Volume-to-Capacity Ratio (X)		0.615		0.005	0.759			0.817				
Available Capacity (c _a), veh/h		2783		506	2843			261				
Back of Queue (Q), veh/ln (95th percentile)		11.0		0.0	9.1			5.6				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.00	0.00			0.00				
Uniform Delay (d ₁), s/veh		5.1		4.9	4.2			57.1				
Incremental Delay (d ₂), s/veh		0.9		0.0	0.7			5.1				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		6.1		4.9	4.9			62.3				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	6.1	A		4.9	A		62.3	E		0.0		
Intersection Delay, s/veh / LOS	6.8			A			A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.4	B	0.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Jeffers...	File Name	Alt 1 Phase 2 RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	742	692	90	1872	24	131	8		45	19	98

Signal Information														
Cycle, s	125.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	4.2	1.5	76.1	12.1	10.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0				
				Red	1.0	0.0	2.0	1.0	1.0	0.0				

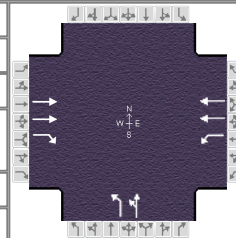
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	9.2	82.1	10.8	83.6		17.1		15.0
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	2.9		4.4			12.0		9.8
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.70		0.96			1.00		0.99
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	35	868	786	92	967	966	144	9		49	101	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1693	1568	1727	1779	1771	1762	1814		1762	1587	
Queue Service Time (g _s), s	0.9	11.7	41.0	2.4	52.3	52.8	10.0	0.5		3.3	7.8	
Cycle Queue Clearance Time (g _c), s	0.9	11.7	41.0	2.4	52.3	52.8	10.0	0.5		3.3	7.8	
Green Ratio (g/C)	0.64	0.61	0.61	0.65	0.62	0.62	0.10	0.10		0.08	0.08	
Capacity (c), veh/h	158	2062	955	464	1105	1100	171	176		141	127	
Volume-to-Capacity Ratio (X)	0.222	0.421	0.823	0.198	0.875	0.879	0.843	0.050		0.350	0.794	
Available Capacity (c _a), veh/h	609	2062	955	1005	1105	1100	352	363		534	481	
Back of Queue (Q), veh/ln (95th percentile)	0.9	6.2	16.6	1.6	20.1	20.2	7.9	0.4		2.6	5.8	
Queue Storage Ratio (RQ) (95th percentile)	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	22.3	7.6	11.3	8.8	14.7	14.7	53.5	49.4		52.8	54.8	
Incremental Delay (d ₂), s/veh	0.2	0.5	6.1	0.0	2.4	2.5	4.3	0.0		0.5	4.2	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	22.5	8.1	17.4	8.8	17.0	17.2	57.8	49.4		53.3	59.0	
Level of Service (LOS)	C	A	B	A	B	B	E	D		D	E	
Approach Delay, s/veh / LOS	12.7	B		16.7	B		57.3	E		57.2	E	
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.2	B		2.3	B		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.8	A		2.3	B		0.7	A		0.7	A	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Alt 1 Phase 2 RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		689	521	202	1298		688	0				

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		11.6	54.4	45.0	0.0	0.0	0.0				
		Yellow		4.0	4.0	4.0	0.0	0.0	0.0				
		Red		1.0	1.0	0.0	0.0	0.0	0.0				

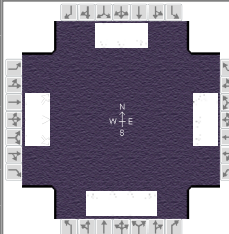
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		59.4	16.6	76.0		49.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			11.3			47.0		
Green Extension Time (g _e), s		0.0	0.3	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		510	341	222	1426		756	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		8.3	13.9	9.3	32.5		45.0	0.0				
Cycle Queue Clearance Time (g _c), s		8.3	13.9	9.3	32.5		45.0	0.0				
Green Ratio (g/C)		0.44	0.44	0.54	0.57		0.36	0.36				
Capacity (c), veh/h		1475	656	513	1836		598	666				
Volume-to-Capacity Ratio (X)		0.346	0.520	0.433	0.777		1.263	0.000				
Available Capacity (c _a), veh/h		1475	656	687	1836		598	666				
Back of Queue (Q), veh/ln (95th percentile)		5.2	7.2	5.6	12.3		57.6	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		3.25	0.00				
Uniform Delay (d ₁), s/veh		13.5	13.4	15.1	10.5		40.0	0.0				
Incremental Delay (d ₂), s/veh		0.6	2.7	0.2	3.3		131.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		14.1	16.0	15.4	13.8		171.6	0.0				
Level of Service (LOS)		B	B	B	B		F					
Approach Delay, s/veh / LOS	14.9	B		14.0	B		171.6	F		0.0		
Intersection Delay, s/veh / LOS	50.8						D					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.5	A		1.8	A		1.7	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 RHL PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Kanawh...	File Name	Alt 1 Phase 2 RHL PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	291	290	415	540	81	319	365	280	342	449	

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	20.7	1.5	25.9	4.0	9.5	33.3		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	0.0	3.0	3.0	3.0	3.0		
				Red	2.0	0.0	2.0	2.0	2.0	2.0		

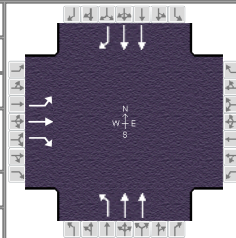
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	3.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	9.0	38.3	23.5	52.8	25.7	30.9	27.3	32.5
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
Queue Clearance Time (g _s), s	4.2	20.3	17.4	45.6	20.4		21.7	
Green Extension Time (g _e), s	0.0	2.4	1.1	2.2	0.4	0.0	0.7	0.0
Phase Call Probability	0.66	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	0.00	0.00	0.05	0.06		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	
Adjusted Flow Rate (v), veh/h	33	316	212	451	668		347	397	135	372	488	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1568	1711	1775		1727	1761	1537	1727	1727	
Queue Service Time (g _s), s	2.2	18.3	13.5	15.4	43.6		18.4	11.9	9.0	19.7	15.2	
Cycle Queue Clearance Time (g _c), s	2.2	18.3	13.5	15.4	43.6		18.4	11.9	9.0	19.7	15.2	
Green Ratio (g/C)	0.03	0.28	0.28	0.15	0.40		0.39	0.22	0.22	0.40	0.23	
Capacity (c), veh/h	57	504	436	527	708		442	764	334	502	793	
Volume-to-Capacity Ratio (X)	0.569	0.628	0.487	0.856	0.945		0.785	0.519	0.404	0.741	0.615	
Available Capacity (c _a), veh/h	648	673	582	1483	873		537	764	334	791	793	
Back of Queue (Q), veh/ln (95th percentile)	1.8	12.7	8.8	10.8	28.4		12.6	9.1	6.7	12.6	11.0	
Queue Storage Ratio (RQ) (95th percentile)	0.13	0.00	0.00	0.60	0.00		0.74	0.00	0.00	1.02	0.00	
Uniform Delay (d ₁), s/veh	57.2	37.9	36.2	49.5	34.8		29.5	41.5	40.3	28.2	41.5	
Incremental Delay (d ₂), s/veh	3.3	0.5	0.3	1.6	15.3		4.9	2.5	3.6	0.8	3.6	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	60.4	38.4	36.5	51.1	50.1		34.5	44.0	43.9	29.0	45.0	
Level of Service (LOS)	E	D	D	D	D		C	D	D	C	D	
Approach Delay, s/veh / LOS	39.0		D	50.5		D	40.2		D	38.1		D
Intersection Delay, s/veh / LOS	42.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	2.8	C	2.5	B	2.6	B
Bicycle LOS Score / LOS	1.4	A	2.3	B	1.2	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 RHL PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & RHL Blvd	File Name	Alt 1 Phase 2 RHL PM - Jefferson & RHL.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	408	0	50				21	624			859	211

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	77.0	33.0	0.0	0.0	0.0	0.0				
		Yellow	3.0	3.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	0.0	0.0	0.0	0.0				

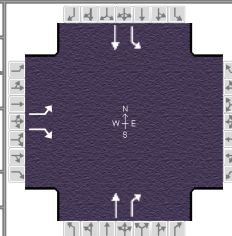
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8				6		2
Case Number		9.0				6.0		7.0
Phase Duration, s		38.0				82.0		82.0
Change Period, (Y+R _c), s		5.0				5.0		5.0
Max Allow Headway (MAH), s		3.1				0.0		0.0
Queue Clearance Time (g _s), s		32.0						
Green Extension Time (g _e), s		1.0				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18				1	6			2	12
Adjusted Flow Rate (v), veh/h	443	0	49				23	678			934	207
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1850	1537				597	1727			1727	1537
Queue Service Time (g _s), s	30.0	0.0	2.9				2.3	10.5			15.9	6.7
Cycle Queue Clearance Time (g _c), s	30.0	0.0	2.9				18.3	10.5			15.9	6.7
Green Ratio (g/C)	0.28	0.28	0.28				0.64	0.64			0.64	0.64
Capacity (c), veh/h	475	509	423				364	2216			2216	986
Volume-to-Capacity Ratio (X)	0.933	0.000	0.116				0.063	0.306			0.421	0.209
Available Capacity (c _a), veh/h	1339	1434	1191				364	2216			2216	986
Back of Queue (Q), veh/ln (95th percentile)	18.8	0.0	1.9				0.6	6.7			9.6	3.9
Queue Storage Ratio (RQ) (95th percentile)	4.78	0.00	0.48				0.26	0.00			0.00	0.77
Uniform Delay (d ₁), s/veh	42.4	0.0	32.6				15.1	9.6			10.6	8.9
Incremental Delay (d ₂), s/veh	3.8	0.0	0.0				0.3	0.4			0.6	0.5
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh	46.2	0.0	32.6				15.4	9.9			11.2	9.4
Level of Service (LOS)	D			C			B			A		
Approach Delay, s/veh / LOS	44.9 / D			0.0			10.1 / B			10.8 / B		
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.9	C		2.9	C		1.9	A		2.4	B	
Bicycle LOS Score / LOS	1.3	A					1.1	A		1.4	A	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt1 Phase 2 RHL PM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Oakhurs...	File Name	Alt 1 Phase 2 RHL PM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	379		23						133	47	172	268

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	15.8	57.0	33.8	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		38.3				61.5	20.3	81.7
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		32.9					15.4	
Green Extension Time (g _e), s		0.9				0.0	0.3	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14					2	12	1	6	
Adjusted Flow Rate (v), veh/h	431		26					151	28	195	305	
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452					1762	1568	1711	1796	
Queue Service Time (g _s), s	30.9		1.6					5.9	1.2	13.4	8.7	
Cycle Queue Clearance Time (g _c), s	30.9		1.6					5.9	1.2	13.4	8.7	
Green Ratio (g/C)	0.28		0.28					0.47	0.47	0.13	0.64	
Capacity (c), veh/h	459		409					836	744	225	1156	
Volume-to-Capacity Ratio (X)	0.938		0.064					0.181	0.038	0.870	0.264	
Available Capacity (c _a), veh/h	755		671					836	744	531	1156	
Back of Queue (Q), veh/ln (95th percentile)	19.2		1.0					4.4	0.8	9.9	6.0	
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.06					0.00	0.00	1.18	0.00	
Uniform Delay (d ₁), s/veh	42.1		31.5					18.1	16.9	51.1	9.2	
Incremental Delay (d ₂), s/veh	9.3		0.0					0.5	0.1	4.0	0.6	
Initial Queue Delay (d ₃), s/veh	0.0		0.0					0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	51.4		31.6					18.6	17.0	55.1	9.7	
Level of Service (LOS)	D		C					B	B	E	A	
Approach Delay, s/veh / LOS	50.3		D	0.0				18.3	B	27.5	C	
Intersection Delay, s/veh / LOS	35.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	1.3	A

**Alt 1 Phase 2 No RHL AM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	11/25/2014				Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM							
Project Description								
East/West Street: <i>Bob Evans entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	438			768	25		
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63		
Hourly Flow Rate, HFR (veh/h)	11	503	0	0	893	39		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		1			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10		10					
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	11					11		14
C (m) (veh/h)	728					186		594
v/c	0.02					0.06		0.02
95% queue length	0.05					0.19		0.07
Control Delay (s/veh)	10.0					25.6		11.2
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 No RHL AM							
Project Description								
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	438			768	85		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	503	0	0	872	102		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	702					157		578
v/c	0.05					0.06		0.03
95% queue length	0.16					0.20		0.11
Control Delay (s/veh)	10.4					29.5		11.5
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	433			760	8	
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47	
Hourly Flow Rate, HFR (veh/h)	2	562	0	0	926	17	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	2				
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	10	0	3	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	2						13
C (m) (veh/h)	721						205
v/c	0.00						0.06
95% queue length	0.01						0.20
Control Delay (s/veh)	10.0						23.7
LOS	B						C
Approach Delay (s/veh)	--	--					23.7
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	430			760	2	
Peak-Hour Factor, PHF	0.67	0.81	1.00	1.00	0.91	0.25	
Hourly Flow Rate, HFR (veh/h)	1	530	0	0	835	8	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	4		2				
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	12	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration							
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						
v (veh/h)	1						
C (m) (veh/h)	787						
v/c	0.00						
95% queue length	0.00						
Control Delay (s/veh)	9.6						
LOS	A						
Approach Delay (s/veh)	--	--				14.4	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		415	1	12	750		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	518	1	17	824	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				3	0	16	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	4	0	18	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		17		22			
C (m) (veh/h)		1031		698			
v/c		0.02		0.03			
95% queue length		0.05		0.10			
Control Delay (s/veh)		8.6		10.3			
LOS		A		B			
Approach Delay (s/veh)	--	--	10.3				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM						
Project Description							
East/West Street: <i>Pennsylvania Ave</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		412	2	1	639		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	496	2	2	658	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2		0
Configuration		T	TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				2	0	4	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	2	0	6	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		2		8			
C (m) (veh/h)		1062		680			
v/c		0.00		0.01			
95% queue length		0.01		0.04			
Control Delay (s/veh)		8.4		10.4			
LOS		A		B			
Approach Delay (s/veh)	--	--	10.4				
Approach LOS	--	--	B				

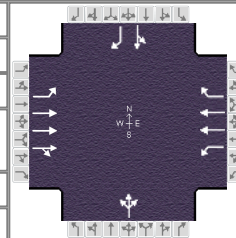
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	795			779	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	10	935	0	0	828	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	10						21
C (m) (veh/h)	770						161
v/c	0.01						0.13
95% queue length	0.04						0.44
Control Delay (s/veh)	9.7						30.7
LOS	A						D
Approach Delay (s/veh)	--	--					30.7
Approach LOS	--	--					D

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	7/22/2015			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL AM Peak						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	19	667			189		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	31	749	0	0	227	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1		0
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				16		128	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	164	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	1	0	1	
Configuration				L		R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	31		23		164		
C (m) (veh/h)	1344		239		415		
v/c	0.02		0.10		0.40		
95% queue length	0.07		0.32		1.85		
Control Delay (s/veh)	7.7		21.7		19.2		
LOS	A		C		C		
Approach Delay (s/veh)	--	--	19.5				
Approach LOS	--	--	C				

**Alt 1 Phase 2 No RHL AM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Kenna Drive	File Name	Alt 1 Phase 2 No RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	14	1841	1	31	1021	15	8	1	68	1	0	0

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	108.4	7.0	10.8	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	4.0	4.0	4.0	0.0	0.0		
				Red	1.0	2.0	1.0	1.0	0.0	0.0		

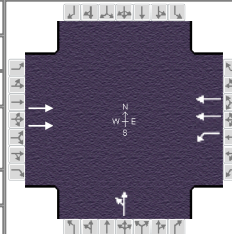
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	7.8	122.2	12.0	126.4		15.8		15.8
Change Period, (Y+R _c), s	4.0	6.0	6.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g _s), s	3.3		4.8			7.0		2.1
Green Extension Time (g _e), s	0.0	0.0	1.2	0.0		0.0		0.1
Phase Call Probability	0.47		0.75			0.90		0.90
Max Out Probability	0.00		0.97			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	15	2023	0	33	1098	16		55			1	0
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	0	1727	1693	1537		1547			1350	1537
Queue Service Time (g _s), s	1.3	0.0	0.0	2.8	12.9	0.2		0.2			0.0	0.0
Cycle Queue Clearance Time (g _c), s	1.3	0.0	0.0	2.8	12.9	0.2		5.0			0.1	0.0
Green Ratio (g/C)	0.03	0.77		0.04	0.80	0.80		0.07			0.07	0.07
Capacity (c), veh/h	44	4214		69	2718	1233		140			146	111
Volume-to-Capacity Ratio (X)	0.353	0.480	0.000	0.482	0.404	0.013		0.393			0.008	0.000
Available Capacity (c _a), veh/h	186	4214		92	2718	1233		202			201	174
Back of Queue (Q), veh/ln (95th percentile)	1.1	0.3	0.0	2.3	6.4	0.1		3.7			0.1	0.0
Queue Storage Ratio (RQ) (95th percentile)	0.13	0.00	0.00	0.00	0.00	0.02		0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	71.3	0.0		70.4	3.8	2.3		66.9			64.6	0.0
Incremental Delay (d ₂), s/veh	1.8	0.4	0.0	1.8	0.4	0.0		0.7			0.0	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	73.1	0.4		72.1	4.2	2.4		67.5			64.6	0.0
Level of Service (LOS)	E	A		E	A	A		E			E	
Approach Delay, s/veh / LOS	0.9		A	6.1		A	67.5		E	64.6		E
Intersection Delay, s/veh / LOS	3.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.5	A	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	I-64 EB	File Name	Alt 1 Phase 2 No RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1102		26	967		106	0				

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	4.1	118.3	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

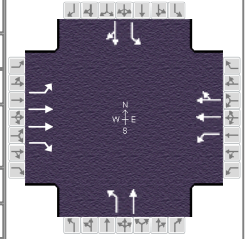
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		123.3	9.1	132.4		17.6		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.4			12.6		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.1		
Phase Call Probability			0.68			0.99		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		2099		28	1031			116				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		22.7		0.4	7.2			10.6				
Cycle Queue Clearance Time (g _c), s		22.7		0.4	7.2			10.6				
Green Ratio (g/C)		0.79		0.83	0.85			0.08				
Capacity (c), veh/h		2724		214	2850			137				
Volume-to-Capacity Ratio (X)		0.770		0.129	0.362			0.853				
Available Capacity (c _a), veh/h		2724		364	2850			218				
Back of Queue (Q), veh/ln (95th percentile)		5.6		0.2	2.7			8.3				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.04	0.00			0.00				
Uniform Delay (d ₁), s/veh		1.9		4.7	1.6			67.8				
Incremental Delay (d ₂), s/veh		1.9		0.1	0.3			9.7				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		3.8		4.8	1.9			77.5				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	3.8	A		2.0	A		77.5	E		0.0		
Intersection Delay, s/veh / LOS	5.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.5	A	1.4	A	0.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Road	File Name	Alt 1 Phase 2 No RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	1114	640	123	871	12	105	6		9	5	17

Signal Information											
Cycle, s	150.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

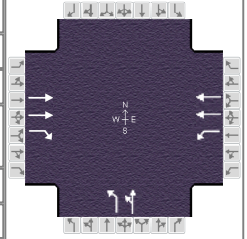
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	8.5	106.0	13.0	110.4		16.9		14.1
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	2.6		5.3			11.6		4.1
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.1		0.1
Phase Call Probability	0.59		1.00			0.99		0.76
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	21	1322	711	131	470	467	115	7		10	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1693	1568	1727	1779	1770	1762	1814		1762	1592	
Queue Service Time (g _s), s	0.6	19.6	26.8	3.3	18.7	18.6	9.6	0.5		0.8	2.1	
Cycle Queue Clearance Time (g _c), s	0.6	19.6	26.8	3.3	18.7	18.6	9.6	0.5		0.8	2.1	
Green Ratio (g/C)	0.69	0.67	0.67	0.73	0.70	0.70	0.08	0.08		0.06	0.06	
Capacity (c), veh/h	421	2258	1045	361	1239	1232	140	144		107	97	
Volume-to-Capacity Ratio (X)	0.051	0.585	0.680	0.361	0.379	0.379	0.824	0.046		0.093	0.250	
Available Capacity (c _a), veh/h	841	2258	1045	788	1239	1232	294	302		447	404	
Back of Queue (Q), veh/ln (95th percentile)	0.4	7.3	8.5	2.1	11.6	11.4	7.8	0.4		0.6	1.6	
Queue Storage Ratio (RQ) (95th percentile)	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	8.4	6.0	6.6	8.4	11.4	11.4	66.0	61.9		65.1	65.7	
Incremental Delay (d ₂), s/veh	0.0	0.6	2.0	0.2	0.7	0.7	4.6	0.0		0.1	0.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	8.4	6.6	8.6	8.6	12.1	12.1	70.6	62.0		65.2	66.2	
Level of Service (LOS)	A	A	A	A	B	B	E	E		E	E	
Approach Delay, s/veh / LOS	7.3		A	11.7		B	70.1		E	65.9		E
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.2	B	2.9	C	3.1	C
Bicycle LOS Score / LOS	2.1	B	1.4	A	0.7	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	I-64 WB	File Name	Alt 1 Phase 2 No RHL AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1092	358	76	659		347	0				

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		7.8	97.2	31.0	0.0	0.0	0.0				
		Yellow		4.0	4.0	4.0	0.0	0.0	0.0				
		Red		1.0	1.0	0.0	0.0	0.0	0.0				

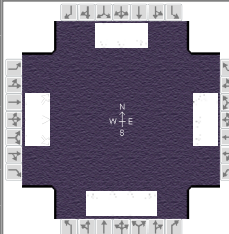
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		102.2	12.8	115.0		35.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			4.3			33.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.97			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		995	273	84	724		381	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1646	1465	1631	1631		1662	1850				
Queue Service Time (g _s), s		12.8	6.2	2.3	1.1		31.0	0.0				
Cycle Queue Clearance Time (g _c), s		12.8	6.2	2.3	1.1		31.0	0.0				
Green Ratio (g/C)		0.65	0.65	0.71	0.73		0.21	0.21				
Capacity (c), veh/h		2134	950	432	2392		344	382				
Volume-to-Capacity Ratio (X)		0.466	0.288	0.193	0.303		1.110	0.000				
Available Capacity (c _a), veh/h		2134	950	565	2392		344	382				
Back of Queue (Q), veh/ln (95th percentile)		6.1	3.2	1.3	0.6		29.7	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		1.68	0.00				
Uniform Delay (d ₁), s/veh		5.7	5.0	7.2	0.5		59.5	0.0				
Incremental Delay (d ₂), s/veh		0.6	0.6	0.1	0.3		81.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		6.3	5.6	7.3	0.8		141.1	0.0				
Level of Service (LOS)		A	A	A	A		F					
Approach Delay, s/veh / LOS	6.1	A		1.5	A		141.1	F		0.0		
Intersection Delay, s/veh / LOS	25.5						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.2	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.7	A		1.2	A		1.1	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 No RHL AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Kanawh...	File Name	Alt 1 Phase 2 No RHL AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	24	271	311	256	262	132	362	256	181	429	212	

Signal Information													
Cycle, s	115.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	19.6	3.2	38.1	3.4	3.4	22.3			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	0.0	3.0	3.0	3.0	3.0			
				Red	2.0	0.0	2.0	2.0	2.0	2.0			

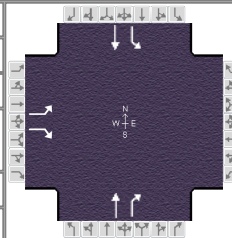
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	3.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	8.4	27.3	16.8	35.7	24.6	43.1	27.8	46.3
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
Queue Clearance Time (g _s), s	3.7	20.0	11.1	29.0	18.9		21.9	
Green Extension Time (g _e), s	0.0	1.7	0.6	1.7	0.7	0.0	0.9	0.0
Phase Call Probability	0.57	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	
Adjusted Flow Rate (v), veh/h	26	295	176	278	416		393	278	92	466	230	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1568	1711	1716		1727	1761	1537	1727	1727	
Queue Service Time (g _s), s	1.7	18.0	11.7	9.1	27.0		16.9	6.6	4.9	19.9	5.3	
Cycle Queue Clearance Time (g _c), s	1.7	18.0	11.7	9.1	27.0		16.9	6.6	4.9	19.9	5.3	
Green Ratio (g/C)	0.03	0.19	0.19	0.10	0.27		0.50	0.33	0.33	0.53	0.36	
Capacity (c), veh/h	51	352	305	350	458		697	1168	510	708	1241	
Volume-to-Capacity Ratio (X)	0.512	0.836	0.578	0.794	0.908		0.564	0.238	0.181	0.659	0.186	
Available Capacity (c _a), veh/h	270	1013	876	1755	1083		1213	1168	510	1116	1241	
Back of Queue (Q), veh/ln (95th percentile)	1.4	12.7	8.0	7.0	16.9		10.6	5.0	3.4	12.0	3.9	
Queue Storage Ratio (RQ) (95th percentile)	0.10	0.00	0.00	0.39	0.00		0.62	0.00	0.00	0.97	0.00	
Uniform Delay (d ₁), s/veh	55.0	44.6	42.1	50.4	40.8		18.6	27.9	27.3	17.6	25.3	
Incremental Delay (d ₂), s/veh	2.9	2.0	0.6	1.6	2.9		0.3	0.5	0.8	0.4	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	57.9	46.6	42.7	52.0	43.7		18.9	28.4	28.1	18.0	25.6	
Level of Service (LOS)	E	D	D	D	D		B	C	C	B	C	
Approach Delay, s/veh / LOS	45.8	D		47.0	D		23.4	C		20.5	C	
Intersection Delay, s/veh / LOS	33.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.1	C	2.8	C	2.5	B	2.6	B
Bicycle LOS Score / LOS	1.3	A	1.6	A	1.1	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt1 Phase 2 No RHL AM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Oakhurs...	File Name	Alt 1 Phase 2 No RHL AM- US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	538		13						148	99	128	77

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.2	46.0	46.8	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		52.8				50.5	16.7	67.2
Change Period, (Y+R _c), s		6.0				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		45.9					12.0	
Green Extension Time (g _e), s		1.0				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.08					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14					2	12	1	6	
Adjusted Flow Rate (v), veh/h	611		15					168	56	145	88	
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452					1762	1568	1711	1796	
Queue Service Time (g _s), s	43.9		0.8					7.8	2.7	10.0	2.9	
Cycle Queue Clearance Time (g _c), s	43.9		0.8					7.8	2.7	10.0	2.9	
Green Ratio (g/C)	0.39		0.39					0.38	0.38	0.10	0.52	
Capacity (c), veh/h	637		567					675	601	174	938	
Volume-to-Capacity Ratio (X)	0.960		0.026					0.249	0.093	0.838	0.093	
Available Capacity (c _a), veh/h	734		653					675	601	323	938	
Back of Queue (Q), veh/ln (95th percentile)	27.8		0.5					6.1	1.9	7.9	2.2	
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.03					0.00	0.00	0.94	0.00	
Uniform Delay (d ₁), s/veh	35.7		22.5					25.2	23.7	52.9	14.4	
Incremental Delay (d ₂), s/veh	21.5		0.0					0.9	0.3	4.1	0.2	
Initial Queue Delay (d ₃), s/veh	0.0		0.0					0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	57.2		22.5					26.1	24.0	57.0	14.6	
Level of Service (LOS)	E		C					C	C	E	B	
Approach Delay, s/veh / LOS	56.4		E	0.0			25.6		C	41.1		D
Intersection Delay, s/veh / LOS	46.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.9	A	0.9	A

**Alt 1 Phase 2 No RHL PM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL PM						
Project Description							
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	562			801	25	
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63	
Hourly Flow Rate, HFR (veh/h)	11	645	0	0	931	39	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10		10				
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	11					11	14
C (m) (veh/h)	705					159	579
v/c	0.02					0.07	0.02
95% queue length	0.05					0.22	0.07
Control Delay (s/veh)	10.2					29.3	11.4
LOS	B					D	B
Approach Delay (s/veh)	--	--				19.3	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 No RHL PM							
Project Description								
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	562			801	85		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	645	0	0	910	102		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	679					132		564
v/c	0.05					0.08		0.04
95% queue length	0.17					0.24		0.11
Control Delay (s/veh)	10.6					34.5		11.6
LOS	B					D		B
Approach Delay (s/veh)	--	--				19.2		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	Alt 1 Phase 2 No RHL PM							
Project Description								
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	560			800	0		
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47		
Hourly Flow Rate, HFR (veh/h)	10	727	0	0	975	0		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	5					
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	4	0	8	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	10						12	
C (m) (veh/h)	702						280	
v/c	0.01						0.04	
95% queue length	0.04						0.13	
Control Delay (s/veh)	10.2						18.4	
LOS	B						C	
Approach Delay (s/veh)	--	--				18.4		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 RHL PM						
Project Description							
East/West Street: <i>Community Center - South</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	560			800	1	
Peak-Hour Factor, PHF	0.67	0.81	1.00	1.00	0.91	0.25	
Hourly Flow Rate, HFR (veh/h)	1	691	0	0	879	4	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	1	0	25				
Peak-Hour Factor, PHF	0.33	1.00	0.71	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	3	0	35	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LTR
v (veh/h)	1						38
C (m) (veh/h)	760						580
v/c	0.00						0.07
95% queue length	0.00						0.21
Control Delay (s/veh)	9.7						11.6
LOS	A						B
Approach Delay (s/veh)	--	--					11.6
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL PM						
Project Description							
East/West Street: <i>Washington Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		560	1	1	825		
Peak-Hour Factor, PHF	1.00	0.80	0.92	0.69	0.91	1.00	
Hourly Flow Rate, HFR (veh/h)	0	699	1	1	906	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				5	0	5	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.73	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	6	0	5	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		1		11			
C (m) (veh/h)		882		509			
v/c		0.00		0.02			
95% queue length		0.00		0.07			
Control Delay (s/veh)		9.1		12.2			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.2				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		560	1	1	674		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	674	1	2	694	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2		0
Configuration		T	TR	LT	T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				10	0	1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	10	0	1	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		2		11			
C (m) (veh/h)		912		370			
v/c		0.00		0.03			
95% queue length		0.01		0.09			
Control Delay (s/veh)		9.0		15.0			
LOS		A		C			
Approach Delay (s/veh)	--	--	15.0				
Approach LOS	--	--	C				

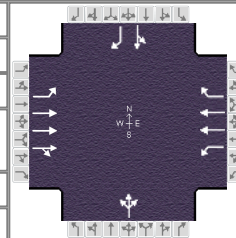
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 No RHL PM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	1032			1070	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	10	1214	0	0	1138	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized						0	
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	6	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)		0			0		
Flared Approach		N					
Storage		0					
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	11	
Lane Configuration						LTR	
v (veh/h)						21	
C (m) (veh/h)						75	
v/c						0.28	
95% queue length						1.01	
Control Delay (s/veh)						70.7	
LOS						F	
Approach Delay (s/veh)	--	--				70.7	
Approach LOS	--	--				F	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	7/22/2015			Analysis Year	2030		
Analysis Time Period	Alt 1 Phase 2 NO RHL PM Peak						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	45	975			311		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	74	1095	0	0	374	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1		0
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				79		157	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	114	0	201	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	1	0	1	
Configuration				L		R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	74		114		201		
C (m) (veh/h)	1186		83		262		
v/c	0.06		1.37		0.77		
95% queue length	0.20		8.76		5.67		
Control Delay (s/veh)	8.2		316.4		52.9		
LOS	A		F		F		
Approach Delay (s/veh)	--	--	148.3				
Approach LOS	--	--	F				

**Alt 1 Phase 2 No RHL PM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Kenna...	File Name	Alt 1 Phase 2 No RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	9	1488	31	93	2094	15	12	1	64	5	16	1

Signal Information														
Cycle, s	125.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	2.3	2.3	89.6	10.8	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	4.0	4.0	4.0	0.0	0.0				
				Red	1.0	1.0	2.0	1.0	0.0	0.0				

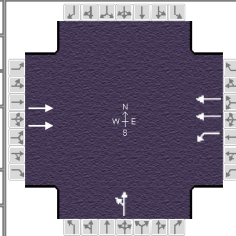
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.3	95.6	13.6	102.9		15.8		15.8
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	2.7		8.9			5.0		3.5
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.1		0.1
Phase Call Probability	0.29		0.96			0.90		0.90
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18	
Adjusted Flow Rate (v), veh/h	10	1117	552	95	2144	15		42			23	1	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1794	1727	1693	1537		1538			1744	1537	
Queue Service Time (g _s), s	0.7	2.9	2.9	6.9	41.9	0.2		0.0			0.0	0.1	
Cycle Queue Clearance Time (g _c), s	0.7	2.9	2.9	6.9	41.9	0.2		3.0			1.5	0.1	
Green Ratio (g/C)	0.02	0.72	0.72	0.07	0.78	0.78		0.09			0.09	0.09	
Capacity (c), veh/h	32	2600	1286	119	2625	1191		171			186	133	
Volume-to-Capacity Ratio (X)	0.308	0.430	0.430	0.798	0.817	0.013		0.245			0.124	0.008	
Available Capacity (c _a), veh/h	279	2600	1286	266	2625	1191		281			310	246	
Back of Queue (Q), veh/ln (95th percentile)	0.6	1.4	1.7	5.4	12.1	0.1		2.3			1.2	0.1	
Queue Storage Ratio (RQ) (95th percentile)	0.07	0.00	0.00	0.00	0.00	0.01		0.00			0.00	0.00	
Uniform Delay (d ₁), s/veh	60.2	0.9	0.9	61.0	6.0	2.3		53.6			52.9	52.2	
Incremental Delay (d ₂), s/veh	2.0	0.5	1.1	2.6	1.7	0.0		0.3			0.1	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	62.1	1.4	1.9	63.6	7.7	2.3		53.8			53.0	52.2	
Level of Service (LOS)	E	A	A	E	A	A		D			D	D	
Approach Delay, s/veh / LOS	1.9	A		10.0	A		53.8	D			52.9	D	
Intersection Delay, s/veh / LOS	7.3						A						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.5	B	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Alt 1 Phase 2 No RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		988		1	2100		88	0				

Signal Information												
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	0.2	100.7	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

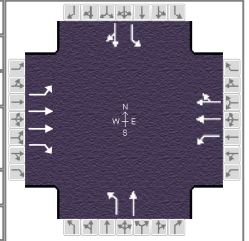
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		105.7	5.2	110.9		14.1		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			9.3		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.1		
Phase Call Probability			0.04			0.97		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		1711		1	2158			97				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		25.1		0.0	34.7			7.3				
Cycle Queue Clearance Time (g _c), s		25.1		0.0	34.7			7.3				
Green Ratio (g/C)		0.81		0.82	0.85			0.07				
Capacity (c), veh/h		2783		227	2843			118				
Volume-to-Capacity Ratio (X)		0.615		0.005	0.759			0.817				
Available Capacity (c _a), veh/h		2783		506	2843			261				
Back of Queue (Q), veh/ln (95th percentile)		11.0		0.0	9.1			5.6				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.00	0.00			0.00				
Uniform Delay (d ₁), s/veh		5.1		4.9	4.2			57.1				
Incremental Delay (d ₂), s/veh		0.9		0.0	0.8			5.1				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		6.1		4.9	4.9			62.3				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	6.1	A		4.9	A		62.3	E		0.0		
Intersection Delay, s/veh / LOS	6.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.0	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.4	B	0.6	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Jeffers...	File Name	Alt 1 Phase 2 No RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	742	692	90	1872	24	131	8		45	19	98

Signal Information												
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	4.2	1.5	76.0	12.2	10.1	0.0				
		Yellow	4.0	0.0	4.0	4.0	4.0	0.0				
		Red	1.0	0.0	2.0	1.0	1.0	0.0				

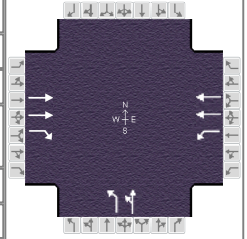
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	9.2	82.0	10.8	83.5		17.2		15.1
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	2.9		4.4			12.0		9.8
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.70		0.96			1.00		0.99
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	35	867	809	92	956	956	144	9		49	101	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1693	1568	1727	1779	1777	1762	1814		1762	1587	
Queue Service Time (g _s), s	0.9	11.7	44.4	2.4	50.8	50.9	10.0	0.5		3.3	7.8	
Cycle Queue Clearance Time (g _c), s	0.9	11.7	44.4	2.4	50.8	50.9	10.0	0.5		3.3	7.8	
Green Ratio (g/C)	0.64	0.61	0.61	0.65	0.62	0.62	0.10	0.10		0.08	0.08	
Capacity (c), veh/h	162	2060	953	464	1103	1103	172	177		142	128	
Volume-to-Capacity Ratio (X)	0.216	0.421	0.848	0.198	0.866	0.867	0.839	0.050		0.348	0.791	
Available Capacity (c _a), veh/h	612	2060	953	1003	1103	1103	352	363		533	480	
Back of Queue (Q), veh/ln (95th percentile)	0.9	6.2	15.5	1.6	19.5	19.6	8.1	0.4		2.7	5.9	
Queue Storage Ratio (RQ) (95th percentile)	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	21.4	7.6	11.7	8.9	14.5	14.5	55.5	51.2		54.4	56.4	
Incremental Delay (d ₂), s/veh	0.2	0.5	7.2	0.0	2.2	2.2	4.2	0.0		0.5	4.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	21.5	8.1	18.9	8.9	16.7	16.7	59.6	51.2		54.9	60.5	
Level of Service (LOS)	C	A	B	A	B	B	E	D		D	E	
Approach Delay, s/veh / LOS	13.5	B		16.3	B		59.1	E		58.7	E	
Intersection Delay, s/veh / LOS	18.3						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.2	B		2.3	B		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.8	A		2.3	B		0.7	A		0.7	A	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 1 PH 2 No RHL PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Alt 1 Phase 2 No RHL PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		689	521	202	1298		688	0				

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		11.6	54.4	45.0	0.0	0.0	0.0				
		Yellow		4.0	4.0	4.0	0.0	0.0	0.0				
		Red		1.0	1.0	0.0	0.0	0.0	0.0				

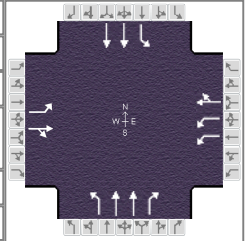
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		59.4	16.6	76.0		49.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			11.3			47.0		
Green Extension Time (g _e), s		0.0	0.3	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		510	341	222	1426		756	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		8.3	13.9	9.3	32.5		45.0	0.0				
Cycle Queue Clearance Time (g _c), s		8.3	13.9	9.3	32.5		45.0	0.0				
Green Ratio (g/C)		0.44	0.44	0.54	0.57		0.36	0.36				
Capacity (c), veh/h		1475	656	513	1836		598	666				
Volume-to-Capacity Ratio (X)		0.346	0.520	0.432	0.777		1.263	0.000				
Available Capacity (c _a), veh/h		1475	656	687	1836		598	666				
Back of Queue (Q), veh/ln (95th percentile)		5.2	7.2	5.6	12.3		57.6	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		3.25	0.00				
Uniform Delay (d ₁), s/veh		13.4	13.3	15.1	10.5		40.0	0.0				
Incremental Delay (d ₂), s/veh		0.6	2.7	0.2	3.3		131.6	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		14.0	16.0	15.4	13.8		171.6	0.0				
Level of Service (LOS)		B	B	B	B		F					
Approach Delay, s/veh / LOS	14.8	B		14.0	B		171.6	F		0.0		
Intersection Delay, s/veh / LOS	50.8						D					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.5	A		1.8	A		1.7	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 1 Phase 2 RHL PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Kanawh...	File Name	Alt 1 Phase 2 No RHL PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	30	291	290	415	540	81	319	365	255	342	449	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	21.3	2.1	18.0	4.0	9.5	40.1			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	0.0	3.0	3.0	3.0	3.0			
				Red	2.0	0.0	2.0	2.0	2.0	2.0			

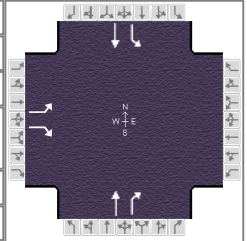
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	9.0	45.1	23.5	59.7	26.3	23.0	28.4	25.1
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
Queue Clearance Time (g _s), s	4.2	39.7	17.4	42.1	21.9		23.3	
Green Extension Time (g _e), s	0.0	1.5	1.1	2.5	0.0	0.0	0.6	0.0
Phase Call Probability	0.66	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	0.62	0.00	0.02	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	
Adjusted Flow Rate (v), veh/h	33	537		451	668		347	397	118	372	488	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1689		1711	1775		1727	1761	1537	1727	1727	
Queue Service Time (g _s), s	2.2	37.7		15.4	40.1		19.9	12.8	8.4	21.3	16.3	
Cycle Queue Clearance Time (g _c), s	2.2	37.7		15.4	40.1		19.9	12.8	8.4	21.3	16.3	
Green Ratio (g/C)	0.03	0.33		0.15	0.46		0.34	0.15	0.15	0.36	0.17	
Capacity (c), veh/h	57	550		527	793		411	573	250	470	611	
Volume-to-Capacity Ratio (X)	0.569	0.976		0.856	0.843		0.845	0.692	0.474	0.791	0.799	
Available Capacity (c _a), veh/h	648	627		1483	873		439	573	250	690	611	
Back of Queue (Q), veh/ln (95th percentile)	1.8	26.5		10.8	24.5		14.6	10.1	6.5	13.8	12.3	
Queue Storage Ratio (RQ) (95th percentile)	0.13	0.00		0.60	0.00		0.85	0.00	0.00	1.11	0.00	
Uniform Delay (d ₁), s/veh	57.2	40.0		49.5	29.5		34.0	47.4	45.6	32.6	47.3	
Incremental Delay (d ₂), s/veh	3.3	27.5		1.6	6.4		12.4	6.7	6.3	2.1	10.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	60.4	67.5		51.1	35.8		46.4	54.1	51.9	34.7	57.8	
Level of Service (LOS)	E	E		D	D		D	D	D	C	E	
Approach Delay, s/veh / LOS	67.1		E	42.0		D	50.7		D	47.8		D
Intersection Delay, s/veh / LOS	49.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	2.8	C	2.5	B	2.4	B
Bicycle LOS Score / LOS	1.4	A	2.3	B	1.2	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt1 Phase 2 No RHL PM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Oakhurs...	File Name	Alt 1 Phase 2 No RHL PM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	787		38					133	47	137	253	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.8	38.2	55.5	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		60.0				42.7	17.3	60.0
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		57.5					12.7	
Green Extension Time (g _e), s		0.0				0.0	0.1	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		1.00					1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14					2	12	1	6	
Adjusted Flow Rate (v), veh/h	894		43					151	28	156	288	
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452					1762	1568	1711	1796	
Queue Service Time (g _s), s	55.5		2.0					7.7	1.5	10.7	12.3	
Cycle Queue Clearance Time (g _c), s	55.5		2.0					7.7	1.5	10.7	12.3	
Green Ratio (g/C)	0.46		0.46					0.32	0.32	0.11	0.46	
Capacity (c), veh/h	755		671					561	499	182	831	
Volume-to-Capacity Ratio (X)	1.185		0.064					0.269	0.057	0.853	0.346	
Available Capacity (c _a), veh/h	755		671					561	499	221	831	
Back of Queue (Q), veh/ln (95th percentile)	57.8		1.2					6.1	1.1	9.4	9.0	
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.07					0.00	0.00	1.13	0.00	
Uniform Delay (d ₁), s/veh	32.3		17.9					30.5	28.4	52.7	20.6	
Incremental Delay (d ₂), s/veh	96.6		0.0					1.2	0.2	20.1	1.1	
Initial Queue Delay (d ₃), s/veh	0.0		0.0					0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	128.8		17.9					31.7	28.6	72.8	21.8	
Level of Service (LOS)	F		B					C	C	E	C	
Approach Delay, s/veh / LOS	123.7		F	0.0				31.2	C	39.7	D	
Intersection Delay, s/veh / LOS	89.2						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	1.2	A

**Alt 5 AM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	ASELLS			Intersection				
Agency/Co.	STANTEC			Jurisdiction				
Date Performed	11/25/2014			Analysis Year	2030			
Analysis Time Period	ALT 5 AM							
Project Description								
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	432			780	25		
Peak-Hour Factor, PHF	0.45	0.87	1.00	1.00	0.86	0.63		
Hourly Flow Rate, HFR (veh/h)	11	496	0	0	906	39		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		1			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10		10					
Peak-Hour Factor, PHF	0.90	1.00	0.69	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	11	0	14	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	11					11		14
C (m) (veh/h)	720					178		589
v/c	0.02					0.06		0.02
95% queue length	0.05					0.20		0.07
Control Delay (s/veh)	10.1					26.6		11.3
LOS	B					D		B
Approach Delay (s/veh)	--	--				18.0		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	ASELLS				Intersection			
Agency/Co.	STANTEC				Jurisdiction			
Date Performed	11/25/2014				Analysis Year	2030		
Analysis Time Period	ALT 5 AM							
Project Description								
East/West Street: <i>McDonalds entrance</i>					North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>					Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	432			780	85		
Peak-Hour Factor, PHF	0.83	0.87	1.00	1.00	0.88	0.83		
Hourly Flow Rate, HFR (veh/h)	36	496	0	0	886	102		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	2	0	0	2	0		
Configuration	LT	T			T	TR		
Upstream Signal		0			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		5					
Peak-Hour Factor, PHF	0.50	1.00	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	10	0	20	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					L		R
v (veh/h)	36					10		20
C (m) (veh/h)	694					154		573
v/c	0.05					0.06		0.03
95% queue length	0.16					0.21		0.11
Control Delay (s/veh)	10.5					30.0		11.5
LOS	B					D		B
Approach Delay (s/veh)	--	--				17.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 AM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		468			764	10	
Peak-Hour Factor, PHF	0.50	0.77	1.00	1.00	0.82	0.47	
Hourly Flow Rate, HFR (veh/h)	0	607	0	0	931	21	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T			T	TR	
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)		0	5				
Peak-Hour Factor, PHF	0.46	1.00	0.58	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	8	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration			TR				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							TR
v (veh/h)							8
C (m) (veh/h)							629
v/c							0.01
95% queue length							0.04
Control Delay (s/veh)							10.8
LOS							B
Approach Delay (s/veh)	--	--				10.8	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 AM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		406	5	5	760		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	489	5	10	783	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2		0
Configuration		T	TR	LT	T		
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				5	0	5	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	5	0	7	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	0	1		0
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		10		12			
C (m) (veh/h)		1120		488			
v/c		0.01		0.02			
95% queue length		0.03		0.08			
Control Delay (s/veh)		8.2		12.6			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.6				
Approach LOS	--	--	B				

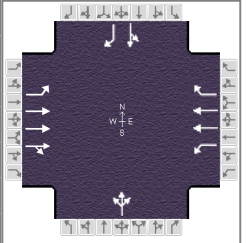
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 AM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		782			785	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	0	919	0	0	835	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T			T	TR	
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	0	0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							LTR
v (veh/h)							15
C (m) (veh/h)							613
v/c							0.02
95% queue length							0.08
Control Delay (s/veh)							11.0
LOS							B
Approach Delay (s/veh)	--	--					11.0
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	A SELLS			Intersection				
Agency/Co.				Jurisdiction				
Date Performed	7/22/2015			Analysis Year	2030			
Analysis Time Period	Alt 5 AM Peak							
Project Description								
East/West Street: US 119				North/South Street: Jefferson Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	19	543			184			
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00		
Hourly Flow Rate, HFR (veh/h)	31	610	0	0	221	0		
Percent Heavy Vehicles	4	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T			T			
Upstream Signal		0			1			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				16		134		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78		
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	171		
Percent Heavy Vehicles	0	0	0	5	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L		R			
v (veh/h)	31		23		171			
C (m) (veh/h)	1176		297		498			
v/c	0.03		0.08		0.34			
95% queue length	0.08		0.25		1.51			
Control Delay (s/veh)	8.1		18.1		16.0			
LOS	A		C		C			
Approach Delay (s/veh)	--	--	16.2					
Approach LOS	--	--	C					

**Alt 5 AM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & Kenna...	File Name	Alt 5 AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	8	1835	1	34	1012	21	11	1	65	1	0	0

Signal Information				Phase Diagram										
Cycle, s	150.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
Green	2.5	109.5	7.2	10.8	0.0	0.0	1		2		3		4	
Yellow	3.0	4.0	4.0	4.0	0.0	0.0	5		6		7		8	
Red	1.0	2.0	1.0	1.0	0.0	0.0								

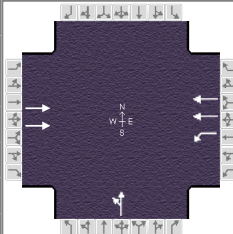
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.5	121.9	12.2	127.7		15.8		15.8
Change Period, (Y+R _c), s	4.0	6.0	6.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g _s), s	2.8		5.1			7.0		2.1
Green Extension Time (g _e), s	0.0	0.0	1.1	0.0		0.0		0.1
Phase Call Probability	0.31		0.78			0.90		0.90
Max Out Probability	0.00		1.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18	
Adjusted Flow Rate (v), veh/h	9	1345	672	36	1083	22		55			1	0	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1814	1813	1727	1693	1537		1544			1358	1537	
Queue Service Time (g _s), s	0.8	0.0	0.0	3.1	11.2	0.3		0.8			0.0	0.0	
Cycle Queue Clearance Time (g _c), s	0.8	0.0	0.0	3.1	11.2	0.3		5.0			0.1	0.0	
Green Ratio (g/C)	0.02	0.77	0.77	0.04	0.81	0.81		0.07			0.07	0.07	
Capacity (c), veh/h	28	2803	1401	72	2748	1247		141			146	111	
Volume-to-Capacity Ratio (X)	0.311	0.480	0.480	0.506	0.394	0.018		0.390			0.008	0.000	
Available Capacity (c _a), veh/h	186	2803	1401	92	2748	1247		203			202	174	
Back of Queue (Q), veh/ln (95th percentile)	0.6	0.4	0.8	2.5	5.2	0.2		3.7			0.1	0.0	
Queue Storage Ratio (RQ) (95th percentile)	0.08	0.00	0.00	0.00	0.00	0.02		0.00			0.00	0.00	
Uniform Delay (d ₁), s/veh	72.5	0.0	0.0	70.5	3.1	2.1		66.9			64.6	0.0	
Incremental Delay (d ₂), s/veh	2.3	0.6	1.2	1.9	0.4	0.0		0.7			0.0	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	74.8	0.6	1.2	72.4	3.5	2.1		67.5			64.6	0.0	
Level of Service (LOS)	E	A	A	E	A	A		E			E		
Approach Delay, s/veh / LOS	1.1		A	5.6		A		67.5		E	64.6		E
Intersection Delay, s/veh / LOS	3.9						A						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.5	A	0.6	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Alt 5 AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		11108		38	964		102	0				

Signal Information				Signal Phases									
Cycle, s	150.0	Reference Phase	2	→	↔	↔	↔	↔	↔	↔	↔	↔	↔
Offset, s	0	Reference Point	End	Green	118.0	4.9	12.1	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0

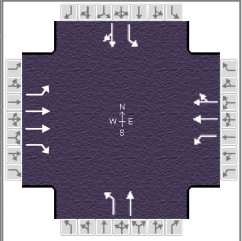
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		123.0	9.9	132.9		17.1		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			12.2		
Green Extension Time (g _e), s		0.0	1.3	0.0		0.1		
Phase Call Probability			0.82			0.99		
Max Out Probability			0.72			0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		2089		41	1029			112				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		40.2		0.0	9.0			10.2				
Cycle Queue Clearance Time (g _c), s		40.2		0.0	9.0			10.2				
Green Ratio (g/C)		0.79		0.81	0.85			0.08				
Capacity (c), veh/h		2716		199	2859			132				
Volume-to-Capacity Ratio (X)		0.769		0.204	0.360			0.848				
Available Capacity (c _a), veh/h		2716		211	2859			218				
Back of Queue (Q), veh/ln (95th percentile)		14.0		1.5	3.5			8.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.28	0.00			0.00				
Uniform Delay (d ₁), s/veh		5.6		20.1	2.1			68.0				
Incremental Delay (d ₂), s/veh		1.9		0.2	0.3			7.5				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		7.5		20.3	2.4			75.5				
Level of Service (LOS)		A		C	A			E				
Approach Delay, s/veh / LOS	7.5	A		3.1	A		75.5	E		0.0		
Intersection Delay, s/veh / LOS			8.4						A			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	1.8	A	2.9	C	2.8	C
Bicycle LOS Score / LOS	10.6	F	1.4	A	0.7	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 AM	PHF	0.92
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	MacCorkle Ave & Jeffers...	File Name	Alt 5 AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	1114	625	131	869	10	120	8		11	5	14

Signal Information				Phase Diagrams								
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	3.8	2.2	105.6	13.0	4.5	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	2.0	1.0	1.0	0.0		

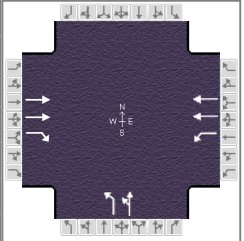
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	8.8	111.6	11.0	113.8		18.0		9.5
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	2.6		5.2			12.9		3.9
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.2		0.0
Phase Call Probability	0.63		1.00			1.00		0.74
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	24	1326	695	139	468	467	130	9		12	21	
Adjusted Saturation Flow Rate (s), veh/h/ln	1774	1739	1548	1774	1863	1855	1774	1863		1774	1645	
Queue Service Time (g _s), s	0.6	32.2	41.8	3.2	15.4	15.4	10.9	0.6		1.0	1.9	
Cycle Queue Clearance Time (g _c), s	0.6	32.2	41.8	3.2	15.4	15.4	10.9	0.6		1.0	1.9	
Green Ratio (g/C)	0.73	0.70	0.70	0.74	0.72	0.72	0.09	0.09		0.03	0.03	
Capacity (c), veh/h	452	2448	1090	320	1338	1333	154	161		53	49	
Volume-to-Capacity Ratio (X)	0.053	0.542	0.638	0.435	0.350	0.350	0.849	0.054		0.227	0.422	
Available Capacity (c _a), veh/h	922	2448	1090	823	1338	1333	296	310		438	406	
Back of Queue (Q), veh/ln (95th percentile)	0.3	17.1	20.7	2.3	9.9	9.8	8.8	0.6		0.8	1.5	
Queue Storage Ratio (RQ) (95th percentile)	0.04	0.00	1.91	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	6.3	14.3	16.0	10.9	8.9	8.9	67.5	62.9		71.1	71.5	
Incremental Delay (d ₂), s/veh	0.0	0.5	1.6	0.3	0.6	0.6	4.9	0.1		0.8	2.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	6.3	14.7	17.6	11.2	9.5	9.5	72.4	62.9		71.9	73.6	
Level of Service (LOS)	A	B	B	B	A	A	E	E		E	E	
Approach Delay, s/veh / LOS	15.6		B	9.7		A	71.9		E	73.0		E
Intersection Delay, s/veh / LOS	16.6						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.4		B	2.2		B	2.9		C	3.1		C
Bicycle LOS Score / LOS	2.0		B	1.4		A	0.5		A	0.5		A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 AM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1> 7:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Alt 5 AM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1097	368	65	665		337	0				

Signal Information				Phase Diagram								
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	98.5	6.5	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

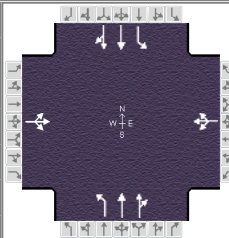
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		103.5	11.5	115.0		35.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			33.0		
Green Extension Time (g _e), s		0.0	0.1	0.0		0.0		
Phase Call Probability			0.95			1.00		
Max Out Probability			0.25			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		1076	304	71	731		370	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		15.1	7.4	0.0	1.1		31.0	0.0				
Cycle Queue Clearance Time (g _c), s		15.1	7.4	0.0	1.1		31.0	0.0				
Green Ratio (g/C)		0.66	0.66	0.69	0.73		0.21	0.21				
Capacity (c), veh/h		2225	990	383	2370		344	382				
Volume-to-Capacity Ratio (X)		0.484	0.307	0.187	0.308		1.078	0.000				
Available Capacity (c _a), veh/h		2225	990	400	2370		344	382				
Back of Queue (Q), veh/ln (95th percentile)		7.3	3.9	2.1	0.6		28.0	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		1.58	0.00				
Uniform Delay (d ₁), s/veh		6.4	5.4	14.8	0.5		59.5	0.0				
Incremental Delay (d ₂), s/veh		0.6	0.7	0.1	0.3		71.0	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		7.0	6.1	14.9	0.8		130.5	0.0				
Level of Service (LOS)		A	A	B	A		F					
Approach Delay, s/veh / LOS	6.8	A		2.0	A		130.5	F		0.0		
Intersection Delay, s/veh / LOS	23.3						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3	B		1.9	A		2.9	C		3.0	C	
Bicycle LOS Score / LOS	1.8	A		1.1	A		1.1	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Access Rd	File Name	ALT 5 AM - Jefferson & Access Road.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	1	1	1	7	1	1	1	437	2	29	733	2

Signal Information													
Cycle, s	90.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	3.3	63.5	1.3	0.5	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	3.5	3.5	3.5	0.0	0.0			
				Red	2.0	2.0	2.0	2.0	0.0	0.0			

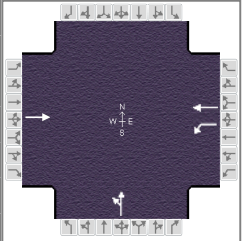
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		12.0		12.0		6.3	2.0	4.0
Phase Duration, s		6.0		6.8		69.0	8.3	77.2
Change Period, (Y+R _c), s		5.5		5.5		5.5	5.0	5.5
Max Allow Headway (MAH), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g _s), s		2.2		2.5			3.6	
Green Extension Time (g _e), s		0.0		0.0		0.0	0.0	0.0
Phase Call Probability		0.08		0.22			0.55	
Max Out Probability		0.00		0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	3			10			1	239	238	32	400	399
Adjusted Saturation Flow Rate (s), veh/h/ln	1685			1713			678	1814	1811	1727	1814	1812
Queue Service Time (g _s), s	0.2			0.5			0.0	4.0	4.0	1.6	5.2	5.2
Cycle Queue Clearance Time (g _c), s	0.2			0.5			0.1	4.0	4.0	1.6	5.2	5.2
Green Ratio (g/C)	0.01			0.01			0.71	0.71	0.71	0.04	0.80	0.80
Capacity (c), veh/h	9			25			558	1279	1277	63	1445	1444
Volume-to-Capacity Ratio (X)	0.370			0.395			0.002	0.187	0.187	0.502	0.276	0.276
Available Capacity (c _a), veh/h	331			181			558	1279	1277	523	1445	1444
Back of Queue (Q), veh/ln (95th percentile)	0.2			0.4			0.0	2.2	2.2	1.3	1.9	1.9
Queue Storage Ratio (RQ) (95th percentile)	0.00			0.00			0.00	0.00	0.00	0.22	0.00	0.00
Uniform Delay (d ₁), s/veh	44.6			44.0			3.9	4.5	4.5	42.6	2.4	2.4
Incremental Delay (d ₂), s/veh	9.3			3.7			0.0	0.3	0.3	2.3	0.5	0.5
Initial Queue Delay (d ₃), s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	54.0			47.7			3.9	4.8	4.8	44.9	2.9	2.9
Level of Service (LOS)	D			D			A	A	A	D	A	A
Approach Delay, s/veh / LOS	54.0	D		47.7	D		4.8	A		4.4	A	
Intersection Delay, s/veh / LOS	5.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.0	B	2.0	B
Bicycle LOS Score / LOS	0.5	A	0.5	A	0.9	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & Kanawh...	File Name	Alt 5 AM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		277		377	252		453	0				

Signal Information													
Cycle, s	90.0	Reference Phase	2	→	↔	↔	↔	↔	↔	↔	↔	↔	↔
Offset, s	0	Reference Point	End	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Uncoordinated	No	Simult. Gap E/W	On	Green	39.8	6.0	27.7	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	3.5	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			

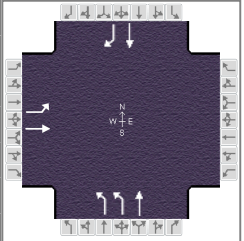
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		45.3	11.5	56.8		33.2		
Change Period, (Y+R _c), s		5.5	5.5	5.5		5.5		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			26.9		
Green Extension Time (g _e), s		0.0	1.3	0.0		1.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2		1	6		7	4				
Adjusted Flow Rate (v), veh/h		301		410	274		492					
Adjusted Saturation Flow Rate (s), veh/h/ln		1814		1727	1814		1727					
Queue Service Time (g _s), s		10.0		0.0	6.9		24.9					
Cycle Queue Clearance Time (g _c), s		10.0		0.0	6.9		24.9					
Green Ratio (g/C)		0.44		0.49	0.57		0.31					
Capacity (c), veh/h		804		544	1036		530					
Volume-to-Capacity Ratio (X)		0.374		0.754	0.264		0.930					
Available Capacity (c _a), veh/h		804		1417	1036		1056					
Back of Queue (Q), veh/ln (95th percentile)		7.4		12.6	4.6		15.4					
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.00	0.00		0.00					
Uniform Delay (d ₁), s/veh		16.7		26.8	9.7		30.3					
Incremental Delay (d ₂), s/veh		1.3		0.8	0.6		3.3					
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0					
Control Delay (d), s/veh		18.0		27.6	10.4		33.5					
Level of Service (LOS)		B		C	B		C					
Approach Delay, s/veh / LOS	18.0	B		20.7	C		33.5	C		0.0		
Intersection Delay, s/veh / LOS	24.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	1.9	A	2.3	B	2.1	B
Bicycle LOS Score / LOS	1.0	A	1.6	A	1.3	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	ASELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1> 7:30
Intersection	Jefferson Rd & Connect...	File Name	Alt 5 AM - Jefferson & Connector Road.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	168	0					531	274			211	520

Signal Information													
Cycle, s	90.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	18.0	44.8	11.2	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	3.5	3.5	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			

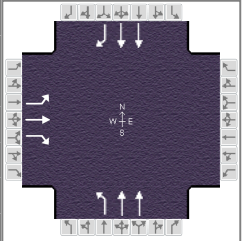
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		10.0			2.0	4.0		7.3
Phase Duration, s		16.7			23.0	73.3		50.3
Change Period, (Y+R _c), s		5.5			5.0	5.5		5.5
Max Allow Headway (MAH), s		3.1			3.1	0.0		0.0
Queue Clearance Time (g _s), s		11.1			16.6			
Green Extension Time (g _e), s		0.2			1.4	0.0		0.0
Phase Call Probability		0.99			1.00			
Max Out Probability		0.01			0.00			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		6	16	
Adjusted Flow Rate (v), veh/h	183	0					577	298		229	505	
Adjusted Saturation Flow Rate (s), veh/h/ln	1762	1850					1711	1850		1850	1568	
Queue Service Time (g _s), s	9.1	0.0					14.6	4.3		6.4	21.5	
Cycle Queue Clearance Time (g _c), s	9.1	0.0					14.6	4.3		6.4	21.5	
Green Ratio (g/C)	0.12	0.12					0.20	0.75		0.50	0.50	
Capacity (c), veh/h	219	230					685	1394		921	781	
Volume-to-Capacity Ratio (X)	0.835	0.000					0.843	0.214		0.249	0.647	
Available Capacity (c _a), veh/h	362	380					1837	1394		921	781	
Back of Queue (Q), veh/ln (95th percentile)	7.2	0.0					9.9	2.0		4.6	12.3	
Queue Storage Ratio (RQ) (95th percentile)	1.56	0.00					0.70	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	38.5	0.0					34.6	3.3		12.9	16.7	
Incremental Delay (d ₂), s/veh	3.5	0.0					1.1	0.4		0.6	4.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0					0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	42.0	0.0					35.8	3.6		13.6	20.9	
Level of Service (LOS)	D						D	A		B	C	
Approach Delay, s/veh / LOS	42.0	D		0.0			24.8	C		18.6	B	
Intersection Delay, s/veh / LOS	24.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.4	B	1.8	A	2.7	B
Bicycle LOS Score / LOS	0.8	A			1.9	A	1.7	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 AM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 7:30
Intersection	Jefferson Rd & RHL Blvd	File Name	Alt 5 AM - Jefferson & RHL.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	102	0	2				1	719			732	16

Signal Information														
Cycle, s	90.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
				Green	6.0	60.1	7.4	0.0	0.0	0.0				
				Yellow	3.5	3.5	3.5	0.0	0.0	0.0				
				Red	2.0	2.0	2.0	0.0	0.0	0.0				

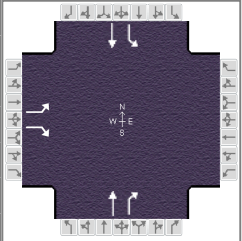
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6		2
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		12.9			11.5	77.1		65.6
Change Period, (Y+R _c), s		5.5			5.5	5.5		5.5
Max Allow Headway (MAH), s		3.1			3.1	0.0		0.0
Queue Clearance Time (g _s), s		7.7			2.0			
Green Extension Time (g _e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.94			1.00			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18				1	6		2	12	
Adjusted Flow Rate (v), veh/h	111	0	2				1	782		796	14	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1850	1537				1727	1727		1727	1537	
Queue Service Time (g _s), s	5.7	0.0	0.1				0.0	5.4		8.9	0.3	
Cycle Queue Clearance Time (g _c), s	5.7	0.0	0.1				0.0	5.4		8.9	0.3	
Green Ratio (g/C)	0.08	0.08	0.15				0.76	0.80		0.67	0.67	
Capacity (c), veh/h	141	151	228				582	2749		2308	1027	
Volume-to-Capacity Ratio (X)	0.786	0.000	0.010				0.002	0.284		0.345	0.014	
Available Capacity (c _a), veh/h	470	504	521				978	2749		2308	1027	
Back of Queue (Q), veh/ln (95th percentile)	4.4	0.0	0.1				0.0	1.8		4.8	0.1	
Queue Storage Ratio (RQ) (95th percentile)	1.13	0.00	0.02				0.00	0.00		0.00	0.03	
Uniform Delay (d ₁), s/veh	40.6	0.0	32.7				3.3	2.4		6.4	5.0	
Incremental Delay (d ₂), s/veh	3.6	0.0	0.0				0.0	0.3		0.4	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0				0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	44.2	0.0	32.7				3.3	2.7		6.8	5.0	
Level of Service (LOS)	D		C				A	A		A	A	
Approach Delay, s/veh / LOS	43.9		D	0.0			2.7	A	6.8		A	
Intersection Delay, s/veh / LOS	7.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.8	A	2.4	B
Bicycle LOS Score / LOS	0.7	A			1.1	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Existing AM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2014	Analysis Period	1 > 7:30
Intersection	Jefferson Rd/Oakhurst a...	File Name	Existing AM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	444		7					120	113	130	62	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	12.4	53.5	39.1	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		45.1				58.0	16.9	74.9
Change Period, (Y+R _c), s		6.0				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		38.2					12.2	
Green Extension Time (g _e), s		0.9				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	505		8				136	72	148	70		
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452				1762	1568	1711	1796		
Queue Service Time (g _s), s	36.2		0.4				5.6	3.2	10.2	2.0		
Cycle Queue Clearance Time (g _c), s	36.2		0.4				5.6	3.2	10.2	2.0		
Green Ratio (g/C)	0.33		0.33				0.45	0.45	0.10	0.59		
Capacity (c), veh/h	532		474				785	699	176	1053		
Volume-to-Capacity Ratio (X)	0.948		0.017				0.174	0.102	0.837	0.067		
Available Capacity (c _a), veh/h	734		653				785	699	433	1053		
Back of Queue (Q), veh/ln (95th percentile)	22.9		0.3				4.2	2.1	8.0	1.4		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.02				0.00	0.00	0.95	0.00		
Uniform Delay (d ₁), s/veh	39.4		27.4				20.0	19.3	52.8	10.7		
Incremental Delay (d ₂), s/veh	15.7		0.0				0.5	0.3	4.0	0.1		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	55.1		27.4				20.5	19.6	56.8	10.8		
Level of Service (LOS)	E		C				C	B	E	B		
Approach Delay, s/veh / LOS	54.7		D	0.0			20.2	C	42.0	D		
Intersection Delay, s/veh / LOS	44.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	0.8	A

**Alt 5 PM Peak
Unsignalized**

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM						
Project Description							
East/West Street: <i>Bob Evans entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	585			869	45	
Peak-Hour Factor, PHF	0.95	0.96	1.00	1.00	0.90	0.69	
Hourly Flow Rate, HFR (veh/h)	10	609	0	0	965	65	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	20		25				
Peak-Hour Factor, PHF	0.32	1.00	0.88	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	62	0	28	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	10					62	28
C (m) (veh/h)	666					148	555
v/c	0.02					0.42	0.05
95% queue length	0.05					1.85	0.16
Control Delay (s/veh)	10.5					45.8	11.8
LOS	B					E	B
Approach Delay (s/veh)	--	--				35.2	
Approach LOS	--	--				E	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM						
Project Description							
East/West Street: <i>McDonalds entrance</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	20	585			869	35	
Peak-Hour Factor, PHF	0.78	0.94	1.00	1.00	0.89	0.87	
Hourly Flow Rate, HFR (veh/h)	25	622	0	0	976	40	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5		5				
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	5	0	5	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	1	0	1	0	0	0	
Configuration	L		R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT					L	R
v (veh/h)	25					5	5
C (m) (veh/h)	675					134	560
v/c	0.04					0.04	0.01
95% queue length	0.12					0.12	0.03
Control Delay (s/veh)	10.5					32.9	11.5
LOS	B					D	B
Approach Delay (s/veh)	--	--				22.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	ASELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM						
Project Description							
East/West Street: <i>Community Center - North</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	585			869	35	
Peak-Hour Factor, PHF	0.83	0.98	1.00	1.00	0.98	0.75	
Hourly Flow Rate, HFR (veh/h)	12	596	0	0	886	46	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration	LT	T			T	TR	
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10	0	10				
Peak-Hour Factor, PHF	0.88	1.00	0.79	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	11	0	12	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LTR
v (veh/h)	12						23
C (m) (veh/h)	808						547
v/c	0.01						0.04
95% queue length	0.05						0.13
Control Delay (s/veh)	9.5						11.9
LOS	A						B
Approach Delay (s/veh)	--	--					11.9
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.	STANTEC			Jurisdiction			
Date Performed	11/25/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM						
Project Description							
East/West Street: <i>Pennsylvania Avenue</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		553	5	5	838		
Peak-Hour Factor, PHF	1.00	0.83	1.00	0.50	0.97	1.00	
Hourly Flow Rate, HFR (veh/h)	0	666	5	10	863	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		1			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				5	0	5	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.65	1.00	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	7	
Percent Heavy Vehicles	0	0	0	2	0	2	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (veh/h)		10		14			
C (m) (veh/h)		995		363			
v/c		0.01		0.04			
95% queue length		0.03		0.12			
Control Delay (s/veh)		8.7		15.3			
LOS		A		C			
Approach Delay (s/veh)	--	--	15.3				
Approach LOS	--	--	C				

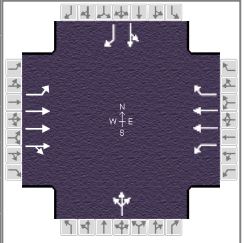
TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM Peak						
Project Description							
East/West Street: <i>Kramer Street</i>				North/South Street: <i>Jefferson Road</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1032			1076	5	
Peak-Hour Factor, PHF	0.50	0.85	1.00	1.00	0.94	0.75	
Hourly Flow Rate, HFR (veh/h)	0	1214	0	0	1144	6	
Percent Heavy Vehicles	6	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0				0
Lanes	0	2	0	0	2	0	
Configuration		T			T	TR	
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)		0	5				
Peak-Hour Factor, PHF	0.75	1.00	0.33	0.80	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	0	
Percent Heavy Vehicles	100	0	100	3	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0	0	
Configuration			TR				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							TR
v (veh/h)							15
C (m) (veh/h)							471
v/c							0.03
95% queue length							0.10
Control Delay (s/veh)							12.9
LOS							B
Approach Delay (s/veh)	--	--				12.9	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	A SELLS			Intersection			
Agency/Co.				Jurisdiction			
Date Performed	12/3/2014			Analysis Year	2030		
Analysis Time Period	Alt 5 PM Peak						
Project Description							
East/West Street: US 119				North/South Street: Jefferson Road			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	29	548			376		
Peak-Hour Factor, PHF	0.60	0.89	1.00	1.00	0.83	1.00	
Hourly Flow Rate, HFR (veh/h)	48	615	0	0	453	0	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	1	1	0	0	1	0	
Configuration	L	T			T		
Upstream Signal		0			1		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				79		164	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.69	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	114	0	210	
Percent Heavy Vehicles	0	0	0	5	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	1	0	1	
Configuration				L		R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L		L		R		
v (veh/h)	48		114		210		
C (m) (veh/h)	1111		176		495		
v/c	0.04		0.65		0.42		
95% queue length	0.14		3.73		2.09		
Control Delay (s/veh)	8.4		56.8		17.5		
LOS	A		F		C		
Approach Delay (s/veh)	--	--	31.4				
Approach LOS	--	--	D				

**Alt 5 PM Peak
Signalized**

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	MacCorkle Ave & Kenna...	File Name	Alt 5 PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	9	1503	12	51	2056	2	0	0	48	16	0	0

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		2.3	0.3	94.9	7.4	0.0	0.0				
		Yellow		3.0	4.0	4.0	4.0	0.0	0.0				
		Red		1.0	1.0	2.0	1.0	0.0	0.0				

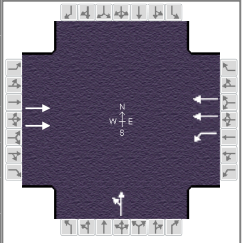
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	2.0	3.0		8.0		7.0
Phase Duration, s	6.3	100.9	11.7	106.3		12.4		12.4
Change Period, (Y+R _c), s	4.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	2.7		5.7			2.8		4.3
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0		0.0		0.0
Phase Call Probability	0.29		0.83			0.61		0.61
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	10	1111	553	52	2087	2		0			18	0
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1779	1771	1727	1693	1537		0			1256	1537
Queue Service Time (g _s), s	0.7	0.0	0.0	3.7	32.7	0.0		0.0			1.5	0.0
Cycle Queue Clearance Time (g _c), s	0.7	0.0	0.0	3.7	32.7	0.0		0.0			2.3	0.0
Green Ratio (g/C)	0.02	0.76	0.76	0.05	0.80	0.80					0.06	0.06
Capacity (c), veh/h	32	2702	1345	92	2718	1233					132	91
Volume-to-Capacity Ratio (X)	0.308	0.411	0.411	0.561	0.768	0.002		0.000			0.133	0.000
Available Capacity (c _a), veh/h	326	2702	1345	313	2718	1233					273	246
Back of Queue (Q), veh/ln (95th percentile)	0.6	0.3	0.6	3.0	8.6	0.0		0.0			1.0	0.0
Queue Storage Ratio (RQ) (95th percentile)	0.07	0.00	0.00	0.00	0.00	0.00		0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	60.2	0.0	0.0	60.1	4.2	1.8					56.8	0.0
Incremental Delay (d ₂), s/veh	2.0	0.5	0.9	1.3	1.4	0.0		0.0			0.2	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	62.1	0.5	0.9	61.3	5.6	1.8					56.9	0.0
Level of Service (LOS)	E	A	A	E	A	A					E	
Approach Delay, s/veh / LOS	1.0		A	6.9		A	55.9		E	56.9		E
Intersection Delay, s/veh / LOS	4.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.2	B	3.3	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.4	B	0.5	A	0.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	MacCorkle Ave & I-64 EB	File Name	Alt 5 PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1012		1	2060		45	0				

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	0.2	104.9	4.9	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

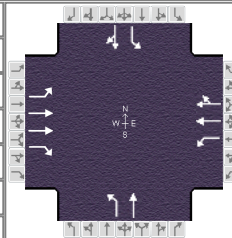
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		109.9	5.2	115.1		9.9		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			2.0			5.8		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.0		
Phase Call Probability			0.03			0.82		
Max Out Probability			0.00			0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6		5	2		7	4				
Adjusted Flow Rate (v), veh/h		1722		1	2091			49				
Adjusted Saturation Flow Rate (s), veh/h/ln		1727		1678	1677			1631				
Queue Service Time (g _s), s		23.2		0.0	35.7			3.8				
Cycle Queue Clearance Time (g _c), s		23.2		0.0	35.7			3.8				
Green Ratio (g/C)		0.84		0.86	0.88			0.04				
Capacity (c), veh/h		2897		239	2954			64				
Volume-to-Capacity Ratio (X)		0.594		0.004	0.708			0.770				
Available Capacity (c _a), veh/h		2897		573	2954			261				
Back of Queue (Q), veh/ln (95th percentile)		10.1		0.0	13.1			3.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.00	0.00			0.00				
Uniform Delay (d ₁), s/veh		4.2		3.9	5.0			59.5				
Incremental Delay (d ₂), s/veh		0.8		0.0	0.7			7.0				
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0				
Control Delay (d), s/veh		5.0		3.9	5.7			66.5				
Level of Service (LOS)		A		A	A			E				
Approach Delay, s/veh / LOS	5.0	A		5.7	A		66.5	E		0.0		
Intersection Delay, s/veh / LOS	6.2						A					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.0	B		1.8	A		2.9	C		2.8	C	
Bicycle LOS Score / LOS	1.4	A		2.4	B		0.6	A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.92
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	MacCorkle Ave & Jeffers...	File Name	Alt 5 PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	34	785	723	82	1848	26	120	7		52	19	91

Signal Information													
Cycle, s	125.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	4.4	1.3	77.9	11.3	9.1	0.0			
				Yellow	4.0	0.0	4.0	4.0	4.0	0.0			
				Red	1.0	0.0	2.0	1.0	1.0	0.0			

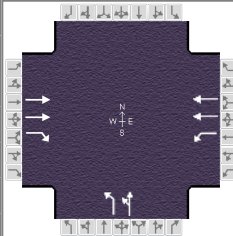
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	3.0	1.1	4.0		10.0		10.0
Phase Duration, s	9.4	83.9	10.7	85.1		16.3		14.1
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.1		3.4
Queue Clearance Time (g _s), s	3.0		4.1			11.3		8.9
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.73		0.94			0.99		0.99
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	1	6	16	5	2	12	7	4		3	8	18
Adjusted Flow Rate (v), veh/h	38	877	785	83	945	944	130	8		57	92	
Adjusted Saturation Flow Rate (s), veh/h/ln	1691	1690	1505	1723	1810	1801	1723	1810		1774	1634	
Queue Service Time (g _s), s	1.0	18.5	54.0	2.1	45.7	46.1	9.3	0.5		3.8	6.9	
Cycle Queue Clearance Time (g _c), s	1.0	18.5	54.0	2.1	45.7	46.1	9.3	0.5		3.8	6.9	
Green Ratio (g/C)	0.66	0.62	0.62	0.67	0.63	0.63	0.09	0.09		0.07	0.07	
Capacity (c), veh/h	174	2106	937	426	1146	1140	156	164		130	120	
Volume-to-Capacity Ratio (X)	0.219	0.416	0.838	0.194	0.825	0.829	0.835	0.046		0.435	0.773	
Available Capacity (c _a), veh/h	635	2106	937	989	1146	1140	345	362		549	506	
Back of Queue (Q), veh/ln (95th percentile)	0.8	11.0	37.4	1.3	18.0	18.0	7.3	0.4		3.1	5.3	
Queue Storage Ratio (RQ) (95th percentile)	0.09	0.00	3.41	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	17.8	14.4	22.1	9.2	13.3	13.3	54.0	50.2		54.0	55.4	
Incremental Delay (d ₂), s/veh	0.2	0.5	7.0	0.0	1.7	1.7	4.4	0.0		0.9	4.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	17.9	14.8	29.1	9.2	15.0	15.0	58.5	50.2		54.8	59.3	
Level of Service (LOS)	B	B	C	A	B	B	E	D		D	E	
Approach Delay, s/veh / LOS	21.5		C	14.7		B	58.0		E	57.6		E
Intersection Delay, s/veh / LOS	20.8						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.4		B	2.3		B	2.9		C	3.0		C
Bicycle LOS Score / LOS	1.9		A	2.2		B	0.5		A	0.7		A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.91
Urban Street	MacCorkle Avenue	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	MacCorkle Ave & I-64 WB	File Name	Alt 5 PM - MacCorkle.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		753	491	233	1250		698	0				

Signal Information				Phase Diagram								
Cycle, s	125.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	13.4	52.6	45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

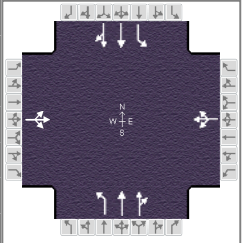
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		
Case Number		7.3	1.0	4.0		10.0		
Phase Duration, s		57.6	18.4	76.0		49.0		
Change Period, (Y+R _c), s		5.0	5.0	5.0		4.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			13.0			47.0		
Green Extension Time (g _e), s		0.0	0.4	0.0		0.0		
Phase Call Probability			1.00			1.00		
Max Out Probability			0.00			1.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2		7	4				
Adjusted Flow Rate (v), veh/h		619	354	256	1374		767	0				
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1507	1616	1616		1662	1850				
Queue Service Time (g _s), s		11.8	16.1	11.0	29.8		45.0	0.0				
Cycle Queue Clearance Time (g _c), s		11.8	16.1	11.0	29.8		45.0	0.0				
Green Ratio (g/C)		0.42	0.42	0.54	0.57		0.36	0.36				
Capacity (c), veh/h		1427	635	476	1836		598	666				
Volume-to-Capacity Ratio (X)		0.434	0.558	0.538	0.748		1.282	0.000				
Available Capacity (c _a), veh/h		1427	635	626	1836		598	666				
Back of Queue (Q), veh/ln (95th percentile)		7.1	8.2	6.6	11.4		59.7	0.0				
Queue Storage Ratio (RQ) (95th percentile)		0.00	0.00	0.00	0.00		3.37	0.00				
Uniform Delay (d ₁), s/veh		15.8	15.5	16.0	10.2		40.0	0.0				
Incremental Delay (d ₂), s/veh		0.9	3.2	0.4	2.8		139.3	0.0				
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0	0.0				
Control Delay (d), s/veh		16.7	18.7	16.3	13.0		179.3	0.0				
Level of Service (LOS)		B	B	B	B		F					
Approach Delay, s/veh / LOS	17.4	B		13.5	B		179.3	F		0.0		
Intersection Delay, s/veh / LOS	52.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	1.9	A	2.9	C	3.0	C
Bicycle LOS Score / LOS	1.6	A	1.8	A	1.8	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	ALT 5 PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & Access Rd	File Name	ALT 5 PM - Jefferson & Access Road.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	1	1	1	36	1	30	1	505	2	64	767	1

Signal Information				Signal Phases									
Cycle, s	100.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.2	68.9	5.3	0.5	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0

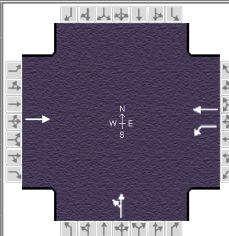
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		12.0		12.0		6.3	2.0	4.0
Phase Duration, s		5.5		10.3		73.9	10.2	84.1
Change Period, (Y+R _c), s		5.0		5.0		5.0	5.0	5.0
Max Allow Headway (MAH), s		3.3		3.4		0.0	3.1	0.0
Queue Clearance Time (g _s), s		2.2		6.2			6.0	
Green Extension Time (g _e), s		0.0		0.1		0.0	0.1	0.0
Phase Call Probability		0.09		0.86			0.86	
Max Out Probability		0.00		0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	3			70			1	276	275	70	417	417
Adjusted Saturation Flow Rate (s), veh/h/ln	1685			1643			655	1814	1811	1727	1814	1813
Queue Service Time (g _s), s	0.2			4.2			0.1	5.6	5.6	4.0	6.2	6.2
Cycle Queue Clearance Time (g _c), s	0.2			4.2			0.1	5.6	5.6	4.0	6.2	6.2
Green Ratio (g/C)	0.01			0.05			0.69	0.69	0.69	0.05	0.79	0.79
Capacity (c), veh/h	9			88			524	1250	1249	90	1435	1435
Volume-to-Capacity Ratio (X)	0.372			0.793			0.002	0.221	0.221	0.774	0.291	0.291
Available Capacity (c _a), veh/h	415			246			524	1250	1249	676	1435	1435
Back of Queue (Q), veh/ln (95th percentile)	0.2			3.3			0.0	3.4	3.4	3.2	2.7	2.8
Queue Storage Ratio (RQ) (95th percentile)	0.00			0.00			0.00	0.00	0.00	0.57	0.00	0.00
Uniform Delay (d ₁), s/veh	49.6			46.8			4.8	5.7	5.7	46.8	2.8	2.8
Incremental Delay (d ₂), s/veh	9.4			5.9			0.0	0.4	0.4	5.2	0.5	0.5
Initial Queue Delay (d ₃), s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	59.0			52.7			4.8	6.1	6.1	52.1	3.3	3.3
Level of Service (LOS)	E			D			A	A	A	D	A	A
Approach Delay, s/veh / LOS	59.0	E		52.7	D		6.1	A		7.1	A	
Intersection Delay, s/veh / LOS	8.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.1	B	2.0	B
Bicycle LOS Score / LOS	0.5	A	0.6	A	0.9	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.92
Urban Street	Connector Road	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	Connector Rd & Kanaw...	File Name	Alt 5 PM - Kanawha.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		260		534	494		468	0				

Signal Information														
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	20.7	30.0	29.3	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

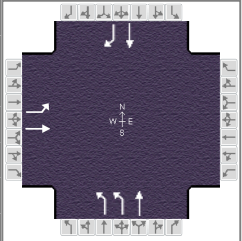
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		4		
Case Number		8.3	1.0	4.0		12.0		
Phase Duration, s		35.0	25.7	60.7		34.3		
Change Period, (Y+R _c), s		5.0	5.0	5.0		5.0		
Max Allow Headway (MAH), s		0.0	3.1	0.0		3.1		
Queue Clearance Time (g _s), s			22.7			28.7		
Green Extension Time (g _e), s		0.0	0.0	0.0		0.7		
Phase Call Probability			1.00			1.00		
Max Out Probability			1.00			0.14		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2		1	6		7	4				
Adjusted Flow Rate (v), veh/h		283		580	537		509					
Adjusted Saturation Flow Rate (s), veh/h/ln		1850		1762	1850		1762					
Queue Service Time (g _s), s		11.7		20.7	16.1		26.7					
Cycle Queue Clearance Time (g _c), s		11.7		20.7	16.1		26.7					
Green Ratio (g/C)		0.32		0.55	0.59		0.31					
Capacity (c), veh/h		584		674	1084		544					
Volume-to-Capacity Ratio (X)		0.484		0.861	0.495		0.936					
Available Capacity (c _a), veh/h		584		674	1084		649					
Back of Queue (Q), veh/ln (95th percentile)		9.2		14.2	10.3		19.4					
Queue Storage Ratio (RQ) (95th percentile)		0.00		0.00	0.00		0.00					
Uniform Delay (d ₁), s/veh		26.2		16.2	11.5		31.9					
Incremental Delay (d ₂), s/veh		2.9		10.6	1.6		17.9					
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0					
Control Delay (d), s/veh		29.1		26.7	13.1		49.8					
Level of Service (LOS)		C		C	B		D					
Approach Delay, s/veh / LOS	29.1	C		20.2	C		49.8	D		0.0		
Intersection Delay, s/veh / LOS	29.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	1.9	A	2.3	B	2.1	B
Bicycle LOS Score / LOS	1.0	A	2.3	B	1.3	A		

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	Jefferson Rd & Connect...	File Name	Alt 5 PM - Jefferson & Connector Road.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	115	0					627	412			379	429

Signal Information												
Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	20.7	45.3	8.0	0.0	0.0	0.0				
		Yellow	3.0	3.5	3.5	0.0	0.0	0.0				
		Red	2.0	2.0	2.0	0.0	0.0	0.0				

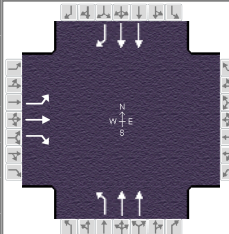
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		10.0			2.0	4.0		7.3
Phase Duration, s		13.5			25.7	76.5		50.8
Change Period, (Y+R _c), s		5.5			5.0	5.5		5.5
Max Allow Headway (MAH), s		3.1			3.1	0.0		0.0
Queue Clearance Time (g _s), s		8.3			19.2			
Green Extension Time (g _e), s		0.1			1.5	0.0		0.0
Phase Call Probability		0.96			1.00			
Max Out Probability		0.02			0.01			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		6	16	
Adjusted Flow Rate (v), veh/h	125	0					682	448		412	416	
Adjusted Saturation Flow Rate (s), veh/h/ln	1762	1850					1711	1850		1850	1568	
Queue Service Time (g _s), s	6.3	0.0					17.2	6.1		12.8	16.2	
Cycle Queue Clearance Time (g _c), s	6.3	0.0					17.2	6.1		12.8	16.2	
Green Ratio (g/C)	0.09	0.09					0.23	0.79		0.50	0.50	
Capacity (c), veh/h	156	164					787	1460		931	789	
Volume-to-Capacity Ratio (X)	0.799	0.000					0.866	0.307		0.442	0.527	
Available Capacity (c _a), veh/h	284	298					1198	1460		931	789	
Back of Queue (Q), veh/ln (95th percentile)	5.0	0.0					11.5	2.5		8.9	9.6	
Queue Storage Ratio (RQ) (95th percentile)	1.08	0.00					0.82	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	40.2	0.0					33.3	2.6		14.3	15.1	
Incremental Delay (d ₂), s/veh	3.5	0.0					2.9	0.5		1.5	2.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0					0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	43.8	0.0					36.2	3.2		15.8	17.6	
Level of Service (LOS)	D						D	A		B	B	
Approach Delay, s/veh / LOS	43.8	D		0.0			23.1	C		16.7	B	
Intersection Delay, s/veh / LOS	21.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.4	B	1.8	A	2.7	B
Bicycle LOS Score / LOS	0.7	A			2.4	B	1.9	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	12/5/2014	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.92
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1 > 4:30
Intersection	Jefferson Rd & RHL Blvd	File Name	Alt 5 PM - Jefferson & RHL.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	375	0	69				28	663			912	189

Signal Information														
Cycle, s	90.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	55.7	23.3	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	0.0	0.0	0.0	0.0				
				Red	2.0	2.0	0.0	0.0	0.0	0.0				

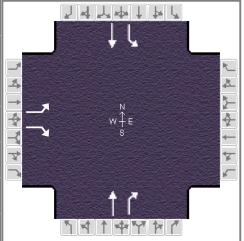
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8				6		2
Case Number		9.0				6.0		7.0
Phase Duration, s		28.8				61.2		61.2
Change Period, (Y+R _c), s		5.5				5.5		5.5
Max Allow Headway (MAH), s		3.1				0.0		0.0
Queue Clearance Time (g _s), s		22.6						
Green Extension Time (g _e), s		0.7				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.05						

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18				1	6		2	12	
Adjusted Flow Rate (v), veh/h	408	0	68				30	721		991	200	
Adjusted Saturation Flow Rate (s), veh/h/ln	1727	1850	1537				566	1727		1727	1537	
Queue Service Time (g _s), s	20.6	0.0	3.1				2.7	9.0		13.8	5.1	
Cycle Queue Clearance Time (g _c), s	20.6	0.0	3.1				16.5	9.0		13.8	5.1	
Green Ratio (g/C)	0.26	0.26	0.26				0.62	0.62		0.62	0.62	
Capacity (c), veh/h	447	478	397				344	2138		2138	952	
Volume-to-Capacity Ratio (X)	0.912	0.000	0.172				0.089	0.337		0.464	0.210	
Available Capacity (c _a), veh/h	585	627	521				344	2138		2138	952	
Back of Queue (Q), veh/ln (95th percentile)	15.0	0.0	2.0				0.7	5.3		8.0	2.8	
Queue Storage Ratio (RQ) (95th percentile)	3.80	0.00	0.50				0.28	0.00		0.00	0.54	
Uniform Delay (d ₁), s/veh	32.4	0.0	25.9				13.6	8.2		9.2	7.5	
Incremental Delay (d ₂), s/veh	13.7	0.0	0.1				0.5	0.4		0.7	0.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0				0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	46.1	0.0	26.0				14.1	8.7		9.9	8.0	
Level of Service (LOS)	D		C				B	A		A	A	
Approach Delay, s/veh / LOS	43.2	D		0.0			8.9	A	9.6	A		
Intersection Delay, s/veh / LOS	16.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.4	B
Bicycle LOS Score / LOS	1.3	A			1.1	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst	A SELLS	Analysis Date	Jul 22, 2015	Area Type	Other
Jurisdiction		Time Period	Alt 5 PM	PHF	0.88
Urban Street	Jefferson Road	Analysis Year	2030	Analysis Period	1> 4:30
Intersection	Jefferson Rd/Oakhurst...	File Name	Alt 5 PM - US 119 & Oakhurst.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	549		29					122	47	156	219	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	14.4	44.3	47.8	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	0.5	0.5	0.5	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		52.3				48.8	18.9	67.7
Change Period, (Y+R _c), s		4.5				4.5	4.5	4.5
Max Allow Headway (MAH), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g _s), s		46.7					14.2	
Green Extension Time (g _e), s		1.1				0.0	0.2	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.06					0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				2	12	1	6		
Adjusted Flow Rate (v), veh/h	624		33				139	28	177	249		
Adjusted Saturation Flow Rate (s), veh/h/ln	1631		1452				1762	1568	1711	1796		
Queue Service Time (g _s), s	44.7		1.7				6.5	1.4	12.2	9.1		
Cycle Queue Clearance Time (g _c), s	44.7		1.7				6.5	1.4	12.2	9.1		
Green Ratio (g/C)	0.40		0.40				0.37	0.37	0.12	0.53		
Capacity (c), veh/h	650		578				651	579	205	946		
Volume-to-Capacity Ratio (X)	0.960		0.057				0.213	0.049	0.864	0.263		
Available Capacity (c _a), veh/h	755		671				651	579	331	946		
Back of Queue (Q), veh/ln (95th percentile)	28.1		1.0				5.0	1.0	9.4	6.8		
Queue Storage Ratio (RQ) (95th percentile)	0.00		0.06				0.00	0.00	1.13	0.00		
Uniform Delay (d ₁), s/veh	35.2		22.2				25.9	24.3	51.8	15.6		
Incremental Delay (d ₂), s/veh	21.0		0.0				0.7	0.2	7.2	0.7		
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	56.2		22.2				26.7	24.5	59.1	16.3		
Level of Service (LOS)	E		C				C	C	E	B		
Approach Delay, s/veh / LOS	54.5		D	0.0			26.3	C	34.1	C		
Intersection Delay, s/veh / LOS	43.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	1.9	A	1.7	A
Bicycle LOS Score / LOS		F			0.8	A	1.2	A

Appendix D TRAFFIC SIMULATION MODEL CALIBRATION

As part of the 2010 base year simulation model development and calibration, hourly directional volumes and peak hour intersection turning movement counts were collected by DOH staff. A map showing the traffic count locations is provided in **Figure D-1**.

The traffic counts were used in the development of base year origin-destination (O-D) matrices, which represent a tabulation of all vehicle trips through the simulation network for the analysis period. The O-D matrices were assigned to the roadway network and estimated turning movements were compared with the observed count volumes. A summary of the calibration results with respect to turning movements is shown in **Table D-1**. The Percent Root Mean Square Error (which measures the differences between predicted and observed values) was 8.5 percent for the A.M. peak and 14.3 percent for the P.M. peak, indicating that there was a generally good agreement between the “predicted” base year simulation model turning movements and the actual observed counts.

Maximum queue lengths were another measure that was used in the simulation model calibration. Maximum queues were observed in the field and compared with 2010 base year predicted queues from the simulation model for the following key approaches:

- Northbound Jefferson Road at MacCorkle Avenue
- Southbound Jefferson Road at Kanawha Turnpike
- Northbound Jefferson Road at Kanawha Turnpike

JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
 STATE PROJECT U320-601-0.00 03

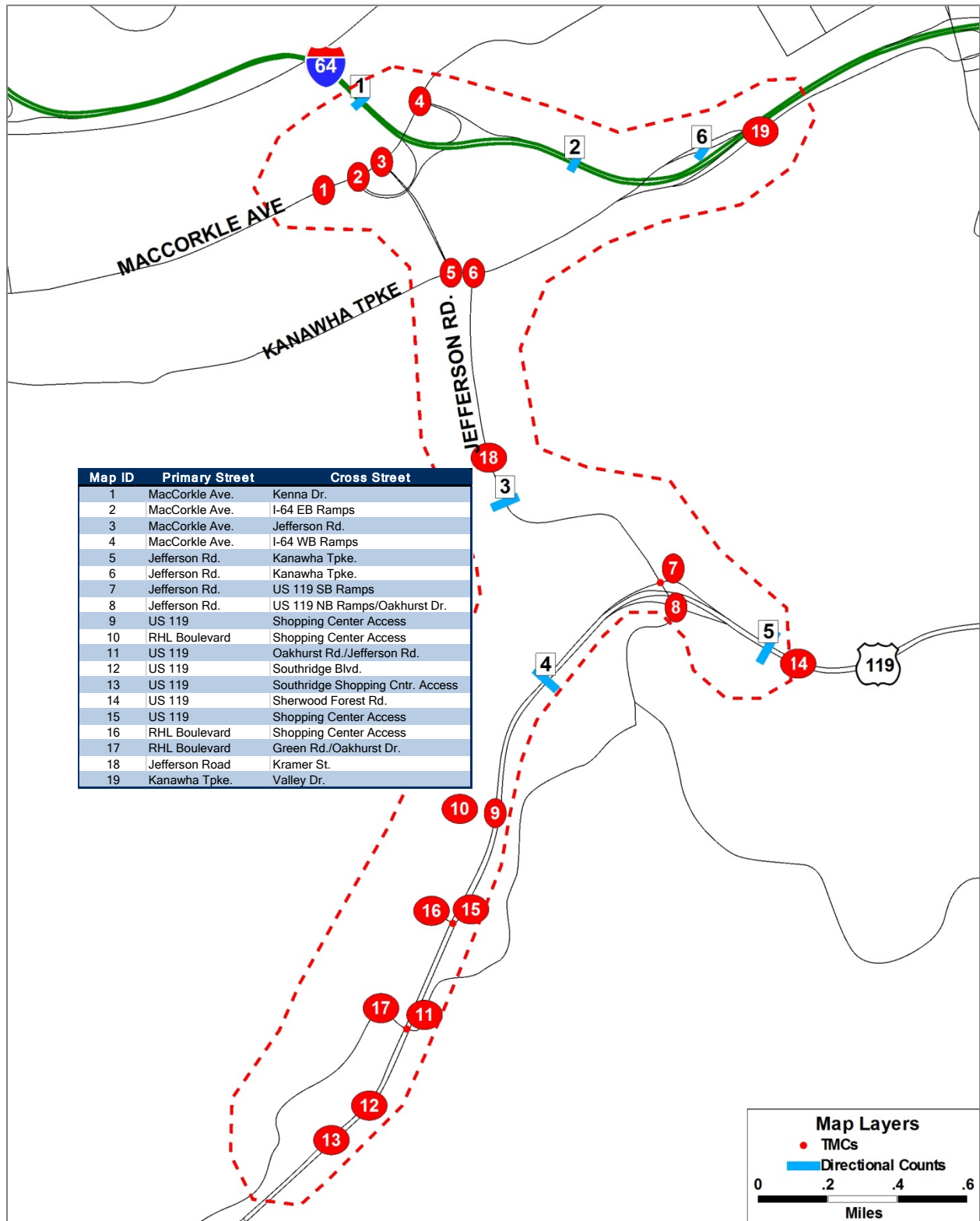


Figure D- 1. Simulation Model Development Traffic Count Locations

Table D- 1. Turning Movement Comparison Summary

Total Turn Movements	AM Peak	PM Peak
Counts:	7,795	11,844
Assignment:	7,823	11,736
Assignment-to-Count Ratio:	100.36%	99.09%
Pct. Root Mean Square Error	AM Peak	PM Peak
Turning Movement %RMSE:	8.5	14.3

With respect to queue lengths, “maximum” refers to the farthest queue from the intersection approach stop bar during the analysis period, where stopped vehicles in the queue are defined by the simulation software as vehicles traveling at a speed of 3 mph or less. A summary of 2010 base year queue lengths are predicted by the simulation model is shown in **Table D-2**.

Table D- 2. 2010 Base Year Simulation Model Maximum Queues

Approach	Maximum Queue (ft.)	
	AM Peak	PM Peak
NB Jefferson Rd. at MacCorkle Ave.	200	500
SB Jefferson Rd. at Kanawha Tpke.	300	800
NB Jefferson Rd. at Kanawha Tpke.	500	2,200

Further evaluation revealed that maximum queues predicted by the simulation model were consistent with those observed in the field.

Inspection of the RIC travel demand model showed that forecasted base year daily traffic volumes agreed reasonably well with 24-hour traffic counts obtained from the DOH for Jefferson Road, MacCorkle Avenue, Kanawha Turnpike and US 119 in the study area. It was decided that no further subarea calibration of the RIC model was necessary before using it to develop year 2030 traffic forecasts.

Because of the stochastic nature of microsimulation models, multiple repetitions of the same model scenario are required to account for the variation due to the inherent randomness that occurs. The question then becomes how many model runs are needed to provide a statistically valid mean of the performance measures in question. A methodology for determining the minimum number of required model runs is provided in the FHWA *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*¹. The method begins with an assumption of the number of runs that will be needed and then uses the mean and standard deviation of the desired parameter to determine the number of model runs that would be needed to ensure that the parameter would fall within a specified confidence interval at a desired level of confidence.

¹ *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*, Publication No. FHWA-HRT-04-040, Federal Highway Administration, U.S. Department of Transportation, Turner-Fairbank Highway Research Center, McLean, Virginia, July 2004.

**JEFFERSON ROAD IMPROVEMENTS TRAFFIC ANALYSIS
STATE PROJECT U320-601-0.00 03**

An initial assumption was made that 10 model runs would provide a statistically significant estimate of the model parameter. In this case, directional link flow (i.e. volume) on mid-block segments of the network was used. The results are summarized in **Table D-3** below:

Segment	Dir.	Existing A.M. Peak						Existing A.M. Peak					
		Mean Flow*	Std. Dev.	(-)	(+)	Confidence Interval	Desired Range C.I./S	Mean Flow*	Std. Dev.	(-)	(+)	Confidence Interval	Desired Range C.I./S
Jefferson Road (north of Kanawha Tpke.)	SB	581.8	25.6	560.0	603.6	43.6	1.7	573.1	14.2	560.0	603.6	43.6	3.1
	NB	395.0	13.7	380.2	409.8	29.6	2.2	431.7	23.6	380.2	409.8	29.6	1.3
Jefferson Road (south of Kanawha Tpke.)	SB	681.8	21.4	656.2	707.4	51.1	2.4	879.3	17.2	656.2	707.4	51.1	3.0
	NB	673.7	18.7	648.4	699.0	50.5	2.7	743.3	27.6	648.4	699.0	50.5	1.8
Kanawha Turnpike (east of Jefferson Road)	EB	707.8	31.2	681.3	734.3	53.1	1.7	535.5	19.5	681.3	734.3	53.1	2.7
	WB	505.1	15.1	486.2	524.0	37.9	2.5	838.0	28.0	486.2	524.0	37.9	1.4
MacCorkle Ave. (west of Jefferson Road)	EB	1779.5	4.7	1712.8	1846.2	133.5	28.4	1124.0	1.3	1712.8	1846.2	133.5	102.7
	WB	752.4	27.0	724.2	780.6	56.4	2.1	1960.0	17.0	724.2	780.6	56.4	3.3
MacCorkle Ave. (east of Jefferson Road)	EB	1383.6	29.6	1331.7	1435.5	103.8	3.5	1033.3	26.5	1331.7	1435.5	103.8	3.9
	WB	689.1	17.3	663.3	714.9	51.7	3.0	1855.0	19.3	663.3	714.9	51.7	2.7

* Mean flow (in vehicles per hour) for 10 simulation runs

Desired Confidence Interval 7.5% (± 3.8%)

The objective is to verify that the number of model runs produces a Desired Range (where the Desired Range equals the desired confidence interval divided by the standard deviation) equal to or greater than the value shown in the chart below:

Minimum number of repetitions needed to obtain the desired confidence interval.

Desired Range (CI/S)	Desired Confidence	Minimum Repetitions
0.5	99%	130
0.5	95%	83
0.5	90%	64
1.0	99%	36
1.0	95%	23
1.0	90%	18
1.5	99%	18
1.5	95%	12
1.5	90%	9
2.0	99%	12
2.0	95%	8
2.0	90%	6

Notes:

- Desired Range = desired confidence interval (CI) divided by standard deviation (S)
- For example, if the standard deviation in the delay is 1.5 s and the desired confidence interval is 3.0 s at a 95-percent confidence level, then it will take eight repetitions to estimate the mean delay to within ± 1.5 s.

Source: FHWA Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software

With respect to the simulated traffic volumes, the results indicated that 10 model runs would produce a confidence interval between 90% and 95%, which was deemed sufficient for these analyses.

