

Cookeville Corridor Analysis

EXISTING CONDITIONS REPORT

June 2017

Table of Contents

1 Introduction	1
1.1 Study Area	1
1.2 Purpose.....	1
1.3 Previous Studies	1
1.3.1 Cookeville 2030 Plan.....	2
1.3.2 2003 Cookeville Major Route Transportation Plan	2
2 Corridor Descriptions	2
2.1 Willow Avenue (SR 135)	4
2.2 S. Jefferson Avenue/N. Washington Avenue (SR 136)	4
2.3 US 70N / SR 24 Corridor (W. Broad St, W. Spring St, E. Spring St) & Broad Street.....	6
2.4 E 10 th Street.....	7
3 Data Collection	8
3.1 Traffic Count Data	10
3.1.1 Turning Movement Counts.....	10
3.1.2 48-Hour Count Data.....	23
3.2 Traffic Signal Inventory.....	23
4 Level of Service Analyses	24
4.1 Intersection Level of Service	24
5 Traffic Growth Rate Methodology	30
5.1 Accuracy of Historic Traffic Volume Projections.....	30
5.2 TDOT Historical Traffic Volume Data	31
5.3 Growth Rate Methodology	33

Appendices

Appendix A: Turning Movement Count (TMC) Data

Appendix B: 48-Hour Count, Classification, and Speed Data

Appendix C: Corridor Signal Inventory

Appendix D: Synchro Analysis Reports

List of Tables

Table 1: 48-Hour Count Site & Data Summary	23
Table 2: Intersection Delay Thresholds (average seconds / vehicle).....	24
Table 3: 2017 Existing Conditions AM & PM Peak Hour Intersection Delay & Level of Service..	27
Table 4: 2007 Forecasted ADT Volumes versus 2007 Actual ADT Volumes	30
Table 5: Annual Growth Rate Based on Historical Traffic Counts	32
Table 6: Current and Historical Population Growth Rates	32
Table 7: Ratios of Traffic Volume Growth to Population Growth by Subset.....	33
Table 8: Projected Population and Growth Rates, Putnam County	33
Table 9: Projected Traffic Volume Annual Growth Rates	34

List of Figures

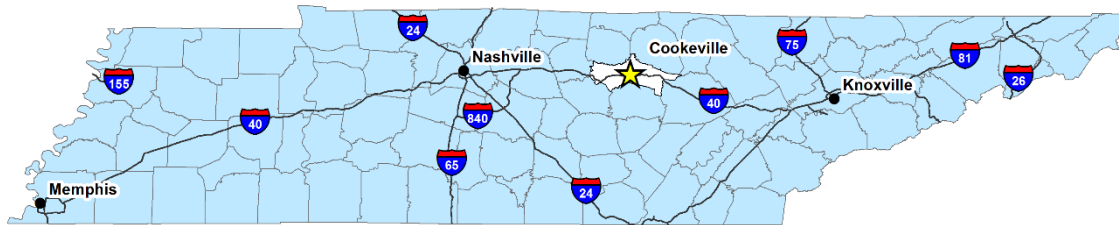
Figure 1: Cookeville Location Map.....	1
Figure 2: Cookeville Study Corridors.....	3
Figure 3: Northbound S. Willow Avenue (SR 135) north of I-40.....	4
Figure 4: Northbound N. Willow Avenue (SR 135) at University Drive	4
Figure 5: Southbound S. Jefferson Avenue (SR 136) north of Neal Street	5
Figure 6: N. Washington Avenue (SR 136) south of Broad Street	5
Figure 7: Westbound W. Broad Street (US 70N, SR 24) west of Freedom Avenue	6
Figure 8: Eastbound Broad Street at Fleming Avenue.....	6
Figure 9: Westbound E. Spring Street (US 70N, SR 24) just west of I-40.....	7
Figure 10: Eastbound E. 10th Street near Walton Lane	7
Figure 11: Study Area Corridor Intersections	9
Figure 12: S. Willow Avenue (SR 135) Turning Movement Counts (southern portion).....	11
Figure 13: S. & N. Willow Avenue (SR 135) Turning Movement Counts	12
Figure 14: S. Jefferson Avenue (SR 136) Turning Movement Counts (southern portion)	13
Figure 15: S. Jefferson Avenue, N. Washington Avenue (SR 136) Turning Movement Counts...	14
Figure 16: US 70N/SR 24, Broad Street Turning Movement Counts (Western Intersections)	15
Figure 17: US 70N/SR 24, Broad Street Turning Movement Counts (Eastern Intersections).....	16
Figure 18: E. 10th Street Turning Movement Counts.....	17
Figure 19: Southbound S. Willow Avenue (SR 135) at Interstate Drive.....	19
Figure 20: Westbound queues along Jackson Street at S. Willow Avenue (SR 135)	20
Figure 21: Eastbound Broad Street at N. Washington Avenue (SR 136)	21
Figure 22: 2017 Existing Conditions Intersection Level of Service (AM Peak Hour).....	25
Figure 23: 2017 Existing Conditions Intersection Level of Service (PM Peak Hour).....	26

1 Introduction

1.1 Study Area

Cookeville, Tennessee, is the Putnam County seat and is located roughly midway between Nashville and Knoxville, as shown in **Figure 1**.

Figure 1: Cookeville Location Map



Several regional facilities are located in Cookeville, including Tennessee Tech University, Cookeville Regional Medical Center, and regional stores and service centers. Due to the presence of these facilities, Cookeville serves as a regional hub for many health, shopping, and educational needs in Tennessee’s Upper Cumberland region.

Tennessee Tech University and Cookeville Medical Center are two of the largest employers in the greater Cookeville area. Approximately 10,500 students attend Tennessee Tech University,¹ including many who commute from Nashville. Cookeville Regional Medical Center serves the 14-county Upper Cumberland Region and employs over 2,000 regional residents.²

Manufacturing and distribution is also an important element of the region’s employment. Some of the region’s largest employers include Academy Sports, Cummins filtration, and Oreck flooring.

1.2 Purpose

This Existing Conditions report presents and discusses the roadway and traffic related data collected for this analysis, describes the five focus corridors analyzed; and presents and discusses the existing intersection level of service (LOS) and supporting analysis. The arterial and segment LOS analysis for Cookeville’s Major Street Plan (MSP) is presented in a separate report.

1.3 Previous Studies

In order to better understand the region’s history, previous planning efforts, and planned projects, the following plans and studies were reviewed:

- Cookeville 2030 Plan (2010)
- Cookeville Major Route Transportation Plan (2003)

¹ <https://www.tntech.edu/about/facts-and-figures>

² <http://www.crmchealth.org/about-crmc/history>

1.3.1 Cookeville 2030 Plan

The Cookeville 2030 Plan was completed in 2010. Its purpose was to update and modify the 2020 Plan (adopted in the year 2000) by creating a broad development strategy to meet existing and future needs. The plan analyzes a multitude of historical, environmental, socio-demographic, and development data and information. Several tools, including a Citizen Survey, were also used to glean the information necessary to develop a cogent and cohesive plan.

1.3.2 2003 Cookeville Major Route Transportation Plan

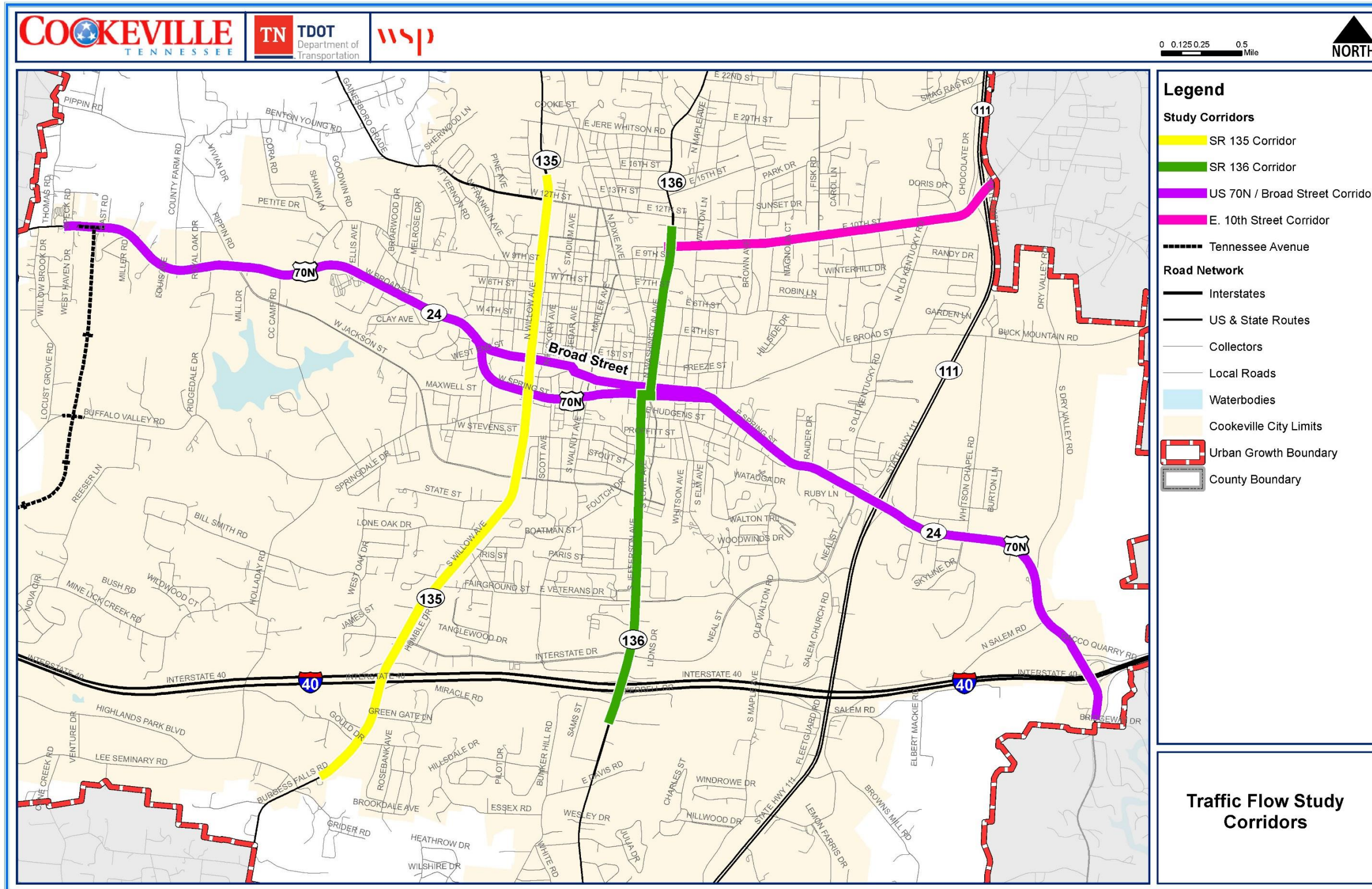
The purpose of the 2003 Major Route Transportation Plan (MRTP) was to update the 1987 Major Route Plan with a new target horizon of 2027. The 2003 MRTP used 2002 traffic volumes to determine segment level of service (LOS) values along street and roadway segments throughout Cookeville. Traffic volumes were then projected for 2007 and 2027 based on historical trends as well as social, economic, land use, and traffic data obtained from stakeholders. These forecast volumes were then used to project future LOS values. Recommended improvements to improve operations at key intersections and corridors were then proposed.

2 Corridor Descriptions

The following corridors were analyzed, as shown in **Figure 2**:

- S. Willow Avenue/N. Willow Avenue (SR 135)
- S. Jefferson Avenue/N. Washington Avenue (SR 136)
- SR 24/US 70N (W. Broad Street, W. Spring Street, and E. Spring Street)
- Broad Street
- E. 10th Street

Figure 2: Cookeville Study Corridors



2.1 Willow Avenue (SR 135)

Willow Avenue (SR 135) provides north-south connectivity west of downtown Cookeville and direct access from I-40 to Tennessee Technological University and Cookeville Regional Medical Center. Between I-40 and Broad Street, S. Willow Avenue is primarily a 5-lane facility (four lanes plus a two-way left-turn lane (TWLTL)) that provides direct access to largely commercial land uses, as shown in **Figure 3**. North of Broad Street, N. Willow Avenue transitions to a 4-lane undivided facility, as shown in **Figure 4**, and serves primarily residential and university land uses.

Figure 3: Northbound S. Willow Avenue (SR 135) north of I-40



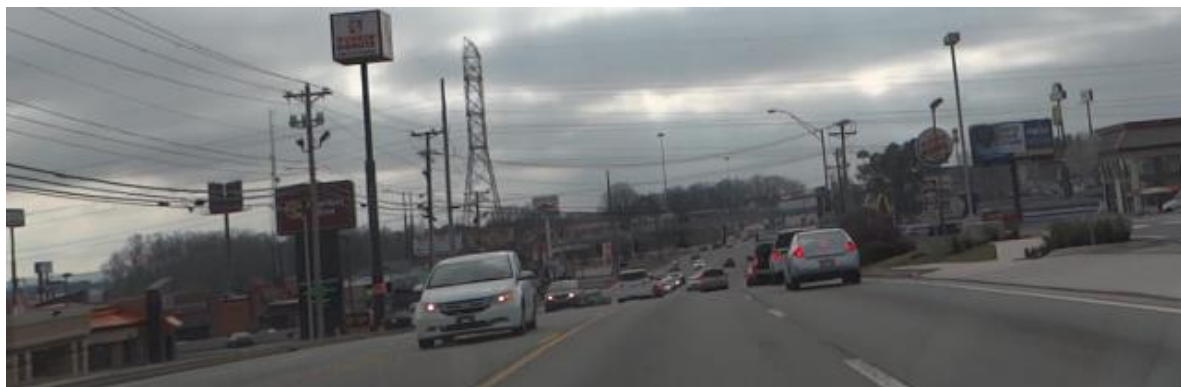
Figure 4: Northbound N. Willow Avenue (SR 135) at University Drive



2.2 S. Jefferson Avenue/N. Washington Avenue (SR 136)

SR 136 provides north-south connectivity in central Cookeville from south of I-40 to, and north of, the downtown core. Between I-40 and Stevens Street, S. Jefferson Avenue (SR 136) is a 5-lane roadway including a TWLTL, as shown in **Figure 5**, and serves hotels, restaurants, and commercial land uses.

Figure 5: Southbound S. Jefferson Avenue (SR 136) north of Neal Street



North of Stevens Street, S. Jefferson Avenue (SR 136) transitions to a 4-lane undivided roadway. In downtown, S. Jefferson Avenue serves municipal buildings and commercial services (**Figure 6**); north of E. Spring Street (US 70N, SR 24) the surrounding land use transitions to primarily residential. At E. Spring Street, SR 136 transitions from running along S. Jefferson Avenue to continuing along N. Washington Avenue, one block to the east. Together the Willow Avenue (SR 135) and S. Jefferson Avenue/N. Washington Avenue (SR 136) corridors provide the primary north-south mobility in Cookeville.

Figure 6: N. Washington Avenue (SR 136) south of Broad Street



2.3 US 70N / SR 24 Corridor (W. Broad St, W. Spring St, E. Spring St) & Broad Street

US 70N/SR 24 and I-40 provide the only continuous east-west roadway connectivity through Cookeville. West of downtown Cookeville, W. Broad Street (US 70N, SR 24) is a 2-lane undivided roadway (**Figure 7**) that serves lower density residential development, with additional development under construction.

Figure 7: Westbound W. Broad Street (US 70N, SR 24) west of Freedom Avenue



W. Spring Street (US 70N, SR 24) begins where W. Broad Street (US 70N, SR 24) and Broad Street intersect, and is a 3-lane roadway with a TWLTL. W. Spring Street continues east from the Broad Street intersection through a light industrial area between W. Broad Street and S. Walnut Avenue to downtown Cookeville. Broad Street is primarily a 3-lane road with a TWLTL that serves as an alternate east-west route to E. Spring Street (US 70N, SR 24) through downtown Cookeville, as shown in **Figure 8**.

Figure 8: Eastbound Broad Street at Fleming Avenue



E. Spring Street (US 70N, SR 24) begins east of downtown Cookeville and is primarily a 2-lane undivided roadway, although there are a few 3-lane segments and one 4-lane segment near SR 111. East of SR 111, E. Spring Street (US 70N, SR 24) serves primarily lower density land uses as shown in **Figure 9**.

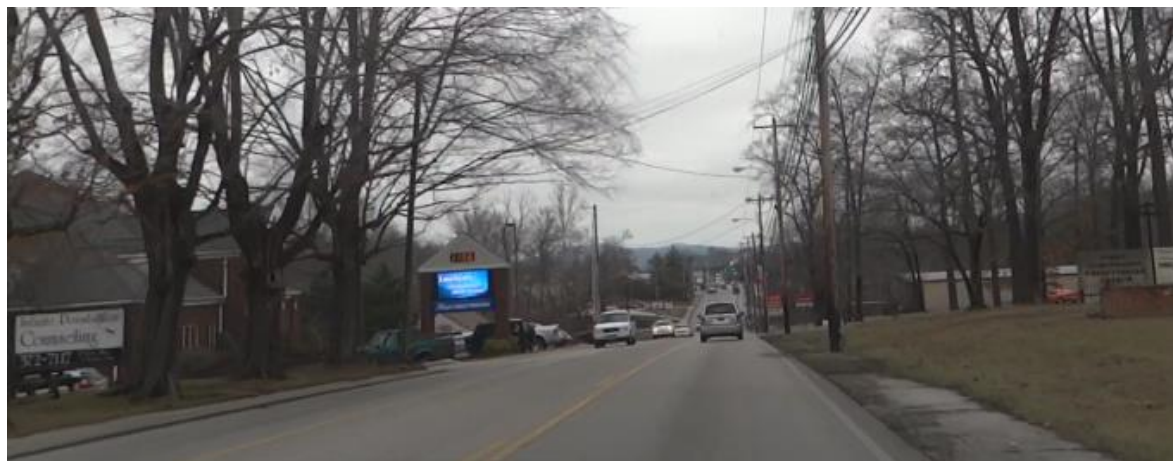
Figure 9: Westbound E. Spring Street (US 70N, SR 24) just west of I-40



2.4 E 10th Street

E 10th Street is a 3-lane roadway (2 lanes with a TWLTL) that runs east-west between N. Washington Avenue (SR 136) and SR 111 and serves as one of the few east-west routes east of downtown Cookeville. Land use along the corridor includes a mix of retail and residential land uses, including multi-family and single-family developments, as shown in **Figure 10**.

Figure 10: Eastbound E 10th Street near Walton Lane

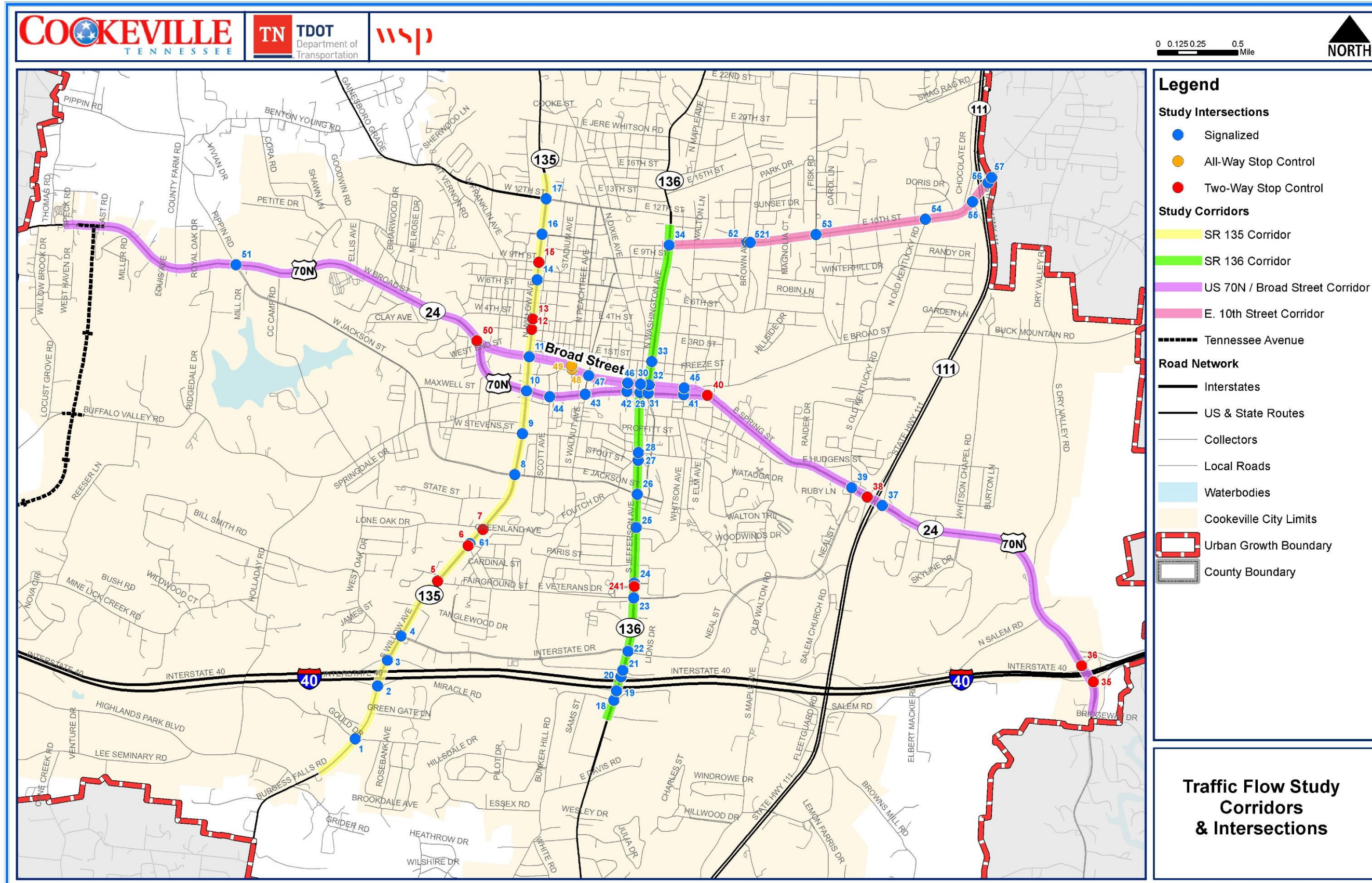


3 Data Collection

Multiple data sources were used to analyze regional traffic patterns, operational issues, and roadway capacity issues. The data was used to create Synchro peak-hour traffic operations models for each of the study corridors in order to estimate intersection level of service (LOS). Roadway geometry, including lane configuration, turn bay lengths, was determined using aerial imagery, which was supplemented by field observations of actual lane usage and driver behavior.

Figure 11 shows the study corridors, the intersections that were included in the models and the type of traffic control (signalization or stop control) at each intersection. Traffic counts were conducted as part of the project; signal timing and phasing data, including time of day plans, was provided by the City of Cookeville for each of the signalized study intersections.

Figure 11: Study Area Corridor Intersections



3.1 Traffic Count Data

3.1.1 Turning Movement Counts

Turning movement counts (TMCs) were conducted at each corridor intersection in the study area on Wednesday, January 18, 2017. Four intersections were recounted on Wednesday, February 1, 2017, due to technical issues that occurred during the initial counts. All turning movement counts were collected while Tennessee Technological University was in session to ensure that university related traffic was appropriately reflected.

The Synchro model used TMCs from the same peak hour throughout the study network, 7:15-8:15 for the AM peak, and 4:30-5:30 for the PM peak. The peak hour chosen coincides with the majority of the intersections where TMCs were collected. The raw TMCs were rounded up to the nearest five vehicles and balanced where deemed appropriate prior to their input into the Synchro models. The rounded and balanced turning movement volumes for each intersection are presented in **Figures 12 through 18**. Raw turning movement counts are included in **Appendix A**. The TMC data was also used to determine peak hour factors and heavy vehicle percentages for each intersection, which were incorporated into the Synchro models.

Figure 12: S. Willow Avenue (SR 135) Turning Movement Counts (southern portion)

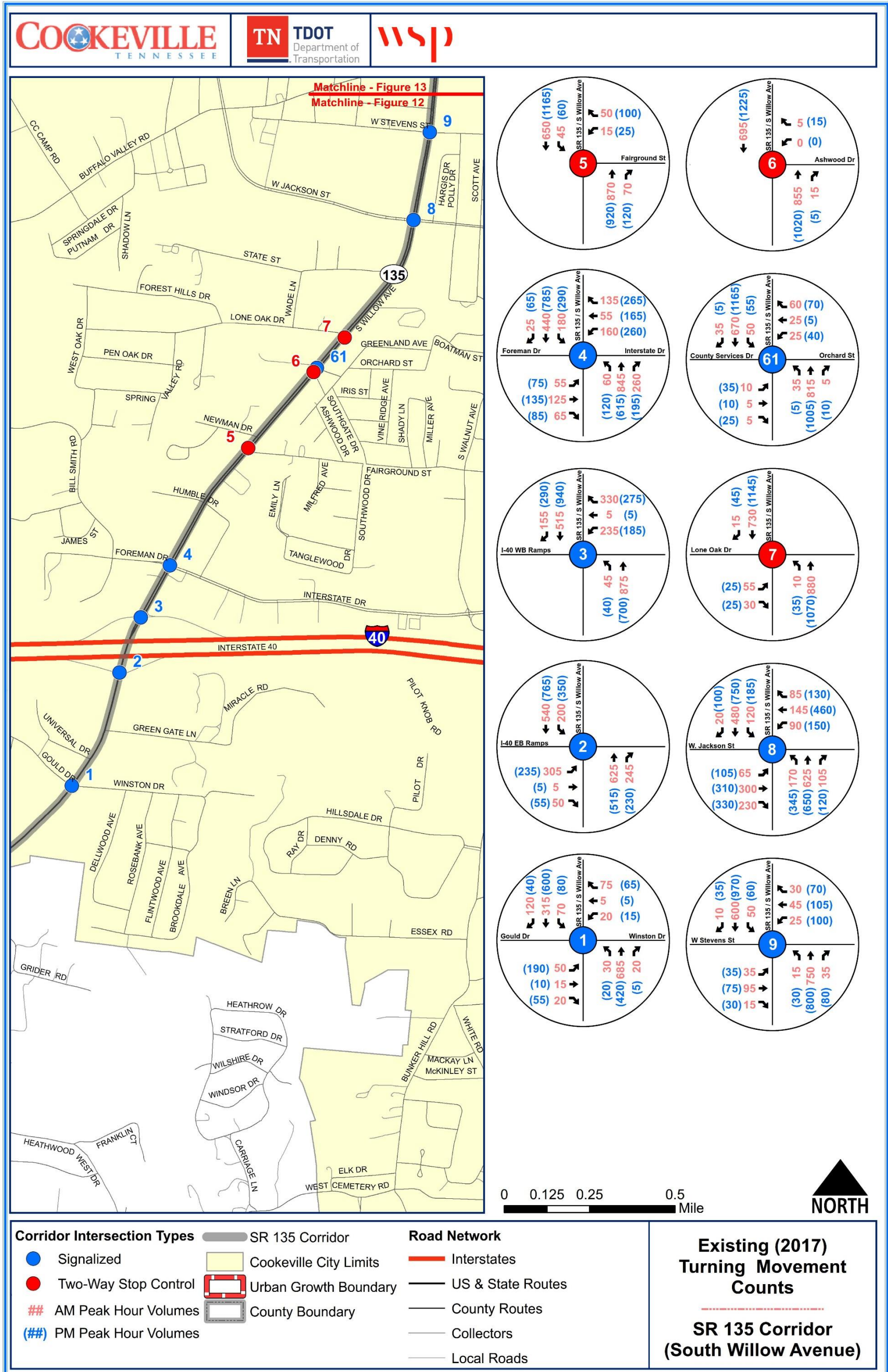


Figure 13: S. & N. Willow Avenue (SR 135) Turning Movement Counts

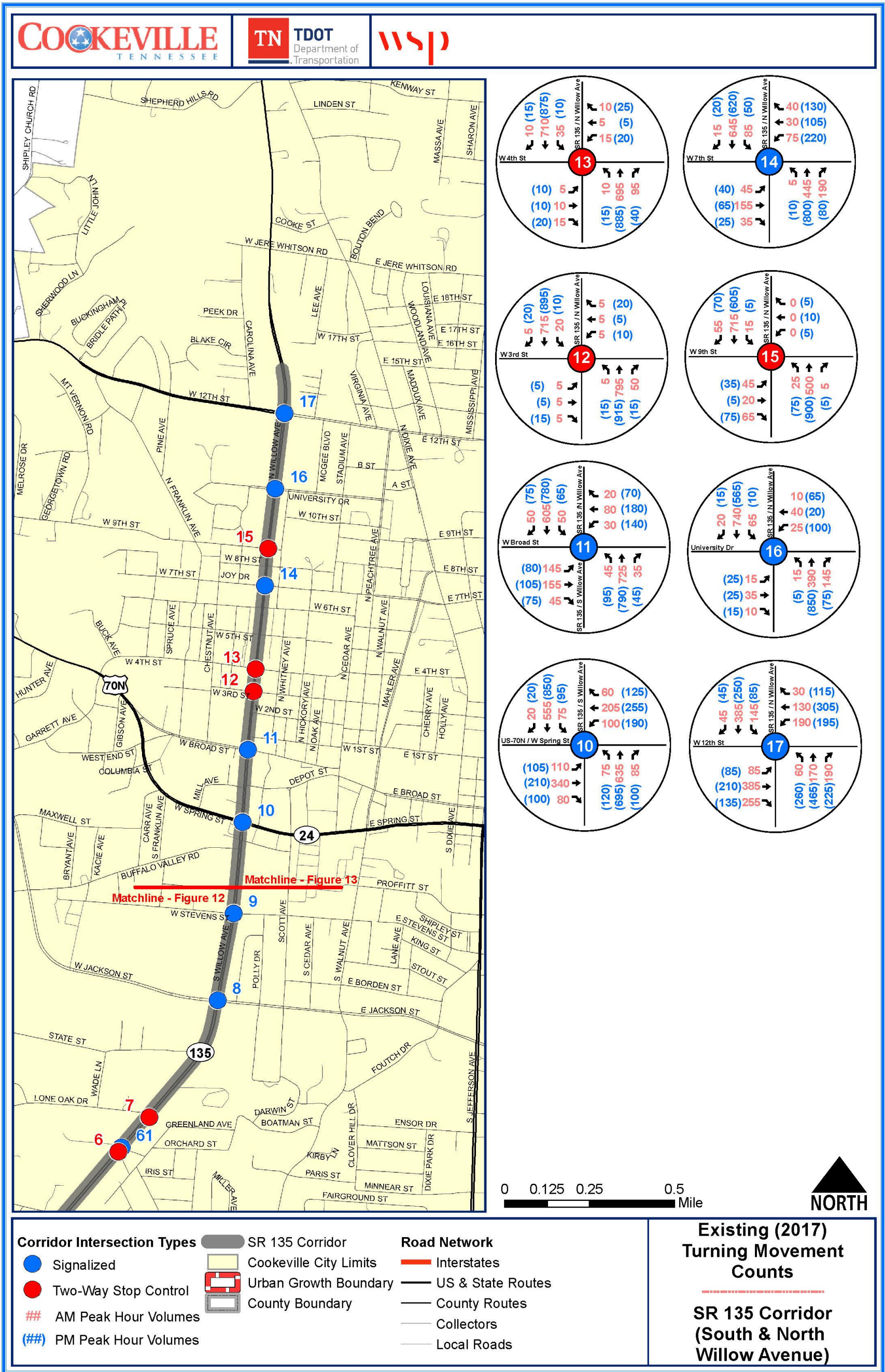


Figure 14: S. Jefferson Avenue (SR 136) Turning Movement Counts (southern portion)

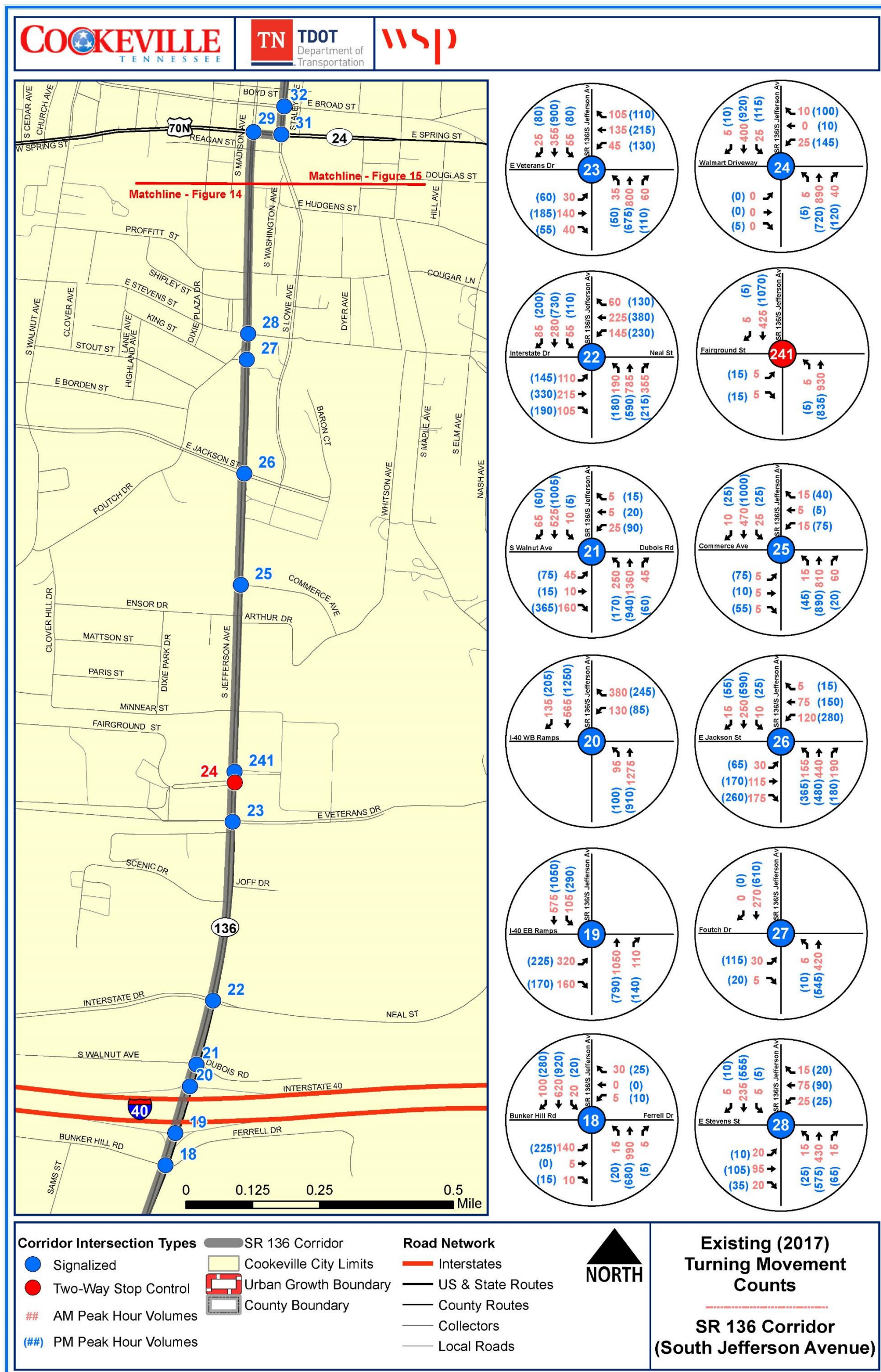


Figure 15: S. Jefferson Avenue, N. Washington Avenue (SR 136) Turning Movement Counts

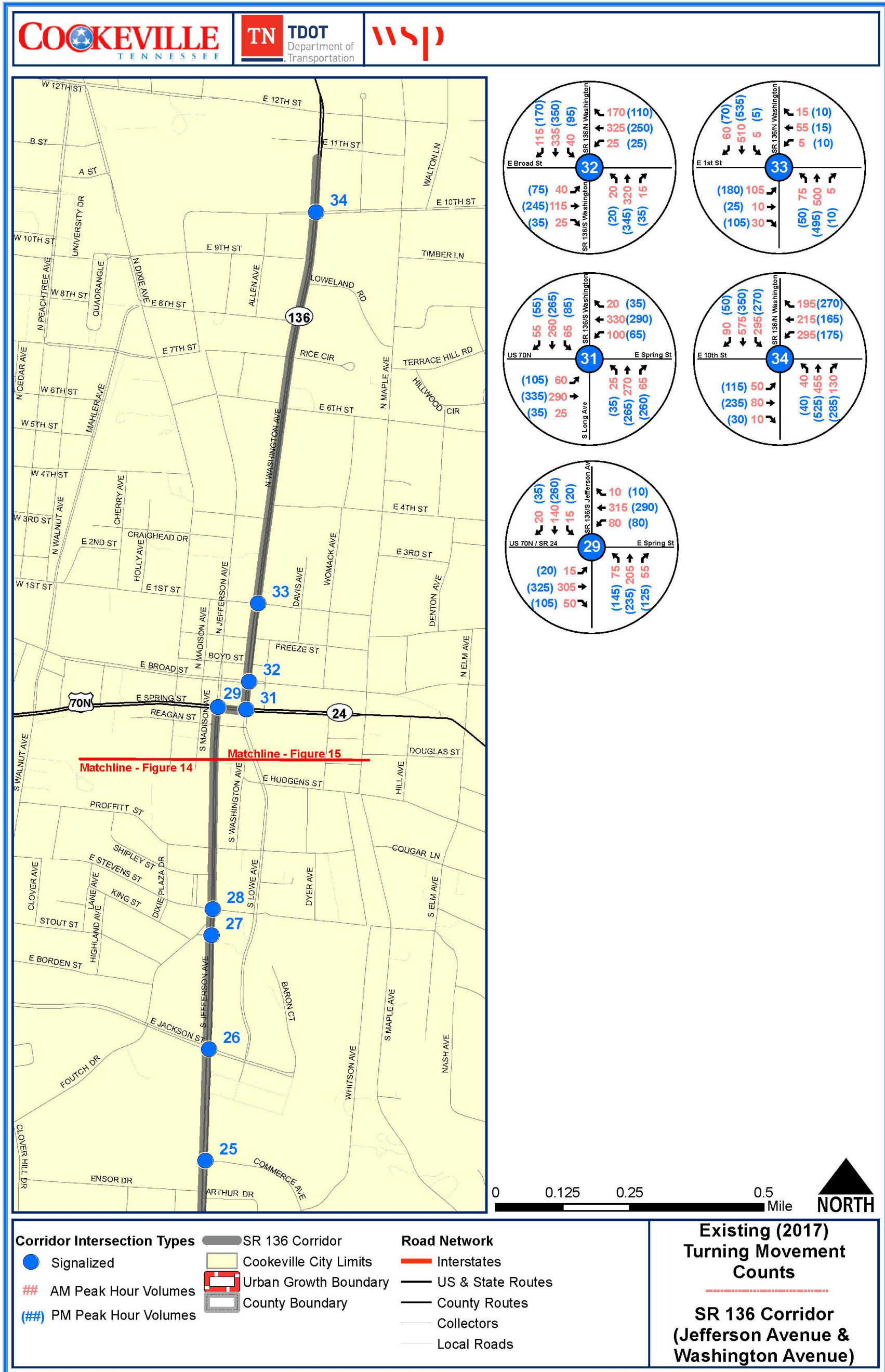


Figure 16: US 70N/SR 24, Broad Street Turning Movement Counts (Western Intersections)

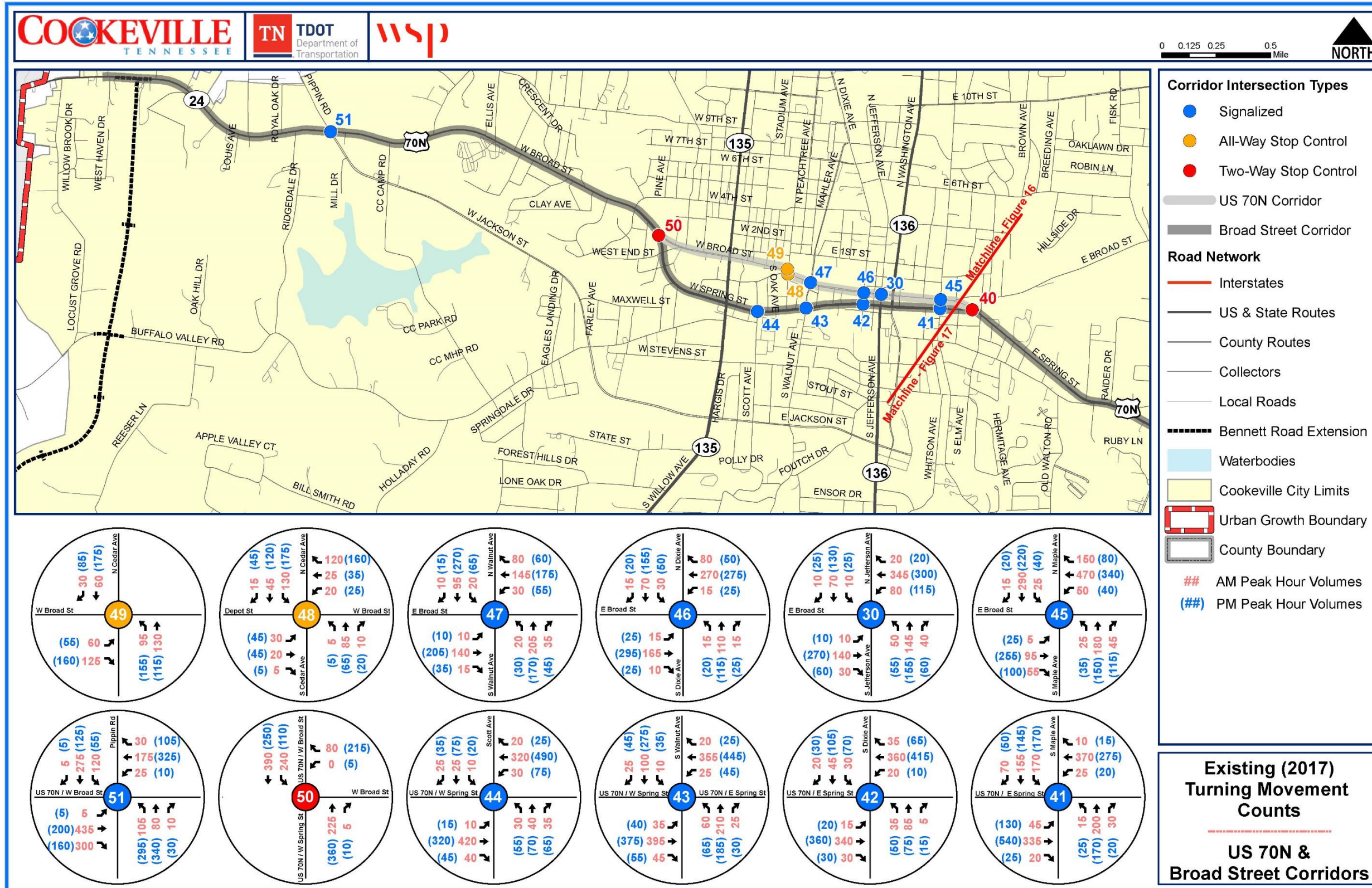


Figure 17: US 70N/SR 24, Broad Street Turning Movement Counts (Eastern Intersections)

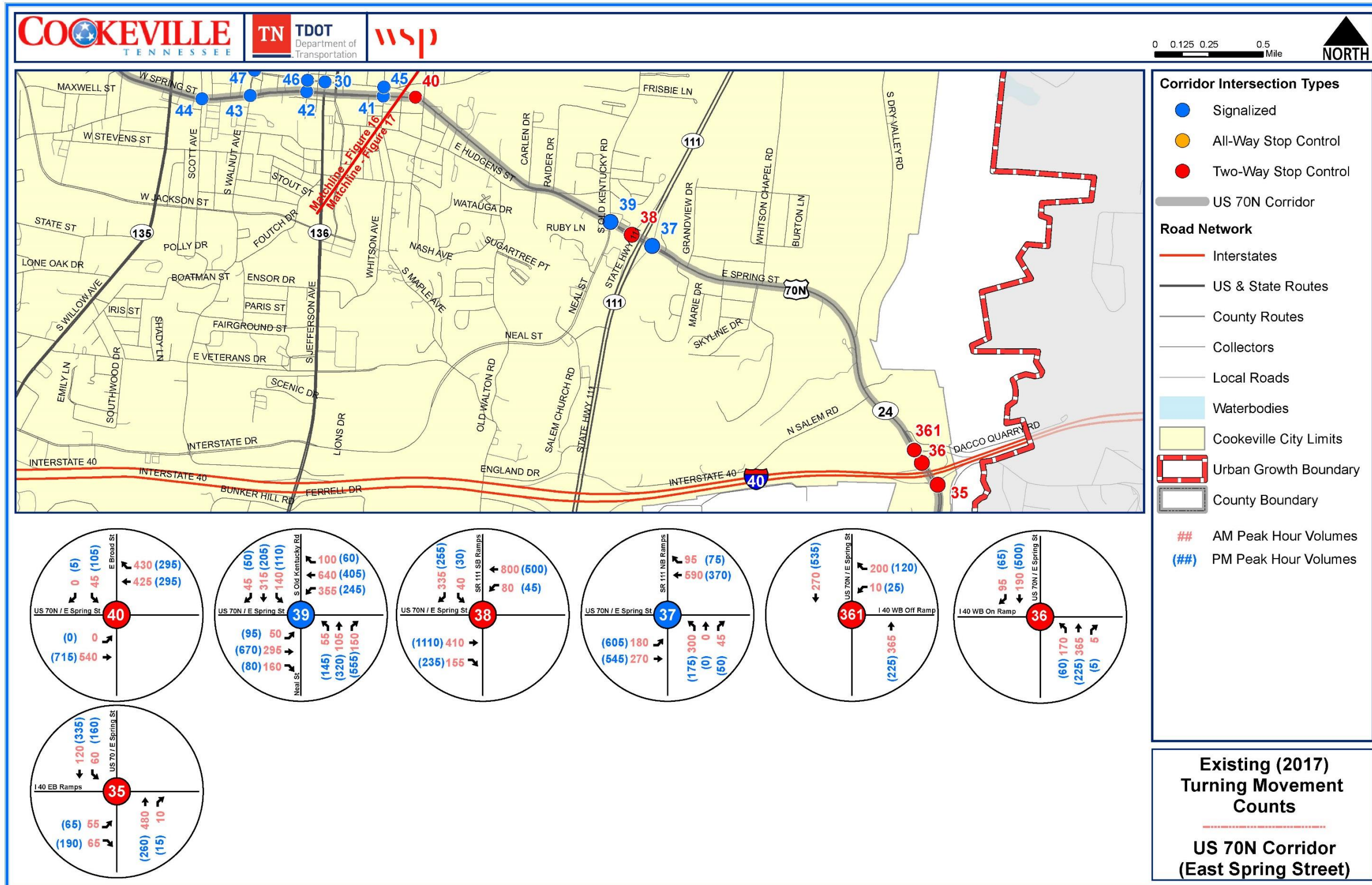
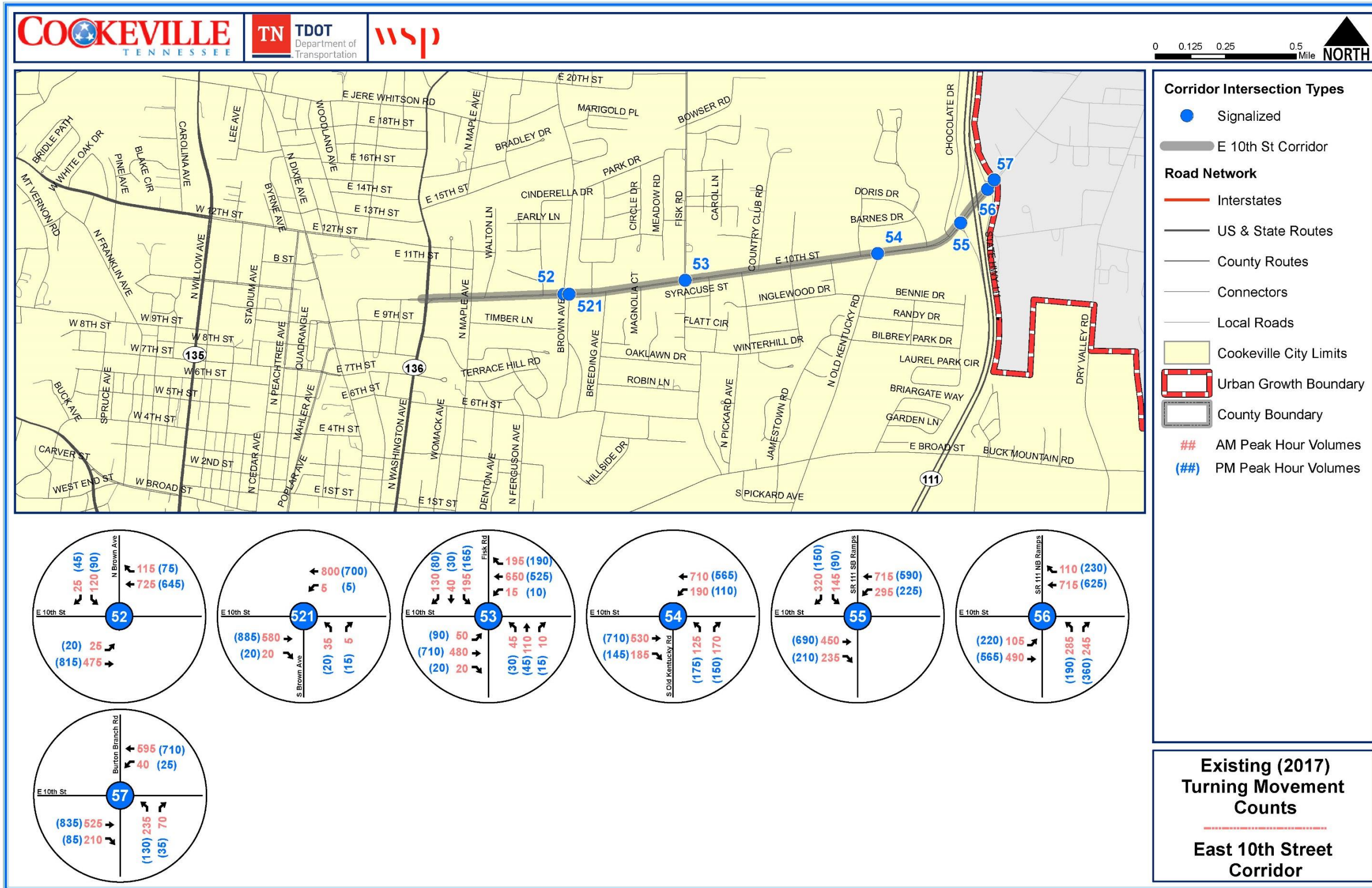


Figure 18: E 10th Street Turning Movement Counts



AM Peak Hour Traffic Observations

The count data and field observations revealed the following AM peak hour observations:

Willow Avenue (SR 135) - Figure 12 and Figure 13

- *S. Willow Avenue (SR 135) near I-40:*
 - Queues of 8-12 vehicles per lane were observed on the I-40 westbound off-ramp during some cycles.
- *S. Willow Avenue (SR 135)/W. Jackson Street:*
 - Queues of approximately 10 vehicles per lane were observed at this intersection during the AM peak hour. Based on the volumes, 30% of northbound S. Willow Avenue (SR 135) traffic turns onto W. Jackson Street.
- *N. Willow Avenue (SR 135)/W. 12th Street:*
 - This is the only intersection along Willow Avenue (SR 135) during the AM peak hour where a cross street approach volume exceeds both the main street northbound and southbound approach volume. This indicates that W. 12th St. is a primary street at this intersection and that it is an important east-west connector into Cookeville.

S. Jefferson Avenue, N. Washington Avenue (SR 136) - Figure 14 and Figure 15

- *S. Jefferson Avenue (SR 136)/I-40:*
 - A queue of 8 to 10 vehicles was observed on the I-40 westbound off-ramp during the AM peak hour. During at least one cycle, the entire queue did not clear.
- *SR 136 near Downtown Square:*
 - During at least one cycle, northbound S. Washington Avenue queues extended south to the curve near the courthouse.
- *N. Washington Avenue (SR 136)/E. 10th Street:*
 - Both the southbound and westbound left turn volumes (295 vph) approach the typical capacity for a single left-turn lane (300 vph). This caused queues to extend both north of and east of the intersection.

SR 24 (US 70N, W Broad Street), SR 24 (US 70N, W Spring Street) & Broad Street

- *W. Broad Street (US 70N, SR 24)/Jackson Street*
 - The eastbound W. Jackson Street approach volume is nearly 750 vph, which is high for a single lane approach.
- *Downtown Cookeville*
 - Westbound E. Spring Street (US 70N, SR 24) traffic queued from S. Jefferson Avenue past S. Washington Avenue during at least one cycle length in the AM peak hour.

- *E. Spring Street (US 70N, SR 24)/S. Old Kentucky Road*
 - The westbound left turn volume (355 vph) exceeds the typical capacity for a single left-turn lane (about 300 vph).

E 10th Street

- *E 10th Street/Fisk Road*
 - The southbound left turn volume (195 vph) is reaching the higher limit of a single lane's capacity.
- *E 10th Street/Northbound SR 111 Ramps*
 - Approximately 530 vehicles per hour exit northbound SR 111 onto E. 10th Street during the AM peak hour. This volume exceeds any of the four off-ramp volumes at the S. Willow Avenue (SR 135) or S. Jefferson Avenue (SR 136) I-40 interchanges, which indicates the significance and usage of both SR 111 and E 10th Street for entering Cookeville from the surrounding region.

PM Peak Hour Traffic Observations

The count data reveals the following PM peak hour observations:

Willow Avenue (SR 135) Corridor - Figure 12 and Figure 13

- *S. Willow Avenue (SR 135) near I-40:*
 - During the PM peak hour, queues and reduced speeds were observed on both northbound and southbound S. Willow Avenue north of I-40, as well as on the I-40 westbound off-ramp (off-ramp queues were often upwards of 12-15 vehicles per lane per cycle). **Figure 19** shows the southbound S. Willow Avenue queue at Interstate Drive.

Figure 19: Southbound S. Willow Avenue (SR 135) at Interstate Drive



- Field observations indicate that signal timing, the close proximity of the I-40 westbound ramps intersection and the S. Willow Avenue/Interstate Drive intersection, and driveway frequency all contribute to congestion, as vehicles impeded traffic turning left into or out of the driveways.
- The 350 vph turning left from southbound S. Willow Avenue onto eastbound Interstate Drive exceeds the capacity (about 300 vph) of a typical single left-turn lane.
- *S. Willow Avenue/Jackson Street:*
 - Queues were observed at each of the S. Willow Avenue/Jackson Street approaches. The volumes indicate there is no “minor” approach at this intersection. In particular, the northbound left-turn volume (345 vph) exceeds the capacity of a single left turn lane. **Figure 20** shows the westbound Jackson Street queue during the early afternoon.

Figure 20: Westbound queues along Jackson Street at S. Willow Avenue (SR 135)



- *S. Willow Avenue (SR 135)/W. Spring Street (US 70N, SR 24):*
 - Southbound queues were observed along S. Willow Avenue at both W. Spring Street (US 70N, SR 24) and Broad Street. During the PM peak hour, the southbound queue extended approximately 920 feet north of the intersection to the railroad bridge; the queue did not clear during the southbound signal phase.
- *S. Willow Avenue (SR 135)/W 12th Street*
 - Moderate queues (6-10 vehicles per lane) were observed during the PM peak hour. The northbound left volume (260 vph) is nearing the maximum capacity for a single left-turn lane (about 300 vph).

SR 136 (S. Jefferson Avenue, N. Washington Avenue) - Figure 14 and Figure 15

- *S. Jefferson Avenue near I-40:*
 - Congestion and poor progression were observed both immediately north and south of I-40 along S. Jefferson Avenue. Observations suggest this congestion occurs in part due to the close proximity of the Bunker Hill Road, I-40 ramp interchange, S. Walnut Avenue, and Interstate Drive intersections. Heavy trucks were observed turning from the Pilot fuel station, crossing S. Jefferson Avenue and then turning onto eastbound I-40. During this maneuver, the trucks blocked multiple lanes of S. Jefferson Avenue and impeded traffic flow.
 - Similar issues occurred when trucks exiting westbound I-40 to the north made an immediate northbound left turn onto S. Walnut Avenue, as the limited distance between intersections often caused the trucks to block an additional travel lane.
 - 40% of the northbound S. Jefferson Avenue (SR 136) vehicles approaching Interstate Drive/Neal Street turn at the intersection.
- *S. Jefferson Avenue (SR 136)/E. Jackson Street:*
 - Southbound queues (6-10 vehicles per lane) were observed at this intersection during the PM peak hour.
 - The northbound left volume (365 vph) exceeds the typical capacity for a single left-turn lane (about 300 vph). Vehicles were observed queuing in the center turn lane.
- *Downtown Square:*
 - Gridlock around the Downtown Square was observed between 3:30 p.m. and 4:15 p.m., as shown in **Figure 21**. Area business owners said the congestion was typical for that time of day as it coincided with schools releasing for the day.

Figure 21: Eastbound Broad Street at N. Washington Avenue (SR 136)



- Because SR 136 “jogs” from S. Jefferson Avenue to N. Washington Avenue, many drivers attempt right-then immediate-left movements when traveling north and south through downtown. Despite the coordinated signals in and near the Square, vehicles were observed to block the intersections frequently. Vehicles parking and backing out of their parking spaces exacerbated the congestion and gridlock.
- *N. Washington Avenue/E. 10th Street:*
 - During the PM peak hour, more than 75% of vehicles on westbound E. 10th Street turn onto N. Washington Avenue. The southbound left turn volume (270 vph) is approaching the typical capacity for a single left-turn lane (about 300 vph), which was observed to cause vehicles to queue in the center turn lane.

US 70N/SR 24 Corridor (W. Broad Street, W. Spring Street, E. Spring Street) & Broad Street

- *W. Broad Street (US 70N/SR 24)/Jackson Street:*
 - The northbound left volume (295 vph) is approaching the typical capacity for a single left-turn lane (about 300 vph).
- *Downtown Cookeville:*
 - During the PM peak hour, vehicles backing out of parking spaces along Broad Street were observed to impede traffic flow.
- *E. Spring Street (US 70N/SR 24)/SR 111 Northbound Ramps:*
 - The eastbound left volume (605 vph) exceeds the typical capacity for a single left-turn lane (about 300 vph).

E. 10th Street

- During the PM peak hour, the count data indicates higher eastbound than westbound volumes along E. 10th Street.
- Approximately 450 vph enter both northbound and southbound SR 111 from E. 10th Street. In both the AM and PM peak hour, the E. 10th Street/SR 111 intersections have similar turning volumes to the I-40 interchanges at S. Willow Avenue (SR 135) and S. Jefferson Avenue (SR 136).

3.1.2 48-Hour Count Data

Forty-eight (48) hour Average Daily Traffic (ADT) counts were conducted at 5 locations. They were conducted to supplement TDOT and city daily counts for use in the Major Street Plan update, but are also useful for the corridor analysis.

The supplemental count locations and a summary of the ADT volumes are shown in **Table 1**. The raw count data is included in **Appendix B**.

Table 1: 48-Hour Count Site & Data Summary

Count Location	EB/NB Avg. Volume	WB/SB Avg. Volume	Total Avg. Volume	% of Vehicles Class 4-13	% of Vehicles Class 8-13	85th percentile Speed (mph)	Median Speed (mph)
W. 12th St. (City Limits to Franklin Ave.)	4,479	4,295	8,774	11.2	0.6	51	46
W. Broad St. (City Limits to Jackson St.)	5,549	5,481	11,030	7.0	0.6	47	42
S. Lowe Ave. (Stevens St. to Proffitt St.)	5,130	4,537	9,667	7.5	0.8	38	32
N. Washington Ave. (E. Spring St. to E. Broad St.)	4,274	4,671	8,945	4.6	0.5	19	12
E. Spring St (Old Kentucky Rd to Raider Dr.)	7,846	7,537	15,383	10.2	0.7	44	38

Table 1 indicates that none of the 48-hour sites recorded daily total truck percentages (Single-Unit and Combination) in excess of 11.2%; however, further analysis reveals that the heavy truck percentage (class 8-13) did not exceed 1% at any of the count locations. As shown in Table 1, the count tubes also collected speed data. The 85th-percentile speed (19 mph) on Washington Avenue between E. Spring Street (US 70N, SR 24) and E. Broad Street indicates most vehicles traveled under the posted speed limit of 30 mph, while the 85th-percentile speed on W. 12th Street (51 mph) exceeded the posted speed limit of 40 mph.

Additional analysis of the ADT counts indicates that the morning peak is concentrated around the 7:00 AM hour while the evening peak varies more by location.

3.2 Traffic Signal Inventory

There are 48 traffic signals on the corridors within the study area limits. These signals are highlighted in **Figure 11**; a complete listing is also included in **Appendix C**.

Although the majority of signals along the study corridors are uncoordinated, there are two clusters of coordinated traffic signals in Cookeville, including signals along S. Jefferson Avenue

(SR 136) between Bunker Hill Road and the Walmart driveway, and the following six traffic signals in downtown Cookeville near the Square:

- E. Spring Street (US 70N, SR 24)/S. Dixie Avenue
- E. Spring Street (US 70N, SR 24)/S. Jefferson Avenue (SR 136)
- E. Spring Street (US 70N, SR 24)/S. Washington Avenue
- E. Broad Street/S. Dixie Avenue
- E. Broad Street/S. Jefferson Avenue (SR 136)
- E. Broad Street/S. Washington Avenue

Currently, all other traffic signals on the study corridors run on uncoordinated actuated timing plans or pre-timed plans. **Appendix C** illustrates which of these signals utilize time of day plans.

4 Level of Service Analyses

4.1 Intersection Level of Service

Synchro 9 (version 9.1.912.4) software was used to analyze the performance of each of the intersections modeled along each of the study corridors. Signal timing data obtained from the City of Cookeville and TMC data was used to model existing conditions. If a cycle length at an intersection was not specified in the timing plan, a cycle length was assumed based on surrounding intersections. Intersection performance was determined based on the calculated Level of Service (LOS), which assigns an A to F letter grade based on the delay experienced at the intersection. At signalized intersections, LOS was determined based on the average intersection delay. At unsignalized intersections, LOS was determined based on the stop-controlled approach with the highest delay. The delay thresholds for both signalized and unsignalized intersections are shown in **Table 2**.

Table 2: Intersection Delay Thresholds (average seconds / vehicle)

LOS Grade	Signalized	Unsignalized
A	≤ 10	< 10
B	10 - 20	10 - 15
C	25 - 35	15 - 25
D	35 - 55	25 - 35
E	55 - 80	35 - 50
F	> 80	> 50

(2010 Highway Capacity Manual)

Figure 22 and **Figure 23** show the existing LOS for the AM and PM peak hours. **Table 3** shows the delay in seconds at each intersection in the AM and PM peak hour. The Synchro reports for each intersection in both the AM and PM peak hours are shown in **Appendix D**.

Figure 22: 2017 Existing Conditions Intersection Level of Service (AM Peak Hour)

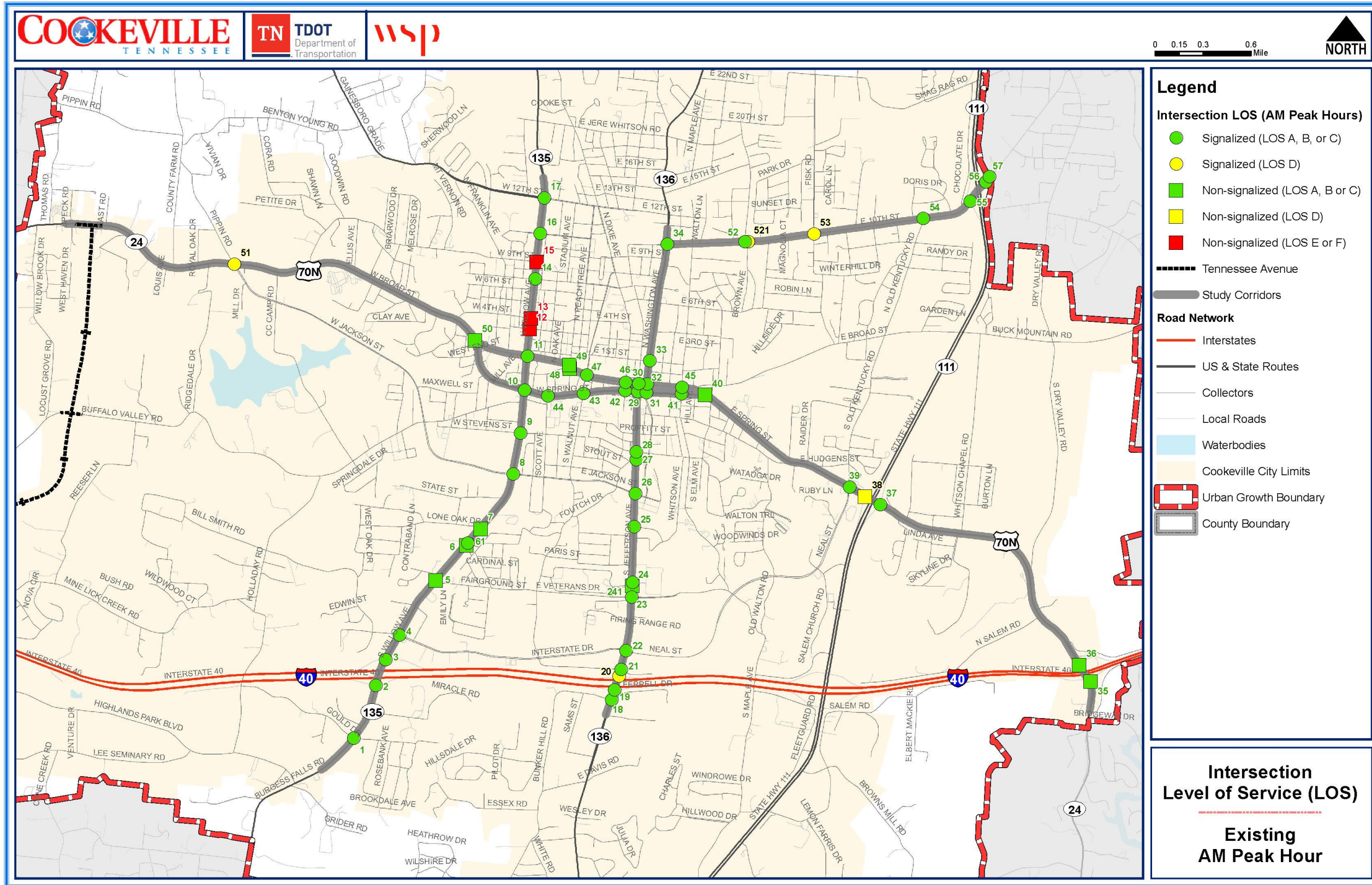


Figure 23: 2017 Existing Conditions Intersection Level of Service (PM Peak Hour)

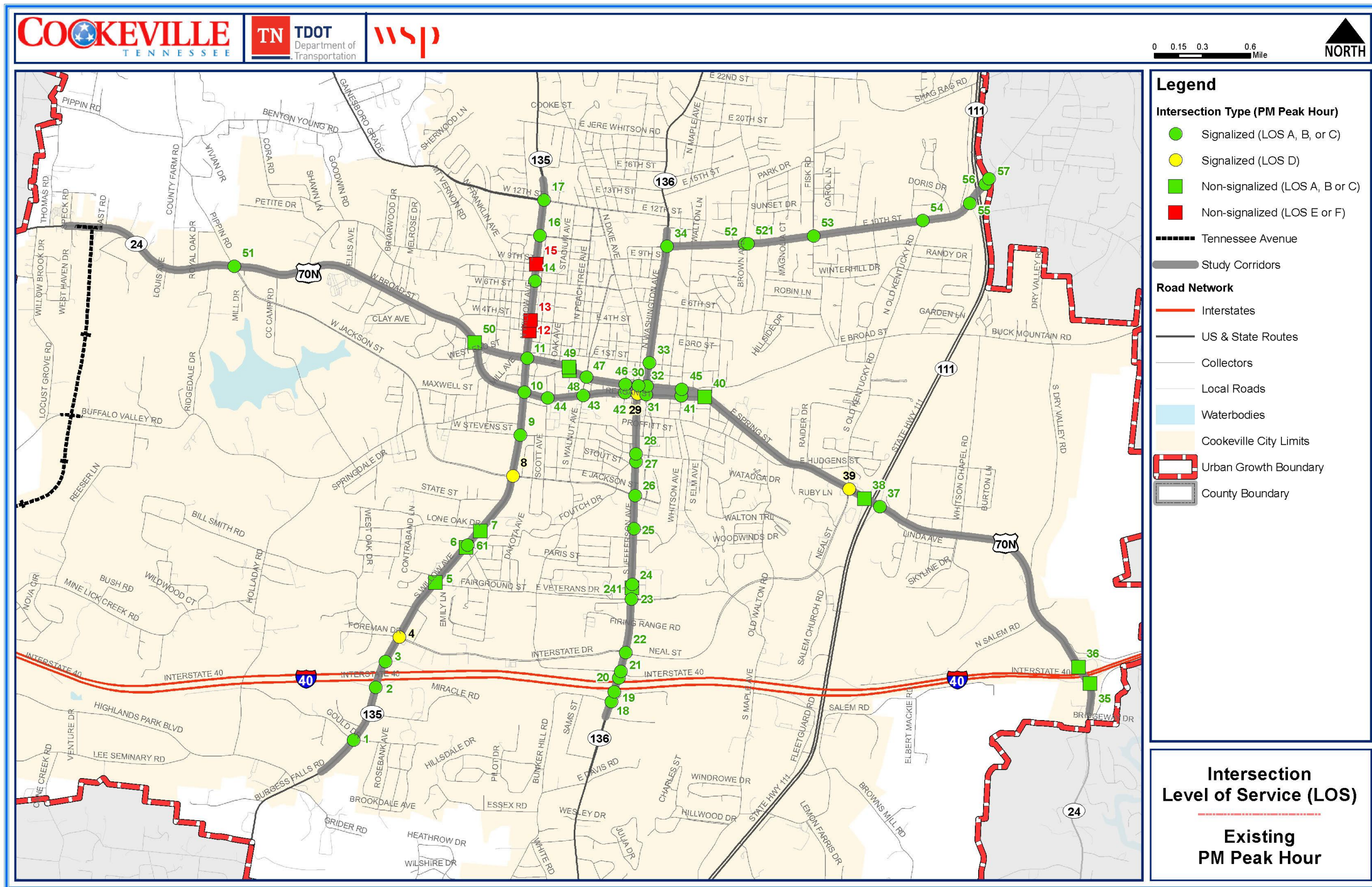


Table 3: 2017 Existing Conditions AM & PM Peak Hour Intersection Delay & Level of Service

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	S. Willow Ave.	Gould Dr.	Sig.	9.6	A	21.1	C
2	S. Willow Ave.	I-40 EB Ramps	Sig.	21.4	C	19.4	B
3	S. Willow Ave.	I-40 WB Ramps	Sig.	15.7	B	20.7	C
4	S. Willow Ave.	Interstate Dr.	Sig.	30.3	C	37.6	D
5	S. Willow Ave.	Fairground St.	STOP	16.6	C	18.8	C
6	S. Willow Ave.	Ashwood Dr.	STOP	12.1	B	12.5	B
61	S. Willow Ave.	Orchard St.	Sig.	11.6	B	10.6	B
7	S. Willow Ave.	Lone Oak Dr.	STOP	20.7	C	21.8	C
8	S. Willow Ave.	W. Jackson St.	Sig.	20.1	C	36.0	D
9	S. Willow Ave.	W. Stevens St.	Sig.	23.9	C	26.5	C
10	S. Willow Ave.	W. Spring St.	Sig.	30.2	C	34.2	C
11	S. Willow Ave.	W. Broad St.	Sig.	23.7	C	26.5	C
12	N. Willow Ave.	W. 3rd St.	STOP	50.4	F	57.0	F
13	N. Willow Ave.	W. 4th St.	STOP	97.3	F	103.7	F
14	N. Willow Ave.	W. 7th St.	Sig.	20.6	C	19.5	B
15	N. Willow Ave.	W. 9th St.	STOP	213	F	120.9	F
16	N. Willow Ave.	University Dr.	Sig.	8.6	A	11.1	B
17	N. Willow Ave.	W. 12th St.	Sig.	22.9	C	22.7	C
18	S. Jefferson Ave.	Bunker Hill Rd.	Sig.	11.7	B	12.0	B
19	S. Jefferson Ave.	I-40 EB Ramps	Sig.	23.9	C	33.9	C
20	S. Jefferson Ave.	I-40 WB Ramps	Sig.	50.6	D	16.9	B
21	S. Jefferson Ave.	S. Walnut Ave.	Sig.	17.4	B	23.5	C
22	S. Jefferson Ave.	Interstate Dr.	Sig.	21.0	C	27.7	C
23	S. Jefferson Ave.	E. Veterans Dr.	Sig.	20.8	C	32.1	C
241	S. Jefferson Ave.	Fairground St.	STOP	17.7	C	24.1	C
24	S. Jefferson Ave.	Walmart Driveway	Sig.	3.1	A	17.7	B
25	S. Jefferson Ave.	Commerce Ave.	Sig.	7.6	A	17.8	B
26	S. Jefferson Ave.	E. Jackson St.	Sig.	15.5	B	29.2	C
27	S. Jefferson Ave.	Foutch Dr.	Sig.	10.6	B	13.1	B
28	S. Jefferson Ave.	E. Stevens St.	Sig.	12.6	B	15.6	B
29	S. Jefferson Ave.	US 70N/E. Spring St.	Sig.	25.7	C	36.2	D
30	N. Jefferson Ave.	E. Broad St.	Sig.	23.5	C	19.3	B
31	S. Washington Ave.	E. Spring St.	Sig.	30.5	C	24.8	C
32	N. Washington Ave.	E. Broad St.	Sig.	27.9	C	32.4	C
33	N. Washington Ave.	E. 1st St.	Sig.	27.6	C	28.2	C
34	N. Washington Ave.	E. 10th St.	Sig.	26.3	C	23.9	C
35	E. Spring St.	I-40 EB Ramps	STOP	13.1	B	15.3	C

(continued next page)

(continued from previous page)

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
36	E. Spring St.	I-40 WB Ramps	STOP	12.0	B	10.6	B
37	E. Spring St.	SR 111 NB Ramps	Sig.	18.5	B	25.2	C
38	E. Spring St.	SR 111 SB Ramps	STOP	26.2	D	16.5	C
39	E. Spring St.	S. Old Kentucky Rd.	Sig.	32.8	C	38.8	D
40	E. Spring St.	E. Broad St.	STOP	17.5	C	22.5	C
41	E. Spring St.	S. Maple Ave.	Sig.	31.3	C	30.7	C
42	E. Spring St.	S. Dixie Ave.	Sig.	21.4	C	17.6	B
43	W. Spring St.	S. Walnut Ave.	Sig.	23.5	C	29.0	C
44	W. Spring St.	Scott Ave.	Sig.	13.4	B	22.4	C
45	E. Broad St.	S. Maple Ave.	Sig.	32.8	C	27.8	C
46	E. Broad St.	S. Dixie Ave.	Sig.	17.0	B	27.6	C
47	E. Broad St.	S. Walnut Ave.	Sig.	23.9	C	32.8	C
48	E. Broad St.	S. Cedar Ave.	STOP	10.4	B	14.1	B
49	W. Broad St.	N. Cedar Ave.	STOP	11.1	B	12.3	B
50	W. Spring St.	W. Broad St.	STOP	10.2	B	15.7	C
51	W. Broad St.	W. Jackson St.	Sig.	36.9	D	32.8	C
52	E. 10th St.	Brown Ave. N	Sig.	19.0	B	16.0	B
521	E. 10th St.	Brown Ave. S	Sig.	54.4	D	13.0	B
53	E. 10th St.	Fisk Rd.	Sig.	44.3	D	27.5	C
54	E. 10th St.	N. Old Kentucky Rd.	Sig.	15.7	B	18.9	B
55	E. 10th St.	SR 111 SB Ramps	Sig.	13.4	B	14.6	B
56	E. 10th St.	SR 111 NB Ramps	Sig.	16.8	B	17.0	B
57	E. 10th St.	Burton Branch Rd.	Sig.	13.5	B	13.2	B

AM Peak Hour Level of Service Discussion

As shown in **Figure 22**, during the AM peak hour all signalized intersections operate at an LOS D or better, although the following intersections are operating with delays near the LOS D / LOS E threshold:

- S. Jefferson Avenue (SR 136) at I-40 WB ramps
- E. 10th St. at S. Brown Ave.
- E. 10th St. at Fisk Rd.

All of the unsignalized intersections operate at an LOS D or better in the AM peak hour with the exception of the following 2-way stop-controlled intersections, which all operate at LOS F.

- N. Willow Avenue (SR 135) at 3rd Street
- N. Willow Avenue (SR 135) at 4th Street

- N. Willow Avenue (SR 135) at 9th Street

Because unsignalized LOS is based on the delay of the worst stop-controlled movement, the analysis indicates that vehicles on the numbered side streets are forced to wait to find a gap in the N. Willow Avenue (SR 135) traffic stream to turn.

PM Peak Hour Level of Service Discussion

Similar to the AM peak hour, all of the modeled signalized intersections operate at an LOS D or better during the PM peak hour.

Also similar to the AM peak hour, all of the corridors' unsignalized intersections operate at LOS D or better with the exception of the following intersections, which all operate at LOS F:

- N. Willow Avenue (SR 135) at 3rd Street
- N. Willow Avenue (SR 135) at 4th Street
- N. Willow Avenue (SR 135) at 9th Street

Although not captured in the Synchro analysis, queues were observed along both S. Willow Avenue (SR 135) near I-40 and S. Jefferson Avenue (SR 136) near I-40. Based on the field observations and the turning movement count data, the congestion and queueing at these locations is likely driven as much or more by intersection spacing, signal timing, and operational issues than by an overall lack of roadway capacity.

- The close spacing of the Bunker Hill Road, I-40 interchange, S. Walnut Avenue, and Interstate Drive intersections, coupled with the adjacent truck stop, i.e. higher truck volumes in this area, result in turning truck traffic blocking multiple lanes. This was especially prevalent at two locations:
 - **S. Jefferson Avenue (SR 136) at Bunker Hill Road** – Trucks exiting the Pilot Travel Center turn left from eastbound Bunker Hill Road onto northbound S. Jefferson Avenue (SR 136). However, if there is a queue at the S. Jefferson Avenue/I-40 eastbound ramps intersection, the trucks often block the northbound (and even southbound) S. Jefferson Avenue lanes, which results in further upstream and downstream effects along S. Jefferson Avenue as well Bunker Hill Road.
 - Trucks exiting **westbound I-40 at the S. Jefferson Avenue (SR 136) interchange** were observed turning right onto northbound S. Jefferson Avenue and then making an immediate left-turn onto westbound S. Walnut Avenue. During the PM peak hour, the existing congestion and queues often resulted in the truck blocking at least one of the S. Jefferson Avenue northbound through lanes. During the heaviest periods of congestion, similar issues were also observed when trucks exited northbound from I-40 and then turned left onto westbound Interstate Drive.

- Slow speeds and queues were also observed along S. Willow Avenue (SR 135) near I-40 during the PM peak hour. Based on the existing roadway capacity and geometry and PM peak hour traffic volumes, it is likely that the lack of coordinated signals and the close driveway spacing along this part of the corridor contributes significantly to the operational issues.

5 Traffic Growth Rate Methodology

Multiple data sources were reviewed to develop future growth rates for both the study corridors and the City of Cookeville as a whole. These growth rates will be used to project 2040 volumes to analyze future corridor intersection Level of Service (LOS), and to project future LOS for major streets as part of the Major Street Plan update.

5.1 Accuracy of Historic Traffic Volume Projections

The 2003 Major Route Transportation Plan assumed a 2% annual average growth rate based on 20 years of historical traffic counts and expected population growth. The 2003 plan forecasted traffic volumes for the years 2007 and 2027.

Table 4 compares the 2007 forecasted volumes on major roadways in the study area to the actual 2007 ADT counts from TDOT historical traffic data. As shown in the table, actual volumes were lower than predicted at nearly all of the locations. Approximately half of the forecasted volumes were within 10 percent of the actual volume.

Table 4: 2007 Forecasted ADT Volumes versus 2007 Actual ADT Volumes³

Street Name	From	To	2007 Forecasted Volume	2007 Actual Volume	Percent Difference
10th St.	N. Washington Ave. (SR 136)	Chocolate St.	15,540	15,235	-2.0%
US 70N/Broad St.	W. Jackson St.	Spring St.	9,447	6,659	-34.6%
Broad St.	W. Spring St. (US 70N/SR 24)	Cedar Ave.	6,788	6,164	-9.6%
Broad St.	Cedar Ave.	N. Washington Ave.	7,733	5,698	-30.3%
Broad St.	N. Washington Ave. (SR 136)	E. Spring St.	8,325	6,851	-19.4%
S. Jefferson Ave.	Bunker Hill Rd.	I-40	14,665	N/A	-
S. Jefferson Ave.	I-40	Stevens St.	28,106	23,855	-16.4%
S. Jefferson Ave.	Stevens St.	Spring St.	16,808	14,570	-14.3%

³ 2003 MRTP, <https://www.tdot.tn.gov/APPLICATIONS/traffichistory> (February 2017)

N. Washington Ave.	Broad St.	1st St.	13,745	13,107	-4.8%
N. Washington Ave.	1st St.	E 10th St.	14,833	16,325	9.6%
S. Willow Ave.	I-40	Broad St.	26,266	23,427	-11.4%
N. Willow Ave.	Broad St.	W 12th St.	16,897	17,405	3.0%
E. Spring St.	I-40	Hwy 111	8,987	7,969	-12.0%
E. Spring St.	Hwy 111	Old Kentucky Rd.	13,523	N/A	-
E. Spring St.	Old Kentucky Rd.	E Broad St.	14,844	15,143	2.0%
E. Spring St.	Broad St.	Walnut Ave.	11,343	10,855	-4.4%
W. Spring St.	Walnut Ave.	Broad St.	9,257	8,705	-6.1%

5.2 TDOT Historical Traffic Volume Data

Current data for historical traffic volumes, historical population, and population projections were analyzed to determine a reasonable annual growth rate to assume for forecasting traffic volumes in Cookeville. Historical traffic volumes were obtained from the TDOT traffic history database.⁴ Traffic count locations in the Cookeville and Algood city limits were isolated and 5-year, 10-year, and 15-year annual growth rates were calculated for each count location. Average growth rates were calculated for several combinations of count stations to better reflect the growth patterns in the area.

- *Subset 1:* count locations on major routes included in the project study area (SR 135, SR 136, US 70N/SR 24, 10th Street, and Broad Street) plus count locations on side streets within the study area (where available)
- *Subset 2:* count locations along SR 135
- *Subset 3:* count locations along SR 136
- *Subset 4:* count locations along US 70N/SR 24
- *Subset 5:* count locations along E. 10th Street
- *Subset 6:* count locations along Broad Street

The calculated annual growth rate for each of these subsets is shown in **Table 5**.

⁴ <https://www.tdot.tn.gov/APPLICATIONS/traffichistory> (February 2017)

Table 5: Annual Growth Rate Based on Historical Traffic Counts

Count Stations	Description	Annual Growth Rate			Average
		5-year	10-year	15-year	
Subset 1	Study Area	-0.13%	0.83%	1.03%	0.57%
Subset 2	SR 135	-0.98%	0.26%	0.43%	-0.10%
Subset 3	SR 136	-0.58%	0.67%	0.17%	0.09%
Subset 4	US 70N/SR 24	0.07%	1.86%	3.43%	1.79%
Subset 5	10th St.	0.99%	0.29%	0.49%	0.59%
Subset 6	Broad St.	-0.32%	-0.51%	-0.13%	-0.32%

Table 5 shows that traffic volumes have remained fairly level in recent years and even decreased on some of the study corridors. The table also shows that in general, the east-west corridors (US 70N/SR 24, 10th Street) saw more growth than the north-south corridors (SR 135, SR 136).

The historical traffic volume growth rates were then compared to corresponding population growth rates to correlate traffic volume growth to population growth for future growth projections. Population growth rates were calculated using historical population data for Putnam County⁵ and the City of Cookeville⁶ from 2005, 2010, and 2015 as shown in Table 6.

Table 6: Current and Historical Population Growth Rates, Putnam County and City of Cookeville

Location	Population by Year				Annual Growth Rates		
	2000	2005	2010	2015	5-year	10-year	15-year
Putnam County	62,315	67,124	72,321	73,810	0.41%	1.00%	1.23%
City of Cookeville	26,398	28,303	30,435	32,113	1.10%	1.35%	1.44%

Table 7 shows the ratio of traffic volume growth to population growth for each count station subset and time period. According to the growth rate ratios presented in Table 7, the population generally grew more quickly than the traffic volumes, except along US 70N/SR 24 where traffic growth outpaced population growth.

⁵ <http://www.tennessee-demographics.com/putnam-county-demographics> (February 2017)

⁶ <https://www.census.gov/quickfacts/table/PST045215/4716920> (February 2017)

Table 7: Ratios of Traffic Volume Growth to Population Growth by Subset

Count Stations	Description	Growth Rate Ratio			
		5-year	10-year	15-year	Average
Subset 1	Study Area	-0.12	0.62	0.71	0.40
Subset 2	SR 135	-0.88	0.19	0.30	-0.13
Subset 3	SR 136	-0.53	0.49	0.12	0.03
Subset 4	SR 24/US 70N	0.07	1.38	2.38	1.28
Subset 5	E. 10th St.	0.89	0.21	0.34	0.48
Subset 6	Broad St.	-0.29	-0.38	-0.09	-0.25

Projected population for Putnam County was obtained from the University of Tennessee’s Boyd Center for Business and Economic Research⁷. **Table 8** shows the projected population and annual growth for Putnam County. The projected annual population growth rate between 2016 and 2040 is 1.2 percent.

Table 8: Projected Population and Growth Rates, Putnam County

County	Projected Population		Projected Annual Growth Rate
	2016	2040	
Putnam	79,658	102,143	1.2%

5.3 Growth Rate Methodology

Based on the review of historic traffic data and population data outlined above, the following methodology was applied to determine a growth rate for each of the study corridors and corridor side-streets (**Table 9**):

- Assume all corridors grow by at least 0.5 percent, and no more than 2 percent
- Within that range, use the largest of these values:
 - Observed 5-year growth rate (from Table 5)
 - Observed 10-year growth rate (Table 5)
 - Observed 15-year growth rate (from Table 5)

⁷ <http://cber.bus.utk.edu/popproj.htm> (February 2017)

- Average ratio of traffic growth rate to population growth rate (Table 7) multiplied by Putnam County’s projected annual population growth rate (1.2 percent, Table 8)

Table 9: Projected Traffic Volume Annual Growth Rates

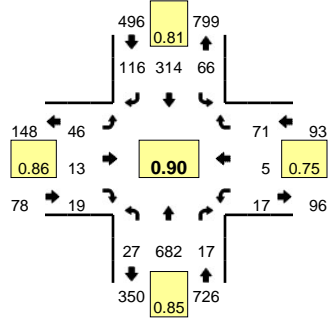
Facility	Projected Annual Growth Rate (2017-2040)
SR 135	0.50%
SR 136	0.75%
US 70N/SR 24	2.00%
E. 10th St.	1.00%
Broad St.	0.50%
Side streets	1.25%

Table 9 indicates the projected growth rates for each of the major study corridors as well as the overall study area. Broadly, the historical analysis shows higher growth on east-west corridors (US 70N/SR 24, E. 10th Street) than the north-south corridors such as Willow Avenue (SR 135) and SR 136. Each corridor’s growth rate will be applied to its existing (2017) count data to project 2040 volumes along the major corridors, which in turn will be used in future conditions Synchro models to project future intersection level of service. These growth rates will also be used in the MSP update.

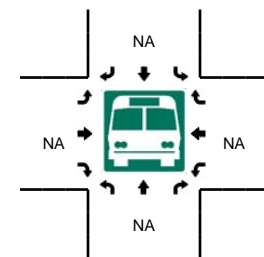
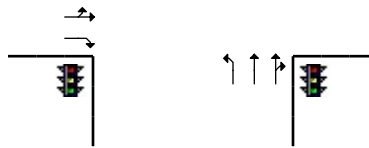
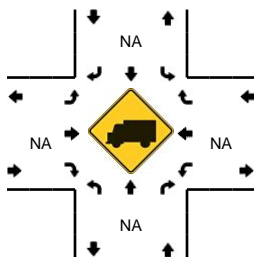
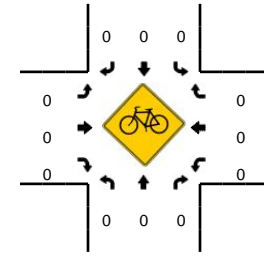
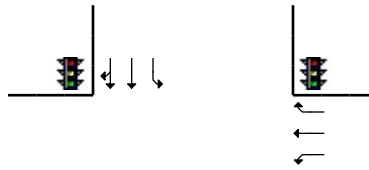
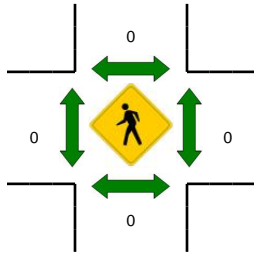
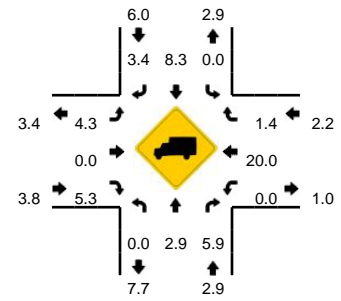
Appendix A:
Turning Movement Count (TMC) Data

LOCATION: 1. SR 135 (S Willow Ave) -- Gould Dr/Winston Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959601
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

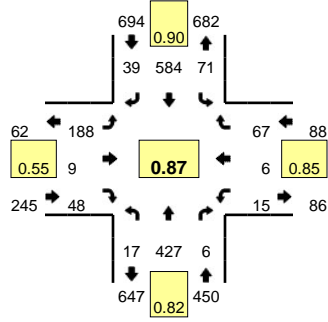


15-Min Count Period Beginning At	1. SR 135 (S Willow Ave) (Northbound)				1. SR 135 (S Willow Ave) (Southbound)				Gould Dr/Winston Dr (Eastbound)				Gould Dr/Winston Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	132	1	0	7	41	17	0	7	0	2	0	0	0	4	0	215	
7:15 AM	6	202	3	0	10	49	26	0	9	0	3	0	1	1	23	0	333	
7:30 AM	5	210	2	0	12	77	25	0	16	6	2	0	10	1	20	0	386	
7:45 AM	9	154	7	0	21	93	39	0	10	4	8	0	2	3	10	0	360	1294
8:00 AM	7	116	5	0	23	95	26	0	11	3	6	0	4	0	18	0	314	1393
8:15 AM	5	93	1	0	10	42	10	0	16	1	2	0	2	3	12	0	197	1257
8:30 AM	3	127	0	0	7	64	15	0	22	0	3	0	3	0	13	0	257	1128
8:45 AM	4	87	3	0	9	50	10	0	7	1	3	0	2	2	8	0	186	954
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	20	840	8	0	48	308	100	0	64	24	8	0	40	4	80	0	1544	
Heavy Trucks	0	12	4	0	0	48	0	0	0	0	0	0	0	0	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

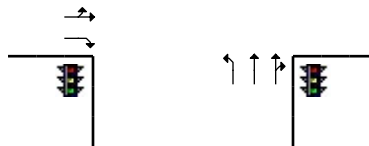
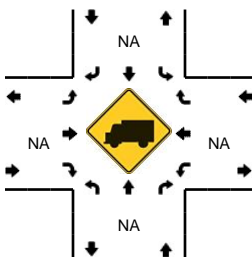
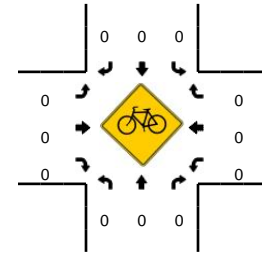
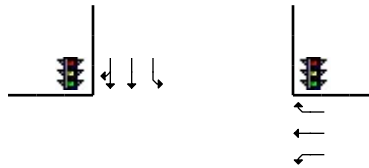
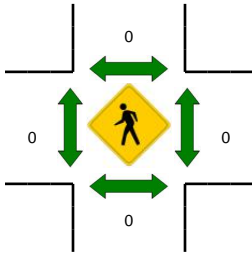
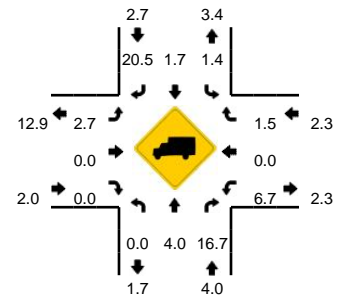
Comments:

LOCATION: 1. SR 135 (S Willow Ave) -- Gould Dr/Winston Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959602
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

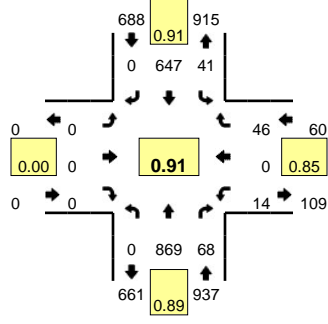


15-Min Count Period Beginning At	1. SR 135 (S Willow Ave) (Northbound)				1. SR 135 (S Willow Ave) (Southbound)				Gould Dr/Winston Dr (Eastbound)				Gould Dr/Winston Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	92	2	0	14	160	11	0	34	2	12	0	1	1	21	0	353	
4:15 PM	4	110	2	0	12	135	9	0	26	1	10	0	0	1	22	0	332	
4:30 PM	6	128	3	0	16	120	14	0	97	1	14	0	7	0	19	0	425	
4:45 PM	1	98	1	0	28	155	8	0	29	1	13	0	5	3	7	0	349	1459
5:00 PM	6	91	0	0	15	174	8	0	36	6	11	0	3	2	19	0	371	1477
5:15 PM	3	101	0	0	18	149	6	0	24	0	14	0	0	0	17	0	332	1477
5:30 PM	5	93	1	0	9	136	6	0	21	2	13	0	3	0	17	0	306	1358
5:45 PM	2	107	1	0	11	132	3	0	16	3	7	0	1	0	8	0	291	1300
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	512	12	0	64	480	56	0	388	4	56	0	28	0	76	0	1700	
Heavy Trucks	0	16	0		0	12	16		4	0	0		4	0	0		52	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

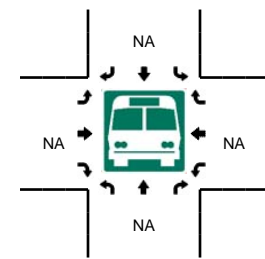
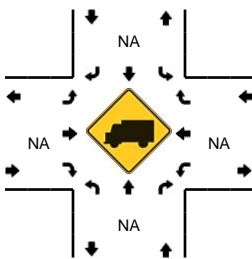
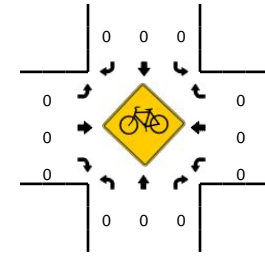
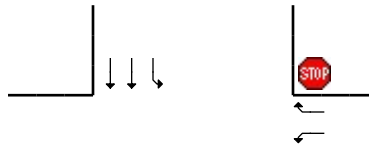
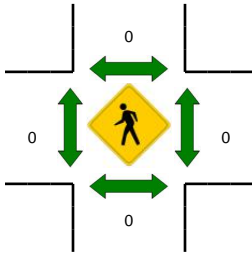
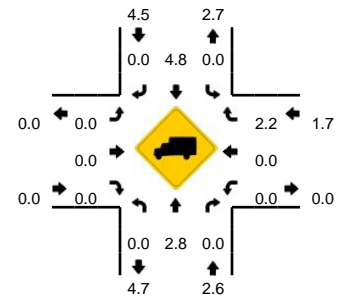
Comments:

LOCATION: 5. SR 135 (S Willow Ave) -- Fairground St
CITY/STATE: Cookeville, TN

QC JOB #: 13959603
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

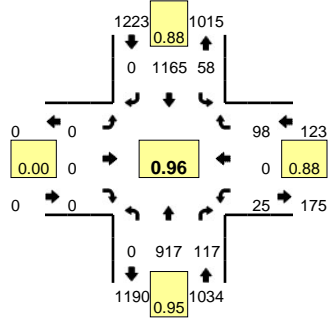


15-Min Count Period Beginning At	5. SR 135 (S Willow Ave) (Northbound)				5. SR 135 (S Willow Ave) (Southbound)				Fairground St (Eastbound)				Fairground St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	157	8	0	4	125	0	0	0	0	0	0	1	0	10	0	305	
7:15 AM	0	202	18	0	6	165	0	0	0	0	0	0	4	0	8	0	403	
7:30 AM	0	249	14	0	10	155	0	0	0	0	0	0	3	0	12	0	443	
7:45 AM	0	230	26	0	16	173	0	0	0	0	0	0	6	0	12	0	463	1614
8:00 AM	0	188	10	0	9	154	0	0	0	0	0	0	1	0	14	0	376	1685
8:15 AM	0	180	12	0	9	144	0	0	0	0	0	0	4	0	9	0	358	1640
8:30 AM	0	206	11	0	10	140	0	0	0	0	0	0	3	0	8	0	378	1575
8:45 AM	0	201	20	0	8	146	0	0	0	0	0	0	7	0	13	0	395	1507
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	920	104	0	64	692	0	0	0	0	0	0	24	0	48	0	1852	
Heavy Trucks	0	28	0		0	32	0		0	0	0		0	0	0		60	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

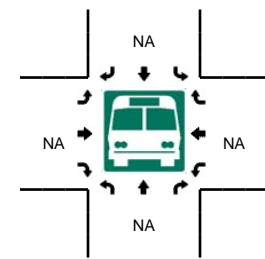
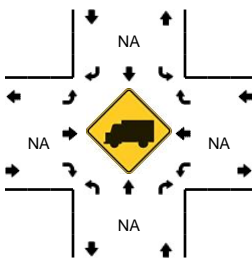
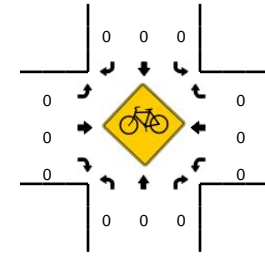
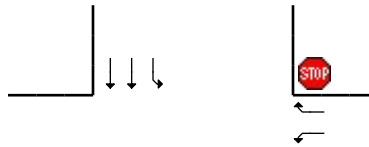
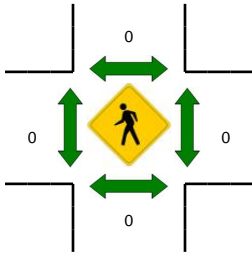
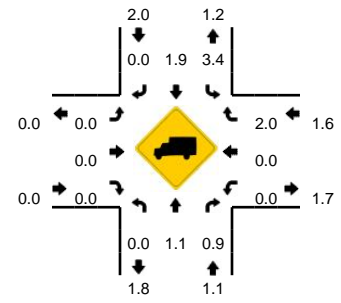
Comments:

LOCATION: 5. SR 135 (S Willow Ave) -- Fairground St
CITY/STATE: Cookeville, TN

QC JOB #: 13959604
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	5. SR 135 (S Willow Ave) (Northbound)				5. SR 135 (S Willow Ave) (Southbound)				Fairground St (Eastbound)				Fairground St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	231	15	0	15	300	0	0	0	0	0	0	14	0	13	0	588	
4:15 PM	0	221	30	0	19	241	0	0	0	0	0	0	5	0	21	0	537	
4:30 PM	0	238	27	0	9	316	0	0	0	0	0	0	6	0	16	0	612	
4:45 PM	0	238	36	0	12	265	0	0	0	0	0	0	5	0	29	0	585	2322
5:00 PM	0	212	27	0	24	324	0	0	0	0	0	0	5	0	27	0	619	2353
5:15 PM	0	229	27	0	13	260	0	0	0	0	0	0	9	0	26	0	564	2380
5:30 PM	0	210	24	0	13	222	0	0	0	0	0	0	7	0	11	0	487	2255
5:45 PM	0	208	15	0	15	235	0	0	0	0	0	0	7	0	18	0	498	2168
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	848	108	0	96	1296	0	0	0	0	0	0	20	0	108	0	2476	
Heavy Trucks	0	8	0	0	4	16	0	0	0	0	0	0	0	0	4	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:



Location: 6. SR 135 (S Willow Ave) & County Services Dr/Ashwood Dr/Orchard St

Date: 1/18/2017

Site Code: 13959607

Start Time	SR 135 (S Willow Ave) Southbound					Orchard St Westbound					Ashwood Dr From Southeast					SR 135 (S Willow Ave) Northbound					County Services Rd Eastbound					
	Right	Thru	Left to Ashwood Dr	Left	U-Turns	Right	Thru	Left	Left to Ashwood Dr	U-Turns	Right to Orchard St	Right to SR 135 (S Willow Ave)	Left to County Services Dr	Left to SR 135 (S Willow Ave)	U-Turns	Right to Ashwood Dr	Right	Thru	Left	U-Turns	Right	Right to Ashwood Dr	Thru	Left	U-Turns	
07:00 AM	1	132	0	4	0	4	2	1	0	0	0	0	0	0	0	5	0	152	2	0	0	0	0	0	0	0
07:15 AM	4	167	0	7	0	6	3	2	0	0	0	1	0	0	0	2	0	198	4	0	0	0	0	0	0	0
07:30 AM	9	180	0	9	0	15	5	4	0	0	0	1	0	0	0	2	2	224	3	0	2	0	0	0	1	0
07:45 AM	15	180	0	23	0	19	11	9	0	0	0	0	0	0	0	2	2	221	17	0	0	0	0	0	3	0
08:00 AM	4	141	0	8	0	17	6	6	0	0	0	2	0	0	0	5	1	171	8	0	3	0	1	3	0	0
08:15 AM	5	146	0	5	0	8	1	4	0	0	0	2	0	0	0	5	1	189	13	0	3	0	0	3	0	0
08:30 AM	9	147	0	6	0	15	2	5	0	0	0	2	0	0	0	5	0	172	7	0	3	0	0	0	7	0
08:45 AM	4	167	0	12	0	12	3	6	0	0	0	4	0	0	0	6	1	208	6	0	1	0	0	0	9	0
Total	51	1260	0	74	0	96	33	37	0	0	0	12	0	0	0	32	7	1535	60	0	12	0	1	26	0	0

Peak Hour: 7:15:00 AM - 8:15:00 AM

Peak 15-Min: 7:45:00 AM - 8:00:00 AM



Location: 6. SR 135 (S Willow Ave) & County Services Dr/Ashwood Dr/Orchard St

Date: 1/18/2017

Site Code: 13959608

Start Time	SR 135 (S Willow Ave) Southbound					Orchard St Westbound					Ashwood Dr From Southeast					SR 135 (S Willow Ave) Northbound					County Services Rd Eastbound				
	Right	Thru	Left to Ashwood Dr	Left	U-Turns	Right	Thru	Left	Left to Ashwood Dr	U-Turns	Right to Orchard St	Right to SR 135 (S Willow Ave)	Left to County Services Dr	Left to SR 135 (S Willow Ave)	U-Turns	Right to Ashwood Dr	Right	Thru	Left	U-Turns	Right	Right to Ashwood Dr	Thru	Left	U-Turns
04:00 PM	3	302	0	14	0	20	1	6	0	0	0	5	0	0	0	1	3	246	2	0	9	0	3	12	0
04:15 PM	5	247	0	9	0	12	0	4	0	0	0	1	0	0	0	1	0	241	2	0	7	0	1	6	0
04:30 PM	1	306	0	7	0	14	1	10	0	0	0	5	0	0	0	0	1	250	2	0	16	0	5	17	0
04:45 PM	0	279	0	16	0	18	0	11	0	0	0	4	0	0	0	2	3	259	2	0	3	0	2	9	0
05:00 PM	0	321	0	14	0	19	1	11	0	0	0	3	0	0	0	2	2	245	1	0	3	0	3	4	0
05:15 PM	1	257	0	14	0	15	0	6	0	0	0	0	0	0	0	0	3	251	0	0	1	0	0	1	0
05:30 PM	1	236	0	12	0	9	1	3	0	0	0	3	0	0	0	1	1	213	0	0	3	0	0	2	0
05:45 PM	2	214	0	6	0	9	0	3	0	0	0	1	0	0	0	2	2	229	0	0	2	0	1	3	0
Total	13	2162	0	92	0	116	4	54	0	0	0	22	0	0	0	9	15	1934	9	0	44	0	15	54	0

Peak Hour: 4:30:00 PM - 5:30:00 PM

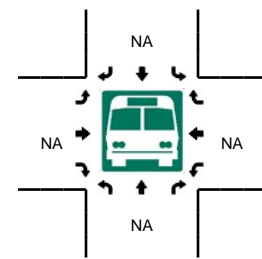
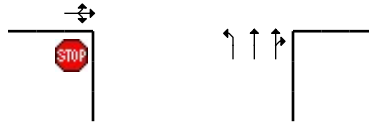
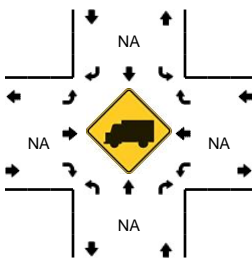
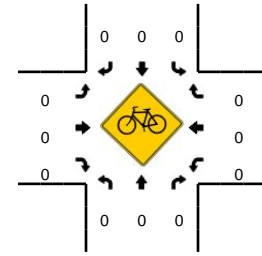
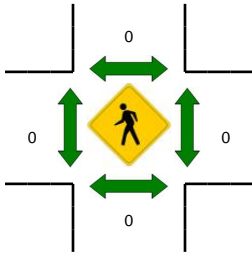
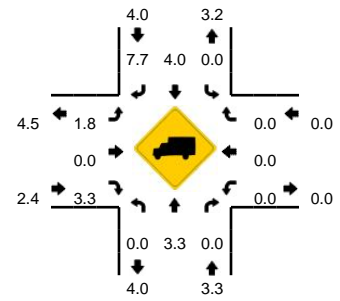
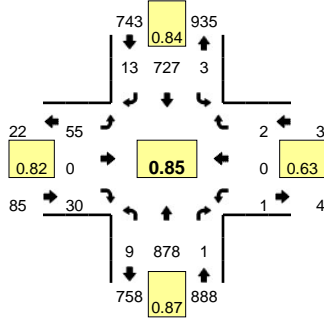
Peak 15-Min: 4:30:00 PM - 4:45:00 PM

PHF: 0.95

LOCATION: 7. SR 135 (S Willow Ave) -- Lone Oak Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959605
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



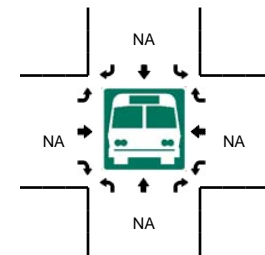
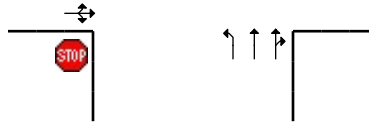
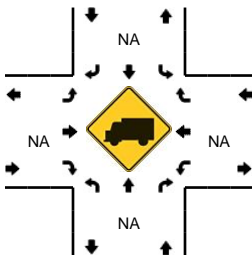
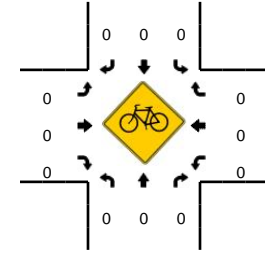
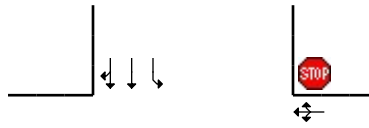
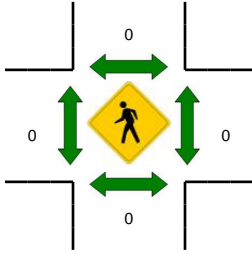
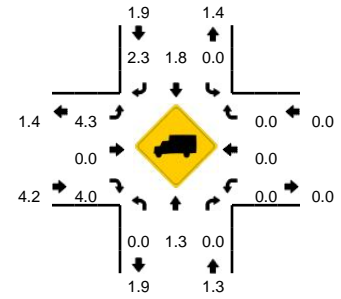
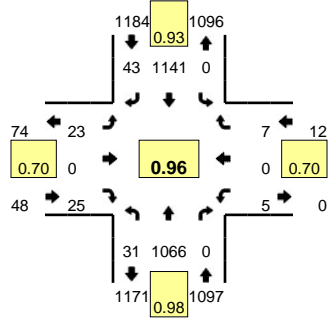
15-Min Count Period Beginning At	7. SR 135 (S Willow Ave) (Northbound)				7. SR 135 (S Willow Ave) (Southbound)				Lone Oak Dr (Eastbound)				Lone Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	156	0	0	0	134	5	0	6	0	5	0	0	0	0	0	309	
7:15 AM	3	194	0	0	0	175	0	0	14	0	8	0	0	0	0	0	394	
7:30 AM	2	245	0	0	2	189	0	0	16	0	8	0	0	0	1	0	463	
7:45 AM	0	255	1	0	1	214	6	0	18	0	8	0	0	0	1	0	504	1670
8:00 AM	4	184	0	0	0	149	7	0	7	0	6	0	1	0	0	0	358	1719
8:15 AM	1	191	0	0	0	154	6	0	9	0	3	0	0	0	2	0	366	1691
8:30 AM	4	207	0	0	0	166	5	0	11	0	1	0	0	0	0	0	394	1622
8:45 AM	2	218	0	0	1	172	5	0	5	0	6	0	0	1	0	0	410	1528
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	1020	4	0	4	856	24	0	72	0	32	0	0	0	4	0		2016
Heavy Trucks	0	40	0	0	0	36	0	0	4	0	4	0	0	0	0	0	84	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 7. SR 135 (S Willow Ave) -- Lone Oak Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959606
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



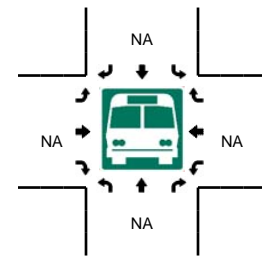
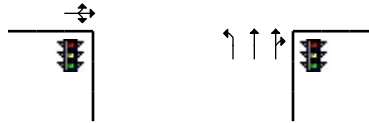
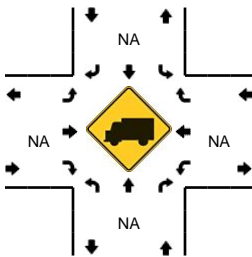
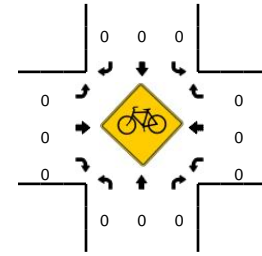
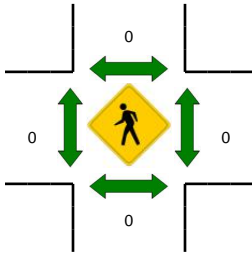
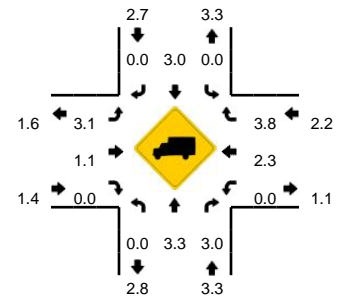
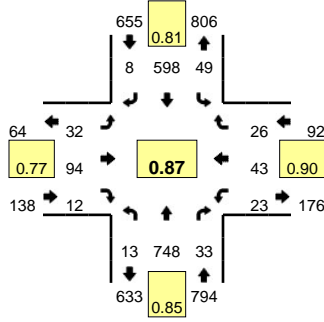
15-Min Count Period Beginning At	7. SR 135 (S Willow Ave) (Northbound)				7. SR 135 (S Willow Ave) (Southbound)				Lone Oak Dr (Eastbound)				Lone Oak Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	275	0	0	0	288	10	0	1	0	8	0	2	0	2	0	590	
4:15 PM	6	257	0	0	0	254	12	0	3	0	6	0	1	0	1	0	540	
4:30 PM	4	267	0	0	0	311	9	0	6	0	2	0	2	0	1	0	602	
4:45 PM	10	261	0	0	0	275	15	0	6	0	9	0	1	0	3	0	580	2312
5:00 PM	9	270	0	0	0	300	11	0	6	0	9	0	2	0	3	0	610	2332
5:15 PM	8	268	0	0	0	255	8	0	5	0	5	0	0	0	0	0	549	2341
5:30 PM	2	214	0	0	0	246	14	0	10	0	5	0	0	0	0	0	491	2230
5:45 PM	7	251	0	0	0	229	12	0	14	0	8	0	0	0	0	0	521	2171
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	1080	0	0	0	1200	44	0	24	0	36	0	8	0	12	0	2440	
Heavy Trucks	0	4	0	0	0	12	0	0	0	0	4	0	0	0	0	0	20	
Pedestrians		0				0					0				0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 9. SR 135 (S Willow Ave) -- W Stevens St
CITY/STATE: Cookeville, TN

QC JOB #: 13959609
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



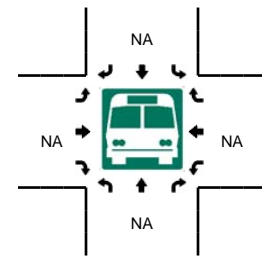
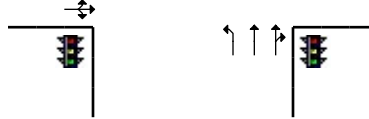
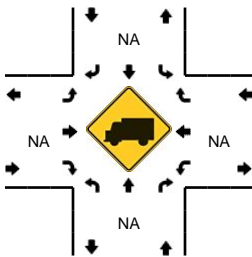
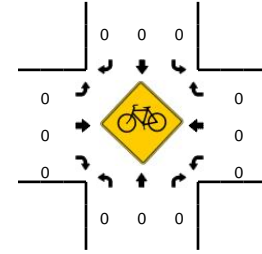
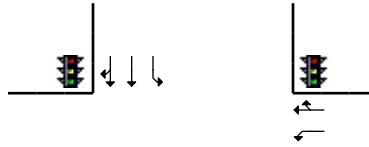
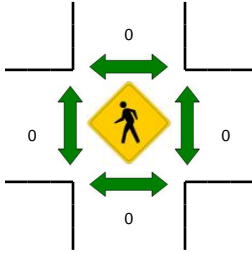
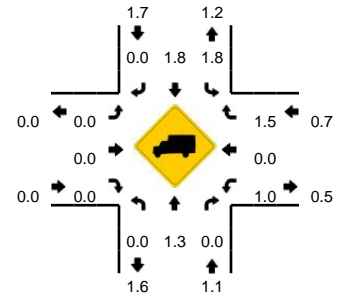
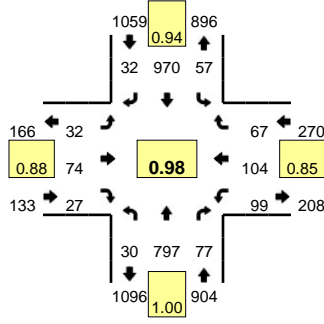
15-Min Count Period Beginning At	9. SR 135 (S Willow Ave) (Northbound)				9. SR 135 (S Willow Ave) (Southbound)				W Stevens St (Eastbound)				W Stevens St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	129	3	0	2	99	0	0	4	7	7	0	6	3	2	0	264	
7:15 AM	7	156	5	0	5	133	1	0	6	13	1	0	4	11	3	0	345	
7:30 AM	2	224	9	0	13	142	3	0	15	23	5	0	9	8	10	0	463	
7:45 AM	2	203	12	0	17	186	0	0	5	38	2	0	5	8	7	0	485	1557
8:00 AM	2	165	7	0	14	137	4	0	6	20	4	0	5	16	6	0	386	1679
8:15 AM	0	166	5	0	7	123	3	0	3	5	4	0	8	10	5	0	339	1673
8:30 AM	1	149	10	0	10	139	3	0	8	14	2	0	10	3	9	0	358	1568
8:45 AM	0	176	9	0	8	160	3	0	10	8	4	0	7	6	4	0	395	1478
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	812	48	0	68	744	0	0	20	152	8	0	20	32	28	0	1940	
Heavy Trucks	0	24	4		0	32	0		0	4	0		0	0	0		64	
Pedestrians		0				0				0				0			0	
Bicycles		0				0				0				0			0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 9. SR 135 (S Willow Ave) -- W Stevens St
CITY/STATE: Cookeville, TN

QC JOB #: 13959610
DATE: Wed, Feb 01 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



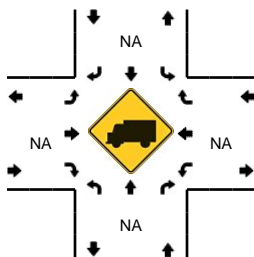
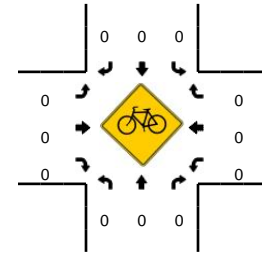
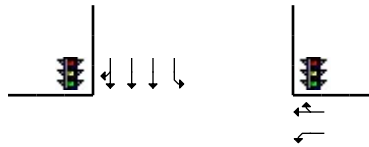
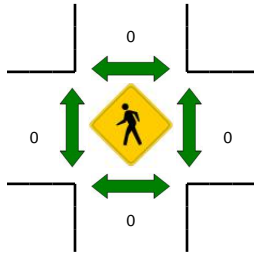
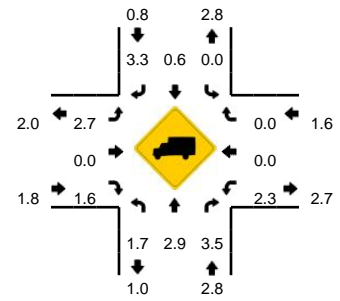
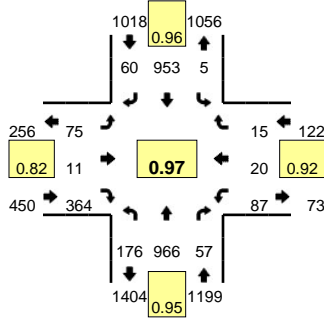
15-Min Count Period Beginning At	9. SR 135 (S Willow Ave) (Northbound)				9. SR 135 (S Willow Ave) (Southbound)				W Stevens St (Eastbound)				W Stevens St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	209	16	0	9	244	13	0	11	10	4	0	21	25	15	0	579	
4:15 PM	6	194	16	0	16	216	3	0	8	16	2	0	23	27	7	0	534	
4:30 PM	8	202	16	0	11	249	8	0	7	19	12	0	15	28	19	0	594	
4:45 PM	9	196	22	0	18	253	10	0	8	23	1	0	33	15	16	0	604	2311
5:00 PM	7	197	21	0	15	238	6	0	10	18	6	0	35	31	16	0	600	2332
5:15 PM	6	202	18	0	13	230	8	0	7	14	8	0	16	30	16	0	568	2366
5:30 PM	10	193	14	0	21	183	6	0	0	7	4	0	30	31	10	0	509	2281
5:45 PM	14	204	15	0	12	202	15	0	7	14	8	0	21	21	17	0	550	2227
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	784	88	0	72	1012	40	0	32	92	4	0	132	60	64	0	2416	
Heavy Trucks	0	20	0		0	4	0		0	0	0		0	0	0		24	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 21. SR 136 (S Jefferson Ave) -- S Walnut Ave/Dubois Rd
CITY/STATE: Putnam, TN

QC JOB #: 139596100
DATE: Wed, Feb 01 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

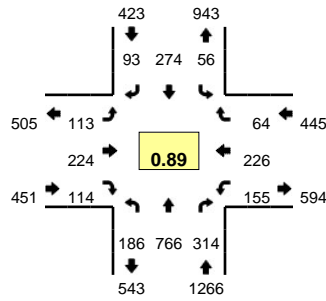


15-Min Count Period Beginning At	21. SR 136 (S Jefferson Ave) (Northbound)				21. SR 136 (S Jefferson Ave) (Southbound)				S Walnut Ave/Dubois Rd (Eastbound)				S Walnut Ave/Dubois Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	41	203	17	0	1	243	14	0	15	3	69	0	16	3	1	0	626	
4:15 PM	34	189	11	0	0	244	16	0	10	1	77	0	18	2	6	0	608	
4:30 PM	51	232	16	0	0	256	13	0	11	1	85	0	18	3	5	0	691	
4:45 PM	48	237	13	0	2	221	17	0	26	5	106	0	23	7	3	0	708	2633
5:00 PM	42	257	16	0	0	255	10	0	18	5	85	0	24	4	4	0	720	2727
5:15 PM	35	240	12	0	3	221	20	0	20	0	88	0	22	6	3	0	670	2789
5:30 PM	30	171	10	0	2	196	17	0	27	1	68	0	7	3	6	0	538	2636
5:45 PM	50	202	12	0	0	164	14	0	22	2	61	0	8	4	1	0	540	2468
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	1028	64	0	0	1020	40	0	72	20	340	0	96	16	16	0	2880	
Heavy Trucks	4	32	4	0	0	4	0	0	4	0	0	0	0	0	0	0	48	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

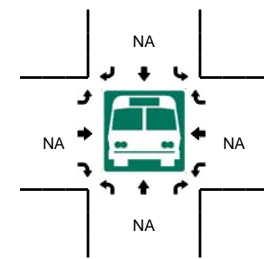
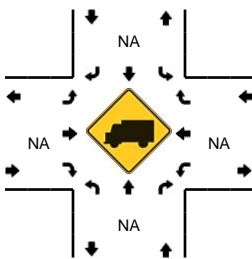
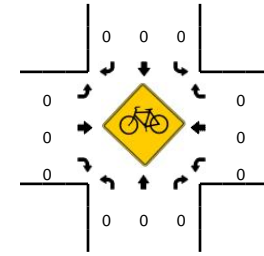
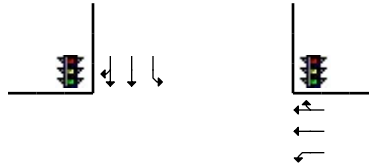
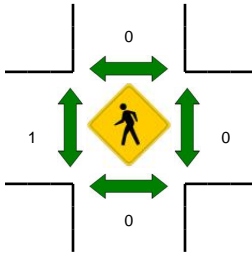
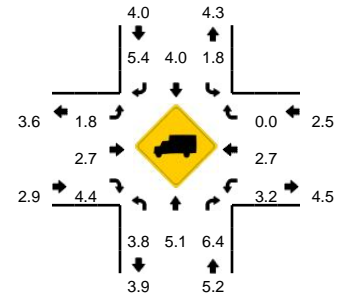
Comments:

LOCATION: 22. SR 136 (S Jefferson Ave) -- Interstate Dr/Neal St
CITY/STATE: Putnam, TN

QC JOB #: 139596101
DATE: Wed, Jan 18 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



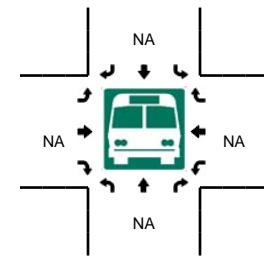
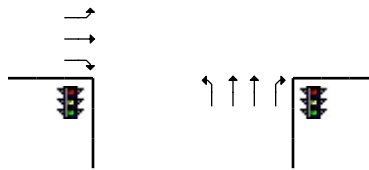
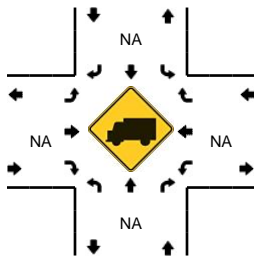
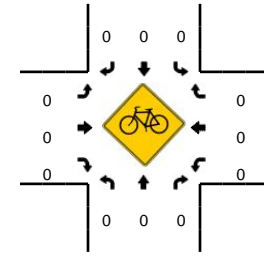
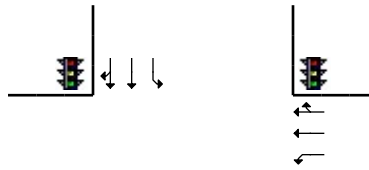
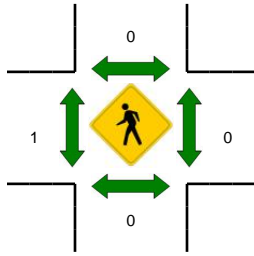
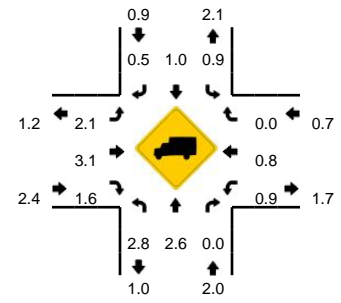
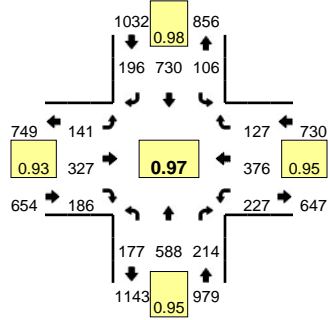
15-Min Count Period Beginning At	22. SR 136 (S Jefferson Ave) (Northbound)				22. SR 136 (S Jefferson Ave) (Southbound)				Interstate Dr/Neal St (Eastbound)				Interstate Dr/Neal St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	26	88	35	0	8	52	13	0	19	35	17	0	18	13	4	0	328	
7:15 AM	33	156	55	0	10	68	9	0	24	41	27	0	27	40	13	0	503	
7:30 AM	46	224	92	0	5	51	22	0	39	64	26	0	43	50	17	0	679	
7:45 AM	46	239	99	0	19	79	26	0	19	61	26	0	40	64	11	0	729	2239
8:00 AM	53	164	88	0	18	79	26	0	26	48	26	0	33	68	17	0	646	2557
8:15 AM	41	139	35	0	14	65	19	0	29	51	36	0	39	44	19	0	531	2585
8:30 AM	45	119	28	0	20	80	32	0	27	56	24	0	32	57	17	0	537	2443
8:45 AM	35	134	43	0	18	71	25	0	28	56	25	0	34	41	19	0	529	2243
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	184	956	396	0	76	316	104	0	76	244	104	0	160	256	44	0	2916	
Heavy Trucks	8	56	24		0	16	4		0	0	0		8	4	0		120	
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		0
Stopped Buses																		0

Comments:

LOCATION: 22. SR 136 (S Jefferson Ave) -- Interstate Dr/Neal St
CITY/STATE: Putnam, TN

QC JOB #: 139596102
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



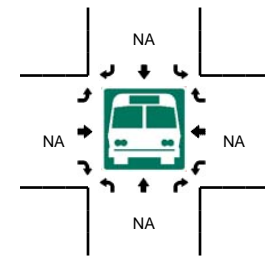
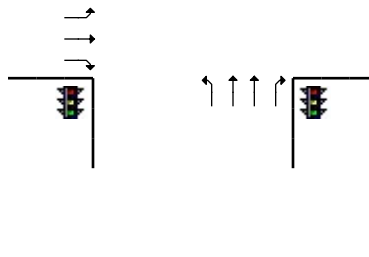
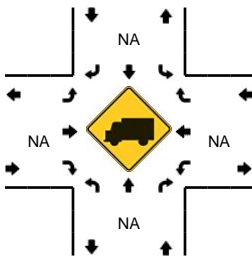
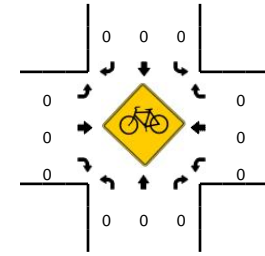
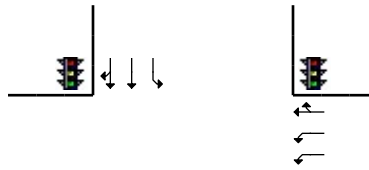
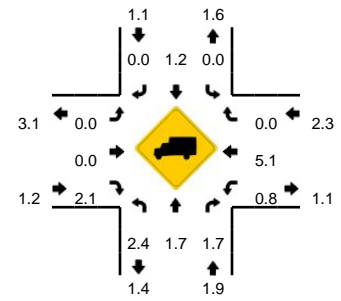
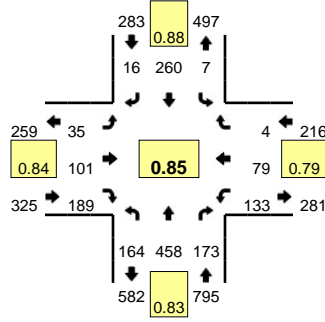
15-Min Count Period Beginning At	22. SR 136 (S Jefferson Ave) (Northbound)				22. SR 136 (S Jefferson Ave) (Southbound)				Interstate Dr/Neal St (Eastbound)				Interstate Dr/Neal St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	43	139	54	0	27	192	44	0	28	72	38	0	50	70	34	0	791	
4:15 PM	34	138	46	0	38	165	48	0	39	60	43	0	49	73	38	0	771	
4:30 PM	34	150	57	0	25	185	52	0	31	80	39	0	56	82	30	0	821	
4:45 PM	45	142	50	0	32	186	48	0	41	84	50	0	55	111	27	0	871	3254
5:00 PM	42	142	57	0	24	187	45	0	28	84	48	0	60	89	35	0	841	3304
5:15 PM	56	154	50	0	25	172	51	0	41	79	49	0	56	94	35	0	862	3395
5:30 PM	43	148	56	0	29	173	59	0	30	74	33	0	49	69	26	0	789	3363
5:45 PM	44	123	56	0	32	134	45	0	25	63	46	0	40	66	36	0	710	3202
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	180	568	200	0	128	744	192	0	164	336	200	0	220	444	108	0	3484	
Heavy Trucks	4	16	0	0	0	8	0	0	0	8	4	0	0	0	0	0	40	
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																	0	
Stopped Buses																		

Comments:

LOCATION: 26. SR 136 (S Jefferson Ave) -- E Jackson St
CITY/STATE: Putnam, TN

QC JOB #: 139596105
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

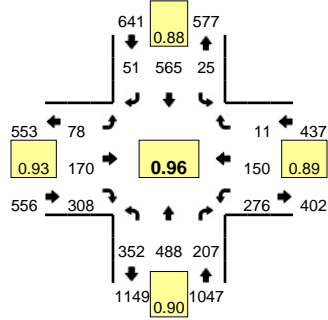


15-Min Count Period Beginning At	26. SR 136 (S Jefferson Ave) (Northbound)				26. SR 136 (S Jefferson Ave) (Southbound)				E Jackson St (Eastbound)				E Jackson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	22	45	19	0	0	25	0	0	5	8	23	0	20	11	0	0	178	
7:15 AM	27	71	35	0	1	59	1	0	5	26	24	0	13	10	0	0	272	
7:30 AM	41	115	83	0	0	45	3	0	4	34	39	0	27	17	0	0	408	
7:45 AM	47	142	41	0	2	76	2	0	9	27	61	0	43	24	1	0	475	1333
8:00 AM	38	109	27	0	3	69	7	0	11	25	51	0	37	21	1	0	399	1554
8:15 AM	38	92	22	0	2	70	4	0	11	15	38	0	26	17	2	0	337	1619
8:30 AM	34	101	24	0	1	75	5	0	8	22	44	0	28	11	1	0	354	1565
8:45 AM	50	92	30	0	3	86	4	0	7	25	44	0	37	18	1	0	397	1487
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	188	568	164	0	8	304	8	0	36	108	244	0	172	96	4	0	1900	
Heavy Trucks	0	4	4		0	4	0		0	0	8		0	4	0		24	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

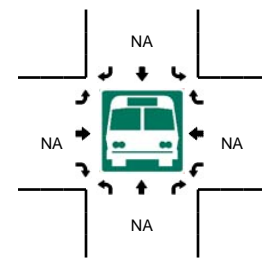
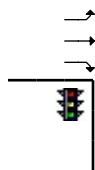
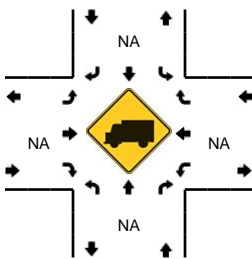
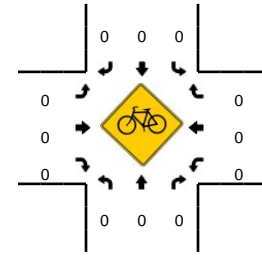
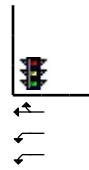
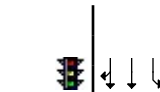
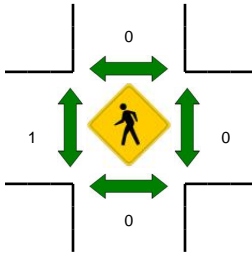
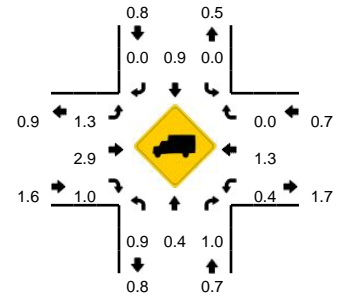
Comments:

LOCATION: 26. SR 136 (S Jefferson Ave) -- E Jackson St
CITY/STATE: Putnam, TN

QC JOB #: 139596106
DATE: Wed, Jan 18 2017



Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



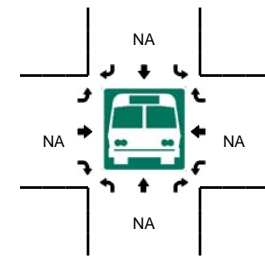
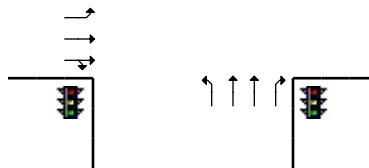
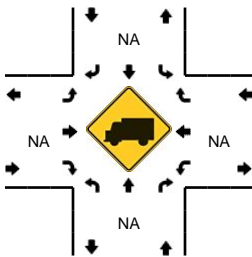
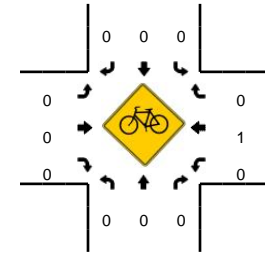
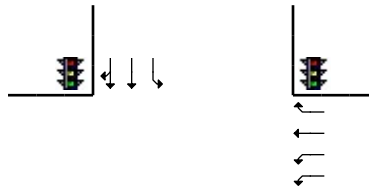
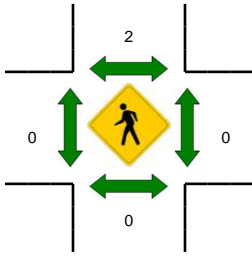
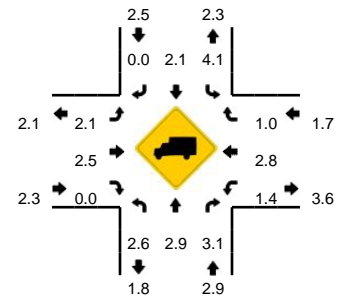
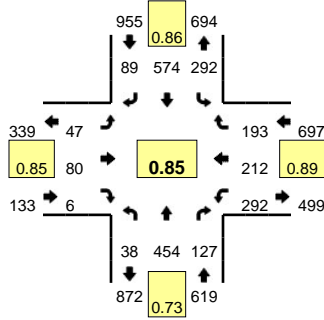
15-Min Count Period Beginning At	26. SR 136 (S Jefferson Ave) (Northbound)				26. SR 136 (S Jefferson Ave) (Southbound)				E Jackson St (Eastbound)				E Jackson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	83	117	51	0	8	144	18	0	19	37	81	0	74	51	1	0	684	
4:15 PM	87	113	53	0	4	119	10	0	24	45	81	0	51	26	3	0	616	
4:30 PM	94	140	58	0	4	135	11	0	15	45	71	0	77	42	5	0	697	
4:45 PM	88	118	45	0	9	167	12	0	20	43	75	0	74	31	2	0	684	2681
5:00 PM	104	102	43	0	5	155	15	0	17	42	68	0	67	46	5	0	669	2666
5:15 PM	79	117	30	0	7	129	14	0	9	39	46	0	60	31	3	0	564	2614
5:30 PM	73	120	39	0	5	129	14	0	7	25	51	0	54	20	0	0	537	2454
5:45 PM	71	92	32	0	3	113	14	0	7	34	58	0	50	23	4	0	501	2271
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	376	560	232	0	16	540	44	0	60	180	284	0	308	168	20	0	2788	
Heavy Trucks	4	0	4		0	4	0		0	4	0		0	0	0		16	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 34. SR 136 (N Washington Ave) -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596107
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

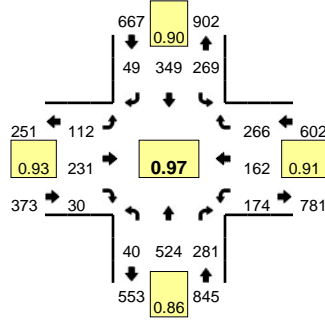


15-Min Count Period Beginning At	34. SR 136 (N Washington Ave) (Northbound)				34. SR 136 (N Washington Ave) (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	44	22	0	44	73	2	0	5	7	2	0	45	25	35	0	308	
7:15 AM	6	123	32	0	74	136	15	0	10	15	0	0	53	33	45	0	542	
7:30 AM	8	170	35	0	98	152	24	0	14	17	0	0	70	60	62	0	710	
7:45 AM	7	101	32	0	66	182	30	0	10	23	5	0	87	67	47	0	657	2217
8:00 AM	17	60	28	0	54	104	20	0	13	25	1	0	82	52	39	0	495	2404
8:15 AM	8	48	35	0	45	77	15	0	3	11	1	0	58	48	40	0	389	2251
8:30 AM	10	49	23	0	40	84	23	0	4	8	0	0	65	74	55	0	435	1976
8:45 AM	7	39	37	0	47	93	14	0	7	13	3	0	77	38	63	0	438	1757
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	680	140	0	392	608	96	0	56	68	0	0	280	240	248	0	2840	
Heavy Trucks	0	8	8		12	8	0		0	0	0		0	0	4		40	
Pedestrians		0				4				0				0				4
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0			1
Railroad																		
Stopped Buses																		

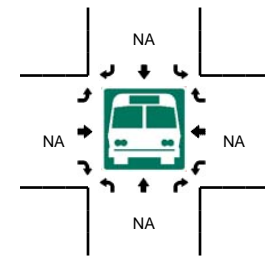
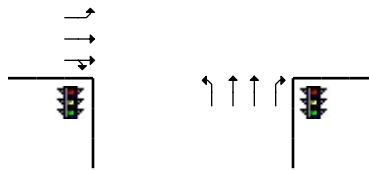
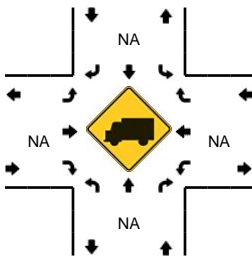
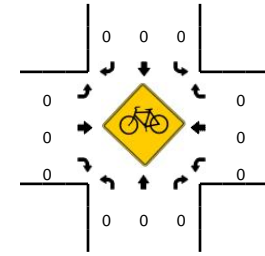
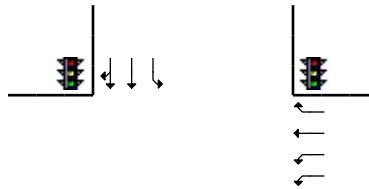
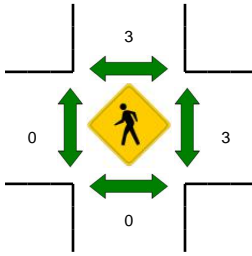
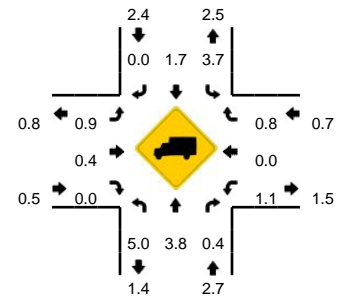
Comments:

LOCATION: 34. SR 136 (N Washington Ave) -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596108
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

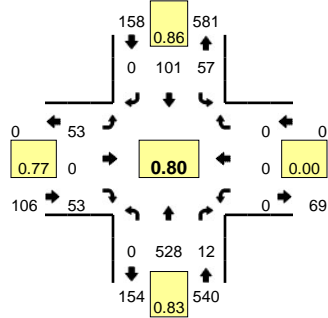


15-Min Count Period Beginning At	34. SR 136 (N Washington Ave) (Northbound)				34. SR 136 (N Washington Ave) (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	120	70	0	59	94	12	0	28	47	2	0	60	32	66	0	598	
4:15 PM	9	112	59	0	52	75	15	0	15	38	6	0	55	35	55	0	526	
4:30 PM	12	135	55	0	72	89	11	0	29	61	10	0	51	43	75	0	643	
4:45 PM	10	118	76	0	63	110	14	0	23	63	7	0	43	34	64	0	625	2392
5:00 PM	9	153	83	0	68	72	13	0	32	57	5	0	47	40	60	0	639	2433
5:15 PM	9	118	67	0	66	78	11	0	28	50	8	0	33	45	67	0	580	2487
5:30 PM	8	125	62	0	56	103	18	0	18	32	5	0	54	31	66	0	578	2422
5:45 PM	10	114	54	0	64	89	13	0	18	41	8	0	48	35	67	0	561	2358
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	48	540	220	0	288	356	44	0	116	244	40	0	204	172	300	0	2572	
Heavy Trucks	8	36	0	0	16	8	0	0	4	0	0	0	0	0	8	0	80	
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0	0	12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

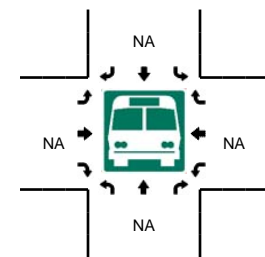
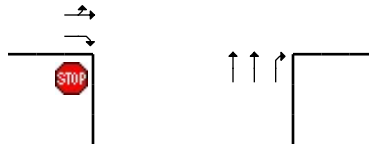
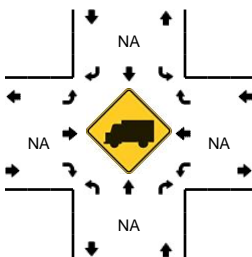
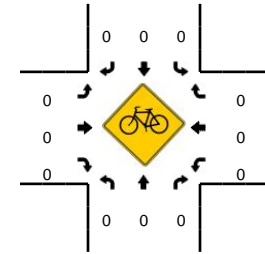
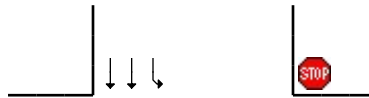
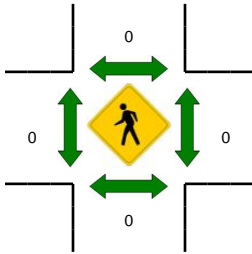
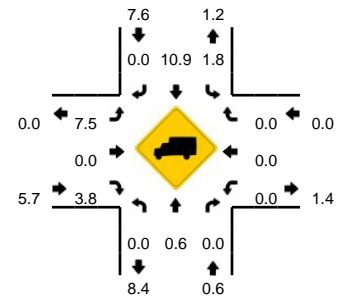
Comments:

LOCATION: 35. US 70N (E Spring St) -- I-40 EB Ramps
CITY/STATE: Putnam, TN

QC JOB #: 139596109
DATE: Wed, Jan 18 2017



Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

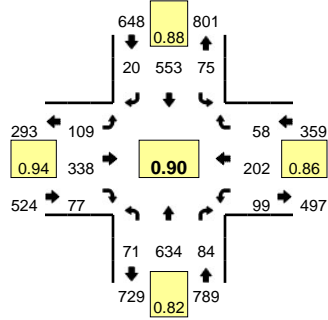


15-Min Count Period Beginning At	35. US 70N (E Spring St) (Northbound)				35. US 70N (E Spring St) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	118	4	0	10	17	0	0	11	0	6	0	0	0	0	0	166	
7:15 AM	0	157	5	0	17	24	0	0	10	0	12	0	0	0	0	0	225	
7:30 AM	0	161	2	0	16	34	0	0	21	0	17	0	0	0	0	0	251	
7:45 AM	0	92	1	0	14	26	0	0	11	0	18	0	0	0	0	0	162	804
8:00 AM	0	67	1	0	9	32	0	0	12	0	16	0	0	0	0	0	137	775
8:15 AM	0	71	3	0	18	37	0	0	7	0	11	0	0	0	0	0	147	697
8:30 AM	0	68	0	0	15	38	0	0	9	0	6	0	0	0	0	0	136	582
8:45 AM	0	74	0	0	4	33	0	0	6	0	7	0	0	0	0	0	124	544
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	644	8	0	64	136	0	0	84	0	68	0	0	0	0	0		1004
Heavy Trucks	0	0	0	0	4	16	0	0	8	0	4	0	0	0	0	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

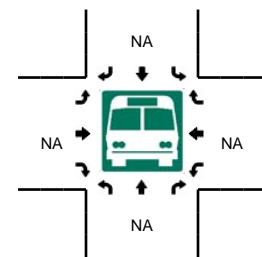
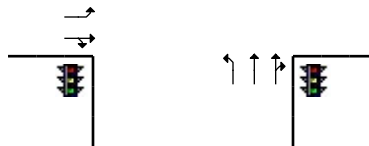
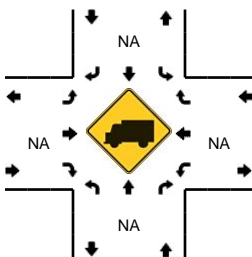
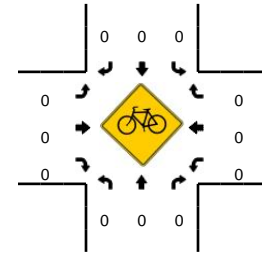
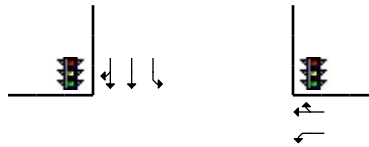
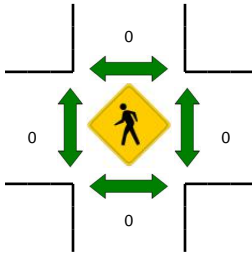
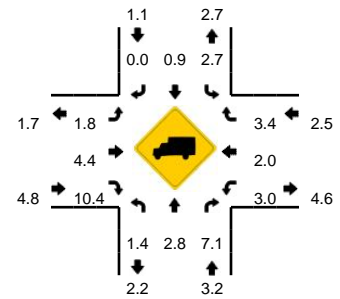
Comments:

LOCATION: 10. SR 135 (N Willow Ave) -- W Spring St
CITY/STATE: Cookeville, TN

QC JOB #: 13959611
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

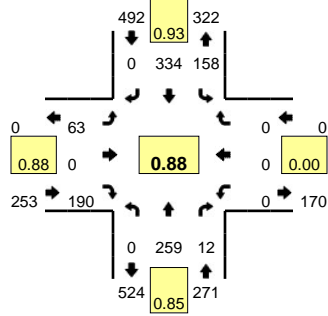


15-Min Count Period Beginning At	10. SR 135 (N Willow Ave) (Northbound)				10. SR 135 (N Willow Ave) (Southbound)				W Spring St (Eastbound)				W Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	15	108	14	0	15	94	4	0	12	47	11	0	21	40	9	0	390	
7:15 AM	18	123	20	0	20	116	5	0	22	92	19	0	12	53	16	0	516	
7:30 AM	19	198	24	0	15	146	2	0	35	81	19	0	23	44	10	0	616	
7:45 AM	18	181	17	0	20	156	8	0	28	86	26	0	34	56	18	0	648	2170
8:00 AM	16	132	23	0	20	135	5	0	24	79	13	0	30	49	14	0	540	2320
8:15 AM	10	135	16	0	17	100	2	0	19	52	19	0	26	46	20	0	462	2266
8:30 AM	9	134	25	0	22	117	5	0	23	40	21	0	28	26	19	0	469	2119
8:45 AM	14	126	25	0	23	138	6	0	22	55	18	0	28	36	24	0	515	1986
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	72	724	68	0	80	624	32	0	112	344	104	0	136	224	72	0	2592	
Heavy Trucks	0	16	4	0	8	4	0	0	0	20	12	0	8	0	0	0	72	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

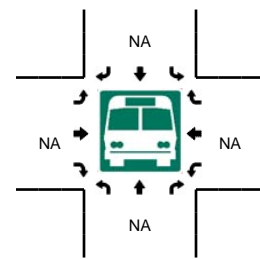
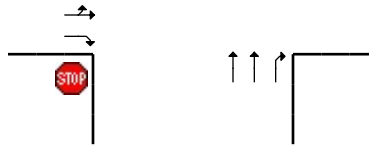
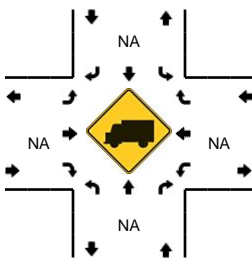
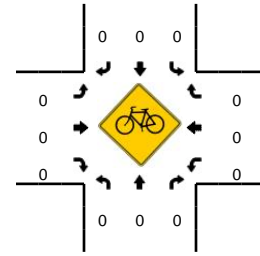
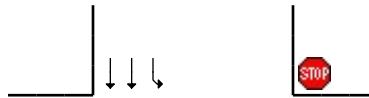
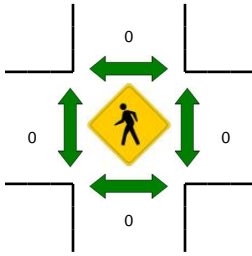
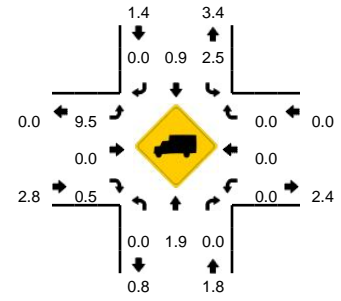
Comments:

LOCATION: 35. US 70N (E Spring St) -- I-40 EB Ramps
CITY/STATE: Putnam, TN

QC JOB #: 139596110
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

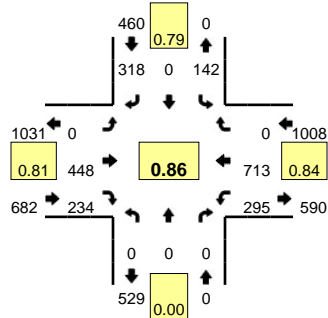


15-Min Count Period Beginning At	35. US 70N (E Spring St) (Northbound)				35. US 70N (E Spring St) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	63	4	0	42	75	0	0	18	0	39	0	0	0	0	0	241	
4:15 PM	0	61	2	0	35	91	0	0	20	0	41	0	0	0	0	0	250	
4:30 PM	0	58	2	0	46	77	0	0	15	0	36	0	0	0	0	0	234	
4:45 PM	0	62	1	0	44	72	0	0	14	0	45	0	0	0	0	0	238	963
5:00 PM	0	76	5	0	43	92	0	0	19	0	55	0	0	0	0	0	290	1012
5:15 PM	0	63	4	0	25	93	0	0	15	0	54	0	0	0	0	0	254	1016
5:30 PM	0	59	4	0	22	73	0	0	14	0	44	0	0	0	0	0	216	998
5:45 PM	0	54	2	0	31	75	0	0	8	0	52	0	0	0	0	0	222	982
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	304	20	0	172	368	0	0	76	0	220	0	0	0	0	0	1160	
Heavy Trucks	0	0	0	0	4	0	0	0	8	0	0	0	0	0	0	0	12	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

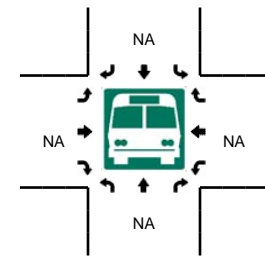
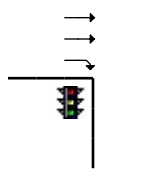
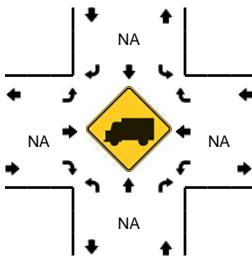
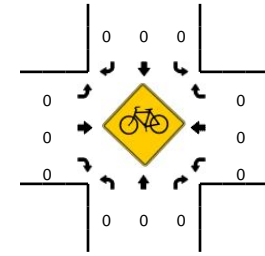
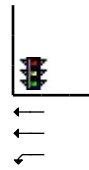
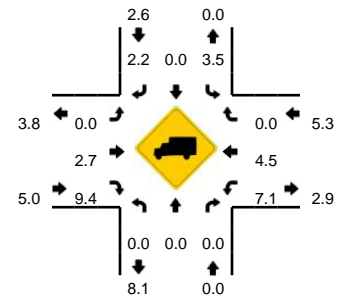
Comments:

LOCATION: 55. SR 111 SB Ramps -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596111
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

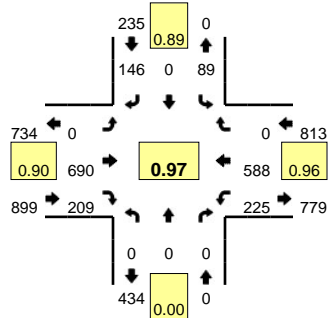


15-Min Count Period Beginning At	55. SR 111 SB Ramps (Northbound)				55. SR 111 SB Ramps (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	37	0	45	0	0	72	50	0	56	114	0	0	374	
7:15 AM	0	0	0	0	38	0	74	0	0	96	46	0	74	203	0	0	531	
7:30 AM	0	0	0	0	49	0	97	0	0	116	62	0	77	224	0	0	625	
7:45 AM	0	0	0	0	37	0	77	0	0	128	83	0	82	158	0	0	565	2095
8:00 AM	0	0	0	0	18	0	70	0	0	108	43	0	62	128	0	0	429	2150
8:15 AM	0	0	0	0	21	0	44	0	0	87	29	0	33	112	0	0	326	1945
8:30 AM	0	0	0	0	20	0	72	0	0	62	25	0	40	124	0	0	343	1663
8:45 AM	0	0	0	0	25	1	42	0	0	83	33	0	51	79	0	0	314	1412
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	196	0	388	0	0	464	248	0	308	896	0	0	2500	
Heavy Trucks	0	0	0	0	8	0	8	0	0	4	32	0	20	44	0	0	116	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

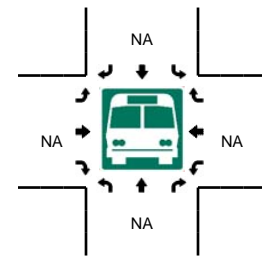
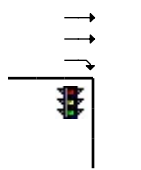
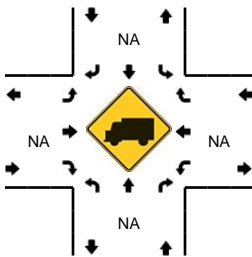
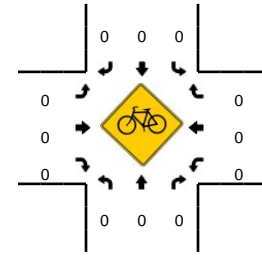
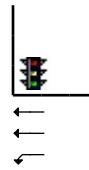
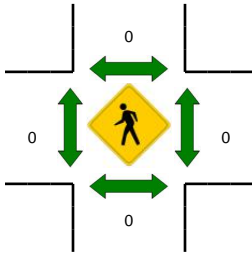
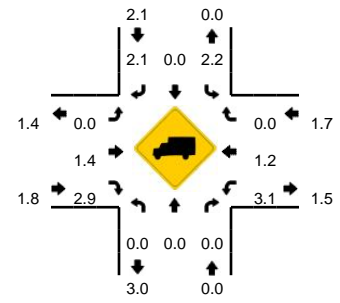
Comments:

LOCATION: 55. SR 111 SB Ramps -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596112
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



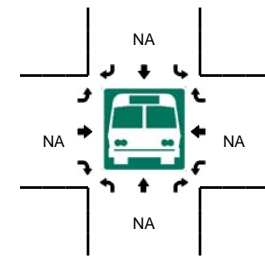
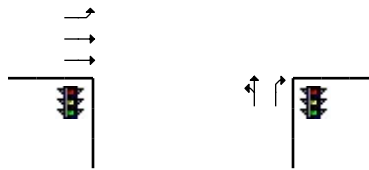
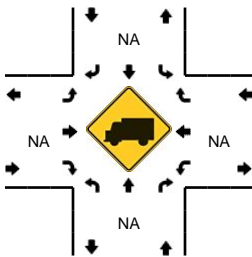
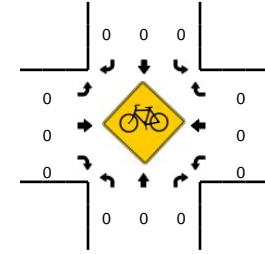
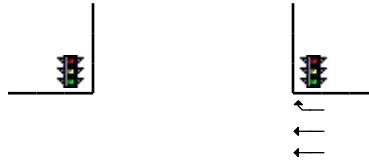
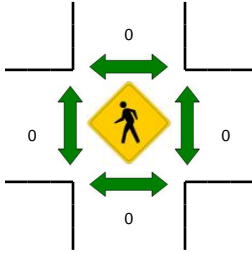
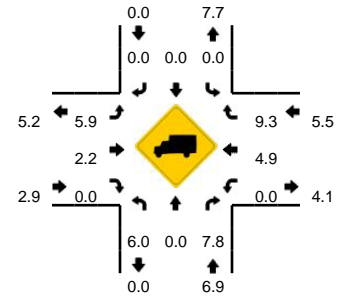
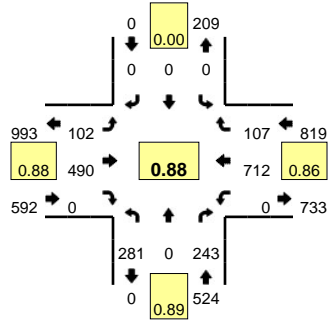
15-Min Count Period Beginning At	55. SR 111 SB Ramps (Northbound)				55. SR 111 SB Ramps (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	30	0	26	0	0	152	43	0	62	142	0	0	455	
4:15 PM	0	0	0	0	23	0	30	0	0	163	46	0	53	124	0	0	439	
4:30 PM	0	0	0	0	22	0	44	0	0	151	58	0	54	153	0	0	482	
4:45 PM	0	0	0	0	20	0	35	0	0	162	43	0	50	148	0	0	458	1834
5:00 PM	0	0	0	0	22	0	35	0	0	174	61	0	64	148	0	0	504	1883
5:15 PM	0	0	0	0	25	0	32	0	0	203	47	0	57	139	0	0	503	1947
5:30 PM	0	0	0	0	22	0	37	0	0	149	42	0	47	128	0	0	425	1890
5:45 PM	0	0	0	0	22	1	38	0	0	138	34	0	43	120	0	0	396	1828
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	88	0	140	0	0	696	244	0	256	592	0	0	2016	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	8	4	0	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 56. SR 111 NB Ramps -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596113
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

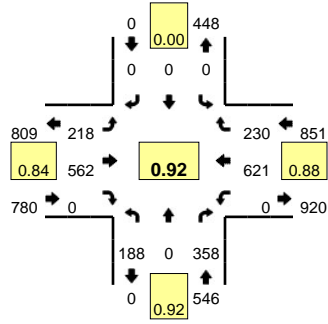


15-Min Count Period Beginning At	56. SR 111 NB Ramps (Northbound)				56. SR 111 NB Ramps (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	48	0	41	0	0	0	0	0	25	85	0	0	0	125	11	0	335	
7:15 AM	95	0	53	0	0	0	0	0	22	109	0	0	0	176	23	0	478	
7:30 AM	85	0	56	0	0	0	0	0	25	144	0	0	0	212	27	0	549	
7:45 AM	56	0	81	0	0	0	0	0	29	133	0	0	0	186	27	0	512	1874
8:00 AM	45	0	53	0	0	0	0	0	26	104	0	0	0	138	30	0	396	1935
8:15 AM	47	0	41	0	0	0	0	0	23	82	0	0	0	101	28	0	322	1779
8:30 AM	37	0	48	0	0	0	0	0	8	68	0	0	0	130	22	0	313	1543
8:45 AM	17	0	52	0	0	0	0	0	20	92	0	0	0	112	21	0	314	1345
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	340	0	224	0	0	0	0	0	100	576	0	0	0	848	108	0	2196	
Heavy Trucks	28	0	28	0	0	0	0	0	0	12	0	0	0	40	16	0	124	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

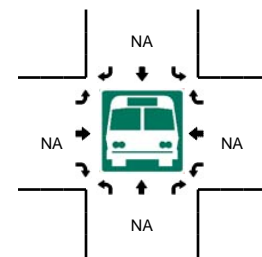
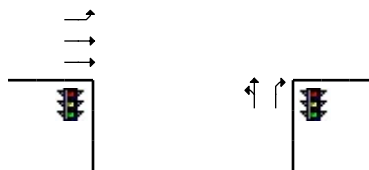
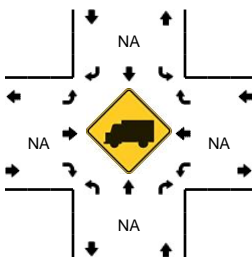
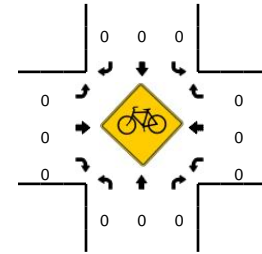
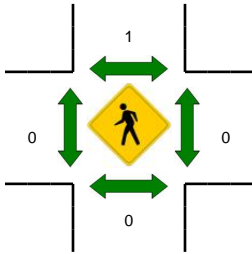
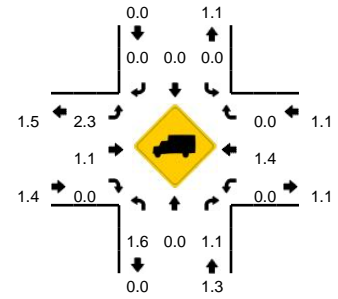
Comments:

LOCATION: 56. SR 111 NB Ramps -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 139596114
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



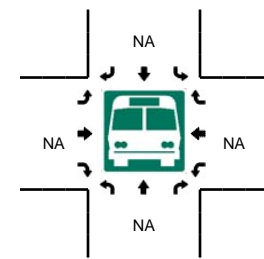
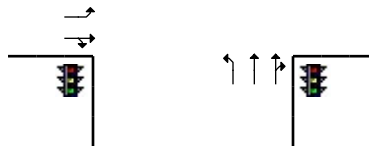
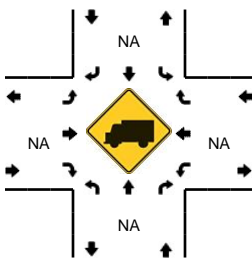
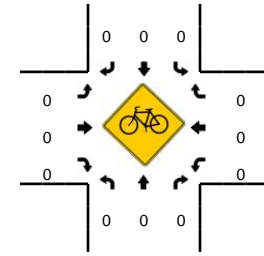
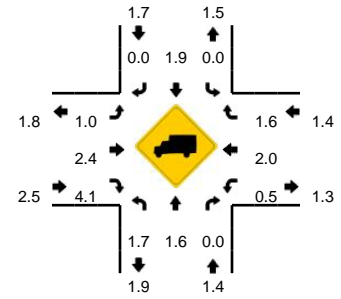
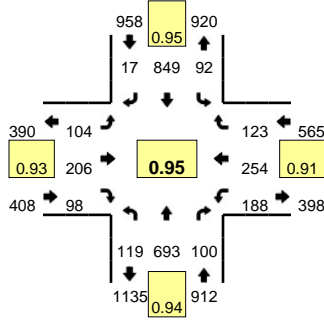
15-Min Count Period Beginning At	56. SR 111 NB Ramps (Northbound)				56. SR 111 NB Ramps (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	37	0	63	0	0	0	0	0	61	121	0	0	0	179	66	0	527	
4:15 PM	43	0	69	0	0	0	0	0	45	141	0	0	0	141	65	0	504	
4:30 PM	47	0	80	0	0	0	0	0	43	127	0	0	0	162	43	0	502	
4:45 PM	44	0	104	0	0	0	0	0	49	138	0	0	0	150	54	0	539	2072
5:00 PM	44	0	83	0	0	0	0	0	55	136	0	0	0	164	62	0	544	2089
5:15 PM	53	0	91	0	0	0	0	0	71	161	0	0	0	145	71	0	592	2177
5:30 PM	41	0	79	0	0	0	0	0	39	132	0	0	0	128	56	0	475	2150
5:45 PM	41	0	65	0	0	0	0	0	35	132	0	0	0	130	38	0	441	2052
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	212	0	364	0	0	0	0	0	284	644	0	0	0	580	284	0	2368	
Heavy Trucks	0	0	8	0	0	0	0	0	16	0	0	0	0	0	0	0	24	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10. SR 135 (N Willow Ave) -- W Spring St
CITY/STATE: Cookeville, TN

QC JOB #: 13959612
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

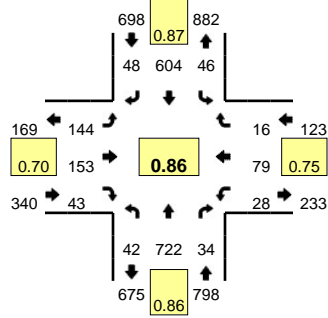


15-Min Count Period Beginning At	10. SR 135 (N Willow Ave) (Northbound)				10. SR 135 (N Willow Ave) (Southbound)				W Spring St (Eastbound)				W Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	36	156	18	0	19	178	9	0	17	53	23	0	41	65	25	0	640	
4:15 PM	27	170	31	0	18	220	6	0	14	45	22	0	52	78	19	0	702	
4:30 PM	29	174	25	0	16	212	6	0	26	46	31	0	48	49	32	0	694	
4:45 PM	33	164	25	0	22	227	3	0	26	61	22	0	48	85	29	0	745	2781
5:00 PM	34	164	22	0	22	194	6	0	35	50	25	0	57	59	32	0	700	2841
5:15 PM	23	191	28	0	32	216	2	0	17	49	20	0	35	61	30	0	704	2843
5:30 PM	22	172	31	0	19	196	5	0	20	57	25	0	43	64	25	0	679	2828
5:45 PM	22	186	15	0	28	184	4	0	13	41	25	0	42	55	28	0	643	2726
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	132	656	100	0	88	908	12	0	104	244	88	0	192	340	116	0	2980	
Heavy Trucks	4	12	0	0	0	8	0	0	0	16	0	0	0	8	0	0	48	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

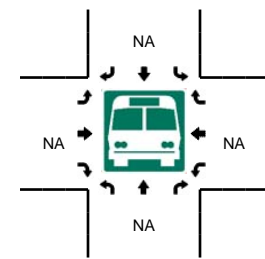
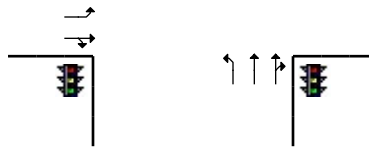
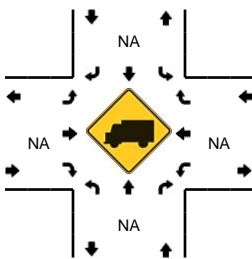
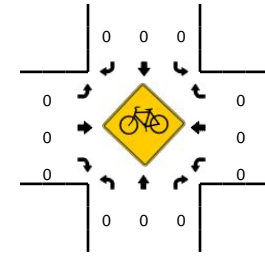
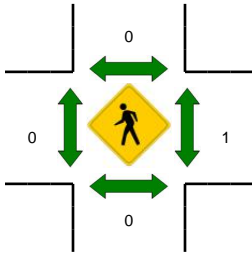
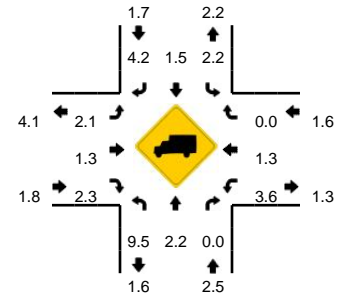
Comments:

LOCATION: 11. SR 135 (N Willow Ave) -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959613
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

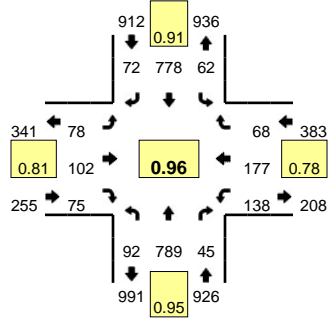


15-Min Count Period Beginning At	11. SR 135 (N Willow Ave) (Northbound)				11. SR 135 (N Willow Ave) (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	96	4	0	3	102	14	0	20	16	8	0	5	9	3	0	287	
7:15 AM	8	156	6	0	4	118	9	0	26	30	14	0	8	20	2	0	401	
7:30 AM	10	221	7	0	14	168	16	0	45	35	13	0	1	14	3	0	547	
7:45 AM	9	197	11	0	19	170	12	0	48	64	10	0	8	18	4	0	570	1805
8:00 AM	15	148	10	0	9	148	11	0	25	24	6	0	11	27	7	0	441	1959
8:15 AM	10	170	6	0	4	83	8	0	19	26	15	0	9	16	1	0	367	1925
8:30 AM	10	145	12	0	17	121	5	0	22	27	8	0	15	9	2	0	393	1771
8:45 AM	12	151	12	0	12	134	8	0	31	18	12	0	14	22	2	0	428	1629
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	788	44	0	76	680	48	0	192	256	40	0	32	72	16	0	2280	
Heavy Trucks	0	16	0		0	20	4		4	4	0		0	0	0		48	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

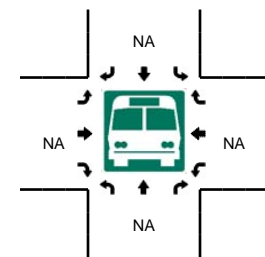
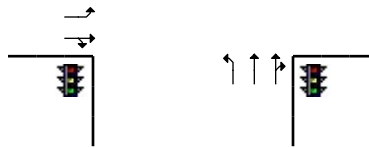
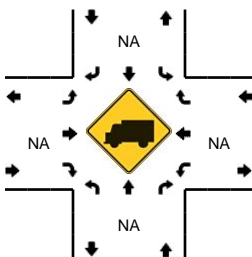
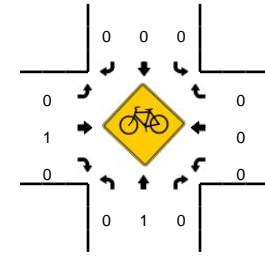
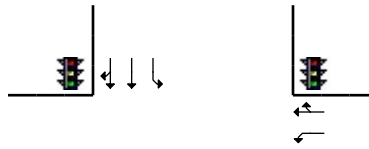
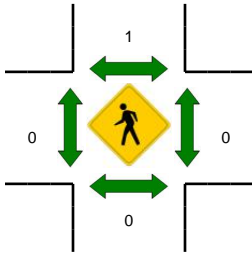
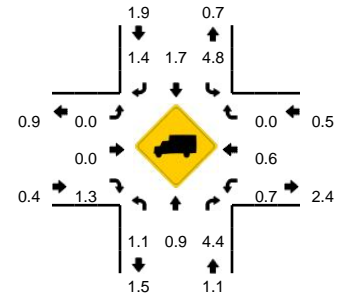
Comments:

LOCATION: 11. SR 135 (N Willow Ave) -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959614
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

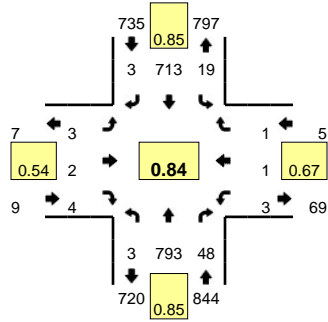


15-Min Count Period Beginning At	11. SR 135 (N Willow Ave) (Northbound)				11. SR 135 (N Willow Ave) (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	19	184	8	0	12	182	23	0	25	21	17	0	35	32	17	0	575	
4:15 PM	18	161	7	0	14	162	21	0	29	28	29	0	25	36	15	0	545	
4:30 PM	23	208	12	0	15	209	25	1	15	24	24	0	35	38	19	0	648	
4:45 PM	24	177	15	0	15	188	10	0	21	29	15	0	30	49	16	0	589	2357
5:00 PM	16	212	9	0	15	188	19	0	21	24	17	0	43	59	22	0	645	2427
5:15 PM	29	192	9	0	16	193	18	0	21	25	19	0	30	31	11	0	594	2476
5:30 PM	21	183	6	0	6	154	20	1	15	22	15	0	24	21	13	0	501	2329
5:45 PM	15	213	10	0	10	190	15	0	12	17	25	0	20	23	9	0	559	2299
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	92	832	48	0	60	836	100	4	60	96	96	0	140	152	76	0	2592	
Heavy Trucks	0	4	0	0	4	20	0	0	0	0	0	0	0	0	0	0	28	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

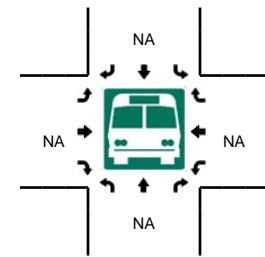
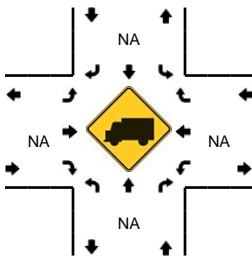
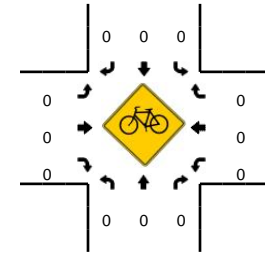
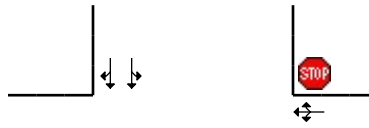
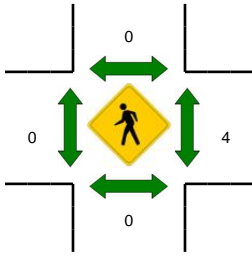
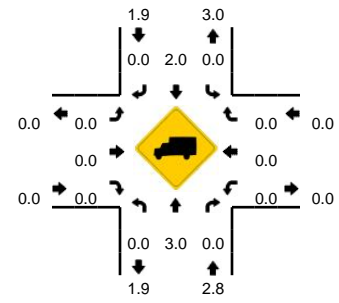
Comments:

LOCATION: 12. SR 135 (N Willow Ave) -- W 3rd St
CITY/STATE: Putnam, TN

QC JOB #: 13959615
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

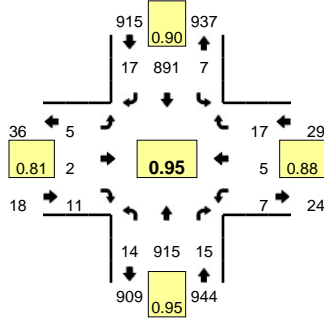


15-Min Count Period Beginning At	12. SR 135 (N Willow Ave) (Northbound)				12. SR 135 (N Willow Ave) (Southbound)				W 3rd St (Eastbound)				W 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	114	6	0	0	118	0	0	1	0	0	0	1	0	1	0	241	
7:15 AM	0	175	5	0	5	140	2	0	0	0	0	0	0	0	0	0	327	
7:30 AM	0	237	9	0	3	207	0	0	1	0	0	0	1	0	0	0	458	
7:45 AM	2	224	24	0	8	209	0	0	1	1	3	0	1	1	0	0	474	1500
8:00 AM	1	157	10	0	3	157	1	0	1	1	1	0	1	0	1	0	334	1593
8:15 AM	6	162	14	0	5	101	3	0	0	0	1	0	1	0	1	0	294	1560
8:30 AM	0	157	9	0	5	133	3	0	1	0	2	0	4	1	1	0	316	1418
8:45 AM	4	162	15	0	9	165	0	0	2	1	3	0	3	1	2	0	367	1311
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	896	96	0	32	836	0	0	4	4	12	0	4	4	0	0	1896	
Heavy Trucks	0	32	0	0	0	36	0	0	0	0	0	0	0	0	0	0	68	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

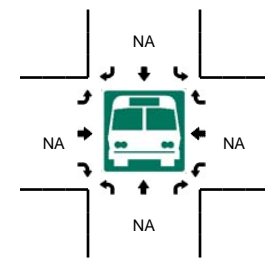
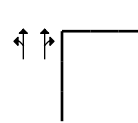
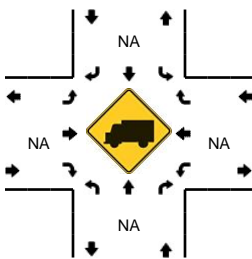
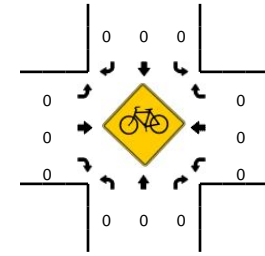
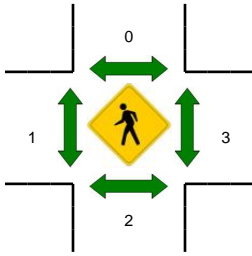
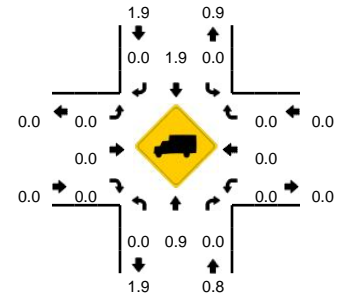
Comments:

LOCATION: 12. SR 135 (N Willow Ave) -- W 3rd St
CITY/STATE: Putnam, TN

QC JOB #: 13959616
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



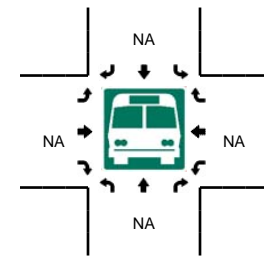
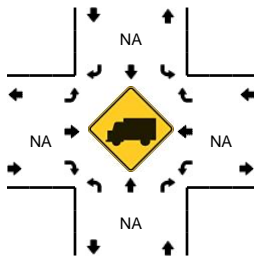
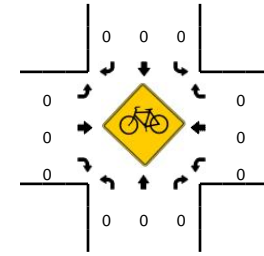
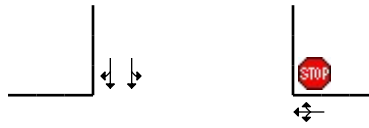
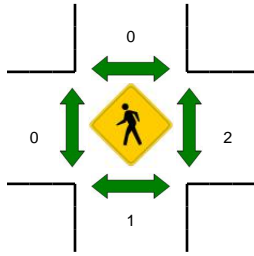
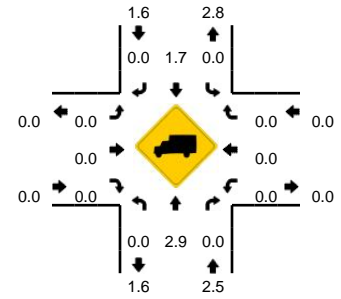
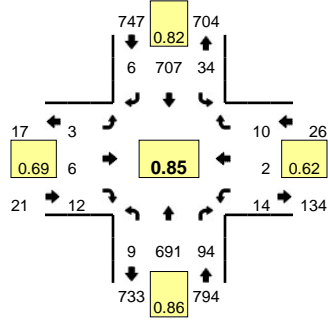
15-Min Count Period Beginning At	12. SR 135 (N Willow Ave) (Northbound)				12. SR 135 (N Willow Ave) (Southbound)				W 3rd St (Eastbound)				W 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	223	8	0	2	214	1	0	4	0	3	0	2	0	4	0	463	
4:15 PM	0	199	4	0	2	204	3	0	3	1	3	0	2	0	7	0	428	
4:30 PM	5	227	2	0	2	247	4	0	1	0	3	0	3	2	3	0	499	
4:45 PM	1	216	5	0	3	208	7	0	2	2	4	0	1	1	6	0	456	1846
5:00 PM	4	240	4	0	2	217	4	0	1	0	1	0	1	1	8	0	483	1866
5:15 PM	4	232	4	0	0	219	2	0	1	0	3	0	2	1	0	0	468	1906
5:30 PM	1	204	1	0	0	188	2	0	4	1	3	0	4	1	2	0	411	1818
5:45 PM	4	226	7	0	0	237	5	0	1	0	7	0	2	0	3	0	492	1854
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	908	8	0	8	988	16	0	4	0	12	0	12	8	12	0	1996	
Heavy Trucks	0	4	0	0	0	28	0	0	0	0	0	0	0	0	0	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 13. SR 135 (N Willow Ave) -- W 4th St
CITY/STATE: Putnam, TN

QC JOB #: 13959617
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

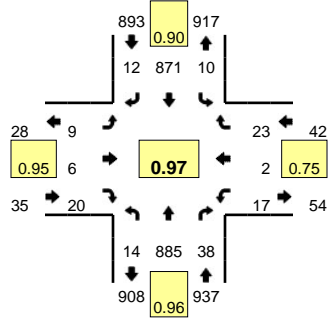


15-Min Count Period Beginning At	13. SR 135 (N Willow Ave) (Northbound)				13. SR 135 (N Willow Ave) (Southbound)				W 4th St (Eastbound)				W 4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	95	19	0	5	110	0	0	0	1	3	0	3	0	2	0	241	
7:15 AM	1	151	24	0	4	142	1	0	0	2	3	0	2	1	5	0	336	
7:30 AM	2	212	18	0	12	199	2	0	1	2	2	0	8	0	0	0	458	
7:45 AM	5	196	27	0	14	211	3	0	1	2	5	0	3	0	2	0	469	1504
8:00 AM	1	132	25	0	4	155	0	0	1	0	2	0	1	1	3	0	325	1588
8:15 AM	5	135	22	0	11	96	3	0	0	0	4	0	7	0	1	0	284	1536
8:30 AM	4	140	13	0	16	137	1	0	3	0	4	0	2	2	2	0	324	1402
8:45 AM	0	139	24	0	8	157	1	0	0	1	7	0	9	2	2	0	350	1283
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	784	108	0	56	844	12	0	4	8	20	0	12	0	8	0	1876	
Heavy Trucks	0	28	0	0	0	28	0	0	0	0	0	0	0	0	0	0	56	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

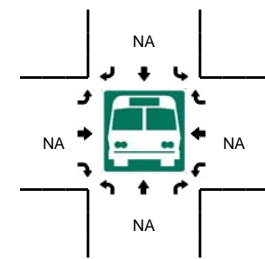
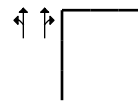
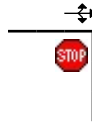
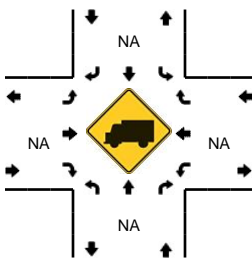
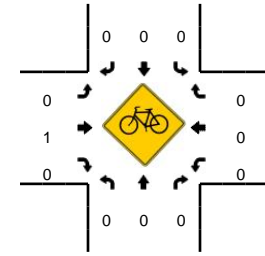
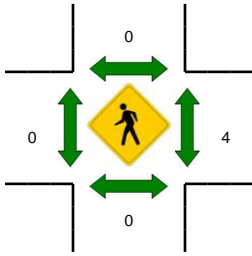
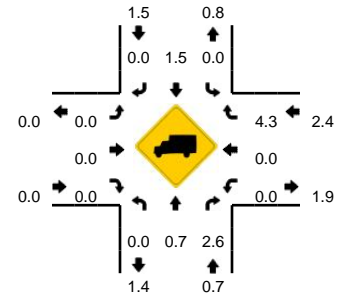
Comments:

LOCATION: 13. SR 135 (N Willow Ave) -- W 4th St
CITY/STATE: Putnam, TN

QC JOB #: 13959618
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



15-Min Count Period Beginning At	13. SR 135 (N Willow Ave) (Northbound)				13. SR 135 (N Willow Ave) (Southbound)				W 4th St (Eastbound)				W 4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	220	10	0	2	206	3	0	2	1	3	0	6	0	10	0	466	
4:15 PM	1	201	6	0	1	196	2	0	1	0	6	0	7	2	2	0	425	
4:30 PM	2	217	11	0	2	245	2	0	1	2	3	0	4	0	4	0	493	
4:45 PM	6	206	14	0	2	205	2	0	2	1	7	0	5	0	8	0	458	1842
5:00 PM	6	237	2	0	5	216	6	0	4	1	5	0	1	1	7	0	491	1867
5:15 PM	0	225	11	0	1	205	2	0	2	2	5	0	7	1	4	0	465	1907
5:30 PM	2	207	6	0	2	183	5	0	3	0	6	0	3	0	1	0	418	1832
5:45 PM	5	212	4	0	4	227	2	0	2	0	5	0	6	0	2	0	469	1843

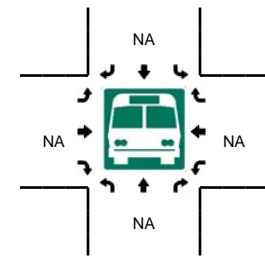
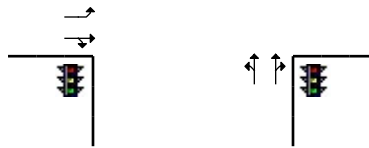
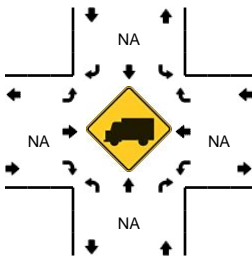
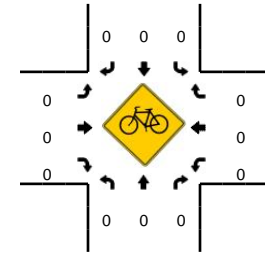
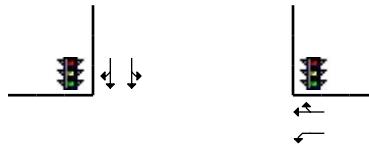
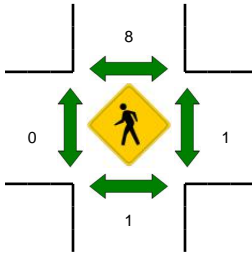
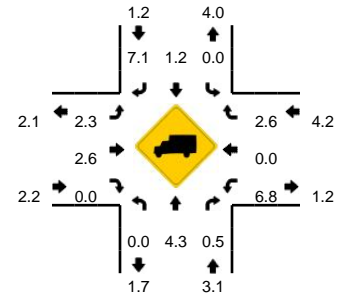
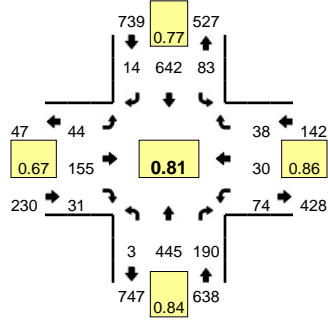
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	868	44	0	8	980	8	0	4	8	12	0	16	0	16	0	1972
Heavy Trucks	0	4	0	0	0	20	0	0	0	0	0	0	0	0	0	0	24
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: 14. SR 135 (N Willow Ave) -- W 7th St
CITY/STATE: Putnam, TN

QC JOB #: 13959619
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

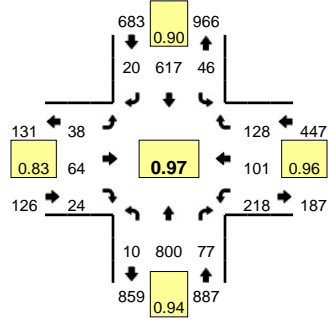


15-Min Count Period Beginning At	14. SR 135 (N Willow Ave) (Northbound)				14. SR 135 (N Willow Ave) (Southbound)				W 7th St (Eastbound)				W 7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	54	22	0	13	101	1	0	4	10	3	0	8	2	6	0	226	
7:15 AM	1	108	26	0	13	136	5	0	9	22	8	0	13	5	10	0	356	
7:30 AM	0	124	66	0	21	177	1	0	18	42	12	0	19	5	12	0	497	
7:45 AM	0	122	66	0	30	203	6	0	13	64	9	0	15	5	10	0	543	1622
8:00 AM	2	91	32	0	19	126	2	0	4	27	2	0	27	15	6	0	353	1749
8:15 AM	1	82	39	0	20	97	3	0	5	24	3	0	22	5	9	0	310	1703
8:30 AM	1	76	51	0	18	118	4	0	13	24	7	0	24	8	6	0	350	1556
8:45 AM	3	92	48	0	19	135	5	0	15	41	2	0	26	10	8	0	404	1417
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	488	264	0	120	812	24	0	52	256	36	0	60	20	40	0	2172	
Heavy Trucks	0	28	4		0	20	0		0	8	0		4	0	4		68	
Pedestrians	0				4				0				4				8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

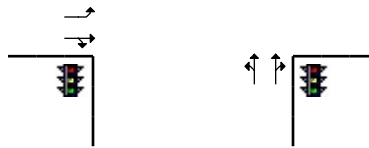
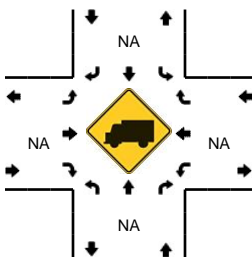
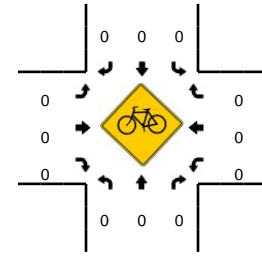
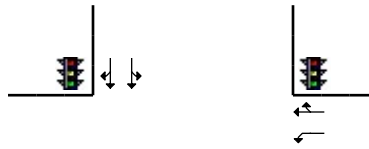
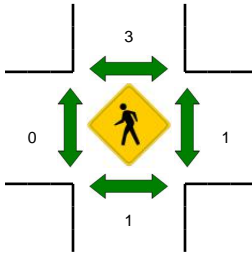
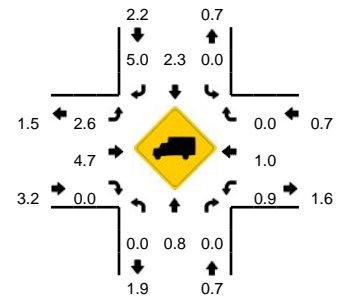
Comments:

LOCATION: 14. SR 135 (N Willow Ave) -- W 7th St
CITY/STATE: Putnam, TN

QC JOB #: 13959620
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

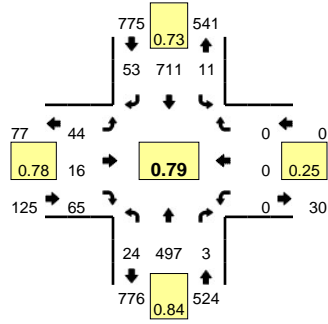


15-Min Count Period Beginning At	14. SR 135 (N Willow Ave) (Northbound)				14. SR 135 (N Willow Ave) (Southbound)				W 7th St (Eastbound)				W 7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	177	26	0	16	128	6	0	15	17	5	0	56	23	36	0	509	
4:15 PM	3	169	27	0	16	137	5	0	12	9	6	0	56	23	35	0	498	
4:30 PM	3	199	18	0	8	177	5	0	8	20	4	0	64	27	20	0	553	
4:45 PM	2	198	14	0	16	143	8	0	9	17	5	0	46	29	31	0	518	2078
5:00 PM	4	208	24	0	8	160	3	0	12	12	4	0	48	25	40	0	548	2117
5:15 PM	1	195	21	0	14	137	4	0	9	15	11	0	60	20	37	0	524	2143
5:30 PM	2	164	30	0	10	130	9	0	13	14	7	0	47	17	27	0	470	2060
5:45 PM	3	180	19	0	16	149	8	0	12	20	10	0	56	16	34	0	523	2065
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	796	72	0	32	708	20	0	32	80	16	0	256	108	80	0	2212	
Heavy Trucks	0	0	0	0	0	24	0	0	4	8	0	0	0	4	0	0	40	
Pedestrians		4				4				0				0			8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																	0	
Stopped Buses																		

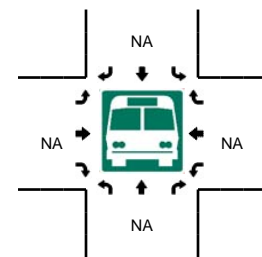
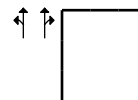
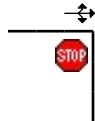
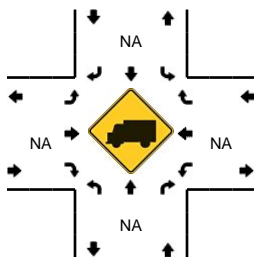
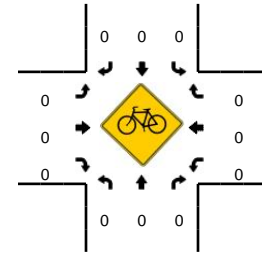
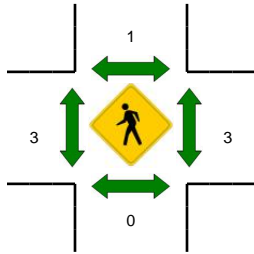
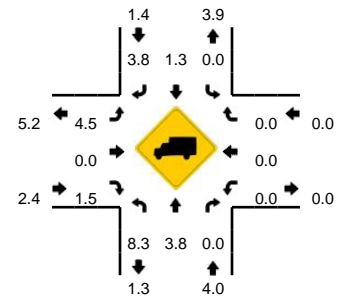
Comments:

LOCATION: 15. SR 135 (N Willow Ave) -- W 9th St
CITY/STATE: Putnam, TN

QC JOB #: 13959621
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

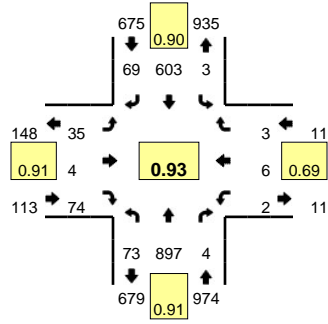


15-Min Count Period Beginning At	15. SR 135 (N Willow Ave) (Northbound)				15. SR 135 (N Willow Ave) (Southbound)				W 9th St (Eastbound)				W 9th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	60	1	0	0	114	11	0	10	0	6	0	0	0	0	0	203	
7:15 AM	7	109	0	0	0	146	12	0	9	1	13	0	0	0	0	0	297	
7:30 AM	6	149	1	0	5	193	15	0	16	7	17	0	0	0	0	0	409	
7:45 AM	8	141	1	0	5	241	20	0	11	6	19	0	0	0	0	0	452	1361
8:00 AM	3	98	1	0	1	131	6	0	8	2	16	0	0	0	0	0	266	1424
8:15 AM	8	84	2	0	0	125	5	0	5	1	16	0	1	0	0	0	247	1374
8:30 AM	7	86	1	0	1	134	11	0	6	2	16	0	0	0	0	0	264	1229
8:45 AM	11	102	2	0	3	145	5	0	5	5	22	0	0	0	0	0	300	1077
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	32	564	4	0	20	964	80	0	44	24	76	0	0	0	0	0	1808	
Heavy Trucks	4	24	0	0	0	16	4	0	0	0	4	0	0	0	0	0	52	
Pedestrians	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

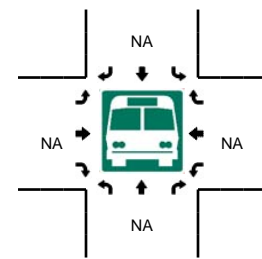
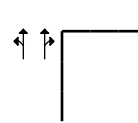
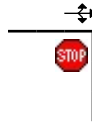
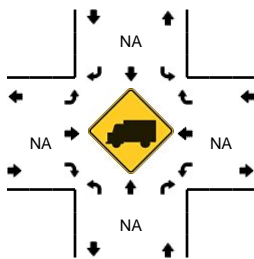
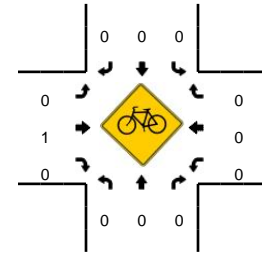
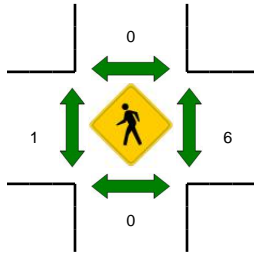
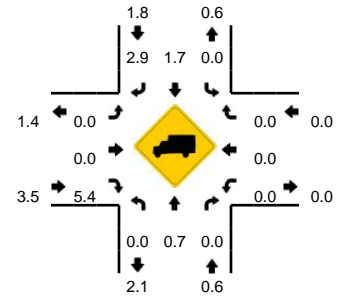
Comments:

LOCATION: 15. SR 135 (N Willow Ave) -- W 9th St
CITY/STATE: Putnam, TN

QC JOB #: 13959622
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

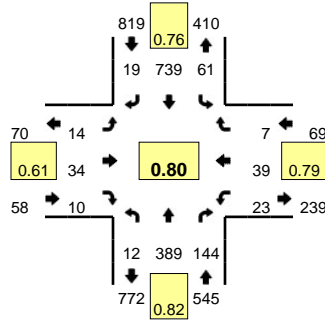


15-Min Count Period Beginning At	15. SR 135 (N Willow Ave) (Northbound)				15. SR 135 (N Willow Ave) (Southbound)				W 9th St (Eastbound)				W 9th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	208	1	0	1	142	14	0	14	0	16	0	0	0	1	0	415	
4:15 PM	18	206	1	0	0	145	18	0	9	1	13	0	0	1	1	0	413	
4:30 PM	17	211	0	0	0	176	13	0	10	1	17	0	1	1	2	0	449	
4:45 PM	18	212	1	0	1	134	19	0	4	1	22	0	1	2	0	0	415	1692
5:00 PM	25	241	2	0	1	156	18	0	10	1	20	0	0	1	0	0	475	1752
5:15 PM	13	233	1	0	1	137	19	0	11	1	15	0	0	2	1	0	434	1773
5:30 PM	19	175	0	0	0	130	16	0	14	0	13	0	0	0	0	0	367	1691
5:45 PM	23	218	0	0	0	166	15	0	8	1	17	0	0	0	0	0	448	1724
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	100	964	8	0	4	624	72	0	40	4	80	0	0	4	0	0	1900	
Heavy Trucks	0	8	0	0	0	8	4	0	0	0	0	0	0	0	0	0	20	
Pedestrians		0				0					0			8			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

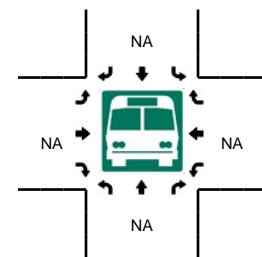
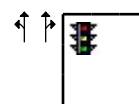
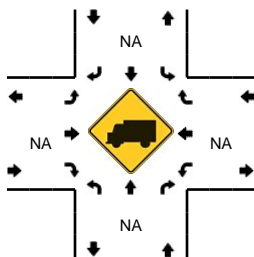
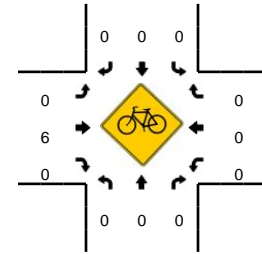
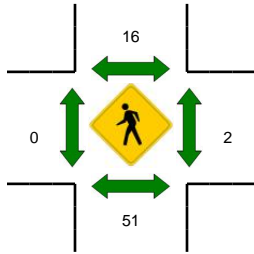
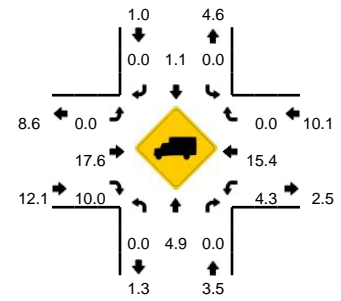
Comments:

LOCATION: 16. SR 135 (N Willow Ave) -- University Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959623
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

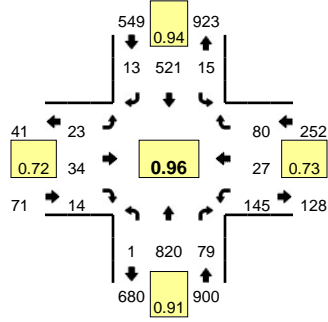


15-Min Count Period Beginning At	16. SR 135 (N Willow Ave) (Northbound)				16. SR 135 (N Willow Ave) (Southbound)				University Dr (Eastbound)				University Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	63	6	0	4	117	3	0	0	3	2	0	7	9	2	0	217	
7:15 AM	2	102	14	0	9	159	2	0	2	2	0	0	4	6	0	0	302	
7:30 AM	4	102	60	0	18	207	7	0	7	12	4	0	9	13	1	0	444	
7:45 AM	4	102	46	0	22	239	8	0	5	14	5	0	7	13	2	0	467	1430
8:00 AM	2	83	24	0	12	134	2	0	0	6	1	0	3	7	4	0	278	1491
8:15 AM	0	58	28	0	8	121	6	0	1	4	1	0	8	2	1	0	238	1427
8:30 AM	3	53	35	0	12	136	6	0	6	16	4	0	8	5	2	0	286	1269
8:45 AM	2	63	39	0	20	136	6	0	0	12	3	0	13	7	8	0	309	1111
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	16	408	184	0	88	956	32	0	20	56	20	0	28	52	8	0	1868	
Heavy Trucks	0	24	0		0	16	0		0	4	4		4	8	0		60	
Pedestrians		96				12				0				4			112	
Bicycles	0	0	0		0	0	0		0	3	0		0	0	0		3	
Railroad																		
Stopped Buses																		

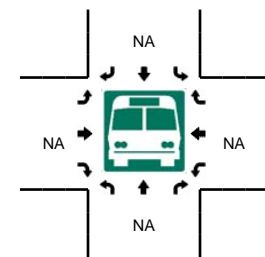
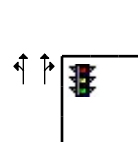
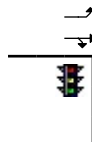
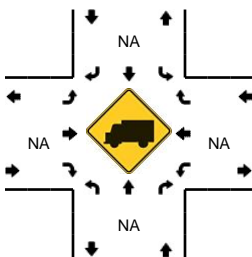
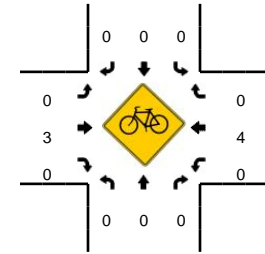
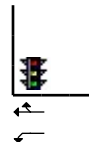
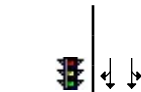
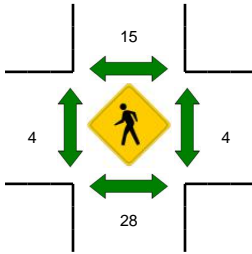
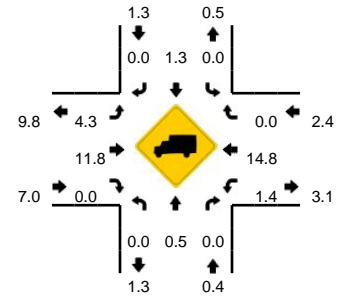
Comments:

LOCATION: 16. SR 135 (N Willow Ave) -- University Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959624
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

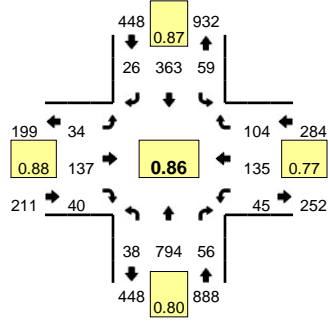


15-Min Count Period Beginning At	16. SR 135 (N Willow Ave) (Northbound)				16. SR 135 (N Willow Ave) (Southbound)				University Dr (Eastbound)				University Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	201	17	0	5	108	1	0	8	10	5	0	42	8	21	0	426	
4:15 PM	0	187	20	0	8	93	2	0	6	16	4	0	65	11	24	0	436	
4:30 PM	1	200	19	0	4	148	4	0	3	5	3	0	38	9	27	0	461	
4:45 PM	0	200	20	0	1	128	6	0	6	6	3	0	21	5	19	0	415	1738
5:00 PM	0	233	20	0	2	152	1	0	8	7	4	0	21	2	10	0	460	1772
5:15 PM	1	215	16	0	1	135	1	0	4	4	3	0	20	4	9	0	413	1749
5:30 PM	4	159	22	0	3	132	3	0	7	14	6	0	22	10	16	0	398	1686
5:45 PM	2	200	28	0	2	148	6	0	4	8	2	0	21	5	12	0	438	1709
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	800	76	0	16	592	16	0	12	20	12	0	152	36	108	0	1844	
Heavy Trucks	0	0	0		0	8	0		0	4	0		4	8	0		24	
Pedestrians		12				24				0				8			44	
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1	
Railroad																		
Stopped Buses																		

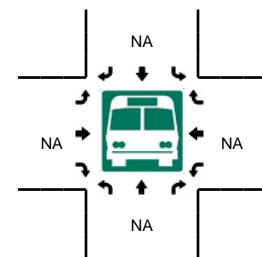
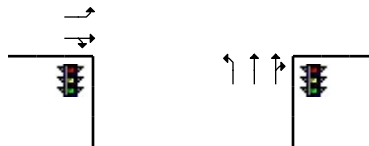
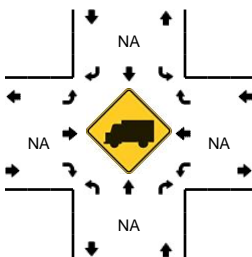
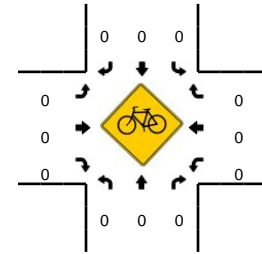
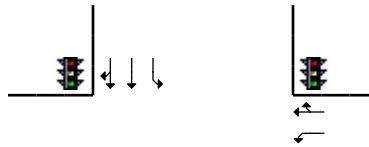
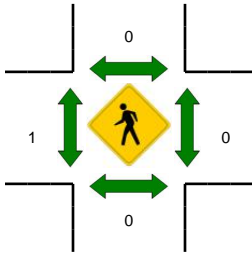
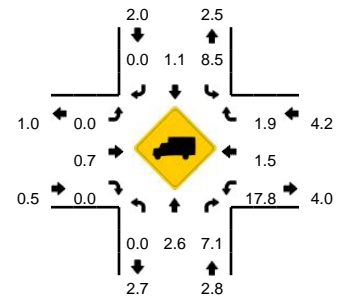
Comments:

LOCATION: 23. SR 136 (S Jefferson Ave) -- E Veterans Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959625
DATE: Wed, Jan 18 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

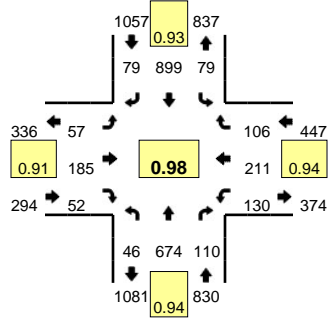


15-Min Count Period Beginning At	23. SR 136 (S Jefferson Ave) (Northbound)				23. SR 136 (S Jefferson Ave) (Southbound)				E Veterans Dr (Eastbound)				E Veterans Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	82	7	0	7	67	1	0	10	15	2	0	7	17	11	0	230	
7:15 AM	6	146	13	0	7	69	2	0	4	22	7	0	6	21	13	0	316	
7:30 AM	5	259	12	0	19	64	5	0	6	39	13	0	7	41	22	0	492	
7:45 AM	13	212	17	0	17	113	9	0	10	40	10	0	12	43	37	0	533	1571
8:00 AM	11	168	16	0	11	107	7	0	8	35	9	0	18	29	33	0	452	1793
8:15 AM	9	155	11	0	12	79	5	0	10	23	8	0	8	22	12	0	354	1831
8:30 AM	10	156	12	0	18	101	7	0	8	22	13	0	9	14	16	0	386	1725
8:45 AM	5	158	10	0	5	110	6	0	7	18	5	0	7	28	16	0	375	1567
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	52	848	68	0	68	452	36	0	40	160	40	0	48	172	148	0	2132	
Heavy Trucks	0	12	12		8	4	0		0	0	0		12	0	4		52	
Pedestrians		0				0				0				0			0	
Bicycles		0	0			0	0			0	0			0	0		0	
Railroad																	0	
Stopped Buses																	0	

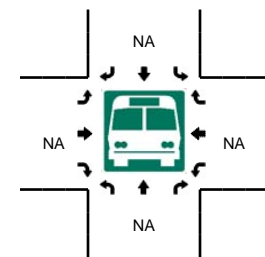
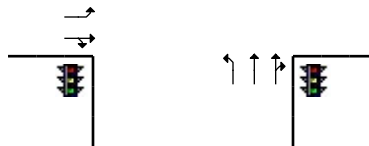
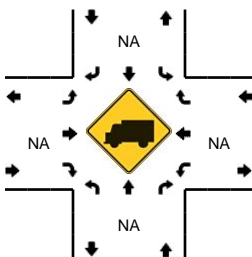
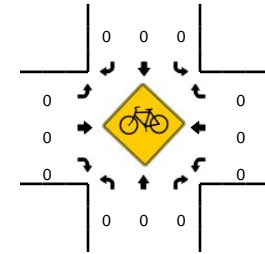
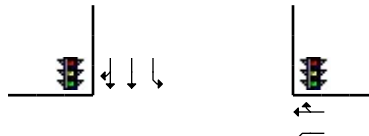
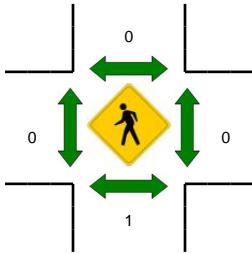
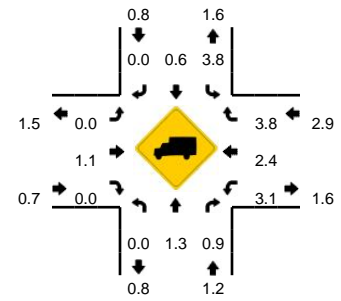
Comments:

LOCATION: 23. SR 136 (S Jefferson Ave) -- E Veterans Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959626
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



15-Min Count Period Beginning At	23. SR 136 (S Jefferson Ave) (Northbound)				23. SR 136 (S Jefferson Ave) (Southbound)				E Veterans Dr (Eastbound)				E Veterans Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	15	161	27	0	25	227	18	0	13	35	17	0	22	37	23	0	620	
4:15 PM	10	179	32	0	16	206	19	0	15	50	15	0	19	28	34	0	623	
4:30 PM	9	166	29	0	17	232	13	0	16	40	13	0	33	49	37	0	654	
4:45 PM	12	161	30	0	23	234	29	0	13	42	14	0	28	58	27	0	671	2568
5:00 PM	12	167	22	0	19	229	16	0	18	56	8	0	35	65	18	0	665	2613
5:15 PM	13	180	29	0	20	204	21	0	10	47	17	0	34	39	24	0	638	2628
5:30 PM	10	132	27	0	16	202	8	0	13	31	16	0	27	27	25	0	534	2508
5:45 PM	13	145	15	0	15	167	12	0	16	30	21	0	17	33	22	0	506	2343
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	48	644	120	0	92	936	116	0	52	168	56	0	112	232	108	0	2684	
Heavy Trucks	0	4	0	0	8	8	0	0	0	0	0	0	0	8	8	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:



Location: 24. SR 136 (S Jefferson Ave) -- Walmart Dwy/Payless Dwy -- Fairground St

Date: 1/18/2017

Site Code: 139596103

Start Time	SR 136 (S Jefferson Ave) Southbound					Walmart Dwy Westbound					SR 136 (S Jefferson Ave) Northbound					Fairground St From Southwest					Payless Dwy Eastbound				
	Right	Right to Fairground St	Thru	Left	U-Turns	Right	Thru	Left to Fairground St	Left	U-Turns	Right	Thru	Left	Left to Fairground St	U-Turns	Right to SR 136 (S Jefferson Ave)	Right to Walmart Dwy	Left to SR 136 (S Jefferson Ave)	Left to Payless Dwy	U-Turns	Right to Fairground St	Right	Thru	Left	U-Turns
07:00 AM	0	0	62	4	0	0	0	0	8	0	8	96	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	72	3	0	3	0	0	4	0	11	154	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	1	0	82	5	0	2	0	0	1	0	7	278	1	2	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	132	7	0	4	0	0	9	0	11	257	0	0	0	1	0	1	0	0	0	0	0	0	0
08:00 AM	0	0	112	7	0	1	0	0	9	0	9	201	0	1	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	2	85	11	0	3	0	0	11	0	17	165	0	1	0	1	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	113	11	0	5	0	0	9	0	16	169	0	3	0	2	0	1	0	0	0	0	0	0	0
08:45 AM	0	2	105	9	0	10	0	0	14	0	12	174	0	1	0	1	0	1	0	0	0	0	0	0	0
Total	1	5	763	57	0	28	0	0	65	0	91	1494	1	9	0	6	0	3	0	0	0	0	0	0	1

Peak Hour: 7:30:00 AM - 8:30:00 AM

Peak 15-Min: 7:45:00 AM - 8:00:00 AM

PHF: 0.85



Location: 24. SR 136 (S Jefferson Ave) -- Walmart Dwy/Payless Dwy -- Fairground St

Date: 1/18/2017

Site Code: 139596104

Start Time	SR 136 (S Jefferson Ave) Southbound					Walmart Dwy Westbound					SR 136 (S Jefferson Ave) Northbound					Fairground St From Southwest					Payless Dwy Eastbound				
	Right	Right to Fairground St	Thru	Left	U-Turns	Right	Thru	Left to Fairground St	Left	U-Turns	Right	Thru	Left	Left to Fairground St	U-Turns	Right to SR 136 (S Jefferson Ave)	Right to Walmart Dwy	Left to SR 136 (S Jefferson Ave)	Left to Payless Dwy	U-Turns	Right to Fairground St	Right	Thru	Left	U-Turns
04:00 PM	1	1	240	32	0	29	0	0	26	0	21	176	1	3	0	0	0	5	0	0	0	1	0	0	0
04:15 PM	2	3	209	24	0	28	0	0	34	0	27	198	0	0	0	3	0	1	0	0	1	1	0	0	0
04:30 PM	2	0	234	21	0	26	1	0	28	0	31	183	1	1	0	2	0	3	0	0	0	1	0	0	0
04:45 PM	0	0	234	29	0	25	1	0	43	0	30	184	0	1	0	6	1	4	0	0	0	0	0	0	0
05:00 PM	5	0	235	32	0	26	1	0	38	0	27	175	1	2	0	3	0	5	0	0	0	0	0	0	0
05:15 PM	1	2	215	30	0	19	3	0	35	0	29	174	0	1	0	4	0	1	0	0	0	4	0	0	0
05:30 PM	2	1	197	21	0	17	0	2	28	0	25	162	0	0	0	1	1	4	0	0	0	0	0	0	0
05:45 PM	0	2	167	19	0	17	0	0	37	0	23	160	0	0	0	2	0	0	0	0	1	0	0	0	0
Total	13	9	1731	208	0	187	6	2	269	0	213	1412	3	8	0	21	2	23	0	0	2	7	0	0	0

Peak Hour: 5:00:00 PM - 6:00:00 PM

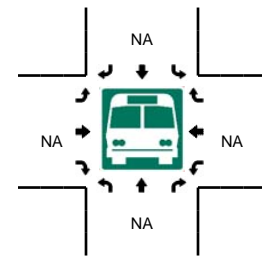
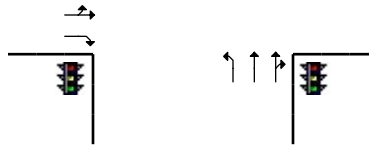
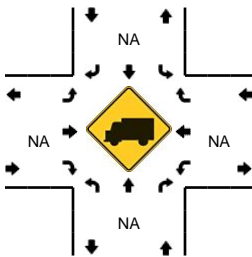
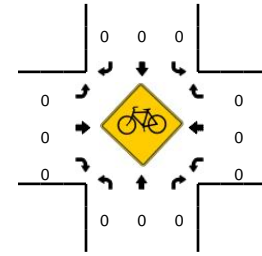
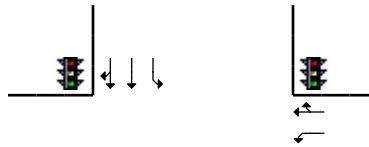
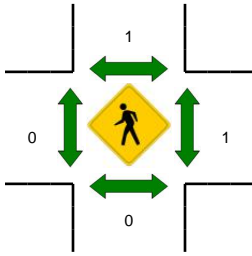
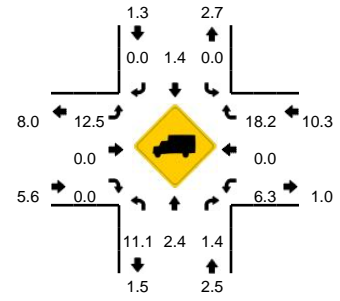
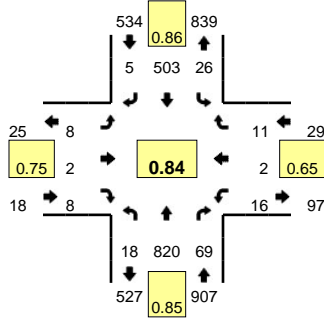
Peak 15-Min: 4:45:00 PM - 5:00:00 PM

PHF: 0.97

LOCATION: 25. SR 136 (S Jefferson Ave) -- Commerce Ave
CITY/STATE: Putnam, TN

QC JOB #: 13959627
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



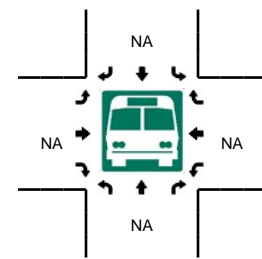
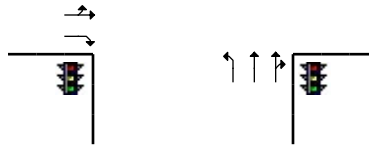
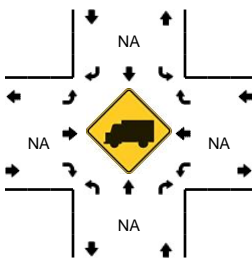
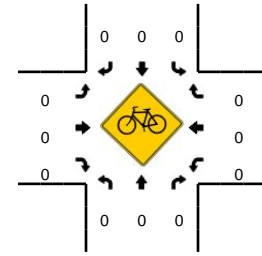
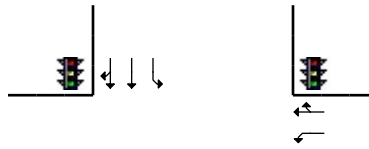
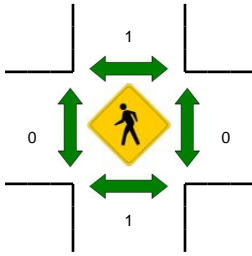
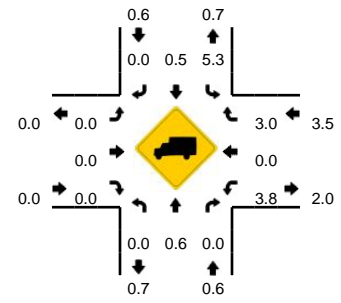
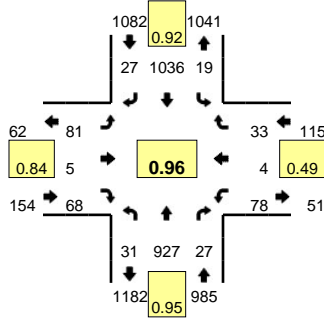
15-Min Count Period Beginning At	25. SR 136 (S Jefferson Ave) (Northbound)				25. SR 136 (S Jefferson Ave) (Southbound)				Commerce Ave (Eastbound)				Commerce Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	91	5	0	2	62	0	0	0	0	1	0	4	0	1	0	171	
7:15 AM	2	149	3	0	2	85	1	0	0	0	2	0	1	0	1	0	246	
7:30 AM	2	248	14	0	5	101	0	0	0	0	0	0	2	1	3	0	376	
7:45 AM	4	237	27	0	11	152	1	0	1	0	0	0	8	0	2	0	443	1236
8:00 AM	3	176	16	0	4	128	4	0	2	1	3	0	2	0	6	0	345	1410
8:15 AM	9	159	12	0	6	122	0	0	5	1	5	0	4	1	0	0	324	1488
8:30 AM	9	153	12	0	3	129	3	0	5	0	7	0	6	0	5	0	332	1444
8:45 AM	13	174	5	0	6	134	5	0	3	0	4	0	9	0	6	0	359	1360
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	948	108	0	44	608	4	0	4	0	0	0	32	0	8	0	1772	
Heavy Trucks	0	16	0	0	0	8	0	0	0	0	0	0	0	0	0	0	24	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 25. SR 136 (S Jefferson Ave) -- Commerce Ave
CITY/STATE: Putnam, TN

QC JOB #: 13959628
DATE: Wed, Jan 18 2017

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

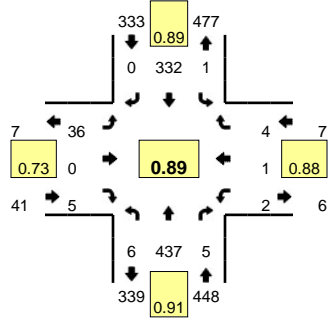


15-Min Count Period Beginning At	25. SR 136 (S Jefferson Ave) (Northbound)				25. SR 136 (S Jefferson Ave) (Southbound)				Commerce Ave (Eastbound)				Commerce Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	221	14	0	5	279	8	0	24	0	22	0	15	1	7	0	606	
4:15 PM	8	248	3	0	1	234	7	0	15	1	19	0	10	0	4	0	550	
4:30 PM	8	229	6	0	10	236	7	0	28	3	9	0	41	2	16	0	595	
4:45 PM	5	229	4	0	3	287	5	0	14	1	18	0	12	1	6	0	585	2336
5:00 PM	15	230	2	0	6	252	7	0	16	4	15	0	14	0	10	0	571	2301
5:15 PM	13	198	7	0	4	224	4	0	14	1	13	0	7	0	6	0	491	2242
5:30 PM	8	220	5	0	3	214	4	0	11	0	14	0	8	1	4	0	492	2139
5:45 PM	10	175	12	0	2	199	4	0	13	0	12	0	8	1	5	0	441	1995
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	40	884	56	0	20	1116	32	0	96	0	88	0	60	4	28	0	2424	
Heavy Trucks	0	0	0	0	4	0	0	0	0	0	0	0	4	0	4	0	12	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

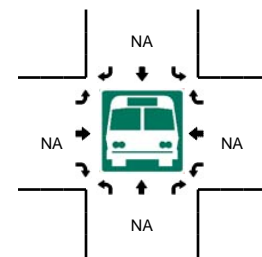
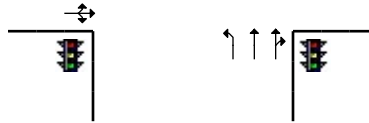
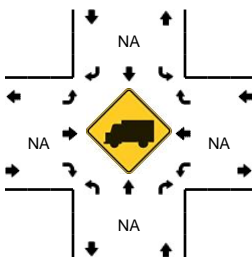
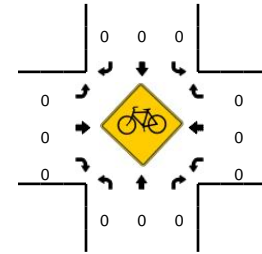
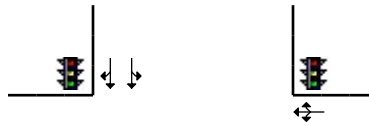
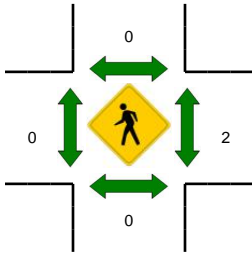
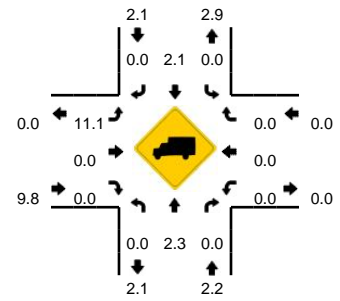
Comments:

LOCATION: 27. SR 136 (S Jefferson Ave) -- Foutch Dr Split
CITY/STATE: Putnam, TN

QC JOB #: 13959629
DATE: Wed, Jan 18 2017



Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



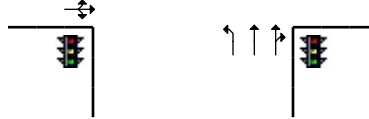
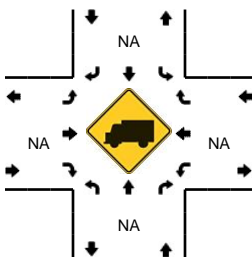
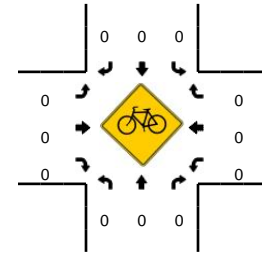
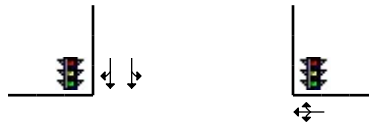
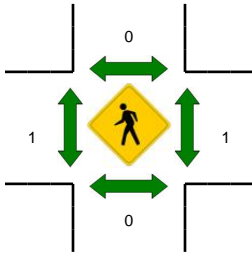
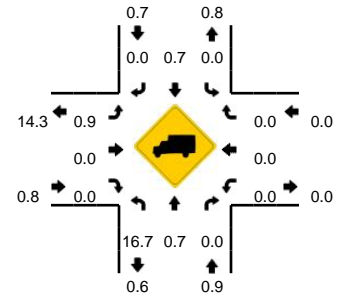
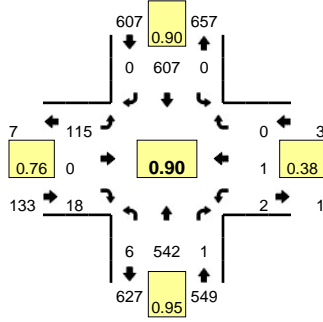
15-Min Count Period Beginning At	27. SR 136 (S Jefferson Ave) (Northbound)				27. SR 136 (S Jefferson Ave) (Southbound)				Foutch Dr Split (Eastbound)				Foutch Dr Split (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	48	1	0	0	34	0	0	5	0	0	0	0	0	1	0	89	
7:15 AM	2	68	0	0	0	56	0	0	8	0	1	0	0	0	0	0	135	
7:30 AM	0	106	2	0	0	42	0	0	5	1	0	0	0	0	0	0	156	
7:45 AM	2	122	0	0	0	94	0	0	11	0	2	0	0	0	1	0	232	612
8:00 AM	1	123	1	0	1	77	0	0	6	0	0	0	0	0	2	0	211	734
8:15 AM	1	93	2	0	0	74	0	0	6	0	2	0	2	0	0	0	180	779
8:30 AM	2	99	2	0	0	87	0	0	13	0	1	0	0	1	1	0	206	829
8:45 AM	0	90	3	0	0	92	1	0	8	0	1	0	0	0	1	0	196	793
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	8	488	0	0	0	376	0	0	44	0	8	0	0	0	4	0	928	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 27. SR 136 (S Jefferson Ave) -- Foutch Dr Split
CITY/STATE: Putnam, TN

QC JOB #: 13959630
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



15-Min Count Period Beginning At	27. SR 136 (S Jefferson Ave) (Northbound)				27. SR 136 (S Jefferson Ave) (Southbound)				Foutch Dr Split (Eastbound)				Foutch Dr Split (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	119	0	0	0	163	1	0	27	0	5	0	0	0	0	0	319	
4:15 PM	2	136	1	0	1	130	0	0	16	0	2	0	0	2	2	0	292	
4:30 PM	0	142	0	0	0	142	0	0	25	0	3	0	0	0	0	0	312	
4:45 PM	1	145	0	0	0	168	0	0	37	0	7	0	1	1	0	0	360	1283
5:00 PM	3	123	1	0	0	152	0	0	36	0	5	0	0	0	0	0	320	1284
5:15 PM	2	132	0	0	0	145	0	0	17	0	3	0	1	0	0	0	300	1292
5:30 PM	1	125	0	0	0	143	0	0	16	0	2	0	0	0	0	0	287	1267
5:45 PM	0	100	0	0	0	117	0	0	19	0	2	0	0	0	0	0	238	1145

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	580	0	0	0	672	0	0	148	0	28	0	4	4	0	0	1440
Heavy Trucks	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:



Location: 28, SR 136 (S Jefferson Ave) & E Stevens St

Date: 1/18/2017

Site Code: 13959631

Start Time	SR 136 (S Jefferson Ave) Southbound					E Stevens St Westbound					SR 136 (S Jefferson Ave) Northbound					Foutch Dr From Southwest					E Stevens St Eastbound						
	Right	Thru to Foutch Dr	Thru	Left	U-Turns	Right	Thru	Left to Foutch Dr	Left	U-Turns	Right	Thru	Left	Left to Foutch Dr	U-Turns	Right to SR 136 (S Jefferson)	Right to E Stevens St	Thru to SR 136 (S Jefferson)	Left to E Stevens St	U-Turns	Right to Foutch Dr	Right	Thru	Left	U-Turns		
07:00 AM	0	7	34	0	0	1	10	2	3	0	1	53	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0
07:15 AM	0	9	52	2	0	0	16	4	2	0	3	71	1	0	0	0	0	0	0	0	0	0	0	0	3	11	4
07:30 AM	1	7	36	0	0	3	15	7	6	0	3	108	3	0	0	0	0	0	0	0	0	0	0	0	1	31	4
07:45 AM	2	9	83	0	0	3	21	13	9	0	5	127	1	0	0	0	0	0	0	0	0	0	0	0	5	41	6
08:00 AM	0	14	63	0	0	6	21	10	8	0	3	121	6	0	0	0	0	0	0	0	0	0	0	0	7	11	6
08:15 AM	1	6	72	2	0	5	12	5	5	0	4	95	3	0	0	0	0	0	0	0	0	0	0	0	2	9	5
08:30 AM	1	13	79	1	0	2	6	6	3	0	8	105	0	0	0	0	0	0	0	0	0	0	0	0	3	10	2
08:45 AM	1	11	87	1	0	10	8	8	7	0	7	90	2	0	0	0	0	0	0	0	0	0	0	0	4	10	0
Total	6	76	506	6	0	30	109	55	43	0	34	770	16	0	0	0	0	0	0	0	0	0	0	0	25	131	29

Peak Hour: 7:45:00 AM - 8:45:00 AM

Peak 15-Min: 7:45:00 AM - 8:00:00 AM

PHF: 0.82



Location: 28. SR 136 (S Jefferson Ave) & E Stevens St

Date: 1/18/2017

Site Code: 13959632

Start Time	SR 136 (S Jefferson Ave) Southbound					E Stevens St Westbound					SR 136 (S Jefferson Ave) Northbound					Fouch Dr From Southwest					E Stevens St Eastbound				
	Right	Thru to Fouch Dr	Thru	Left	U-Turns	Right	Thru	Left to Fouch Dr	Left	U-Turns	Right	Thru	Left	Left to Fouch Dr	U-Turns	Right to SR 136 (S Jefferson St)	Right to E Stevens St	Thru to SR 136 (S Jefferson Ave)	Left to E Stevens St	U-Turns	Right to Fouch Dr	Right	Thru	Left	U-Turns
04:00 PM	5	12	144	3	0	0	20	6	8	0	14	129	4	0	0	0	0	0	0	0	0	12	20	0	0
04:15 PM	0	11	116	6	0	5	16	2	7	0	7	139	8	0	0	0	0	0	0	0	0	6	17	3	0
04:30 PM	3	10	132	1	0	4	17	8	7	0	9	154	5	0	0	0	0	0	0	0	0	4	27	1	0
04:45 PM	3	12	155	2	0	4	29	3	3	0	16	156	9	1	0	0	0	0	0	0	1	8	28	0	0
05:00 PM	3	13	139	0	0	7	22	5	6	0	23	133	3	0	0	0	0	0	0	0	0	11	23	4	0
05:15 PM	1	13	127	2	0	2	19	3	5	0	13	129	7	0	0	0	0	0	0	0	0	8	25	2	0
05:30 PM	6	8	139	1	0	1	16	5	6	0	12	120	9	0	0	0	0	0	0	0	0	6	16	2	0
05:45 PM	0	10	102	0	0	1	18	7	6	0	11	92	14	0	0	0	0	0	0	0	0	11	19	0	0
Total	21	89	1054	15	0	24	157	39	48	0	105	1052	59	1	0	0	0	0	0	0	1	66	175	12	0

Peak Hour: 4:30:00 PM - 5:30:00 PM

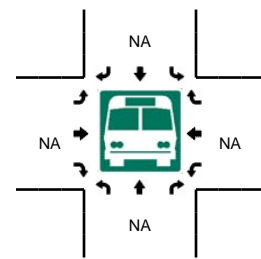
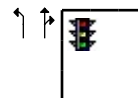
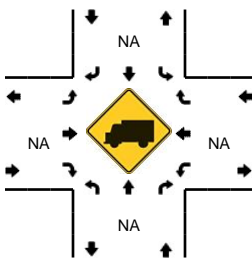
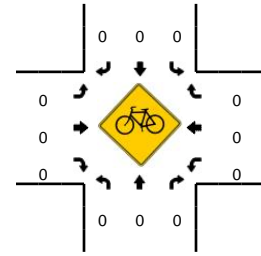
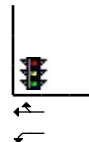
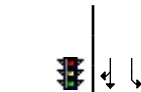
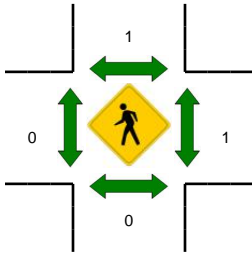
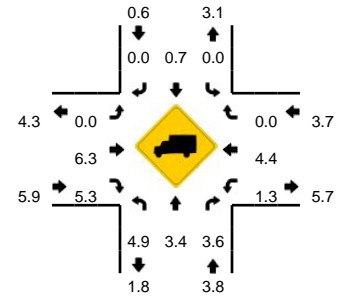
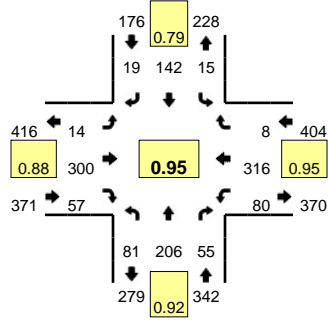
Peak 15-Min: 4:45:00 PM - 5:00:00 PM

PHF: 0.91

LOCATION: 29. SR 136 (S Jefferson Ave) -- E Spring St
CITY/STATE: Putnam, TN

QC JOB #: 13959633
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



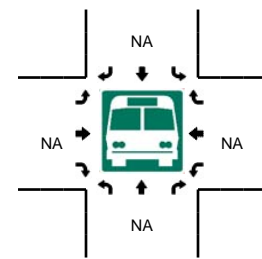
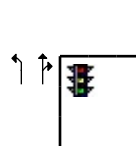
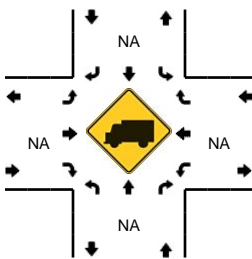
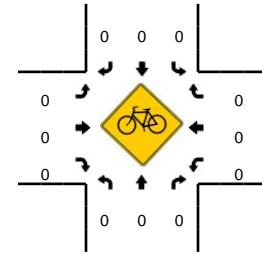
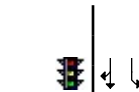
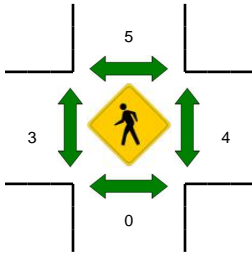
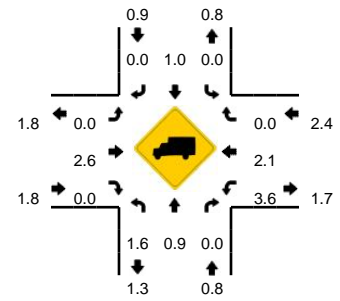
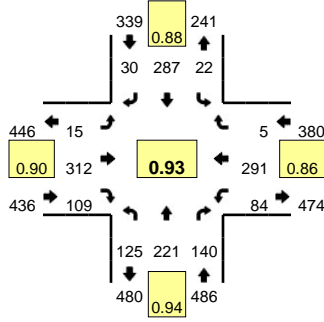
15-Min Count Period Beginning At	29. SR 136 (S Jefferson Ave) (Northbound)				29. SR 136 (S Jefferson Ave) (Southbound)				E Spring St (Eastbound)				E Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	26	16	0	3	23	4	0	1	53	11	0	15	55	2	0	217	
7:15 AM	15	35	17	0	2	26	3	0	0	65	12	0	13	76	0	0	264	
7:30 AM	18	52	10	0	6	28	5	0	2	98	5	0	22	71	2	0	319	
7:45 AM	17	61	10	0	2	50	2	0	6	70	15	0	22	85	2	0	342	1142
8:00 AM	22	56	16	0	5	36	8	0	4	69	17	0	22	83	4	0	342	1267
8:15 AM	24	37	19	0	2	28	4	0	2	63	20	0	14	77	0	0	290	1293
8:30 AM	16	48	19	0	2	34	3	0	1	55	27	0	24	78	3	0	310	1284
8:45 AM	22	38	18	0	1	48	8	0	2	53	18	0	23	67	1	0	299	1241
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	68	244	40	0	8	200	8	0	24	280	60	0	88	340	8	0	1368	
Heavy Trucks	0	4	0	0	0	4	0	0	0	28	0	0	0	0	0	0	36	
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 29. SR 136 (S Jefferson Ave) -- E Spring St
CITY/STATE: Putnam, TN

QC JOB #: 13959634
DATE: Wed, Jan 18 2017

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

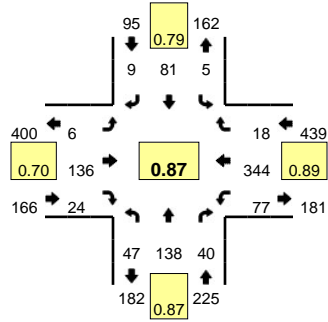


15-Min Count Period Beginning At	29. SR 136 (S Jefferson Ave) (Northbound)				29. SR 136 (S Jefferson Ave) (Southbound)				E Spring St (Eastbound)				E Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	27	48	29	0	7	78	7	0	5	78	25	0	26	82	2	0	414	
4:15 PM	24	54	39	0	2	56	5	0	2	75	33	0	16	58	1	0	365	
4:30 PM	33	61	41	0	6	75	7	0	3	78	20	0	17	80	1	0	422	
4:45 PM	41	58	31	0	7	78	11	0	5	81	31	0	25	71	1	0	440	1641
5:00 PM	33	62	31	0	3	50	7	0	3	95	28	0	18	74	2	0	406	1633
5:15 PM	37	54	18	0	2	53	6	0	5	69	26	0	17	65	3	0	355	1623
5:30 PM	27	47	26	0	3	69	10	0	5	78	26	0	21	74	1	0	387	1588
5:45 PM	30	47	33	0	5	57	5	0	5	69	22	0	20	49	3	0	345	1493
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	164	232	124	0	28	312	44	0	20	324	124	0	100	284	4	0	1760	
Heavy Trucks	0	0	0	0	0	4	0	0	0	16	0	0	8	4	0	0	32	
Pedestrians	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

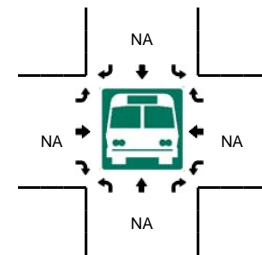
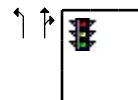
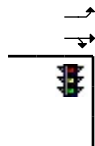
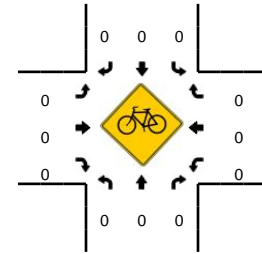
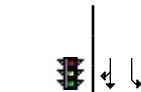
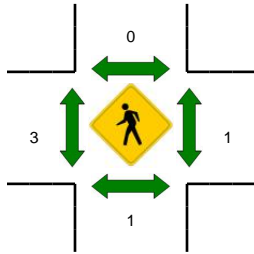
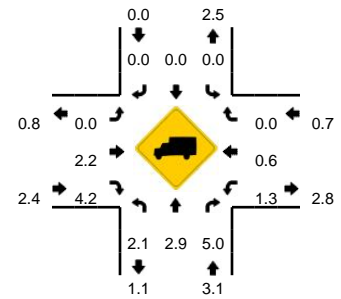
Comments:

LOCATION: 30. SR 136 (N Jefferson Ave) -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959635
DATE: Wed, Jan 18 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

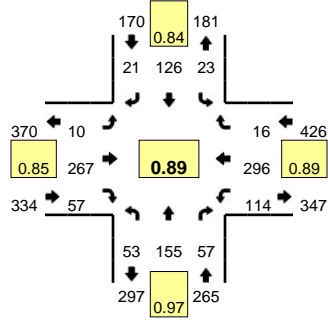


15-Min Count Period Beginning At	30. SR 136 (N Jefferson Ave) (Northbound)				30. SR 136 (N Jefferson Ave) (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	14	6	0	0	8	0	0	0	13	3	0	18	52	3	0	123	
7:15 AM	7	28	4	0	1	8	0	0	1	21	6	0	16	70	1	0	163	
7:30 AM	13	29	13	0	2	16	2	0	1	56	5	0	19	90	3	0	249	
7:45 AM	14	42	8	0	2	19	5	0	3	42	7	0	29	92	3	0	266	801
8:00 AM	12	42	11	0	1	27	2	0	2	21	8	0	15	93	9	0	243	921
8:15 AM	8	25	8	0	0	19	0	0	0	17	4	0	14	69	3	0	167	925
8:30 AM	16	28	6	0	3	15	0	0	0	24	7	0	16	86	1	0	202	878
8:45 AM	12	23	5	0	2	17	3	0	3	27	10	0	29	74	5	0	210	822
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	56	168	32	0	8	76	20	0	12	168	28	0	116	368	12	0	1064	
Heavy Trucks	0	4	0	0	0	0	0	0	0	4	4	0	0	0	0	0	12	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

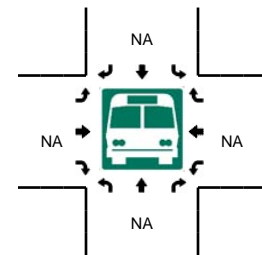
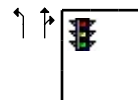
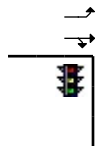
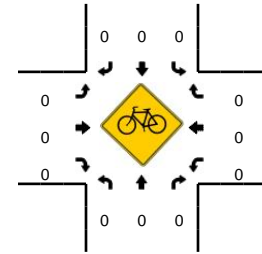
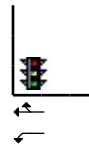
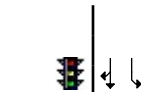
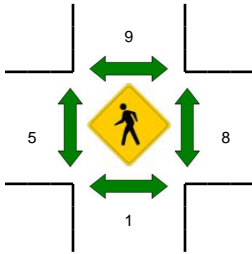
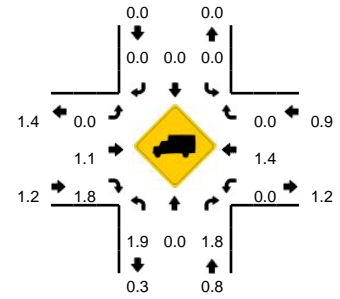
Comments:

LOCATION: 30. SR 136 (N Jefferson Ave) -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959636
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



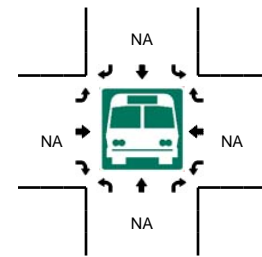
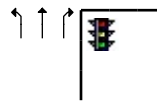
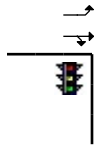
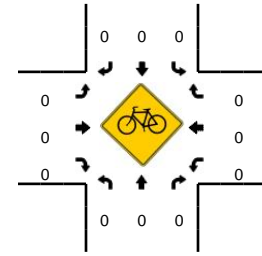
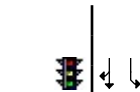
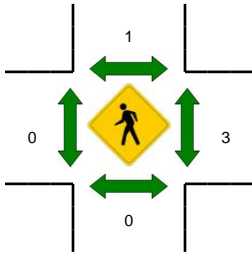
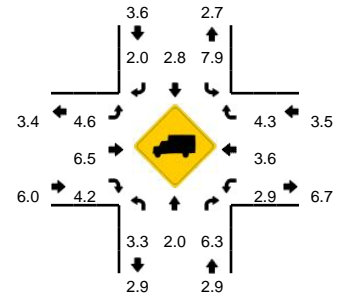
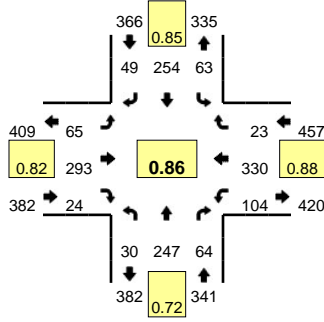
15-Min Count Period Beginning At	30. SR 136 (N Jefferson Ave) (Northbound)				30. SR 136 (N Jefferson Ave) (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	40	13	0	4	29	6	0	3	58	20	0	42	60	4	0	285	
4:15 PM	11	31	13	0	5	21	2	0	1	46	14	0	30	63	6	0	243	
4:30 PM	12	43	13	0	4	34	6	0	3	55	18	0	32	59	5	0	284	
4:45 PM	12	40	15	0	8	39	4	0	3	77	18	0	36	79	4	0	335	1147
5:00 PM	12	39	16	0	7	33	6	0	0	65	8	0	19	89	3	0	297	1159
5:15 PM	17	33	13	0	4	20	5	0	4	70	13	0	27	69	4	0	279	1195
5:30 PM	12	30	11	0	3	34	8	0	5	51	11	0	38	51	5	0	259	1170
5:45 PM	11	28	14	0	0	19	4	0	1	27	16	0	30	65	4	0	219	1054
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	48	160	60	0	32	156	16	0	12	308	72	0	144	316	16	0	1340	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	4	0	0	8	0	0	20	
Pedestrians		0				4				8				16			28	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 31. SR 136 (N Washington Ave) -- E Spring St
CITY/STATE: Putnam, TN

QC JOB #: 13959637
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



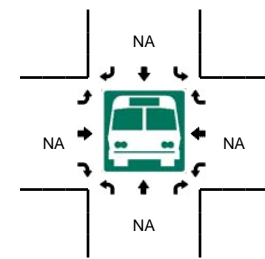
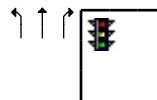
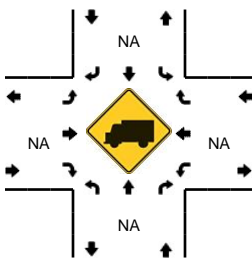
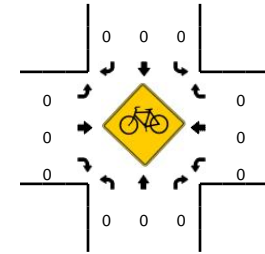
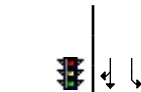
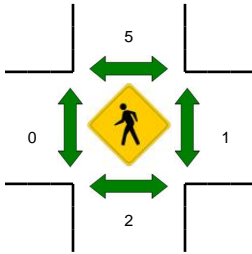
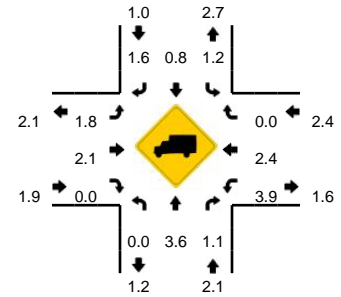
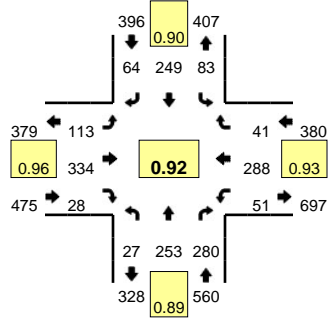
15-Min Count Period Beginning At	31. SR 136 (N Washington Ave) (Northbound)				31. SR 136 (N Washington Ave) (Southbound)				E Spring St (Eastbound)				E Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	32	11	0	14	32	14	0	16	54	1	0	9	58	4	0	250	
7:15 AM	1	52	15	0	21	43	14	0	16	58	3	0	10	75	4	0	312	
7:30 AM	5	102	15	0	19	67	14	0	17	91	8	0	24	84	4	0	450	
7:45 AM	11	75	16	0	14	84	10	0	8	76	6	0	40	84	6	0	430	1442
8:00 AM	8	37	16	0	7	63	13	0	19	65	5	0	22	86	6	0	347	1539
8:15 AM	6	33	17	0	23	40	12	0	21	61	5	0	18	76	7	0	319	1546
8:30 AM	8	36	26	0	25	40	15	0	15	54	5	0	16	79	4	0	323	1419
8:45 AM	2	31	12	0	13	66	22	0	16	54	9	0	21	68	5	0	319	1308
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	408	60	0	76	268	56	0	68	364	32	0	96	336	16	0	1800	
Heavy Trucks	0	4	0		8	4	0		4	24	0		0	16	0		60	
Pedestrians		0				0				0				0			0	
Bicycles		0				0				0				0			0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 31. SR 136 (N Washington Ave) -- E Spring St
CITY/STATE: Putnam, TN

QC JOB #: 13959638
DATE: Wed, Jan 18 2017

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



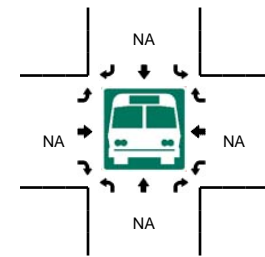
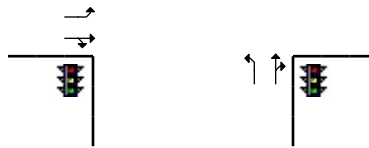
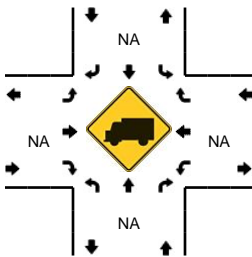
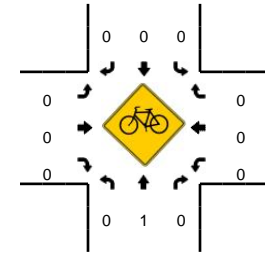
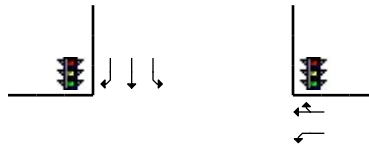
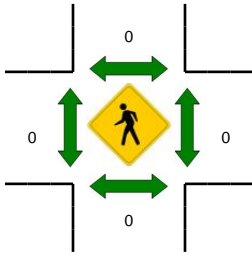
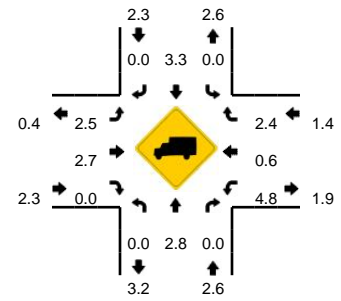
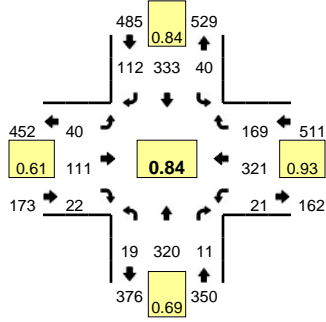
15-Min Count Period Beginning At	31. SR 136 (N Washington Ave) (Northbound)				31. SR 136 (N Washington Ave) (Southbound)				E Spring St (Eastbound)				E Spring St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	14	59	67	0	21	59	18	0	33	78	5	0	13	81	14	0	462	
4:15 PM	3	65	57	0	15	53	12	0	31	77	6	0	9	56	11	0	395	
4:30 PM	5	62	69	0	20	75	17	0	26	91	8	0	9	75	7	0	464	
4:45 PM	5	67	87	0	27	62	17	0	23	88	9	0	20	76	9	0	490	1811
5:00 PM	14	73	56	0	10	73	10	0	29	90	7	0	14	69	12	0	457	1806
5:15 PM	9	61	48	0	27	55	9	0	24	63	7	0	19	69	4	0	395	1806
5:30 PM	5	64	26	0	16	70	13	0	25	74	4	0	13	77	10	0	397	1739
5:45 PM	4	69	30	0	29	49	16	0	29	63	9	0	12	49	1	0	360	1609
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	20	268	348	0	108	248	68	0	92	352	36	0	80	304	36	0	1960	
Heavy Trucks	0	8	8		4	4	4		0	16	0		4	12	0		60	
Pedestrians		8				0				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 32. SR 136 (N Washington Ave) -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959639
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



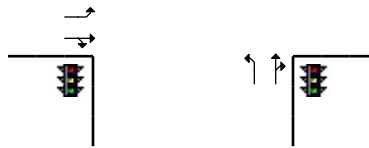
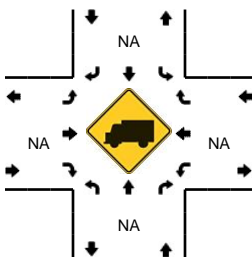
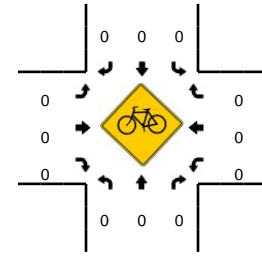
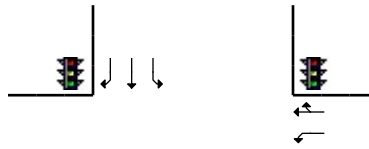
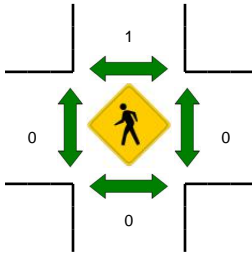
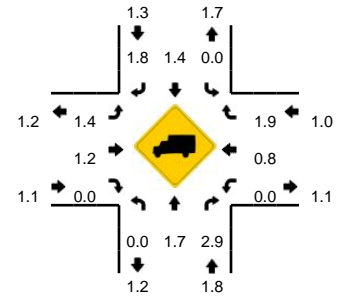
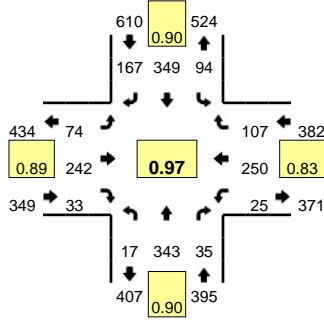
15-Min Count Period Beginning At	32. SR 136 (N Washington Ave) (Northbound)				32. SR 136 (N Washington Ave) (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	46	0	0	6	56	23	0	8	7	5	0	1	46	21	0	220	
7:15 AM	1	72	1	0	10	76	23	0	6	17	1	0	1	66	42	0	316	
7:30 AM	2	120	4	0	13	89	24	0	18	46	7	0	0	84	47	0	454	
7:45 AM	8	72	4	0	8	97	40	0	7	34	8	0	14	82	42	0	416	1406
8:00 AM	8	56	2	0	9	71	25	0	9	14	6	0	6	89	38	0	333	1519
8:15 AM	2	57	3	0	5	67	23	0	7	15	3	0	1	61	38	0	282	1485
8:30 AM	1	50	1	0	3	71	28	0	8	18	6	0	6	73	33	0	298	1329
8:45 AM	3	44	3	0	11	88	38	0	11	16	7	0	4	68	26	0	319	1232
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	8	480	16	0	52	356	96	0	72	184	28	0	0	336	188	0	1816	
Heavy Trucks	0	4	0	0	0	12	0	0	0	4	0	0	0	4	4	0	28	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 32. SR 136 (N Washington Ave) -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959640
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

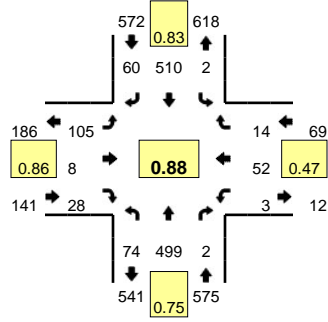


15-Min Count Period Beginning At	32. SR 136 (N Washington Ave) (Northbound)				32. SR 136 (N Washington Ave) (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	101	3	0	20	85	46	0	17	52	6	0	4	46	29	0	414	
4:15 PM	1	94	7	0	16	70	40	0	18	48	2	0	8	59	33	0	396	
4:30 PM	3	82	11	0	24	101	47	0	18	47	8	0	9	53	32	0	435	
4:45 PM	5	82	9	0	32	92	50	0	19	68	11	0	4	61	16	0	449	1694
5:00 PM	5	98	10	0	18	73	36	0	16	63	7	0	7	75	37	0	445	1725
5:15 PM	4	81	5	0	20	83	34	0	21	64	7	0	5	61	22	0	407	1736
5:30 PM	6	83	8	0	15	92	44	0	16	36	7	0	3	42	27	0	379	1680
5:45 PM	6	78	8	0	9	83	48	0	16	28	3	0	1	42	26	0	348	1579
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	328	36	0	128	368	200	0	76	272	44	0	16	244	64	0	1796	
Heavy Trucks	0	8	0	0	0	12	4	0	0	8	0	0	0	4	0	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

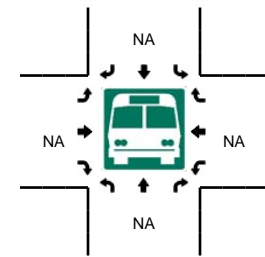
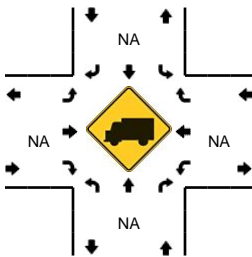
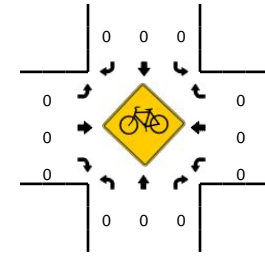
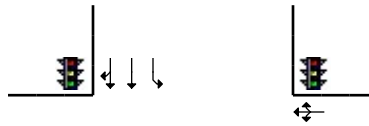
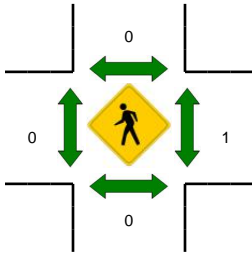
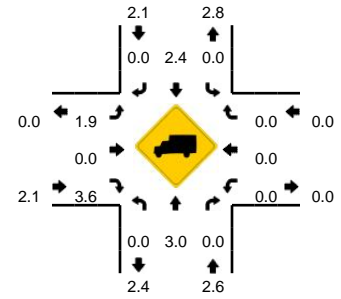
Comments:

LOCATION: 33. SR 136 (N Washington Ave) -- E 1st St
CITY/STATE: Putnam, TN

QC JOB #: 13959641
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



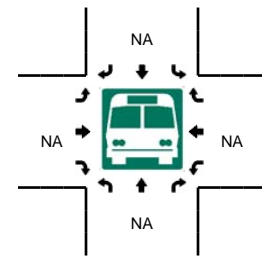
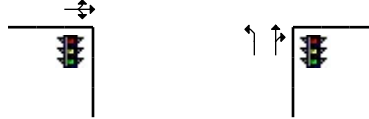
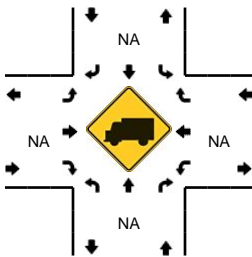
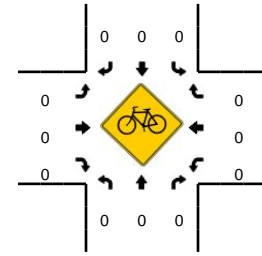
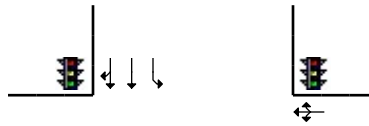
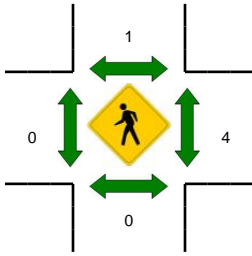
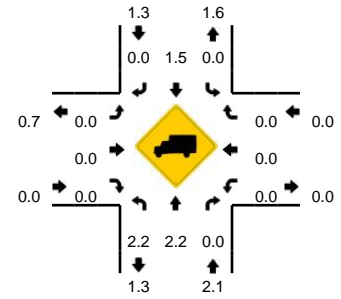
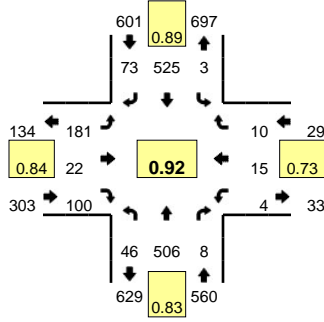
15-Min Count Period Beginning At	33. SR 136 (N Washington Ave) (Northbound)				33. SR 136 (N Washington Ave) (Southbound)				E 1st St (Eastbound)				E 1st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	66	0	0	1	81	7	0	12	1	0	0	0	2	0	0	180	
7:15 AM	15	113	0	0	0	121	11	0	22	1	9	0	0	4	3	0	299	
7:30 AM	17	174	0	0	1	131	14	0	27	1	9	0	1	7	2	0	384	
7:45 AM	27	117	2	0	1	153	18	0	23	3	4	0	2	29	6	0	385	1248
8:00 AM	15	95	0	0	0	105	17	0	33	3	6	0	0	12	3	0	289	1357
8:15 AM	20	85	0	0	1	93	9	0	23	3	10	0	1	4	0	0	249	1307
8:30 AM	8	80	5	0	2	97	14	0	13	4	9	0	1	5	2	0	240	1163
8:45 AM	14	85	0	0	3	129	23	0	17	4	7	0	4	12	6	0	304	1082
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	108	468	8	0	4	612	72	0	92	12	16	0	8	116	24	0	1540	
Heavy Trucks	0	20	0	0	0	8	0	0	4	0	0	0	0	0	0	0	32	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 33. SR 136 (N Washington Ave) -- E 1st St
CITY/STATE: Putnam, TN

QC JOB #: 13959642
DATE: Wed, Jan 18 2017

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



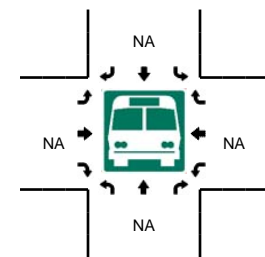
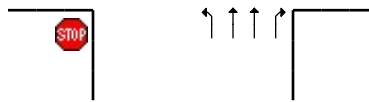
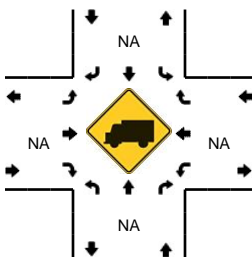
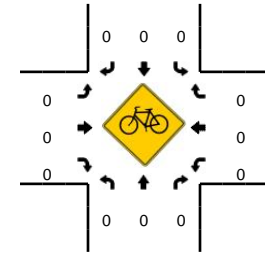
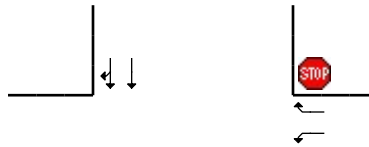
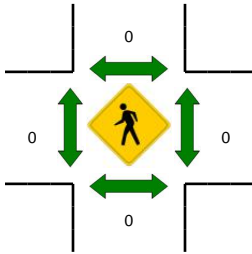
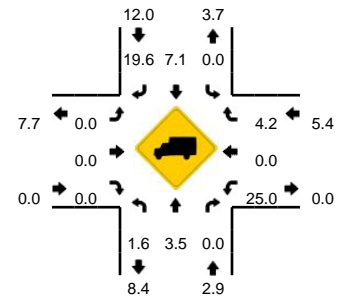
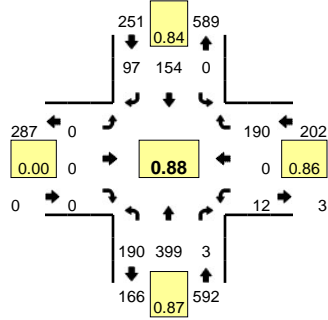
15-Min Count Period Beginning At	33. SR 136 (N Washington Ave) (Northbound)				33. SR 136 (N Washington Ave) (Southbound)				E 1st St (Eastbound)				E 1st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	136	2	0	1	141	19	0	40	3	18	0	2	5	2	0	380	
4:15 PM	9	129	2	0	2	113	17	0	42	6	15	0	0	1	2	0	338	
4:30 PM	16	114	4	0	1	141	16	0	37	6	31	0	1	3	2	0	372	
4:45 PM	8	108	1	0	0	151	25	0	45	4	26	0	2	4	5	0	379	1469
5:00 PM	13	155	1	0	0	120	15	0	57	6	28	0	1	7	1	0	404	1493
5:15 PM	10	118	3	0	0	123	10	0	41	7	19	0	2	1	1	0	335	1490
5:30 PM	7	129	2	0	0	147	15	0	31	2	9	0	2	3	3	0	350	1468
5:45 PM	8	117	0	0	2	134	9	0	31	5	14	0	0	2	0	0	322	1411
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	620	4	0	0	480	60	0	228	24	112	0	4	28	4	0	1616	
Heavy Trucks	4	16	0	0	0	8	0	0	0	0	0	0	0	0	0	0	28	
Pedestrians		0				4				0				8			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		0
Stopped Buses																		

Comments:

LOCATION: 36. US 70N (E. Spring Street) -- I-40 Westbound Ramps
CITY/STATE: Putnam, TN

QC JOB #: 13959643
DATE: Wed, Feb 01 2017

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



15-Min Count Period Beginning At	36. US 70N (E. Spring Street) (Northbound)				36. US 70N (E. Spring Street) (Southbound)				I-40 Westbound Ramps (Eastbound)				I-40 Westbound Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	41	84	1	0	0	19	27	0	0	0	0	0	5	0	35	0	212	
7:15 AM	56	114	1	0	0	35	19	0	0	0	0	0	2	0	44	0	271	
7:30 AM	52	119	0	0	0	45	26	0	0	0	0	0	2	0	53	0	297	
7:45 AM	41	82	1	0	0	55	25	0	0	0	0	0	3	0	58	0	265	1045
8:00 AM	17	46	2	0	0	43	21	0	0	0	0	0	2	0	45	0	176	1009
8:15 AM	20	64	1	0	0	43	12	0	0	0	0	0	2	0	39	0	181	919
8:30 AM	24	76	1	0	0	37	7	0	0	0	0	0	3	0	31	0	179	801
8:45 AM	17	51	1	0	0	39	22	0	0	0	0	0	1	0	39	0	170	706

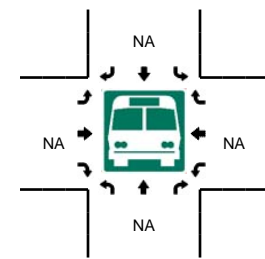
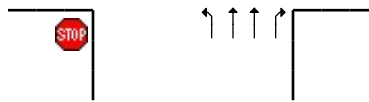
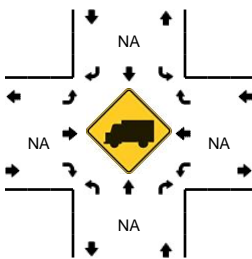
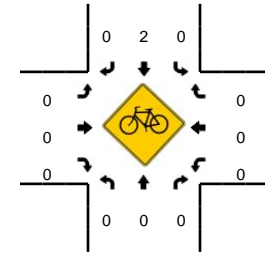
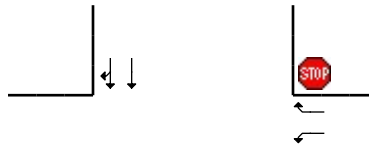
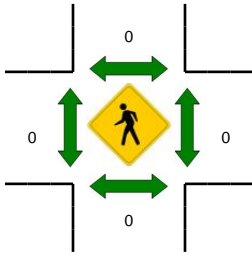
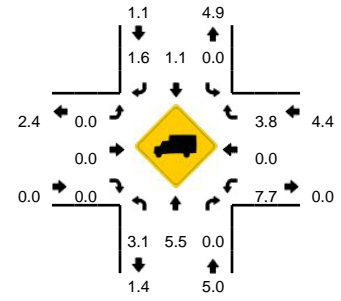
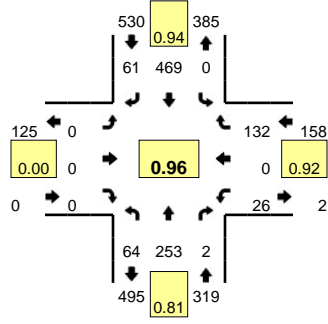
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	208	476	0	0	0	180	104	0	0	0	0	0	8	0	212	0	1188
Heavy Trucks	4	8	0	0	0	12	12	0	0	0	0	0	0	0	12	0	48
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: 36. US 70N (E Spring St) -- I-40 WB Ramps
CITY/STATE: Putnam, TN

QC JOB #: 13959644
DATE: Wed, Feb 01 2017

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:15 PM -- 4:30 PM



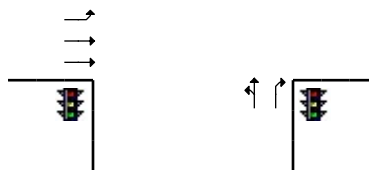
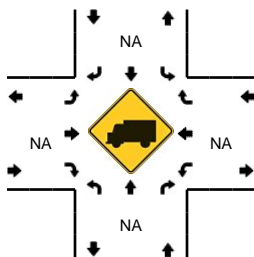
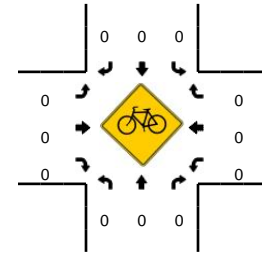
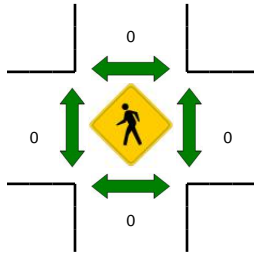
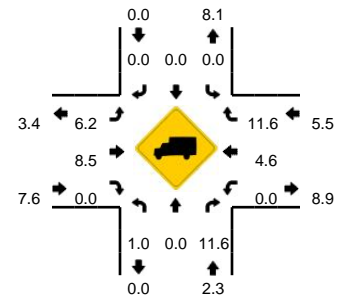
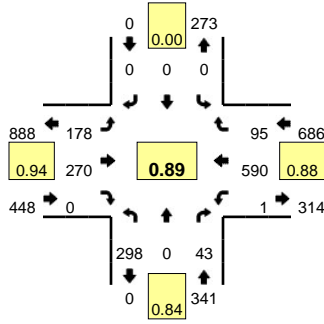
15-Min Count Period Beginning At	36. US 70N (E Spring St) (Northbound)				36. US 70N (E Spring St) (Southbound)				I-40 WB Ramps (Eastbound)				I-40 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	14	58	2	0	0	115	13	0	0	0	0	0	1	0	38	0	241	
4:15 PM	19	80	0	0	0	109	10	0	0	0	0	0	8	0	37	0	263	
4:30 PM	17	45	1	0	0	123	19	0	0	0	0	0	3	0	34	0	242	
4:45 PM	17	67	1	0	0	116	14	0	0	0	0	0	6	0	38	0	259	1005
5:00 PM	11	61	0	0	0	121	18	0	0	0	0	0	9	0	23	0	243	1007
5:15 PM	14	52	2	0	0	113	10	0	0	0	0	0	5	0	25	0	221	965
5:30 PM	23	58	2	0	0	111	10	0	0	0	0	0	7	0	28	0	239	962
5:45 PM	22	53	2	0	0	102	12	0	0	0	0	0	4	0	23	0	218	921
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	320	0	0	0	436	40	0	0	0	0	0	32	0	148	0	1052	
Heavy Trucks	0	32	0	0	0	0	0	0	0	0	0	0	0	0	12	0	44	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 37. SR 111 NB Ramps -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959645
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

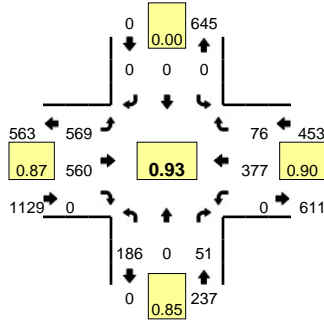


15-Min Count Period Beginning At	37. SR 111 NB Ramps (Northbound)				37. SR 111 NB Ramps (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	51	0	10	0	0	0	0	0	36	32	0	1	0	115	20	0	265	
7:15 AM	81	0	5	0	0	0	0	0	40	54	0	0	0	148	30	0	358	
7:30 AM	72	0	9	0	0	0	0	0	38	70	0	0	0	167	30	1	387	
7:45 AM	86	0	15	0	0	0	0	0	56	69	0	0	0	166	21	0	413	1423
8:00 AM	59	0	14	0	0	0	0	0	44	77	0	0	0	109	14	0	317	1475
8:15 AM	40	0	4	0	0	0	0	0	42	72	0	0	0	117	13	0	288	1405
8:30 AM	40	0	10	0	0	0	0	0	30	66	0	0	0	99	11	0	256	1274
8:45 AM	47	0	11	0	0	0	0	0	41	65	0	0	0	106	8	0	278	1139
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	344	0	60	0	0	0	0	0	224	276	0	0	0	664	84	0	1652	
Heavy Trucks	4	0	4	0	0	0	0	0	16	16	0	0	0	24	16	0	80	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

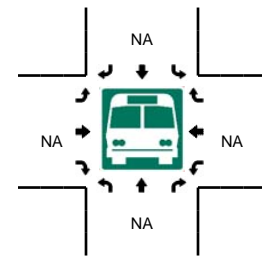
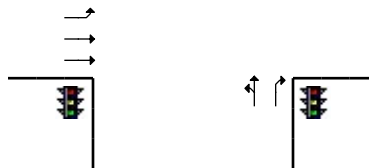
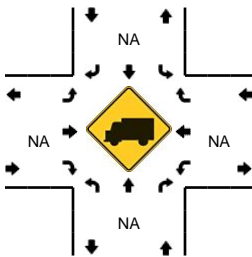
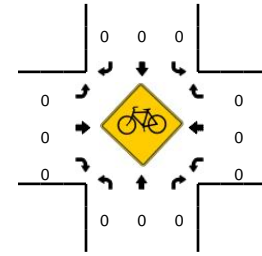
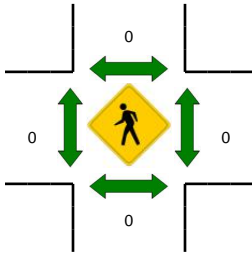
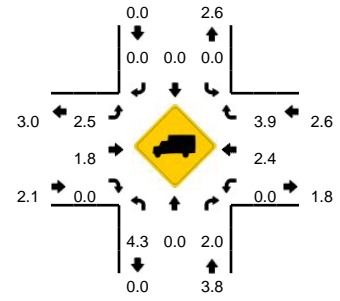
Comments:

LOCATION: 37. SR 111 NB Ramps -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959646
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



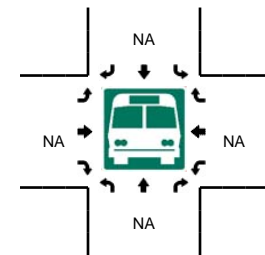
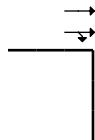
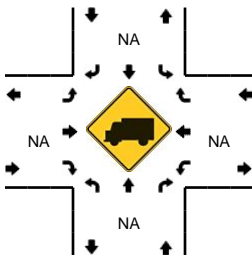
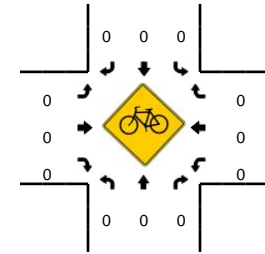
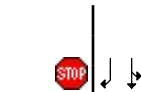
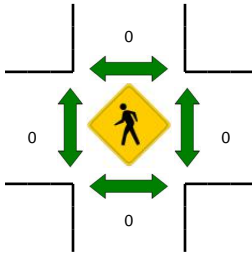
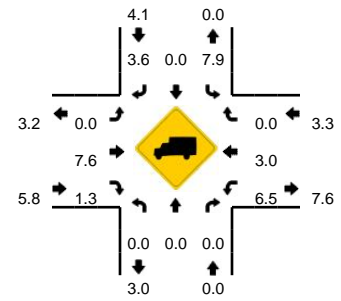
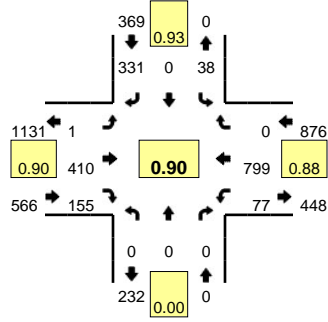
15-Min Count Period Beginning At	37. SR 111 NB Ramps (Northbound)				37. SR 111 NB Ramps (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	34	1	8	0	0	0	0	0	136	148	0	0	0	111	18	0	456	
4:15 PM	45	0	10	0	0	0	0	0	116	131	0	0	0	107	18	0	427	
4:30 PM	60	0	9	0	0	0	0	0	125	127	0	0	0	93	20	0	434	
4:45 PM	49	0	21	0	0	0	0	0	153	147	0	0	0	82	16	0	468	1785
5:00 PM	32	0	11	0	0	0	0	0	175	155	0	0	0	95	22	0	490	1819
5:15 PM	32	0	5	0	0	0	0	0	151	116	0	0	0	97	14	0	415	1807
5:30 PM	41	0	8	0	0	0	0	0	105	108	0	0	0	80	14	0	356	1729
5:45 PM	30	0	8	0	0	0	0	0	91	126	0	0	0	72	14	0	341	1602
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	128	0	44	0	0	0	0	0	700	620	0	0	0	380	88	0	1960	
Heavy Trucks	8	0	0	0	0	0	0	0	16	20	0	0	0	4	8	0	56	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 38. SR 111 SB Ramps -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959647
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

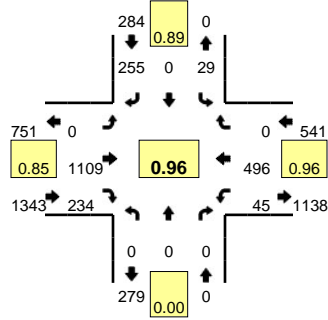


15-Min Count Period Beginning At	38. SR 111 SB Ramps (Northbound)				38. SR 111 SB Ramps (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	6	0	66	0	0	64	25	0	16	152	0	0	329	
7:15 AM	0	0	0	0	5	0	90	0	0	86	30	0	16	193	0	0	420	
7:30 AM	0	0	0	0	12	0	87	0	0	108	52	1	21	220	0	0	501	
7:45 AM	0	0	0	0	8	0	75	0	0	111	45	0	25	225	0	0	489	1739
8:00 AM	0	0	0	0	13	0	79	0	0	105	28	0	15	161	0	0	401	1811
8:15 AM	0	0	0	0	10	0	64	0	0	99	28	0	12	141	0	0	354	1745
8:30 AM	0	0	0	0	15	0	72	0	0	78	24	0	10	124	0	0	323	1567
8:45 AM	0	0	0	0	12	0	59	0	0	95	25	0	9	142	0	0	342	1420
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	48	0	348	0	0	432	208	4	84	880	0	0	2004	
Heavy Trucks	0	0	0	0	12	0	12	0	0	32	4	0	4	4	0	0	68	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

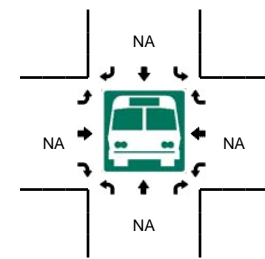
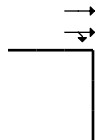
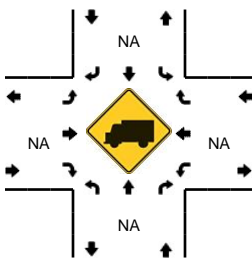
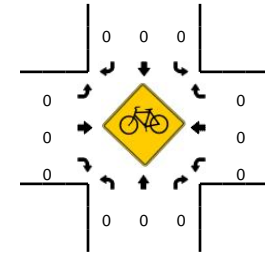
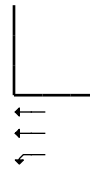
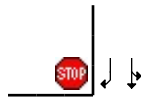
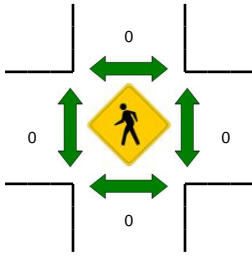
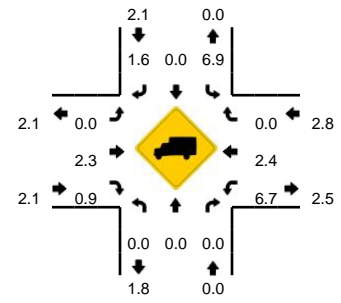
Comments:

LOCATION: 38. SR 111 SB Ramps -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959648
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

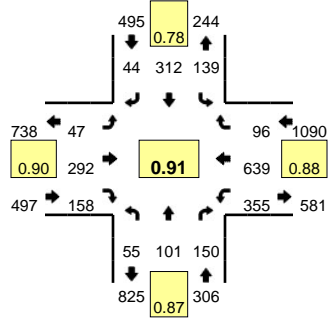


15-Min Count Period Beginning At	38. SR 111 SB Ramps (Northbound)				38. SR 111 SB Ramps (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	11	0	56	0	0	271	36	0	16	136	0	0	526	
4:15 PM	0	0	0	0	10	0	57	0	0	235	33	0	13	140	0	0	488	
4:30 PM	0	0	0	0	6	0	68	0	0	255	50	0	10	143	0	0	532	
4:45 PM	0	0	0	0	8	0	73	0	0	287	49	0	15	116	0	0	548	2094
5:00 PM	0	0	0	0	8	0	43	0	0	318	75	0	9	111	0	0	564	2132
5:15 PM	0	0	0	0	7	0	71	0	0	249	60	0	11	126	0	0	524	2168
5:30 PM	0	0	0	0	6	0	65	0	0	203	43	0	7	111	0	0	435	2071
5:45 PM	0	0	0	0	7	0	50	0	0	207	34	0	5	106	0	0	409	1932
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	32	0	172	0	0	1272	300	0	36	444	0	0	2256	
Heavy Trucks	0	0	0	0	8	0	0	0	0	24	4	0	4	8	0	0	48	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

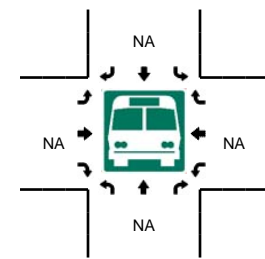
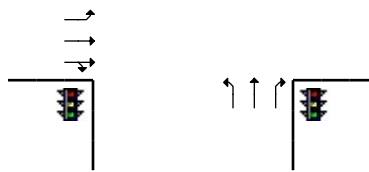
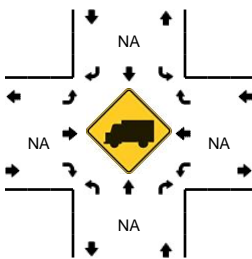
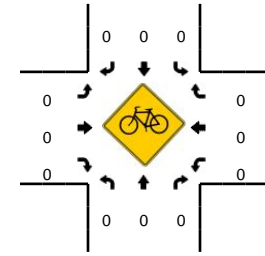
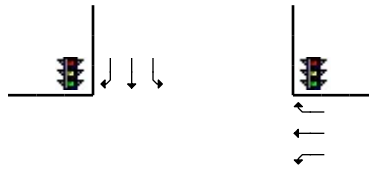
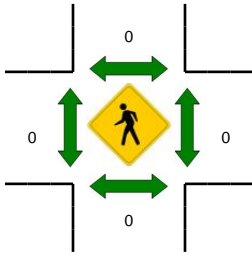
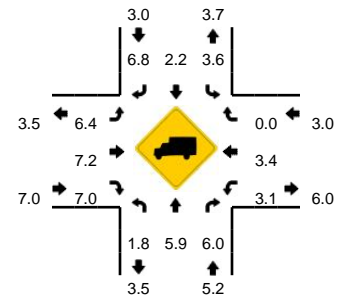
Comments:

LOCATION: 39. Neal St/S Old Kentucky Rd -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959649
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



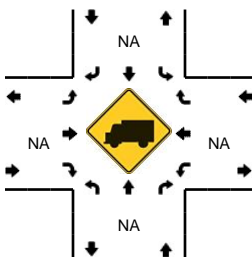
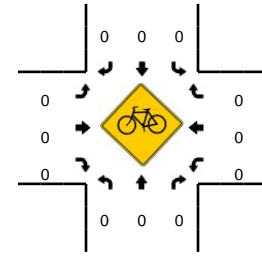
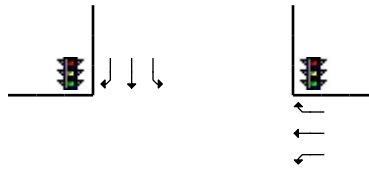
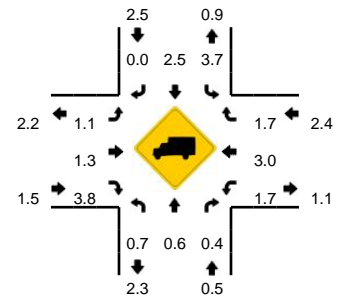
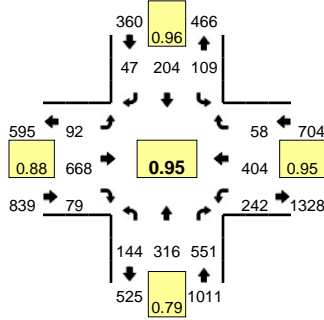
15-Min Count Period Beginning At	39. Neal St/S Old Kentucky Rd (Northbound)				39. Neal St/S Old Kentucky Rd (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	15	24	0	17	34	8	0	6	46	20	0	61	124	12	0	374	
7:15 AM	10	23	33	0	27	57	13	0	9	60	16	0	73	151	28	0	500	
7:30 AM	17	25	41	0	39	69	16	0	12	81	36	0	99	175	35	0	645	
7:45 AM	13	26	38	0	46	104	8	0	16	73	53	0	97	160	22	0	656	2175
8:00 AM	15	27	38	0	27	82	7	0	10	78	53	0	86	153	11	0	587	2388
8:15 AM	13	25	34	0	27	42	13	0	13	63	24	0	39	152	8	0	453	2341
8:30 AM	16	28	35	0	24	37	12	0	7	48	27	0	63	131	1	0	429	2125
8:45 AM	19	24	50	0	16	47	4	0	8	58	22	0	67	119	3	0	437	1906
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	104	152	0	184	416	32	0	64	292	212	0	388	640	88	0	2624	
Heavy Trucks	0	8	4		8	8	0		0	28	20		12	24	0		112	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 39. Neal St/S Old Kentucky Rd -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959650
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



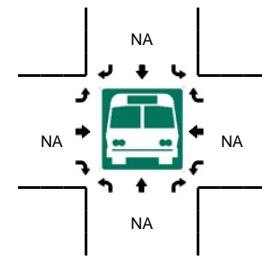
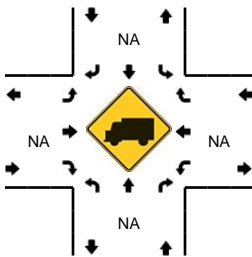
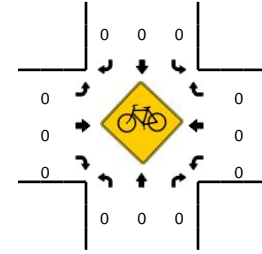
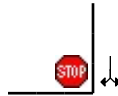
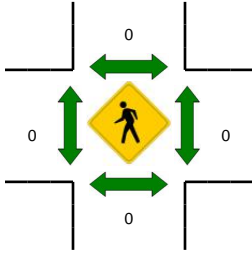
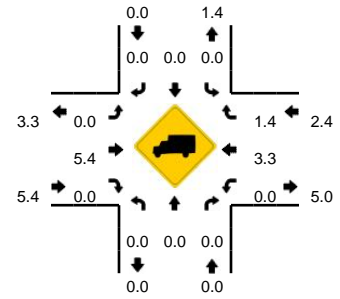
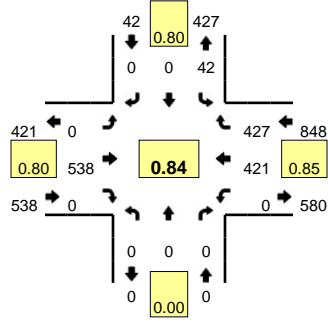
15-Min Count Period Beginning At	39. Neal St/S Old Kentucky Rd (Northbound)				39. Neal St/S Old Kentucky Rd (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	29	56	126	0	22	47	13	0	18	165	18	0	58	108	15	0	675	
4:15 PM	27	50	101	0	31	41	14	0	26	130	27	0	57	103	13	0	620	
4:30 PM	31	76	136	0	23	62	9	0	23	147	20	0	61	116	17	0	721	
4:45 PM	27	66	116	0	27	48	10	0	17	191	30	0	66	113	16	0	727	2743
5:00 PM	54	97	170	0	29	45	14	0	25	188	12	0	50	71	15	0	770	2838
5:15 PM	32	77	129	0	30	49	14	0	27	142	17	0	65	104	10	0	696	2914
5:30 PM	17	47	87	0	20	35	14	0	18	128	11	0	53	105	9	0	544	2737
5:45 PM	14	55	78	0	32	47	9	0	16	125	15	0	47	85	18	0	541	2551
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	216	388	680	0	116	180	56	0	100	752	48	0	200	284	60	0	3080	
Heavy Trucks	4	0	8		0	0	0		4	12	0		0	4	0		32	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 40. E Broad St -- US 70N (E Spring St)
CITY/STATE: Cookeville, TN

QC JOB #: 13959651
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

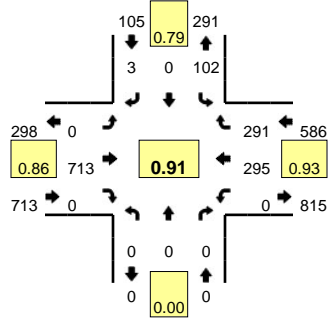


15-Min Count Period Beginning At	40. E Broad St (Northbound)				40. E Broad St (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	0	0	0	73	0	0	0	58	61	0	196	
7:15 AM	0	0	0	0	7	0	0	0	0	115	0	0	0	77	101	0	300	
7:30 AM	0	0	0	0	12	0	0	0	0	168	0	0	0	117	128	0	425	
7:45 AM	0	0	0	0	14	0	0	0	0	158	0	0	0	131	117	0	420	1341
8:00 AM	0	0	0	0	9	0	0	0	0	97	0	0	0	96	81	0	283	1428
8:15 AM	0	0	0	0	10	0	0	0	0	84	0	0	0	83	94	0	271	1399
8:30 AM	0	0	0	0	6	0	0	0	0	83	0	0	0	88	97	0	274	1248
8:45 AM	0	0	0	0	7	0	0	0	0	77	0	0	0	73	86	0	243	1071
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	48	0	0	0	0	672	0	0	0	468	512	0	1700	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	4	4	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

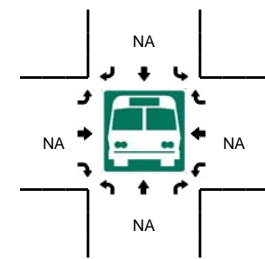
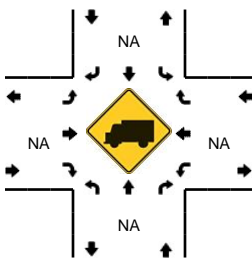
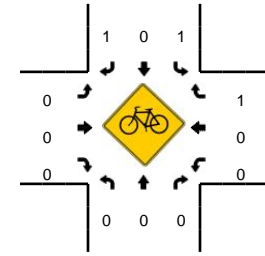
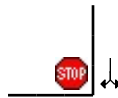
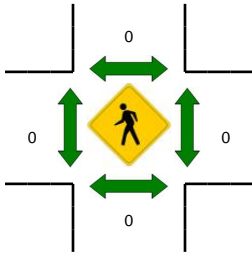
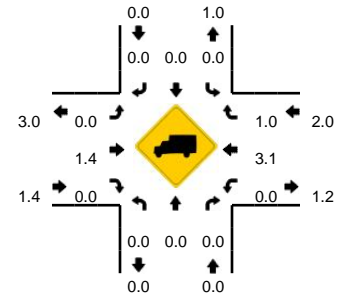
Comments:

LOCATION: 40. E Broad St -- US 70N (E Spring St)
CITY/STATE: Cookeville, TN

QC JOB #: 13959652
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



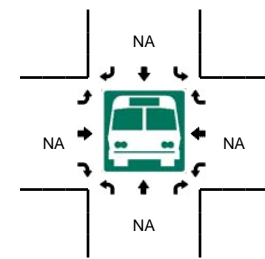
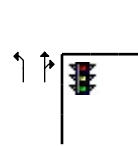
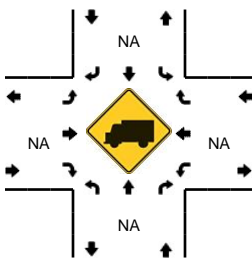
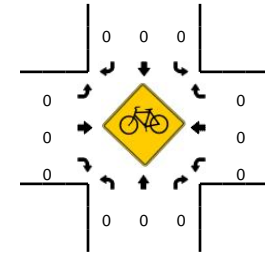
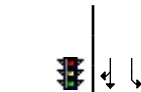
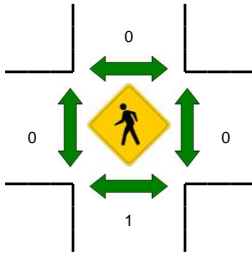
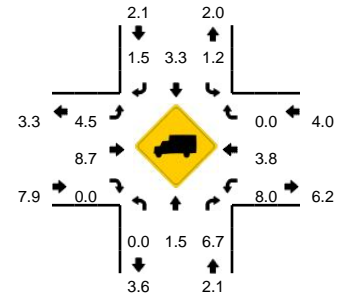
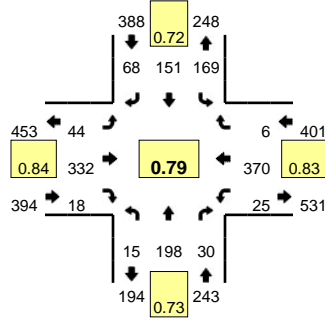
15-Min Count Period Beginning At	40. E Broad St (Northbound)				40. E Broad St (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	22	0	1	0	0	171	0	0	0	90	65	0	349	
4:15 PM	0	0	0	0	28	0	1	0	0	141	0	0	0	58	65	0	293	
4:30 PM	0	0	0	0	20	0	1	0	0	187	0	0	0	80	77	0	365	
4:45 PM	0	0	0	0	34	0	0	0	0	208	0	0	0	78	67	0	387	1394
5:00 PM	0	0	0	0	22	0	0	0	0	178	0	0	0	69	77	0	346	1391
5:15 PM	0	0	0	0	26	0	2	0	0	140	0	0	0	68	70	0	306	1404
5:30 PM	0	0	0	0	17	0	0	0	0	112	0	0	0	80	55	0	264	1303
5:45 PM	0	0	0	0	19	0	1	0	0	122	0	0	0	49	50	0	241	1157
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	136	0	0	0	0	832	0	0	0	312	268	0	1548	
Heavy Trucks	0	0	0	0	0	0	0	0	0	28	0	0	0	8	8	0	44	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 41. Maple Ave -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959653
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



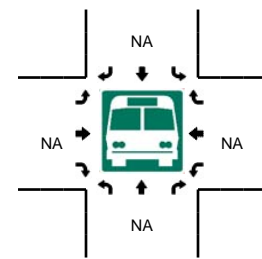
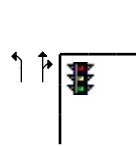
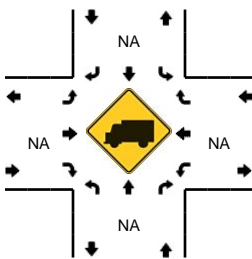
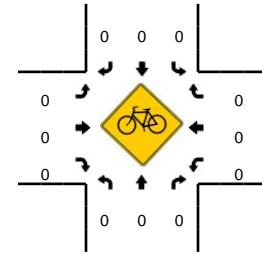
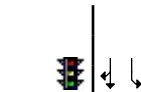
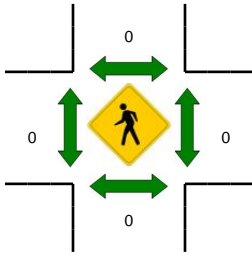
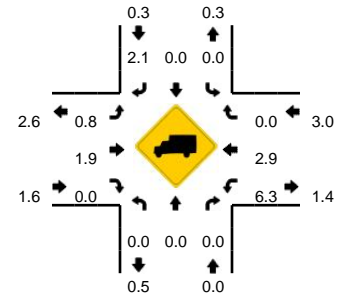
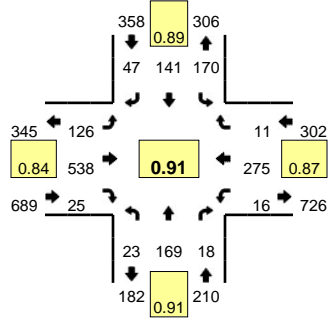
15-Min Count Period Beginning At	41. Maple Ave (Northbound)				41. Maple Ave (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	14	0	0	10	19	16	0	10	63	0	0	3	56	0	0	192	
7:15 AM	1	30	6	0	33	25	17	0	14	79	2	0	4	71	1	0	283	
7:30 AM	4	58	7	0	61	46	13	0	13	96	8	0	3	102	1	0	412	
7:45 AM	5	64	14	0	53	60	21	0	13	87	6	0	10	114	2	0	449	1336
8:00 AM	5	46	3	0	22	20	17	0	4	70	2	0	8	83	2	0	282	1426
8:15 AM	3	20	0	0	13	16	14	0	6	72	4	0	1	91	0	0	240	1383
8:30 AM	4	17	0	0	13	6	16	0	6	71	2	0	0	90	0	0	225	1196
8:45 AM	5	12	2	0	21	23	18	0	12	55	1	0	2	65	0	0	216	963
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	256	56	0	212	240	84	0	52	348	24	0	40	456	8	0	1796	
Heavy Trucks	0	0	0		4	12	0		8	32	0		0	8	0		64	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 41. Maple Ave -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959654
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



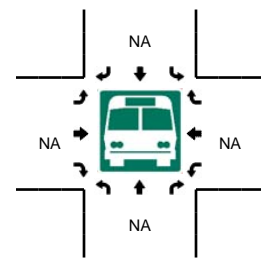
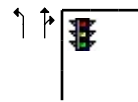
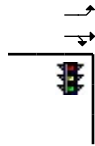
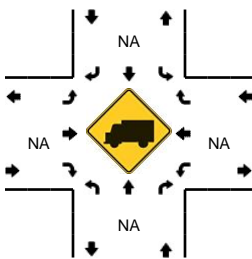
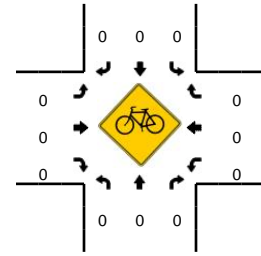
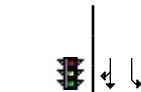
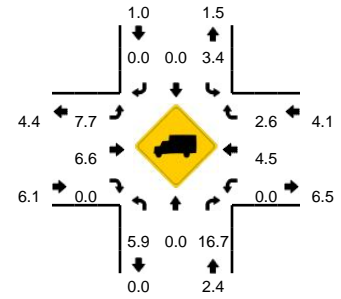
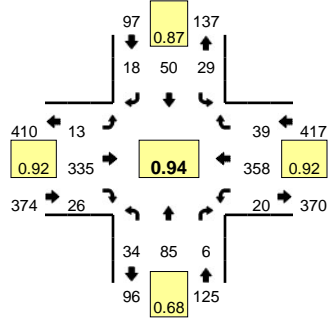
15-Min Count Period Beginning At	41. Maple Ave (Northbound)				41. Maple Ave (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	38	3	0	35	28	4	0	29	129	4	0	2	81	2	0	361	
4:15 PM	6	31	1	0	28	26	9	0	27	109	5	0	3	55	0	0	300	
4:30 PM	8	46	2	0	38	41	9	0	27	147	5	0	3	70	3	0	399	
4:45 PM	8	37	8	0	47	35	12	0	35	162	8	0	3	71	3	0	429	1489
5:00 PM	2	52	4	0	55	33	13	0	36	121	8	0	9	66	5	0	404	1532
5:15 PM	5	34	4	0	30	32	13	0	28	108	4	0	1	68	0	0	327	1559
5:30 PM	2	34	2	0	20	20	11	0	16	94	4	0	4	82	5	0	294	1454
5:45 PM	4	19	2	0	20	27	12	0	20	97	6	0	1	47	1	0	256	1281
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	148	32	0	188	140	48	0	140	648	32	0	12	284	12	0	1716	
Heavy Trucks	0	0	0	0	0	0	4	0	4	28	0	0	0	12	0	0	48	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 42. S Dixie Ave -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959655
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

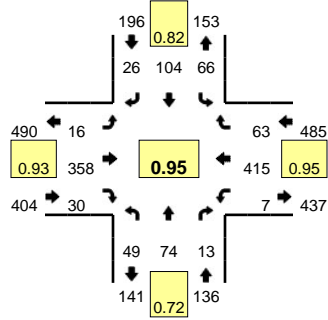


15-Min Count Period Beginning At	42. S Dixie Ave (Northbound)				42. S Dixie Ave (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	9	0	0	3	8	2	0	0	61	5	0	1	64	2	0	157	
7:15 AM	5	6	0	0	5	10	3	0	2	82	3	0	4	86	5	0	211	
7:30 AM	8	19	1	0	10	10	4	0	3	92	8	0	0	89	8	0	252	
7:45 AM	10	36	0	0	6	18	4	0	5	81	7	0	5	87	11	0	270	890
8:00 AM	9	20	1	0	9	6	6	0	3	85	8	0	7	96	10	0	260	993
8:15 AM	7	10	4	0	4	16	4	0	2	77	3	0	8	86	10	0	231	1013
8:30 AM	9	14	1	0	7	12	2	0	3	76	10	0	5	73	8	0	220	981
8:45 AM	12	14	2	0	5	10	8	0	6	64	6	0	11	80	7	0	225	936
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	40	144	0	0	24	72	16	0	20	324	28	0	20	348	44	0	1080	
Heavy Trucks	0	0	0	0	0	0	0	0	4	28	0	0	0	0	4	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

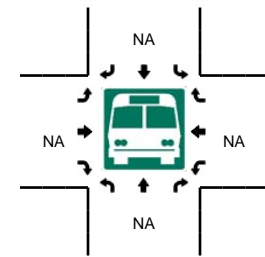
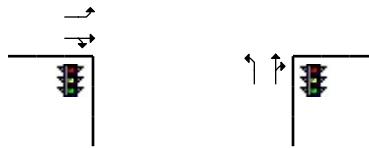
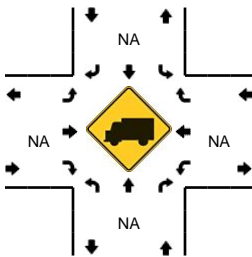
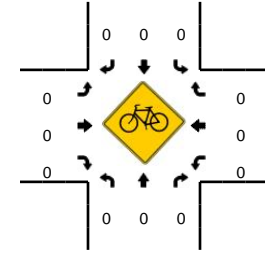
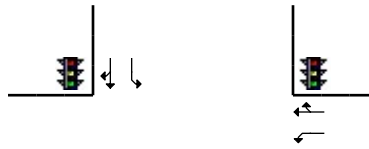
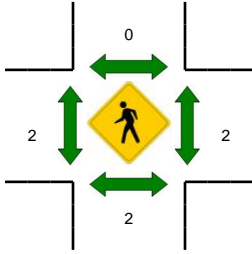
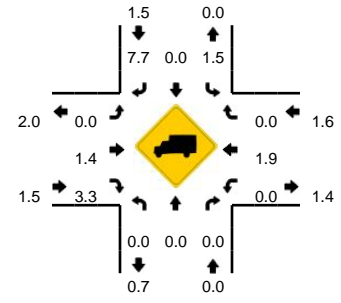
Comments:

LOCATION: 42. S Dixie Ave -- US 70N (E Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959656
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



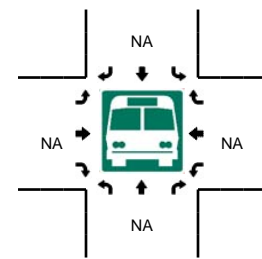
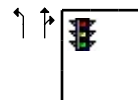
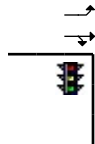
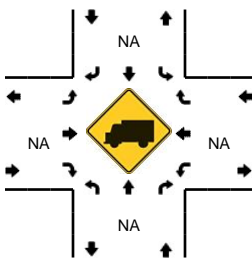
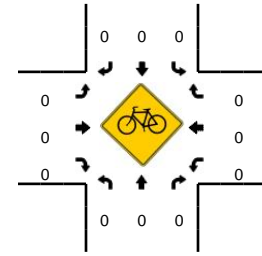
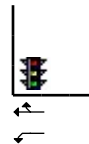
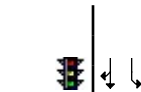
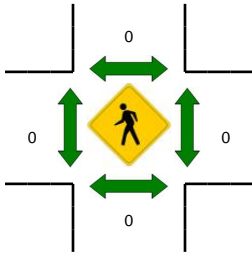
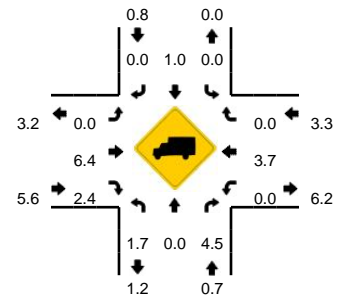
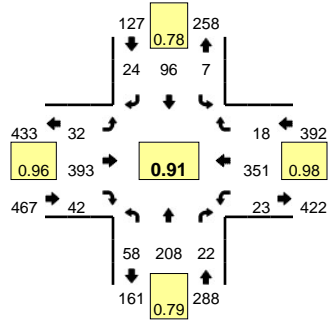
15-Min Count Period Beginning At	42. S Dixie Ave (Northbound)				42. S Dixie Ave (Southbound)				US 70N (E Spring St) (Eastbound)				US 70N (E Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	19	22	10	0	8	19	3	0	2	89	12	0	1	99	10	0	294	
4:15 PM	12	13	7	0	16	18	5	0	9	80	3	0	3	78	15	0	259	
4:30 PM	13	22	2	0	25	30	5	0	2	72	11	0	2	110	16	0	310	
4:45 PM	13	12	2	0	15	28	7	0	4	98	7	0	3	107	15	0	311	1174
5:00 PM	13	26	5	0	14	22	8	0	4	101	9	0	1	104	13	0	320	1200
5:15 PM	10	14	4	0	12	24	6	0	6	87	3	0	1	94	19	0	280	1221
5:30 PM	12	17	4	0	10	21	4	0	5	97	4	0	1	94	12	0	281	1192
5:45 PM	4	8	4	0	6	11	5	0	7	80	3	0	1	74	15	0	218	1099
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	104	20	0	56	88	32	0	16	404	36	0	4	416	52	0	1280	
Heavy Trucks	0	0	0	0	4	0	0	0	0	4	0	0	0	16	0	0	24	
Pedestrians		4				0				4				0			8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																	0	
Stopped Buses																		

Comments:

LOCATION: 43. S Walnut Ave -- US 70N (W Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959657
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

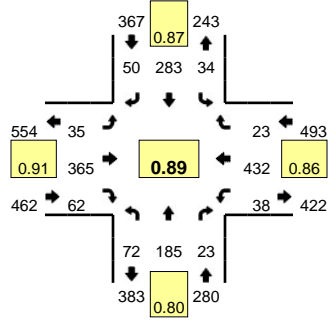


15-Min Count Period Beginning At	43. S Walnut Ave (Northbound)				43. S Walnut Ave (Southbound)				US 70N (W Spring St) (Eastbound)				US 70N (W Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	14	2	0	5	14	1	0	3	61	4	0	1	67	1	0	177	
7:15 AM	12	44	5	0	0	18	5	0	5	103	10	0	6	85	2	0	295	
7:30 AM	16	61	2	0	5	21	6	0	6	100	11	0	6	87	5	0	326	
7:45 AM	20	59	12	0	1	32	5	0	5	101	15	0	5	90	6	0	351	1149
8:00 AM	10	44	3	0	1	25	8	0	16	89	6	0	6	89	5	0	302	1274
8:15 AM	5	37	9	0	3	15	7	0	5	78	18	0	9	78	9	0	273	1252
8:30 AM	12	50	6	0	9	29	8	0	5	74	14	0	12	70	2	0	291	1217
8:45 AM	11	41	8	0	3	22	6	0	6	82	16	0	15	82	6	0	298	1164
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	80	236	48	0	4	128	20	0	20	404	60	0	20	360	24	0	1404	
Heavy Trucks	0	0	4		0	0	0		0	32	0		0	0	0		36	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

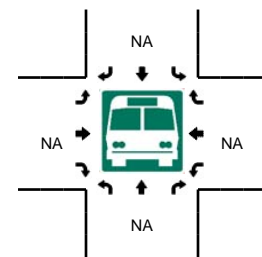
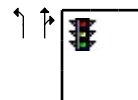
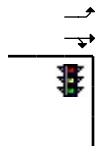
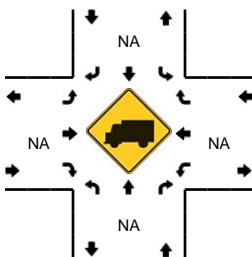
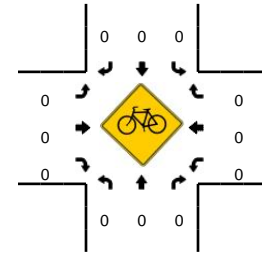
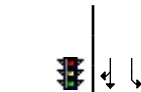
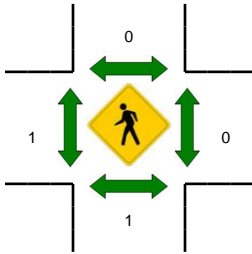
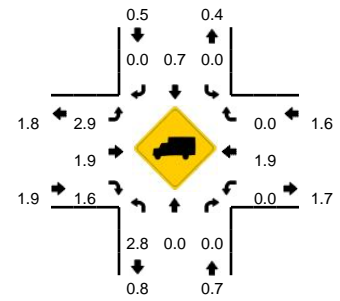
Comments:

LOCATION: 43. S Walnut Ave -- US 70N (W Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959658
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



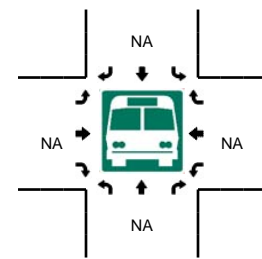
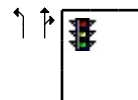
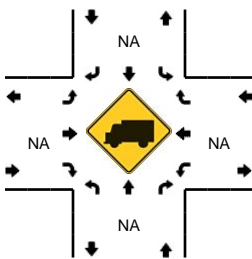
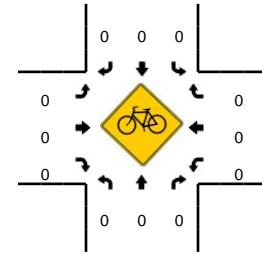
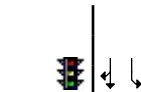
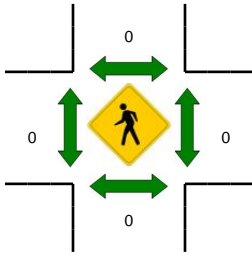
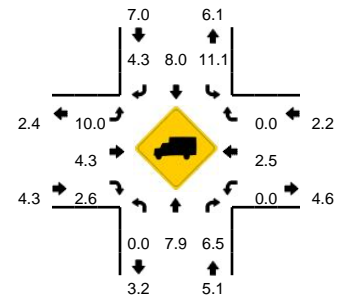
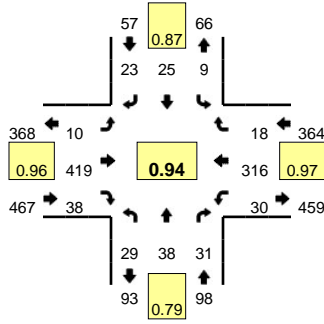
15-Min Count Period Beginning At	43. S Walnut Ave (Northbound)				43. S Walnut Ave (Southbound)				US 70N (W Spring St) (Eastbound)				US 70N (W Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	17	63	10	0	8	61	15	0	7	83	21	0	7	100	10	0	402	
4:15 PM	20	46	5	0	6	60	13	0	10	83	19	0	5	87	3	0	357	
4:30 PM	15	45	2	0	8	70	8	0	7	75	15	0	9	102	11	0	367	
4:45 PM	19	44	3	0	7	83	16	0	8	112	12	0	14	129	5	0	452	1578
5:00 PM	18	50	13	0	13	70	13	0	10	95	16	0	10	114	4	0	426	1602
5:15 PM	12	42	8	0	5	51	5	0	11	92	12	0	8	100	3	0	349	1594
5:30 PM	13	46	8	0	5	60	16	0	16	88	10	0	6	100	2	0	370	1597
5:45 PM	11	51	4	0	6	54	11	0	8	80	8	0	6	78	4	0	321	1466
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	76	176	12	0	28	332	64	0	32	448	48	0	56	516	20	0	1808	
Heavy Trucks	0	0	0	0	0	0	0	0	0	20	0	0	0	8	0	0	28	
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 44. Scott Ave -- US 70N (W Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959659
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



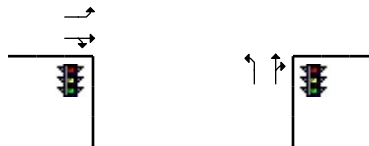
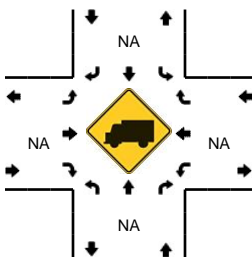
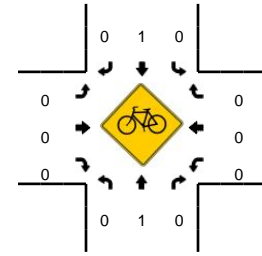
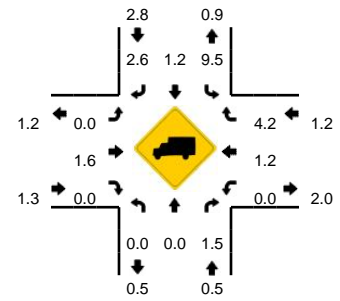
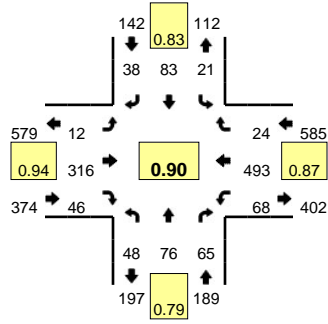
15-Min Count Period Beginning At	44. Scott Ave (Northbound)				44. Scott Ave (Southbound)				US 70N (W Spring St) (Eastbound)				US 70N (W Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	1	6	0	0	3	1	0	0	75	2	0	2	70	1	0	166	
7:15 AM	3	8	4	0	2	7	4	0	2	107	7	0	6	79	4	0	233	
7:30 AM	6	9	9	0	2	9	5	0	3	109	9	0	11	78	5	0	255	
7:45 AM	9	12	10	0	3	6	8	0	2	109	9	0	6	85	3	0	262	916
8:00 AM	11	9	8	0	2	3	6	0	3	94	13	0	7	74	6	0	236	986
8:15 AM	3	2	8	0	8	4	3	0	4	85	6	0	2	84	5	0	214	967
8:30 AM	2	7	4	0	5	8	3	0	2	75	4	0	8	68	2	0	188	900
8:45 AM	6	3	11	0	2	7	6	0	2	85	7	0	4	80	5	0	218	856
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	48	40	0	12	24	32	0	8	436	36	0	24	340	12	0	1048	
Heavy Trucks	0	4	4		0	0	0		0	20	4		0	8	0		40	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 44. Scott Ave -- US 70N (W Spring St)
CITY/STATE: Putnam, TN

QC JOB #: 13959660
DATE: Wed, Jan 18 2017

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



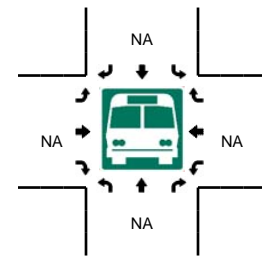
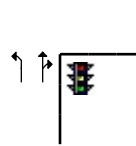
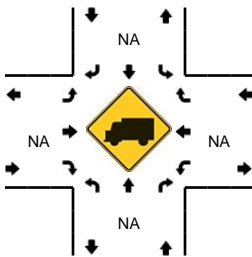
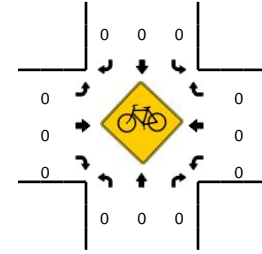
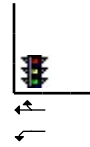
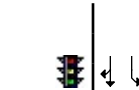
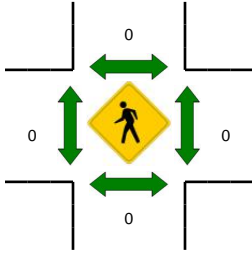
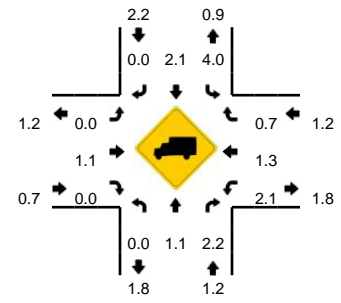
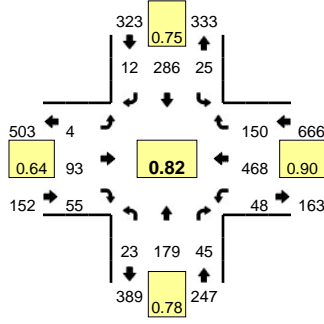
15-Min Count Period Beginning At	44. Scott Ave (Northbound)				44. Scott Ave (Southbound)				US 70N (W Spring St) (Eastbound)				US 70N (W Spring St) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	16	14	0	5	15	9	0	6	80	7	1	19	111	12	0	307	
4:15 PM	8	17	17	0	5	18	13	0	2	80	10	0	12	110	6	0	298	
4:30 PM	9	19	13	0	4	21	10	0	3	64	11	0	11	111	6	0	282	
4:45 PM	18	11	17	0	6	18	4	0	4	89	13	0	20	148	4	0	352	1239
5:00 PM	13	29	18	0	6	26	11	0	3	83	12	0	25	124	8	0	358	1290
5:15 PM	12	11	14	0	4	10	10	0	5	81	9	0	19	104	5	0	284	1276
5:30 PM	9	6	16	0	8	6	7	0	2	93	5	0	17	119	3	0	291	1285
5:45 PM	8	12	17	0	6	6	9	0	4	63	5	0	7	87	3	0	227	1160
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	116	72	0	24	104	44	0	12	332	48	0	100	496	32	0	1432	
Heavy Trucks	0	0	0	0	4	0	0	0	0	0	0	0	0	16	0	0	20	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 45. N Maple Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959661
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

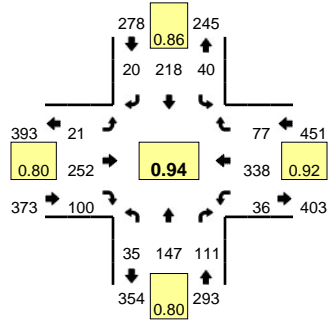


15-Min Count Period Beginning At	45. N Maple Ave (Northbound)				45. N Maple Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	11	11	0	2	28	2	0	1	10	2	0	14	69	23	0	176	
7:15 AM	6	28	11	0	6	55	3	0	2	18	9	0	13	109	28	0	288	
7:30 AM	7	51	14	0	9	95	4	0	1	37	21	0	10	124	52	0	425	
7:45 AM	6	57	16	0	4	94	3	0	1	22	19	0	14	117	40	0	393	1282
8:00 AM	4	43	4	0	6	42	2	0	0	16	6	0	11	118	30	0	282	1388
8:15 AM	4	17	7	0	3	25	2	0	1	15	3	0	14	100	16	0	207	1307
8:30 AM	7	13	3	0	1	26	1	0	3	13	3	0	8	112	16	0	206	1088
8:45 AM	1	12	12	0	3	39	1	0	3	12	4	0	16	104	31	0	238	933
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	204	56	0	36	380	16	0	4	148	84	0	40	496	208	0	1700	
Heavy Trucks	0	4	0	0	0	4	0	0	0	4	0	0	0	8	0	0	20	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

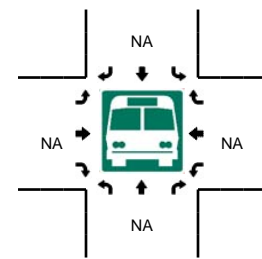
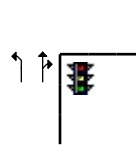
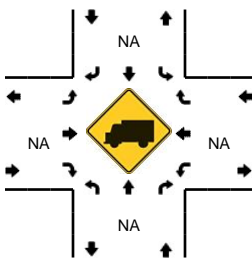
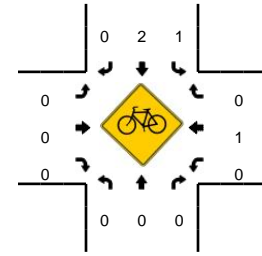
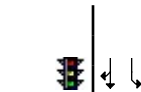
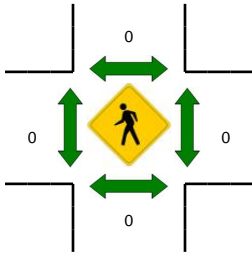
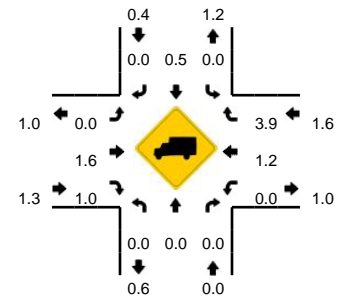
Comments:

LOCATION: 45. N Maple Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959662
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



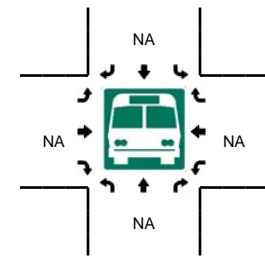
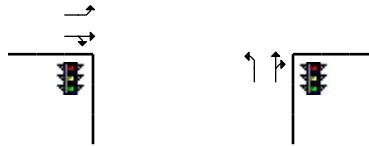
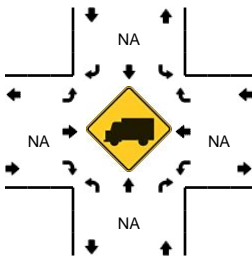
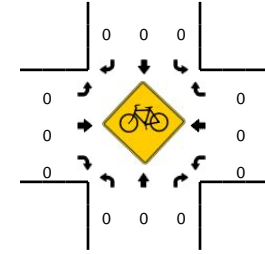
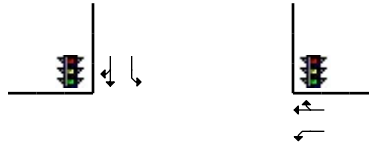
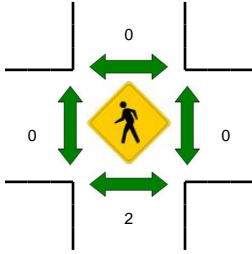
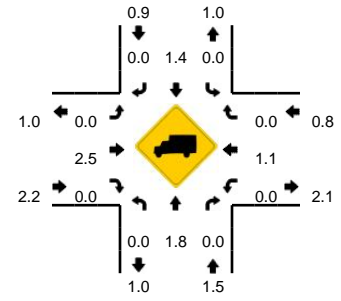
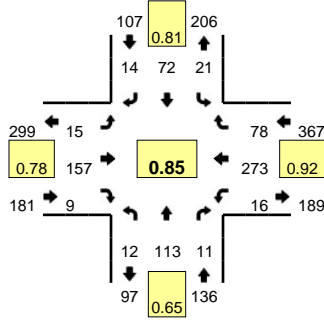
15-Min Count Period Beginning At	45. N Maple Ave (Northbound)				45. N Maple Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	33	29	0	5	35	6	0	2	50	23	0	8	62	20	0	282	
4:15 PM	4	37	18	0	9	39	3	0	8	49	17	0	7	80	13	0	284	
4:30 PM	9	39	27	0	11	63	7	0	5	59	18	0	3	76	21	0	338	
4:45 PM	14	32	19	0	10	56	7	0	3	83	30	0	11	81	19	0	365	1269
5:00 PM	7	44	41	0	12	54	2	0	5	52	32	0	11	98	13	0	371	1358
5:15 PM	5	32	24	0	7	45	4	0	8	58	20	0	11	83	24	0	321	1395
5:30 PM	3	36	17	0	6	31	0	0	2	44	9	0	13	59	13	0	233	1290
5:45 PM	3	27	10	0	10	38	5	0	4	31	7	0	14	63	15	0	227	1152
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	176	164	0	48	216	8	0	20	208	128	0	44	392	52	0	1484	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 46. N Dixie Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959663
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



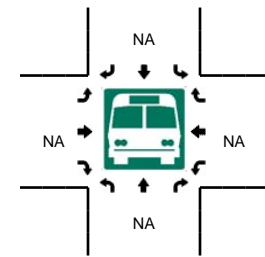
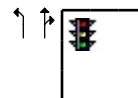
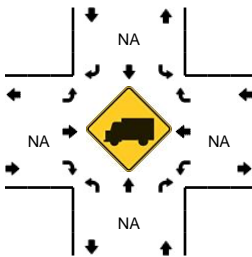
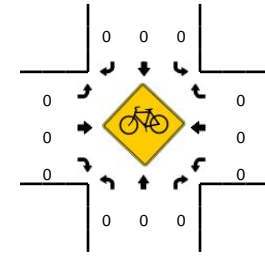
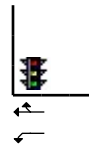
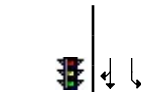
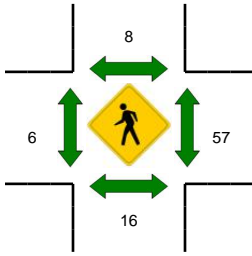
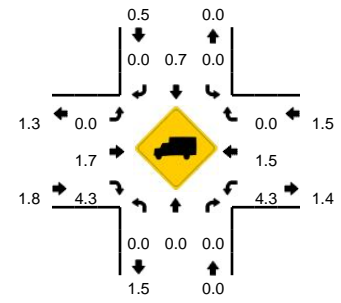
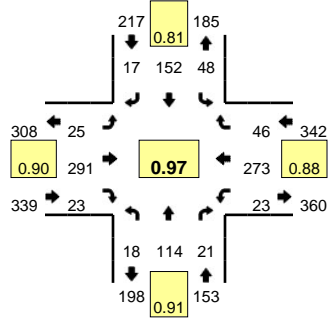
15-Min Count Period Beginning At	46. N Dixie Ave (Northbound)				46. N Dixie Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	10	1	0	0	9	1	0	0	14	2	0	2	43	9	0	91	
7:15 AM	1	12	2	0	5	16	3	0	1	27	1	0	2	49	15	0	134	
7:30 AM	3	26	4	0	11	19	4	0	8	50	1	0	5	68	26	0	225	
7:45 AM	3	45	4	0	4	20	1	0	2	55	1	0	5	76	16	0	232	682
8:00 AM	5	25	2	0	6	15	6	0	4	31	3	0	3	75	22	0	197	788
8:15 AM	1	17	1	0	0	18	3	0	1	21	4	0	3	54	14	0	137	791
8:30 AM	5	17	2	0	2	17	1	0	2	32	3	0	0	70	27	0	178	744
8:45 AM	2	21	4	0	5	19	3	0	0	44	4	0	1	68	16	0	187	699
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	180	16	0	16	80	4	0	8	220	4	0	20	304	64	0	928	
Heavy Trucks	0	8	0		0	0	0		0	8	0		0	0	0		16	
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

Comments:

LOCATION: 46. N Dixie Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959664
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



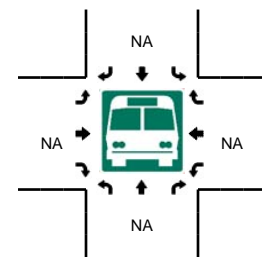
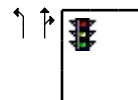
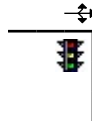
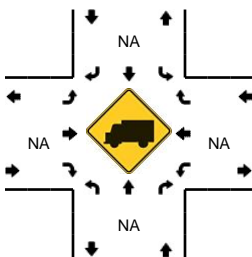
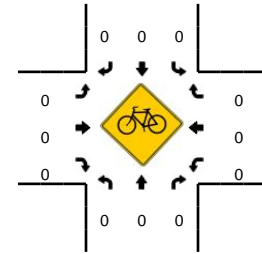
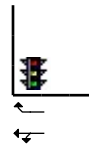
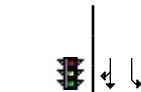
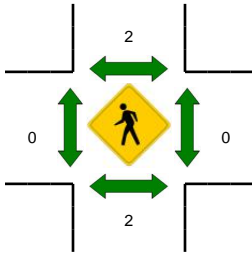
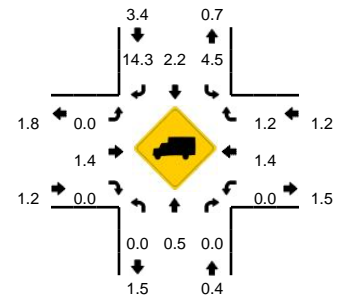
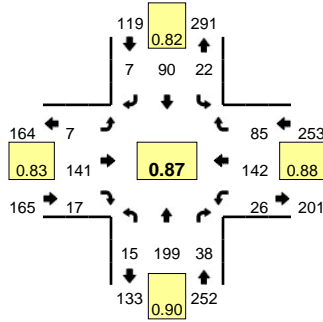
15-Min Count Period Beginning At	46. N Dixie Ave (Northbound)				46. N Dixie Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	26	4	0	7	19	5	0	7	71	6	0	5	67	5	0	228	
4:15 PM	7	27	2	0	5	31	7	0	7	57	4	0	3	64	10	0	224	
4:30 PM	3	33	4	0	11	53	3	0	7	64	5	0	4	58	10	0	255	
4:45 PM	4	21	7	0	17	34	7	0	4	77	6	0	8	73	9	0	267	974
5:00 PM	7	33	2	0	8	37	5	0	6	73	3	0	5	80	12	0	271	1017
5:15 PM	4	27	8	0	12	28	2	0	8	77	9	0	6	62	15	0	258	1051
5:30 PM	6	27	4	0	8	28	7	0	3	52	3	0	5	52	9	0	204	1000
5:45 PM	6	20	4	0	7	16	6	0	2	34	1	0	5	61	11	1	174	907
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	132	8	0	32	148	20	0	24	292	12	0	20	320	48	0	1084	
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	8	0		12	
Pedestrians		40				4				8				152			204	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 47. N Walnut Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959665
DATE: Wed, Jan 18 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

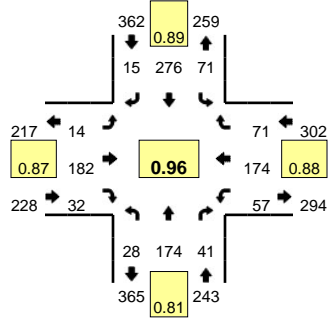


15-Min Count Period Beginning At	47. N Walnut Ave (Northbound)				47. N Walnut Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	10	6	0	2	15	0	0	2	12	2	0	2	27	13	0	92	
7:15 AM	4	43	9	0	4	19	0	0	2	18	0	0	4	26	12	0	141	
7:30 AM	5	56	10	0	4	22	3	0	2	44	3	0	8	35	17	0	209	
7:45 AM	4	58	5	0	5	32	1	0	2	45	3	0	7	39	27	0	228	670
8:00 AM	4	46	11	0	4	19	2	0	1	31	5	0	8	43	23	0	197	775
8:15 AM	2	39	12	0	9	17	1	0	2	21	6	0	3	25	18	0	155	789
8:30 AM	5	37	7	0	7	25	2	0	1	20	3	0	12	29	25	0	173	753
8:45 AM	3	34	11	0	6	20	1	0	0	31	3	0	5	41	19	0	174	699
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	16	232	20	0	20	128	4	0	8	180	12	0	28	156	108	0	912	
Heavy Trucks	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

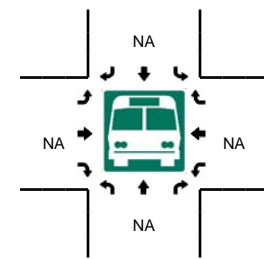
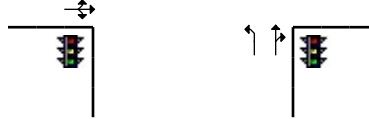
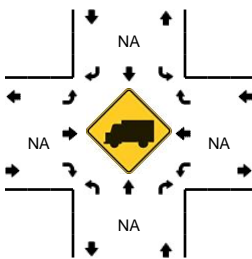
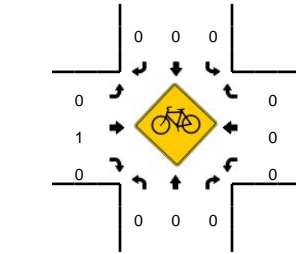
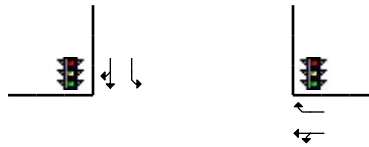
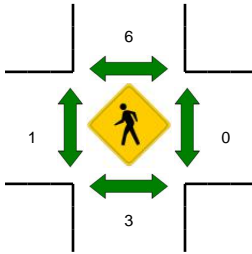
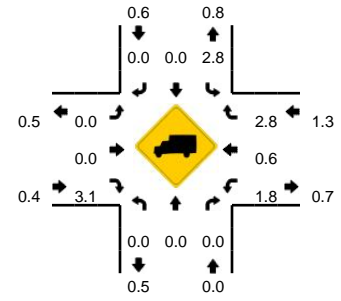
Comments:

LOCATION: 47. N Walnut Ave -- E Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959666
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

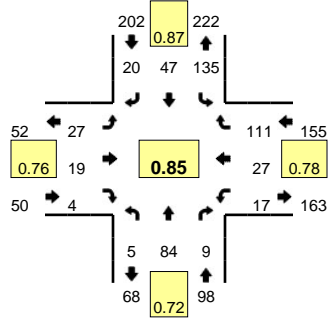


15-Min Count Period Beginning At	47. N Walnut Ave (Northbound)				47. N Walnut Ave (Southbound)				E Broad St (Eastbound)				E Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	51	21	0	13	65	4	0	1	50	9	0	15	36	22	0	294	
4:15 PM	8	43	9	0	14	59	3	0	9	38	8	0	11	39	22	0	263	
4:30 PM	5	45	9	0	23	75	4	0	2	47	7	0	11	40	17	0	285	
4:45 PM	5	43	10	0	14	76	4	0	3	50	11	0	16	44	16	0	292	1134
5:00 PM	10	43	13	0	20	66	4	0	0	47	6	0	19	51	16	0	295	1135
5:15 PM	9	35	12	0	7	52	0	0	3	59	8	0	8	36	10	0	239	1111
5:30 PM	4	46	9	0	11	62	6	0	2	34	8	0	10	37	10	0	239	1065
5:45 PM	4	52	5	0	11	48	5	0	4	26	5	0	14	42	16	0	232	1005
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	40	172	52	0	80	264	16	0	0	188	24	0	76	204	64	0	1180	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8	
Pedestrians	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

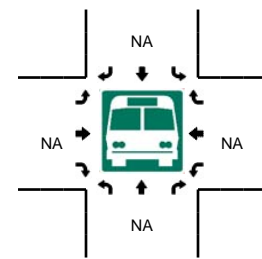
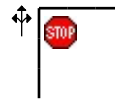
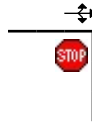
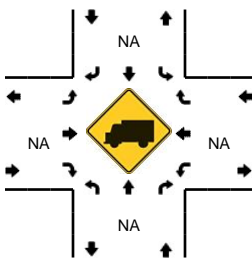
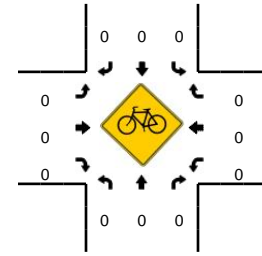
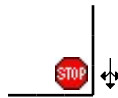
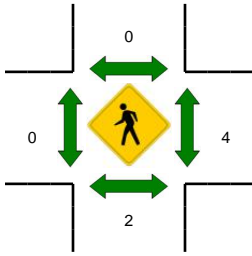
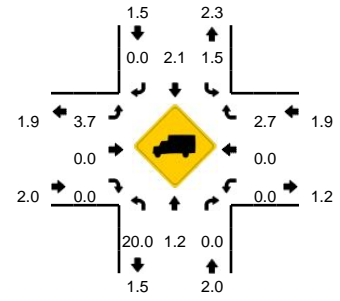
Comments:

LOCATION: 48. S Cedar Ave -- W Broad St/Depot St
CITY/STATE: Putnam, TN

QC JOB #: 13959667
DATE: Wed, Jan 18 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



15-Min Count Period Beginning At	48. S Cedar Ave (Northbound)				48. S Cedar Ave (Southbound)				W Broad St/Depot St (Eastbound)				W Broad St/Depot St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	2	0	12	5	1	0	0	3	0	0	1	7	16	0	50	
7:15 AM	1	12	1	0	16	10	1	0	4	4	2	0	4	2	27	0	84	
7:30 AM	1	17	3	0	39	7	4	0	7	8	2	0	4	9	22	0	123	
7:45 AM	1	31	2	0	39	13	6	0	12	4	0	0	3	8	30	0	149	406
8:00 AM	1	21	3	0	32	15	3	0	4	4	1	0	7	6	38	0	135	491
8:15 AM	2	15	1	0	25	12	7	0	4	3	1	0	3	4	21	0	98	505
8:30 AM	0	12	2	0	18	19	1	0	6	5	1	0	3	7	23	0	97	479
8:45 AM	0	18	5	0	28	22	1	0	1	2	1	0	7	8	30	0	123	453
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	124	8	0	156	52	24	0	48	16	0	0	12	32	120	0	596	
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4	
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

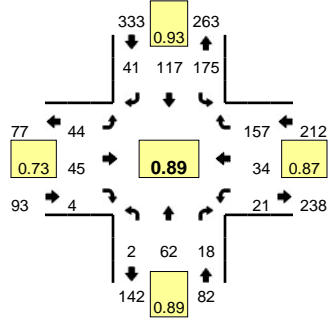
Comments:

Type of peak hour being reported: Intersection Peak

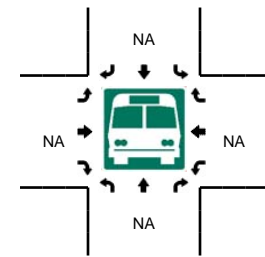
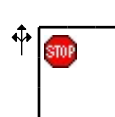
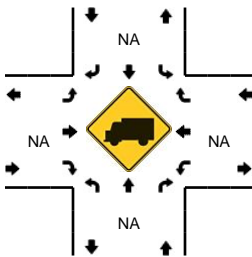
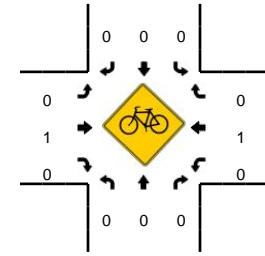
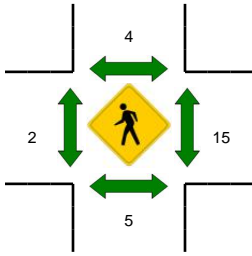
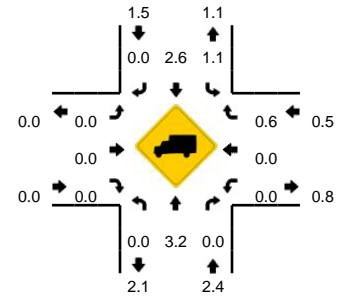
Method for determining peak hour: Total Entering Volume

LOCATION: 48. S Cedar Ave -- W Broad St/Depot St
CITY/STATE: Putnam, TN

QC JOB #: 13959668
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

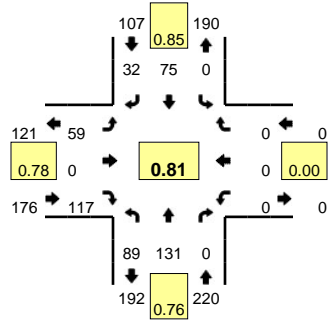


15-Min Count Period Beginning At	48. S Cedar Ave (Northbound)				48. S Cedar Ave (Southbound)				W Broad St/Depot St (Eastbound)				W Broad St/Depot St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	19	6	0	40	20	7	0	11	13	1	0	10	7	42	0	176	
4:15 PM	2	12	5	0	35	22	5	0	8	6	0	0	4	10	33	0	142	
4:30 PM	1	11	3	0	47	29	14	0	4	9	1	0	9	5	42	0	175	
4:45 PM	0	19	6	0	38	28	9	0	13	12	1	0	6	5	40	0	177	670
5:00 PM	1	16	3	0	45	32	12	0	18	13	1	0	2	15	45	0	203	697
5:15 PM	0	16	6	0	45	28	6	0	9	11	1	0	4	9	30	0	165	720
5:30 PM	0	14	12	0	29	33	8	0	9	6	0	0	4	12	29	0	156	701
5:45 PM	0	9	3	0	28	15	6	0	9	5	0	0	6	9	28	0	118	642
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	4	64	12	0	180	128	48	0	72	52	4	0	8	60	180	0		812
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	8	
Pedestrians	4				4				0				4				12	
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1	
Railroad																		
Stopped Buses																		

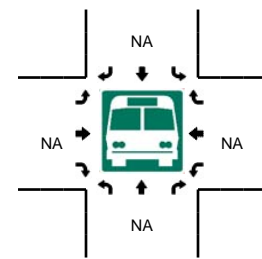
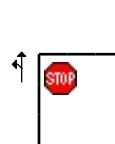
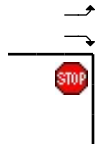
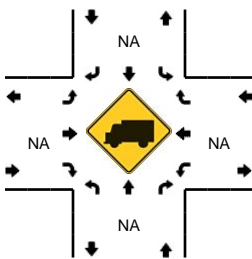
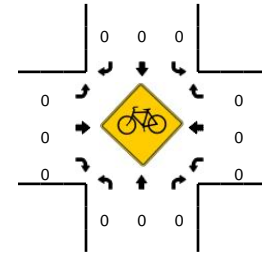
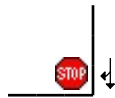
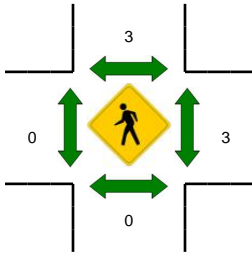
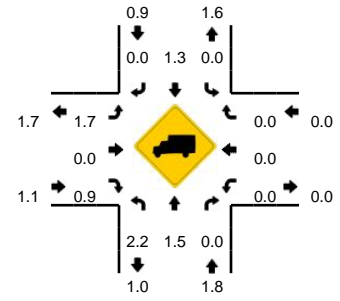
Comments:

LOCATION: 49. N Cedar Ave -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959669
DATE: Wed, Jan 18 2017



Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

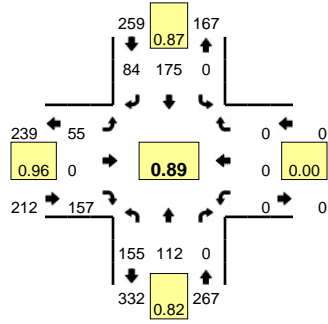


15-Min Count Period Beginning At	49. N Cedar Ave (Northbound)				49. N Cedar Ave (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	13	8	0	0	0	7	4	0	7	0	11	0	0	0	0	0	50	
7:15 AM	22	21	0	0	0	10	7	0	16	0	17	0	0	0	0	0	93	
7:30 AM	17	27	0	0	0	12	4	0	11	0	37	0	0	0	0	0	108	
7:45 AM	25	48	0	0	0	16	7	0	18	0	42	0	0	0	0	0	156	407
8:00 AM	30	33	0	0	0	20	8	0	13	0	27	0	0	0	0	0	131	488
8:15 AM	14	27	0	0	0	20	6	0	14	0	24	0	0	0	0	0	105	500
8:30 AM	20	23	0	0	0	19	11	0	14	0	24	0	0	0	0	0	111	503
8:45 AM	18	33	0	0	0	22	13	0	15	0	29	0	0	0	0	0	130	477
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	100	192	0	0	0	64	28	0	72	0	168	0	0	0	0	0	624	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	8	
Pedestrians		0				0					0			4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

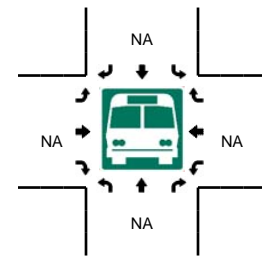
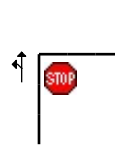
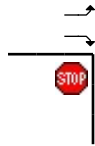
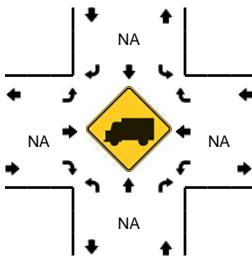
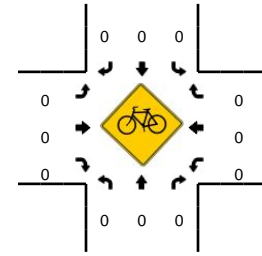
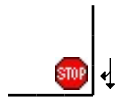
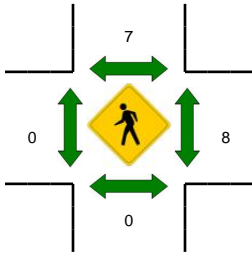
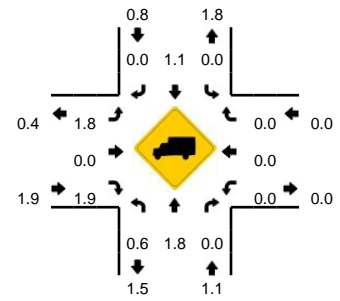
Comments:

LOCATION: 49. N Cedar Ave -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959670
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

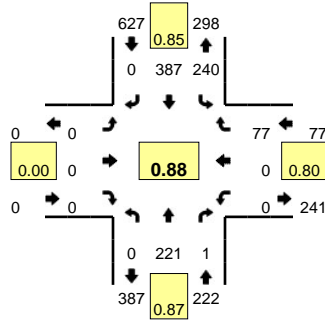


15-Min Count Period Beginning At	49. N Cedar Ave (Northbound)				49. N Cedar Ave (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	38	34	0	0	0	36	19	0	8	0	33	0	0	0	0	0	168	
4:15 PM	30	23	0	0	0	35	24	0	15	0	27	0	0	0	0	0	154	
4:30 PM	37	19	0	0	0	49	28	0	13	0	40	0	0	0	0	0	186	
4:45 PM	39	34	0	0	0	36	23	0	14	0	37	0	0	0	0	0	183	691
5:00 PM	49	32	0	0	0	50	23	0	12	0	41	0	0	0	0	0	207	730
5:15 PM	30	27	0	0	0	40	10	0	16	0	39	0	0	0	0	0	162	738
5:30 PM	19	21	0	0	0	44	17	0	12	0	24	0	0	0	0	0	137	689
5:45 PM	19	31	0	0	0	18	14	0	9	0	30	0	0	0	0	0	121	627
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	196	128	0	0	0	200	92	0	48	0	164	0	0	0	0	0	828	
Heavy Trucks	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians		0				0					0			4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

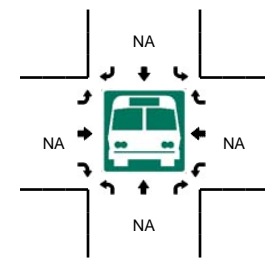
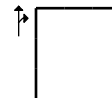
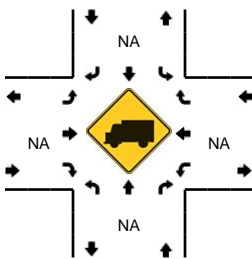
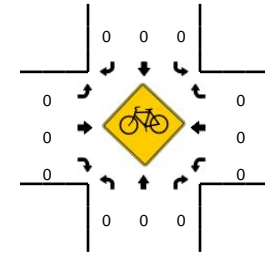
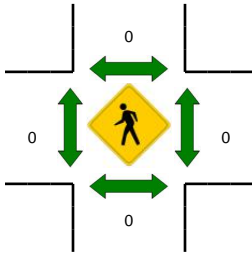
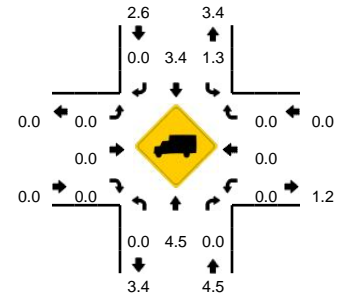
Comments:

LOCATION: 50. W Spring St -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959671
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

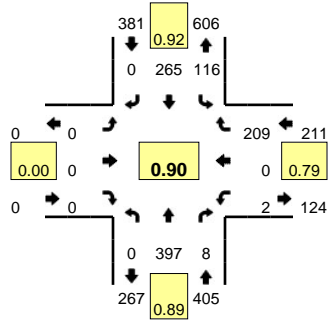


15-Min Count Period Beginning At	50. W Spring St (Northbound)				50. W Spring St (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	38	0	0	35	61	0	0	0	0	0	0	1	0	20	0	155	
7:15 AM	0	52	0	0	47	99	0	0	0	0	0	0	0	0	24	0	222	
7:30 AM	0	51	0	0	72	113	0	0	0	0	0	0	0	0	18	0	254	
7:45 AM	0	63	1	0	79	106	0	0	0	0	0	0	0	0	13	0	262	893
8:00 AM	0	55	0	0	42	69	0	0	0	0	0	0	0	0	22	0	188	926
8:15 AM	0	34	1	0	32	59	0	0	0	0	0	0	0	0	20	0	146	850
8:30 AM	0	28	1	0	39	48	0	0	0	0	0	0	1	0	10	0	127	723
8:45 AM	0	43	1	0	29	76	0	0	0	0	0	0	0	0	21	0	170	631
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	252	4	0	316	424	0	0	0	0	0	0	0	0	52	0	1048	
Heavy Trucks	0	4	0	0	0	16	0	0	0	0	0	0	0	0	0	0	20	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

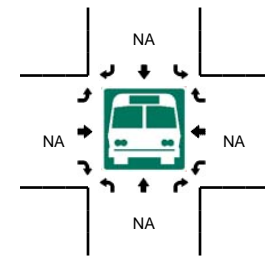
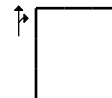
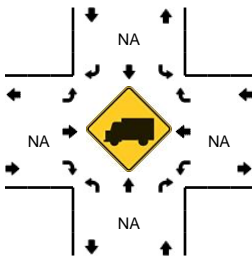
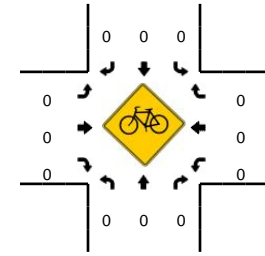
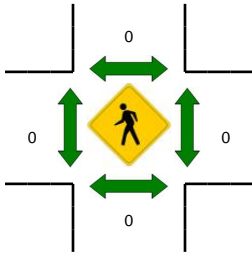
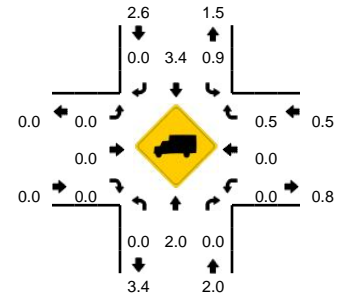
Comments:

LOCATION: 50. W Spring St -- W Broad St
CITY/STATE: Putnam, TN

QC JOB #: 13959672
DATE: Wed, Jan 18 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



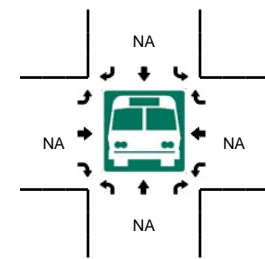
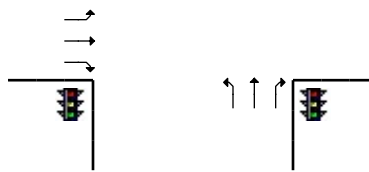
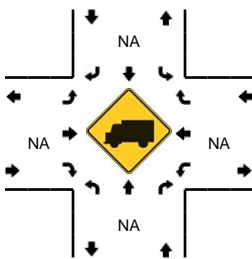
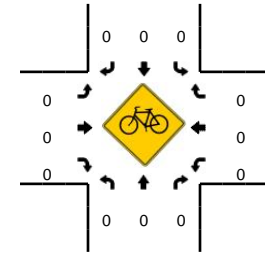
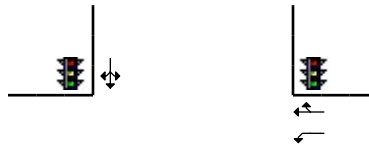
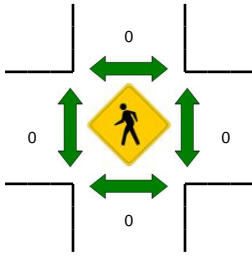
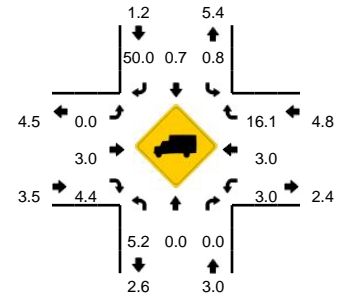
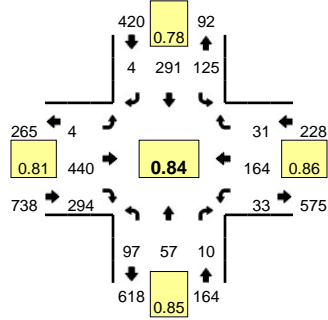
15-Min Count Period Beginning At	50. W Spring St (Northbound)				50. W Spring St (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	86	1	0	33	52	0	0	0	0	0	0	3	0	38	0	213	
4:15 PM	0	113	1	0	34	57	0	0	0	0	0	0	0	0	45	0	250	
4:30 PM	0	71	1	0	22	68	0	0	0	0	0	0	2	0	55	0	219	
4:45 PM	0	112	2	0	28	68	0	0	0	0	0	0	0	0	41	0	251	933
5:00 PM	0	101	4	0	32	72	0	0	0	0	0	0	0	0	68	0	277	997
5:15 PM	0	73	1	0	28	41	0	0	0	0	0	0	1	0	49	0	193	940
5:30 PM	0	84	1	0	24	66	0	0	0	0	0	0	0	0	51	0	226	947
5:45 PM	0	74	1	0	26	48	0	0	0	0	0	0	2	0	27	0	178	874
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	404	16	0	128	288	0	0	0	0	0	0	0	0	272	0	1108	
Heavy Trucks	0	12	0	0	0	0	0	0	0	0	0	0	0	0	4	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 51. W Jackson St/Pippin Rd -- W Broad St
CITY/STATE: Cookeville, TN

QC JOB #: 13959673
DATE: Wed, Jan 18 2017

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



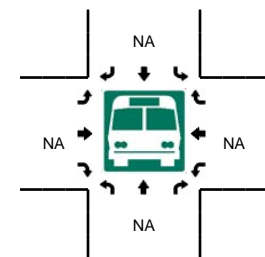
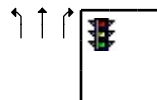
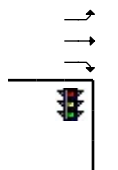
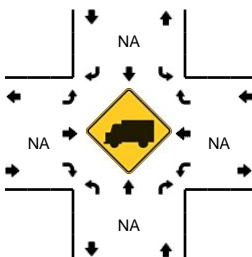
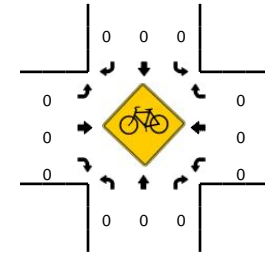
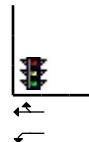
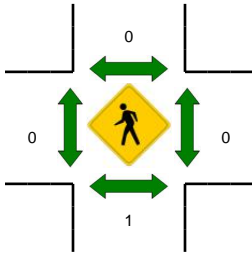
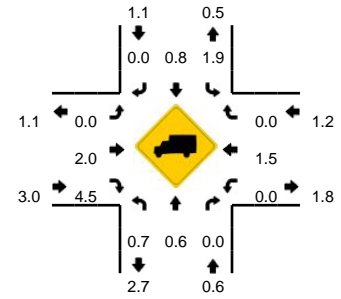
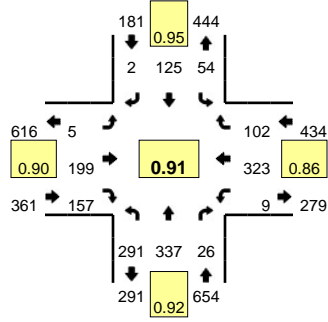
15-Min Count Period Beginning At	51. W Jackson St/Pippin Rd (Northbound)				51. W Jackson St/Pippin Rd (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	21	7	4	0	21	53	1	0	2	82	49	0	13	27	9	0	289	
7:15 AM	24	10	3	0	20	62	1	0	1	114	71	0	9	52	5	0	372	
7:30 AM	23	12	3	0	44	90	1	0	0	133	96	0	7	44	8	0	461	
7:45 AM	29	28	0	0	40	86	1	0	1	111	78	0	4	41	9	0	428	1550
8:00 AM	25	30	1	0	14	35	1	0	0	73	51	0	4	38	6	0	278	1539
8:15 AM	25	10	0	0	21	41	1	0	0	63	46	0	3	34	8	0	252	1419
8:30 AM	26	19	1	0	7	38	0	0	0	51	41	0	5	21	4	0	213	1171
8:45 AM	18	11	0	0	19	32	0	0	2	58	38	0	3	29	8	0	218	961
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	92	48	12	0	176	360	4	0	0	532	384	0	28	176	32	0	1844	
Heavy Trucks	4	0	0	0	0	0	4	0	0	20	16	0	0	0	4	0	48	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		0
Stopped Buses																		0

Comments:

LOCATION: 51. W Jackson St/Pippin Rd -- W Broad St
CITY/STATE: Cookeville, TN

QC JOB #: 13959674
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



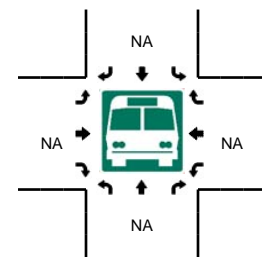
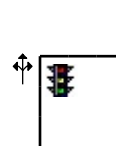
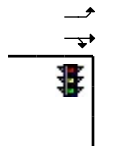
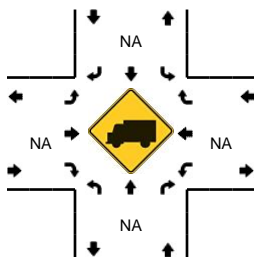
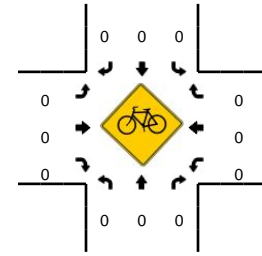
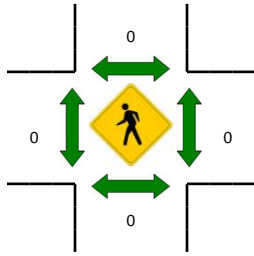
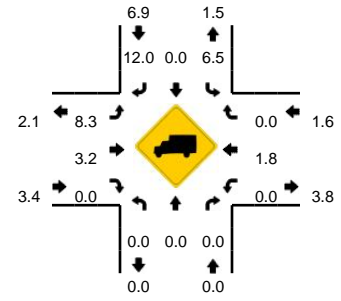
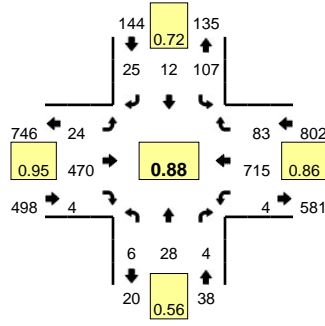
15-Min Count Period Beginning At	51. W Jackson St/Pippin Rd (Northbound)				51. W Jackson St/Pippin Rd (Southbound)				W Broad St (Eastbound)				W Broad St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	67	66	3	0	8	41	3	0	2	50	41	0	3	59	23	0	366	
4:15 PM	65	47	14	0	10	32	1	0	0	42	46	0	6	100	31	0	394	
4:30 PM	63	84	8	0	10	29	0	0	0	39	44	0	2	76	18	0	373	
4:45 PM	69	78	5	0	15	30	1	0	0	51	34	0	4	82	29	0	398	1531
5:00 PM	70	92	8	0	12	35	1	0	2	58	43	0	0	90	35	0	446	1611
5:15 PM	89	83	5	0	17	31	0	0	3	51	36	0	3	75	20	0	413	1630
5:30 PM	57	62	4	0	13	36	3	0	1	46	47	0	4	59	35	0	367	1624
5:45 PM	51	62	4	0	9	40	0	0	0	33	41	0	3	70	17	0	330	1556
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	280	368	32	0	48	140	4	0	8	232	172	0	0	360	140	0	1784	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	8	0	0	8	0	0	20	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 52. Brown Ave -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959675
DATE: Wed, Feb 01 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

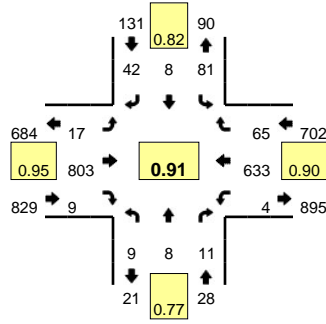


15-Min Count Period Beginning At	52. Brown Ave (Northbound)				52. Brown Ave (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	3	0	9	0	5	0	4	83	0	0	0	104	20	0	229	
7:15 AM	0	3	0	0	21	3	2	0	7	124	0	0	0	149	22	0	331	
7:30 AM	0	18	0	0	39	2	9	0	7	119	1	0	3	182	20	0	400	
7:45 AM	2	5	1	0	31	5	14	0	6	122	2	0	1	203	29	0	421	1381
8:00 AM	4	2	3	0	16	2	0	0	4	105	1	0	0	181	12	0	330	1482
8:15 AM	3	0	2	0	8	1	7	0	1	83	2	0	1	151	13	0	272	1423
8:30 AM	3	1	4	0	12	0	7	0	4	81	0	0	2	157	8	1	280	1303
8:45 AM	0	2	0	0	8	0	8	0	6	74	1	0	1	177	20	0	297	1179
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	20	4	0	124	20	56	0	24	488	8	0	4	812	116	0	1684	
Heavy Trucks	0	0	0		4	0	8		0	0	0		0	12	0		24	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

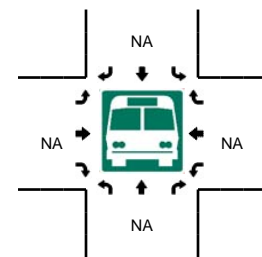
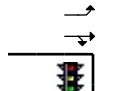
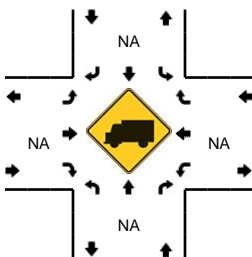
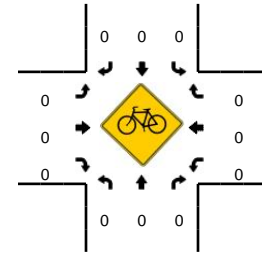
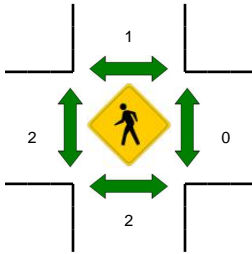
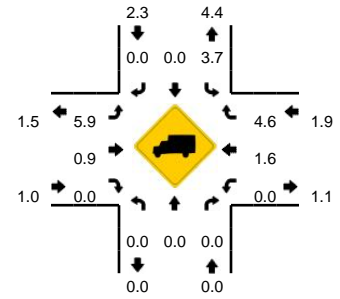
Comments:

LOCATION: 52. Brown Ave -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959676
DATE: Wed, Feb 01 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

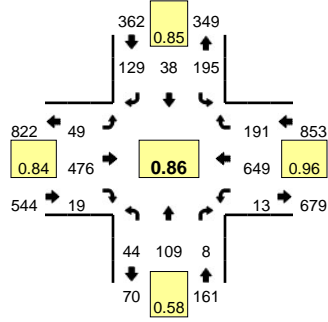


15-Min Count Period Beginning At	52. Brown Ave (Northbound)				52. Brown Ave (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	3	3	0	20	3	12	0	8	169	2	0	0	155	24	0	402	
4:15 PM	3	3	5	0	22	1	7	0	9	163	2	0	2	166	13	0	396	
4:30 PM	2	1	1	0	14	2	11	0	5	193	1	0	2	139	15	0	386	
4:45 PM	3	4	3	0	25	5	11	0	2	212	4	0	2	176	19	0	466	1650
5:00 PM	2	1	2	0	27	1	15	0	3	198	3	0	0	143	17	0	412	1660
5:15 PM	2	2	5	0	15	0	5	0	7	200	1	0	0	175	14	0	426	1690
5:30 PM	0	0	7	0	21	2	5	0	5	170	3	0	1	137	17	0	368	1672
5:45 PM	2	1	3	0	15	0	4	0	4	150	0	0	1	134	13	0	327	1533
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	16	12	0	100	20	44	0	8	848	16	0	8	704	76	0	1864	
Heavy Trucks	0	0	0		8	0	0		0	8	0		0	20	12		48	
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

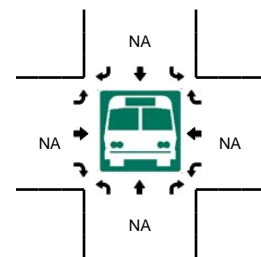
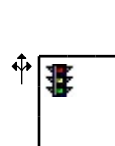
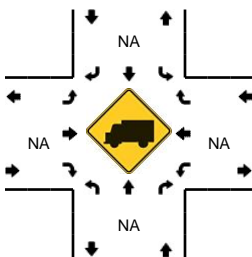
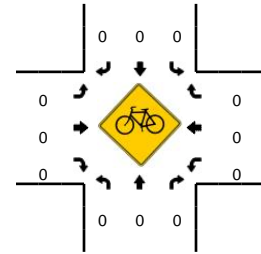
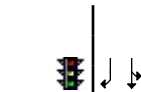
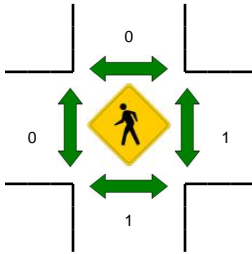
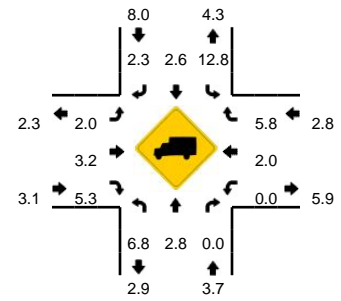
Comments:

LOCATION: 53. Fisk Rd -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959677
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

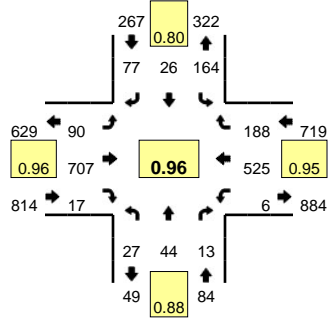


15-Min Count Period Beginning At	53. Fisk Rd (Northbound)				53. Fisk Rd (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	9	4	0	23	5	13	0	7	77	3	0	2	95	35	0	280	
7:15 AM	7	23	1	0	43	8	24	0	10	102	6	0	3	162	56	0	445	
7:30 AM	14	54	2	0	60	10	37	0	12	144	6	0	5	155	59	0	558	
7:45 AM	15	25	2	0	61	11	35	0	15	127	5	0	2	162	47	0	507	1790
8:00 AM	8	7	3	0	31	9	33	0	12	103	2	0	3	170	29	0	410	1920
8:15 AM	1	6	0	0	18	2	17	0	9	87	4	0	3	137	19	0	303	1778
8:30 AM	10	3	1	0	23	3	19	0	14	59	0	0	1	182	17	0	332	1552
8:45 AM	10	0	2	0	28	1	14	0	12	92	1	0	5	123	16	0	304	1349
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	216	8	0	240	40	148	0	48	576	24	0	20	620	236	0	2232	
Heavy Trucks	4	4	0	0	24	0	0	0	0	8	0	0	0	12	20	0	72	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

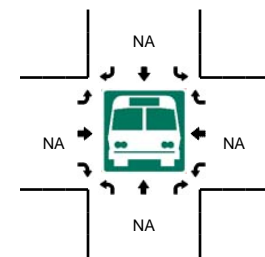
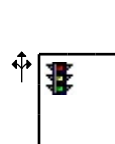
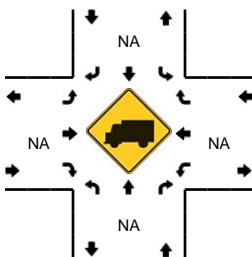
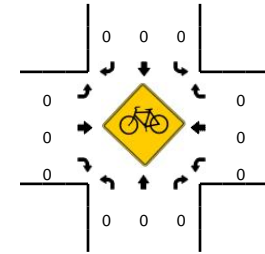
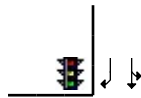
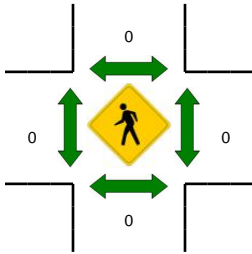
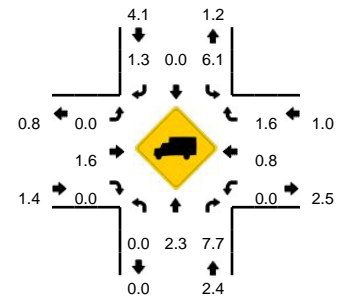
Comments:

LOCATION: 53. Fisk Rd -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959678
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



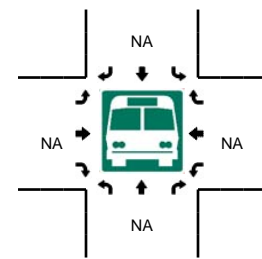
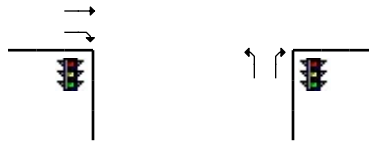
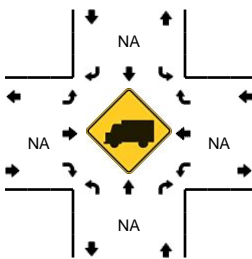
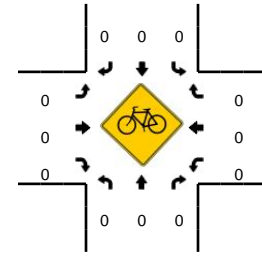
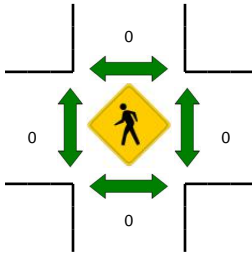
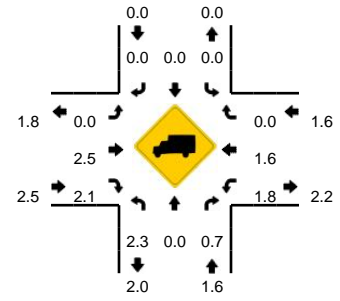
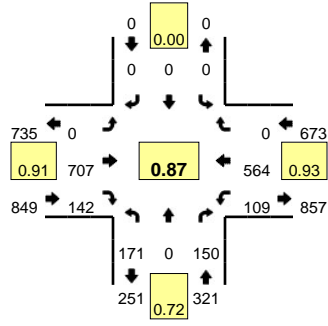
15-Min Count Period Beginning At	53. Fisk Rd (Northbound)				53. Fisk Rd (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	11	2	0	30	6	17	0	18	174	4	0	1	128	36	0	433	
4:15 PM	11	10	2	0	38	5	25	0	21	154	5	0	4	133	27	0	435	
4:30 PM	5	9	2	0	46	5	18	0	23	175	4	0	2	150	37	0	476	
4:45 PM	8	10	3	0	44	6	15	0	21	163	4	0	0	129	41	0	444	1788
5:00 PM	9	7	4	0	38	6	21	0	26	185	2	0	2	123	50	0	473	1828
5:15 PM	5	18	4	0	36	9	23	0	20	184	7	0	2	123	60	0	491	1884
5:30 PM	7	12	8	0	59	4	27	0	22	135	6	0	2	136	41	0	459	1867
5:45 PM	6	7	1	0	40	9	12	0	16	144	3	0	5	120	35	0	398	1821
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	72	16	0	144	36	92	0	80	736	28	0	8	492	240	0	1964	
Heavy Trucks	0	4	0		8	0	4		0	12	0		0	0	0		28	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

LOCATION: 54. N Old Kentucky Rd -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959680
DATE: Wed, Feb 01 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

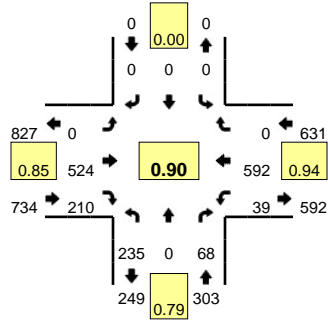


15-Min Count Period Beginning At	54. N Old Kentucky Rd (Northbound)				54. N Old Kentucky Rd (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	47	0	40	0	0	0	0	0	0	170	29	0	32	123	0	0	441	
4:15 PM	23	0	44	0	0	0	0	0	0	170	24	0	22	140	0	0	423	
4:30 PM	38	0	20	0	0	0	0	0	0	168	39	0	31	129	0	0	425	
4:45 PM	32	0	36	0	0	0	0	0	0	178	38	0	24	135	0	0	443	1732
5:00 PM	58	0	54	0	0	0	0	0	0	193	39	0	33	150	0	0	527	1818
5:15 PM	43	0	40	0	0	0	0	0	0	168	26	0	21	150	0	0	448	1843
5:30 PM	32	0	22	0	0	0	0	0	0	152	21	0	21	138	0	0	386	1804
5:45 PM	23	0	25	0	0	0	0	0	0	146	44	0	19	149	0	0	406	1767
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	232	0	216	0	0	0	0	0	0	772	156	0	132	600	0	0	2108	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	4	0	0	12	0	0	40	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

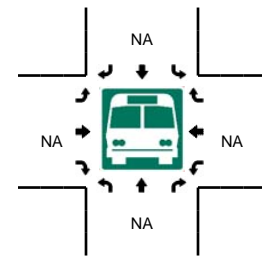
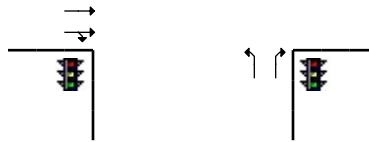
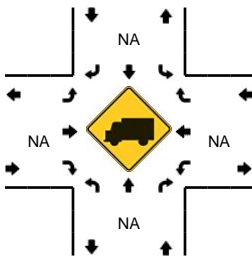
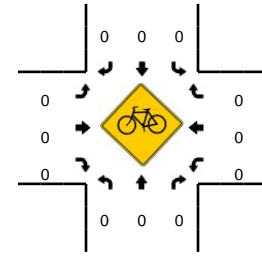
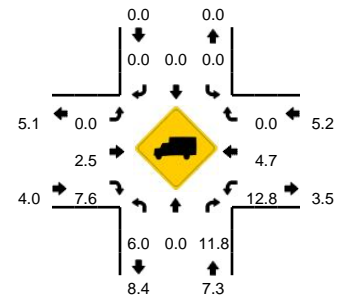
Comments:

LOCATION: 57. Burton Branch Rd -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959681
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



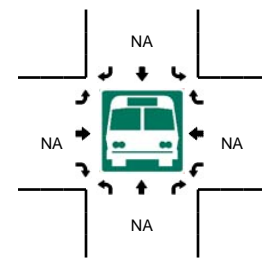
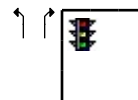
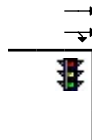
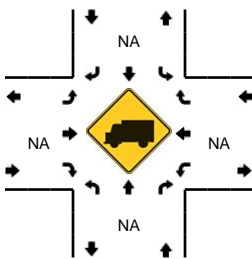
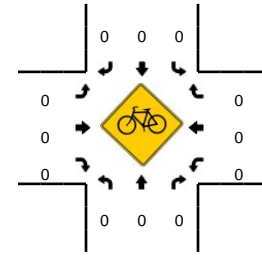
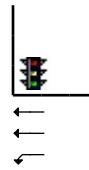
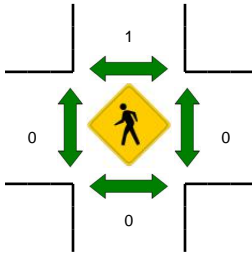
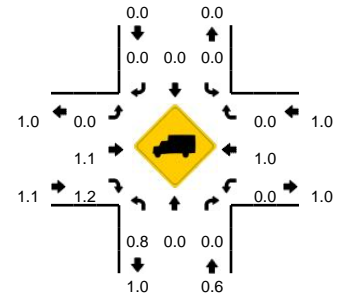
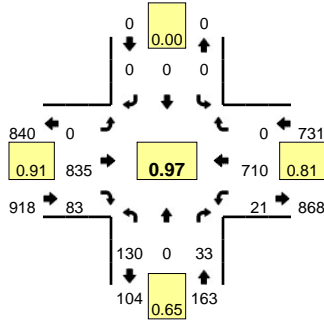
15-Min Count Period Beginning At	57. Burton Branch Rd (Northbound)				57. Burton Branch Rd (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	25	0	7	0	0	0	0	0	0	93	35	0	8	112	0	0	280	
7:15 AM	75	0	21	0	0	0	0	0	0	97	63	0	9	141	0	0	406	
7:30 AM	79	0	11	0	0	0	0	0	0	135	68	0	13	155	0	0	461	
7:45 AM	48	0	22	0	0	0	0	0	0	160	57	0	6	158	0	0	451	1598
8:00 AM	33	0	14	0	0	0	0	0	0	132	22	0	11	138	0	0	350	1668
8:15 AM	9	0	5	0	0	0	0	0	0	112	12	0	3	120	0	0	261	
8:30 AM	11	0	8	0	0	0	0	0	0	100	15	0	6	144	0	0	284	1346
8:45 AM	12	0	3	0	0	0	0	0	0	130	14	0	5	114	0	0	278	1173
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	316	0	44	0	0	0	0	0	0	540	272	0	52	620	0	0	1844	
Heavy Trucks	16	0	4	0	0	0	0	0	0	20	20	0	4	28	0	0	92	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 57. Burton Branch Rd -- E 10th St
CITY/STATE: Putnam, TN

QC JOB #: 13959682
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

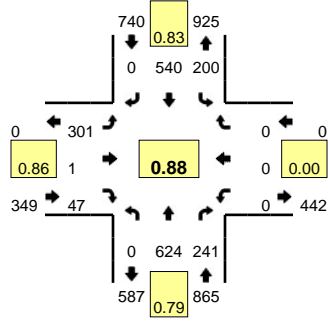


15-Min Count Period Beginning At	57. Burton Branch Rd (Northbound)				57. Burton Branch Rd (Southbound)				E 10th St (Eastbound)				E 10th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	23	0	8	0	0	0	0	0	0	168	16	0	9	225	0	0	449	
4:15 PM	21	0	3	0	0	0	0	0	0	189	22	0	6	181	0	0	422	
4:30 PM	57	0	6	0	0	0	0	0	0	184	21	0	7	154	0	0	429	1753
4:45 PM	24	0	6	0	0	0	0	0	0	217	27	0	4	175	0	0	453	
5:00 PM	31	0	16	0	0	0	0	0	0	199	17	0	6	195	0	0	464	1768
5:15 PM	18	0	5	0	0	0	0	0	0	235	18	0	4	186	0	0	466	1812
5:30 PM	12	0	7	0	0	0	0	0	0	191	21	0	5	173	0	0	409	1792
5:45 PM	13	0	5	0	0	0	0	0	0	173	23	0	9	158	0	0	381	1720
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	72	0	20	0	0	0	0	0	0	940	72	0	16	744	0	0	1864	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

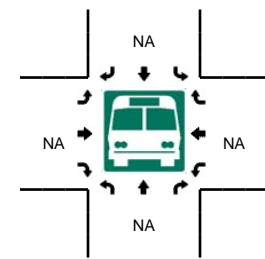
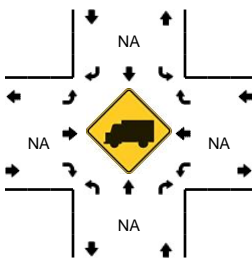
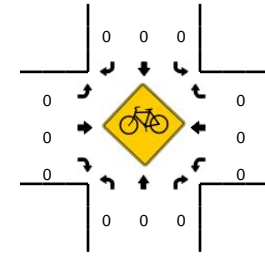
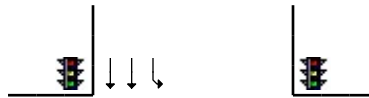
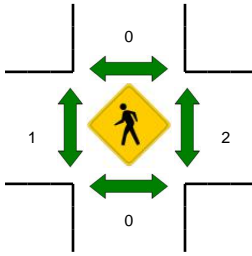
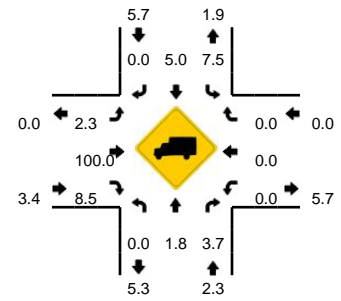
Comments:

LOCATION: 2. SR 135 (S Willow Ave) -- I-40 EB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959683
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

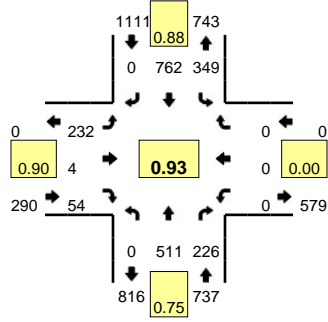


15-Min Count Period Beginning At	2. SR 135 (S Willow Ave) (Northbound)				2. SR 135 (S Willow Ave) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	102	57	0	38	65	0	0	60	0	11	0	0	0	0	0	333	
7:15 AM	0	175	58	0	59	94	0	0	65	1	9	0	0	0	0	0	461	
7:30 AM	0	203	72	0	54	127	0	0	89	0	8	0	0	0	0	0	553	
7:45 AM	0	137	66	0	53	171	0	0	85	0	16	0	0	0	0	0	528	1875
8:00 AM	0	109	45	0	34	148	0	0	62	0	14	0	0	0	0	0	412	1954
8:15 AM	0	104	26	0	36	73	0	0	52	1	6	0	0	0	0	0	298	1791
8:30 AM	0	124	31	0	39	107	0	0	56	0	2	0	0	0	0	0	359	1597
8:45 AM	0	100	34	0	31	80	0	0	42	1	10	0	0	0	0	0	298	1367
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	812	288	0	216	508	0	0	356	0	32	0	0	0	0	0	2212	
Heavy Trucks	0	4	8		16	48	0		8	0	8		0	0	0		92	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

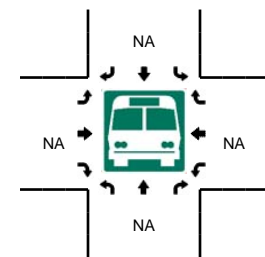
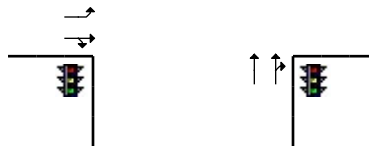
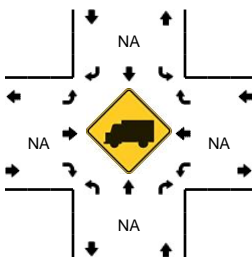
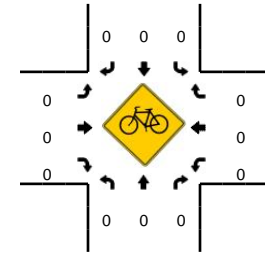
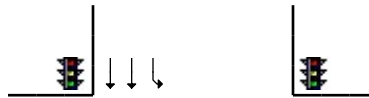
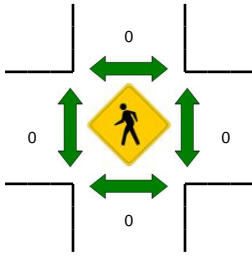
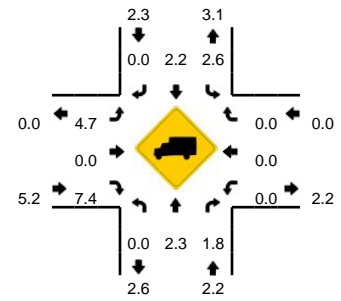
Comments:

LOCATION: 2. SR 135 (S Willow Ave) -- I-40 EB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959684
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

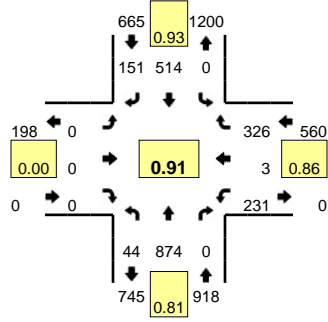


15-Min Count Period Beginning At	2. SR 135 (S Willow Ave) (Northbound)				2. SR 135 (S Willow Ave) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	120	49	0	76	204	0	0	52	1	11	0	0	0	0	0	513	
4:15 PM	0	116	50	0	77	163	0	0	58	0	4	0	0	0	0	0	468	
4:30 PM	0	171	78	0	87	175	0	0	55	1	7	0	0	0	0	0	574	
4:45 PM	0	116	44	0	84	200	0	0	55	0	14	0	0	0	0	0	513	2068
5:00 PM	0	105	51	0	110	207	0	0	58	1	17	0	0	0	0	0	549	2104
5:15 PM	0	119	53	0	68	180	0	0	64	2	16	0	0	0	0	0	502	2138
5:30 PM	0	99	35	0	64	157	0	0	52	0	16	0	0	0	0	0	423	1987
5:45 PM	0	101	43	0	56	163	0	0	52	0	17	0	0	0	0	0	432	1906
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	684	312	0	348	700	0	0	220	4	28	0	0	0	0	0	2296	
Heavy Trucks	0	24	4		8	24	0		8	0	4		0	0	0		72	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

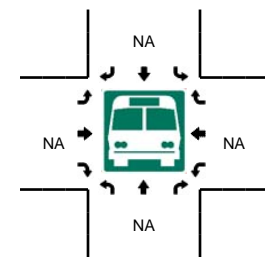
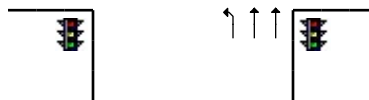
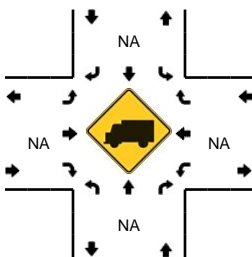
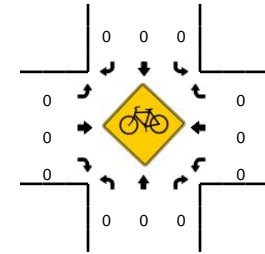
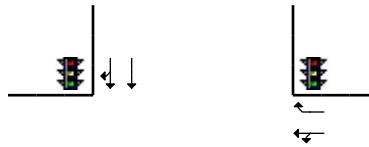
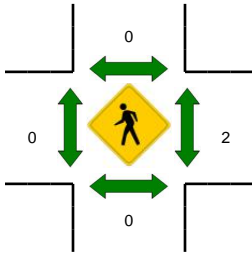
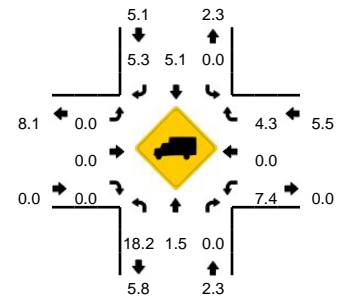
Comments:

LOCATION: 3. SR 135 (S Willow Ave) -- I-40 WB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959685
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

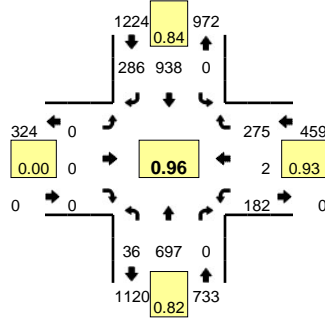


15-Min Count Period Beginning At	3. SR 135 (S Willow Ave) (Northbound)				3. SR 135 (S Willow Ave) (Southbound)				I-40 WB Ramps (Eastbound)				I-40 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	12	152	0	0	0	58	30	0	0	0	0	0	42	1	75	0	370	
7:15 AM	15	226	0	0	0	112	38	0	0	0	0	0	39	0	94	0	524	
7:30 AM	11	271	0	0	0	133	43	0	0	0	0	0	56	0	77	0	591	
7:45 AM	7	204	0	0	0	145	33	0	0	0	0	0	76	1	85	0	551	2036
8:00 AM	11	173	0	0	0	124	37	0	0	0	0	0	60	2	70	0	477	2143
8:15 AM	11	143	0	0	0	83	37	0	0	0	0	0	26	0	69	0	369	1988
8:30 AM	6	165	0	0	0	109	36	0	0	0	0	0	39	1	81	0	437	1834
8:45 AM	8	134	0	0	0	89	32	0	0	0	0	0	27	2	63	0	355	1638
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	1084	0	0	0	532	172	0	0	0	0	0	224	0	308	0	2364	
Heavy Trucks	0	8	0	0	0	44	4	0	0	0	0	0	20	0	8	0	84	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

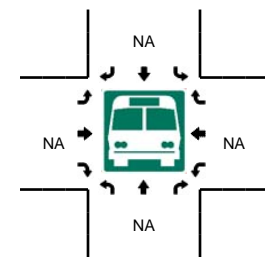
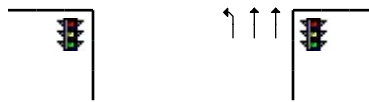
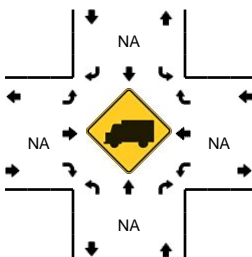
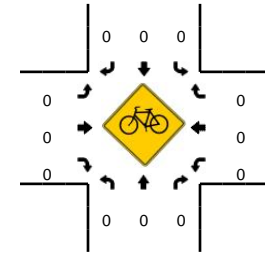
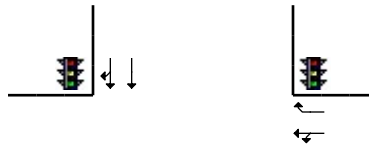
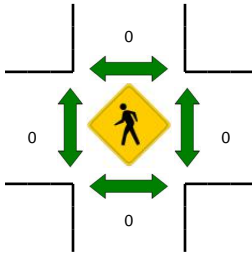
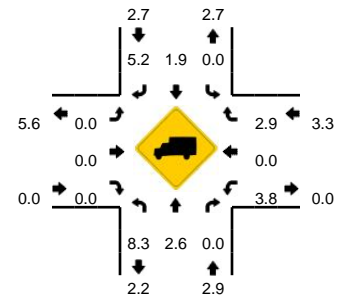
Comments:

LOCATION: 3. SR 135 (S Willow Ave) -- I-40 WB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959686
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



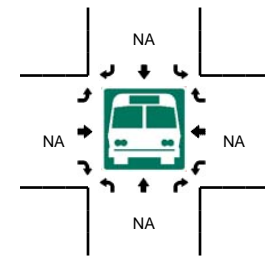
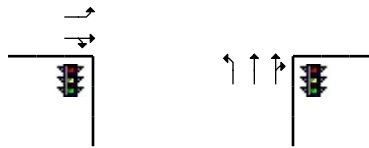
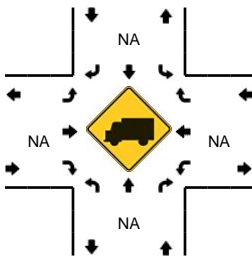
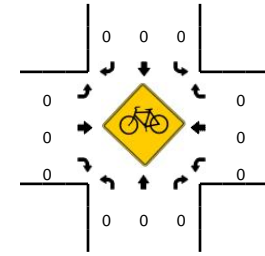
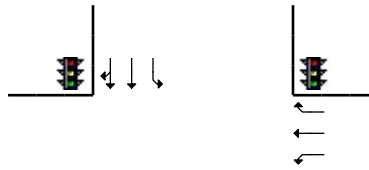
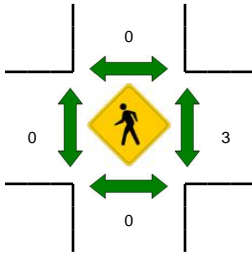
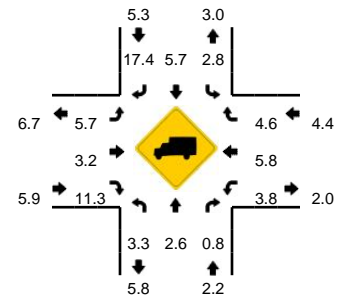
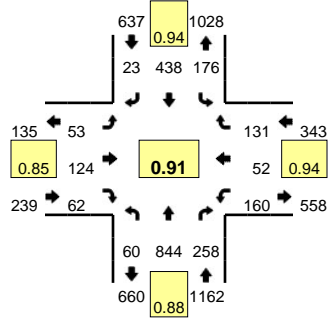
15-Min Count Period Beginning At	3. SR 135 (S Willow Ave) (Northbound)				3. SR 135 (S Willow Ave) (Southbound)				I-40 WB Ramps (Eastbound)				I-40 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	13	159	0	0	0	228	62	0	0	0	0	0	50	0	61	0	573	
4:15 PM	7	165	0	0	0	204	53	0	0	0	0	0	43	0	74	0	546	
4:30 PM	13	216	0	0	0	203	66	0	0	0	0	0	53	1	63	0	615	
4:45 PM	7	168	0	0	0	240	63	0	0	0	0	0	45	1	81	0	605	2339
5:00 PM	6	151	0	0	0	276	89	0	0	0	0	0	44	0	63	0	629	2395
5:15 PM	10	162	0	0	0	219	68	0	0	0	0	0	40	0	68	0	567	2416
5:30 PM	5	156	0	0	0	173	58	0	0	0	0	0	44	0	41	0	477	2278
5:45 PM	7	137	0	0	0	176	38	0	0	0	0	0	55	0	55	0	468	2141
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	604	0	0	0	1104	356	0	0	0	0	0	176	0	252	0	2516	
Heavy Trucks	4	20	0	0	0	20	12	0	0	0	0	0	4	0	4	0	64	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 4. SR 135 (S Willow Ave) -- Foreman Dr/Interstate Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959687
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



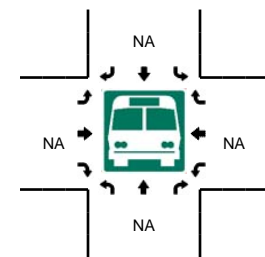
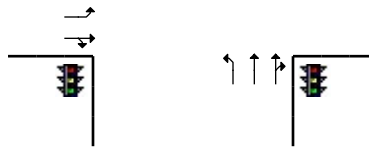
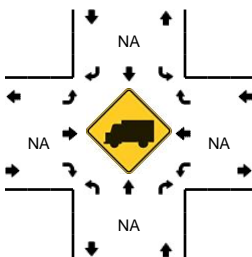
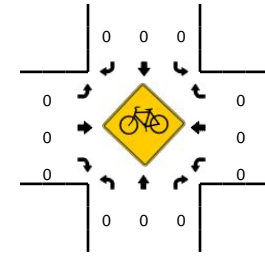
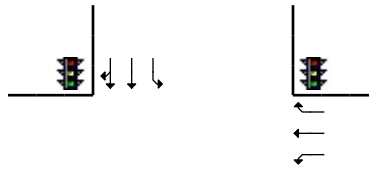
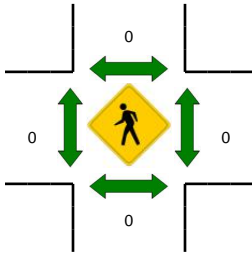
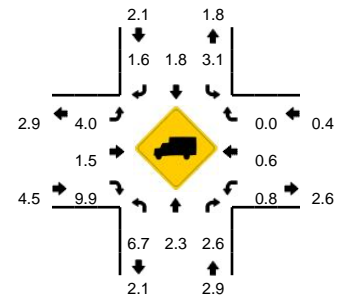
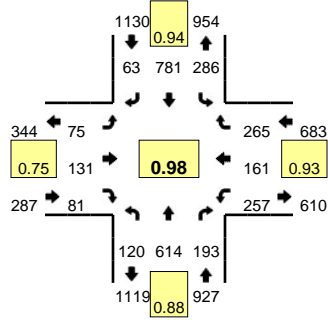
15-Min Count Period Beginning At	4. SR 135 (S Willow Ave) (Northbound)				4. SR 135 (S Willow Ave) (Southbound)				Foreman Dr/Interstate Dr (Eastbound)				Foreman Dr/Interstate Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	19	145	36	0	34	76	5	0	9	21	8	0	10	8	22	0	393	
7:15 AM	18	205	69	0	38	120	6	0	8	31	22	0	21	7	20	0	565	
7:30 AM	12	244	76	0	41	100	0	0	13	35	12	0	45	13	32	0	623	
7:45 AM	18	230	62	0	42	119	8	0	21	32	17	0	46	19	37	0	651	2232
8:00 AM	12	165	51	0	55	99	9	0	11	26	11	0	48	13	42	0	542	2381
8:15 AM	5	149	55	0	45	89	3	0	9	23	12	0	31	12	41	0	474	2290
8:30 AM	7	184	50	0	53	94	5	0	15	18	11	0	32	13	52	0	534	2201
8:45 AM	5	144	34	0	50	98	4	0	13	14	7	0	30	10	46	0	455	2005
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	72	920	248	0	168	476	32	0	84	128	68	0	184	76	148	0	2604	
Heavy Trucks	0	20	0		0	24	12		12	12	4		0	4	0		88	
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		0
Stopped Buses																		0

Comments:

LOCATION: 4. SR 135 (S Willow Ave) -- Foreman Dr/Interstate Dr
CITY/STATE: Cookeville, TN

QC JOB #: 13959688
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

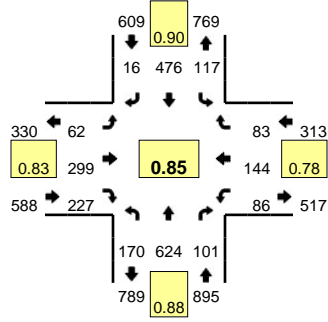


15-Min Count Period Beginning At	4. SR 135 (S Willow Ave) (Northbound)				4. SR 135 (S Willow Ave) (Southbound)				Foreman Dr/Interstate Dr (Eastbound)				Foreman Dr/Interstate Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	22	132	44	0	88	192	11	0	24	27	15	0	80	25	61	0	721	
4:15 PM	23	178	44	0	65	195	14	0	14	22	12	0	49	27	64	0	707	
4:30 PM	29	151	47	0	81	204	15	0	22	44	21	0	51	31	67	0	763	
4:45 PM	33	178	56	0	59	181	18	0	21	29	17	0	79	39	61	0	771	2962
5:00 PM	23	142	33	0	70	207	10	0	15	37	30	0	72	40	59	0	738	2979
5:15 PM	35	143	57	0	76	189	20	0	17	21	13	0	55	51	78	0	755	3027
5:30 PM	22	127	38	0	66	138	10	0	29	44	27	0	69	22	63	0	655	2919
5:45 PM	11	120	46	0	70	169	11	0	12	17	8	0	45	25	68	0	602	2750
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	132	712	224	0	236	724	72	0	84	116	68	0	316	156	244	0	3084	
Heavy Trucks	20	16	8		0	12	0		4	4	8		0	0	0		72	
Pedestrians		0				0				0				0				0
Bicycles		0	0			0	0			0	0			0	0			0
Railroad																		0
Stopped Buses																		0

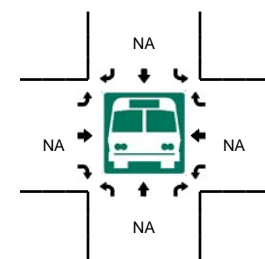
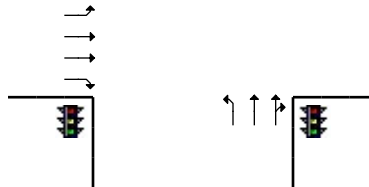
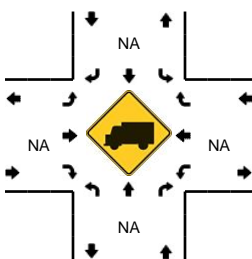
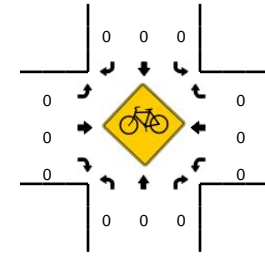
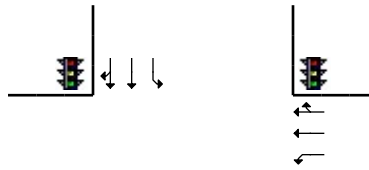
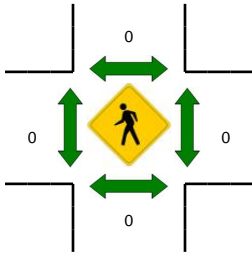
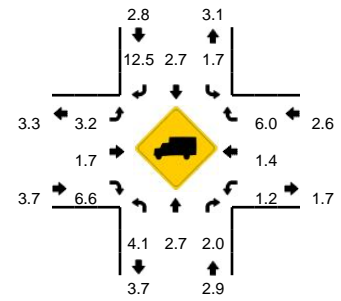
Comments:

LOCATION: 8. SR 135 (S Willow Ave) -- W Jackson St
CITY/STATE: Cookeville, TN

QC JOB #: 13959689
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

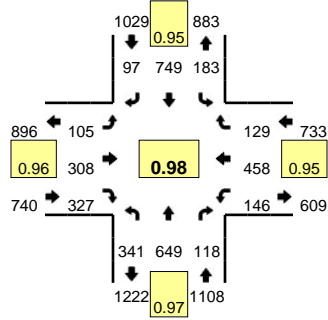


15-Min Count Period Beginning At	8. SR 135 (S Willow Ave) (Northbound)				8. SR 135 (S Willow Ave) (Southbound)				W Jackson St (Eastbound)				W Jackson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	28	105	13	0	20	73	7	0	11	34	46	0	13	13	13	0	376	
7:15 AM	34	149	22	0	22	107	4	0	13	63	62	0	14	31	8	0	529	
7:30 AM	41	178	29	0	34	121	5	0	21	84	61	0	21	28	27	0	650	
7:45 AM	53	168	35	0	33	133	3	0	13	98	66	0	29	46	29	0	706	2261
8:00 AM	42	129	15	0	28	115	4	0	15	54	38	0	22	39	19	0	520	2405
8:15 AM	32	152	25	0	21	107	6	0	13	56	49	0	17	34	13	0	525	2401
8:30 AM	34	144	19	0	26	105	2	0	10	54	52	0	23	31	15	0	515	2266
8:45 AM	41	145	22	0	24	105	12	0	14	58	59	0	25	39	23	0	567	2127
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	212	672	140	0	132	532	12	0	52	392	264	0	116	184	116	0	2824	
Heavy Trucks	4	24	4		4	24	0		0	0	12		0	0	4		76	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

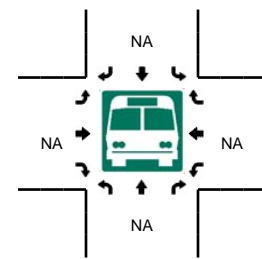
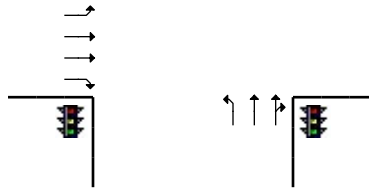
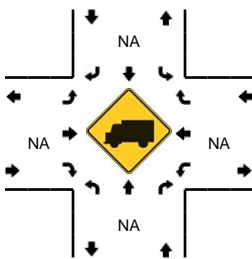
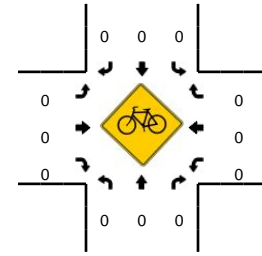
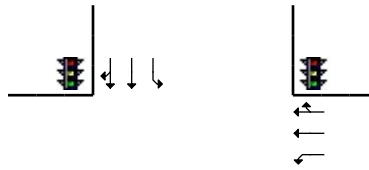
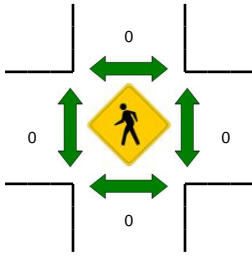
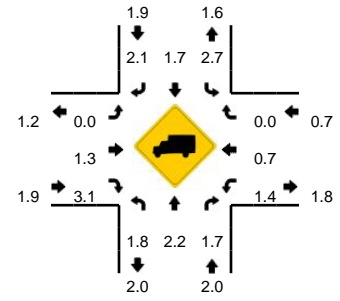
Comments:

LOCATION: 8. SR 135 (S Willow Ave) -- W Jackson St
CITY/STATE: Cookeville, TN

QC JOB #: 13959690
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

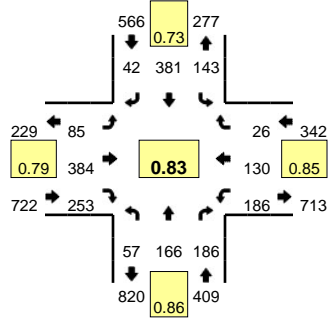


15-Min Count Period Beginning At	8. SR 135 (S Willow Ave) (Northbound)				8. SR 135 (S Willow Ave) (Southbound)				W Jackson St (Eastbound)				W Jackson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	72	175	35	0	36	212	27	0	32	68	67	0	44	100	30	0	898	
4:15 PM	65	139	27	0	39	139	17	0	27	91	84	0	26	125	25	0	804	
4:30 PM	72	156	36	0	58	189	23	0	25	85	95	0	40	106	31	0	916	
4:45 PM	88	162	30	0	53	162	22	0	25	96	87	0	38	114	42	0	919	3537
5:00 PM	93	155	31	0	34	203	23	0	28	68	90	0	36	127	30	0	918	3557
5:15 PM	88	176	21	0	38	195	29	0	27	59	55	0	32	111	26	0	857	3610
5:30 PM	68	133	18	0	43	149	23	0	34	71	82	0	33	96	36	0	786	3480
5:45 PM	73	169	29	0	47	152	16	0	33	74	87	0	19	86	28	0	813	3374
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	352	648	120	0	212	648	88	0	100	384	348	0	152	456	168	0	3676	
Heavy Trucks	4	16	4	0	0	0	0	0	0	12	12	0	4	8	0	0	60	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

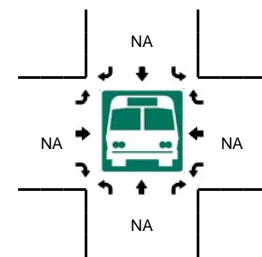
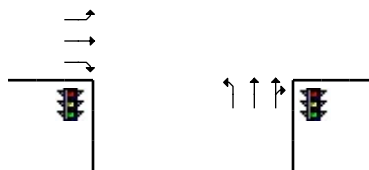
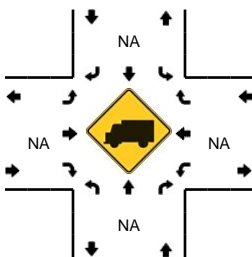
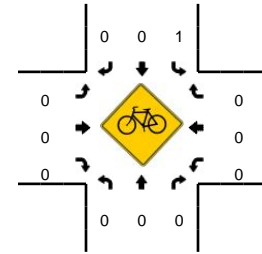
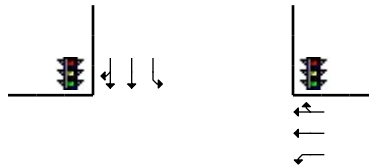
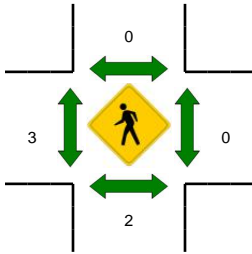
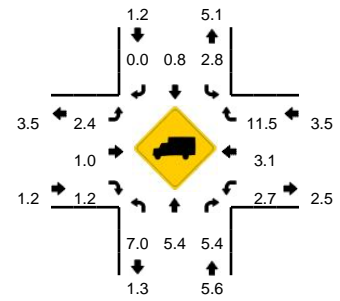
Comments:

LOCATION: 17. SR 135 (N Willow Ave) -- W 12th St
CITY/STATE: Cookeville, TN

QC JOB #: 13959691
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



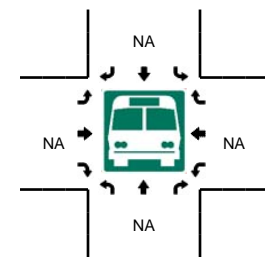
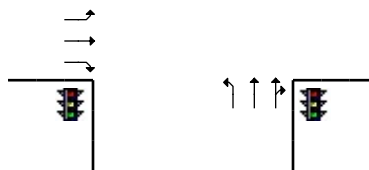
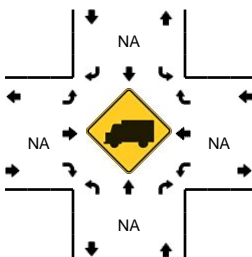
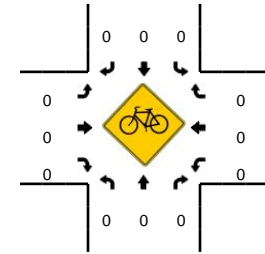
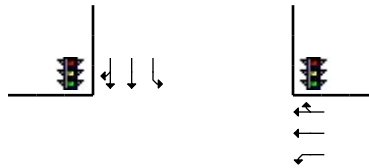
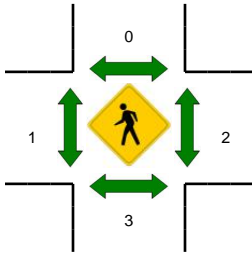
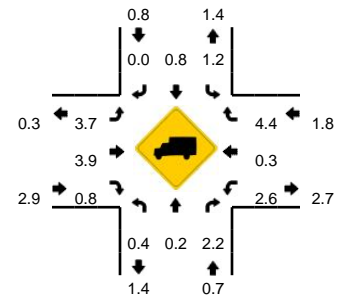
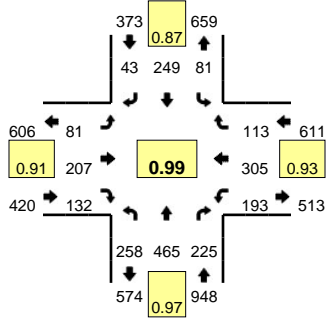
15-Min Count Period Beginning At	17. SR 135 (N Willow Ave) (Northbound)				17. SR 135 (N Willow Ave) (Southbound)				W 12th St (Eastbound)				W 12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	9	25	33	0	13	58	6	0	15	53	33	0	35	27	10	0	317	
7:15 AM	13	34	51	0	30	78	9	0	22	100	45	0	44	29	3	0	458	
7:30 AM	13	45	53	0	56	115	22	0	35	117	76	0	53	28	4	0	617	
7:45 AM	16	51	52	0	44	120	8	0	20	112	84	0	54	35	12	0	608	2000
8:00 AM	15	36	30	0	13	68	3	0	8	55	48	0	35	38	7	0	356	2039
8:15 AM	15	27	24	0	20	53	4	0	7	60	50	0	41	22	7	0	330	1911
8:30 AM	6	23	31	0	32	62	6	0	7	73	56	0	27	31	12	0	366	1660
8:45 AM	12	36	26	0	50	69	5	0	9	69	51	0	39	35	2	0	403	1455
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	52	180	212	0	224	460	88	0	140	468	304	0	212	112	16	0	2468	
Heavy Trucks	4	20	8		0	4	0		0	0	4		4	4	0		48	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 17. SR 135 (N Willow Ave) -- W 12th St
CITY/STATE: Cookeville, TN

QC JOB #: 13959692
DATE: Wed, Jan 18 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



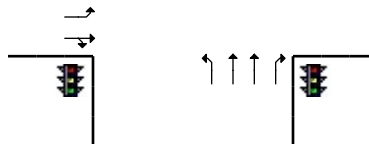
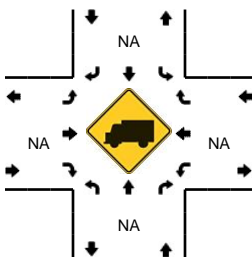
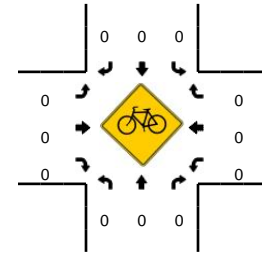
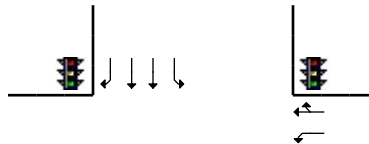
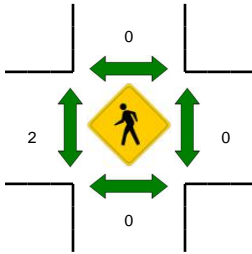
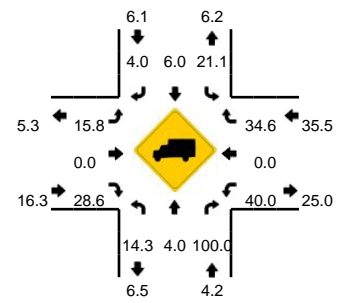
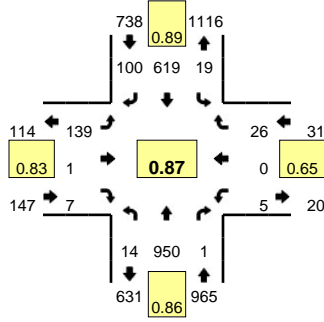
15-Min Count Period Beginning At	17. SR 135 (N Willow Ave) (Northbound)				17. SR 135 (N Willow Ave) (Southbound)				W 12th St (Eastbound)				W 12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	45	92	73	0	17	82	32	0	19	47	20	0	11	58	11	0	507	
4:15 PM	65	125	55	0	20	75	37	0	14	46	30	0	13	33	10	0	523	
4:30 PM	66	106	53	0	24	66	13	0	17	49	37	0	53	79	33	0	596	
4:45 PM	68	120	52	0	31	52	10	0	22	50	31	0	48	79	27	0	590	2216
5:00 PM	65	119	62	0	13	69	9	0	18	47	33	0	50	61	29	0	575	2284
5:15 PM	59	120	58	0	13	62	11	0	24	61	31	0	42	86	24	0	591	2352
5:30 PM	41	74	51	0	21	52	15	0	14	44	29	0	57	77	20	0	495	2251
5:45 PM	54	116	54	0	22	63	10	0	18	58	42	0	52	75	17	0	581	2242
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	264	424	212	0	96	264	52	0	68	196	148	0	212	316	132	0	2384	
Heavy Trucks	0	0	8		4	0	0		8	8	0		8	0	8		44	
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 18. SR 136 (S Jefferson Ave) -- Bunker Hill Rd/Ferrell Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959693
DATE: Wed, Jan 18 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



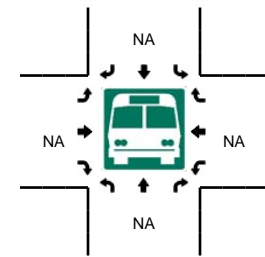
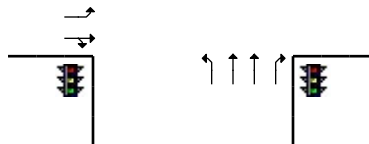
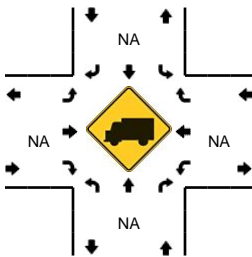
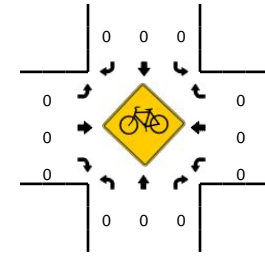
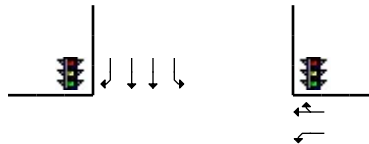
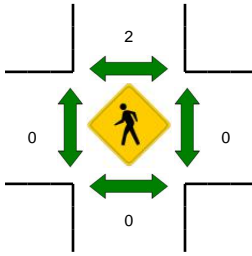
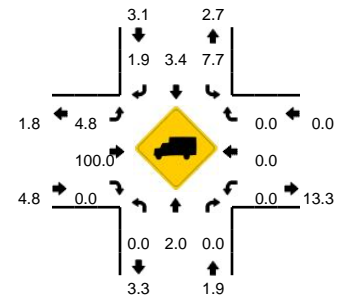
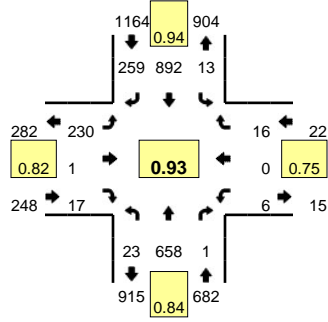
15-Min Count Period Beginning At	18. SR 136 (S Jefferson Ave) (Northbound)				18. SR 136 (S Jefferson Ave) (Southbound)				Bunker Hill Rd/Ferrell Dr (Eastbound)				Bunker Hill Rd/Ferrell Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	134	0	0	9	106	15	0	24	0	3	0	2	0	8	0	304	
7:15 AM	5	203	1	0	4	160	22	0	35	0	3	0	0	0	9	0	442	
7:30 AM	4	276	0	0	4	181	22	1	43	0	2	0	0	0	5	0	538	
7:45 AM	4	252	0	0	6	154	30	0	39	0	1	0	0	0	5	0	491	1775
8:00 AM	1	219	0	0	4	124	26	0	22	1	1	0	5	0	7	0	410	1881
8:15 AM	2	160	2	0	2	93	32	0	22	1	4	0	0	0	1	0	319	1758
8:30 AM	2	153	0	0	1	119	17	0	31	0	1	0	0	0	5	0	329	1549
8:45 AM	0	160	0	0	8	96	36	0	33	0	3	0	0	0	5	0	341	1399
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	1104	0	0	16	724	88	4	172	0	8	0	0	0	20	0	2152	
Heavy Trucks	0	20	0	0	8	36	8	0	28	0	0	0	0	0	8	0	108	
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 18. SR 136 (S Jefferson Ave) -- Bunker Hill Rd/Ferrell Dr
CITY/STATE: Putnam, TN

QC JOB #: 13959694
DATE: Wed, Jan 18 2017

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

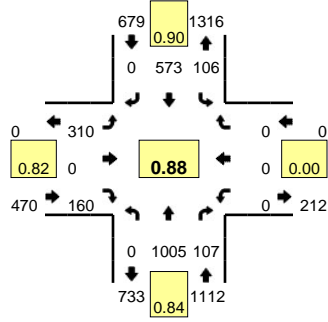


15-Min Count Period Beginning At	18. SR 136 (S Jefferson Ave) (Northbound)				18. SR 136 (S Jefferson Ave) (Southbound)				Bunker Hill Rd/Ferrell Dr (Eastbound)				Bunker Hill Rd/Ferrell Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	155	1	0	2	204	72	0	63	0	3	0	0	0	4	0	507	
4:15 PM	7	172	1	0	2	192	60	0	64	1	8	0	0	0	4	0	511	
4:30 PM	2	152	0	0	3	237	57	0	58	0	2	0	4	0	4	0	519	
4:45 PM	6	139	0	0	3	250	60	0	53	0	3	0	1	0	0	0	515	2052
5:00 PM	8	195	0	0	5	213	82	0	55	0	4	0	1	0	8	0	571	2116
5:15 PM	4	150	1	0	5	197	59	0	59	0	3	0	0	0	9	0	487	2092
5:30 PM	5	127	0	0	4	152	63	0	72	2	5	0	2	0	0	0	432	2005
5:45 PM	3	132	0	0	1	136	46	0	55	1	3	0	0	0	4	0	381	1871
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	780	0	0	20	852	328	0	220	0	16	0	4	0	32	0	2284	
Heavy Trucks	0	12	0	0	0	4	8	0	8	0	0	0	0	0	0	0	32	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

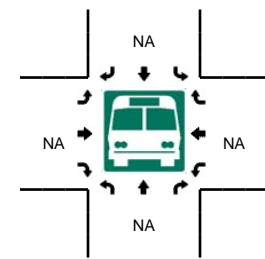
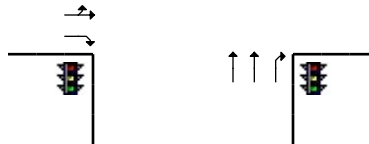
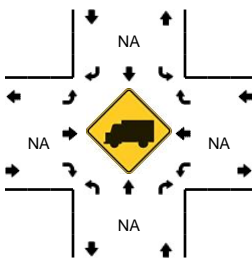
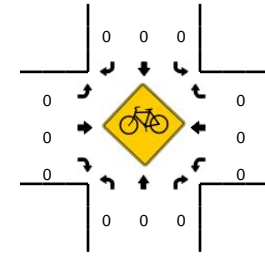
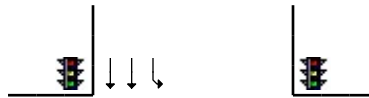
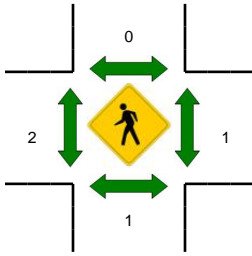
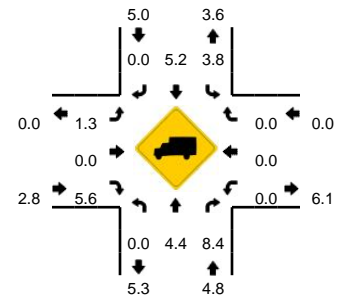
Comments:

LOCATION: 19. SR 136 (S Jefferson Ave) -- I-40 EB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959695
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

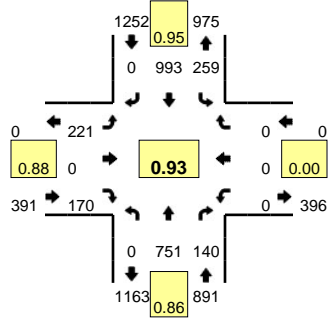


15-Min Count Period Beginning At	19. SR 136 (S Jefferson Ave) (Northbound)				19. SR 136 (S Jefferson Ave) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	147	19	0	13	98	0	0	33	2	30	0	0	0	0	0	342	
7:15 AM	0	212	26	0	29	144	0	0	65	0	42	0	0	0	0	0	518	
7:30 AM	0	298	32	0	21	166	0	1	83	0	44	0	0	0	0	0	645	
7:45 AM	0	268	26	0	26	143	0	0	102	0	41	0	0	0	0	0	606	2111
8:00 AM	0	227	23	0	29	120	0	0	60	0	33	0	0	0	0	0	492	2261
8:15 AM	0	170	15	0	21	99	0	0	53	0	27	0	0	0	0	0	385	2128
8:30 AM	0	167	23	0	32	113	0	0	42	0	20	0	0	0	0	0	397	1880
8:45 AM	0	184	14	0	35	112	0	0	38	1	32	0	0	0	0	0	416	1690
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1192	128	0	84	664	0	4	332	0	176	0	0	0	0	0	2580	
Heavy Trucks	0	36	0		8	32	0		0	0	12		0	0	0		88	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

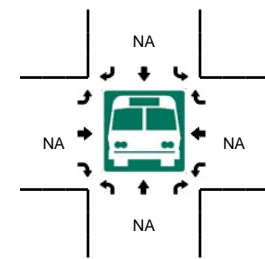
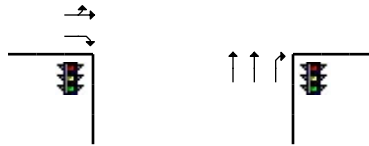
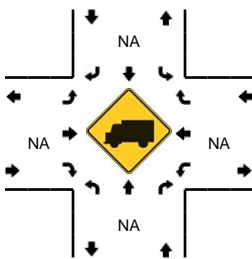
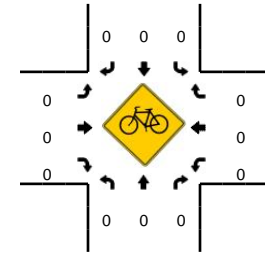
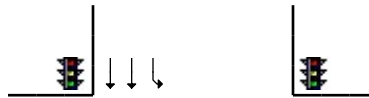
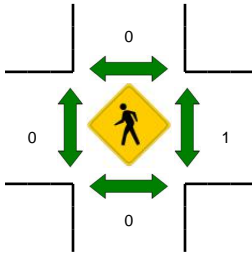
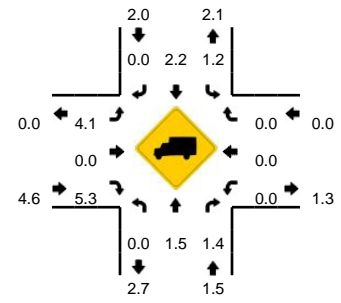
Comments:

LOCATION: 19. SR 136 (S Jefferson Ave) -- I-40 EB Ramps
CITY/STATE: Cookeville, TN

QC JOB #: 13959696
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

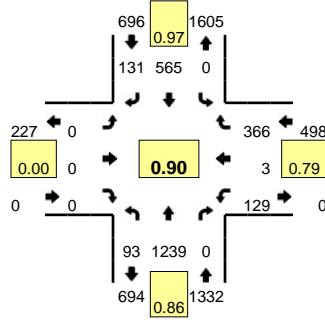


15-Min Count Period Beginning At	19. SR 136 (S Jefferson Ave) (Northbound)				19. SR 136 (S Jefferson Ave) (Southbound)				I-40 EB Ramps (Eastbound)				I-40 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	188	33	0	69	238	0	0	32	0	38	0	0	0	0	0	598	
4:15 PM	0	198	41	0	63	213	0	0	44	0	44	0	0	0	0	0	603	
4:30 PM	0	180	35	0	52	241	0	1	61	0	52	0	0	0	0	0	622	2448
4:45 PM	0	169	22	0	59	272	0	0	64	0	39	0	0	0	0	0	625	
5:00 PM	0	220	44	0	67	252	0	1	48	0	46	0	0	0	0	0	678	2528
5:15 PM	0	182	39	0	78	228	0	1	48	0	33	0	0	0	0	0	609	2534
5:30 PM	0	176	28	0	69	186	0	0	48	0	30	0	0	0	0	0	537	2449
5:45 PM	0	180	15	0	56	151	0	0	41	0	26	0	0	0	0	0	469	2293
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	880	176	0	268	1008	0	4	192	0	184	0	0	0	0	0	2712	
Heavy Trucks	0	12	4		0	8	0		12	0	4		0	0	0		40	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

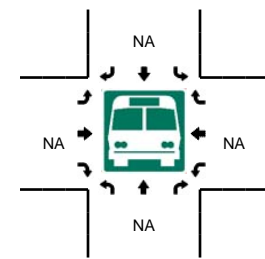
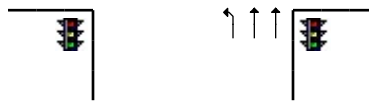
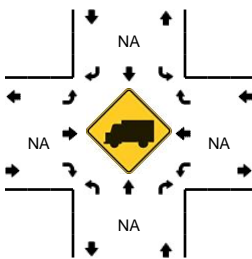
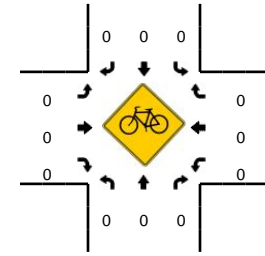
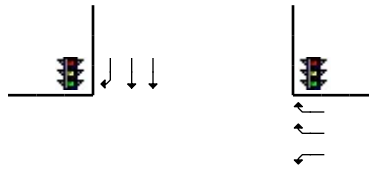
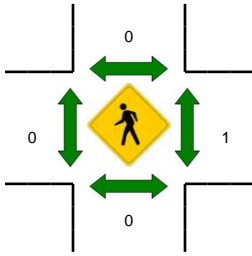
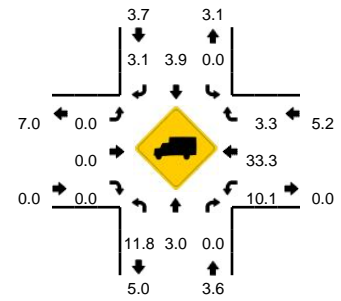
Comments:

LOCATION: 20. SR 136 (S Jefferson Ave) -- I-40 WB Ramps
CITY/STATE: Putnam, TN

QC JOB #: 13959697
DATE: Wed, Jan 18 2017



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

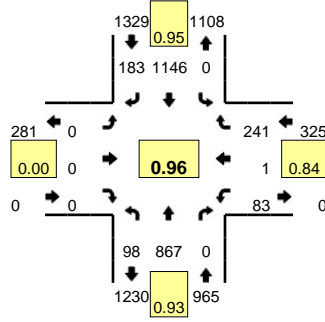


15-Min Count Period Beginning At	20. SR 136 (S Jefferson Ave) (Northbound)				20. SR 136 (S Jefferson Ave) (Southbound)				I-40 WB Ramps (Eastbound)				I-40 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	30	147	0	0	0	88	21	0	0	0	0	0	26	0	44	0	356	
7:15 AM	29	249	0	0	0	155	24	0	0	0	0	0	31	0	65	0	553	
7:30 AM	26	360	0	0	0	147	21	0	0	0	0	0	41	1	109	0	705	
7:45 AM	19	350	0	0	0	132	47	0	0	0	0	0	41	1	115	0	705	2319
8:00 AM	19	280	0	0	0	131	39	0	0	0	0	0	16	1	77	0	563	2526
8:15 AM	20	206	0	0	0	113	27	0	0	0	0	0	13	0	57	0	436	2409
8:30 AM	24	182	0	0	0	130	24	0	0	0	0	0	12	0	62	0	434	2138
8:45 AM	22	204	0	0	0	134	28	0	0	0	0	0	14	1	49	0	452	1885
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	104	1440	0	0	0	588	84	0	0	0	0	0	164	4	436	0	2820	
Heavy Trucks	4	32	0	0	0	24	4	0	0	0	0	0	16	0	12	0	92	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

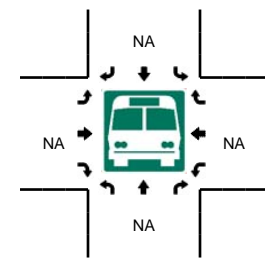
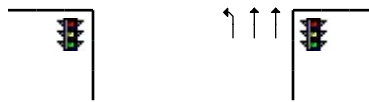
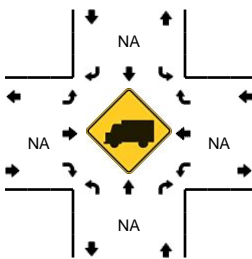
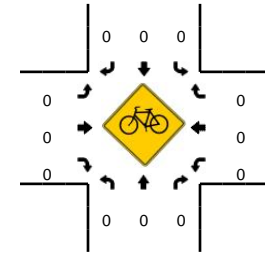
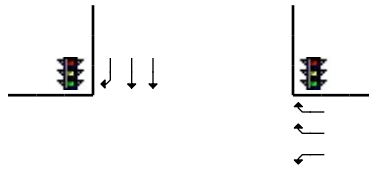
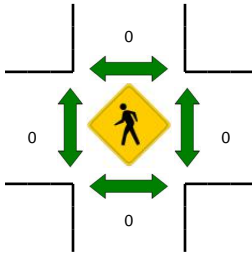
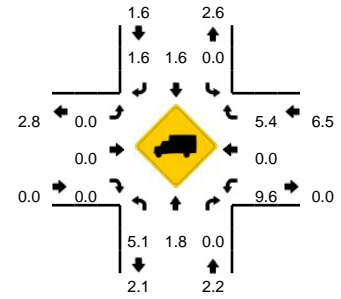
Comments:

LOCATION: 20. SR 136 (S Jefferson Ave) -- I-40 WB Ramps
CITY/STATE: Putnam, TN

QC JOB #: 13959698
DATE: Wed, Jan 18 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



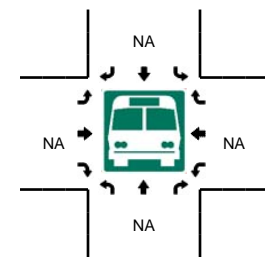
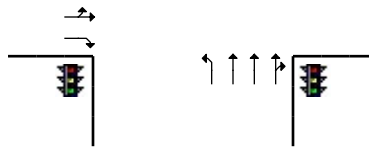
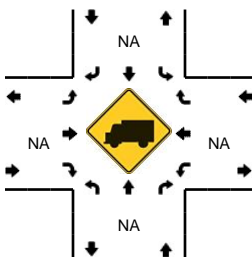
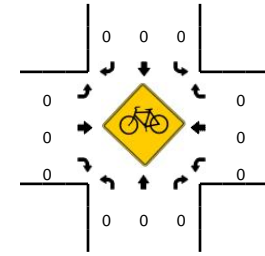
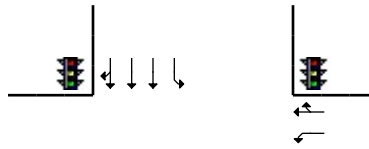
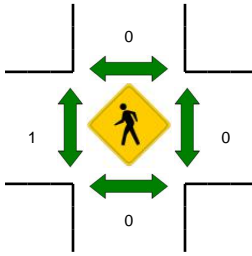
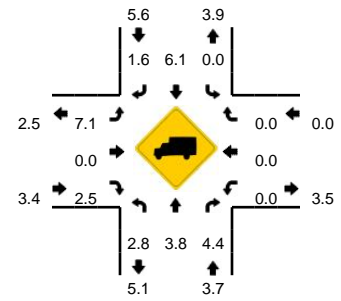
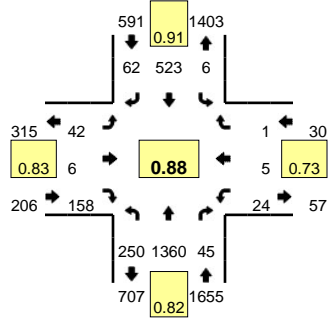
15-Min Count Period Beginning At	20. SR 136 (S Jefferson Ave) (Northbound)				20. SR 136 (S Jefferson Ave) (Southbound)				I-40 WB Ramps (Eastbound)				I-40 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	30	190	0	0	0	302	45	0	0	0	0	0	21	0	57	0	645	
4:15 PM	20	220	0	0	0	240	49	0	0	0	0	0	22	0	51	0	602	
4:30 PM	25	209	0	1	0	285	51	0	0	0	0	0	22	1	58	0	652	
4:45 PM	21	212	0	0	0	290	45	0	0	0	0	0	24	0	75	0	667	2566
5:00 PM	29	232	0	0	0	306	42	0	0	0	0	0	21	0	52	0	682	2603
5:15 PM	22	214	0	0	0	265	45	0	0	0	0	0	16	0	56	0	618	2619
5:30 PM	15	199	0	0	0	231	33	0	0	0	0	0	14	0	55	0	547	2514
5:45 PM	10	204	0	0	0	212	23	0	0	0	0	0	15	0	49	0	513	2360
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	116	928	0	0	0	1224	168	0	0	0	0	0	84	0	208	0	2728	
Heavy Trucks	4	20	0	0	0	12	4	0	0	0	0	0	4	0	12	0	56	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 21. SR 136 (S Jefferson Ave) -- S Walnut Ave/Dubois Rd
CITY/STATE: Putnam, TN

QC JOB #: 13959699
DATE: Wed, Feb 01 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



15-Min Count Period Beginning At	21. SR 136 (S Jefferson Ave) (Northbound)				21. SR 136 (S Jefferson Ave) (Southbound)				S Walnut Ave/Dubois Rd (Eastbound)				S Walnut Ave/Dubois Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	36	146	13	0	3	103	11	0	3	0	33	0	2	2	0	0	352	
7:15 AM	47	265	7	2	1	131	12	0	6	1	39	0	3	0	1	0	515	
7:30 AM	72	383	10	0	2	122	15	0	8	4	50	0	8	2	0	0	676	
7:45 AM	82	406	14	0	1	128	17	0	15	0	33	0	6	2	0	0	704	2247
8:00 AM	47	306	14	0	2	142	18	0	13	1	36	0	7	1	0	0	587	2482
8:15 AM	30	198	3	0	2	103	11	0	5	0	34	0	9	2	1	0	398	2365
8:30 AM	38	208	13	0	1	109	12	0	9	1	31	0	9	4	3	0	438	2127
8:45 AM	39	222	12	0	1	130	26	0	19	0	36	0	6	3	2	0	496	1919
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	328	1624	56	0	4	512	68	0	60	0	132	0	24	8	0	0	2816	
Heavy Trucks	8	80	4		0	16	0		0	0	4		0	0	0		112	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																	0	

Comments:

Appendix B:
48-Hour Count, Classification, and Speed Data

LOCATION: W 12th Btwn Franklin and City Limits															QC JOB #: 14110901			
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits															DIRECTION: EB			
CITY/STATE: Cookeville, TN															DATE: Jan 18 2017			
Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace	
	15	20	25	30	35	40	45	50	55	60	65	70	75	999				
12:00 AM	0	0	0	0	0	0	8	11	5	1	0	1	0	0	26	41-50	19	
1:00 AM	0	0	0	0	0	1	6	2	2	1	0	0	0	0	12	41-50	8	
2:00 AM	0	0	0	0	0	1	3	4	1	0	0	0	0	0	9	41-50	7	
3:00 AM	0	0	0	0	0	1	4	7	5	1	0	0	0	0	18	46-55	12	
4:00 AM	0	0	0	0	0	1	9	14	19	6	0	0	0	0	49	46-55	32	
5:00 AM	0	0	0	1	0	2	21	54	47	12	2	0	0	0	139	46-55	101	
6:00 AM	2	0	0	1	1	3	43	106	93	14	3	0	0	0	266	46-55	199	
7:00 AM	9	0	0	0	0	21	122	267	162	19	0	0	0	0	600	46-55	428	
8:00 AM	4	0	0	0	3	17	90	159	98	21	2	0	0	0	394	46-55	257	
9:00 AM	2	0	0	0	0	11	74	123	68	14	1	0	0	0	293	41-50	197	
10:00 AM	3	0	0	0	0	8	46	91	53	17	2	0	0	0	220	46-55	144	
11:00 AM	8	0	0	0	2	22	59	88	54	15	0	0	0	0	248	41-50	147	
12:00 PM	4	0	0	2	4	7	54	101	55	8	2	0	0	0	237	46-55	156	
1:00 PM	6	0	0	1	2	8	56	99	68	12	1	0	0	0	253	46-55	167	
2:00 PM	7	0	0	0	4	11	62	110	63	12	2	0	0	0	271	46-55	173	
3:00 PM	12	0	0	0	1	13	77	125	49	11	0	0	0	0	288	41-50	202	
4:00 PM	11	0	0	0	0	13	52	100	65	9	2	0	0	0	252	46-55	165	
5:00 PM	9	0	0	0	3	23	72	136	48	6	1	0	0	0	298	41-50	207	
6:00 PM	8	0	0	1	0	15	55	89	44	7	0	0	0	0	219	41-50	144	
7:00 PM	6	0	0	1	2	9	33	58	24	4	2	0	0	0	139	41-50	90	
8:00 PM	2	0	0	1	2	11	26	53	12	6	0	0	0	0	113	41-50	78	
9:00 PM	0	0	0	0	0	3	30	33	19	6	3	0	0	0	94	41-50	62	
10:00 PM	0	0	0	1	0	4	15	16	19	0	0	1	0	0	56	46-55	34	
11:00 PM	0	0	0	0	0	2	7	12	6	0	1	0	0	0	28	45-54	18	
Day Total	93	0	0	9	24	207	1024	1858	1079	202	24	2	0	0	4522	46-55	2937	
Percent	2.1%	0.0%	0.0%	0.2%	0.5%	4.6%	22.6%	41.1%	23.9%	4.5%	0.5%	0.0%	0.0%	0.0%				
ADT 4522																		
AM Peak	7:00 AM															7:00 AM		
Volume	9			1	3	22	122	267	162	21	3	1				600		
PM Peak	3:00 PM															5:00 PM		
Volume	12			2	4	23	77	136	68	12	3	1				298		
<i>Comments:</i>																		

LOCATION: W 12th Btwn Franklin and City Limits															QC JOB #: 14110901			
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits															DIRECTION: EB			
CITY/STATE: Cookeville, TN															DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	0	3	3	5	5	0	0	0	1	0	17	46-55	10	
1:00 AM	0	0	0	0	0	0	3	2	4	1	0	0	0	0	10	46-55	6	
2:00 AM	0	0	0	0	0	1	1	3	1	0	0	0	1	0	7	41-50	4	
3:00 AM	0	0	0	0	0	2	4	5	8	0	0	0	0	0	19	46-55	13	
4:00 AM	0	0	0	0	0	2	6	19	14	9	1	0	0	0	51	46-55	32	
5:00 AM	2	0	0	1	2	5	19	59	49	8	0	0	0	0	145	46-55	108	
6:00 AM	5	0	0	0	1	6	38	119	76	12	1	0	0	0	258	46-55	194	
7:00 AM	13	0	0	0	0	22	164	295	117	14	0	0	0	0	625	41-50	459	
8:00 AM	4	0	0	1	1	9	64	149	76	17	0	0	0	0	321	46-55	224	
9:00 AM	3	0	0	0	2	14	87	114	46	8	0	0	0	0	274	41-50	201	
10:00 AM	5	0	0	0	2	8	54	82	44	6	0	0	0	0	201	41-50	136	
11:00 AM	7	0	0	0	3	10	67	121	59	10	0	0	0	0	277	41-50	187	
12:00 PM	4	0	0	0	4	9	64	99	69	16	0	0	0	0	265	46-55	168	
1:00 PM	9	0	0	1	0	6	73	97	59	9	0	0	0	0	254	41-50	169	
2:00 PM	9	0	0	0	0	15	60	129	69	14	1	1	0	0	298	46-55	198	
3:00 PM	10	0	0	1	0	15	79	108	45	4	0	0	0	0	262	41-50	187	
4:00 PM	5	0	0	1	3	20	71	101	39	5	0	0	0	0	245	41-50	171	
5:00 PM	15	0	0	1	5	25	110	80	25	1	0	0	0	0	262	41-50	190	
6:00 PM	4	0	0	0	2	15	63	85	18	0	0	0	0	0	187	41-50	148	
7:00 PM	5	0	0	0	2	12	44	52	16	1	0	0	0	0	132	41-50	96	
8:00 PM	4	0	0	0	3	7	42	35	21	5	0	0	0	0	117	41-50	77	
9:00 PM	1	0	0	0	1	6	31	47	16	1	0	0	0	0	103	41-50	78	
10:00 PM	0	0	0	0	0	4	26	17	11	4	1	0	0	0	63	41-50	43	
11:00 PM	0	0	0	0	2	5	15	5	2	1	0	0	0	0	30	36-45	20	
Day Total	105	0	0	6	33	221	1188	1828	889	146	4	1	2	0	4423	41-50	3016	
Percent	2.4%	0.0%	0.0%	0.1%	0.7%	5.0%	26.9%	41.3%	20.1%	3.3%	0.1%	0.0%	0.0%	0.0%				
ADT 4423																		
AM Peak	7:00 AM															7:00 AM		
Volume	13															625		
PM Peak	5:00 PM															2:00 PM		
Volume	15															298		
<i>Comments:</i>																		

LOCATION: W 12th Btwn Franklin and City Limits														QC JOB #: 14110901																
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits														DIRECTION: EB																
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017																
Start Time	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	999	Total	Pace Speed	Number in Pace
Grand Total	198	0	0	15	57	428	2212	3686	1968	348	28	3	2	0													8945	41-50	5898	
Percent	2.2%	0.0%	0.0%	0.2%	0.6%	4.8%	24.7%	41.2%	22.0%	3.9%	0.3%	0.0%	0.0%	0.0%																
Cumulative Percent	2.2%	2.2%	2.2%	2.4%	3.0%	7.8%	32.5%	73.7%	95.7%	99.6%	99.9%	100.0%	100.0%	100.0%																
ADT 4472																										85th Percentile 52 MPH Mean Speed(Average): 46 MPH Median 47 MPH Mode: 48 MPH				
Comments:																														



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: EB DATE: Jan 18 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	17	6	0	3	0	0	0	0	0	0	0	0	0	26	
1:00 AM	0	11	0	0	1	0	0	0	0	0	0	0	0	0	12	
2:00 AM	0	3	4	0	2	0	0	0	0	0	0	0	0	0	9	
3:00 AM	0	9	5	0	4	0	0	0	0	0	0	0	0	0	18	
4:00 AM	0	26	17	0	6	0	0	0	0	0	0	0	0	0	49	
5:00 AM	0	90	33	0	16	0	0	0	0	0	0	0	0	0	139	
6:00 AM	1	144	68	1	48	0	0	2	0	0	0	0	0	2	266	
7:00 AM	0	359	163	1	64	0	0	4	0	0	0	0	0	9	600	
8:00 AM	0	259	98	0	31	0	0	1	1	0	0	0	0	4	394	
9:00 AM	0	173	75	0	41	0	0	1	1	0	0	0	0	2	293	
10:00 AM	0	123	66	3	23	0	0	2	0	0	0	0	0	3	220	
11:00 AM	0	128	69	1	36	2	1	2	1	0	0	0	0	8	248	
12:00 PM	2	141	50	2	34	2	0	2	0	0	0	0	0	4	237	
1:00 PM	1	156	64	0	24	1	0	1	0	0	0	0	0	6	253	
2:00 PM	4	151	67	1	38	0	0	2	1	0	0	0	0	7	271	
3:00 PM	0	160	84	2	26	0	0	4	0	0	0	0	0	12	288	
4:00 PM	0	139	64	0	35	2	0	1	0	0	0	0	0	11	252	
5:00 PM	1	173	76	1	37	0	0	1	0	0	0	0	0	9	298	
6:00 PM	0	121	62	0	26	0	0	1	1	0	0	0	0	8	219	
7:00 PM	0	88	33	0	12	0	0	0	0	0	0	0	0	6	139	
8:00 PM	0	66	35	0	10	0	0	0	0	0	0	0	0	2	113	
9:00 PM	0	66	21	0	7	0	0	0	0	0	0	0	0	0	94	
10:00 PM	0	39	11	0	6	0	0	0	0	0	0	0	0	0	56	
11:00 PM	1	23	4	0	0	0	0	0	0	0	0	0	0	0	28	
Day Total	10	2665	1175	12	530	7	1	24	5	0	0	0	0	93	4522	
Percent	0.2%	58.9%	26.0%	0.3%	11.7%	0.2%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	2.1%		
ADT 4522																
AM Peak	6:00 AM	7:00 AM	7:00 AM	10:00 AM	7:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM						7:00 AM	7:00 AM
Volume	1	359	163	3	64	2	1	4	1						9	600
PM Peak	2:00 PM	5:00 PM	3:00 PM	12:00 PM	2:00 PM	12:00 PM			3:00 PM	2:00 PM					3:00 PM	5:00 PM
Volume	4	173	84	2	38	2			4	1					12	298
<i>Comments:</i>																

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: EB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	10	6	0	1	0	0	0	0	0	0	0	0	0	17
1:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
2:00 AM	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7
3:00 AM	0	6	10	0	3	0	0	0	0	0	0	0	0	0	19
4:00 AM	0	32	11	0	8	0	0	0	0	0	0	0	0	0	51
5:00 AM	0	85	38	1	17	1	0	1	0	0	0	0	0	2	145
6:00 AM	0	152	68	0	32	0	0	1	0	0	0	0	0	5	258
7:00 AM	0	400	146	1	60	3	0	2	0	0	0	0	0	13	625
8:00 AM	0	199	79	1	37	0	0	1	0	0	0	0	0	4	321
9:00 AM	0	164	73	2	27	1	0	2	2	0	0	0	0	3	274
10:00 AM	0	112	59	0	23	0	0	2	0	0	0	0	0	5	201
11:00 AM	0	150	79	2	36	1	0	1	1	0	0	0	0	7	277
12:00 PM	0	133	89	1	35	0	0	3	0	0	0	0	0	4	265
1:00 PM	0	149	72	0	22	1	0	1	0	0	0	0	0	9	254
2:00 PM	0	188	70	2	28	0	0	1	0	0	0	0	0	9	298
3:00 PM	0	143	80	0	26	2	0	1	0	0	0	0	0	10	262
4:00 PM	0	137	67	1	35	0	0	0	0	0	0	0	0	5	245
5:00 PM	1	149	73	1	21	1	0	0	1	0	0	0	0	15	262
6:00 PM	1	126	42	0	14	0	0	0	0	0	0	0	0	4	187
7:00 PM	0	86	30	0	11	0	0	0	0	0	0	0	0	5	132
8:00 PM	0	73	27	0	13	0	0	0	0	0	0	0	0	4	117
9:00 PM	0	71	25	0	6	0	0	0	0	0	0	0	0	1	103
10:00 PM	0	43	15	0	5	0	0	0	0	0	0	0	0	0	63
11:00 PM	0	22	7	0	1	0	0	0	0	0	0	0	0	0	30
Day Total	2	2643	1170	12	461	10	0	16	4	0	0	0	0	105	4423
Percent	0.0%	59.8%	26.5%	0.3%	10.4%	0.2%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	2.4%	
ADT 4423															
AM Peak Volume	7:00 AM		7:00 AM	9:00 AM	7:00 AM	7:00 AM		7:00 AM	9:00 AM					7:00 AM	7:00 AM
	400		146	2	60	3		2	2					13	625
PM Peak Volume	5:00 PM	2:00 PM	12:00 PM	2:00 PM	12:00 PM	3:00 PM		12:00 PM	5:00 PM					5:00 PM	2:00 PM
	1	188	89	2	35	2		3	1					15	298
<i>Comments:</i>															

LOCATION: W 12th Btwn Franklin and City Limits													QC JOB #: 14110901		
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits													DIRECTION: EB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	12	5308	2345	24	991	17	1	40	9	0	0	0	0	198	8945
Percent	0.1%	59.3%	26.2%	0.3%	11.1%	0.2%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	2.2%	
ADT 4472															
<i>Comments:</i>															



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN							QC JOB #: 14110901 DIRECTION: EB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			26	17		22			22	
1:00 AM			12	10		11			11	
2:00 AM			9	7		8			8	
3:00 AM			18	19		19			19	
4:00 AM			49	51		50			50	
5:00 AM			139	145		142			142	
6:00 AM			266	258		262			262	
7:00 AM			600	625		613			613	
8:00 AM			394	321		358			358	
9:00 AM			293	274		284			284	
10:00 AM			220	201		211			211	
11:00 AM			248	277		263			263	
12:00 PM			237	265		251			251	
1:00 PM			253	254		254			254	
2:00 PM			271	298		285			285	
3:00 PM			288	262		275			275	
4:00 PM			252	245		249			249	
5:00 PM			298	262		280			280	
6:00 PM			219	187		203			203	
7:00 PM			139	132		136			136	
8:00 PM			113	117		115			115	
9:00 PM			94	103		99			99	
10:00 PM			56	63		60			60	
11:00 PM			28	30		29			29	
Day Total			4522	4423		4479			4479	
% Weekday Average			101.0%	98.7%						
% Week Average			101.0%	98.7%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			600	625		613			613	
PM Peak			5:00 PM	2:00 PM		2:00 PM			2:00 PM	
Volume			298	298		285			285	
<i>Comments:</i>										

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110901 DIRECTION: EB/WB DATE: Jan 18 2017		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	0	0	4	20	26	9	2	0	1	0	0	62	41-50	46
1:00 AM	0	0	0	0	0	3	17	12	5	1	0	0	0	0	38	41-50	28
2:00 AM	0	0	0	0	0	2	7	12	2	0	0	0	0	0	23	41-50	18
3:00 AM	0	0	0	0	0	3	11	10	7	1	0	0	0	0	32	41-50	21
4:00 AM	0	0	0	0	0	3	17	20	21	7	1	0	0	0	69	46-55	41
5:00 AM	0	0	0	1	0	7	32	64	55	14	3	0	0	0	176	46-55	119
6:00 AM	4	0	0	1	2	16	74	132	107	17	4	0	0	0	357	46-55	238
7:00 AM	16	0	1	0	6	29	160	330	197	24	0	0	0	0	763	46-55	527
8:00 AM	5	0	0	1	4	26	142	221	126	26	2	0	0	0	553	41-50	363
9:00 AM	6	0	1	0	1	23	124	185	91	15	4	0	0	0	450	41-50	309
10:00 AM	5	0	0	1	4	25	91	156	87	26	2	0	0	0	397	42-51	246
11:00 AM	12	0	1	0	5	31	142	172	89	21	2	0	0	0	475	41-50	313
12:00 PM	9	0	0	2	7	23	111	200	114	18	4	0	0	0	488	46-55	313
1:00 PM	10	0	1	1	4	26	113	174	127	20	3	0	0	0	479	46-55	300
2:00 PM	15	0	0	1	5	26	135	246	133	26	4	0	0	0	591	41-50	381
3:00 PM	21	0	0	0	3	41	193	312	131	24	3	0	0	0	728	41-50	504
4:00 PM	18	0	0	0	1	38	165	335	160	26	3	0	1	0	747	41-50	500
5:00 PM	14	0	0	1	7	66	255	321	99	14	2	0	0	0	779	41-50	576
6:00 PM	12	0	0	2	3	40	143	199	88	11	2	0	0	0	500	41-50	341
7:00 PM	7	0	1	2	5	39	119	160	67	11	3	0	0	0	414	41-50	279
8:00 PM	3	0	0	2	5	28	95	145	36	10	0	0	0	0	324	41-50	240
9:00 PM	0	0	0	1	2	14	78	91	42	10	3	0	0	0	241	41-50	168
10:00 PM	0	0	0	1	0	12	56	46	29	6	1	1	0	0	152	41-50	101
11:00 PM	0	0	0	0	0	5	26	38	16	1	2	0	0	0	88	41-50	63
Day Total	157	0	5	17	64	530	2326	3607	1838	331	48	2	1	0	8926	41-50	5932
Percent	1.8%	0.0%	0.1%	0.2%	0.7%	5.9%	26.1%	40.4%	20.6%	3.7%	0.5%	0.0%	0.0%	0.0%			
ADT 8926																	
AM Peak	7:00 AM	7:00 AM	5:00 AM	7:00 AM	11:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	6:00 AM	12:00 AM			7:00 AM		
Volume	16	1	1	6	31	160	330	197	26	4	1				763		
PM Peak	3:00 PM	1:00 PM	12:00 PM	12:00 PM	5:00 PM	5:00 PM	4:00 PM	4:00 PM	2:00 PM	12:00 PM	10:00 PM	4:00 PM			5:00 PM		
Volume	21	1	2	7	66	255	335	160	26	4	1	1			779		
<i>Comments:</i>																	

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110901 DIRECTION: EB/WB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	0	6	16	20	10	2	0	0	1	0	55	41-50	36	
1:00 AM	0	0	0	0	0	1	10	7	7	3	0	0	0	0	28	42-51	16	
2:00 AM	0	0	0	0	0	1	7	6	5	0	0	0	1	0	20	43-52	12	
3:00 AM	0	0	0	1	1	2	7	8	8	0	0	1	0	0	28	46-55	16	
4:00 AM	0	0	0	0	0	2	13	24	16	9	2	1	0	0	67	46-55	40	
5:00 AM	2	0	0	1	4	7	30	70	50	13	0	0	0	0	177	46-55	120	
6:00 AM	7	0	1	0	1	14	68	151	90	16	1	0	0	0	349	46-55	241	
7:00 AM	20	0	0	2	2	34	200	353	140	18	1	0	0	0	770	41-50	553	
8:00 AM	10	0	0	2	1	25	138	208	90	17	0	0	0	0	491	41-50	346	
9:00 AM	6	0	0	0	4	29	144	170	73	11	0	0	0	0	437	41-50	314	
10:00 AM	8	0	2	0	7	18	120	157	74	12	1	1	0	0	400	41-50	276	
11:00 AM	11	0	0	1	3	25	134	208	102	18	1	0	0	0	503	41-50	342	
12:00 PM	7	0	1	1	7	23	131	193	106	24	1	0	0	0	494	41-50	324	
1:00 PM	13	0	1	2	3	20	128	213	114	18	0	0	0	0	512	41-50	341	
2:00 PM	16	0	1	0	1	32	124	238	133	27	2	1	0	0	575	46-55	371	
3:00 PM	14	0	0	1	4	54	249	243	102	15	1	1	0	0	684	41-50	492	
4:00 PM	12	0	0	7	7	62	243	260	72	8	2	0	0	0	673	41-50	503	
5:00 PM	22	0	0	1	15	107	324	164	45	4	1	0	0	0	683	41-50	487	
6:00 PM	6	0	0	0	11	58	181	185	39	0	0	0	0	0	480	41-50	366	
7:00 PM	10	0	0	1	6	44	117	144	35	3	0	0	0	0	360	41-50	261	
8:00 PM	5	0	0	1	4	31	117	124	33	7	2	0	0	0	324	41-50	241	
9:00 PM	1	0	0	1	5	12	85	83	29	6	0	0	0	0	222	41-50	168	
10:00 PM	0	0	0	1	2	17	72	51	21	7	1	0	0	0	172	41-50	122	
11:00 PM	0	0	0	1	4	15	39	27	5	3	0	0	0	1	95	41-50	66	
Day Total	170	0	6	24	92	639	2697	3307	1399	241	16	5	2	1	8599	41-50	6003	
Percent	2.0%	0.0%	0.1%	0.3%	1.1%	7.4%	31.4%	38.5%	16.3%	2.8%	0.2%	0.1%	0.0%	0.0%				
ADT 8599																		
AM Peak Volume	7:00 AM	10:00 AM		7:00 AM	10:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	4:00 AM	3:00 AM	12:00 AM	7:00 AM			
	20	2		2	7	34	200	353	140	18	2	1	1		770			
PM Peak Volume	5:00 PM	12:00 PM		4:00 PM	5:00 PM	5:00 PM	5:00 PM	4:00 PM	2:00 PM	2:00 PM	2:00 PM	2:00 PM	11:00 PM		3:00 PM			
	22	1		7	15	107	324	260	133	27	2	1	1		684			
<i>Comments:</i>																		

LOCATION: W 12th Btwn Franklin and City Limits														QC JOB #: 14110901																
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits														DIRECTION: EB/WB																
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017																
Start Time	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	999	Total	Pace Speed	Number in Pace
Grand Total	327	0	11	41	156	1169	5023	6914	3237	572	64	7	3	1													17525	41-50	11936	
Percent	1.9%	0.0%	0.1%	0.2%	0.9%	6.7%	28.7%	39.5%	18.5%	3.3%	0.4%	0.0%	0.0%	0.0%																
Cumulative Percent	1.9%	1.9%	1.9%	2.2%	3.1%	9.7%	38.4%	77.8%	96.3%	99.6%	99.9%	100.0%	100.0%	100.0%																
ADT 8762																										85th Percentile 51 MPH Mean Speed(Average) 45 MPH				
<i>Comments:</i>																										Median 46 MPH Mode 48 MPH				



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: EB/WB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	42	13	0	6	0	0	0	0	0	0	0	0	0	62
1:00 AM	0	33	4	0	1	0	0	0	0	0	0	0	0	0	38
2:00 AM	0	9	9	0	5	0	0	0	0	0	0	0	0	0	23
3:00 AM	0	19	9	0	4	0	0	0	0	0	0	0	0	0	32
4:00 AM	0	45	18	0	6	0	0	0	0	0	0	0	0	0	69
5:00 AM	0	112	44	0	19	0	0	0	1	0	0	0	0	0	176
6:00 AM	1	194	94	4	56	1	0	3	0	0	0	0	0	4	357
7:00 AM	0	458	203	3	75	2	0	5	1	0	0	0	0	16	763
8:00 AM	0	340	148	0	56	1	0	2	1	0	0	0	0	5	553
9:00 AM	0	267	114	1	59	1	0	1	1	0	0	0	0	6	450
10:00 AM	0	211	120	3	48	3	0	6	1	0	0	0	0	5	397
11:00 AM	0	260	128	2	63	2	3	3	1	0	0	0	1	12	475
12:00 PM	2	298	109	4	58	2	2	4	0	0	0	0	0	9	488
1:00 PM	1	301	117	2	42	2	0	4	0	0	0	0	0	10	479
2:00 PM	6	338	150	3	71	0	0	7	1	0	0	0	0	15	591
3:00 PM	0	438	188	3	72	0	0	5	1	0	0	0	0	21	728
4:00 PM	1	451	181	0	88	2	0	6	0	0	0	0	0	18	747
5:00 PM	3	502	177	3	76	0	0	4	0	0	0	0	0	14	779
6:00 PM	0	315	120	0	49	1	0	2	1	0	0	0	0	12	500
7:00 PM	2	285	84	0	36	0	0	0	0	0	0	0	0	7	414
8:00 PM	0	200	90	0	30	0	0	1	0	0	0	0	0	3	324
9:00 PM	0	171	54	0	15	0	0	1	0	0	0	0	0	0	241
10:00 PM	1	109	32	0	10	0	0	0	0	0	0	0	0	0	152
11:00 PM	1	71	13	0	3	0	0	0	0	0	0	0	0	0	88
Day Total	19	5469	2219	28	948	17	5	54	9	0	0	0	1	157	8926
Percent	0.2%	61.3%	24.9%	0.3%	10.6%	0.2%	0.1%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	1.8%	
ADT 8926															
AM Peak Volume	12:00 AM	7:00 AM	7:00 AM	6:00 AM	7:00 AM	10:00 AM	11:00 AM	10:00 AM	5:00 AM				11:00 AM	7:00 AM	7:00 AM
	1	458	203	4	75	3	3	6	1				1	16	763
PM Peak Volume	2:00 PM	5:00 PM	3:00 PM	12:00 PM	4:00 PM	12:00 PM	12:00 PM	2:00 PM	2:00 PM					3:00 PM	5:00 PM
	6	502	188	4	88	2	2	7	1					21	779
<i>Comments:</i>															

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: EB/WB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	37	16	0	2	0	0	0	0	0	0	0	0	0	55
1:00 AM	0	25	3	0	0	0	0	0	0	0	0	0	0	0	28
2:00 AM	0	14	6	0	0	0	0	0	0	0	0	0	0	0	20
3:00 AM	0	12	13	0	3	0	0	0	0	0	0	0	0	0	28
4:00 AM	0	43	13	0	10	0	0	0	1	0	0	0	0	0	67
5:00 AM	0	102	48	1	20	2	0	1	1	0	0	0	0	2	177
6:00 AM	1	205	86	2	42	2	0	3	1	0	0	0	0	7	349
7:00 AM	1	477	181	1	82	4	0	2	2	0	0	0	0	20	770
8:00 AM	1	284	131	3	55	2	0	4	0	1	0	0	0	10	491
9:00 AM	0	258	123	3	39	2	0	3	3	0	0	0	0	6	437
10:00 AM	0	227	116	0	46	0	0	3	0	0	0	0	0	8	400
11:00 AM	1	278	145	2	58	5	0	1	1	1	0	0	0	11	503
12:00 PM	0	270	156	1	56	0	0	4	0	0	0	0	0	7	494
1:00 PM	0	307	138	1	50	1	1	1	0	0	0	0	0	13	512
2:00 PM	1	365	133	4	52	2	0	2	0	0	0	0	0	16	575
3:00 PM	0	410	190	1	62	4	0	2	0	1	0	0	0	14	684
4:00 PM	2	425	161	1	69	1	0	2	0	0	0	0	0	12	673
5:00 PM	3	424	172	3	56	1	0	1	1	0	0	0	0	22	683
6:00 PM	1	332	105	0	36	0	0	0	0	0	0	0	0	6	480
7:00 PM	1	250	76	0	24	0	0	0	0	0	0	0	0	9	360
8:00 PM	0	209	74	0	35	0	0	1	0	0	0	0	0	5	324
9:00 PM	0	152	55	1	13	0	0	0	0	0	0	0	0	1	222
10:00 PM	0	121	37	0	14	0	0	0	0	0	0	0	0	0	172
11:00 PM	0	71	20	0	4	0	0	0	0	0	0	0	0	0	95
Day Total	12	5298	2198	24	828	26	1	30	10	3	0	0	0	169	8599
Percent	0.1%	61.6%	25.6%	0.3%	9.6%	0.3%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	2.0%	
ADT 8599															
AM Peak Volume	6:00 AM	7:00 AM	7:00 AM	8:00 AM	7:00 AM	11:00 AM		8:00 AM	9:00 AM	8:00 AM				7:00 AM	7:00 AM
	1	477	181	3	82	5		4	3	1				20	770
PM Peak Volume	5:00 PM	4:00 PM	3:00 PM	2:00 PM	4:00 PM	3:00 PM	1:00 PM	12:00 PM	5:00 PM	3:00 PM				5:00 PM	3:00 PM
	3	425	190	4	69	4	1	4	1	1				22	684
<i>Comments:</i>															

LOCATION: W 12th Btwn Franklin and City Limits													QC JOB #: 14110901		
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits													DIRECTION: EB/WB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	31	10767	4417	52	1776	43	6	84	19	3	0	0	1	326	17525
Percent	0.2%	61.4%	25.2%	0.3%	10.1%	0.2%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	1.9%	
ADT 8762															
<i>Comments:</i>															



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN						QC JOB #: 14110901 DIRECTION: EB/WB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			62	55		59			59	
1:00 AM			38	28		33			33	
2:00 AM			23	20		22			22	
3:00 AM			32	28		30			30	
4:00 AM			69	67		68			68	
5:00 AM			176	177		177			177	
6:00 AM			357	349		353			353	
7:00 AM			763	770		767			767	
8:00 AM			553	491		522			522	
9:00 AM			450	437		444			444	
10:00 AM			397	400		399			399	
11:00 AM			475	503		489			489	
12:00 PM			488	494		491			491	
1:00 PM			479	512		496			496	
2:00 PM			591	575		583			583	
3:00 PM			728	684		706			706	
4:00 PM			747	673		710			710	
5:00 PM			779	683		731			731	
6:00 PM			500	480		490			490	
7:00 PM			414	360		387			387	
8:00 PM			324	324		324			324	
9:00 PM			241	222		232			232	
10:00 PM			152	172		162			162	
11:00 PM			88	95		92			92	
Day Total			8926	8599		8767			8767	
% Weekday Average			101.8%	98.1%						
% Week Average			101.8%	98.1%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			763	770		767			767	
PM Peak			5:00 PM	3:00 PM		5:00 PM			5:00 PM	
Volume			779	684		731			731	
<i>Comments:</i>										

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110901 DIRECTION: WB DATE: Jan 18 2017		
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	0	0	4	12	15	4	1	0	0	0	0	36	41-50	27
1:00 AM	0	0	0	0	0	2	11	10	3	0	0	0	0	0	26	41-50	21
2:00 AM	0	0	0	0	0	1	4	8	1	0	0	0	0	0	14	41-50	12
3:00 AM	0	0	0	0	0	2	7	3	2	0	0	0	0	0	14	41-50	10
4:00 AM	0	0	0	0	0	2	8	6	2	1	1	0	0	0	20	41-50	13
5:00 AM	0	0	0	0	0	5	11	10	8	2	1	0	0	0	37	41-50	21
6:00 AM	2	0	0	0	1	13	31	26	14	3	1	0	0	0	91	41-50	57
7:00 AM	7	0	1	0	6	8	38	63	35	5	0	0	0	0	163	42-51	100
8:00 AM	1	0	0	1	1	9	52	62	28	5	0	0	0	0	159	41-50	114
9:00 AM	4	0	1	0	1	12	50	62	23	1	3	0	0	0	157	41-50	112
10:00 AM	2	0	0	1	4	17	45	65	34	9	0	0	0	0	177	41-50	110
11:00 AM	4	0	1	0	3	9	83	84	35	6	2	0	0	0	227	41-50	167
12:00 PM	5	0	0	0	3	16	57	99	59	10	2	0	0	0	251	46-55	158
1:00 PM	4	0	1	0	2	18	57	75	59	8	2	0	0	0	226	46-55	134
2:00 PM	8	0	0	1	1	15	73	136	70	14	2	0	0	0	320	42-51	208
3:00 PM	9	0	0	0	2	28	116	187	82	13	3	0	0	0	440	41-50	302
4:00 PM	7	0	0	0	1	25	113	235	95	17	1	0	1	0	495	41-50	348
5:00 PM	5	0	0	1	4	43	183	185	51	8	1	0	0	0	481	41-50	368
6:00 PM	4	0	0	1	3	25	88	110	44	4	2	0	0	0	281	41-50	198
7:00 PM	1	0	1	1	3	30	86	102	43	7	1	0	0	0	275	41-50	187
8:00 PM	1	0	0	1	3	17	69	92	24	4	0	0	0	0	211	41-50	161
9:00 PM	0	0	0	1	2	11	48	58	23	4	0	0	0	0	147	41-50	105
10:00 PM	0	0	0	0	0	8	41	30	10	6	1	0	0	0	96	41-50	71
11:00 PM	0	0	0	0	0	3	19	26	10	1	1	0	0	0	60	41-50	45
Day Total	64	0	5	8	40	323	1302	1749	759	129	24	0	1	0	4404	41-50	3051
Percent	1.5%	0.0%	0.1%	0.2%	0.9%	7.3%	29.6%	39.7%	17.2%	2.9%	0.5%	0.0%	0.0%	0.0%			
ADT 4404																	
AM Peak	7:00 AM 7:00 AM 8:00 AM 7:00 AM 10:00 AM 11:00 AM 11:00 AM 7:00 AM 10:00 AM 9:00 AM														11:00 AM		
Volume	7 1 1 6 17 83 84 35 9 3														227		
PM Peak	3:00 PM 1:00 PM 2:00 PM 5:00 PM 5:00 PM 5:00 PM 4:00 PM 4:00 PM 4:00 PM 3:00 PM 4:00 PM														4:00 PM		
Volume	9 1 1 4 43 183 235 95 17 3 1														495		
<i>Comments:</i>																	

LOCATION: W 12th Btwn Franklin and City Limits															QC JOB #: 14110901			
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits															DIRECTION: WB			
CITY/STATE: Cookeville, TN															DATE: Jan 19 2017			
Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace	
	15	20	25	30	35	40	45	50	55	60	65	70	75	999				
12:00 AM	0	0	0	0	0	3	13	15	5	2	0	0	0	0	38	41-50	28	
1:00 AM	0	0	0	0	0	1	7	5	3	2	0	0	0	0	18	41-50	12	
2:00 AM	0	0	0	0	0	0	6	3	4	0	0	0	0	0	13	41-50	9	
3:00 AM	0	0	0	1	1	0	3	3	0	0	0	1	0	0	9	42-51	5	
4:00 AM	0	0	0	0	0	0	7	5	2	0	1	1	0	0	16	41-50	12	
5:00 AM	0	0	0	0	2	2	11	11	1	5	0	0	0	0	32	41-50	22	
6:00 AM	2	0	1	0	0	8	30	32	14	4	0	0	0	0	91	41-50	62	
7:00 AM	7	0	0	2	2	12	36	58	23	4	1	0	0	0	145	41-50	93	
8:00 AM	6	0	0	1	0	16	74	59	14	0	0	0	0	0	170	41-50	133	
9:00 AM	3	0	0	0	2	15	57	56	27	3	0	0	0	0	163	41-50	112	
10:00 AM	3	0	2	0	5	10	66	75	30	6	1	1	0	0	199	41-50	141	
11:00 AM	4	0	0	1	0	15	67	87	43	8	1	0	0	0	226	41-50	154	
12:00 PM	3	0	1	1	3	14	67	94	37	8	1	0	0	0	229	41-50	161	
1:00 PM	4	0	1	1	3	14	55	116	55	9	0	0	0	0	258	43-52	171	
2:00 PM	7	0	1	0	1	17	64	109	64	13	1	0	0	0	277	46-55	173	
3:00 PM	4	0	0	0	4	39	170	135	57	11	1	1	0	0	422	41-50	305	
4:00 PM	7	0	0	6	4	42	172	159	33	3	2	0	0	0	428	41-50	330	
5:00 PM	7	0	0	0	10	82	214	84	20	3	1	0	0	0	421	41-50	297	
6:00 PM	2	0	0	0	9	43	118	100	21	0	0	0	0	0	293	41-50	218	
7:00 PM	5	0	0	1	4	32	73	92	19	2	0	0	0	0	228	41-50	164	
8:00 PM	1	0	0	1	1	24	75	89	12	2	2	0	0	0	207	41-50	164	
9:00 PM	0	0	0	1	4	6	54	36	13	5	0	0	0	0	119	41-50	89	
10:00 PM	0	0	0	1	2	13	46	34	10	3	0	0	0	0	109	41-50	80	
11:00 PM	0	0	0	1	2	10	24	22	3	2	0	0	0	1	65	41-50	46	
Day Total	65	0	6	18	59	418	1509	1479	510	95	12	4	0	1	4176	41-50	2988	
Percent	1.6%	0.0%	0.1%	0.4%	1.4%	10.0%	36.1%	35.4%	12.2%	2.3%	0.3%	0.1%	0.0%	0.0%				
ADT 4176																		
AM Peak Volume	7:00 AM	10:00 AM	7:00 AM	10:00 AM	8:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	4:00 AM	3:00 AM				11:00 AM		
	7	2	2	5	16	74	87	43	8	1	1				226			
PM Peak Volume	2:00 PM	12:00 PM	4:00 PM	5:00 PM	5:00 PM	5:00 PM	4:00 PM	2:00 PM	2:00 PM	4:00 PM	3:00 PM	11:00 PM			4:00 PM			
	7	1	6	10	82	214	159	64	13	2	1	1			428			
Comments:																		

LOCATION: W 12th Btwn Franklin and City Limits														QC JOB #: 14110901			
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits														DIRECTION: WB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	129	0	11	26	99	741	2811	3228	1269	224	36	4	1	1	8580	41-50	6039
Percent	1.5%	0.0%	0.1%	0.3%	1.2%	8.6%	32.8%	37.6%	14.8%	2.6%	0.4%	0.0%	0.0%	0.0%			
Cumulative Percent	1.5%	1.5%	1.6%	1.9%	3.1%	11.7%	44.5%	82.1%	96.9%	99.5%	99.9%	100.0%	100.0%	100.0%			
ADT 4290															85th Percentile 50 MPH Mean Speed(Average): 45 MPH Median 45 MPH Mode: 48 MPH		
Comments:																	



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: WB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	25	7	0	3	0	0	0	0	0	0	0	0	0	36
1:00 AM	0	22	4	0	0	0	0	0	0	0	0	0	0	0	26
2:00 AM	0	6	5	0	3	0	0	0	0	0	0	0	0	0	14
3:00 AM	0	10	4	0	0	0	0	0	0	0	0	0	0	0	14
4:00 AM	0	19	1	0	0	0	0	0	0	0	0	0	0	0	20
5:00 AM	0	22	11	0	3	0	0	0	1	0	0	0	0	0	37
6:00 AM	0	50	26	3	8	1	0	1	0	0	0	0	0	2	91
7:00 AM	0	99	40	2	11	2	0	1	1	0	0	0	0	7	163
8:00 AM	0	81	50	0	25	1	0	1	0	0	0	0	0	1	159
9:00 AM	0	94	39	1	18	1	0	0	0	0	0	0	0	4	157
10:00 AM	0	88	54	0	25	3	0	4	1	0	0	0	0	2	177
11:00 AM	0	132	59	1	27	0	2	1	0	0	0	0	1	4	227
12:00 PM	0	157	59	2	24	0	2	2	0	0	0	0	0	5	251
1:00 PM	0	145	53	2	18	1	0	3	0	0	0	0	0	4	226
2:00 PM	2	187	83	2	33	0	0	5	0	0	0	0	0	8	320
3:00 PM	0	278	104	1	46	0	0	1	1	0	0	0	0	9	440
4:00 PM	1	312	117	0	53	0	0	5	0	0	0	0	0	7	495
5:00 PM	2	329	101	2	39	0	0	3	0	0	0	0	0	5	481
6:00 PM	0	194	58	0	23	1	0	1	0	0	0	0	0	4	281
7:00 PM	2	197	51	0	24	0	0	0	0	0	0	0	0	1	275
8:00 PM	0	134	55	0	20	0	0	1	0	0	0	0	0	1	211
9:00 PM	0	105	33	0	8	0	0	1	0	0	0	0	0	0	147
10:00 PM	1	70	21	0	4	0	0	0	0	0	0	0	0	0	96
11:00 PM	0	48	9	0	3	0	0	0	0	0	0	0	0	0	60
Day Total	9	2804	1044	16	418	10	4	30	4	0	0	0	1	64	4404
Percent	0.2%	63.7%	23.7%	0.4%	9.5%	0.2%	0.1%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	1.5%	
ADT 4404															
AM Peak Volume	12:00 AM	11:00 AM	11:00 AM	6:00 AM	11:00 AM	10:00 AM	11:00 AM	10:00 AM	5:00 AM				11:00 AM	7:00 AM	11:00 AM
PM Peak Volume	2:00 PM	5:00 PM	4:00 PM	12:00 PM	4:00 PM	1:00 PM	12:00 PM	2:00 PM	3:00 PM					3:00 PM	4:00 PM

Comments:

LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110901 DIRECTION: WB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	27	10	0	1	0	0	0	0	0	0	0	0	0	38
1:00 AM	0	16	2	0	0	0	0	0	0	0	0	0	0	0	18
2:00 AM	0	10	3	0	0	0	0	0	0	0	0	0	0	0	13
3:00 AM	0	6	3	0	0	0	0	0	0	0	0	0	0	0	9
4:00 AM	0	11	2	0	2	0	0	0	1	0	0	0	0	0	16
5:00 AM	0	17	10	0	3	1	0	0	1	0	0	0	0	0	32
6:00 AM	1	53	18	2	10	2	0	2	1	0	0	0	0	2	91
7:00 AM	1	77	35	0	22	1	0	0	2	0	0	0	0	7	145
8:00 AM	1	85	52	2	18	2	0	3	0	1	0	0	0	6	170
9:00 AM	0	94	50	1	12	1	0	1	1	0	0	0	0	3	163
10:00 AM	0	115	57	0	23	0	0	1	0	0	0	0	0	3	199
11:00 AM	1	128	66	0	22	4	0	0	0	1	0	0	0	4	226
12:00 PM	0	137	67	0	21	0	0	1	0	0	0	0	0	3	229
1:00 PM	0	158	66	1	28	0	1	0	0	0	0	0	0	4	258
2:00 PM	1	177	63	2	24	2	0	1	0	0	0	0	0	7	277
3:00 PM	0	267	110	1	36	2	0	1	0	1	0	0	0	4	422
4:00 PM	2	288	94	0	34	1	0	2	0	0	0	0	0	7	428
5:00 PM	2	275	99	2	35	0	0	1	0	0	0	0	0	7	421
6:00 PM	0	206	63	0	22	0	0	0	0	0	0	0	0	2	293
7:00 PM	1	164	46	0	13	0	0	0	0	0	0	0	0	4	228
8:00 PM	0	136	47	0	22	0	0	1	0	0	0	0	0	1	207
9:00 PM	0	81	30	1	7	0	0	0	0	0	0	0	0	0	119
10:00 PM	0	78	22	0	9	0	0	0	0	0	0	0	0	0	109
11:00 PM	0	49	13	0	3	0	0	0	0	0	0	0	0	0	65
Day Total	10	2655	1028	12	367	16	1	14	6	3	0	0	0	64	4176
Percent	0.2%	63.6%	24.6%	0.3%	8.8%	0.4%	0.0%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	1.5%	
ADT 4176															
AM Peak	6:00 AM	11:00 AM	11:00 AM	6:00 AM	10:00 AM	11:00 AM		8:00 AM	7:00 AM	8:00 AM				7:00 AM	11:00 AM
Volume	1	128	66	2	23	4		3	2	1				7	226
PM Peak	4:00 PM	4:00 PM	3:00 PM	2:00 PM	3:00 PM	2:00 PM	1:00 PM	4:00 PM		3:00 PM				2:00 PM	4:00 PM
Volume	2	288	110	2	36	2	1	2		1				7	428
<i>Comments:</i>															

LOCATION: W 12th Btwn Franklin and City Limits												QC JOB #: 14110901			
SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits												DIRECTION: WB			
CITY/STATE: Cookeville, TN												DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	19	5459	2072	28	785	26	5	44	10	3	0	0	1	128	8580
Percent	0.2%	63.6%	24.1%	0.3%	9.1%	0.3%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	1.5%	
ADT 4290															
<i>Comments:</i>															



LOCATION: W 12th Btwn Franklin and City Limits SPECIFIC LOCATION: W 12th Btwn Franklin and City Limits CITY/STATE: Cookeville, TN						QC JOB #: 14110901 DIRECTION: WB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			36	38		37			37	
1:00 AM			26	18		22			22	
2:00 AM			14	13		14			14	
3:00 AM			14	9		12			12	
4:00 AM			20	16		18			18	
5:00 AM			37	32		35			35	
6:00 AM			91	91		91			91	
7:00 AM			163	145		154			154	
8:00 AM			159	170		165			165	
9:00 AM			157	163		160			160	
10:00 AM			177	199		188			188	
11:00 AM			227	226		227			227	
12:00 PM			251	229		240			240	
1:00 PM			226	258		242			242	
2:00 PM			320	277		299			299	
3:00 PM			440	422		431			431	
4:00 PM			495	428		462			462	
5:00 PM			481	421		451			451	
6:00 PM			281	293		287			287	
7:00 PM			275	228		252			252	
8:00 PM			211	207		209			209	
9:00 PM			147	119		133			133	
10:00 PM			96	109		103			103	
11:00 PM			60	65		63			63	
Day Total			4404	4176		4295			4295	
% Weekday Average			102.5%	97.2%						
% Week Average			102.5%	97.2%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			227	226		227			227	
PM Peak			4:00 PM	4:00 PM		4:00 PM			4:00 PM	
Volume			495	428		462			462	
<i>Comments:</i>										

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: EB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	2	2	9	7	5	2	0	0	0	0	27	42-51	15	
1:00 AM	0	0	0	0	0	2	5	3	1	0	0	0	0	0	11	42-51	7	
2:00 AM	0	0	0	0	0	1	0	6	1	0	0	0	0	0	8	46-55	6	
3:00 AM	0	0	0	1	0	3	8	12	3	0	0	0	0	0	27	41-50	19	
4:00 AM	0	0	0	0	1	5	20	33	10	3	0	0	0	0	72	41-50	52	
5:00 AM	0	0	0	0	1	7	35	53	27	1	2	0	0	0	126	41-50	87	
6:00 AM	2	0	1	0	5	36	98	122	23	1	0	0	0	0	288	41-50	219	
7:00 AM	28	0	0	9	60	202	293	112	16	2	1	0	0	0	723	36-45	495	
8:00 AM	11	0	3	5	6	56	195	117	23	1	0	0	0	0	417	41-50	311	
9:00 AM	8	1	0	0	6	51	129	106	24	3	0	0	0	0	328	41-50	234	
10:00 AM	10	0	0	3	24	62	135	100	9	2	0	0	0	0	345	41-50	235	
11:00 AM	9	0	0	3	15	79	147	96	10	0	0	1	0	0	360	41-50	242	
12:00 PM	11	0	1	0	16	43	146	99	17	0	1	0	0	0	334	41-50	245	
1:00 PM	11	0	1	1	7	38	134	142	29	2	0	0	0	0	365	41-50	275	
2:00 PM	21	2	1	1	4	38	155	116	20	2	0	0	0	0	360	41-50	271	
3:00 PM	28	2	0	4	36	109	175	87	11	2	0	0	0	0	454	36-45	284	
4:00 PM	23	0	0	2	7	52	130	112	19	0	0	0	0	0	345	41-50	241	
5:00 PM	27	0	3	6	15	45	160	77	11	2	1	0	0	0	347	41-50	236	
6:00 PM	13	0	1	2	7	30	111	73	17	1	0	1	0	0	256	41-50	184	
7:00 PM	3	0	0	0	4	17	50	52	7	2	0	0	0	0	135	41-50	102	
8:00 PM	3	0	1	0	2	25	65	48	10	1	0	0	0	0	155	41-50	112	
9:00 PM	2	0	0	0	0	8	32	34	5	3	0	0	0	0	84	41-50	66	
10:00 PM	0	0	0	0	0	6	28	17	4	0	0	0	0	0	55	41-50	45	
11:00 PM	0	0	0	0	1	1	13	15	0	2	0	0	0	0	32	41-50	28	
Day Total	210	5	12	37	219	918	2273	1639	302	32	5	2	0	0	5654	41-50	3912	
Percent	3.7%	0.1%	0.2%	0.7%	3.9%	16.2%	40.2%	29.0%	5.3%	0.6%	0.1%	0.0%	0.0%	0.0%				
ADT 5654																		
AM Peak Volume	7:00 AM	9:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	6:00 AM	5:00 AM	4:00 AM	5:00 AM	11:00 AM	7:00 AM					
	28	1	3	9	60	202	293	122	27	3	2	1	723					
PM Peak Volume	3:00 PM	2:00 PM	5:00 PM	5:00 PM	3:00 PM	3:00 PM	3:00 PM	1:00 PM	1:00 PM	9:00 PM	12:00 PM	6:00 PM	3:00 PM					
	28	2	3	6	36	109	175	142	29	3	1	1	454					
<i>Comments:</i>																		

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: EB DATE: Jan 19 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	0	0	0	0	0	5	5	5	1	0	0	0	0	0	16	36-45	10		
1:00 AM	0	0	0	0	2	1	3	6	2	1	0	0	0	0	15	45-54	8		
2:00 AM	0	0	0	0	1	2	5	5	2	0	0	0	0	0	15	41-50	10		
3:00 AM	0	0	1	0	0	0	9	9	5	1	0	0	0	0	25	41-50	18		
4:00 AM	0	0	0	0	2	6	13	33	8	1	0	0	0	0	63	41-50	45		
5:00 AM	1	0	0	0	1	6	51	52	20	4	0	0	0	0	135	41-50	103		
6:00 AM	1	0	1	0	4	34	139	125	23	2	0	0	0	0	329	41-50	264		
7:00 AM	18	7	13	28	54	197	269	85	6	0	1	0	0	0	678	36-45	465		
8:00 AM	8	0	2	1	13	64	177	83	14	0	0	0	0	0	362	41-50	260		
9:00 AM	7	0	0	2	14	72	158	68	14	2	0	0	0	0	337	36-45	230		
10:00 AM	8	0	0	0	17	81	141	66	12	0	0	0	0	0	325	36-45	221		
11:00 AM	11	0	0	0	13	73	119	94	9	1	0	0	0	0	320	41-50	213		
12:00 PM	35	1	0	0	6	53	137	83	15	1	0	0	0	0	331	41-50	220		
1:00 PM	13	0	0	4	24	68	102	100	20	1	0	0	0	0	332	41-50	202		
2:00 PM	16	0	0	1	18	47	170	90	13	3	0	0	0	0	358	41-50	260		
3:00 PM	30	4	3	9	61	145	144	50	11	0	0	0	0	0	457	36-45	289		
4:00 PM	28	0	0	4	16	64	181	72	3	1	0	0	0	0	369	41-50	252		
5:00 PM	19	0	0	4	59	132	112	38	3	0	0	0	0	0	367	36-45	243		
6:00 PM	11	0	0	0	3	45	98	50	10	1	0	0	0	0	218	41-50	148		
7:00 PM	2	0	1	0	8	30	58	32	4	1	0	1	0	0	137	41-50	90		
8:00 PM	2	0	2	0	3	17	33	29	6	0	0	0	0	0	92	41-50	61		
9:00 PM	0	0	0	0	0	17	36	17	4	0	0	0	0	0	74	41-50	53		
10:00 PM	1	0	0	1	0	6	19	15	4	0	0	0	0	0	46	41-50	34		
11:00 PM	0	0	0	0	1	10	8	11	0	0	0	0	0	0	30	41-50	19		
Day Total	211	12	23	54	320	1175	2187	1218	209	20	1	1	0	0	5431	41-50	3405		
Percent	3.9%	0.2%	0.4%	1.0%	5.9%	21.6%	40.3%	22.4%	3.8%	0.4%	0.0%	0.0%	0.0%	0.0%					
ADT 5431																			
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	6:00 AM	6:00 AM	5:00 AM	7:00 AM						7:00 AM		
	18	7	13	28	54	197	269	125	23	4	1						678		
PM Peak Volume	12:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	1:00 PM	1:00 PM	2:00 PM	7:00 PM						3:00 PM		
	35	4	3	9	61	145	181	100	20	3	1						457		
<i>Comments:</i>																			

LOCATION: W Broad Btwn W. Jackson and City Limits														QC JOB #: 14110902																
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits														DIRECTION: EB																
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017																
Start Time	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	999	Total	Pace Speed	Number in Pace
Grand Total	421	17	35	91	539	2093	4460	2857	511	52	6	3	0	0	11085	41-50	7316													
Percent	3.8%	0.2%	0.3%	0.8%	4.9%	18.9%	40.2%	25.8%	4.6%	0.5%	0.1%	0.0%	0.0%	0.0%																
Cumulative Percent	3.8%	4.0%	4.3%	5.1%	10.0%	28.8%	69.1%	94.8%	99.4%	99.9%	100.0%	100.0%	100.0%	100.0%																
ADT 5542															85th Percentile 48 MPH Mean Speed(Average): 41 MPH															
<i>Comments:</i>															Median 42 MPH Mode: 43 MPH															



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: EB DATE: Jan 18 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	19	8	0	0	0	0	0	0	0	0	0	0	0	27	
1:00 AM	0	7	3	0	1	0	0	0	0	0	0	0	0	0	11	
2:00 AM	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8	
3:00 AM	0	21	6	0	0	0	0	0	0	0	0	0	0	0	27	
4:00 AM	0	50	20	0	2	0	0	0	0	0	0	0	0	0	72	
5:00 AM	0	76	45	0	5	0	0	0	0	0	0	0	0	0	126	
6:00 AM	0	179	94	0	11	2	0	0	0	0	0	0	0	2	288	
7:00 AM	0	450	185	3	45	5	0	7	0	0	0	0	0	28	723	
8:00 AM	1	257	122	1	24	0	0	1	0	0	0	0	0	11	417	
9:00 AM	0	194	94	3	23	2	1	2	1	0	0	0	0	8	328	
10:00 AM	0	201	90	3	35	3	0	1	2	0	0	0	0	10	345	
11:00 AM	3	214	94	1	34	1	0	1	3	0	0	0	0	9	360	
12:00 PM	0	193	103	1	22	2	0	2	0	0	0	0	0	11	334	
1:00 PM	3	210	100	1	33	1	0	1	5	0	0	0	0	11	365	
2:00 PM	1	199	105	1	28	1	0	3	1	0	0	0	0	21	360	
3:00 PM	0	285	109	2	25	1	0	5	0	0	0	0	0	27	454	
4:00 PM	0	195	99	0	22	1	0	4	1	0	0	0	0	23	345	
5:00 PM	0	234	72	0	13	0	0	1	0	0	0	0	0	27	347	
6:00 PM	0	158	69	0	17	1	0	0	0	0	0	0	0	11	256	
7:00 PM	0	97	30	0	5	0	0	0	0	0	0	0	0	3	135	
8:00 PM	1	101	41	0	8	1	0	0	0	0	0	0	0	3	155	
9:00 PM	0	58	21	0	2	0	0	1	0	0	0	0	0	2	84	
10:00 PM	0	48	6	0	1	0	0	0	0	0	0	0	0	0	55	
11:00 PM	0	21	9	0	2	0	0	0	0	0	0	0	0	0	32	
Day Total	9	3473	1526	16	359	21	1	29	13	0	0	0	0	207	5654	
Percent	0.2%	61.4%	27.0%	0.3%	6.3%	0.4%	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	3.7%		
ADT 5654																
AM Peak Volume	11:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	9:00 AM	7:00 AM	11:00 AM						7:00 AM	7:00 AM
	3	450	185	3	45	5	1	7	3						28	723
PM Peak Volume	1:00 PM	3:00 PM	3:00 PM	3:00 PM	1:00 PM	12:00 PM			3:00 PM	1:00 PM					3:00 PM	3:00 PM
	3	285	109	2	33	2			5	5					27	454
<i>Comments:</i>																

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: EB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	15	1	0	0	0	0	0	0	0	0	0	0	0	16
1:00 AM	0	10	4	0	1	0	0	0	0	0	0	0	0	0	15
2:00 AM	0	11	1	1	2	0	0	0	0	0	0	0	0	0	15
3:00 AM	0	24	1	0	0	0	0	0	0	0	0	0	0	0	25
4:00 AM	0	41	20	0	2	0	0	0	0	0	0	0	0	0	63
5:00 AM	0	72	50	0	11	1	0	0	0	0	0	0	0	1	135
6:00 AM	0	199	104	0	24	0	0	0	1	0	0	0	0	1	329
7:00 AM	0	449	168	2	37	2	0	2	0	0	0	0	0	18	678
8:00 AM	2	223	103	3	22	0	0	0	1	0	0	0	0	8	362
9:00 AM	0	197	97	4	27	0	0	4	1	0	0	0	0	7	337
10:00 AM	0	193	91	2	21	1	1	4	4	0	0	0	0	8	325
11:00 AM	1	186	97	3	17	0	0	3	2	0	0	0	0	11	320
12:00 PM	2	190	85	1	17	3	0	3	3	0	0	0	0	27	331
1:00 PM	2	195	92	2	21	3	0	3	1	0	0	0	0	13	332
2:00 PM	1	192	120	1	26	1	0	0	1	0	0	0	0	16	358
3:00 PM	0	298	98	2	28	1	0	2	0	0	0	0	0	28	457
4:00 PM	0	217	104	2	17	0	0	1	0	0	0	0	0	28	369
5:00 PM	2	255	72	0	18	0	0	0	1	0	0	0	0	19	367
6:00 PM	0	147	51	0	8	0	0	1	0	0	0	0	0	11	218
7:00 PM	0	91	33	0	11	0	0	0	0	0	0	0	0	2	137
8:00 PM	0	74	14	0	2	0	0	0	0	0	0	0	0	2	92
9:00 PM	0	56	15	0	3	0	0	0	0	0	0	0	0	0	74
10:00 PM	0	34	10	0	1	0	0	0	0	0	0	0	0	1	46
11:00 PM	0	19	11	0	0	0	0	0	0	0	0	0	0	0	30
Day Total	10	3388	1442	23	316	12	1	23	15	0	0	0	0	201	5431
Percent	0.2%	62.4%	26.6%	0.4%	5.8%	0.2%	0.0%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	3.7%	
ADT 5431															
AM Peak Volume	8:00 AM	7:00 AM	7:00 AM	9:00 AM	7:00 AM	7:00 AM	10:00 AM	9:00 AM	10:00 AM					7:00 AM	7:00 AM
	2	449	168	4	37	2	1	4	4					18	678
PM Peak Volume	12:00 PM	3:00 PM	2:00 PM	1:00 PM	3:00 PM	12:00 PM		12:00 PM	12:00 PM					3:00 PM	3:00 PM
	2	298	120	2	28	3		3	3					28	457
<i>Comments:</i>															

LOCATION: W Broad Btwn W. Jackson and City Limits													QC JOB #: 14110902		
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits													DIRECTION: EB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	19	6861	2968	39	675	33	2	52	28	0	0	0	0	408	11085
Percent	0.2%	61.9%	26.8%	0.4%	6.1%	0.3%	0.0%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	3.7%	
ADT 5542															
<i>Comments:</i>															



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN						QC JOB #: 14110902 DIRECTION: EB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			27	16		22			22	
1:00 AM			11	15		13			13	
2:00 AM			8	15		12			12	
3:00 AM			27	25		26			26	
4:00 AM			72	63		68			68	
5:00 AM			126	135		131			131	
6:00 AM			288	329		309			309	
7:00 AM			723	678		701			701	
8:00 AM			417	362		390			390	
9:00 AM			328	337		333			333	
10:00 AM			345	325		335			335	
11:00 AM			360	320		340			340	
12:00 PM			334	331		333			333	
1:00 PM			365	332		349			349	
2:00 PM			360	358		359			359	
3:00 PM			454	457		456			456	
4:00 PM			345	369		357			357	
5:00 PM			347	367		357			357	
6:00 PM			256	218		237			237	
7:00 PM			135	137		136			136	
8:00 PM			155	92		124			124	
9:00 PM			84	74		79			79	
10:00 PM			55	46		51			51	
11:00 PM			32	30		31			31	
Day Total			5654	5431		5549			5549	
% Weekday Average			101.9%	97.9%						
% Week Average			101.9%	97.9%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			723	678		701			701	
PM Peak			3:00 PM	3:00 PM		3:00 PM			3:00 PM	
Volume			454	457		456			456	
<i>Comments:</i>										

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: EB/WB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	2	7	26	15	5	2	0	0	0	0	57	41-50	41	
1:00 AM	0	0	0	1	2	6	8	9	2	0	0	0	0	0	28	41-50	17	
2:00 AM	0	0	0	0	0	1	3	9	2	0	0	0	0	0	15	41-50	12	
3:00 AM	0	0	0	1	0	7	14	18	4	0	0	0	0	0	44	41-50	32	
4:00 AM	0	0	0	0	1	14	26	33	13	3	0	0	0	0	90	41-50	58	
5:00 AM	2	0	0	2	3	20	61	82	32	1	2	0	0	0	205	41-50	143	
6:00 AM	5	0	1	0	9	50	146	147	29	3	0	0	0	0	390	41-50	292	
7:00 AM	52	0	1	18	73	257	393	165	18	2	1	0	0	0	980	36-45	650	
8:00 AM	18	0	6	10	14	88	300	164	33	1	0	0	0	0	634	41-50	463	
9:00 AM	15	1	0	0	18	100	223	151	32	3	0	0	0	0	543	41-50	374	
10:00 AM	14	1	0	7	45	127	238	151	14	4	0	0	0	0	601	41-50	389	
11:00 AM	19	0	0	4	29	144	291	175	22	0	0	1	0	1	686	41-50	466	
12:00 PM	18	1	1	10	43	107	289	189	22	2	1	0	0	0	683	41-50	477	
1:00 PM	15	0	1	3	10	96	285	231	49	3	0	0	0	0	693	41-50	516	
2:00 PM	34	5	3	5	16	138	368	199	38	3	0	0	0	0	809	41-50	566	
3:00 PM	51	4	1	17	101	292	396	165	18	3	0	0	0	0	1048	36-45	688	
4:00 PM	37	0	0	8	26	170	411	224	34	1	1	0	0	0	912	41-50	634	
5:00 PM	39	0	3	9	47	207	401	146	22	2	1	0	0	0	877	36-45	608	
6:00 PM	20	0	2	3	18	129	281	130	21	2	0	3	0	0	609	41-50	411	
7:00 PM	6	0	0	2	17	82	197	112	17	2	0	0	0	0	435	41-50	308	
8:00 PM	6	0	3	0	11	96	184	114	22	2	0	0	0	0	438	41-50	298	
9:00 PM	2	0	1	0	6	30	102	65	11	4	0	0	0	0	221	41-50	167	
10:00 PM	0	0	0	1	2	19	69	42	8	1	0	0	0	0	142	41-50	111	
11:00 PM	0	0	0	0	2	8	44	28	1	2	1	0	0	0	86	41-50	71	
Day Total	353	12	23	101	495	2195	4756	2764	469	46	7	4	0	1	11226	41-50	7519	
Percent	3.1%	0.1%	0.2%	0.9%	4.4%	19.6%	42.4%	24.6%	4.2%	0.4%	0.1%	0.0%	0.0%	0.0%				
ADT 11226																		
AM Peak Volume	7:00 AM	9:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	8:00 AM	10:00 AM	5:00 AM	11:00 AM		11:00 AM	7:00 AM			
	52	1	6	18	73	257	393	175	33	4	2	1		1	980			
PM Peak Volume	3:00 PM	2:00 PM	2:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	1:00 PM	1:00 PM	9:00 PM	12:00 PM	6:00 PM			3:00 PM			
	51	5	3	17	101	292	411	231	49	4	1	3			1048			
<i>Comments:</i>																		

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: EB/WB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	0	13	15	13	3	0	0	0	0	0	44	41-50	28	
1:00 AM	0	0	0	0	2	4	10	11	5	1	0	0	0	0	33	41-50	21	
2:00 AM	0	0	0	0	2	4	11	7	3	1	0	1	0	1	30	41-50	17	
3:00 AM	0	0	1	0	0	3	12	10	5	1	0	0	0	0	32	41-50	22	
4:00 AM	0	0	0	0	4	10	16	40	10	2	0	0	1	3	86	41-50	56	
5:00 AM	1	0	0	1	3	19	70	76	28	6	0	0	0	0	204	41-50	145	
6:00 AM	5	0	1	0	8	54	181	154	29	3	0	0	0	0	435	41-50	334	
7:00 AM	35	7	13	31	81	271	354	119	15	0	1	0	0	0	927	36-45	624	
8:00 AM	16	0	2	4	29	110	282	129	19	1	0	0	0	0	592	41-50	410	
9:00 AM	9	0	0	2	31	142	249	102	23	2	0	0	0	0	560	36-45	390	
10:00 AM	15	0	0	0	40	139	238	111	16	0	0	0	0	0	559	36-45	377	
11:00 AM	16	3	2	4	28	161	241	158	18	3	0	0	0	0	634	36-45	402	
12:00 PM	47	1	1	2	35	122	263	168	25	1	0	0	0	0	665	41-50	431	
1:00 PM	19	1	2	7	38	155	253	181	31	2	0	0	0	0	689	41-50	434	
2:00 PM	32	0	1	10	46	154	327	166	20	3	0	0	0	0	759	41-50	493	
3:00 PM	45	4	4	22	157	416	306	86	15	0	1	0	0	0	1056	36-45	722	
4:00 PM	42	0	1	5	55	309	407	116	6	1	0	0	0	0	942	36-45	716	
5:00 PM	39	1	3	16	137	367	258	66	5	0	0	0	0	0	892	36-45	624	
6:00 PM	17	0	1	9	28	162	224	81	13	1	0	0	0	0	536	36-45	385	
7:00 PM	3	1	1	2	26	107	170	82	12	2	2	1	0	0	409	36-45	277	
8:00 PM	7	0	2	1	15	81	127	64	8	0	1	0	0	0	306	36-45	207	
9:00 PM	0	0	0	5	4	52	92	44	8	0	0	0	0	0	205	36-45	144	
10:00 PM	2	0	0	1	2	27	62	34	13	0	0	0	0	0	141	41-50	96	
11:00 PM	0	0	0	0	3	19	30	22	1	0	0	0	0	0	75	41-50	52	
Day Total	350	18	35	122	774	2901	4198	2040	331	30	5	2	1	4	10811	36-45	7099	
Percent	3.2%	0.2%	0.3%	1.1%	7.2%	26.8%	38.8%	18.9%	3.1%	0.3%	0.0%	0.0%	0.0%	0.0%				
ADT 10811																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	6:00 AM	5:00 AM	7:00 AM	2:00 AM	4:00 AM	4:00 AM	7:00 AM			
	35	7	13	31	81	271	354	158	29	6	1	1	1	3	927			
PM Peak Volume	12:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	1:00 PM	1:00 PM	2:00 PM	7:00 PM	7:00 PM			3:00 PM			
	47	4	4	22	157	416	407	181	31	3	2	1			1056			
<i>Comments:</i>																		

LOCATION: W Broad Btwn W. Jackson and City Limits														QC JOB #: 14110902			
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits														DIRECTION: EB/WB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	703	30	58	223	1269	5096	8954	4804	800	76	12	6	1	5	22037	36-45	14049
Percent	3.2%	0.1%	0.3%	1.0%	5.8%	23.1%	40.6%	21.8%	3.6%	0.3%	0.1%	0.0%	0.0%	0.0%			
Cumulative Percent	3.2%	3.3%	3.6%	4.6%	10.4%	33.5%	74.1%	95.9%	99.5%	99.9%	99.9%	100.0%	100.0%	100.0%			
ADT 11018															85th Percentile 47 MPH Mean Speed(Average) 41 MPH		
<i>Comments:</i>															Median 42 MPH Mode: 43 MPH		



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: EB/WB DATE: Jan 18 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	40	16	0	1	0	0	0	0	0	0	0	0	0	57	
1:00 AM	1	19	5	0	2	1	0	0	0	0	0	0	0	0	28	
2:00 AM	0	11	3	0	1	0	0	0	0	0	0	0	0	0	15	
3:00 AM	0	34	10	0	0	0	0	0	0	0	0	0	0	0	44	
4:00 AM	0	60	27	0	2	0	0	1	0	0	0	0	0	0	90	
5:00 AM	0	125	71	0	7	0	0	0	0	0	0	0	0	2	205	
6:00 AM	0	253	111	0	17	2	0	1	1	0	0	0	0	5	390	
7:00 AM	2	590	261	7	54	7	0	7	0	0	0	0	0	52	980	
8:00 AM	3	370	194	4	42	0	1	2	0	0	0	0	0	18	634	
9:00 AM	0	294	172	6	46	4	1	4	1	0	0	0	0	15	543	
10:00 AM	2	348	169	7	48	7	0	1	5	0	0	0	0	14	601	
11:00 AM	4	397	192	4	60	2	0	5	3	0	0	0	0	19	686	
12:00 PM	5	386	215	2	44	4	0	6	3	0	0	0	0	18	683	
1:00 PM	5	403	201	4	56	2	0	2	5	0	0	0	0	15	693	
2:00 PM	3	473	233	2	56	4	0	3	1	0	0	0	0	34	809	
3:00 PM	0	649	273	5	58	6	0	7	1	0	0	0	0	49	1048	
4:00 PM	1	577	244	0	44	2	0	5	2	0	0	0	0	37	912	
5:00 PM	2	582	218	0	35	0	0	1	0	0	0	0	0	39	877	
6:00 PM	2	400	155	0	33	1	0	0	0	0	0	0	0	18	609	
7:00 PM	1	311	101	0	16	0	0	0	0	0	0	0	0	6	435	
8:00 PM	1	284	127	0	19	1	0	0	0	0	0	0	0	6	438	
9:00 PM	1	155	55	0	5	0	0	3	0	0	0	0	0	2	221	
10:00 PM	0	117	23	0	2	0	0	0	0	0	0	0	0	0	142	
11:00 PM	0	63	18	0	5	0	0	0	0	0	0	0	0	0	86	
Day Total	33	6941	3094	41	653	43	2	48	22	0	0	0	0	349	11226	
Percent	0.3%	61.8%	27.6%	0.4%	5.8%	0.4%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	3.1%		
ADT 11226																
AM Peak Volume	11:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	7:00 AM	8:00 AM	7:00 AM	10:00 AM						7:00 AM	7:00 AM
	4	590	261	7	60	7	1	7	5						52	980
PM Peak Volume	12:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM		1:00 PM						3:00 PM	3:00 PM
	5	649	273	5	58	6	7		5						49	1048
<i>Comments:</i>																

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: EB/WB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	37	4	0	2	0	0	0	0	0	0	0	0	0	44
1:00 AM	0	23	8	0	2	0	0	0	0	0	0	0	0	0	33
2:00 AM	0	22	2	1	5	0	0	0	0	0	0	0	0	0	30
3:00 AM	0	29	3	0	0	0	0	0	0	0	0	0	0	0	32
4:00 AM	0	53	31	0	2	0	0	0	0	0	0	0	0	0	86
5:00 AM	0	117	69	0	14	2	0	0	1	0	0	0	0	1	204
6:00 AM	0	264	131	0	31	1	0	2	1	0	0	0	0	5	435
7:00 AM	0	598	226	7	51	6	0	3	1	0	0	0	0	35	927
8:00 AM	2	352	173	4	44	0	0	0	1	0	0	0	0	16	592
9:00 AM	0	317	172	8	44	1	0	6	3	0	0	0	0	9	560
10:00 AM	2	334	165	4	27	1	1	5	5	0	0	0	0	15	559
11:00 AM	1	380	179	7	38	4	0	6	3	0	0	0	0	16	634
12:00 PM	2	390	178	1	40	6	0	4	5	0	0	0	0	39	665
1:00 PM	4	415	198	3	35	5	1	6	3	0	0	0	0	19	689
2:00 PM	2	428	242	3	44	7	0	0	3	0	0	0	0	30	759
3:00 PM	1	679	268	5	54	3	1	2	0	0	0	0	0	43	1056
4:00 PM	1	584	262	3	44	1	0	5	0	0	0	0	0	42	942
5:00 PM	2	588	221	0	38	2	0	1	1	0	0	0	0	39	892
6:00 PM	1	378	117	0	20	1	0	2	0	0	0	0	0	17	536
7:00 PM	1	266	118	0	20	0	0	1	0	0	0	0	0	3	409
8:00 PM	0	223	67	0	9	0	0	0	0	0	0	0	0	7	306
9:00 PM	0	152	42	0	10	0	0	1	0	0	0	0	0	0	205
10:00 PM	0	101	33	0	5	0	0	0	0	0	0	0	0	2	141
11:00 PM	0	55	20	0	0	0	0	0	0	0	0	0	0	0	75
Day Total	20	6785	2929	46	579	40	3	44	27	0	0	0	0	338	10811
Percent	0.2%	62.8%	27.1%	0.4%	5.4%	0.4%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	3.1%	
ADT 10811															
AM Peak Volume	8:00 AM	7:00 AM	7:00 AM	9:00 AM	7:00 AM	7:00 AM	10:00 AM	9:00 AM	10:00 AM					7:00 AM	7:00 AM
	2	598	226	8	51	6	1	6	5					35	927
PM Peak Volume	1:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	2:00 PM	1:00 PM	1:00 PM	12:00 PM					3:00 PM	3:00 PM
	4	679	268	5	54	7	1	6	5					43	1056
<i>Comments:</i>															

LOCATION: W Broad Btwn W. Jackson and City Limits													QC JOB #: 14110902		
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits													DIRECTION: EB/WB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	53	13726	6023	87	1232	83	5	92	49	0	0	0	0	687	22037
Percent	0.2%	62.3%	27.3%	0.4%	5.6%	0.4%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	3.1%	
ADT 11018															
<i>Comments:</i>															



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN						QC JOB #: 14110902 DIRECTION: EB/WB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			57	44		51			51	
1:00 AM			28	33		31			31	
2:00 AM			15	30		23			23	
3:00 AM			44	32		38			38	
4:00 AM			90	86		88			88	
5:00 AM			205	204		205			205	
6:00 AM			390	435		413			413	
7:00 AM			980	927		954			954	
8:00 AM			634	592		613			613	
9:00 AM			543	560		552			552	
10:00 AM			601	559		580			580	
11:00 AM			686	634		660			660	
12:00 PM			683	665		674			674	
1:00 PM			693	689		691			691	
2:00 PM			809	759		784			784	
3:00 PM			1048	1056		1052			1052	
4:00 PM			912	942		927			927	
5:00 PM			877	892		885			885	
6:00 PM			609	536		573			573	
7:00 PM			435	409		422			422	
8:00 PM			438	306		372			372	
9:00 PM			221	205		213			213	
10:00 PM			142	141		142			142	
11:00 PM			86	75		81			81	
Day Total			11226	10811		11024			11024	
% Weekday Average			101.8%	98.1%						
% Week Average			101.8%	98.1%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			980	927		954			954	
PM Peak			3:00 PM	3:00 PM		3:00 PM			3:00 PM	
Volume			1048	1056		1052			1052	
<i>Comments:</i>										

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: WB DATE: Jan 18 2017				
Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace		
	15	20	25	30	35	40	45	50	55	60	65	70	75	999					
12:00 AM	0	0	0	0	0	5	17	8	0	0	0	0	0	0	30	41-50	25		
1:00 AM	0	0	0	1	2	4	3	6	1	0	0	0	0	0	17	43-52	8		
2:00 AM	0	0	0	0	0	0	3	3	1	0	0	0	0	0	7	43-52	5		
3:00 AM	0	0	0	0	0	4	6	6	1	0	0	0	0	0	17	41-50	11		
4:00 AM	0	0	0	0	0	9	6	0	3	0	0	0	0	0	18	36-45	14		
5:00 AM	2	0	0	2	2	13	26	29	5	0	0	0	0	0	79	41-50	54		
6:00 AM	3	0	0	0	4	14	48	25	6	2	0	0	0	0	102	41-50	73		
7:00 AM	24	0	1	9	13	55	100	53	2	0	0	0	0	0	257	36-45	155		
8:00 AM	7	0	3	5	8	32	105	47	10	0	0	0	0	0	217	41-50	151		
9:00 AM	7	0	0	0	12	49	94	45	8	0	0	0	0	0	215	36-45	143		
10:00 AM	4	1	0	4	21	65	103	51	5	2	0	0	0	0	256	36-45	168		
11:00 AM	10	0	0	1	14	65	144	79	12	0	0	0	0	1	326	41-50	223		
12:00 PM	7	1	0	10	27	64	143	90	5	2	0	0	0	0	349	41-50	233		
1:00 PM	4	0	0	2	3	58	151	89	20	1	0	0	0	0	328	41-50	240		
2:00 PM	13	3	2	4	12	100	213	83	18	1	0	0	0	0	449	36-45	313		
3:00 PM	23	2	1	13	65	183	221	78	7	1	0	0	0	0	594	36-45	404		
4:00 PM	14	0	0	6	19	118	281	112	15	1	1	0	0	0	567	36-45	399		
5:00 PM	12	0	0	3	32	162	241	69	11	0	0	0	0	0	530	36-45	403		
6:00 PM	7	0	1	1	11	99	170	57	4	1	0	2	0	0	353	36-45	269		
7:00 PM	3	0	0	2	13	65	147	60	10	0	0	0	0	0	300	36-45	211		
8:00 PM	3	0	2	0	9	71	119	66	12	1	0	0	0	0	283	36-45	190		
9:00 PM	0	0	1	0	6	22	70	31	6	1	0	0	0	0	137	41-50	100		
10:00 PM	0	0	0	1	2	13	41	25	4	1	0	0	0	0	87	41-50	66		
11:00 PM	0	0	0	0	1	7	31	13	1	0	1	0	0	0	54	41-50	43		
Day Total	143	7	11	64	276	1277	2483	1125	167	14	2	2	0	1	5572	36-45	3760		
Percent	2.6%	0.1%	0.2%	1.1%	5.0%	22.9%	44.6%	20.2%	3.0%	0.3%	0.0%	0.0%	0.0%	0.0%					
ADT 5572																			
AM Peak Volume	7:00 AM	10:00 AM	8:00 AM	7:00 AM	10:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	6:00 AM					11:00 AM	11:00 AM			
	24	1	3	9	21	65	144	79	12	2					1	326			
PM Peak Volume	3:00 PM	2:00 PM	2:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	4:00 PM	1:00 PM	12:00 PM	4:00 PM	6:00 PM					3:00 PM		
	23	3	2	13	65	183	281	112	20	2	1	2					594		
<i>Comments:</i>																			

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN															QC JOB #: 14110902 DIRECTION: WB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	0	8	10	8	2	0	0	0	0	0	28	41-50	18	
1:00 AM	0	0	0	0	0	3	7	5	3	0	0	0	0	0	18	41-50	12	
2:00 AM	0	0	0	0	1	2	6	2	1	1	0	1	0	1	15	36-45	8	
3:00 AM	0	0	0	0	0	3	3	1	0	0	0	0	0	0	7	38-47	5	
4:00 AM	0	0	0	0	2	4	3	7	2	1	0	0	1	3	23	41-50	10	
5:00 AM	0	0	0	1	2	13	19	24	8	2	0	0	0	0	69	41-50	42	
6:00 AM	4	0	0	0	4	20	42	29	6	1	0	0	0	0	106	41-50	71	
7:00 AM	17	0	0	3	27	74	85	34	9	0	0	0	0	0	249	36-45	159	
8:00 AM	8	0	0	3	16	46	105	46	5	1	0	0	0	0	230	36-45	151	
9:00 AM	2	0	0	0	17	70	91	34	9	0	0	0	0	0	223	36-45	160	
10:00 AM	7	0	0	0	23	58	97	45	4	0	0	0	0	0	234	36-45	155	
11:00 AM	5	3	2	4	15	88	122	64	9	2	0	0	0	0	314	36-45	209	
12:00 PM	12	0	1	2	29	69	126	85	10	0	0	0	0	0	334	41-50	211	
1:00 PM	6	1	2	3	14	87	151	81	11	1	0	0	0	0	357	36-45	237	
2:00 PM	16	0	1	9	28	107	157	76	7	0	0	0	0	0	401	36-45	263	
3:00 PM	15	0	1	13	96	271	162	36	4	0	1	0	0	0	599	36-45	432	
4:00 PM	14	0	1	1	39	245	226	44	3	0	0	0	0	0	573	36-45	471	
5:00 PM	20	1	3	12	78	235	146	28	2	0	0	0	0	0	525	36-45	381	
6:00 PM	6	0	1	9	25	117	126	31	3	0	0	0	0	0	318	36-45	242	
7:00 PM	1	1	0	2	18	77	112	50	8	1	2	0	0	0	272	36-45	188	
8:00 PM	5	0	0	1	12	64	94	35	2	0	1	0	0	0	214	36-45	158	
9:00 PM	0	0	0	5	4	35	56	27	4	0	0	0	0	0	131	36-45	90	
10:00 PM	1	0	0	0	2	21	43	19	9	0	0	0	0	0	95	36-45	64	
11:00 PM	0	0	0	0	2	9	22	11	1	0	0	0	0	0	45	41-50	33	
Day Total	139	6	12	68	454	1726	2011	822	122	10	4	1	1	4	5380	36-45	3736	
Percent	2.6%	0.1%	0.2%	1.3%	8.4%	32.1%	37.4%	15.3%	2.3%	0.2%	0.1%	0.0%	0.0%	0.1%				
ADT 5380																		
AM Peak Volume	7:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	5:00 AM		2:00 AM	4:00 AM	4:00 AM	11:00 AM			
	17	3	2	4	27	88	122	64	9	2		1	1	3	314			
PM Peak Volume	5:00 PM	1:00 PM	5:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	12:00 PM	1:00 PM	1:00 PM	7:00 PM				3:00 PM			
	20	1	3	13	96	271	226	85	11	1	2				599			
<i>Comments:</i>																		

LOCATION: W Broad Btwn W. Jackson and City Limits														QC JOB #: 14110902			
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits														DIRECTION: WB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	282	13	23	132	730	3003	4494	1947	289	24	6	3	1	5	10952	36-45	7496
Percent	2.6%	0.1%	0.2%	1.2%	6.7%	27.4%	41.0%	17.8%	2.6%	0.2%	0.1%	0.0%	0.0%	0.0%			
Cumulative Percent	2.6%	2.7%	2.9%	4.1%	10.8%	38.2%	79.2%	97.0%	99.6%	99.9%	99.9%	99.9%	100.0%	100.0%			
ADT 5476															85th Percentile 46 MPH Mean Speed(Average) 40 MPH Median 41 MPH Mode: 43 MPH		
<i>Comments:</i>																	



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: WB DATE: Jan 18 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	21	8	0	1	0	0	0	0	0	0	0	0	0	30	
1:00 AM	1	12	2	0	1	1	0	0	0	0	0	0	0	0	17	
2:00 AM	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7	
3:00 AM	0	13	4	0	0	0	0	0	0	0	0	0	0	0	17	
4:00 AM	0	10	7	0	0	0	0	1	0	0	0	0	0	0	18	
5:00 AM	0	49	26	0	2	0	0	0	0	0	0	0	0	2	79	
6:00 AM	0	74	17	0	6	0	0	1	1	0	0	0	0	3	102	
7:00 AM	2	140	76	4	9	2	0	0	0	0	0	0	0	24	257	
8:00 AM	2	113	72	3	18	0	1	1	0	0	0	0	0	7	217	
9:00 AM	0	100	78	3	23	2	0	2	0	0	0	0	0	7	215	
10:00 AM	2	147	79	4	13	4	0	0	3	0	0	0	0	4	256	
11:00 AM	1	183	98	3	26	1	0	4	0	0	0	0	0	10	326	
12:00 PM	5	193	112	1	22	2	0	4	3	0	0	0	0	7	349	
1:00 PM	2	193	101	3	23	1	0	1	0	0	0	0	0	4	328	
2:00 PM	2	274	128	1	28	3	0	0	0	0	0	0	0	13	449	
3:00 PM	0	364	164	3	33	5	0	2	1	0	0	0	0	22	594	
4:00 PM	1	382	145	0	22	1	0	1	1	0	0	0	0	14	567	
5:00 PM	2	348	146	0	22	0	0	0	0	0	0	0	0	12	530	
6:00 PM	2	242	86	0	16	0	0	0	0	0	0	0	0	7	353	
7:00 PM	1	214	71	0	11	0	0	0	0	0	0	0	0	3	300	
8:00 PM	0	183	86	0	11	0	0	0	0	0	0	0	0	3	283	
9:00 PM	1	97	34	0	3	0	0	2	0	0	0	0	0	0	137	
10:00 PM	0	69	17	0	1	0	0	0	0	0	0	0	0	0	87	
11:00 PM	0	42	9	0	3	0	0	0	0	0	0	0	0	0	54	
Day Total	24	3468	1568	25	294	22	1	19	9	0	0	0	0	142	5572	
Percent	0.4%	62.2%	28.1%	0.4%	5.3%	0.4%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	2.5%		
ADT 5572																
AM Peak	7:00 AM	11:00 AM	11:00 AM	7:00 AM	11:00 AM	10:00 AM	8:00 AM	11:00 AM	10:00 AM						7:00 AM	11:00 AM
Volume	2	183	98	4	26	4	1	4	3						24	326
PM Peak	12:00 PM	4:00 PM	3:00 PM	1:00 PM	3:00 PM	3:00 PM	12:00 PM		12:00 PM						3:00 PM	3:00 PM
Volume	5	382	164	3	33	5	4		3						22	594
<i>Comments:</i>																

LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN														QC JOB #: 14110902 DIRECTION: WB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	22	3	0	2	0	0	0	0	0	0	0	0	0	28
1:00 AM	0	13	4	0	1	0	0	0	0	0	0	0	0	0	18
2:00 AM	0	11	1	0	3	0	0	0	0	0	0	0	0	0	15
3:00 AM	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
4:00 AM	0	12	11	0	0	0	0	0	0	0	0	0	0	0	23
5:00 AM	0	45	19	0	3	1	0	0	1	0	0	0	0	0	69
6:00 AM	0	65	27	0	7	1	0	2	0	0	0	0	0	4	106
7:00 AM	0	149	58	5	14	4	0	1	1	0	0	0	0	17	249
8:00 AM	0	129	70	1	22	0	0	0	0	0	0	0	0	8	230
9:00 AM	0	120	75	4	17	1	0	2	2	0	0	0	0	2	223
10:00 AM	2	141	74	2	6	0	0	1	1	0	0	0	0	7	234
11:00 AM	0	194	82	4	21	4	0	3	1	0	0	0	0	5	314
12:00 PM	0	200	93	0	23	3	0	1	2	0	0	0	0	12	334
1:00 PM	2	220	106	1	14	2	1	3	2	0	0	0	0	6	357
2:00 PM	1	236	122	2	18	6	0	0	2	0	0	0	0	14	401
3:00 PM	1	381	170	3	26	2	1	0	0	0	0	0	0	15	599
4:00 PM	1	367	158	1	27	1	0	4	0	0	0	0	0	14	573
5:00 PM	0	333	149	0	20	2	0	1	0	0	0	0	0	20	525
6:00 PM	1	231	66	0	12	1	0	1	0	0	0	0	0	6	318
7:00 PM	1	175	85	0	9	0	0	1	0	0	0	0	0	1	272
8:00 PM	0	149	53	0	7	0	0	0	0	0	0	0	0	5	214
9:00 PM	0	96	27	0	7	0	0	1	0	0	0	0	0	0	131
10:00 PM	0	67	23	0	4	0	0	0	0	0	0	0	0	1	95
11:00 PM	0	36	9	0	0	0	0	0	0	0	0	0	0	0	45
Day Total	10	3397	1487	23	263	28	2	21	12	0	0	0	0	137	5380
Percent	0.2%	63.1%	27.6%	0.4%	4.9%	0.5%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	2.5%	
ADT 5380															
AM Peak Volume	10:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM	7:00 AM		11:00 AM	9:00 AM					7:00 AM	11:00 AM
	2	194	82	5	22	4		3	2					17	314
PM Peak Volume	1:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	2:00 PM	1:00 PM	4:00 PM	12:00 PM					5:00 PM	3:00 PM
	2	381	170	3	27	6	1	4	2					20	599
<i>Comments:</i>															

LOCATION: W Broad Btwn W. Jackson and City Limits													QC JOB #: 14110902		
SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits													DIRECTION: WB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	34	6865	3055	48	557	50	3	40	21	0	0	0	0	279	10952
Percent	0.3%	62.7%	27.9%	0.4%	5.1%	0.5%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	2.5%	
ADT 5476															
<i>Comments:</i>															



LOCATION: W Broad Btwn W. Jackson and City Limits SPECIFIC LOCATION: W Broad Btwn W. Jackson and City Limits CITY/STATE: Cookeville, TN						QC JOB #: 14110902 DIRECTION: WB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			30	28		29			29	
1:00 AM			17	18		18			18	
2:00 AM			7	15		11			11	
3:00 AM			17	7		12			12	
4:00 AM			18	23		21			21	
5:00 AM			79	69		74			74	
6:00 AM			102	106		104			104	
7:00 AM			257	249		253			253	
8:00 AM			217	230		224			224	
9:00 AM			215	223		219			219	
10:00 AM			256	234		245			245	
11:00 AM			326	314		320			320	
12:00 PM			349	334		342			342	
1:00 PM			328	357		343			343	
2:00 PM			449	401		425			425	
3:00 PM			594	599		597			597	
4:00 PM			567	573		570			570	
5:00 PM			530	525		528			528	
6:00 PM			353	318		336			336	
7:00 PM			300	272		286			286	
8:00 PM			283	214		249			249	
9:00 PM			137	131		134			134	
10:00 PM			87	95		91			91	
11:00 PM			54	45		50			50	
Day Total			5572	5380		5481			5481	
% Weekday Average			101.7%	98.2%						
% Week Average			101.7%	98.2%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			326	314		320			320	
PM Peak			3:00 PM	3:00 PM		3:00 PM			3:00 PM	
Volume			594	599		597			597	
<i>Comments:</i>										

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: NB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	2	4	7	1	0	0	0	0	0	0	0	0	14	27-36	10	
1:00 AM	0	0	0	3	5	4	3	0	0	0	0	0	0	0	15	31-40	9	
2:00 AM	0	0	0	3	3	1	0	1	0	0	0	0	0	0	8	28-37	5	
3:00 AM	0	0	0	1	2	2	0	0	0	0	0	0	0	0	5	31-40	4	
4:00 AM	1	0	0	1	3	4	0	0	0	0	0	0	0	0	9	31-40	7	
5:00 AM	0	1	0	4	14	10	3	0	0	0	0	0	0	0	32	31-40	24	
6:00 AM	0	2	2	11	15	15	7	2	0	0	0	0	0	0	54	31-40	30	
7:00 AM	3	6	20	108	141	66	11	3	0	1	0	0	0	0	359	26-35	248	
8:00 AM	4	7	19	68	97	36	7	0	0	0	0	0	0	0	238	26-35	165	
9:00 AM	2	4	29	64	107	37	7	0	0	1	0	0	0	0	251	26-35	170	
10:00 AM	7	10	40	96	94	39	6	1	0	0	0	0	0	0	293	26-35	190	
11:00 AM	12	9	27	116	117	57	6	0	0	0	0	0	0	0	344	26-35	232	
12:00 PM	12	5	27	128	155	66	11	1	0	0	0	0	0	0	405	26-35	283	
1:00 PM	11	5	22	90	195	76	8	3	0	0	0	0	0	0	410	26-35	285	
2:00 PM	9	5	26	135	172	86	11	1	1	0	0	0	0	0	446	26-35	306	
3:00 PM	10	7	51	173	170	56	1	0	0	0	0	0	0	0	468	26-35	343	
4:00 PM	8	5	42	143	194	67	13	0	0	0	0	0	0	0	472	26-35	336	
5:00 PM	5	4	17	117	189	85	11	1	0	0	0	0	0	0	429	26-35	306	
6:00 PM	2	2	9	66	147	83	16	0	0	0	0	0	0	0	325	31-40	230	
7:00 PM	1	1	5	50	118	66	20	1	0	0	0	0	0	0	262	31-40	183	
8:00 PM	1	0	7	29	55	41	5	1	0	0	0	0	0	0	139	31-40	95	
9:00 PM	0	0	1	12	40	23	8	2	1	0	0	0	0	0	87	31-40	62	
10:00 PM	0	0	1	5	27	25	8	1	0	0	0	0	0	0	67	31-40	52	
11:00 PM	0	0	1	5	11	8	5	0	0	0	0	0	0	0	30	31-40	19	
Day Total	88	73	348	1432	2078	954	167	18	2	2	0	0	0	0	5162	26-35	3510	
Percent	1.7%	1.4%	6.7%	27.7%	40.3%	18.5%	3.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
ADT 5162																		
AM Peak Volume	11:00 AM	10:00 AM	10:00 AM	11:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM					7:00 AM			
	12	10	40	116	141	66	11	3	1						359			
PM Peak Volume	12:00 PM	3:00 PM	3:00 PM	3:00 PM	1:00 PM	2:00 PM	7:00 PM	1:00 PM	2:00 PM						4:00 PM			
	12	7	51	173	195	86	20	3	1						472			
<i>Comments:</i>																		

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: NB DATE: Jan 19 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	0	0	0	3	12	6	0	1	0	0	0	0	0	0	22	31-40	18		
1:00 AM	0	0	1	1	2	3	3	0	0	0	0	0	0	0	10	37-46	5		
2:00 AM	0	0	0	1	5	1	1	0	0	0	0	0	0	0	8	26-35	6		
3:00 AM	0	1	1	0	2	2	0	0	0	0	0	0	0	0	6	31-40	4		
4:00 AM	1	0	0	1	4	2	2	0	0	0	0	0	0	0	10	31-40	6		
5:00 AM	1	0	1	4	12	15	1	1	0	0	0	0	0	0	35	31-40	27		
6:00 AM	0	1	1	12	22	15	9	1	0	0	0	0	0	0	61	31-40	37		
7:00 AM	5	2	23	118	134	59	10	0	0	0	0	0	0	0	351	26-35	252		
8:00 AM	7	6	22	72	78	51	8	0	0	0	0	0	0	0	244	26-35	150		
9:00 AM	6	5	20	64	69	29	6	1	0	0	0	0	0	0	200	26-35	133		
10:00 AM	4	3	27	84	119	36	8	1	0	0	0	0	0	0	282	26-35	203		
11:00 AM	2	5	21	126	121	59	6	0	0	0	0	0	0	0	340	26-35	246		
12:00 PM	13	8	22	117	120	62	6	1	0	0	0	0	0	0	349	26-35	237		
1:00 PM	11	6	34	123	156	65	13	1	1	0	0	0	0	0	410	26-35	279		
2:00 PM	12	7	58	150	182	63	12	0	0	0	0	0	0	0	484	26-35	331		
3:00 PM	30	12	70	208	129	46	6	2	0	0	0	0	0	0	503	26-35	336		
4:00 PM	11	11	65	227	134	50	3	0	0	0	0	0	0	0	501	26-35	360		
5:00 PM	7	11	41	152	158	53	4	0	0	0	0	0	0	0	426	26-35	310		
6:00 PM	5	0	14	84	124	48	9	2	0	0	0	0	0	0	286	26-35	208		
7:00 PM	1	2	10	51	76	57	10	0	0	0	0	0	0	0	207	31-40	133		
8:00 PM	1	1	6	30	68	28	2	0	0	0	0	0	0	0	136	28-37	97		
9:00 PM	0	1	2	22	46	29	9	2	0	0	0	0	0	0	111	31-40	75		
10:00 PM	0	0	3	10	30	20	5	0	0	0	0	0	0	0	68	31-40	50		
11:00 PM	0	1	0	6	14	12	0	0	0	0	0	0	0	0	33	31-40	25		
Day Total	117	83	442	1666	1817	811	133	13	1	0	0	0	0	0	5083	26-35	3482		
Percent	2.3%	1.6%	8.7%	32.8%	35.7%	16.0%	2.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 5083																			
AM Peak Volume	8:00 AM	8:00 AM	10:00 AM	11:00 AM	7:00 AM	7:00 AM	7:00 AM	12:00 AM								7:00 AM			
	7	6	27	126	134	59	10	1								351			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	4:00 PM	2:00 PM	1:00 PM	1:00 PM	3:00 PM	1:00 PM								3:00 PM		
	30	12	70	227	182	65	13	2	1								503		
<i>Comments:</i>																			

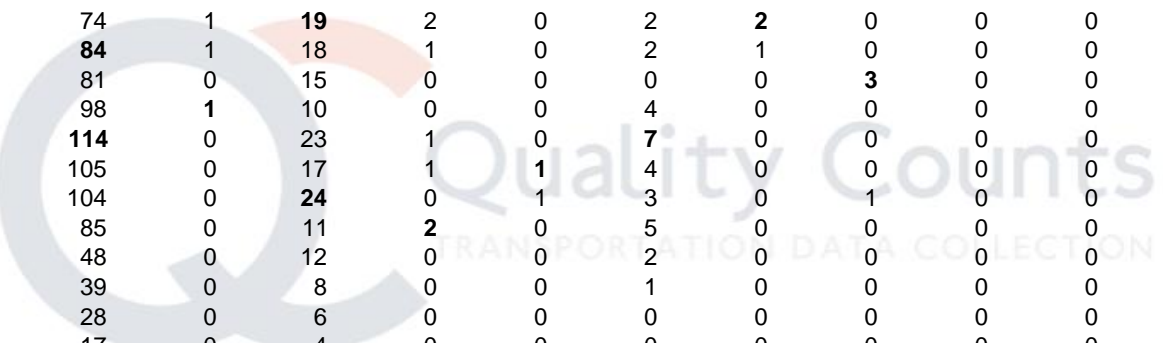
LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														QC JOB #: 14110903			
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														DIRECTION: NB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	205	156	790	3098	3895	1765	300	31	3	2	0	0	0	0	10245	26-35	6993
Percent	2.0%	1.5%	7.7%	30.2%	38.0%	17.2%	2.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	2.0%	3.5%	11.2%	41.5%	79.5%	96.7%	99.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 5122															85th Percentile 36 MPH Mean Speed(Average) 30 MPH Median 31 MPH Mode: 33 MPH		
<i>Comments:</i>																	



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN														QC JOB #: 14110903 DIRECTION: NB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	12	2	0	0	0	0	0	0	0	0	0	0	0	14
1:00 AM	0	14	1	0	0	0	0	0	0	0	0	0	0	0	15
2:00 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
3:00 AM	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
4:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	1	9
5:00 AM	0	23	6	0	2	1	0	0	0	0	0	0	0	0	32
6:00 AM	0	38	14	0	2	0	0	0	0	0	0	0	0	0	54
7:00 AM	0	265	73	3	8	0	1	6	0	0	1	0	0	2	359
8:00 AM	4	157	58	0	8	4	0	4	0	0	0	0	0	3	238
9:00 AM	0	154	77	1	14	1	0	2	0	0	0	0	0	2	251
10:00 AM	0	194	75	0	15	0	0	2	0	0	0	1	0	6	293
11:00 AM	2	242	73	0	12	0	0	2	2	0	0	0	0	11	344
12:00 PM	7	298	73	2	10	1	0	4	0	0	0	0	0	10	405
1:00 PM	3	301	74	0	12	5	0	2	1	0	0	0	0	12	410
2:00 PM	1	320	99	0	11	0	0	7	0	0	0	0	0	8	446
3:00 PM	3	331	103	0	12	1	0	3	2	2	1	0	0	10	468
4:00 PM	2	346	94	1	13	0	0	6	0	1	0	0	0	9	472
5:00 PM	1	339	67	0	13	0	1	3	0	0	0	0	0	5	429
6:00 PM	2	256	56	0	8	1	0	0	0	0	0	0	0	2	325
7:00 PM	1	204	48	0	7	0	0	0	0	0	0	0	0	2	262
8:00 PM	2	114	18	0	4	0	0	0	0	0	0	0	0	1	139
9:00 PM	1	72	13	0	1	0	0	0	0	0	0	0	0	0	87
10:00 PM	0	62	3	0	2	0	0	0	0	0	0	0	0	0	67
11:00 PM	0	27	2	0	1	0	0	0	0	0	0	0	0	0	30
Day Total	29	3785	1034	7	155	14	2	41	5	3	2	1	0	84	5162
Percent	0.6%	73.3%	20.0%	0.1%	3.0%	0.3%	0.0%	0.8%	0.1%	0.1%	0.0%	0.0%	0.0%	1.6%	
ADT 5162															
AM Peak	8:00 AM	7:00 AM	9:00 AM	7:00 AM	10:00 AM	8:00 AM	7:00 AM	7:00 AM	11:00 AM		7:00 AM	10:00 AM		11:00 AM	7:00 AM
Volume	4	265	77	3	15	4	1	6	2		1	1		11	359
PM Peak	12:00 PM	4:00 PM	3:00 PM	12:00 PM	4:00 PM	1:00 PM	5:00 PM	2:00 PM	3:00 PM	3:00 PM	3:00 PM			1:00 PM	4:00 PM
Volume	7	346	103	2	13	5	1	7	2	2	1			12	472
<i>Comments:</i>															

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St **QC JOB #:** 14110903
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St **DIRECTION:** NB
CITY/STATE: Cookeville, TN **DATE:** Jan 19 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	20	1	0	1	0	0	0	0	0	0	0	0	0	22
1:00 AM	0	7	3	0	0	0	0	0	0	0	0	0	0	0	10
2:00 AM	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8
3:00 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
4:00 AM	0	5	4	0	0	0	0	0	0	0	0	0	0	1	10
5:00 AM	0	23	9	0	1	1	0	1	0	0	0	0	0	0	35
6:00 AM	0	37	15	1	8	0	0	0	0	0	0	0	0	0	61
7:00 AM	2	265	60	2	10	1	0	5	0	0	0	1	0	5	351
8:00 AM	3	169	48	0	18	1	0	2	0	1	0	0	0	2	244
9:00 AM	1	135	48	0	8	2	0	1	0	0	0	0	0	5	200
10:00 AM	0	179	74	1	19	2	0	2	2	0	0	0	0	3	282
11:00 AM	0	231	84	1	18	1	0	2	1	0	0	0	0	2	340
12:00 PM	1	239	81	0	15	0	0	0	0	3	0	0	0	10	349
1:00 PM	1	286	98	1	10	0	0	4	0	0	0	0	0	10	410
2:00 PM	2	326	114	0	23	1	0	7	0	0	0	0	0	11	484
3:00 PM	1	350	105	0	17	1	1	4	0	0	0	0	0	24	503
4:00 PM	6	353	104	0	24	0	1	3	0	1	0	0	0	9	501
5:00 PM	0	317	85	0	11	2	0	5	0	0	0	0	0	6	426
6:00 PM	1	219	48	0	12	0	0	2	0	0	0	0	0	4	286
7:00 PM	0	158	39	0	8	0	0	1	0	0	0	0	0	1	207
8:00 PM	0	101	28	0	6	0	0	0	0	0	0	0	0	1	136
9:00 PM	0	90	17	0	4	0	0	0	0	0	0	0	0	0	111
10:00 PM	0	58	10	0	0	0	0	0	0	0	0	0	0	0	68
11:00 PM	0	28	4	0	1	0	0	0	0	0	0	0	0	0	33
Day Total	18	3605	1084	6	214	12	2	39	3	5	0	1	0	94	5083
Percent	0.4%	70.9%	21.3%	0.1%	4.2%	0.2%	0.0%	0.8%	0.1%	0.1%	0.0%	0.0%	0.0%	1.8%	



ADT 5083															
---------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

AM Peak	8:00 AM	7:00 AM	11:00 AM	7:00 AM	10:00 AM	9:00 AM		7:00 AM	10:00 AM	8:00 AM		7:00 AM		7:00 AM	7:00 AM
Volume	3	265	84	2	19	2		5	2	1		1		5	351
PM Peak	4:00 PM	4:00 PM	2:00 PM	1:00 PM	4:00 PM	5:00 PM	3:00 PM	2:00 PM		12:00 PM				3:00 PM	3:00 PM
Volume	6	353	114	1	24	2	1	7		3				24	503

Comments:

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													QC JOB #: 14110903		
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													DIRECTION: NB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	47	7390	2118	13	369	26	4	80	8	8	2	2	0	178	10245
Percent	0.5%	72.1%	20.7%	0.1%	3.6%	0.3%	0.0%	0.8%	0.1%	0.1%	0.0%	0.0%	0.0%	1.7%	
ADT 5122															
<i>Comments:</i>															



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN							QC JOB #: 14110903 DIRECTION: NB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			14	22		18			18	
1:00 AM			15	10		13			13	
2:00 AM			8	8		8			8	
3:00 AM			5	6		6			6	
4:00 AM			9	10		10			10	
5:00 AM			32	35		34			34	
6:00 AM			54	61		58			58	
7:00 AM			359	351		355			355	
8:00 AM			238	244		241			241	
9:00 AM			251	200		226			226	
10:00 AM			293	282		288			288	
11:00 AM			344	340		342			342	
12:00 PM			405	349		377			377	
1:00 PM			410	410		410			410	
2:00 PM			446	484		465			465	
3:00 PM			468	503		486			486	
4:00 PM			472	501		487			487	
5:00 PM			429	426		428			428	
6:00 PM			325	286		306			306	
7:00 PM			262	207		235			235	
8:00 PM			139	136		138			138	
9:00 PM			87	111		99			99	
10:00 PM			67	68		68			68	
11:00 PM			30	33		32			32	
Day Total			5162	5083		5130			5130	
% Weekday Average			100.6%	99.1%						
% Week Average			100.6%	99.1%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			359	351		355			355	
PM Peak			4:00 PM	3:00 PM		4:00 PM			4:00 PM	
Volume			472	503		487			487	
<i>Comments:</i>										

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: NB/SB DATE: Jan 18 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	0	0	2	5	13	4	4	1	0	1	0	0	0	0	30	26-35	18		
1:00 AM	0	0	0	3	6	7	5	1	0	0	0	0	0	0	22	35-44	12		
2:00 AM	0	0	0	3	5	4	1	2	0	0	0	0	0	0	15	31-40	9		
3:00 AM	0	0	0	1	9	6	6	1	0	0	0	0	0	0	23	32-41	14		
4:00 AM	1	0	0	1	10	15	4	3	1	0	0	0	0	0	35	31-40	25		
5:00 AM	0	2	0	4	20	31	11	1	0	0	0	0	0	0	69	31-40	51		
6:00 AM	0	2	4	15	37	64	30	3	0	0	0	0	0	0	155	31-40	101		
7:00 AM	6	6	29	138	248	158	32	4	0	1	0	0	0	0	622	31-40	406		
8:00 AM	7	11	35	122	198	93	27	7	0	0	0	0	0	0	500	26-35	320		
9:00 AM	4	7	45	114	204	96	25	1	1	1	0	0	0	0	498	26-35	318		
10:00 AM	13	16	71	174	217	115	22	3	0	0	0	0	0	0	631	26-35	390		
11:00 AM	28	13	53	189	231	175	33	4	0	0	0	0	0	0	726	26-35	420		
12:00 PM	17	7	45	206	301	166	42	3	0	0	0	0	0	0	787	26-35	507		
1:00 PM	17	8	40	166	320	181	45	9	2	0	0	0	0	0	788	31-40	501		
2:00 PM	12	12	41	218	315	189	36	4	1	0	0	0	0	0	828	26-35	533		
3:00 PM	18	12	79	278	310	169	36	2	0	0	0	0	0	0	904	26-35	588		
4:00 PM	10	6	58	221	327	182	39	4	0	0	0	0	0	0	847	26-35	548		
5:00 PM	6	9	34	159	305	198	42	7	0	0	0	0	0	0	760	31-40	503		
6:00 PM	3	2	12	92	215	170	51	3	0	0	0	0	0	0	548	31-40	385		
7:00 PM	3	1	6	72	184	140	53	4	2	0	0	0	0	0	465	31-40	324		
8:00 PM	1	0	8	37	84	83	24	4	0	0	0	0	0	0	241	31-40	167		
9:00 PM	1	0	3	15	57	47	17	2	1	0	0	0	0	0	143	31-40	104		
10:00 PM	0	0	1	5	32	43	14	3	1	0	0	0	0	0	99	31-40	74		
11:00 PM	0	0	1	5	13	14	13	3	0	0	0	0	0	0	49	36-45	27		
Day Total	147	114	567	2243	3661	2350	612	79	9	3	0	0	0	0	9785	31-40	6011		
Percent	1.5%	1.2%	5.8%	22.9%	37.4%	24.0%	6.3%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 9785																			
AM Peak Volume	11:00 AM	10:00 AM	10:00 AM	11:00 AM	7:00 AM	11:00 AM	11:00 AM	8:00 AM	4:00 AM	12:00 AM							11:00 AM		
	28	16	71	189	248	175	33	7	1	1							726		
PM Peak Volume	3:00 PM	2:00 PM	3:00 PM	3:00 PM	4:00 PM	5:00 PM	7:00 PM	1:00 PM	1:00 PM							3:00 PM			
	18	12	79	278	327	198	53	9	2							904			
<i>Comments:</i>																			

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: NB/SB DATE: Jan 19 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	0	0	0	3	13	13	1	1	0	0	0	0	0	0	31	31-40	26		
1:00 AM	0	0	1	3	4	8	3	0	1	0	0	0	0	0	20	31-40	12		
2:00 AM	0	0	0	3	9	4	2	0	0	0	0	0	0	0	18	31-40	13		
3:00 AM	0	1	1	0	2	3	2	1	0	0	0	0	0	0	10	36-45	5		
4:00 AM	1	0	1	1	9	14	14	5	0	0	0	0	0	0	45	36-45	27		
5:00 AM	1	0	2	8	21	23	11	3	0	0	0	0	0	0	69	31-40	43		
6:00 AM	1	1	1	20	47	58	26	5	1	0	0	0	0	0	160	31-40	104		
7:00 AM	7	2	34	158	220	149	37	3	1	0	0	0	0	0	611	26-35	378		
8:00 AM	10	11	35	113	178	135	35	9	1	0	0	0	0	0	527	31-40	313		
9:00 AM	8	9	31	107	146	105	23	5	0	0	0	0	0	0	434	28-37	252		
10:00 AM	8	9	39	147	241	118	42	9	1	0	0	0	0	0	614	26-35	388		
11:00 AM	3	8	33	200	278	151	29	5	0	0	0	0	0	0	707	26-35	478		
12:00 PM	19	10	42	176	261	173	38	5	0	0	0	0	0	0	724	26-35	437		
1:00 PM	18	9	49	198	279	172	50	3	3	0	0	0	0	0	781	26-35	476		
2:00 PM	12	8	67	211	339	155	43	1	2	1	0	0	0	0	839	26-35	549		
3:00 PM	36	25	106	327	292	108	20	9	0	0	0	0	0	0	923	26-35	619		
4:00 PM	14	17	102	307	268	144	21	1	0	0	0	0	0	0	874	26-35	575		
5:00 PM	11	17	59	219	272	117	18	2	0	0	0	0	0	0	715	26-35	490		
6:00 PM	6	1	21	128	208	100	21	5	0	1	0	0	0	0	491	26-35	336		
7:00 PM	3	3	11	85	120	95	21	2	0	0	0	0	0	0	340	31-40	215		
8:00 PM	1	1	9	41	98	70	10	2	1	0	0	0	0	0	233	31-40	168		
9:00 PM	1	1	3	30	80	54	19	2	0	0	0	0	0	0	190	31-40	134		
10:00 PM	0	0	3	12	43	40	11	0	0	0	0	0	0	0	109	31-40	83		
11:00 PM	0	1	0	7	24	19	3	0	0	0	0	0	0	0	54	31-40	42		
Day Total	160	134	650	2504	3452	2028	500	78	11	2	0	0	0	0	9519	26-35	5955		
Percent	1.7%	1.4%	6.8%	26.3%	36.3%	21.3%	5.3%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 9519																			
AM Peak Volume	8:00 AM	8:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	1:00 AM							11:00 AM			
	10	11	39	200	278	151	42	9	1							707			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	2:00 PM	12:00 PM	1:00 PM	3:00 PM	1:00 PM	2:00 PM							3:00 PM		
	36	25	106	327	339	173	50	9	3	1							923		
<i>Comments:</i>																			

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														QC JOB #: 14110903			
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														DIRECTION: NB/SB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	307	248	1217	4747	7113	4378	1112	157	20	5	0	0	0	0	19304	26-35	11859
Percent	1.6%	1.3%	6.3%	24.6%	36.8%	22.7%	5.8%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	1.6%	2.9%	9.2%	33.8%	70.6%	93.3%	99.1%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 9652															85th Percentile 38 MPH Mean Speed(Average) 31 MPH		
Comments:															Median 32 MPH Mode: 33 MPH		



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN														QC JOB #: 14110903 DIRECTION: NB/SB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	24	6	0	0	0	0	0	0	0	0	0	0	0	30
1:00 AM	0	20	2	0	0	0	0	0	0	0	0	0	0	0	22
2:00 AM	0	14	0	0	1	0	0	0	0	0	0	0	0	0	15
3:00 AM	0	19	3	0	1	0	0	0	0	0	0	0	0	0	23
4:00 AM	0	15	13	0	5	1	0	0	0	0	0	0	0	1	35
5:00 AM	0	49	14	0	5	1	0	0	0	0	0	0	0	0	69
6:00 AM	0	85	49	0	19	1	0	1	0	0	0	0	0	0	155
7:00 AM	0	415	152	5	33	2	1	8	0	0	1	0	0	5	622
8:00 AM	4	287	148	0	39	5	0	10	0	0	0	0	0	7	500
9:00 AM	0	291	162	1	36	1	0	5	0	0	0	0	0	2	498
10:00 AM	1	388	173	0	47	3	0	7	0	0	0	1	0	11	631
11:00 AM	5	452	190	1	52	1	0	5	2	0	0	0	0	18	726
12:00 PM	7	526	169	2	60	1	0	10	0	0	0	0	0	12	787
1:00 PM	3	525	184	2	43	5	0	6	1	0	0	0	0	19	788
2:00 PM	2	544	212	0	44	1	1	13	0	0	0	0	0	11	828
3:00 PM	4	596	220	0	53	1	0	9	2	3	1	0	0	15	904
4:00 PM	2	584	194	1	44	0	0	10	0	1	0	0	0	11	847
5:00 PM	1	551	156	1	39	0	1	5	0	0	0	0	0	6	760
6:00 PM	3	395	118	1	27	1	0	0	0	0	0	0	0	3	548
7:00 PM	1	330	102	0	27	0	0	1	0	0	0	0	0	4	465
8:00 PM	2	185	42	0	10	0	0	1	0	0	0	0	0	1	241
9:00 PM	1	115	19	0	7	0	0	0	0	0	0	0	0	1	143
10:00 PM	0	86	11	0	2	0	0	0	0	0	0	0	0	0	99
11:00 PM	0	38	9	0	2	0	0	0	0	0	0	0	0	0	49
Day Total	36	6534	2348	14	596	24	3	91	5	4	2	1	0	127	9785
Percent	0.4%	66.8%	24.0%	0.1%	6.1%	0.2%	0.0%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	1.3%	
ADT 9785															
AM Peak Volume	11:00 AM	11:00 AM	11:00 AM	7:00 AM	11:00 AM	8:00 AM	7:00 AM	8:00 AM	11:00 AM		7:00 AM	10:00 AM		11:00 AM	11:00 AM
	5	452	190	5	52	5	1	10	2		1	1		18	726
PM Peak Volume	12:00 PM	3:00 PM	3:00 PM	12:00 PM	12:00 PM	1:00 PM	2:00 PM	2:00 PM	3:00 PM	3:00 PM	3:00 PM			1:00 PM	3:00 PM
	7	596	220	2	60	5	1	13	2	3	1			19	904
<i>Comments:</i>															

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN														QC JOB #: 14110903 DIRECTION: NB/SB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	26	3	0	2	0	0	0	0	0	0	0	0	0	31
1:00 AM	0	10	10	0	0	0	0	0	0	0	0	0	0	0	20
2:00 AM	0	13	4	0	1	0	0	0	0	0	0	0	0	0	18
3:00 AM	0	5	5	0	0	0	0	0	0	0	0	0	0	0	10
4:00 AM	0	19	18	0	6	1	0	0	0	0	0	0	0	1	45
5:00 AM	0	44	15	0	7	1	0	2	0	0	0	0	0	0	69
6:00 AM	0	90	41	1	26	0	0	1	0	0	0	0	0	1	160
7:00 AM	2	412	141	3	37	2	0	7	0	0	0	1	0	6	611
8:00 AM	6	326	139	2	44	1	0	4	0	1	0	0	0	4	527
9:00 AM	1	268	124	0	29	2	0	3	1	0	0	0	0	6	434
10:00 AM	5	353	181	2	59	4	1	3	2	0	0	0	0	4	614
11:00 AM	1	455	181	1	58	2	0	5	1	0	0	0	0	3	707
12:00 PM	2	458	191	0	53	1	0	3	0	3	0	0	0	13	724
1:00 PM	3	501	201	1	50	0	0	9	0	0	0	0	0	16	781
2:00 PM	2	533	221	0	59	2	0	11	0	0	0	0	0	11	839
3:00 PM	1	604	231	0	45	1	2	8	0	0	0	0	0	31	923
4:00 PM	7	566	224	0	58	0	1	6	0	1	0	0	0	11	874
5:00 PM	0	487	168	0	42	2	0	6	0	0	0	0	0	10	715
6:00 PM	1	354	103	0	25	0	0	3	0	0	0	0	0	5	491
7:00 PM	0	243	76	0	17	0	0	1	0	0	0	0	0	3	340
8:00 PM	0	168	51	0	12	0	0	1	0	0	0	0	0	1	233
9:00 PM	0	146	33	0	11	0	0	0	0	0	0	0	0	0	190
10:00 PM	0	87	18	0	4	0	0	0	0	0	0	0	0	0	109
11:00 PM	0	46	7	0	1	0	0	0	0	0	0	0	0	0	54
Day Total	31	6214	2386	10	646	19	4	73	4	5	0	1	0	126	9519
Percent	0.3%	65.3%	25.1%	0.1%	6.8%	0.2%	0.0%	0.8%	0.0%	0.1%	0.0%	0.0%	0.0%	1.3%	
ADT 9519															
AM Peak Volume	8:00 AM	11:00 AM	10:00 AM	7:00 AM	10:00 AM	10:00 AM	10:00 AM	7:00 AM	10:00 AM	8:00 AM		7:00 AM		7:00 AM	11:00 AM
PM Peak Volume	4:00 PM	3:00 PM	3:00 PM	1:00 PM	2:00 PM	2:00 PM	3:00 PM	2:00 PM		12:00 PM				3:00 PM	3:00 PM
	6	455	181	3	59	4	1	7	2	1		1		6	707
	7	604	231	1	59	2	2	11		3				31	923

Comments:

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													QC JOB #: 14110903		
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													DIRECTION: NB/SB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	67	12748	4734	24	1242	43	7	164	9	9	2	2	0	253	19304
Percent	0.3%	66.0%	24.5%	0.1%	6.4%	0.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	
ADT 9652															
<i>Comments:</i>															



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN							QC JOB #: 14110903 DIRECTION: NB/SB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			30	31		31			31	
1:00 AM			22	20		21			21	
2:00 AM			15	18		17			17	
3:00 AM			23	10		17			17	
4:00 AM			35	45		40			40	
5:00 AM			69	69		69			69	
6:00 AM			155	160		158			158	
7:00 AM			622	611		617			617	
8:00 AM			500	527		514			514	
9:00 AM			498	434		466			466	
10:00 AM			631	614		623			623	
11:00 AM			726	707		717			717	
12:00 PM			787	724		756			756	
1:00 PM			788	781		785			785	
2:00 PM			828	839		834			834	
3:00 PM			904	923		914			914	
4:00 PM			847	874		861			861	
5:00 PM			760	715		738			738	
6:00 PM			548	491		520			520	
7:00 PM			465	340		403			403	
8:00 PM			241	233		237			237	
9:00 PM			143	190		167			167	
10:00 PM			99	109		104			104	
11:00 PM			49	54		52			52	
Day Total			9785	9519		9661			9661	
% Weekday Average			101.3%	98.5%						
% Week Average			101.3%	98.5%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			726	707		717			717	
PM Peak			3:00 PM	3:00 PM		3:00 PM			3:00 PM	
Volume			904	923		914			914	
<i>Comments:</i>										

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: SB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	1	6	3	4	1	0	1	0	0	0	0	16	31-40	9	
1:00 AM	0	0	0	0	1	3	2	1	0	0	0	0	0	0	7	36-45	5	
2:00 AM	0	0	0	0	2	3	1	1	0	0	0	0	0	0	7	35-44	4	
3:00 AM	0	0	0	0	7	4	6	1	0	0	0	0	0	0	18	31-40	11	
4:00 AM	0	0	0	0	7	11	4	3	1	0	0	0	0	0	26	31-40	18	
5:00 AM	0	1	0	0	6	21	8	1	0	0	0	0	0	0	37	36-45	29	
6:00 AM	0	0	2	4	22	49	23	1	0	0	0	0	0	0	101	36-45	71	
7:00 AM	3	0	9	30	107	92	21	1	0	0	0	0	0	0	263	31-40	198	
8:00 AM	3	4	16	54	101	57	20	7	0	0	0	0	0	0	262	31-40	157	
9:00 AM	2	3	16	50	97	59	18	1	1	0	0	0	0	0	247	31-40	156	
10:00 AM	6	6	31	78	123	76	16	2	0	0	0	0	0	0	338	26-35	201	
11:00 AM	16	4	26	73	114	118	27	4	0	0	0	0	0	0	382	31-40	232	
12:00 PM	5	2	18	78	146	100	31	2	0	0	0	0	0	0	382	31-40	246	
1:00 PM	6	3	18	76	125	105	37	6	2	0	0	0	0	0	378	31-40	230	
2:00 PM	3	7	15	83	143	103	25	3	0	0	0	0	0	0	382	31-40	246	
3:00 PM	8	5	28	105	140	113	35	2	0	0	0	0	0	0	436	31-40	253	
4:00 PM	2	1	16	78	133	115	26	4	0	0	0	0	0	0	375	31-40	248	
5:00 PM	1	5	17	42	116	113	31	6	0	0	0	0	0	0	331	31-40	229	
6:00 PM	1	0	3	26	68	87	35	3	0	0	0	0	0	0	223	31-40	155	
7:00 PM	2	0	1	22	66	74	33	3	2	0	0	0	0	0	203	31-40	140	
8:00 PM	0	0	1	8	29	42	19	3	0	0	0	0	0	0	102	31-40	71	
9:00 PM	1	0	2	3	17	24	9	0	0	0	0	0	0	0	56	31-40	40	
10:00 PM	0	0	0	0	5	18	6	2	1	0	0	0	0	0	32	36-45	24	
11:00 PM	0	0	0	0	2	6	8	3	0	0	0	0	0	0	19	36-45	14	
Day Total	59	41	219	811	1583	1396	445	61	7	1	0	0	0	0	4623	31-40	2978	
Percent	1.3%	0.9%	4.7%	17.5%	34.2%	30.2%	9.6%	1.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%				
ADT 4623																		
AM Peak Volume	11:00 AM	10:00 AM	10:00 AM	10:00 AM	10:00 AM	11:00 AM	11:00 AM	8:00 AM	4:00 AM	12:00 AM						11:00 AM		
	16	6	31	78	123	118	27	7	1	1						382		
PM Peak Volume	3:00 PM	2:00 PM	3:00 PM	3:00 PM	12:00 PM	4:00 PM	1:00 PM	1:00 PM	1:00 PM						3:00 PM			
	8	7	28	105	146	115	37	6	2						436			
<i>Comments:</i>																		

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN															QC JOB #: 14110903 DIRECTION: SB DATE: Jan 19 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	0	0	0	0	1	7	1	0	0	0	0	0	0	0	9	31-40	8		
1:00 AM	0	0	0	2	2	5	0	0	1	0	0	0	0	0	10	31-40	7		
2:00 AM	0	0	0	2	4	3	1	0	0	0	0	0	0	0	10	32-41	6		
3:00 AM	0	0	0	0	0	1	2	1	0	0	0	0	0	0	4	41-50	3		
4:00 AM	0	0	1	0	5	12	12	5	0	0	0	0	0	0	35	36-45	23		
5:00 AM	0	0	1	4	9	8	10	2	0	0	0	0	0	0	34	36-45	18		
6:00 AM	1	0	0	8	25	43	17	4	1	0	0	0	0	0	99	31-40	67		
7:00 AM	2	0	11	40	86	90	27	3	1	0	0	0	0	0	260	31-40	176		
8:00 AM	3	5	13	41	100	84	27	9	1	0	0	0	0	0	283	31-40	184		
9:00 AM	2	4	11	43	77	76	17	4	0	0	0	0	0	0	234	31-40	152		
10:00 AM	4	6	12	63	122	82	34	8	1	0	0	0	0	0	332	31-40	203		
11:00 AM	1	3	12	74	157	92	23	5	0	0	0	0	0	0	367	31-40	248		
12:00 PM	6	2	20	59	141	111	32	4	0	0	0	0	0	0	375	31-40	251		
1:00 PM	7	3	15	75	123	107	37	2	2	0	0	0	0	0	371	31-40	229		
2:00 PM	0	1	9	61	157	92	31	1	2	1	0	0	0	0	355	31-40	248		
3:00 PM	6	13	36	119	163	62	14	7	0	0	0	0	0	0	420	26-35	282		
4:00 PM	3	6	37	80	134	94	18	1	0	0	0	0	0	0	373	31-40	228		
5:00 PM	4	6	18	67	114	64	14	2	0	0	0	0	0	0	289	26-35	181		
6:00 PM	1	1	7	44	84	52	12	3	0	1	0	0	0	0	205	31-40	136		
7:00 PM	2	1	1	34	44	38	11	2	0	0	0	0	0	0	133	31-40	81		
8:00 PM	0	0	3	11	30	42	8	2	1	0	0	0	0	0	97	31-40	72		
9:00 PM	1	0	1	8	34	25	10	0	0	0	0	0	0	0	79	31-40	59		
10:00 PM	0	0	0	2	13	20	6	0	0	0	0	0	0	0	41	31-40	33		
11:00 PM	0	0	0	1	10	7	3	0	0	0	0	0	0	0	21	31-40	16		
Day Total	43	51	208	838	1635	1217	367	65	10	2	0	0	0	0	4436	31-40	2851		
Percent	1.0%	1.1%	4.7%	18.9%	36.9%	27.4%	8.3%	1.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 4436																			
AM Peak Volume	10:00 AM	10:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	1:00 AM							11:00 AM			
	4	6	13	74	157	92	34	9	1							367			
PM Peak Volume	1:00 PM	3:00 PM	4:00 PM	3:00 PM	3:00 PM	12:00 PM	1:00 PM	3:00 PM	1:00 PM	2:00 PM							3:00 PM		
	7	13	37	119	163	111	37	7	2	1							420		
<i>Comments:</i>																			

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														QC JOB #: 14110903			
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St														DIRECTION: SB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	102	92	427	1649	3218	2613	812	126	17	3	0	0	0	0	9059	31-40	5831
Percent	1.1%	1.0%	4.7%	18.2%	35.5%	28.8%	9.0%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	1.1%	2.1%	6.9%	25.1%	60.6%	89.4%	98.4%	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 4529															85th Percentile 39 MPH Mean Speed(Average) 33 MPH		
<i>Comments:</i>															Median 33 MPH Mode: 33 MPH		



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN														QC JOB #: 14110903 DIRECTION: SB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	12	4	0	0	0	0	0	0	0	0	0	0	0	16
1:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
2:00 AM	0	6	0	0	1	0	0	0	0	0	0	0	0	0	7
3:00 AM	0	15	2	0	1	0	0	0	0	0	0	0	0	0	18
4:00 AM	0	11	9	0	5	1	0	0	0	0	0	0	0	0	26
5:00 AM	0	26	8	0	3	0	0	0	0	0	0	0	0	0	37
6:00 AM	0	47	35	0	17	1	0	1	0	0	0	0	0	0	101
7:00 AM	0	150	79	2	25	2	0	2	0	0	0	0	0	3	263
8:00 AM	0	130	90	0	31	1	0	6	0	0	0	0	0	4	262
9:00 AM	0	137	85	0	22	0	0	3	0	0	0	0	0	0	247
10:00 AM	1	194	98	0	32	3	0	5	0	0	0	0	0	5	338
11:00 AM	3	210	117	1	40	1	0	3	0	0	0	0	0	7	382
12:00 PM	0	228	96	0	50	0	0	6	0	0	0	0	0	2	382
1:00 PM	0	224	110	2	31	0	0	4	0	0	0	0	0	7	378
2:00 PM	1	224	113	0	33	1	1	6	0	0	0	0	0	3	382
3:00 PM	1	265	117	0	41	0	0	6	0	1	0	0	0	5	436
4:00 PM	0	238	100	0	31	0	0	4	0	0	0	0	0	2	375
5:00 PM	0	212	89	1	26	0	0	2	0	0	0	0	0	1	331
6:00 PM	1	139	62	1	19	0	0	0	0	0	0	0	0	1	223
7:00 PM	0	126	54	0	20	0	0	1	0	0	0	0	0	2	203
8:00 PM	0	71	24	0	6	0	0	1	0	0	0	0	0	0	102
9:00 PM	0	43	6	0	6	0	0	0	0	0	0	0	0	1	56
10:00 PM	0	24	8	0	0	0	0	0	0	0	0	0	0	0	32
11:00 PM	0	11	7	0	1	0	0	0	0	0	0	0	0	0	19
Day Total	7	2749	1314	7	441	10	1	50	0	1	0	0	0	43	4623
Percent	0.2%	59.5%	28.4%	0.2%	9.5%	0.2%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	
ADT 4623															
AM Peak	11:00 AM	11:00 AM	11:00 AM	7:00 AM	11:00 AM	10:00 AM		8:00 AM						11:00 AM	11:00 AM
Volume	3	210	117	2	40	3		6						7	382
PM Peak	2:00 PM	3:00 PM	3:00 PM	1:00 PM	12:00 PM	2:00 PM	2:00 PM	12:00 PM		3:00 PM				1:00 PM	3:00 PM
Volume	1	265	117	2	50	1	1	6		1				7	436
<i>Comments:</i>															

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN														QC JOB #: 14110903 DIRECTION: SB DATE: Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0	0	9	
1:00 AM	0	3	7	0	0	0	0	0	0	0	0	0	0	0	10	
2:00 AM	0	7	2	0	1	0	0	0	0	0	0	0	0	0	10	
3:00 AM	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4	
4:00 AM	0	14	14	0	6	1	0	0	0	0	0	0	0	0	35	
5:00 AM	0	21	6	0	6	0	0	1	0	0	0	0	0	0	34	
6:00 AM	0	53	26	0	18	0	0	1	0	0	0	0	0	1	99	
7:00 AM	0	147	81	1	27	1	0	2	0	0	0	0	0	1	260	
8:00 AM	3	157	91	2	26	0	0	2	0	0	0	0	0	2	283	
9:00 AM	0	133	76	0	21	0	0	2	1	0	0	0	0	1	234	
10:00 AM	5	174	107	1	40	2	1	1	0	0	0	0	0	1	332	
11:00 AM	1	224	97	0	40	1	0	3	0	0	0	0	0	1	367	
12:00 PM	1	219	110	0	38	1	0	3	0	0	0	0	0	3	375	
1:00 PM	2	215	103	0	40	0	0	5	0	0	0	0	0	6	371	
2:00 PM	0	207	107	0	36	1	0	4	0	0	0	0	0	0	355	
3:00 PM	0	254	126	0	28	0	1	4	0	0	0	0	0	7	420	
4:00 PM	1	213	120	0	34	0	0	3	0	0	0	0	0	2	373	
5:00 PM	0	170	83	0	31	0	0	1	0	0	0	0	0	4	289	
6:00 PM	0	135	55	0	13	0	0	1	0	0	0	0	0	1	205	
7:00 PM	0	85	37	0	9	0	0	0	0	0	0	0	0	2	133	
8:00 PM	0	67	23	0	6	0	0	1	0	0	0	0	0	0	97	
9:00 PM	0	56	16	0	7	0	0	0	0	0	0	0	0	0	79	
10:00 PM	0	29	8	0	4	0	0	0	0	0	0	0	0	0	41	
11:00 PM	0	18	3	0	0	0	0	0	0	0	0	0	0	0	21	
Day Total	13	2609	1302	4	432	7	2	34	1	0	0	0	0	32	4436	
Percent	0.3%	58.8%	29.4%	0.1%	9.7%	0.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%		
ADT 4436																
AM Peak	10:00 AM	11:00 AM	10:00 AM	8:00 AM	10:00 AM	10:00 AM	10:00 AM	11:00 AM	9:00 AM						8:00 AM	11:00 AM
Volume	5	224	107	2	40	2	1	3	1						2	367
PM Peak	1:00 PM	3:00 PM	3:00 PM			1:00 PM	12:00 PM	3:00 PM	1:00 PM						3:00 PM	3:00 PM
Volume	2	254	126			40	1	1	5						7	420
<i>Comments:</i>																

LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													QC JOB #: 14110903		
SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St													DIRECTION: SB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	20	5358	2616	11	873	17	3	84	1	1	0	0	0	75	9059
Percent	0.2%	59.1%	28.9%	0.1%	9.6%	0.2%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	
ADT 4529															
<i>Comments:</i>															



LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St SPECIFIC LOCATION: S Lowe Ave Btwn Stevens St and Proffitt St CITY/STATE: Cookeville, TN						QC JOB #: 14110903 DIRECTION: SB DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			16	9		13			13	
1:00 AM			7	10		9			9	
2:00 AM			7	10		9			9	
3:00 AM			18	4		11			11	
4:00 AM			26	35		31			31	
5:00 AM			37	34		36			36	
6:00 AM			101	99		100			100	
7:00 AM			263	260		262			262	
8:00 AM			262	283		273			273	
9:00 AM			247	234		241			241	
10:00 AM			338	332		335			335	
11:00 AM			382	367		375			375	
12:00 PM			382	375		379			379	
1:00 PM			378	371		375			375	
2:00 PM			382	355		369			369	
3:00 PM			436	420		428			428	
4:00 PM			375	373		374			374	
5:00 PM			331	289		310			310	
6:00 PM			223	205		214			214	
7:00 PM			203	133		168			168	
8:00 PM			102	97		100			100	
9:00 PM			56	79		68			68	
10:00 PM			32	41		37			37	
11:00 PM			19	21		20			20	
Day Total			4623	4436		4537			4537	
% Weekday Average			101.9%	97.8%						
% Week Average			101.9%	97.8%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			382	367		375			375	
PM Peak			3:00 PM	3:00 PM		3:00 PM			3:00 PM	
Volume			436	420		428			428	
<i>Comments:</i>										

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: NB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	10	17	4	1	0	0	0	0	0	0	0	0	0	0	32	16-25	20	
1:00 AM	7	9	4	1	0	0	0	0	0	0	0	0	0	0	21	16-25	13	
2:00 AM	2	3	2	0	0	0	0	0	0	0	0	0	0	0	7	16-25	5	
3:00 AM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	8	16-25	6	
4:00 AM	1	9	0	0	0	0	0	0	0	0	0	0	0	0	10	15-24	9	
5:00 AM	7	30	8	0	0	0	0	0	0	0	0	0	0	0	45	16-25	37	
6:00 AM	36	32	16	2	0	0	0	0	0	0	0	0	0	0	86	16-25	48	
7:00 AM	116	75	85	15	0	1	0	0	0	0	0	0	0	0	292	16-25	160	
8:00 AM	109	55	34	11	0	0	0	0	0	0	0	0	0	0	209	11-20	91	
9:00 AM	113	66	33	2	0	0	0	0	0	0	0	0	0	0	214	11-20	103	
10:00 AM	159	80	16	5	0	0	0	0	0	0	0	0	0	0	260	11-20	133	
11:00 AM	165	83	24	3	0	0	0	0	0	0	0	0	0	0	275	11-20	138	
12:00 PM	182	108	27	4	0	0	0	0	0	0	0	0	0	0	321	11-20	168	
1:00 PM	205	76	22	3	0	0	0	0	0	0	0	0	0	0	306	11-20	144	
2:00 PM	221	73	35	2	0	0	0	0	0	0	0	0	0	0	331	8-17	147	
3:00 PM	221	64	14	5	0	0	0	0	0	0	0	0	0	0	304	6-15	147	
4:00 PM	213	87	20	9	0	0	0	0	0	0	0	0	0	0	329	11-20	158	
5:00 PM	231	97	15	3	0	0	0	0	0	0	0	0	0	0	346	11-20	173	
6:00 PM	173	87	14	1	0	0	0	0	0	0	0	0	0	0	275	11-20	144	
7:00 PM	137	79	17	0	0	0	0	0	0	0	0	0	0	0	233	11-20	124	
8:00 PM	73	91	19	1	0	0	0	0	0	0	0	0	0	0	184	11-20	115	
9:00 PM	42	68	16	2	1	0	0	0	0	0	0	0	0	0	129	16-25	83	
10:00 PM	18	48	12	3	1	0	0	0	0	0	0	0	0	0	82	16-25	60	
11:00 PM	12	23	7	0	0	0	0	0	0	0	0	0	0	0	42	16-25	29	
Day Total	2455	1364	446	73	2	1	0	0	0	0	0	0	0	0	4341	11-20	2182	
Percent	56.6%	31.4%	10.3%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
ADT 4341																		
AM Peak Volume	11:00 AM 165	11:00 AM 83	7:00 AM 85	7:00 AM 15	7:00 AM 1											7:00 AM 292		
PM Peak Volume	5:00 PM 231	12:00 PM 108	2:00 PM 35	4:00 PM 9	9:00 PM 1											5:00 PM 346		
<i>Comments:</i>																		

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: NB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	6	20	4	0	0	0	0	0	0	0	0	0	0	0	30	16-25	23	
1:00 AM	5	11	2	0	0	0	0	0	0	0	0	0	0	0	18	16-25	12	
2:00 AM	3	7	2	0	0	0	0	0	0	0	0	0	0	0	12	16-25	8	
3:00 AM	2	3	3	0	0	0	0	0	0	0	0	0	0	0	8	17-26	5	
4:00 AM	3	5	1	0	0	0	0	0	0	0	0	0	0	0	9	11-20	6	
5:00 AM	15	33	10	1	0	0	0	0	0	0	0	0	0	0	59	16-25	43	
6:00 AM	28	43	10	0	0	0	0	0	0	0	0	0	0	0	81	16-25	53	
7:00 AM	145	80	55	3	3	0	0	0	0	0	0	0	0	0	286	16-25	135	
8:00 AM	116	65	30	9	0	0	0	0	0	0	0	0	0	0	220	11-20	103	
9:00 AM	122	73	22	3	0	0	0	0	0	0	0	0	0	0	220	11-20	113	
10:00 AM	156	82	24	6	1	0	0	0	0	0	0	0	0	0	269	11-20	134	
11:00 AM	166	53	22	4	2	0	0	0	0	0	0	0	0	0	247	7-16	110	
12:00 PM	202	71	15	5	1	0	0	0	0	0	0	0	0	0	294	11-20	138	
1:00 PM	175	93	20	4	1	0	0	0	0	0	0	0	0	0	293	11-20	151	
2:00 PM	190	113	27	5	1	0	0	0	0	0	0	0	0	0	336	11-20	176	
3:00 PM	230	68	25	2	0	0	0	0	0	0	0	0	0	0	325	6-15	153	
4:00 PM	243	63	13	4	0	0	0	0	0	0	0	0	0	0	323	6-15	161	
5:00 PM	177	105	26	1	0	0	0	0	0	0	0	0	0	0	309	11-20	164	
6:00 PM	156	86	10	4	0	0	0	0	0	0	0	0	0	0	256	11-20	137	
7:00 PM	117	84	10	0	0	0	0	0	0	0	0	0	0	0	211	11-20	123	
8:00 PM	61	62	15	4	0	0	0	0	0	0	0	0	0	0	142	11-20	82	
9:00 PM	31	61	32	3	0	0	0	0	0	0	0	0	0	0	127	16-25	93	
10:00 PM	20	48	12	1	0	0	0	0	0	0	0	0	0	0	81	16-25	60	
11:00 PM	6	24	6	1	0	0	0	0	0	0	0	0	0	0	37	16-25	30	
Day Total	2375	1353	396	60	9	0	0	0	0	0	0	0	0	0	4193	11-20	2144	
Percent	56.6%	32.3%	9.4%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
ADT 4193																		
AM Peak	11:00 AM	10:00 AM	7:00 AM	8:00 AM	7:00 AM											7:00 AM		
Volume	166	82	55	9	3											286		
PM Peak	4:00 PM	2:00 PM	9:00 PM	12:00 PM	12:00 PM											2:00 PM		
Volume	243	113	32	5	1											336		
<i>Comments:</i>																		

LOCATION: N Washington Btwn E Broad and E Spring St														QC JOB #: 14110904			
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St														DIRECTION: NB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	4830	2717	842	133	11	1	0	0	0	0	0	0	0	0	8534	11-20	4326
Percent	56.6%	31.8%	9.9%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	56.6%	88.4%	98.3%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 4267															85th Percentile 19 MPH Mean Speed(Average): 12 MPH Median 13 MPH Mode: 8 MPH		
<i>Comments:</i>																	



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN														QC JOB #: 14110904 DIRECTION: NB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	25	5	0	0	1	0	0	0	0	0	0	0	0	32
1:00 AM	0	18	2	0	1	0	0	0	0	0	0	0	0	0	21
2:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
3:00 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
4:00 AM	0	6	4	0	0	0	0	0	0	0	0	0	0	0	10
5:00 AM	0	30	9	0	3	1	0	1	0	0	0	0	0	1	45
6:00 AM	3	53	16	0	5	0	0	1	0	0	0	0	0	8	86
7:00 AM	6	169	48	1	11	3	0	5	0	0	0	0	0	49	292
8:00 AM	4	111	43	0	7	0	0	2	0	0	0	0	0	42	209
9:00 AM	2	116	38	1	12	0	0	2	0	0	0	0	0	43	214
10:00 AM	19	129	39	2	14	0	0	0	0	0	0	0	0	57	260
11:00 AM	8	161	47	0	8	4	0	0	0	0	0	0	0	47	275
12:00 PM	10	170	45	2	16	4	0	4	0	0	0	0	0	70	321
1:00 PM	10	143	51	1	8	4	0	0	0	0	0	0	0	89	306
2:00 PM	16	160	51	1	7	2	0	1	0	0	1	0	0	92	331
3:00 PM	13	139	45	2	10	3	0	1	1	0	0	0	0	90	304
4:00 PM	18	167	42	1	7	1	0	3	0	0	0	0	0	90	329
5:00 PM	7	186	50	0	13	1	0	4	0	0	0	0	0	85	346
6:00 PM	5	164	45	0	11	1	0	1	0	0	0	0	0	48	275
7:00 PM	1	163	36	0	11	1	0	0	0	0	0	0	0	21	233
8:00 PM	3	135	27	0	6	2	0	1	0	0	0	0	0	10	184
9:00 PM	1	98	22	0	6	0	0	1	0	0	0	0	0	1	129
10:00 PM	1	69	8	0	1	0	0	0	0	0	0	0	0	3	82
11:00 PM	0	37	4	0	0	0	0	0	0	0	0	0	0	1	42
Day Total	128	2462	679	11	157	28	0	27	1	0	1	0	0	847	4341
Percent	2.9%	56.7%	15.6%	0.3%	3.6%	0.6%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	19.5%	
ADT 4341															
AM Peak Volume	10:00 AM	7:00 AM	7:00 AM	10:00 AM	10:00 AM	11:00 AM	7:00 AM						10:00 AM	7:00 AM	
	19	169	48	2	14	4	5						57	292	
PM Peak Volume	4:00 PM	5:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM		3:00 PM	2:00 PM			2:00 PM	5:00 PM	
	18	186	51	2	16	4	4		1	1			92	346	
<i>Comments:</i>															

LOCATION: N Washington Btwn E Broad and E Spring St **QC JOB #:** 14110904
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St **DIRECTION:** NB
CITY/STATE: Cookeville, TN **DATE:** Jan 19 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	24	3	0	1	1	0	0	0	0	0	0	0	0	30
1:00 AM	1	13	3	0	0	0	0	0	0	0	0	0	0	1	18
2:00 AM	0	7	4	0	1	0	0	0	0	0	0	0	0	0	12
3:00 AM	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8
4:00 AM	0	3	4	0	0	1	0	1	0	0	0	0	0	0	9
5:00 AM	2	33	14	0	6	2	0	0	0	0	0	0	0	2	59
6:00 AM	0	46	21	0	11	0	0	0	0	0	0	0	0	3	81
7:00 AM	5	161	44	1	11	1	0	0	0	0	0	0	0	63	286
8:00 AM	6	107	45	0	15	2	0	1	0	0	0	0	0	44	220
9:00 AM	8	119	33	3	12	0	0	2	0	0	0	0	0	43	220
10:00 AM	10	127	48	0	19	3	0	0	0	0	0	0	0	62	269
11:00 AM	5	120	42	0	11	2	0	1	0	0	0	0	0	66	247
12:00 PM	15	143	47	0	14	2	0	0	1	0	0	0	0	72	294
1:00 PM	10	149	53	1	11	2	1	3	0	0	0	0	0	63	293
2:00 PM	8	161	64	2	9	0	1	4	0	0	0	0	0	87	336
3:00 PM	13	152	43	0	6	2	2	0	0	1	0	0	0	106	325
4:00 PM	9	161	35	0	12	2	0	0	0	0	0	0	0	104	323
5:00 PM	10	180	38	0	7	2	1	3	0	0	0	0	0	68	309
6:00 PM	2	173	40	0	5	1	1	0	0	0	0	0	0	34	256
7:00 PM	1	147	29	0	10	1	0	1	0	0	0	0	0	22	211
8:00 PM	1	103	24	0	8	0	0	0	0	0	0	0	0	6	142
9:00 PM	6	86	23	0	3	0	0	0	0	0	0	0	0	9	127
10:00 PM	0	72	8	0	0	0	1	0	0	0	0	0	0	0	81
11:00 PM	0	30	5	0	0	0	0	0	0	0	0	0	0	2	37
Day Total	113	2323	672	7	172	24	7	16	1	1	0	0	0	857	4193
Percent	2.7%	55.4%	16.0%	0.2%	4.1%	0.6%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	20.4%	
ADT 4193															
AM Peak Volume	10:00 AM	7:00 AM	10:00 AM	9:00 AM	10:00 AM	10:00 AM		9:00 AM						11:00 AM	7:00 AM
	10	161	48	3	19	3		2						66	286
PM Peak Volume	12:00 PM	5:00 PM	2:00 PM	2:00 PM	12:00 PM	12:00 PM	3:00 PM	2:00 PM	12:00 PM	3:00 PM				3:00 PM	2:00 PM
	15	180	64	2	14	2	2	4	1	1				106	336

Comments:

LOCATION: N Washington Btwn E Broad and E Spring St													QC JOB #: 14110904		
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St													DIRECTION: NB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	241	4785	1351	18	329	52	7	43	2	1	1	0	0	1704	8534
Percent	2.8%	56.1%	15.8%	0.2%	3.9%	0.6%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	
ADT 4267															
<i>Comments:</i>															



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN							QC JOB #: 14110904 DIRECTION: NB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			32	30		31			31	
1:00 AM			21	18		20			20	
2:00 AM			7	12		10			10	
3:00 AM			8	8		8			8	
4:00 AM			10	9		10			10	
5:00 AM			45	59		52			52	
6:00 AM			86	81		84			84	
7:00 AM			292	286		289			289	
8:00 AM			209	220		215			215	
9:00 AM			214	220		217			217	
10:00 AM			260	269		265			265	
11:00 AM			275	247		261			261	
12:00 PM			321	294		308			308	
1:00 PM			306	293		300			300	
2:00 PM			331	336		334			334	
3:00 PM			304	325		315			315	
4:00 PM			329	323		326			326	
5:00 PM			346	309		328			328	
6:00 PM			275	256		266			266	
7:00 PM			233	211		222			222	
8:00 PM			184	142		163			163	
9:00 PM			129	127		128			128	
10:00 PM			82	81		82			82	
11:00 PM			42	37		40			40	
Day Total			4341	4193		4274			4274	
% Weekday Average			101.6%	98.1%						
% Week Average			101.6%	98.1%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			292	286		289			289	
PM Peak			5:00 PM	2:00 PM		2:00 PM			2:00 PM	
Volume			346	336		334			334	
<i>Comments:</i>										

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: NB/SB DATE: Jan 18 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	17	27	9	4	0	0	0	0	0	0	0	0	0	0	57	16-25	35		
1:00 AM	13	15	5	1	0	0	0	0	0	0	0	0	0	0	34	16-25	20		
2:00 AM	4	10	3	0	0	0	0	0	0	0	0	0	0	0	17	16-25	13		
3:00 AM	6	14	7	0	0	0	0	0	0	0	0	0	0	0	27	16-25	20		
4:00 AM	10	33	5	2	0	0	0	0	0	0	0	0	0	0	50	16-25	38		
5:00 AM	25	72	14	0	0	0	0	0	0	0	0	0	0	0	111	16-25	86		
6:00 AM	109	100	27	3	0	0	0	0	0	0	0	0	0	0	239	11-20	136		
7:00 AM	259	172	151	22	0	1	0	0	0	0	0	0	0	0	605	16-25	323		
8:00 AM	249	169	73	15	0	0	0	0	0	0	0	0	0	0	506	11-20	252		
9:00 AM	243	174	71	6	0	0	0	0	0	0	0	0	0	0	494	11-20	255		
10:00 AM	330	185	49	10	0	0	0	0	0	0	0	0	0	0	574	11-20	295		
11:00 AM	359	213	59	12	1	0	0	0	0	0	0	0	0	0	644	11-20	332		
12:00 PM	380	213	65	7	2	0	0	0	0	0	0	0	0	0	667	11-20	339		
1:00 PM	467	165	36	6	0	0	0	0	0	0	0	0	0	0	674	11-20	320		
2:00 PM	459	179	56	5	0	0	0	0	0	0	0	0	0	0	699	11-20	331		
3:00 PM	451	141	33	7	1	0	0	0	0	0	0	0	0	0	633	6-15	300		
4:00 PM	417	179	35	13	2	0	0	0	0	0	0	0	0	0	646	11-20	318		
5:00 PM	448	175	32	5	1	0	0	0	0	0	0	0	0	0	661	11-20	324		
6:00 PM	336	136	32	3	0	0	0	0	0	0	0	0	0	0	507	11-20	247		
7:00 PM	315	140	25	3	1	1	0	0	0	0	0	0	0	0	485	11-20	245		
8:00 PM	177	152	31	4	0	0	0	0	0	0	0	0	0	0	364	11-20	210		
9:00 PM	94	106	32	5	1	0	0	0	0	0	0	0	0	0	238	16-25	138		
10:00 PM	34	76	22	3	1	0	0	0	0	0	0	0	0	0	136	16-25	98		
11:00 PM	31	35	10	0	0	0	0	0	0	0	0	0	0	0	76	15-24	45		
Day Total	5233	2881	882	136	10	2	0	0	0	0	0	0	0	0	9144	11-20	4625		
Percent	57.2%	31.5%	9.6%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 9144																			
AM Peak	11:00 AM	11:00 AM	7:00 AM	7:00 AM	11:00 AM	7:00 AM											11:00 AM		
Volume	359	213	151	22	1	1											644		
PM Peak	1:00 PM	12:00 PM	12:00 PM	4:00 PM	12:00 PM	7:00 PM											2:00 PM		
Volume	467	213	65	13	2	1											699		
<i>Comments:</i>																			

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: NB/SB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	15	28	7	0	0	0	0	0	0	0	0	0	0	0	50	16-25	35	
1:00 AM	12	16	3	0	0	0	0	0	0	0	0	0	0	0	31	11-20	20	
2:00 AM	10	11	3	0	0	0	0	0	0	0	0	0	0	0	24	16-25	14	
3:00 AM	7	8	4	0	0	0	0	0	0	0	0	0	0	0	19	16-25	12	
4:00 AM	10	31	10	0	1	0	0	0	0	0	0	0	0	0	52	16-25	41	
5:00 AM	41	70	15	1	0	0	0	0	0	0	0	0	0	0	127	16-25	85	
6:00 AM	103	116	21	1	0	0	0	0	0	0	0	0	0	0	241	11-20	150	
7:00 AM	304	148	82	9	4	0	0	0	0	0	0	0	0	0	547	11-20	249	
8:00 AM	228	160	70	16	1	0	0	0	0	0	0	0	0	0	475	11-20	236	
9:00 AM	263	192	49	6	0	0	0	0	0	0	0	0	0	0	510	11-20	279	
10:00 AM	329	189	44	14	1	0	0	0	0	0	0	0	0	0	577	11-20	298	
11:00 AM	377	160	47	8	2	0	0	0	0	0	0	0	0	0	594	11-20	285	
12:00 PM	398	172	47	10	1	0	0	0	0	0	0	0	0	0	628	11-20	304	
1:00 PM	388	183	57	6	1	0	0	0	0	0	0	0	0	0	635	11-20	312	
2:00 PM	396	208	61	11	1	0	0	0	0	0	0	0	0	0	677	11-20	340	
3:00 PM	529	141	27	2	0	0	0	0	0	0	0	0	0	0	699	6-15	352	
4:00 PM	500	124	19	4	0	0	0	0	0	0	0	0	0	0	647	6-15	333	
5:00 PM	393	171	54	1	0	0	0	0	0	0	0	0	0	0	619	11-20	302	
6:00 PM	332	126	12	5	0	0	0	0	0	0	0	0	0	0	475	11-20	236	
7:00 PM	240	114	15	1	0	0	0	0	0	0	0	0	0	0	370	11-20	194	
8:00 PM	143	102	26	6	0	0	0	0	0	0	0	0	0	0	277	11-20	149	
9:00 PM	88	98	39	6	0	0	0	0	0	0	0	0	0	0	231	16-25	137	
10:00 PM	47	80	20	1	0	0	0	0	0	0	0	0	0	0	148	16-25	100	
11:00 PM	18	38	10	1	0	0	0	0	0	0	0	0	0	0	67	16-25	48	
Day Total	5171	2686	742	109	12	0	0	0	0	0	0	0	0	0	8720	11-20	4409	
Percent	59.3%	30.8%	8.5%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
ADT 8720																		
AM Peak Volume	11:00 AM 377	9:00 AM 192	7:00 AM 82	8:00 AM 16	7:00 AM 4											11:00 AM 594		
PM Peak Volume	3:00 PM 529	2:00 PM 208	2:00 PM 61	2:00 PM 11	12:00 PM 1											3:00 PM 699		
<i>Comments:</i>																		

LOCATION: N Washington Btwn E Broad and E Spring St														QC JOB #: 14110904			
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St														DIRECTION: NB/SB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	10404	5567	1624	245	22	2	0	0	0	0	0	0	0	0	17864	11-20	9035
Percent	58.2%	31.2%	9.1%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	58.2%	89.4%	98.5%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 8932															85th Percentile 19 MPH Mean Speed(Average): 12 MPH Median 12 MPH Mode: 8 MPH		
<i>Comments:</i>																	



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN														QC JOB #: 14110904 DIRECTION: NB/SB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	46	7	0	1	1	0	0	0	0	0	0	0	1	57
1:00 AM	0	31	2	0	1	0	0	0	0	0	0	0	0	0	34
2:00 AM	0	13	3	0	0	0	0	0	0	0	0	0	0	1	17
3:00 AM	0	22	5	0	0	0	0	0	0	0	0	0	0	0	27
4:00 AM	0	32	14	1	0	1	0	0	0	0	0	0	0	2	50
5:00 AM	1	80	24	0	3	1	0	1	0	0	0	0	0	1	111
6:00 AM	5	133	66	0	10	4	0	1	0	0	0	0	0	20	239
7:00 AM	17	336	108	1	20	5	0	10	0	0	0	0	0	108	605
8:00 AM	8	271	104	1	20	2	0	7	1	2	0	0	0	90	506
9:00 AM	6	274	93	3	19	4	0	4	0	0	0	0	0	91	494
10:00 AM	30	298	106	2	23	2	0	1	0	0	0	0	0	112	574
11:00 AM	20	353	121	0	19	8	0	2	0	0	0	0	0	121	644
12:00 PM	20	346	100	4	24	8	0	6	0	0	0	0	0	159	667
1:00 PM	19	331	98	2	17	9	1	2	1	0	0	0	0	194	674
2:00 PM	30	354	96	1	16	5	0	3	0	0	1	0	0	193	699
3:00 PM	29	305	85	2	19	3	0	2	1	0	0	0	0	187	633
4:00 PM	29	339	82	1	9	5	1	3	0	0	0	0	0	177	646
5:00 PM	21	355	88	1	17	1	0	5	0	0	0	0	0	173	661
6:00 PM	9	304	74	1	12	1	0	1	0	0	0	0	0	105	507
7:00 PM	1	328	76	0	23	1	0	0	0	0	0	0	0	56	485
8:00 PM	6	269	51	0	7	3	0	1	0	0	0	0	0	27	364
9:00 PM	1	184	41	0	7	0	0	1	0	0	0	0	0	4	238
10:00 PM	1	114	15	0	1	0	0	0	0	0	0	0	0	5	136
11:00 PM	0	62	7	0	1	0	0	0	0	0	0	0	0	6	76
Day Total	254	5180	1466	20	269	64	2	50	3	2	1	0	0	1833	9144
Percent	2.8%	56.6%	16.0%	0.2%	2.9%	0.7%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	
ADT 9144															
AM Peak Volume	10:00 AM	11:00 AM	11:00 AM	9:00 AM	10:00 AM	11:00 AM		7:00 AM	8:00 AM	8:00 AM				11:00 AM	11:00 AM
	30	353	121	3	23	8		10	1	2				121	644
PM Peak Volume	2:00 PM	5:00 PM	12:00 PM	12:00 PM	12:00 PM	1:00 PM	1:00 PM	12:00 PM	1:00 PM		2:00 PM			1:00 PM	2:00 PM
	30	355	100	4	24	9	1	6	1		1			194	699
<i>Comments:</i>															

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN														QC JOB #: 14110904 DIRECTION: NB/SB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	42	5	0	1	1	0	0	0	0	0	0	0	0	50
1:00 AM	1	25	4	0	0	0	0	0	0	0	0	0	0	1	31
2:00 AM	1	15	4	0	1	0	0	0	0	0	0	0	0	3	24
3:00 AM	0	12	4	0	2	0	0	0	0	0	0	0	0	1	19
4:00 AM	0	27	18	0	5	1	0	1	0	0	0	0	0	0	52
5:00 AM	3	79	29	0	8	2	0	0	0	0	0	0	0	6	127
6:00 AM	3	141	64	0	17	2	0	0	0	0	0	0	0	14	241
7:00 AM	9	292	84	3	19	2	0	2	0	0	0	0	0	136	547
8:00 AM	11	246	88	1	30	7	0	2	0	0	0	0	0	90	475
9:00 AM	14	287	88	4	16	2	0	4	0	0	0	0	0	95	510
10:00 AM	20	288	105	0	26	7	0	1	0	0	0	0	0	130	577
11:00 AM	13	299	106	1	24	8	0	2	0	1	0	0	0	140	594
12:00 PM	28	320	102	0	26	3	2	2	1	1	0	0	0	143	628
1:00 PM	19	333	105	1	18	6	2	6	0	0	0	0	0	145	635
2:00 PM	15	334	118	2	21	2	2	5	1	0	0	0	0	177	677
3:00 PM	37	319	82	2	13	7	2	3	0	1	0	0	0	233	699
4:00 PM	25	312	71	0	18	2	1	0	0	0	0	0	0	218	647
5:00 PM	19	360	75	0	10	2	2	3	0	0	0	0	0	148	619
6:00 PM	8	315	64	0	6	1	2	0	0	0	0	0	0	79	475
7:00 PM	2	264	40	0	13	1	0	1	0	0	0	0	0	49	370
8:00 PM	3	203	41	1	11	1	0	0	0	0	0	0	0	17	277
9:00 PM	8	168	36	0	5	0	0	0	0	0	0	0	0	14	231
10:00 PM	1	127	15	0	2	0	1	0	0	0	0	0	0	2	148
11:00 PM	0	58	6	0	0	0	0	0	0	0	0	0	0	3	67
Day Total	241	4866	1354	15	292	57	14	32	2	3	0	0	0	1844	8720
Percent	2.8%	55.8%	15.5%	0.2%	3.3%	0.7%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	21.1%	
ADT 8720															
AM Peak Volume	10:00 AM	11:00 AM	11:00 AM	9:00 AM	8:00 AM	11:00 AM		9:00 AM		11:00 AM				11:00 AM	11:00 AM
PM Peak Volume	3:00 PM	5:00 PM	2:00 PM	2:00 PM	12:00 PM	3:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM				3:00 PM	3:00 PM
	20	299	106	4	30	8		4		1				140	594
	37	360	118	2	26	7	2	6	1	1				233	699
<i>Comments:</i>															

LOCATION: N Washington Btwn E Broad and E Spring St													QC JOB #: 14110904		
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St													DIRECTION: NB/SB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	495	10046	2820	35	561	121	16	82	5	5	1	0	0	3677	17864
Percent	2.8%	56.2%	15.8%	0.2%	3.1%	0.7%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	20.6%	
ADT 8932															
<i>Comments:</i>															



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN							QC JOB #: 14110904 DIRECTION: NB/SB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			57	50		54			54	
1:00 AM			34	31		33			33	
2:00 AM			17	24		21			21	
3:00 AM			27	19		23			23	
4:00 AM			50	52		51			51	
5:00 AM			111	127		119			119	
6:00 AM			239	241		240			240	
7:00 AM			605	547		576			576	
8:00 AM			506	475		491			491	
9:00 AM			494	510		502			502	
10:00 AM			574	577		576			576	
11:00 AM			644	594		619			619	
12:00 PM			667	628		648			648	
1:00 PM			674	635		655			655	
2:00 PM			699	677		688			688	
3:00 PM			633	699		666			666	
4:00 PM			646	647		647			647	
5:00 PM			661	619		640			640	
6:00 PM			507	475		491			491	
7:00 PM			485	370		428			428	
8:00 PM			364	277		321			321	
9:00 PM			238	231		235			235	
10:00 PM			136	148		142			142	
11:00 PM			76	67		72			72	
Day Total			9144	8720		8938			8938	
% Weekday Average			102.3%	97.6%						
% Week Average			102.3%	97.6%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			644	594		619			619	
PM Peak			2:00 PM	3:00 PM		2:00 PM			2:00 PM	
Volume			699	699		688			688	
<i>Comments:</i>										

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: SB DATE: Jan 18 2017				
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace		
12:00 AM	7	10	5	3	0	0	0	0	0	0	0	0	0	0	25	16-25	15		
1:00 AM	6	6	1	0	0	0	0	0	0	0	0	0	0	0	13	11-20	8		
2:00 AM	2	7	1	0	0	0	0	0	0	0	0	0	0	0	10	16-25	7		
3:00 AM	4	10	5	0	0	0	0	0	0	0	0	0	0	0	19	16-25	15		
4:00 AM	9	24	5	2	0	0	0	0	0	0	0	0	0	0	40	16-25	29		
5:00 AM	18	42	6	0	0	0	0	0	0	0	0	0	0	0	66	16-25	48		
6:00 AM	73	68	11	1	0	0	0	0	0	0	0	0	0	0	153	11-20	92		
7:00 AM	143	97	66	7	0	0	0	0	0	0	0	0	0	0	313	16-25	162		
8:00 AM	140	114	39	4	0	0	0	0	0	0	0	0	0	0	297	11-20	160		
9:00 AM	130	108	38	4	0	0	0	0	0	0	0	0	0	0	280	11-20	151		
10:00 AM	171	105	33	5	0	0	0	0	0	0	0	0	0	0	314	11-20	162		
11:00 AM	194	130	35	9	1	0	0	0	0	0	0	0	0	0	369	11-20	194		
12:00 PM	198	105	38	3	2	0	0	0	0	0	0	0	0	0	346	11-20	171		
1:00 PM	262	89	14	3	0	0	0	0	0	0	0	0	0	0	368	11-20	176		
2:00 PM	238	106	21	3	0	0	0	0	0	0	0	0	0	0	368	11-20	185		
3:00 PM	230	77	19	2	1	0	0	0	0	0	0	0	0	0	329	11-20	153		
4:00 PM	204	92	15	4	2	0	0	0	0	0	0	0	0	0	317	11-20	160		
5:00 PM	217	78	17	2	1	0	0	0	0	0	0	0	0	0	315	11-20	150		
6:00 PM	163	49	18	2	0	0	0	0	0	0	0	0	0	0	232	6-15	108		
7:00 PM	178	61	8	3	1	1	0	0	0	0	0	0	0	0	252	11-20	120		
8:00 PM	104	61	12	3	0	0	0	0	0	0	0	0	0	0	180	11-20	95		
9:00 PM	52	38	16	3	0	0	0	0	0	0	0	0	0	0	109	12-21	55		
10:00 PM	16	28	10	0	0	0	0	0	0	0	0	0	0	0	54	16-25	38		
11:00 PM	19	12	3	0	0	0	0	0	0	0	0	0	0	0	34	11-20	18		
Day Total	2778	1517	436	63	8	1	0	0	0	0	0	0	0	0	4803	11-20	2443		
Percent	57.8%	31.6%	9.1%	1.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					
ADT 4803																			
AM Peak Volume	11:00 AM 194	11:00 AM 130	7:00 AM 66	11:00 AM 9	11:00 AM 1											11:00 AM 369			
PM Peak Volume	1:00 PM 262	2:00 PM 106	12:00 PM 38	4:00 PM 4	12:00 PM 2	7:00 PM 1											1:00 PM 368		
<i>Comments:</i>																			

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN															QC JOB #: 14110904 DIRECTION: SB DATE: Jan 19 2017					
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace			
12:00 AM	9	8	3	0	0	0	0	0	0	0	0	0	0	0	20	16-25	11			
1:00 AM	7	5	1	0	0	0	0	0	0	0	0	0	0	0	13	12-21	7			
2:00 AM	7	4	1	0	0	0	0	0	0	0	0	0	0	0	12	12-21	6			
3:00 AM	5	5	1	0	0	0	0	0	0	0	0	0	0	0	11	15-24	6			
4:00 AM	7	26	9	0	1	0	0	0	0	0	0	0	0	0	43	16-25	34			
5:00 AM	26	37	5	0	0	0	0	0	0	0	0	0	0	0	68	11-20	45			
6:00 AM	75	73	11	1	0	0	0	0	0	0	0	0	0	0	160	11-20	97			
7:00 AM	159	68	27	6	1	0	0	0	0	0	0	0	0	0	261	11-20	120			
8:00 AM	112	95	40	7	1	0	0	0	0	0	0	0	0	0	255	16-25	135			
9:00 AM	141	119	27	3	0	0	0	0	0	0	0	0	0	0	290	11-20	166			
10:00 AM	173	107	20	8	0	0	0	0	0	0	0	0	0	0	308	11-20	164			
11:00 AM	211	107	25	4	0	0	0	0	0	0	0	0	0	0	347	11-20	177			
12:00 PM	196	101	32	5	0	0	0	0	0	0	0	0	0	0	334	11-20	166			
1:00 PM	213	90	37	2	0	0	0	0	0	0	0	0	0	0	342	11-20	161			
2:00 PM	206	95	34	6	0	0	0	0	0	0	0	0	0	0	341	11-20	163			
3:00 PM	299	73	2	0	0	0	0	0	0	0	0	0	0	0	374	6-15	199			
4:00 PM	257	61	6	0	0	0	0	0	0	0	0	0	0	0	324	6-15	171			
5:00 PM	216	66	28	0	0	0	0	0	0	0	0	0	0	0	310	1-10	144			
6:00 PM	176	40	2	1	0	0	0	0	0	0	0	0	0	0	219	6-15	117			
7:00 PM	123	30	5	1	0	0	0	0	0	0	0	0	0	0	159	6-15	81			
8:00 PM	82	40	11	2	0	0	0	0	0	0	0	0	0	0	135	11-20	67			
9:00 PM	57	37	7	3	0	0	0	0	0	0	0	0	0	0	104	11-20	56			
10:00 PM	27	32	8	0	0	0	0	0	0	0	0	0	0	0	67	11-20	41			
11:00 PM	12	14	4	0	0	0	0	0	0	0	0	0	0	0	30	11-20	18			
Day Total	2796	1333	346	49	3	0	0	0	0	0	0	0	0	0	4527	11-20	2265			
Percent	61.8%	29.4%	7.6%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
ADT 4527																				
AM Peak	11:00 AM	9:00 AM	8:00 AM	10:00 AM	4:00 AM											11:00 AM				
Volume	211	119	40	8	1											347				
PM Peak	3:00 PM	12:00 PM	1:00 PM	2:00 PM														3:00 PM		
Volume	299	101	37	6														374		
<i>Comments:</i>																				

LOCATION: N Washington Btwn E Broad and E Spring St														QC JOB #: 14110904			
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St														DIRECTION: SB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	5574	2850	782	112	11	1	0	0	0	0	0	0	0	0	9330	11-20	4708
Percent	59.7%	30.5%	8.4%	1.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	59.7%	90.3%	98.7%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
ADT 4665															85th Percentile 19 MPH Mean Speed(Average): 12 MPH		
<i>Comments:</i>																Median 12 MPH Mode: 8 MPH	



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN														QC JOB #: 14110904 DIRECTION: SB DATE: Jan 18 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	21	2	0	1	0	0	0	0	0	0	0	0	1	25
1:00 AM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13
2:00 AM	0	7	2	0	0	0	0	0	0	0	0	0	0	1	10
3:00 AM	0	15	4	0	0	0	0	0	0	0	0	0	0	0	19
4:00 AM	0	26	10	1	0	1	0	0	0	0	0	0	0	2	40
5:00 AM	1	50	15	0	0	0	0	0	0	0	0	0	0	0	66
6:00 AM	2	80	50	0	5	4	0	0	0	0	0	0	0	12	153
7:00 AM	11	167	60	0	9	2	0	5	0	0	0	0	0	59	313
8:00 AM	4	160	61	1	13	2	0	5	1	2	0	0	0	48	297
9:00 AM	4	158	55	2	7	4	0	2	0	0	0	0	0	48	280
10:00 AM	11	169	67	0	9	2	0	1	0	0	0	0	0	55	314
11:00 AM	12	192	74	0	11	4	0	2	0	0	0	0	0	74	369
12:00 PM	10	176	55	2	8	4	0	2	0	0	0	0	0	89	346
1:00 PM	9	188	47	1	9	5	1	2	1	0	0	0	0	105	368
2:00 PM	14	194	45	0	9	3	0	2	0	0	0	0	0	101	368
3:00 PM	16	166	40	0	9	0	0	1	0	0	0	0	0	97	329
4:00 PM	11	172	40	0	2	4	1	0	0	0	0	0	0	87	317
5:00 PM	14	169	38	1	4	0	0	1	0	0	0	0	0	88	315
6:00 PM	4	140	29	1	1	0	0	0	0	0	0	0	0	57	232
7:00 PM	0	165	40	0	12	0	0	0	0	0	0	0	0	35	252
8:00 PM	3	134	24	0	1	1	0	0	0	0	0	0	0	17	180
9:00 PM	0	86	19	0	1	0	0	0	0	0	0	0	0	3	109
10:00 PM	0	45	7	0	0	0	0	0	0	0	0	0	0	2	54
11:00 PM	0	25	3	0	1	0	0	0	0	0	0	0	0	5	34
Day Total	126	2718	787	9	112	36	2	23	2	2	0	0	0	986	4803
Percent	2.6%	56.6%	16.4%	0.2%	2.3%	0.7%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	20.5%	
ADT 4803															
AM Peak Volume	11:00 AM	11:00 AM	11:00 AM	9:00 AM	8:00 AM	6:00 AM		7:00 AM	8:00 AM	8:00 AM				11:00 AM	11:00 AM
	12	192	74	2	13	4		5	1	2				74	369
PM Peak Volume	3:00 PM	2:00 PM	12:00 PM	12:00 PM	7:00 PM	1:00 PM	1:00 PM	12:00 PM	1:00 PM					1:00 PM	1:00 PM
	16	194	55	2	12	5	1	2	1					105	368
<i>Comments:</i>															

LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN														QC JOB #: 14110904 DIRECTION: SB DATE: Jan 19 2017	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	18	2	0	0	0	0	0	0	0	0	0	0	0	20
1:00 AM	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
2:00 AM	1	8	0	0	0	0	0	0	0	0	0	0	0	3	12
3:00 AM	0	6	2	0	2	0	0	0	0	0	0	0	0	1	11
4:00 AM	0	24	14	0	5	0	0	0	0	0	0	0	0	0	43
5:00 AM	1	46	15	0	2	0	0	0	0	0	0	0	0	4	68
6:00 AM	3	95	43	0	6	2	0	0	0	0	0	0	0	11	160
7:00 AM	4	131	40	2	8	1	0	2	0	0	0	0	0	73	261
8:00 AM	5	139	43	1	15	5	0	1	0	0	0	0	0	46	255
9:00 AM	6	168	55	1	4	2	0	2	0	0	0	0	0	52	290
10:00 AM	10	161	57	0	7	4	0	1	0	0	0	0	0	68	308
11:00 AM	8	179	64	1	13	6	0	1	0	1	0	0	0	74	347
12:00 PM	13	177	55	0	12	1	2	2	0	1	0	0	0	71	334
1:00 PM	9	184	52	0	7	4	1	3	0	0	0	0	0	82	342
2:00 PM	7	173	54	0	12	2	1	1	0	0	0	0	0	90	341
3:00 PM	24	167	39	2	7	5	0	3	0	0	0	0	0	127	374
4:00 PM	16	151	36	0	6	0	1	0	0	0	0	0	0	114	324
5:00 PM	9	180	37	0	3	0	1	0	0	0	0	0	0	80	310
6:00 PM	6	142	24	0	1	0	1	0	0	0	0	0	0	45	219
7:00 PM	1	117	11	0	3	0	0	0	0	0	0	0	0	27	159
8:00 PM	2	100	17	1	3	1	0	0	0	0	0	0	0	11	135
9:00 PM	2	82	13	0	2	0	0	0	0	0	0	0	0	5	104
10:00 PM	1	55	7	0	2	0	0	0	0	0	0	0	0	2	67
11:00 PM	0	28	1	0	0	0	0	0	0	0	0	0	0	1	30
Day Total	128	2543	682	8	120	33	7	16	1	2	0	0	0	987	4527
Percent	2.8%	56.2%	15.1%	0.2%	2.7%	0.7%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	21.8%	
ADT 4527															
AM Peak Volume	10:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM	11:00 AM		7:00 AM		11:00 AM				11:00 AM	11:00 AM
	10	179	64	2	15	6		2		1				74	347
PM Peak Volume	3:00 PM	1:00 PM	12:00 PM	3:00 PM	12:00 PM	3:00 PM	12:00 PM	1:00 PM	2:00 PM	12:00 PM				3:00 PM	3:00 PM
	24	184	55	2	12	5	2	3	1	1				127	374
<i>Comments:</i>															

LOCATION: N Washington Btwn E Broad and E Spring St													QC JOB #: 14110904		
SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St													DIRECTION: SB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	254	5261	1469	17	232	69	9	39	3	4	0	0	0	1973	9330
Percent	2.7%	56.4%	15.7%	0.2%	2.5%	0.7%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	21.1%	
ADT 4665															
<i>Comments:</i>															



LOCATION: N Washington Btwn E Broad and E Spring St SPECIFIC LOCATION: N Washington Btwn E Broad and E Spring St CITY/STATE: Cookeville, TN							QC JOB #: 14110904 DIRECTION: SB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			25	20		23			23	
1:00 AM			13	13		13			13	
2:00 AM			10	12		11			11	
3:00 AM			19	11		15			15	
4:00 AM			40	43		42			42	
5:00 AM			66	68		67			67	
6:00 AM			153	160		157			157	
7:00 AM			313	261		287			287	
8:00 AM			297	255		276			276	
9:00 AM			280	290		285			285	
10:00 AM			314	308		311			311	
11:00 AM			369	347		358			358	
12:00 PM			346	334		340			340	
1:00 PM			368	342		355			355	
2:00 PM			368	341		355			355	
3:00 PM			329	374		352			352	
4:00 PM			317	324		321			321	
5:00 PM			315	310		313			313	
6:00 PM			232	219		226			226	
7:00 PM			252	159		206			206	
8:00 PM			180	135		158			158	
9:00 PM			109	104		107			107	
10:00 PM			54	67		61			61	
11:00 PM			34	30		32			32	
Day Total			4803	4527		4671			4671	
% Weekday Average			102.8%	96.9%						
% Week Average			102.8%	96.9%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			369	347		358			358	
PM Peak			1:00 PM	3:00 PM		1:00 PM			1:00 PM	
Volume			368	374		355			355	
<i>Comments:</i>										

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: EB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	2	7	7	5	1	0	1	0	0	0	23	38-47	13	
1:00 AM	0	0	0	0	2	7	3	3	2	0	0	0	0	0	17	36-45	10	
2:00 AM	0	0	0	0	1	3	5	4	2	0	0	0	0	0	15	41-50	9	
3:00 AM	0	0	0	0	0	3	3	5	1	0	0	0	0	0	12	41-50	8	
4:00 AM	2	0	0	0	2	6	22	23	6	2	0	0	0	0	63	41-50	44	
5:00 AM	4	0	0	0	1	9	56	35	9	0	0	0	0	0	114	41-50	91	
6:00 AM	6	0	1	0	5	35	98	64	11	1	2	0	0	0	223	41-50	162	
7:00 AM	49	0	2	47	121	137	51	18	3	1	0	0	0	0	429	31-40	257	
8:00 AM	26	0	1	8	62	138	123	29	7	0	1	0	0	0	395	36-45	261	
9:00 AM	22	0	0	3	31	148	139	34	6	0	0	0	0	0	383	36-45	287	
10:00 AM	24	0	1	10	52	168	145	30	5	0	0	0	0	0	435	36-45	313	
11:00 AM	19	0	3	19	62	207	149	37	3	1	0	0	0	1	501	36-45	355	
12:00 PM	32	0	2	13	67	230	206	54	5	0	0	0	0	1	610	36-45	436	
1:00 PM	33	0	2	8	79	258	191	62	6	1	0	0	0	0	640	36-45	449	
2:00 PM	38	0	8	16	78	272	169	30	5	2	0	0	0	0	618	36-45	440	
3:00 PM	77	3	18	112	248	256	88	13	5	0	0	0	0	0	820	31-40	504	
4:00 PM	38	2	6	11	83	334	229	40	5	1	0	0	0	1	750	36-45	562	
5:00 PM	39	0	0	5	99	306	198	45	6	2	0	0	0	0	700	36-45	504	
6:00 PM	13	0	1	3	23	123	180	57	4	3	0	0	0	0	407	36-45	303	
7:00 PM	7	0	2	2	39	104	148	34	3	0	0	0	0	0	339	36-45	252	
8:00 PM	6	0	1	4	11	94	115	40	6	0	0	0	0	0	277	36-45	209	
9:00 PM	3	0	0	1	5	33	59	26	6	1	1	0	0	0	135	36-45	92	
10:00 PM	0	0	0	0	1	14	35	22	4	1	0	0	0	0	77	41-50	57	
11:00 PM	1	0	0	0	0	6	19	10	3	1	0	0	0	1	41	41-50	29	
Day Total	439	5	48	262	1074	2898	2438	720	114	17	5	0	0	4	8024	36-45	5336	
Percent	5.5%	0.1%	0.6%	3.3%	13.4%	36.1%	30.4%	9.0%	1.4%	0.2%	0.1%	0.0%	0.0%	0.0%				
ADT 8024																		
AM Peak Volume	7:00 AM	11:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	11:00 AM	6:00 AM	6:00 AM	4:00 AM	6:00 AM			11:00 AM	11:00 AM			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	4:00 PM	1:00 PM	1:00 PM	6:00 PM	9:00 PM			12:00 PM	3:00 PM			
Comments:																		

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: EB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	1	8	10	5	1	1	0	0	0	0	26	36-45	18	
1:00 AM	0	0	0	0	2	2	8	3	0	0	0	0	0	0	15	41-50	11	
2:00 AM	0	0	0	1	0	5	5	2	0	0	0	0	0	1	14	36-45	10	
3:00 AM	0	0	0	0	1	1	5	5	3	0	0	0	0	1	16	41-50	10	
4:00 AM	1	0	0	0	0	9	18	16	5	2	0	0	0	0	51	41-50	34	
5:00 AM	2	0	0	0	1	14	54	30	12	4	0	0	0	0	117	41-50	84	
6:00 AM	9	0	0	0	10	54	101	42	10	0	1	0	0	0	227	36-45	154	
7:00 AM	55	0	4	26	107	116	67	18	5	0	0	0	0	0	398	31-40	222	
8:00 AM	23	0	1	7	65	137	115	25	3	1	0	0	0	0	377	36-45	252	
9:00 AM	16	0	0	1	29	133	119	22	3	1	0	0	0	1	325	36-45	252	
10:00 AM	15	0	1	13	52	172	130	31	6	0	0	0	0	0	420	36-45	302	
11:00 AM	28	0	1	9	69	189	157	35	1	0	0	0	0	1	490	36-45	345	
12:00 PM	29	0	2	15	79	217	180	44	2	0	1	0	0	0	569	36-45	397	
1:00 PM	24	0	3	16	84	233	186	42	3	0	0	0	0	0	591	36-45	419	
2:00 PM	43	1	7	28	100	246	144	27	3	0	0	0	0	0	599	36-45	389	
3:00 PM	60	1	21	98	277	206	67	9	0	0	0	0	0	0	739	31-40	483	
4:00 PM	37	0	5	26	148	334	185	33	2	0	0	0	0	0	770	36-45	519	
5:00 PM	31	2	13	37	169	274	129	21	1	0	0	0	0	0	677	31-40	442	
6:00 PM	16	0	0	6	59	162	122	37	5	0	0	0	0	0	407	36-45	283	
7:00 PM	7	0	2	9	44	113	103	29	4	0	0	0	0	0	311	36-45	216	
8:00 PM	5	0	1	1	32	93	66	27	2	0	0	0	0	1	228	36-45	158	
9:00 PM	2	0	0	2	13	53	46	25	5	2	0	0	0	0	148	36-45	98	
10:00 PM	1	0	0	0	4	27	40	12	3	1	1	1	0	0	90	36-45	67	
11:00 PM	0	0	0	0	4	12	20	11	0	0	0	0	0	1	48	36-45	32	
Day Total	404	4	61	295	1350	2810	2077	551	79	12	3	1	0	6	7653	36-45	4886	
Percent	5.3%	0.1%	0.8%	3.9%	17.6%	36.7%	27.1%	7.2%	1.0%	0.2%	0.0%	0.0%	0.0%	0.1%				
ADT 7653																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	11:00 AM	6:00 AM	5:00 AM	5:00 AM	6:00 AM			2:00 AM	11:00 AM			
	55	4	26	107	189	157	42	12	4	1				1	490			
PM Peak Volume	3:00 PM	5:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	1:00 PM	12:00 PM	6:00 PM	9:00 PM	12:00 PM	10:00 PM		8:00 PM	4:00 PM			
	60	2	21	98	277	334	186	44	5	2	1	1		1	770			
<i>Comments:</i>																		

LOCATION: E Spring btwn S Old Kentucky and Raider Dr														QC JOB #: 14110905																
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr														DIRECTION: EB																
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017																
Start Time	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	999	Total	Pace Speed	Number in Pace
Grand Total	843	9	109	557	2424	5708	4515	1271	193	29	8	1	0	10													15677	36-45	10223	
Percent	5.4%	0.1%	0.7%	3.6%	15.5%	36.4%	28.8%	8.1%	1.2%	0.2%	0.1%	0.0%	0.0%	0.1%																
Cumulative Percent	5.4%	5.4%	6.1%	9.7%	25.1%	61.6%	90.4%	98.5%	99.7%	99.9%	99.9%	99.9%	99.9%	100.0%																
ADT 7838																										85th Percentile 44 MPH Mean Speed(Average) 37 MPH Median 38 MPH Mode 38 MPH				
<i>Comments:</i>																														



LOCATION: E Spring btwn S Old Kentucky and Raider Dr **QC JOB #:** 14110905
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr **DIRECTION:** EB
CITY/STATE: Cookeville, TN **DATE:** Jan 18 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	19	4	0	0	0	0	0	0	0	0	0	0	0	23
1:00 AM	0	13	3	0	0	0	0	0	1	0	0	0	0	0	17
2:00 AM	0	12	1	0	2	0	0	0	0	0	0	0	0	0	15
3:00 AM	0	5	5	1	1	0	0	0	0	0	0	0	0	0	12
4:00 AM	0	36	13	0	6	2	0	3	1	0	0	0	0	2	63
5:00 AM	0	61	35	1	11	0	0	2	0	0	0	0	0	4	114
6:00 AM	0	138	47	1	23	5	0	2	1	0	0	0	0	6	223
7:00 AM	6	218	112	6	31	3	0	7	0	0	0	0	0	46	429
8:00 AM	3	209	122	2	24	4	0	5	1	0	0	0	0	25	395
9:00 AM	0	209	92	3	51	5	0	0	1	0	0	0	0	22	383
10:00 AM	0	250	128	4	21	7	0	1	0	0	0	0	0	24	435
11:00 AM	1	290	135	6	40	6	0	3	1	0	0	0	0	19	501
12:00 PM	1	368	138	5	52	8	0	4	2	0	0	0	0	32	610
1:00 PM	1	399	147	1	46	5	0	6	2	0	0	0	0	33	640
2:00 PM	2	390	142	1	39	2	0	4	0	0	0	0	0	38	618
3:00 PM	4	478	209	0	51	3	0	5	2	0	0	0	0	68	820
4:00 PM	2	501	164	1	41	1	0	4	0	0	0	0	0	36	750
5:00 PM	0	463	160	1	36	0	0	1	0	0	0	0	0	39	700
6:00 PM	0	282	87	0	25	0	0	0	0	0	0	0	0	13	407
7:00 PM	0	229	87	0	16	0	0	0	0	0	0	0	0	7	339
8:00 PM	0	186	60	0	22	0	0	3	0	0	0	0	0	6	277
9:00 PM	0	94	30	0	6	0	0	1	1	0	0	0	0	3	135
10:00 PM	0	59	16	0	1	0	0	1	0	0	0	0	0	0	77
11:00 PM	0	28	7	0	5	0	0	0	0	0	0	0	0	1	41

Day Total	20	4937	1944	33	550	51	0	52	13	0	0	0	0	424	8024
Percent	0.2%	61.5%	24.2%	0.4%	6.9%	0.6%	0.0%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	5.3%	



AM Peak	7:00 AM	11:00 AM	11:00 AM	7:00 AM	9:00 AM	10:00 AM		7:00 AM	1:00 AM					7:00 AM	11:00 AM
Volume	6	290	135	6	51	7		7	1					46	501
PM Peak	3:00 PM	4:00 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM		1:00 PM	12:00 PM					3:00 PM	3:00 PM
Volume	4	501	209	5	52	8		6	2					68	820

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr **QC JOB #:** 14110905
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr **DIRECTION:** EB
CITY/STATE: Cookeville, TN **DATE:** Jan 19 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	24	2	0	0	0	0	0	0	0	0	0	0	0	26	
1:00 AM	0	10	2	0	2	0	0	0	1	0	0	0	0	0	15	
2:00 AM	0	9	5	0	0	0	0	0	0	0	0	0	0	0	14	
3:00 AM	0	8	5	0	2	0	0	0	1	0	0	0	0	0	16	
4:00 AM	0	32	11	1	3	3	0	0	0	0	0	0	0	1	51	
5:00 AM	1	73	31	0	7	1	0	2	0	0	0	0	0	2	117	
6:00 AM	0	144	54	1	11	0	0	4	4	0	0	0	0	9	227	
7:00 AM	4	197	93	8	35	4	0	2	0	0	0	0	0	55	398	
8:00 AM	0	205	102	4	38	2	0	2	1	0	0	0	0	23	377	
9:00 AM	0	187	91	3	20	4	1	3	0	0	0	0	0	16	325	
10:00 AM	0	250	112	3	30	5	1	2	2	0	0	0	0	15	420	
11:00 AM	0	306	122	1	26	5	1	1	0	0	0	0	0	28	490	
12:00 PM	0	341	137	3	46	6	0	5	2	0	0	0	0	29	569	
1:00 PM	2	368	134	3	50	7	1	1	1	0	0	0	0	24	591	
2:00 PM	2	344	162	1	41	2	1	2	1	0	0	0	0	43	599	
3:00 PM	1	449	178	0	42	5	1	2	1	0	0	0	0	60	739	
4:00 PM	0	469	201	0	57	2	0	1	3	0	0	0	0	37	770	
5:00 PM	1	448	151	1	43	1	0	1	0	0	0	0	0	31	677	
6:00 PM	1	275	93	0	21	1	0	0	0	0	0	0	0	16	407	
7:00 PM	1	207	69	0	25	0	0	2	0	0	0	0	0	7	311	
8:00 PM	0	153	51	2	15	0	0	2	0	0	0	0	0	5	228	
9:00 PM	0	109	29	0	7	0	0	0	1	0	0	0	0	2	148	
10:00 PM	0	68	18	0	3	0	0	0	0	0	0	0	0	1	90	
11:00 PM	0	37	10	0	1	0	0	0	0	0	0	0	0	0	48	
Day Total	13	4713	1863	31	525	48	6	32	18	0	0	0	0	404	7653	
Percent	0.2%	61.6%	24.3%	0.4%	6.9%	0.6%	0.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	5.3%		
ADT 7653																
AM Peak	7:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM	10:00 AM	9:00 AM	6:00 AM	6:00 AM						7:00 AM	11:00 AM
Volume	4	306	122	8	38	5	1	4	4						55	490
PM Peak	1:00 PM	4:00 PM	4:00 PM	12:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	4:00 PM						3:00 PM	4:00 PM
Volume	2	469	201	3	57	7	1	5	3						60	770

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr													QC JOB #: 14110905		
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr													DIRECTION: EB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	33	9650	3807	64	1075	99	6	84	31	0	0	0	0	828	15677
Percent	0.2%	61.6%	24.3%	0.4%	6.9%	0.6%	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	5.3%	
ADT 7838															
<i>Comments:</i>															



LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN							QC JOB #: 14110905 DIRECTION: EB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			23	26		25			25	
1:00 AM			17	15		16			16	
2:00 AM			15	14		15			15	
3:00 AM			12	16		14			14	
4:00 AM			63	51		57			57	
5:00 AM			114	117		116			116	
6:00 AM			223	227		225			225	
7:00 AM			429	398		414			414	
8:00 AM			395	377		386			386	
9:00 AM			383	325		354			354	
10:00 AM			435	420		428			428	
11:00 AM			501	490		496			496	
12:00 PM			610	569		590			590	
1:00 PM			640	591		616			616	
2:00 PM			618	599		609			609	
3:00 PM			820	739		780			780	
4:00 PM			750	770		760			760	
5:00 PM			700	677		689			689	
6:00 PM			407	407		407			407	
7:00 PM			339	311		325			325	
8:00 PM			277	228		253			253	
9:00 PM			135	148		142			142	
10:00 PM			77	90		84			84	
11:00 PM			41	48		45			45	
Day Total			8024	7653		7846			7846	
% Weekday Average			102.3%	97.5%						
% Week Average			102.3%	97.5%		100.0%				
AM Peak			11:00 AM	11:00 AM		11:00 AM			11:00 AM	
Volume			501	490		496			496	
PM Peak			3:00 PM	4:00 PM		3:00 PM			3:00 PM	
Volume			820	770		780			780	
<i>Comments:</i>										

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: EB/WB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	4	13	16	9	2	2	1	0	0	0	47	36-45	29	
1:00 AM	0	0	0	0	2	8	8	7	4	0	0	0	0	0	29	36-45	16	
2:00 AM	0	0	0	0	1	6	12	8	2	1	0	0	0	0	30	41-50	20	
3:00 AM	0	0	0	0	1	7	8	8	5	0	0	0	0	0	29	41-50	16	
4:00 AM	2	0	0	0	2	18	42	41	12	2	0	0	0	0	119	41-50	82	
5:00 AM	8	0	0	0	8	29	111	93	29	2	1	0	0	0	281	41-50	204	
6:00 AM	14	0	1	0	13	109	255	138	22	2	2	0	0	0	556	41-50	393	
7:00 AM	146	72	114	134	208	244	139	32	3	1	0	0	0	0	1093	31-40	451	
8:00 AM	76	8	16	28	156	355	288	78	15	0	1	0	0	0	1021	36-45	642	
9:00 AM	46	0	7	21	127	317	270	92	14	2	0	0	0	0	896	36-45	587	
10:00 AM	47	0	7	28	130	352	308	66	11	0	0	0	0	0	949	36-45	659	
11:00 AM	49	1	14	48	110	379	334	86	9	1	0	0	0	2	1033	36-45	712	
12:00 PM	64	0	5	27	132	400	397	117	14	0	0	0	0	1	1157	36-45	797	
1:00 PM	73	1	10	21	134	432	372	112	11	1	1	0	0	0	1168	36-45	804	
2:00 PM	89	13	25	40	181	433	322	72	13	2	0	0	0	0	1190	36-45	755	
3:00 PM	154	33	68	169	384	381	158	31	5	0	0	0	0	0	1383	31-40	765	
4:00 PM	83	2	15	31	162	521	405	104	11	2	0	0	0	1	1337	36-45	926	
5:00 PM	85	1	5	19	159	508	349	88	11	3	0	0	0	0	1228	36-45	856	
6:00 PM	28	1	1	3	54	237	307	109	11	4	0	0	0	0	755	36-45	544	
7:00 PM	14	0	2	7	48	156	238	69	11	0	0	0	0	0	545	36-45	394	
8:00 PM	9	0	1	4	16	123	177	83	11	1	1	0	0	0	426	36-45	299	
9:00 PM	7	0	0	1	11	49	96	52	9	1	2	0	0	0	228	41-50	148	
10:00 PM	0	0	0	0	5	29	62	49	7	1	1	0	0	0	154	41-50	111	
11:00 PM	3	0	0	0	2	15	27	22	8	3	0	0	0	1	81	41-50	49	
Day Total	997	132	291	581	2050	5121	4701	1566	250	31	10	0	0	5	15735	36-45	9822	
Percent	6.3%	0.8%	1.8%	3.7%	13.0%	32.5%	29.9%	10.0%	1.6%	0.2%	0.1%	0.0%	0.0%	0.0%				
ADT 15735																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	11:00 AM	6:00 AM	5:00 AM	12:00 AM	6:00 AM			11:00 AM	7:00 AM			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	4:00 PM	12:00 PM	12:00 PM	6:00 PM	9:00 PM			12:00 PM	3:00 PM			
	146	72	114	134	208	379	334	138	29	2	2			2	1093			
	154	33	68	169	384	521	405	117	14	4	2			1	1383			

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: EB/WB DATE: Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	2	10	18	11	5	1	0	0	0	0	47	41-50	29	
1:00 AM	0	0	0	1	2	8	15	11	0	2	0	0	0	0	39	41-50	26	
2:00 AM	0	0	0	2	2	8	12	4	3	0	0	0	0	1	32	37-46	19	
3:00 AM	0	0	0	0	1	3	9	12	4	0	1	0	0	1	31	41-50	20	
4:00 AM	1	0	0	0	3	18	35	37	13	4	2	0	0	0	113	41-50	72	
5:00 AM	3	0	0	0	3	30	107	86	24	6	0	0	0	0	259	41-50	192	
6:00 AM	20	0	0	3	26	154	246	96	17	0	1	0	0	0	563	36-45	400	
7:00 AM	273	58	61	86	172	221	137	42	8	0	0	0	0	0	1058	31-40	393	
8:00 AM	79	2	10	28	148	358	245	73	6	1	0	0	0	0	950	36-45	603	
9:00 AM	32	1	1	15	107	286	277	66	8	1	1	0	0	1	796	36-45	563	
10:00 AM	38	1	3	20	81	319	322	90	18	1	0	0	0	0	893	36-45	641	
11:00 AM	58	1	8	21	162	351	314	93	7	2	0	0	0	1	1018	36-45	664	
12:00 PM	56	0	3	25	169	397	355	99	4	0	1	0	0	0	1109	36-45	752	
1:00 PM	51	3	7	30	129	400	338	99	8	0	0	1	0	0	1066	36-45	737	
2:00 PM	90	13	34	61	171	389	294	67	9	0	0	0	0	0	1128	36-45	682	
3:00 PM	142	41	88	174	359	331	151	22	2	0	0	0	0	0	1310	31-40	690	
4:00 PM	80	0	13	50	251	541	344	70	4	0	0	0	0	0	1353	36-45	884	
5:00 PM	67	2	15	52	241	427	240	52	4	0	0	0	0	0	1100	31-40	668	
6:00 PM	35	0	1	7	84	244	248	91	9	0	0	0	0	0	719	36-45	492	
7:00 PM	18	0	2	9	57	163	204	61	15	0	0	0	0	0	529	36-45	366	
8:00 PM	9	0	1	3	44	133	127	57	10	1	0	0	0	1	386	36-45	259	
9:00 PM	3	0	0	2	15	65	83	53	13	3	0	0	0	0	237	36-45	148	
10:00 PM	2	0	0	0	6	35	71	36	9	1	1	1	0	0	162	41-50	106	
11:00 PM	0	0	1	0	5	18	43	33	2	2	0	1	0	1	106	41-50	75	
Day Total	1057	122	248	589	2240	4909	4235	1361	202	25	7	3	0	6	15004	36-45	9144	
Percent	7.0%	0.8%	1.7%	3.9%	14.9%	32.7%	28.2%	9.1%	1.3%	0.2%	0.0%	0.0%	0.0%	0.0%				
ADT 15004																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	10:00 AM	6:00 AM	5:00 AM	5:00 AM	4:00 AM			2:00 AM	7:00 AM			
	273	58	61	86	172	358	322	96	24	6	2			1	1058			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	12:00 PM	12:00 PM	7:00 PM	9:00 PM	12:00 PM	1:00 PM		8:00 PM	4:00 PM			
	142	41	88	174	359	541	355	99	15	3	1	1		1	1353			
<i>Comments:</i>																		

LOCATION: E Spring btwn S Old Kentucky and Raider Dr														QC JOB #: 14110905			
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr														DIRECTION: EB/WB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	2054	254	539	1170	4290	10030	8936	2927	452	56	17	3	0	11	30739	36-45	18966
Percent	6.7%	0.8%	1.8%	3.8%	14.0%	32.6%	29.1%	9.5%	1.5%	0.2%	0.1%	0.0%	0.0%	0.0%			
Cumulative Percent	6.7%	7.5%	9.3%	13.1%	27.0%	59.7%	88.7%	98.2%	99.7%	99.9%	100.0%	100.0%	100.0%	100.0%			
ADT 15369															85th Percentile 44 MPH Mean Speed(Average) 36 MPH Median 38 MPH Mode: 38 MPH		
<i>Comments:</i>																	



LOCATION: E Spring btwn S Old Kentucky and Raider Dr **QC JOB #:** 14110905
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr **DIRECTION:** EB/WB
CITY/STATE: Cookeville, TN **DATE:** Jan 18 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	41	6	0	0	0	0	0	0	0	0	0	0	0	47	
1:00 AM	0	20	7	0	1	0	0	0	1	0	0	0	0	0	29	
2:00 AM	0	22	4	0	4	0	0	0	0	0	0	0	0	0	30	
3:00 AM	0	11	14	1	3	0	0	0	0	0	0	0	0	0	29	
4:00 AM	0	67	28	0	16	2	0	3	1	0	0	0	0	2	119	
5:00 AM	0	151	88	1	30	1	0	2	0	0	0	0	0	8	281	
6:00 AM	0	300	156	1	74	6	1	2	2	0	0	0	0	14	556	
7:00 AM	7	601	291	7	75	5	2	12	1	0	0	0	0	92	1093	
8:00 AM	3	559	267	4	108	8	3	10	6	0	0	0	0	53	1021	
9:00 AM	0	481	242	4	104	8	3	5	3	0	0	0	0	46	896	
10:00 AM	1	512	275	10	86	9	2	5	2	0	0	0	0	47	949	
11:00 AM	2	574	278	12	95	7	3	7	7	0	0	0	0	48	1033	
12:00 PM	2	660	275	8	117	12	4	12	3	0	0	0	0	64	1157	
1:00 PM	1	675	293	4	104	9	0	7	2	0	0	0	0	73	1168	
2:00 PM	3	698	283	6	102	5	1	9	0	0	0	0	0	83	1190	
3:00 PM	6	801	339	2	91	5	2	6	3	0	0	0	0	128	1383	
4:00 PM	3	821	335	2	87	2	0	6	1	0	0	0	0	80	1337	
5:00 PM	0	760	284	1	94	0	0	3	1	0	0	0	0	85	1228	
6:00 PM	0	493	176	0	57	0	0	1	0	0	0	0	0	28	755	
7:00 PM	0	359	133	0	35	0	0	1	0	0	0	3	0	14	545	
8:00 PM	1	289	90	0	34	0	0	3	0	0	0	0	0	9	426	
9:00 PM	0	158	47	0	12	0	0	3	1	0	0	0	0	7	228	
10:00 PM	0	120	28	0	5	0	0	1	0	0	0	0	0	0	154	
11:00 PM	0	54	13	0	11	0	0	0	0	0	0	0	0	3	81	
Day Total	29	9227	3952	63	1345	79	21	98	34	0	0	3	0	884	15735	
Percent	0.2%	58.6%	25.1%	0.4%	8.5%	0.5%	0.1%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	5.6%		
ADT 15735																
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	11:00 AM	8:00 AM	10:00 AM	8:00 AM	7:00 AM	11:00 AM						7:00 AM	7:00 AM
	7	601	291	12	108	9	3	12	7						92	1093
PM Peak Volume	3:00 PM	4:00 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	7:00 PM			3:00 PM		3:00 PM	
	6	821	339	8	117	12	4	12	3	3			128		1383	

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN														QC JOB #: 14110905 DIRECTION: EB/WB DATE: Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	40	6	0	1	0	0	0	0	0	0	0	0	0	47	
1:00 AM	1	28	5	0	4	0	0	0	1	0	0	0	0	0	39	
2:00 AM	0	22	9	0	1	0	0	0	0	0	0	0	0	0	32	
3:00 AM	0	12	13	0	5	0	0	0	1	0	0	0	0	0	31	
4:00 AM	0	68	28	1	10	4	0	1	0	0	0	0	0	1	113	
5:00 AM	1	139	90	0	22	2	0	2	0	0	0	0	0	3	259	
6:00 AM	0	316	153	2	60	1	1	4	6	0	0	0	0	20	563	
7:00 AM	10	547	270	10	77	5	0	3	1	0	0	0	0	135	1058	
8:00 AM	0	513	270	7	93	6	0	7	1	0	0	0	0	53	950	
9:00 AM	0	449	218	3	74	8	2	5	5	0	0	0	0	32	796	
10:00 AM	1	517	242	5	75	8	1	4	2	0	0	0	0	38	893	
11:00 AM	0	608	252	5	77	8	3	6	1	0	0	0	0	58	1018	
12:00 PM	0	640	280	7	105	8	3	7	3	0	0	0	0	56	1109	
1:00 PM	2	622	259	3	109	12	2	5	1	0	0	0	0	51	1066	
2:00 PM	2	629	302	7	83	5	1	7	2	0	0	0	0	90	1128	
3:00 PM	2	722	345	0	98	7	3	5	1	0	0	0	0	127	1310	
4:00 PM	0	789	343	4	126	3	0	3	5	0	0	0	0	80	1353	
5:00 PM	1	688	259	2	81	1	0	1	0	0	0	0	0	67	1100	
6:00 PM	1	457	173	0	50	1	0	2	0	0	0	0	0	35	719	
7:00 PM	1	323	132	0	53	0	0	2	0	0	0	0	0	18	529	
8:00 PM	0	257	86	4	25	1	0	2	0	0	0	2	0	9	386	
9:00 PM	0	177	43	0	12	0	0	0	2	0	0	0	0	3	237	
10:00 PM	0	119	32	0	9	0	0	0	0	0	0	0	0	2	162	
11:00 PM	0	78	21	0	7	0	0	0	0	0	0	0	0	0	106	
Day Total	22	8760	3831	60	1257	80	16	66	32	0	0	2	0	878	15004	
Percent	0.1%	58.4%	25.5%	0.4%	8.4%	0.5%	0.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	5.9%		
ADT 15004																
AM Peak	7:00 AM	11:00 AM	7:00 AM	7:00 AM	8:00 AM	9:00 AM	11:00 AM	8:00 AM	6:00 AM						7:00 AM	7:00 AM
Volume	10	608	270	10	93	8	3	7	6						135	1058
PM Peak	1:00 PM	4:00 PM	3:00 PM	12:00 PM	4:00 PM	1:00 PM	12:00 PM	12:00 PM	4:00 PM					8:00 PM	3:00 PM	4:00 PM
Volume	2	789	345	7	126	12	3	7	5					2	127	1353
<i>Comments:</i>																

LOCATION: E Spring btwn S Old Kentucky and Raider Dr											QC JOB #: 14110905				
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr											DIRECTION: EB/WB				
CITY/STATE: Cookeville, TN											DATE: Jan 18 2017 - Jan 19 2017				
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	51	17987	7783	123	2602	159	37	164	66	0	0	5	0	1762	30739
Percent	0.2%	58.5%	25.3%	0.4%	8.5%	0.5%	0.1%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	5.7%	
ADT 15369															
<i>Comments:</i>															



LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN							QC JOB #: 14110905 DIRECTION: EB/WB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			47	47		47			47	
1:00 AM			29	39		34			34	
2:00 AM			30	32		31			31	
3:00 AM			29	31		30			30	
4:00 AM			119	113		116			116	
5:00 AM			281	259		270			270	
6:00 AM			556	563		560			560	
7:00 AM			1093	1058		1076			1076	
8:00 AM			1021	950		986			986	
9:00 AM			896	796		846			846	
10:00 AM			949	893		921			921	
11:00 AM			1033	1018		1026			1026	
12:00 PM			1157	1109		1133			1133	
1:00 PM			1168	1066		1117			1117	
2:00 PM			1190	1128		1159			1159	
3:00 PM			1383	1310		1347			1347	
4:00 PM			1337	1353		1345			1345	
5:00 PM			1228	1100		1164			1164	
6:00 PM			755	719		737			737	
7:00 PM			545	529		537			537	
8:00 PM			426	386		406			406	
9:00 PM			228	237		233			233	
10:00 PM			154	162		158			158	
11:00 PM			81	106		94			94	
Day Total			15735	15004		15373			15373	
% Weekday Average			102.4%	97.6%						
% Week Average			102.4%	97.6%		100.0%				
AM Peak			7:00 AM	7:00 AM		7:00 AM			7:00 AM	
Volume			1093	1058		1076			1076	
PM Peak			3:00 PM	4:00 PM		3:00 PM			3:00 PM	
Volume			1383	1353		1347			1347	
<i>Comments:</i>										

LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: WB DATE: Jan 18 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	2	6	9	4	1	2	0	0	0	0	24	36-45	15	
1:00 AM	0	0	0	0	0	1	5	4	2	0	0	0	0	0	12	41-50	9	
2:00 AM	0	0	0	0	0	3	7	4	0	1	0	0	0	0	15	41-50	11	
3:00 AM	0	0	0	0	1	4	5	3	4	0	0	0	0	0	17	36-45	9	
4:00 AM	0	0	0	0	0	12	20	18	6	0	0	0	0	0	56	41-50	38	
5:00 AM	4	0	0	0	7	20	55	58	20	2	1	0	0	0	167	41-50	112	
6:00 AM	8	0	0	0	8	74	157	74	11	1	0	0	0	0	333	41-50	231	
7:00 AM	97	72	112	87	87	107	88	14	0	0	0	0	0	0	664	21-30	198	
8:00 AM	50	8	15	20	94	217	165	49	8	0	0	0	0	0	626	36-45	382	
9:00 AM	24	0	7	18	96	169	131	58	8	2	0	0	0	0	513	36-45	300	
10:00 AM	23	0	6	18	78	184	163	36	6	0	0	0	0	0	514	36-45	347	
11:00 AM	30	1	11	29	48	172	185	49	6	0	0	0	0	1	532	36-45	357	
12:00 PM	32	0	3	14	65	170	191	63	9	0	0	0	0	0	547	36-45	361	
1:00 PM	40	1	8	13	55	174	181	50	5	0	1	0	0	0	528	36-45	355	
2:00 PM	51	13	17	24	103	161	153	42	8	0	0	0	0	0	572	36-45	314	
3:00 PM	77	30	50	57	136	125	70	18	0	0	0	0	0	0	563	31-40	261	
4:00 PM	45	0	9	20	79	187	176	64	6	1	0	0	0	0	587	36-45	363	
5:00 PM	46	1	5	14	60	202	151	43	5	1	0	0	0	0	528	36-45	353	
6:00 PM	15	1	0	0	31	114	127	52	7	1	0	0	0	0	348	36-45	240	
7:00 PM	7	0	0	5	9	52	90	35	8	0	0	0	0	0	206	36-45	142	
8:00 PM	3	0	0	0	5	29	62	43	5	1	1	0	0	0	149	41-50	104	
9:00 PM	4	0	0	0	6	16	37	26	3	0	1	0	0	0	93	41-50	63	
10:00 PM	0	0	0	0	4	15	27	27	3	0	1	0	0	0	77	41-50	54	
11:00 PM	2	0	0	0	2	9	8	12	5	2	0	0	0	0	40	42-51	19	
Day Total	558	127	243	319	976	2223	2263	846	136	14	5	0	0	1	7711	36-45	4486	
Percent	7.2%	1.6%	3.2%	4.1%	12.7%	28.8%	29.3%	11.0%	1.8%	0.2%	0.1%	0.0%	0.0%	0.0%				
ADT 7711																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	9:00 AM	8:00 AM	11:00 AM	6:00 AM	5:00 AM	12:00 AM	5:00 AM			11:00 AM	7:00 AM			
	97	72	112	87	96	217	185	74	20	2	1			1	664			
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	3:00 PM	5:00 PM	12:00 PM	4:00 PM	12:00 PM	11:00 PM	1:00 PM				4:00 PM			
	77	30	50	57	136	202	191	64	9	2	1				587			
<i>Comments:</i>																		

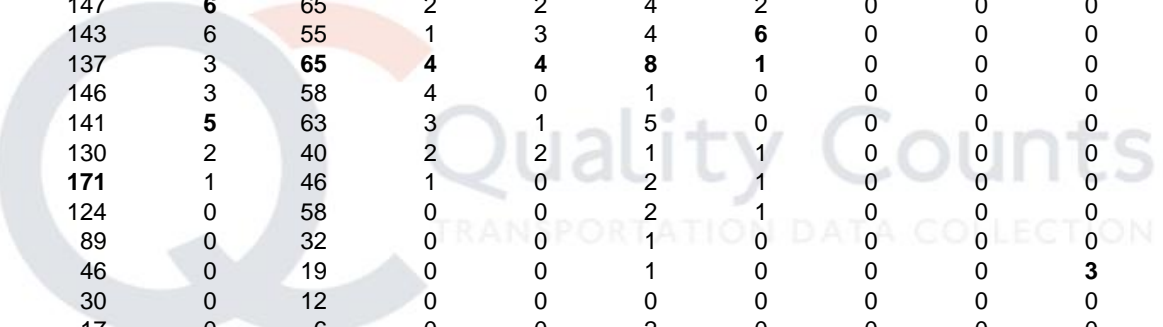
LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN															QC JOB #: 14110905 DIRECTION: WB DATE: Jan 19 2017			
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace	
12:00 AM	0	0	0	0	1	2	8	6	4	0	0	0	0	0	21	42-51	13	
1:00 AM	0	0	0	1	0	6	7	8	0	2	0	0	0	0	24	41-50	15	
2:00 AM	0	0	0	1	2	3	7	2	3	0	0	0	0	0	18	36-45	10	
3:00 AM	0	0	0	0	0	2	4	7	1	0	1	0	0	0	15	42-51	10	
4:00 AM	0	0	0	0	3	9	17	21	8	2	2	0	0	0	62	41-50	38	
5:00 AM	1	0	0	0	2	16	53	56	12	2	0	0	0	0	142	41-50	108	
6:00 AM	11	0	0	3	16	100	145	54	7	0	0	0	0	0	336	36-45	245	
7:00 AM	218	58	57	60	65	105	70	24	3	0	0	0	0	0	660	36-45	175	
8:00 AM	56	2	9	21	83	221	130	48	3	0	0	0	0	0	573	36-45	351	
9:00 AM	16	1	1	14	78	153	158	44	5	0	1	0	0	0	471	36-45	311	
10:00 AM	23	1	2	7	29	147	192	59	12	1	0	0	0	0	473	36-45	338	
11:00 AM	30	1	7	12	93	162	157	58	6	2	0	0	0	0	528	36-45	318	
12:00 PM	27	0	1	10	90	180	175	55	2	0	0	0	0	0	540	36-45	355	
1:00 PM	27	3	4	14	45	167	152	57	5	0	0	1	0	0	475	36-45	318	
2:00 PM	47	12	27	33	71	143	150	40	6	0	0	0	0	0	529	36-45	293	
3:00 PM	82	40	67	76	82	125	84	13	2	0	0	0	0	0	571	36-45	209	
4:00 PM	43	0	8	24	103	207	159	37	2	0	0	0	0	0	583	36-45	365	
5:00 PM	36	0	2	15	72	153	111	31	3	0	0	0	0	0	423	36-45	264	
6:00 PM	19	0	1	1	25	82	126	54	4	0	0	0	0	0	312	36-45	207	
7:00 PM	11	0	0	0	13	50	101	32	11	0	0	0	0	0	218	36-45	150	
8:00 PM	4	0	0	2	12	40	61	30	8	1	0	0	0	0	158	36-45	100	
9:00 PM	1	0	0	0	2	12	37	28	8	1	0	0	0	0	89	41-50	64	
10:00 PM	1	0	0	0	2	8	31	24	6	0	0	0	0	0	72	41-50	54	
11:00 PM	0	0	1	0	1	6	23	22	2	2	0	1	0	0	58	41-50	45	
Day Total	653	118	187	294	890	2099	2158	810	123	13	4	2	0	0	7351	36-45	4257	
Percent	8.9%	1.6%	2.5%	4.0%	12.1%	28.6%	29.4%	11.0%	1.7%	0.2%	0.1%	0.0%	0.0%	0.0%				
ADT 7351																		
AM Peak Volume	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	8:00 AM	10:00 AM	10:00 AM	5:00 AM	1:00 AM	4:00 AM					7:00 AM		
	218	58	57	60	93	221	192	59	12	2	2					660		
PM Peak Volume	3:00 PM	3:00 PM	3:00 PM	3:00 PM	4:00 PM	4:00 PM	12:00 PM	1:00 PM	7:00 PM	11:00 PM	1:00 PM					4:00 PM		
	82	40	67	76	103	207	175	57	11	2	1					583		
<i>Comments:</i>																		

LOCATION: E Spring btwn S Old Kentucky and Raider Dr														QC JOB #: 14110905			
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr														DIRECTION: WB			
CITY/STATE: Cookeville, TN														DATE: Jan 18 2017 - Jan 19 2017			
Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	1211	245	430	613	1866	4322	4421	1656	259	27	9	2	0	1	15062	36-45	8743
Percent	8.0%	1.6%	2.9%	4.1%	12.4%	28.7%	29.4%	11.0%	1.7%	0.2%	0.1%	0.0%	0.0%	0.0%			
Cumulative Percent	8.0%	9.7%	12.5%	16.6%	29.0%	57.7%	87.0%	98.0%	99.7%	99.9%	100.0%	100.0%	100.0%	100.0%			
ADT 7531															85th Percentile 44 MPH Mean Speed(Average) 36 MPH Median 38 MPH Mode 43 MPH		
<i>Comments:</i>																	



LOCATION: E Spring btwn S Old Kentucky and Raider Dr **QC JOB #:** 14110905
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr **DIRECTION:** WB
CITY/STATE: Cookeville, TN **DATE:** Jan 18 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	22	2	0	0	0	0	0	0	0	0	0	0	0	24
1:00 AM	0	7	4	0	1	0	0	0	0	0	0	0	0	0	12
2:00 AM	0	10	3	0	2	0	0	0	0	0	0	0	0	0	15
3:00 AM	0	6	9	0	2	0	0	0	0	0	0	0	0	0	17
4:00 AM	0	31	15	0	10	0	0	0	0	0	0	0	0	0	56
5:00 AM	0	90	53	0	19	1	0	0	0	0	0	0	0	4	167
6:00 AM	0	162	109	0	51	1	1	0	1	0	0	0	0	8	333
7:00 AM	1	383	179	1	44	2	2	5	1	0	0	0	0	46	664
8:00 AM	0	350	145	2	84	4	3	5	5	0	0	0	0	28	626
9:00 AM	0	272	150	1	53	3	3	5	2	0	0	0	0	24	513
10:00 AM	1	262	147	6	65	2	2	4	2	0	0	0	0	23	514
11:00 AM	1	284	143	6	55	1	3	4	6	0	0	0	0	29	532
12:00 PM	1	292	137	3	65	4	4	8	1	0	0	0	0	32	547
1:00 PM	0	276	146	3	58	4	0	1	0	0	0	0	0	40	528
2:00 PM	1	308	141	5	63	3	1	5	0	0	0	0	0	45	572
3:00 PM	2	323	130	2	40	2	2	1	1	0	0	0	0	60	563
4:00 PM	1	320	171	1	46	1	0	2	1	0	0	0	0	44	587
5:00 PM	0	297	124	0	58	0	0	2	1	0	0	0	0	46	528
6:00 PM	0	211	89	0	32	0	0	1	0	0	0	0	0	15	348
7:00 PM	0	130	46	0	19	0	0	1	0	0	0	3	0	7	206
8:00 PM	1	103	30	0	12	0	0	0	0	0	0	0	0	3	149
9:00 PM	0	64	17	0	6	0	0	2	0	0	0	0	0	4	93
10:00 PM	0	61	12	0	4	0	0	0	0	0	0	0	0	0	77
11:00 PM	0	26	6	0	6	0	0	0	0	0	0	0	0	2	40
Day Total	9	4290	2008	30	795	28	21	46	21	0	0	3	0	460	7711
Percent	0.1%	55.6%	26.0%	0.4%	10.3%	0.4%	0.3%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	6.0%	



ADT 7711															
-----------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

AM Peak	7:00 AM	7:00 AM	7:00 AM	10:00 AM	8:00 AM	8:00 AM	8:00 AM	7:00 AM	11:00 AM					7:00 AM	7:00 AM
Volume	1	383	179	6	84	4	3	5	6					46	664
PM Peak	3:00 PM	3:00 PM	4:00 PM	2:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM			7:00 PM		3:00 PM	4:00 PM
Volume	2	323	171	5	65	4	4	8	1			3		60	587

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr **QC JOB #:** 14110905
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr **DIRECTION:** WB
CITY/STATE: Cookeville, TN **DATE:** Jan 19 2017

Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total	
12:00 AM	0	16	4	0	1	0	0	0	0	0	0	0	0	0	21	
1:00 AM	1	18	3	0	2	0	0	0	0	0	0	0	0	0	24	
2:00 AM	0	13	4	0	1	0	0	0	0	0	0	0	0	0	18	
3:00 AM	0	4	8	0	3	0	0	0	0	0	0	0	0	0	15	
4:00 AM	0	36	17	0	7	1	0	1	0	0	0	0	0	0	62	
5:00 AM	0	66	59	0	15	1	0	0	0	0	0	0	0	1	142	
6:00 AM	0	172	99	1	49	1	1	0	2	0	0	0	0	11	336	
7:00 AM	6	350	177	2	42	1	0	1	1	0	0	0	0	80	660	
8:00 AM	0	308	168	3	55	4	0	5	0	0	0	0	0	30	573	
9:00 AM	0	262	127	0	54	4	1	2	5	0	0	0	0	16	471	
10:00 AM	1	267	130	2	45	3	0	2	0	0	0	0	0	23	473	
11:00 AM	0	302	130	4	51	3	2	5	1	0	0	0	0	30	528	
12:00 PM	0	299	143	4	59	2	3	2	1	0	0	0	0	27	540	
1:00 PM	0	254	125	0	59	5	1	4	0	0	0	0	0	27	475	
2:00 PM	0	285	140	6	42	3	0	5	1	0	0	0	0	47	529	
3:00 PM	1	273	167	0	56	2	2	3	0	0	0	0	0	67	571	
4:00 PM	0	320	142	4	69	1	0	2	2	0	0	0	0	43	583	
5:00 PM	0	240	108	1	38	0	0	0	0	0	0	0	0	36	423	
6:00 PM	0	182	80	0	29	0	0	2	0	0	0	0	0	19	312	
7:00 PM	0	116	63	0	28	0	0	0	0	0	0	0	0	11	218	
8:00 PM	0	104	35	2	10	1	0	0	0	0	0	2	0	4	158	
9:00 PM	0	68	14	0	5	0	0	0	1	0	0	0	0	1	89	
10:00 PM	0	51	14	0	6	0	0	0	0	0	0	0	0	1	72	
11:00 PM	0	41	11	0	6	0	0	0	0	0	0	0	0	0	58	
Day Total	9	4047	1968	29	732	32	10	34	14	0	0	2	0	474	7351	
Percent	0.1%	55.1%	26.8%	0.4%	10.0%	0.4%	0.1%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	6.4%		
ADT 7351																
AM Peak	7:00 AM	7:00 AM	7:00 AM	11:00 AM	8:00 AM	8:00 AM	11:00 AM	8:00 AM	9:00 AM						7:00 AM	7:00 AM
Volume	6	350	177	4	55	4	2	5	5						80	660
PM Peak	3:00 PM	4:00 PM	3:00 PM	2:00 PM	4:00 PM	1:00 PM	12:00 PM	2:00 PM	4:00 PM				8:00 PM	3:00 PM	4:00 PM	
Volume	1	320	167	6	69	5	3	5	2				2	67	583	

Comments:

LOCATION: E Spring btwn S Old Kentucky and Raider Dr													QC JOB #: 14110905		
SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr													DIRECTION: WB		
CITY/STATE: Cookeville, TN													DATE: Jan 18 2017 - Jan 19 2017		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	18	8337	3976	59	1527	60	31	80	35	0	0	5	0	934	15062
Percent	0.1%	55.4%	26.4%	0.4%	10.1%	0.4%	0.2%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	6.2%	
ADT 7531															
<i>Comments:</i>															



LOCATION: E Spring btwn S Old Kentucky and Raider Dr SPECIFIC LOCATION: E Spring btwn S Old Kentucky and Raider Dr CITY/STATE: Cookeville, TN							QC JOB #: 14110905 DIRECTION: WB DATE: Jan 18 2017 - Jan 19 2017			
Start Time	Mon	Tue	Wed 18-Jan-17	Thu 19-Jan-17	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			24	21		23			23	
1:00 AM			12	24		18			18	
2:00 AM			15	18		17			17	
3:00 AM			17	15		16			16	
4:00 AM			56	62		59			59	
5:00 AM			167	142		155			155	
6:00 AM			333	336		335			335	
7:00 AM			664	660		662			662	
8:00 AM			626	573		600			600	
9:00 AM			513	471		492			492	
10:00 AM			514	473		494			494	
11:00 AM			532	528		530			530	
12:00 PM			547	540		544			544	
1:00 PM			528	475		502			502	
2:00 PM			572	529		551			551	
3:00 PM			563	571		567			567	
4:00 PM			587	583		585			585	
5:00 PM			528	423		476			476	
6:00 PM			348	312		330			330	
7:00 PM			206	218		212			212	
8:00 PM			149	158		154			154	
9:00 PM			93	89		91			91	
10:00 PM			77	72		75			75	
11:00 PM			40	58		49			49	
Day Total			7711	7351		7537			7537	
% Weekday Average			102.3%	97.5%						
% Week Average			102.3%	97.5%		100.0%				
AM Peak Volume			7:00 AM 664	7:00 AM 660		7:00 AM 662			7:00 AM 662	
PM Peak Volume			4:00 PM 587	4:00 PM 583		4:00 PM 585			4:00 PM 585	
<i>Comments:</i>										

Appendix C:
Corridor Signal Inventory Data

Intersection	Synchro Node #	Timing File?	Coordinated Plan?	Cycle Length (AM/PM)	Phases	AM Peak Hour TMC	PM Peak Hour TMC
SR 135 / S. Willow Ave & Winston Dr / Gould Dr	1	Y	N/A	90	6 x	x	x
SR 135 / S. Willow Ave & I-40 EB Ramps	2	Y	N/A	90	4 x	x	x
SR 135 / S. Willow Ave & I-40 WB Ramps	3	Y	N/A	90	4 x	x	x
SR 135/ S. Willow Ave & Interstate Dr / Foreman Dr	4	Y	N/A	90	8 x	x	x
SR 135/ S. Willow Ave & Fairground St	5	N/A	N/A	-	-	x	x
SR 135/ S. Willow Ave & Ashwood Drive	6	N/A	N/A	-	-	5th	5th
SR 135/ S. Willow Ave & Lone Oak Dr	7	N/A	N/A	-	-	x	x
SR 135/ S. Willow Ave & W. Jackson St	8	Y	N/A	90	8 x	x	x
SR 135/ S. Willow Ave & W. Stevens St	9	Y	N/A	90	6 x	x	x
SR 135/ S. Willow Ave & US 70 / W. Spring St	10	Y	Y	90	8 x	x	x
SR 135/ N. Willow Ave & W. Broad St	11	Y	N/A	90	8 x	x	x
SR 135/ N. Willow Ave & W. 3rd St	12	N/A	N/A	-	-	x	x
SR 135/ N. Willow Ave & W. 4th St	13	N/A	N/A	-	-	x	x
SR 135/ N. Willow Ave & W. 7th St	14	Y	N/A	90	7 x	x	x
SR 135/ N. Willow Ave & W. 9th St	15	N/A	N/A	-	-	x	x
SR 135/ N. Willow Ave & University Dr	16	Y	N/A	90	6 x	x	x
SR 135/ N. Willow Ave & W. 12th St	17	Y	N/A	90	8 x	x	x
SR 136 / S. Jefferson Ave & Bunker Hill Rd / Ferrell Dr	18	Y	Y	90/100	8 x	x	x
SR 136 / S. Jefferson Ave & I-40 EB Ramps	19	Y	Y	90/100	3 x	x	x
SR 136 / S. Jefferson Ave & I-40 WB Ramps	20	Y	Y	90/100	3 x	x	x
SR 136 / S. Jefferson Ave & S. Walnut Ave / Dubois Rd	21	Y	Y	90/100	6 x	x	x
SR 136 / S. Jefferson Ave & Interstate Dr / Neal St	22	Y	Y	90/100	8 x	x	x
SR 136 / S. Jefferson Ave & E. Veterans Dr	23	Y	Y	90/100	8 x	x	x
SR 136 / S. Jefferson Ave & Wal-Mart Driveway	24	Y	Y	90/100	8 5th	5th	5th
SR 136 / S. Jefferson Ave & Commerce Dr	25	Y	N/A	90/100	8 x	x	x
SR 136 / S. Jefferson Ave & E. Jackson St	26	Y	N/A	90/100	8 x	x	x
SR 136 / S. Jefferson Ave & E. Stevens St	28	Y	N/A	90/100	3 5th	5th	5th
SR 136 / S. Jefferson Ave & US 70 / E. Spring St	29	Y	Y	90/100	8 x	x	x
S. Jefferson Ave & E. Broad St	30	Y	Y	90/100	8 x	x	x
SR 136 / N. Washington St / S. Lowe Ave & US 70 / E. Spring St	31	Y	Y	90/100	8 x	x	x
SR 136 / N. Washington St & E. Broad St	32	Y	Y	90/100	8 x	x	x
SR 136 / N. Washington St & E. 1st St	33	Y	N/A	90/100	6 x	x	x
SR 136 / N. Washington St & E. 10th St	34	Y	N/A	90	8 x	x	x
US 70 / E. Spring St & I-40 EB Ramps	35	N/A	N/A	-	-	x	x
US 70 / E. Spring St & SR 111 NB Ramps	37	Y	N	90	4 x	x	x
US 70 / E. Spring St & SR 111 SB Ramps	38	N/A	N/A	-	-	x	x
US 70 / E. Spring St & Neal St / S. Old Kentucky Rd	39	Y	N	90	8 x	x	x
US 70 / E. Spring St & E. Broad St	40	N/A	N/A	-	-	x	x
US 70 / E. Spring St & S. Maple Ave	41	Y	Y	100	8 x	x	x
US 70 / W. Spring St & S. Dixie Ave	42	Y	Y	90/100	8 x	x	x
US 70 / W. Spring St & S. Walnut Ave	43	Y	N	90/100	8 x	x	x
US 70 / W. Spring St & Scott Ave	44	Y	N	90/100	8 x	x	x
E. Broad St & S. Maple Ave	45	Y	Y	100	8 x	x	x
E. Broad St & S. Dixie Ave	46	Y	Y	90/100	8 x	x	x
E. Broad St & N. Walnut Ave	47	Y	N	90/100	6 x	x	x
E. Broad St & S. Cedar Ave	48	N/A	N/A	-	-	x	x
W. Broad St & S. Cedar Ave	49	N/A	N/A	-	-	x	x
US 70 / W. Spring St & W. Broad St	50	N/A	N/A	-	-	x	x
US 70 / W. Broad St & Pippin Rd / W. Jackson St	51	Y	Y	105/90	6 x	x	x
E. 10th St & Fisk Rd	53	Y	Y	125/90	6 x	x	x
E. 10th St & N. Old Kentucky Rd	54	Y	N	90	3 x	x	x
E. 10th St & SR 111 SB Ramps	55	Y	Y	90	5 x	x	x
E. 10th St & SR 111 NB Ramps	56	Y	Y	90	5 x	x	x
E. 10th St & Burton Branch Road	57	Y	Y	90	4 x	x	x
SR 135/ S. Willow Ave & County Services Dr / Orchard St	61	Y	N/A	90	6?	5th	5th
SR 136 / S. Jefferson Ave & Foutch Dr	27, 271	Y	N/A	90/100	3 x	x	x
US 70 / E. Spring St & I-40 WB Ramps	36, 361	N/A	N/A	-	-	x	x
E. 10th St & Brown Ave	52, 521	Y	Y	125/90	6 x	x	x

Appendix D:
Synchro Analysis Reports

Lanes, Volumes, Timings
 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

Cookeville 2017 Existing Conditions

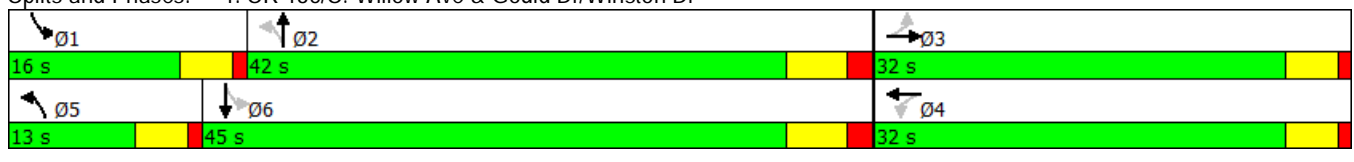
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	15	20	20	5	75	30	685	20	70	315	120
Future Volume (vph)	50	15	20	20	5	75	30	685	20	70	315	120
Satd. Flow (prot)	1736	1688	0	1805	1596	0	1805	3518	0	1805	3239	0
Flt Permitted	0.690			0.720			0.453			0.241		
Satd. Flow (perm)	1261	1688	0	1368	1596	0	861	3518	0	458	3239	0
Satd. Flow (RTOR)		32			91			5			91	
Peak Hour Factor	0.78	0.63	0.63	0.50	0.42	0.82	0.83	0.82	0.71	0.76	0.83	0.77
Heavy Vehicles (%)	4%	0%	5%	0%	20%	1%	0%	2%	5%	0%	8%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	56	0	40	103	0	36	863	0	92	536	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	32.0	32.0		32.0	32.0		13.0	42.0		16.0	45.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	8.1	8.1		8.1	8.1		28.0	26.0		30.6	30.7	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.59	0.55		0.65	0.65	
v/c Ratio	0.30	0.18		0.17	0.30		0.06	0.45		0.19	0.25	
Control Delay	24.0	13.4		21.6	9.5		4.2	10.7		4.9	6.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.0	13.4		21.6	9.5		4.2	10.7		4.9	6.0	
LOS	C	B		C	A		A	B		A	A	
Approach Delay		19.1			12.9			10.4			5.8	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	16	6		10	3		3	90		8	20	
Queue Length 95th (ft)	44	20		19	2		11	140		20	70	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	765	1037		830	1004		707	2800		641	2744	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.05		0.05	0.10		0.05	0.31		0.14	0.20	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 47.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 45.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	5	50	0	0	0	0	625	245	200	540	0
Future Volume (vph)	305	5	50	0	0	0	0	625	245	200	540	0
Satd. Flow (prot)	1681	1569	0	0	0	0	0	3417	0	1687	3438	0
Flt Permitted	0.950	0.968								0.148		
Satd. Flow (perm)	1681	1569	0	0	0	0	0	3417	0	263	3438	0
Satd. Flow (RTOR)		32						52				
Peak Hour Factor	0.86	1.00	0.78	0.25	0.25	0.25	0.25	0.77	0.85	0.85	0.79	0.25
Heavy Vehicles (%)	2%	100%	8%	0%	0%	0%	0%	1%	3%	7%	5%	0%
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	217	207	0	0	0	0	0	1100	0	235	684	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	45.0	45.0						27.0		18.0	45.0	
Total Lost Time (s)	6.1	6.1						5.4		5.0	5.4	
Act Effct Green (s)	12.6	12.6						21.8		36.9	36.5	
Actuated g/C Ratio	0.21	0.21						0.36		0.61	0.60	
v/c Ratio	0.62	0.59						0.87		0.61	0.33	
Control Delay	30.4	25.7						29.0		16.0	7.1	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	30.4	25.7						29.0		16.0	7.1	
LOS	C	C						C		B	A	
Approach Delay		28.1						29.0			9.4	
Approach LOS		C						C			A	
Queue Length 50th (ft)	75	60						180		33	55	
Queue Length 95th (ft)	138	127						#281		96	90	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	1088	1026						1261		467	2265	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.20	0.20						0.87		0.50	0.30	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 21.4

Intersection LOS: C

Intersection Capacity Utilization 60.0%

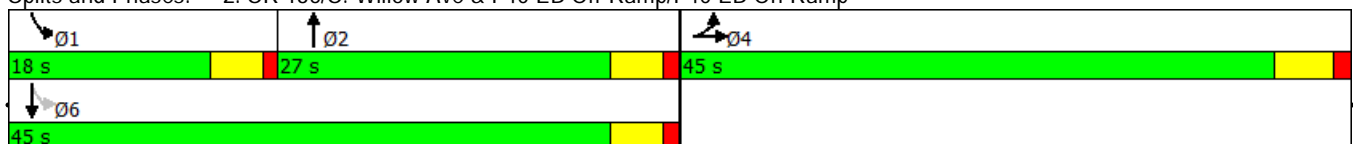
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	235	5	330	45	875	0	0	515	155
Future Volume (vph)	0	0	0	235	5	330	45	875	0	0	515	155
Satd. Flow (prot)	0	0	0	0	1697	1553	1530	3574	0	0	3321	0
Flt Permitted					0.954		0.207					
Satd. Flow (perm)	0	0	0	0	1697	1553	333	3574	0	0	3321	0
Satd. Flow (RTOR)						85					46	
Peak Hour Factor	0.25	0.25	0.25	0.77	0.63	0.88	0.75	0.81	0.25	0.25	0.89	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	0%	4%	18%	1%	0%	0%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	313	375	60	1080	0	0	751	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				45.0	45.0	45.0	11.0	45.0			34.0	
Total Lost Time (s)					4.0	4.0	5.0	4.0			4.0	
Act Effct Green (s)					21.0	21.0	27.7	28.7			23.2	
Actuated g/C Ratio					0.36	0.36	0.47	0.49			0.40	
v/c Ratio					0.51	0.61	0.21	0.62			0.56	
Control Delay					19.4	17.7	11.6	13.2			17.1	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					19.4	17.7	11.6	13.2			17.1	
LOS					B	B	B	B			B	
Approach Delay					18.4			13.2			17.1	
Approach LOS					B			B			B	
Queue Length 50th (ft)					89	84	10	128			111	
Queue Length 95th (ft)					117	187	30	227			210	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					1248	1165	292	2629			1889	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.25	0.32	0.21	0.41			0.40	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 58.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 15.7

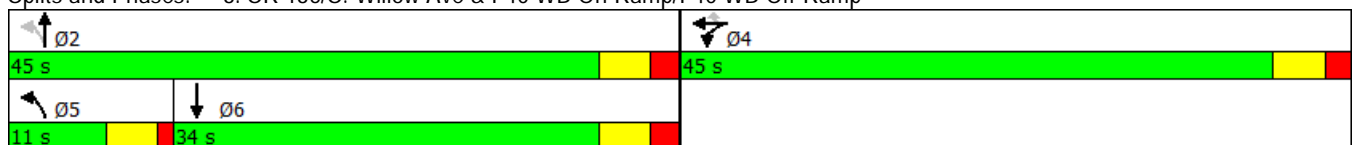
Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

Cookeville 2017 Existing Conditions

05/16/2017

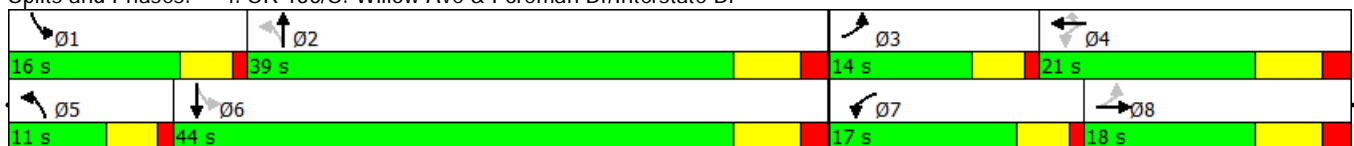
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	125	65	160	55	135	60	845	260	180	440	25
Future Volume (vph)	55	125	65	160	55	135	60	845	260	180	440	25
Satd. Flow (prot)	1719	1687	0	1752	1810	1553	1752	3428	0	1770	3373	0
Flt Permitted	0.708			0.244			0.462			0.106		
Satd. Flow (perm)	1281	1687	0	450	1810	1553	852	3428	0	197	3373	0
Satd. Flow (RTOR)		30				206		54			11	
Peak Hour Factor	0.65	0.89	0.74	0.83	0.72	0.80	0.83	0.87	0.86	0.82	0.92	0.69
Heavy Vehicles (%)	5%	3%	11%	3%	5%	4%	3%	2%	0%	2%	5%	17%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	228	0	193	76	169	72	1273	0	220	514	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	14.0	18.0		17.0	21.0	21.0	11.0	39.0		16.0	44.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	6.5	5.0	4.0		5.0	4.0	
Act Effct Green (s)	20.4	13.7		27.6	19.4	16.9	39.6	34.7		48.4	41.1	
Actuated g/C Ratio	0.23	0.16		0.32	0.22	0.19	0.45	0.40		0.55	0.47	
v/c Ratio	0.25	0.79		0.63	0.19	0.36	0.16	0.91		0.76	0.32	
Control Delay	23.6	52.2		32.4	32.1	5.1	10.8	36.0		34.7	15.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.6	52.2		32.4	32.1	5.1	10.8	36.0		34.7	15.8	
LOS	C	D		C	C	A	B	D		C	B	
Approach Delay		44.4			21.8			34.7			21.5	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	34	110		81	36	0	18	345		67	95	
Queue Length 95th (ft)	48	#224		126	60	18	34	#460		#128	133	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	362	295		322	401	466	448	1407		307	1600	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.23	0.77		0.60	0.19	0.36	0.16	0.90		0.72	0.32	

Intersection Summary












Cycle Length: 90
 Actuated Cycle Length: 87.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 30.3
 Intersection Capacity Utilization 75.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	50	870	70	45	650
Future Volume (vph)	15	50	870	70	45	650
Satd. Flow (prot)	1805	1583	3496	0	1805	3471
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3496	0	1805	3471
Peak Hour Factor	0.63	0.89	0.87	0.67	0.70	0.94
Heavy Vehicles (%)	0%	2%	2%	0%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	56	1104	0	64	691
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.1












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	15	50	870	70	45	650
Future Vol, veh/h	15	50	870	70	45	650
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	89	87	67	70	94
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	24	56	1000	104	64	691

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1526	552	0	0	1104	0
Stage 1	1052	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.2	-
Pot Cap-1 Maneuver	111	477	-	-	640	-
Stage 1	302	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	100	477	-	-	640	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	16.6		0		1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	217	477	640	-
HCM Lane V/C Ratio	-	-	0.11	0.118	0.1	-
HCM Control Delay (s)	-	-	23.6	13.6	11.3	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	0.3	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	5	855	15	0	695
Future Volume (vph)	0	5	855	15	0	695
Satd. Flow (prot)	0	1522	3494	0	0	3438
Flt Permitted						
Satd. Flow (perm)	0	1522	3494	0	0	3438
Peak Hour Factor	0.25	0.63	0.89	0.75	0.25	0.92
Heavy Vehicles (%)	0%	8%	3%	3%	0%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	8	981	0	0	755
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 34.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↕
Traffic Vol, veh/h	0	5	855	15	0	695
Future Vol, veh/h	0	5	855	15	0	695
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	63	89	75	25	92
Heavy Vehicles, %	0	8	3	3	0	5
Mvmt Flow	0	8	961	20	0	755

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	480	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.06	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.38	-
Pot Cap-1 Maneuver	0	516	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	516	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 516	-
HCM Lane V/C Ratio	- 0.015	-
HCM Control Delay (s)	- 12.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	55	30	10	880	730	15
Future Volume (vph)	55	30	10	880	730	15
Satd. Flow (prot)	1787	1568	1805	3505	3451	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1787	1568	1805	3505	3451	0
Peak Hour Factor	0.76	0.94	0.63	0.86	0.85	0.54
Heavy Vehicles (%)	1%	3%	0%	3%	4%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	32	16	1023	887	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 34.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕↕	↕↔	
Traffic Vol, veh/h	55	30	10	880	730	15
Future Vol, veh/h	55	30	10	880	730	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	94	63	86	85	54
Heavy Vehicles, %	1	3	0	3	4	7
Mvmt Flow	72	32	16	1023	859	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1416	443	887	0	-	0
Stage 1	873	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.82	6.96	4.1	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.33	2.2	-	-	-
Pot Cap-1 Maneuver	129	560	772	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	126	560	772	-	-	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	772	-	255	560	-	-
HCM Lane V/C Ratio	0.021	-	0.284	0.057	-	-
HCM Control Delay (s)	9.8	-	24.6	11.8	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.2	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

Cookeville 2017 Existing Conditions

05/16/2017

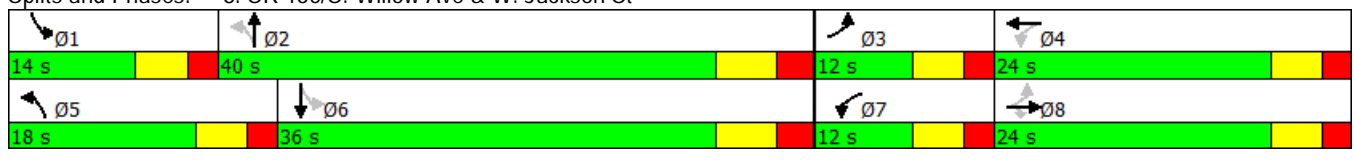
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	300	230	90	145	85	170	625	105	120	480	20
Future Volume (vph)	65	300	230	90	145	85	170	625	105	120	480	20
Satd. Flow (prot)	1752	3574	1524	1787	3304	0	1736	3451	0	1787	3509	0
Flt Permitted	0.505			0.399			0.293			0.250		
Satd. Flow (perm)	932	3574	1524	751	3304	0	535	3451	0	470	3509	0
Satd. Flow (RTOR)			264		116			30			5	
Peak Hour Factor	0.77	0.77	0.87	0.78	0.79	0.73	0.80	0.88	0.75	0.88	0.90	1.00
Heavy Vehicles (%)	3%	1%	6%	1%	1%	6%	4%	2%	2%	1%	2%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	390	264	115	300	0	213	850	0	136	553	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	12.0	24.0	24.0	12.0	24.0		18.0	40.0		14.0	36.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.5		4.0	4.0	
Act Effct Green (s)	21.9	16.0	16.0	21.9	16.0		39.7	29.9		33.5	23.8	
Actuated g/C Ratio	0.30	0.22	0.22	0.30	0.22		0.54	0.41		0.45	0.32	
v/c Ratio	0.23	0.50	0.49	0.34	0.37		0.44	0.60		0.35	0.49	
Control Delay	20.0	30.1	7.6	21.6	18.2		12.8	21.4		12.7	22.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.0	30.1	7.6	21.6	18.2		12.8	21.4		12.7	22.4	
LOS	C	C	A	C	B		B	C		B	C	
Approach Delay		20.9			19.2			19.7			20.4	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	27	88	0	37	39		51	176		31	110	
Queue Length 95th (ft)	54	122	54	71	66		83	246		61	170	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	371	1036	629	342	1040		537	1791		410	1631	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.38	0.42	0.34	0.29		0.40	0.47		0.33	0.34	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 73.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 20.1
 Intersection Capacity Utilization 54.3%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	95	15	25	45	30	15	750	35	50	600	10
Future Volume (vph)	35	95	15	25	45	30	15	750	35	50	600	10
Satd. Flow (prot)	0	1827	0	1805	1748	0	1805	3477	0	1805	3496	0
Flt Permitted		0.987		0.950			0.313			0.168		
Satd. Flow (perm)	0	1827	0	1805	1748	0	595	3477	0	319	3496	0
Satd. Flow (RTOR)		5			28			7			3	
Peak Hour Factor	0.58	0.63	0.75	0.69	0.70	0.75	0.54	0.84	0.73	0.74	0.81	0.63
Heavy Vehicles (%)	3%	1%	0%	0%	2%	3%	0%	3%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	0	36	104	0	28	941	0	68	757	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	24.0	24.0		15.0	15.0		11.0	40.0		11.0	40.0	
Total Lost Time (s)		5.6		5.6	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)		13.6		8.1	8.1		31.6	26.8		33.7	31.1	
Actuated g/C Ratio		0.19		0.11	0.11		0.45	0.38		0.48	0.44	
v/c Ratio		0.65		0.18	0.47		0.07	0.71		0.23	0.49	
Control Delay		39.1		37.2	35.0		11.3	24.4		12.9	17.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		39.1		37.2	35.0		11.3	24.4		12.9	17.8	
LOS		D		D	D		B	C		B	B	
Approach Delay		39.1			35.6			24.0			17.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)		102		16	35		6	205		16	115	
Queue Length 95th (ft)		126		37	66		12	273		32	201	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		547		274	289		383	1904		295	1947	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.42		0.13	0.36		0.07	0.49		0.23	0.39	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 23.9
 Intersection Capacity Utilization 54.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St

Ø1	Ø2	Ø3	Ø4
11 s	40 s	15 s	24 s
Ø5	Ø6		
11 s	40 s		

Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	340	80	100	205	60	75	635	85	75	555	20
Future Volume (vph)	110	340	80	100	205	60	75	635	85	75	555	20
Satd. Flow (prot)	1787	1745	0	1752	1790	0	1787	3464	0	1652	3346	0
Flt Permitted	0.461			0.217			0.279			0.157		
Satd. Flow (perm)	867	1745	0	400	1790	0	525	3464	0	273	3346	0
Satd. Flow (RTOR)		16			19			15			6	
Peak Hour Factor	0.79	0.92	0.77	0.74	0.92	0.83	0.99	0.80	0.89	0.94	0.89	0.63
Heavy Vehicles (%)	1%	4%	10%	3%	2%	3%	1%	2%	7%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	474	0	135	295	0	76	890	0	80	656	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	34.0		12.0	34.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	5.0	5.7		5.0	5.7		5.0	5.4		5.0	5.4	
Act Effct Green (s)	31.1	25.3		31.1	25.3		30.1	25.3		30.1	25.3	
Actuated g/C Ratio	0.39	0.32		0.39	0.32		0.38	0.32		0.38	0.32	
v/c Ratio	0.33	0.83		0.48	0.51		0.25	0.80		0.37	0.61	
Control Delay	17.1	41.5		20.9	26.4		17.4	32.9		20.5	27.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.1	41.5		20.9	26.4		17.4	32.9		20.5	27.7	
LOS	B	D		C	C		B	C		C	C	
Approach Delay		36.0			24.7			31.7			26.9	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	45	242		44	127		25	242		26	166	
Queue Length 95th (ft)	70	#415		63	206		51	268		54	222	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	429	689		287	708		303	1325		217	1275	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.69		0.47	0.42		0.25	0.67		0.37	0.51	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 79.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 30.2
 Intersection Capacity Utilization 71.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	33 s	12 s	34 s
Ø5	Ø6	Ø7	Ø8
11 s	33 s	12 s	34 s

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	155	45	30	80	20	45	725	35	50	605	50
Future Volume (vph)	145	155	45	30	80	20	45	725	35	50	605	50
Satd. Flow (prot)	1770	1827	0	1752	1827	0	1546	3283	0	1652	3284	0
Flt Permitted	0.377			0.572			0.293			0.175		
Satd. Flow (perm)	702	1827	0	1055	1827	0	477	3283	0	304	3284	0
Satd. Flow (RTOR)		12			13			7			13	
Peak Hour Factor	0.76	0.61	0.80	0.68	0.74	0.71	0.75	0.82	0.80	0.66	0.89	0.78
Heavy Vehicles (%)	2%	1%	2%	3%	1%	0%	9%	2%	0%	2%	1%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	310	0	44	136	0	60	928	0	76	744	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.5	27.0		10.8	20.3		11.4	41.2		11.0	40.8	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	24.5	20.2		15.6	13.1		32.2	27.0		32.9	29.2	
Actuated g/C Ratio	0.34	0.28		0.22	0.18		0.45	0.38		0.46	0.41	
v/c Ratio	0.46	0.59		0.15	0.40		0.19	0.75		0.29	0.55	
Control Delay	22.9	30.5		19.8	32.1		12.0	25.2		13.5	19.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.9	30.5		19.8	32.1		12.0	25.2		13.5	19.9	
LOS	C	C		B	C		B	C		B	B	
Approach Delay		27.6			29.1			24.4			19.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	66	134		14	54		14	210		18	155	
Queue Length 95th (ft)	106	146		29	92		29	260		30	222	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	470	686		298	488		325	1829		269	1820	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.41	0.45		0.15	0.28		0.18	0.51		0.28	0.41	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 71.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.7

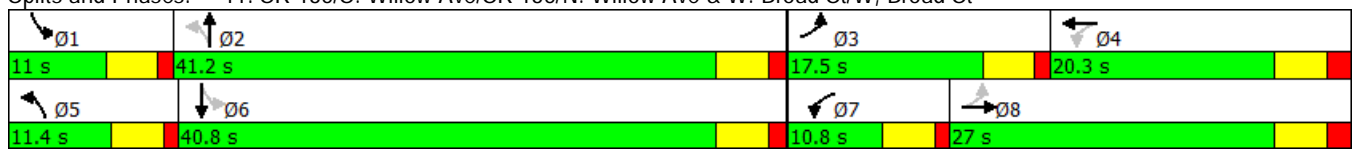
Intersection LOS: C

Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	5	5	5	5	795	50	20	715	5
Future Volume (vph)	5	5	5	5	5	5	5	795	50	20	715	5
Satd. Flow (prot)	0	1740	0	0	1785	0	0	3235	0	0	3296	0
Flt Permitted		0.989			0.984						0.998	
Satd. Flow (perm)	0	1740	0	0	1785	0	0	3235	0	0	3296	0
Peak Hour Factor	1.00	1.00	0.42	1.00	1.00	1.00	0.63	0.84	0.52	0.63	0.86	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	15	0	0	1050	0	0	871	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	5	5	5	5	5	5	795	50	20	715	5
Future Vol, veh/h	5	5	5	5	5	5	5	795	50	20	715	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	42	100	100	100	63	84	52	63	86	63
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	2	0
Mvmt Flow	5	5	12	5	5	5	8	946	96	32	831	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1391	1957	420	1492	1913	521	839	0	0	1043	0	0
Stage 1	899	899	-	1010	1010	-	-	-	-	-	-	-
Stage 2	492	1058	-	482	903	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	103	64	588	87	69	505	804	-	-	675	-	-
Stage 1	304	360	-	261	320	-	-	-	-	-	-	-
Stage 2	532	304	-	540	359	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	88	57	588	73	61	505	804	-	-	675	-	-
Mov Cap-2 Maneuver	88	57	-	73	61	-	-	-	-	-	-	-
Stage 1	297	328	-	255	312	-	-	-	-	-	-	-
Stage 2	506	297	-	475	327	-	-	-	-	-	-	-

















Approach	EB	WB	NB	SB
HCM Control Delay, s	37.3	50.4	0.2	0.8
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	804	-	-	133	94	675	-	-
HCM Lane V/C Ratio	0.01	-	-	0.165	0.16	0.047	-	-
HCM Control Delay (s)	9.5	0.1	-	37.3	50.4	10.6	0.4	-
HCM Lane LOS	A	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.5	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	10	15	15	5	10	10	695	95	35	710	10
Future Volume (vph)	5	10	15	15	5	10	10	695	95	35	710	10
Satd. Flow (prot)	0	1741	0	0	1762	0	0	3252	0	0	3322	0
Flt Permitted		0.993			0.973			0.999			0.997	
Satd. Flow (perm)	0	1741	0	0	1762	0	0	3252	0	0	3322	0
Peak Hour Factor	1.00	1.00	0.75	0.47	1.00	0.50	0.50	0.82	0.88	0.63	0.84	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	57	0	0	976	0	0	913	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 56.6%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	10	15	15	5	10	10	695	95	35	710	10
Future Vol, veh/h	5	10	15	15	5	10	10	695	95	35	710	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	75	47	100	50	50	82	88	63	84	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	5	10	20	32	5	20	20	848	108	56	845	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1428	1958	429	1481	1910	478	857	0	0	956	0	0
Stage 1	962	962	-	942	942	-	-	-	-	-	-	-
Stage 2	466	996	-	539	968	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	97	64	580	89	69	539	792	-	-	727	-	-
Stage 1	279	337	-	287	344	-	-	-	-	-	-	-
Stage 2	551	325	-	499	335	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	74	52	580	63	56	539	792	-	-	727	-	-
Mov Cap-2 Maneuver	74	52	-	63	56	-	-	-	-	-	-	-
Stage 1	264	287	-	271	325	-	-	-	-	-	-	-
Stage 2	494	307	-	397	286	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.4	97.3	0.5	1.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	792	-	-	119	90	727	-	-
HCM Lane V/C Ratio	0.025	-	-	0.294	0.632	0.076	-	-
HCM Control Delay (s)	9.7	0.3	-	47.4	97.3	10.4	0.7	-
HCM Lane LOS	A	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	3	0.2	-	-

Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

Cookeville 2017 Existing Conditions

05/16/2017

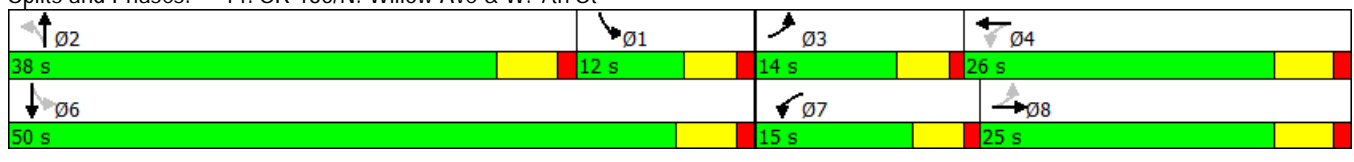
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	155	35	75	30	40	5	445	190	85	645	15
Future Volume (vph)	45	155	35	75	30	40	5	445	190	85	645	15
Satd. Flow (prot)	1770	1824	0	1703	1757	0	0	3111	0	0	3302	0
Flt Permitted	0.687			0.281				0.945			0.713	
Satd. Flow (perm)	1280	1824	0	504	1757	0	0	2943	0	0	2368	0
Satd. Flow (RTOR)		10			42			122			4	
Peak Hour Factor	0.63	0.61	0.73	0.69	0.50	0.83	0.63	0.90	0.72	0.71	0.79	0.63
Heavy Vehicles (%)	2%	2%	0%	6%	0%	2%	0%	4%	0%	0%	1%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	302	0	109	108	0	0	766	0	0	960	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	14.0	25.0		15.0	26.0		38.0	38.0		12.0	50.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			4.0			4.0	
Act Effct Green (s)	22.3	18.0		24.7	19.2			38.8			38.8	
Actuated g/C Ratio	0.29	0.24		0.33	0.25			0.51			0.51	
v/c Ratio	0.17	0.69		0.36	0.23			0.49			0.79	
Control Delay	18.6	37.9		21.4	19.0			12.0			22.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	18.6	37.9		21.4	19.0			12.0			22.3	
LOS	B	D		C	B			B			C	
Approach Delay		34.3			20.2			12.0			22.3	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	25	149		39	28			112			214	
Queue Length 95th (ft)	36	148		56	30			165			245	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	458	565		343	596			1758			1508	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.53		0.32	0.18			0.44			0.64	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 75.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 20.6
 Intersection Capacity Utilization 67.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

















Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	20	65	0	0	0	25	500	5	15	715	55
Future Volume (vph)	45	20	65	0	0	0	25	500	5	15	715	55
Satd. Flow (prot)	0	1716	0	0	1900	0	0	3251	0	0	3292	0
Flt Permitted		0.981						0.997			0.999	
Satd. Flow (perm)	0	1716	0	0	1900	0	0	3251	0	0	3292	0
Peak Hour Factor	0.70	0.71	0.86	0.25	0.25	0.25	0.78	0.84	1.00	0.75	0.74	0.69
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	8%	3%	0%	0%	1%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	168	0	0	0	0	0	632	0	0	1066	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 19.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	45	20	65	0	0	0	25	500	5	15	715	55
Future Vol, veh/h	45	20	65	0	0	0	25	500	5	15	715	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	71	86	25	25	25	78	84	100	75	74	69
Heavy Vehicles, %	4	0	1	0	0	0	8	3	0	0	1	3
Mvmt Flow	64	28	76	0	0	0	32	595	5	20	966	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1408	1710	523	1199	1748	300	1046	0	0	600	0	0
Stage 1	1046	1046	-	662	662	-	-	-	-	-	-	-
Stage 2	362	664	-	537	1086	-	-	-	-	-	-	-
Critical Hdwy	7.58	6.5	6.92	7.5	6.5	6.9	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4	3.31	3.5	4	3.3	2.28	-	-	2.2	-	-
Pot Cap-1 Maneuver	97	92	501	143	87	702	626	-	-	987	-	-
Stage 1	241	308	-	422	462	-	-	-	-	-	-	-
Stage 2	624	461	-	501	295	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	88	81	501	81	76	702	626	-	-	987	-	-
Mov Cap-2 Maneuver	88	81	-	81	76	-	-	-	-	-	-	-
Stage 1	222	293	-	390	426	-	-	-	-	-	-	-
Stage 2	576	426	-	366	281	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	213	0	0.9	0.3
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	626	-	-	137	-	987	-	-
HCM Lane V/C Ratio	0.051	-	-	1.227	-	0.02	-	-
HCM Control Delay (s)	11.1	0.4	-	213	0	8.7	0.2	-
HCM Lane LOS	B	A	-	F	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	10.1	-	0.1	-	-

Lanes, Volumes, Timings
 16: SR 135/N. Willow Ave & University Dr

Cookeville 2017 Existing Conditions

05/16/2017

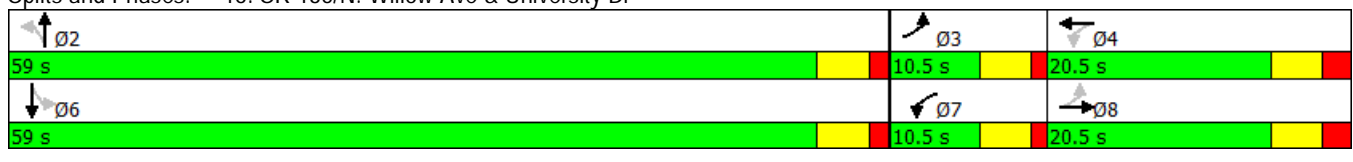
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	35	10	25	40	10	15	390	145	65	740	20
Future Volume (vph)	15	35	10	25	40	10	15	390	145	65	740	20
Satd. Flow (prot)	1805	1586	0	1736	1645	0	0	3105	0	0	3313	0
Flt Permitted	0.952			0.952				0.923			0.837	
Satd. Flow (perm)	1809	1586	0	1739	1645	0	0	2869	0	0	2784	0
Satd. Flow (RTOR)		17			15			221			6	
Peak Hour Factor	0.54	0.63	0.50	0.69	0.77	0.63	0.94	0.96	0.60	0.74	0.77	0.63
Heavy Vehicles (%)	0%	17%	10%	4%	15%	0%	0%	4%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	76	0	36	68	0	0	664	0	0	1081	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	10.5	20.5		10.5	20.5		59.0	59.0		59.0	59.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			5.8			5.8	
Act Effct Green (s)	10.0	10.3		10.0	10.3			39.1			39.1	
Actuated g/C Ratio	0.19	0.20		0.19	0.20			0.74			0.74	
v/c Ratio	0.08	0.23		0.11	0.20			0.30			0.52	
Control Delay	19.5	22.1		19.8	21.9			4.5			8.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.5	22.1		19.8	21.9			4.5			8.7	
LOS	B	C		B	C			A			A	
Approach Delay		21.4			21.2			4.5			8.7	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	7	14		9	13			25			83	
Queue Length 95th (ft)	17	41		26	48			85			187	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	345	578		331	598			2578			2479	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.08	0.13		0.11	0.11			0.26			0.44	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 52.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 8.6
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
 17: SR 135/N. Willow Ave & W. 12th St

Cookeville 2017 Existing Conditions

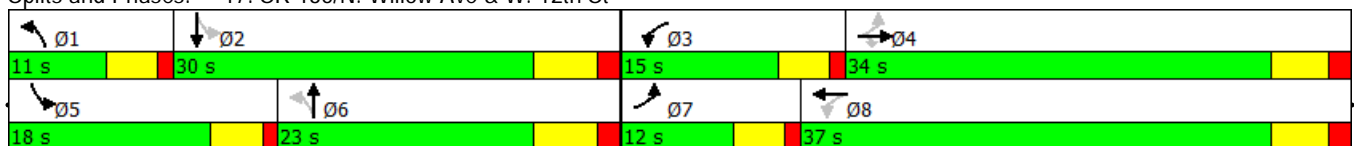
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	385	255	190	130	30	60	170	190	145	385	45
Future Volume (vph)	85	385	255	190	130	30	60	170	190	145	385	45
Satd. Flow (prot)	1770	1881	1599	1770	3317	0	1574	2965	0	1652	3292	0
Flt Permitted	0.627			0.161			0.424			0.226		
Satd. Flow (perm)	1168	1881	1599	300	3317	0	703	2965	0	393	3292	0
Satd. Flow (RTOR)			328		48			211			23	
Peak Hour Factor	0.61	0.82	0.76	0.88	0.86	0.63	0.94	0.83	0.90	0.65	0.80	0.51
Heavy Vehicles (%)	2%	1%	1%	2%	3%	11%	7%	5%	5%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	470	336	216	199	0	64	416	0	223	569	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	12.0	34.0	34.0	15.0	37.0		11.0	23.0		18.0	30.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	31.2	25.4	25.4	37.1	30.8		19.3	14.3		30.0	22.8	
Actuated g/C Ratio	0.39	0.32	0.32	0.47	0.39		0.24	0.18		0.38	0.29	
v/c Ratio	0.27	0.78	0.46	0.69	0.15		0.27	0.59		0.67	0.59	
Control Delay	13.9	35.3	5.2	26.4	13.9		20.9	18.5		29.4	27.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.9	35.3	5.2	26.4	13.9		20.9	18.5		29.4	27.8	
LOS	B	D	A	C	B		C	B		C	C	
Approach Delay		21.5			20.4			18.9			28.3	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	38	218	3	62	27		22	51		85	137	
Queue Length 95th (ft)	49	308	29	#141	50		48	83		96	166	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	520	734	823	332	1451		240	891		362	1128	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.64	0.41	0.65	0.14		0.27	0.47		0.62	0.50	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 79.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 22.9
 Intersection Capacity Utilization 63.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St

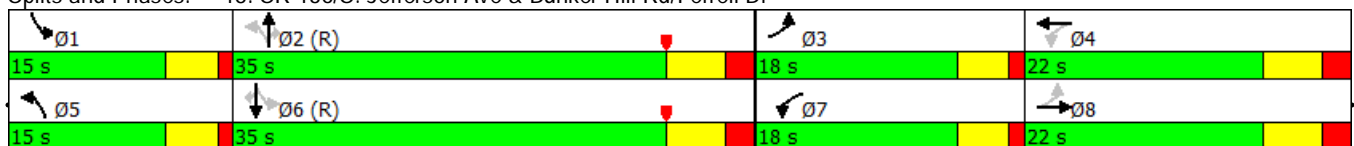


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	5	10	5	0	30	15	990	5	20	620	100
Future Volume (vph)	140	5	10	5	0	30	15	990	5	20	620	100
Satd. Flow (prot)	1570	1418	0	1289	1205	0	1583	3471	808	1492	3406	1553
Flt Permitted	0.430			0.930			0.329			0.167		
Satd. Flow (perm)	710	1418	0	1262	1205	0	548	3471	808	262	3406	1553
Satd. Flow (RTOR)		12			327				145			145
Peak Hour Factor	0.81	1.00	0.83	0.25	0.25	0.83	0.75	0.86	1.00	0.83	0.86	0.83
Heavy Vehicles (%)	15%	0%	28%	40%	0%	34%	14%	4%	100%	21%	6%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	17	0	20	36	0	20	1151	5	24	721	120
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	18.0	22.0		18.0	22.0		15.0	35.0	35.0	15.0	35.0	35.0
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	4.0	4.0	5.0	4.0	4.0
Act Effct Green (s)	19.0	17.4		10.5	8.0		58.9	57.6	57.6	59.1	57.7	57.7
Actuated g/C Ratio	0.21	0.19		0.12	0.09		0.65	0.64	0.64	0.66	0.64	0.64
v/c Ratio	0.66	0.06		0.13	0.09		0.05	0.52	0.01	0.10	0.33	0.11
Control Delay	42.3	18.6		27.4	0.4		7.1	12.4	0.0	6.2	5.3	0.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	42.3	18.6		27.4	0.4		7.1	12.5	0.0	6.2	5.4	0.6
LOS	D	B		C	A		A	B	A	A	A	A
Approach Delay		40.2			10.1			12.4			4.7	
Approach LOS		D			B			B			A	
Queue Length 50th (ft)	80	2		8	0		4	176	0	3	38	0
Queue Length 95th (ft)	123	21		7	0		10	297	0	m8	61	0
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	283	343		245	502		483	2219	569	313	2182	1047
Starvation Cap Reductn	0	0		0	0		0	0	0	0	298	0
Spillback Cap Reductn	0	0		0	18		0	199	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.05		0.08	0.07		0.04	0.57	0.01	0.08	0.38	0.11

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 50 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 11.7
 Intersection Capacity Utilization 48.5%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	0	160	0	0	0	0	1050	110	105	575	0
Future Volume (vph)	320	0	160	0	0	0	0	1050	110	105	575	0
Satd. Flow (prot)	1787	0	1538	0	0	0	0	3471	1495	1752	3438	0
Flt Permitted	0.950									0.100		
Satd. Flow (perm)	1787	0	1538	0	0	0	0	3471	1495	184	3438	0
Satd. Flow (RTOR)			176						128			
Peak Hour Factor	0.76	0.25	0.91	0.25	0.25	0.25	0.25	0.84	0.86	0.91	0.87	0.25
Heavy Vehicles (%)	1%	0%	5%	0%	0%	0%	0%	4%	8%	3%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	0	176	0	0	0	0	1250	128	115	661	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	29.0		29.0					46.0	46.0	15.0	46.0	
Total Lost Time (s)	4.0		5.4					5.2	5.2	5.0	5.2	
Act Effct Green (s)	24.2		22.8					40.1	40.1	51.8	40.1	
Actuated g/C Ratio	0.27		0.25					0.45	0.45	0.58	0.45	
v/c Ratio	0.88		0.34					0.81	0.17	0.38	0.43	
Control Delay	52.5		6.3					19.4	1.1	20.3	23.3	
Queue Delay	0.0		0.0					0.4	0.0	0.0	0.0	
Total Delay	52.5		6.3					19.8	1.1	20.3	23.3	
LOS	D		A					B	A	C	C	
Approach Delay		38.8						18.1			22.8	
Approach LOS		D						B			C	
Queue Length 50th (ft)	226		0					327	0	50	136	
Queue Length 95th (ft)	271		48					113	m2	92	173	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	496		533					1573	747	306	1558	
Starvation Cap Reductn	0		0					60	0	0	0	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.85		0.33					0.83	0.17	0.38	0.42	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 47 (52%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 23.9

Intersection LOS: C

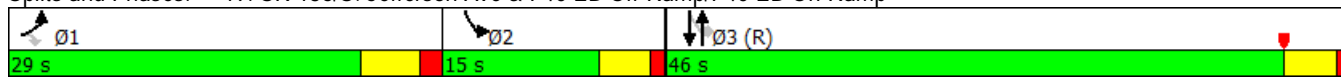
Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp
























Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Traffic Volume (vph)	0	0	0	130	0	380	95	1275	0	0	565	135
Future Volume (vph)	0	0	0	130	0	380	95	1275	0	0	565	135
Satd. Flow (prot)	0	0	0	3183	0	1568	1626	3505	0	0	3505	1568
Flt Permitted				0.950			0.394					
Satd. Flow (perm)	0	0	0	3183	0	1568	674	3505	0	0	3505	1568
Satd. Flow (RTOR)							73					188
Peak Hour Factor	0.25	0.25	0.25	0.79	1.00	0.80	0.82	0.86	0.25	0.25	0.91	0.72
Heavy Vehicles (%)	0%	0%	0%	10%	33%	3%	11%	3%	0%	0%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	165	0	475	116	1483	0	0	621	188
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1				2			3	
Permitted Phases						1	3	2				3
Total Split (s)				20.0		20.0	24.0	46.0			46.0	46.0
Total Lost Time (s)				5.8		5.8	5.0	5.0			5.0	4.5
Act Effct Green (s)				14.2		14.2	61.0	65.0			55.2	55.7
Actuated g/C Ratio				0.16		0.16	0.68	0.72			0.61	0.62
v/c Ratio				0.33		1.54	0.22	0.59			0.29	0.18
Control Delay				35.7		285.5	3.4	4.7			4.6	0.6
Queue Delay				0.0		0.6	0.0	1.1			0.5	0.5
Total Delay				35.7		286.1	3.4	5.8			5.0	1.1
LOS				D		F	A	A			A	A
Approach Delay					221.5			5.6			4.1	
Approach LOS					F			A			A	
Queue Length 50th (ft)				43		~349	15	123			29	0
Queue Length 95th (ft)				63		#456	m15	134			62	1
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				502		308	687	2531			2148	1041
Starvation Cap Reductn				0		0	0	218			1018	533
Spillback Cap Reductn				0		15	0	736			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.33		1.62	0.17	0.83			0.55	0.37

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.54

Intersection Signal Delay: 50.6

Intersection LOS: D

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

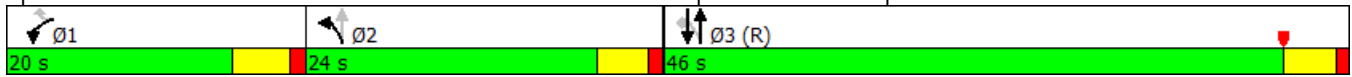
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

Cookeville 2017 Existing Conditions
 05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	10	160	25	5	5	250	1360	45	10	525	65
Future Volume (vph)	45	10	160	25	5	5	250	1360	45	10	525	65
Satd. Flow (prot)	0	1732	1583	1805	1790	0	1770	3505	1553	1805	4836	0
Flt Permitted		0.962		0.950			0.336			0.095		
Satd. Flow (perm)	0	1732	1583	1805	1790	0	626	3505	1553	180	4836	0
Satd. Flow (RTOR)			200		5				139		30	
Peak Hour Factor	0.75	0.63	0.80	0.78	0.63	1.00	0.76	0.84	0.80	1.00	0.92	0.90
Heavy Vehicles (%)	7%	0%	2%	0%	0%	0%	2%	3%	4%	0%	6%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	200	32	13	0	329	1619	56	10	643	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	15.0	15.0	15.0	15.0	15.0		17.0	43.0	43.0	17.0	43.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)		11.0	11.0	11.0	11.0		60.1	57.7	57.7	55.7	44.2	
Actuated g/C Ratio		0.12	0.12	0.12	0.12		0.67	0.64	0.64	0.62	0.49	
v/c Ratio		0.36	0.54	0.15	0.06		0.58	0.72	0.05	0.03	0.27	
Control Delay		41.7	11.7	37.2	28.7		10.3	16.4	0.2	10.4	19.3	
Queue Delay		0.0	0.0	0.0	0.0		0.6	1.3	0.0	0.0	0.0	
Total Delay		41.7	11.7	37.2	28.7		10.9	17.6	0.2	10.4	19.3	
LOS		D	B	D	C		B	B	A	B	B	
Approach Delay		19.9			34.7			16.1			19.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		40	0	17	4		82	317	0	3	115	
Queue Length 95th (ft)		57	42	38	14		m88	m#529	m0	m8	145	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		211	369	220	223		570	2247	1045	328	2390	
Starvation Cap Reductn		0	0	0	0		59	385	0	0	0	
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.36	0.54	0.15	0.06		0.64	0.87	0.05	0.03	0.27	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 66 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 17.4
 Intersection Capacity Utilization 68.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

 Ø1 17 s	 Ø2 (R) 43 s	 Ø3 15 s	 Ø4 15 s
 Ø5 17 s	 Ø6 (R) 43 s		

Lanes, Volumes, Timings
 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

Cookeville 2017 Existing Conditions

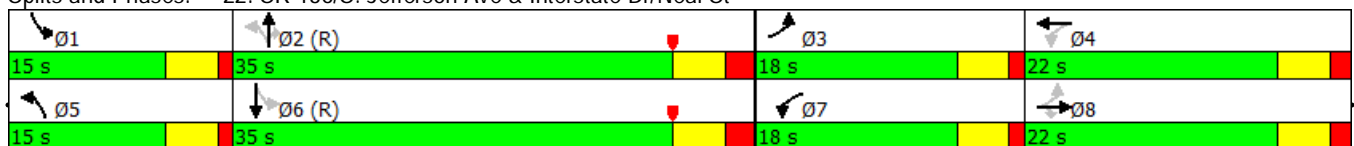
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	215	105	145	225	60	190	785	355	55	280	85
Future Volume (vph)	110	215	105	145	225	60	190	785	355	55	280	85
Satd. Flow (prot)	1770	1845	1538	1736	3420	0	1736	3438	1509	1770	3327	0
Flt Permitted	0.412			0.280			0.411			0.157		
Satd. Flow (perm)	767	1845	1538	512	3420	0	751	3438	1509	292	3327	0
Satd. Flow (RTOR)			139		31				418		54	
Peak Hour Factor	0.71	0.84	0.97	0.84	0.83	0.88	0.85	0.82	0.85	0.72	0.89	0.82
Heavy Vehicles (%)	2%	3%	5%	4%	3%	0%	4%	5%	7%	2%	4%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	256	108	173	339	0	224	957	418	76	419	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	18.0	22.0	22.0	18.0	22.0		15.0	35.0	35.0	15.0	35.0	
Total Lost Time (s)	5.0	4.0	5.0	5.0	4.0		5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	27.7	16.8	15.8	28.2	17.1		43.5	36.5	36.5	41.6	33.1	
Actuated g/C Ratio	0.31	0.19	0.18	0.31	0.19		0.48	0.41	0.41	0.46	0.37	
v/c Ratio	0.42	0.74	0.28	0.53	0.50		0.48	0.69	0.49	0.26	0.33	
Control Delay	23.2	48.5	5.1	26.1	32.0		9.2	22.3	10.0	10.0	12.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	23.2	48.5	5.1	26.1	32.0		9.2	22.3	10.0	10.0	12.7	
LOS	C	D	A	C	C		A	C	A	B	B	
Approach Delay		31.9			30.0			17.3			12.3	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	59	135	0	66	80		60	303	139	6	95	
Queue Length 95th (ft)	78	201	27	104	112		m3	335	242	12	136	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	390	372	405	342	724		474	1392	859	301	1258	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.40	0.69	0.27	0.51	0.47		0.47	0.69	0.49	0.25	0.33	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 21.0
 Intersection Capacity Utilization 65.5%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
 23: SR 136/S. Jefferson Ave & E. Veterans Dr

Cookeville 2017 Existing Conditions

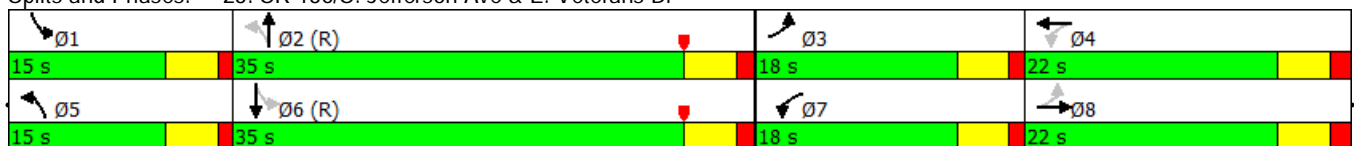
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	140	40	45	135	105	35	800	60	55	355	25
Future Volume (vph)	30	140	40	45	135	105	35	800	60	55	355	25
Satd. Flow (prot)	1805	1830	0	1543	1751	0	1805	3497	0	1671	3538	0
Flt Permitted	0.272			0.366			0.461			0.106		
Satd. Flow (perm)	517	1830	0	594	1751	0	876	3497	0	186	3538	0
Satd. Flow (RTOR)		16			43			8			10	
Peak Hour Factor	0.75	0.88	0.77	0.63	0.78	0.71	0.67	0.76	0.88	0.72	0.79	0.69
Heavy Vehicles (%)	0%	0%	0%	17%	1%	1%	0%	2%	7%	8%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	211	0	71	321	0	52	1121	0	76	485	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	18.0	22.0		18.0	22.0		15.0	35.0		15.0	35.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	25.5	17.3		26.5	20.6		46.5	38.3		47.5	41.2	
Actuated g/C Ratio	0.28	0.19		0.29	0.23		0.52	0.43		0.53	0.46	
v/c Ratio	0.13	0.58		0.24	0.74		0.09	0.75		0.30	0.30	
Control Delay	18.8	36.8		20.6	39.8		6.1	15.1		20.9	16.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.8	36.8		20.6	39.8		6.1	15.1		20.9	16.3	
LOS	B	D		C	D		A	B		C	B	
Approach Delay		34.0			36.3			14.7			16.9	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	14	98		25	151		6	68		14	112	
Queue Length 95th (ft)	28	164		36	202		m11	91		35	55	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	339	397		317	447		559	1492		263	1624	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.53		0.22	0.72		0.09	0.75		0.29	0.30	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 20.8
 Intersection Capacity Utilization 71.4%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

Cookeville 2017 Existing Conditions

05/16/2017

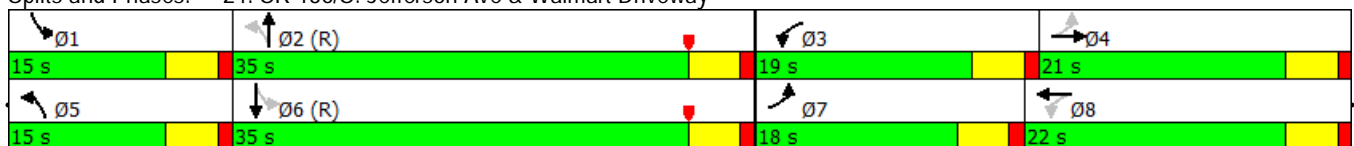
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	25	0	10	5	890	40	25	400	5
Future Volume (vph)	0	0	0	25	0	10	5	890	40	25	400	5
Satd. Flow (prot)	1900	1900	0	1787	1615	0	1805	3483	0	1805	3438	0
Flt Permitted				0.950			0.455			0.209		
Satd. Flow (perm)	1900	1900	0	1787	1615	0	864	3483	0	397	3438	0
Satd. Flow (RTOR)					487			5			1	
Peak Hour Factor	0.25	0.25	0.25	0.69	0.25	0.63	1.00	0.80	0.91	0.89	0.76	1.00
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	4%	0%	4%	100%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	36	16	0	5	1157	0	28	531	0
Turn Type	pm+pt			pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	18.0	21.0		19.0	22.0		15.0	35.0		15.0	35.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)				11.5	11.5		73.1	71.3		74.1	74.2	
Actuated g/C Ratio				0.13	0.13		0.81	0.79		0.82	0.82	
v/c Ratio				0.16	0.03		0.01	0.42		0.06	0.19	
Control Delay				36.9	0.1		0.4	1.7		2.8	3.9	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				36.9	0.1		0.4	1.7		2.8	3.9	
LOS				D	A		A	A		A	A	
Approach Delay					25.6			1.7			3.9	
Approach LOS					C			A			A	
Queue Length 50th (ft)				19	0		0	11		3	35	
Queue Length 95th (ft)				36	0		m0	39		8	77	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)				277	700		808	2760		483	2834	
Starvation Cap Reductn				0	0		0	0		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.13	0.02		0.01	0.42		0.06	0.19	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 51 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 3.1
 Intersection Capacity Utilization 44.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
 25: SR 136/S. Jefferson Ave & Commerce Ave

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	15	5	15	15	810	60	25	470	10
Future Volume (vph)	5	5	5	15	5	15	15	810	60	25	470	10
Satd. Flow (prot)	1612	1699	0	1703	1449	0	1626	3489	0	1805	3561	0
Flt Permitted							0.414			0.193		
Satd. Flow (perm)	1696	1699	0	1792	1449	0	709	3489	0	367	3561	0
Satd. Flow (RTOR)		12			24			16			4	
Peak Hour Factor	0.63	1.00	0.42	0.47	1.00	0.63	0.94	0.82	0.56	0.57	0.77	0.63
Heavy Vehicles (%)	12%	0%	0%	6%	0%	18%	11%	2%	1%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	17	0	32	29	0	16	1095	0	44	626	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	22.0		12.0	22.0		11.0	44.0		12.0	45.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	7.2	8.5		7.8	8.6		34.4	34.2		36.7	39.9	
Actuated g/C Ratio	0.15	0.18		0.16	0.18		0.72	0.72		0.77	0.83	
v/c Ratio	0.03	0.05		0.11	0.10		0.03	0.44		0.09	0.21	
Control Delay	22.4	18.2		22.3	15.3		4.1	8.6		3.9	4.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.4	18.2		22.3	15.3		4.1	8.6		3.9	4.8	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		19.5			19.0			8.5			4.7	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	2	1		6	1		1	57		0	0	
Queue Length 95th (ft)	10	21		17	26		9	234		11	110	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	299	733		322	633		644	2884		520	2981	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.02		0.10	0.05		0.02	0.38		0.08	0.21	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 47.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.44
 Intersection Signal Delay: 7.6
 Intersection Capacity Utilization 39.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave

Ø1	Ø2	Ø3	Ø4
12 s	44 s	12 s	22 s
Ø5	Ø6	Ø7	Ø8
11 s	45 s	12 s	22 s

Lanes, Volumes, Timings
 26: SR 136/S. Jefferson Ave & E. Jackson St

Cookeville 2017 Existing Conditions

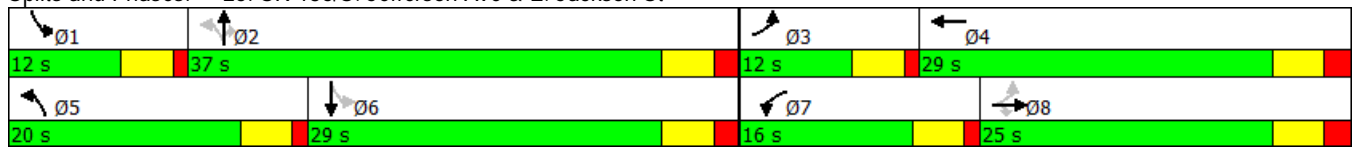
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	115	175	120	75	5	155	440	190	10	250	15
Future Volume (vph)	30	115	175	120	75	5	155	440	190	10	250	15
Satd. Flow (prot)	1805	1900	1583	3502	1801	0	1770	3574	1599	1685	3295	0
Flt Permitted	0.692			0.950			0.441			0.437		
Satd. Flow (perm)	1315	1900	1583	3502	1801	0	821	3574	1599	775	3295	0
Satd. Flow (RTOR)			243		3				333		11	
Peak Hour Factor	0.68	0.85	0.72	0.70	0.78	1.00	0.82	0.77	0.57	0.83	0.82	0.54
Heavy Vehicles (%)	0%	0%	2%	0%	5%	0%	2%	1%	1%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	135	243	171	101	0	189	571	333	12	333	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	25.0	25.0	16.0	29.0		20.0	37.0	37.0	12.0	29.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0	5.3	5.0	4.0	
Act Effct Green (s)	17.4	12.2	12.2	8.4	19.1		39.4	38.5	37.2	29.9	25.3	
Actuated g/C Ratio	0.23	0.16	0.16	0.11	0.26		0.53	0.52	0.50	0.40	0.34	
v/c Ratio	0.13	0.43	0.52	0.43	0.22		0.34	0.31	0.34	0.03	0.29	
Control Delay	18.3	33.2	8.8	35.4	25.3		11.9	12.4	3.1	10.9	19.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.3	33.2	8.8	35.4	25.3		11.9	12.4	3.1	10.9	19.7	
LOS	B	C	A	D	C		B	B	A	B	B	
Approach Delay		17.6			31.6			9.5			19.4	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)	14	56	0	38	38		42	67	0	2	55	
Queue Length 95th (ft)	27	107	23	56	70		83	132	0	11	96	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	370	543	626	525	615		630	1855	967	414	1132	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.12	0.25	0.39	0.33	0.16		0.30	0.31	0.34	0.03	0.29	













Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 74.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 15.5
 Intersection Capacity Utilization 38.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

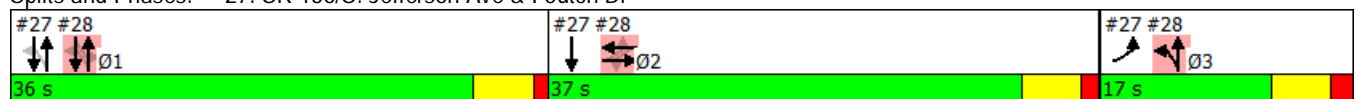
							Ø2
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				 	 		
Traffic Volume (vph)	30	5	5	420	270	0	
Future Volume (vph)	30	5	5	420	270	0	
Satd. Flow (prot)	1632	0	1685	3303	3303	0	
Flt Permitted	0.959		0.529				
Satd. Flow (perm)	1632	0	938	3303	3303	0	
Satd. Flow (RTOR)	8						
Peak Hour Factor	0.68	0.63	0.63	0.85	0.72	0.25	
Heavy Vehicles (%)	11%	0%	0%	2%	2%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	52	0	8	494	375	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	17.0		36.0	36.0			37.0
Total Lost Time (s)	4.0		4.0	4.0			
Act Effct Green (s)	12.1		26.7	26.7	47.4		
Actuated g/C Ratio	0.18		0.39	0.39	0.70		
v/c Ratio	0.18		0.02	0.38	0.16		
Control Delay	26.5		15.0	16.4	0.7		
Queue Delay	0.0		0.0	0.0	0.1		
Total Delay	26.5		15.0	16.4	0.8		
LOS	C		B	B	A		
Approach Delay	26.5			16.3	0.8		
Approach LOS	C			B	A		
Queue Length 50th (ft)	17		2	75	3		
Queue Length 95th (ft)	38		8	127	4		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	334		464	1634	3080		
Starvation Cap Reductn	0		0	0	1250		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.16		0.02	0.30	0.20		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 67.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 23.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
 28: SR 136/S. Jefferson Ave & E. Stevens St

Cookeville 2017 Existing Conditions

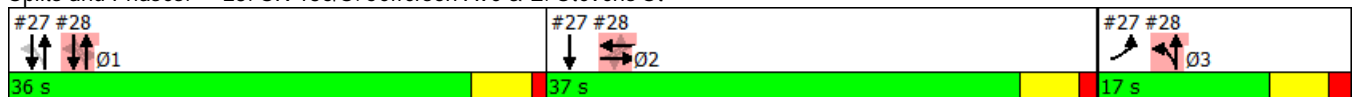
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	95	20	25	75	15	15	430	15	5	235	5
Future Volume (vph)	20	95	20	25	75	15	15	430	15	5	235	5
Satd. Flow (prot)	0	1855	0	0	1802	0	0	3297	0	0	3293	0
Flt Permitted		0.956			0.892			0.942			0.942	
Satd. Flow (perm)	0	1784	0	0	1627	0	0	3112	0	0	3105	0
Satd. Flow (RTOR)		9			13			6			3	
Peak Hour Factor	0.83	0.58	0.71	0.69	0.89	0.63	0.63	0.85	0.75	0.63	0.71	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	6%	1%	8%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	144	0	0	550	0	0	347	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	37.0	37.0		37.0	37.0		17.0			36.0	36.0	
Total Lost Time (s)		4.0			4.0						4.0	
Act Effct Green (s)		16.5			16.5			38.8			26.7	
Actuated g/C Ratio		0.24			0.24			0.57			0.39	
v/c Ratio		0.49			0.36			0.30			0.28	
Control Delay		26.3			23.3			2.6			15.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		26.3			23.3			2.6			15.4	
LOS		C			C			A			B	
Approach Delay		26.3			23.3			2.6			15.4	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		83			50			12			50	
Queue Length 95th (ft)		84			96			15			73	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		914			836			2201			1537	
Starvation Cap Reductn		0			0			159			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.17			0.27			0.23	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 67.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 12.6
 Intersection Capacity Utilization 39.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	305	50	80	315	10	75	205	55	15	140	20
Future Volume (vph)	15	305	50	80	315	10	75	205	55	15	140	20
Satd. Flow (prot)	1805	1755	0	1787	1636	0	1620	1665	0	1685	1562	0
Flt Permitted	0.493			0.299			0.401			0.433		
Satd. Flow (perm)	937	1755	0	562	1636	0	684	1665	0	768	1562	0
Satd. Flow (RTOR)		10			3			16			9	
Peak Hour Factor	0.63	0.78	0.74	0.91	0.93	0.63	0.85	0.84	0.81	0.63	0.70	0.63
Heavy Vehicles (%)	0%	6%	5%	1%	4%	0%	4%	3%	3%	0%	0%	0%
Parking (#/hr)					0						0	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	459	0	88	355	0	88	312	0	24	232	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	45.8	41.0		49.1	46.1		27.3	24.9		24.3	19.6	
Actuated g/C Ratio	0.51	0.46		0.55	0.51		0.30	0.28		0.27	0.22	
v/c Ratio	0.05	0.57		0.22	0.42		0.32	0.66		0.09	0.67	
Control Delay	8.0	25.8		7.0	13.1		21.7	34.0		14.3	36.0	
Queue Delay	0.0	0.4		0.0	1.0		0.0	4.9		0.5	0.2	
Total Delay	8.0	26.2		7.0	14.1		21.7	38.9		14.7	36.3	
LOS	A	C		A	B		C	D		B	D	
Approach Delay		25.3			12.7			35.1			34.3	
Approach LOS		C			B			D			C	
Queue Length 50th (ft)	8	240		9	30		34	131		8	124	
Queue Length 95th (ft)	8	311		m16	290		55	206		12	130	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	538	804		399	839		279	557		269	509	
Starvation Cap Reductn	0	87		0	260		0	0		0	40	
Spillback Cap Reductn	2	52		0	4		0	178		114	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.64		0.22	0.61		0.32	0.82		0.15	0.49	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 25.7

Intersection LOS: C

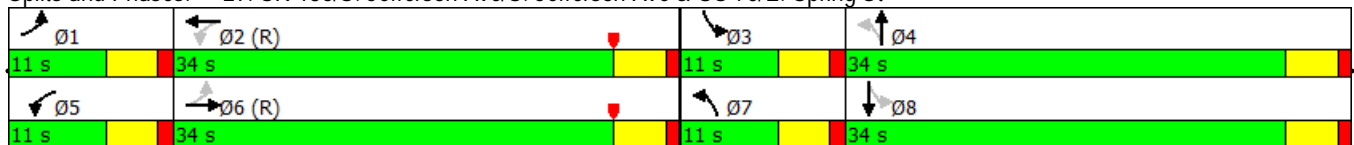
Intersection Capacity Utilization 59.9%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

05/16/2017

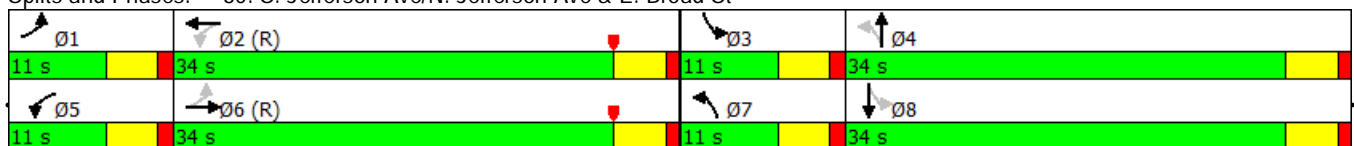
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	140	30	80	345	20	50	145	40	10	70	10
Future Volume (vph)	10	140	30	80	345	20	50	145	40	10	70	10
Satd. Flow (prot)	1805	1823	0	1787	1875	0	1652	1666	0	1685	1733	0
Flt Permitted	0.498			0.498			0.505			0.620		
Satd. Flow (perm)	946	1823	0	937	1875	0	878	1666	0	1099	1733	0
Satd. Flow (RTOR)		9			6			18			11	
Peak Hour Factor	0.83	0.63	0.94	0.69	0.93	0.56	0.89	0.86	0.77	1.00	0.65	0.50
Heavy Vehicles (%)	0%	2%	4%	1%	0%	0%	2%	2%	5%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	254	0	116	407	0	56	221	0	10	128	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	50.2	45.7		56.2	54.1		22.7	21.5		18.5	14.0	
Actuated g/C Ratio	0.56	0.51		0.62	0.60		0.25	0.24		0.21	0.16	
v/c Ratio	0.02	0.27		0.18	0.36		0.20	0.54		0.04	0.46	
Control Delay	6.9	11.7		11.5	13.7		38.4	48.3		20.9	36.1	
Queue Delay	0.0	0.0		0.0	1.3		0.0	0.6		0.0	0.0	
Total Delay	6.9	11.7		11.6	15.0		38.4	48.8		20.9	36.1	
LOS	A	B		B	B		D	D		C	D	
Approach Delay		11.5			14.2			46.7			35.0	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	2	49		40	145		33	126		4	63	
Queue Length 95th (ft)	m7	46		36	153		m60	193		14	70	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	588	930		658	1129		281	549		268	565	
Starvation Cap Reductn	0	0		0	504		0	109		0	0	
Spillback Cap Reductn	0	0		12	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.27		0.18	0.65		0.20	0.50		0.04	0.23	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 23.5
 Intersection Capacity Utilization 46.9%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	290	25	100	330	20	25	270	65	65	260	55
Future Volume (vph)	60	290	25	100	330	20	25	270	65	65	260	55
Satd. Flow (prot)	1736	1774	0	1770	1845	1553	1694	1801	1473	1631	1763	0
Flt Permitted	0.450			0.319			0.307			0.218		
Satd. Flow (perm)	822	1774	0	594	1845	1553	547	1801	1473	374	1763	0
Satd. Flow (RTOR)		5				127			127		10	
Peak Hour Factor	0.79	0.80	0.78	0.63	0.96	0.83	0.57	0.66	1.00	0.77	0.77	0.98
Heavy Vehicles (%)	4%	6%	4%	2%	3%	4%	3%	2%	6%	7%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	395	0	159	344	24	44	409	65	84	394	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	11.0	34.0		11.0	34.0	34.0	11.0	34.0	34.0	11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	39.9	33.7		42.8	36.7	36.7	29.5	24.5	24.5	31.5	27.3	
Actuated g/C Ratio	0.44	0.37		0.48	0.41	0.41	0.33	0.27	0.27	0.35	0.30	
v/c Ratio	0.18	0.59		0.42	0.46	0.03	0.17	0.83	0.13	0.38	0.73	
Control Delay	26.7	38.1		18.8	25.5	0.1	16.4	45.8	0.7	16.6	22.6	
Queue Delay	0.0	2.3		0.0	0.4	0.0	0.0	2.1	0.0	0.0	0.7	
Total Delay	26.7	40.4		18.8	25.8	0.1	16.4	47.9	0.7	16.6	23.3	
LOS	C	D		B	C	A	B	D	A	B	C	
Approach Delay		38.2			22.5			39.3			22.1	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	30	170		52	161	0	14	214	0	18	88	
Queue Length 95th (ft)	67	275		62	250	0	20	202	3	m25	93	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	429	681		376	758	713	259	580	560	226	594	
Starvation Cap Reductn	0	167		0	0	0	0	0	0	0	45	
Spillback Cap Reductn	0	0		0	112	4	0	75	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.77		0.42	0.53	0.03	0.17	0.81	0.12	0.37	0.72	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 30.5

Intersection LOS: C

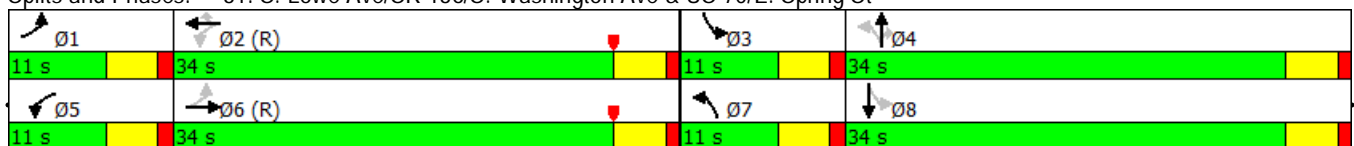
Intersection Capacity Utilization 61.1%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	115	25	25	325	170	20	320	15	40	335	115
Future Volume (vph)	40	115	25	25	325	170	20	320	15	40	335	115
Satd. Flow (prot)	1770	1827	0	1736	1789	0	1745	1793	0	1745	1783	1561
Flt Permitted	0.207			0.581			0.290			0.150		
Satd. Flow (perm)	386	1827	0	1061	1789	0	533	1793	0	276	1783	1561
Satd. Flow (RTOR)		10			31			2				160
Peak Hour Factor	0.56	0.63	0.78	0.45	0.91	0.90	0.63	0.67	0.94	0.77	0.86	0.72
Heavy Vehicles (%)	2%	2%	0%	4%	0%	2%	0%	2%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	215	0	56	546	0	32	494	0	52	390	160
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	34.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	42.3	37.5		42.2	37.5		30.7	27.2		30.8	27.2	27.2
Actuated g/C Ratio	0.47	0.42		0.47	0.42		0.34	0.30		0.34	0.30	0.30
v/c Ratio	0.26	0.28		0.10	0.72		0.12	0.91		0.27	0.72	0.27
Control Delay	12.1	14.8		14.4	31.0		10.9	33.5		19.1	36.4	5.2
Queue Delay	0.0	0.3		0.0	0.0		0.0	2.8		0.0	0.0	0.0
Total Delay	12.1	15.2		14.4	31.0		10.9	36.3		19.1	36.4	5.2
LOS	B	B		B	C		B	D		B	D	A
Approach Delay		14.4			29.5			34.7			26.6	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	29	102		18	281		3	60		16	190	0
Queue Length 95th (ft)	15	36		19	#482		m10	109		32	274	20
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	273	767		543	762		263	579		192	574	611
Starvation Cap Reductn	0	210		0	0		0	32		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.26	0.39		0.10	0.72		0.12	0.90		0.27	0.68	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 27.9

Intersection LOS: C

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

Ø1 11 s	Ø2 (R) 34 s	Ø3 11 s	Ø4 34 s
Ø5 11 s	Ø6 (R) 34 s	Ø7 11 s	Ø8 34 s

Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

Cookeville 2017 Existing Conditions

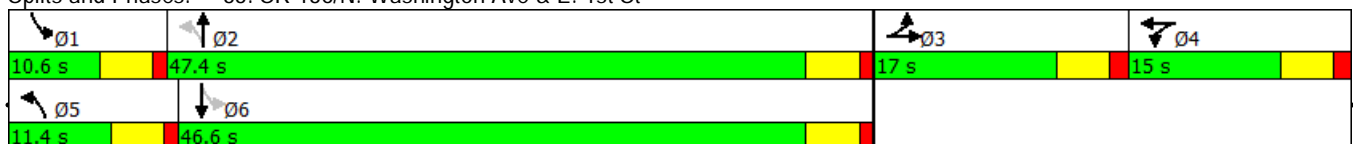
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	10	30	5	55	15	75	500	5	5	510	60
Future Volume (vph)	105	10	30	5	55	15	75	500	5	5	510	60
Satd. Flow (prot)	0	1760	0	0	1853	0	1745	1780	0	1745	3373	0
Flt Permitted		0.965			0.997		0.250			0.178		
Satd. Flow (perm)	0	1760	0	0	1853	0	459	1780	0	327	3373	0
Satd. Flow (RTOR)		12			9		1			18		
Peak Hour Factor	0.80	0.83	0.83	0.63	0.47	0.63	0.69	0.72	0.63	1.00	0.83	0.83
Heavy Vehicles (%)	1%	0%	3%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	149	0	109	702	0	5	686	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	17.0	17.0		15.0	15.0		11.4	47.4		10.6	46.6	
Total Lost Time (s)		5.6			5.6		5.0	5.2		5.0	5.2	
Act Effct Green (s)		10.4			8.8		34.3	33.0		29.0	23.1	
Actuated g/C Ratio		0.15			0.12		0.48	0.47		0.41	0.33	
v/c Ratio		0.67			0.63		0.32	0.84		0.02	0.62	
Control Delay		43.7			44.6		12.0	28.5		8.6	21.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		43.7			44.6		12.0	28.5		8.6	21.4	
LOS		D			D		B	C		A	C	
Approach Delay		43.7			44.6			26.3			21.3	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		69			59		25	251		1	130	
Queue Length 95th (ft)		#170			67		35	337		5	157	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		303			262		342	1098		250	2047	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.59			0.57		0.32	0.64		0.02	0.34	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 27.6
 Intersection Capacity Utilization 59.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.




























Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

Cookeville 2017 Existing Conditions

05/16/2017




















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 				 			 	
Traffic Volume (vph)	50	80	10	295	215	195	40	455	130	295	575	90
Future Volume (vph)	50	80	10	295	215	195	40	455	130	295	575	90
Satd. Flow (prot)	1770	3462	0	3467	1863	1599	1770	3539	1568	1736	3475	0
Flt Permitted	0.950			0.950			0.281			0.195		
Satd. Flow (perm)	1770	3462	0	3467	1863	1599	523	3539	1568	356	3475	0
Satd. Flow (RTOR)		20				247			145		24	
Peak Hour Factor	0.89	0.80	0.50	0.85	0.80	0.79	0.59	0.67	0.93	0.75	0.79	0.75
Heavy Vehicles (%)	2%	2%	0%	1%	2%	1%	2%	2%	3%	4%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	120	0	347	269	247	68	679	140	393	848	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	11.2	11.2		24.0	24.0	24.0	17.0	37.8	37.8	17.0	37.8	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	7.4	7.4		17.5	17.5	17.5	29.0	23.2	23.2	39.5	31.9	
Actuated g/C Ratio	0.10	0.10		0.23	0.23	0.23	0.39	0.31	0.31	0.53	0.43	
v/c Ratio	0.32	0.33		0.43	0.62	0.44	0.22	0.62	0.24	0.94	0.57	
Control Delay	41.2	33.2		27.8	34.5	6.8	12.4	25.5	4.7	51.8	20.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.2	33.2		27.8	34.5	6.8	12.4	25.5	4.7	51.8	20.2	
LOS	D	C		C	C	A	B	C	A	D	C	
Approach Delay		35.8			23.9			21.2			30.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	26	24		73	116	0	17	154	0	-136	177	
Queue Length 95th (ft)	67	48		118	188	35	23	143	34	#225	203	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	175	362		957	514	620	448	1651	809	416	1648	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.33		0.36	0.52	0.40	0.15	0.41	0.17	0.94	0.51	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 74.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 59.4%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

↙ Ø1	↑ Ø2	↗ Ø3	↘ Ø4
17 s	37.8 s	11.2 s	24 s
↖ Ø5	↓ Ø6		
17 s	37.8 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	0	65	0	0	0	0	480	10	60	120	0
Future Volume (vph)	55	0	65	0	0	0	0	480	10	60	120	0
Satd. Flow (prot)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Peak Hour Factor	0.65	0.25	0.90	0.25	0.25	0.25	0.25	0.75	0.50	0.88	0.88	0.25
Heavy Vehicles (%)	7%	0%	3%	0%	0%	0%	0%	0%	0%	1%	10%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	72	0	0	0	0	660	0	68	136	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.6













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	55	0	65	0	0	0	0	480	10	60	120	0
Future Vol, veh/h	55	0	65	0	0	0	0	480	10	60	120	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	25	90	25	25	25	25	75	50	88	88	25
Heavy Vehicles, %	7	0	3	0	0	0	0	0	0	1	10	0
Mvmt Flow	85	0	72	0	0	0	0	640	20	68	136	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	593	913	68	-	0	0	640	0	0
Stage 1	273	273	-	-	-	-	-	-	-
Stage 2	320	640	-	-	-	-	-	-	-
Critical Hdwy	6.94	6.5	6.96	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.94	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.94	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4	3.33	-	-	-	2.21	-	-
Pot Cap-1 Maneuver	425	276	978	0	-	-	947	-	0
Stage 1	734	688	-	0	-	-	-	-	0
Stage 2	694	473	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	394	0	978	-	-	-	947	-	-
Mov Cap-2 Maneuver	394	0	-	-	-	-	-	-	-
Stage 1	681	0	-	-	-	-	-	-	-
Stage 2	694	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	394	978	947	-
HCM Lane V/C Ratio	-	-	0.215	0.074	0.072	-
HCM Control Delay (s)	-	-	16.6	9	9.1	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	0.2	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	10	200	365	0	0	270
Future Volume (vph)	10	200	365	0	0	270
Satd. Flow (prot)	1444	1553	3388	0	0	3261
Flt Permitted	0.950					
Satd. Flow (perm)	1444	1553	3388	0	0	3261
Peak Hour Factor	0.83	0.86	0.77	0.25	0.25	0.84
Heavy Vehicles (%)	25%	4%	3%	0%	0%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	233	474	0	0	321
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 29.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	10	200	365	0	0	270
Future Vol, veh/h	10	200	365	0	0	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	86	77	25	25	84
Heavy Vehicles, %	25	4	3	0	0	7
Mvmt Flow	12	233	474	0	0	321

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	635	237	0	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	7.3	6.98	-	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.34	-	-	-	-
Pot Cap-1 Maneuver	362	758	-	0	0	-
Stage 1	531	-	-	0	0	-
Stage 2	787	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	362	758	-	-	-	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	787	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	362 758	-
HCM Lane V/C Ratio	-	0.033 0.307	-
HCM Control Delay (s)	-	15.3 11.8	-
HCM Lane LOS	-	C B	-
HCM 95th %tile Q(veh)	-	0.1 1.3	-

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	270	0	0	590	95	300	0	45	0	0	0
Future Volume (vph)	180	270	0	0	590	95	300	0	45	0	0	0
Satd. Flow (prot)	1703	3343	0	0	3357	0	0	1787	1455	0	0	0
Flt Permitted	0.173							0.950				
Satd. Flow (perm)	310	3343	0	0	3357	0	0	1787	1455	0	0	0
Satd. Flow (RTOR)					24				97			
Peak Hour Factor	0.80	0.88	0.25	0.25	0.88	0.79	0.87	0.25	0.75	0.25	0.25	0.25
Heavy Vehicles (%)	6%	8%	0%	0%	4%	11%	1%	0%	11%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	307	0	0	790	0	0	345	60	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	11.0	45.0			34.0		45.0	45.0	45.0			
Total Lost Time (s)	5.0	4.0			4.0			4.0	4.0			
Act Effct Green (s)	33.1	34.2			22.8			19.9	19.9			
Actuated g/C Ratio	0.53	0.55			0.37			0.32	0.32			
v/c Ratio	0.75	0.17			0.63			0.60	0.11			
Control Delay	28.5	8.0			18.9			23.4	2.0			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	28.5	8.0			18.9			23.4	2.0			
LOS	C	A			B			C	A			
Approach Delay		16.7			18.9			20.2				
Approach LOS		B			B			C				
Queue Length 50th (ft)	41	27			120			107	0			
Queue Length 95th (ft)	#112	57			203			45	4			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	302	2264			1676			1210	1016			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	0.75	0.14			0.47			0.29	0.06			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 62.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 56.8%

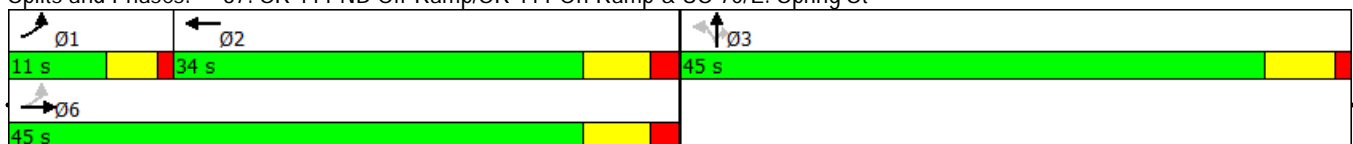
ICU Level of Service B


















Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	410	155	80	800	0	0	0	0	40	0	335
Future Volume (vph)	0	410	155	80	800	0	0	0	0	40	0	335
Satd. Flow (prot)	0	3270	0	1703	3505	0	0	0	0	0	1687	1568
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3270	0	1703	3505	0	0	0	0	0	1687	1568
Peak Hour Factor	0.25	0.92	0.75	0.80	0.89	0.25	0.25	0.25	0.25	0.77	0.25	0.93
Heavy Vehicles (%)	0%	7%	1%	6%	3%	0%	0%	0%	0%	7%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	653	0	100	899	0	0	0	0	0	52	360
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↘	↑↑						↘	↗
Traffic Vol, veh/h	0	410	155	80	800	0	0	0	0	40	0	335
Future Vol, veh/h	0	410	155	80	800	0	0	0	0	40	0	335
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	75	80	89	25	25	25	25	77	25	93
Heavy Vehicles, %	0	7	1	6	3	0	0	0	0	7	0	3
Mvmt Flow	0	446	207	100	899	0	0	0	0	52	0	360

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	446	0	0	1322	1545	449
Stage 1	-	-	-	-	-	-	1099	1099	-
Stage 2	-	-	-	-	-	-	223	446	-
Critical Hdwy	-	-	-	4.22	-	-	6.94	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.94	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.94	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.57	4	3.33
Pot Cap-1 Maneuver	0	-	-	1083	-	0	142	116	555
Stage 1	0	-	-	-	-	0	270	291	-
Stage 2	0	-	-	-	-	0	778	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1083	-	-	129	0	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	0	-
Stage 1	-	-	-	-	-	-	245	0	-
Stage 2	-	-	-	-	-	-	778	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.9	26.2
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1083	-	129	555
HCM Lane V/C Ratio	-	-	0.092	-	0.403	0.649
HCM Control Delay (s)	-	-	8.7	-	50.6	22.7
HCM Lane LOS	-	-	A	-	F	C
HCM 95th %tile Q(veh)	-	-	0.3	-	1.7	4.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	295	160	355	640	100	55	105	150	140	315	45
Future Volume (vph)	50	295	160	355	640	100	55	105	150	140	315	45
Satd. Flow (prot)	1703	3175	0	1752	1845	1615	1787	1810	1524	1752	1816	0
Flt Permitted	0.197			0.224			0.231			0.526		
Satd. Flow (perm)	353	3175	0	413	1845	1615	435	1810	1524	970	1816	0
Satd. Flow (RTOR)		166					142		195		8	
Peak Hour Factor	0.78	0.91	0.75	0.90	0.91	0.71	0.81	0.97	0.91	0.76	0.76	0.70
Heavy Vehicles (%)	6%	7%	7%	3%	3%	0%	1%	5%	6%	3%	2%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	537	0	394	703	141	68	108	165	184	478	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	28.0		23.0	40.0	40.0	11.0	24.0	24.0	15.0	28.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0	5.7	5.0	4.0	
Act Effct Green (s)	26.2	21.2		41.6	34.4	34.4	23.3	18.3	16.6	31.1	24.7	
Actuated g/C Ratio	0.31	0.25		0.50	0.41	0.41	0.28	0.22	0.20	0.37	0.30	
v/c Ratio	0.31	0.58		0.85	0.93	0.19	0.31	0.27	0.36	0.41	0.88	
Control Delay	17.4	21.5		34.3	45.7	3.9	22.7	31.2	5.5	22.4	51.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.4	21.5		34.3	45.7	3.9	22.7	31.2	5.5	22.4	51.0	
LOS	B	C		C	D	A	C	C	A	C	D	
Approach Delay		21.1			37.3			17.1			43.1	
Approach LOS		C			D			B			D	
Queue Length 50th (ft)	18	93		134	379	0	25	51	0	71	265	
Queue Length 95th (ft)	33	145		#282	#612	16	47	97	36	100	#345	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	210	1066		501	818	795	221	446	495	456	542	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.50		0.79	0.86	0.18	0.31	0.24	0.33	0.40	0.88	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 32.8

Intersection LOS: C

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15










95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	540	425	430	45	0
Future Volume (vph)	0	540	425	430	45	0
Satd. Flow (prot)	0	1810	1738	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1810	1738	0	1805	0
Peak Hour Factor	0.25	0.80	0.81	0.84	0.80	0.25
Heavy Vehicles (%)	0%	5%	3%	1%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	675	1037	0	56	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	540	425	430	45	0
Future Vol, veh/h	0	540	425	430	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	81	84	80	25
Heavy Vehicles, %	0	5	3	1	0	0
Mvmt Flow	0	675	525	512	56	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	525	0	1200
Stage 1	-	-	525
Stage 2	-	-	675
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1052	0	206
Stage 1	-	0	598
Stage 2	-	0	510
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1052	-	206
Mov Cap-2 Maneuver	-	-	344
Stage 1	-	-	598
Stage 2	-	-	510

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1052	-	-	344
HCM Lane V/C Ratio	-	-	-	0.164
HCM Control Delay (s)	0	-	-	17.5
HCM Lane LOS	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	0.6

Lanes, Volumes, Timings
 41: S. Maape Ave/S, Maple Ave & US 70/E. Spring St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	335	20	25	370	10	15	200	30	170	155	70
Future Volume (vph)	45	335	20	25	370	10	15	200	30	170	155	70
Satd. Flow (prot)	1736	1748	0	1671	1840	0	1805	1814	0	1787	1782	0
Flt Permitted	0.202			0.279			0.566			0.315		
Satd. Flow (perm)	369	1748	0	491	1840	0	1075	1814	0	593	1782	0
Satd. Flow (RTOR)		5			1			10			17	
Peak Hour Factor	0.80	0.87	0.63	0.63	0.81	1.00	0.75	0.78	0.54	0.70	0.65	0.83
Heavy Vehicles (%)	4%	8%	0%	8%	3%	0%	0%	1%	6%	1%	3%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	417	0	40	467	0	20	312	0	243	322	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	28.3	24.6		27.8	24.3		24.7	18.5		33.1	30.0	
Actuated g/C Ratio	0.38	0.33		0.37	0.32		0.33	0.25		0.44	0.40	
v/c Ratio	0.21	0.72		0.14	0.78		0.05	0.69		0.58	0.45	
Control Delay	15.0	31.5		14.2	34.6		17.1	36.5		23.9	23.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		1.3	8.0	
Total Delay	15.0	31.5		14.2	34.6		17.1	36.5		25.2	31.6	
LOS	B	C		B	C		B	D		C	C	
Approach Delay		29.5			33.0			35.4			28.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	15	182		11	212		6	140		79	104	
Queue Length 95th (ft)	34	304		21	314		18	220		121	167	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	343	890		363	932		526	662		435	733	
Starvation Cap Reductn	0	0		0	0		0	0		68	363	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.47		0.11	0.50		0.04	0.47		0.66	0.87	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 31.3
 Intersection Capacity Utilization 63.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 41: S. Maape Ave/S, Maple Ave & US 70/E. Spring St

Ø1	Ø2	Ø3	Ø4
15 s	40 s	15 s	30 s
Ø5	Ø6	Ø7	Ø8
15 s	40 s	15 s	30 s

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	340	30	20	360	35	35	85	5	30	45	20
Future Volume (vph)	15	340	30	20	360	35	35	85	5	30	45	20
Satd. Flow (prot)	1687	1779	0	1805	1803	0	1719	1880	0	1752	1828	0
Flt Permitted	0.443			0.461			0.690			0.568		
Satd. Flow (perm)	787	1779	0	876	1803	0	1249	1880	0	1048	1828	0
Satd. Flow (RTOR)		5			7			2			20	
Peak Hour Factor	0.75	0.92	0.94	0.71	0.94	0.80	0.88	0.59	1.00	0.75	0.63	0.83
Heavy Vehicles (%)	7%	6%	0%	0%	4%	2%	5%	0%	16%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	402	0	28	427	0	40	149	0	40	95	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	58.0	55.6		58.2	55.7		17.0	13.0		16.9	13.0	
Actuated g/C Ratio	0.64	0.62		0.65	0.62		0.19	0.14		0.19	0.14	
v/c Ratio	0.04	0.37		0.04	0.38		0.15	0.55		0.16	0.34	
Control Delay	7.5	12.6		15.9	22.9		25.9	42.7		18.5	19.4	
Queue Delay	0.0	0.0		0.0	0.5		0.0	0.0		0.1	0.0	
Total Delay	7.5	12.6		15.9	23.4		25.9	42.7		18.7	19.4	
LOS	A	B		B	C		C	D		B	B	
Approach Delay		12.4			23.0			39.1			19.2	
Approach LOS		B			C			D			B	
Queue Length 50th (ft)	4	96		6	109		17	80		12	21	
Queue Length 95th (ft)	11	236		27	317		39	82		21	27	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	567	1100		629	1118		268	607		245	602	
Starvation Cap Reductn	0	0		0	331		0	0		0	0	
Spillback Cap Reductn	0	33		0	0		0	0		31	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.38		0.04	0.54		0.15	0.25		0.19	0.16	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 21.4

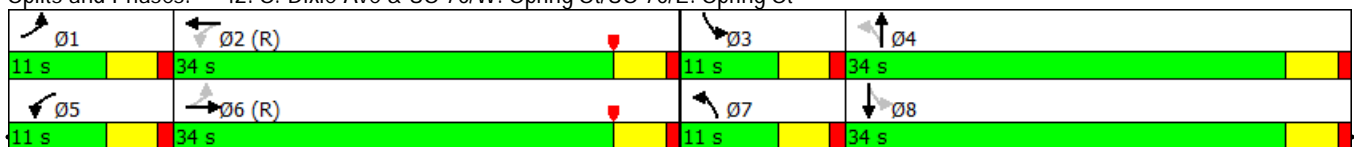
Intersection LOS: C

Intersection Capacity Utilization 39.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St



Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

05/16/2017

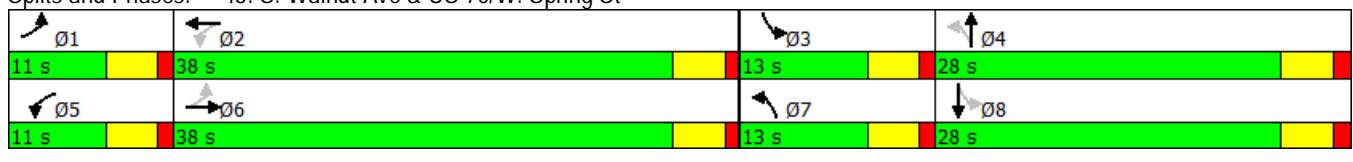
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	395	45	25	355	20	60	210	25	10	100	25
Future Volume (vph)	35	395	45	25	355	20	60	210	25	10	100	25
Satd. Flow (prot)	1805	1767	0	1805	1831	0	1787	1840	0	1805	1828	0
Flt Permitted	0.345			0.294			0.519			0.581		
Satd. Flow (perm)	656	1767	0	559	1831	0	976	1840	0	1104	1828	0
Satd. Flow (RTOR)		9			4			10			13	
Peak Hour Factor	0.55	0.96	0.75	1.00	0.99	0.83	0.75	0.86	0.52	0.50	0.78	0.78
Heavy Vehicles (%)	0%	6%	2%	0%	3%	0%	1%	0%	4%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	471	0	25	383	0	80	292	0	20	160	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	38.0		11.0	38.0		13.0	28.0		13.0	28.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	24.3	22.6		23.2	20.4		21.8	18.8		17.9	12.7	
Actuated g/C Ratio	0.40	0.37		0.38	0.34		0.36	0.31		0.30	0.21	
v/c Ratio	0.16	0.71		0.07	0.62		0.18	0.51		0.05	0.41	
Control Delay	12.0	24.9		11.4	23.9		16.3	24.9		16.3	27.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.0	24.9		11.4	23.9		16.3	24.9		16.3	27.2	
LOS	B	C		B	C		B	C		B	C	
Approach Delay		23.3			23.1			23.0			26.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	12	116		5	125		19	76		5	50	
Queue Length 95th (ft)	23	331		19	255		47	212		12	105	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	401	1088		364	1125		482	826		470	822	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.43		0.07	0.34		0.17	0.35		0.04	0.19	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 60.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 23.5
 Intersection Capacity Utilization 59.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St



Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	420	40	30	320	20	30	40	35	10	25	25
Future Volume (vph)	10	420	40	30	320	20	30	40	35	10	25	25
Satd. Flow (prot)	1641	1801	0	1805	1847	0	1805	1662	0	1626	1663	0
Flt Permitted	0.544			0.361			0.571			0.816		
Satd. Flow (perm)	940	1801	0	686	1847	0	1085	1662	0	1397	1663	0
Satd. Flow (RTOR)		8			5			40			32	
Peak Hour Factor	0.83	0.96	0.77	0.68	0.94	0.83	0.68	0.83	0.88	0.83	0.69	0.78
Heavy Vehicles (%)	10%	4%	2%	0%	2%	0%	0%	7%	6%	11%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	490	0	44	364	0	44	88	0	12	68	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	23.0		11.0	23.0	
Total Lost Time (s)	5.0	5.6		5.0	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)	31.1	32.1		32.9	35.8		12.5	11.2		10.7	7.6	
Actuated g/C Ratio	0.61	0.63		0.65	0.70		0.25	0.22		0.21	0.15	
v/c Ratio	0.02	0.43		0.07	0.28		0.12	0.22		0.04	0.25	
Control Delay	6.9	14.9		6.8	9.6		18.7	16.2		18.6	20.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	14.9		6.8	9.6		18.7	16.2		18.6	20.2	
LOS	A	B		A	A		B	B		B	C	
Approach Delay		14.8			9.3			17.0			19.9	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	2	152		7	69		11	13		3	12	
Queue Length 95th (ft)	8	273		15	187		29	54		15	35	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	679	1361		607	1395		379	730		342	721	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.36		0.07	0.26		0.12	0.12		0.04	0.09	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 50.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 42.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 44: Scott Ave & US 70/W. Spring St

11 s	45 s	11 s	23 s
11 s	45 s	11 s	23 s

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	95	55	50	470	150	25	180	45	25	290	15
Future Volume (vph)	5	95	55	50	470	150	25	180	45	25	290	15
Satd. Flow (prot)	1805	1784	0	1770	1804	0	1805	1815	0	1736	1853	0
Flt Permitted	0.137			0.513			0.238			0.400		
Satd. Flow (perm)	260	1784	0	956	1804	0	452	1815	0	731	1853	0
Satd. Flow (RTOR)		32			23			13			2	
Peak Hour Factor	0.63	0.64	0.65	0.89	0.95	0.72	0.89	0.79	0.70	0.69	0.76	0.94
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	1%	2%	4%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	233	0	56	703	0	28	292	0	36	398	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	41.1	36.0		42.8	41.1		30.8	25.7		30.8	25.7	
Actuated g/C Ratio	0.47	0.41		0.49	0.47		0.35	0.29		0.35	0.29	
v/c Ratio	0.03	0.31		0.10	0.82		0.09	0.54		0.10	0.73	
Control Delay	12.8	19.3		13.0	31.0		18.9	32.2		18.9	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	12.7		0.0	0.0	
Total Delay	12.8	19.3		13.0	31.0		18.9	44.9		18.9	40.1	
LOS	B	B		B	C		B	D		B	D	
Approach Delay		19.1			29.7			42.7			38.4	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	2	92		18	335		11	157		14	238	
Queue Length 95th (ft)	7	99		38	#712		28	207		26	282	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	304	754		565	861		319	543		377	547	
Starvation Cap Reductn	0	0		0	0		0	225		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.31		0.10	0.82		0.09	0.92		0.10	0.73	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 87.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 70.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St

Ø1 15 s	Ø2 40 s	Ø3 15 s	Ø4 30 s
Ø5 15 s	Ø6 40 s	Ø7 15 s	Ø8 30 s

Lanes, Volumes, Timings
 46: S. Dixie Ave/N. Dixie Ave & E. Broad St

Cookeville 2017 Existing Conditions

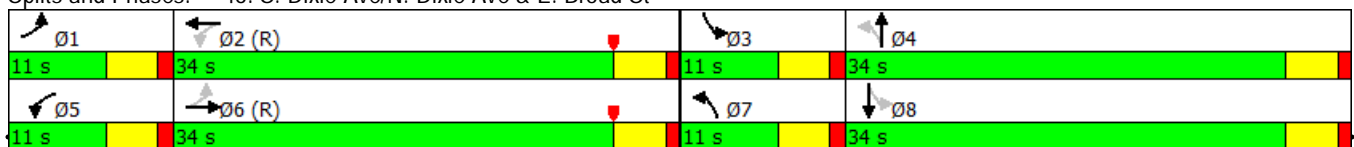
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	165	10	15	270	80	15	110	15	30	70	15
Future Volume (vph)	15	165	10	15	270	80	15	110	15	30	70	15
Satd. Flow (prot)	1805	1850	0	1805	1814	0	1805	1860	0	1805	1820	0
Flt Permitted	0.427			0.614			0.690			0.425		
Satd. Flow (perm)	811	1850	0	1167	1814	0	1311	1860	0	808	1820	0
Satd. Flow (RTOR)		3			20			5			18	
Peak Hour Factor	0.47	0.75	0.83	0.75	0.89	0.77	0.75	0.61	0.94	0.68	0.88	0.63
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	232	0	20	407	0	20	196	0	44	104	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	56.6	54.0		55.2	51.7		18.2	14.7		19.8	17.2	
Actuated g/C Ratio	0.63	0.60		0.61	0.57		0.20	0.16		0.22	0.19	
v/c Ratio	0.06	0.21		0.03	0.39		0.07	0.64		0.18	0.29	
Control Delay	8.5	12.1		9.3	13.8		12.1	25.0		24.6	26.8	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	8.5	12.1		9.3	13.9		12.1	25.1		24.6	26.8	
LOS	A	B		A	B		B	C		C	C	
Approach Delay		11.7			13.7			23.9			26.1	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	7	54		4	78		4	40		18	37	
Queue Length 95th (ft)	11	110		11	119		11	44		30	82	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	578	1111		760	1050		299	602		247	598	
Starvation Cap Reductn	0	0		0	97		0	7		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.21		0.03	0.43		0.07	0.33		0.18	0.17	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 17.0
 Intersection Capacity Utilization 46.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



AM Peak Hour
 WSP

Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

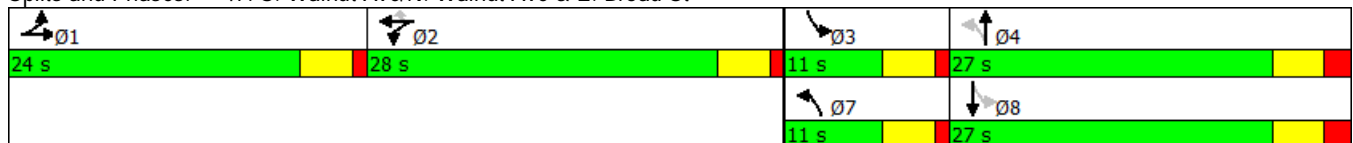
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	140	15	30	145	80	20	205	35	20	95	10
Future Volume (vph)	10	140	15	30	145	80	20	205	35	20	95	10
Satd. Flow (prot)	0	1856	0	0	1869	1599	1805	1854	0	1736	1820	0
Flt Permitted		0.998			0.992		0.668			0.413		
Satd. Flow (perm)	0	1856	0	0	1869	1599	1269	1854	0	755	1820	0
Satd. Flow (RTOR)		5				138		10			5	
Peak Hour Factor	1.00	0.78	0.75	0.94	0.84	0.74	1.00	0.88	0.80	1.00	0.74	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	0%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	209	0	0	205	108	20	277	0	20	140	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases						2	4			8		
Total Split (s)	24.0	24.0		28.0	28.0	28.0	11.0	27.0		11.0	27.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	4.0		5.0	4.0	
Act Effct Green (s)		12.0			12.2	12.2	16.5	15.9		16.5	15.9	
Actuated g/C Ratio		0.20			0.21	0.21	0.28	0.27		0.28	0.27	
v/c Ratio		0.55			0.53	0.24	0.05	0.55		0.06	0.28	
Control Delay		29.7			29.3	4.7	16.0	25.3		16.2	21.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		29.7			29.3	4.7	16.0	25.3		16.2	21.8	
LOS		C			C	A	B	C		B	C	
Approach Delay		29.7			20.8			24.6			21.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		53			53	0	4	65		4	30	
Queue Length 95th (ft)		141			151	10	21	200		21	86	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		667			810	771	416	809		322	792	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.31			0.25	0.14	0.05	0.34		0.06	0.18	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 58.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 23.9
 Intersection Capacity Utilization 41.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St



Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	20	5	20	25	120	5	85	10	130	45	15
Future Volume (vph)	30	20	5	20	25	120	5	85	10	130	45	15
Satd. Flow (prot)	0	1797	0	0	1685	0	0	1844	0	0	1795	0
Flt Permitted		0.973			0.994			0.998			0.968	
Satd. Flow (perm)	0	1797	0	0	1685	0	0	1844	0	0	1795	0
Peak Hour Factor	0.63	0.63	0.63	0.71	0.69	0.79	1.00	0.69	0.83	0.83	0.75	0.63
Heavy Vehicles (%)	3%	0%	0%	0%	0%	2%	20%	1%	0%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	216	0	0	140	0	0	241	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 33.6%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	30	20	5	0	20	25	120	0	5	85	10
Future Vol, veh/h	0	30	20	5	0	20	25	120	0	5	85	10
Peak Hour Factor	0.92	0.63	0.63	0.63	0.92	0.71	0.69	0.79	0.92	1.00	0.69	0.83
Heavy Vehicles, %	2	3	0	0	2	0	0	2	2	20	1	0
Mvmt Flow	0	48	32	8	0	28	36	152	0	5	123	12
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.1	9.4	9.6
HCM LOS	A	A	A











Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	55%	12%	68%
Vol Thru, %	85%	36%	15%	24%
Vol Right, %	10%	9%	73%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	55	165	190
LT Vol	5	30	20	130
Through Vol	85	20	25	45
RT Vol	10	5	120	15
Lane Flow Rate	140	87	216	240
Geometry Grp	1	1	1	1
Degree of Util (X)	0.203	0.127	0.274	0.328
Departure Headway (Hd)	5.217	5.23	4.557	4.91
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	682	679	783	726
Service Time	3.296	3.311	2.622	2.981
HCM Lane V/C Ratio	0.205	0.128	0.276	0.331
HCM Control Delay	9.6	9.1	9.4	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.4	1.1	1.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	130	45	15
Future Vol, veh/h	0	130	45	15
Peak Hour Factor	0.92	0.83	0.75	0.63
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	157	60	24
Number of Lanes	0	0	1	0
Approach	SB			
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	10.4			
HCM LOS	B			

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	125	95	130	60	30
Future Volume (vph)	60	125	95	130	60	30
Satd. Flow (prot)	1787	1615	0	1838	1813	0
Flt Permitted	0.950			0.981		
Satd. Flow (perm)	1787	1615	0	1838	1813	0
Peak Hour Factor	0.83	0.74	0.79	0.68	0.75	0.94
Heavy Vehicles (%)	1%	0%	2%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	169	0	311	112	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 28.8%

ICU Level of Service A

Analysis Period (min) 15











Intersection

Intersection Delay, s/veh 9.9
 Intersection LOS A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↷		↶	
Traffic Vol, veh/h	0	60	125	0	95	130	0	60	30
Future Vol, veh/h	0	60	125	0	95	130	0	60	30
Peak Hour Factor	0.92	0.83	0.74	0.92	0.79	0.68	0.92	0.75	0.94
Heavy Vehicles, %	2	1	0	2	2	1	2	1	0
Mvmt Flow	0	72	169	0	120	191	0	80	32
Number of Lanes	0	1	1	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach			NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	9.1	11.1	8.5
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	42%	100%	0%	0%
Vol Thru, %	58%	0%	0%	67%
Vol Right, %	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	225	60	125	90
LT Vol	95	60	0	0
Through Vol	130	0	0	60
RT Vol	0	0	125	30
Lane Flow Rate	311	72	169	112
Geometry Grp	2	7	7	2
Degree of Util (X)	0.41	0.121	0.225	0.146
Departure Headway (Hd)	4.74	6.017	4.79	4.683
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	757	594	745	762
Service Time	2.783	3.772	2.544	2.737
HCM Lane V/C Ratio	0.411	0.121	0.227	0.147
HCM Control Delay	11.1	9.6	8.9	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2	0.4	0.9	0.5

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	80	225	5	240	390
Future Volume (vph)	0	80	225	5	240	390
Satd. Flow (prot)	1900	1615	1823	0	0	1822
Flt Permitted						0.980
Satd. Flow (perm)	1900	1615	1823	0	0	1822
Peak Hour Factor	0.25	0.83	0.89	1.00	0.76	0.86
Heavy Vehicles (%)	0%	0%	4%	0%	1%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	96	258	0	0	769
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↔			↕
Traffic Vol, veh/h	0	80	225	5	240	390
Future Vol, veh/h	0	80	225	5	240	390
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	83	89	100	76	86
Heavy Vehicles, %	0	0	4	0	1	3
Mvmt Flow	0	96	253	5	316	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1340	255	0	0	258	0
Stage 1	255	-	-	-	-	-
Stage 2	1085	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	170	789	-	-	1313	-
Stage 1	792	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	115	789	-	-	1313	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	222	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.2		0		3.5
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	789	1313	-
HCM Lane V/C Ratio	-	-	-	0.122	0.241	-
HCM Control Delay (s)	-	-	0	10.2	8.6	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.4	0.9	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

Cookeville 2017 Existing Conditions

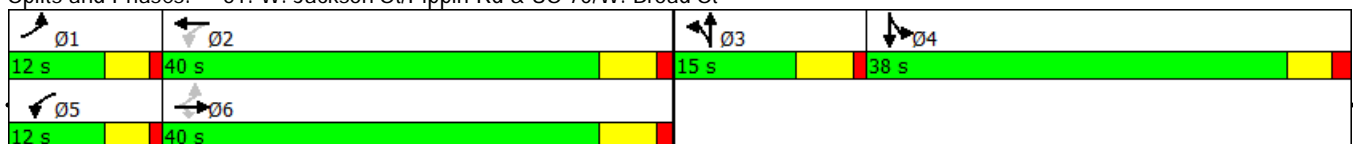
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	435	300	25	175	30	105	80	10	120	275	5
Future Volume (vph)	5	435	300	25	175	30	105	80	10	120	275	5
Satd. Flow (prot)	1805	1845	1553	1752	1771	0	1719	1900	1615	0	1859	0
Flt Permitted	0.559			0.125			0.950				0.984	
Satd. Flow (perm)	1062	1845	1553	231	1771	0	1719	1900	1615	0	1859	0
Satd. Flow (RTOR)			189		9				187			
Peak Hour Factor	1.00	0.82	0.78	0.69	0.84	0.83	0.91	0.67	0.83	0.68	0.76	1.00
Heavy Vehicles (%)	0%	3%	4%	3%	3%	16%	5%	0%	0%	0%	0%	50%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	530	385	36	244	0	115	119	12	0	543	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	12.0	40.0	40.0	12.0	40.0		15.0	15.0		38.0	38.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		4.0	4.0			4.0	
Act Effct Green (s)	34.2	32.3	32.3	37.0	36.8		10.9	10.9	93.4		31.4	
Actuated g/C Ratio	0.37	0.35	0.35	0.40	0.39		0.12	0.12	1.00		0.34	
v/c Ratio	0.01	0.83	0.58	0.18	0.35		0.57	0.54	0.01		0.87	
Control Delay	16.4	42.4	17.2	18.8	21.5		55.5	52.7	0.0		47.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.4	42.4	17.2	18.8	21.5		55.5	52.7	0.0		47.2	
LOS	B	D	B	B	C		E	D	A		D	
Approach Delay		31.7			21.2			51.5			47.2	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	2	324	103	13	96		75	77	0		345	
Queue Length 95th (ft)	9	406	148	24	169		#149	100	0		384	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	455	734	731	208	794		209	231	1615		698	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.72	0.53	0.17	0.31		0.55	0.52	0.01		0.78	

Intersection Summary

Cycle Length: 105
 Actuated Cycle Length: 93.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 36.9
 Intersection Capacity Utilization 57.6%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

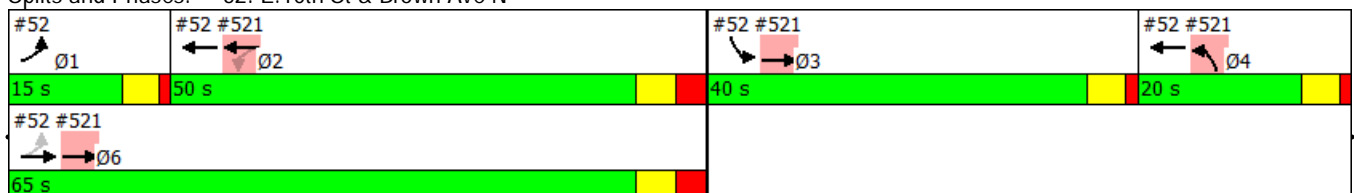
							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	25	475	725	115	120	25		
Future Volume (vph)	25	475	725	115	120	25		
Satd. Flow (prot)	1671	1845	1845	0	1645	0		
Flt Permitted	0.082				0.964			
Satd. Flow (perm)	144	1845	1845	0	1645	0		
Satd. Flow (RTOR)			10		14			
Peak Hour Factor	0.89	0.96	0.88	0.76	0.73	0.45		
Heavy Vehicles (%)	8%	3%	1%	0%	6%	12%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	28	495	975	0	220	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	15.0	65.0			40.0		50.0	20.0
Total Lost Time (s)	5.0	4.0			5.4			
Act Effct Green (s)	53.7	54.7	64.9		18.8			
Actuated g/C Ratio	0.52	0.53	0.63		0.18			
v/c Ratio	0.13	0.51	0.84		0.71			
Control Delay	14.7	18.5	12.1		50.8			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	14.7	18.5	12.1		50.8			
LOS	B	B	B		D			
Approach Delay		18.3	12.1		50.8			
Approach LOS		B	B		D			
Queue Length 50th (ft)	9	199	123		138			
Queue Length 95th (ft)	26	339	m119		169			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	224	1106	1161		568			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.13	0.45	0.84		0.39			

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 103.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 19.0
 Intersection Capacity Utilization 63.0%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Cookeville 2017 Existing Conditions

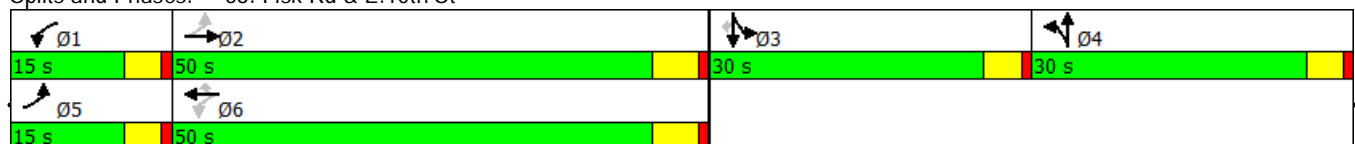
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	480	20	15	650	195	45	110	10	195	40	130
Future Volume (vph)	50	480	20	15	650	195	45	110	10	195	40	130
Satd. Flow (prot)	1770	1832	0	1805	1863	1538	0	1820	0	0	1649	1583
Flt Permitted	0.081			0.195				0.990			0.959	
Satd. Flow (perm)	151	1832	0	370	1863	1538	0	1820	0	0	1649	1583
Satd. Flow (RTOR)		2				127		2				148
Peak Hour Factor	0.83	0.83	0.83	0.75	0.96	0.83	0.75	0.51	0.83	0.80	0.91	0.88
Heavy Vehicles (%)	2%	3%	5%	0%	2%	5%	6%	2%	0%	12%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	602	0	20	677	235	0	288	0	0	288	148
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	15.0	50.0		15.0	50.0	50.0	30.0	30.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0		5.0			5.0	5.0
Act Effct Green (s)	53.4	51.1		49.1	45.5	45.5		21.6			22.9	22.9
Actuated g/C Ratio	0.47	0.45		0.43	0.40	0.40		0.19			0.20	0.20
v/c Ratio	0.34	0.73		0.09	0.91	0.34		0.83			0.87	0.34
Control Delay	22.8	34.6		18.2	52.7	13.9		66.6			72.1	9.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	22.8	34.6		18.2	52.7	13.9		66.6			72.1	9.0
LOS	C	C		B	D	B		E			E	A
Approach Delay		33.5			42.2			66.6			50.7	
Approach LOS		C			D			E			D	
Queue Length 50th (ft)	25	356		8	517	56		216			221	0
Queue Length 95th (ft)	46	523		19	#791	107		164			#383	53
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	216	844		297	767	707		408			368	469
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.28	0.71		0.07	0.88	0.33		0.71			0.78	0.32

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 114.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 44.3
 Intersection Capacity Utilization 68.6%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
 54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	530	185	190	710	125	170
Future Volume (vph)	530	185	190	710	125	170
Satd. Flow (prot)	1776	1553	1805	1845	1770	1583
Flt Permitted			0.193		0.950	
Satd. Flow (perm)	1776	1553	367	1845	1770	1583
Satd. Flow (RTOR)		264				288
Peak Hour Factor	0.88	0.70	0.68	0.85	0.74	0.59
Heavy Vehicles (%)	7%	4%	0%	3%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	602	264	279	835	169	288
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	45.0	45.0	26.0		19.0	19.0
Total Lost Time (s)	4.0	4.0	5.0		5.4	4.7
Act Effct Green (s)	36.0	36.0	54.8	59.9	11.4	12.1
Actuated g/C Ratio	0.44	0.44	0.67	0.73	0.14	0.15
v/c Ratio	0.77	0.32	0.47	0.62	0.69	0.60
Control Delay	27.8	3.1	9.1	8.0	50.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	3.1	9.1	8.0	50.5	10.3
LOS	C	A	A	A	D	B
Approach Delay	20.2			8.3	25.2	
Approach LOS	C			A	C	
Queue Length 50th (ft)	269	0	40	186	91	0
Queue Length 95th (ft)	391	12	47	254	126	0
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	909	924	628	1482	300	519
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.29	0.44	0.56	0.56	0.55

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 82
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 15.7
 Intersection Capacity Utilization 57.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



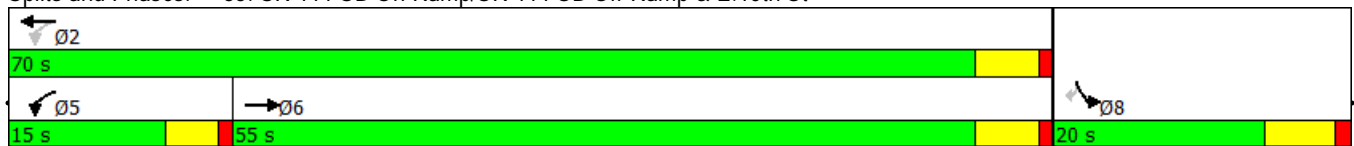
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	450	235	295	715	0	0	0	0	145	0	320
Future Volume (vph)	0	450	235	295	715	0	0	0	0	145	0	320
Satd. Flow (prot)	0	3243	0	1687	3471	0	0	0	0	1752	0	1583
Flt Permitted				0.185						0.950		
Satd. Flow (perm)	0	3243	0	329	3471	0	0	0	0	1752	0	1583
Satd. Flow (RTOR)		277										222
Peak Hour Factor	0.25	0.88	0.71	0.90	0.80	0.25	0.25	0.25	0.25	0.74	0.25	0.82
Heavy Vehicles (%)	0%	2%	9%	7%	4%	0%	0%	0%	0%	3%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	842	0	328	894	0	0	0	0	196	0	390
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		55.0		15.0	70.0					20.0		20.0
Total Lost Time (s)		3.4		3.2	4.0					6.4		5.9
Act Effct Green (s)		24.5		39.6	38.8					13.2		13.7
Actuated g/C Ratio		0.39		0.63	0.62					0.21		0.22
v/c Ratio		0.58		0.71	0.41					0.53		0.75
Control Delay		11.6		18.2	6.7					28.2		21.1
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		11.6		18.2	6.7					28.2		21.1
LOS		B		B	A					C		C
Approach Delay		11.6			9.8						23.5	
Approach LOS		B			A						C	
Queue Length 50th (ft)		82		49	79					66		55
Queue Length 95th (ft)		126		#158	93					103		#127
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		2730		465	3471					382		529
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.31		0.71	0.26					0.51		0.74

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 62.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 59.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	490	0	0	715	110	285	0	245	0	0	0
Future Volume (vph)	105	490	0	0	715	110	285	0	245	0	0	0
Satd. Flow (prot)	1719	3539	0	0	3385	0	1703	0	1509	0	0	0
Flt Permitted	0.137						0.950					
Satd. Flow (perm)	248	3539	0	0	3385	0	1703	0	1509	0	0	0
Satd. Flow (RTOR)					23				322			
Peak Hour Factor	0.91	0.85	0.25	0.25	0.84	0.92	0.75	0.25	0.76	0.25	0.25	0.25
Heavy Vehicles (%)	5%	2%	0%	0%	4%	9%	6%	0%	7%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	576	0	0	971	0	380	0	322	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	15.0	60.0			45.0		30.0		30.0			
Total Lost Time (s)	5.0	4.0			4.0		4.0		4.0			
Act Effct Green (s)	37.0	38.1			28.8		22.1		22.1			
Actuated g/C Ratio	0.54	0.55			0.42		0.32		0.32			
v/c Ratio	0.39	0.29			0.68		0.70		0.46			
Control Delay	11.5	8.4			19.8		32.0		5.4			
Queue Delay	0.0	0.0			0.5		0.0		0.0			
Total Delay	11.5	8.4			20.3		32.0		5.4			
LOS	B	A			C		C		A			
Approach Delay		8.9			20.3			19.8				
Approach LOS		A			C			B				
Queue Length 50th (ft)	23	65			186		150		0			
Queue Length 95th (ft)	47	89			244		235		27			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	368	2796			2148		707		815			
Starvation Cap Reductn	0	0			654		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.31	0.21			0.65		0.54		0.40			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 16.8

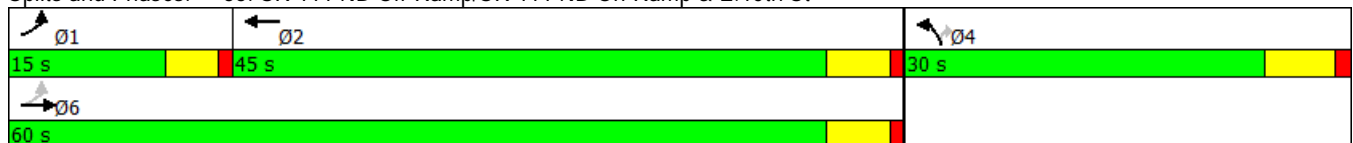
Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	525	210	40	595	235	70
Future Volume (vph)	525	210	40	595	235	70
Satd. Flow (prot)	3331	0	1612	3471	1703	1455
Flt Permitted			0.156		0.950	
Satd. Flow (perm)	3331	0	265	3471	1703	1455
Satd. Flow (RTOR)	121					88
Peak Hour Factor	0.82	0.77	0.77	0.94	0.74	0.80
Heavy Vehicles (%)	2%	7%	12%	4%	6%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	913	0	52	633	318	88
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	55.0		15.0	70.0	20.0	20.0
Total Lost Time (s)	4.0		5.0	4.0	4.0	4.0
Act Effct Green (s)	22.8		29.1	30.2	16.9	16.9
Actuated g/C Ratio	0.41		0.52	0.54	0.30	0.30
v/c Ratio	0.64		0.14	0.34	0.61	0.17
Control Delay	14.1		5.9	6.8	28.2	6.8
Queue Delay	0.1		0.0	0.0	0.0	0.0
Total Delay	14.2		5.9	6.8	28.2	6.8
LOS	B		A	A	C	A
Approach Delay	14.2			6.7	23.5	
Approach LOS	B			A	C	
Queue Length 50th (ft)	126		7	51	107	0
Queue Length 95th (ft)	155		15	72	#170	25
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	2910		395	3432	518	504
Starvation Cap Reductn	530		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.38		0.13	0.18	0.61	0.17

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 55.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 13.5
 Intersection Capacity Utilization 52.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	5	5	25	25	60	35	815	5	50	670	35
Future Volume (vph)	10	5	5	25	25	60	35	815	5	50	670	35
Satd. Flow (prot)	1687	1444	0	0	1722	0	1787	3502	0	1805	3397	0
Flt Permitted	0.635				0.925		0.319			0.220		
Satd. Flow (perm)	1128	1444	0	0	1610	0	600	3502	0	418	3397	0
Satd. Flow (RTOR)		12			50			1			14	
Peak Hour Factor	0.83	1.00	0.42	0.69	0.57	0.79	0.51	0.91	0.63	0.54	0.93	0.58
Heavy Vehicles (%)	7%	0%	25%	0%	0%	4%	1%	3%	0%	0%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	17	0	0	156	0	69	904	0	93	780	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	25.0	25.0		25.0	25.0		14.0	50.0		15.0	51.0	
Total Lost Time (s)	4.0	4.0			4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	11.0	11.0			11.0		30.5	26.7		31.9	29.2	
Actuated g/C Ratio	0.20	0.20			0.20		0.56	0.49		0.58	0.53	
v/c Ratio	0.05	0.06			0.43		0.15	0.53		0.23	0.43	
Control Delay	20.5	13.7			18.8		5.3	12.4		6.0	10.2	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	20.5	13.7			18.8		5.3	12.4		6.0	10.2	
LOS	C	B			B		A	B		A	B	
Approach Delay		16.5			18.8			11.9			9.8	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	3	1			28		7	105		9	85	
Queue Length 95th (ft)	15	16			45		12	189		16	155	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	444	575			664		557	2992		517	2953	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.03	0.03			0.23		0.12	0.30		0.18	0.26	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 54.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 11.6

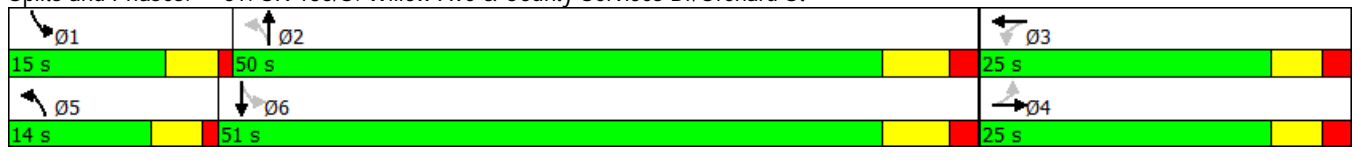
Intersection LOS: B










Intersection Capacity Utilization 51.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	0	35	0	40
Future Volume (vph)	5	0	0	35	0	40
Satd. Flow (prot)	1770	0	0	1611	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1611	0	1863
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	38	0	43
Sign Control	Yield		Free			Free

Intersection Summary













Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	5	5	5	930	425	5
Future Volume (vph)	5	5	5	930	425	5
Satd. Flow (prot)	864	0	0	5037	3469	0
Flt Permitted	0.976					
Satd. Flow (perm)	864	0	0	5037	3469	0
Peak Hour Factor	1.00	1.00	0.63	0.81	0.75	1.00
Heavy Vehicles (%)	100%	100%	0%	3%	4%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	0	1156	572	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 31.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection









Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↓	
Traffic Vol, veh/h	5	5	5	930	425	5
Future Vol, veh/h	5	5	5	930	425	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	63	81	75	100
Heavy Vehicles, %	100	100	0	3	4	0
Mvmt Flow	5	5	8	1148	567	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1044	286	572	0	-	0
Stage 1	569	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	8.25	8.9	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-
Critical Hdwy Stg 2	8	-	-	-	-	-
Follow-up Hdwy	4.65	4.3	2.2	-	-	-
Pot Cap-1 Maneuver	129	487	1011	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	126	487	1011	-	-	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1011	-	293	-	-
HCM Lane V/C Ratio	0.008	-	0.034	-	-
HCM Control Delay (s)	8.6	0.1	17.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	455	275	40	0	0
Future Volume (vph)	0	455	275	40	0	0
Satd. Flow (prot)	0	3336	3245	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3336	3245	0	0	0
Peak Hour Factor	0.25	0.86	0.71	0.71	0.92	0.92
Heavy Vehicles (%)	0%	1%	2%	1%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	529	443	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 15.9%

ICU Level of Service A















Analysis Period (min) 15

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	170	365	5	0	190	95
Future Volume (vph)	0	0	0	0	0	0	170	365	5	0	190	95
Satd. Flow (prot)	0	0	0	0	0	0	0	3349	0	0	3007	0
Flt Permitted								0.984				
Satd. Flow (perm)	0	0	0	0	0	0	0	3349	0	0	3007	0
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25	0.76	0.77	0.63	0.25	0.82	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	7%	19%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	706	0	0	336	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.1%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

Cookeville 2017 Existing Conditions

05/16/2017

	→	↘	↙	←	↖	↗			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø3	Ø6
Lane Configurations	↗		↘	↖	↗				
Traffic Volume (vph)	580	20	5	800	35	5			
Future Volume (vph)	580	20	5	800	35	5			
Satd. Flow (prot)	1836	0	1805	1881	1786	0			
Flt Permitted			0.383		0.959				
Satd. Flow (perm)	1836	0	728	1881	1786	0			
Satd. Flow (RTOR)	6				6				
Peak Hour Factor	0.92	0.71	0.42	0.86	0.49	0.42			
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	658	0	12	930	83	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			50.0	50.0	20.0		15.0	40.0	65.0
Total Lost Time (s)			4.0	4.0	5.4				
Act Effct Green (s)	77.5		46.7	46.7	14.8				
Actuated g/C Ratio	0.75		0.45	0.45	0.14				
v/c Ratio	0.48		0.04	1.09	0.32				
Control Delay	1.3		21.8	89.6	44.5				
Queue Delay	0.0		0.0	3.6	0.0				
Total Delay	1.3		21.8	93.3	44.5				
LOS	A		C	F	D				
Approach Delay	1.3			92.4	44.5				
Approach LOS	A			F	D				
Queue Length 50th (ft)	3		5	-777	49				
Queue Length 95th (ft)	3		9	#1063	53				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1621		329	850	261				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	162	2				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.41		0.04	1.35	0.32				

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 103.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 54.4
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service B

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St

#52 Ø1	#52 #521 Ø2	#52 #521 Ø3	#52 #521 Ø4
15 s	50 s	40 s	20 s
#52 #521 Ø6			
65 s			

Lanes, Volumes, Timings
 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

Cookeville 2017 Existing Conditions

05/16/2017

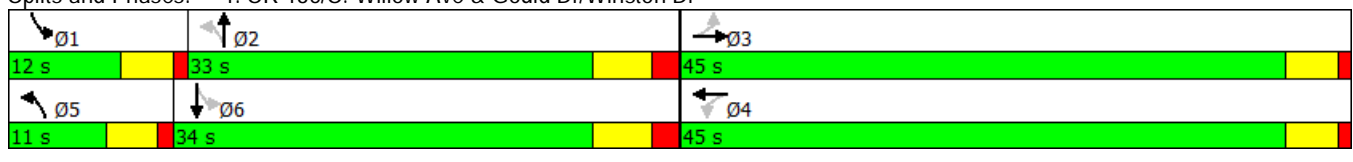
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	10	55	15	5	65	20	420	5	80	600	40
Future Volume (vph)	190	10	55	15	5	65	20	420	5	80	600	40
Satd. Flow (prot)	1770	1700	0	1703	1639	0	1805	3452	0	1787	3486	0
Flt Permitted	0.700			0.705			0.323			0.343		
Satd. Flow (perm)	1304	1700	0	1264	1639	0	614	3452	0	645	3486	0
Satd. Flow (RTOR)		56			76			3			10	
Peak Hour Factor	0.49	0.42	0.98	0.54	0.42	0.86	0.83	0.82	0.42	0.71	0.86	0.71
Heavy Vehicles (%)	2%	0%	0%	6%	0%	1%	0%	4%	16%	1%	1%	20%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	388	80	0	28	88	0	24	524	0	113	754	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		11.0	33.0		12.0	34.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	24.9	24.9		24.9	24.9		24.1	17.9		27.3	23.5	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.38	0.28		0.43	0.37	
v/c Ratio	0.76	0.11		0.06	0.13		0.07	0.54		0.27	0.58	
Control Delay	28.8	6.7		13.9	5.2		12.8	23.5		13.8	20.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.8	6.7		13.9	5.2		12.8	23.5		13.8	20.6	
LOS	C	A		B	A		B	C		B	C	
Approach Delay		25.0			7.3			23.1			19.7	
Approach LOS		C			A			C			B	
Queue Length 50th (ft)	120	5		6	3		4	88		22	95	
Queue Length 95th (ft)	113	5		14	1		19	157		53	242	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	882	1168		855	1134		374	1675		430	1757	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.07		0.03	0.08		0.06	0.31		0.26	0.43	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 63.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 21.1
 Intersection Capacity Utilization 52.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	5	55	0	0	0	0	515	230	350	765	0
Future Volume (vph)	235	5	55	0	0	0	0	515	230	350	765	0
Satd. Flow (prot)	1649	1568	0	0	0	0	0	3383	0	1770	3539	0
Flt Permitted	0.950	0.974								0.149		
Satd. Flow (perm)	1649	1568	0	0	0	0	0	3383	0	278	3539	0
Satd. Flow (RTOR)		51						77				
Peak Hour Factor	0.92	0.63	0.81	0.25	0.25	0.25	0.25	0.75	0.74	0.80	0.92	0.25
Heavy Vehicles (%)	4%	0%	7%	0%	0%	0%	0%	2%	1%	2%	2%	0%
Shared Lane Traffic (%)	34%											
Lane Group Flow (vph)	168	163	0	0	0	0	0	998	0	438	832	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	45.0	45.0						27.0		18.0	45.0	
Total Lost Time (s)	5.2	5.2						4.7		4.5	4.7	
Act Effct Green (s)	11.6	11.6						22.4		40.6	40.4	
Actuated g/C Ratio	0.19	0.19						0.36		0.65	0.65	
v/c Ratio	0.54	0.49						0.79		0.86	0.36	
Control Delay	29.5	20.6						22.8		33.3	5.9	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	29.5	20.6						22.8		33.3	5.9	
LOS	C	C						C		C	A	
Approach Delay		25.1						22.8			15.4	
Approach LOS		C						C			B	
Queue Length 50th (ft)	60	38						156		101	61	
Queue Length 95th (ft)	114	53						193		#229	115	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	1062	1028						1269		508	2307	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.16	0.16						0.79		0.86	0.36	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 62

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.4

Intersection LOS: B

Intersection Capacity Utilization 63.6%

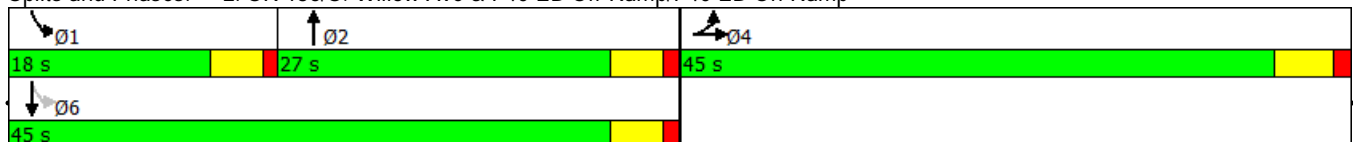
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	185	5	275	40	700	0	0	940	290
Future Volume (vph)	0	0	0	185	5	275	40	700	0	0	940	290
Satd. Flow (prot)	0	0	0	0	1759	1583	1671	3539	0	0	3409	0
Flt Permitted					0.953		0.116					
Satd. Flow (perm)	0	0	0	0	1759	1583	204	3539	0	0	3409	0
Satd. Flow (RTOR)						85					51	
Peak Hour Factor	0.25	0.25	0.25	0.87	1.00	0.85	0.77	0.81	0.25	0.25	0.85	0.81
Heavy Vehicles (%)	0%	0%	0%	3%	0%	2%	8%	2%	0%	0%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	218	324	52	864	0	0	1464	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				45.0	45.0	45.0	10.6	45.0			34.4	
Total Lost Time (s)					5.4	5.4	4.5	5.5			5.5	
Act Effct Green (s)					15.7	15.7	36.5	35.5			29.9	
Actuated g/C Ratio					0.25	0.25	0.58	0.57			0.48	
v/c Ratio					0.49	0.70	0.19	0.43			0.88	
Control Delay					24.3	24.6	8.8	9.3			26.4	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					24.3	24.6	8.8	9.3			26.4	
LOS					C	C	A	A			C	
Approach Delay					24.5			9.3			26.4	
Approach LOS					C			A			C	
Queue Length 50th (ft)					77	88	8	89			287	
Queue Length 95th (ft)					133	152	23	149			#495	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					1153	1067	267	2315			1658	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.19	0.30	0.19	0.37			0.88	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 62.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 63.6%

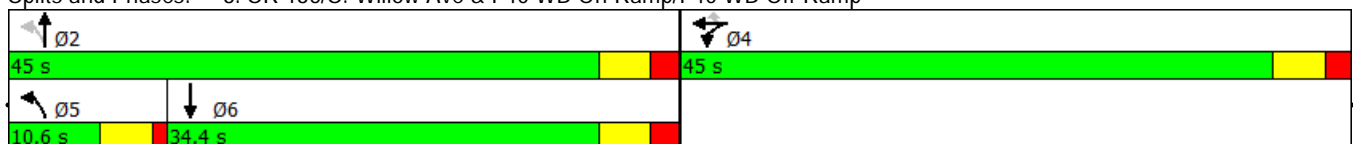
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

Cookeville 2017 Existing Conditions

05/16/2017

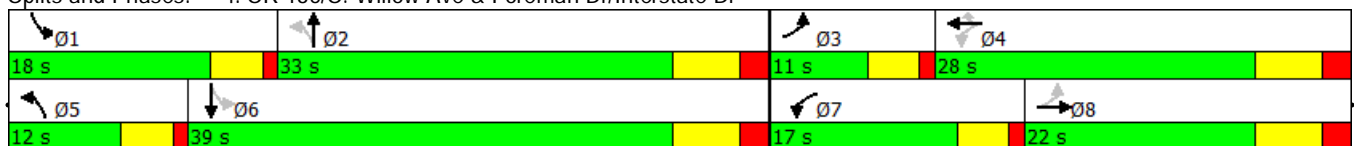
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	135	85	260	165	265	120	615	195	290	785	65
Future Volume (vph)	75	135	85	260	165	265	120	615	195	290	785	65
Satd. Flow (prot)	1736	1711	0	1805	1900	1615	1703	3412	0	1752	3528	0
Flt Permitted	0.630			0.232			0.215			0.132		
Satd. Flow (perm)	1151	1711	0	441	1900	1615	385	3412	0	243	3528	0
Satd. Flow (RTOR)		33				312		48			13	
Peak Hour Factor	0.85	0.77	0.71	0.82	0.81	0.85	0.86	0.86	0.86	0.90	0.95	0.81
Heavy Vehicles (%)	4%	1%	9%	0%	0%	0%	6%	2%	2%	3%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	295	0	317	204	312	140	942	0	322	906	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	11.0	22.0		17.0	28.0	28.0	12.0	33.0		18.0	39.0	
Total Lost Time (s)	4.5	6.5		4.5	6.5	6.5	4.5	6.5		4.5	6.5	
Act Effct Green (s)	23.7	15.3		34.4	23.6	23.6	35.3	25.9		45.9	32.1	
Actuated g/C Ratio	0.27	0.17		0.39	0.26	0.26	0.40	0.29		0.51	0.36	
v/c Ratio	0.25	0.92		0.88	0.41	0.48	0.54	0.92		0.91	0.71	
Control Delay	20.8	68.0		48.9	31.4	6.2	20.7	44.3		52.6	27.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.8	68.0		48.9	31.4	6.2	20.7	44.3		52.6	27.9	
LOS	C	E		D	C	A	C	D		D	C	
Approach Delay		57.2			28.6			41.2			34.4	
Approach LOS		E			C			D			C	
Queue Length 50th (ft)	32	149		132	99	0	40	257		125	225	
Queue Length 95th (ft)	60	#228		#211	146	51	68	#344		#284	295	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	350	324		360	502	656	263	1046		352	1293	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.25	0.91		0.88	0.41	0.48	0.53	0.90		0.91	0.70	

Intersection Summary














Cycle Length: 90
 Actuated Cycle Length: 89.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 37.6
 Intersection Capacity Utilization 84.3%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	25	100	920	120	60	1165
Future Volume (vph)	25	100	920	120	60	1165
Satd. Flow (prot)	1805	1583	3507	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3507	0	1752	3574
Peak Hour Factor	0.69	0.86	0.97	0.83	0.63	0.90
Heavy Vehicles (%)	0%	2%	1%	0%	3%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	116	1093	0	95	1294
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.5












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	25	100	920	120	60	1165
Future Vol, veh/h	25	100	920	120	60	1165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	36	116	948	145	95	1294

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1859	547	0	0	1093	0
Stage 1	1021	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	66	481	-	-	628	-
Stage 1	313	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	56	481	-	-	628	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	331	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	172	481	628	-
HCM Lane V/C Ratio	-	-	0.211	0.242	0.152	-
HCM Control Delay (s)	-	-	31.4	14.9	11.8	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.9	0.5	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	15	1020	5	0	1225
Future Volume (vph)	0	15	1020	5	0	1225
Satd. Flow (prot)	0	1644	3571	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3571	0	0	3539
Peak Hour Factor	0.25	0.75	0.97	0.63	0.25	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	1060	0	0	1346
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↗
Traffic Vol, veh/h	0	15	1020	5	0	1225
Future Vol, veh/h	0	15	1020	5	0	1225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	20	1052	8	0	1346

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	526	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	502	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	502	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 502	-
HCM Lane V/C Ratio	- 0.04	-
HCM Control Delay (s)	- 12.5	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.1	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	25	25	35	1070	1145	45
Future Volume (vph)	25	25	35	1070	1145	45
Satd. Flow (prot)	1736	1553	1805	3574	3548	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3548	0
Peak Hour Factor	1.00	0.69	0.88	0.99	0.92	0.75
Heavy Vehicles (%)	4%	4%	0%	1%	1%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	36	40	1081	1305	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 43.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕↕	↕↔	
Traffic Vol, veh/h	25	25	35	1070	1145	45
Future Vol, veh/h	25	25	35	1070	1145	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	25	36	40	1081	1245	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1895	652	1305	0	-	0
Stage 1	1275	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	60	406	537	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	56	406	537	-	-	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	21.8		0.4		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	537	-	158	406	-	-
HCM Lane V/C Ratio	0.074	-	0.158	0.089	-	-
HCM Control Delay (s)	12.2	-	32	14.7	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.5	0.3	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

Cookeville 2017 Existing Conditions

05/16/2017

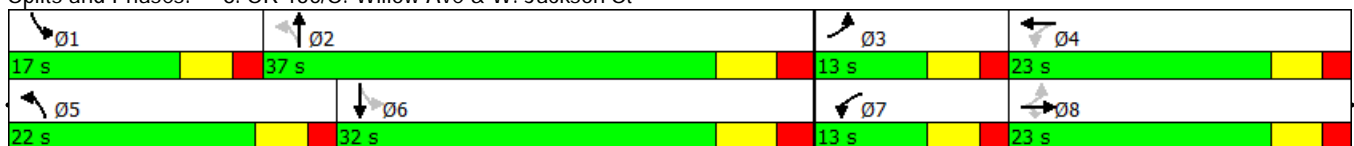
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	310	330	150	460	130	345	650	120	185	750	100
Future Volume (vph)	105	310	330	150	460	130	345	650	120	185	750	100
Satd. Flow (prot)	1805	3574	1568	1787	3473	0	1787	3453	0	1770	3502	0
Flt Permitted	0.234			0.379			0.132			0.239		
Satd. Flow (perm)	445	3574	1568	713	3473	0	248	3453	0	445	3502	0
Satd. Flow (RTOR)			345		45			29			17	
Peak Hour Factor	0.94	0.81	0.87	0.94	0.91	0.77	0.93	0.92	0.83	0.80	0.92	0.86
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%	1%	2%	1%	2%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	383	379	160	674	0	371	852	0	231	931	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	13.0	23.0	23.0	13.0	23.0		22.0	37.0		17.0	32.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	6.6		5.5	6.6	
Act Effct Green (s)	23.1	15.9	15.9	24.7	18.8		47.2	30.5		36.3	24.8	
Actuated g/C Ratio	0.26	0.18	0.18	0.28	0.21		0.54	0.35		0.41	0.28	
v/c Ratio	0.49	0.59	0.67	0.55	0.86		0.89	0.70		0.68	0.93	
Control Delay	28.9	37.0	11.9	30.1	45.2		46.0	27.9		23.8	47.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	37.0	11.9	30.1	45.2		46.0	27.9		23.8	47.0	
LOS	C	D	B	C	D		D	C		C	D	
Approach Delay		25.1			42.3			33.4			42.4	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	44	104	16	65	188		151	213		66	266	
Queue Length 95th (ft)	84	133	89	115	#301		#315	282		93	#389	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	235	716	590	293	783		424	1232		365	1031	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.53	0.64	0.55	0.86		0.88	0.69		0.63	0.90	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 87.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 36.0
 Intersection Capacity Utilization 85.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	75	30	100	105	70	30	800	80	60	970	35
Future Volume (vph)	35	75	30	100	105	70	30	800	80	60	970	35
Satd. Flow (prot)	0	1811	0	1787	1785	0	1805	3524	0	1787	3554	0
Flt Permitted		0.989		0.950			0.143			0.171		
Satd. Flow (perm)	0	1811	0	1787	1785	0	272	3524	0	322	3554	0
Satd. Flow (RTOR)		17		29			15			5		
Peak Hour Factor	0.88	0.82	0.63	0.71	0.85	0.92	0.83	0.99	0.91	0.83	0.96	0.88
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	141	200	0	36	896	0	72	1050	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	19.0	19.0		20.0	20.0		11.0	39.0		12.0	40.0	
Total Lost Time (s)		4.8		4.8	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)		11.6		12.1	12.1		32.5	27.6		34.6	30.5	
Actuated g/C Ratio		0.15		0.16	0.16		0.43	0.37		0.46	0.41	
v/c Ratio		0.61		0.49	0.64		0.14	0.69		0.25	0.73	
Control Delay		39.9		38.9	38.5		12.0	24.1		12.9	23.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		39.9		38.9	38.5		12.0	24.1		12.9	23.7	
LOS		D		D	D		B	C		B	C	
Approach Delay		39.9			38.6			23.6			23.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		81		69	85		9	200		18	247	
Queue Length 95th (ft)		137		100	151		22	281		37	341	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		379		386	408		259	1723		304	1783	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.47		0.37	0.49		0.14	0.52		0.24	0.59	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 75.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 26.5
 Intersection Capacity Utilization 66.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St

Ø1 12 s	Ø2 39 s	Ø3 20 s	Ø4 19 s
Ø5 11 s	Ø6 40 s		

Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

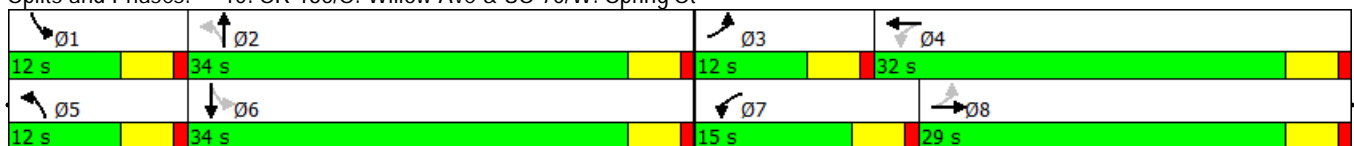
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	210	100	190	255	125	120	695	100	95	850	20
Future Volume (vph)	105	210	100	190	255	125	120	695	100	95	850	20
Satd. Flow (prot)	1787	1758	0	1805	1791	0	1787	3511	0	1685	3323	0
Flt Permitted	0.183			0.220			0.133			0.176		
Satd. Flow (perm)	344	1758	0	418	1791	0	250	3511	0	312	3323	0
Satd. Flow (RTOR)		28			22			19			3	
Peak Hour Factor	0.75	0.86	0.81	0.83	0.75	0.98	0.88	0.91	0.89	0.74	0.94	0.83
Heavy Vehicles (%)	1%	2%	4%	0%	2%	1%	1%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	367	0	229	468	0	136	876	0	128	928	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	29.0		15.0	32.0		12.0	34.0		12.0	34.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	29.1	21.8		34.6	24.5		35.8	30.0		34.6	27.3	
Actuated g/C Ratio	0.34	0.26		0.41	0.29		0.42	0.35		0.41	0.32	
v/c Ratio	0.58	0.78		0.68	0.88		0.57	0.70		0.52	0.87	
Control Delay	26.0	40.0		28.0	46.9		24.7	28.0		22.2	37.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	40.0		28.0	46.9		24.7	28.0		22.2	37.3	
LOS	C	D		C	D		C	C		C	D	
Approach Delay		36.2			40.7			27.6			35.5	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	47	175		81	236		43	226		41	255	
Queue Length 95th (ft)	69	261		120	274		79	298		60	#361	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	248	533		347	602		243	1270		251	1171	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.56	0.69		0.66	0.78		0.56	0.69		0.51	0.79	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 84.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 34.2
 Intersection Capacity Utilization 73.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	105	75	140	180	70	95	790	45	65	780	75
Future Volume (vph)	80	105	75	140	180	70	95	790	45	65	780	75
Satd. Flow (prot)	1805	1763	0	1805	1822	0	1668	3327	0	1620	3283	0
Flt Permitted	0.462			0.394			0.145			0.175		
Satd. Flow (perm)	878	1763	0	749	1822	0	255	3327	0	298	3283	0
Satd. Flow (RTOR)		42			20			9			16	
Peak Hour Factor	0.95	0.91	0.78	0.81	0.76	0.80	0.82	0.93	0.75	1.00	0.93	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	1%	0%	4%	4%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	211	0	173	325	0	116	909	0	65	939	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	24.0		14.0	27.0		13.0	40.0		12.0	39.0	
Total Lost Time (s)	4.5	5.2		4.5	5.2		4.5	4.8		4.5	4.8	
Act Effct Green (s)	22.0	14.4		28.2	20.5		34.9	28.6		33.3	27.8	
Actuated g/C Ratio	0.29	0.19		0.37	0.27		0.46	0.37		0.44	0.36	
v/c Ratio	0.25	0.58		0.43	0.64		0.43	0.73		0.25	0.78	
Control Delay	20.5	31.4		22.4	34.4		16.1	25.1		13.1	27.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.5	31.4		22.4	34.4		16.1	25.1		13.1	27.5	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		28.3			30.2			24.1			26.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	29	80		63	150		30	208		16	223	
Queue Length 95th (ft)	62	156		102	202		53	291		37	310	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	339	497		417	573		286	1653		270	1589	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.42		0.41	0.57		0.41	0.55		0.24	0.59	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 76.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 26.5

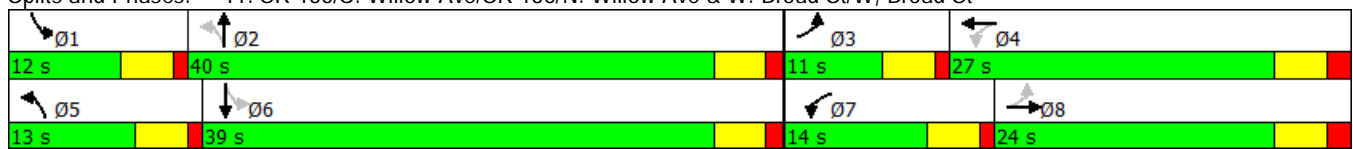
Intersection LOS: C

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	15	10	5	20	15	915	15	10	895	20
Future Volume (vph)	5	5	15	10	5	20	15	915	15	10	895	20
Satd. Flow (prot)	0	1750	0	0	1723	0	0	3356	0	0	3321	0
Flt Permitted		0.988			0.989			0.999			0.999	
Satd. Flow (perm)	0	1750	0	0	1723	0	0	3356	0	0	3321	0
Peak Hour Factor	0.63	0.63	0.94	0.83	0.63	0.63	0.75	0.95	0.75	0.83	0.91	0.71
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	0	52	0	0	1003	0	0	1024	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	5	15	10	5	20	15	915	15	10	895	20
Future Vol, veh/h	5	5	15	10	5	20	15	915	15	10	895	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	8	8	16	12	8	32	20	963	20	12	984	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1548	2045	506	1533	2049	492	1012	0	0	983	0	0
Stage 1	1022	1022	-	1013	1013	-	-	-	-	-	-	-
Stage 2	526	1023	-	520	1036	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	79	57	517	81	56	528	693	-	-	711	-	-
Stage 1	256	316	-	260	319	-	-	-	-	-	-	-
Stage 2	508	316	-	512	311	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	60	51	517	64	50	528	693	-	-	711	-	-
Mov Cap-2 Maneuver	60	51	-	64	50	-	-	-	-	-	-	-
Stage 1	240	304	-	243	299	-	-	-	-	-	-	-
Stage 2	435	296	-	464	299	-	-	-	-	-	-	-

















Approach	EB	WB	NB	SB
HCM Control Delay, s	57	51.6	0.5	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	100	127	711	-	-
HCM Lane V/C Ratio	0.029	-	-	0.318	0.407	0.017	-	-
HCM Control Delay (s)	10.3	0.3	-	57	51.6	10.2	0.2	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	1.7	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	20	20	5	25	15	885	40	10	875	15
Future Volume (vph)	10	10	20	20	5	25	15	885	40	10	875	15
Satd. Flow (prot)	0	1740	0	0	1704	0	0	3335	0	0	3321	0
Flt Permitted		0.985			0.979			0.999			0.999	
Satd. Flow (perm)	0	1740	0	0	1704	0	0	3335	0	0	3321	0
Peak Hour Factor	0.63	1.00	0.71	0.71	1.00	0.78	0.63	0.93	0.71	0.50	0.89	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	0	0	65	0	0	1032	0	0	1027	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh	5.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔			↔				↔	
Traffic Vol, veh/h	10	10	20	20	5	25	15	885	40	10	875	15	
Future Vol, veh/h	10	10	20	20	5	25	15	885	40	10	875	15	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63	
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0	
Mvmt Flow	16	10	28	28	5	32	24	952	56	20	983	24	

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1561	2091	503	1564	2074	504	1007	0	0	1008	0	0
Stage 1	1035	1035	-	1027	1027	-	-	-	-	-	-	-
Stage 2	526	1056	-	537	1047	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	77	53	519	77	54	508	696	-	-	695	-	-
Stage 1	252	312	-	255	314	-	-	-	-	-	-	-
Stage 2	508	305	-	501	308	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	59	46	519	54	46	508	696	-	-	695	-	-
Mov Cap-2 Maneuver	59	46	-	54	46	-	-	-	-	-	-	-
Stage 1	232	291	-	235	289	-	-	-	-	-	-	-
Stage 2	431	281	-	427	288	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77	103.7	0.6	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	696	-	-	100	94	695	-	-
HCM Lane V/C Ratio	0.034	-	-	0.54	0.694	0.029	-	-
HCM Control Delay (s)	10.4	0.4	-	77	103.7	10.3	0.3	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	3.5	0.1	-	-

Lanes, Volumes, Timings
 14: SR 135/N. Willow Ave & W. 7th St

Cookeville 2017 Existing Conditions

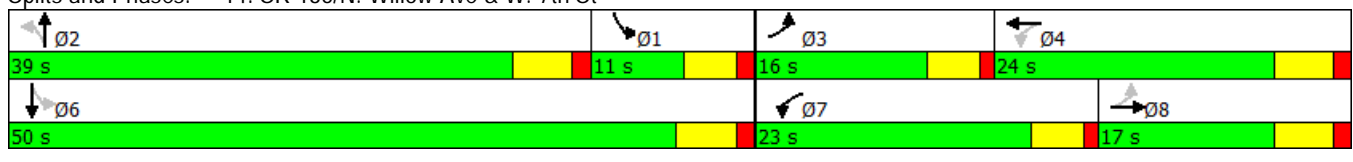
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	65	25	220	105	130	10	800	80	50	620	20
Future Volume (vph)	40	65	25	220	105	130	10	800	80	50	620	20
Satd. Flow (prot)	1770	1754	0	1805	1727	0	0	3315	0	0	3272	0
Flt Permitted	0.590			0.432				0.936			0.763	
Satd. Flow (perm)	1099	1754	0	821	1727	0	0	3106	0	0	2506	0
Satd. Flow (RTOR)		25			70			15			7	
Peak Hour Factor	0.83	0.81	0.57	0.86	0.91	0.81	0.63	0.96	0.83	0.78	0.88	0.63
Heavy Vehicles (%)	2%	4%	0%	0%	1%	0%	0%	0%	0%	0%	2%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	124	0	256	275	0	0	945	0	0	801	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	16.0	17.0		23.0	24.0		39.0	39.0		11.0	50.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3			5.3			5.3	
Act Effct Green (s)	15.1	9.4		25.0	18.0			29.1			29.1	
Actuated g/C Ratio	0.23	0.14		0.39	0.28			0.45			0.45	
v/c Ratio	0.14	0.45		0.49	0.52			0.68			0.71	
Control Delay	16.4	31.4		18.7	21.9			17.6			19.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	16.4	31.4		18.7	21.9			17.6			19.5	
LOS	B	C		B	C			B			B	
Approach Delay		27.2			20.4			17.6			19.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	11	36		65	70			153			134	
Queue Length 95th (ft)	36	94		153	185			254			223	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	478	370		671	642			1874			1778	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.34		0.38	0.43			0.50			0.45	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 64.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 19.5
 Intersection Capacity Utilization 79.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

















Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	75	5	10	5	75	900	5	5	605	70
Future Volume (vph)	35	5	75	5	10	5	75	900	5	5	605	70
Satd. Flow (prot)	0	1654	0	0	1791	0	0	3349	0	0	3283	0
Flt Permitted		0.984			0.989			0.995				
Satd. Flow (perm)	0	1654	0	0	1791	0	0	3349	0	0	3283	0
Peak Hour Factor	0.80	1.00	0.85	1.00	1.00	0.63	0.75	0.93	0.63	1.00	0.86	0.92
Heavy Vehicles (%)	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	137	0	0	23	0	0	1076	0	0	784	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	35	5	75	5	10	5	75	900	5	5	605	70
Future Vol, veh/h	35	5	75	5	10	5	75	900	5	5	605	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	44	5	88	5	10	8	100	968	8	5	703	76

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1441	1928	390	1536	1962	488	780	0	0	976	0	0
Stage 1	752	752	-	1172	1172	-	-	-	-	-	-	-
Stage 2	689	1176	-	364	790	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	67	600	81	64	531	846	-	-	715	-	-
Stage 1	373	421	-	208	269	-	-	-	-	-	-	-
Stage 2	407	267	-	633	404	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	63	49	600	51	47	531	846	-	-	715	-	-
Mov Cap-2 Maneuver	63	49	-	51	47	-	-	-	-	-	-	-
Stage 1	276	416	-	154	199	-	-	-	-	-	-	-
Stage 2	282	198	-	526	399	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	120.9	79.7	1.9	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	846	-	-	145	70	715	-	-
HCM Lane V/C Ratio	0.118	-	-	0.945	0.328	0.007	-	-
HCM Control Delay (s)	9.8	1.1	-	120.9	79.7	10.1	0.1	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.4	-	-	6.7	1.2	0	-	-

Lanes, Volumes, Timings
 16: SR 135/N. Willow Ave & University Dr

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	25	15	100	20	65	5	850	75	10	565	15
Future Volume (vph)	25	25	15	100	20	65	5	850	75	10	565	15
Satd. Flow (prot)	1736	1678	0	1787	1628	0	0	3329	0	0	3315	0
Flt Permitted	0.833			0.465				0.952			0.923	
Satd. Flow (perm)	1522	1678	0	875	1628	0	0	3169	0	0	3063	0
Satd. Flow (RTOR)		16			108			13			5	
Peak Hour Factor	0.78	0.89	0.94	0.66	0.56	0.60	1.00	0.91	0.94	0.63	0.93	0.63
Heavy Vehicles (%)	4%	11%	0%	1%	14%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	44	0	152	144	0	0	1019	0	0	648	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	33.0		12.0	33.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	4.5	5.5		4.5	5.5			4.9			4.9	
Act Effct Green (s)	11.6	7.8		13.7	10.4			29.4			29.4	
Actuated g/C Ratio	0.23	0.16		0.28	0.21			0.59			0.59	
v/c Ratio	0.08	0.16		0.39	0.34			0.54			0.36	
Control Delay	14.4	19.2		17.5	11.5			10.9			9.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.4	19.2		17.5	11.5			10.9			9.1	
LOS	B	B		B	B			B			A	
Approach Delay		17.2			14.6			10.9			9.1	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	6	8		32	7			124			67	
Queue Length 95th (ft)	22	36		61	20			210			120	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	430	1023		395	1029			2539			2452	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.04		0.38	0.14			0.40			0.26	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 49.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 11.1
 Intersection Capacity Utilization 50.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr

45 s	12 s	33 s
45 s	12 s	33 s

Lanes, Volumes, Timings
 17: SR 135/N. Willow Ave & W. 12th St

Cookeville 2017 Existing Conditions

05/16/2017

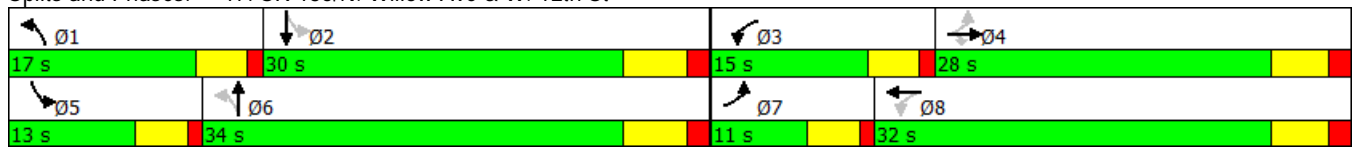
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	210	135	195	305	115	260	465	225	85	250	45
Future Volume (vph)	85	210	135	195	305	115	260	465	225	85	250	45
Satd. Flow (prot)	1752	1845	1615	1770	3420	0	1685	3176	0	1668	3288	0
Flt Permitted	0.480			0.367			0.438			0.308		
Satd. Flow (perm)	885	1845	1615	684	3420	0	777	3176	0	541	3288	0
Satd. Flow (RTOR)			148		63			106			24	
Peak Hour Factor	0.89	0.86	0.91	0.92	0.89	0.87	0.96	0.97	0.91	0.69	0.91	0.87
Heavy Vehicles (%)	3%	3%	0%	2%	0%	4%	0%	0%	2%	1%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	244	148	212	475	0	271	726	0	123	327	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	11.0	28.0	28.0	15.0	32.0		17.0	34.0		13.0	30.0	
Total Lost Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	22.9	15.2	15.2	30.1	21.4		33.7	23.2		26.2	16.8	
Actuated g/C Ratio	0.31	0.20	0.20	0.41	0.29		0.45	0.31		0.35	0.23	
v/c Ratio	0.28	0.65	0.33	0.51	0.46		0.55	0.68		0.39	0.43	
Control Delay	17.6	37.0	7.3	20.3	22.3		18.2	24.3		16.9	25.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.6	37.0	7.3	20.3	22.3		18.2	24.3		16.9	25.1	
LOS	B	D	A	C	C		B	C		B	C	
Approach Delay		24.2			21.7			22.6			22.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	28	108	0	66	88		77	140		32	64	
Queue Length 95th (ft)	62	185	46	127	142		151	224		52	111	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	352	577	607	437	1301		514	1307		330	1119	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.42	0.24	0.49	0.37		0.53	0.56		0.37	0.29	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 74.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 22.7
 Intersection Capacity Utilization 63.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

Cookeville 2017 Existing Conditions

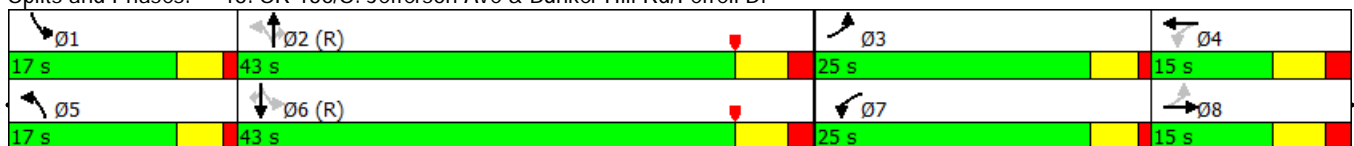
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	0	15	10	0	25	20	680	5	20	920	280
Future Volume (vph)	225	0	15	10	0	25	20	680	5	20	920	280
Satd. Flow (prot)	1736	1615	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.417			0.784			0.203			0.295		
Satd. Flow (perm)	762	1615	0	1490	1615	0	386	3539	1615	524	3505	1599
Satd. Flow (RTOR)		506			317				131			131
Peak Hour Factor	0.95	0.25	0.94	0.63	0.25	0.69	0.63	0.82	1.00	1.00	0.90	0.79
Heavy Vehicles (%)	4%	100%	0%	0%	0%	0%	0%	2%	0%	7%	3%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	16	0	16	36	0	32	829	5	20	1022	354
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	25.0	15.0		25.0	15.0		17.0	43.0	43.0	17.0	43.0	43.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Act Effct Green (s)	21.2	15.0		14.3	6.0		65.8	61.5	61.5	64.5	59.2	59.2
Actuated g/C Ratio	0.21	0.15		0.14	0.06		0.66	0.62	0.62	0.64	0.59	0.59
v/c Ratio	0.74	0.02		0.06	0.09		0.09	0.38	0.00	0.05	0.49	0.35
Control Delay	48.8	0.1		26.1	0.4		8.6	13.1	0.0	2.6	6.4	2.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1	0.0	0.0	0.1	0.2
Total Delay	48.8	0.1		26.1	0.4		8.6	13.1	0.0	2.6	6.5	2.9
LOS	D	A		C	A		A	B	A	A	A	A
Approach Delay		45.7			8.3			12.9			5.5	
Approach LOS		D			A			B			A	
Queue Length 50th (ft)	124	0		7	0		7	132	0	1	34	0
Queue Length 95th (ft)	187	0		15	0		14	216	0	m2	m52	m1
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	386	678		453	433		437	2176	1043	498	2075	999
Starvation Cap Reductn	0	0		0	0		0	0	0	0	211	180
Spillback Cap Reductn	0	0		0	25		0	289	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.02		0.04	0.09		0.07	0.44	0.00	0.04	0.55	0.43

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 12.0
 Intersection Capacity Utilization 54.6%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

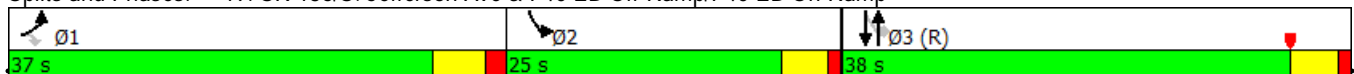
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	0	170	0	0	0	0	790	140	290	1050	0
Future Volume (vph)	225	0	170	0	0	0	0	790	140	290	1050	0
Satd. Flow (prot)	1736	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.126		
Satd. Flow (perm)	1736	0	1538	0	0	0	0	3574	1599	237	3539	0
Satd. Flow (RTOR)			207						175			
Peak Hour Factor	0.88	0.25	0.82	0.25	0.25	0.25	0.25	0.86	0.80	0.83	0.91	0.25
Heavy Vehicles (%)	4%	0%	5%	0%	0%	0%	0%	1%	1%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	0	207	0	0	0	0	919	175	349	1154	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	37.0		37.0					38.0	38.0	25.0	38.0	
Total Lost Time (s)	5.4		5.4					4.6	4.6	4.5	4.6	
Act Effct Green (s)	20.1		20.1					33.4	33.4	65.5	33.4	
Actuated g/C Ratio	0.20		0.20					0.33	0.33	0.66	0.33	
v/c Ratio	0.74		0.44					0.77	0.27	0.54	0.98	
Control Delay	49.7		7.4					31.7	3.0	26.9	41.4	
Queue Delay	0.0		0.0					1.8	0.0	0.0	0.8	
Total Delay	49.7		7.4					33.5	3.0	26.9	42.2	
LOS	D		A					C	A	C	D	
Approach Delay		30.8						28.6			38.7	
Approach LOS		C						C			D	
Queue Length 50th (ft)	154		0					291	22	84	411	
Queue Length 95th (ft)	214		39					257	8	205	#515	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	548		627					1193	650	652	1182	
Starvation Cap Reductn	0		0					138	0	0	6	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.47		0.33					0.87	0.27	0.54	0.98	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 30 (30%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 33.9
 Intersection Capacity Utilization 66.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

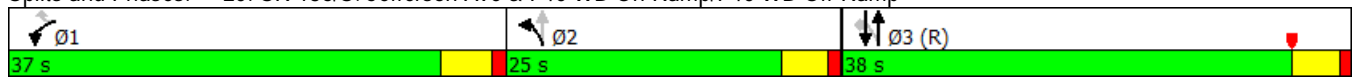
05/16/2017























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	85	0	245	100	910	0	0	1250	205
Future Volume (vph)	0	0	0	85	0	245	100	910	0	0	1250	205
Satd. Flow (prot)	0	0	0	3213	0	1538	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.118					
Satd. Flow (perm)	0	0	0	3213	0	1538	214	3574	0	0	3574	1599
Satd. Flow (RTOR)							123					191
Peak Hour Factor	0.25	0.25	0.25	0.89	1.00	0.82	0.86	0.94	0.25	0.25	0.94	0.91
Heavy Vehicles (%)	0%	0%	0%	9%	0%	5%	5%	1%	0%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	96	0	299	116	968	0	0	1330	225
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				37.0		37.0	25.0	38.0			38.0	38.0
Total Lost Time (s)				4.9		4.9	4.5	4.5			4.5	4.5
Act Effct Green (s)				18.5		18.5	67.6	72.1			55.5	55.5
Actuated g/C Ratio				0.18		0.18	0.68	0.72			0.56	0.56
v/c Ratio				0.16		0.78	0.36	0.38			0.67	0.23
Control Delay				32.8		36.0	20.1	11.6			13.4	1.3
Queue Delay				0.0		7.7	0.0	0.3			2.0	0.8
Total Delay				32.8		43.7	20.1	12.0			15.5	2.1
LOS				C		D	C	B			B	A
Approach Delay					41.1			12.8			13.5	
Approach LOS					D			B			B	
Queue Length 50th (ft)				26		109	43	175			312	10
Queue Length 95th (ft)				43		155	m81	265			510	m2
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				1031		577	462	2576			1982	972
Starvation Cap Reductn				0		0	0	896			477	491
Spillback Cap Reductn				0		231	0	133			107	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.09		0.86	0.25	0.58			0.88	0.47

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 20 (20%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 16.9
 Intersection Capacity Utilization 66.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp









												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	15	365	90	20	15	170	940	60	5	1005	60
Future Volume (vph)	75	15	365	90	20	15	170	940	60	5	1005	60
Satd. Flow (prot)	0	1794	1599	1770	1780	0	1787	3539	1568	1805	5125	0
Flt Permitted		0.960		0.950			0.148			0.247		
Satd. Flow (perm)	0	1794	1599	1770	1780	0	278	3539	1568	469	5125	0
Satd. Flow (RTOR)			323		20				125		13	
Peak Hour Factor	0.72	0.75	0.86	0.94	0.71	0.75	0.88	0.94	0.94	0.42	0.93	0.75
Heavy Vehicles (%)	2%	0%	1%	2%	0%	0%	1%	2%	3%	0%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	424	96	48	0	193	1000	64	12	1161	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	27.0	27.0	27.0	20.0	20.0		15.0	38.0	38.0	15.0	38.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)		16.0	16.0	12.6	12.6		59.5	57.4	57.4	54.8	44.8	
Actuated g/C Ratio		0.16	0.16	0.13	0.13		0.60	0.57	0.57	0.55	0.45	
v/c Ratio		0.43	0.80	0.43	0.20		0.58	0.49	0.07	0.03	0.50	
Control Delay		41.6	22.5	46.5	27.9		24.9	17.3	2.2	17.4	25.3	
Queue Delay		0.0	0.5	0.0	0.0		0.5	0.6	0.0	0.0	0.2	
Total Delay		41.6	23.0	46.5	27.9		25.4	17.9	2.2	17.4	25.5	
LOS		D	C	D	C		C	B	A	B	C	
Approach Delay		27.2			40.3			18.2			25.4	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)		74	60	58	16		60	195	2	4	188	
Queue Length 95th (ft)		98	143	106	35		#135	430	m8	m6	218	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		394	603	265	284		334	2030	952	399	2301	
Starvation Cap Reductn		0	0	0	0		19	602	0	0	0	
Spillback Cap Reductn		0	27	0	0		0	0	0	0	440	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.31	0.74	0.36	0.17		0.61	0.70	0.07	0.03	0.62	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 23.5
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	38 s	27 s	20 s
 Ø5	 Ø6 (R)		
15 s	38 s		

Lanes, Volumes, Timings
 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	330	190	230	380	130	180	590	215	110	730	200
Future Volume (vph)	145	330	190	230	380	130	180	590	215	110	730	200
Satd. Flow (prot)	1770	1845	1599	1805	3480	0	1770	3539	1615	1805	3464	0
Flt Permitted	0.218			0.198			0.123			0.313		
Satd. Flow (perm)	406	1845	1599	376	3480	0	229	3539	1615	595	3464	0
Satd. Flow (RTOR)			200		39				229		38	
Peak Hour Factor	0.88	0.98	0.95	0.96	0.86	0.93	0.80	0.96	0.94	0.86	0.98	0.96
Heavy Vehicles (%)	2%	3%	1%	0%	0%	0%	2%	2%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	337	200	240	582	0	225	615	229	128	953	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	18.0	27.0	27.0	18.0	27.0		17.0	38.0	38.0	17.0	38.0	
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0		4.5	5.5	5.5	4.5	5.5	
Act Effct Green (s)	33.9	20.9	20.9	35.1	21.5		47.8	34.5	34.5	47.2	34.2	
Actuated g/C Ratio	0.34	0.21	0.21	0.35	0.22		0.48	0.34	0.34	0.47	0.34	
v/c Ratio	0.54	0.88	0.41	0.75	0.75		0.75	0.50	0.32	0.30	0.79	
Control Delay	27.1	62.5	7.5	37.8	40.8		47.0	19.4	6.7	7.7	17.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	27.1	62.5	7.5	37.8	40.8		47.0	19.4	6.7	7.7	17.6	
LOS	C	E	A	D	D		D	B	A	A	B	
Approach Delay		38.5			39.9			22.5			16.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	68	206	0	103	166		46	184	47	16	112	
Queue Length 95th (ft)	112	#351	57	#194	218		175	141	68	m23	180	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	325	405	507	326	812		302	1219	706	434	1209	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.51	0.83	0.39	0.74	0.72		0.75	0.50	0.32	0.29	0.79	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 27.7
 Intersection Capacity Utilization 82.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

 Ø1 17 s	 Ø2 (R) 38 s	 Ø3 18 s	 Ø4 27 s
 Ø5 17 s	 Ø6 (R) 38 s	 Ø7 18 s	 Ø8 27 s

Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

Cookeville 2017 Existing Conditions



05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	185	55	130	215	110	50	675	110	80	900	80
Future Volume (vph)	60	185	55	130	215	110	50	675	110	80	900	80
Satd. Flow (prot)	1805	1820	0	1752	1754	0	1805	3504	0	1752	3549	0
Flt Permitted	0.176			0.303			0.107			0.197		
Satd. Flow (perm)	334	1820	0	559	1754	0	203	3504	0	363	3549	0
Satd. Flow (RTOR)		14			27			20			14	
Peak Hour Factor	0.83	0.83	0.81	0.93	0.83	0.74	0.96	0.94	0.92	0.87	0.96	0.69
Heavy Vehicles (%)	0%	1%	0%	3%	2%	3%	0%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	291	0	140	408	0	52	838	0	92	1054	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	28.0		17.0	28.0		17.0	38.0		17.0	38.0	
Total Lost Time (s)	4.5	5.0		4.5	5.0		4.5	4.8		4.5	4.8	
Act Effct Green (s)	34.3	21.8		34.4	24.6		49.1	39.2		49.1	39.2	
Actuated g/C Ratio	0.34	0.22		0.34	0.25		0.49	0.39		0.49	0.39	
v/c Ratio	0.25	0.71		0.43	0.90		0.18	0.60		0.27	0.75	
Control Delay	21.0	44.7		24.2	60.3		9.0	22.9		13.3	29.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay	21.0	44.7		24.2	60.3		9.0	22.9		13.3	29.7	
LOS	C	D		C	E		A	C		B	C	
Approach Delay		40.0			51.1			22.1			28.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	28	158		57	242		7	261		35	340	
Queue Length 95th (ft)	52	228		99	#371		m14	281		19	#448	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	300	441		345	451		300	1386		353	1400	
Starvation Cap Reductn	0	0		0	0		0	0		0	31	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.66		0.41	0.90		0.17	0.60		0.26	0.77	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 58 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 32.1
 Intersection Capacity Utilization 81.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr

 Ø1 17 s	 Ø2 (R) 38 s	 Ø3 17 s	 Ø4 28 s
 Ø5 17 s	 Ø6 (R) 38 s	 Ø7 17 s	 Ø8 28 s

Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

Cookeville 2017 Existing Conditions

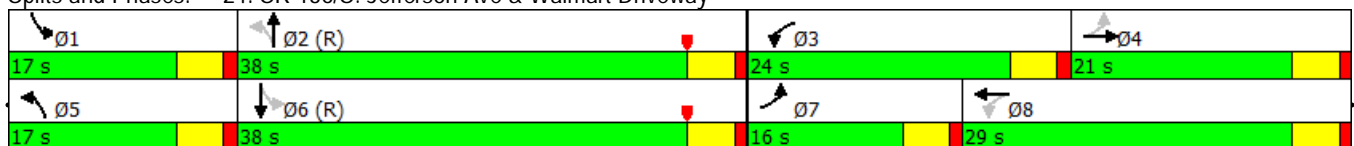
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	145	10	100	5	720	120	115	920	10
Future Volume (vph)	0	0	5	145	10	100	5	720	120	115	920	10
Satd. Flow (prot)	1900	1615	0	1805	1645	0	1805	3486	0	1787	3526	0
Flt Permitted				0.430			0.291			0.232		
Satd. Flow (perm)	1900	1615	0	817	1645	0	553	3486	0	436	3526	0
Satd. Flow (RTOR)		361			104			20			2	
Peak Hour Factor	0.25	0.25	0.31	0.84	0.83	0.96	1.00	0.98	0.97	0.90	0.98	0.50
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	3%	1%	0%	100%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	173	116	0	5	859	0	128	959	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	16.0	21.0		24.0	29.0		17.0	38.0		17.0	38.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)		12.0		20.9	20.9		65.6	53.6		69.2	66.8	
Actuated g/C Ratio		0.12		0.21	0.21		0.66	0.54		0.69	0.67	
v/c Ratio		0.03		0.55	0.27		0.01	0.46		0.28	0.41	
Control Delay		0.2		39.4	8.1		16.2	23.0		8.5	11.5	
Queue Delay		0.0		0.0	0.0		0.0	0.3		0.0	0.0	
Total Delay		0.2		39.4	8.1		16.2	23.3		8.5	11.5	
LOS		A		D	A		B	C		A	B	
Approach Delay		0.2			26.8			23.2			11.2	
Approach LOS		A			C			C			B	
Queue Length 50th (ft)		0		105	7		1	153		17	85	
Queue Length 95th (ft)		0		124	35		m4	m267		63	328	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		567		394	531		521	1877		470	2355	
Starvation Cap Reductn		0		0	0		0	445		0	0	
Spillback Cap Reductn		12		0	0		0	0		0	124	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.03		0.44	0.22		0.01	0.60		0.27	0.43	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 46 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 17.7
 Intersection Capacity Utilization 61.7%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
 25: SR 136/S. Jefferson Ave & Commerce Ave

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	10	55	75	5	40	45	890	20	25	1000	25
Future Volume (vph)	75	10	55	75	5	40	45	890	20	25	1000	25
Satd. Flow (prot)	1805	1666	0	1752	1605	0	1805	3596	0	1719	3596	0
Flt Permitted	0.741			0.455			0.124			0.229		
Satd. Flow (perm)	1408	1666	0	839	1605	0	236	3596	0	414	3596	0
Satd. Flow (RTOR)		72			63			4			3	
Peak Hour Factor	0.67	0.63	0.76	0.46	0.63	0.63	0.75	0.97	0.71	0.63	0.87	0.89
Heavy Vehicles (%)	0%	0%	0%	3%	0%	3%	0%	0%	0%	5%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	88	0	163	71	0	60	946	0	40	1177	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	15.0	29.0		15.0	29.0		11.0	45.0		11.0	45.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3		4.5	4.8		4.5	4.8	
Act Effct Green (s)	15.0	7.6		16.8	8.5		39.5	35.8		38.4	33.5	
Actuated g/C Ratio	0.21	0.11		0.24	0.12		0.56	0.50		0.54	0.47	
v/c Ratio	0.32	0.36		0.49	0.29		0.21	0.52		0.11	0.69	
Control Delay	24.8	17.3		28.3	15.2		8.9	14.9		7.8	19.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	17.3		28.3	15.2		8.9	14.9		7.8	19.0	
LOS	C	B		C	B		A	B		A	B	
Approach Delay		21.5			24.3			14.5			18.6	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	40	7		61	4		11	168		7	231	
Queue Length 95th (ft)	62	23		57	19		23	246		14	313	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	409	653		361	625		288	2192		355	2191	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.13		0.45	0.11		0.21	0.43		0.11	0.54	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 71
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 17.8
 Intersection Capacity Utilization 56.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave

Ø1	Ø2	Ø3	Ø4
11 s	45 s	15 s	29 s
Ø5	Ø6	Ø7	Ø8
11 s	45 s	15 s	29 s

Lanes, Volumes, Timings
 26: SR 136/S. Jefferson Ave & E. Jackson St

Cookeville 2017 Existing Conditions

05/16/2017

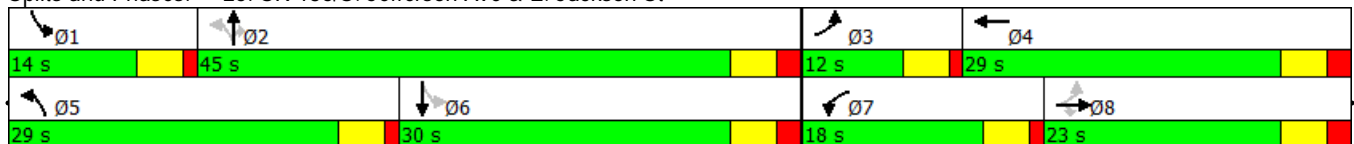
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	170	260	280	150	15	365	480	180	25	590	55
Future Volume (vph)	65	170	260	280	150	15	365	480	180	25	590	55
Satd. Flow (prot)	1787	1863	1599	3502	1855	0	1805	3610	1599	1685	3329	0
Flt Permitted	0.630			0.950			0.167			0.443		
Satd. Flow (perm)	1185	1863	1599	3502	1855	0	317	3610	1599	786	3329	0
Satd. Flow (RTOR)			299		5				231		9	
Peak Hour Factor	0.81	0.94	0.87	0.91	0.82	0.75	0.88	0.86	0.78	0.69	0.88	0.92
Heavy Vehicles (%)	1%	2%	1%	0%	1%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	181	299	308	203	0	415	558	231	36	730	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	23.0	23.0	18.0	29.0		29.0	45.0	45.0	14.0	30.0	
Total Lost Time (s)	4.5	5.4	5.4	4.5	5.4		4.5	5.3	5.3	4.5	5.3	
Act Effct Green (s)	21.8	13.8	13.8	12.2	21.4		50.9	43.6	43.6	32.5	25.0	
Actuated g/C Ratio	0.24	0.15	0.15	0.13	0.23		0.56	0.48	0.48	0.36	0.27	
v/c Ratio	0.24	0.65	0.61	0.66	0.46		0.81	0.32	0.26	0.10	0.80	
Control Delay	23.7	48.8	10.1	46.3	35.2		32.5	17.3	3.4	13.4	39.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	23.7	48.8	10.1	46.3	35.2		32.5	17.3	3.4	13.4	39.9	
LOS	C	D	B	D	D		C	B	A	B	D	
Approach Delay		24.6			41.9			19.9			38.7	
Approach LOS		C			D			B			D	
Queue Length 50th (ft)	33	105	0	91	106		163	115	0	9	218	
Queue Length 95th (ft)	59	177	63	142	159		#284	161	25	19	#323	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	338	363	552	523	488		580	1722	884	399	917	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.24	0.50	0.54	0.59	0.42		0.72	0.32	0.26	0.09	0.80	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 91.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 29.2
 Intersection Capacity Utilization 71.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

Cookeville 2017 Existing Conditions

05/16/2017

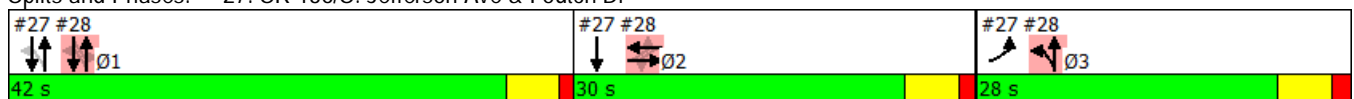
							Ø2
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	115	20	10	545	610	0	
Future Volume (vph)	115	20	10	545	610	0	
Satd. Flow (prot)	1784	0	1452	3369	3369	0	
Flt Permitted	0.960		0.378				
Satd. Flow (perm)	1784	0	578	3369	3369	0	
Satd. Flow (RTOR)	9						
Peak Hour Factor	0.78	0.71	0.83	0.94	0.91	0.25	
Heavy Vehicles (%)	0%	0%	16%	0%	0%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	175	0	12	580	670	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	28.0		42.0	42.0			30.0
Total Lost Time (s)	5.6		5.0	5.0			
Act Effct Green (s)	16.8		36.8	36.8	59.3		
Actuated g/C Ratio	0.19		0.42	0.42	0.68		
v/c Ratio	0.50		0.05	0.41	0.29		
Control Delay	35.9		20.0	20.4	0.7		
Queue Delay	0.0		0.0	0.0	0.1		
Total Delay	35.9		20.0	20.4	0.8		
LOS	D		B	C	A		
Approach Delay	35.9			20.3	0.8		
Approach LOS	D			C	A		
Queue Length 50th (ft)	83		4	116	4		
Queue Length 95th (ft)	132		16	196	6		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	475		250	1461	2596		
Starvation Cap Reductn	0		0	0	787		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.37		0.05	0.40	0.37		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 86.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 13.1
 Intersection Capacity Utilization 33.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
 28: SR 136/S. Jefferson Ave & E. Stevens St

Cookeville 2017 Existing Conditions

05/16/2017

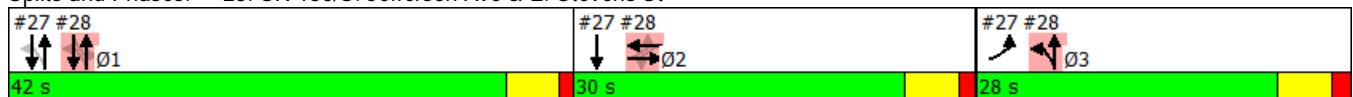
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	105	35	25	90	20	25	575	65	5	555	10
Future Volume (vph)	10	105	35	25	90	20	25	575	65	5	555	10
Satd. Flow (prot)	0	1824	0	0	1843	0	0	3298	0	0	3356	0
Flt Permitted		0.966			0.929			0.918			0.945	
Satd. Flow (perm)	0	1771	0	0	1726	0	0	3034	0	0	3174	0
Satd. Flow (RTOR)		16			9			27			2	
Peak Hour Factor	0.63	0.94	0.80	0.89	0.78	0.71	0.69	0.92	0.71	0.63	0.90	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	171	0	0	753	0	0	637	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	30.0	30.0		30.0	30.0		28.0			42.0	42.0	
Total Lost Time (s)		5.3			5.3						5.0	
Act Effct Green (s)		17.1			17.1			54.2			36.8	
Actuated g/C Ratio		0.20			0.20			0.62			0.42	
v/c Ratio		0.48			0.49			0.39			0.47	
Control Delay		33.0			35.0			2.4			21.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		33.0			35.0			2.4			21.3	
LOS		C			C			A			C	
Approach Delay		33.0			35.0			2.4			21.3	
Approach LOS		C			C			A			C	
Queue Length 50th (ft)		77			80			13			131	
Queue Length 95th (ft)		144			125			17			221	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		524			506			2124			1377	
Starvation Cap Reductn		0			0			132			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.33			0.34			0.38			0.46	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 86.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 15.6
 Intersection Capacity Utilization 59.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	325	105	80	290	10	145	235	125	20	260	35
Future Volume (vph)	20	325	105	80	290	10	145	235	125	20	260	35
Satd. Flow (prot)	1805	1803	0	1752	1669	0	1668	1667	0	1685	1554	0
Flt Permitted	0.486			0.192			0.229			0.310		
Satd. Flow (perm)	923	1803	0	354	1669	0	402	1667	0	550	1554	0
Satd. Flow (RTOR)		18			2			32			7	
Peak Hour Factor	1.00	0.86	0.85	0.80	0.91	0.83	0.88	0.95	0.76	0.71	0.83	0.80
Heavy Vehicles (%)	0%	2%	0%	3%	2%	0%	1%	0%	0%	0%	1%	0%
Parking (#/hr)					0						0	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	502	0	100	331	0	165	411	0	28	357	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	47.0	39.0		49.0	44.9		38.2	31.6		35.0	25.0	
Actuated g/C Ratio	0.47	0.39		0.49	0.45		0.38	0.32		0.35	0.25	
v/c Ratio	0.04	0.70		0.32	0.44		0.57	0.75		0.09	0.91	
Control Delay	9.3	29.7		14.3	13.6		28.0	40.0		21.4	61.6	
Queue Delay	0.0	0.5		0.0	0.4		0.0	0.6		0.0	11.2	
Total Delay	9.3	30.3		14.3	14.0		28.0	40.7		21.4	72.8	
LOS	A	C		B	B		C	D		C	E	
Approach Delay		29.5			14.1			37.0			69.1	
Approach LOS		C			B			D			E	
Queue Length 50th (ft)	8	305		20	66		65	227		10	148	
Queue Length 95th (ft)	m10	128		m32	m104		113	#415		30	#334	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	529	725		320	750		292	548		314	407	
Starvation Cap Reductn	0	41		0	134		0	0		0	39	
Spillback Cap Reductn	0	43		0	0		0	21		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.74		0.31	0.54		0.57	0.78		0.09	0.97	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 36.2

Intersection LOS: D

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

 Ø1 15 s	 Ø2 (R) 40 s	 Ø3 15 s	 Ø4 30 s
 Ø5 15 s	 Ø6 (R) 40 s	 Ø7 15 s	 Ø8 30 s

Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

Cookeville 2017 Existing Conditions

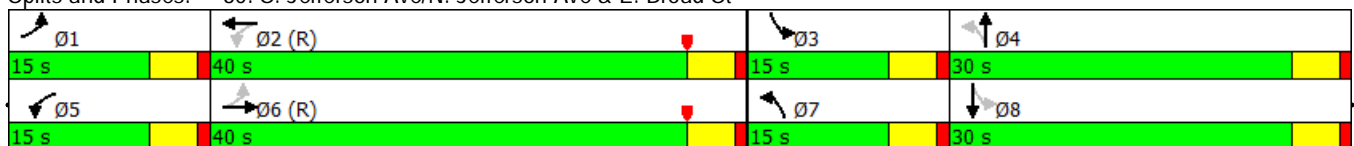
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	270	60	115	300	20	55	155	60	25	130	25
Future Volume (vph)	10	270	60	115	300	20	55	155	60	25	130	25
Satd. Flow (prot)	1805	1829	0	1805	1867	0	1668	1696	0	1685	1736	0
Flt Permitted	0.516			0.376			0.433			0.435		
Satd. Flow (perm)	980	1829	0	714	1867	0	760	1696	0	771	1736	0
Satd. Flow (RTOR)		13			3			18			8	
Peak Hour Factor	0.63	0.88	0.83	0.80	0.84	1.00	0.81	0.90	0.94	0.78	0.83	1.00
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	379	0	144	377	0	68	236	0	32	182	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	56.5	46.5		60.4	55.8		26.8	20.7		25.7	17.7	
Actuated g/C Ratio	0.56	0.46		0.60	0.56		0.27	0.21		0.26	0.18	
v/c Ratio	0.03	0.44		0.26	0.36		0.23	0.65		0.11	0.58	
Control Delay	4.9	15.6		7.2	11.2		13.0	23.3		22.1	42.7	
Queue Delay	0.0	0.7		0.4	1.4		0.0	2.9		0.1	0.1	
Total Delay	4.9	16.3		7.5	12.6		13.0	26.1		22.2	42.9	
LOS	A	B		A	B		B	C		C	D	
Approach Delay		15.8			11.2			23.2			39.8	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	1	174		19	51		16	50		14	102	
Queue Length 95th (ft)	3	286		42	253		m11	m157		27	144	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	644	861		550	1043		300	451		297	448	
Starvation Cap Reductn	0	153		138	459		0	49		0	0	
Spillback Cap Reductn	0	213		84	0		0	125		55	20	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.58		0.35	0.65		0.23	0.72		0.13	0.43	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 20 (20%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 19.3
 Intersection Capacity Utilization 61.3%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

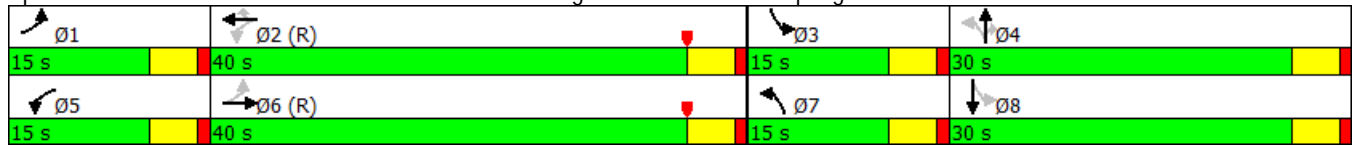
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	335	35	65	290	35	35	265	260	85	265	55
Future Volume (vph)	105	335	35	65	290	35	35	265	260	85	265	55
Satd. Flow (prot)	1787	1840	0	1752	1863	1615	1745	1783	1546	1728	1782	0
Flt Permitted	0.424			0.376			0.270			0.309		
Satd. Flow (perm)	798	1840	0	694	1863	1615	496	1783	1546	562	1782	0
Satd. Flow (RTOR)		6				115			347		11	
Peak Hour Factor	0.91	0.92	0.97	0.81	0.95	0.73	0.63	0.91	0.75	0.79	0.88	0.81
Heavy Vehicles (%)	1%	2%	0%	3%	2%	0%	0%	3%	1%	1%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	400	0	80	305	48	56	291	347	108	369	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	15.0	40.0		15.0	40.0	40.0	15.0	30.0	30.0	15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	49.4	41.3		48.3	38.3	38.3	33.3	23.3	23.3	34.8	26.5	
Actuated g/C Ratio	0.49	0.41		0.48	0.38	0.38	0.33	0.23	0.23	0.35	0.26	
v/c Ratio	0.23	0.52		0.18	0.43	0.07	0.19	0.70	0.55	0.34	0.77	
Control Delay	12.3	20.8		14.2	26.4	0.2	19.9	44.2	7.0	18.7	31.3	
Queue Delay	0.0	1.8		0.0	0.0	0.0	0.0	6.1	0.0	0.0	2.7	
Total Delay	12.3	22.6		14.2	26.4	0.2	19.9	50.4	7.0	18.7	34.0	
LOS	B	C		B	C	A	B	D	A	B	C	
Approach Delay		20.3			21.3			26.2			30.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	33	154		25	146	0	22	165	0	22	75	
Queue Length 95th (ft)	m47	m184		45	228	0	32	256	25	41	#130	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	500	771		449	724	698	298	465	660	320	490	
Starvation Cap Reductn	0	221		0	0	0	0	0	0	0	51	
Spillback Cap Reductn	4	0		0	9	27	0	123	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.73		0.18	0.43	0.07	0.19	0.85	0.53	0.34	0.84	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 24.8
 Intersection Capacity Utilization 68.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	245	35	25	250	110	20	345	35	95	350	170
Future Volume (vph)	75	245	35	25	250	110	20	345	35	95	350	170
Satd. Flow (prot)	1787	1844	0	1805	1799	0	1745	1789	0	1745	1818	1546
Flt Permitted	0.222			0.444			0.399			0.183		
Satd. Flow (perm)	418	1844	0	844	1799	0	733	1789	0	336	1818	1546
Satd. Flow (RTOR)		9			28			5				200
Peak Hour Factor	0.89	0.90	0.80	0.69	0.83	0.74	1.00	0.88	0.80	0.74	0.87	0.85
Heavy Vehicles (%)	1%	1%	0%	0%	0%	1%	0%	1%	2%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	316	0	36	450	0	20	436	0	128	402	200
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	30.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	45.8	39.8		44.9	36.9		37.6	27.6		41.1	36.7	36.7
Actuated g/C Ratio	0.46	0.40		0.45	0.37		0.38	0.28		0.41	0.37	0.37
v/c Ratio	0.26	0.43		0.08	0.66		0.05	0.88		0.45	0.60	0.29
Control Delay	16.4	22.1		14.2	31.6		13.4	40.6		23.3	32.8	5.5
Queue Delay	0.0	0.6		0.0	0.8		0.0	18.8		0.0	0.0	0.0
Total Delay	16.4	22.7		14.2	32.4		13.4	59.4		23.3	32.8	5.5
LOS	B	C		B	C		B	E		C	C	A
Approach Delay		21.4			31.1			57.4			23.7	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	21	81		13	247		4	271		46	172	0
Queue Length 95th (ft)	64	218		21	299		m11	#418		74	#381	45
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	336	764		482	716		385	500		288	667	693
Starvation Cap Reductn	0	179		0	0		0	67		0	0	0
Spillback Cap Reductn	0	0		0	86		0	0		0	0	9
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.54		0.07	0.71		0.05	1.01		0.44	0.60	0.29

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 32.4
 Intersection Capacity Utilization 71.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

 Ø1 15 s	 Ø2 (R) 40 s	 Ø3 15 s	 Ø4 30 s
 Ø5 15 s	 Ø6 (R) 40 s	 Ø7 15 s	 Ø8 30 s

Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

Cookeville 2017 Existing Conditions

05/16/2017

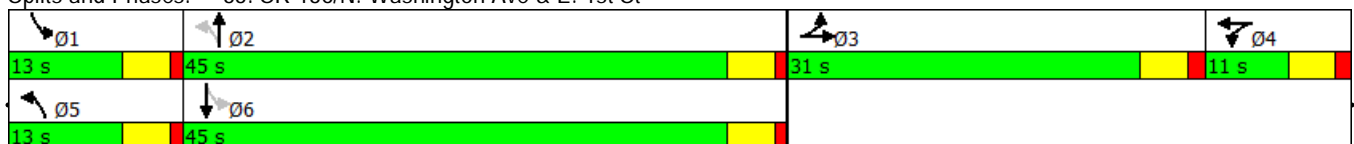
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	25	105	10	15	10	50	495	10	5	535	70
Future Volume (vph)	180	25	105	10	15	10	50	495	10	5	535	70
Satd. Flow (prot)	0	1764	0	0	1794	0	1711	1794	0	1745	3387	0
Flt Permitted		0.971			0.991		0.226			0.220		
Satd. Flow (perm)	0	1764	0	0	1794	0	407	1794	0	404	3387	0
Satd. Flow (RTOR)		24			20			2			22	
Peak Hour Factor	0.79	0.89	0.85	1.00	0.54	0.50	0.78	0.80	0.63	1.00	0.89	0.70
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	380	0	0	58	0	64	635	0	5	701	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	31.0	31.0		11.0	11.0		13.0	45.0		13.0	45.0	
Total Lost Time (s)		4.8			4.8		4.5	4.6		4.5	4.6	
Act Effct Green (s)		20.9			6.6		35.6	34.2		29.9	23.3	
Actuated g/C Ratio		0.28			0.09		0.47	0.46		0.40	0.31	
v/c Ratio		0.75			0.33		0.20	0.78		0.02	0.66	
Control Delay		35.8			34.3		13.6	27.8		12.0	25.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		35.8			34.3		13.6	27.8		12.0	25.4	
LOS		D			C		B	C		B	C	
Approach Delay		35.8			34.3			26.5			25.3	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)		157			18		17	252		1	153	
Queue Length 95th (ft)		#335			32		34	416		7	219	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		681			178		353	1046		340	1984	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.56			0.33		0.18	0.61		0.01	0.35	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 67.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	235	30	175	165	270	40	525	285	270	350	50
Future Volume (vph)	115	235	30	175	165	270	40	525	285	270	350	50
Satd. Flow (prot)	1805	3538	0	3467	1900	1615	1719	3505	1615	1752	3517	0
Flt Permitted	0.950			0.950			0.471			0.236		
Satd. Flow (perm)	1805	3538	0	3467	1900	1615	852	3505	1615	435	3517	0
Satd. Flow (RTOR)		16				300			331		17	
Peak Hour Factor	0.90	0.93	0.75	0.86	0.92	0.90	0.83	0.86	0.86	0.94	0.80	0.89
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	5%	3%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	293	0	203	179	300	48	610	331	287	494	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	17.0	17.0		24.0	24.0	24.0	12.0	29.0	29.0	20.0	37.0	
Total Lost Time (s)	5.2	5.2		5.3	5.3	5.3	4.5	5.2	5.2	4.5	5.2	
Act Effct Green (s)	10.6	10.6		13.5	13.5	13.5	27.3	19.8	19.8	37.9	30.9	
Actuated g/C Ratio	0.14	0.14		0.17	0.17	0.17	0.35	0.26	0.26	0.49	0.40	
v/c Ratio	0.52	0.59		0.34	0.54	0.57	0.13	0.68	0.50	0.67	0.35	
Control Delay	42.3	36.9		30.9	37.2	8.6	13.0	31.2	6.2	21.1	18.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	42.3	36.9		30.9	37.2	8.6	13.0	31.2	6.2	21.1	18.5	
LOS	D	D		C	D	A	B	C	A	C	B	
Approach Delay		38.5			22.7			22.0			19.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	61	69		47	84	0	12	144	0	83	94	
Queue Length 95th (ft)	126	122		77	153	65	29	208	52	150	128	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	283	568		861	472	626	397	1108	737	483	1513	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.45	0.52		0.24	0.38	0.48	0.12	0.55	0.45	0.59	0.33	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 77.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	0	190	0	0	0	0	260	15	160	335	0
Future Volume (vph)	65	0	190	0	0	0	0	260	15	160	335	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3426	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3426	0	1711	3490	0
Peak Hour Factor	0.86	0.25	0.86	0.25	0.25	0.25	0.25	0.86	0.75	0.87	0.90	0.25
Heavy Vehicles (%)	9%	0%	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	221	0	0	0	0	322	0	184	372	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.2













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	65	0	190	0	0	0	0	260	15	160	335	0
Future Vol, veh/h	65	0	190	0	0	0	0	260	15	160	335	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	76	0	221	0	0	0	0	302	20	184	372	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	891	1042	186	-	0	0	302	0	0
Stage 1	740	740	-	-	-	-	-	-	-
Stage 2	151	302	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	269	232	831	0	-	-	1256	-	0
Stage 1	415	426	-	0	-	-	-	-	0
Stage 2	841	668	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	230	0	831	-	-	-	1256	-	-
Mov Cap-2 Maneuver	230	0	-	-	-	-	-	-	-
Stage 1	354	0	-	-	-	-	-	-	-
Stage 2	841	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	230	831	1256	-
HCM Lane V/C Ratio	-	-	0.329	0.266	0.146	-
HCM Control Delay (s)	-	-	28.1	10.9	8.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.4	1.1	0.5	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	25	120	225	0	0	535
Future Volume (vph)	25	120	225	0	0	535
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Peak Hour Factor	0.69	0.79	0.84	0.25	0.25	0.94
Heavy Vehicles (%)	7%	3%	5%	0%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	152	268	0	0	569
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 24.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	25	120	225	0	0	535
Future Vol, veh/h	25	120	225	0	0	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	36	152	268	0	0	569

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	134	0	-	-	-
Stage 1	268	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	451	887	-	0	0	-
Stage 1	738	-	-	0	0	-
Stage 2	723	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	451	887	-	-	-	-
Mov Cap-2 Maneuver	451	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.6		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	451 887	-
HCM Lane V/C Ratio	-	0.08 0.171	-
HCM Control Delay (s)	-	13.7 9.9	-
HCM Lane LOS	-	B A	-
HCM 95th %tile Q(veh)	-	0.3 0.6	-

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	545	0	0	370	75	175	0	50	0	0	0
Future Volume (vph)	605	545	0	0	370	75	175	0	50	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3434	0	0	1736	1583	0	0	0
Flt Permitted	0.295							0.950				
Satd. Flow (perm)	550	3574	0	0	3434	0	0	1736	1583	0	0	0
Satd. Flow (RTOR)					25				97			
Peak Hour Factor	0.86	0.88	0.25	0.25	0.95	0.85	0.73	0.25	0.60	0.25	0.25	0.25
Heavy Vehicles (%)	2%	1%	0%	0%	2%	3%	4%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	703	619	0	0	477	0	0	240	83	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	26.0	45.0			19.0		45.0	45.0	45.0			
Total Lost Time (s)	4.5	6.5			6.5			5.9	5.9			
Act Effct Green (s)	40.6	38.6			12.5			14.2	14.2			
Actuated g/C Ratio	0.62	0.59			0.19			0.22	0.22			
v/c Ratio	0.94	0.29			0.70			0.63	0.20			
Control Delay	37.1	7.6			31.0			31.0	5.2			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	37.1	7.6			31.0			31.0	5.2			
LOS	D	A			C			C	A			
Approach Delay		23.3			31.0			24.4				
Approach LOS		C			C			C				
Queue Length 50th (ft)	183	55			88			87	0			
Queue Length 95th (ft)	#432	102			#167			35	5			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	745	2113			679			1042	989			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	0.94	0.29			0.70			0.23	0.08			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 65.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 69.9%

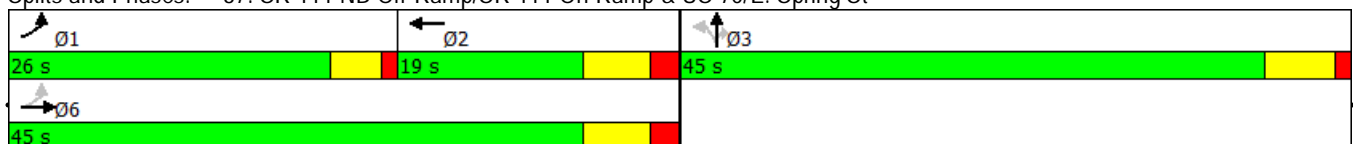
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St




















Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1110	235	45	500	0	0	0	0	30	0	255
Future Volume (vph)	0	1110	235	45	500	0	0	0	0	30	0	255
Satd. Flow (prot)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Peak Hour Factor	0.25	0.87	0.78	0.75	0.87	0.25	0.25	0.25	0.25	0.94	0.25	0.87
Heavy Vehicles (%)	0%	2%	0%	6%	2%	0%	0%	0%	0%	6%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1577	0	60	575	0	0	0	0	0	32	293
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↘	↑↑						↘	↗
Traffic Vol, veh/h	0	1110	235	45	500	0	0	0	0	30	0	255
Future Vol, veh/h	0	1110	235	45	500	0	0	0	0	30	0	255
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	1276	301	60	575	0	0	0	0	32	0	293

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1276	0	0	1333	1971	287
Stage 1	-	-	-	-	-	-	695	695	-
Stage 2	-	-	-	-	-	-	638	1276	-
Critical Hdwy	-	-	-	4.22	-	-	6.92	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	5.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.92	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	519	-	0	140	63	713
Stage 1	0	-	-	-	-	0	446	447	-
Stage 2	0	-	-	-	-	0	478	240	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	519	-	-	124	0	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	0	-
Stage 1	-	-	-	-	-	-	394	0	-
Stage 2	-	-	-	-	-	-	478	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	519	-	124	713
HCM Lane V/C Ratio	-	-	0.116	-	0.257	0.411
HCM Control Delay (s)	-	-	12.8	-	43.8	13.5
HCM Lane LOS	-	-	B	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	1	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	670	80	245	405	60	145	320	555	110	205	50
Future Volume (vph)	95	670	80	245	405	60	145	320	555	110	205	50
Satd. Flow (prot)	1787	3493	0	1787	1845	1599	1805	1900	1615	1752	1817	0
Flt Permitted	0.306			0.132			0.379			0.326		
Satd. Flow (perm)	576	3493	0	248	1845	1599	720	1900	1615	601	1817	0
Satd. Flow (RTOR)		19				142			279		13	
Peak Hour Factor	0.88	0.88	0.67	0.93	0.87	0.88	0.67	0.82	0.82	0.92	0.83	0.89
Heavy Vehicles (%)	1%	1%	3%	1%	3%	1%	0%	0%	0%	3%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	880	0	263	466	68	216	390	677	120	303	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	31.0		15.0	35.0	35.0	13.0	33.0	33.0	11.0	31.0	
Total Lost Time (s)	4.5	5.6		4.5	5.6	5.6	4.5	5.7	5.7	4.5	5.7	
Act Effct Green (s)	32.2	24.7		40.4	31.0	31.0	36.9	27.3	27.3	33.1	25.4	
Actuated g/C Ratio	0.36	0.28		0.45	0.35	0.35	0.41	0.31	0.31	0.37	0.28	
v/c Ratio	0.37	0.90		0.90	0.73	0.11	0.54	0.67	0.99	0.39	0.58	
Control Delay	18.2	43.9		54.0	34.6	0.3	22.0	34.1	51.0	19.6	31.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.2	43.9		54.0	34.6	0.3	22.0	34.1	51.0	19.6	31.5	
LOS	B	D		D	C	A	C	C	D	B	C	
Approach Delay		41.1			38.1			41.0			28.2	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	34	245		96	236	0	76	193	250	40	141	
Queue Length 95th (ft)	63	#340		#240	338	0	89	259	#401	74	203	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	296	1007		293	639	646	401	580	687	306	526	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.36	0.87		0.90	0.73	0.11	0.54	0.67	0.99	0.39	0.58	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 89.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 38.8

Intersection LOS: D

Intersection Capacity Utilization 74.7%

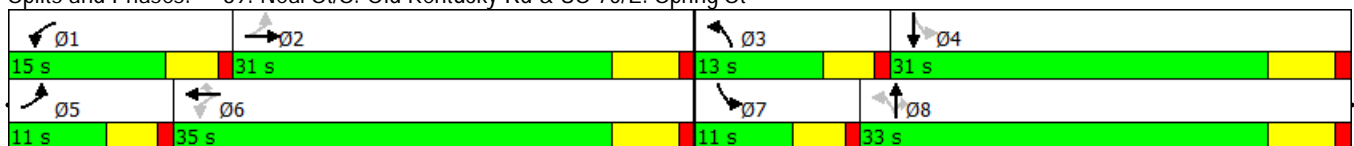
ICU Level of Service D

Analysis Period (min) 15










95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	715	295	295	105	5
Future Volume (vph)	0	715	295	295	105	5
Satd. Flow (prot)	0	1881	1739	0	1800	0
Flt Permitted					0.955	
Satd. Flow (perm)	0	1881	1739	0	1800	0
Peak Hour Factor	0.25	0.86	0.92	0.96	0.77	0.63
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	831	628	0	144	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	715	295	295	105	5
Future Vol, veh/h	0	715	295	295	105	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	831	321	307	136	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	321	0	1152
Stage 1	-	-	321
Stage 2	-	-	831
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1250	-	221
Stage 1	-	-	740
Stage 2	-	-	431
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1250	-	221
Mov Cap-2 Maneuver	-	-	338
Stage 1	-	-	740
Stage 2	-	-	431

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1250	-	-	348
HCM Lane V/C Ratio	-	-	-	0.415
HCM Control Delay (s)	0	-	-	22.5
HCM Lane LOS	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	2

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

Cookeville 2017 Existing Conditions

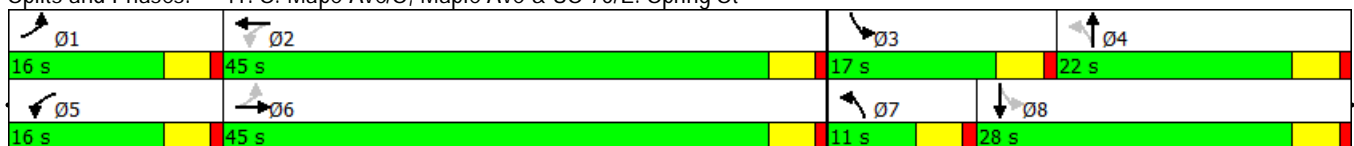
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	540	25	20	275	15	25	170	20	170	145	50
Future Volume (vph)	130	540	25	20	275	15	25	170	20	170	145	50
Satd. Flow (prot)	1805	1869	0	1703	1846	0	1805	1862	0	1805	1823	0
Flt Permitted	0.382			0.137			0.622			0.324		
Satd. Flow (perm)	726	1869	0	246	1846	0	1182	1862	0	616	1823	0
Satd. Flow (RTOR)		3			4			7			15	
Peak Hour Factor	0.90	0.83	0.78	0.56	0.97	0.75	0.78	0.82	0.63	0.77	0.88	0.96
Heavy Vehicles (%)	0%	1%	0%	6%	2%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	683	0	36	304	0	32	239	0	221	217	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	45.0		16.0	45.0		11.0	22.0		17.0	28.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	39.9	34.7		34.0	26.8		21.6	15.0		30.8	25.2	
Actuated g/C Ratio	0.49	0.43		0.42	0.33		0.27	0.18		0.38	0.31	
v/c Ratio	0.30	0.85		0.16	0.50		0.09	0.68		0.56	0.38	
Control Delay	12.5	34.9		12.0	24.2		21.0	44.3		26.7	27.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		3.0	1.5	
Total Delay	12.5	34.9		12.0	24.2		21.0	44.3		29.7	29.4	
LOS	B	C		B	C		C	D		C	C	
Approach Delay		31.0			22.9			41.5			29.6	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	41	362		10	127		12	132		96	104	
Queue Length 95th (ft)	71	#470		15	207		28	194		132	173	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	524	994		337	982		372	432		428	592	
Starvation Cap Reductn	0	0		0	0		0	0		121	221	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.69		0.11	0.31		0.09	0.55		0.72	0.58	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 81.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 30.7
 Intersection Capacity Utilization 69.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

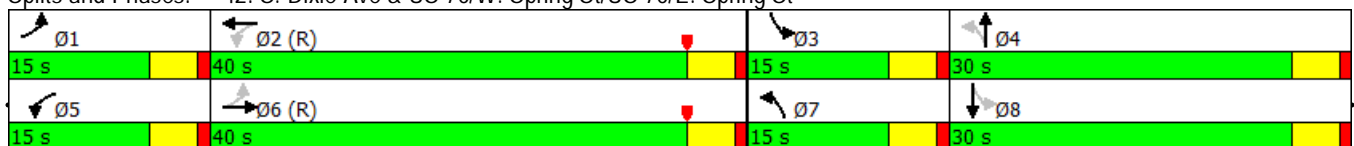
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	360	30	10	415	65	50	75	15	70	105	30
Future Volume (vph)	20	360	30	10	415	65	50	75	15	70	105	30
Satd. Flow (prot)	1805	1849	0	1805	1842	0	1805	1854	0	1787	1812	0
Flt Permitted	0.348			0.437			0.514			0.573		
Satd. Flow (perm)	661	1849	0	830	1842	0	977	1854	0	1078	1812	0
Satd. Flow (RTOR)		6			10			9			13	
Peak Hour Factor	0.83	0.89	0.68	0.83	0.94	0.86	0.96	0.72	0.75	0.70	0.88	0.94
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	1%	0%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	448	0	12	517	0	52	124	0	100	151	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	64.4	62.4		63.5	59.5		21.8	13.8		22.3	14.1	
Actuated g/C Ratio	0.64	0.62		0.64	0.60		0.22	0.14		0.22	0.14	
v/c Ratio	0.04	0.39		0.02	0.47		0.18	0.47		0.32	0.57	
Control Delay	8.2	13.0		6.5	10.9		27.0	42.5		20.4	29.0	
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0		0.0	0.0	
Total Delay	8.2	13.0		6.5	11.4		27.0	42.5		20.4	29.0	
LOS	A	B		A	B		C	D		C	C	
Approach Delay		12.8			11.2			37.9			25.6	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	5	123		2	103		25	69		35	48	
Queue Length 95th (ft)	15	295		m5	m202		50	92		38	60	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	546	1156		631	1100		303	479		317	471	
Starvation Cap Reductn	0	0		0	212		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.39		0.02	0.58		0.17	0.26		0.32	0.32	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 55.4%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St



Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

05/16/2017

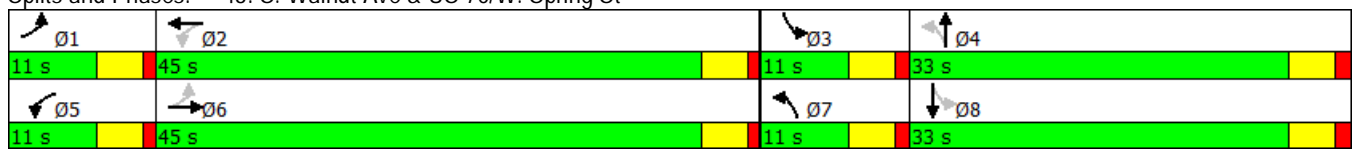
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	375	55	45	445	25	65	185	30	35	275	45
Future Volume (vph)	40	375	55	45	445	25	65	185	30	35	275	45
Satd. Flow (prot)	1770	1845	0	1805	1860	0	1770	1841	0	1805	1854	0
Flt Permitted	0.177			0.232			0.266			0.544		
Satd. Flow (perm)	330	1845	0	441	1860	0	495	1841	0	1034	1854	0
Satd. Flow (RTOR)		9			5			13			10	
Peak Hour Factor	0.91	0.84	0.86	0.80	0.86	0.57	0.86	0.93	0.58	0.67	0.83	0.70
Heavy Vehicles (%)	2%	1%	1%	0%	1%	0%	2%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	510	0	56	561	0	76	251	0	52	395	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.8		4.5	4.8	
Act Effct Green (s)	32.3	29.2		32.3	29.2		28.3	24.8		27.1	22.1	
Actuated g/C Ratio	0.43	0.39		0.43	0.39		0.37	0.33		0.36	0.29	
v/c Ratio	0.16	0.71		0.17	0.78		0.24	0.41		0.12	0.72	
Control Delay	13.4	28.0		13.5	31.3		19.5	26.3		18.1	36.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.4	28.0		13.5	31.3		19.5	26.3		18.1	36.1	
LOS	B	C		B	C		B	C		B	D	
Approach Delay		26.8			29.6			24.7			34.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	12	234		15	269		25	109		17	194	
Queue Length 95th (ft)	31	338		33	399		57	201		32	298	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	288	1092		328	1099		316	832		450	832	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.47		0.17	0.51		0.24	0.30		0.12	0.47	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 75.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 29.0
 Intersection Capacity Utilization 67.4%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St



Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

Cookeville 2017 Existing Conditions

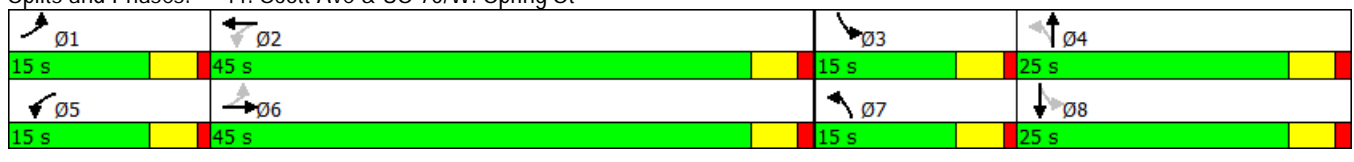
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	320	45	75	490	25	55	70	65	20	75	35
Future Volume (vph)	15	320	45	75	490	25	55	70	65	20	75	35
Satd. Flow (prot)	1805	1848	0	1805	1863	0	1805	1785	0	1656	1791	0
Flt Permitted	0.234			0.314			0.501			0.639		
Satd. Flow (perm)	445	1848	0	597	1863	0	952	1785	0	1114	1791	0
Satd. Flow (RTOR)		9			3			28			19	
Peak Hour Factor	0.75	0.90	0.87	0.75	0.83	0.78	0.76	0.60	0.90	0.83	0.72	0.80
Heavy Vehicles (%)	0%	1%	0%	0%	1%	4%	0%	0%	1%	9%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	408	0	100	622	0	72	189	0	24	148	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	45.0		15.0	45.0		15.0	25.0		15.0	25.0	
Total Lost Time (s)	4.5	4.8		4.5	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)	29.7	24.8		34.0	31.0		20.6	17.4		16.6	11.4	
Actuated g/C Ratio	0.45	0.37		0.51	0.47		0.31	0.26		0.25	0.17	
v/c Ratio	0.06	0.58		0.22	0.71		0.18	0.39		0.07	0.46	
Control Delay	9.3	22.6		10.0	22.1		19.8	24.9		19.8	32.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.3	22.6		10.0	22.1		19.8	24.9		19.8	32.0	
LOS	A	C		B	C		B	C		B	C	
Approach Delay		22.0			20.4			23.5			30.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	4	139		19	171		18	43		6	46	
Queue Length 95th (ft)	13	269		40	386		49	88		24	96	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	471	1200		532	1207		477	664		453	646	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.34		0.19	0.52		0.15	0.28		0.05	0.23	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 66.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 22.4
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 44: Scott Ave & US 70/W. Spring St



Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

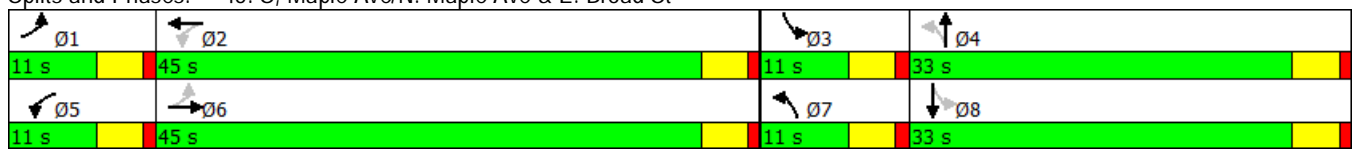
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	255	100	40	340	80	35	150	115	40	220	20
Future Volume (vph)	25	255	100	40	340	80	35	150	115	40	220	20
Satd. Flow (prot)	1805	1802	0	1805	1818	0	1805	1763	0	1805	1872	0
Flt Permitted	0.291			0.319			0.410			0.378		
Satd. Flow (perm)	553	1802	0	606	1818	0	779	1763	0	718	1872	0
Satd. Flow (RTOR)		23			15			47			6	
Peak Hour Factor	0.78	0.77	0.78	0.91	0.87	0.83	0.63	0.85	0.70	0.83	0.87	0.71
Heavy Vehicles (%)	0%	1%	1%	0%	1%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	459	0	44	487	0	56	340	0	48	281	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	44.5	40.9		44.6	40.9		34.7	31.1		33.7	28.8	
Actuated g/C Ratio	0.48	0.44		0.48	0.44		0.37	0.33		0.36	0.31	
v/c Ratio	0.09	0.57		0.12	0.60		0.16	0.55		0.14	0.48	
Control Delay	12.8	23.8		13.1	25.1		19.7	28.0		19.6	30.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	12.5		0.0	0.0	
Total Delay	12.8	23.8		13.1	25.1		19.7	40.5		19.6	30.9	
LOS	B	C		B	C		B	D		B	C	
Approach Delay		23.1			24.1			37.6			29.3	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	10	216		13	238		22	163		19	147	
Queue Length 95th (ft)	21	256		31	335		32	239		38	219	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	351	801		373	805		361	618		335	580	
Starvation Cap Reductn	0	0		0	0		0	252		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.57		0.12	0.60		0.16	0.93		0.14	0.48	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 93.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 27.8
 Intersection Capacity Utilization 62.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
 46: S. Dixie Ave/N. Dixie Ave & E. Broad St

Cookeville 2017 Existing Conditions

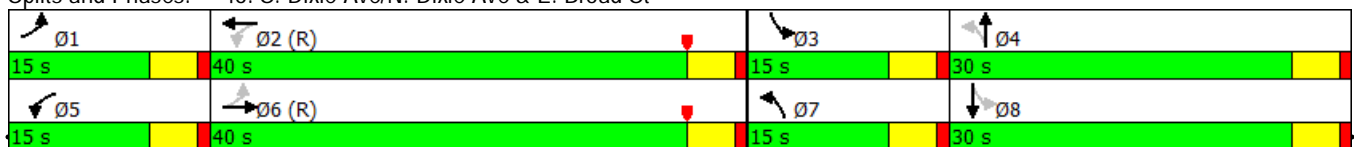
05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	295	25	25	275	50	20	115	25	50	155	20
Future Volume (vph)	25	295	25	25	275	50	20	115	25	50	155	20
Satd. Flow (prot)	1805	1845	0	1736	1839	0	1805	1845	0	1805	1866	0
Flt Permitted	0.441			0.474			0.414			0.468		
Satd. Flow (perm)	838	1845	0	866	1839	0	787	1845	0	889	1866	0
Satd. Flow (RTOR)		7			10			12			6	
Peak Hour Factor	0.78	0.96	0.69	0.78	0.86	0.83	0.71	0.87	0.78	0.74	0.73	0.71
Heavy Vehicles (%)	0%	1%	4%	4%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	343	0	32	380	0	28	164	0	68	240	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	59.5	53.5		59.5	53.5		25.2	17.2		26.2	20.1	
Actuated g/C Ratio	0.60	0.54		0.60	0.54		0.25	0.17		0.26	0.20	
v/c Ratio	0.05	0.35		0.05	0.39		0.09	0.50		0.21	0.63	
Control Delay	10.5	18.4		18.6	25.9		19.9	35.2		24.3	43.1	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.1		0.0	0.0	
Total Delay	10.5	18.4		18.6	26.0		19.9	35.3		24.3	43.1	
LOS	B	B		B	C		B	D		C	D	
Approach Delay		17.7			25.5			33.1			39.0	
Approach LOS		B			C			C			D	
Queue Length 50th (ft)	8	143		11	128		9	54		30	142	
Queue Length 95th (ft)	21	243		32	279		17	87		45	161	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	602	989		608	987		308	479		330	484	
Starvation Cap Reductn	0	0		0	126		0	36		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.35		0.05	0.44		0.09	0.37		0.21	0.50	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 27.6
 Intersection Capacity Utilization 50.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	205	35	55	175	60	30	170	45	65	270	15
Future Volume (vph)	10	205	35	55	175	60	30	170	45	65	270	15
Satd. Flow (prot)	0	1850	0	0	1870	1583	1805	1837	0	1770	1885	0
Flt Permitted		0.998			0.987		0.419			0.445		
Satd. Flow (perm)	0	1850	0	0	1870	1583	796	1837	0	829	1885	0
Satd. Flow (RTOR)		8				124		14			3	
Peak Hour Factor	0.83	0.87	0.80	0.72	0.86	0.88	0.75	0.94	0.87	0.71	0.89	0.94
Heavy Vehicles (%)	0%	0%	3%	1%	0%	2%	0%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	292	0	0	279	68	40	233	0	92	319	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	28.0	28.0		31.0	31.0	31.0	11.0	29.0		12.0	30.0	
Total Lost Time (s)		4.5			4.5	4.5	4.5	5.4		4.5	5.4	
Act Effct Green (s)		17.7			18.0	18.0	23.3	17.5		25.6	20.8	
Actuated g/C Ratio		0.23			0.23	0.23	0.30	0.23		0.33	0.27	
v/c Ratio		0.68			0.65	0.15	0.12	0.55		0.25	0.63	
Control Delay		38.7			37.3	1.2	19.8	33.4		20.8	34.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		38.7			37.3	1.2	19.8	33.4		20.8	34.7	
LOS		D			D	A	B	C		C	C	
Approach Delay		38.7			30.3			31.4			31.6	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)		134			131	0	13	99		30	148	
Queue Length 95th (ft)		245			225	3	32	199		57	275	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		614			694	666	330	617		371	651	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.48			0.40	0.10	0.12	0.38		0.25	0.49	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 77.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St



Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	45	5	25	35	160	5	65	20	175	120	45
Future Volume (vph)	45	45	5	25	35	160	5	65	20	175	120	45
Satd. Flow (prot)	0	1839	0	0	1722	0	0	1798	0	0	1794	0
Flt Permitted		0.973			0.994			0.998			0.975	
Satd. Flow (perm)	0	1839	0	0	1722	0	0	1798	0	0	1794	0
Peak Hour Factor	0.63	0.87	1.00	0.69	0.58	0.89	1.00	0.86	0.83	0.93	0.94	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	128	0	0	276	0	0	105	0	0	372	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	45	45	5	0	25	35	160	0	5	65	20
Future Vol, veh/h	0	45	45	5	0	25	35	160	0	5	65	20
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	71	52	5	0	36	60	180	0	5	76	24
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.2	11.1	9.5
HCM LOS	B	B	A











Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	47%	11%	51%
Vol Thru, %	72%	47%	16%	35%
Vol Right, %	22%	5%	73%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	95	220	340
LT Vol	5	45	25	175
Through Vol	65	45	35	120
RT Vol	20	5	160	45
Lane Flow Rate	105	128	276	372
Geometry Grp	1	1	1	1
Degree of Util (X)	0.158	0.202	0.383	0.536
Departure Headway (Hd)	5.448	5.688	4.991	5.187
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	657	631	721	696
Service Time	3.492	3.732	3.028	3.218
HCM Lane V/C Ratio	0.16	0.203	0.383	0.534
HCM Control Delay	9.5	10.2	11.1	14.1
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.6	0.8	1.8	3.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	175	120	45
Future Vol, veh/h	0	175	120	45
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	188	128	56
Number of Lanes	0	0	1	0
Approach	SB			
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	14.1			
HCM LOS	B			

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	160	155	115	175	85
Future Volume (vph)	55	160	155	115	175	85
Satd. Flow (prot)	1787	1599	0	1837	1795	0
Flt Permitted	0.950			0.971		
Satd. Flow (perm)	1787	1599	0	1837	1795	0
Peak Hour Factor	0.86	0.98	0.79	0.85	0.88	0.76
Heavy Vehicles (%)	1%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	163	0	331	311	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15











Intersection

Intersection Delay, s/veh 11.2
 Intersection LOS B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↷		↶	
Traffic Vol, veh/h	0	55	160	0	155	115	0	175	85
Future Vol, veh/h	0	55	160	0	155	115	0	175	85
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	64	163	0	196	135	0	199	112
Number of Lanes	0	1	1	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach			NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	9.9	12.3	11.1
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	57%	100%	0%	0%
Vol Thru, %	43%	0%	0%	67%
Vol Right, %	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	55	160	260
LT Vol	155	55	0	0
Through Vol	115	0	0	175
RT Vol	0	0	160	85
Lane Flow Rate	331	64	163	311
Geometry Grp	2	7	7	2
Degree of Util (X)	0.458	0.117	0.244	0.408
Departure Headway (Hd)	4.976	6.596	5.38	4.729
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	716	547	671	752
Service Time	3.065	4.296	3.08	2.817
HCM Lane V/C Ratio	0.462	0.117	0.243	0.414
HCM Control Delay	12.3	10.2	9.8	11.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.4	0.4	1	2

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	215	360	10	110	250
Future Volume (vph)	5	215	360	10	110	250
Satd. Flow (prot)	1805	1615	1855	0	0	1833
Flt Permitted	0.950					0.985
Satd. Flow (perm)	1805	1615	1855	0	0	1833
Peak Hour Factor	0.63	0.79	0.80	0.63	0.86	0.87
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	272	466	0	0	415
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖			↗
Traffic Vol, veh/h	5	215	360	10	110	250
Future Vol, veh/h	5	215	360	10	110	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	8	272	450	16	128	287

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1001	458	0	0	466	0
Stage 1	458	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	271	607	-	-	1106	-
Stage 1	641	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	234	607	-	-	1106	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	15.7		0		2.7
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	362	607	1106	-
HCM Lane V/C Ratio	-	-	0.022	0.448	0.116	-
HCM Control Delay (s)	-	-	15.2	15.7	8.7	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	2.3	0.4	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

Cookeville 2017 Existing Conditions

05/16/2017

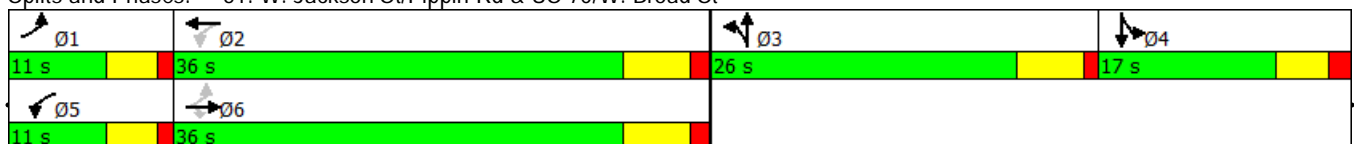
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	200	160	10	325	105	295	340	30	55	125	5
Future Volume (vph)	5	200	160	10	325	105	295	340	30	55	125	5
Satd. Flow (prot)	1805	1863	1553	1805	1807	0	1805	1900	1615	0	1858	0
Flt Permitted	0.195			0.565			0.950				0.984	
Satd. Flow (perm)	370	1863	1553	1074	1807	0	1805	1900	1615	0	1858	0
Satd. Flow (RTOR)			176		23				218		1	
Peak Hour Factor	0.42	0.86	0.91	0.63	0.90	0.75	0.83	0.92	0.94	0.81	0.89	1.00
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	0%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	233	176	16	501	0	355	370	32	0	213	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	11.0	36.0	36.0	11.0	36.0		26.0	26.0		17.0	17.0	
Total Lost Time (s)	4.5	5.9	5.9	4.5	5.9		5.5	5.5			5.1	
Act Effct Green (s)	26.8	24.3	24.3	26.8	24.3		18.9	18.9	73.7		11.7	
Actuated g/C Ratio	0.36	0.33	0.33	0.36	0.33		0.26	0.26	1.00		0.16	
v/c Ratio	0.05	0.38	0.28	0.04	0.82		0.77	0.76	0.02		0.72	
Control Delay	14.2	21.7	4.7	14.0	34.9		40.1	39.0	0.0		48.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	14.2	21.7	4.7	14.0	34.9		40.1	39.0	0.0		48.0	
LOS	B	C	A	B	C		D	D	A		D	
Approach Delay		14.4			34.2			37.9			48.0	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	3	79	0	5	196		147	152	0		94	
Queue Length 95th (ft)	6	154	43	11	#411		#301	#355	0		#243	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	264	780	752	456	770		514	541	1615		308	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.05	0.30	0.23	0.04	0.65		0.69	0.68	0.02		0.69	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 73.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 65.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

Cookeville 2017 Existing Conditions

05/16/2017

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4
Lane Configurations								
Traffic Volume (vph)	20	815	645	75	90	45		
Future Volume (vph)	20	815	645	75	90	45		
Satd. Flow (prot)	1719	1900	1847	0	1722	0		
Flt Permitted	0.151				0.968			
Satd. Flow (perm)	273	1900	1847	0	1722	0		
Satd. Flow (RTOR)			11		24			
Peak Hour Factor	0.71	0.94	0.90	0.82	0.75	0.75		
Heavy Vehicles (%)	5%	0%	1%	4%	3%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	28	867	808	0	180	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	11.0	60.0			19.3		49.0	10.7
Total Lost Time (s)	4.5	6.6			4.7			
Act Effct Green (s)	48.3	46.1	50.7		13.0			
Actuated g/C Ratio	0.59	0.56	0.62		0.16			
v/c Ratio	0.10	0.81	0.70		0.61			
Control Delay	7.5	21.2	5.6		39.1			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	7.5	21.2	5.6		39.1			
LOS	A	C	A		D			
Approach Delay		20.7	5.6		39.1			
Approach LOS		C	A		D			
Queue Length 50th (ft)	6	339	11		83			
Queue Length 95th (ft)	12	505	#86		120			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	278	1271	1226		334			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.10	0.68	0.66		0.54			

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 81.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 16.0
 Intersection Capacity Utilization 60.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 52: E.10th St & Brown Ave N

#52 	#52 #521 	#52 #521 	#52 #521
Ø1	Ø2	Ø3	Ø4
11 s	49 s	19.3 s	10.7 s
#52 #521 			
Ø6			
60 s			

Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Cookeville 2017 Existing Conditions

05/16/2017

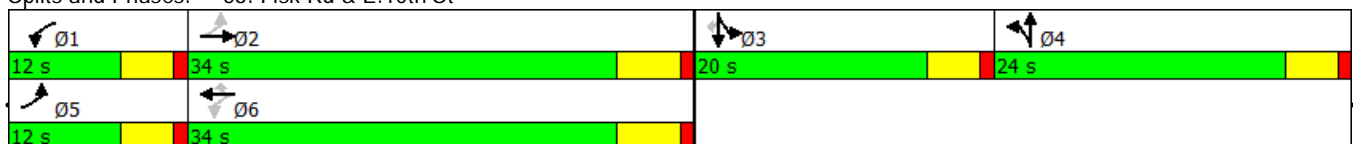
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	710	20	10	525	190	30	45	15	165	30	80
Future Volume (vph)	90	710	20	10	525	190	30	45	15	165	30	80
Satd. Flow (prot)	1805	1872	0	1805	1900	1599	0	1802	0	0	1737	1599
Flt Permitted	0.183			0.133				0.986			0.960	
Satd. Flow (perm)	348	1872	0	253	1900	1599	0	1802	0	0	1737	1599
Satd. Flow (RTOR)		2				190		8				137
Peak Hour Factor	0.87	0.96	0.71	1.00	0.88	0.79	0.83	0.63	0.94	0.90	0.83	0.87
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	2%	7%	6%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	768	0	10	597	241	0	123	0	0	219	92
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	12.0	34.0		12.0	34.0	34.0	24.0	24.0		20.0	20.0	20.0
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3		4.5			4.5	4.5
Act Effct Green (s)	40.0	37.9		36.2	30.9	30.9		10.3			13.6	13.6
Actuated g/C Ratio	0.53	0.50		0.48	0.41	0.41		0.14			0.18	0.18
v/c Ratio	0.32	0.82		0.04	0.77	0.31		0.49			0.70	0.23
Control Delay	13.7	28.9		11.4	32.3	6.9		37.2			44.3	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	13.7	28.9		11.4	32.3	6.9		37.2			44.3	3.6
LOS	B	C		B	C	A		D			D	A
Approach Delay		27.1			24.8			37.2			32.3	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	25	310		2	280	17		55			103	0
Queue Length 95th (ft)	54	#720		11	#493	51		70			169	15
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	334	941		285	778	767		488			370	448
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.31	0.82		0.04	0.77	0.31		0.25			0.59	0.21

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 75.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 27.5
 Intersection Capacity Utilization 72.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	710	145	110	565	175	150
Future Volume (vph)	710	145	110	565	175	150
Satd. Flow (prot)	1863	1583	1787	1881	1770	1615
Flt Permitted			0.132		0.950	
Satd. Flow (perm)	1863	1583	248	1881	1770	1615
Satd. Flow (RTOR)		156				217
Peak Hour Factor	0.92	0.93	0.83	0.94	0.75	0.69
Heavy Vehicles (%)	2%	2%	1%	1%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	772	156	133	601	233	217
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	45.0	45.0	14.0		31.0	31.0
Total Lost Time (s)	5.5	5.5	4.5		4.7	4.7
Act Effct Green (s)	37.5	37.5	48.1	52.7	15.4	15.4
Actuated g/C Ratio	0.48	0.48	0.62	0.68	0.20	0.20
v/c Ratio	0.85	0.18	0.39	0.47	0.66	0.44
Control Delay	29.9	3.0	9.2	7.9	38.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	3.0	9.2	7.9	38.5	7.0
LOS	C	A	A	A	D	A
Approach Delay	25.3			8.2	23.3	
Approach LOS	C			A	C	
Queue Length 50th (ft)	309	0	19	115	108	0
Queue Length 95th (ft)	#606	31	42	234	143	17
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	960	891	345	1337	607	697
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.18	0.39	0.45	0.38	0.31

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 77.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 18.9
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	210	225	590	0	0	0	0	90	0	150
Future Volume (vph)	0	690	210	225	590	0	0	0	0	90	0	150
Satd. Flow (prot)	0	3441	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.127						0.950		
Satd. Flow (perm)	0	3441	0	234	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		70										176
Peak Hour Factor	0.25	0.85	0.86	0.88	0.96	0.25	0.25	0.25	0.25	0.90	0.25	0.85
Heavy Vehicles (%)	0%	1%	2%	3%	1%	0%	0%	0%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1056	0	256	615	0	0	0	0	100	0	176
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		55.0		15.0	70.0					20.0		20.0
Total Lost Time (s)		5.3		4.5	5.3					5.9		5.9
Act Effct Green (s)		27.1		42.9	42.1					13.1		13.1
Actuated g/C Ratio		0.41		0.65	0.63					0.20		0.20
v/c Ratio		0.73		0.66	0.27					0.29		0.39
Control Delay		18.6		19.4	5.6					27.2		7.7
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		18.6		19.4	5.6					27.2		7.7
LOS		B		B	A					C		A
Approach Delay		18.6			9.7						14.8	
Approach LOS		B			A						B	
Queue Length 50th (ft)		171		42	49					34		0
Queue Length 95th (ft)		211		#131	69					85		43
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		2608		392	3427					378		476
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.40		0.65	0.18					0.26		0.37

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 62.2%

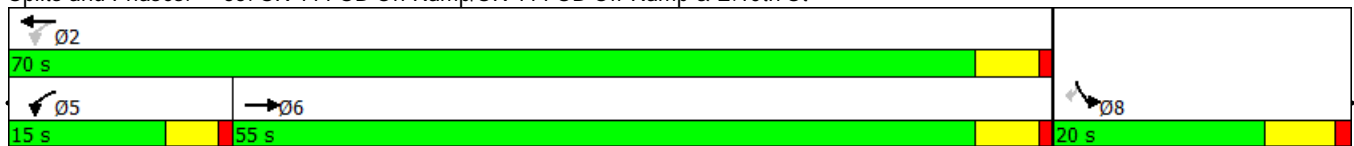
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

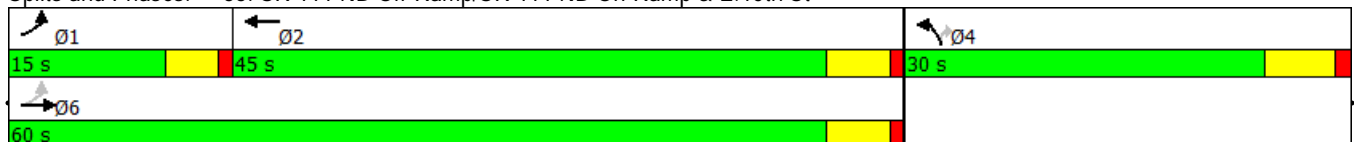


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	565	0	0	625	230	190	0	360	0	0	0
Future Volume (vph)	220	565	0	0	625	230	190	0	360	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3424	0	1787	0	1599	0	0	0
Flt Permitted	0.149						0.950					
Satd. Flow (perm)	278	3574	0	0	3424	0	1787	0	1599	0	0	0
Satd. Flow (RTOR)					96				276			
Peak Hour Factor	0.77	0.88	0.25	0.25	0.95	0.81	0.90	0.25	0.87	0.25	0.25	0.25
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	286	642	0	0	942	0	211	0	414	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	15.0	60.0			45.0		30.0		30.0			
Total Lost Time (s)	4.5	5.3			5.3		5.9		5.9			
Act Effct Green (s)	39.1	38.3			23.5		14.0		14.0			
Actuated g/C Ratio	0.61	0.60			0.37		0.22		0.22			
v/c Ratio	0.71	0.30			0.71		0.54		0.73			
Control Delay	22.3	7.2			19.2		28.9		17.2			
Queue Delay	0.0	0.0			0.2		0.0		0.0			
Total Delay	22.3	7.2			19.4		28.9		17.2			
LOS	C	A			B		C		B			
Approach Delay		11.9			19.4			21.1				
Approach LOS		B			B			C				
Queue Length 50th (ft)	43	51			137		72		46			
Queue Length 95th (ft)	#131	111			251		156		143			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	425	3060			2252		703		796			
Starvation Cap Reductn	0	0			553		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.67	0.21			0.55		0.30		0.52			

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 64
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 17.0
 Intersection Capacity Utilization 62.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

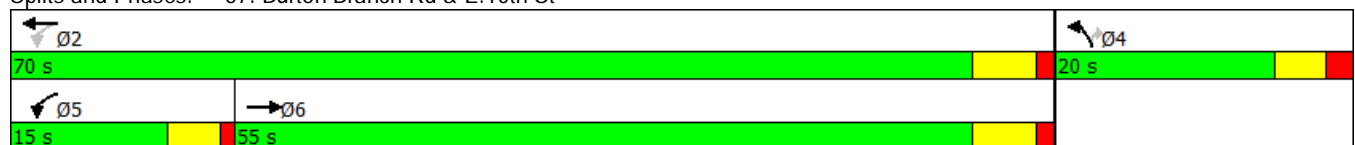
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	835	85	25	710	130	35
Future Volume (vph)	835	85	25	710	130	35
Satd. Flow (prot)	3521	0	1805	3574	1805	1615
Flt Permitted			0.146		0.950	
Satd. Flow (perm)	3521	0	277	3574	1805	1615
Satd. Flow (RTOR)	22					64
Peak Hour Factor	0.89	0.79	0.89	0.91	0.57	0.55
Heavy Vehicles (%)	1%	1%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1046	0	28	780	228	64
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	55.0		15.0	70.0	20.0	20.0
Total Lost Time (s)	5.6		4.5	5.6	5.4	5.4
Act Effct Green (s)	24.2		29.8	28.6	14.4	14.4
Actuated g/C Ratio	0.44		0.54	0.52	0.26	0.26
v/c Ratio	0.67		0.06	0.42	0.48	0.14
Control Delay	14.9		4.8	7.8	25.8	8.5
Queue Delay	0.1		0.0	0.0	0.0	0.0
Total Delay	14.9		4.8	7.8	25.8	8.5
LOS	B		A	A	C	A
Approach Delay	14.9			7.7	22.0	
Approach LOS	B			A	C	
Queue Length 50th (ft)	95		3	65	46	0
Queue Length 95th (ft)	238		11	97	100	8
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	3069		464	3406	515	506
Starvation Cap Reductn	619		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.43		0.06	0.23	0.44	0.13

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 54.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.2
 Intersection Capacity Utilization 45.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

05/16/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	25	40	5	70	5	1005	10	55	1165	5
Future Volume (vph)	35	10	25	40	5	70	5	1005	10	55	1165	5
Satd. Flow (prot)	1787	1634	0	0	1678	0	1626	3568	0	1787	3534	0
Flt Permitted	0.761				0.849		0.178			0.209		
Satd. Flow (perm)	1432	1634	0	0	1449	0	305	3568	0	393	3534	0
Satd. Flow (RTOR)		64			76			2			1	
Peak Hour Factor	0.51	0.50	0.39	0.91	1.00	0.92	0.63	0.97	0.83	0.86	0.91	1.00
Heavy Vehicles (%)	1%	0%	4%	1%	0%	3%	11%	1%	0%	1%	2%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	84	0	0	125	0	8	1048	0	64	1285	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	22.0	22.0		22.0	22.0		12.0	56.0		12.0	56.0	
Total Lost Time (s)	5.5	5.5			5.5		4.5	6.5		4.5	6.5	
Act Effct Green (s)	9.2	9.2			9.2		36.3	32.9		38.5	37.3	
Actuated g/C Ratio	0.17	0.17			0.17		0.65	0.59		0.69	0.67	
v/c Ratio	0.29	0.26			0.41		0.02	0.50		0.14	0.54	
Control Delay	28.4	13.4			17.3		3.8	11.2		4.3	8.6	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	28.4	13.4			17.3		3.8	11.2		4.3	8.6	
LOS	C	B			B		A	B		A	A	
Approach Delay		20.2			17.3			11.2			8.4	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)	20	6			14		1	136		6	107	
Queue Length 95th (ft)	38	12			73		3	230		18	298	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	461	569			518		396	3075		475	3046	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.15	0.15			0.24		0.02	0.34		0.13	0.42	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 55.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 10.6

Intersection LOS: B










Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

Ø1	Ø2	Ø3
12 s	56 s	22 s
Ø5	Ø6	Ø4
12 s	56 s	22 s

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	0	135	0	50
Future Volume (vph)	10	0	0	135	0	50
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Peak Hour Factor	0.83	0.25	0.25	0.77	0.25	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	175	0	52
Sign Control	Yield		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%













ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

Cookeville 2017 Existing Conditions

05/16/2017

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	15	15	5	835	1070	5
Future Volume (vph)	15	15	5	835	1070	5
Satd. Flow (prot)	1721	0	0	5136	3606	0
Flt Permitted	0.978					
Satd. Flow (perm)	1721	0	0	5136	3606	0
Peak Hour Factor	0.75	0.63	0.63	0.97	0.97	0.63
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	869	1111	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 39.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection









Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↑	
Traffic Vol, veh/h	15	15	5	835	1070	5
Future Vol, veh/h	15	15	5	835	1070	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	20	24	8	861	1103	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1467	556	1111	0	-	0
Stage 1	1107	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.95	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.5	-	-	-	-	-
Critical Hdwy Stg 2	6.7	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	112	480	636	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	110	480	636	-	-	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	217	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	29.7		0.2		0
HCM LOS	D				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	636	-	189	-	-
HCM Lane V/C Ratio	0.012	-	0.232	-	-
HCM Control Delay (s)	10.7	0.1	29.7	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	5	660	605	50	0	0
Future Volume (vph)	5	660	605	50	0	0
Satd. Flow (prot)	0	3346	3327	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3346	3327	0	0	0
Peak Hour Factor	1.00	0.91	0.91	0.96	0.92	0.92
Heavy Vehicles (%)	100%	0%	0%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	730	717	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 25.1%

ICU Level of Service A

















Analysis Period (min) 15

Lanes, Volumes, Timings

Cookeville 2017 Existing Conditions

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

05/16/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	0	0	0	0	60	225	5	0	500	65
Future Volume (vph)	0	0	0	0	0	0	60	225	5	0	500	65
Satd. Flow (prot)	0	0	0	0	0	0	0	3296	0	0	3389	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	0	0	0	0	0	0	3296	0	0	3389	0
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25	0.88	0.84	0.63	0.25	0.96	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	5%	0%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	344	0	0	597	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.7%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

Cookeville 2017 Existing Conditions

05/16/2017

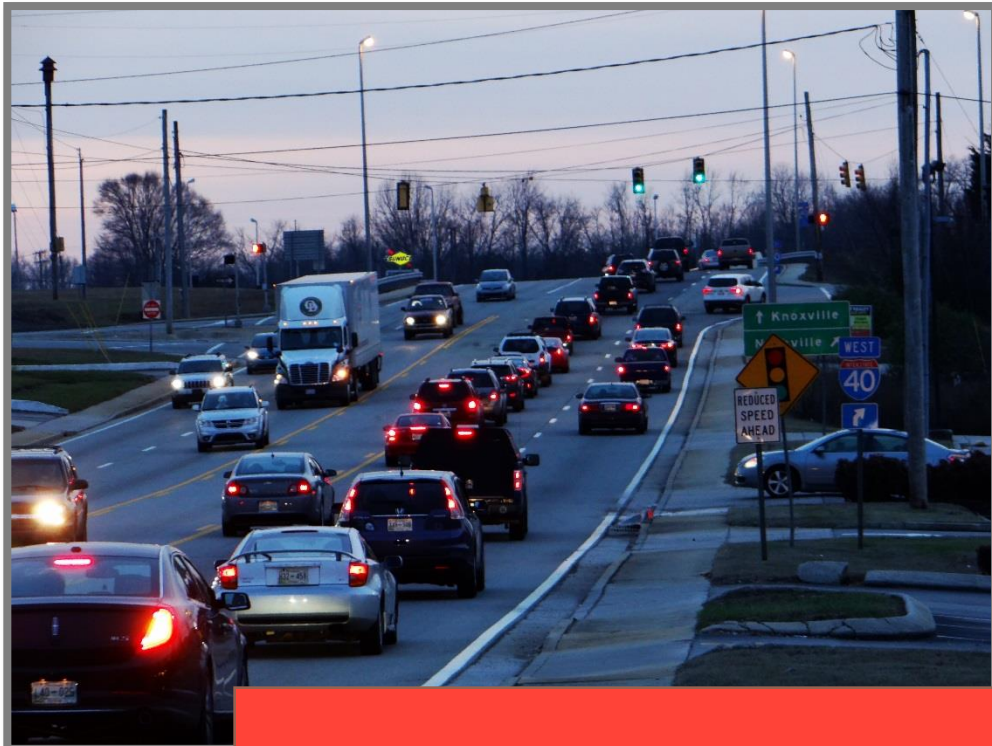
	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↗		↘	↖	↗				
Traffic Volume (vph)	885	20	5	700	20	15			
Future Volume (vph)	885	20	5	700	20	15			
Satd. Flow (prot)	1890	0	1805	1881	1743	0			
Flt Permitted			0.193		0.972				
Satd. Flow (perm)	1890	0	367	1881	1743	0			
Satd. Flow (RTOR)	9				20				
Peak Hour Factor	0.93	0.56	0.63	0.90	0.71	0.75			
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	988	0	8	778	48	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			49.0	49.0	10.7		11.0	19.3	60.0
Total Lost Time (s)			6.6	6.6	4.7				
Act Effct Green (s)	65.9		42.2	42.2	6.1				
Actuated g/C Ratio	0.81		0.52	0.52	0.07				
v/c Ratio	0.65		0.04	0.80	0.32				
Control Delay	1.8		13.0	25.7	33.0				
Queue Delay	0.0		0.0	0.3	0.7				
Total Delay	1.8		13.0	26.0	33.7				
LOS	A		B	C	C				
Approach Delay	1.8			25.9	33.7				
Approach LOS	A			C	C				
Queue Length 50th (ft)	5		2	282	15				
Queue Length 95th (ft)	9		7	#619	37				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1597		204	1048	149				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	39	18				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.62		0.04	0.77	0.37				

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 81.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 13.0
 Intersection Capacity Utilization 60.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St

#52 ↖ Ø1	#52 #521 ← Ø2	#52 #521 ↘ Ø3	#52 #521 ← Ø4
11 s	49 s	19.3 s	10.7 s
#52 #521 ↗ Ø6			
60 s			



Cookeville Corridor Analysis

SAFETY ANALYSIS

June 2017

Table of Contents

1 Introduction	1
2 Data Collection	1
2.1 Field Observations	1
2.2 Recent Crash Data.....	2
2.3 Traffic Volumes	3
2.4 Statewide Average Crash Rates	3
3 Crash Analysis	3
3.1 Study Corridors Segmentation.....	3
3.1.1 Segment Crash Rates and Severity	4
3.2 Manner of Collision.....	9
4 Intersection Crash Analysis – S. Willow Avenue/W. Jackson Street	11
5 Reversible Lane Crash Analysis – Fisk Road	13
6 Recommendations	14

Appendices

Appendix A: Segment AADT for Crash Analysis & Comparison

Appendix B: Segment Characteristics for Crash Analysis & Comparison

List of Tables

Table 1: Roadway Extents of Crash Data Obtained via TRIMS.....	3
Table 2: Study Roadway Segments	4
Table 3: 2012-2014 Study Area Roadway Segment Crash Rates Compared to Statewide Average Crash Rates, by Severity.....	6
Table 4: Calculated Crash Rate and Parameters by Segments for the 2012-2014 Study Period.....	8
Table 5: Crashes, by Manner of Collision, for 2012-2015	10
Table 6: S. Willow Ave and W. Jackson Street - Intersection Crash Rate and Parameters, 2012-2014.....	12
Table 7: 2012-2014 Fisk Road Crash Rates Compared to Statewide Average Crash Rate, by Severity	14

List of Figures

Figure 1: Left Turn Queue at Broad St./Jefferson Ave.	1
Figure 2: I-40 Eastbound On-Ramp from S. Willow Avenue (SR 135)	2
Figure 3: S. Willow Avenue (SR 135)/W. Jackson Street	11
Figure 4: S. Willow Avenue (SR 135) at W. Jackson Street facing northeast	11
Figure 5: S. Willow Avenue (SR 135)/W. Jackson Street - Intersection Crashes by Manner of Collision... ..	13

1 Introduction

A safety analysis was conducted along the primary study corridors in order to identify issues related to existing traffic operational conditions. Field work was conducted in January 2017 during both the morning and evening peak hours to note issues such as narrow or faded lane markings, missing or faded traffic signs, sight distance obstructions, unsafe turning locations, and other safety issues that could lead to higher crash probabilities. Crash data and traffic volumes from the last four full available years (2012 through 2015) was also obtained from the Tennessee Department of Transportation (TDOT) and analyzed. Findings from the field observations and analysis of crash data are discussed below.

2 Data Collection

2.1 Field Observations

Downtown Area

- Downtown “gridlock” safety issues: During the peak hour, gridlock was observed in downtown Cookeville around the Square (**Figure 1**). During this time, sight distances were obstructed by vehicles blocking intersections.
- There is evidence at some curbs in downtown of trucks over-running the curbs, which indicates that pedestrians may not be safe at those locations.

Figure 1: Left Turn Queue at Broad St./Jefferson Ave.



S. Jefferson Avenue (SR 136) Corridor

- The five intersections between Bunker Hill Road and Neal Street (S. Jefferson Avenue/Bunker Hills Road, S. Jefferson Avenue/I-40 eastbound, S. Jefferson Avenue/I-40 westbound, S. Jefferson Avenue/Dubois Road, and S. Jefferson Avenue/Neal Street) are all very close, which result in blocked intersections during peak hours. The short distance between intersections makes it difficult for trucks to maneuver and often leaves intersections blocked.

General Issues

- Along many of the corridors access management and driveway spacing is an issue, as there is no hard median to prevent left turns in and out of the corridors.
- Acceleration lengths on I-40 downstream of the on-ramps from S. Willow Avenue (SR 135) and S. Jefferson Avenue (SR 136) are very short, which makes merging feel unsafe (**Figure 2**).
- The S. Willow Avenue (SR 135)/Jackson Street intersection was perceived to be the least safe in Cookeville by city staff. Staff mentioned a fatal crash at the intersection in January of 2017, which

was noted but is not reflected in the crash data analysis since it falls outside the period of TDOT's most recent available crash data.

Figure 2: I-40 Eastbound On-Ramp from S. Willow Avenue (SR 135)



From Google Streetview, June 2014

2.2 Recent Crash Data

Crash data used in this analysis was obtained from TDOT via the Tennessee Roadway Information Management System (TRIMS). TRIMS contains georeferenced crash data for crashes occurring on all roadways in the state. This data includes:

- Crash location (description and latitude/longitude data)
- Manner of crash
- Weather and time of day
- Driver and occupant data and behavior
- Vehicle information

The log mile extents along each corridor for which crash data was collected are listed in

Table 1. This analysis focused on crashes along each corridor route and did not review crashes that occurred on intersecting side-streets along the study roadway segments.

Table 1: Roadway Extents of Crash Data Obtained via TRIMS

Corridor	Log Mile Begin	Log Mile End
Willow Ave. (SR 135)	7.764	8.681
S. Jefferson Ave. (SR 136)	2.172	4.133
Jefferson Ave.	0.603	0.641
N. Washington Ave. (SR 136)	4.134	5.119
10th St.	0.000	2.131
Broad St.	0.000	1.540
US 70N (SR 24)	16.410	22.990
Jackson St.	1.451	1.586

2.3 Traffic Volumes

AADT volumes for 2012-2015 were obtained from TDOT. A list of stations used and their corresponding AADT is included in **Appendix A**. AADT volumes were averaged in cases where multiple AADT count stations were located within a given segment. This analysis contains two short segments that cross I-40, one on S. Willow Avenue (SR 135) and another on S. Jefferson Avenue (SR 136); AADT volumes used for the safety analysis on these segments were the average of the AADTs at the nearest count location north and south of the interchange.

2.4 Statewide Average Crash Rates

The latest available statewide average crash rates (2012-2014) were obtained from TDOT.

3 Crash Analysis

3.1 Study Corridors Segmentation

To account for differences in roadway conditions that influence crashes (such as geometry, lane configuration, access density, and traffic volume), the study corridors were subdivided into segments with similar attributes and cross-sections throughout their extent.

Table 2 lists these subdivided segments by route, termini (in log mile), and length in miles.

Table 2: Study Roadway Segments

Route	Begin Segment		End Segment		Length (Mi.)
	Log Mile	Location	Log Mile	Location	
S. Willow Ave. (SR 135)	7.76	S. of Gould Dr.	8.68	N. of Interstate Dr.	0.92
S. Willow Ave. (SR 135)	8.68	N. of Interstate Dr.	11.64	N. of 12th St.	2.96
S. Jefferson Ave. (SR 136)	2.17	S. of Bunker Hill Rd.	2.56	N. of Interstate Dr.	0.39
S. Jefferson Ave. (SR 136)	2.56	N. of Interstate Dr.	4.13	N. of Broad St.	1.61*
	0.60		0.64		
N. Washington Ave. (SR 136)	4.13	E. Spring St. (US 70N, SR 24)	5.12	N. of E 10th St.	0.98
E. 10th St.	0.00	N. Washington Ave.	2.13	Hwy. 111 NB Ramps	2.13
Broad St.	0.92	Spring St. W. of Downtown	1.54	Cedar St.	0.63
Broad St.	0.00	Cedar St.	0.91	E. Spring St. (US 70N, SR 24) E. of Downtown	0.91
W. Broad St. (US 70N, SR 24)	16.41	Jackson St.	18.00	Broad St. W. of Downtown	1.59
W. Spring St. (US 70N, SR 24)	18.00	Broad St. W. of Downtown	19.73	Broad St. E. of Downtown	1.73
E. Spring St. (US 70N, SR 24)	19.74	Broad St. E. of Downtown	21.08	E. of Hwy. 111 NB Ramps	1.34
E. Spring St. (US 70N, SR 24)	21.11	E. of Hwy. 111 NB Ramps	22.99	I-40 EB Ramps	1.88

*Includes 1.57 miles on S. Jefferson Avenue (SR 136) and 0.04 miles on N. Jefferson Avenue

3.1.1 Segment Crash Rates and Severity

The study period for this analysis is January 1, 2012, to December 31, 2015. Analysis of safety conditions along the study corridors consisted of looking at annual crash types and rates as well as comparing year-to-year trends from 2012 to 2015. Only one fatal crash occurred along Spring Street (US 70N, SR 24) in downtown Cookeville in 2015. About 3 percent of the total 3,344 crashes resulted in an incapacitating injury, while 77 percent involved only property damage.

Study area crashes were also compared to statewide crashes on similar roadway segments for the time period for which stateside average crash rates were available, 2012-2014.

Crashes were analyzed using the same parameters used by TDOT to identify whether road segments, spots, or intersections are eligible for safety improvement funding. The base parameters are as follows:

- *Exposure rate (E)*: defined as the distance traveled by vehicles in a segment of roadway and measured in the analysis by million vehicle-miles (MVM);
- *Actual crash rate (R)*: defined as the number of crashes per MVM;
- *Severity index (SI)*: the weighted ratio of fatal and injury crashes to total crashes; and
- *Average crash rate (R_A)*: defined as the average crash rate on roadways with similar lane configurations and functional classifications throughout the state of Tennessee.

Each study corridor segment was classified by route type, rural/urban land use, location, and highway type in order to determine which statewide crash rates should be used for comparison. Roadway characteristics used for each segment are detailed in **Appendix B**.

Crash rates were calculated for each segment and compared with statewide crash averages. **Table 3** shows the results of this analysis summarized by crash severity and includes the percent difference between the actual crash rates and statewide averages. The calculated crash rates in Cookeville are higher than statewide average crash rates for all crash types on all segments with a calculated crash rate above zero. Of the 58 crash rate comparisons in **Table 3**, 54 of the segment rates are at least 50% higher than statewide averages while 29 segment rates are at least 100% higher than the statewide averages.

Table 3: 2012-2014 Study Area Roadway Segment Crash Rates Compared to Statewide Average Crash Rates, by Severity

Roadway	Segment Start	Segment End	Study Area Crash Rate per MVM Traveled						Statewide Average					
			Fatal Rate	Incap. Rate ^a	Other Inj. Rate ^b	PD Rate ^c	Total Rate	Severe Crash Rate	Fatal Rate	Incap. Rate ^a	Other Inj. Rate ^b	PD Rate ^c	Total Rate	Severe Crash Rate
S. Willow Ave. (SR 135)	S. of Gould Dr.	N. of Interstate Dr.	0.0	0.148	1.525	5.213	6.886	0.148	0.015	0.056	0.231	0.739	1.041	0.071
S. & N. Willow Ave. (SR 135)	N. of Interstate Dr.	N. of 12th St.	0.0	0.352	1.599	5.990	7.942	0.352	0.013	0.069	0.660	2.257	2.999	0.082
S. Jefferson Ave. (SR 136)	S. of Bunker Hill Rd.	N. of Interstate Dr.	0.0	0.483	4.471	24.653	29.608	0.483	0.013	0.069	0.660	2.257	2.999	0.082
S. Jefferson Ave. (SR 136)	N. of Interstate Dr.	Broad Street	0.0	0.346	2.423	8.308	11.078	0.346	0.013	0.069	0.660	2.257	2.999	0.082
N. Washington Ave. (SR 136)	E. Spring St. (US 70N, SR 24)	N. of E. 10th St.	0.0	0.122	1.346	6.973	8.440	0.122	0.009	0.095	0.580	2.078	2.762	0.104
E. 10th St.	N. Washington Ave. (SR 136)	Hwy. 111 NB Ramps	0.0	0.275	1.850	6.175	8.300	0.275	0.004	0.062	0.624	2.426	3.115	0.066
Broad St.	W. Spring St. (US 70N, SR 24) W of downtown	Cedar St.	0.0	0.235	0.942	5.887	7.065	0.235	0.014	0.102	0.770	2.608	3.493	0.116
Broad St.	Cedar St.	E. Spring St. (US 70N, SR 24) E. of Downtown	0.0	0.176	1.756	13.523	15.455	0.176	0.004	0.062	0.624	2.426	3.115	0.066
W. Broad St. (US 70N, SR 24)	Jackson St.	Broad St. W. of Downtown	0.0	0.000	0.892	2.332	3.223	0.000	0.026	0.125	0.442	1.117	1.709	0.150
W. Spring St. (US 70N, SR 24)	Broad St. W. of Downtown	Broad St. E. of Downtown	0.0	0.195	2.683	10.340	13.218	0.195	0.009	0.095	0.580	2.078	2.762	0.104
E. Spring St. (US 70N, SR 24)	Broad St. E. of Downtown	E. of Hwy. 111 NB Ramps	0.0	0.261	2.301	5.595	8.157	0.261	0.026	0.125	0.442	1.117	1.709	0.150
E. Spring St. (US 70N, SR 24)	E. of Hwy. 111 NB Ramps	I-40 EB Ramps	0.0	0.423	0.664	3.622	4.708	0.423	0.026	0.125	0.442	1.117	1.709	0.150

^a Incapacitating Injury Rate; ^b Other Injury Rate; ^c Property Damage Rate

Note 1: Crash rates for the study area are higher than statewide average crash rate for all categories except fatal crash rate and wherever study area rates are zero.

Note 2: Most recent available statewide crash data is from 2012-2014 hence statewide comparison was done for crashes during 2012, 2013 and 2014.

To ensure that an observed crash rate differs significantly from the average crash, the *critical crash rate* (R_C) is used to determine whether the actual crash rate is significantly higher than average. The critical crash rate is a threshold value, calculated for a given roadway segment, spot, or intersection, that determines whether the actual crash rate significantly deviates from the average crash rate for roadways with similar characteristics. The critical crash rate is calculated with 99% confidence using the average crash rate of the set of roadway segments, spots, or intersections and the exposure rate as follows:

$$R_C = R_A + 2.327 \sqrt{\frac{R_A}{E} + \frac{1}{2E}}$$

Where:

- R_C is the critical crash rate;
- R_A is the average crash rate for a set of roadway segment, spots, or intersection with similar characteristics; and
- E is the exposure rate of a given roadway segment, spot, or intersection.

The critical crash rate provides a statistical test for the crash rate of a given roadway segment, spot, or intersection. If the observed crash rate for a given roadway segment, spot, or intersection exceeds the critical crash rate (expressed as an *actual-to-critical crash rate ratio*, R/R_C , over 1.0), then the relative excess is statistically attributable to more than random variation. According to the TDOT Traffic Monitoring and Forecasting Manual, when $R/R_C > 4.0$, the site is placed on the Hazard Location Listing and is eligible for Hazard Elimination Safety Program funds.

Table 4 lists the crash rate, statewide average crash rate, critical crash rate, actual-to-critical crash rate ratio, and other parameters by segment for the study period.

Table 4: Calculated Crash Rate and Parameters by Segments for the 2012-2014 Study Period

Route	Begin Log Mile	End Log Mile	Exposure Rate (E) (MVM)	Crash Rate (R) (CRASH /MVM)	State-wide Avg. (R _A) (CRASH /MVM)	Critical Crash Rate (R _C) (CRASH /MVM)	Crash Ratio (R/R _C)	SEVERITY INDEX (SI)
S. Willow Ave. (SR 135)	7.76	8.68	20.332	6.886	1.041	1.592	4.33	0.243
S. & N. Willow Ave. (SR 135)	8.68	11.64	73.786	7.942	2.999	3.475	2.29	0.246
S. Jefferson Ave. (SR 136)	2.17	2.56	8.275	29.608	2.999	4.460	6.64	0.167
S. Jefferson Ave. (SR 136)	2.56	4.13	37.553	11.078	2.999	3.670	3.02	0.250
	0.60	0.64						
N. Washington Ave. (SR 136)	4.13	5.12	16.350	8.440	2.762	3.749	2.25	0.174
E. 10th St.	0.00	2.13	40.001	8.300	3.115	3.777	2.20	0.256
Broad St.	0.92	1.54	4.246	7.065	3.493	5.722	1.23	0.167
Broad St.	0.00	0.91	5.694	15.455	3.115	4.924	3.14	0.125
W. Broad St. (US 70N, SR 24)	16.41	18.00	14.581	3.223	1.709	2.540	1.27	0.277
W. Spring St. (US 70N, SR 24)	18.00	19.73	20.502	13.218	2.762	3.640	3.63	0.218
E. Spring St. (US 70N, SR 24)	19.74	21.08	19.124	8.157	1.709	2.431	3.36	0.314
E. Spring St. (US 70N, SR 24)	21.11	22.99	16.566	4.708	1.709	2.486	1.89	0.231

As illustrated in **Table 3**, each of the segment crash rates exceeded the statewide average during the 2012-2014 study period. **Table 4** illustrates that each study area segment crash ratio (Crash Rate divided by Critical Crash Rate) also exceeds 1.0. This means that the segment crash rate is higher than the statewide average with 99% confidence. Further, along many of the segments, the crash ratio (R/R_C) was much higher than 1.0, with crashes exceeding the Hazard Elimination Safety Program threshold (4.0) along these two segments:

- S. Willow Avenue (SR 135) between Gould Drive and Interstate Drive
- S. Jefferson Avenue (SR 136) between Bunker Hill Road and Interstate Drive

According to Appendix A of the TDOT's January 2015 *Guidance for Preparing Road Safety Audits*, the qualifying criteria for interstates, state routes, and functionally classified local routes is as follows:

- At least 3 years of analysis
- A study corridor <5 miles in length
- At least five crashes
- One fatal crash or incapacitating injury crash **and** a segment severe crash to statewide average severe crash ratio greater than 1.0

All segments analyzed for this study met these four criteria except for one segment, W. Broad Street (US 70N, SR 24) between Jackson Street and Broad Street west of downtown, because this segment did not have any fatal or incapacitating injury crashes during the years analyzed.

3.2 Manner of Collision

Crashes along each segment were also summarized by the manner of collision in order to identify whether a particular type of crash was more prevalent in a particular study segment. The results of this analysis are shown in **Table 5**. Further analysis was conducted to identify any crash trends or patterns and potential countermeasures that could be helpful along a particular roadway segment.

Table 5: Crashes, by Manner of Collision, for 2012-2015

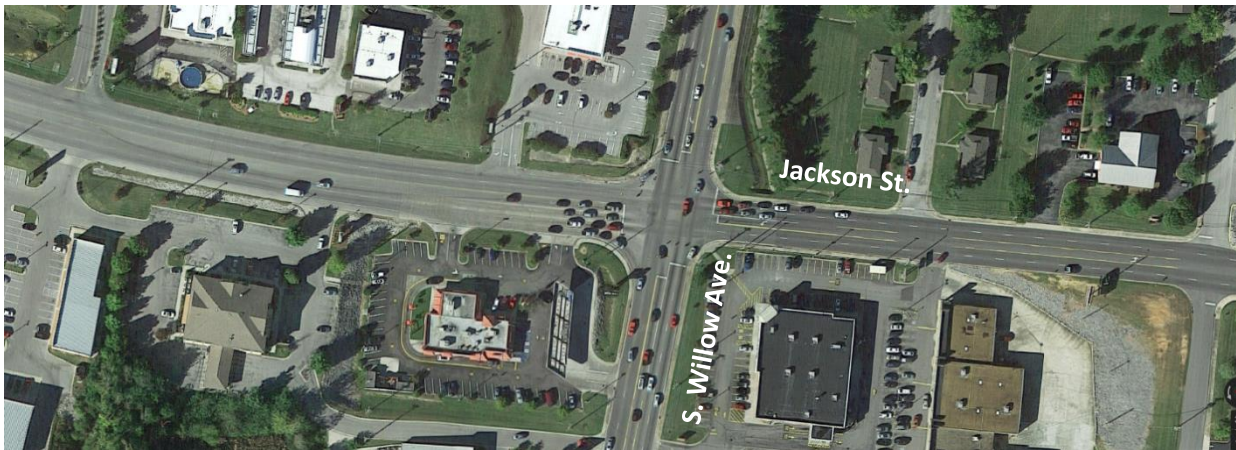
Roadway	Segment Start	Segment End	Number of Crashes, by Manner of Collision							
			Angle	Head-On	Rear-End	Sideswipe	Rear to Rear	Rear to Side	No Collision w/Vehicle	Other/Unknown
S. Willow Ave. (SR 135)	S. of Gould Dr.	N. of Interstate Dr.	16%	1%	59%	11%	0%	1%	5%	6%
S. & N. Willow Ave. (SR 135)	N. of Interstate Dr.	N. of 12th St.	32%	2%	45%	11%	1%	1%	3%	5%
S. Jefferson Ave. (SR 136)	S. of Bunker Hill Rd.	N. of Interstate Dr.	31%	2%	45%	12%	0%	1%	6%	3%
S. Jefferson Ave. (SR 136)	N. of Interstate Dr.	Broad Street	30%	2%	44%	12%	0%	1%	3%	7%
N. Washington Ave. (SR 136)	E. Spring St. (US 70N, SR 24)	N. of E. 10th St.	38%	1%	40%	10%	0%	2%	4%	5%
E. 10th St.	N. Washington Ave. (SR 136)	Hwy. 111 NB Ramps	14%	2%	68%	4%	0%	0%	9%	4%
Broad St.	W. Spring St. (US 70N, SR 24) W of downtown	Cedar St.	43%	0%	23%	7%	0%	0%	17%	10%
Broad St.	Cedar St.	E. Spring St. (US 70N, SR 24) E of downtown	38%	2%	26%	16%	1%	9%	2%	6%
W. Broad St. (US 70N, SR 24)	Jackson St.	Broad St. W. of Downtown	17%	0%	51%	9%	0%	0%	19%	4%
W. Spring St. (US 70N, SR 24)	Broad St. W. of Downtown	Broad St. E. of Downtown	32%	1%	48%	4%	0%	3%	5%	6%
E. Spring St. (US 70N, SR 24)	Broad St. E. of Downtown	E. of Hwy. 111 NB Ramps	25%	3%	58%	6%	1%	1%	3%	4%
E. Spring St. (US 70N, SR 24)	E. of Hwy. 111 NB Ramps	I-40 EB Ramps	17%	5%	47%	10%	0%	0%	21%	0%

Rear end collisions were the most common crash type along every segment except for the two Broad Street segments, where angle crashes were the most common crash type. The high occurrence of angle crashes along Broad Street corresponds with field observations that downtown area angle parking limits sight distance at unsignalized intersections, which in some instances causes drivers to enter the intersection without being able to see oncoming traffic.

4 Intersection Crash Analysis – S. Willow Avenue/W. Jackson Street

An intersection crash analysis was performed for the intersection of S. Willow Avenue (SR 135)/W. Jackson Street, identified by city staff as an area of potential concern. Both S. Willow Avenue and W. Jackson Street are 5-lane facilities (4 lanes with a center turn lane) at the intersection, as shown in **Figure 3**.

Figure 3: S. Willow Avenue (SR 135)/W. Jackson Street



Each approach features two through lanes (one of which is a shared through-right) and an exclusive left-turn lane. The speed limit along S. Willow Avenue (SR 135) at this location is 40 mph, and the speed limit along W. Jackson Street is 35 mph. This signalized intersection operates as an actuated-uncoordinated intersection, and each left-turn signal phase operates in protected-permissive mode in the peak hours.

Figure 4: S. Willow Avenue (SR 135) at W. Jackson Street facing northeast (W. Jackson Street is seen sloping down toward the intersection)



This analysis is based on the same parameters discussed in the “Segment Crash Rates and Severity” section with the only difference being that exposure and crash rates for intersection crashes are measured using Million Entering Vehicles (MEV). The AADT count locations and values that were used to calculate MEV at this intersection are included in **Appendix A**. The number of entering vehicles in a year was calculated by summing the AADT values of each location to determine the average number of vehicles entering the intersection per day and multiplying that by the number of days in a year. The resulting number of entering vehicles per year was summed and divided by 1 million to calculate MEV.

Table 6 shows the results of this analysis.

Table 6: S. Willow Avenue and W. Jackson Street - Intersection Crash Rate and Parameters, 2012-2014

Intersection	Exposure Rate (E) (MEV)	Crash Rate (R) (CRASH/MEV)	Statewide Crash Rate (R _A) (CRASH/MEV)	Critical Crash Rate (R _C) (CRASH/MEV)	Crash Ratio (R/R _C)	SEVERITY INDEX (SI)
S. Willow Ave. (SR 135)/W. Jackson St.	47.702	3.794	0.879	1.205	3.149	0.166

The analysis shows that the actual crash rate is higher than both the statewide average and the critical crash rate. The actual-to-critical crash ratio at the intersection is 3.149.

Figure 5 shows a breakdown of the crashes at the intersection during the study period by crash type. Forty percent of the crashes at the intersection during the study period were rear-end collisions, which was followed closely by angle crashes at 34 percent.

Rear-end crashes were further analyzed to determine the direction vehicles were traveling at the time of collision. **Table 7** summarizes the distribution of rear-end crashes at the intersection. More than 80% of the total rear-end crashes occurred on either the northbound or southbound approach.

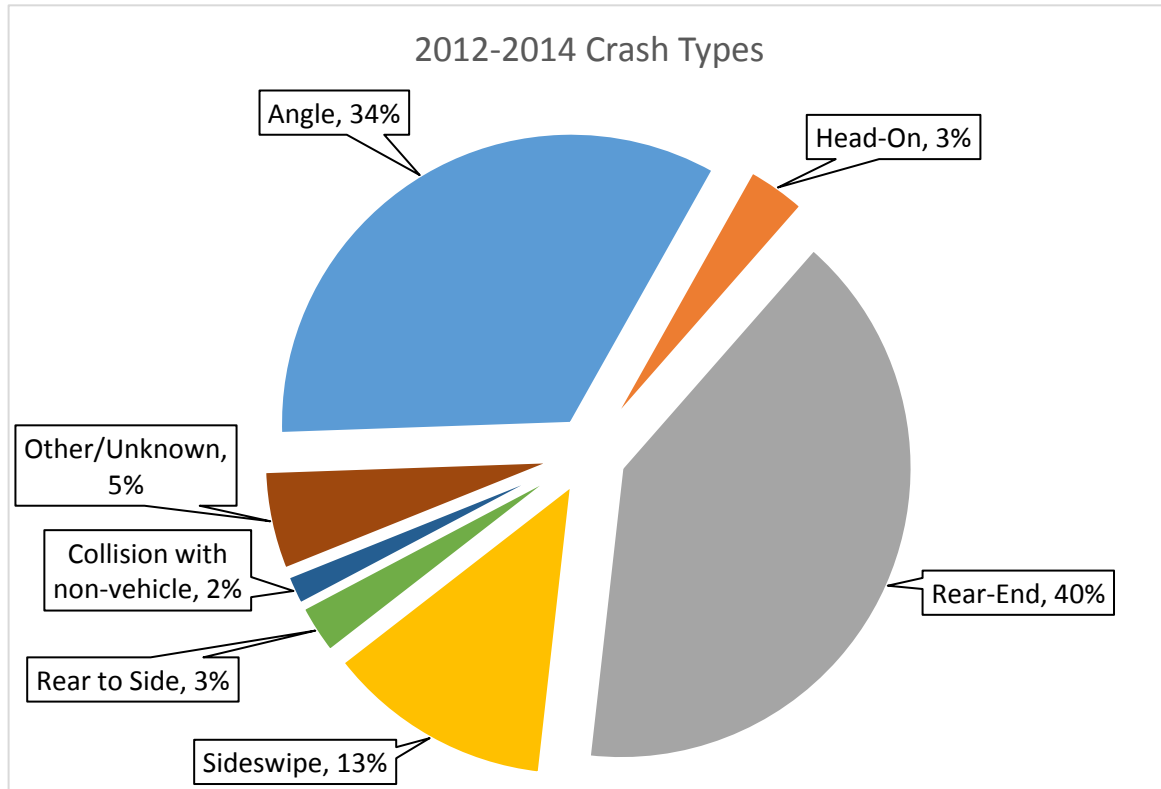
Table 7: Rear-End Crashes (2012-2014) by Direction of Travel

S. Willow Avenue (SR 135)		W. Jackson Street		Rear-end crashes
Northbound	Southbound	Eastbound	Westbound	
18 (40.9%)	14 (31.8%)	7 (15.9%)	5 (11.4%)	44 (100.0%)

Crash severity was also analyzed by direction for all crash types. No correlation was found between the vehicle direction and the crash severity.

One cause for high numbers of rear-end and angle crashes at a signalized intersection is inadequate yellow clearance time. Traffic signal timing at S. Willow Avenue (SR 135)/Jackson Street should be reviewed to ensure that vehicles have enough time to clear the intersection. A speed study at this intersection would assist the traffic signal retiming effort by revealing true motorist behavior at this intersection. Additionally, installation of advanced “be prepared to stop when flashing” signs in advance of the intersection could reduce rear-end and angle crashes by providing advance warning to approaching motorists that the traffic light will be red when they arrive at the signal.

Figure 5: S. Willow Avenue (SR 135)/W. Jackson Street - Intersection Crashes by Manner of Collision



5 Reversible Lane Crash Analysis – Fisk Road

A reversible lane operation exists on Fisk Road between E. 10th Street and Shag Rag Road. Fisk Road has a posted speed of 30 mph and has a total of three lanes including a center two-way left-turn lane. During the afternoon peak, the center lane operates as a second through-lane in the northbound direction. There is also an at-grade railroad crossing within this reversible lane segment of Fisk Road.

Some studies have found an increased rate of crashes on roads with reversible lanes, compared to crash rates on similar roads that have a two-way left turn lane rather than a reversible lane. An analysis was therefore undertaken to determine if any safety concerns currently exist within this section of Fisk Road. According to the National Cooperative Highway Research Program (NCHRP) Synthesis 340¹ on Convertible Roadways and Lanes, there are three primary types of incidents associated with reversible lanes on arterial roadways:

1. Left turns in front of traffic moving in the same direction
2. Left turns from side streets or driveways into the direction reversible roadway
3. Left turning traffic is struck by the opposing traffic or from behind in a reversible lane where left turns have been prohibited during the operation of reversible lanes

¹ National Cooperative Highway Research Program. (2004) *NCHRP Synthesis 340: Convertible Roadways and Lanes*. Washington D.C.: Transportation Research Board

For this analysis, crash data was collected for the one-mile segment of Fisk Road between E. 10th Street and Shag Rag Road during the years 2012 through 2014, which corresponds with the years of the latest available statewide crash data. Of the 16 total crashes recorded, 11 crashes were property damage only, 3 crashes involved a non-incapacitating injury, 2 crashes resulted in incapacitating injuries, and there were no fatalities. **Table 7** summarizes the results of this analysis. While the total crash rate on Fisk Road is below the statewide average, the severe crash rate is higher than the statewide average, which corresponds with the reversible-lane crash pattern identified in the NCHRP Synthesis 340.

Table 7: 2012-2014 Fisk Road Crash Rates Compared to Statewide Average Crash Rate, by Severity

Roadway	Segment Start	Segment End	Fatal Rate	Incap. Rate ^a	Other Inj. Rate ^b	PD Rate ^c	Total Rate	Severe Crash Rate
Fisk Road	E. 10th Street	Shag Rag Road	Study Area Crash Rate per Million Vehicle Miles Traveled					
			0.00	0.37	0.56	2.05	2.98	0.31
			Statewide Average per Million Vehicle Miles Traveled					
			0.014	0.102	0.770	2.608	3.493	0.116

^a Incapacitating Injury Rate; ^b Other Injury Rate; ^c Property Damage Rate

Note: Study area crash rates that are higher than statewide average crash rates are highlighted in red

However, further analysis of the data reveals that only 1 of the 16 crashes during the 3-year time period from 2012 to 2014 occurred while the reversible lane operations were activated. This crash was a rear-end collision that did not result in any injuries. Overall, the reversible lane does not appear to present any safety issues under existing conditions. However, the City should monitor this segment for any increase in the crash types previously mentioned to ensure continued safety along this corridor.

6 Recommendations

This section contains preliminary recommendations based on the crash analysis and existing conditions observations. Recommendations for future corridor improvement will take the findings of this report into consideration to ensure that recommended improvement will enhance the safety along corridors.

- Immediate action to enhance safety along the corridors should be to improve traffic flow through optimizing signal operations. This would include signal coordination, optimized offsets, improved phasing patterns, and adequate clearance times.
- A longer term improvement to improve traffic flow and enhance safety is to implement access management strategies along the major corridors. Access management reduces the potential for angle crashes at midblock locations by limiting the number of driveways along major thoroughfares. A detailed access management study could be used to determine what access strategies would be most effective at specific locations in Cookeville.
- In downtown Cookeville, creating clear zones with parking restrictions near intersections can help improve safety and traffic flow by improving sight distance at intersections. Improving sight distance of oncoming traffic allows drivers to better judge when it is safe to turn. Additionally, restricting parking near intersections improves visibility of pedestrians at street corners who may be preparing to cross the street.

Appendix A:
Segment AADT for Crash Analysis & Comparison

TDOT Traffic Count Stations on Study Corridors

TDOT Count Station No.	Roadway	Location	AADT (Vehicles/Day)			
			2012	2013	2014	2015
141000132	S. Willow Ave. (SR 135)	South of I-40	13,802	15,063	16,490	14,925
141000051	S. Willow Ave. (SR 135)	South of Fairground St.	25,363	25,215	25,453	24,690
141000098	S. Willow Ave. (SR 135)	North of Spring St.	23,742	24,140	24,918	22,426
141000099	N. Willow Ave. (SR 135)	South of 12th St.	18,283	19,175	18,550	16,076
141000083	S. Jefferson Ave. (SR 136)	South of I-40	14,428	14,990	14,975	14,836
141000101	S. Jefferson Ave. (SR 136)	South of Fairground St.	25,291	23,331	23,737	22,776
141000049	S. Jefferson Ave. (SR 136)	South of Jackson St.	25,022	25,113	24,796	24,357
141000075	S. Jefferson Ave. (SR 136)	North of Proffitt St.	13,777	16,320	14,151	15,138
141000185	N. Washington Ave. (SR 136)	North of Broad St.	13,578	14,413	13,562	11,523
141000079	N. Washington Ave. (SR 136)	South of E. 10th St.	16,753	16,206	16,357	16,640
141000028	E. 10th St.	West of Fisk Rd.	17,685	16,454	16,775	17,010
141000108	E. 10th St.	East of Old Kentucky Rd.	18,290	17,034	16,519	17,505
141000119	Broad St.	West of N. Willow Ave. (SR 135)	6,074	6,200	6,324	6,004
141000113	Broad St.	East of Cedar St.	4,808	5,025	5,043	4,504
141000149	Broad St.	East of N. Jefferson Ave.	6,547	6,409	6,460	6,942
141000025	W. Broad St. (US 70, SR 24)	West of Davidson Ave.	7,720	8,568	8,140	7,789
141000145	W. Spring St. (US 70, SR 24)	West of S. Willow Ave. (SR 135)	7,927	8,881	9,002	8,341
141000074	E. Spring St. (US 70, SR 24)	East of Flemming Ave.	9,959	11,112	11,370	10,760
141000047	E. Spring St. (US 70, SR 24)	East of Hudgens St.	12,947	13,119	12,999	13,802
141000109	E. Spring St. (US 70, SR 24)	East of Whitson Chapel Rd.	8,411	7,676	8,032	8,623

TDOT Count Stations used for Intersection Analysis

TDOT Count Station No.	Roadway	Location	AADT (Vehicles/Day)			
			2012	2013	2014	2015
141000051	S. Willow Ave. (SR 135)	South of Fairground St.	25,363	25,215	25,453	24,690
141000176	Jackson St.	West of S. Willow Ave. (SR 135)	18,524	17,857	18,158	18,260

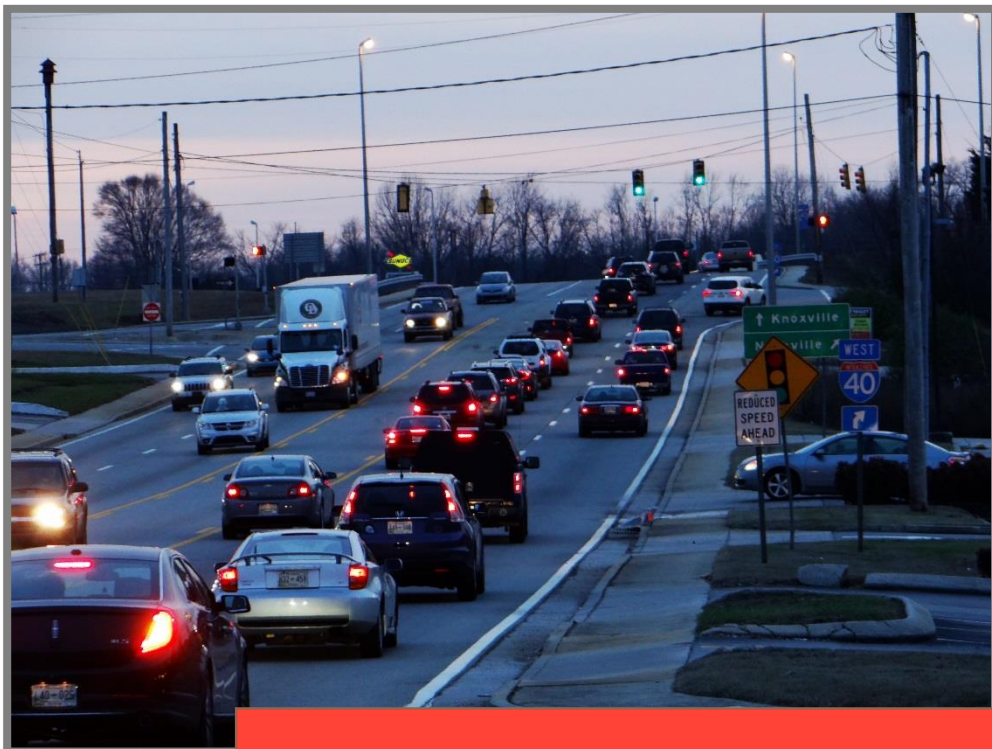
Appendix B:
Segment Characteristics for Crash Analysis & Comparison

Roadway Segment Characteristics

Roadway	Segment Start	Segment End	Route Type ^a	Rural/ Urban	Location	Highway Type ^b
S. Willow Ave. (SR 135)	S. of Gould Dr.	N. of Interstate Dr.	IS & SR	Rural	Section	4 OR MORE W TL
S. & N. Willow Ave. (SR 135)	N. of Interstate Dr.	N. of 12th St.	IS & SR	Urban	Section	4 OR MORE W TL
S. Jefferson Ave. (SR 136)	S. of Bunker Hill Rd.	N. of Interstate Dr.	IS & SR	Urban	Section	4 OR MORE W TL
S. Jefferson Ave. (SR 136)	N. of Interstate Dr.	Broad Street	IS & SR	Urban	Section	4 OR MORE W TL
N. Washington Ave. (SR 136)	E. Spring St. (US 70, SR 24)	N. of E. 10th St.	IS & SR	Urban	Section	2 OR 3 LN W/TL
E. 10th St.	N. Washington Ave. (SR 136)	Hwy. 111 NB Ramps	FUNCT.	Urban	Section	2 OR 3 LN W/TL
Broad St.	W. Spring St. (US 70, SR 24) W. of Downtown	Cedar St.	FUNCT.	Urban	Section	2 OR 3 LN
Broad St.	Cedar St.	E. Spring St. (US 70, SR 24) E. of Downtown	FUNCT.	Urban	Section	2 OR 3 LN W/TL
W. Broad St. (US 70, SR 24)	Jackson St.	Broad St. W. of Downtown	IS & SR	Rural	Section	2 OR 3 LN
W. Spring St. (US 70, SR 24)	Broad St. W. of Downtown	Broad St. E. of Downtown	IS & SR	Urban	Section	2 OR 3 LN W/TL
E. Spring St. (US 70, SR 24)	Broad St. E. of Downtown	E. of Hwy. 111 NB Ramps	IS & SR	Rural	Section	2 OR 3 LN
E. Spring St. (US 70, SR 24)	E. of Hwy. 111 NB Ramps	I-40 EB Ramps	IS & SR	Rural	Section	2 OR 3 LN

^a IS & SR = Interstate & State Route; FUNCT = all urban non-state routes

^b 4 or MORE w/ TL = 4 or more lanes with turn lane



City of Cookeville Major Street Plan Update

EXISTING ROADWAY LEVEL OF SERVICE

June 2017

Table of Contents

1. Introduction	1
2. Data Collection.....	1
3. Roadway Segment Level of Service Analysis.....	1
3.1. Methodology.....	1
3.2. LOS Results.....	2
4. Growth Rate Methodology	10

List of Tables

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP.....	4
Table 2: Annual Growth Rate Based on Historical Traffic Counts.....	9

List of Figures

Figure 1: Florida DOT Generalized Service Volumes (figure referenced in Cookeville 2003 MRTP)	1
Figure 2: Existing LOS (2015) by Roadway Segment	3

1. Introduction

Part of the update to the City’s Major Street Plan involves estimating the current level of service (LOS) for each functionally classified road. This technical memo discusses data collection, the analysis method used, and recommends an annual growth rate to be applied to existing traffic volumes to forecast future year traffic. It then presents updated roadway LOS for existing conditions (2015) and compares those values to the LOS projections developed for the 2003 Cookeville Major Route Transportation Plan.

2. Data Collection

Average Annual Daily Traffic (AADT) counts were obtained from Tennessee Department of Transportation (TDOT) traffic history¹ and supplemented with AADT counts performed by the City of Cookeville. The most recent traffic counts are from 2015. Along some segments, data at multiple count locations was available. To be conservative, the highest count available was used. The growth rates assumed for projecting future year AADT (see “Growth Rate Methodology” section below) were applied to any counts that were collected prior to 2015 to grow them to 2015 volumes. This analysis used the highest volume along a segment when more than one AADT count was available.

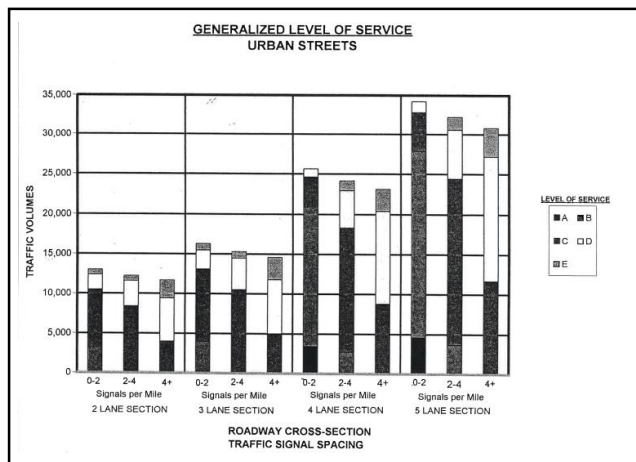
3. Roadway Segment Level of Service Analysis

3.1. Methodology

The methods used to calculate LOS for the 2003 MRTP were reviewed with the goal of using a comparable approach so that values could be compared between the old and new plans.

The 2003 MRTP used 2002 traffic volumes to determine segment LOS values along street and roadway segments throughout Cookeville. The 2002 traffic volumes were projected to what were then future years of 2007 and 2027, and LOS values were determined for each of these two horizon years. Roadway segment LOS was estimated based on using the Florida Department of Transportation (FDOT) generalized planning methodology. The thresholds for the tables referenced in 2003 are shown graphically in **Figure 1**. As shown in the figure, link level of service values were determined using the number of lanes, signal spacing, and the link volume as inputs.

Figure 1: FDOT Generalized Service Volumes (figure referenced in Cookeville 2003 MRTP)



¹ <https://www.tdot.tn.gov/APPLICATIONS/traffichistory>

To facilitate a reasonable comparison with the 2003 MRTP, this analysis therefore uses the latest (2013) FDOT generalized service planning tables to determine the existing LOS for each roadway functional class, by segment. The LOS volume thresholds in the latest FDOT tables² vary based on the following factors:

- Population of surrounding area (Urbanized, Transitioning, Rural)
- Facility Type (signalized arterial, freeway, uninterrupted flow highway)
- Posted speed limit
- Geometry (number of lanes, median type, presence of turn lanes, etc.)

The 2003 MRTP update states that the thresholds in the Class I and Class II Signalized Arterials section of Table 2 of the FDOT tables were used to determine the segment LOS. However, it is not clear how the LOS of *unsignalized* street and roadway segments was determined in the 2003 MRTP, and there is no guidance included with criteria reference shown in Figure 1. The 2013 Florida Quality/Level of Service Handbook³, which provides guidance for using the current generalized planning tables, also does not include guidance for unsignalized street and roadway segments.

This study therefore used the thresholds for a 2-lane undivided roadway in the Class II Signalized Arterials section of Table 2 of the FDOT tables with a 10% reduction in thresholds for non-state roadways as the base thresholds for unsignalized road segments. This provides a relatively conservative estimate for LOS thresholds for these roadways. Fisk Road, which has three lanes (center lane is reversible), was analyzed as a 2-lane roadway to be conservative.

3.2. Level of Service Results

Figure 2 shows the existing LOS for each functionally classified roadway in the city, by segment. In urban areas, LOS C and D are considered adequate, while LOS F represents undesirable operating conditions.

Table 1 lists each roadway segment and its current LOS, compared to the values from the 2003 MRTP for the years 2002, 2007, and 2027. Three roadway segments currently operate at a failing level of service (LOS E or F):

- E. Spring Street (US 70N/SR 24) from SR 111 to I-40 (LOS E)
- E. 10th Street from Washington Avenue (SR 136) to Chocolate Drive (LOS F)
- E. Spring Street (US 70N/SR 24) from Avery Trace Middle School to Broad Street (LOS F)

E. 10th Street serves as a key corridor for those accessing Cookeville from north and east of the city but has limited capacity (two lanes plus a center turn lane). The relative importance of this segment is evidenced by the AADT, which exceeded 17,000 vehicles per day in 2015. This volume is higher than the traffic volumes on SR 24/US 70N in Cookeville and is high enough to result in an LOS F for this 3-lane facility. In addition to the traffic volumes, several factors along E. 10th Street further exacerbate the congestion issues including uncoordinated traffic signals and close spacing between driveways.

Similarly, E. Spring Street (US 70N/SR 24) serves as a key east-west corridor into and out of Cookeville to and from points south and east of the city. The two failing segments are both located east of downtown.

² <http://www.fdot.gov/planning/systems/programs/sm/los/pdfs/fdot%202012%20generalized%20service%20volume%20tables.pdf>

³ <http://www.fdot.gov/planning/systems/programs/SM/los/pdfs/2013%20QLoS%20Handbook.pdf>

The segment operating at LOS F, just east of downtown, has seen an increase of 1,800 vehicles per day in traffic volume since the 2003 MRTP report, which also documented this segment as operating at LOS F. Since the 2003 report was completed, this segment has been widened for a short distance to provide a center turn amidst multi-family residential and commercial driveways; however, the analysis still shows the segment operating at LOS F. The segment operating at LOS E is a two-lane segment with limited right or left-turn lanes that serves primarily suburban and semi-rural land uses.

As part of the existing conditions analysis it was noted that a reversible lane operation exists on Fisk Road between E. 10th Street and Shag Rag Road. A safety analysis of this segment determined that there is presently no significant crash history along this segment. However, as traffic on this roadway segment continues to increase this segment should be monitored to ensure that it continues to operate safely. Details of the crash history and safety analysis can be found in the Safety Report.

Figure 2: Existing LOS (2015) by Roadway Segment

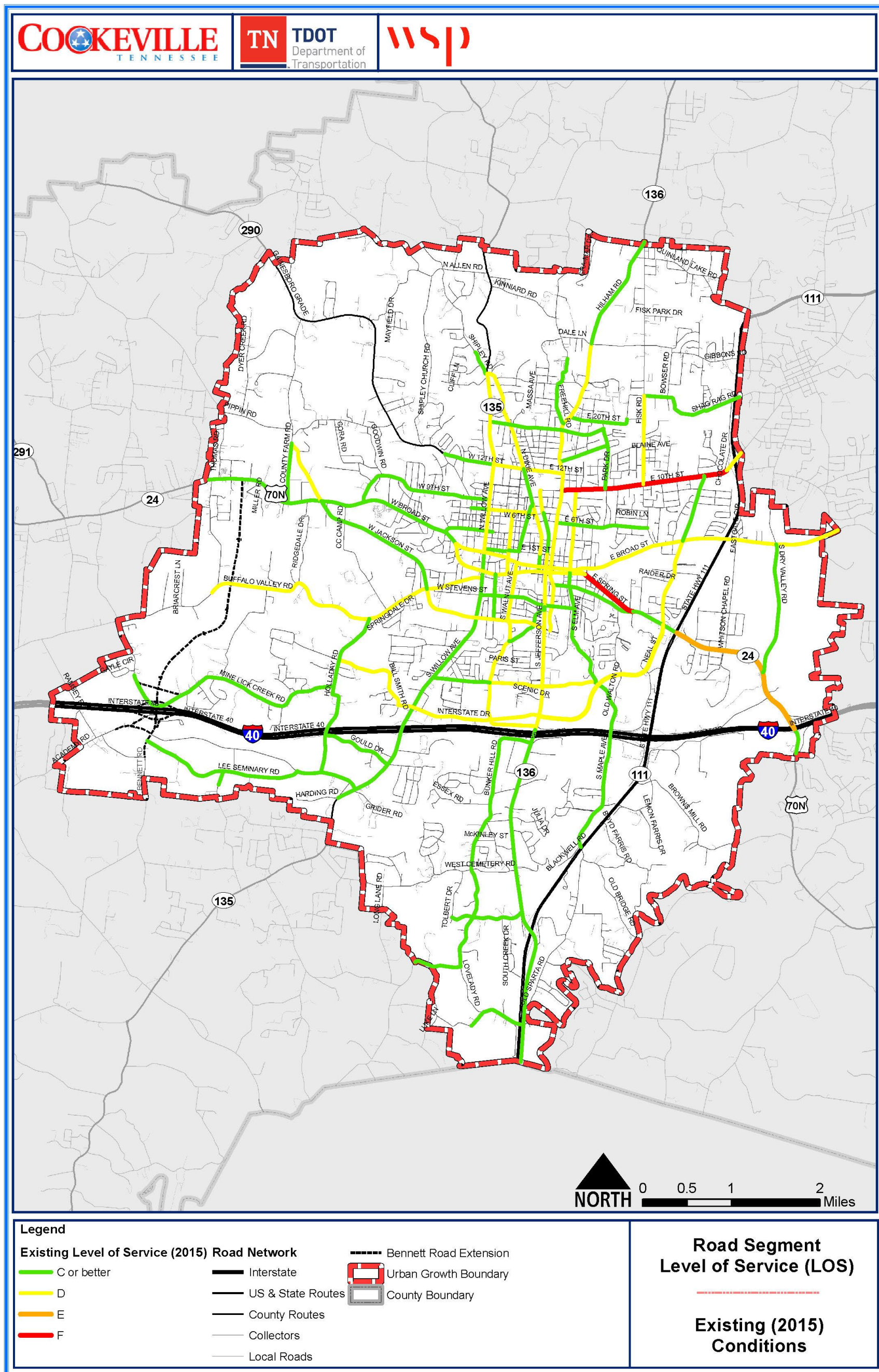


Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street Name	From	To	Class	2015 AADT	2015 LOS	FROM 2003 MRTP			
						2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
1st Street West	Cedar Ave	Walnut Ave	Minor Collector	4,200	C				
1st Street East	Willow Ave	Cedar Ave	Minor Collector	948	C				
4th Street West	Broad St	Whitney Ave	Minor Collector	1,966	C	1,525	B	B	B
6th Street East	Washington Ave	Fisk Rd	Minor Collector	1967*	C	1,334	B	B	B
7th Street	Willow Ave	Dixie Ave	Major Collector	8,414	D	8,711	D	D	F
7th Street West	Franklin Ave	Willow Ave	Minor Collector	3,523	C	2,778	B	B	C
9th Street East	Dixie Ave	Washington Ave	Minor Collector		need counts				
9th Street West/Crescent Drive	Broad St	Willow Ave	Minor Collector	3,083	C	2,360			
10th Street East	Washington Ave	Chocolate	Major Arterial	17,505	F	14,127	D	E	F
10th Street East	Chocolate	City Limits	Major Arterial	13,907	D	12,536	B	B	B
12th Street (SR 290)	City Limits	Franklin Ave	Minor Arterial		need counts	7,500	C	C	D
12th Street (SR 290)	Franklin Ave	Willow Ave	Minor Arterial	9,283	C	8,272	B	B	B
12th Street	Willow Ave	Mississippi Ave	Minor Arterial	13796*	D	7,157	C	C	C
12th Street	Mississippi Ave	Washington Ave	Minor Arterial	10,116	D	5,093	C	C	C
15th Street East	Washington Ave	Brown Ave	Minor Arterial	1,677	C	1,369	B	B	B
20th Street East	Washington Ave	Summerfield Rd	Minor Collector	3,232	C	2,851	B	B	C
Bill Smith Road / Foreman Drive	Holladay Rd	Willow Ave	Major Collector	4,936	D	4,386	C	C	C
Broad Street / US 70N	City Limits	Jackson St	Major Arterial	7,789	C	8,588	C	C	F
Broad Street / US 70N	Jackson St	Spring St	Major Arterial	7,789	C	8,588	C	C	F
Broad Street	Spring St	Cedar Ave	Major Collector	6,687	D	6,171	C	C	C
Broad Street	Cedar Ave	Washington Ave	Major Collector	6992*	D	7,030	D	D	D
Broad Street	Washington Ave	Spring Extension	Major Collector	7941*	D	7,568	C	C	D
Broad Street	Spring Extension	US 111	Major Collector	5,461	D	4,300	C	C	C
Broad Street / Buck Mt. Road	US 111	City Limits	Major Collector	4,750	D	3,248	C	C	C
Brown Avenue	10th St.	Jere Whitson Rd	Minor Collector	2,646	C	2,531	B	B	C

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street Name	From	To	Class	2015 AADT	2015 LOS	FROM 2003 MRTP			
						2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Brown's Mill Road	US 111	City Limits	Minor Collector		need counts				
Buffalo Valley Road	City Limits	Jackson St	Major Collector	6,508	D	4,651	C	C	C
Buffalo Valley Road	Jackson St	Willow Ave	Minor Collector	5,543	D	4,016	C	C	C
Bunker Hill Road	City Limits	Davis Rd	Major Collector	2516*	C	2,000	B	B	C
Bunker Hill Road	Davis Rd	S Jefferson Ave	Minor Collector	4,482	C	719	B	B	B
Cane Creek Road	City Limits	Lee Seminary Rd	Major Collector	328**	C				
Cedar Avenue	Spring St	7th St	Major Collector	4985*	D	3,784	C	C	C
Dixie Avenue	Spring St	1st St	Major Collector	4,520	C	7,109	D	D	D
Dixie Avenue	1st St	Mahler Ave	Major Collector	4769*	D	7,109	C	C	D
Dixie Avenue	Mahler Ave	12th St	Major Collector	8,353	C	7,308	C	C	D
Dixie Avenue	12th St	Willow Ave	Major Collector	4828*	D	6,606	C	C	D
Dry Valley Road	US 70N	Buck Mountain Rd	Major Collector	2,688	C	2,234	B	B	C
Fairground Street	Willow Ave	Walnut Ave	Major Collector	4124*	C	2,182	B	B	C
Fisk Road	10th St	City Limits	Major Collector	6,116	D	4,118	C	C	C
Foutch Drive	Walnut Ave	Jefferson Ave	Minor Collector	751	C	2,635	B	B	C
Freehill Road	Washington Ave	City Limits	Minor Collector	1275*	C	1,141	B	B	B
Gould Drive	Holladay Rd	Willow Ave	Minor Collector	2254*	C	2,362	B	B	C
Hawkins Crawford Road	City Limits	Mine Lick Creek Rd	Minor Collector	2,000	C				
Holladay Road	Lee Seminary Rd	Buffalo Valley Rd	Minor Collector	889*	C	3,700	C	C	C
Hudgens Street	Lowe Ave	Spring St	Minor Collector	2,854	C	2,944	B	C	C

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street Name	From	To	Class	2015 AADT	2015 LOS	FROM 2003 MRTP			
						2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Interstate Drive	Willow Ave	Jefferson Ave	Major Arterial	15,197	D	12,929	B	B	B
Jackson Street	Broad St	Cane Creek Elementary	Major Arterial	10,132	C	8,138	B	B	B
Jackson Street	Cane Creek Elementary	Buffalo Valley Rd	Major Arterial	11,161	C	9,088	C	C	C
Jackson Street	Buffalo Valley Rd	Willow Ave	Major Arterial	18,260	D	11,281	C	C	C
Jackson Street	Willow Ave	Scott Ave	Minor Arterial	13182***	D	13,117	D	D	D
Jackson Street	Scott Ave	Walnut Ave	Minor Arterial	13,048	D	13,117	D	D	E
Jackson Street	Walnut Ave	Jefferson Ave	Minor Arterial	13,246	D	13,117	B	B	B
Jefferson Avenue	City Limits	US 111 NB Ramps	Minor Collector	2,598	C	2,427	B	B	C
Jefferson Avenue (SR 136)	US 111 NB Ramps	Davis Rd	Major Arterial	11,270	C	13,331	D	D	F
Jefferson Avenue (SR 136)	Davis Rd	Bunker Hill Rd	Major Arterial	14,836	C	13,331	B	B	C
Jefferson Avenue (SR 136)	Bunker Hill Rd	I-40	Major Arterial	14,836	C	13,331	D	D	D
Jefferson Avenue (SR 136)	I-40	Stevens St	Major Arterial	24,357	D	25,551	D	D	F
Jefferson Avenue (SR 136)	Stevens St	Spring St	Major Arterial	15,138	D	15,280	D	D	F
Jefferson Avenue	Spring St	1st St	Minor Collector	7874***	D	1,924	C	C	C
Jefferson Avenue	1st St	7th St	Minor Collector	2221*	C	2,060	B	B	C
Jefferson Avenue	7th St	10th St	Minor Collector	5,870	D	4,828	C	C	C
Jere Whitson Road	Willow Ave	Brown Ave	Minor Collector	4184*	C	4,166	C	C	C
Lee Seminary Road	Bennett Rd	Holladay Rd	Minor Collector	910	C				
Lee Seminary Road	Holladay Rd	Burgess Falls Rd	Minor Collector	1,063	C				
Lovelady Road	City Limits	Jefferson Ave	Minor Collector	441	C	533	B	B	B
Lowe Avenue	Jackson St	Spring St	Minor Arterial	11048***	D	11,870	D	D	D
Mahler Avenue	1st St	6th St	Major Collector	4,209	C	2,702	B	B	C
Mahler Avenue	6th St	Dixie Ave	Major Collector	4,209	C	2,702	B	B	C
Maple Avenue	10th St	Broad St	Major Collector	6154**	D	2,983	B	C	C
Maple Avenue	Broad St	Hudgens St	Major Collector	4602*	C	1,392	B		
Maple Avenue	Hudgens St	Veterans Dr	Major Collector	3,647	C	2,123	B	B	C
Maple Avenue	Veterans Dr	I-40 Overpass	Minor Collector	4,204	C	2,196	B	B	B
Maple Avenue	I-40 Overpass	US 111	Minor Collector	2,626	C	3,517	C	C	C

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street Name	From	To	Class	2015 AADT	2015 LOS	FROM 2003 MRTP			
						2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Mine Lick Creek Road	City Limits	Holladay Rd	Minor Collector	1148*	C				
Neal Street	Jefferson Ave	Spring St	Major Arterial	14,630	D	11,269	B	B	B
Old Kentucky Road	Spring St	10th St	Major Collector	7,732	D	5,701	C	C	C
Pigeon Roost Creek Road	City Limits	Jefferson Ave	Minor Collector	1,127	C	1,247	B	B	B
Scott Avenue	Jackson St	Spring St	Minor Collector	3797*	C	2,827	C	C	C
Summerfield Road / Shag Rag Road	Fisk Rd	City Limits	Minor Collector	1,579	C	1,712	B	B	B
Shipley Road	City Limits	Willow Ave	Minor Collector	2382*	C	2,343	B	B	C
Stevens Street	Willow Ave	Maple Avenue	Minor Collector	4,478	C	3,369	C	C	C
Veterans Drive	Walnut Ave	Neal St	Minor Collector	8,255	D	5,068	C	C	C
Walnut Avenue	Broad St	Interstate Dr	Major Collector	8,931	D	4,845	C	C	C
Walnut Avenue	Interstate Dr	Jefferson Ave	Minor Collector	5,879	D	4,056	D	D	D
N Washington Ave (SR 136)	Spring St	Broad Ave	Major Arterial	10301***	D	12,495	E	E	F
N Washington Ave (SR 136)	Broad Ave	1st St	Major Arterial	11,523	D	12,495	C	C	C
N Washington Ave (SR 136)	1st St	10th St	Major Arterial	16,640	D	13,484	D	E	F
N Washington Ave (SR 136)	10th St	15 St/17th*	Major Arterial	15,256	D	9,446	B	B	B
N Washington Ave (SR 136)	15 St/17th	Whitaker Springs	Major Arterial	9660*	D	5,582	D	D	D
N Washington Ave (SR 136)	Whitaker Springs	City Limits	Minor Arterial	4,867	C	5,671	C	C	C
N Willow Ave (SR 135)	Dixie Ave	12th St	Major Arterial	8,495	D	7,711	C	C	E
N Willow Ave (SR 135)	12th St	Broad St	Major Arterial	16,076	D	15,361	C	C	F
S Willow Ave (SR 135)	Broad St	I-40	Major Arterial	24,690	C	23,878	C	D	F
S Willow Ave (SR 135)	I-40	City Limits	Major Arterial	14,925	C	14,943	F	F	F

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street Name	From	To	Class	2015 AADT	2015 LOS	FROM 2003 MRTP			
						2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Spring St East (US 70N)	City Limits	I-40	Major Arterial	8,623	C	8,170	C	C	F
Spring St East (US 70N)	I-40	US 111	Major Arterial	11,256	E				
Spring St East (US 70N)	US 111	Old Kentucky Rd	Major Arterial	17,034	C	12,294	D	D	D
Spring St East (US 70N)	Old Kentucky Rd	School	Major Arterial	13,802	C	13,495	D	D	F
Spring St East (US 70N)	School	Split	Major Arterial	15269*	F	13,495	F	F	F
Spring St East (US 70N)	Split	Walnut Ave	Major Arterial	10,760	D	10,312	D	D	F
Spring St East (US 70N)	Walnut Ave	Broad St	Major Arterial	8,341	D	8,415	C	C	D

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

4. Growth Rate Methodology

Before projecting future roadway LOS, it is necessary to determine the traffic growth rates to be applied.

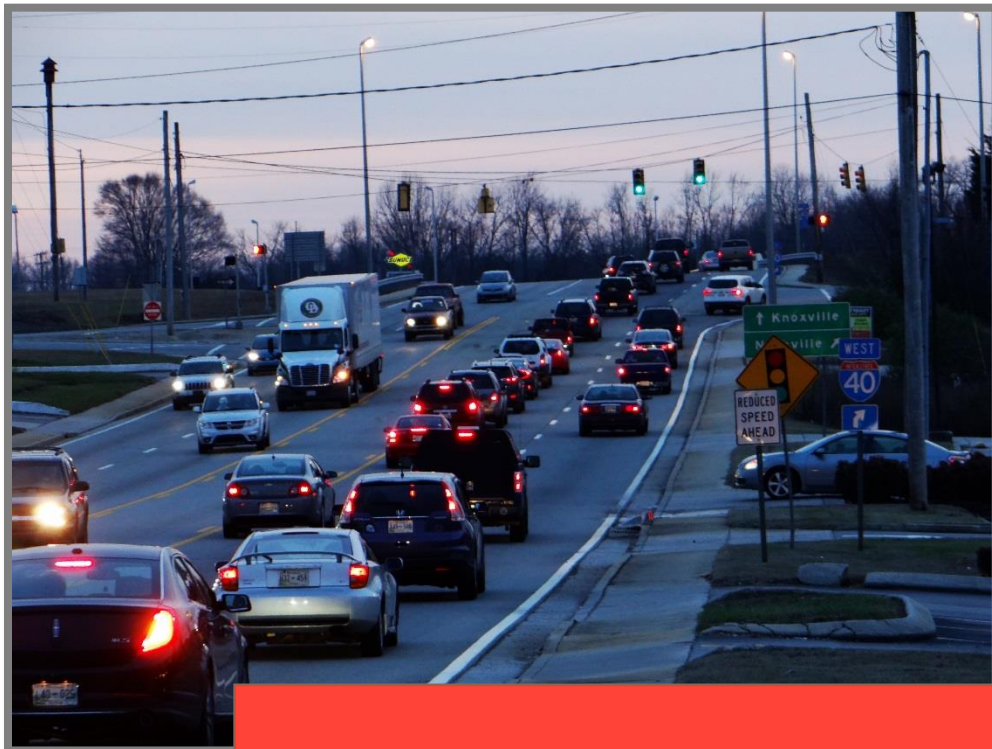
Growth rates for the SR 135, SR 136 and SR 24/US 70N corridors have already been proposed and documented separately in the Corridor Analysis Existing Conditions Report. (See Table 9 in that report.)

A 1 percent annual growth rate is recommended for use on the city's other arterial corridors, based on analysis of historical growth rates across all count locations in Cookeville, excluding I-40 and SR 111. As shown in **Table 2**, the average of the 5, 10, and 15-year historical traffic growth rate for these stations is just over 1 percent.

Table 2: Annual Growth Rate Based on Historical Traffic Counts

Count Stations	Annual Growth Rate			Average
	5-year	10-year	15-year	
<i>Cookeville Stations</i>	0.29%	1.28%	1.45%	1.01%

With a conservative assumption that the major arterials will reach saturation, causing motorists to use non-arterial routes, it is reasonable to assume that traffic volumes will grow at a higher rate for non-arterial roadways. Accordingly, a 1.5 percent annual growth rate in traffic volumes is recommended for corridors that are not functionally classified as arterials.



Cookeville Corridor Analysis

FUTURE CONDITIONS AND RECOMMENDATIONS

October 2017

Table of Contents

1. Short Term Signal Timing Improvements.....	1
1.1. Signal Coordination & Optimization	1
1.2. Signal Retiming & Refinement	3
1.3. LOS Analysis for Optimized Conditions.....	3
2. 2040 No-Build Conditions Intersection Analysis.....	8
2.1. Volume Development	8
2.2. 2040 No-Build Level of Service	16
3. Recommended Intersection Improvements	21
3.1. S. Willow Avenue (SR 135) & I-40 Eastbound Ramps	21
3.2. S. Willow Avenue (SR 135) & I-40 Westbound Ramps.....	22
3.3. S. Willow Avenue (SR 135) & Interstate Drive/Foreman Drive.....	22
3.4. S. Willow Avenue (SR 135) & W. Jackson Street.....	23
3.5. S. Willow Avenue (SR 135) & W. Stevens Street.....	23
3.6. S. Willow Avenue (SR 135) & W. Spring Street (US 70N, SR 24).....	24
3.7. N. Willow Avenue (SR 135): Between Broad Street and 12 th Street.....	24
3.8. N. Willow Avenue (SR 135) & W. 12th Street	25
3.9. S. Jefferson Avenue (SR 136) near I-40.....	25
3.10. S. Jefferson Avenue (SR 136) & Jackson Street.....	29
3.11. E. Spring Street (US 70N, SR 24) & I-40 Ramps	29
3.12. E. Spring Street (US 70N, SR 24) & SR 111 Northbound Ramps	29
3.13. E. Spring Street (US 70N, SR 24) & SR 111 Southbound Ramps	30
3.14. W. Broad Street (US 70N, SR 24) & W. Jackson Street	30
3.15. E. 10th Street	30
3.16. Planning Level Cost Estimates.....	32
4. 2040 Intersection Analysis with Implementation of Recommendations	34
5. Downtown Circulation Recommendations	39
5.1. Observed Issues	39
5.2. Potential Solutions	39
5.2.1. Improve Signal Timing and Coordination.....	39
5.2.2. Remove On-Street Parking.....	40
5.2.3. Remove Pedestrian Mid-Block Crossings.....	41
5.2.4. Enhanced Wayfinding	41
5.2.5. One-Way Pairs.....	41
5.2.6. Summary	43
6. Access Management	44

List of Tables

Table 1: Proposed Signal Coordination Groups	1
Table 2: 2017 Optimized Conditions AM and PM Peak Hour Intersection Delay and Level of Service	4
Table 3: 2040 No-Build AM & PM Peak Hour Intersection Delay and Level of Service	17
Table 4: Cookeville Corridor Planning-Level Cost Estimates (2017 dollars)	33
Table 5: 2040 Optimized Conditions with Recommendations Delay & Level of Service	35

List of Figures

Figure 1: Proposed Coordination Zones	2
Figure 2: 2017 Optimized Conditions Intersection Level of Service (AM Peak Hour)	6
Figure 3: 2017 Optimized Conditions Intersection Level of Service (PM Peak Hour)	7
Figure 4: S. Willow Avenue (SR 135) 2040 Turning Movement Counts (southern portion)	9
Figure 5: S. & N. Willow Avenue (SR 135) 2040 Turning Movement Counts	10
Figure 6: S. Jefferson Avenue (SR 136) 2040 Turning Movement Counts (southern portion)	11
Figure 7: S. Jefferson Avenue, N. Washington Avenue (SR 136) 2040 Turning Movement Counts	12
Figure 8: US 70N/SR 24, Broad Street 2040 Turning Movement Counts (Western Sections)	13
Figure 9: US 70N/SR 24, Broad Street 2040 Turning Movement Counts (Eastern Sections)	14
Figure 10: E. 10th Street 2040 Turning Movement Counts	15
Figure 11: 2040 No-Build Conditions Intersection Level of Service (AM Peak Hour)	19
Figure 12: 2040 No-Build Conditions Intersection Level of Service (PM Peak Hour)	20
Figure 13: Congested Area of S. Jefferson Avenue (SR 136): Bunker Hill Road - Interstate Drive	26
Figure 14: Operational Issues near Pilot Station, S. Jefferson Avenue (SR 136) at Bunker Hill Road	27
Figure 15: 2040 Recommended Conditions Intersection Level of Service (AM Peak Hour)	37
Figure 16: 2040 Recommended Conditions Intersection Level of Service (PM Peak Hour)	38
Figure 17: Cookeville's Downtown Square	40
Figure 18: Potential One-Way Pair Network in Downtown	42
Figure 19: One-Way Pair Lane Configuration at Jefferson Avenue and Washington Avenue	42

Appendices

Appendix A: Intersection Pedestrian Crossing Time Calculations
Appendix B: 2017 Optimized Conditions Synchro Reports
Appendix C: 2040 No-Build Conditions Synchro Reports
Appendix D: 2040 Optimized Conditions Synchro Reports
Appendix E: Cost Estimate Details
Appendix F: 2040 Recommendations Conditions Synchro Reports
Appendix G: One-Way Pair Lane Configuration

1. Short Term Signal Timing Improvements

1.1. Signal Coordination & Optimization

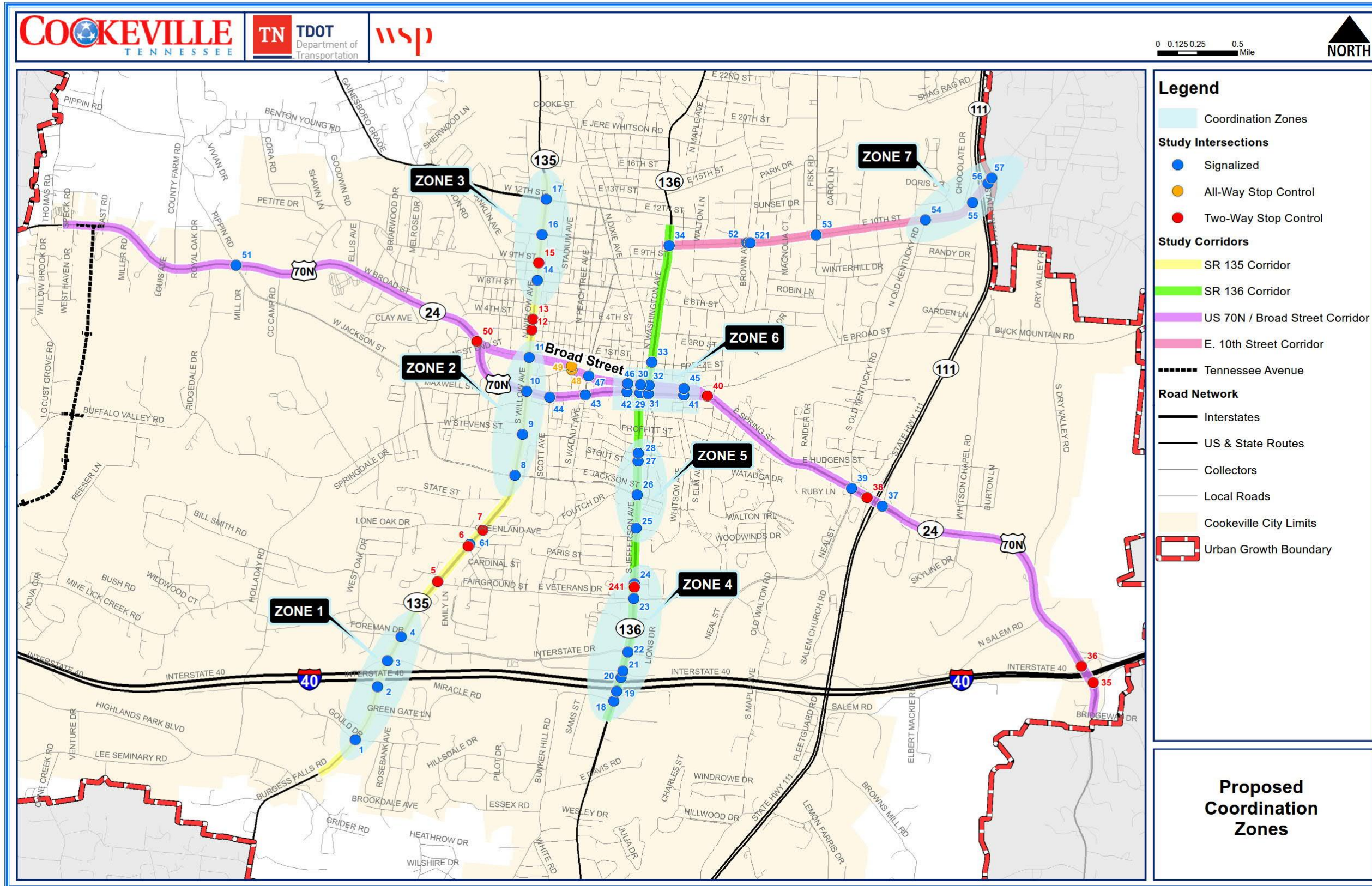
Updating existing signal timing and expanding the number of coordinated signals generally provides short-term improvements in traffic operations. Currently there are two groups of coordinated signals in the study area: near the Downtown Square (Group 6 in **Table 1**), and along S. Jefferson Avenue (SR 136) between Bunker Hill Road and Stevens Street (Group 5). Five additional signal group clusters were identified that would benefit from coordination. All seven proposed coordination zones are shown in **Table 1** and **Figure 1**.

Table 1: Proposed Signal Coordination Groups

Group 1	S. Willow Avenue (SR 135) at Gould Drive/Winston Drive
	S. Willow Avenue (SR 135) at I-40 Eastbound Ramps
	S. Willow Avenue (SR 135) at I-40 Westbound Ramps
	S. Willow Avenue (SR 135) at Interstate Drive
Group 2	S. Willow Avenue (SR 135) at Jackson Street
	S. Willow Avenue (SR 135) at Stevens Street
	S. Willow Avenue (SR 135) at Spring Street (US 70N, SR 24)
	S. Willow Avenue/N. Willow Avenue (SR 135) at W. Broad Street
Group 3	N. Willow Avenue (SR 135) at 7th Street
	N. Willow Avenue (SR 135) at University Drive
	N. Willow Avenue (SR 135) at W. 12th Street
Group 4 (currently coordinated)	S. Jefferson Avenue (SR 136) at Bunker Hill Road/Ferrell Drive
	S. Jefferson Avenue (SR 136) at I-40 Eastbound Ramps
	S. Jefferson Avenue (SR 136) at I-40 Westbound Ramps
	S. Jefferson Avenue (SR 136) at Interstate Drive/Neal Street
	S. Jefferson Avenue (SR 136) at Walmart Driveway
Group 5	S. Jefferson Avenue (SR 136) at Commerce Avenue
	S. Jefferson Avenue (SR 136) at Jackson Street
	S. Jefferson Avenue (SR 136) at Foutch Drive
	S. Jefferson Avenue (SR 136) at Stevens Street
Group 6 (currently coordinated)	E. Spring Street (US 70N, SR 24) at S. Dixie Avenue
	E. Spring Street (US 70N, SR 24) at S. Jefferson Avenue (SR 136)
	E. Spring Street (US 70N, SR 24) at S. Lowe Avenue/S. Washington Avenue (SR 136)
	*E. Spring Street (US 70N, SR 24) at S. Maple Avenue
	E. Broad Street at S. Dixie Avenue/N. Dixie Avenue
	E. Broad Street at S. Jefferson Avenue/N. Jefferson Avenue
	E. Broad Street at S. Washington Avenue/N. Washington Avenue (SR 136)
	*E. Broad Street at S. Maple Avenue/N. Maple Avenue
Group 7	10th Street at N. Old Kentucky Avenue
	10th Street at SR 111 Southbound Ramps
	10th Street at SR 111 Northbound Ramps
	10th Street at Burton Branch Road (located in City of Algood)

* Intersections not included in existing downtown coordination plan

Figure 1: Proposed Coordination Zones



1.2. Signal Retiming & Refinement

Synchro version 9.1.912.4 was used to model the study area intersections using the 2017 volumes collected as part of this project. Synchro was used to optimize the signal offsets; offsets were then further refined using the software's Time Space Diagram feature to ensure that traffic flows progressed through the network.

Signal split times and pedestrian crossing "Flashing Don't Walk" (FDW) times were also adjusted within Synchro for both the AM and PM peak hours.

Split times were adjusted to balance delays and Level of Service (LOS) across each intersection approach. In some cases, split times were also further adjusted based on field observations to compensate for movements with geometric constraints (e.g. hills, etc.).

Pedestrian crossing FDW times were adjusted where necessary to ensure that pedestrians had adequate crossing time. Each crosswalk in the study area was measured. This distance was divided by the standard walking speed of 4.0 feet per second per the Manual of Uniform Traffic Control Devices (MUTCD), section 4E.06¹, to calculate the minimum FDW time. Please see **Appendix A** for additional details about the FDW methodology and data.

1.3. LOS Analysis for Optimized Conditions

Synchro was used to estimate the intersection delay and LOS resulting from the recommended signal changes in both the AM and PM peak hour. The delay and LOS are listed in **Table 2**; **Figure 2** and **Figure 3** illustrate the AM and PM peak hour LOS, respectively. The AM and PM peak hour Synchro report for each intersection is included in **Appendix B**. Note that delay for signalized intersections is reported as overall delay, while delay at unsignalized intersection is reported based on the worst stop controlled movement.

Table 2 indicates that after coordinating and optimizing the study area intersections, the Synchro models do not project any failing signalized intersections in either the AM or PM peak hour in 2017 conditions. However, the Synchro models do not project any improvements to several stop-controlled intersections, which are currently failing in both the AM and PM peak hour: N. Willow Avenue (SR 135) at 3rd Street, 4th Street, and 9th Street.

¹ <https://mutcd.fhwa.dot.gov/hlm/2009r1r2/part4/part4e.htm>

Table 2: 2017 Optimized Conditions AM and PM Peak Hour Intersection Delay and Level of Service

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	S. Willow Ave.	Gould Dr.	Sig.	8.5	A	19.1	B
2	S. Willow Ave.	I-40 EB Ramps	Sig.	18.1	B	21.7	C
3	S. Willow Ave.	I-40 WB Ramps	Sig.	14.6	B	13.9	B
4	S. Willow Ave.	Interstate Dr.	Sig.	25.2	C	33.4	C
5	S. Willow Ave.	Fairground St.	STOP	17.9	C	18.8	C
6	S. Willow Ave.	Ashwood Dr.	STOP	12.1	B	12.5	B
61	S. Willow Ave.	Orchard St.	Sig.	11.6	B	10.5	B
7	S. Willow Ave.	Lone Oak Dr.	STOP	20.7	C	21.8	C
8	S. Willow Ave.	W. Jackson St.	Sig.	23.0	C	32.8	C
9	S. Willow Ave.	W. Stevens St.	Sig.	20.1	C	21.9	C
10	S. Willow Ave.	W. Spring St.	Sig.	25.2	C	32.3	C
11	S. Willow Ave.	W. Broad St.	Sig.	20.5	C	22.4	C
12	N. Willow Ave.	W. 3rd St.	STOP	50.4	F	57.0	F
13	N. Willow Ave.	W. 4th St.	STOP	97.3	F	103.7	F
14	N. Willow Ave.	W. 7th St.	Sig.	14.9	B	16.5	B
15	N. Willow Ave.	W. 9th St.	STOP	213.0	F	120.9	F
16	N. Willow Ave.	University Dr.	Sig.	9.0	A	9.2	A
17	N. Willow Ave.	W. 12th St.	Sig.	24.3	C	21.3	C
18	S. Jefferson Ave.	Bunker Hill Rd.	Sig.	11.8	B	10.6	B
19	S. Jefferson Ave.	I-40 EB Ramps	Sig.	21.5	C	19.2	B
20	S. Jefferson Ave.	I-40 WB Ramps	Sig.	26.6	C	6.7	A
21	S. Jefferson Ave.	S. Walnut Ave.	Sig.	16.5	B	20.6	C
22	S. Jefferson Ave.	Interstate Dr.	Sig.	18.2	B	26.6	C
23	S. Jefferson Ave.	E. Veterans Dr.	Sig.	19.7	B	29.3	C
241	S. Jefferson Ave.	Fairground St.	STOP	17.7	C	24.1	C
24	S. Jefferson Ave.	Walmart Driveway	Sig.	2.4	A	8.3	A
25	S. Jefferson Ave.	Commerce Ave.	Sig.	4.2	A	10.8	B
26	S. Jefferson Ave.	E. Jackson St.	Sig.	12.5	B	24.1	C
27	S. Jefferson Ave.	Foutch Dr.	Sig.	9.0	A	14.1	B
28	S. Jefferson Ave.	E. Stevens St.	Sig.	11.7	B	13.8	B
29	S. Jefferson Ave.	US 70N/E. Spring St.	Sig.	19.1	B	33.1	C
30	N. Jefferson Ave.	E. Broad St.	Sig.	17.2	B	19.7	B
31	S. Washington Ave.	E. Spring St.	Sig.	23.6	C	22.3	C
32	N. Washington Ave.	E. Broad St.	Sig.	28.7	C	29.2	C
33	N. Washington Ave.	E. 1st St.	Sig.	27.6	C	25.8	C
34	N. Washington Ave.	E. 10th St.	Sig.	27.0	C	23.5	C
35	E. Spring St.	I-40 EB Ramps	STOP	13.1	B	15.3	C

(continued from previous page)

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
36	E. Spring St.	I-40 WB Ramps	STOP	12.0	B	10.6	B
37	E. Spring St.	SR 111 NB Ramps	Sig.	18.0	B	23.2	C
38	E. Spring St.	SR 111 SB Ramps	STOP	26.2	D	16.5	C
39	E. Spring St.	S. Old Kentucky Rd.	Sig.	30.7	C	36.8	D
40	E. Spring St.	E. Broad St.	STOP	17.5	C	22.5	C
41	E. Spring St.	S. Maple Ave.	Sig.	26.9	C	25.1	C
42	E. Spring St.	S. Dixie Ave.	Sig.	15.4	B	16.7	B
43	W. Spring St.	S. Walnut Ave.	Sig.	23.2	C	29.1	C
44	W. Spring St.	Scott Ave.	Sig.	11.9	B	19.8	B
45	E. Broad St.	S. Maple Ave.	Sig.	28.0	C	20.8	C
46	E. Broad St.	S. Dixie Ave.	Sig.	14.7	B	20.9	C
47	E. Broad St.	S. Walnut Ave.	Sig.	23.9	C	31.6	C
48	E. Broad St.	S. Cedar Ave.	STOP	10.4	B	14.1	B
49	W. Broad St.	N. Cedar Ave.	STOP	11.1	B	12.3	B
50	W. Spring St.	W. Broad St.	STOP	10.2	B	15.7	C
51	W. Broad St.	W. Jackson St.	Sig.	35.9	D	33.7	C
52	E. 10th St.	Brown Ave. N	Sig.	21.1	C	16.1	B
521	E. 10th St.	Brown Ave. S	Sig.	26.9	C	13.1	B
53	E. 10th St.	Fisk Rd.	Sig.	42.0	D	26.5	C
54	E. 10th St.	N. Old Kentucky Rd.	Sig.	15.5	B	17.6	B
55	E. 10th St.	SR 111 SB Ramps	Sig.	14.2	B	8.2	A
56	E. 10th St.	SR 111 NB Ramps	Sig.	19.0	B	18.7	B
57	E. 10th St.	Burton Branch Rd.	Sig.	14.2	B	12.0	B

Figure 2: 2017 Optimized Conditions Intersection Level of Service (AM Peak Hour)

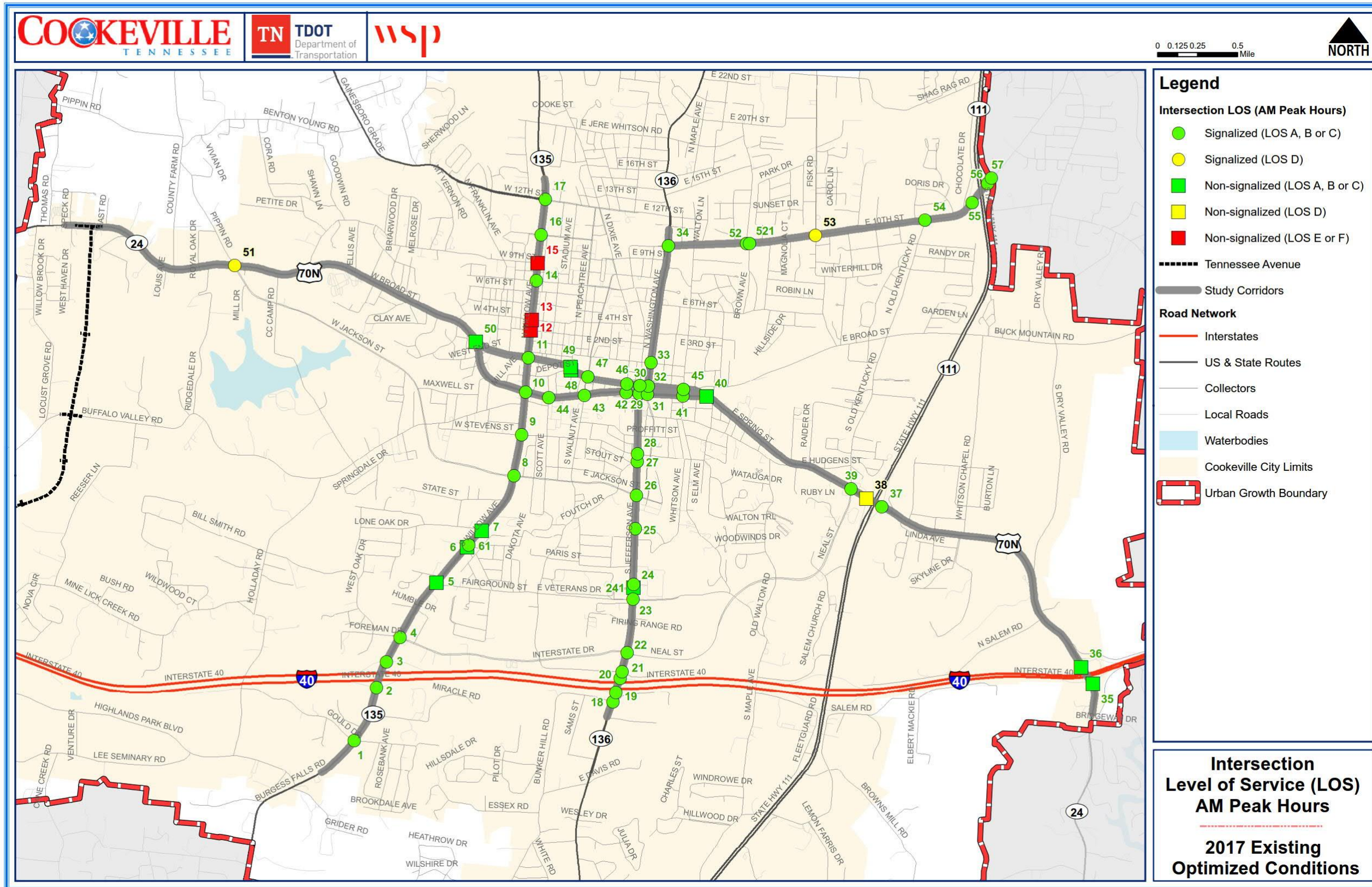
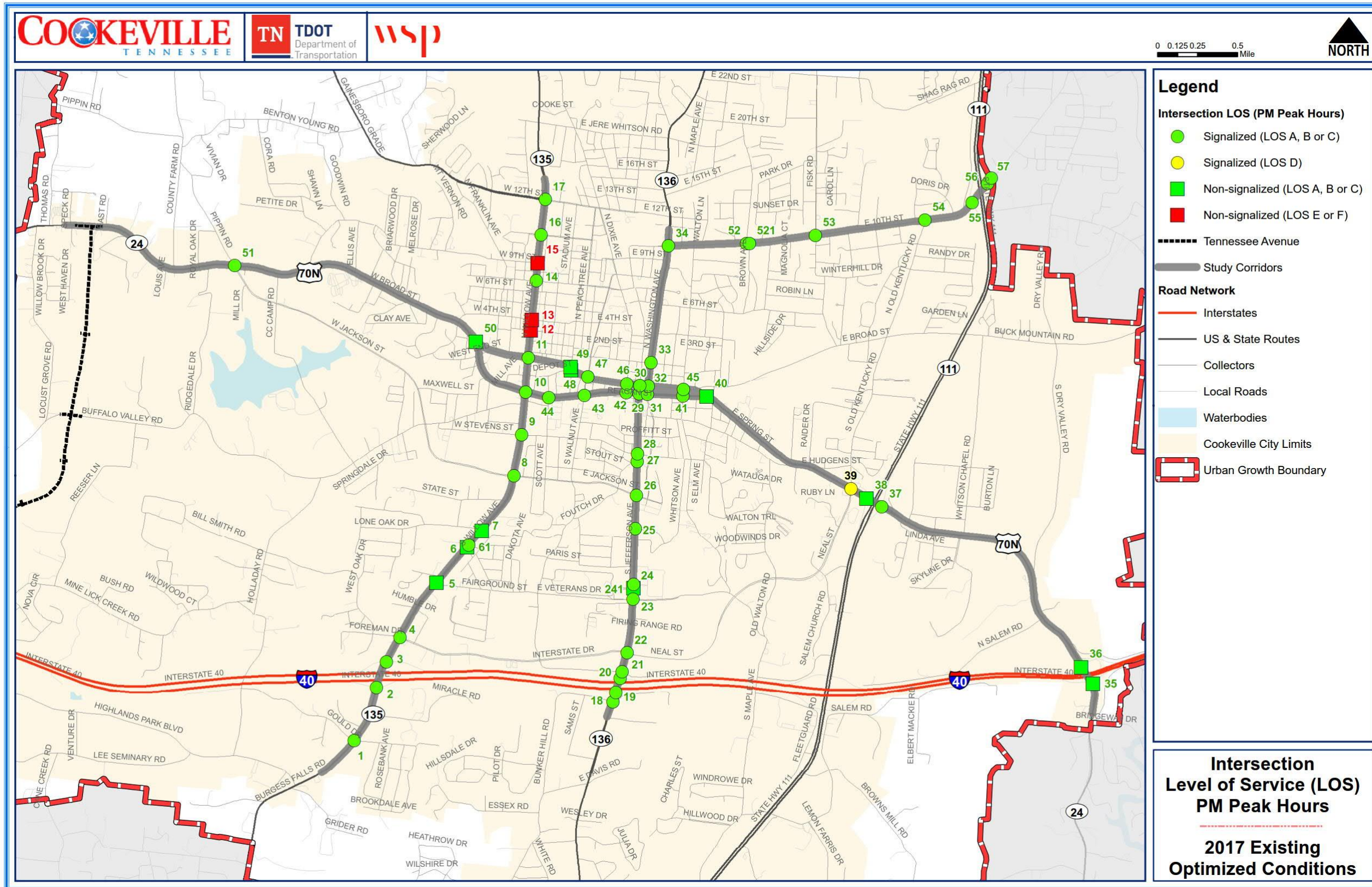


Figure 3: 2017 Optimized Conditions Intersection Level of Service (PM Peak Hour)



2. 2040 No-Build Conditions Intersection Analysis

Future (2040) No-Build intersection operations were evaluated using Synchro version 9.1.912.4 to assess future intersection operations and determine where intersection improvements will likely be needed.

2.1. Volume Development

As part of the 2040 No-Build analysis, traffic volumes were forecast using the growth rate developed as part of the Existing Conditions Report (*see Section 5 of the Existing Conditions Report*). Unique growth rates were developed for each study corridor and then applied to the 2017 Existing Conditions volumes collected as part of this project. These AM and PM peak hour volumes were then rounded up to the nearest 5 vehicles per hour and then balanced between intersections where necessary. These projected 2040 volumes are shown in **Figures 4 through 10**.

Figure 4: S. Willow Avenue (SR 135) 2040 Turning Movement Counts (southern portion)

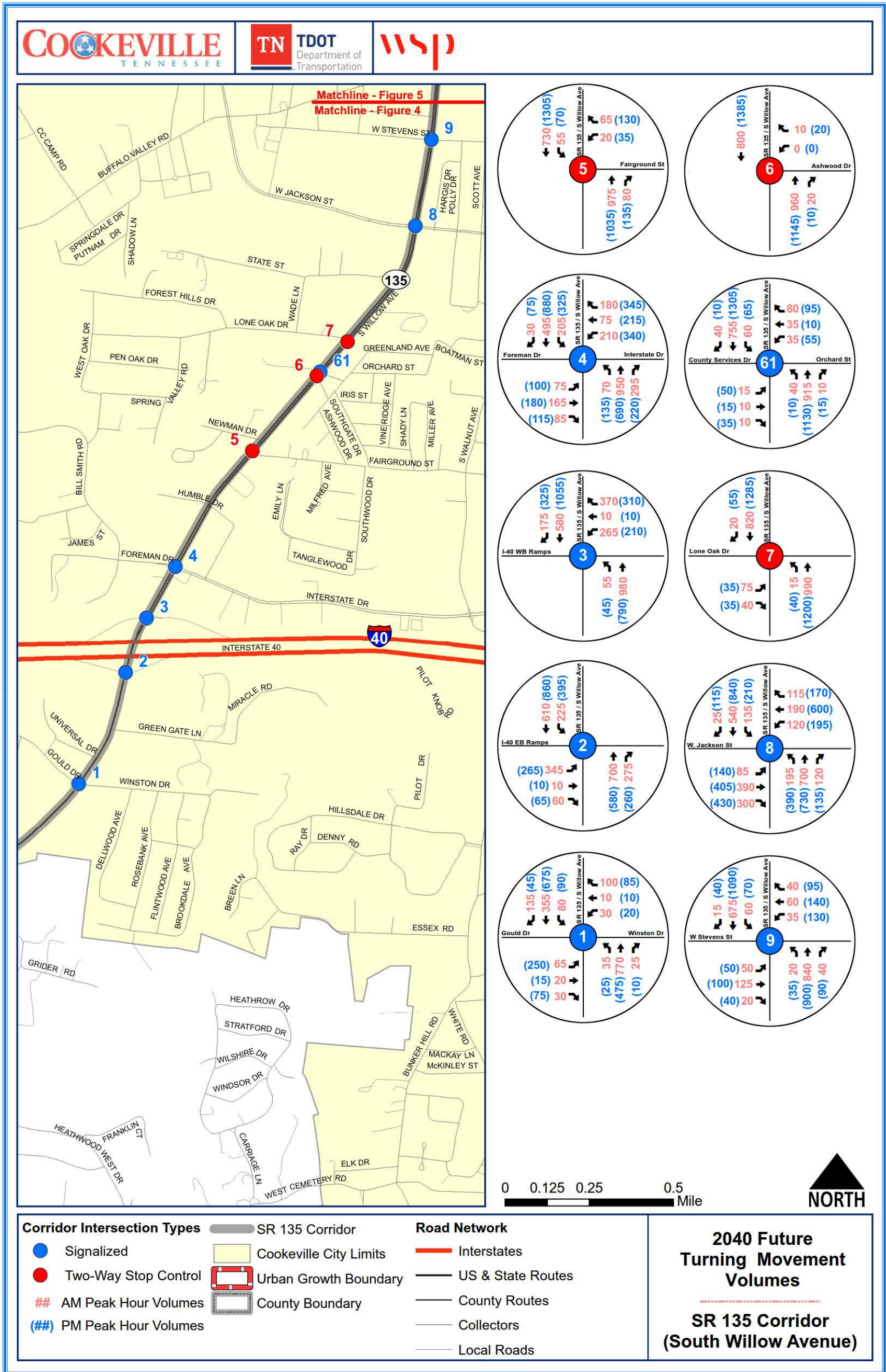


Figure 5: S. & N. Willow Avenue (SR 135) 2040 Turning Movement Counts

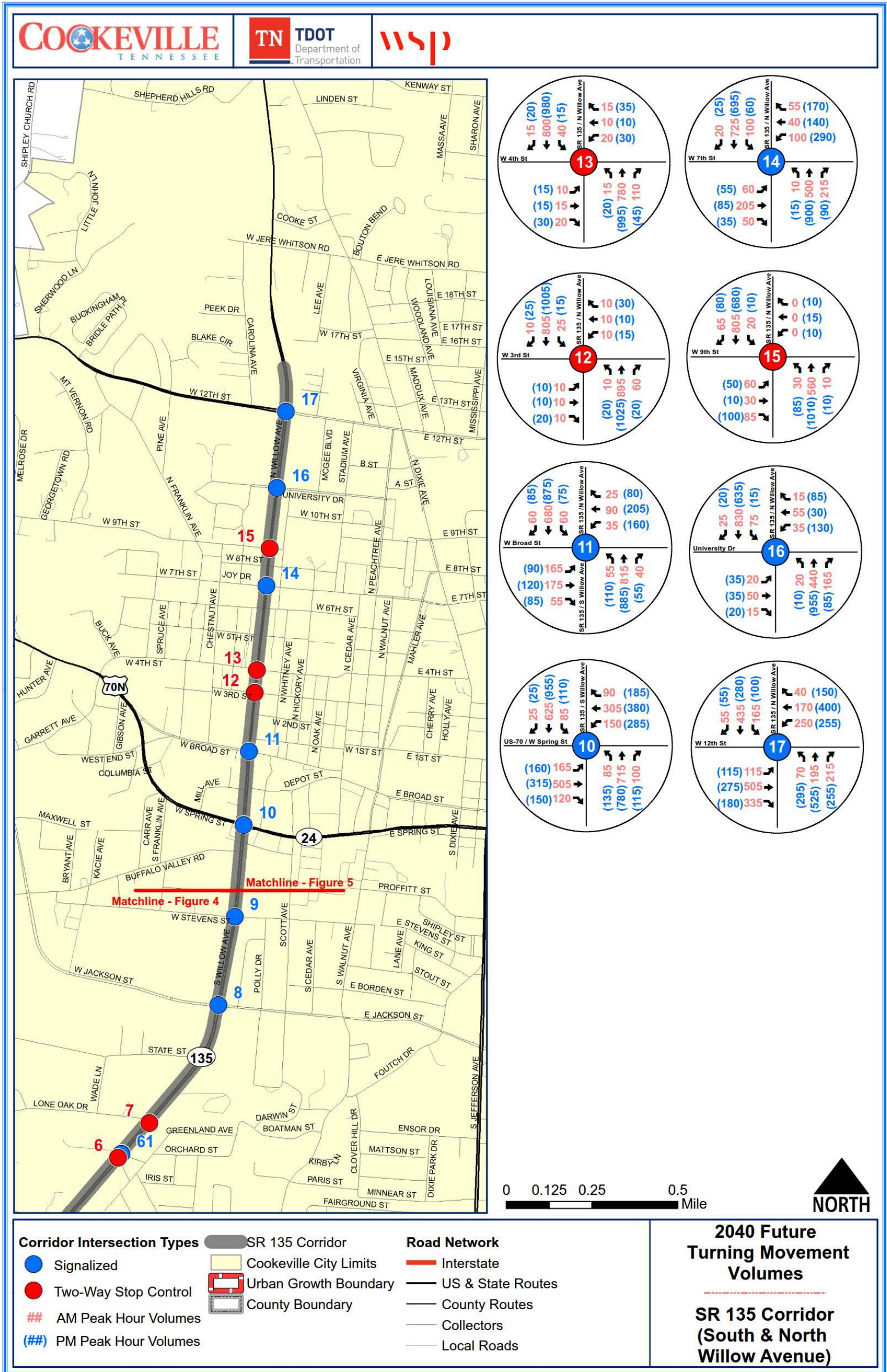


Figure 6: S. Jefferson Avenue (SR 136) 2040 Turning Movement Counts (southern portion)

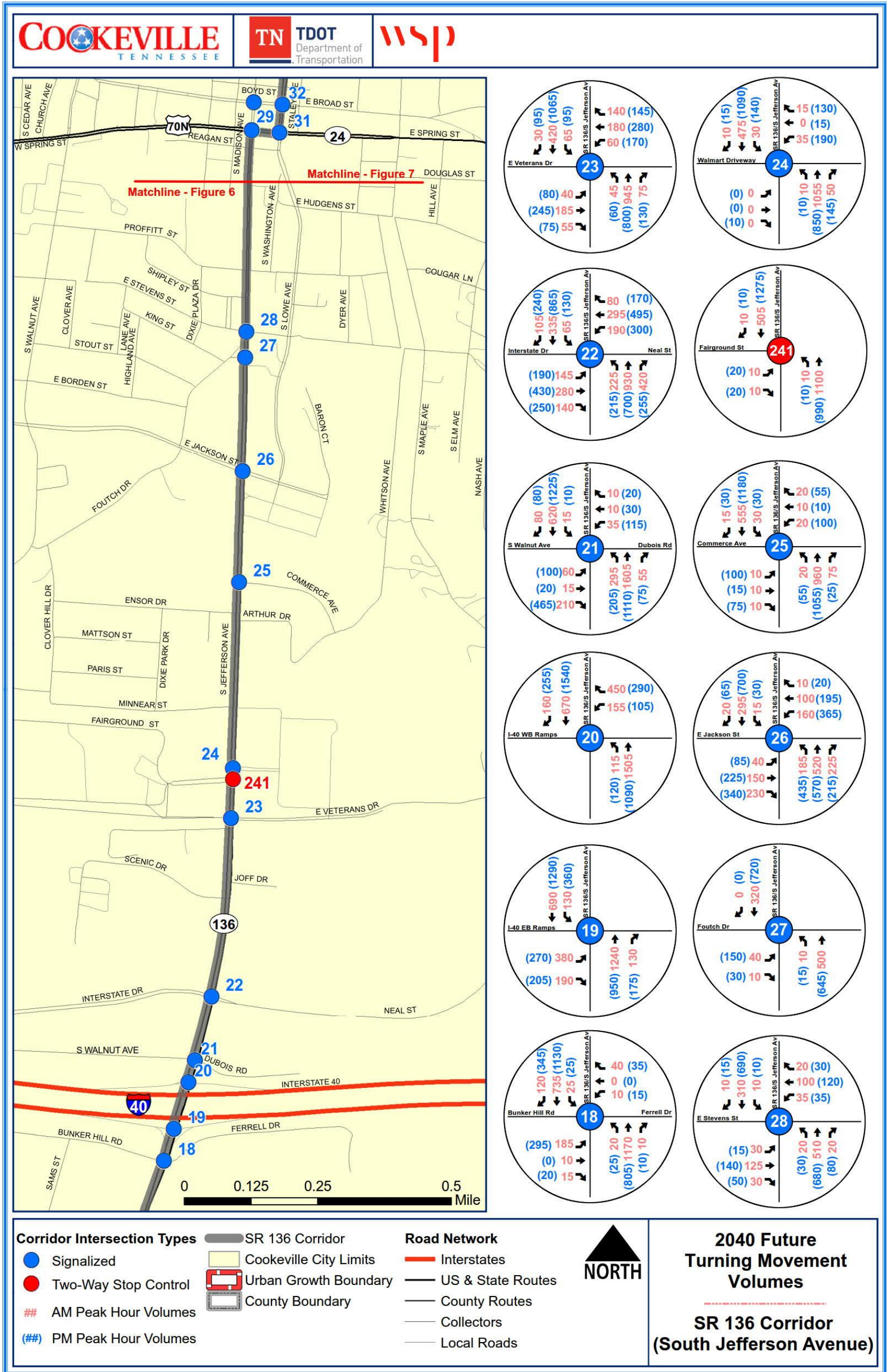


Figure 7: S. Jefferson Avenue, N. Washington Avenue (SR 136) 2040 Turning Movement Counts

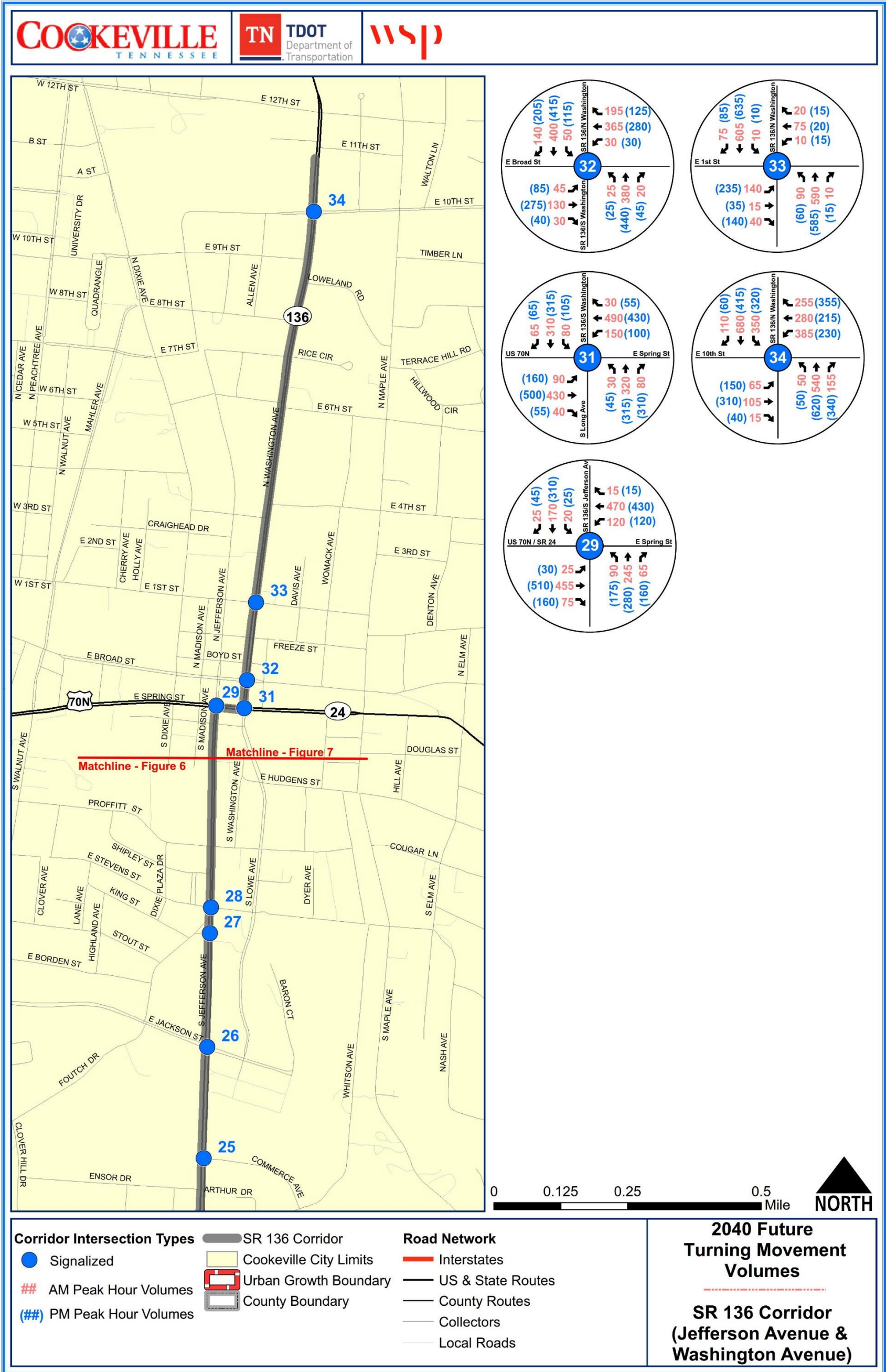


Figure 8: US 70N/SR 24, Broad Street 2040 Turning Movement Counts (Western Sections)

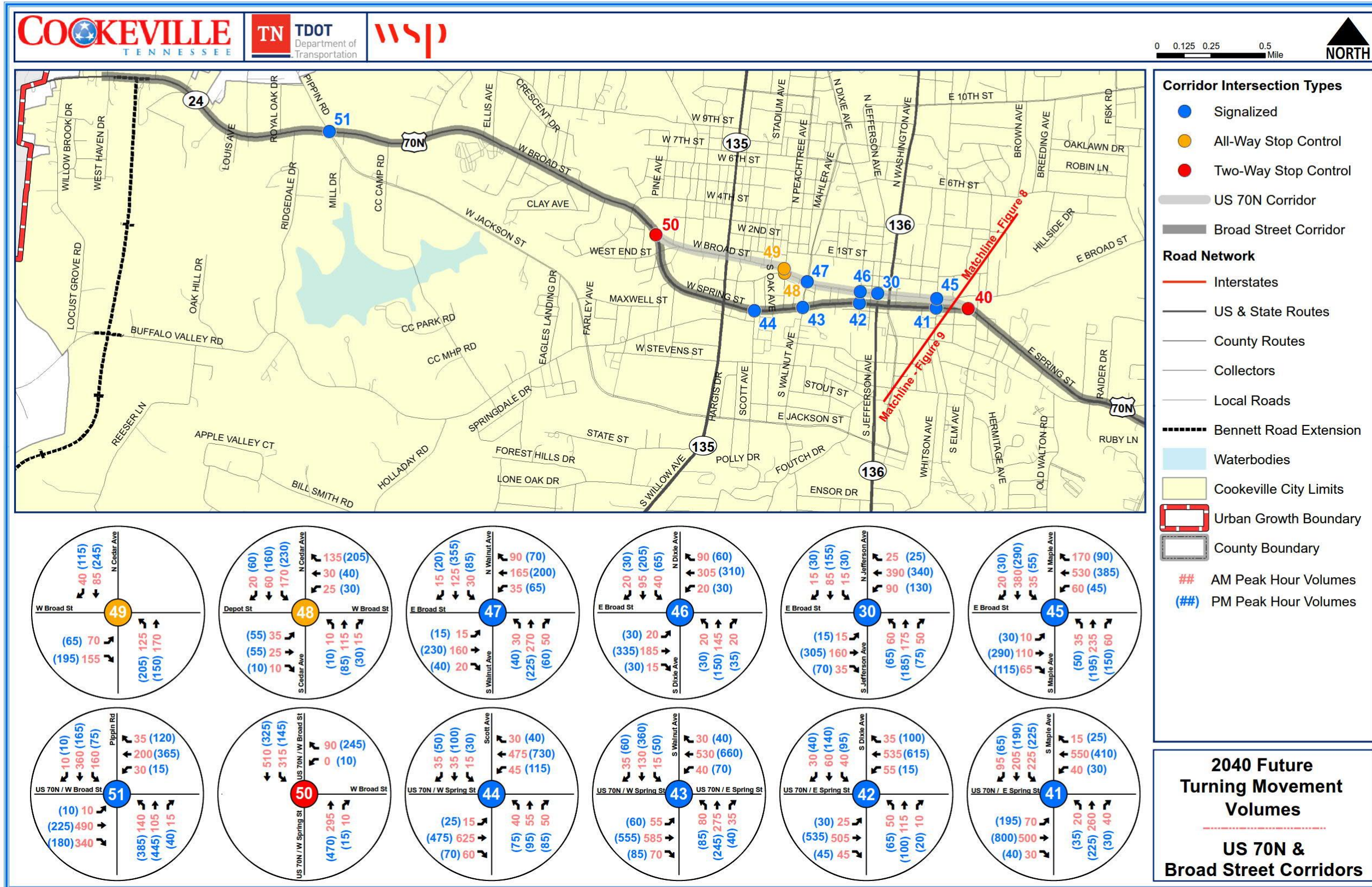


Figure 9: US 70N/SR 24, Broad Street 2040 Turning Movement Counts (Eastern Sections)

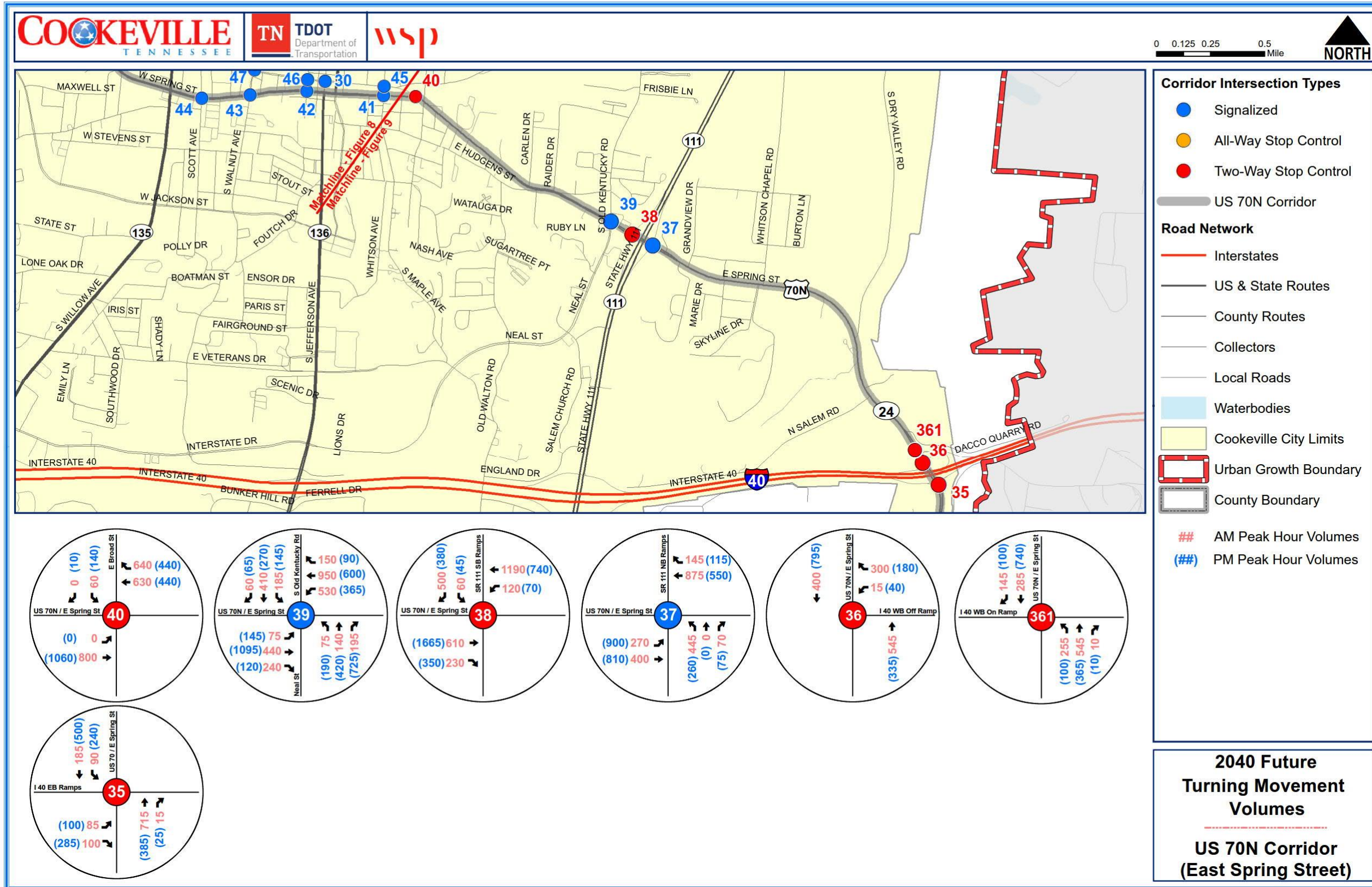
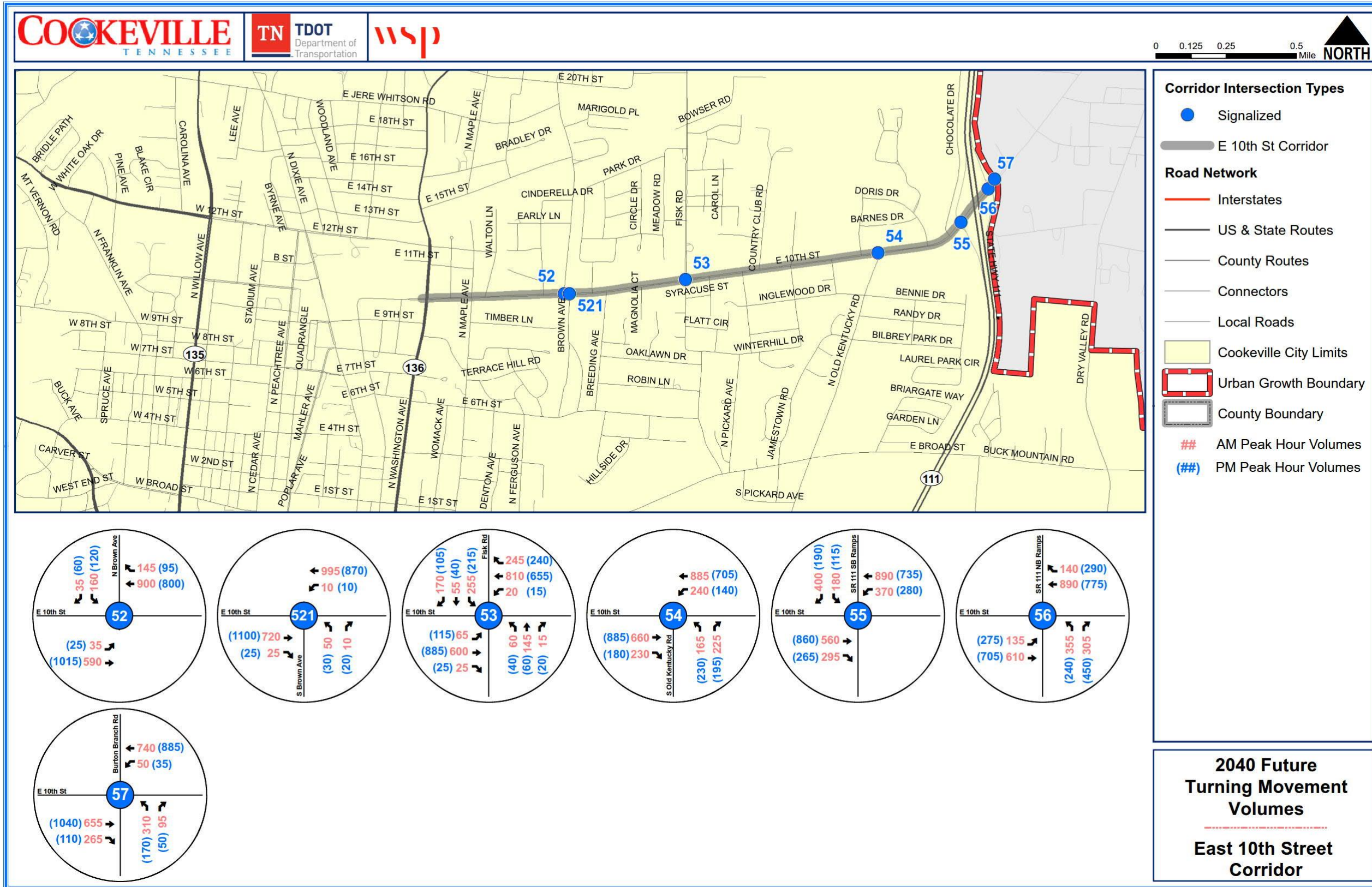


Figure 10: E. 10th Street 2040 Turning Movement Counts



2.2. 2040 No-Build Level of Service

Figures 11 and **12** show the 2040 No-Build LOS for the AM and PM peak hours, respectively. **Table 3** shows each intersection's AM and PM peak hour delay in seconds and corresponding LOS. The AM and PM peak hour Synchro report for each intersection is included in **Appendix C**.

In the 2040 No-Build Conditions, the Synchro models project 15 failing intersections (7 operating at LOS E, 8 operating at LOS F) during the AM peak hour and 17 failing intersections (7 operating at LOS E, 10 operating at LOS F) during the PM peak hour.

During the AM peak hour, of the 15 projected failing intersections, the model projects 4 stop-controlled failing intersections and 11 signalized failing intersections. During the PM peak hour, of the 17 projected failing intersections, the model projects 7 stop-controlled failing intersections and 10 signalized failing intersections.

The model also projects that 11 intersections will fail in both the 2040 No-Build AM and PM peak hours. Of these 11 intersections, 6 are projected to operate at LOS F in both the AM and PM peak hour, of which 2 are signalized.

Table 3: 2040 No-Build AM & PM Peak Hour Intersection Delay and Level of Service

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	S. Willow Ave.	Gould Dr.	Sig.	10.6	B	28.0	C
2	S. Willow Ave.	I-40 EB Ramps	Sig.	34.1	C	27.0	C
3	S. Willow Ave.	I-40 WB Ramps	Sig.	18.8	B	35.2	D
4	S. Willow Ave.	Interstate Dr.	Sig.	49.0	D	65.3	E
5	S. Willow Ave.	Fairground St.	STOP	19.3	C	24.4	C
6	S. Willow Ave.	Ashwood Dr.	STOP	12.9	B	13.4	B
61	S. Willow Ave.	Orchard St.	Sig.	14.3	B	14.3	B
7	S. Willow Ave.	Lone Oak Dr.	STOP	27.9	D	27.4	D
8	S. Willow Ave.	W. Jackson St.	Sig.	23.3	C	68.0	E
9	S. Willow Ave.	W. Stevens St.	Sig.	30.6	C	32.0	C
10	S. Willow Ave.	W. Spring St.	Sig.	58.9	E	76.8	E
11	S. Willow Ave.	W. Broad St.	Sig.	27.0	C	29.3	C
12	N. Willow Ave.	W. 3rd St.	STOP	135	F	335	F
13	N. Willow Ave.	W. 4th St.	STOP	591	F	835	F
14	N. Willow Ave.	W. 7th St.	Sig.	37.4	D	26.5	C
15	N. Willow Ave.	W. 9th St.	STOP	751	F	983	F
16	N. Willow Ave.	University Dr.	Sig.	12.7	B	13.8	B
17	N. Willow Ave.	W. 12th St.	Sig.	32.7	C	27.6	C
18	S. Jefferson Ave.	Bunker Hill Rd.	Sig.	15.9	B	13.0	B
19	S. Jefferson Ave.	I-40 EB Ramps	Sig.	34.0	C	67.6	E
20	S. Jefferson Ave.	I-40 WB Ramps	Sig.	74.2	E	48.4	D
21	S. Jefferson Ave.	S. Walnut Ave.	Sig.	44.0	D	41.6	D
22	S. Jefferson Ave.	Interstate Dr.	Sig.	24.7	C	42.9	D
23	S. Jefferson Ave.	E. Veterans Dr.	Sig.	35.7	D	47.8	D
241	S. Jefferson Ave.	Fairground St.	STOP	21.5	C	40.2	E
24	S. Jefferson Ave.	Walmart Driveway	Sig.	5.0	A	22.0	C
25	S. Jefferson Ave.	Commerce Ave.	Sig.	12.2	B	20.9	C
26	S. Jefferson Ave.	E. Jackson St.	Sig.	17.9	B	42.8	D
27	S. Jefferson Ave.	Foutch Dr.	Sig.	12.9	B	15.8	B
28	S. Jefferson Ave.	E. Stevens St.	Sig.	14.8	B	19.7	B
29	S. Jefferson Ave.	US 70N/E. Spring St.	Sig.	88.0	F	81.0	F
30	N. Jefferson Ave.	E. Broad St.	Sig.	25.1	C	22.5	C
31	S. Washington Ave.	E. Spring St.	Sig.	63.6	E	43.2	D
32	N. Washington Ave.	E. Broad St.	Sig.	39.1	D	42.3	D
33	N. Washington Ave.	E. 1st St.	Sig.	37.4	D	36.7	D
34	N. Washington Ave.	E. 10th St.	Sig.	45.8	D	30.2	C
35	E. Spring St.	I-40 EB Ramps	STOP	25.0	D	63.8	F

(continued from previous page)

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
36	E. Spring St.	I-40 WB Ramps	STOP	17.6	C	12.9	B
37	E. Spring St.	SR 111 NB Ramps	Sig.	59.2	E	130	F
38	E. Spring St.	SR 111 SB Ramps	STOP	251	F	72.1	F
39	E. Spring St.	S. Old Kentucky Rd.	Sig.	104	F	144	F
40	E. Spring St.	E. Broad St.	STOP	28.8	D	77.8	F
41	E. Spring St.	S. Maple Ave.	Sig.	68.4	E	86.1	F
42	E. Spring St.	S. Dixie Ave.	Sig.	28.8	C	43.0	D
43	W. Spring St.	S. Walnut Ave.	Sig.	32.2	C	54.3	D
44	W. Spring St.	Scott Ave.	Sig.	17.6	B	37.4	D
45	E. Broad St.	S. Maple Ave.	Sig.	57.5	E	42.2	D
46	E. Broad St.	S. Dixie Ave.	Sig.	21.2	C	30.9	C
47	E. Broad St.	S. Walnut Ave.	Sig.	27.3	C	38.5	D
48	E. Broad St.	S. Cedar Ave.	STOP	13.0	B	27.9	D
49	W. Broad St.	N. Cedar Ave.	STOP	14.3	B	18.6	C
50	W. Spring St.	W. Broad St.	STOP	11.0	B	22.7	C
51	W. Broad St.	W. Jackson St.	Sig.	61.2	E	57.3	E
52	E. 10th St.	Brown Ave. N	Sig.	51.5	D	31.3	C
521	E. 10th St.	Brown Ave. S	Sig.	131	F	40.5	D
53	E. 10th St.	Fisk Rd.	Sig.	87.3	F	70.9	E
54	E. 10th St.	N. Old Kentucky Rd.	Sig.	24.0	C	39.2	D
55	E. 10th St.	SR 111 SB Ramps	Sig.	30.0	C	19.3	B
56	E. 10th St.	SR 111 NB Ramps	Sig.	44.4	D	44.8	D
57	E. 10th St.	Burton Branch Rd.	Sig.	18.5	B	16.2	B

Figure 11: 2040 No-Build Conditions Intersection Level of Service (AM Peak Hour)

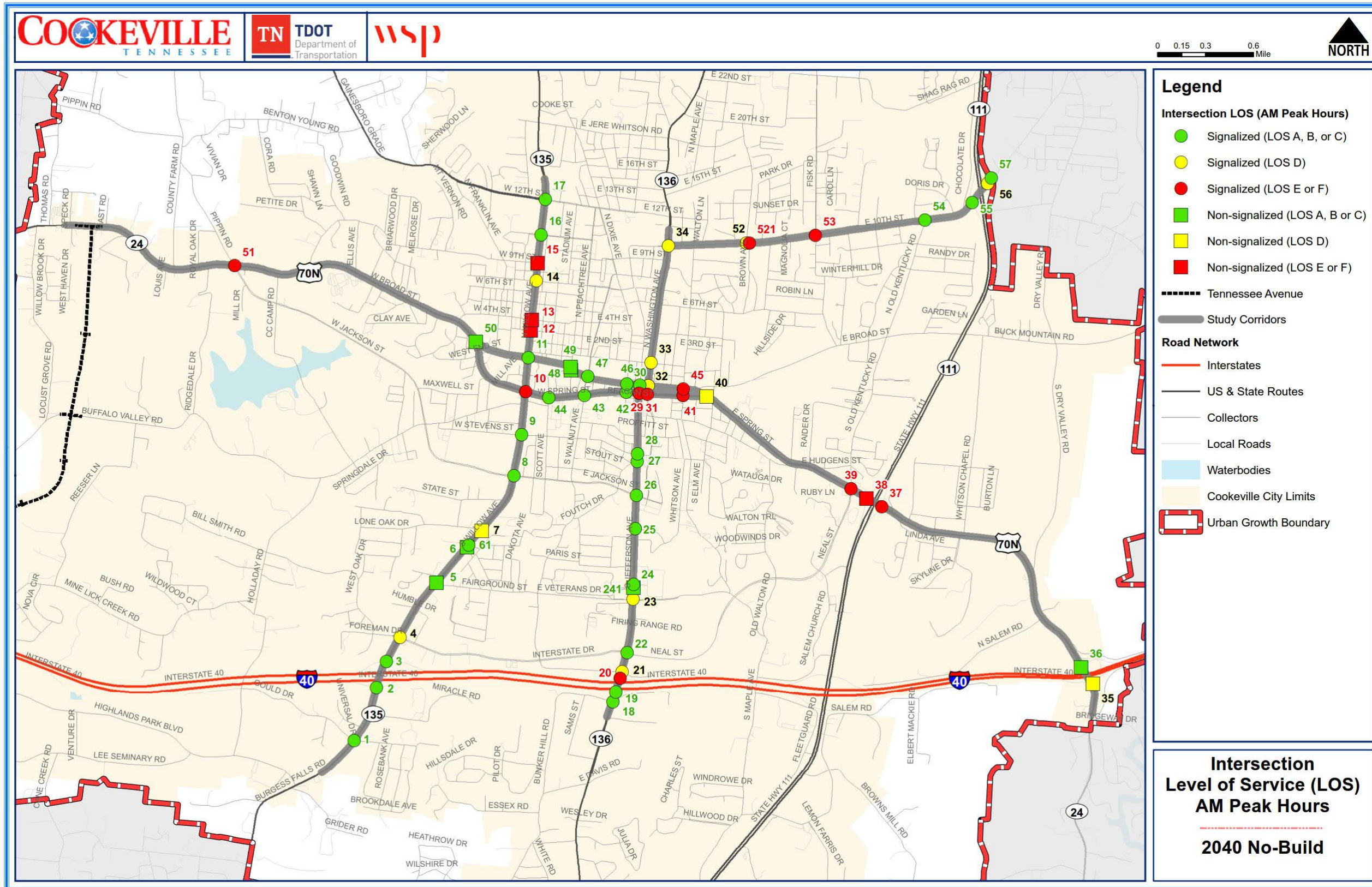
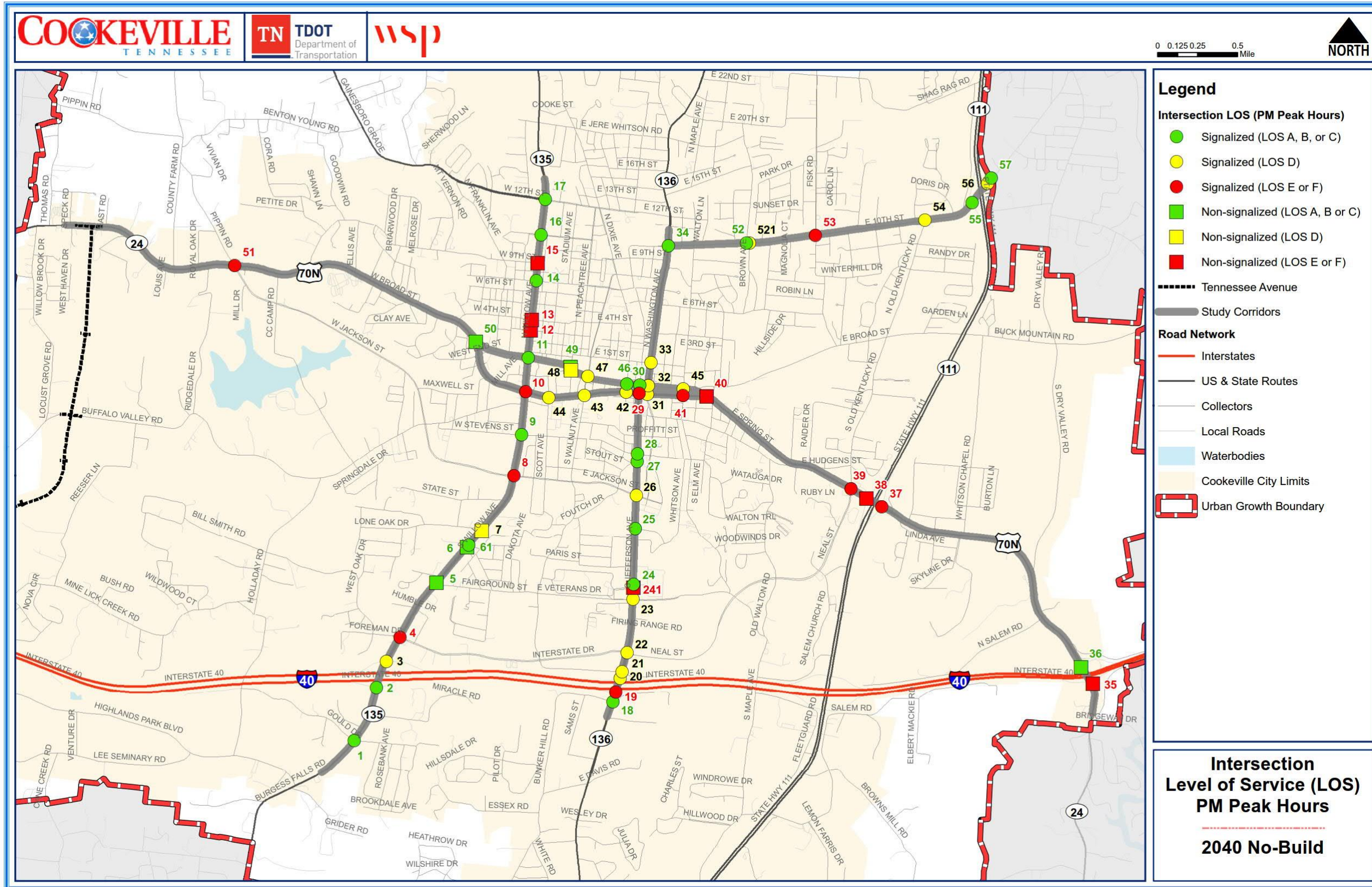


Figure 12: 2040 No-Build Conditions Intersection Level of Service (PM Peak Hour)



3. Recommended Intersection Improvements

This section outlines the capital projects recommended to enhance the operations at underperforming intersections. Underperforming intersections were identified through field observations, comments from City of Cookeville staff, existing conditions LOS analysis, and 2040 LOS analysis.

Recommendations for future conditions were developed in a two-step process that first optimized signal timing, and then identified areas where capital improvements are still needed to achieve acceptable LOS at certain intersections. The 2040 No-Build model was first modified by adding the same coordinated signal groups outlined in Section 1.1. As with the optimized 2017 conditions, the signal groups were grouped, coordinated, optimized, and then further refined. Offsets were refined using Synchro's Time-Space-Diagram tool, and splits were adjusted to balance delays across each intersection approach. Similar to the Short Term Recommendations Synchro models, pedestrian crossing FDW times were also adjusted at intersections with crosswalks. Yellow and all-red clearance times at each intersection were also rounded up to the nearest 0.5 second to ensure safe intersection clearance time. The Synchro model results (intersection delay and LOS output) from this first step are included in **Appendix D**. These intermediate results were then used to determine locations where specific capital improvements will be needed to supplement the benefits of signal coordination and optimization, as described below.

Recommendations are based on a planning level analysis. As improvements are implemented at each location, detailed engineering and a site-specific assessment (i.e., environmental, right-of-way, cost-benefit, turn-lane warrants, etc.) will be required. In cases where turn lanes are recommended, queue lengths will be need to be evaluated at each location to determine the exact turn bay lengths needed. For the purposes of this study, the length of new turn lanes were assumed based on turn bays already existing at the intersection. Generally, they were modeled as 150 feet in length with a 25-foot taper on major facilities, and as 100 feet with a 25-foot taper on unsignalized minor facilities.

3.1. S. Willow Avenue (SR 135) & I-40 Eastbound Ramps

Recommended improvements at this intersection include:

- Add a right-turn channelization island/pedestrian refuge island in the southeast corner of the intersection. This will increase safety for pedestrian crossings and reduce the time needed for the pedestrian phase.
- Consider eliminating the pedestrian crossing on the north side of intersection to remove the conflict with the green-arrow phase of the signal for the eastbound left-turning vehicles.
- Consider adding a pedestrian crossing on S. Willow Avenue (SR 135) on the south side of intersection and update the FDW (pedestrian clearance) time based on the appropriate pedestrian crossing distance.

Under the existing timing plan, the pedestrian crosswalk across the north side of the intersection has the “WALK” signal conflicting with the eastbound left-turn green arrow phase. This presents a safety issue as both pedestrians and vehicles are under the impression that they have the right-of-way. To avoid these safety issues and still enable pedestrians to navigate through this intersection, the crosswalk should be moved to the south side of the intersection. Additionally, if this new crosswalk is added in conjunction with the installation of a right-turn channelization island in the southeast corner of the intersection, the required pedestrian crossing time may be reduced.

3.2. S. Willow Avenue (SR 135) & I-40 Westbound Ramps

Recommended improvements at this intersection include:

- Consider removing pedestrian crossing on the south side of the intersection to increase the safety for pedestrians crossing this intersection.
- Consider providing a pedestrian crossing on the north side of the intersection to enhance pedestrian access at the intersection and update the FDW time based on the appropriate pedestrian crossing distance.

Similar to the previous recommendations at the I-40 eastbound ramps, the pedestrian crosswalk across the south side of the interaction is currently given a “WALK” signal at the same time that westbound left turning vehicles are given a green arrow to turn left. This presents a safety issue as both pedestrians and vehicles are under the impression that they have the right-of-way. To avoid these safety issues the pedestrian crosswalk could be moved to the north side of the intersection. In this case, a right-turn channelization island exists in the northeast corner of the intersection which will reduce the required crossing time for pedestrians at this intersection.

3.3. S. Willow Avenue (SR 135) & Interstate Drive/Foreman Drive

Recommended improvements at this intersection include:

- Provide dual southbound left-turn lanes;
- Change the southbound left-turn phasing to “protected” to improve operations on S. Willow Avenue (SR 135);
- Construct an additional eastbound through-right lane at the intersection to enhance the efficiency of the eastbound approach.

The southbound left-turn movement is a high volume movement that conflicts with a high volume northbound through movement in both peak periods. A dual southbound left turn will allow the southbound left-turn queue to clear more quickly and allow more green-phase time for the northbound through movement. An additional eastbound through lane would increase the capacity of the eastbound approach by modifying the intersection to include two eastbound approach lanes to match the existing two eastbound departure (receiving) lanes. This will allow through vehicles to queue and enter the intersection from two lanes. This optimization would

also allow more green time to be given to the high volume of westbound movements on Interstate Drive.

3.4. S. Willow Avenue (SR 135) & W. Jackson Street

Recommended improvements at this intersection include:

- Provide dual northbound left-turn lanes and change the northbound left-turn phasing to “protected” to improve operations on S. Willow Avenue (SR 135).
- Provide an exclusive westbound right-turn lane at the intersection to enhance the efficiency of the westbound approach.
- Consider changing the McDonald’s access points on eastbound approach (approximately 50 feet upstream of eastbound approach STOP bar) to provide more spacing between the driveway and the eastbound approach STOP bar.

The northbound left-turn movement is a high volume movement during the PM peak hour. Dual left-turn lanes on the northbound approach will allow the northbound left-turn queue to clear more quickly and distribute green time among other movement at the intersection. Addition of a westbound right-turn lane will allow right-turning vehicles the ability to turn right on red at the intersection and will relieve the long queues that were observed in the outside lane of the eastbound approach. This should help reduce the overall average delay at this intersection.

One of the two access points to McDonald’s property along the eastbound approach is very close to the eastbound approach STOP bar. Driveways that are located too close to intersections can be a common cause of congestion and crashes, as vehicles often attempt to cross multiple lanes of traffic close to the stop bar. In order to improve traffic flow along the eastbound approach and avoid congestion caused by vehicles attempting to exit McDonald’s from that access point, access management should be improved at this location.

3.5. S. Willow Avenue (SR 135) & W. Stevens Street

Recommended improvements at this intersection include:

- Consider providing an eastbound left-turn lane to increase capacity of the eastbound approach.
- Optimize the signal-phasing pattern to remove split phasing for the minor-street movement to increase the efficiency of the entire intersection.

Providing an eastbound left-turn lane will increase the capacity of the eastbound approach, which is expected to see an increase in volume in the near future due to the realignment of the intersection of W. Stevens Street and Buffalo Valley Road. Additionally, a left-turn lane will allow the signalization at the intersection to be updated to remove split phasing on the eastbound and westbound approaches, which will reduce lost time at the intersection.

3.6. S. Willow Avenue (SR 135) & W. Spring Street (US 70N, SR 24)

Recommended improvements at this intersection include:

- Consider providing right-turn lanes on the eastbound and westbound approaches to enhance the operations on W. Spring Street (US 70N, SR 24).
- Modify access to Shell station on westbound approach to improve safety and operations at the intersection.

The eastbound and westbound approaches consist of a dedicated left-turn lane and a shared through/right-turn lane. The relatively high volume of right turning vehicles on these approaches slows down through traffic and leads to excessive delays. The construction of right-turn lanes will allow the right turning vehicles to exit the flow of through moving vehicles before slowing down to make a right-turn.

The Shell station currently has two access points within 100 feet of the STOP bar of the westbound approach. The westbound left-turn STOP bar is located between these two access points. This setup poses safety and operational issues as vehicles stop to turn into the gas station from the eastbound lanes, and as vehicles attempt to exit the property without being able to see all oncoming traffic from the adjacent intersection.

3.7. N. Willow Avenue (SR 135): Between Broad Street and 12th Street

Recommendations along this route segment include:

- Provide right-turn lanes on the minor, unsignalized approaches (3rd, 4th, 9th) to allow right-turning vehicles to bypass through and left-turn queues.
- Consider providing a two-way left-turn lane on N. Willow Avenue (SR 135) to act as a refuge for left turning vehicles. This would be a continuous turn lane from W. Broad Street north to W. 12th Street. Also consider access management strategies to consolidate and direct left-turn traffic to specific locations only instead of a continuous turn-lane (e.g., using raised medians with median openings at specific locations).

The addition of a two-way left turn lane is a high priority project in the City's current Major Street Plan (Project 21) and is now designated for near-term funding through the recently approved IMPROVE Act. As this project enters preliminary engineering, the City and TDOT should coordinate to determine whether there are opportunities to improve access management. In addition to considering a partial median as described above, the construction may also provide an opportunity to work with adjacent property owners to consolidate access points on either side of the road, especially near intersections.

This project will provide multiple benefits along this segment of N. Willow Avenue. Stop-controlled intersections along this segment of N. Willow Avenue are forecast to operate at LOS F during the AM and PM peak hours in 2040. The addition of right-turn lanes on the unsignalized side streets may reduce delay at two-way stop-controlled intersections by allowing right turning vehicles to bypass vehicles waiting for an opportunity to proceed through the intersection or

make a left turn. Furthermore, constructing a two-way left-turn lane on N Willow Avenue (SR 135) may improve safety and operations at two-way stop-controlled intersections. This improvement would allow vehicles turning left onto 3rd, 4th, and 9th Streets from N. Willow Avenue (SR 135) to pull out of the through traffic and wait to make a turn. Similarly, vehicles turning left onto N. Willow Avenue (SR 135) from side streets and driveways can make a two-step left turn, crossing only one direction of traffic to the median refuge before entering traffic on the opposite side of the street.

If these solutions do not result in acceptable intersection performance, a signal warrant analysis may be undertaken to assess the feasibility of traffic signals. However, care should be taken when considering a traffic signal due to some of the intersections' proximity to other signals; e.g. the signalized intersection at W. Broad Street is only approximately 900 feet south of 3rd Street.

3.8. N. Willow Avenue (SR 135) & W. 12th Street

Recommended improvements at this intersection include:

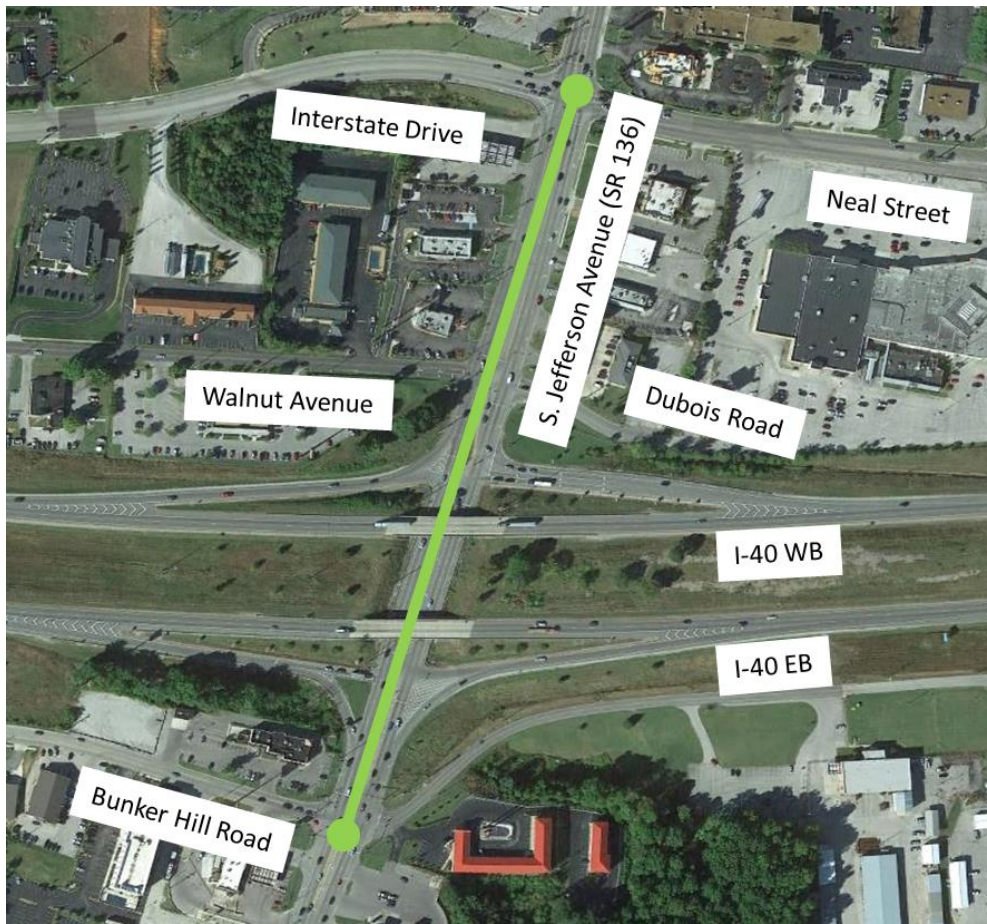
- Provide a right-turn channelization island in the northwest corner of the intersection to increase safety for pedestrians crossing at this location.
- Update pavement markings to clearly depict the pedestrian crosswalk on west side of the intersection, and update FDW time for the southbound movement.

While this intersection is not expected to operate at a failing LOS in 2040, optimizing the pedestrian crossing time will allow more flexibility in timing plans and enhance the safety for pedestrians at this intersection.

3.9. S. Jefferson Avenue (SR 136) near I-40

Congestion along S. Jefferson Avenue (SR 136) immediately north and south of I-40, between Bunker Hill Road/Ferrell Drive and Interstate Drive/Neal Street, area identified in **Figure 13**, was noted as a particular issue during the field observations and during project meetings with City staff. These issues were also mentioned in the Existing Conditions report, and are summarized below.

Figure 13: Congested Area of S. Jefferson Avenue (SR 136): Bunker Hill Road - Interstate Drive



Synchro analyses indicate that the congestion issues observed along this segment of S. Jefferson Avenue are likely driven more by operations than capacity issues, as Synchro projects none of the intersections to fail in the 2040 Optimized conditions.

Issues

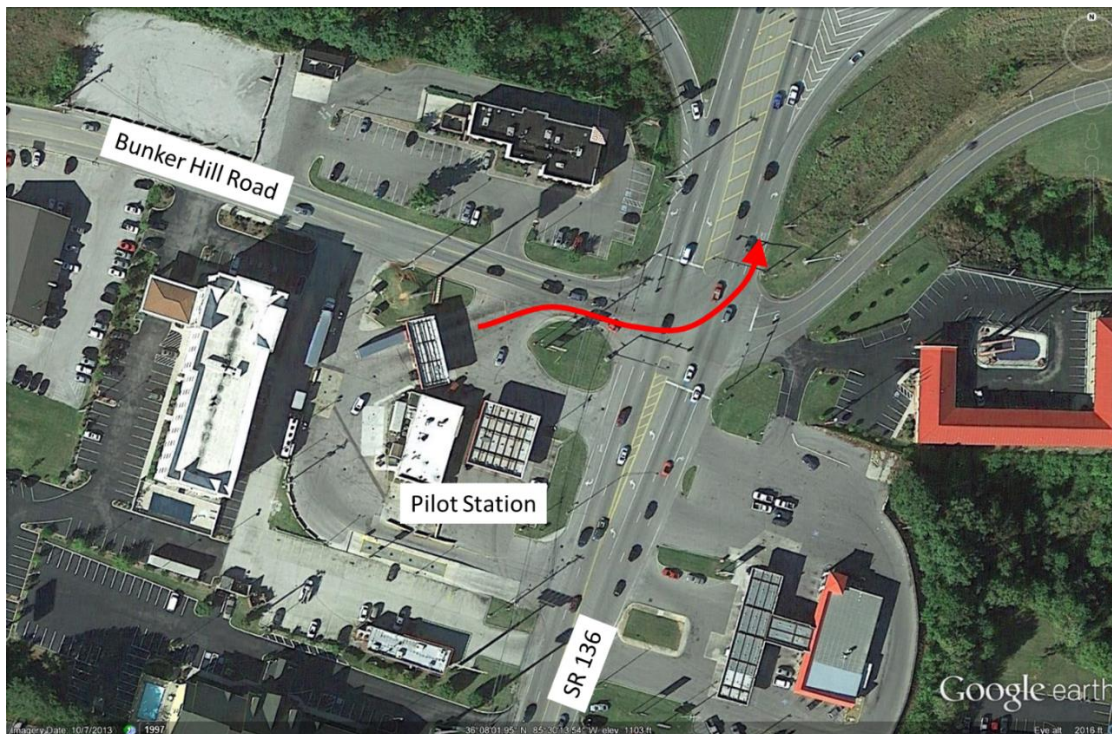
There are five intersections located in the 0.3-mile segment of S. Jefferson Avenue between the Bunker Hill Road and Interstate Drive intersections. In addition, Bunker Hill Road is within 325 feet of the adjacent I-40 eastbound ramps intersection and the S. Walnut Avenue intersection is only 225 feet from the I-40 westbound ramps intersection. This proximity, coupled with any spillback queues from downstream intersections, can result in blocked intersections that further impede traffic on conflicting approaches.

During field observations, two particular issues were noted that contributed to congestion. The first was along northbound S. Jefferson Avenue between the I-40 westbound ramps and S. Walnut Avenue. Many trucks were observed exiting westbound I-40, turning right, and then making an immediate left onto westbound S. Walnut Avenue. The limited intersection spacing hindered trucks' ability to properly enter the northbound left-turn lane, which resulted in their blocking the inside northbound through lane. This blockage impeded northbound through traffic

and contributed to congestion along northbound S. Jefferson Avenue. The same issue was observed to a lesser degree for trucks turning left from northbound S. Jefferson Avenue onto westbound Interstate Drive at the next intersection. The issue was most prevalent during the PM peak.

The second issue of note in this section of S. Jefferson Avenue was observed at the Pilot Fuel Station, located at the southwest quadrant of the Bunker Hill Road intersection, as shown in **Figure 14**. The site's internal circulation forces trucks to exit the station approximately 60 feet from the eastbound stop bar at the Bunker Hill Road at S. Jefferson Avenue (SR 136) intersection. When queues form on eastbound Bunker Hill Road, the queue either blocks trucks from exiting the Pilot, or the queue is further exacerbated as queued vehicles wait for trucks to exit from the Pilot. Once trucks have executed the eastbound to northbound left turn, they often encounter northbound queues along S. Jefferson Avenue. These queues were observed to extend to and into Bunker Hill Road. When they encounter the queues, the trucks often end up blocking multiple northbound through lanes along S. Jefferson Avenue. In one instance, multiple trucks were observed blocking all of northbound S. Jefferson Avenue and part of southbound S. Jefferson Avenue. These blockages caused northbound queues that extended north several hundred feet past the I-40 westbound ramps and exacerbated southbound congestion.

Figure 14: Operational Issues near Pilot Station, S. Jefferson Avenue (SR 136) at Bunker Hill Road



S. Jefferson Avenue near I-40 Recommendations

Multiple improvements could help traffic operations along this segment of the S. Jefferson Avenue corridor.

- *Interstate Drive / Neal Street*

Adding dual westbound left-turn lanes and changing the westbound left-turn phasing to “protected” would improve operations on Interstate Drive. Providing dual northbound left-turn lanes and changing the northbound left-turn phasing to “protected” would improve operations on S. Jefferson Avenue (SR 136).

- *S. Walnut Avenue / Dubois Street*

The westbound approach at this intersection is a relatively low volume approach; however, significant green time must be allocated to the east and west approaches to accommodate left-turning vehicles due to the existing split phase timing plan. It is likely that a majority of westbound left-turning vehicles are exiting the mall located just east of the intersection. The City could consider precluding westbound left-turns at this location, as the mall has several access points to Neal Street, which crosses S. Jefferson Avenue (SR 136) just north of Dubois Road and has more capacity to accommodate high left-turn volumes. Eliminating the left-turn movement at this intersection would allow for more efficient distribution of the green time currently allocated to the westbound left-turn movement and could improve the overall intersection operation.

- *I-40 Westbound Off-Ramp*

To mitigate queues north of I-40, implementing a No Right-Turn On-Red (No RTOR) policy on the westbound I-40 off-ramp (No RTOR) approach is recommended. Implementing a No RTOR policy would likely mitigate downstream queues along S. Jefferson Avenue, which should improve trucks’ ability to execute northbound left-turns from S. Jefferson Avenue onto S. Walnut Avenue.

The City should also consider improving the channelization of the two right-turn lanes at the approach. Further channelizing the turns should improve lane assignment and safety. If after implementing these changes, queues extend an unsafe distance along the off-ramp, the City and TDOT could conduct further analysis to evaluate converting the exclusive inner right-turn lane to a shared right/left turn lane.

- *I-40 Eastbound Off-Ramp*

Providing dual eastbound left-turn lanes and updating the eastbound left-turn signal phasing to “protected” would more efficiently process left turning vehicles from the ramp, as both the eastbound left and southbound left movements are forecast to operate at a failing LOS in 2040 during the PM peak hour. Construction of a second left-turn lane on the eastbound approach may reduce the green time allocated to the

eastbound movement enough to efficiently distribute green time to the southbound left-turn movement and avoid the need to add another southbound left-turn lane.

- *Bunker Hill Road*

Additional discussion and analysis is needed to determine how best to coordinate truck turning movements at Bunker Hill Road with northbound through traffic along S. Jefferson Avenue. Collaborating with Pilot to reconfigure its internal site circulation so that trucks exit at the upstream driveway would better align trucks on Bunker Hill before turning.

- *Access Management*

Access management improvements along S. Jefferson Avenue would also improve operations, as reducing the number of driveways would in turn reduce how often vehicles must brake for other vehicles entering and exiting traffic.

3.10. S. Jefferson Avenue (SR 136) & Jackson Street

Recommended improvements at this intersection include:

- Provide dual northbound left-turn lanes and change the northbound left-turn phasing to “protected” to accommodate high northbound left-turn volumes.

The northbound left-turn movement at this intersection is a high volume movement. An additional left-turn movement should be considered to accommodate this traffic volume and allow for more efficient overall intersection operations.

3.11. E. Spring Street (US 70N, SR 24) & I-40 Ramps

Recommendations at these intersections include:

- Perform a signal warrant analysis to determine if signalization is needed at these locations.

The stop-controlled intersection at the eastbound I-40 ramps is forecast to operate at LOS F during the PM peak hour in 2040, while the stop-controlled intersection at the westbound I-40 ramps is not forecast to fail during either peak hour in 2040. However, volumes at these intersections are forecast to be high enough that a signal warrant analysis should be undertaken to definitively determine whether the need for signalization exists. It is recommended that the City and TDOT continue to monitor queue lengths and delays at these intersections.

3.12. E. Spring Street (US 70N, SR 24) & SR 111 Northbound Ramps

Recommended improvements at this intersection include:

- Provide dual northbound left-turn lanes to accommodate high northbound left-turn volumes from SR 111.
- Add a receiving lane on the SR 111 on-ramp to accommodate increased traffic flow onto the on-ramp.

This intersection is forecast to operate at LOS E in both the AM and PM peak in 2040. Synchro projects the northbound approach, westbound through movement, and conflicting eastbound left-turn movements to fail in both the AM and PM models. The Synchro model projects that modifying the intersection to include two eastbound through lanes and two eastbound left turn lanes would significantly improve the intersection's operations. Adding a second eastbound left turn lane would require adding a second northbound on-ramp receiving lane, and further study to determine if and how this lane would be dropped before merging with northbound SR 111. The eastbound through movement volume at the intersection is projected to remain low enough to be served by one through lane.

Further study is needed to assess how these proposed changes would impact the SR 111 overpass and SR 111 operations. The City may also wish to work with TDOT to explore the potential benefits of alternative interchange designs such as a diverging diamond, in which the two directions of traffic on E. 10th Street would cross to the opposite side on both sides of the bridge at SR 111.

3.13. E. Spring Street (US 70N, SR 24) & SR 111 Southbound Ramps

Recommendations at this intersection include:

- Perform a signal warrant analysis to determine whether signalization is needed at this location.

This stop-controlled intersection is forecast to operate at LOS F during the AM and PM peak hours in 2040. A signal warrant analysis will help determine whether this location should be converted to a signalized intersection.

As volumes increase, the City should consider a traffic study to evaluate the Old Kentucky Road, SR 111 southbound ramps, and SR 111 northbound ramps intersection as a coordinated trio, to make signalization and operations recommendations.

3.14. W. Broad Street (US 70N, SR 24) & W. Jackson Street

Recommendations at this intersection include:

- Provide a southbound left-turn lane to accommodate left turning traffic.
- Consider removing the existing split phase pattern on the northbound and southbound approaches to enhance efficiency of signal timing at intersection.

This intersection is forecast to operate at LOS E during the AM and PM peak in 2040. Improving the southbound approach to include a dedicated left-turn lane would more efficiently distribute green time that is currently split between the northbound and southbound approaches.

3.15. E. 10th Street

This analysis assumes that the widening project identified in the Cookeville 2030 plan and designated in the Major Street Plan as a high priority project will be constructed by 2040. This project involves widening 10th Street from three lanes to five lanes from N. Washington Avenue

(SR 136) to Chocolate Drive. The additional capacity generated by widening 10th Street should improve operations to an acceptable LOS at the following intersections that would otherwise operate at failing LOS in a 2040 No-Build scenario:

- 10th Street & Brown Avenue N.
- 10th Street & Brown Avenue S.
- 10th Street and N. Old Kentucky Road

Additional improvements may be needed at the intersection of 10th Street & Fisk Road for the intersection to operate at an acceptable LOS in 2040. These recommendations include:

- Consider providing a dedicated southbound left-turn lane to increase the capacity of the southbound approach.
- Consider providing a dedicated northbound left-turn lane to allow split phasing to be eliminated at this intersection.

The southbound left-turn movement from Fisk Road onto E. 10th Street is a high volume movement and a dedicated left-turn lane would allow these turns to be processed more efficiently. Furthermore, the addition of a complementary left-turn lane on the northbound approach would allow existing split phasing for the minor street movements to be eliminated, which would allow for more efficient signal timing at the intersection.

All intersections on 10th Street outside the limits of the widening project are forecast to operate at an acceptable LOS during the AM and PM peak periods in 2040. The only additional recommended improvement is at the intersection of 10th Street & SR 111 northbound ramps:

- Provide an additional northbound right-turn lane and restrict right-turn-on-red movements to accommodate the high volume of right-turning vehicles at this intersection.

The northbound right-turn movement at this intersection is forecast to operate at an LOS F during the PM peak period in 2040. The proposed improvement may improve the capacity of the right-turn movement at this intersection, allowing it to use the allocated green time more efficiently.

Other Future Scenarios

Though the widening of E. 10th Street is identified in the current Major Street Plan, it may present significant challenges to implement (impact to adjacent right-of-way, cost, etc.) If this widening of E. 10th Street cannot be designed and implemented, projected traffic demand will require other methods of managing the road's existing capacity, as well as diverting some traffic to other facilities.

Diverting traffic demand to other facilities is typically achieved by identifying nearby roadways that can serve the same origins and destinations as E. 10th Street (and improving capacity of those facilities if needed) or by adding new roadway connections parallel to E. 10th Street.

The City's current Major Street Plan includes a new East-West roadway across the very northern portion of Cookeville that connects Gainesboro Grade (SR 290) and SR 111. Similarly, the Major Street Plan also proposes the widening of E. Spring Street and US 70N, which is a facility that is south of and parallel to E. 10th Street.

A travel demand model is the best tool to help quantify the extent to which these projects could help distribute the traffic that is otherwise projected to use E. 10th Street. While the Cookeville area does not currently have a travel demand model, it is likely after the 2020 Census to reach the population threshold at which it would become a federally designated Metropolitan Planning Organization (MPO). While smaller MPOs are not required to have a travel demand model, it has been the standard practice in Tennessee for all MPOs to have a travel demand model. MPO designation within the next few years could therefore lead to the availability of additional planning tools that can more precisely identify the shifts in traffic flows and demand associated with various roadway improvements. Such analysis can help guide decisions about using limited funds and resources, to avoid unnecessary improvements or more strategic decisions about the E. 10th Street corridor.

In the meantime, other planning and engineering strategies can be employed to help manage traffic congestion in this corridor. Re-aligning staggered/offset intersections, traffic signal timing, and phasing optimization can be used to improve traffic flow along E. 10th Street to levels that are much better than in No-Build conditions.

3.16. Planning Level Cost Estimates

A planning level cost estimate was developed for each of the above projects, using TDOT's most recent planning-level cost estimate spreadsheet and updating values to 2017 dollars. (The exception is the two-way left turn lane on N. Willow Avenue, for which a planning-level cost was recently developed by TDOT.) **Table 4** summarizes these cost estimates. As each improvement enters the formal project development process, these high-level costs will be further refined through detailed engineering and design.

Table 4: Cookeville Corridor Planning-Level Cost Estimates (2017 dollars)

Location of Proposed Improvement	Planning-Level Cost Estimate (2017 Dollars)
State Route 135 (South Willow Avenue) at Interstate 40 Eastbound	\$75,000
State Route 135 (South Willow Avenue) at Interstate 40 Westbound	\$40,000
State Route 135 (South Willow Avenue) at Interstate Drive / Foreman Drive	\$260,000
State Route 135 (South Willow Avenue) at West Jackson Street	\$592,000
State Route 135 (South Willow Avenue) at West Stevens Street	\$222,000
State Route 135 (South Willow Avenue) at State Route 24 (US Route 70N, West Spring Street)	\$640,000
State Route 135 (North Willow Avenue) from West Broad Street to West 12th Street	\$35,800,000
State Route 135 (North Willow Avenue) eastbound and westbound right-turn lanes at West 3 rd Street, West 4 th Street and West 9 th Street	\$1,182,000
State Route 135 (North Willow Avenue) at State Route 290 (West 12th Street)	\$55,000
State Route 136 (South Jefferson Avenue) at Interstate Drive / Neal Street	\$441,000
State Route 136 (South Jefferson Avenue) at South Walnut Avenue / Dubois Street	\$35,000
State Route 136 (South Jefferson Avenue) at Interstate 40 Westbound ramp	\$10,000
State Route 136 (South Jefferson Avenue) at Interstate 40 Eastbound ramp	\$98,000
State Route 136 (South Jefferson Avenue) at Bunker Hill Road	\$50,000
State Route 136 (South Jefferson Avenue) at Jackson Street	\$245,000
State Route 24 (US Route 70N, East Spring Street) at Interstate 40	\$30,000
State Route 24 (US Route 70N, East Spring Street) at State Route 111 Northbound ramp	\$346,000
State Route 24 (US Route 70N, East Spring Street) at State Route 111 Southbound ramp	\$15,000
State Route 24 (US Route 70N, West Broad Street) at West Jackson Street	\$197,000
East 10th Street from State Route 136 (North Washington Avenue) to Chocolate Drive	\$27,924,000
East 10th Street at Fisk Road	\$354,000
East 10th Street at State Route 111 Northbound ramp	\$108,000
GRAND TOTAL	\$68,719,000

As shown in Table 4, most of the projects are expected to cost less than \$500,000. Further cost estimate details for each specific improvement at a particular location is included in **Appendix E**.

4. 2040 Intersection Analysis with Implementation of Recommendations

The recommendations outlined in Section 3 were applied to the intermediate 2040 Coordinated Synchro models discussed in the introduction to Section 3. **Table 5** presents the delay in seconds and the LOS of each intersection of the 2040 Optimized with Recommendations Synchro analysis, while **Figures 15** and **16** show the results.

Table 5 indicates that the Synchro models project 4 failing intersections in the AM peak hour (all unsignalized) and 9 failing intersections in the PM peak hour (7 unsignalized, 2 signalized). The recommended signal optimization and intersection improvements reduce the number of intersections with a failing LOS versus the 2040 No-Build model from 15 to 4 in the AM peak hour and 17 to 9 in the PM peak hour. Of particular note is that the proposed optimization and improvements reduced the number of failing signalized intersections from 11 in the 2040 No-Build AM model to zero and from 9 in the 2040 No-Build PM model to 2. The Synchro reports for the 2040 Optimized with Recommendations Conditions models are included in **Appendix F**.

Table 5: 2040 Optimized Conditions with Recommendations Delay & Level of Service

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	S. Willow Ave.	Gould Dr.	Sig.	12.8	B	30.9	C
2	S. Willow Ave.	I-40 EB Ramps	Sig.	26.7	C	26.8	C
3	S. Willow Ave.	I-40 WB Ramps	Sig.	15.5	B	18.0	B
4	S. Willow Ave.	Interstate Dr.	Sig.	33.7	C	38.5	D
5	S. Willow Ave.	Fairground St.	STOP	17.3	C	28.5	D
6	S. Willow Ave.	Ashwood Dr.	STOP	12.0	B	13.4	B
61	S. Willow Ave.	Orchard St.	Sig.	13.7	B	15.7	B
7	S. Willow Ave.	Lone Oak Dr.	STOP	20.2	C	27.4	D
8	S. Willow Ave.	W. Jackson St.	Sig.	25.1	C	38.7	D
9	S. Willow Ave.	W. Stevens St.	Sig.	29.1	C	20.6	C
10	S. Willow Ave.	W. Spring St.	Sig.	37.7	D	45.0	D
11	S. Willow Ave.	W. Broad St.	Sig.	19.8	B	27.8	C
12	N. Willow Ave.	W. 3rd St.	STOP	87.4	F	208.7	F
13	N. Willow Ave.	W. 4th St.	STOP	139.8	F	369.2	F
14	N. Willow Ave.	W. 7th St.	Sig.	25.9	C	23.7	C
15	N. Willow Ave.	W. 9th St.	STOP	138.0	F	238.7	F
16	N. Willow Ave.	University Dr.	Sig.	10.4	B	10.5	B
17	N. Willow Ave.	W. 12th St.	Sig.	33.5	C	28.0	C
18	S. Jefferson Ave.	Bunker Hill Rd.	Sig.	15.6	B	18.5	B
19	S. Jefferson Ave.	I-40 EB Ramps	Sig.	17.0	B	22.1	C
20	S. Jefferson Ave.	I-40 WB Ramps	Sig.	28.2	C	17.5	B
21	S. Jefferson Ave.	S. Walnut Ave.	Sig.	20.1	C	24.7	C
22	S. Jefferson Ave.	Interstate Dr.	Sig.	25.2	C	42.4	D
23	S. Jefferson Ave.	E. Veterans Dr.	Sig.	28.3	C	44.1	D
241	S. Jefferson Ave.	Fairground St.	STOP	14.7	B	40.2	E
24	S. Jefferson Ave.	Walmart Driveway	Sig.	2.8	A	14.5	B
25	S. Jefferson Ave.	Commerce Ave.	Sig.	6.6	A	15.8	B
26	S. Jefferson Ave.	E. Jackson St.	Sig.	28.4	C	36.2	D
27	S. Jefferson Ave.	Foutch Dr.	Sig.	11.3	B	23.5	C
28	S. Jefferson Ave.	E. Stevens St.	Sig.	15.1	B	18.4	B
29	S. Jefferson Ave.	US 70N/E. Spring St.	Sig.	28.2	C	74.3	E
30	N. Jefferson Ave.	E. Broad St.	Sig.	25.1	C	28.2	C
31	S. Washington Ave.	E. Spring St.	Sig.	27.7	C	40.9	D
32	N. Washington Ave.	E. Broad St.	Sig.	42.4	D	41.2	D
33	N. Washington Ave.	E. 1st St.	Sig.	40.4	D	41.7	D
34	N. Washington Ave.	E. 10th St.	Sig.	30.7	C	34.2	C
35	E. Spring St.	I-40 EB Ramps	STOP	17.7	C	63.8	F

(continued from previous page)

No.	Route	Intersecting Route	Int. Type	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
36	E. Spring St.	I-40 WB Ramps	STOP	17.3	C	12.9	B
37	E. Spring St.	SR 111 NB Ramps	Sig.	27.8	C	26.2	C
38	E. Spring St.	SR 111 SB Ramps	STOP	279.3	F	477.5	F
39	E. Spring St.	S. Old Kentucky Rd.	Sig.	23.6	C	44.4	D
40	E. Spring St.	E. Broad St.	STOP	25.7	D	77.8	F
41	E. Spring St.	S. Maple Ave.	Sig.	54.6	D	79.5	E
42	E. Spring St.	S. Dixie Ave.	Sig.	22.5	C	33.3	C
43	W. Spring St.	S. Walnut Ave.	Sig.	37.7	D	54.8	D
44	W. Spring St.	Scott Ave.	Sig.	23.4	C	38.0	D
45	E. Broad St.	S. Maple Ave.	Sig.	50.4	D	51.4	D
46	E. Broad St.	S. Dixie Ave.	Sig.	17.6	B	30.2	C
47	E. Broad St.	S. Walnut Ave.	Sig.	33.4	C	47.0	D
48	E. Broad St.	S. Cedar Ave.	STOP	11.3	B	27.9	D
49	W. Broad St.	N. Cedar Ave.	STOP	12.1	B	18.6	C
50	W. Spring St.	W. Broad St.	STOP	11.4	B	22.6	C
51	W. Broad St.	W. Jackson St.	Sig.	39.7	D	32.6	C
52	E. 10th St.	Brown Ave. N	Sig.	10.6	B	12.1	B
521	E. 10th St.	Brown Ave. S	Sig.	14.5	B	11.1	B
53	E. 10th St.	Fisk Rd.	Sig.	31.5	C	21.0	C
54	E. 10th St.	N. Old Kentucky Rd.	Sig.	15.4	B	20.5	C
55	E. 10th St.	SR 111 SB Ramps	Sig.	25.7	C	10.4	B
56	E. 10th St.	SR 111 NB Ramps	Sig.	22.8	C	37.6	D
57	E. 10th St.	Burton Branch Rd.	Sig.	35.4	D	19.3	B

Figure 15: 2040 Recommended Conditions Intersection Level of Service (AM Peak Hour)

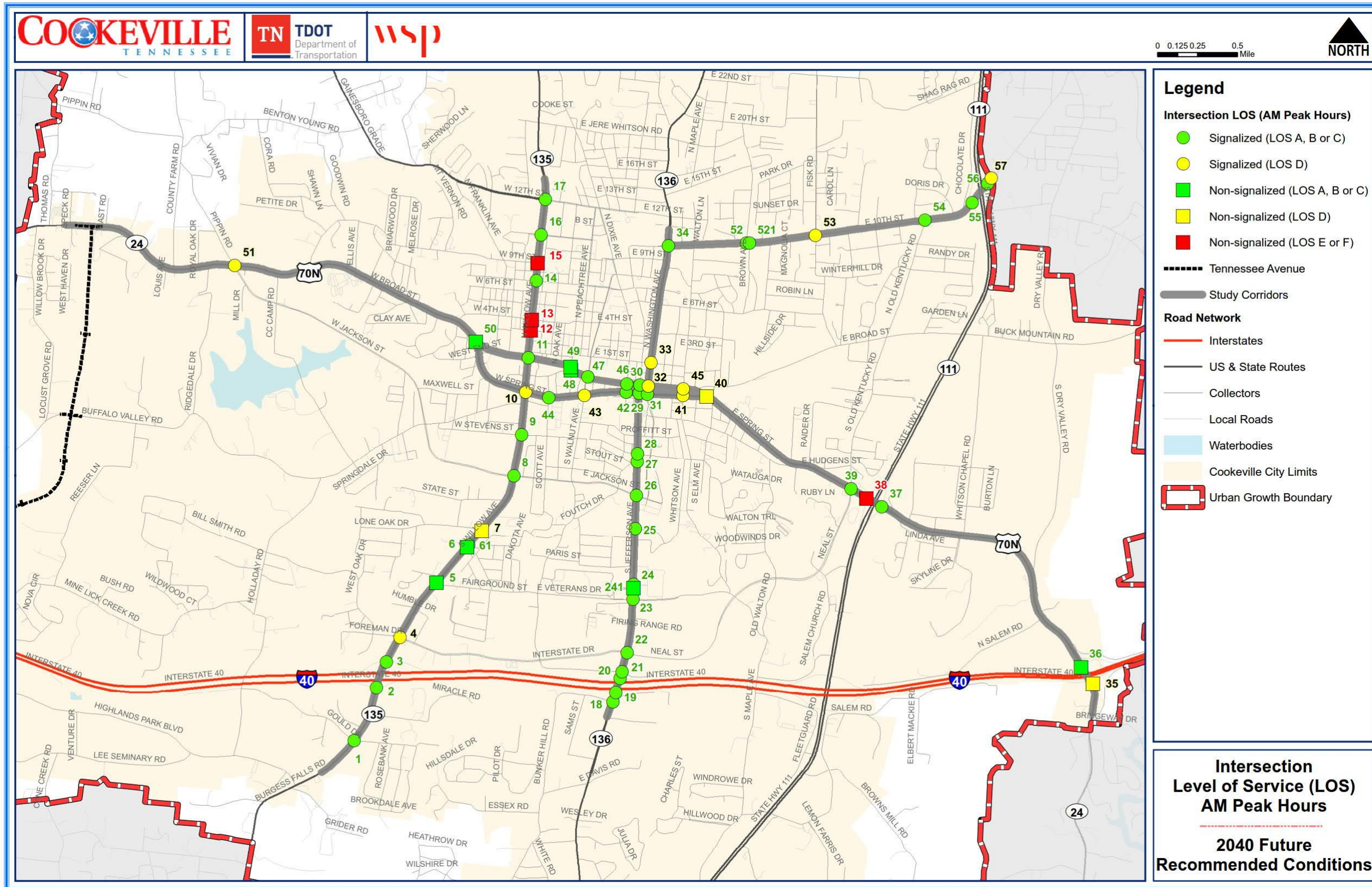
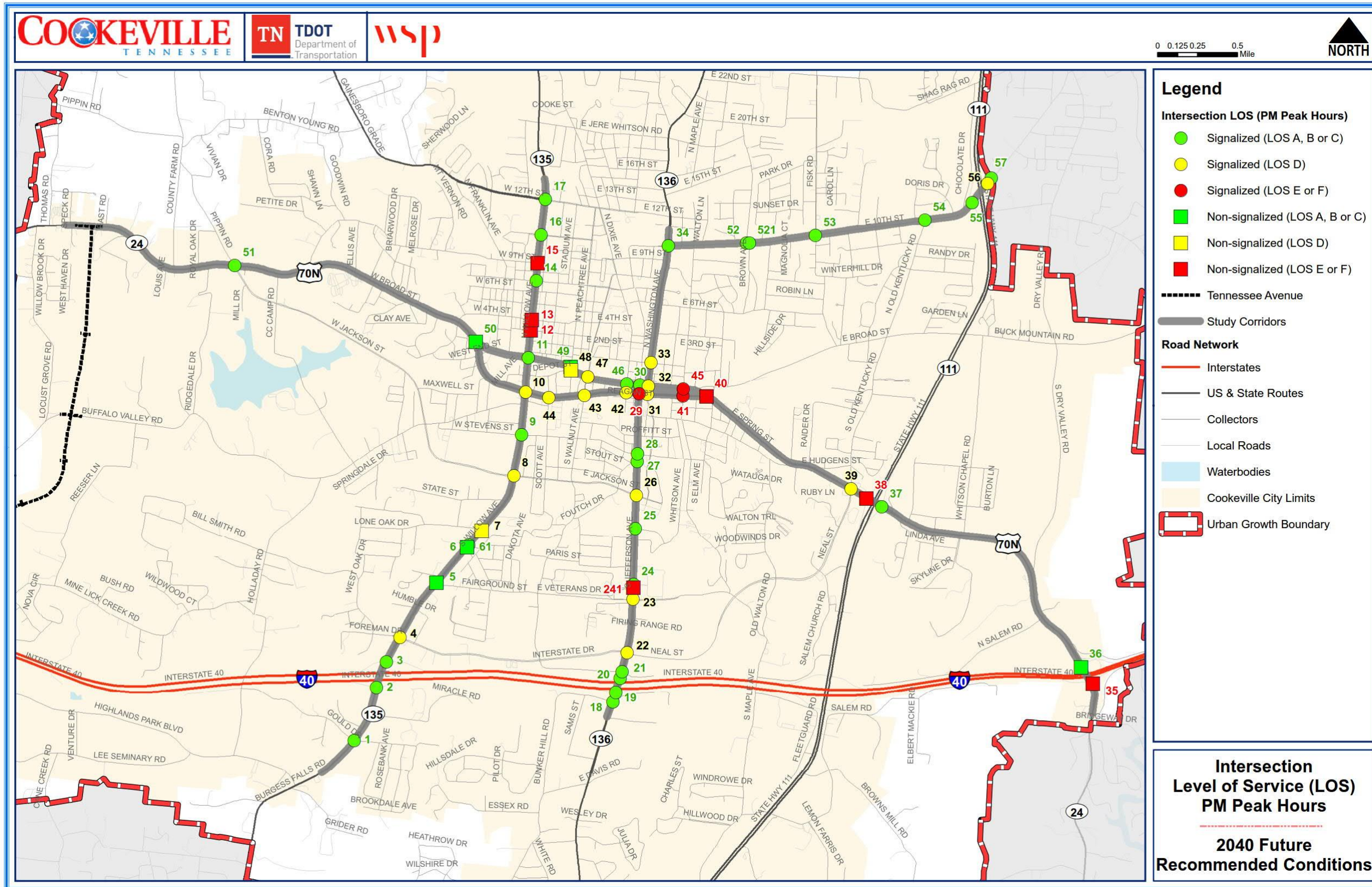


Figure 16: 2040 Recommended Conditions Intersection Level of Service (PM Peak Hour)



5. Downtown Circulation Recommendations

5.1. Observed Issues

In conjunction with the corridor analysis, the City requested specific recommendations to mitigate the gridlock and congestion observed in downtown Cookeville around the six intersections on E. Spring Street (US 70N, SR 24) and E. Broad Street between Dixie Avenue and N. Washington Avenue. The Existing Conditions report describes factors that contribute to the congestion in the downtown area, including:

- State Route 136 “jogs” from S. Jefferson Avenue to N. Washington Avenue in the downtown area at Spring Street (US 70N, SR 24) which results in high turning volumes at each of the study area intersections;
- The distance between intersections leaves little space for vehicles to queue before blocking an adjacent intersection;
- The location and type of on-street parking results in blocked traffic when drivers exit their parking space; and
- Pedestrians use mid-block crossings, which reduces traffic flow rates and efficiency.

5.2. Potential Solutions

Potential solutions to relieve congestion in downtown Cookeville include:

- Improve signal timing and coordination
- Remove some (or all) on-street parking
- Remove mid-block crossings
- Adjust signal timing along alternate routes and install wayfinding signage to promote their use
- Convert E. Spring Street (US 70N, SR 24) and Broad Street to one-way pairs

5.2.1. Improve Signal Timing and Coordination

Prior to this study, several attempts have been made to optimize the signal timing and coordination in downtown Cookeville. The existing downtown signal timing plans consist of three unique time-of-day (TOD) plans (morning, mid-day, evening) used during weekdays. In this study’s analysis, the signal timings were further refined in both the AM and PM peak hour models by focusing on 95th percentile queue lengths, turning volumes, and traffic patterns. However, many of the observed issues, including parking impacts, the mid-block crossing distance, and intersection spacing, limit the benefits of these coordinated timing plans – both now, and in the recommended scenarios.

Some of the signal timing changes recommended for the downtown network in the 2017 and 2040 optimized models include changing lagging left turns to leading left turns and decreasing the cycle length during the PM peak hour. Lagging left turn phases are recommended to be changed to leading left-turn phases because field observations showed that left-turn flow rates are limited by queues from adjacent intersections. By the time that left turn movements are

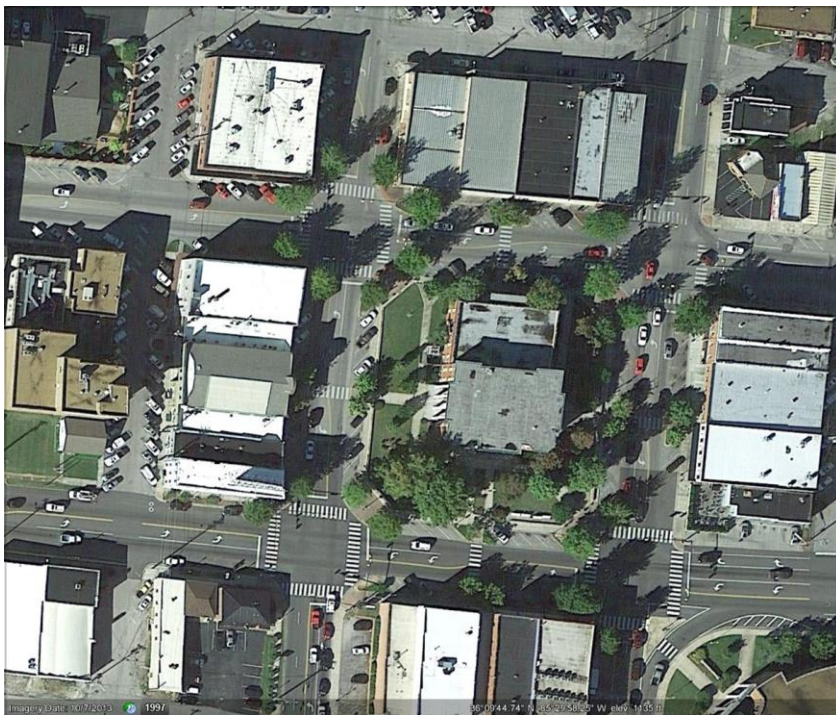
allowed, the adjacent intersection's queue significantly limits the number of vehicles that could turn. In the recommended scenarios, signal offsets have also been adjusted by focusing on each intersection approach queue lengths and the distance between intersections.

Based on a comparison of the field observations and Synchro analysis, the signal timing improvements alone likely will not fully mitigate the existing congestion and gridlock due to the impacts of parking maneuvers and mid-block pedestrian crossings. While additional field timing refinements may further improve operations, additional measures, such as removing on-street parking and pedestrian mid-block crossings are needed to produce more significant improvements.

5.2.2. Remove On-Street Parking

Field observations and comments from local business owners both indicate that vehicles entering and exiting parking spaces in downtown Cookeville can impede traffic flow. Parking's impact on traffic operations is especially prevalent around the Downtown Square, where diagonal parking along both sides of each surrounding street can significantly restrict space for vehicular operations. Angle parking offers certain advantages such as easier maneuverability while parking or exiting, and ability to fit more parking spaces into a given area. However, if drivers do not correctly judge the angle or do not pull far enough into the space to bring the nose of the vehicle to the curb, the back of the vehicle protrudes partially into the travel way, disrupting traffic flow in the adjacent travel lanes. **Figure 17** illustrates the current parking available adjacent to the Downtown Square.

Figure 17: Cookeville's Downtown Square



Conversations with City staff and findings outlined in the 2016 Downtown Parking Study indicate that parking demand exceeds parking supply in downtown Cookeville. Given the demand for parking, it is preferable to focus on removal of parking spaces that are most disruptive to traffic operations. For example, diagonal parking spaces on the far side of intersections or certain other locations are more likely to impede intersection traffic operations. Based on additional review, the City could consider removing a few high-impact parking spaces to balance parking needs and improved traffic operations.

5.2.3. Remove Pedestrian Mid-Block Crossings

In addition to on-street parking, each of the Downtown Square's four sides also has a pedestrian mid-block crossing, as shown in Figure 17. These mid-block crossings are located at the approximate halfway point of each of the Square's sides and reduce the time needed for pedestrians to cross each respective side. However, during field observations it was observed on multiple occasions that pedestrians using the mid-block crossings impeded traffic flow and disrupted the progression of the downtown coordinated signal network. Given that the distance between each of the intersection crosswalks around the square is approximately 200 feet, any pedestrian exiting a building who needs to cross a street adjacent to the Square would have to walk no more than 100 feet to get to a signalized crosswalk.

If these crosswalks are removed, it is recommended that the Walk and FDW timings of the surrounding signals be re-evaluated to ensure they provide safe and proper clearance.

5.2.4. Enhanced Wayfinding

Field observations, traffic patterns, and comments from City staff indicate that many of the traffic issues in downtown Cookeville are caused by the fact that SR 136 "jogs" between S. Jefferson Avenue and N. Washington Avenue. This shift forces many would-be through vehicles to execute consecutive right and left-turns to continue north or south through downtown.

One potential solution to reduce turning traffic in downtown is to emphasize the use of S. Lowe Avenue. While many vehicles will likely continue to use S. Jefferson Avenue, diverting some vehicles to continue south from N. Washington Avenue to S. Lowe Avenue and then access S. Jefferson Avenue at E. Jackson Street could improve operations in downtown. This would likely require updated signal timing, new wayfinding signage, and a marketing and education campaign to convince drivers to use an alternate route.

5.2.5. One-Way Pairs

Another potential solution to improve traffic operations in downtown Cookeville is to create a system of one-way pairs. In this scenario E. Spring Street (SR 24, US 70N) would be converted to one-way eastbound operations between S. Dixie Avenue and E. Broad Street, and E. Broad Street would be converted to one-way westbound operations from E. Spring Street west to S. Dixie Avenue. The proposed direction of flow is shown in **Figure 18**. An example of this configuration is shown in **Figure 19**. The lane configuration of all intersections affected by the one-way pair are shown in **Appendix G**.

Figure 18: Potential One-Way Pair Network in Downtown

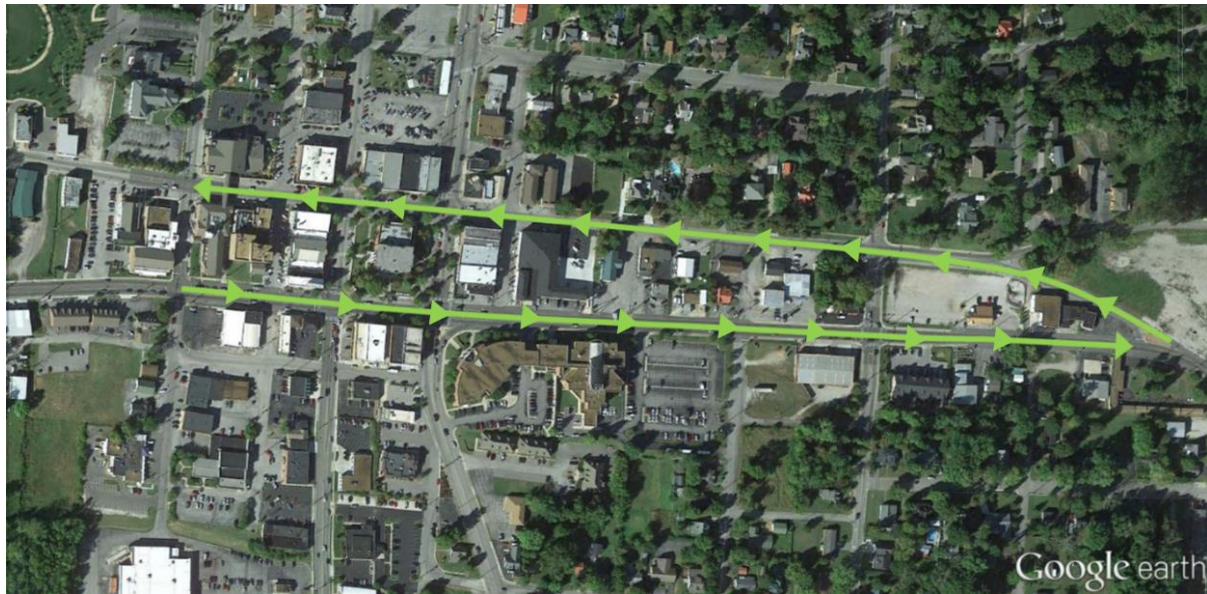
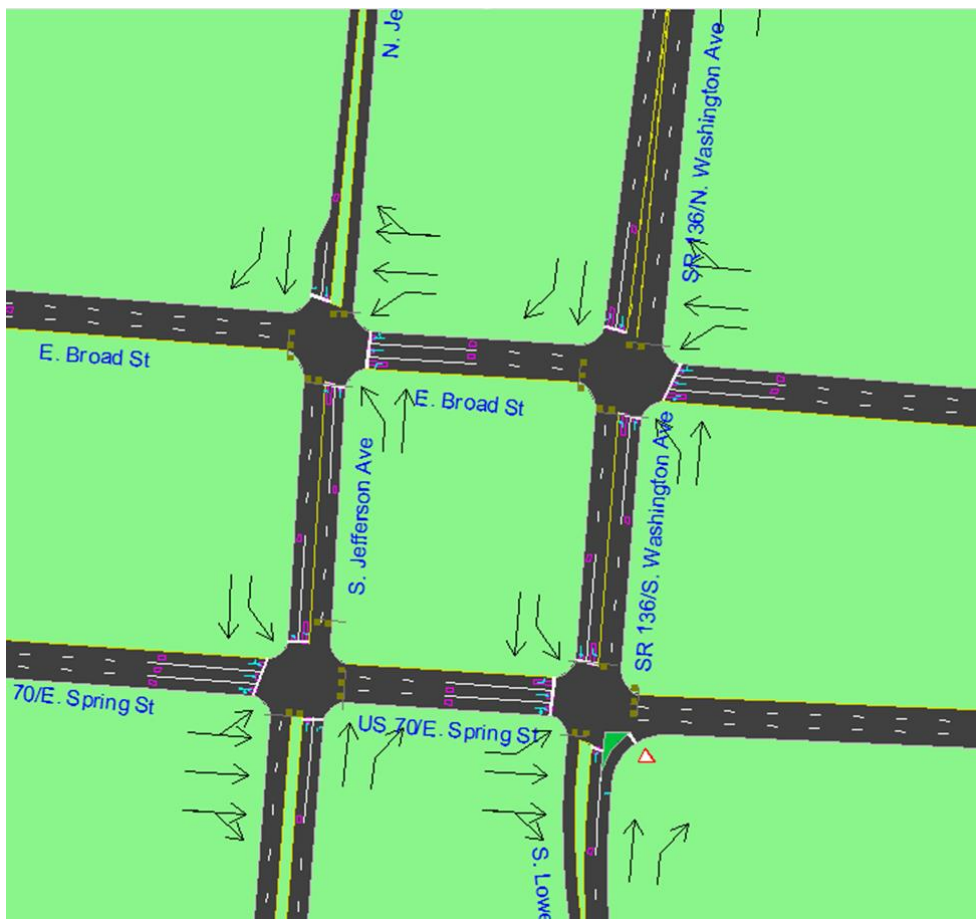


Figure 19: One-Way Pair Lane Configuration at Jefferson Avenue and Washington Avenue



The majority of parcels and parking facilities in between E. Spring Street (SR 24, US 70N) and E. Broad Street have access to both streets, which would mitigate inconvenience for these vehicles. Vehicles accessing parcels immediately south of E. Spring Street or north of E. Broad Street would be forced to turn whichever direction is allowed by that specific street; however, the distance to the nearest north-south cross-street to turn around would be at most 900 feet. It is recommended that the one-way pair system end at S. Dixie Avenue for two reasons. First, the spacing between E. Spring Street and E. Broad Street increases such that fewer parcels have access to both streets. Second, the north-south cross street spacing increases west of Dixie Avenue. This increased spacing in turn increases the turn-around distance required for vehicles that exit a site by entering a one-way street in the opposite direction from their intended travel.

A system of one-way pairs simplifies signal-phasing patterns, which reduces lost time and increases signal efficiency. Given that each of the signalized intersections between Dixie Avenue and the E. Spring Street / E. Broad Street merge have crosswalks, and each of these crosswalks is relatively short, the system of one-way pairs was modeled assuming that each of the eight intersections would operate with a “pedestrian scramble” phase. This phase allows pedestrians from each approach to walk across and even through the crosswalk; during this time all vehicles are stopped. During vehicular phases, no pedestrians are allowed to cross; thus, pedestrians do not impede vehicles and vehicles do not impede pedestrians.

Further analysis would need to be undertaken before converting E. Spring Street (US 70N, SR 24) and E. Broad Street to a one-way pair to better understand the implications and potential impacts to traffic patterns, business access, and parking. A detailed travel pattern analysis in the downtown area would more accurately determine trip reassignments and turning volumes at affected intersections. Several methods can be used to assess travel patterns including a detailed sub-area analysis using a travel demand model or an origin-destination study. Additionally, the lane configurations needed to accommodate future traffic volumes in the downtown area may impact existing parking. A parking study that builds off of and incorporates the findings of the 2016 Cookeville Downtown Parking Study should be considered to determine the implications and assess alternatives for parking if a one-way pair is adopted. Finally, additional wayfinding signage may be needed to inform drivers of the one-way pair operations and direct them to appropriate through roadways as needed. Wayfinding signs would likely be needed inside and outside downtown to give drivers advance warning to avoid confusion at the conversion points.

5.2.6. Summary

While each of these solutions would likely alleviate some downtown congestion, the area’s intersection spacing and vehicles’ interaction with parking maneuvers and pedestrians requires a multifaceted approach. For example, if only signals are optimized, traffic must still stop for vehicles leaving on-street parking and yield to pedestrians at mid-block crossings, which can nullify the benefits of optimized signalization. Conversely, removing on-street parking and mid-block crossings without improving signal timing also limits the potential benefits that could be gained.

6. Access Management

Access management centers on the balance between providing accessibility and mobility. The higher the functional classification of a roadway facility (freeways, principal arterials, etc.), typically the more mobility it provides. The lower the functional classification (minor collectors, local roads), typically the more accessibility a facility provides. Planning strategically for mobility and accessibility and balancing these needs in a structured hierarchy across facilities can reduce congestion, improve safety, and improve the efficiency and use of existing pavement². Best practice access management takes a long-term view of existing and future development and both vehicular and pedestrian access to plan multi-modal access points in relation to current and planned intersections and other features such as medians.

Field observations identified frequent access points along the entire extents of each of the study corridors. In particular, close driveway spacing was observed to contribute to congestion along S. Willow Avenue (SR 135) and S. Jefferson Avenue (SR 136) just north of I-40 and E. 10th Street between Brown Avenue and SR 111.

The Cookeville Access Policy (Section 205.9 of the City Code) establishes criteria for driveway access points and frequency within a parcel, median spacing, and other access management parameters. It is recommended that City staff consider expanding the existing document to include more comprehensive criteria that considers functional classification, posted speed limit, and land use.

In parallel with reviewing the Access Policy, it is recommended that the City and TDOT ensure that their driveway spacing and design standards are well-integrated into its other development processes (such as by requiring compliance as a pre-requisite to approving a traffic impact study or granting an access permit). The standard criteria should be applied to all new development and for potential modifications of existing driveways that do not comply, particularly near major intersections or in other areas that pose significant traffic or safety concerns. In some cases, new connectivity could mitigate existing access density issues at certain locations.

² https://ops.fhwa.dot.gov/publications/amprimer/access_mgmt_primer.htm

Appendices

Appendix A: Intersection Pedestrian Crossing Time Calculations

Appendix B: 2017 Optimized Conditions Synchro Reports

Appendix C: 2040 No-Build Conditions Synchro Reports

Appendix D: 2040 Optimized Conditions Synchro Reports

Appendix E: Cost Estimate Details

Appendix F: 2040 Recommendations Conditions Synchro Reports

Appendix G: One-Way Pair Lane Configuration

Appendix A: Pedestrian Crossing Time Calculations

Appendix A: Pedestrian Crossing Time Values

Intersections with Pedestrian Timing	WB Through Phase		NB Through Phase		EB Through Phase		SB Through Phase	
	Crosswalk Length [ft]	Min FDW Time [s]	Crosswalk Length [ft]	Min FDW Time [s]	Crosswalk Length [ft]	Min FDW Time [s]	Crosswalk Length [ft]	Min FDW Time [s]
SR 135 / S. Willow Ave & I-40 EB Ramps	90	23	95	24	N/A	N/A	97	25
SR 135 / S. Willow Ave & I-40 WB Ramps	N/A	N/A	55	14	96	24	70	18
SR 135/ N. Willow Ave & University Dr	65	17	52	13	60	15	55	14
SR 135/ N. Willow Ave & W. 12th St	N/A	N/A	N/A	N/A	73	19	92	23
SR 136 / S. Jefferson Ave & Interstate Dr / Neal St	67	17	77	20	84	21	58	15
SR 136 / S. Jefferson Ave & Wal-Mart Driveway	60	15	62	16	60	15	62	16
SR 136 / S. Jefferson Ave & US 70 / E. Spring St	59	15	62	16	55	14	52	13
S. Jefferson Ave & E. Broad St	54	14	55	14	50	13	52	13
SR 136 / N. Washington St / S. Lowe Ave & US 70 / E. Spring St	61	16	58	15	42	11	67	17
SR 136 / N. Washington St & E. Broad St	59	15	55	14	53	14	46	12
SR 136 / N. Washington St & E. 10th St	72	18	59	15	72	18	82	21
E. 10th St & Fisk Rd	40	10	35	9	40	10	44	11
US 70 / W. Spring St & S. Walnut Ave	42	11	44	11	38	10	40	10
US 70 / E. Spring St & S. Maple Ave	48	12	45	12	47	12	49	13
E. Broad St & N. Walnut Ave	45	12	55	14	42	11	52	13
E. Broad St & S. Dixie Ave	46	12	66	17	39	10	62	16
E. Broad St & S. Maple Ave	50	13	50	13	53	14	50	13

Appendix B: 2017 Optimized Conditions Synchro Reports

Lanes, Volumes, Timings
1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

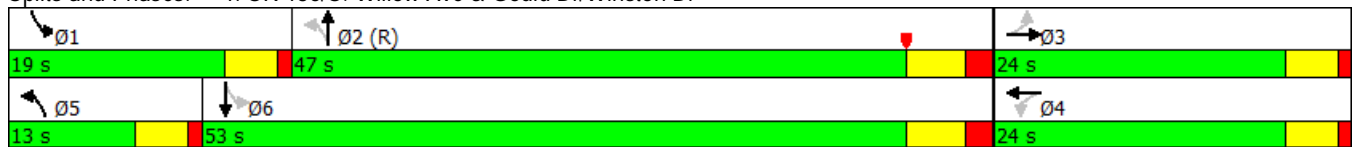
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	15	20	20	5	75	30	685	20	70	315	120
Future Volume (vph)	50	15	20	20	5	75	30	685	20	70	315	120
Satd. Flow (prot)	1736	1688	0	1805	1596	0	1805	3518	0	1805	3239	0
Flt Permitted	0.690			0.720			0.453			0.291		
Satd. Flow (perm)	1261	1688	0	1368	1596	0	861	3518	0	553	3239	0
Satd. Flow (RTOR)		32			91			5			109	
Lane Group Flow (vph)	64	56	0	40	103	0	36	863	0	92	536	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	24.0	24.0		24.0	24.0		13.0	47.0		19.0	53.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	9.5	9.5		9.5	9.5		68.0	65.3		70.1	67.9	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.76	0.73		0.78	0.75	
v/c Ratio	0.48	0.27		0.28	0.41		0.05	0.34		0.18	0.22	
Control Delay	48.9	22.5		40.5	15.2		3.1	6.8		2.8	1.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.9	22.5		40.5	15.2		3.1	6.8		2.8	1.8	
LOS	D	C		D	B		A	A		A	A	
Approach Delay		36.6			22.3			6.7			1.9	
Approach LOS		D			C			A			A	
Queue Length 50th (ft)	35	13		21	6		3	97		4	2	
Queue Length 95th (ft)	62	26		27	0		11	140		15	23	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	266	381		288	408		752	2553		640	2471	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.15		0.14	0.25		0.05	0.34		0.14	0.22	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 80 (89%), Referenced to phase 2:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 8.3
 Intersection Capacity Utilization 45.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	5	50	0	0	0	0	625	245	200	540	0
Future Volume (vph)	305	5	50	0	0	0	0	625	245	200	540	0
Satd. Flow (prot)	1681	1569	0	0	0	0	0	3417	0	1687	3438	0
Flt Permitted	0.950	0.968								0.146		
Satd. Flow (perm)	1681	1569	0	0	0	0	0	3417	0	259	3438	0
Satd. Flow (RTOR)		27						62				
Lane Group Flow (vph)	217	207	0	0	0	0	0	1100	0	235	684	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	36.0	36.0						38.0		16.0	54.0	
Total Lost Time (s)	6.1	6.1						5.4		5.0	5.4	
Act Effct Green (s)	16.4	16.4						43.8		62.5	62.1	
Actuated g/C Ratio	0.18	0.18						0.49		0.69	0.69	
v/c Ratio	0.71	0.67						0.65		0.60	0.29	
Control Delay	46.6	39.9						18.0		15.0	5.7	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	46.6	39.9						18.0		15.0	5.7	
LOS	D	D						B		B	A	
Approach Delay		43.3						18.0			8.0	
Approach LOS		D						B			A	
Queue Length 50th (ft)	124	102						161		49	75	
Queue Length 95th (ft)	174	163						215		76	55	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	558	539						1696		398	2371	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.39	0.38						0.65		0.59	0.29	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	235	5	330	45	875	0	0	515	155
Future Volume (vph)	0	0	0	235	5	330	45	875	0	0	515	155
Satd. Flow (prot)	0	0	0	0	1697	1553	1530	3574	0	0	3321	0
Flt Permitted					0.954		0.266					
Satd. Flow (perm)	0	0	0	0	1697	1553	428	3574	0	0	3321	0
Satd. Flow (RTOR)						85					50	
Lane Group Flow (vph)	0	0	0	0	313	375	60	1080	0	0	751	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				40.0	40.0	40.0	12.0	50.0			38.0	
Total Lost Time (s)					4.0	4.0	5.0	4.0			4.0	
Act Effct Green (s)					26.0	26.0	55.0	56.0			46.7	
Actuated g/C Ratio					0.29	0.29	0.61	0.62			0.52	
v/c Ratio					0.64	0.74	0.18	0.49			0.43	
Control Delay					33.0	30.2	4.0	5.9			11.7	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					33.0	30.2	4.0	5.9			11.7	
LOS					C	C	A	A			B	
Approach Delay					31.5			5.8			11.7	
Approach LOS					C			A			B	
Queue Length 50th (ft)					154	148	4	110			107	
Queue Length 95th (ft)					128	203	m19	257			127	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					678	672	348	2225			1750	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.46	0.56	0.17	0.49			0.43	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.4

Intersection LOS: B

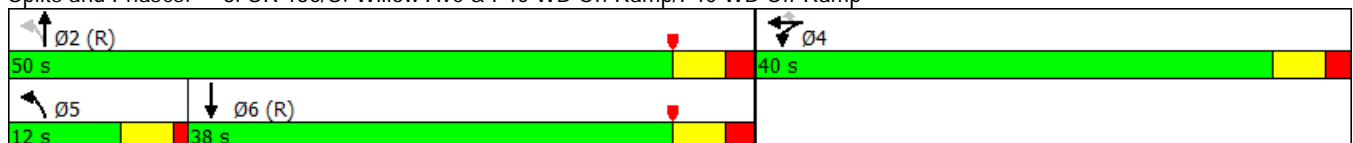
Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

2017 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	125	65	160	55	135	60	845	260	180	440	25
Future Volume (vph)	55	125	65	160	55	135	60	845	260	180	440	25
Satd. Flow (prot)	1719	1687	0	1752	1810	1553	1752	3428	0	1770	3373	0
Flt Permitted	0.708			0.269			0.462			0.104		
Satd. Flow (perm)	1281	1687	0	496	1810	1553	852	3428	0	194	3373	0
Satd. Flow (RTOR)		31				206		54			11	
Lane Group Flow (vph)	85	228	0	193	76	169	72	1273	0	220	514	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	14.0	21.0		14.0	21.0	21.0	11.0	39.0		16.0	44.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	6.5	5.0	4.0		5.0	4.0	
Act Effct Green (s)	22.5	15.8		25.4	19.2	16.7	42.0	37.2		50.9	43.4	
Actuated g/C Ratio	0.25	0.18		0.28	0.21	0.19	0.47	0.41		0.57	0.48	
v/c Ratio	0.24	0.71		0.73	0.20	0.37	0.16	0.88		0.77	0.31	
Control Delay	23.4	43.0		41.4	32.3	5.2	7.9	28.0		35.5	15.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.4	43.0		41.4	32.3	5.2	7.9	28.0		35.5	15.5	
LOS	C	D		D	C	A	A	C		D	B	
Approach Delay		37.7			25.8			26.9			21.5	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	34	105		81	36	0	11	314		68	95	
Queue Length 95th (ft)	48	181		#137	60	18	m21	#441		#130	133	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	381	343		266	385	456	459	1447		302	1633	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.22	0.66		0.73	0.20	0.37	0.16	0.88		0.73	0.31	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 75.2%

ICU Level of Service D

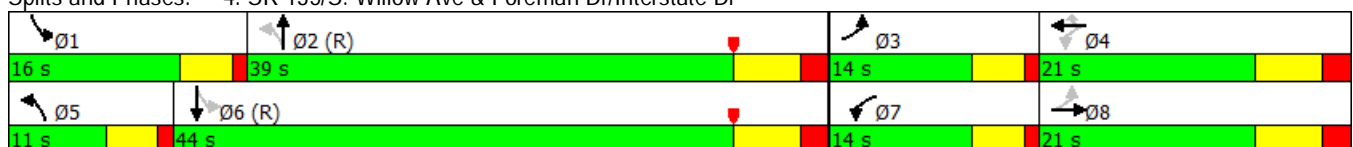
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.












Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	50	870	70	45	650
Future Volume (vph)	15	50	870	70	45	650
Satd. Flow (prot)	1805	1583	3496	0	1805	3471
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3496	0	1805	3471
Lane Group Flow (vph)	24	56	1104	0	64	691
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.1












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↕↔		↖	↗
Traffic Vol, veh/h	15	50	870	70	45	650
Future Vol, veh/h	15	50	870	70	45	650
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	89	87	67	70	94
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	24	56	1000	104	64	691

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1526	552	0	0	1104	0
Stage 1	1052	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.2	-
Pot Cap-1 Maneuver	111	477	-	-	640	-
Stage 1	302	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	100	477	-	-	640	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	16.6		0		1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	217	477	640	-
HCM Lane V/C Ratio	-	-	0.11	0.118	0.1	-
HCM Control Delay (s)	-	-	23.6	13.6	11.3	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	0.3	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	5	855	15	0	695
Future Volume (vph)	0	5	855	15	0	695
Satd. Flow (prot)	0	1522	3494	0	0	3438
Flt Permitted						
Satd. Flow (perm)	0	1522	3494	0	0	3438
Lane Group Flow (vph)	0	8	981	0	0	755
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 34.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↗
Traffic Vol, veh/h	0	5	855	15	0	695
Future Vol, veh/h	0	5	855	15	0	695
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	63	89	75	25	92
Heavy Vehicles, %	0	8	3	3	0	5
Mvmt Flow	0	8	961	20	0	755

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	480	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.06	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.38	-	-	-	-
Pot Cap-1 Maneuver	0	516	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	516	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 516	-
HCM Lane V/C Ratio	- 0.015	-
HCM Control Delay (s)	- 12.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	55	30	10	880	730	15
Future Volume (vph)	55	30	10	880	730	15
Satd. Flow (prot)	1787	1568	1805	3505	3451	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1787	1568	1805	3505	3451	0
Lane Group Flow (vph)	72	32	16	1023	887	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 34.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↘
Traffic Vol, veh/h	55	30	10	880	730	15
Future Vol, veh/h	55	30	10	880	730	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	94	63	86	85	54
Heavy Vehicles, %	1	3	0	3	4	7
Mvmt Flow	72	32	16	1023	859	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1416	443	887	0	-	0
Stage 1	873	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.82	6.96	4.1	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.33	2.2	-	-	-
Pot Cap-1 Maneuver	129	560	772	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	126	560	772	-	-	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	20.7		0.1		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	772	-	255	560	-	-
HCM Lane V/C Ratio	0.021	-	0.284	0.057	-	-
HCM Control Delay (s)	9.8	-	24.6	11.8	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.2	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

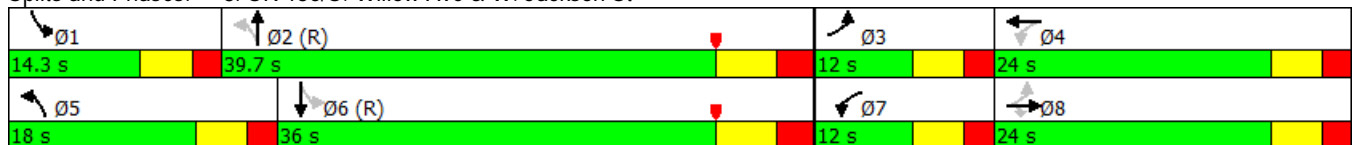
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	300	230	90	145	85	170	625	105	120	480	20
Future Volume (vph)	65	300	230	90	145	85	170	625	105	120	480	20
Satd. Flow (prot)	1752	3574	1524	1787	3304	0	1736	3451	0	1787	3509	0
Flt Permitted	0.487			0.347			0.343			0.240		
Satd. Flow (perm)	898	3574	1524	653	3304	0	627	3451	0	451	3509	0
Satd. Flow (RTOR)			264		116			30			5	
Lane Group Flow (vph)	84	390	264	115	300	0	213	850	0	136	553	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	12.0	24.0	24.0	12.0	24.0		18.0	39.7		14.3	36.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.5		4.0	4.0	
Act Effct Green (s)	24.4	17.1	17.1	25.5	17.6		52.3	39.8		47.4	37.9	
Actuated g/C Ratio	0.27	0.19	0.19	0.28	0.20		0.58	0.44		0.53	0.42	
v/c Ratio	0.26	0.57	0.52	0.38	0.41		0.42	0.55		0.36	0.37	
Control Delay	22.2	36.3	8.1	24.5	20.2		12.4	21.2		24.6	30.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.2	36.3	8.1	24.5	20.2		12.4	21.2		24.6	30.8	
LOS	C	D	A	C	C		B	C		C	C	
Approach Delay		24.6			21.4			19.4			29.6	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	31	106	0	44	46		59	196		38	61	
Queue Length 95th (ft)	54	122	54	71	66		83	247		137	234	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	328	794	544	304	824		546	1562		394	1492	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.49	0.49	0.38	0.36		0.39	0.54		0.35	0.37	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 23.4
 Intersection Capacity Utilization 54.3%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



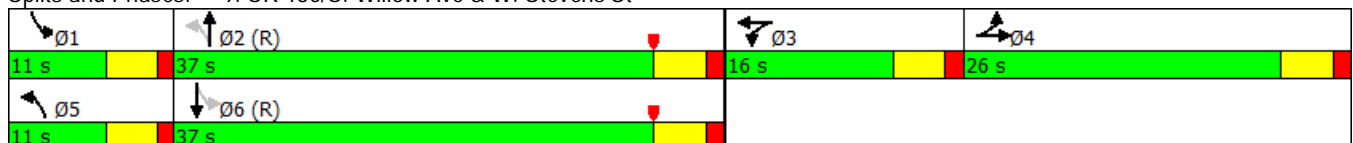
Lanes, Volumes, Timings
9: SR 135/S. Willow Ave & W. Stevens St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	95	15	25	45	30	15	750	35	50	600	10
Future Volume (vph)	35	95	15	25	45	30	15	750	35	50	600	10
Satd. Flow (prot)	0	1827	0	1805	1748	0	1805	3477	0	1805	3496	0
Flt Permitted		0.987		0.950			0.323			0.194		
Satd. Flow (perm)	0	1827	0	1805	1748	0	614	3477	0	369	3496	0
Satd. Flow (RTOR)		5			28			7			3	
Lane Group Flow (vph)	0	231	0	36	104	0	28	941	0	68	757	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	26.0	26.0		16.0	16.0		11.0	37.0		11.0	37.0	
Total Lost Time (s)		5.6		5.6	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)		15.3		8.2	8.2		47.9	42.7		50.7	47.4	
Actuated g/C Ratio		0.17		0.09	0.09		0.53	0.47		0.56	0.53	
v/c Ratio		0.73		0.22	0.57		0.07	0.57		0.22	0.41	
Control Delay		48.1		40.1	40.6		11.1	15.9		8.5	15.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		48.1		40.1	40.6		11.1	15.9		8.5	15.0	
LOS		D		D	D		B	B		A	B	
Approach Delay		48.1			40.5			15.7			14.4	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)		123		19	42		5	107		5	133	
Queue Length 95th (ft)		122		36	65		12	174		m35	249	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		417		208	226		407	1652		309	1842	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.55		0.17	0.46		0.07	0.57		0.22	0.41	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 20.3
 Intersection Capacity Utilization 54.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St



Lanes, Volumes, Timings
10: SR 135/S. Willow Ave & US 70/W. Spring St

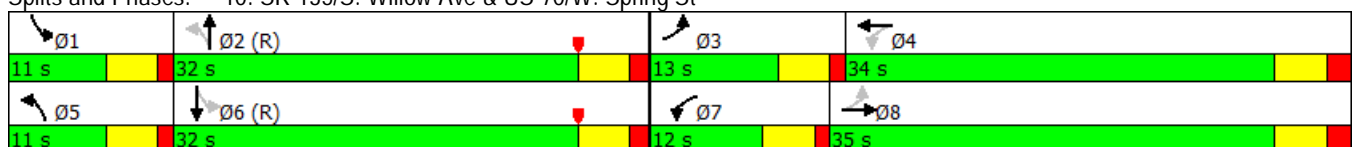
2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	340	80	100	205	60	75	635	85	75	555	20
Future Volume (vph)	110	340	80	100	205	60	75	635	85	75	555	20
Satd. Flow (prot)	1787	1745	0	1752	1790	0	1787	3464	0	1652	3346	0
Flt Permitted	0.421			0.183			0.286			0.153		
Satd. Flow (perm)	792	1745	0	338	1790	0	538	3464	0	266	3346	0
Satd. Flow (RTOR)		17			19			15			6	
Lane Group Flow (vph)	139	474	0	135	295	0	76	890	0	80	656	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	13.0	35.0		12.0	34.0		11.0	32.0		11.0	32.0	
Total Lost Time (s)	5.0	5.7		5.0	5.7		5.0	5.4		5.0	5.4	
Act Effct Green (s)	35.0	26.7		34.0	26.2		36.4	31.1		36.5	31.1	
Actuated g/C Ratio	0.39	0.30		0.38	0.29		0.40	0.35		0.41	0.35	
v/c Ratio	0.35	0.90		0.56	0.55		0.25	0.74		0.40	0.57	
Control Delay	17.4	50.1		24.5	29.0		6.3	16.5		13.1	20.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.4	50.1		24.5	29.0		6.3	16.5		13.1	20.8	
LOS	B	D		C	C		A	B		B	C	
Approach Delay		42.7			27.6			15.7			19.9	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	44	239		43	128		5	225		24	197	
Queue Length 95th (ft)	68	#402		62	206		m9	117		m14	241	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	399	579		242	575		302	1206		202	1161	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.82		0.56	0.51		0.25	0.74		0.40	0.57	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 30 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 24.7
 Intersection Capacity Utilization 71.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	155	45	30	80	20	45	725	35	50	605	50
Future Volume (vph)	145	155	45	30	80	20	45	725	35	50	605	50
Satd. Flow (prot)	1770	1827	0	1752	1827	0	1546	3283	0	1652	3284	0
Flt Permitted	0.416			0.469			0.290			0.202		
Satd. Flow (perm)	775	1827	0	865	1827	0	472	3283	0	351	3284	0
Satd. Flow (RTOR)		12			13			7			13	
Lane Group Flow (vph)	191	310	0	44	136	0	60	928	0	76	744	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	27.0		11.0	21.0		11.0	41.0		11.0	41.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	28.7	22.9		18.7	13.6		47.2	41.7		47.4	41.8	
Actuated g/C Ratio	0.32	0.25		0.21	0.15		0.52	0.46		0.53	0.46	
v/c Ratio	0.52	0.66		0.18	0.47		0.19	0.61		0.28	0.49	
Control Delay	27.5	36.4		21.8	36.1		7.0	20.6		8.6	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.5	36.4		21.8	36.1		7.0	20.6		8.6	11.1	
LOS	C	D		C	D		A	C		A	B	
Approach Delay		33.0			32.6			19.8			10.9	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	78	157		16	63		8	276		11	74	
Queue Length 95th (ft)	105	146		29	91		m24	308		m17	140	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	381	488		243	355		320	1529		274	1538	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.64		0.18	0.38		0.19	0.61		0.28	0.48	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 20.5

Intersection LOS: C

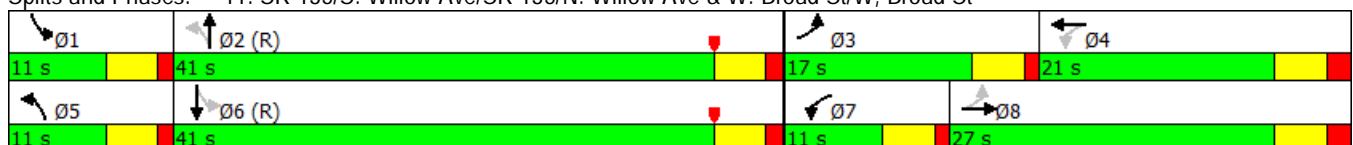
Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

















m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

2017 Optimized AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	5	5	5	5	795	50	20	715	5
Future Volume (vph)	5	5	5	5	5	5	5	795	50	20	715	5
Satd. Flow (prot)	0	1740	0	0	1785	0	0	3235	0	0	3296	0
Flt Permitted		0.989			0.984						0.998	
Satd. Flow (perm)	0	1740	0	0	1785	0	0	3235	0	0	3296	0
Lane Group Flow (vph)	0	22	0	0	15	0	0	1050	0	0	871	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	5	5	5	5	5	5	795	50	20	715	5
Future Vol, veh/h	5	5	5	5	5	5	5	795	50	20	715	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	42	100	100	100	63	84	52	63	86	63
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	2	0
Mvmt Flow	5	5	12	5	5	5	8	946	96	32	831	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1391	1957	420	1492	1913	521	839	0	0	1043	0	0
Stage 1	899	899	-	1010	1010	-	-	-	-	-	-	-
Stage 2	492	1058	-	482	903	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	103	64	588	87	69	505	804	-	-	675	-	-
Stage 1	304	360	-	261	320	-	-	-	-	-	-	-
Stage 2	532	304	-	540	359	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	88	57	588	73	61	505	804	-	-	675	-	-
Mov Cap-2 Maneuver	88	57	-	73	61	-	-	-	-	-	-	-
Stage 1	297	328	-	255	312	-	-	-	-	-	-	-
Stage 2	506	297	-	475	327	-	-	-	-	-	-	-

















Approach	EB	WB	NB	SB
HCM Control Delay, s	37.3	50.4	0.2	0.8
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	804	-	-	133	94	675	-	-
HCM Lane V/C Ratio	0.01	-	-	0.165	0.16	0.047	-	-
HCM Control Delay (s)	9.5	0.1	-	37.3	50.4	10.6	0.4	-
HCM Lane LOS	A	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.5	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

2017 Optimized AM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	10	15	15	5	10	10	695	95	35	710	10
Future Volume (vph)	5	10	15	15	5	10	10	695	95	35	710	10
Satd. Flow (prot)	0	1741	0	0	1762	0	0	3252	0	0	3322	0
Flt Permitted		0.993			0.973			0.999			0.997	
Satd. Flow (perm)	0	1741	0	0	1762	0	0	3252	0	0	3322	0
Lane Group Flow (vph)	0	35	0	0	57	0	0	976	0	0	913	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 56.6%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	10	15	15	5	10	10	695	95	35	710	10
Future Vol, veh/h	5	10	15	15	5	10	10	695	95	35	710	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	75	47	100	50	50	82	88	63	84	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	5	10	20	32	5	20	20	848	108	56	845	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1428	1958	429	1481	1910	478	857	0	0	956	0	0
Stage 1	962	962	-	942	942	-	-	-	-	-	-	-
Stage 2	466	996	-	539	968	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	97	64	580	89	69	539	792	-	-	727	-	-
Stage 1	279	337	-	287	344	-	-	-	-	-	-	-
Stage 2	551	325	-	499	335	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	74	52	580	63	56	539	792	-	-	727	-	-
Mov Cap-2 Maneuver	74	52	-	63	56	-	-	-	-	-	-	-
Stage 1	264	287	-	271	325	-	-	-	-	-	-	-
Stage 2	494	307	-	397	286	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.4	97.3	0.5	1.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	792	-	-	119	90	727	-	-
HCM Lane V/C Ratio	0.025	-	-	0.294	0.632	0.076	-	-
HCM Control Delay (s)	9.7	0.3	-	47.4	97.3	10.4	0.7	-
HCM Lane LOS	A	A	-	E	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	3	0.2	-	-

Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

2017 Optimized AM Timing Plan
07/12/2017

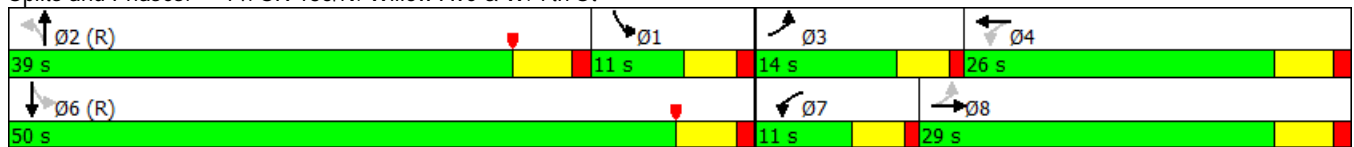
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	155	35	75	30	40	5	445	190	85	645	15
Future Volume (vph)	45	155	35	75	30	40	5	445	190	85	645	15
Satd. Flow (prot)	1770	1824	0	1703	1757	0	0	3111	0	0	3302	0
Flt Permitted	0.647			0.272				0.945			0.714	
Satd. Flow (perm)	1205	1824	0	488	1757	0	0	2943	0	0	2372	0
Satd. Flow (RTOR)		10			42			124			4	
Lane Group Flow (vph)	71	302	0	109	108	0	0	766	0	0	960	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	14.0	29.0		11.0	26.0		39.0	39.0		11.0	50.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			4.0			4.0	
Act Effct Green (s)	25.6	20.3		24.4	19.7			52.0			52.0	
Actuated g/C Ratio	0.28	0.23		0.27	0.22			0.58			0.58	
v/c Ratio	0.18	0.72		0.49	0.26			0.44			0.70	
Control Delay	20.0	40.8		28.2	19.4			4.7			12.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	20.0	40.8		28.2	19.4			4.7			12.5	
LOS	B	D		C	B			A			B	
Approach Delay		36.8			23.9			4.7			12.5	
Approach LOS		D			C			A			B	
Queue Length 50th (ft)	26	153		41	30			37			158	
Queue Length 95th (ft)	36	139		56	30			52			177	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	411	513		224	461			1753			1373	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.59		0.49	0.23			0.44			0.70	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 33 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 14.9
 Intersection Capacity Utilization 67.9%
 Analysis Period (min) 15

















Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

2017 Optimized AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	20	65	0	0	0	25	500	5	15	715	55
Future Volume (vph)	45	20	65	0	0	0	25	500	5	15	715	55
Satd. Flow (prot)	0	1716	0	0	1900	0	0	3251	0	0	3292	0
Flt Permitted		0.981						0.997			0.999	
Satd. Flow (perm)	0	1716	0	0	1900	0	0	3251	0	0	3292	0
Lane Group Flow (vph)	0	168	0	0	0	0	0	632	0	0	1066	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 19.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	45	20	65	0	0	0	25	500	5	15	715	55
Future Vol, veh/h	45	20	65	0	0	0	25	500	5	15	715	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	71	86	25	25	25	78	84	100	75	74	69
Heavy Vehicles, %	4	0	1	0	0	0	8	3	0	0	1	3
Mvmt Flow	64	28	76	0	0	0	32	595	5	20	966	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1408	1710	523	1199	1748	300	1046	0	0	600	0	0
Stage 1	1046	1046	-	662	662	-	-	-	-	-	-	-
Stage 2	362	664	-	537	1086	-	-	-	-	-	-	-
Critical Hdwy	7.58	6.5	6.92	7.5	6.5	6.9	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4	3.31	3.5	4	3.3	2.28	-	-	2.2	-	-
Pot Cap-1 Maneuver	97	92	501	143	87	702	626	-	-	987	-	-
Stage 1	241	308	-	422	462	-	-	-	-	-	-	-
Stage 2	624	461	-	501	295	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	88	81	501	81	76	702	626	-	-	987	-	-
Mov Cap-2 Maneuver	88	81	-	81	76	-	-	-	-	-	-	-
Stage 1	222	293	-	390	426	-	-	-	-	-	-	-
Stage 2	576	426	-	366	281	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	213	0	0.9	0.3
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	626	-	-	137	-	987	-
HCM Lane V/C Ratio	0.051	-	-	1.227	-	0.02	-
HCM Control Delay (s)	11.1	0.4	-	213	0	8.7	0.2
HCM Lane LOS	B	A	-	F	A	A	A
HCM 95th %tile Q(veh)	0.2	-	-	10.1	-	0.1	-

Lanes, Volumes, Timings
16: SR 135/N. Willow Ave & University Dr

2017 Optimized AM Timing Plan
07/12/2017

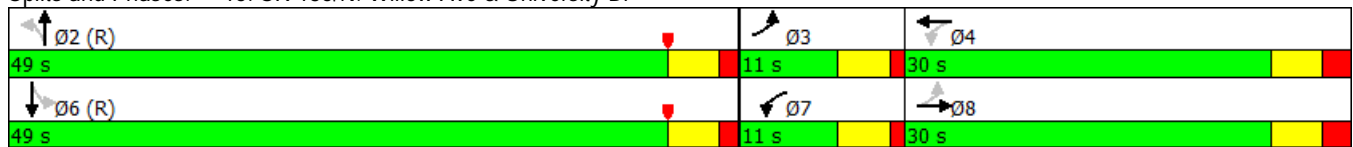
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	35	10	25	40	10	15	390	145	65	740	20
Future Volume (vph)	15	35	10	25	40	10	15	390	145	65	740	20
Satd. Flow (prot)	1805	1586	0	1736	1645	0	0	3105	0	0	3313	0
Flt Permitted	0.713			0.590				0.919			0.822	
Satd. Flow (perm)	1355	1586	0	1078	1645	0	0	2856	0	0	2734	0
Satd. Flow (RTOR)		20			16			174			5	
Lane Group Flow (vph)	28	76	0	36	68	0	0	664	0	0	1081	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	30.0		11.0	30.0		49.0	49.0		49.0	49.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			5.8			5.8	
Act Effct Green (s)	12.9	10.4		14.3	12.8			66.3			66.3	
Actuated g/C Ratio	0.14	0.12		0.16	0.14			0.74			0.74	
v/c Ratio	0.13	0.38		0.17	0.27			0.31			0.54	
Control Delay	27.7	33.2		28.6	29.8			3.1			8.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	27.7	33.2		28.6	29.8			3.1			8.4	
LOS	C	C		C	C			A			A	
Approach Delay		31.7			29.4			3.1			8.4	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	13	30		16	23			5			124	
Queue Length 95th (ft)	19	44		29	53			94			156	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	226	472		218	486			2149			2015	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.16		0.17	0.14			0.31			0.54	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 19 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
17: SR 135/N. Willow Ave & W. 12th St

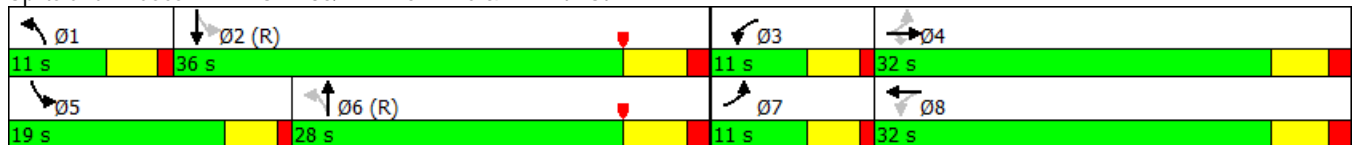
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	385	255	190	130	30	60	170	190	145	385	45
Future Volume (vph)	85	385	255	190	130	30	60	170	190	145	385	45
Satd. Flow (prot)	1770	1881	1599	1770	3317	0	1574	2965	0	1652	3292	0
Flt Permitted	0.627			0.135			0.409			0.258		
Satd. Flow (perm)	1168	1881	1599	251	3317	0	678	2965	0	449	3292	0
Satd. Flow (RTOR)			320		48			211			26	
Lane Group Flow (vph)	139	470	336	216	199	0	64	416	0	223	569	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	28.0		19.0	36.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	33.9	26.6	26.6	42.9	32.0		24.3	19.3		35.7	27.8	
Actuated g/C Ratio	0.38	0.30	0.30	0.48	0.36		0.27	0.21		0.40	0.31	
v/c Ratio	0.28	0.85	0.48	0.61	0.16		0.26	0.52		0.65	0.55	
Control Delay	15.0	45.1	6.0	26.5	15.8		21.3	15.2		28.5	27.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.0	45.1	6.0	26.5	15.8		21.3	15.2		28.5	27.8	
LOS	B	D	A	C	B		C	B		C	C	
Approach Delay		26.8			21.4			16.0			28.0	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	39	242	6	63	28		18	0		91	145	
Queue Length 95th (ft)	52	319	33	#190	55		46	59		91	157	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	495	587	718	352	1211		243	953		365	1236	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.80	0.47	0.61	0.16		0.26	0.44		0.61	0.46	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 87 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 24.3
 Intersection Capacity Utilization 63.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

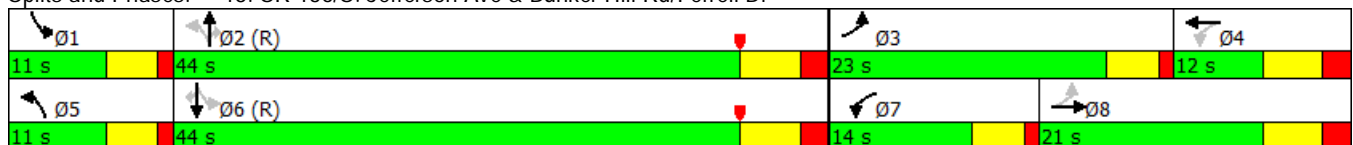
2017 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	5	10	5	0	30	15	990	5	20	620	100
Future Volume (vph)	140	5	10	5	0	30	15	990	5	20	620	100
Satd. Flow (prot)	1570	1418	0	1289	1205	0	1583	3471	808	1492	3406	1553
Flt Permitted	0.430			0.930			0.324			0.161		
Satd. Flow (perm)	710	1418	0	1262	1205	0	540	3471	808	253	3406	1553
Satd. Flow (RTOR)		12			253				200			200
Lane Group Flow (vph)	173	17	0	20	36	0	20	1151	5	24	721	120
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	23.0	21.0		14.0	12.0		11.0	44.0	44.0	11.0	44.0	44.0
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	4.0	4.0	5.0	4.0	4.0
Act Effct Green (s)	20.5	19.0		10.5	8.0		57.5	56.1	56.1	57.5	56.1	56.1
Actuated g/C Ratio	0.23	0.21		0.12	0.09		0.64	0.62	0.62	0.64	0.62	0.62
v/c Ratio	0.60	0.06		0.14	0.11		0.05	0.53	0.01	0.10	0.34	0.12
Control Delay	36.8	16.3		25.4	0.6		8.7	14.2	0.0	5.0	5.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	36.8	16.3		25.4	0.7		8.7	14.3	0.0	5.0	5.3	0.3
LOS	D	B		C	A		A	B	A	A	A	A
Approach Delay		34.9			9.5			14.2			4.6	
Approach LOS		C			A			B			A	
Queue Length 50th (ft)	81	2		8	0		4	171	0	3	44	0
Queue Length 95th (ft)	112	20		6	0		12	331	0	m5	55	1
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	360	348		187	337		414	2163	579	244	2124	1043
Starvation Cap Reductn	0	0		0	0		0	0	0	0	352	0
Spillback Cap Reductn	0	0		0	18		0	250	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.05		0.11	0.11		0.05	0.60	0.01	0.10	0.41	0.12

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 83 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 12.2
 Intersection Capacity Utilization 48.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	0	160	0	0	0	0	1050	110	105	575	0
Future Volume (vph)	320	0	160	0	0	0	0	1050	110	105	575	0
Satd. Flow (prot)	1787	0	1538	0	0	0	0	3471	1495	1752	3438	0
Flt Permitted	0.950									0.098		
Satd. Flow (perm)	1787	0	1538	0	0	0	0	3471	1495	181	3438	0
Satd. Flow (RTOR)			176						128			
Lane Group Flow (vph)	421	0	176	0	0	0	0	1250	128	115	661	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	32.0		32.0					46.9	46.9	11.1	46.9	
Total Lost Time (s)	4.0		5.4					5.2	5.2	5.0	5.2	
Act Effct Green (s)	25.7		24.3					40.9	40.9	50.3	40.9	
Actuated g/C Ratio	0.29		0.27					0.45	0.45	0.56	0.45	
v/c Ratio	0.83		0.32					0.79	0.17	0.44	0.42	
Control Delay	44.6		5.7					22.1	3.4	25.2	15.6	
Queue Delay	0.0		0.0					0.3	0.0	0.0	0.0	
Total Delay	44.6		5.7					22.4	3.4	25.2	15.6	
LOS	D		A					C	A	C	B	
Approach Delay		33.1						20.6			17.0	
Approach LOS		C						C			B	
Queue Length 50th (ft)	215		0					322	6	37	110	
Queue Length 95th (ft)	257		46					182	21	#95	138	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	555		578					1608	761	262	1592	
Starvation Cap Reductn	0		0					63	0	0	0	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.76		0.30					0.81	0.17	0.44	0.42	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 77 (86%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 22.3

Intersection LOS: C

Intersection Capacity Utilization 64.4%

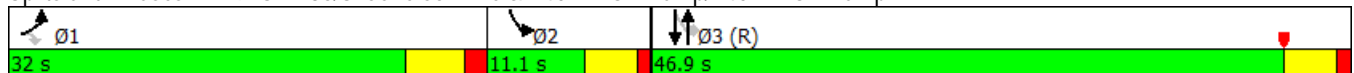
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	130	0	380	95	1275	0	0	565	135
Future Volume (vph)	0	0	0	130	0	380	95	1275	0	0	565	135
Satd. Flow (prot)	0	0	0	1641	0	2760	1626	3505	0	0	3505	1568
Flt Permitted				0.950			0.386					
Satd. Flow (perm)	0	0	0	1641	0	2760	661	3505	0	0	3505	1568
Satd. Flow (RTOR)						73						188
Lane Group Flow (vph)	0	0	0	165	0	475	116	1483	0	0	621	188
Turn Type				Prot		Prot	pm+pt	NA			NA	Perm
Protected Phases				1		1	2	3			3	
Permitted Phases							3	2				3
Total Split (s)				30.0		30.0	12.0	48.0			48.0	48.0
Total Lost Time (s)				5.8		5.8	5.0	5.0			5.0	4.5
Act Effct Green (s)				18.0		18.0	57.2	61.2			51.4	51.9
Actuated g/C Ratio				0.20		0.20	0.64	0.68			0.57	0.58
v/c Ratio				0.50		0.78	0.24	0.62			0.31	0.19
Control Delay				36.5		37.5	5.7	6.6			5.8	0.7
Queue Delay				0.0		0.6	0.0	0.3			0.1	0.3
Total Delay				36.5		38.1	5.7	6.8			5.9	0.9
LOS				D		D	A	A			A	A
Approach Delay					37.7			6.8			4.7	
Approach LOS					D			A			A	
Queue Length 50th (ft)				84		125	18	123			33	0
Queue Length 95th (ft)				115		143	m24	134			63	1
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				441		795	499	2382			2003	984
Starvation Cap Reductn				0		0	0	291			523	366
Spillback Cap Reductn				0		93	0	293			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.37		0.68	0.23	0.71			0.42	0.30

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 12.7

Intersection LOS: B

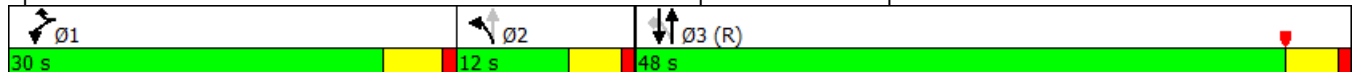
Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

2017 Optimized AM Timing Plan
 07/12/2017

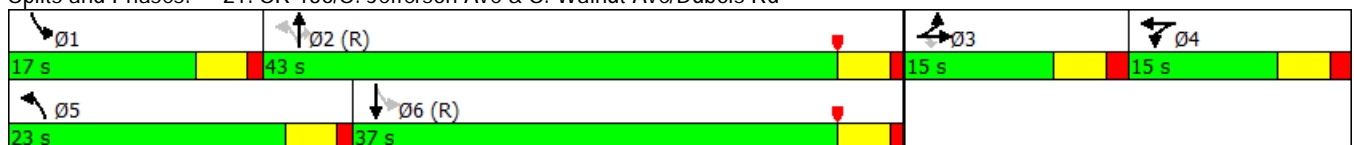
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	10	160	25	5	5	250	1360	45	10	525	65
Future Volume (vph)	45	10	160	25	5	5	250	1360	45	10	525	65
Satd. Flow (prot)	0	1732	1583	1805	1790	0	1770	3505	1553	1805	4836	0
Flt Permitted		0.962		0.950			0.331			0.099		
Satd. Flow (perm)	0	1732	1583	1805	1790	0	617	3505	1553	188	4836	0
Satd. Flow (RTOR)			200		5				139		27	
Lane Group Flow (vph)	0	76	200	32	13	0	329	1619	56	10	643	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	15.0	15.0	15.0	15.0	15.0		23.0	43.0	43.0	17.0	37.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)		11.0	11.0	11.0	11.0		61.0	57.7	57.7	53.8	42.3	
Actuated g/C Ratio		0.12	0.12	0.12	0.12		0.68	0.64	0.64	0.60	0.47	
v/c Ratio		0.36	0.54	0.15	0.06		0.55	0.72	0.05	0.03	0.28	
Control Delay		41.7	11.7	37.2	28.7		7.9	12.4	0.1	11.7	19.7	
Queue Delay		0.0	0.0	0.0	0.0		0.3	0.5	0.0	0.0	0.0	
Total Delay		41.7	11.7	37.2	28.7		8.2	12.9	0.1	11.7	19.7	
LOS		D	B	D	C		A	B	A	B	B	
Approach Delay		19.9			34.7			11.8			19.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		40	0	17	4		50	234	0	2	69	
Queue Length 95th (ft)		57	42	38	14		67	#603	m0	m8	145	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		211	369	220	223		648	2247	1045	329	2287	
Starvation Cap Reductn		0	0	0	0		59	253	0	0	0	
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.36	0.54	0.15	0.06		0.56	0.81	0.05	0.03	0.28	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 86 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 14.6
 Intersection Capacity Utilization 68.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

2017 Optimized AM Timing Plan
07/12/2017

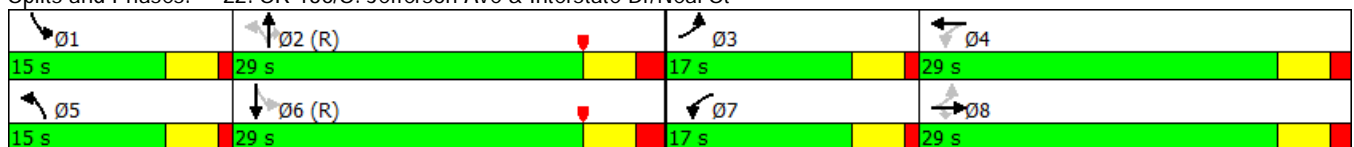
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	215	105	145	225	60	190	785	355	55	280	85
Future Volume (vph)	110	215	105	145	225	60	190	785	355	55	280	85
Satd. Flow (prot)	1770	1845	1538	1736	3420	0	1736	3438	1509	1770	3327	0
Flt Permitted	0.430			0.328			0.385			0.149		
Satd. Flow (perm)	801	1845	1538	599	3420	0	703	3438	1509	278	3327	0
Satd. Flow (RTOR)			139		34				418		49	
Lane Group Flow (vph)	155	256	108	173	339	0	224	957	418	76	419	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	17.0	29.0	29.0	17.0	29.0		15.0	29.0	29.0	15.0	29.0	
Total Lost Time (s)	5.0	4.0	5.0	5.0	4.0		5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	29.4	18.8	17.8	29.6	18.9		42.8	34.8	34.8	39.1	30.6	
Actuated g/C Ratio	0.33	0.21	0.20	0.33	0.21		0.48	0.39	0.39	0.43	0.34	
v/c Ratio	0.40	0.66	0.26	0.50	0.46		0.49	0.72	0.50	0.27	0.36	
Control Delay	21.1	40.7	4.2	23.5	29.0		14.4	19.0	3.9	13.0	12.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	21.1	40.7	4.2	23.5	29.0		14.4	19.0	3.9	13.0	12.8	
LOS	C	D	A	C	C		B	B	A	B	B	
Approach Delay		27.2			27.1			14.4			12.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	59	135	0	66	80		14	195	35	7	84	
Queue Length 95th (ft)	68	180	24	92	100		m0	#336	35	12	21	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	394	512	512	350	974		462	1331	840	287	1162	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.39	0.50	0.21	0.49	0.35		0.48	0.72	0.50	0.26	0.36	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.4
 Intersection Capacity Utilization 65.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

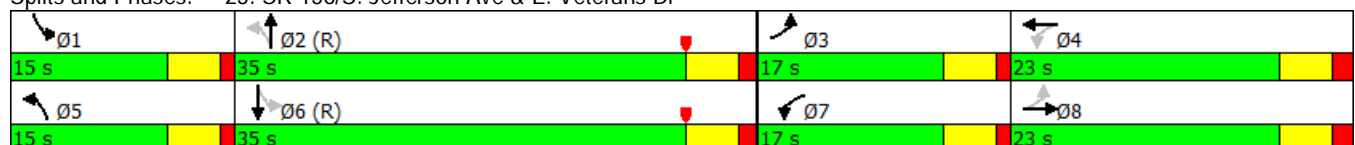
2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	140	40	45	135	105	35	800	60	55	355	25
Future Volume (vph)	30	140	40	45	135	105	35	800	60	55	355	25
Satd. Flow (prot)	1805	1830	0	1543	1751	0	1805	3497	0	1671	3538	0
Flt Permitted	0.270			0.364			0.462			0.105		
Satd. Flow (perm)	513	1830	0	591	1751	0	878	3497	0	185	3538	0
Satd. Flow (RTOR)		17			43			8			10	
Lane Group Flow (vph)	40	211	0	71	321	0	52	1121	0	76	485	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	23.0		17.0	23.0		15.0	35.0		15.0	35.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	25.4	17.2		26.4	20.5		46.6	38.4		47.6	41.3	
Actuated g/C Ratio	0.28	0.19		0.29	0.23		0.52	0.43		0.53	0.46	
v/c Ratio	0.13	0.58		0.24	0.74		0.09	0.75		0.30	0.30	
Control Delay	18.8	36.8		20.7	40.0		5.3	14.7		22.9	9.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.8	36.8		20.7	40.0		5.3	14.7		22.9	9.9	
LOS	B	D		C	D		A	B		C	A	
Approach Delay		33.9			36.5			14.3			11.6	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	14	97		25	151		6	277		11	100	
Queue Length 95th (ft)	28	163		36	202		m8	74		46	44	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	319	405		302	451		561	1496		263	1628	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.52		0.24	0.71		0.09	0.75		0.29	0.30	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 42 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 19.4
 Intersection Capacity Utilization 71.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
24: SR 136/S. Jefferson Ave & Walmart Driveway

2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	25	0	10	5	890	40	25	400	5
Future Volume (vph)	0	0	0	25	0	10	5	890	40	25	400	5
Satd. Flow (prot)	1900	1900	0	1787	1615	0	1805	3483	0	1805	3438	0
Flt Permitted				0.950			0.455			0.209		
Satd. Flow (perm)	1900	1900	0	1787	1615	0	864	3483	0	397	3438	0
Satd. Flow (RTOR)					510			4			1	
Lane Group Flow (vph)	0	0	0	36	16	0	5	1157	0	28	531	0
Turn Type	pm+pt			pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	17.0	27.0		17.0	27.0		15.0	31.0		15.0	31.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)				11.5	11.5		73.1	71.3		74.1	74.2	
Actuated g/C Ratio				0.13	0.13		0.81	0.79		0.82	0.82	
v/c Ratio				0.16	0.02		0.01	0.42		0.06	0.19	
Control Delay				36.9	0.1		0.4	1.6		1.8	2.3	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				36.9	0.1		0.4	1.6		1.8	2.3	
LOS				D	A		A	A		A	A	
Approach Delay					25.6			1.6			2.3	
Approach LOS					C			A			A	
Queue Length 50th (ft)				19	0		0	17		7	71	
Queue Length 95th (ft)				36	0		m0	50		2	12	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)				238	780		808	2760		483	2834	
Starvation Cap Reductn				0	0		0	0		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.15	0.02		0.01	0.42		0.06	0.19	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 2.5

Intersection LOS: A

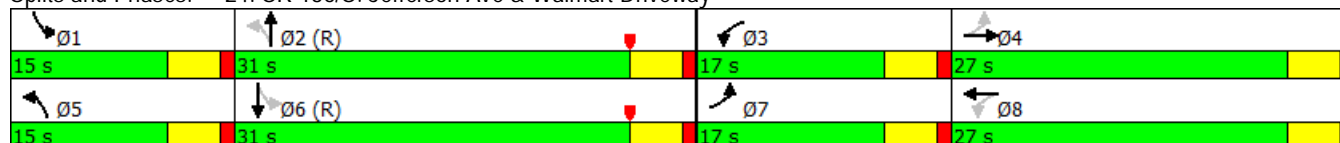
Intersection Capacity Utilization 44.2%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
25: SR 136/S. Jefferson Ave & Commerce Ave

2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	15	5	15	15	810	60	25	470	10
Future Volume (vph)	5	5	5	15	5	15	15	810	60	25	470	10
Satd. Flow (prot)	1612	1699	0	1703	1449	0	1626	3489	0	1805	3561	0
Flt Permitted				0.625			0.414			0.208		
Satd. Flow (perm)	1696	1699	0	1120	1449	0	709	3489	0	395	3561	0
Satd. Flow (RTOR)		12			24			20			5	
Lane Group Flow (vph)	8	17	0	32	29	0	16	1095	0	44	626	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	12.0		12.0	13.0		11.0	54.0		12.0	55.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	8.6	7.7		11.0	10.6		69.4	67.6		71.8	72.1	
Actuated g/C Ratio	0.10	0.09		0.12	0.12		0.77	0.75		0.80	0.80	
v/c Ratio	0.05	0.11		0.18	0.15		0.03	0.42		0.11	0.22	
Control Delay	30.0	24.6		33.2	17.9		0.5	1.7		4.2	5.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.0	24.6		33.2	17.9		0.5	1.7		4.2	5.4	
LOS	C	C		C	B		A	A		A	A	
Approach Delay		26.3			25.9			1.7			5.3	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	4	3		18	3		1	38		1	9	
Queue Length 95th (ft)	10	23		19	28		m0	49		17	118	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	162	164		192	207		609	2639		424	2868	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.10		0.17	0.14		0.03	0.41		0.10	0.22	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 4.1
 Intersection Capacity Utilization 39.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave

Ø1	Ø2 (R)	Ø3	Ø4
12 s	54 s	11 s	13 s
Ø5	Ø6 (R)	Ø7	Ø8
11 s	55 s	12 s	12 s

Lanes, Volumes, Timings
 26: SR 136/S. Jefferson Ave & E. Jackson St

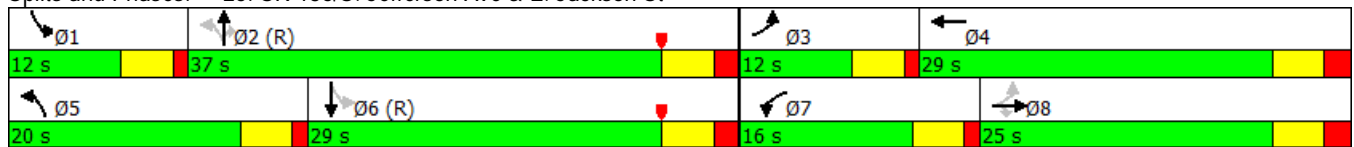
2017 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	115	175	120	75	5	155	440	190	10	250	15
Future Volume (vph)	30	115	175	120	75	5	155	440	190	10	250	15
Satd. Flow (prot)	1805	1900	1583	3502	1801	0	1770	3574	1599	1685	3295	0
Flt Permitted	0.692			0.950			0.463			0.437		
Satd. Flow (perm)	1315	1900	1583	3502	1801	0	862	3574	1599	775	3295	0
Satd. Flow (RTOR)			243		3				333		11	
Lane Group Flow (vph)	44	135	243	171	101	0	189	571	333	12	333	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	25.0	25.0	16.0	29.0		20.0	37.0	37.0	12.0	29.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0	5.3	5.0	4.0	
Act Effct Green (s)	18.6	13.3	13.3	9.0	20.2		53.7	52.5	51.2	44.6	40.0	
Actuated g/C Ratio	0.21	0.15	0.15	0.10	0.22		0.60	0.58	0.57	0.50	0.44	
v/c Ratio	0.14	0.48	0.55	0.49	0.25		0.31	0.27	0.32	0.03	0.23	
Control Delay	22.4	40.3	9.6	42.8	29.9		3.7	3.3	1.1	6.4	14.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.4	40.3	9.6	42.8	29.9		3.7	3.3	1.1	6.4	14.2	
LOS	C	D	A	D	C		A	A	A	A	B	
Approach Delay		20.7			38.0			2.7			13.9	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	18	72	0	47	49		29	45	0	1	55	
Queue Length 95th (ft)	28	112	23	59	74		11	13	0	11	116	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	319	443	555	428	502		665	2085	1053	467	1472	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	0.30	0.44	0.40	0.20		0.28	0.27	0.32	0.03	0.23	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 37 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 12.6
 Intersection Capacity Utilization 38.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
27: SR 136/S. Jefferson Ave & Foutch Dr

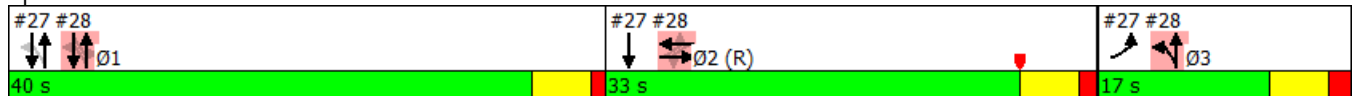
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	30	5	5	420	270	0	
Future Volume (vph)	30	5	5	420	270	0	
Satd. Flow (prot)	1632	0	1685	3303	3303	0	
Flt Permitted	0.959		0.529				
Satd. Flow (perm)	1632	0	938	3303	3303	0	
Satd. Flow (RTOR)	8						
Lane Group Flow (vph)	52	0	8	494	375	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	17.0		40.0	40.0			33.0
Total Lost Time (s)	4.0		4.0	4.0			
Act Effct Green (s)	13.0		31.0	31.0	69.0		
Actuated g/C Ratio	0.14		0.34	0.34	0.77		
v/c Ratio	0.21		0.02	0.43	0.15		
Control Delay	32.4		5.0	12.9	0.6		
Queue Delay	0.0		0.0	0.0	0.2		
Total Delay	32.4		5.0	12.9	0.8		
LOS	C		A	B	A		
Approach Delay	32.4			12.7	0.8		
Approach LOS	C			B	A		
Queue Length 50th (ft)	22		2	93	3		
Queue Length 95th (ft)	40		2	90	4		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	242		375	1321	2506		
Starvation Cap Reductn	0		0	0	1447		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.21		0.02	0.37	0.35		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 13 (14%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 23.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
28: SR 136/S. Jefferson Ave & E. Stevens St

2017 Optimized AM Timing Plan
07/12/2017

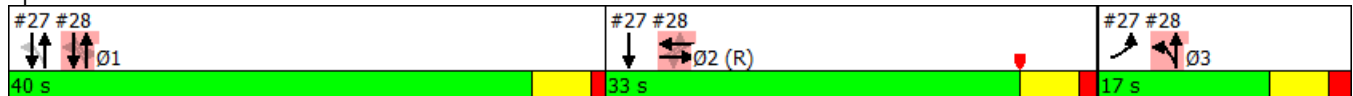
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	95	20	25	75	15	15	430	15	5	235	5
Future Volume (vph)	20	95	20	25	75	15	15	430	15	5	235	5
Satd. Flow (prot)	0	1855	0	0	1802	0	0	3297	0	0	3293	0
Flt Permitted		0.962			0.894			0.938			0.942	
Satd. Flow (perm)	0	1795	0	0	1631	0	0	3099	0	0	3105	0
Satd. Flow (RTOR)		9			12			7			3	
Lane Group Flow (vph)	0	216	0	0	144	0	0	550	0	0	347	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2			3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	33.0	33.0		33.0	33.0		17.0			40.0	40.0	
Total Lost Time (s)		4.0			4.0						4.0	
Act Effct Green (s)		34.0			34.0			44.0			31.0	
Actuated g/C Ratio		0.38			0.38			0.49			0.34	
v/c Ratio		0.32			0.23			0.36			0.32	
Control Delay		22.4			20.8			3.2			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.4			20.8			3.3			14.5	
LOS		C			C			A			B	
Approach Delay		22.4			20.8			3.3			14.5	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		89			54			11			50	
Queue Length 95th (ft)		89			101			12			56	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		682			622			1719			1243	
Starvation Cap Reductn		0			0			138			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.23			0.35			0.28	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 13 (14%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 11.7
 Intersection Capacity Utilization 39.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	305	50	80	315	10	75	205	55	15	140	20
Future Volume (vph)	15	305	50	80	315	10	75	205	55	15	140	20
Satd. Flow (prot)	1805	1755	0	1787	1636	0	1620	1665	0	1685	1562	0
Flt Permitted	0.503			0.293			0.413			0.417		
Satd. Flow (perm)	956	1755	0	551	1636	0	704	1665	0	739	1562	0
Satd. Flow (RTOR)		10			3			18			10	
Lane Group Flow (vph)	24	459	0	88	355	0	88	312	0	24	232	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	30.0		11.0	30.0		11.0	38.0		11.0	38.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	45.6	40.9		50.2	46.6		26.9	24.5		24.4	19.7	
Actuated g/C Ratio	0.51	0.45		0.56	0.52		0.30	0.27		0.27	0.22	
v/c Ratio	0.04	0.57		0.22	0.42		0.32	0.67		0.09	0.66	
Control Delay	11.3	21.8		6.2	8.0		11.5	24.9		13.4	31.8	
Queue Delay	0.0	0.2		0.0	0.3		0.0	0.7		0.1	0.1	
Total Delay	11.3	22.0		6.2	8.3		11.5	25.6		13.5	31.9	
LOS	B	C		A	A		B	C		B	C	
Approach Delay		21.4			7.9			22.5			30.2	
Approach LOS		C			A			C			C	
Queue Length 50th (ft)	3	200		10	43		12	35		7	96	
Queue Length 95th (ft)	12	#312		m21	69		18	237		15	100	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	544	802		410	848		274	621		264	579	
Starvation Cap Reductn	0	0		0	126		0	0		0	33	
Spillback Cap Reductn	0	37		0	0		0	103		36	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.60		0.21	0.49		0.32	0.60		0.11	0.42	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 81 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 59.9%

ICU Level of Service B

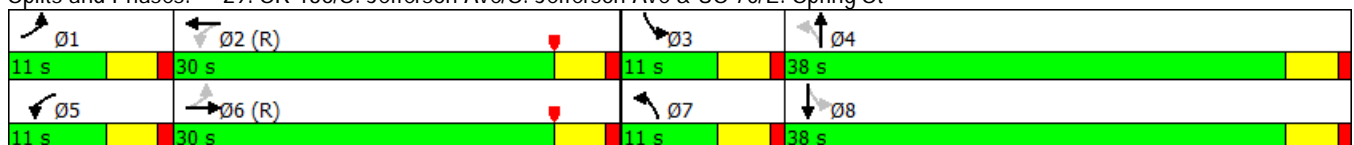
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

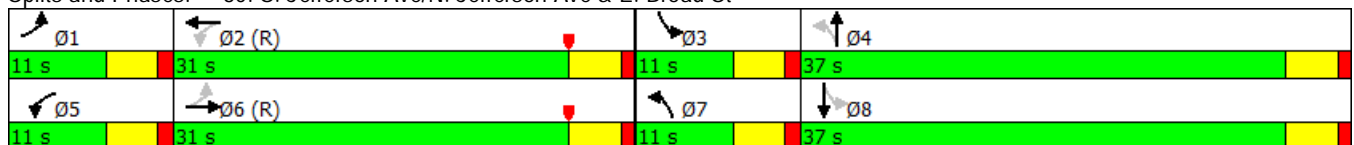
2017 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	140	30	80	345	20	50	145	40	10	70	10
Future Volume (vph)	10	140	30	80	345	20	50	145	40	10	70	10
Satd. Flow (prot)	1805	1823	0	1787	1875	0	1652	1666	0	1685	1733	0
Flt Permitted	0.498			0.498			0.505			0.620		
Satd. Flow (perm)	946	1823	0	937	1875	0	878	1666	0	1099	1733	0
Satd. Flow (RTOR)		8			5			19			11	
Lane Group Flow (vph)	12	254	0	116	407	0	56	221	0	10	128	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	31.0		11.0	31.0		11.0	37.0		11.0	37.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	50.2	45.7		56.2	54.1		22.7	21.5		18.5	14.0	
Actuated g/C Ratio	0.56	0.51		0.62	0.60		0.25	0.24		0.21	0.16	
v/c Ratio	0.02	0.27		0.18	0.36		0.20	0.54		0.04	0.46	
Control Delay	7.3	11.8		7.1	8.3		26.2	30.4		20.9	36.0	
Queue Delay	0.0	0.0		0.0	1.2		0.0	0.1		0.0	0.0	
Total Delay	7.3	11.8		7.1	9.6		26.2	30.5		20.9	36.0	
LOS	A	B		A	A		C	C		C	D	
Approach Delay		11.6			9.0			29.7			34.9	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	2	53		24	88		17	59		4	63	
Queue Length 95th (ft)	m7	57		25	104		m22	58		14	70	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	588	930		657	1128		281	604		268	623	
Starvation Cap Reductn	0	0		0	494		0	45		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	4	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.27		0.18	0.64		0.20	0.40		0.04	0.21	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 84 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 17.3
 Intersection Capacity Utilization 46.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	290	25	100	330	20	25	270	65	65	260	55
Future Volume (vph)	60	290	25	100	330	20	25	270	65	65	260	55
Satd. Flow (prot)	1736	1774	0	1770	1845	1553	1694	1801	1473	1631	1763	0
Flt Permitted	0.446			0.298			0.317			0.238		
Satd. Flow (perm)	815	1774	0	555	1845	1553	565	1801	1473	409	1763	0
Satd. Flow (RTOR)		5				127			127		10	
Lane Group Flow (vph)	76	395	0	159	344	24	44	409	65	84	394	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	11.0	30.0		11.0	30.0	30.0	11.0	38.0	38.0	11.0	38.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	38.7	32.1		42.4	35.6	35.6	30.3	25.5	25.5	32.2	28.2	
Actuated g/C Ratio	0.43	0.36		0.47	0.40	0.40	0.34	0.28	0.28	0.36	0.31	
v/c Ratio	0.18	0.62		0.43	0.47	0.03	0.17	0.80	0.13	0.36	0.70	
Control Delay	16.4	25.1		12.7	21.5	1.1	15.5	41.5	0.7	13.4	19.6	
Queue Delay	0.0	0.8		0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	
Total Delay	16.4	25.9		12.7	21.5	1.1	15.5	41.9	0.7	13.4	20.0	
LOS	B	C		B	C	A	B	D	A	B	B	
Approach Delay		24.3			17.9			34.4			18.8	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	14	75		41	180	0	14	213	0	15	67	
Queue Length 95th (ft)	48	173		46	294	m0	19	188	3	m21	77	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	420	636		369	729	691	266	660	620	234	656	
Starvation Cap Reductn	0	69		0	0	0	0	0	0	0	51	
Spillback Cap Reductn	0	0		0	0	2	0	36	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.70		0.43	0.47	0.03	0.17	0.66	0.10	0.36	0.65	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 75 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.9

Intersection LOS: C

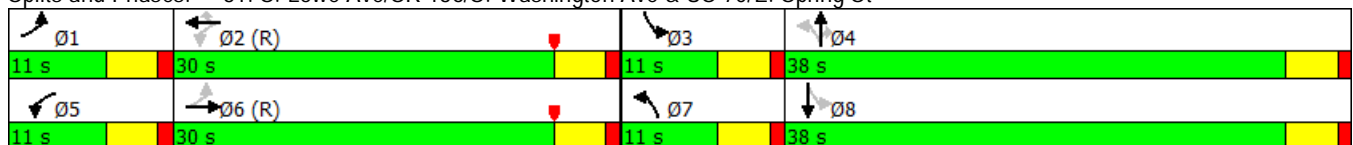
Intersection Capacity Utilization 61.1%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	115	25	25	325	170	20	320	15	40	335	115
Future Volume (vph)	40	115	25	25	325	170	20	320	15	40	335	115
Satd. Flow (prot)	1770	1827	0	1736	1789	0	1745	1793	0	1745	1783	1561
Flt Permitted	0.201			0.579			0.288			0.159		
Satd. Flow (perm)	374	1827	0	1058	1789	0	529	1793	0	292	1783	1561
Satd. Flow (RTOR)		10			31			2				160
Lane Group Flow (vph)	71	215	0	56	546	0	32	494	0	52	390	160
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	11.0	33.0		11.0	33.0		13.0	35.0		11.0	33.0	33.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	41.9	37.1		41.8	37.0		31.5	27.6		30.9	27.3	27.3
Actuated g/C Ratio	0.47	0.41		0.46	0.41		0.35	0.31		0.34	0.30	0.30
v/c Ratio	0.27	0.28		0.10	0.72		0.12	0.90		0.27	0.72	0.27
Control Delay	16.1	17.2		11.4	30.9		9.2	31.2		18.5	36.2	5.1
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.8		0.0	0.0	0.0
Total Delay	16.1	17.4		11.4	30.9		9.2	32.0		18.5	36.2	5.1
LOS	B	B		B	C		A	C		B	D	A
Approach Delay		17.1			29.1			30.6			26.4	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	11	45		25	323		4	65		16	187	0
Queue Length 95th (ft)	28	76		15	m#416		m9	95		31	275	20
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	267	759		536	754		298	599		196	572	609
Starvation Cap Reductn	0	163		0	0		0	16		0	0	0
Spillback Cap Reductn	0	0		0	1		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.27	0.36		0.10	0.73		0.11	0.85		0.27	0.68	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 76 (84%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 68.5%

ICU Level of Service C

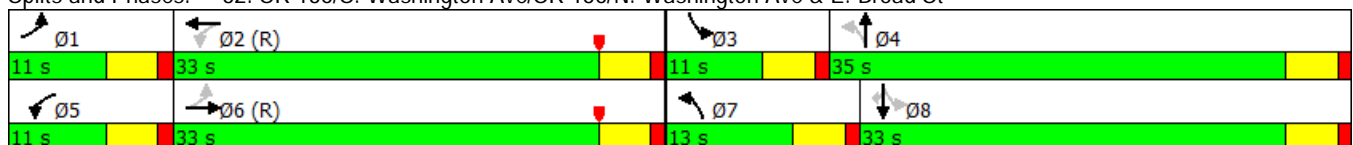
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

2017 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	10	30	5	55	15	75	500	5	5	510	60
Future Volume (vph)	105	10	30	5	55	15	75	500	5	5	510	60
Satd. Flow (prot)	0	1760	0	0	1853	0	1745	1780	0	1745	3373	0
Flt Permitted		0.965			0.997		0.250			0.178		
Satd. Flow (perm)	0	1760	0	0	1853	0	459	1780	0	327	3373	0
Satd. Flow (RTOR)		12			9			1			18	
Lane Group Flow (vph)	0	179	0	0	149	0	109	702	0	5	686	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	17.0	17.0		15.0	15.0		11.4	47.4		10.6	46.6	
Total Lost Time (s)		5.6			5.6		5.0	5.2		5.0	5.2	
Act Effct Green (s)		10.4			8.8		34.3	33.0		29.0	23.1	
Actuated g/C Ratio		0.15			0.12		0.48	0.47		0.41	0.33	
v/c Ratio		0.67			0.63		0.32	0.84		0.02	0.62	
Control Delay		43.7			44.6		12.0	28.5		8.6	21.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		43.7			44.6		12.0	28.5		8.6	21.4	
LOS		D			D		B	C		A	C	
Approach Delay		43.7			44.6			26.3			21.3	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		69			59		25	251		1	130	
Queue Length 95th (ft)		#170			67		35	337		5	157	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		303			262		342	1098		250	2047	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.59			0.57		0.32	0.64		0.02	0.34	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 70.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.6

Intersection LOS: C

Intersection Capacity Utilization 59.6%

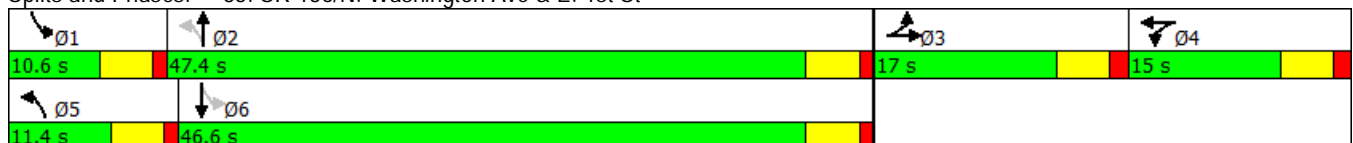
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

34: SR 136/N. Washington Ave & E. 10th St/E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	80	10	295	215	195	40	455	130	295	575	90
Future Volume (vph)	50	80	10	295	215	195	40	455	130	295	575	90
Satd. Flow (prot)	1770	3462	0	3467	1863	1599	1770	3539	1568	1736	3475	0
Flt Permitted	0.950			0.950			0.292			0.167		
Satd. Flow (perm)	1770	3462	0	3467	1863	1599	544	3539	1568	305	3475	0
Satd. Flow (RTOR)		20					247		200		22	
Lane Group Flow (vph)	56	120	0	347	269	247	68	679	140	393	848	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	13.0	13.0		31.0	31.0	31.0	11.0	28.0	28.0	18.0	35.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	8.6	8.6		19.9	19.9	19.9	26.8	21.7	21.7	39.4	32.3	
Actuated g/C Ratio	0.11	0.11		0.25	0.25	0.25	0.34	0.28	0.28	0.50	0.41	
v/c Ratio	0.29	0.30		0.39	0.57	0.42	0.24	0.69	0.24	0.98	0.59	
Control Delay	40.4	32.8		26.1	31.4	5.8	16.0	30.9	2.3	64.1	22.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.4	32.8		26.1	31.4	5.8	16.0	30.9	2.3	64.1	22.7	
LOS	D	C		C	C	A	B	C	A	E	C	
Approach Delay		35.2			22.0			25.2			35.8	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	28	25		78	124	0	18	165	0	-172	187	
Queue Length 95th (ft)	67	47		108	172	32	29	170	16	#274	232	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	211	431		1244	668	731	285	1128	636	401	1479	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.27	0.28		0.28	0.40	0.34	0.24	0.60	0.22	0.98	0.57	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 78.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

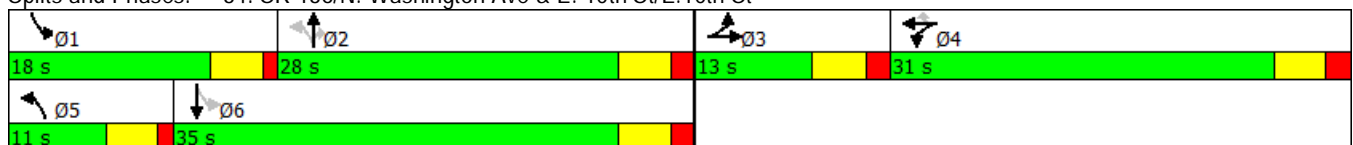
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	0	65	0	0	0	0	480	10	60	120	0
Future Volume (vph)	55	0	65	0	0	0	0	480	10	60	120	0
Satd. Flow (prot)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Lane Group Flow (vph)	0	85	72	0	0	0	0	660	0	68	136	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.6













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↕↔		↔	↕↕	
Traffic Vol, veh/h	55	0	65	0	0	0	0	480	10	60	120	0
Future Vol, veh/h	55	0	65	0	0	0	0	480	10	60	120	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	25	90	25	25	25	25	75	50	88	88	25
Heavy Vehicles, %	7	0	3	0	0	0	0	0	0	1	10	0
Mvmt Flow	85	0	72	0	0	0	0	640	20	68	136	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	593	913	68	-	0	0	640	0	0
Stage 1	273	273	-	-	-	-	-	-	-
Stage 2	320	640	-	-	-	-	-	-	-
Critical Hdwy	6.94	6.5	6.96	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.94	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.94	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4	3.33	-	-	-	2.21	-	-
Pot Cap-1 Maneuver	425	276	978	0	-	-	947	-	0
Stage 1	734	688	-	0	-	-	-	-	0
Stage 2	694	473	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	394	0	978	-	-	-	947	-	-
Mov Cap-2 Maneuver	394	0	-	-	-	-	-	-	-
Stage 1	681	0	-	-	-	-	-	-	-
Stage 2	694	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	394	978	947	-
HCM Lane V/C Ratio	-	-	0.215	0.074	0.072	-
HCM Control Delay (s)	-	-	16.6	9	9.1	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	0.2	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	10	200	365	0	0	270
Future Volume (vph)	10	200	365	0	0	270
Satd. Flow (prot)	1444	1553	3388	0	0	3261
Flt Permitted	0.950					
Satd. Flow (perm)	1444	1553	3388	0	0	3261
Lane Group Flow (vph)	12	233	474	0	0	321
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 29.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	10	200	365	0	0	270
Future Vol, veh/h	10	200	365	0	0	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	86	77	25	25	84
Heavy Vehicles, %	25	4	3	0	0	7
Mvmt Flow	12	233	474	0	0	321

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	635	237	0	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	7.3	6.98	-	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.34	-	-	-	-
Pot Cap-1 Maneuver	362	758	-	0	0	-
Stage 1	531	-	-	0	0	-
Stage 2	787	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	362	758	-	-	-	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	787	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	362 758	-
HCM Lane V/C Ratio	-	0.033 0.307	-
HCM Control Delay (s)	-	15.3 11.8	-
HCM Lane LOS	-	C B	-
HCM 95th %tile Q(veh)	-	0.1 1.3	-

Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	270	0	0	590	95	300	0	45	0	0	0
Future Volume (vph)	180	270	0	0	590	95	300	0	45	0	0	0
Satd. Flow (prot)	1703	3343	0	0	3357	0	0	1787	1455	0	0	0
Flt Permitted	0.165							0.950				
Satd. Flow (perm)	296	3343	0	0	3357	0	0	1787	1455	0	0	0
Satd. Flow (RTOR)					25				97			
Lane Group Flow (vph)	225	307	0	0	790	0	0	345	60	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	22.0	57.0			35.0		33.0	33.0	33.0			
Total Lost Time (s)	5.0	4.0			4.0			4.0	4.0			
Act Effct Green (s)	39.2	40.3			24.7			20.8	20.8			
Actuated g/C Ratio	0.56	0.58			0.36			0.30	0.30			
v/c Ratio	0.60	0.16			0.65			0.64	0.12			
Control Delay	16.4	7.5			22.2			28.7	2.3			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	16.4	7.5			22.2			28.7	2.3			
LOS	B	A			C			C	A			
Approach Delay		11.2			22.2			24.8				
Approach LOS		B			C			C				
Queue Length 50th (ft)	43	28			137			125	0			
Queue Length 95th (ft)	85	55			248			55	3			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	527	2619			1581			780	690			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	0.43	0.12			0.50			0.44	0.09			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 19.4

Intersection Capacity Utilization 56.8%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

























Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	 
Traffic Volume (vph)	0	410	155	80	800	0	0	0	0	40	0	335
Future Volume (vph)	0	410	155	80	800	0	0	0	0	40	0	335
Satd. Flow (prot)	0	3270	0	1703	3505	0	0	0	0	0	1687	1568
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3270	0	1703	3505	0	0	0	0	0	1687	1568
Lane Group Flow (vph)	0	653	0	100	899	0	0	0	0	0	52	360
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑	↑
Traffic Vol, veh/h	0	410	155	80	800	0	0	0	0	40	0	335
Future Vol, veh/h	0	410	155	80	800	0	0	0	0	40	0	335
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	75	80	89	25	25	25	25	77	25	93
Heavy Vehicles, %	0	7	1	6	3	0	0	0	0	7	0	3
Mvmt Flow	0	446	207	100	899	0	0	0	0	52	0	360

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	446	0	0	1322	1545	449
Stage 1	-	-	-	-	-	-	1099	1099	-
Stage 2	-	-	-	-	-	-	223	446	-
Critical Hdwy	-	-	-	4.22	-	-	6.94	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.94	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.94	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.57	4	3.33
Pot Cap-1 Maneuver	0	-	-	1083	-	0	142	116	555
Stage 1	0	-	-	-	-	0	270	291	-
Stage 2	0	-	-	-	-	0	778	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1083	-	-	129	0	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	0	-
Stage 1	-	-	-	-	-	-	245	0	-
Stage 2	-	-	-	-	-	-	778	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.9	26.2
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1083	-	129	555
HCM Lane V/C Ratio	-	-	0.092	-	0.403	0.649
HCM Control Delay (s)	-	-	8.7	-	50.6	22.7
HCM Lane LOS	-	-	A	-	F	C
HCM 95th %tile Q(veh)	-	-	0.3	-	1.7	4.7

Lanes, Volumes, Timings
 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	295	160	355	640	100	55	105	150	140	315	45
Future Volume (vph)	50	295	160	355	640	100	55	105	150	140	315	45
Satd. Flow (prot)	1703	3175	0	1752	1845	1615	1787	1810	1524	1752	1816	0
Flt Permitted	0.197			0.224			0.231			0.526		
Satd. Flow (perm)	353	3175	0	413	1845	1615	435	1810	1524	970	1816	0
Satd. Flow (RTOR)		166					142		195		8	
Lane Group Flow (vph)	64	537	0	394	703	141	68	108	165	184	478	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	28.0		23.0	40.0	40.0	11.0	24.0	24.0	15.0	28.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0	5.7	5.0	4.0	
Act Effct Green (s)	26.2	21.2		41.6	34.4	34.4	23.3	18.3	16.6	31.1	24.7	
Actuated g/C Ratio	0.31	0.25		0.50	0.41	0.41	0.28	0.22	0.20	0.37	0.30	
v/c Ratio	0.31	0.58		0.85	0.93	0.19	0.31	0.27	0.36	0.41	0.88	
Control Delay	17.4	21.5		34.3	45.7	3.9	22.7	31.2	5.5	22.4	51.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.4	21.5		34.3	45.7	3.9	22.7	31.2	5.5	22.4	51.0	
LOS	B	C		C	D	A	C	C	A	C	D	
Approach Delay		21.1			37.3			17.1			43.1	
Approach LOS		C			D			B			D	
Queue Length 50th (ft)	18	93		134	379	0	25	51	0	71	265	
Queue Length 95th (ft)	33	145		#282	#612	16	47	97	36	100	#345	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	210	1066		501	818	795	221	446	495	456	542	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.50		0.79	0.86	0.18	0.31	0.24	0.33	0.40	0.88	










Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 83.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 77.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	540	425	430	45	0
Future Volume (vph)	0	540	425	430	45	0
Satd. Flow (prot)	0	1810	1738	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1810	1738	0	1805	0
Lane Group Flow (vph)	0	675	1037	0	56	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↖	
Traffic Vol, veh/h	0	540	425	430	45	0
Future Vol, veh/h	0	540	425	430	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	81	84	80	25
Heavy Vehicles, %	0	5	3	1	0	0
Mvmt Flow	0	675	525	512	56	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	525	0	-	0	1200	525
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1052	-	-	0	206	556
Stage 1	-	-	-	0	598	-
Stage 2	-	-	-	0	510	-
Platoon blocked, %		-		-		-
Mov Cap-1 Maneuver	1052	-	-	-	206	556
Mov Cap-2 Maneuver	-	-	-	-	344	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	510	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1052	-	-	344
HCM Lane V/C Ratio	-	-	-	0.164
HCM Control Delay (s)	0	-	-	17.5
HCM Lane LOS	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	0.6

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

2017 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	335	20	25	370	10	15	200	30	170	155	70
Future Volume (vph)	45	335	20	25	370	10	15	200	30	170	155	70
Satd. Flow (prot)	1736	1748	0	1671	1840	0	1805	1814	0	1787	1782	0
Flt Permitted	0.260			0.362			0.524			0.277		
Satd. Flow (perm)	475	1748	0	637	1840	0	996	1814	0	521	1782	0
Satd. Flow (RTOR)		5			1			13			22	
Lane Group Flow (vph)	56	417	0	40	467	0	20	312	0	243	322	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	30.0		11.0	30.0		13.0	36.0		13.0	36.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	43.7	39.3		42.0	36.8		25.6	19.8		32.3	29.1	
Actuated g/C Ratio	0.49	0.44		0.47	0.41		0.28	0.22		0.36	0.32	
v/c Ratio	0.17	0.54		0.11	0.62		0.06	0.76		0.78	0.55	
Control Delay	7.0	18.3		13.4	28.6		16.5	43.3		38.7	15.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	1.7	
Total Delay	7.0	18.3		13.4	28.6		16.5	43.4		38.7	17.2	
LOS	A	B		B	C		B	D		D	B	
Approach Delay		16.9			27.4			41.7			26.4	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	6	232		11	210		7	160		50	58	
Queue Length 95th (ft)	m11	#350		21	#344		16	188		85	53	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	326	766		372	753		379	633		310	642	
Starvation Cap Reductn	0	0		0	0		0	0		0	177	
Spillback Cap Reductn	0	0		0	0		0	6		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.54		0.11	0.62		0.05	0.50		0.78	0.69	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 63.5%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

11 s	30 s	13 s	36 s
11 s	30 s	13 s	36 s

Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	340	30	20	360	35	35	85	5	30	45	20
Future Volume (vph)	15	340	30	20	360	35	35	85	5	30	45	20
Satd. Flow (prot)	1687	1779	0	1805	1803	0	1719	1880	0	1752	1828	0
Flt Permitted	0.441			0.459			0.695			0.563		
Satd. Flow (perm)	783	1779	0	872	1803	0	1258	1880	0	1039	1828	0
Satd. Flow (RTOR)		6			8			2			17	
Lane Group Flow (vph)	20	402	0	28	427	0	40	149	0	40	95	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	44.0		11.0	44.0		12.0	23.0		12.0	23.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	57.5	55.1		57.7	55.2		17.4	13.0		17.3	12.9	
Actuated g/C Ratio	0.64	0.61		0.64	0.61		0.19	0.14		0.19	0.14	
v/c Ratio	0.04	0.37		0.05	0.39		0.14	0.55		0.16	0.34	
Control Delay	8.0	13.1		4.8	6.8		25.2	42.9		17.3	19.7	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	8.0	13.1		4.8	6.9		25.2	42.9		17.3	19.7	
LOS	A	B		A	A		C	D		B	B	
Approach Delay		12.9			6.8			39.1			19.0	
Approach LOS		B			A			D			B	
Queue Length 50th (ft)	4	96		4	67		17	80		11	22	
Queue Length 95th (ft)	12	248		9	93		37	83		21	27	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	562	1093		622	1109		281	377		259	379	
Starvation Cap Reductn	0	0		0	170		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.37		0.05	0.45		0.14	0.40		0.15	0.25	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 39.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

Ø1	Ø2 (R)	Ø3	Ø4
11 s	44 s	12 s	23 s
Ø5	Ø6 (R)	Ø7	Ø8
11 s	44 s	12 s	23 s

Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

2017 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	395	45	25	355	20	60	210	25	10	100	25
Future Volume (vph)	35	395	45	25	355	20	60	210	25	10	100	25
Satd. Flow (prot)	1805	1767	0	1805	1831	0	1787	1840	0	1805	1828	0
Flt Permitted	0.346			0.295			0.552			0.569		
Satd. Flow (perm)	657	1767	0	560	1831	0	1038	1840	0	1081	1828	0
Satd. Flow (RTOR)		9			4			11			14	
Lane Group Flow (vph)	64	471	0	25	383	0	80	292	0	20	160	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	35.0		11.0	35.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	24.3	22.6		23.2	20.4		20.9	18.4		18.3	13.2	
Actuated g/C Ratio	0.41	0.38		0.39	0.34		0.35	0.31		0.31	0.22	
v/c Ratio	0.16	0.70		0.07	0.61		0.18	0.51		0.05	0.39	
Control Delay	12.1	25.0		11.6	23.9		15.9	24.2		15.6	24.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.1	25.0		11.6	23.9		15.9	24.2		15.6	24.9	
LOS	B	C		B	C		B	C		B	C	
Approach Delay		23.4			23.1			22.4			23.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	12	109		4	120		18	74		4	48	
Queue Length 95th (ft)	24	#349		20	261		44	199		11	96	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	403	1028		365	1063		450	1003		419	998	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.46		0.07	0.36		0.18	0.29		0.05	0.16	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 59.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	35 s	11 s	33 s
Ø5	Ø6	Ø7	Ø8
11 s	35 s	11 s	33 s

Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	420	40	30	320	20	30	40	35	10	25	25
Future Volume (vph)	10	420	40	30	320	20	30	40	35	10	25	25
Satd. Flow (prot)	1641	1801	0	1805	1847	0	1805	1662	0	1626	1663	0
Flt Permitted	0.539			0.392			0.769			0.930		
Satd. Flow (perm)	931	1801	0	745	1847	0	1461	1662	0	1592	1663	0
Satd. Flow (RTOR)		10			6			38			32	
Lane Group Flow (vph)	12	490	0	44	364	0	44	88	0	12	68	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	51.0		11.0	51.0		11.0	17.0		11.0	17.0	
Total Lost Time (s)	5.0	5.6		5.0	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)	29.5	31.3		30.3	32.9		10.3	9.0		9.5	7.5	
Actuated g/C Ratio	0.63	0.67		0.65	0.71		0.22	0.19		0.20	0.16	
v/c Ratio	0.02	0.40		0.07	0.28		0.12	0.25		0.04	0.23	
Control Delay	6.4	12.1		6.2	8.8		18.3	16.8		18.4	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.4	12.1		6.2	8.8		18.3	16.8		18.4	18.8	
LOS	A	B		A	A		B	B		B	B	
Approach Delay		12.0			8.6			17.3			18.7	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	1	52		3	35		8	9		2	7	
Queue Length 95th (ft)	8	271		15	186		29	56		15	35	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	703	1545		652	1584		388	557		345	519	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.32		0.07	0.23		0.11	0.16		0.03	0.13	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 46.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay: 11.9
 Intersection Capacity Utilization 42.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 44: Scott Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	51 s	11 s	17 s
Ø5	Ø6	Ø7	Ø8
11 s	51 s	11 s	17 s

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

2017 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	95	55	50	470	150	25	180	45	25	290	15
Future Volume (vph)	5	95	55	50	470	150	25	180	45	25	290	15
Satd. Flow (prot)	1805	1784	0	1770	1804	0	1805	1815	0	1736	1853	0
Flt Permitted	0.149			0.432			0.363			0.426		
Satd. Flow (perm)	283	1784	0	805	1804	0	690	1815	0	778	1853	0
Satd. Flow (RTOR)		33			24			15			2	
Lane Group Flow (vph)	8	233	0	56	703	0	28	292	0	36	398	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	32.0		15.0	32.0		16.0	27.0		16.0	27.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	38.0	30.4		41.0	39.1		35.0	29.3		36.0	32.2	
Actuated g/C Ratio	0.42	0.34		0.46	0.43		0.39	0.33		0.40	0.36	
v/c Ratio	0.03	0.37		0.12	0.88		0.07	0.49		0.09	0.60	
Control Delay	5.4	13.9		14.0	38.7		13.9	17.7		16.1	30.7	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.4		0.0	0.1	
Total Delay	5.4	14.1		14.0	38.7		13.9	18.1		16.1	30.9	
LOS	A	B		B	D		B	B		B	C	
Approach Delay		13.9			36.9			17.7			29.7	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)	1	103		17	323		4	43		12	161	
Queue Length 95th (ft)	m2	72		37	#712		m17	104		23	257	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	290	624		474	797		411	601		433	664	
Starvation Cap Reductn	0	0		0	0		0	70		0	0	
Spillback Cap Reductn	0	80		35	0		0	0		0	20	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.43		0.13	0.88		0.07	0.55		0.08	0.62	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 23 (26%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C

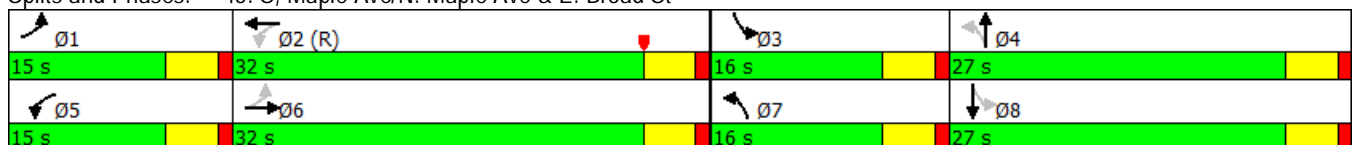
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

2017 Optimized AM Timing Plan
07/12/2017

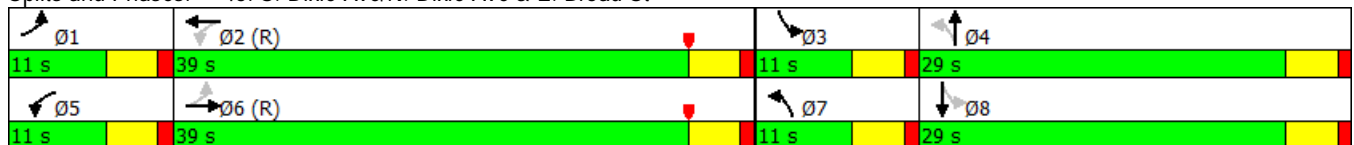
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	165	10	15	270	80	15	110	15	30	70	15
Future Volume (vph)	15	165	10	15	270	80	15	110	15	30	70	15
Satd. Flow (prot)	1805	1850	0	1805	1814	0	1805	1860	0	1805	1820	0
Flt Permitted	0.425			0.614			0.690			0.416		
Satd. Flow (perm)	808	1850	0	1167	1814	0	1311	1860	0	790	1820	0
Satd. Flow (RTOR)		4			22			5			16	
Lane Group Flow (vph)	32	232	0	20	407	0	20	196	0	44	104	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	39.0		11.0	39.0		11.0	29.0		11.0	29.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	56.2	53.6		54.8	51.3		18.3	14.6		20.5	17.4	
Actuated g/C Ratio	0.62	0.60		0.61	0.57		0.20	0.16		0.23	0.19	
v/c Ratio	0.06	0.21		0.03	0.39		0.07	0.64		0.17	0.29	
Control Delay	9.0	12.5		5.1	8.6		10.9	24.5		23.8	27.1	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	9.0	12.5		5.1	8.7		10.9	24.5		23.8	27.1	
LOS	A	B		A	A		B	C		C	C	
Approach Delay		12.1			8.6			23.3			26.1	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	7	54		3	145		4	40		18	38	
Queue Length 95th (ft)	11	114		5	58		10	45		29	82	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	573	1103		755	1043		302	499		256	503	
Starvation Cap Reductn	0	0		0	96		0	7		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.21		0.03	0.43		0.07	0.40		0.17	0.21	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 14.9
 Intersection Capacity Utilization 46.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

2017 Optimized AM Timing Plan
07/12/2017

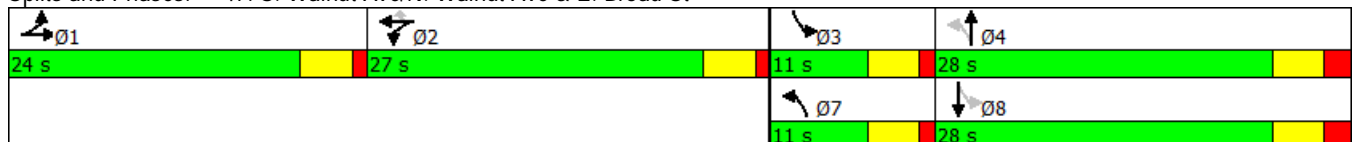
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	140	15	30	145	80	20	205	35	20	95	10
Future Volume (vph)	10	140	15	30	145	80	20	205	35	20	95	10
Satd. Flow (prot)	0	1856	0	0	1869	1599	1805	1854	0	1736	1820	0
Flt Permitted		0.998			0.992		0.668			0.415		
Satd. Flow (perm)	0	1856	0	0	1869	1599	1269	1854	0	758	1820	0
Satd. Flow (RTOR)		5				138		10			5	
Lane Group Flow (vph)	0	209	0	0	205	108	20	277	0	20	140	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases						2	4			8		
Total Split (s)	24.0	24.0		27.0	27.0	27.0	11.0	28.0		11.0	28.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	4.0		5.0	4.0	
Act Effct Green (s)		12.0			12.2	12.2	16.6	16.0		16.6	16.0	
Actuated g/C Ratio		0.20			0.21	0.21	0.28	0.27		0.28	0.27	
v/c Ratio		0.55			0.53	0.25	0.05	0.54		0.06	0.28	
Control Delay		29.9			29.6	4.7	15.9	25.0		16.1	21.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		29.9			29.6	4.7	15.9	25.0		16.1	21.7	
LOS		C			C	A	B	C		B	C	
Approach Delay		29.9			21.0			24.4			21.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		53			54	0	4	65		4	30	
Queue Length 95th (ft)		144			153	10	21	200		21	86	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		667			774	743	419	843		324	825	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.31			0.26	0.15	0.05	0.33		0.06	0.17	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 59
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 23.9
 Intersection Capacity Utilization 41.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St



Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

2017 Optimized AM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	20	5	20	25	120	5	85	10	130	45	15
Future Volume (vph)	30	20	5	20	25	120	5	85	10	130	45	15
Satd. Flow (prot)	0	1797	0	0	1685	0	0	1844	0	0	1795	0
Flt Permitted		0.973			0.994			0.998			0.968	
Satd. Flow (perm)	0	1797	0	0	1685	0	0	1844	0	0	1795	0
Lane Group Flow (vph)	0	88	0	0	216	0	0	140	0	0	241	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 33.6%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Intersection Delay, s/veh 9.8
Intersection LOS A











Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	30	20	5	0	20	25	120	0	5	85	10
Future Vol, veh/h	0	30	20	5	0	20	25	120	0	5	85	10
Peak Hour Factor	0.92	0.63	0.63	0.63	0.92	0.71	0.69	0.79	0.92	1.00	0.69	0.83
Heavy Vehicles, %	2	3	0	0	2	0	0	2	2	20	1	0
Mvmt Flow	0	48	32	8	0	28	36	152	0	5	123	12
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		9.1				9.4				9.6		
HCM LOS		A				A				A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	55%	12%	68%
Vol Thru, %	85%	36%	15%	24%
Vol Right, %	10%	9%	73%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	55	165	190
LT Vol	5	30	20	130
Through Vol	85	20	25	45
RT Vol	10	5	120	15
Lane Flow Rate	140	87	216	240
Geometry Grp	1	1	1	1
Degree of Util (X)	0.203	0.127	0.274	0.328
Departure Headway (Hd)	5.217	5.23	4.557	4.91
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	682	679	783	726
Service Time	3.296	3.311	2.622	2.981
HCM Lane V/C Ratio	0.205	0.128	0.276	0.331
HCM Control Delay	9.6	9.1	9.4	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.4	1.1	1.4

Intersection
 Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	130	45	15
Future Vol, veh/h	0	130	45	15
Peak Hour Factor	0.92	0.83	0.75	0.63
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	157	60	24
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		10.4		
HCM LOS		B		

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	125	95	130	60	30
Future Volume (vph)	60	125	95	130	60	30
Satd. Flow (prot)	1787	1615	0	1838	1813	0
Flt Permitted	0.950			0.981		
Satd. Flow (perm)	1787	1615	0	1838	1813	0
Lane Group Flow (vph)	72	169	0	311	112	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 28.8%

ICU Level of Service A

Analysis Period (min) 15











Intersection
 Intersection Delay, s/veh 9.9
 Intersection LOS A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↶		↷	
Traffic Vol, veh/h	0	60	125	0	95	130	0	60	30
Future Vol, veh/h	0	60	125	0	95	130	0	60	30
Peak Hour Factor	0.92	0.83	0.74	0.92	0.79	0.68	0.92	0.75	0.94
Heavy Vehicles, %	2	1	0	2	2	1	2	1	0
Mvmt Flow	0	72	169	0	120	191	0	80	32
Number of Lanes	0	1	1	0	0	1	0	1	0
Approach		EB			NB			SB	
Opposing Approach					SB			NB	
Opposing Lanes		0			1			1	
Conflicting Approach Left		SB			EB				
Conflicting Lanes Left		1			2			0	
Conflicting Approach Right		NB						EB	
Conflicting Lanes Right		1			0			2	
HCM Control Delay		9.1			11.1			8.5	
HCM LOS		A			B			A	

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	42%	100%	0%	0%
Vol Thru, %	58%	0%	0%	67%
Vol Right, %	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	225	60	125	90
LT Vol	95	60	0	0
Through Vol	130	0	0	60
RT Vol	0	0	125	30
Lane Flow Rate	311	72	169	112
Geometry Grp	2	7	7	2
Degree of Util (X)	0.41	0.121	0.225	0.146
Departure Headway (Hd)	4.74	6.017	4.79	4.683
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	757	594	745	762
Service Time	2.783	3.772	2.544	2.737
HCM Lane V/C Ratio	0.411	0.121	0.227	0.147
HCM Control Delay	11.1	9.6	8.9	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2	0.4	0.9	0.5

Lanes, Volumes, Timings

50: US 70/W. Spring St/US 70/W. Broad St & W. Broad St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	80	225	5	240	390
Future Volume (vph)	0	80	225	5	240	390
Satd. Flow (prot)	1900	1615	1823	0	0	1822
Flt Permitted						0.980
Satd. Flow (perm)	1900	1615	1823	0	0	1822
Lane Group Flow (vph)	0	96	258	0	0	769
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔			↔
Traffic Vol, veh/h	0	80	225	5	240	390
Future Vol, veh/h	0	80	225	5	240	390
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	83	89	100	76	86
Heavy Vehicles, %	0	0	4	0	1	3
Mvmt Flow	0	96	253	5	316	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1340	255	0	0	258	0
Stage 1	255	-	-	-	-	-
Stage 2	1085	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	170	789	-	-	1313	-
Stage 1	792	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	115	789	-	-	1313	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	222	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.2		0		3.5
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	789	1313	-
HCM Lane V/C Ratio	-	-	-	0.122	0.241	-
HCM Control Delay (s)	-	-	0	10.2	8.6	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.4	0.9	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

2017 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	435	300	25	175	30	105	80	10	120	275	5
Future Volume (vph)	5	435	300	25	175	30	105	80	10	120	275	5
Satd. Flow (prot)	1805	1845	1553	1752	1771	0	1719	1900	1615	0	1859	0
Flt Permitted	0.559			0.137			0.950				0.984	
Satd. Flow (perm)	1062	1845	1553	253	1771	0	1719	1900	1615	0	1859	0
Satd. Flow (RTOR)			211		10				218		1	
Lane Group Flow (vph)	5	530	385	36	244	0	115	119	12	0	543	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	11.0	32.0	32.0	11.0	32.0		14.0	14.0		33.0	33.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		4.0	4.0			4.0	
Act Effct Green (s)	29.4	27.4	27.4	31.6	31.5		10.0	10.0	83.0		27.4	
Actuated g/C Ratio	0.35	0.33	0.33	0.38	0.38		0.12	0.12	1.00		0.33	
v/c Ratio	0.01	0.87	0.59	0.18	0.36		0.56	0.52	0.01		0.89	
Control Delay	15.4	45.1	15.3	17.7	20.6		48.4	45.7	0.0		45.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	15.4	45.1	15.3	17.7	20.6		48.4	45.7	0.0		45.9	
LOS	B	D	B	B	C		D	D	A		D	
Approach Delay		32.5			20.2			44.7			45.9	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	2	289	78	12	84		63	65	0		293	
Queue Length 95th (ft)	8	#411	125	23	159		#130	87	0		336	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	433	631	669	205	699		210	232	1615		658	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.84	0.58	0.18	0.35		0.55	0.51	0.01		0.83	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 83
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 35.9
 Intersection Capacity Utilization 57.6%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St

Ø1	Ø2	Ø3	Ø4
11 s	32 s	14 s	33 s
Ø5	Ø6		
11 s	32 s		

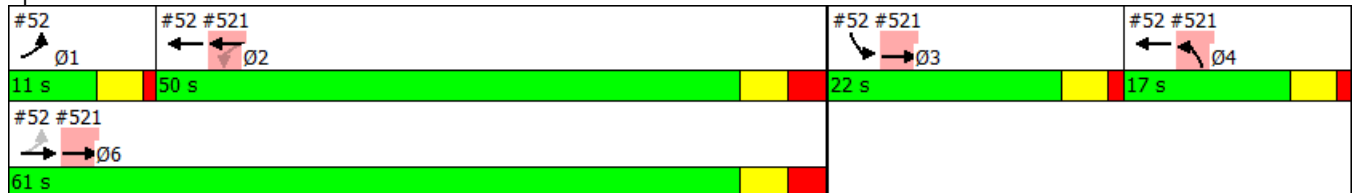
Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	25	475	725	115	120	25		
Future Volume (vph)	25	475	725	115	120	25		
Satd. Flow (prot)	1671	1845	1845	0	1645	0		
Flt Permitted	0.083				0.964			
Satd. Flow (perm)	146	1845	1845	0	1645	0		
Satd. Flow (RTOR)			16		15			
Lane Group Flow (vph)	28	495	975	0	220	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	11.0	61.0			22.0		50.0	17.0
Total Lost Time (s)	5.0	4.0			5.4			
Act Effct Green (s)	51.5	52.5	61.2		15.1			
Actuated g/C Ratio	0.55	0.56	0.65		0.16			
v/c Ratio	0.16	0.48	0.81		0.80			
Control Delay	12.0	14.6	8.6		58.3			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	12.0	14.6	8.6		58.3			
LOS	B	B	A		E			
Approach Delay		14.4	8.6		58.3			
Approach LOS		B	A		E			
Queue Length 50th (ft)	8	174	38		126			
Queue Length 95th (ft)	20	254	m40		161			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	177	1124	1204		304			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.16	0.44	0.81		0.72			

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 94.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 63.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	480	20	15	650	195	45	110	10	195	40	130
Future Volume (vph)	50	480	20	15	650	195	45	110	10	195	40	130
Satd. Flow (prot)	1770	1832	0	1805	1863	1538	0	1820	0	0	1649	1583
Flt Permitted	0.101			0.180				0.990			0.959	
Satd. Flow (perm)	188	1832	0	342	1863	1538	0	1820	0	0	1649	1583
Satd. Flow (RTOR)		2				164		2				148
Lane Group Flow (vph)	60	602	0	20	677	235	0	288	0	0	288	148
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	11.0	43.0		11.0	43.0	43.0	23.0	23.0		23.0	23.0	23.0
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0		5.0			5.0	5.0
Act Effct Green (s)	42.7	41.4		40.6	37.2	37.2		17.1			18.2	18.2
Actuated g/C Ratio	0.45	0.44		0.43	0.39	0.39		0.18			0.19	0.19
v/c Ratio	0.33	0.75		0.09	0.93	0.34		0.88			0.91	0.35
Control Delay	18.6	31.0		14.1	49.5	8.5		66.7			73.9	8.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	18.6	31.0		14.1	49.5	8.5		66.7			73.9	8.7
LOS	B	C		B	D	A		E			E	A
Approach Delay		29.9			38.4			66.7			51.8	
Approach LOS		C			D			E			D	
Queue Length 50th (ft)	19	273		6	406	28		179			184	0
Queue Length 95th (ft)	38	433		15	#637	67		139			#349	49
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	185	843		240	773	734		350			315	423
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.32	0.71		0.08	0.88	0.32		0.82			0.91	0.35

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 95.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 42.0
 Intersection Capacity Utilization 68.6%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St

11 s	43 s	23 s	23 s
11 s	43 s		

Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	530	185	190	710	125	170
Future Volume (vph)	530	185	190	710	125	170
Satd. Flow (prot)	1776	1553	1805	1845	1770	1583
Flt Permitted			0.248		0.950	
Satd. Flow (perm)	1776	1553	471	1845	1770	1583
Satd. Flow (RTOR)		264				288
Lane Group Flow (vph)	602	264	279	835	169	288
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	47.0	47.0	24.0		19.0	19.0
Total Lost Time (s)	4.0	4.0	5.0		5.4	4.7
Act Effct Green (s)	45.0	45.0	62.7	67.7	11.9	12.6
Actuated g/C Ratio	0.50	0.50	0.70	0.75	0.13	0.14
v/c Ratio	0.68	0.29	0.46	0.60	0.72	0.61
Control Delay	22.7	2.7	10.3	9.7	55.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	2.7	10.3	9.7	55.2	10.6
LOS	C	A	B	A	E	B
Approach Delay	16.6			9.8	27.1	
Approach LOS	B			A	C	
Queue Length 50th (ft)	260	0	40	83	92	0
Queue Length 95th (ft)	373	11	87	352	126	0
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	887	907	622	1384	267	493
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.29	0.45	0.60	0.63	0.58

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 40 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 15.5
 Intersection Capacity Utilization 57.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	450	235	295	715	0	0	0	0	145	0	320
Future Volume (vph)	0	450	235	295	715	0	0	0	0	145	0	320
Satd. Flow (prot)	0	3243	0	1687	3471	0	0	0	0	1752	0	1583
Flt Permitted				0.207						0.950		
Satd. Flow (perm)	0	3243	0	368	3471	0	0	0	0	1752	0	1583
Satd. Flow (RTOR)		171										136
Lane Group Flow (vph)	0	842	0	328	894	0	0	0	0	196	0	390
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		31.0		24.0	55.0					35.0		35.0
Total Lost Time (s)		3.4		3.2	4.0					6.4		5.9
Act Effct Green (s)		39.6		59.9	59.1					20.5		21.0
Actuated g/C Ratio		0.44		0.67	0.66					0.23		0.23
v/c Ratio		0.55		0.67	0.39					0.49		0.82
Control Delay		10.0		12.2	5.5					33.1		35.1
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		10.0		12.2	5.5					33.1		35.1
LOS		B		B	A					C		D
Approach Delay		10.0			7.3						34.4	
Approach LOS		B			A						C	
Queue Length 50th (ft)		43		61	124					97		140
Queue Length 95th (ft)		172		122	106					114		186
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		1523		552	2277					556		603
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.55		0.59	0.39					0.35		0.65

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.2

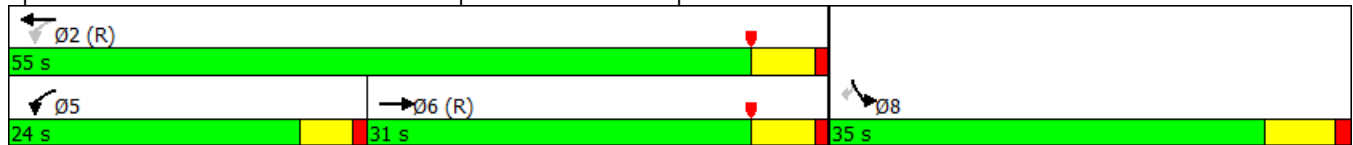
Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	490	0	0	715	110	285	0	245	0	0	0
Future Volume (vph)	105	490	0	0	715	110	285	0	245	0	0	0
Satd. Flow (prot)	1719	3539	0	0	3385	0	1703	0	1509	0	0	0
Flt Permitted	0.174						0.950					
Satd. Flow (perm)	315	3539	0	0	3385	0	1703	0	1509	0	0	0
Satd. Flow (RTOR)					20				283			
Lane Group Flow (vph)	115	576	0	0	971	0	380	0	322	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	15.0	54.0			39.0		36.0		36.0			
Total Lost Time (s)	5.0	4.0			4.0		4.0		4.0			
Act Effct Green (s)	54.4	55.4			44.8		26.6		26.6			
Actuated g/C Ratio	0.60	0.62			0.50		0.30		0.30			
v/c Ratio	0.37	0.26			0.57		0.76		0.50			
Control Delay	7.8	5.6			23.6		38.3		7.1			
Queue Delay	0.0	0.1			1.1		0.0		0.1			
Total Delay	7.8	5.7			24.7		38.3		7.2			
LOS	A	A			C		D		A			
Approach Delay		6.0			24.7			24.0				
Approach LOS		A			C			C				
Queue Length 50th (ft)	21	67			250		193		16			
Queue Length 95th (ft)	43	100			311		212		40			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	346	2177			1695		605		718			
Starvation Cap Reductn	0	0			451		0		0			
Spillback Cap Reductn	0	469			0		0		37			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.33	0.34			0.78		0.63		0.47			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 18 (20%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 19.0

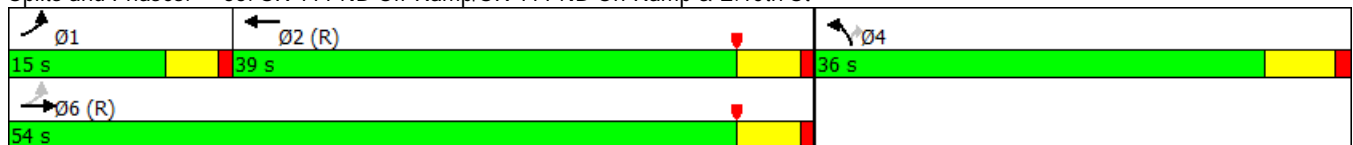
Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Volume (vph)	525	210	40	595	235	70
Future Volume (vph)	525	210	40	595	235	70
Satd. Flow (prot)	3331	0	1612	3471	1703	1455
Flt Permitted			0.214		0.950	
Satd. Flow (perm)	3331	0	363	3471	1703	1455
Satd. Flow (RTOR)	89					88
Lane Group Flow (vph)	913	0	52	633	318	88
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	41.0		15.0	56.0	34.0	34.0
Total Lost Time (s)	4.0		5.0	4.0	4.0	4.0
Act Effct Green (s)	50.1		57.8	58.8	23.2	23.2
Actuated g/C Ratio	0.56		0.64	0.65	0.26	0.26
v/c Ratio	0.48		0.14	0.28	0.72	0.20
Control Delay	10.2		8.3	7.7	39.7	6.3
Queue Delay	0.3		0.0	0.3	0.5	0.0
Total Delay	10.5		8.3	8.0	40.3	6.3
LOS	B		A	A	D	A
Approach Delay	10.5			8.0	32.9	
Approach LOS	B			A	C	
Queue Length 50th (ft)	172		10	72	164	0
Queue Length 95th (ft)	277		24	122	179	24
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	1892		371	2267	567	543
Starvation Cap Reductn	392		0	0	0	0
Spillback Cap Reductn	0		0	917	57	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.61		0.14	0.47	0.62	0.16

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 20 (22%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 14.2
 Intersection Capacity Utilization 52.9%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	5	5	25	25	60	35	815	5	50	670	35
Future Volume (vph)	10	5	5	25	25	60	35	815	5	50	670	35
Satd. Flow (prot)	1687	1444	0	0	1722	0	1787	3502	0	1805	3397	0
Flt Permitted	0.635				0.925		0.319			0.220		
Satd. Flow (perm)	1128	1444	0	0	1610	0	600	3502	0	418	3397	0
Satd. Flow (RTOR)		12			50			1			14	
Lane Group Flow (vph)	12	17	0	0	156	0	69	904	0	93	780	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4				3		5	2		1	6
Permitted Phases	4			3			2			6		
Total Split (s)	25.0	25.0		25.0	25.0		15.0	50.0		15.0	50.0	
Total Lost Time (s)	4.0	4.0			4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	11.0	11.0			11.0		30.5	26.7		31.9	29.2	
Actuated g/C Ratio	0.20	0.20			0.20		0.56	0.49		0.58	0.53	
v/c Ratio	0.05	0.06			0.43		0.15	0.53		0.23	0.43	
Control Delay	20.5	13.7			18.8		5.3	12.4		6.0	10.2	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	20.5	13.7			18.8		5.3	12.4		6.0	10.2	
LOS	C	B			B		A	B		A	B	
Approach Delay		16.5			18.8			11.9			9.8	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	3	1			28		7	105		9	85	
Queue Length 95th (ft)	15	16			45		12	189		16	155	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	444	575			664		588	2992		517	2904	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.03	0.03			0.23		0.12	0.30		0.18	0.27	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 54.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 11.6

Intersection Capacity Utilization 51.6%

Analysis Period (min) 15










Intersection LOS: B

ICU Level of Service A

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St



Lanes, Volumes, Timings
95: Foutch Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	0	35	0	40
Future Volume (vph)	5	0	0	35	0	40
Satd. Flow (prot)	1770	0	0	1611	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1611	0	1863
Lane Group Flow (vph)	5	0	0	38	0	43
Sign Control	Yield		Free			Free

Intersection Summary










Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	5	5	930	425	5
Future Volume (vph)	5	5	5	930	425	5
Satd. Flow (prot)	864	0	0	5037	3469	0
Flt Permitted	0.976					
Satd. Flow (perm)	864	0	0	5037	3469	0
Lane Group Flow (vph)	10	0	0	1156	572	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 31.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 0.2









Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↓	
Traffic Vol, veh/h	5	5	5	930	425	5
Future Vol, veh/h	5	5	5	930	425	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	63	81	75	100
Heavy Vehicles, %	100	100	0	3	4	0
Mvmt Flow	5	5	8	1148	567	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1044	286	572	0	-	0
Stage 1	569	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	8.25	8.9	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-
Critical Hdwy Stg 2	8	-	-	-	-	-
Follow-up Hdwy	4.65	4.3	2.2	-	-	-
Pot Cap-1 Maneuver	129	487	1011	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	126	487	1011	-	-	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	17.7		0.2		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1011	-	293	-	-
HCM Lane V/C Ratio	0.008	-	0.034	-	-
HCM Control Delay (s)	8.6	0.1	17.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lanes, Volumes, Timings
 271: Foutch Dr & SR 136/S. Jefferson Ave

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	455	275	40	0	0
Future Volume (vph)	0	455	275	40	0	0
Satd. Flow (prot)	0	3336	3245	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3336	3245	0	0	0
Lane Group Flow (vph)	0	529	443	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 15.9%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

2017 Optimized AM Timing Plan

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	0	0	0	0	170	365	5	0	190	95
Future Volume (vph)	0	0	0	0	0	0	170	365	5	0	190	95
Satd. Flow (prot)	0	0	0	0	0	0	0	3349	0	0	3007	0
Flt Permitted								0.984				
Satd. Flow (perm)	0	0	0	0	0	0	0	3349	0	0	3007	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	706	0	0	336	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.1%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↖		↘	↖	↘				
Traffic Volume (vph)	580	20	5	800	35	5			
Future Volume (vph)	580	20	5	800	35	5			
Satd. Flow (prot)	1836	0	1805	1881	1786	0			
Flt Permitted			0.382		0.959				
Satd. Flow (perm)	1836	0	726	1881	1786	0			
Satd. Flow (RTOR)	7			7					
Lane Group Flow (vph)	658	0	12	930	83	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			50.0	50.0	17.0		11.0	22.0	61.0
Total Lost Time (s)			4.0	4.0	5.4				
Act Effct Green (s)	71.6		46.3	46.3	11.7				
Actuated g/C Ratio	0.76		0.49	0.49	0.12				
v/c Ratio	0.47		0.03	1.01	0.37				
Control Delay	1.3		15.4	57.7	41.9				
Queue Delay	0.0		0.0	33.9	0.0				
Total Delay	1.3		15.4	91.6	41.9				
LOS	A		B	F	D				
Approach Delay	1.3			90.6	41.9				
Approach LOS	A			F	D				
Queue Length 50th (ft)	3		4	-660	45				
Queue Length 95th (ft)	17		7	#836	47				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1411		356	925	227				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	109	2				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.47		0.03	1.14	0.37				

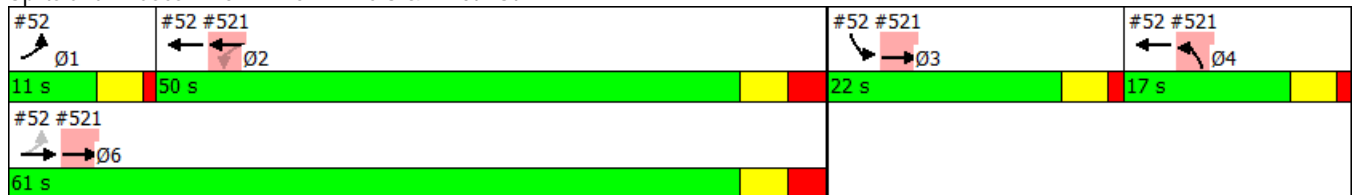
Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 94.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 53.3
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service B

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St



Lanes, Volumes, Timings
1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

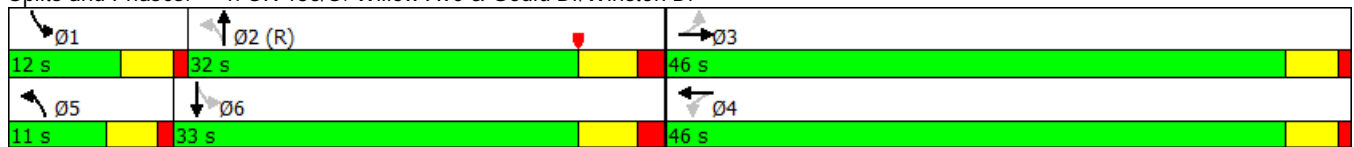
2017 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	10	55	15	5	65	20	420	5	80	600	40
Future Volume (vph)	190	10	55	15	5	65	20	420	5	80	600	40
Satd. Flow (prot)	1770	1700	0	1703	1639	0	1805	3452	0	1787	3486	0
Flt Permitted	0.700			0.705			0.322			0.369		
Satd. Flow (perm)	1304	1700	0	1264	1639	0	612	3452	0	694	3486	0
Satd. Flow (RTOR)		56			76			3			9	
Lane Group Flow (vph)	388	80	0	28	88	0	24	524	0	113	754	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		11.0	32.0		12.0	33.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	32.5	32.5		32.5	32.5		43.3	36.9		47.5	42.7	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.48	0.41		0.53	0.47	
v/c Ratio	0.82	0.12		0.06	0.14		0.06	0.37		0.25	0.46	
Control Delay	40.2	7.0		15.9	5.2		13.3	22.1		7.7	10.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.2	7.0		15.9	5.2		13.3	22.1		7.7	10.9	
LOS	D	A		B	A		B	C		A	B	
Approach Delay		34.5			7.8			21.7			10.5	
Approach LOS		C			A			C			B	
Queue Length 50th (ft)	195	9		10	4		6	113		15	64	
Queue Length 95th (ft)	111	5		14	1		20	160		21	183	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	601	814		582	796		382	1417		464	1656	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.65	0.10		0.05	0.11		0.06	0.37		0.24	0.46	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 39 (43%), Referenced to phase 2:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 19.1
 Intersection Capacity Utilization 52.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	5	55	0	0	0	0	515	230	350	765	0
Future Volume (vph)	235	5	55	0	0	0	0	515	230	350	765	0
Satd. Flow (prot)	1649	1568	0	0	0	0	0	3383	0	1770	3539	0
Flt Permitted	0.950	0.974								0.115		
Satd. Flow (perm)	1649	1568	0	0	0	0	0	3383	0	214	3539	0
Satd. Flow (RTOR)		44						89				
Lane Group Flow (vph)	168	163	0	0	0	0	0	998	0	438	832	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	36.0	36.0						36.0		18.0	54.0	
Total Lost Time (s)	5.2	5.2						4.7		4.5	4.7	
Act Effct Green (s)	14.7	14.7						30.4		65.6	65.4	
Actuated g/C Ratio	0.16	0.16						0.34		0.73	0.73	
v/c Ratio	0.62	0.56						0.83		0.64	0.32	
Control Delay	44.6	31.5						34.6		15.8	2.8	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	44.6	31.5						34.6		15.8	2.8	
LOS	D	C						C		B	A	
Approach Delay		38.2						34.6			7.2	
Approach LOS		D						C			A	
Queue Length 50th (ft)	94	65						177		97	45	
Queue Length 95th (ft)	150	71						303		165	7	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	564	565						1244		683	2571	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.30	0.29						0.80		0.64	0.32	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 36 (40%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 21.7

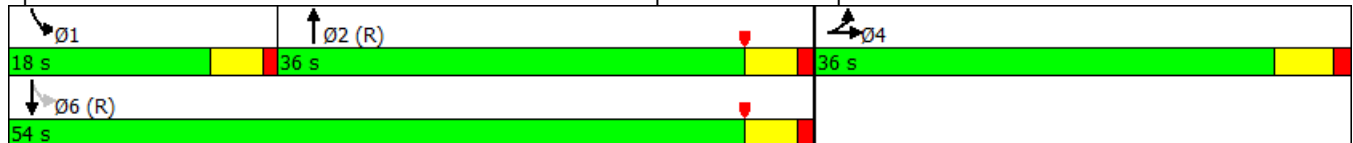
Intersection LOS: C

Intersection Capacity Utilization 63.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	185	5	275	40	700	0	0	940	290
Future Volume (vph)	0	0	0	185	5	275	40	700	0	0	940	290
Satd. Flow (prot)	0	0	0	0	1759	1583	1671	3539	0	0	3409	0
Flt Permitted					0.953		0.091					
Satd. Flow (perm)	0	0	0	0	1759	1583	160	3539	0	0	3409	0
Satd. Flow (RTOR)							125				58	
Lane Group Flow (vph)	0	0	0	0	218	324	52	864	0	0	1464	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				37.0	37.0	37.0	11.0	53.0			42.0	
Total Lost Time (s)					5.4	5.4	4.5	5.5			5.5	
Act Effct Green (s)					18.6	18.6	61.5	60.5			53.5	
Actuated g/C Ratio					0.21	0.21	0.68	0.67			0.59	
v/c Ratio					0.60	0.76	0.24	0.36			0.71	
Control Delay					38.0	31.3	4.5	4.2			12.5	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					38.0	31.3	4.5	4.2			12.5	
LOS					D	C	A	A			B	
Approach Delay					34.0			4.2			12.5	
Approach LOS					C			A			B	
Queue Length 50th (ft)					113	107	2	41			183	
Queue Length 95th (ft)					161	159	m12	163			#497	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					617	636	225	2378			2049	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.35	0.51	0.23	0.36			0.71	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 86 (96%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 63.6%

ICU Level of Service B

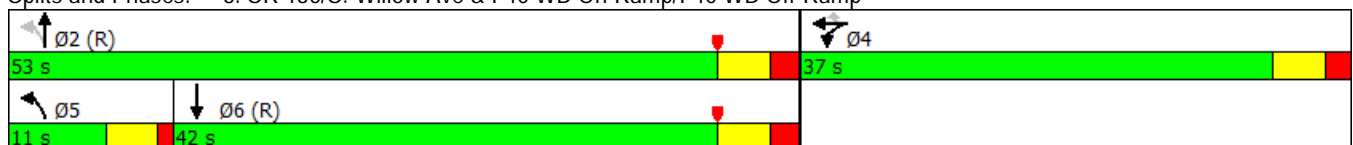
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



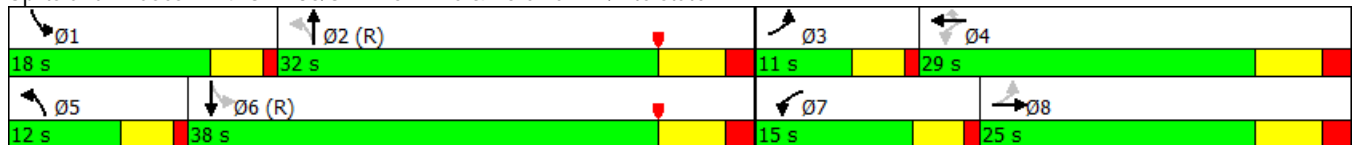
Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	135	85	260	165	265	120	615	195	290	785	65
Future Volume (vph)	75	135	85	260	165	265	120	615	195	290	785	65
Satd. Flow (prot)	1736	1711	0	1805	1900	1615	1703	3412	0	1752	3528	0
Flt Permitted	0.630			0.266			0.215			0.133		
Satd. Flow (perm)	1151	1711	0	505	1900	1615	385	3412	0	245	3528	0
Satd. Flow (RTOR)		35					312	47			12	
Lane Group Flow (vph)	88	295	0	317	204	312	140	942	0	322	906	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	11.0	25.0		15.0	29.0	29.0	12.0	32.0		18.0	38.0	
Total Lost Time (s)	4.5	6.5		4.5	6.5	6.5	4.5	6.5		4.5	6.5	
Act Effct Green (s)	25.4	17.0		33.9	23.5	23.5	35.8	26.4		46.7	32.8	
Actuated g/C Ratio	0.28	0.19		0.38	0.26	0.26	0.40	0.29		0.52	0.36	
v/c Ratio	0.24	0.84		0.91	0.41	0.48	0.54	0.91		0.90	0.70	
Control Delay	19.9	52.8		55.5	31.2	6.1	20.6	32.1		49.9	28.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.9	52.8		55.5	31.2	6.1	20.6	32.1		49.9	28.0	
LOS	B	D		E	C	A	C	C		D	C	
Approach Delay		45.2			31.1			30.6			33.7	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	31	141		130	98	0	20	246		127	230	
Queue Length 95th (ft)	59	189		#199	144	50	61	#353		#287	302	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	367	379		347	503	656	265	1032		358	1292	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.78		0.91	0.41	0.48	0.53	0.91		0.90	0.70	












Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 76 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 33.4
 Intersection Capacity Utilization 84.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	100	920	120	60	1165
Future Volume (vph)	25	100	920	120	60	1165
Satd. Flow (prot)	1805	1583	3507	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3507	0	1752	3574
Lane Group Flow (vph)	36	116	1093	0	95	1294
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.5












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↕		↘	↕↕
Traffic Vol, veh/h	25	100	920	120	60	1165
Future Vol, veh/h	25	100	920	120	60	1165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	36	116	948	145	95	1294

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1859	547	0	0	1093	0
Stage 1	1021	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	66	481	-	-	628	-
Stage 1	313	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	56	481	-	-	628	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	313	-	-	-	-	-
Stage 2	331	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	172	481	628	-
HCM Lane V/C Ratio	-	-	0.211	0.242	0.152	-
HCM Control Delay (s)	-	-	31.4	14.9	11.8	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.9	0.5	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	15	1020	5	0	1225
Future Volume (vph)	0	15	1020	5	0	1225
Satd. Flow (prot)	0	1644	3571	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3571	0	0	3539
Lane Group Flow (vph)	0	20	1060	0	0	1346
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↗
Traffic Vol, veh/h	0	15	1020	5	0	1225
Future Vol, veh/h	0	15	1020	5	0	1225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	20	1052	8	0	1346

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	526	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	502	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	502	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 502	-
HCM Lane V/C Ratio	- 0.04	-
HCM Control Delay (s)	- 12.5	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.1	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	25	25	35	1070	1145	45
Future Volume (vph)	25	25	35	1070	1145	45
Satd. Flow (prot)	1736	1553	1805	3574	3548	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3548	0
Lane Group Flow (vph)	25	36	40	1081	1305	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 43.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↘
Traffic Vol, veh/h	25	25	35	1070	1145	45
Future Vol, veh/h	25	25	35	1070	1145	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	25	36	40	1081	1245	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1895	652	1305	0	-	0
Stage 1	1275	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	60	406	537	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	406	537	-	-	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	537	-	158	406	-	-
HCM Lane V/C Ratio	0.074	-	0.158	0.089	-	-
HCM Control Delay (s)	12.2	-	32	14.7	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.5	0.3	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

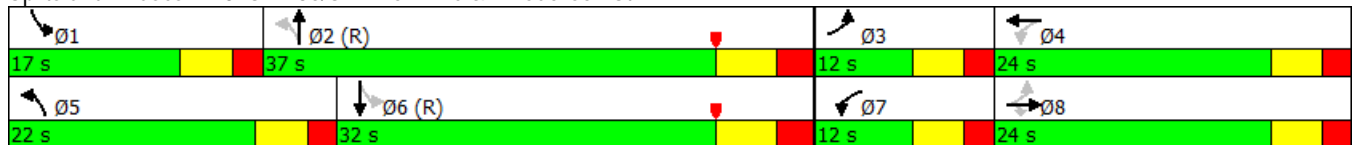
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	310	330	150	460	130	345	650	120	185	750	100
Future Volume (vph)	105	310	330	150	460	130	345	650	120	185	750	100
Satd. Flow (prot)	1805	3574	1568	1787	3473	0	1787	3453	0	1770	3502	0
Flt Permitted	0.221			0.387			0.127			0.237		
Satd. Flow (perm)	420	3574	1568	728	3473	0	239	3453	0	441	3502	0
Satd. Flow (RTOR)			345		46			29			17	
Lane Group Flow (vph)	112	383	379	160	674	0	371	852	0	231	931	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	12.0	24.0	24.0	12.0	24.0		22.0	37.0		17.0	32.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	6.6		5.5	6.6	
Act Effct Green (s)	23.5	17.0	17.0	24.9	19.7		49.4	32.6		39.0	27.4	
Actuated g/C Ratio	0.26	0.19	0.19	0.28	0.22		0.55	0.36		0.43	0.30	
v/c Ratio	0.54	0.57	0.66	0.57	0.85		0.92	0.67		0.67	0.87	
Control Delay	31.7	36.4	11.4	32.0	43.7		51.9	27.1		31.2	30.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.7	36.4	11.4	32.0	43.7		51.9	27.1		31.2	30.2	
LOS	C	D	B	C	D		D	C		C	C	
Approach Delay		24.9			41.5			34.6			30.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	44	102	16	65	185		153	213		50	286	
Queue Length 95th (ft)	84	131	87	115	#287		#319	282		102	#395	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	209	734	596	280	794		415	1270		366	1076	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.54	0.52	0.64	0.57	0.85		0.89	0.67		0.63	0.87	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 27 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 85.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
9: SR 135/S. Willow Ave & W. Stevens St

2017 Optimized PM Timing Plan
07/12/2017

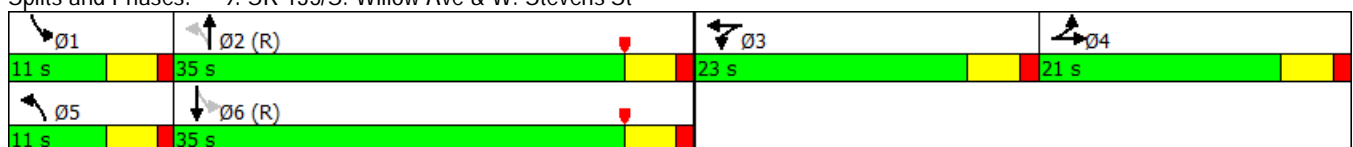
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	75	30	100	105	70	30	800	80	60	970	35
Future Volume (vph)	35	75	30	100	105	70	30	800	80	60	970	35
Satd. Flow (prot)	0	1811	0	1787	1785	0	1805	3524	0	1787	3554	0
Flt Permitted		0.989		0.950			0.166			0.200		
Satd. Flow (perm)	0	1811	0	1787	1785	0	315	3524	0	376	3554	0
Satd. Flow (RTOR)		18			31			14			5	
Lane Group Flow (vph)	0	179	0	141	200	0	36	896	0	72	1050	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	21.0	21.0		23.0	23.0		11.0	35.0		11.0	35.0	
Total Lost Time (s)		4.8		4.8	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)		12.8		13.6	13.6		45.4	39.9		47.2	42.6	
Actuated g/C Ratio		0.14		0.15	0.15		0.50	0.44		0.52	0.47	
v/c Ratio		0.66		0.52	0.68		0.14	0.57		0.24	0.62	
Control Delay		44.0		41.5	41.6		8.5	19.7		7.5	15.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		44.0		41.5	41.6		8.5	19.7		7.5	15.1	
LOS		D		D	D		A	B		A	B	
Approach Delay		44.0			41.5			19.3			14.6	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)		87		75	91		7	220		7	289	
Queue Length 95th (ft)		133		96	143		m16	m300		m11	#423	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		340		361	385		268	1571		306	1683	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.53		0.39	0.52		0.13	0.57		0.24	0.62	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 84 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 21.9
 Intersection Capacity Utilization 66.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St



Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

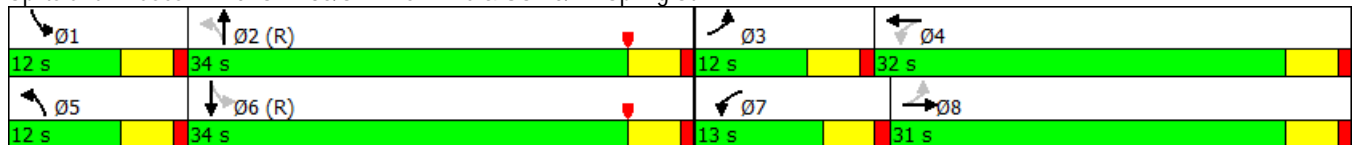
2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	210	100	190	255	125	120	695	100	95	850	20
Future Volume (vph)	105	210	100	190	255	125	120	695	100	95	850	20
Satd. Flow (prot)	1787	1758	0	1805	1791	0	1787	3511	0	1685	3323	0
Flt Permitted	0.165			0.252			0.139			0.163		
Satd. Flow (perm)	310	1758	0	479	1791	0	261	3511	0	289	3323	0
Satd. Flow (RTOR)		29			22			19			3	
Lane Group Flow (vph)	140	367	0	229	468	0	136	876	0	128	928	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	31.0		13.0	32.0		12.0	34.0		12.0	34.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	31.8	24.2		34.5	25.5		38.9	31.5		38.8	31.4	
Actuated g/C Ratio	0.35	0.27		0.38	0.28		0.43	0.35		0.43	0.35	
v/c Ratio	0.60	0.74		0.73	0.89		0.57	0.71		0.54	0.80	
Control Delay	27.5	37.2		33.1	50.3		20.5	25.7		17.5	31.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.5	37.2		33.1	50.3		20.5	25.7		17.5	31.9	
LOS	C	D		C	D		C	C		B	C	
Approach Delay		34.5			44.7			25.0			30.2	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	47	169		81	236		40	260		49	281	
Queue Length 95th (ft)	69	251		#122	274		51	326		51	#367	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	236	538		314	562		243	1240		243	1162	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.59	0.68		0.73	0.83		0.56	0.71		0.53	0.80	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.3
 Intersection Capacity Utilization 73.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	105	75	140	180	70	95	790	45	65	780	75
Future Volume (vph)	80	105	75	140	180	70	95	790	45	65	780	75
Satd. Flow (prot)	1805	1763	0	1805	1822	0	1668	3327	0	1620	3283	0
Flt Permitted	0.406			0.344			0.175			0.209		
Satd. Flow (perm)	771	1763	0	654	1822	0	307	3327	0	356	3283	0
Satd. Flow (RTOR)		42			21			9			16	
Lane Group Flow (vph)	84	211	0	173	325	0	116	909	0	65	939	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	24.0		17.0	30.0		13.0	38.0		11.0	36.0	
Total Lost Time (s)	4.5	5.2		4.5	5.2		4.5	4.8		4.5	4.8	
Act Effct Green (s)	22.2	14.9		30.7	21.3		47.6	40.4		45.1	39.1	
Actuated g/C Ratio	0.25	0.17		0.34	0.24		0.53	0.45		0.50	0.43	
v/c Ratio	0.32	0.65		0.48	0.73		0.41	0.61		0.24	0.65	
Control Delay	22.1	36.7		24.6	39.5		10.5	16.9		12.2	20.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.1	36.7		24.6	39.5		10.5	16.9		12.2	20.3	
LOS	C	D		C	D		B	B		B	C	
Approach Delay		32.6			34.4			16.2			19.7	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	32	90		68	163		12	265		11	210	
Queue Length 95th (ft)	m58	m154		96	192		m17	m335		m35	266	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	268	401		385	517		295	1497		276	1436	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.53		0.45	0.63		0.39	0.61		0.24	0.65	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 81 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 22.4

Intersection LOS: C

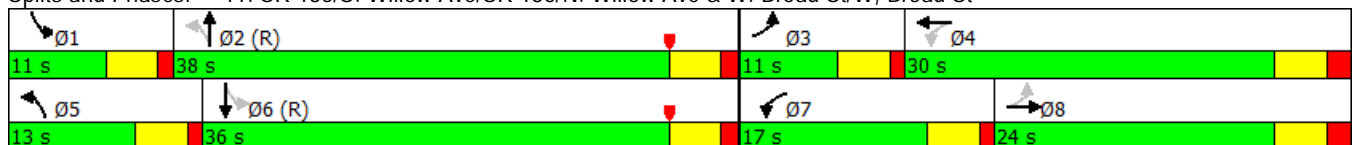
Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

2017 Optimized PM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	15	10	5	20	15	915	15	10	895	20
Future Volume (vph)	5	5	15	10	5	20	15	915	15	10	895	20
Satd. Flow (prot)	0	1750	0	0	1723	0	0	3356	0	0	3321	0
Flt Permitted		0.988			0.989			0.999			0.999	
Satd. Flow (perm)	0	1750	0	0	1723	0	0	3356	0	0	3321	0
Lane Group Flow (vph)	0	32	0	0	52	0	0	1003	0	0	1024	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	5	15	10	5	20	15	915	15	10	895	20
Future Vol, veh/h	5	5	15	10	5	20	15	915	15	10	895	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	8	8	16	12	8	32	20	963	20	12	984	28

















Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1548	2045	506	1533	2049	492	1012	0	0	983	0	0
Stage 1	1022	1022	-	1013	1013	-	-	-	-	-	-	-
Stage 2	526	1023	-	520	1036	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	79	57	517	81	56	528	693	-	-	711	-	-
Stage 1	256	316	-	260	319	-	-	-	-	-	-	-
Stage 2	508	316	-	512	311	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	60	51	517	64	50	528	693	-	-	711	-	-
Mov Cap-2 Maneuver	60	51	-	64	50	-	-	-	-	-	-	-
Stage 1	240	304	-	243	299	-	-	-	-	-	-	-
Stage 2	435	296	-	464	299	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	57	51.6	0.5	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	100	127	711	-	-
HCM Lane V/C Ratio	0.029	-	-	0.318	0.407	0.017	-	-
HCM Control Delay (s)	10.3	0.3	-	57	51.6	10.2	0.2	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	1.7	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

2017 Optimized PM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	20	20	5	25	15	885	40	10	875	15
Future Volume (vph)	10	10	20	20	5	25	15	885	40	10	875	15
Satd. Flow (prot)	0	1740	0	0	1704	0	0	3335	0	0	3321	0
Flt Permitted		0.985			0.979			0.999			0.999	
Satd. Flow (perm)	0	1740	0	0	1704	0	0	3335	0	0	3321	0
Lane Group Flow (vph)	0	54	0	0	65	0	0	1032	0	0	1027	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	10	20	20	5	25	15	885	40	10	875	15
Future Vol, veh/h	10	10	20	20	5	25	15	885	40	10	875	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0
Mvmt Flow	16	10	28	28	5	32	24	952	56	20	983	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1561	2091	503	1564	2074	504	1007	0	0	1008	0	0
Stage 1	1035	1035	-	1027	1027	-	-	-	-	-	-	-
Stage 2	526	1056	-	537	1047	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	77	53	519	77	54	508	696	-	-	695	-	-
Stage 1	252	312	-	255	314	-	-	-	-	-	-	-
Stage 2	508	305	-	501	308	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	59	46	519	54	46	508	696	-	-	695	-	-
Mov Cap-2 Maneuver	59	46	-	54	46	-	-	-	-	-	-	-
Stage 1	232	291	-	235	289	-	-	-	-	-	-	-
Stage 2	431	281	-	427	288	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77	103.7	0.6	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	696	-	-	100	94	695	-	-
HCM Lane V/C Ratio	0.034	-	-	0.54	0.694	0.029	-	-
HCM Control Delay (s)	10.4	0.4	-	77	103.7	10.3	0.3	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	3.5	0.1	-	-

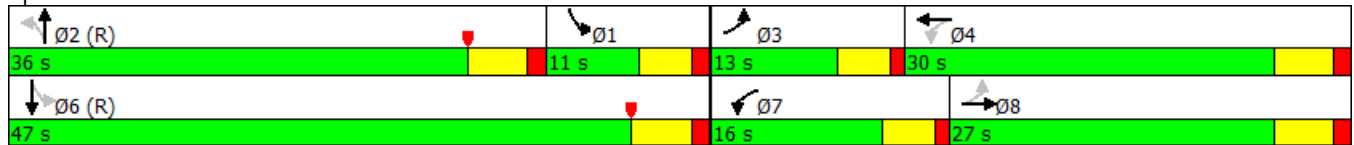
Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	65	25	220	105	130	10	800	80	50	620	20
Future Volume (vph)	40	65	25	220	105	130	10	800	80	50	620	20
Satd. Flow (prot)	1770	1754	0	1805	1727	0	0	3315	0	0	3272	0
Flt Permitted	0.590			0.492				0.936			0.774	
Satd. Flow (perm)	1099	1754	0	935	1727	0	0	3106	0	0	2542	0
Satd. Flow (RTOR)		29			77			15			6	
Lane Group Flow (vph)	48	124	0	256	275	0	0	945	0	0	801	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	13.0	27.0		16.0	30.0		36.0	36.0		11.0	47.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3			5.3			5.3	
Act Effct Green (s)	19.3	11.4		30.6	22.8			49.3			49.3	
Actuated g/C Ratio	0.21	0.13		0.34	0.25			0.55			0.55	
v/c Ratio	0.17	0.50		0.56	0.56			0.55			0.57	
Control Delay	19.9	33.5		26.9	25.9			7.5			17.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.9	33.5		26.9	25.9			7.5			17.9	
LOS	B	C		C	C			A			B	
Approach Delay		29.7			26.4			7.5			17.9	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	18	51		109	103			60			144	
Queue Length 95th (ft)	35	81		149	176			198			257	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	316	444		455	542			1706			1394	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.28		0.56	0.51			0.55			0.57	

Intersection Summary

















Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 44 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 16.5
 Intersection Capacity Utilization 79.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

2017 Optimized PM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	75	5	10	5	75	900	5	5	605	70
Future Volume (vph)	35	5	75	5	10	5	75	900	5	5	605	70
Satd. Flow (prot)	0	1654	0	0	1791	0	0	3349	0	0	3283	0
Flt Permitted		0.984			0.989			0.995				
Satd. Flow (perm)	0	1654	0	0	1791	0	0	3349	0	0	3283	0
Lane Group Flow (vph)	0	137	0	0	23	0	0	1076	0	0	784	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	35	5	75	5	10	5	75	900	5	5	605	70
Future Vol, veh/h	35	5	75	5	10	5	75	900	5	5	605	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	44	5	88	5	10	8	100	968	8	5	703	76

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1441	1928	390	1536	1962	488	780	0	0	976	0	0
Stage 1	752	752	-	1172	1172	-	-	-	-	-	-	-
Stage 2	689	1176	-	364	790	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	67	600	81	64	531	846	-	-	715	-	-
Stage 1	373	421	-	208	269	-	-	-	-	-	-	-
Stage 2	407	267	-	633	404	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	63	49	600	51	47	531	846	-	-	715	-	-
Mov Cap-2 Maneuver	63	49	-	51	47	-	-	-	-	-	-	-
Stage 1	276	416	-	154	199	-	-	-	-	-	-	-
Stage 2	282	198	-	526	399	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	120.9	79.7	1.9	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	846	-	-	145	70	715	-	-
HCM Lane V/C Ratio	0.118	-	-	0.945	0.328	0.007	-	-
HCM Control Delay (s)	9.8	1.1	-	120.9	79.7	10.1	0.1	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.4	-	-	6.7	1.2	0	-	-

Lanes, Volumes, Timings
16: SR 135/N. Willow Ave & University Dr

2017 Optimized PM Timing Plan
07/12/2017

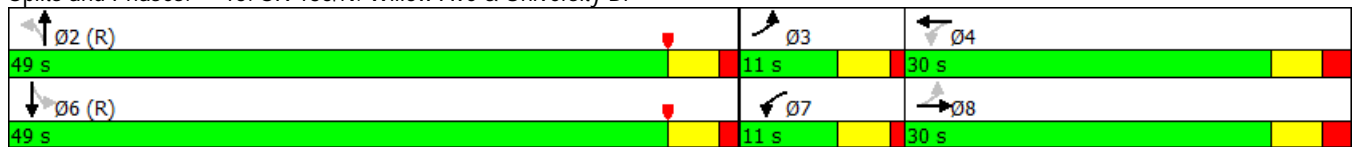
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	25	15	100	20	65	5	850	75	10	565	15
Future Volume (vph)	25	25	15	100	20	65	5	850	75	10	565	15
Satd. Flow (prot)	1736	1678	0	1787	1628	0	0	3329	0	0	3315	0
Flt Permitted	0.816			0.426				0.953			0.921	
Satd. Flow (perm)	1491	1678	0	801	1628	0	0	3172	0	0	3056	0
Satd. Flow (RTOR)		16			108			14			6	
Lane Group Flow (vph)	32	44	0	152	144	0	0	1019	0	0	648	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	30.0		11.0	30.0		49.0	49.0		49.0	49.0	
Total Lost Time (s)	4.5	5.5		4.5	5.5			4.9			4.9	
Act Effct Green (s)	12.3	7.3		19.9	11.8			60.7			60.7	
Actuated g/C Ratio	0.14	0.08		0.22	0.13			0.67			0.67	
v/c Ratio	0.14	0.29		0.50	0.47			0.48			0.31	
Control Delay	25.6	32.4		33.1	16.5			4.8			6.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	25.6	32.4		33.1	16.5			4.8			6.6	
LOS	C	C		C	B			A			A	
Approach Delay		29.5			25.0			4.8			6.6	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	14	15		69	18			52			98	
Queue Length 95th (ft)	28	46		78	21			76			124	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	226	468		305	521			2142			2061	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.14	0.09		0.50	0.28			0.48			0.31	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 9 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 50.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
17: SR 135/N. Willow Ave & W. 12th St

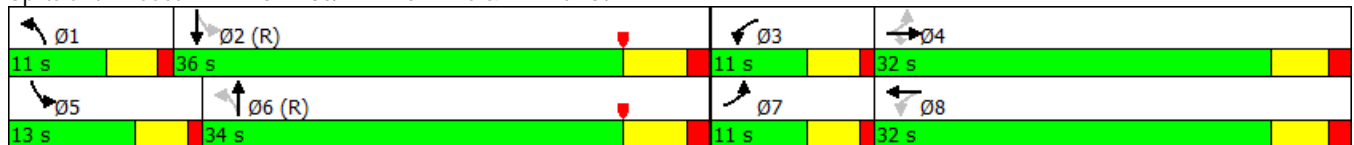
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	210	135	195	305	115	260	465	225	85	250	45
Future Volume (vph)	85	210	135	195	305	115	260	465	225	85	250	45
Satd. Flow (prot)	1752	1845	1615	1770	3420	0	1685	3176	0	1668	3288	0
Flt Permitted	0.422			0.353			0.506			0.287		
Satd. Flow (perm)	778	1845	1615	658	3420	0	897	3176	0	504	3288	0
Satd. Flow (RTOR)			148		63			106			26	
Lane Group Flow (vph)	96	244	148	212	475	0	271	726	0	123	327	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	34.0		13.0	36.0	
Total Lost Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	26.0	17.3	17.3	30.6	21.6		46.2	33.7		41.4	31.2	
Actuated g/C Ratio	0.29	0.19	0.19	0.34	0.24		0.51	0.37		0.46	0.35	
v/c Ratio	0.31	0.69	0.34	0.61	0.55		0.48	0.58		0.36	0.28	
Control Delay	21.3	43.5	7.2	30.3	28.6		11.8	13.9		14.8	21.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.3	43.5	7.2	30.3	28.6		11.8	13.9		14.8	21.3	
LOS	C	D	A	C	C		B	B		B	C	
Approach Delay		28.1			29.1			13.4			19.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	34	130	0	82	108		33	26		35	70	
Queue Length 95th (ft)	65	180	45	#146	149		100	127		49	99	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	309	543	579	345	1051		559	1254		357	1209	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.45	0.26	0.61	0.45		0.48	0.58		0.34	0.27	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 83 (92%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 21.3
 Intersection Capacity Utilization 63.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

2017 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	0	15	10	0	25	20	680	5	20	920	280
Future Volume (vph)	225	0	15	10	0	25	20	680	5	20	920	280
Satd. Flow (prot)	1736	1615	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.430			0.833			0.193			0.288		
Satd. Flow (perm)	786	1615	0	1583	1615	0	367	3539	1615	511	3505	1599
Satd. Flow (RTOR)		325			266				200			200
Lane Group Flow (vph)	237	16	0	16	36	0	32	829	5	20	1022	354
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	25.0	24.0		13.0	12.0		11.0	42.0	42.0	11.0	42.0	42.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Act Effct Green (s)	22.7	18.9		10.8	6.0		56.6	52.4	52.4	55.5	50.3	50.3
Actuated g/C Ratio	0.25	0.21		0.12	0.07		0.63	0.58	0.58	0.62	0.56	0.56
v/c Ratio	0.66	0.03		0.08	0.10		0.10	0.40	0.00	0.05	0.52	0.36
Control Delay	36.2	0.1		22.8	0.6		9.2	14.1	0.0	2.6	5.6	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.1	0.2
Total Delay	36.2	0.1		22.8	0.6		9.2	14.1	0.0	2.6	5.6	1.3
LOS	D	A		C	A		A	B	A	A	A	A
Approach Delay		34.0			7.4			13.8			4.5	
Approach LOS		C			A			B			A	
Queue Length 50th (ft)	108	0		6	0		7	126	0	1	30	0
Queue Length 95th (ft)	161	0		14	0		15	220	0	m2	92	1
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	444	639		249	355		334	2062	1024	400	1957	981
Starvation Cap Reductn	0	0		0	0		0	0	0	0	159	164
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.03		0.06	0.10		0.10	0.40	0.00	0.05	0.57	0.43

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 64 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 10.6

Intersection LOS: B

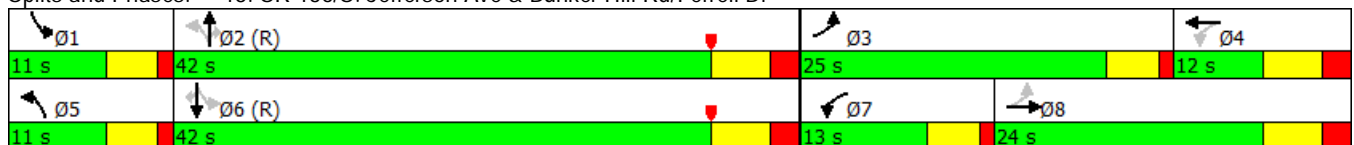
Intersection Capacity Utilization 54.6%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	0	170	0	0	0	0	790	140	290	1050	0
Future Volume (vph)	225	0	170	0	0	0	0	790	140	290	1050	0
Satd. Flow (prot)	1736	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.199		
Satd. Flow (perm)	1736	0	1538	0	0	0	0	3574	1599	374	3539	0
Satd. Flow (RTOR)			207						175			
Lane Group Flow (vph)	256	0	207	0	0	0	0	919	175	349	1154	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	25.0		25.0					44.0	44.0	21.0	44.0	
Total Lost Time (s)	5.4		5.4					4.6	4.6	4.5	4.6	
Act Effct Green (s)	17.3		17.3					39.2	39.2	58.3	39.2	
Actuated g/C Ratio	0.19		0.19					0.44	0.44	0.65	0.44	
v/c Ratio	0.77		0.45					0.59	0.22	0.65	0.75	
Control Delay	50.2		7.9					18.0	1.9	27.0	15.0	
Queue Delay	0.0		0.0					0.3	0.0	0.0	0.2	
Total Delay	50.2		7.9					18.4	1.9	27.0	15.2	
LOS	D		A					B	A	C	B	
Approach Delay		31.3						15.7			17.9	
Approach LOS		C						B			B	
Queue Length 50th (ft)	137		0					218	3	114	53	
Queue Length 95th (ft)	211		41					119	6	181	245	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	378		496					1564	798	540	1549	
Starvation Cap Reductn	0		0					207	0	0	54	
Spillback Cap Reductn	0		2					0	0	0	38	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.68		0.42					0.68	0.22	0.65	0.77	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.2

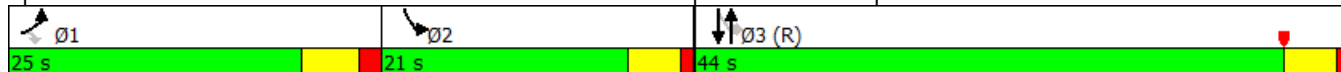
Intersection Capacity Utilization 66.1%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	85	0	245	100	910	0	0	1250	205
Future Volume (vph)	0	0	0	85	0	245	100	910	0	0	1250	205
Satd. Flow (prot)	0	0	0	1656	0	2707	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.136					
Satd. Flow (perm)	0	0	0	1656	0	2707	246	3574	0	0	3574	1599
Satd. Flow (RTOR)						299						225
Lane Group Flow (vph)	0	0	0	96	0	299	116	968	0	0	1330	225
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				18.0		18.0	17.0	55.0			55.0	55.0
Total Lost Time (s)				4.9		4.9	4.5	4.5			4.5	4.5
Act Effct Green (s)				12.3		12.3	64.7	68.3			55.1	55.1
Actuated g/C Ratio				0.14		0.14	0.72	0.76			0.61	0.61
v/c Ratio				0.43		0.48	0.31	0.36			0.61	0.21
Control Delay				42.0		7.2	9.6	3.2			6.9	0.5
Queue Delay				0.0		0.1	0.0	0.0			0.3	0.4
Total Delay				42.0		7.3	9.6	3.2			7.2	0.9
LOS				D		A	A	A			A	A
Approach Delay					15.7			3.9			6.3	
Approach LOS					B			A			A	
Queue Length 50th (ft)				51		0	10	63			95	0
Queue Length 95th (ft)				97		27	m49	114			125	m2
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				241		649	382	2714			2189	1066
Starvation Cap Reductn				0		0	0	350			304	451
Spillback Cap Reductn				0		28	0	344			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.40		0.48	0.30	0.41			0.71	0.37

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 59 (66%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 6.7

Intersection LOS: A

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

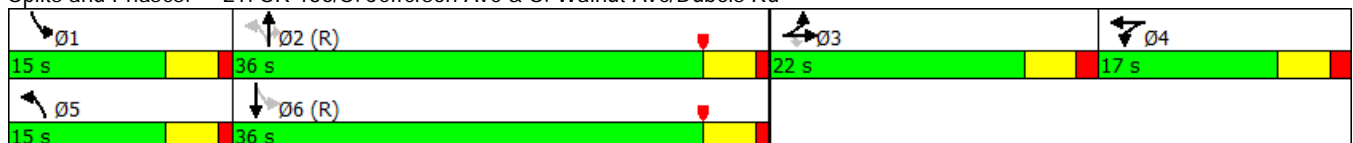
2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	15	365	90	20	15	170	940	60	5	1005	60
Future Volume (vph)	75	15	365	90	20	15	170	940	60	5	1005	60
Satd. Flow (prot)	0	1794	1599	1770	1780	0	1787	3539	1568	1805	5125	0
Flt Permitted		0.960		0.950			0.139			0.241		
Satd. Flow (perm)	0	1794	1599	1770	1780	0	261	3539	1568	458	5125	0
Satd. Flow (RTOR)			317		20				139		14	
Lane Group Flow (vph)	0	124	424	96	48	0	193	1000	64	12	1161	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	22.0	22.0	22.0	17.0	17.0		15.0	36.0	36.0	15.0	36.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)		14.4	14.4	12.0	12.0		51.7	49.6	49.6	47.7	37.7	
Actuated g/C Ratio		0.16	0.16	0.13	0.13		0.57	0.55	0.55	0.53	0.42	
v/c Ratio		0.43	0.81	0.41	0.19		0.60	0.51	0.07	0.03	0.54	
Control Delay		38.4	23.2	41.5	25.4		28.0	15.4	1.6	6.0	19.7	
Queue Delay		0.0	0.2	0.0	0.0		0.1	0.5	0.0	0.0	0.0	
Total Delay		38.4	23.4	41.5	25.4		28.1	15.9	1.6	6.0	19.7	
LOS		D	C	D	C		C	B	A	A	B	
Approach Delay		26.8			36.1			17.0			19.6	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)		65	56	51	14		72	127	0	2	233	
Queue Length 95th (ft)		93	145	99	34		139	344	7	m3	269	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		338	559	236	254		327	1948	925	402	2152	
Starvation Cap Reductn		0	0	0	0		5	485	0	0	0	
Spillback Cap Reductn		0	6	0	0		0	0	0	0	0	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.37	0.77	0.41	0.19		0.60	0.68	0.07	0.03	0.54	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 53 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 20.6
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

2017 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	330	190	230	380	130	180	590	215	110	730	200
Future Volume (vph)	145	330	190	230	380	130	180	590	215	110	730	200
Satd. Flow (prot)	1770	1845	1599	1805	3480	0	1770	3539	1615	1805	3464	0
Flt Permitted	0.241			0.259			0.137			0.315		
Satd. Flow (perm)	449	1845	1599	492	3480	0	255	3539	1615	598	3464	0
Satd. Flow (RTOR)			200		46				229		39	
Lane Group Flow (vph)	165	337	200	240	582	0	225	615	229	128	953	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	15.0	29.0	29.0	15.0	29.0		15.0	31.0	31.0	15.0	31.0	
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0		4.5	5.5	5.5	4.5	5.5	
Act Effct Green (s)	31.4	20.6	20.6	31.6	20.7		41.1	29.3	29.3	39.8	28.6	
Actuated g/C Ratio	0.35	0.23	0.23	0.35	0.23		0.46	0.33	0.33	0.44	0.32	
v/c Ratio	0.54	0.80	0.38	0.74	0.70		0.75	0.53	0.34	0.32	0.85	
Control Delay	23.9	46.8	6.3	33.6	33.4		30.5	25.9	11.2	7.0	24.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	23.9	46.8	6.3	33.6	33.4		30.5	25.9	11.2	7.0	24.0	
LOS	C	D	A	C	C		C	C	B	A	C	
Approach Delay		29.9			33.5			23.7			21.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	58	177	0	89	144		62	185	37	8	278	
Queue Length 95th (ft)	96	266	50	#151	183		#136	245	148	m11	#398	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	311	492	573	326	961		301	1151	679	407	1127	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.53	0.68	0.35	0.74	0.61		0.75	0.53	0.34	0.31	0.85	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 26.6

Intersection LOS: C

Intersection Capacity Utilization 82.9%

ICU Level of Service E

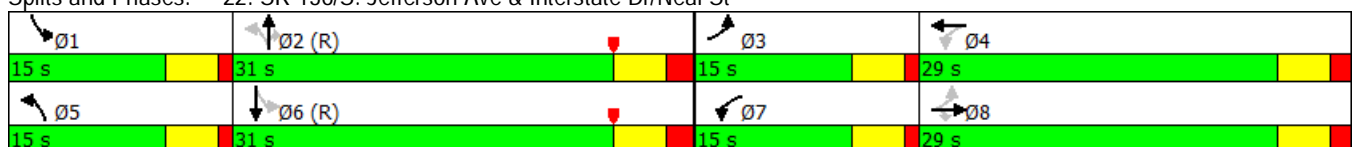
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

2017 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	185	55	130	215	110	50	675	110	80	900	80
Future Volume (vph)	60	185	55	130	215	110	50	675	110	80	900	80
Satd. Flow (prot)	1805	1820	0	1752	1754	0	1805	3504	0	1752	3549	0
Flt Permitted	0.218			0.332			0.140			0.145		
Satd. Flow (perm)	414	1820	0	612	1754	0	266	3504	0	267	3549	0
Satd. Flow (RTOR)		16			30			20			14	
Lane Group Flow (vph)	72	291	0	140	408	0	52	838	0	92	1054	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	18.0	25.0		19.0	26.0		17.0	29.0		17.0	29.0	
Total Lost Time (s)	4.5	5.0		4.5	5.0		4.5	4.8		4.5	4.8	
Act Effct Green (s)	33.2	20.7		33.3	23.5		40.2	30.3		41.1	33.6	
Actuated g/C Ratio	0.37	0.23		0.37	0.26		0.45	0.34		0.46	0.37	
v/c Ratio	0.21	0.68		0.38	0.85		0.16	0.70		0.29	0.79	
Control Delay	16.7	37.9		19.2	48.1		11.0	20.3		20.5	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.7	37.9		19.2	48.1		11.0	20.3		20.5	30.8	
LOS	B	D		B	D		B	C		C	C	
Approach Delay		33.7			40.7			19.8			30.0	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	23	137		47	209		10	88		21	~335	
Queue Length 95th (ft)	44	205		85	#325		m19	#124		m70	#454	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	368	463		425	481		333	1191		328	1332	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.63		0.33	0.85		0.16	0.70		0.28	0.79	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 37 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.3

Intersection LOS: C

Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

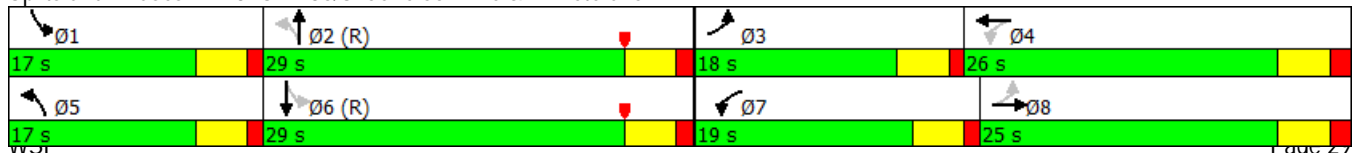
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

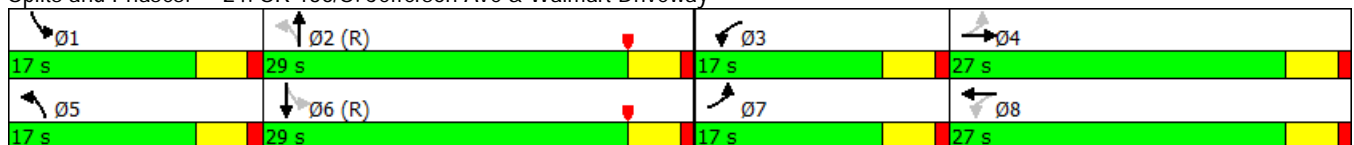
2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	145	10	100	5	720	120	115	920	10
Future Volume (vph)	0	0	5	145	10	100	5	720	120	115	920	10
Satd. Flow (prot)	1900	1615	0	1805	1645	0	1805	3486	0	1787	3526	0
Flt Permitted				0.580			0.299			0.230		
Satd. Flow (perm)	1900	1615	0	1102	1645	0	568	3486	0	433	3526	0
Satd. Flow (RTOR)		409			104			21			2	
Lane Group Flow (vph)	0	16	0	173	116	0	5	859	0	128	959	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	17.0	27.0		17.0	27.0		17.0	29.0		17.0	29.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)		12.0		15.6	15.6		60.9	48.9		64.5	62.1	
Actuated g/C Ratio		0.13		0.17	0.17		0.68	0.54		0.72	0.69	
v/c Ratio		0.03		0.60	0.31		0.01	0.45		0.26	0.39	
Control Delay		0.0		42.0	9.5		4.4	7.0		4.9	3.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		0.0		42.0	9.5		4.4	7.0		4.9	3.8	
LOS		A		D	A		A	A		A	A	
Approach Delay					29.0			7.0			3.9	
Approach LOS					C			A			A	
Queue Length 50th (ft)		0		95	6		0	44		9	36	
Queue Length 95th (ft)		0		116	34		m1	m113		m27	118	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		710		290	511		559	1903		498	2433	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.02		0.60	0.23		0.01	0.45		0.26	0.39	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 8.3
 Intersection Capacity Utilization 61.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



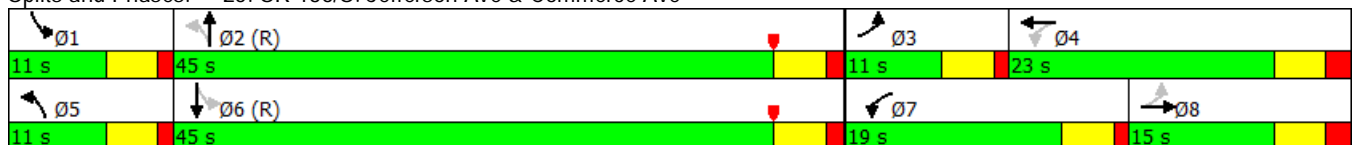
Lanes, Volumes, Timings
25: SR 136/S. Jefferson Ave & Commerce Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	10	55	75	5	40	45	890	20	25	1000	25
Future Volume (vph)	75	10	55	75	5	40	45	890	20	25	1000	25
Satd. Flow (prot)	1805	1666	0	1752	1605	0	1805	3596	0	1719	3596	0
Flt Permitted	0.711			0.400			0.147			0.242		
Satd. Flow (perm)	1351	1666	0	738	1605	0	279	3596	0	438	3596	0
Satd. Flow (RTOR)		72			63			4			3	
Lane Group Flow (vph)	112	88	0	163	71	0	60	946	0	40	1177	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	15.0		19.0	23.0		11.0	45.0		11.0	45.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3		4.5	4.8		4.5	4.8	
Act Effct Green (s)	14.2	7.2		21.6	11.7		56.1	51.7		54.9	49.5	
Actuated g/C Ratio	0.16	0.08		0.24	0.13		0.62	0.57		0.61	0.55	
v/c Ratio	0.45	0.44		0.52	0.27		0.21	0.46		0.11	0.60	
Control Delay	31.7	20.5		32.2	13.0		4.7	6.1		2.5	9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.7	20.5		32.2	13.0		4.7	6.1		2.5	9.4	
LOS	C	C		C	B		A	A		A	A	
Approach Delay		26.8			26.4			6.1			9.1	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	50	9		75	4		4	98		2	52	
Queue Length 95th (ft)	62	24		56	17		7	119		m3	357	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	251	243		356	366		287	2068		361	1977	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.36		0.46	0.19		0.21	0.46		0.11	0.60	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 10.8
 Intersection Capacity Utilization 56.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave



Lanes, Volumes, Timings
26: SR 136/S. Jefferson Ave & E. Jackson St

2017 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	170	260	280	150	15	365	480	180	25	590	55
Future Volume (vph)	65	170	260	280	150	15	365	480	180	25	590	55
Satd. Flow (prot)	1787	1863	1599	3502	1855	0	1805	3610	1599	1685	3329	0
Flt Permitted	0.630			0.950			0.170			0.443		
Satd. Flow (perm)	1185	1863	1599	3502	1855	0	323	3610	1599	786	3329	0
Satd. Flow (RTOR)			299		6				231		10	
Lane Group Flow (vph)	80	181	299	308	203	0	415	558	231	36	730	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	11.0	20.0	20.0	18.0	27.0		26.0	41.0	41.0	11.0	26.0	
Total Lost Time (s)	4.5	5.4	5.4	4.5	5.4		4.5	5.3	5.3	4.5	5.3	
Act Effct Green (s)	20.0	12.7	12.7	12.3	20.7		50.6	43.2	43.2	33.9	26.8	
Actuated g/C Ratio	0.22	0.14	0.14	0.14	0.23		0.56	0.48	0.48	0.38	0.30	
v/c Ratio	0.26	0.69	0.62	0.65	0.47		0.86	0.32	0.26	0.10	0.73	
Control Delay	22.4	50.3	10.5	43.3	33.2		31.9	10.1	2.8	8.5	26.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.4	50.3	10.5	43.3	33.2		31.9	10.1	2.8	8.5	26.6	
LOS	C	D	B	D	C		C	B	A	A	C	
Approach Delay		25.0			39.3			16.2			25.8	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	30	98	0	85	97		127	74	11	6	217	
Queue Length 95th (ft)	53	165	61	127	144		#277	133	31	16	#320	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	308	302	509	525	454		535	1732	887	362	998	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.26	0.60	0.59	0.59	0.45		0.78	0.32	0.26	0.10	0.73	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 38 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.1

Intersection LOS: C

Intersection Capacity Utilization 71.6%

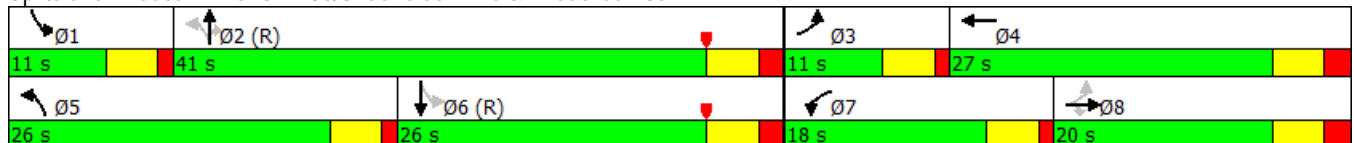
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



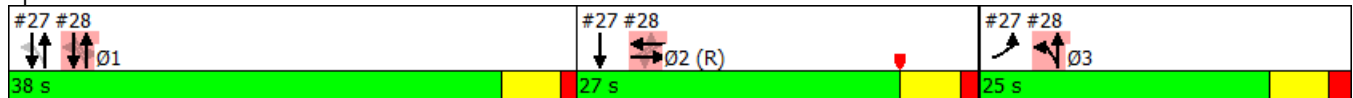
Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	115	20	10	545	610	0	
Future Volume (vph)	115	20	10	545	610	0	
Satd. Flow (prot)	1784	0	1452	3369	3369	0	
Flt Permitted	0.960		0.375				
Satd. Flow (perm)	1784	0	573	3369	3369	0	
Satd. Flow (RTOR)	10						
Lane Group Flow (vph)	175	0	12	580	670	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	25.0		38.0	38.0			27.0
Total Lost Time (s)	5.6		5.0	5.0			
Act Effct Green (s)	17.3		34.1	34.1	62.1		
Actuated g/C Ratio	0.19		0.38	0.38	0.69		
v/c Ratio	0.50		0.06	0.45	0.29		
Control Delay	35.3		16.4	23.0	0.7		
Queue Delay	0.0		0.0	0.0	0.2		
Total Delay	35.3		16.4	23.0	0.9		
LOS	D		B	C	A		
Approach Delay	35.3			22.9	0.9		
Approach LOS	D			C	A		
Queue Length 50th (ft)	83		6	163	4		
Queue Length 95th (ft)	121		m20	221	5		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	392		217	1277	2323		
Starvation Cap Reductn	0		0	0	819		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.45		0.06	0.45	0.45		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 20 (22%), Referenced to phase 2:SBT and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 33.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
 28: SR 136/S. Jefferson Ave & E. Stevens St

2017 Optimized PM Timing Plan
 07/12/2017

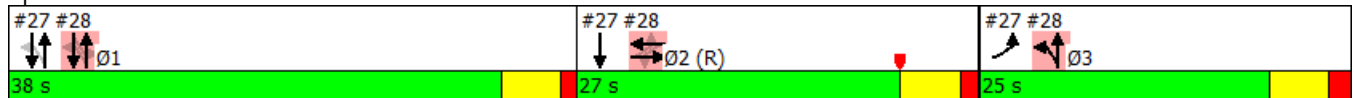
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	105	35	25	90	20	25	575	65	5	555	10
Future Volume (vph)	10	105	35	25	90	20	25	575	65	5	555	10
Satd. Flow (prot)	0	1824	0	0	1843	0	0	3298	0	0	3356	0
Flt Permitted		0.965			0.930			0.918			0.945	
Satd. Flow (perm)	0	1769	0	0	1728	0	0	3034	0	0	3174	0
Satd. Flow (RTOR)		18			10			29			2	
Lane Group Flow (vph)	0	172	0	0	171	0	0	753	0	0	637	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	27.0	27.0		27.0	27.0		25.0			38.0	38.0	
Total Lost Time (s)		5.3			5.3						5.0	
Act Effct Green (s)		22.6			22.6			52.1			34.1	
Actuated g/C Ratio		0.25			0.25			0.58			0.38	
v/c Ratio		0.38			0.39			0.41			0.53	
Control Delay		28.2			29.9			1.6			20.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		28.2			29.9			1.6			20.1	
LOS		C			C			A			C	
Approach Delay		28.2			29.9			1.6			20.1	
Approach LOS		C			C			A			C	
Queue Length 50th (ft)		73			77			11			110	
Queue Length 95th (ft)		132			115			5			m149	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		458			442			1886			1204	
Starvation Cap Reductn		0			0			92			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.38			0.39			0.42			0.53	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 20 (22%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 13.8
 Intersection Capacity Utilization 59.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	325	105	80	290	10	145	235	125	20	260	35
Future Volume (vph)	20	325	105	80	290	10	145	235	125	20	260	35
Satd. Flow (prot)	1805	1803	0	1752	1669	0	1668	1667	0	1685	1554	0
Flt Permitted	0.473			0.131			0.253			0.390		
Satd. Flow (perm)	899	1803	0	242	1669	0	444	1667	0	692	1554	0
Satd. Flow (RTOR)		19			2			36			8	
Lane Group Flow (vph)	20	502	0	100	331	0	165	411	0	28	357	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	32.0		15.0	32.0		15.0	28.0		15.0	28.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	39.8	31.8		41.8	37.7		35.9	31.7		32.5	22.5	
Actuated g/C Ratio	0.44	0.35		0.46	0.42		0.40	0.35		0.36	0.25	
v/c Ratio	0.04	0.77		0.36	0.47		0.52	0.67		0.08	0.90	
Control Delay	12.8	34.6		25.8	15.1		18.0	19.6		13.0	55.1	
Queue Delay	0.0	1.6		0.0	0.5		0.0	0.0		0.0	17.0	
Total Delay	12.8	36.3		25.8	15.6		18.0	19.6		13.0	72.1	
LOS	B	D		C	B		B	B		B	E	
Approach Delay		35.4			17.9			19.1			67.8	
Approach LOS		D			B			B			E	
Queue Length 50th (ft)	4	274		23	65		27	54		8	190	
Queue Length 95th (ft)	m14	#268		m65	m123		64	#138		m18	#300	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	507	650		288	701		320	609		370	411	
Starvation Cap Reductn	0	2		0	108		0	0		0	52	
Spillback Cap Reductn	0	50		0	0		0	1		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.84		0.35	0.56		0.52	0.68		0.08	0.99	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 1 (1%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 75.1%

ICU Level of Service D

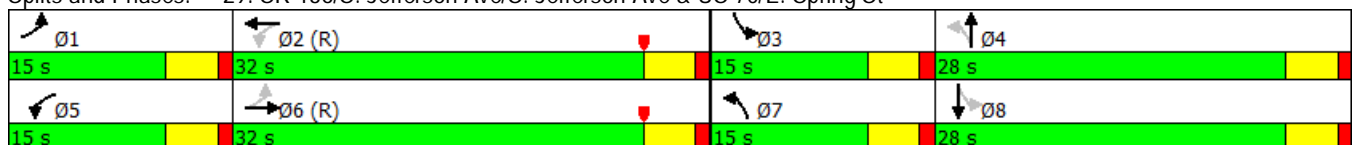
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

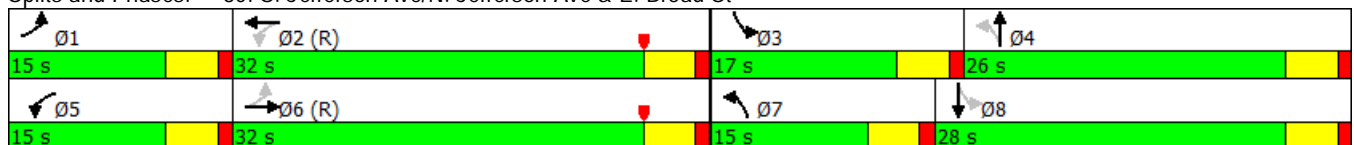
2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	270	60	115	300	20	55	155	60	25	130	25
Future Volume (vph)	10	270	60	115	300	20	55	155	60	25	130	25
Satd. Flow (prot)	1805	1829	0	1805	1867	0	1668	1696	0	1685	1736	0
Flt Permitted	0.538			0.347			0.456			0.467		
Satd. Flow (perm)	1022	1829	0	659	1867	0	801	1696	0	828	1736	0
Satd. Flow (RTOR)		14			3			20			9	
Lane Group Flow (vph)	16	379	0	144	377	0	68	236	0	32	182	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	32.0		15.0	32.0		15.0	26.0		17.0	28.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	47.9	37.9		52.2	49.9		25.6	19.5		24.6	16.6	
Actuated g/C Ratio	0.53	0.42		0.58	0.55		0.28	0.22		0.27	0.18	
v/c Ratio	0.03	0.49		0.28	0.36		0.21	0.62		0.10	0.55	
Control Delay	10.8	17.3		8.7	10.4		18.9	29.9		18.5	37.4	
Queue Delay	0.0	0.1		0.4	1.0		0.0	0.2		0.0	0.4	
Total Delay	10.8	17.4		9.1	11.4		18.9	30.1		18.5	37.8	
LOS	B	B		A	B		B	C		B	D	
Approach Delay		17.1			10.8			27.6			34.9	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	3	80		26	72		13	39		12	90	
Queue Length 95th (ft)	9	145		m41	114		m23	m75		24	129	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	640	778		517	1035		331	444		364	459	
Starvation Cap Reductn	0	30		122	415		0	18		0	0	
Spillback Cap Reductn	0	4		0	0		0	0		0	64	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.51		0.36	0.61		0.21	0.55		0.09	0.46	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 3 (3%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 19.7
 Intersection Capacity Utilization 61.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	335	35	65	290	35	35	265	260	85	265	55
Future Volume (vph)	105	335	35	65	290	35	35	265	260	85	265	55
Satd. Flow (prot)	1787	1840	0	1752	1863	1615	1745	1783	1546	1728	1782	0
Flt Permitted	0.459			0.354			0.211			0.343		
Satd. Flow (perm)	863	1840	0	653	1863	1615	388	1783	1546	624	1782	0
Satd. Flow (RTOR)		6					127		347		12	
Lane Group Flow (vph)	115	400	0	80	305	48	56	291	347	108	369	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	15.0	31.0		15.0	31.0	31.0	15.0	29.0	29.0	15.0	29.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	44.4	36.3		44.2	36.2	36.2	29.4	21.4	21.4	29.6	21.5	
Actuated g/C Ratio	0.49	0.40		0.49	0.40	0.40	0.33	0.24	0.24	0.33	0.24	
v/c Ratio	0.22	0.54		0.18	0.41	0.07	0.20	0.69	0.55	0.33	0.85	
Control Delay	10.9	19.1		14.9	28.5	5.3	17.3	39.7	6.7	9.6	30.5	
Queue Delay	0.1	0.9		0.0	0.0	0.0	0.0	0.1	0.0	0.0	2.0	
Total Delay	11.0	20.0		14.9	28.5	5.3	17.3	39.8	6.7	9.6	32.5	
LOS	B	B		B	C	A	B	D	A	A	C	
Approach Delay		18.0			23.4			21.4			27.3	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	29	103		31	161	2	19	146	0	14	197	
Queue Length 95th (ft)	m40	m182		59	240	10	27	228	25	19	48	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	536	745		451	749	725	286	487	674	336	497	
Starvation Cap Reductn	0	137		0	0	0	0	0	0	0	45	
Spillback Cap Reductn	69	0		0	0	139	0	5	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.66		0.18	0.41	0.08	0.20	0.60	0.51	0.32	0.82	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 22.3

Intersection LOS: C

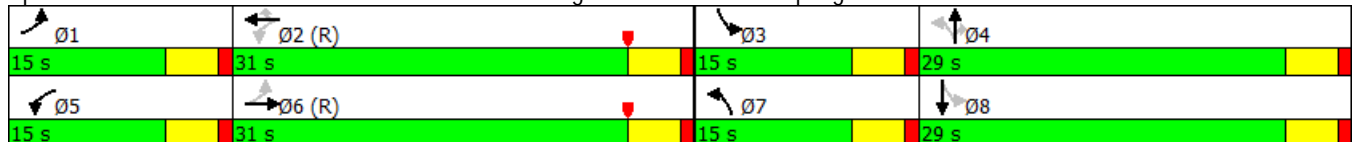
Intersection Capacity Utilization 68.7%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	245	35	25	250	110	20	345	35	95	350	170
Future Volume (vph)	75	245	35	25	250	110	20	345	35	95	350	170
Satd. Flow (prot)	1787	1844	0	1805	1799	0	1745	1789	0	1745	1818	1546
Flt Permitted	0.176			0.432			0.416			0.184		
Satd. Flow (perm)	331	1844	0	821	1799	0	764	1789	0	338	1818	1546
Satd. Flow (RTOR)		9			28			6				200
Lane Group Flow (vph)	84	316	0	36	450	0	20	436	0	128	402	200
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	15.0	30.0		15.0	30.0		15.0	30.0		15.0	30.0	30.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	39.4	33.3		38.4	30.4		34.3	24.3		37.4	33.2	33.2
Actuated g/C Ratio	0.44	0.37		0.43	0.34		0.38	0.27		0.42	0.37	0.37
v/c Ratio	0.27	0.46		0.08	0.72		0.05	0.90		0.43	0.60	0.29
Control Delay	17.5	19.9		10.8	34.4		15.6	43.2		19.9	29.4	5.0
Queue Delay	0.0	0.3		0.0	0.5		0.0	1.0		0.0	4.0	0.0
Total Delay	17.5	20.3		10.8	34.8		15.6	44.2		19.9	33.4	5.0
LOS	B	C		B	C		B	D		B	C	A
Approach Delay		19.7			33.1			42.9			23.3	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	14	103		14	248		4	99		42	156	0
Queue Length 95th (ft)	m60	155		m18	#343		m14	#355		61	#309	41
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	315	688		468	625		409	513		304	670	695
Starvation Cap Reductn	0	91		0	0		0	12		0	0	0
Spillback Cap Reductn	0	0		0	25		0	0		0	187	2
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.27	0.53		0.08	0.75		0.05	0.87		0.42	0.83	0.29

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 87 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 29.2

Intersection LOS: C

Intersection Capacity Utilization 71.8%

ICU Level of Service C

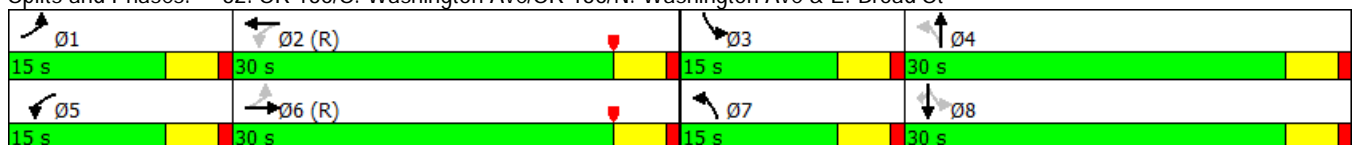
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	25	105	10	15	10	50	495	10	5	535	70
Future Volume (vph)	180	25	105	10	15	10	50	495	10	5	535	70
Satd. Flow (prot)	0	1764	0	0	1794	0	1711	1794	0	1745	3387	0
Flt Permitted		0.971			0.991		0.231			0.221		
Satd. Flow (perm)	0	1764	0	0	1794	0	416	1794	0	406	3387	0
Satd. Flow (RTOR)		26			20			2			25	
Lane Group Flow (vph)	0	380	0	0	58	0	64	635	0	5	701	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	27.0	27.0		11.0	11.0		11.0	41.0		11.0	41.0	
Total Lost Time (s)		4.8			4.8		4.5	4.6		4.5	4.6	
Act Effct Green (s)		19.5			6.5		33.2	32.1		28.7	22.1	
Actuated g/C Ratio		0.28			0.09		0.48	0.47		0.42	0.32	
v/c Ratio		0.74			0.31		0.20	0.76		0.02	0.63	
Control Delay		33.8			31.1		12.5	25.5		11.0	22.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		33.8			31.1		12.5	25.5		11.0	22.6	
LOS		C			C		B	C		B	C	
Approach Delay		33.8			31.1			24.3			22.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		150			17		17	249		1	147	
Queue Length 95th (ft)		#335			30		31	390		6	196	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		626			190		331	1016		307	1928	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.61			0.31		0.19	0.63		0.02	0.36	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 68.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 25.8
 Intersection Capacity Utilization 67.6%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St

Ø1	Ø2	Ø3	Ø4
11 s	41 s	27 s	11 s
Ø5	Ø6		
11 s	41 s		

Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

2017 Optimized PM Timing Plan
 07/12/2017

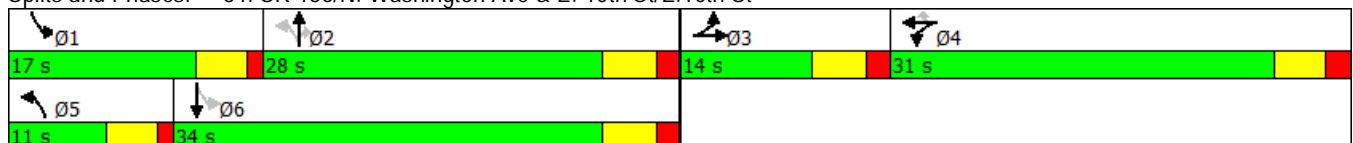
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	235	30	175	165	270	40	525	285	270	350	50
Future Volume (vph)	115	235	30	175	165	270	40	525	285	270	350	50
Satd. Flow (prot)	1805	3538	0	3467	1900	1615	1719	3505	1615	1752	3517	0
Flt Permitted	0.950			0.950			0.471			0.240		
Satd. Flow (perm)	1805	3538	0	3467	1900	1615	852	3505	1615	443	3517	0
Satd. Flow (RTOR)		16				288			331		16	
Lane Group Flow (vph)	128	293	0	203	179	300	48	610	331	287	494	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	14.0	14.0		31.0	31.0	31.0	11.0	28.0	28.0	17.0	34.0	
Total Lost Time (s)	5.2	5.2		5.3	5.3	5.3	4.5	5.2	5.2	4.5	5.2	
Act Effct Green (s)	8.8	8.8		13.6	13.6	13.6	26.2	19.1	19.1	36.2	29.4	
Actuated g/C Ratio	0.12	0.12		0.18	0.18	0.18	0.35	0.26	0.26	0.49	0.40	
v/c Ratio	0.60	0.67		0.32	0.51	0.56	0.13	0.67	0.50	0.68	0.35	
Control Delay	47.1	40.4		27.8	33.1	8.7	12.5	29.4	6.0	21.8	17.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.1	40.4		27.8	33.1	8.7	12.5	29.4	6.0	21.8	17.8	
LOS	D	D		C	C	A	B	C	A	C	B	
Approach Delay		42.4			20.8			20.7			19.3	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	58	66		43	77	5	11	132	0	74	86	
Queue Length 95th (ft)	#149	#138		70	138	67	29	198	52	#164	126	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	218	442		1226	672	757	382	1100	734	441	1451	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.59	0.66		0.17	0.27	0.40	0.13	0.55	0.45	0.65	0.34	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 73.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 23.5
 Intersection Capacity Utilization 61.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	0	190	0	0	0	0	260	15	160	335	0
Future Volume (vph)	65	0	190	0	0	0	0	260	15	160	335	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3426	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3426	0	1711	3490	0
Lane Group Flow (vph)	0	76	221	0	0	0	0	322	0	184	372	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 5.2













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	65	0	190	0	0	0	0	260	15	160	335	0
Future Vol, veh/h	65	0	190	0	0	0	0	260	15	160	335	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	76	0	221	0	0	0	0	302	20	184	372	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	891	1042	186	-	0	0	302	0	0
Stage 1	740	740	-	-	-	-	-	-	-
Stage 2	151	302	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	269	232	831	0	-	-	1256	-	0
Stage 1	415	426	-	0	-	-	-	-	0
Stage 2	841	668	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	230	0	831	-	-	-	1256	-	-
Mov Cap-2 Maneuver	230	0	-	-	-	-	-	-	-
Stage 1	354	0	-	-	-	-	-	-	-
Stage 2	841	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	230	831	1256	-
HCM Lane V/C Ratio	-	-	0.329	0.266	0.146	-
HCM Control Delay (s)	-	-	28.1	10.9	8.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.4	1.1	0.5	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	25	120	225	0	0	535
Future Volume (vph)	25	120	225	0	0	535
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Lane Group Flow (vph)	36	152	268	0	0	569
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 24.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	25	120	225	0	0	535
Future Vol, veh/h	25	120	225	0	0	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	36	152	268	0	0	569

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	134	0	-	-	-
Stage 1	268	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	451	887	-	0	0	-
Stage 1	738	-	-	0	0	-
Stage 2	723	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	451	887	-	-	-	-
Mov Cap-2 Maneuver	451	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.6		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT	
Capacity (veh/h)	-	451	887	-
HCM Lane V/C Ratio	-	0.08	0.171	-
HCM Control Delay (s)	-	13.7	9.9	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.3	0.6	-

Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	545	0	0	370	75	175	0	50	0	0	0
Future Volume (vph)	605	545	0	0	370	75	175	0	50	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3434	0	0	1736	1583	0	0	0
Flt Permitted	0.297							0.950				
Satd. Flow (perm)	553	3574	0	0	3434	0	0	1736	1583	0	0	0
Satd. Flow (RTOR)					29				97			
Lane Group Flow (vph)	703	619	0	0	477	0	0	240	83	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	30.0	60.0			30.0		30.0	30.0	30.0			
Total Lost Time (s)	4.5	6.5			6.5			5.9	5.9			
Act Effct Green (s)	47.5	45.5			15.1			15.5	15.5			
Actuated g/C Ratio	0.65	0.62			0.21			0.21	0.21			
v/c Ratio	0.90	0.28			0.66			0.66	0.20			
Control Delay	29.9	7.4			30.3			36.1	5.8			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	29.9	7.4			30.3			36.1	5.8			
LOS	C	A			C			D	A			
Approach Delay		19.4			30.3			28.3				
Approach LOS		B			C			C				
Queue Length 50th (ft)	196	58			97			99	0			
Queue Length 95th (ft)	#482	110			163			43	4			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	785	2636			1132			576	590			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	0.90	0.23			0.42			0.42	0.14			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 73.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St




















Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1110	235	45	500	0	0	0	0	30	0	255
Future Volume (vph)	0	1110	235	45	500	0	0	0	0	30	0	255
Satd. Flow (prot)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Lane Group Flow (vph)	0	1577	0	60	575	0	0	0	0	0	32	293
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑	↑
Traffic Vol, veh/h	0	1110	235	45	500	0	0	0	0	30	0	255
Future Vol, veh/h	0	1110	235	45	500	0	0	0	0	30	0	255
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	1276	301	60	575	0	0	0	0	32	0	293

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1276	0	0	1333	1971	287
Stage 1	-	-	-	-	-	-	695	695	-
Stage 2	-	-	-	-	-	-	638	1276	-
Critical Hdwy	-	-	-	4.22	-	-	6.92	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	5.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.92	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	519	-	0	140	63	713
Stage 1	0	-	-	-	-	0	446	447	-
Stage 2	0	-	-	-	-	0	478	240	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	519	-	-	124	0	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	0	-
Stage 1	-	-	-	-	-	-	394	0	-
Stage 2	-	-	-	-	-	-	478	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	519	-	124	713
HCM Lane V/C Ratio	-	-	0.116	-	0.257	0.411
HCM Control Delay (s)	-	-	12.8	-	43.8	13.5
HCM Lane LOS	-	-	B	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	1	2

Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	670	80	245	405	60	145	320	555	110	205	50
Future Volume (vph)	95	670	80	245	405	60	145	320	555	110	205	50
Satd. Flow (prot)	1787	3493	0	1787	1845	1599	1805	1900	1615	1752	1817	0
Flt Permitted	0.309			0.137			0.347			0.360		
Satd. Flow (perm)	581	3493	0	258	1845	1599	659	1900	1615	664	1817	0
Satd. Flow (RTOR)		19				142			303		13	
Lane Group Flow (vph)	108	880	0	263	466	68	216	390	677	120	303	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	29.0		15.0	33.0	33.0	14.0	34.0	34.0	12.0	32.0	
Total Lost Time (s)	4.5	5.6		4.5	5.6	5.6	4.5	5.7	5.7	4.5	5.7	
Act Effct Green (s)	31.1	23.5		39.3	30.2	30.2	36.0	27.5	27.5	31.4	22.9	
Actuated g/C Ratio	0.36	0.27		0.45	0.35	0.35	0.42	0.32	0.32	0.36	0.26	
v/c Ratio	0.36	0.91		0.87	0.73	0.10	0.55	0.65	0.94	0.36	0.62	
Control Delay	19.1	46.5		48.6	35.6	0.3	21.0	32.1	40.1	17.8	32.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.1	46.5		48.6	35.6	0.3	21.0	32.1	40.1	17.8	32.5	
LOS	B	D		D	D	A	C	C	D	B	C	
Approach Delay		43.5			36.9			34.4			28.3	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	36	254		98	245	0	72	190	228	38	139	
Queue Length 95th (ft)	66	#365		#243	#383	0	84	254	#373	71	200	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	300	962		303	641	648	399	623	733	336	563	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.36	0.91		0.87	0.73	0.10	0.54	0.63	0.92	0.36	0.54	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 86.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 74.7%

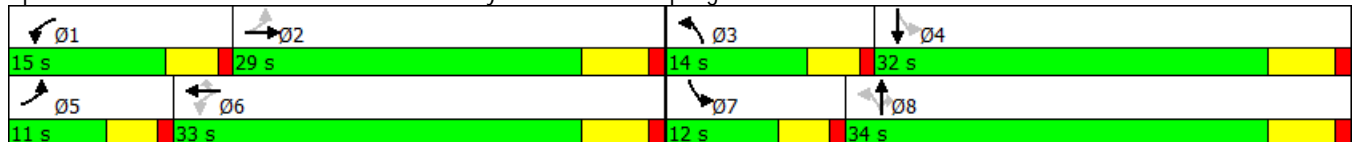
ICU Level of Service D

Analysis Period (min) 15










95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	715	295	295	105	5
Future Volume (vph)	0	715	295	295	105	5
Satd. Flow (prot)	0	1881	1739	0	1800	0
Flt Permitted					0.955	
Satd. Flow (perm)	0	1881	1739	0	1800	0
Lane Group Flow (vph)	0	831	628	0	144	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↖	↗
Traffic Vol, veh/h	0	715	295	295	105	5
Future Vol, veh/h	0	715	295	295	105	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	831	321	307	136	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	321	0	1152
Stage 1	-	-	321
Stage 2	-	-	831
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1250	0	221
Stage 1	-	0	740
Stage 2	-	0	431
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1250	-	221
Mov Cap-2 Maneuver	-	-	338
Stage 1	-	-	740
Stage 2	-	-	431

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1250	-	-	348
HCM Lane V/C Ratio	-	-	-	0.415
HCM Control Delay (s)	0	-	-	22.5
HCM Lane LOS	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	2

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	540	25	20	275	15	25	170	20	170	145	50
Future Volume (vph)	130	540	25	20	275	15	25	170	20	170	145	50
Satd. Flow (prot)	1805	1869	0	1703	1846	0	1805	1862	0	1805	1823	0
Flt Permitted	0.444			0.181			0.609			0.309		
Satd. Flow (perm)	844	1869	0	324	1846	0	1157	1862	0	587	1823	0
Satd. Flow (RTOR)		3			5			8			16	
Lane Group Flow (vph)	144	683	0	36	304	0	32	239	0	221	217	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	43.0		11.0	43.0		11.0	25.0		11.0	25.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	50.2	45.5		46.4	40.1		22.3	16.0		26.4	22.2	
Actuated g/C Ratio	0.56	0.51		0.52	0.45		0.25	0.18		0.29	0.25	
v/c Ratio	0.26	0.72		0.14	0.37		0.10	0.71		0.78	0.47	
Control Delay	8.3	19.6		10.2	18.4		21.2	44.9		44.9	23.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.8	
Total Delay	8.3	19.6		10.2	18.5		21.2	44.9		44.9	23.8	
LOS	A	B		B	B		C	D		D	C	
Approach Delay		17.7			17.6			42.1			34.5	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	23	239		8	111		13	124		80	58	
Queue Length 95th (ft)	56	415		14	179		27	171		#101	87	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	551	946		268	825		336	430		285	481	
Starvation Cap Reductn	0	0		0	0		0	0		0	92	
Spillback Cap Reductn	11	0		0	24		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.72		0.13	0.38		0.10	0.56		0.78	0.56	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 37 (41%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 25.1
 Intersection Capacity Utilization 69.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

Ø1	Ø2 (R)	Ø3	Ø4
11 s	43 s	11 s	25 s
Ø5	Ø6	Ø7	Ø8
11 s	43 s	11 s	25 s

Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	360	30	10	415	65	50	75	15	70	105	30
Future Volume (vph)	20	360	30	10	415	65	50	75	15	70	105	30
Satd. Flow (prot)	1805	1849	0	1805	1842	0	1805	1854	0	1787	1812	0
Flt Permitted	0.323			0.423			0.657			0.535		
Satd. Flow (perm)	614	1849	0	804	1842	0	1248	1854	0	1006	1812	0
Satd. Flow (RTOR)		7			12			9			13	
Lane Group Flow (vph)	24	448	0	12	517	0	52	124	0	100	151	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	41.0		15.0	41.0		15.0	19.0		15.0	19.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	55.5	53.5		54.6	50.6		20.9	12.9		22.1	15.9	
Actuated g/C Ratio	0.62	0.59		0.61	0.56		0.23	0.14		0.25	0.18	
v/c Ratio	0.05	0.41		0.02	0.50		0.15	0.45		0.30	0.46	
Control Delay	8.3	13.6		7.2	12.1		23.1	38.2		17.1	22.4	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	8.3	13.6		7.2	12.3		23.1	38.2		17.1	22.4	
LOS	A	B		A	B		C	D		B	C	
Approach Delay		13.3			12.2			33.8			20.3	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	5	119		2	145		21	61		19	24	
Queue Length 95th (ft)	14	283		m4	m164		46	87		33	52	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	518	1101		606	1040		359	306		339	352	
Starvation Cap Reductn	0	0		0	124		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.41		0.02	0.56		0.14	0.41		0.29	0.43	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 12 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

Ø1	Ø2 (R)	Ø3	Ø4
15 s	41 s	15 s	19 s
Ø5	Ø6 (R)	Ø7	Ø8
15 s	41 s	15 s	19 s

Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

2017 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	375	55	45	445	25	65	185	30	35	275	45
Future Volume (vph)	40	375	55	45	445	25	65	185	30	35	275	45
Satd. Flow (prot)	1770	1845	0	1805	1860	0	1770	1841	0	1805	1854	0
Flt Permitted	0.164			0.221			0.264			0.546		
Satd. Flow (perm)	305	1845	0	420	1860	0	492	1841	0	1037	1854	0
Satd. Flow (RTOR)		9			5			15			11	
Lane Group Flow (vph)	44	510	0	56	561	0	76	251	0	52	395	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	38.0		11.0	38.0		11.0	30.0		11.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.8		4.5	4.8	
Act Effct Green (s)	30.2	27.0		30.2	27.0		26.9	23.3		25.7	20.7	
Actuated g/C Ratio	0.42	0.38		0.42	0.38		0.37	0.32		0.36	0.29	
v/c Ratio	0.16	0.73		0.18	0.80		0.24	0.41		0.12	0.73	
Control Delay	13.3	28.7		13.4	32.7		17.9	24.8		16.5	35.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.3	28.7		13.4	32.7		17.9	24.8		16.5	35.0	
LOS	B	C		B	C		B	C		B	D	
Approach Delay		27.5			30.9			23.2			32.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	12	234		15	269		25	108		17	194	
Queue Length 95th (ft)	30	327		31	385		52	183		29	273	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	282	995		322	1002		318	782		452	764	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.51		0.17	0.56		0.24	0.32		0.12	0.52	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 71.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 29.1

Intersection Capacity Utilization 67.4%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	38 s	11 s	30 s
Ø5	Ø6	Ø7	Ø8
11 s	38 s	11 s	30 s

Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

2017 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	320	45	75	490	25	55	70	65	20	75	35
Future Volume (vph)	15	320	45	75	490	25	55	70	65	20	75	35
Satd. Flow (prot)	1805	1848	0	1805	1863	0	1805	1785	0	1656	1791	0
Flt Permitted	0.259			0.355			0.591			0.638		
Satd. Flow (perm)	492	1848	0	674	1863	0	1123	1785	0	1112	1791	0
Satd. Flow (RTOR)		11			4			30			21	
Lane Group Flow (vph)	20	408	0	100	622	0	72	189	0	24	148	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	47.0		11.0	47.0		11.0	21.0		11.0	21.0	
Total Lost Time (s)	4.5	4.8		4.5	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)	30.3	25.2		32.8	30.6		15.8	13.6		14.7	11.3	
Actuated g/C Ratio	0.49	0.41		0.53	0.50		0.26	0.22		0.24	0.18	
v/c Ratio	0.05	0.53		0.20	0.67		0.20	0.45		0.07	0.43	
Control Delay	8.0	18.1		8.6	18.7		20.9	26.3		20.4	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.0	18.1		8.6	18.7		20.9	26.3		20.4	29.0	
LOS	A	B		A	B		C	C		C	C	
Approach Delay		17.6			17.3			24.9			27.8	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	3	124		18	156		17	40		5	41	
Queue Length 95th (ft)	11	226		35	347		51	88		25	93	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	405	1351		498	1360		371	594		334	563	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.30		0.20	0.46		0.19	0.32		0.07	0.26	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 61.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 19.8
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 44: Scott Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	47 s	11 s	21 s
Ø5	Ø6	Ø7	Ø8
11 s	47 s	11 s	21 s

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

2017 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	255	100	40	340	80	35	150	115	40	220	20
Future Volume (vph)	25	255	100	40	340	80	35	150	115	40	220	20
Satd. Flow (prot)	1805	1802	0	1805	1818	0	1805	1763	0	1805	1872	0
Flt Permitted	0.269			0.298			0.418			0.386		
Satd. Flow (perm)	511	1802	0	566	1818	0	794	1763	0	733	1872	0
Satd. Flow (RTOR)		25			16			51			6	
Lane Group Flow (vph)	32	459	0	44	487	0	56	340	0	48	281	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	39.0		11.0	39.0		11.0	29.0		11.0	29.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	42.8	38.9		42.8	38.9		32.8	28.9		31.9	26.7	
Actuated g/C Ratio	0.48	0.43		0.48	0.43		0.36	0.32		0.35	0.30	
v/c Ratio	0.10	0.58		0.12	0.61		0.16	0.57		0.14	0.50	
Control Delay	7.2	15.4		12.3	24.5		14.5	18.1		18.2	30.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.6		0.0	0.1	
Total Delay	7.2	15.4		12.3	24.5		14.5	18.7		18.2	30.5	
LOS	A	B		B	C		B	B		B	C	
Approach Delay		14.8			23.4			18.1			28.7	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	5	144		12	219		15	79		17	134	
Queue Length 95th (ft)	m11	145		29	317		24	119		36	204	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	336	793		358	795		362	601		337	559	
Starvation Cap Reductn	0	0		0	0		0	64		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	13	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.58		0.12	0.61		0.15	0.63		0.14	0.51	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 34 (38%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 20.8

Intersection LOS: C

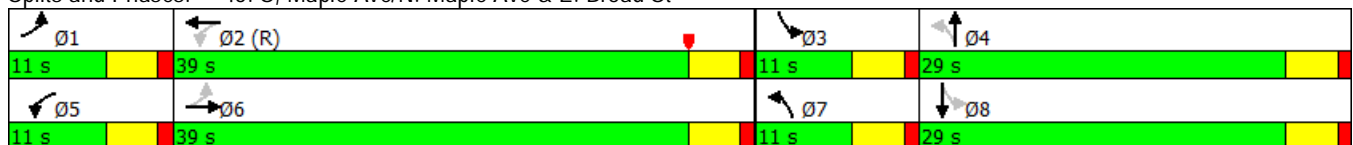
Intersection Capacity Utilization 62.7%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

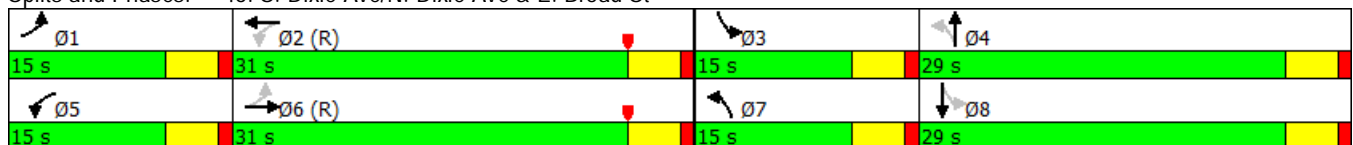
2017 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	295	25	25	275	50	20	115	25	50	155	20
Future Volume (vph)	25	295	25	25	275	50	20	115	25	50	155	20
Satd. Flow (prot)	1805	1845	0	1736	1839	0	1805	1845	0	1805	1866	0
Flt Permitted	0.421			0.457			0.538			0.446		
Satd. Flow (perm)	800	1845	0	835	1839	0	1022	1845	0	847	1866	0
Satd. Flow (RTOR)		7			11			13			7	
Lane Group Flow (vph)	32	343	0	32	380	0	28	164	0	68	240	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	31.0		15.0	31.0		15.0	29.0		15.0	29.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	51.1	45.1		51.1	45.1		23.6	15.6		25.4	21.4	
Actuated g/C Ratio	0.57	0.50		0.57	0.50		0.26	0.17		0.28	0.24	
v/c Ratio	0.06	0.37		0.06	0.41		0.08	0.50		0.20	0.54	
Control Delay	10.7	19.3		9.1	14.7		13.3	25.1		20.7	33.6	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	10.7	19.3		9.1	14.8		13.3	25.1		20.7	33.6	
LOS	B	B		A	B		B	C		C	C	
Approach Delay		18.5			14.4			23.4			30.8	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	7	128		6	85		8	47		28	105	
Queue Length 95th (ft)	21	243		13	103		m15	81		40	145	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	573	928		582	927		363	511		352	532	
Starvation Cap Reductn	0	0		0	70		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.37		0.05	0.44		0.08	0.32		0.19	0.45	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 6 (7%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 20.9
 Intersection Capacity Utilization 50.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

2017 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	205	35	55	175	60	30	170	45	65	270	15
Future Volume (vph)	10	205	35	55	175	60	30	170	45	65	270	15
Satd. Flow (prot)	0	1850	0	0	1870	1583	1805	1837	0	1770	1885	0
Flt Permitted		0.998			0.987		0.407			0.469		
Satd. Flow (perm)	0	1850	0	0	1870	1583	773	1837	0	874	1885	0
Satd. Flow (RTOR)		10				138		15			3	
Lane Group Flow (vph)	0	292	0	0	279	68	40	233	0	92	319	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	28.0	28.0		24.0	24.0	24.0	11.0	27.0		11.0	27.0	
Total Lost Time (s)		4.5			4.5	4.5	4.5	5.4		4.5	5.4	
Act Effct Green (s)		17.1			16.0	16.0	22.5	16.8		23.6	19.3	
Actuated g/C Ratio		0.23			0.22	0.22	0.31	0.23		0.32	0.26	
v/c Ratio		0.67			0.69	0.15	0.12	0.54		0.25	0.64	
Control Delay		35.2			39.0	0.7	18.2	31.0		19.5	33.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		35.2			39.0	0.7	18.2	31.0		19.5	33.8	
LOS		D			D	A	B	C		B	C	
Approach Delay		35.2			31.5			29.1			30.6	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)		131			130	0	12	95		29	146	
Queue Length 95th (ft)		215			221	0	29	181		52	254	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		642			533	550	335	590		365	605	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.45			0.52	0.12	0.12	0.39		0.25	0.53	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 73.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 31.6
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St



Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

2017 Optimized PM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	45	5	25	35	160	5	65	20	175	120	45
Future Volume (vph)	45	45	5	25	35	160	5	65	20	175	120	45
Satd. Flow (prot)	0	1839	0	0	1722	0	0	1798	0	0	1794	0
Flt Permitted		0.973			0.994			0.998			0.975	
Satd. Flow (perm)	0	1839	0	0	1722	0	0	1798	0	0	1794	0
Lane Group Flow (vph)	0	128	0	0	276	0	0	105	0	0	372	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Intersection Delay, s/veh 12
Intersection LOS B











Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	45	45	5	0	25	35	160	0	5	65	20
Future Vol, veh/h	0	45	45	5	0	25	35	160	0	5	65	20
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	71	52	5	0	36	60	180	0	5	76	24
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		10.2				11.1				9.5		
HCM LOS		B				B				A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	47%	11%	51%
Vol Thru, %	72%	47%	16%	35%
Vol Right, %	22%	5%	73%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	95	220	340
LT Vol	5	45	25	175
Through Vol	65	45	35	120
RT Vol	20	5	160	45
Lane Flow Rate	105	128	276	372
Geometry Grp	1	1	1	1
Degree of Util (X)	0.158	0.202	0.383	0.536
Departure Headway (Hd)	5.448	5.688	4.991	5.187
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	657	631	721	696
Service Time	3.492	3.732	3.028	3.218
HCM Lane V/C Ratio	0.16	0.203	0.383	0.534
HCM Control Delay	9.5	10.2	11.1	14.1
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.6	0.8	1.8	3.2

Intersection
 Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	175	120	45
Future Vol, veh/h	0	175	120	45
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	188	128	56
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		14.1		
HCM LOS		B		

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	160	155	115	175	85
Future Volume (vph)	55	160	155	115	175	85
Satd. Flow (prot)	1787	1599	0	1837	1795	0
Flt Permitted	0.950			0.971		
Satd. Flow (perm)	1787	1599	0	1837	1795	0
Lane Group Flow (vph)	64	163	0	331	311	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15











Intersection
 Intersection Delay, s/veh 11.2
 Intersection LOS B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↶		↷	
Traffic Vol, veh/h	0	55	160	0	155	115	0	175	85
Future Vol, veh/h	0	55	160	0	155	115	0	175	85
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	64	163	0	196	135	0	199	112
Number of Lanes	0	1	1	0	0	1	0	1	0
Approach		EB			NB			SB	
Opposing Approach					SB			NB	
Opposing Lanes		0			1			1	
Conflicting Approach Left		SB			EB				
Conflicting Lanes Left		1			2			0	
Conflicting Approach Right		NB						EB	
Conflicting Lanes Right		1			0			2	
HCM Control Delay		9.9			12.3			11.1	
HCM LOS		A			B			B	

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	57%	100%	0%	0%
Vol Thru, %	43%	0%	0%	67%
Vol Right, %	0%	0%	100%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	55	160	260
LT Vol	155	55	0	0
Through Vol	115	0	0	175
RT Vol	0	0	160	85
Lane Flow Rate	331	64	163	311
Geometry Grp	2	7	7	2
Degree of Util (X)	0.458	0.117	0.244	0.408
Departure Headway (Hd)	4.976	6.596	5.38	4.729
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	716	547	671	752
Service Time	3.065	4.296	3.08	2.817
HCM Lane V/C Ratio	0.462	0.117	0.243	0.414
HCM Control Delay	12.3	10.2	9.8	11.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.4	0.4	1	2

Lanes, Volumes, Timings

50: US 70/W. Spring St/US 70/W. Broad St & W. Broad St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	215	360	10	110	250
Future Volume (vph)	5	215	360	10	110	250
Satd. Flow (prot)	1805	1615	1855	0	0	1833
Flt Permitted	0.950					0.985
Satd. Flow (perm)	1805	1615	1855	0	0	1833
Lane Group Flow (vph)	8	272	466	0	0	415
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔			↔
Traffic Vol, veh/h	5	215	360	10	110	250
Future Vol, veh/h	5	215	360	10	110	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	8	272	450	16	128	287

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1001	458	0	0	466	0
Stage 1	458	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	7.1	6.2	-	-	4.1	-
Critical Hdwy Stg 1	6.1	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	223	607	-	-	1106	-
Stage 1	587	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	199	607	-	-	1106	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	455	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	2.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	322	607	1106	-
HCM Lane V/C Ratio	-	-	0.025	0.448	0.116	-
HCM Control Delay (s)	-	-	16.5	15.7	8.7	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	2.3	0.4	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

2017 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	200	160	10	325	105	295	340	30	55	125	5
Future Volume (vph)	5	200	160	10	325	105	295	340	30	55	125	5
Satd. Flow (prot)	1805	1863	1553	1805	1807	0	1805	1900	1615	0	1858	0
Flt Permitted	0.186			0.559			0.950				0.984	
Satd. Flow (perm)	353	1863	1553	1062	1807	0	1805	1900	1615	0	1858	0
Satd. Flow (RTOR)			176		22				218		1	
Lane Group Flow (vph)	12	233	176	16	501	0	355	370	32	0	213	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	11.0	33.0	33.0	11.0	33.0		26.0	26.0		20.0	20.0	
Total Lost Time (s)	4.5	5.9	5.9	4.5	5.9		5.5	5.5			5.1	
Act Effct Green (s)	27.0	24.5	24.5	27.0	24.5		19.1	19.1	75.3		13.0	
Actuated g/C Ratio	0.36	0.33	0.33	0.36	0.33		0.25	0.25	1.00		0.17	
v/c Ratio	0.05	0.38	0.28	0.04	0.83		0.78	0.77	0.02		0.67	
Control Delay	15.8	23.3	5.1	15.6	37.6		41.6	40.4	0.0		42.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	15.8	23.3	5.1	15.6	37.6		41.6	40.4	0.0		42.3	
LOS	B	C	A	B	D		D	D	A		D	
Approach Delay		15.5			36.9			39.2			42.3	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	4	84	0	5	207		159	166	0		97	
Queue Length 95th (ft)	6	163	45	12	#449		#301	#355	0		#204	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	255	686	683	447	680		503	529	1615		377	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.05	0.34	0.26	0.04	0.74		0.71	0.70	0.02		0.56	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 75.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 33.7
 Intersection Capacity Utilization 65.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St

11 s	33 s	26 s	20 s
11 s	33 s		

Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	20	815	645	75	90	45		
Future Volume (vph)	20	815	645	75	90	45		
Satd. Flow (prot)	1719	1900	1847	0	1722	0		
Flt Permitted	0.152				0.968			
Satd. Flow (perm)	275	1900	1847	0	1722	0		
Satd. Flow (RTOR)			11		24			
Lane Group Flow (vph)	28	867	808	0	180	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	11.0	60.0			19.0		49.0	11.0
Total Lost Time (s)	4.5	6.6			4.7			
Act Effct Green (s)	48.4	46.2	51.1		12.9			
Actuated g/C Ratio	0.59	0.56	0.62		0.16			
v/c Ratio	0.10	0.81	0.70		0.62			
Control Delay	7.5	21.3	5.5		39.8			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	7.5	21.3	5.5		39.8			
LOS	A	C	A		D			
Approach Delay		20.8	5.5		39.8			
Approach LOS		C	A		D			
Queue Length 50th (ft)	6	339	11		83			
Queue Length 95th (ft)	12	505	#99		120			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	279	1266	1229		326			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.10	0.68	0.66		0.55			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 16.1

Intersection LOS: B

Intersection Capacity Utilization 60.0%

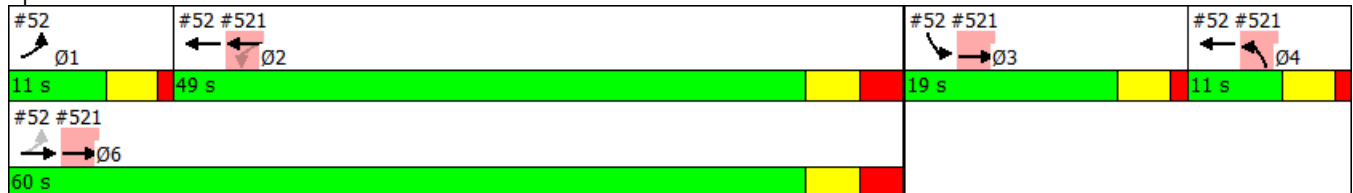
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

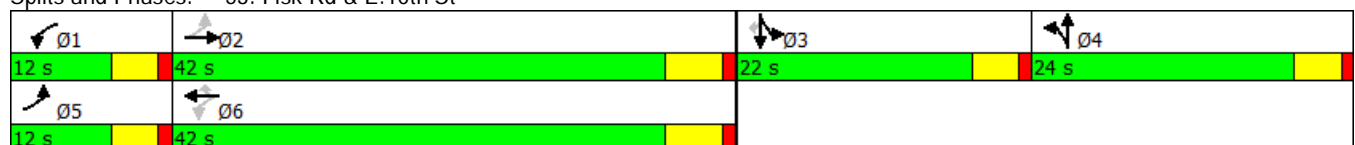
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	710	20	10	525	190	30	45	15	165	30	80
Future Volume (vph)	90	710	20	10	525	190	30	45	15	165	30	80
Satd. Flow (prot)	1805	1872	0	1805	1900	1599	0	1802	0	0	1737	1599
Flt Permitted	0.205			0.155				0.986			0.960	
Satd. Flow (perm)	390	1872	0	294	1900	1599	0	1802	0	0	1737	1599
Satd. Flow (RTOR)		2				184		7				123
Lane Group Flow (vph)	103	768	0	10	597	241	0	123	0	0	219	92
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	12.0	42.0		12.0	42.0	42.0	24.0	24.0		22.0	22.0	22.0
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3		4.5			4.5	4.5
Act Effct Green (s)	45.8	43.7		42.0	36.6	36.6		11.0			15.0	15.0
Actuated g/C Ratio	0.55	0.53		0.50	0.44	0.44		0.13			0.18	0.18
v/c Ratio	0.30	0.78		0.04	0.71	0.30		0.51			0.70	0.24
Control Delay	13.6	26.8		11.4	29.2	6.8		41.7			47.4	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	13.6	26.8		11.4	29.2	6.8		41.7			47.4	4.8
LOS	B	C		B	C	A		D			D	A
Approach Delay		25.2			22.6			41.7			34.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	27	329		3	293	20		63			117	0
Queue Length 95th (ft)	56	#742		11	#488	53		79			187	21
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	346	983		292	882	841		441			377	444
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.30	0.78		0.03	0.68	0.29		0.28			0.58	0.21

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 83.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 26.5
 Intersection Capacity Utilization 72.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	710	145	110	565	175	150
Future Volume (vph)	710	145	110	565	175	150
Satd. Flow (prot)	1863	1583	1787	1881	1770	1615
Flt Permitted			0.184		0.950	
Satd. Flow (perm)	1863	1583	346	1881	1770	1615
Satd. Flow (RTOR)		156				217
Lane Group Flow (vph)	772	156	133	601	233	217
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	54.0	54.0	14.0		22.0	22.0
Total Lost Time (s)	5.5	5.5	4.5		4.7	4.7
Act Effct Green (s)	49.4	49.4	60.8	65.3	15.5	15.5
Actuated g/C Ratio	0.55	0.55	0.68	0.73	0.17	0.17
v/c Ratio	0.75	0.17	0.33	0.44	0.76	0.47
Control Delay	21.9	2.2	10.0	7.5	52.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	2.2	10.0	7.5	52.3	8.4
LOS	C	A	B	A	D	A
Approach Delay	18.6			7.9	31.1	
Approach LOS	B			A	C	
Queue Length 50th (ft)	325	0	26	127	125	0
Queue Length 95th (ft)	483	27	59	220	163	18
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	1023	939	399	1364	340	485
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.17	0.33	0.44	0.69	0.45

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 32 (36%), Referenced to phase 2:EBWB and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	210	225	590	0	0	0	0	90	0	150
Future Volume (vph)	0	690	210	225	590	0	0	0	0	90	0	150
Satd. Flow (prot)	0	3441	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.182						0.950		
Satd. Flow (perm)	0	3441	0	336	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		55										176
Lane Group Flow (vph)	0	1056	0	256	615	0	0	0	0	100	0	176
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		44.0		25.0	69.0					21.0		21.0
Total Lost Time (s)		5.3		4.5	5.3					5.9		5.9
Act Effct Green (s)		48.9		66.3	65.5					13.3		13.3
Actuated g/C Ratio		0.54		0.74	0.73					0.15		0.15
v/c Ratio		0.56		0.58	0.24					0.38		0.46
Control Delay		7.5		9.6	3.3					39.3		9.8
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		7.5		9.6	3.3					39.3		9.8
LOS		A		A	A					D		A
Approach Delay		7.5			5.2						20.5	
Approach LOS		A			A						C	
Queue Length 50th (ft)		71		42	60					52		0
Queue Length 95th (ft)		116		20	3					99		47
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		1893		570	2601					296		412
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.56		0.45	0.24					0.34		0.43

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.2

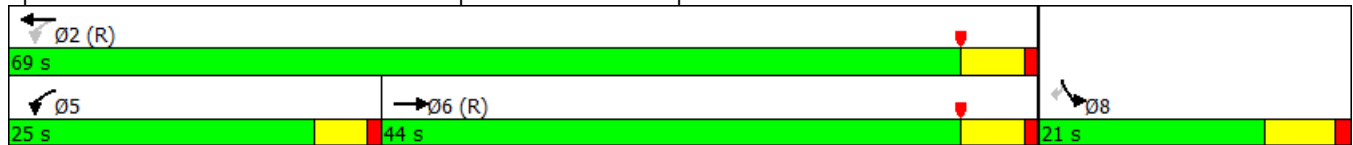
Intersection LOS: A

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	565	0	0	625	230	190	0	360	0	0	0
Future Volume (vph)	220	565	0	0	625	230	190	0	360	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3424	0	1787	0	1599	0	0	0
Flt Permitted	0.199						0.950					
Satd. Flow (perm)	371	3574	0	0	3424	0	1787	0	1599	0	0	0
Satd. Flow (RTOR)					83				276			
Lane Group Flow (vph)	286	642	0	0	942	0	211	0	414	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	23.0	60.0			37.0		30.0		30.0			
Total Lost Time (s)	4.5	5.3			5.3		5.9		5.9			
Act Effct Green (s)	62.9	62.1			44.0		16.7		16.7			
Actuated g/C Ratio	0.70	0.69			0.49		0.19		0.19			
v/c Ratio	0.61	0.26			0.55		0.64		0.79			
Control Delay	10.9	5.5			21.4		41.8		23.0			
Queue Delay	0.0	0.0			1.4		0.0		0.2			
Total Delay	10.9	5.5			22.9		41.8		23.2			
LOS	B	A			C		D		C			
Approach Delay		7.2			22.9			29.5				
Approach LOS		A			C			C				
Queue Length 50th (ft)	47	58			195		113		73			
Queue Length 95th (ft)	95	123			316		166		152			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	547	2466			1715		478		630			
Starvation Cap Reductn	0	0			539		0		0			
Spillback Cap Reductn	0	215			0		0		16			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.52	0.29			0.80		0.44		0.67			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 7 (8%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.7

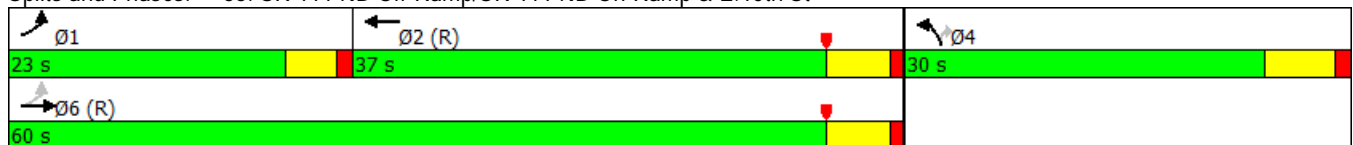
Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Volume (vph)	835	85	25	710	130	35
Future Volume (vph)	835	85	25	710	130	35
Satd. Flow (prot)	3521	0	1805	3574	1805	1615
Flt Permitted			0.203		0.950	
Satd. Flow (perm)	3521	0	386	3574	1805	1615
Satd. Flow (RTOR)	18					64
Lane Group Flow (vph)	1046	0	28	780	228	64
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	47.0		15.0	62.0	28.0	28.0
Total Lost Time (s)	5.6		4.5	5.6	5.4	5.4
Act Effct Green (s)	56.2		63.1	62.0	17.0	17.0
Actuated g/C Ratio	0.62		0.70	0.69	0.19	0.19
v/c Ratio	0.47		0.07	0.32	0.67	0.18
Control Delay	8.7		5.4	6.4	43.5	8.9
Queue Delay	0.9		0.0	0.2	0.0	0.0
Total Delay	9.5		5.4	6.6	43.5	8.9
LOS	A		A	A	D	A
Approach Delay	9.5			6.6	35.9	
Approach LOS	A			A	D	
Queue Length 50th (ft)	26		4	78	122	0
Queue Length 95th (ft)	354		14	131	107	7
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	2205		436	2461	453	453
Starvation Cap Reductn	790		0	0	0	0
Spillback Cap Reductn	0		0	880	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.74		0.06	0.49	0.50	0.14

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 12.0
 Intersection Capacity Utilization 45.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	25	40	5	70	5	1005	10	55	1165	5
Future Volume (vph)	35	10	25	40	5	70	5	1005	10	55	1165	5
Satd. Flow (prot)	1787	1634	0	0	1678	0	1626	3568	0	1787	3534	0
Flt Permitted	0.771				0.849		0.176			0.210		
Satd. Flow (perm)	1450	1634	0	0	1449	0	301	3568	0	395	3534	0
Satd. Flow (RTOR)		64			76			2			1	
Lane Group Flow (vph)	69	84	0	0	125	0	8	1048	0	64	1285	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	25.0	25.0		25.0	25.0		11.0	54.0		11.0	54.0	
Total Lost Time (s)	5.5	5.5			5.5		4.5	6.5		4.5	6.5	
Act Effct Green (s)	9.2	9.2			9.2		35.6	32.3		37.5	36.5	
Actuated g/C Ratio	0.17	0.17			0.17		0.65	0.59		0.69	0.67	
v/c Ratio	0.28	0.26			0.41		0.02	0.50		0.14	0.54	
Control Delay	28.1	13.3			17.1		3.8	11.0		4.3	8.6	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	28.1	13.3			17.1		3.8	11.0		4.3	8.6	
LOS	C	B			B		A	B		A	A	
Approach Delay		19.9			17.1			11.0			8.4	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	20	6			14		1	136		6	107	
Queue Length 95th (ft)	38	13			72		3	221		18	295	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	571	682			617		371	3017		454	2988	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.12	0.12			0.20		0.02	0.35		0.14	0.43	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 54.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 10.5

Intersection Capacity Utilization 64.6%

Analysis Period (min) 15










Intersection LOS: B

ICU Level of Service C

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

11 s	54 s	25 s
11 s	54 s	25 s

Lanes, Volumes, Timings
95: Foutch Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	0	135	0	50
Future Volume (vph)	10	0	0	135	0	50
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Lane Group Flow (vph)	12	0	0	175	0	52
Sign Control	Yield		Free			Free

Intersection Summary










Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	5	835	1070	5
Future Volume (vph)	15	15	5	835	1070	5
Satd. Flow (prot)	1721	0	0	5136	3606	0
Flt Permitted	0.978					
Satd. Flow (perm)	1721	0	0	5136	3606	0
Lane Group Flow (vph)	44	0	0	869	1111	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 39.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 0.6









Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↑	
Traffic Vol, veh/h	15	15	5	835	1070	5
Future Vol, veh/h	15	15	5	835	1070	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	20	24	8	861	1103	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1467	556	1111	0	-	0
Stage 1	1107	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.25	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	148	480	636	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	144	480	636	-	-	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	24.1		0.2		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	636	-	232	-	-
HCM Lane V/C Ratio	0.012	-	0.189	-	-
HCM Control Delay (s)	10.7	0.1	24.1	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Lanes, Volumes, Timings
 271: Foutch Dr & SR 136/S. Jefferson Ave

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	5	660	605	50	0	0
Future Volume (vph)	5	660	605	50	0	0
Satd. Flow (prot)	0	3346	3327	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3346	3327	0	0	0
Lane Group Flow (vph)	0	730	717	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 25.1%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

2017 Optimized PM Timing Plan

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	0	0	0	0	60	225	5	0	500	65
Future Volume (vph)	0	0	0	0	0	0	60	225	5	0	500	65
Satd. Flow (prot)	0	0	0	0	0	0	0	3296	0	0	3389	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	0	0	0	0	0	0	3296	0	0	3389	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	344	0	0	597	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.7%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↘		↙	↖	↗				
Traffic Volume (vph)	885	20	5	700	20	15			
Future Volume (vph)	885	20	5	700	20	15			
Satd. Flow (prot)	1890	0	1805	1881	1743	0			
Flt Permitted			0.191		0.972				
Satd. Flow (perm)	1890	0	363	1881	1743	0			
Satd. Flow (RTOR)	9				20				
Lane Group Flow (vph)	988	0	8	778	48	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			49.0	49.0	11.0		11.0	19.0	60.0
Total Lost Time (s)			6.6	6.6	4.7				
Act Effct Green (s)	65.9		42.2	42.2	6.4				
Actuated g/C Ratio	0.80		0.52	0.52	0.08				
v/c Ratio	0.65		0.04	0.80	0.31				
Control Delay	1.8		13.2	25.8	32.3				
Queue Delay	0.0		0.0	0.3	0.5				
Total Delay	1.8		13.2	26.1	32.9				
LOS	A		B	C	C				
Approach Delay	1.8			26.0	32.9				
Approach LOS	A			C	C				
Queue Length 50th (ft)	5		2	282	15				
Queue Length 95th (ft)	10		7	#619	36				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1587		201	1045	155				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	39	18				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.62		0.04	0.77	0.35				

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.1

Intersection LOS: B

Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St



Appendix C: 2040 No-Build Conditions Synchro Reports

Lanes, Volumes, Timings
 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Future Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Satd. Flow (prot)	1736	1679	0	1805	1597	0	1805	3518	0	1805	3239	0
Flt Permitted	0.664			0.705			0.424			0.205		
Satd. Flow (perm)	1213	1679	0	1340	1597	0	806	3518	0	390	3239	0
Satd. Flow (RTOR)		48			122			5			91	
Lane Group Flow (vph)	83	80	0	60	146	0	42	974	0	105	603	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	32.0	32.0		32.0	32.0		13.0	42.0		16.0	45.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	9.4	9.4		9.4	9.4		31.9	29.9		34.8	34.8	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.60	0.57		0.66	0.66	
v/c Ratio	0.39	0.24		0.25	0.38		0.07	0.49		0.24	0.28	
Control Delay	27.9	13.6		24.7	10.6		4.6	11.5		5.6	6.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.9	13.6		24.7	10.6		4.6	11.5		5.6	6.4	
LOS	C	B		C	B		A	B		A	A	
Approach Delay		20.9			14.7			11.2			6.3	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)	24	9		17	6		4	113		10	26	
Queue Length 95th (ft)	59	25		28	0		13	176		24	86	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	666	943		736	932		674	2594		582	2544	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.08		0.08	0.16		0.06	0.38		0.18	0.24	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 52.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 49.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Future Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Satd. Flow (prot)	1681	1541	0	0	0	0	0	3417	0	1687	3438	0
Flt Permitted	0.950	0.969								0.148		
Satd. Flow (perm)	1681	1541	0	0	0	0	0	3417	0	263	3438	0
Satd. Flow (RTOR)		33						52				
Lane Group Flow (vph)	249	239	0	0	0	0	0	1233	0	265	772	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	45.0	45.0						27.0		18.0	45.0	
Total Lost Time (s)	6.1	6.1						5.4		5.0	5.4	
Act Effct Green (s)	14.2	14.2						21.8		38.1	37.7	
Actuated g/C Ratio	0.22	0.22						0.34		0.60	0.59	
v/c Ratio	0.66	0.65						1.02		0.66	0.38	
Control Delay	31.7	27.9						55.2		19.2	8.1	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	31.7	27.9						55.2		19.2	8.1	
LOS	C	C						E		B	A	
Approach Delay		29.8						55.2			10.9	
Approach LOS		C						E			B	
Queue Length 50th (ft)	92	74						-244		42	70	
Queue Length 95th (ft)	156	147						#365		123	114	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	1040	966						1208		452	2165	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.24	0.25						1.02		0.59	0.36	

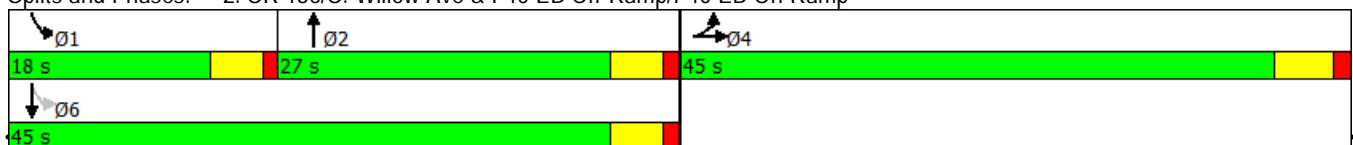
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 63.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 34.1
 Intersection Capacity Utilization 66.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Future Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Satd. Flow (prot)	0	0	0	0	1699	1553	1530	3574	0	0	3321	0
Flt Permitted					0.954		0.160					
Satd. Flow (perm)	0	0	0	0	1699	1553	258	3574	0	0	3321	0
Satd. Flow (RTOR)						85					46	
Lane Group Flow (vph)	0	0	0	0	360	420	73	1210	0	0	846	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				45.0	45.0	45.0	11.0	45.0			34.0	
Total Lost Time (s)					4.0	4.0	5.0	4.0			4.0	
Act Effct Green (s)					24.2	24.2	32.4	33.5			25.3	
Actuated g/C Ratio					0.37	0.37	0.49	0.51			0.38	
v/c Ratio					0.58	0.68	0.30	0.67			0.65	
Control Delay					21.9	20.7	14.3	15.7			21.2	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					21.9	20.7	14.3	15.7			21.2	
LOS					C	C	B	B			C	
Approach Delay					21.2			15.6			21.2	
Approach LOS					C			B			C	
Queue Length 50th (ft)					118	114	15	176			145	
Queue Length 95th (ft)					133	216	39	299			269	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					1123	1056	250	2363			1649	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.32	0.40	0.29	0.51			0.51	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 18.8

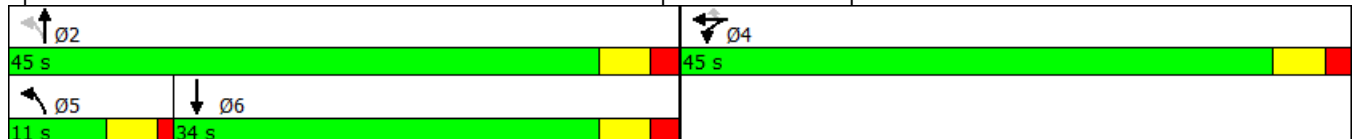
Intersection Capacity Utilization 66.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Future Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Satd. Flow (prot)	1719	1687	0	1752	1810	1553	1752	3428	0	1770	3372	0
Flt Permitted	0.690			0.237			0.430			0.105		
Satd. Flow (perm)	1249	1687	0	437	1810	1553	793	3428	0	196	3372	0
Satd. Flow (RTOR)		29				225		54			12	
Lane Group Flow (vph)	115	300	0	253	104	225	84	1435	0	250	581	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	14.0	18.0		17.0	21.0	21.0	11.0	39.0		16.0	44.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	6.5	5.0	4.0		5.0	4.0	
Act Effct Green (s)	21.1	14.0		28.6	20.0	17.5	39.9	35.0		49.6	41.9	
Actuated g/C Ratio	0.24	0.16		0.32	0.22	0.20	0.45	0.39		0.55	0.47	
v/c Ratio	0.34	1.05		0.80	0.26	0.46	0.20	1.05		0.85	0.37	
Control Delay	25.0	100.7		45.0	33.0	8.4	11.2	64.5		44.8	16.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.0	100.7		45.0	33.0	8.4	11.2	64.5		44.8	16.5	
LOS	C	F		D	C	A	B	E		D	B	
Approach Delay		79.7			28.7			61.5			25.0	
Approach LOS		E			C			E			C	
Queue Length 50th (ft)	46	~172		111	51	0	21	~463		86	110	
Queue Length 95th (ft)	61	#327		#180	77	41	38	#563		#173	152	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	354	287		315	404	484	418	1372		302	1582	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.32	1.05		0.80	0.26	0.46	0.20	1.05		0.83	0.37	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 49.0
 Intersection Capacity Utilization 86.7%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.












Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

Cookeville 2040 No-Build Conditions

06/20/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	65	975	80	55	730
Future Volume (vph)	20	65	975	80	55	730
Satd. Flow (prot)	1805	1583	3496	0	1805	3471
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3496	0	1805	3471
Lane Group Flow (vph)	32	73	1240	0	79	777
Sign Control	Stop		Free			Free

Intersection Summary












Control Type: Unsignalized

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	10	960	20	0	800
Future Volume (vph)	0	10	960	20	0	800
Satd. Flow (prot)	0	1522	3491	0	0	3438
Flt Permitted						
Satd. Flow (perm)	0	1522	3491	0	0	3438
Lane Group Flow (vph)	0	16	1106	0	0	870
Sign Control	Stop		Free			Free

Intersection Summary















Control Type: Unsignalized

Intersection Capacity Utilization 37.2%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	75	40	15	990	820	20
Future Volume (vph)	75	40	15	990	820	20
Satd. Flow (prot)	1787	1568	1805	3505	3447	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1787	1568	1805	3505	3447	0
Lane Group Flow (vph)	99	43	24	1151	1002	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

Cookeville 2040 No-Build Conditions

06/20/2017

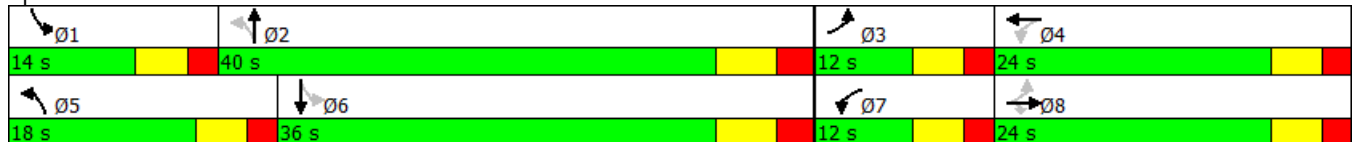
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Future Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Satd. Flow (prot)	1752	3574	1524	1787	3299	0	1736	3451	0	1787	3504	0
Flt Permitted	0.446			0.273			0.253			0.150		
Satd. Flow (perm)	823	3574	1524	514	3299	0	462	3451	0	282	3504	0
Satd. Flow (RTOR)			329		156			31			5	
Lane Group Flow (vph)	110	506	345	154	399	0	244	955	0	153	625	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	12.0	24.0	24.0	12.0	24.0		18.0	40.0		14.0	36.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.5		4.0	4.0	
Act Effct Green (s)	26.3	18.3	18.3	27.4	21.3		43.3	30.3		37.3	27.8	
Actuated g/C Ratio	0.32	0.22	0.22	0.33	0.26		0.52	0.37		0.45	0.34	
v/c Ratio	0.31	0.64	0.58	0.52	0.42		0.56	0.75		0.51	0.53	
Control Delay	21.9	34.3	8.8	27.0	18.6		15.9	26.4		18.2	24.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	34.3	8.8	27.0	18.6		15.9	26.4		18.2	24.2	
LOS	C	C	A	C	B		B	C		B	C	
Approach Delay		23.7			20.9			24.2			23.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	40	131	7	57	58		67	225		39	141	
Queue Length 95th (ft)	68	158	70	91	84		95	286		74	194	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	352	872	620	294	977		464	1512		312	1371	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.58	0.56	0.52	0.41		0.53	0.63		0.49	0.46	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 82.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 23.3
 Intersection Capacity Utilization 61.8%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Future Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Satd. Flow (prot)	0	1824	0	1805	1750	0	1805	3477	0	1805	3494	0
Flt Permitted		0.986		0.950			0.225			0.125		
Satd. Flow (perm)	0	1824	0	1805	1750	0	428	3477	0	238	3494	0
Satd. Flow (RTOR)		5			28			7			4	
Lane Group Flow (vph)	0	311	0	51	139	0	37	1055	0	81	857	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	24.0	24.0		15.0	15.0		11.0	40.0		11.0	40.0	
Total Lost Time (s)		5.6		5.6	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)		16.5		8.4	8.4		34.4	29.4		35.5	31.6	
Actuated g/C Ratio		0.21		0.10	0.10		0.43	0.37		0.44	0.39	
v/c Ratio		0.82		0.27	0.67		0.13	0.82		0.36	0.62	
Control Delay		51.2		40.8	48.0		12.2	29.8		16.1	22.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		51.2		40.8	48.0		12.2	29.8		16.1	22.6	
LOS		D		D	D		B	C		B	C	
Approach Delay		51.2			46.1			29.2			22.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		165		27	61		10	272		22	204	
Queue Length 95th (ft)		168		47	88		15	317		37	232	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		444		222	240		292	1573		228	1621	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.70		0.23	0.58		0.13	0.67		0.36	0.53	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 80.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 30.6
 Intersection Capacity Utilization 60.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St

Ø1	Ø2	Ø3	Ø4
11 s	40 s	15 s	24 s
Ø5	Ø6		
11 s	40 s		

Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Future Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Satd. Flow (prot)	1787	1744	0	1752	1790	0	1787	3460	0	1652	3342	0
Flt Permitted	0.265			0.141			0.212			0.148		
Satd. Flow (perm)	499	1744	0	260	1790	0	399	3460	0	257	3342	0
Satd. Flow (RTOR)		17			19			15			7	
Lane Group Flow (vph)	209	705	0	203	440	0	86	1006	0	90	742	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	34.0		12.0	34.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	5.0	5.7		5.0	5.7		5.0	5.4		5.0	5.4	
Act Effct Green (s)	36.2	28.4		36.2	28.4		32.0	26.9		32.0	26.9	
Actuated g/C Ratio	0.42	0.33		0.42	0.33		0.37	0.31		0.37	0.31	
v/c Ratio	0.67	1.21		0.89	0.74		0.36	0.93		0.48	0.71	
Control Delay	28.7	140.7		57.6	34.8		19.8	45.4		24.3	31.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.7	140.7		57.6	34.8		19.8	45.4		24.3	31.4	
LOS	C	F		E	C		B	D		C	C	
Approach Delay		115.1			42.0			43.4			30.7	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)	71	-505		69	215		28	287		30	194	
Queue Length 95th (ft)	101	#722		#128	#356		56	314		59	256	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	310	581		228	596		242	1111		191	1068	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.67	1.21		0.89	0.74		0.36	0.91		0.47	0.69	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 87.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 58.9
 Intersection Capacity Utilization 87.7%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	33 s	12 s	34 s
Ø5	Ø6	Ø7	Ø8
11 s	33 s	12 s	34 s

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Future Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Satd. Flow (prot)	1770	1823	0	1752	1823	0	1546	3283	0	1652	3280	0
Flt Permitted	0.411			0.478			0.210			0.134		
Satd. Flow (perm)	766	1823	0	882	1823	0	342	3283	0	233	3280	0
Satd. Flow (RTOR)		13			14			7			14	
Lane Group Flow (vph)	217	356	0	51	157	0	73	1044	0	91	841	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.5	27.0		10.8	20.3		11.4	41.2		11.0	40.8	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	28.5	24.0		18.4	13.4		34.9	29.7		34.5	29.4	
Actuated g/C Ratio	0.37	0.31		0.24	0.17		0.45	0.38		0.44	0.38	
v/c Ratio	0.52	0.62		0.18	0.48		0.29	0.83		0.42	0.67	
Control Delay	24.8	32.4		21.0	34.9		13.7	29.1		17.0	23.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	32.4		21.0	34.9		13.7	29.1		17.0	23.7	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		29.5			31.5			28.1			23.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	86	177		18	72		20	268		25	197	
Queue Length 95th (ft)	119	168		32	105		34	303		35	258	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	454	602		280	421		260	1617		221	1602	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.59		0.18	0.37		0.28	0.65		0.41	0.52	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 77.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.0

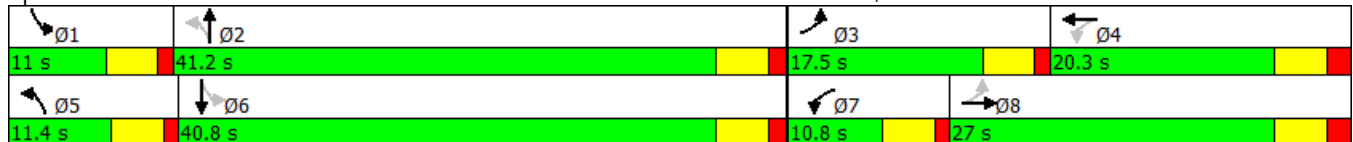
Intersection LOS: C

Intersection Capacity Utilization 62.7%

ICU Level of Service B

Analysis Period (min) 15

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Future Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Satd. Flow (prot)	0	1740	0	0	1785	0	0	3232	0	0	3294	0
Flt Permitted		0.989			0.984			0.999			0.998	
Satd. Flow (perm)	0	1740	0	0	1785	0	0	3232	0	0	3294	0
Lane Group Flow (vph)	0	44	0	0	30	0	0	1196	0	0	992	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.7%

















ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Future Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Satd. Flow (prot)	0	1749	0	0	1762	0	0	3253	0	0	3319	0
Flt Permitted		0.990			0.975			0.999			0.997	
Satd. Flow (perm)	0	1749	0	0	1762	0	0	3253	0	0	3319	0
Lane Group Flow (vph)	0	52	0	0	83	0	0	1106	0	0	1033	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
 14: SR 135/N. Willow Ave & W. 7th St

Cookeville 2040 No-Build Conditions

06/20/2017

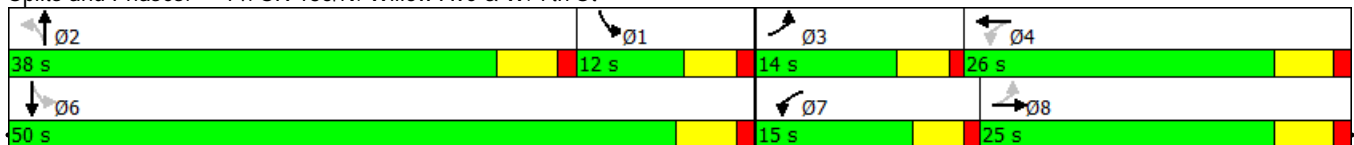
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Future Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Satd. Flow (prot)	1770	1822	0	1703	1755	0	0	3115	0	0	3301	0
Flt Permitted	0.664			0.175				0.925			0.634	
Satd. Flow (perm)	1237	1822	0	314	1755	0	0	2884	0	0	2106	0
Satd. Flow (RTOR)		11			44			121			5	
Lane Group Flow (vph)	95	404	0	145	146	0	0	871	0	0	1091	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	14.0	25.0		15.0	26.0		38.0	38.0		12.0	50.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			4.0			4.0	
Act Effct Green (s)	27.7	21.0		31.6	24.7			46.0			46.0	
Actuated g/C Ratio	0.31	0.24		0.35	0.28			0.52			0.52	
v/c Ratio	0.22	0.93		0.57	0.28			0.56			1.00	
Control Delay	19.6	62.7		27.9	20.7			14.3			51.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.6	62.7		27.9	20.7			14.3			51.6	
LOS	B	E		C	C			B			D	
Approach Delay		54.4			24.3			14.3			51.6	
Approach LOS		D			C			B			D	
Queue Length 50th (ft)	34	220		54	46			145			~321	
Queue Length 95th (ft)	45	199		71	42			202			#374	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	454	436		267	518			1544			1087	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.93		0.54	0.28			0.56			1.00	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 37.4
 Intersection Capacity Utilization 77.3%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	30	85	0	0	0	30	560	10	20	805	65
Future Volume (vph)	60	30	85	0	0	0	30	560	10	20	805	65
Satd. Flow (prot)	0	1720	0	0	1900	0	0	3248	0	0	3288	0
Flt Permitted		0.981						0.997			0.999	
Satd. Flow (perm)	0	1720	0	0	1900	0	0	3248	0	0	3288	0
Lane Group Flow (vph)	0	227	0	0	0	0	0	715	0	0	1209	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
 16: SR 135/N. Willow Ave & University Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Future Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Satd. Flow (prot)	1805	1583	0	1736	1644	0	0	3105	0	0	3310	0
Flt Permitted	0.695			0.687				0.904			0.805	
Satd. Flow (perm)	1320	1583	0	1255	1644	0	0	2810	0	0	2675	0
Satd. Flow (RTOR)		19			17			221			7	
Lane Group Flow (vph)	37	109	0	51	95	0	0	754	0	0	1219	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	10.5	20.5		10.5	20.5		59.0	59.0		59.0	59.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0			5.8			5.8	
Act Effct Green (s)	13.0	11.9		13.0	11.9			42.4			42.4	
Actuated g/C Ratio	0.20	0.19		0.20	0.19			0.66			0.66	
v/c Ratio	0.12	0.35		0.17	0.30			0.39			0.69	
Control Delay	22.8	28.4		23.2	27.4			6.2			13.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	22.8	28.4		23.2	27.4			6.2			13.4	
LOS	C	C		C	C			A			B	
Approach Delay		27.0			26.0			6.2			13.4	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	12	36		16	31			61			206	
Queue Length 95th (ft)	22	60		37	68			113			250	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	317	486		303	503			2285			2134	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.22		0.17	0.19			0.33			0.57	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 64
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 12.7
 Intersection Capacity Utilization 65.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr

Ø2	Ø3	Ø4
59 s	10.5 s	20.5 s
Ø6	Ø7	Ø8
59 s	10.5 s	20.5 s

Lanes, Volumes, Timings
 17: SR 135/N. Willow Ave & W. 12th St

Cookeville 2040 No-Build Conditions

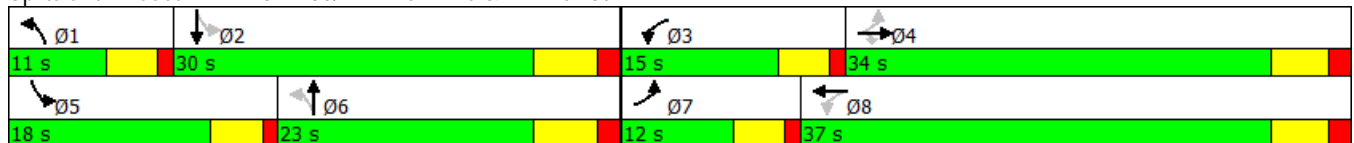
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Future Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Satd. Flow (prot)	1770	1881	1599	1770	3317	0	1574	2965	0	1652	3285	0
Flt Permitted	0.591			0.128			0.326			0.207		
Satd. Flow (perm)	1101	1881	1599	238	3317	0	540	2965	0	360	3285	0
Satd. Flow (RTOR)			286		54			239			26	
Lane Group Flow (vph)	189	616	441	284	261	0	74	474	0	254	652	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	12.0	34.0	34.0	15.0	37.0		11.0	23.0		18.0	30.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	36.0	30.1	30.1	42.2	33.2		20.6	15.7		32.3	24.7	
Actuated g/C Ratio	0.42	0.35	0.35	0.49	0.38		0.24	0.18		0.37	0.29	
v/c Ratio	0.37	0.94	0.59	0.97	0.20		0.37	0.65		0.79	0.68	
Control Delay	15.8	53.5	12.2	68.1	15.2		23.8	20.0		39.2	31.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.8	53.5	12.2	68.1	15.2		23.8	20.0		39.2	31.0	
LOS	B	D	B	E	B		C	C		D	C	
Approach Delay		33.1			42.7			20.6			33.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	57	335	63	108	40		26	60		100	164	
Queue Length 95th (ft)	64	#482	100	#265	64		54	95		109	192	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	514	654	742	293	1307		201	839		329	1008	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.94	0.59	0.97	0.20		0.37	0.56		0.77	0.65	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 86.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 32.7
 Intersection Capacity Utilization 76.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

Cookeville 2040 No-Build Conditions

06/20/2017

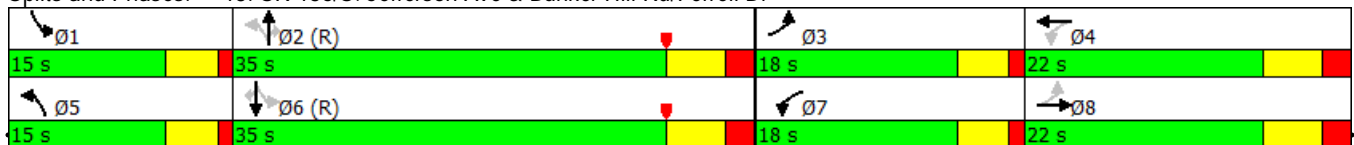
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Future Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Satd. Flow (prot)	1570	1456	0	1289	1205	0	1583	3471	808	1492	3406	1553
Flt Permitted	0.513						0.277			0.102		
Satd. Flow (perm)	848	1456	0	1357	1205	0	462	3471	808	160	3406	1553
Satd. Flow (RTOR)		18			302				145			145
Lane Group Flow (vph)	228	28	0	40	48	0	27	1360	10	30	855	145
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	18.0	22.0		18.0	22.0		15.0	35.0	35.0	15.0	35.0	35.0
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	4.0	4.0	5.0	4.0	4.0
Act Effct Green (s)	16.9	11.6		13.8	8.0		57.1	54.5	54.5	58.3	56.7	56.7
Actuated g/C Ratio	0.19	0.13		0.15	0.09		0.63	0.61	0.61	0.65	0.63	0.63
v/c Ratio	0.88	0.14		0.20	0.13		0.07	0.65	0.02	0.16	0.40	0.14
Control Delay	65.8	22.2		28.7	0.7		7.3	16.2	0.1	7.6	5.2	0.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	65.8	22.2		28.7	0.7		7.3	16.3	0.1	7.6	5.2	0.6
LOS	E	C		C	A		A	B	A	A	A	A
Approach Delay		61.0			13.4			16.0			4.7	
Approach LOS		E			B			B			A	
Queue Length 50th (ft)	-133	5		17	0		6	316	0	3	42	1
Queue Length 95th (ft)	160	30		11	0		13	384	0	m8	67	1
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	267	305		263	482		430	2102	546	254	2147	1032
Starvation Cap Reductn	0	0		0	0		0	0	0	0	141	0
Spillback Cap Reductn	0	0		0	8		0	105	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.09		0.15	0.10		0.06	0.68	0.02	0.12	0.43	0.14

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 50 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 15.9
 Intersection Capacity Utilization 55.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Future Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Satd. Flow (prot)	1787	0	1538	0	0	0	0	3471	1495	1752	3438	0
Flt Permitted	0.950									0.098		
Satd. Flow (perm)	1787	0	1538	0	0	0	0	3471	1495	181	3438	0
Satd. Flow (RTOR)			204						151			
Lane Group Flow (vph)	500	0	209	0	0	0	0	1476	151	143	793	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	29.0		29.0					46.0	46.0	15.0	46.0	
Total Lost Time (s)	4.0		5.4					5.2	5.2	5.0	5.2	
Act Effct Green (s)	25.0		23.6					40.8	40.8	51.0	40.8	
Actuated g/C Ratio	0.28		0.26					0.45	0.45	0.57	0.45	
v/c Ratio	1.01		0.38					0.94	0.20	0.52	0.51	
Control Delay	76.8		6.5					27.3	2.1	25.2	26.9	
Queue Delay	0.0		0.0					4.1	0.0	0.0	0.0	
Total Delay	76.8		6.5					31.4	2.1	25.2	26.9	
LOS	E		A					C	A	C	C	
Approach Delay		56.1						28.6			26.7	
Approach LOS		E						C			C	
Queue Length 50th (ft)	~288		2					127	0	63	168	
Queue Length 95th (ft)	#369		54					#221	m11	111	205	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	496		553					1573	760	277	1558	
Starvation Cap Reductn	0		0					64	0	0	0	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	1.01		0.38					0.98	0.20	0.52	0.51	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 47 (52%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

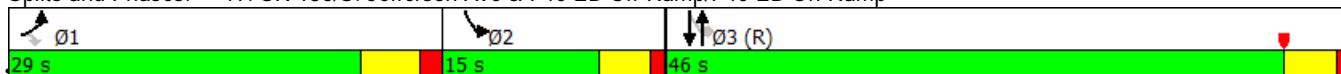
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Future Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Satd. Flow (prot)	0	0	0	3183	0	1568	1626	3505	0	0	3505	1568
Flt Permitted				0.950			0.335					
Satd. Flow (perm)	0	0	0	3183	0	1568	573	3505	0	0	3505	1568
Satd. Flow (RTOR)							73					222
Lane Group Flow (vph)	0	0	0	196	0	563	140	1750	0	0	736	222
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				20.0		20.0	24.0	46.0			46.0	46.0
Total Lost Time (s)				5.8		5.8	5.0	5.0			5.0	4.5
Act Effct Green (s)				14.2		14.2	60.0	65.0			52.7	53.2
Actuated g/C Ratio				0.16		0.16	0.67	0.72			0.59	0.59
v/c Ratio				0.39		1.83	0.30	0.69			0.36	0.22
Control Delay				36.6		408.6	3.3	4.5			4.7	0.7
Queue Delay				0.0		0.9	0.0	9.9			0.7	0.6
Total Delay				36.6		409.5	3.3	14.4			5.4	1.3
LOS				D		F	A	B			A	A
Approach Delay					313.2			13.6			4.5	
Approach LOS					F			B			A	
Queue Length 50th (ft)				52		~457	15	145			37	0
Queue Length 95th (ft)				73		#561	m16	m152			75	2
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				502		308	636	2531			2050	1017
Starvation Cap Reductn				0		0	0	221			896	494
Spillback Cap Reductn				0		22	0	770			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.39		1.97	0.22	0.99			0.64	0.42

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.83

Intersection Signal Delay: 74.2

Intersection LOS: E

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

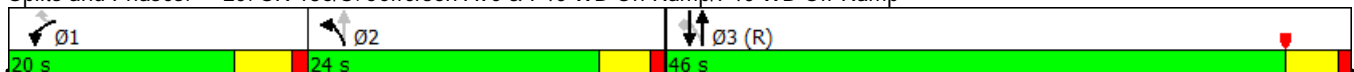
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



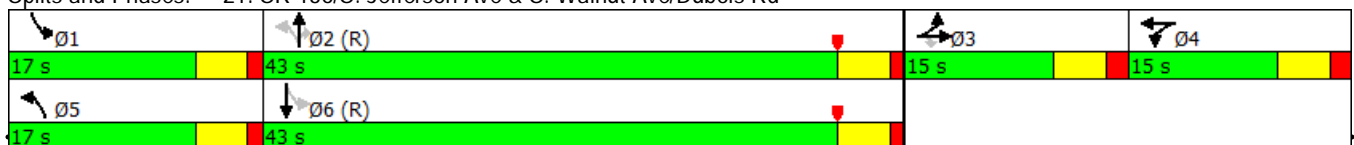
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	15	210	35	10	10	295	1605	55	15	620	80
Future Volume (vph)	60	15	210	35	10	10	295	1605	55	15	620	80
Satd. Flow (prot)	0	1736	1583	1805	1790	0	1770	3505	1553	1805	4837	0
Flt Permitted		0.963		0.950			0.279			0.100		
Satd. Flow (perm)	0	1736	1583	1805	1790	0	520	3505	1553	190	4837	0
Satd. Flow (RTOR)			263		10				139		32	
Lane Group Flow (vph)	0	104	263	45	26	0	388	1911	69	15	763	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	15.0	15.0	15.0	15.0	15.0		17.0	43.0	43.0	17.0	43.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)		11.0	11.0	11.0	11.0		57.1	54.7	54.7	52.6	41.1	
Actuated g/C Ratio		0.12	0.12	0.12	0.12		0.63	0.61	0.61	0.58	0.46	
v/c Ratio		0.49	0.62	0.20	0.11		0.78	0.90	0.07	0.05	0.34	
Control Delay		45.5	12.0	38.2	27.0		16.5	21.1	0.4	9.8	21.6	
Queue Delay		0.0	0.0	0.0	0.0		2.8	43.5	0.0	0.0	0.0	
Total Delay		45.5	12.0	38.2	27.0		19.3	64.5	0.4	9.8	21.6	
LOS		D	B	D	C		B	E	A	A	C	
Approach Delay		21.5			34.1			55.2			21.4	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)		56	0	23	8		97	482	0	5	139	
Queue Length 95th (ft)		72	44	48	21		m99	m#667	m0	m10	167	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		212	424	220	227		496	2130	998	327	2226	
Starvation Cap Reductn		0	0	0	0		44	383	0	0	0	
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.49	0.62	0.20	0.11		0.86	1.09	0.07	0.05	0.34	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 66 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 44.0
 Intersection Capacity Utilization 76.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

Cookeville 2040 No-Build Conditions

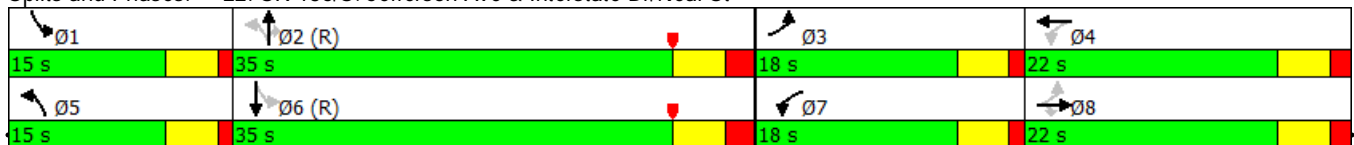
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	280	140	190	295	80	225	930	420	65	335	105
Future Volume (vph)	145	280	140	190	295	80	225	930	420	65	335	105
Satd. Flow (prot)	1770	1845	1538	1736	3417	0	1736	3438	1509	1770	3323	0
Flt Permitted	0.302			0.237			0.342			0.136		
Satd. Flow (perm)	563	1845	1538	433	3417	0	625	3438	1509	253	3323	0
Satd. Flow (RTOR)			144		32				494		57	
Lane Group Flow (vph)	204	333	144	226	446	0	265	1134	494	90	504	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	18.0	22.0	22.0	18.0	22.0		15.0	35.0	35.0	15.0	35.0	
Total Lost Time (s)	5.0	4.0	5.0	5.0	4.0		5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	29.4	18.1	17.1	29.9	18.4		41.8	34.8	34.8	40.0	31.5	
Actuated g/C Ratio	0.33	0.20	0.19	0.33	0.20		0.46	0.39	0.39	0.44	0.35	
v/c Ratio	0.59	0.90	0.35	0.70	0.62		0.64	0.85	0.56	0.33	0.42	
Control Delay	26.9	63.5	8.3	32.5	34.4		12.5	25.6	9.0	14.1	12.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	26.9	63.5	8.3	32.5	34.4		12.5	25.6	9.0	14.1	12.6	
LOS	C	E	A	C	C		B	C	A	B	B	
Approach Delay		40.9			33.8			19.5			12.8	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	78	186	0	88	112		63	358	126	8	118	
Queue Length 95th (ft)	99	#304	49	134	148		m27	#400	m242	20	165	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	363	373	410	334	727		413	1327	886	282	1199	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.56	0.89	0.35	0.68	0.61		0.64	0.85	0.56	0.32	0.42	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 24.7
 Intersection Capacity Utilization 73.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
 23: SR 136/S. Jefferson Ave & E. Veterans Dr

Cookeville 2040 No-Build Conditions

06/20/2017

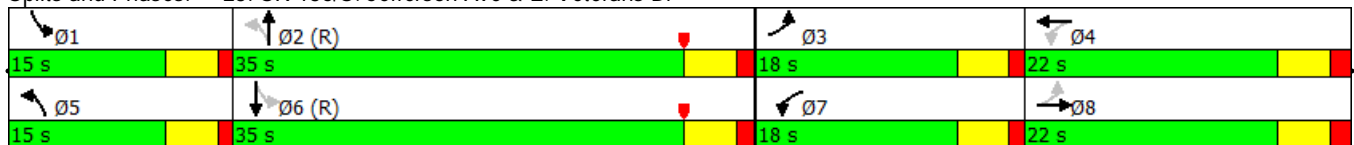
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Future Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Satd. Flow (prot)	1805	1828	0	1543	1751	0	1805	3493	0	1671	3538	0
Flt Permitted	0.188			0.321			0.347			0.129		
Satd. Flow (perm)	357	1828	0	521	1751	0	659	3493	0	227	3538	0
Satd. Flow (RTOR)		17			43			8			10	
Lane Group Flow (vph)	53	281	0	95	428	0	67	1328	0	90	575	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	18.0	22.0		18.0	22.0		15.0	35.0		15.0	35.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	30.3	22.1		31.4	25.5		41.6	33.4		41.7	33.4	
Actuated g/C Ratio	0.34	0.25		0.35	0.28		0.46	0.37		0.46	0.37	
v/c Ratio	0.17	0.61		0.30	0.81		0.16	1.02		0.35	0.44	
Control Delay	19.2	36.6		21.2	44.3		7.2	43.4		20.6	20.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.2	36.6		21.2	44.3		7.2	43.4		20.6	20.6	
LOS	B	D		C	D		A	D		C	C	
Approach Delay		33.8			40.1			41.7			20.6	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	19	139		34	-244		9	-151		17	137	
Queue Length 95th (ft)	35	220		46	#335		m13	#161		36	85	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	334	466		334	526		434	1299		266	1321	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.60		0.28	0.81		0.15	1.02		0.34	0.44	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 35.7
 Intersection Capacity Utilization 81.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

Cookeville 2040 No-Build Conditions

06/20/2017

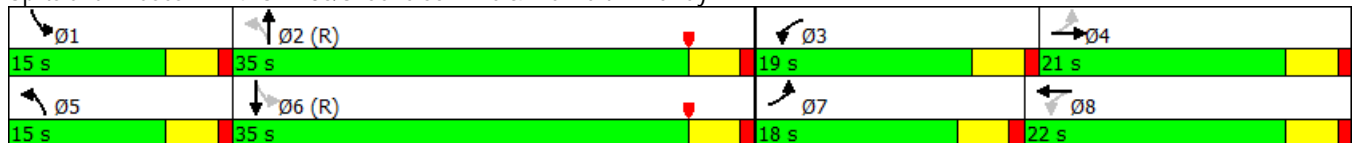
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Future Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Satd. Flow (prot)	1900	1900	0	1787	1615	0	1805	3482	0	1805	3415	0
Flt Permitted				0.950			0.411			0.146		
Satd. Flow (perm)	1900	1900	0	1787	1615	0	781	3482	0	277	3415	0
Satd. Flow (RTOR)					483			5			2	
Lane Group Flow (vph)	0	0	0	51	24	0	10	1374	0	34	635	0
Turn Type	pm+pt			pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	18.0	21.0		19.0	22.0		15.0	35.0		15.0	35.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)				11.5	11.5		72.1	68.4		74.1	74.2	
Actuated g/C Ratio				0.13	0.13		0.80	0.76		0.82	0.82	
v/c Ratio				0.22	0.04		0.01	0.52		0.09	0.23	
Control Delay				38.1	0.1		0.5	4.4		3.0	4.1	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				38.1	0.1		0.5	4.4		3.0	4.1	
LOS				D	A		A	A		A	A	
Approach Delay					25.9			4.3			4.0	
Approach LOS					C			A			A	
Queue Length 50th (ft)				26	0		0	53		4	44	
Queue Length 95th (ft)				46	0		m0	m52		10	93	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)				277	696		742	2647		398	2815	
Starvation Cap Reductn				0	0		0	0		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.18	0.03		0.01	0.52		0.09	0.23	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 51 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 5.0
 Intersection Capacity Utilization 49.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
 25: SR 136/S. Jefferson Ave & Commerce Ave

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Future Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Satd. Flow (prot)	1612	1699	0	1703	1480	0	1626	3490	0	1805	3558	0
Flt Permitted	0.952			0.606			0.355			0.134		
Satd. Flow (perm)	1615	1699	0	1086	1480	0	608	3490	0	255	3558	0
Satd. Flow (RTOR)		24			32			17			5	
Lane Group Flow (vph)	16	34	0	43	42	0	21	1305	0	53	745	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	22.0		12.0	22.0		11.0	44.0		12.0	45.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	10.2	9.0		12.2	12.8		42.2	42.8		43.6	44.7	
Actuated g/C Ratio	0.16	0.14		0.20	0.21		0.68	0.69		0.70	0.72	
v/c Ratio	0.06	0.13		0.15	0.13		0.04	0.54		0.15	0.29	
Control Delay	23.9	19.5		24.6	15.3		6.1	13.5		6.5	8.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.9	19.5		24.6	15.3		6.1	13.5		6.5	8.9	
LOS	C	B		C	B		A	B		A	A	
Approach Delay		20.9			20.0			13.4			8.8	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)	6	5		16	4		3	251		8	77	
Queue Length 95th (ft)	15	31		21	34		12	314		14	137	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	301	587		311	530		529	2412		382	2568	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.06		0.14	0.08		0.04	0.54		0.14	0.29	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 62.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 12.2
 Intersection Capacity Utilization 44.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave

Ø1 12 s	Ø2 44 s	Ø3 12 s	Ø4 22 s
Ø5 11 s	Ø6 45 s	Ø7 12 s	Ø8 22 s

Lanes, Volumes, Timings
 26: SR 136/S. Jefferson Ave & E. Jackson St

Cookeville 2040 No-Build Conditions

06/20/2017

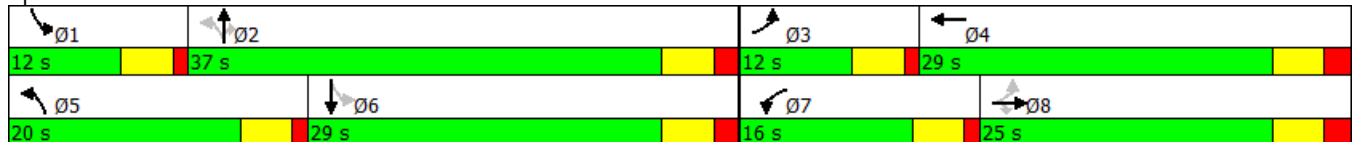
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Future Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Satd. Flow (prot)	1805	1900	1583	3502	1796	0	1770	3574	1599	1685	3292	0
Flt Permitted	0.669			0.950			0.383			0.395		
Satd. Flow (perm)	1271	1900	1583	3502	1796	0	713	3574	1599	700	3292	0
Satd. Flow (RTOR)			319		4				395		12	
Lane Group Flow (vph)	59	176	319	229	138	0	226	675	395	18	397	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	25.0	25.0	16.0	29.0		20.0	37.0	37.0	12.0	29.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0	5.3	5.0	4.0	
Act Effct Green (s)	19.8	14.3	14.3	9.4	22.2		40.7	37.7	36.4	30.2	25.5	
Actuated g/C Ratio	0.25	0.18	0.18	0.12	0.28		0.52	0.48	0.46	0.38	0.32	
v/c Ratio	0.16	0.51	0.58	0.55	0.27		0.44	0.39	0.41	0.05	0.37	
Control Delay	18.6	35.0	8.3	39.2	25.3		14.4	16.2	3.7	12.3	22.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.6	35.0	8.3	39.2	25.3		14.4	16.2	3.7	12.3	22.6	
LOS	B	C	A	D	C		B	B	A	B	C	
Approach Delay		17.9			34.0			12.1			22.2	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	19	79	0	55	56		57	93	0	4	76	
Queue Length 95th (ft)	34	136	20	76	92		106	168	0	15	122	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	377	513	660	495	582		573	1714	952	369	1074	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.34	0.48	0.46	0.24		0.39	0.39	0.41	0.05	0.37	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 78.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 17.9
 Intersection Capacity Utilization 47.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

Cookeville 2040 No-Build Conditions

06/20/2017

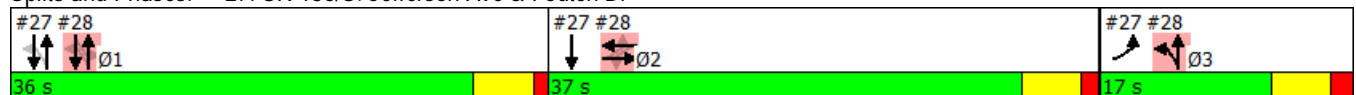
							Ø2
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	40	10	10	500	320	0	
Future Volume (vph)	40	10	10	500	320	0	
Satd. Flow (prot)	1633	0	1685	3303	3303	0	
Flt Permitted	0.962		0.495				
Satd. Flow (perm)	1633	0	878	3303	3303	0	
Satd. Flow (RTOR)	13						
Lane Group Flow (vph)	75	0	16	588	444	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	17.0		36.0	36.0			37.0
Total Lost Time (s)	4.0		4.0	4.0			
Act Effct Green (s)	12.6		30.0	30.0	56.1		
Actuated g/C Ratio	0.16		0.39	0.39	0.73		
v/c Ratio	0.27		0.05	0.46	0.18		
Control Delay	30.2		18.1	20.0	0.4		
Queue Delay	0.0		0.0	0.0	0.1		
Total Delay	30.2		18.1	20.0	0.5		
LOS	C		B	B	A		
Approach Delay	30.2			19.9	0.5		
Approach LOS	C			B	A		
Queue Length 50th (ft)	27		5	108	2		
Queue Length 95th (ft)	52		14	173	2		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	294		375	1412	2889		
Starvation Cap Reductn	0		0	0	1223		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.26		0.04	0.42	0.27		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 76.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 25.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
 28: SR 136/S. Jefferson Ave & E. Stevens St

Cookeville 2040 No-Build Conditions

06/20/2017

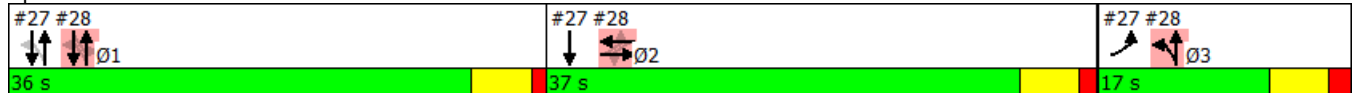
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Future Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Satd. Flow (prot)	0	1853	0	0	1803	0	0	3292	0	0	3285	0
Flt Permitted		0.945			0.828			0.929			0.926	
Satd. Flow (perm)	0	1761	0	0	1513	0	0	3064	0	0	3048	0
Satd. Flow (RTOR)		11			12			7			4	
Lane Group Flow (vph)	0	294	0	0	195	0	0	659	0	0	469	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	37.0	37.0		37.0	37.0		17.0			36.0	36.0	
Total Lost Time (s)		4.0			4.0						4.0	
Act Effct Green (s)		22.0			22.0			42.6			30.0	
Actuated g/C Ratio		0.29			0.29			0.55			0.39	
v/c Ratio		0.58			0.44			0.38			0.39	
Control Delay		27.4			24.4			3.2			19.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.4			24.4			3.2			19.2	
LOS		C			C			A			B	
Approach Delay		27.4			24.4			3.2			19.2	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		120			74			15			83	
Queue Length 95th (ft)		110			128			20			111	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		782			673			1884			1305	
Starvation Cap Reductn		0			0			25			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.38			0.29			0.35			0.36	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 76.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 47.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Future Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Satd. Flow (prot)	1805	1755	0	1787	1636	0	1620	1667	0	1685	1562	0
Flt Permitted	0.293			0.105			0.382			0.296		
Satd. Flow (perm)	557	1755	0	198	1636	0	651	1667	0	525	1562	0
Satd. Flow (RTOR)		10			3			16			10	
Lane Group Flow (vph)	40	684	0	132	529	0	106	372	0	32	283	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	42.2	36.3		46.3	41.8		28.5	24.9		27.4	22.7	
Actuated g/C Ratio	0.47	0.40		0.51	0.46		0.32	0.28		0.30	0.25	
v/c Ratio	0.12	0.96		0.58	0.70		0.39	0.79		0.14	0.71	
Control Delay	5.8	49.0		29.6	21.8		22.3	41.0		13.8	35.6	
Queue Delay	0.1	43.6		0.0	13.9		5.9	165.6		73.5	44.7	
Total Delay	5.9	92.6		29.6	35.7		28.2	206.6		87.3	80.3	
LOS	A	F		C	D		C	F		F	F	
Approach Delay		87.8			34.5			167.0			81.0	
Approach LOS		F			C			F			F	
Queue Length 50th (ft)	4	~453		17	311		39	190		11	148	
Queue Length 95th (ft)	m6	#559		m#62	m#528		62	249		14	152	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	347	714		229	760		270	547		237	510	
Starvation Cap Reductn	0	18		0	216		0	0		0	82	
Spillback Cap Reductn	65	199		0	81		115	534		243	242	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	1.33		0.58	0.97		0.68	28.62		32.00	1.06	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 88.0

Intersection LOS: F

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

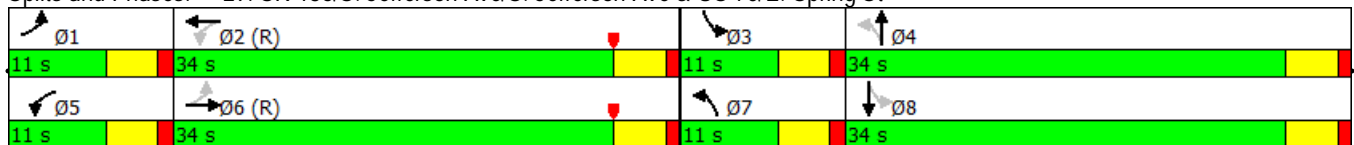
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

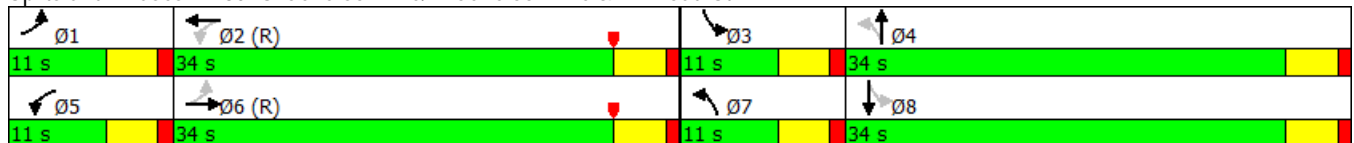
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Future Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Satd. Flow (prot)	1805	1823	0	1787	1872	0	1652	1664	0	1685	1724	0
Flt Permitted	0.428			0.449			0.452			0.540		
Satd. Flow (perm)	813	1823	0	845	1872	0	786	1664	0	958	1724	0
Satd. Flow (RTOR)		9			6			19			14	
Lane Group Flow (vph)	18	291	0	130	464	0	67	268	0	15	161	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	47.8	42.1		54.1	50.4		24.2	23.0		19.8	15.2	
Actuated g/C Ratio	0.53	0.47		0.60	0.56		0.27	0.26		0.22	0.17	
v/c Ratio	0.04	0.34		0.22	0.44		0.24	0.61		0.06	0.53	
Control Delay	7.7	12.2		12.5	16.9		35.4	44.8		19.8	36.6	
Queue Delay	0.0	0.0		0.0	2.8		0.0	1.6		0.0	0.1	
Total Delay	7.7	12.2		12.5	19.7		35.4	46.4		19.8	36.7	
LOS	A	B		B	B		D	D		B	D	
Approach Delay		11.9			18.2			44.2			35.3	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	3	63		42	159		37	147		6	80	
Queue Length 95th (ft)	m9	57		m37	m155		m58	226		17	80	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	502	858		589	1051		280	549		260	565	
Starvation Cap Reductn	0	0		0	459		0	143		0	0	
Spillback Cap Reductn	0	0		9	0		0	0		0	46	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.34		0.22	0.78		0.24	0.66		0.06	0.31	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 25.1
 Intersection Capacity Utilization 52.0%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Future Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Satd. Flow (prot)	1736	1772	0	1770	1845	1553	1694	1801	1473	1631	1763	0
Flt Permitted	0.256			0.123			0.225			0.165		
Satd. Flow (perm)	468	1772	0	229	1845	1553	401	1801	1473	283	1763	0
Satd. Flow (RTOR)		6					127		127		10	
Lane Group Flow (vph)	114	589	0	238	510	36	53	485	80	104	469	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	11.0	34.0		11.0	34.0	34.0	11.0	34.0	34.0	11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	35.7	29.6		40.7	35.3	35.3	31.6	26.9	26.9	32.7	29.1	
Actuated g/C Ratio	0.40	0.33		0.45	0.39	0.39	0.35	0.30	0.30	0.36	0.32	
v/c Ratio	0.42	1.01		0.88	0.71	0.05	0.24	0.90	0.15	0.54	0.82	
Control Delay	31.8	68.3		57.9	33.0	0.1	17.4	51.9	2.0	29.6	25.4	
Queue Delay	0.2	36.3		0.0	54.7	0.0	0.0	9.0	0.0	0.0	1.9	
Total Delay	31.9	104.6		57.9	87.7	0.1	17.4	60.9	2.0	29.6	27.3	
LOS	C	F		E	F	A	B	E	A	C	C	
Approach Delay		92.8			74.6			49.6			27.7	
Approach LOS		F			E			D			C	
Queue Length 50th (ft)	56	~328		~125	269	0	17	253	0	20	66	
Queue Length 95th (ft)	m65	m#388		#141	#447	0	24	244	11	m47	117	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	274	586		270	723	686	227	580	560	192	606	
Starvation Cap Reductn	0	229		0	0	0	0	0	0	0	50	
Spillback Cap Reductn	11	0		0	308	49	0	72	0	0	1	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.43	1.65		0.88	1.23	0.06	0.23	0.95	0.14	0.54	0.84	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 63.6

Intersection LOS: E

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

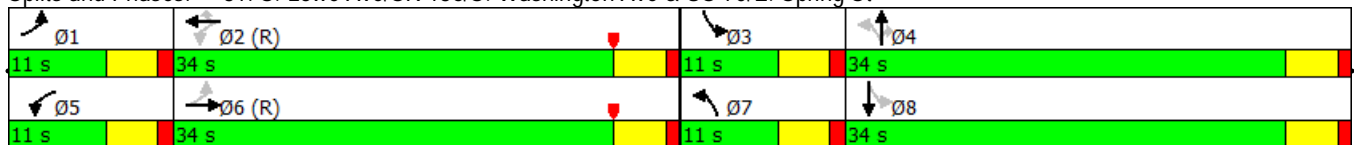
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Future Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Satd. Flow (prot)	1770	1825	0	1736	1787	0	1745	1793	0	1745	1783	1561
Flt Permitted	0.136			0.515			0.276			0.123		
Satd. Flow (perm)	253	1825	0	941	1787	0	507	1793	0	226	1783	1561
Satd. Flow (RTOR)		11			32			2				194
Lane Group Flow (vph)	80	244	0	67	618	0	40	588	0	65	465	194
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	34.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	37.0	32.2		37.0	32.2		34.9	30.2		36.0	32.4	32.4
Actuated g/C Ratio	0.41	0.36		0.41	0.36		0.39	0.34		0.40	0.36	0.36
v/c Ratio	0.39	0.37		0.15	0.94		0.14	0.98		0.34	0.72	0.28
Control Delay	23.4	16.5		15.6	52.7		12.9	44.0		19.8	34.1	4.7
Queue Delay	0.0	0.7		0.0	5.8		0.0	8.0		0.0	0.0	0.0
Total Delay	23.4	17.2		15.6	58.5		12.9	52.0		19.8	34.1	4.7
LOS	C	B		B	E		B	D		B	C	A
Approach Delay		18.7			54.3			49.5			25.0	
Approach LOS		B			D			D			C	
Queue Length 50th (ft)	19	122		21	-369		6	-106		21	240	0
Queue Length 95th (ft)	20	42		22	#578		m12	135		38	#365	20
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	205	659		439	659		279	603		191	642	686
Starvation Cap Reductn	0	184		0	0		0	21		0	0	0
Spillback Cap Reductn	0	0		0	27		0	0		0	0	11
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.51		0.15	0.98		0.14	1.01		0.34	0.72	0.29

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 39.1

Intersection LOS: D

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

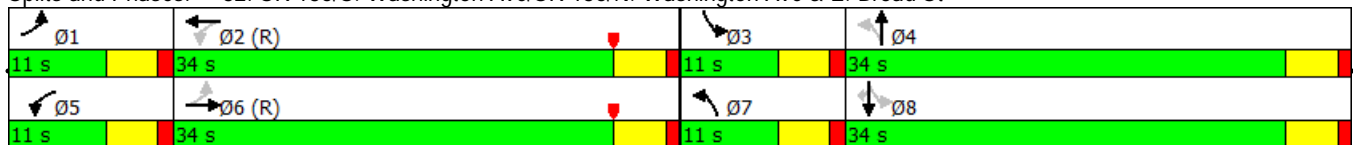
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

Cookeville 2040 No-Build Conditions

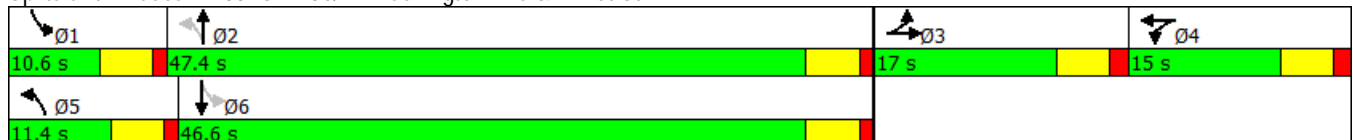
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Future Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Satd. Flow (prot)	0	1761	0	0	1853	0	1745	1779	0	1745	3374	0
Flt Permitted		0.965			0.996		0.219			0.109		
Satd. Flow (perm)	0	1761	0	0	1853	0	402	1779	0	200	3374	0
Satd. Flow (RTOR)		11			8			1			20	
Lane Group Flow (vph)	0	241	0	0	208	0	130	835	0	10	819	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	17.0	17.0		15.0	15.0		11.4	47.4		10.6	46.6	
Total Lost Time (s)		5.6			5.6		5.0	5.2		5.0	5.2	
Act Effct Green (s)		11.4			9.4		43.7	42.3		38.6	32.9	
Actuated g/C Ratio		0.14			0.12		0.54	0.52		0.47	0.40	
v/c Ratio		0.94			0.94		0.41	0.90		0.05	0.60	
Control Delay		79.4			85.1		13.0	34.0		8.9	20.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		79.4			85.1		13.0	34.0		8.9	20.6	
LOS		E			F		B	C		A	C	
Approach Delay		79.4			85.1			31.2			20.4	
Approach LOS		E			F			C			C	
Queue Length 50th (ft)		114			100		30	340		2	163	
Queue Length 95th (ft)		#257			91		41	439		9	194	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		256			221		320	923		201	1727	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.94			0.94		0.41	0.90		0.05	0.47	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 81.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 37.4
 Intersection Capacity Utilization 67.5%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Future Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Satd. Flow (prot)	1770	3453	0	3467	1863	1599	1770	3539	1568	1736	3471	0
Flt Permitted	0.950			0.950			0.176			0.147		
Satd. Flow (perm)	1770	3453	0	3467	1863	1599	328	3539	1568	269	3471	0
Satd. Flow (RTOR)		24				323			167		25	
Lane Group Flow (vph)	73	161	0	453	350	323	85	806	167	467	1008	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	11.2	11.2		24.0	24.0	24.0	17.0	37.8	37.8	17.0	37.8	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	
Act Effct Green (s)	7.2	7.2		19.3	19.3	19.3	33.1	27.1	27.1	42.7	34.6	
Actuated g/C Ratio	0.09	0.09		0.23	0.23	0.23	0.40	0.33	0.33	0.52	0.42	
v/c Ratio	0.47	0.50		0.56	0.81	0.52	0.34	0.70	0.27	1.33	0.69	
Control Delay	49.1	37.9		32.0	47.3	7.0	14.3	27.7	4.4	187.5	23.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.1	37.9		32.0	47.3	7.0	14.3	27.7	4.4	187.5	23.1	
LOS	D	D		C	D	A	B	C	A	F	C	
Approach Delay		41.4			29.6			22.9			75.2	
Approach LOS		D			C			C			E	
Queue Length 50th (ft)	38	37		109	175	0	21	191	0	-270	228	
Queue Length 95th (ft)	#85	62		157	#274	37	27	171	39	#356	254	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	154	324		842	452	633	361	1453	742	352	1504	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.47	0.50		0.54	0.77	0.51	0.24	0.55	0.23	1.33	0.67	


















Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 82.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 45.8
 Intersection Capacity Utilization 68.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

17 s	37.8 s	11.2 s	24 s
17 s	37.8 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Future Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Satd. Flow (prot)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1687	1568	0	0	0	0	3472	0	1728	3172	0
Lane Group Flow (vph)	0	131	111	0	0	0	0	983	0	102	210	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary













Control Type: Unsignalized

Intersection Capacity Utilization 39.9%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	15	300	545	0	0	400
Future Volume (vph)	15	300	545	0	0	400
Satd. Flow (prot)	1444	1553	3388	0	0	3261
Flt Permitted	0.950					
Satd. Flow (perm)	1444	1553	3388	0	0	3261
Lane Group Flow (vph)	18	349	708	0	0	476
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Future Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Satd. Flow (prot)	1703	3343	0	0	3356	0	0	1787	1455	0	0	0
Flt Permitted	0.124							0.950				
Satd. Flow (perm)	222	3343	0	0	3356	0	0	1787	1455	0	0	0
Satd. Flow (RTOR)					25				97			
Lane Group Flow (vph)	338	455	0	0	1178	0	0	511	93	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	11.0	45.0			34.0		45.0	45.0	45.0			
Total Lost Time (s)	5.0	4.0			4.0			4.0	4.0			
Act Effct Green (s)	40.4	41.4			30.3			29.5	29.5			
Actuated g/C Ratio	0.51	0.52			0.38			0.37	0.37			
v/c Ratio	1.50	0.26			0.91			0.76	0.15			
Control Delay	263.8	12.2			35.9			29.6	3.8			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	263.8	12.2			35.9			29.6	3.8			
LOS	F	B			D			C	A			
Approach Delay		119.4			35.9			25.6				
Approach LOS		F			D			C				
Queue Length 50th (ft)	~184	61			276			214	0			
Queue Length 95th (ft)	#341	114			#490			62	15			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	226	1750			1301			936	808			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	1.50	0.26			0.91			0.55	0.12			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 79

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.50

Intersection Signal Delay: 59.2

Intersection LOS: E

Intersection Capacity Utilization 79.3%

ICU Level of Service D

Analysis Period (min) 15

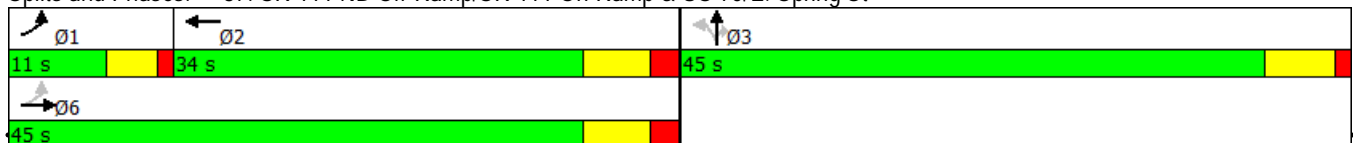
~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Future Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Satd. Flow (prot)	0	3273	0	1703	3505	0	0	0	0	0	1687	1568
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3273	0	1703	3505	0	0	0	0	0	1687	1568
Lane Group Flow (vph)	0	970	0	150	1337	0	0	0	0	0	78	538
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 79.3%

ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Future Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Satd. Flow (prot)	1703	3171	0	1752	1845	1615	1787	1810	1524	1752	1814	0
Flt Permitted	0.184			0.150			0.238			0.450		
Satd. Flow (perm)	330	3171	0	277	1845	1615	448	1810	1524	830	1814	0
Satd. Flow (RTOR)		169					142		214		9	
Lane Group Flow (vph)	96	804	0	589	1044	211	93	144	214	243	625	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	28.0		23.0	40.0	40.0	11.0	24.0	24.0	15.0	28.0	
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0	5.7	5.0	4.0	
Act Effct Green (s)	27.6	22.7		44.9	37.4	37.4	22.8	17.9	16.2	30.9	24.2	
Actuated g/C Ratio	0.32	0.26		0.52	0.43	0.43	0.26	0.21	0.19	0.36	0.28	
v/c Ratio	0.48	0.84		1.30	1.31	0.27	0.44	0.39	0.47	0.61	1.22	
Control Delay	22.5	33.4		176.2	174.4	7.6	26.1	33.1	8.3	27.9	145.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.5	33.4		176.2	174.4	7.6	26.1	33.1	8.3	27.9	145.9	
LOS	C	C		F	F	A	C	C	A	C	F	
Approach Delay		32.3			155.9			19.9			112.9	
Approach LOS		C			F			B			F	
Queue Length 50th (ft)	27	181		-393	-807	24	34	70	0	98	-454	
Queue Length 95th (ft)	45	#265		#599	#1043	41	59	124	57	130	#512	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	201	1007		452	797	778	211	421	493	402	513	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.48	0.80		1.30	1.31	0.27	0.44	0.34	0.43	0.60	1.22	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 86.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.31
 Intersection Signal Delay: 104.2
 Intersection Capacity Utilization 100.2%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service G

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.










Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	800	630	640	60	0
Future Volume (vph)	0	800	630	640	60	0
Satd. Flow (prot)	0	1810	1738	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1810	1738	0	1805	0
Lane Group Flow (vph)	0	1000	1540	0	75	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

Cookeville 2040 No-Build Conditions

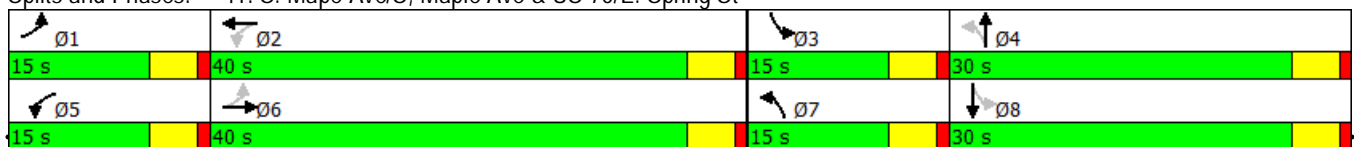
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Future Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Satd. Flow (prot)	1736	1748	0	1671	1840	0	1805	1814	0	1787	1780	0
Flt Permitted	0.111			0.113			0.371			0.170		
Satd. Flow (perm)	203	1748	0	199	1840	0	705	1814	0	320	1780	0
Satd. Flow (RTOR)		5			1			11			17	
Lane Group Flow (vph)	88	623	0	63	694	0	27	407	0	321	429	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	42.2	36.0		41.0	35.3		29.2	23.1		37.5	33.8	
Actuated g/C Ratio	0.45	0.38		0.44	0.38		0.31	0.25		0.40	0.36	
v/c Ratio	0.41	0.93		0.32	1.00		0.09	0.90		1.12	0.66	
Control Delay	19.4	51.2		17.9	66.8		19.1	57.8		116.3	32.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	58.1	
Total Delay	19.4	51.2		17.9	66.8		19.1	57.8		116.3	90.9	
LOS	B	D		B	E		B	E		F	F	
Approach Delay		47.2			62.8			55.4			101.8	
Approach LOS		D			E			E			F	
Queue Length 50th (ft)	28	373		20	-474		10	236		-169	194	
Queue Length 95th (ft)	48	#588		29	#604		23	#318		#228	235	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	259	673		249	693		367	496		286	651	
Starvation Cap Reductn	0	0		0	0		0	0		0	346	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.93		0.25	1.00		0.07	0.82		1.12	1.41	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 93.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 68.4
 Intersection Capacity Utilization 80.1%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Future Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Satd. Flow (prot)	1687	1779	0	1805	1801	0	1719	1872	0	1752	1822	0
Flt Permitted	0.246			0.276			0.590			0.507		
Satd. Flow (perm)	437	1779	0	524	1801	0	1068	1872	0	935	1822	0
Satd. Flow (RTOR)		5			7			3			22	
Lane Group Flow (vph)	33	597	0	42	638	0	57	205	0	53	131	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	53.2	49.4		53.4	49.5		20.7	17.1		19.7	14.9	
Actuated g/C Ratio	0.59	0.55		0.59	0.55		0.23	0.19		0.22	0.17	
v/c Ratio	0.10	0.61		0.11	0.64		0.20	0.57		0.21	0.41	
Control Delay	9.3	20.9		18.6	33.6		24.0	39.1		17.6	21.9	
Queue Delay	0.0	1.6		0.0	2.2		0.0	0.0		0.5	0.0	
Total Delay	9.3	22.5		18.6	35.8		24.0	39.1		18.1	21.9	
LOS	A	C		B	D		C	D		B	C	
Approach Delay		21.8			34.7			35.9			20.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	7	250		17	351		24	109		14	60	
Queue Length 95th (ft)	18	#479		m32	#547		47	103		24	36	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	345	979		400	993		289	605		259	602	
Starvation Cap Reductn	0	0		0	220		0	0		0	0	
Spillback Cap Reductn	0	215		0	0		0	0		67	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.78		0.10	0.83		0.20	0.34		0.28	0.22	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 59.0%

ICU Level of Service B

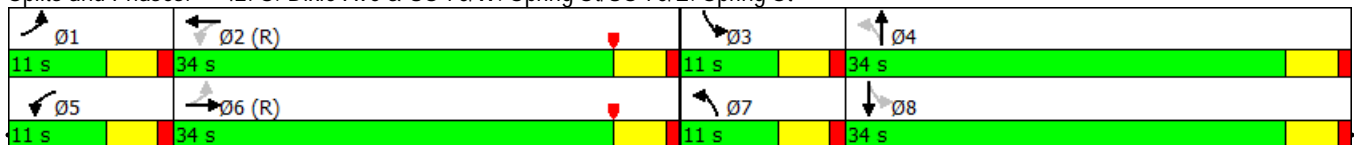
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St



Lanes, Volumes, Timings
 43: S. Walnut Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

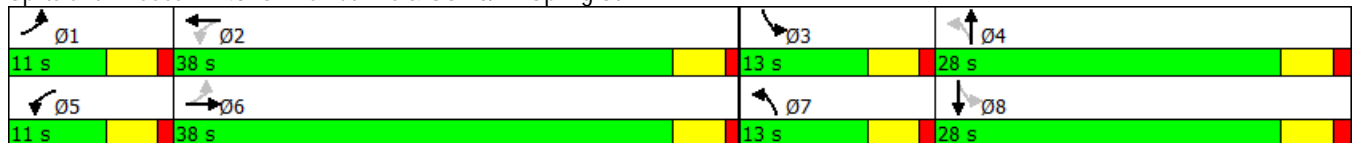
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Future Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Satd. Flow (prot)	1805	1765	0	1805	1831	0	1787	1838	0	1805	1825	0
Flt Permitted	0.206			0.120			0.428			0.318		
Satd. Flow (perm)	391	1765	0	228	1831	0	805	1838	0	604	1825	0
Satd. Flow (RTOR)		10			4			11			14	
Lane Group Flow (vph)	100	702	0	40	571	0	107	387	0	30	212	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	38.0		11.0	38.0		13.0	28.0		13.0	28.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.6		5.0	5.6	
Act Effct Green (s)	37.8	34.6		36.6	32.2		24.5	21.1		20.8	15.5	
Actuated g/C Ratio	0.49	0.45		0.48	0.42		0.32	0.28		0.27	0.20	
v/c Ratio	0.33	0.87		0.17	0.74		0.30	0.75		0.11	0.56	
Control Delay	14.2	37.5		12.8	29.3		20.3	37.4		18.3	33.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.2	37.5		12.8	29.3		20.3	37.4		18.3	33.4	
LOS	B	D		B	C		C	D		B	C	
Approach Delay		34.6			28.2			33.7			31.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	23	332		9	239		38	160		10	95	
Queue Length 95th (ft)	33	#656		27	#474		59	#321		15	136	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	307	803		236	817		362	582		304	560	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.87		0.17	0.70		0.30	0.66		0.10	0.38	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 76.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 32.2
 Intersection Capacity Utilization 78.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St



Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Future Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Satd. Flow (prot)	1641	1801	0	1805	1847	0	1805	1659	0	1626	1665	0
Flt Permitted	0.413			0.195			0.543			0.678		
Satd. Flow (perm)	713	1801	0	370	1847	0	1032	1659	0	1161	1665	0
Satd. Flow (RTOR)		9			5			43			44	
Lane Group Flow (vph)	18	729	0	66	541	0	59	123	0	18	96	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	23.0		11.0	23.0	
Total Lost Time (s)	5.0	5.6		5.0	5.6		5.0	5.6		5.0	5.6	
Act Effct Green (s)	43.2	40.7		46.3	46.9		13.6	12.1		11.9	8.4	
Actuated g/C Ratio	0.63	0.59		0.68	0.68		0.20	0.18		0.17	0.12	
v/c Ratio	0.03	0.68		0.17	0.43		0.21	0.38		0.07	0.40	
Control Delay	6.7	20.8		7.2	11.1		25.5	23.6		23.6	25.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.7	20.8		7.2	11.1		25.5	23.6		23.6	25.4	
LOS	A	C		A	B		C	C		C	C	
Approach Delay		20.4			10.7			24.2			25.1	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	3	288		11	122		23	33		7	25	
Queue Length 95th (ft)	11	#568		22	323		39	81		21	46	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	544	1111		391	1266		284	518		251	508	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.66		0.17	0.43		0.21	0.24		0.07	0.19	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 68.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 44: Scott Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	45 s	11 s	23 s
Ø5	Ø6	Ø7	Ø8
11 s	45 s	11 s	23 s

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Future Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Satd. Flow (prot)	1805	1784	0	1770	1802	0	1805	1813	0	1736	1853	0
Flt Permitted	0.107			0.456			0.152			0.228		
Satd. Flow (perm)	203	1784	0	849	1802	0	289	1813	0	417	1853	0
Satd. Flow (RTOR)		32			23			14			2	
Lane Group Flow (vph)	16	272	0	67	794	0	39	383	0	51	521	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	42.8	35.7		44.7	41.1		32.6	25.5		33.6	28.2	
Actuated g/C Ratio	0.46	0.38		0.48	0.44		0.35	0.27		0.36	0.30	
v/c Ratio	0.06	0.39		0.13	0.98		0.15	0.76		0.18	0.93	
Control Delay	13.2	22.4		13.7	56.5		19.9	43.3		20.2	59.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	56.8		0.0	0.0	
Total Delay	13.2	22.4		13.7	56.5		19.9	100.1		20.2	59.4	
LOS	B	C		B	E		B	F		C	E	
Approach Delay		21.9			53.2			92.7			55.9	
Approach LOS		C			D			F			E	
Queue Length 50th (ft)	5	112		21	415		15	220		20	~378	
Queue Length 95th (ft)	11	117		43	#845		35	278		33	#442	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	269	702		509	808		268	506		295	562	
Starvation Cap Reductn	0	0		0	0		0	210		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.39		0.13	0.98		0.15	1.29		0.17	0.93	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 93.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 57.5
 Intersection Capacity Utilization 87.3%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St

15 s	40 s	15 s	30 s
15 s	40 s	15 s	30 s

Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

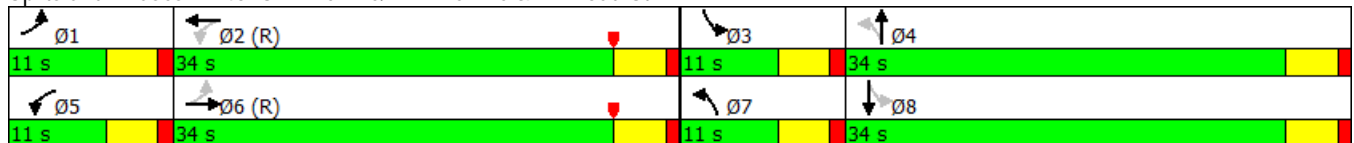
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Future Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Satd. Flow (prot)	1805	1847	0	1805	1814	0	1805	1860	0	1805	1821	0
Flt Permitted	0.347			0.575			0.668			0.329		
Satd. Flow (perm)	659	1847	0	1092	1814	0	1269	1860	0	625	1821	0
Satd. Flow (RTOR)		4			20			5			17	
Lane Group Flow (vph)	43	265	0	27	460	0	27	259	0	59	140	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	34.0		11.0	34.0		11.0	34.0		11.0	34.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	51.6	48.8		50.0	46.4		22.0	17.3		24.9	22.2	
Actuated g/C Ratio	0.57	0.54		0.56	0.52		0.24	0.19		0.28	0.25	
v/c Ratio	0.09	0.26		0.04	0.49		0.08	0.72		0.23	0.30	
Control Delay	10.8	15.3		11.1	16.4		14.8	36.5		21.9	25.3	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.1		0.0	0.0	
Total Delay	10.8	15.3		11.1	16.5		14.8	36.5		21.9	25.3	
LOS	B	B		B	B		B	D		C	C	
Approach Delay		14.6			16.2			34.5			24.3	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	10	70		5	227		12	117		23	50	
Queue Length 95th (ft)	14	136		15	148		m11	57		35	102	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	458	1003		657	944		348	602		258	598	
Starvation Cap Reductn	0	0		0	61		0	16		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.26		0.04	0.52		0.08	0.44		0.23	0.23	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 21.2
 Intersection Capacity Utilization 49.0%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Future Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Satd. Flow (prot)	0	1851	0	0	1869	1599	1805	1851	0	1736	1816	0
Flt Permitted		0.997			0.992		0.580			0.276		
Satd. Flow (perm)	0	1851	0	0	1869	1599	1102	1851	0	504	1816	0
Satd. Flow (RTOR)		6					138	11			6	
Lane Group Flow (vph)	0	247	0	0	233	122	30	370	0	30	187	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases						2	4			8		
Total Split (s)	24.0	24.0		28.0	28.0	28.0	11.0	27.0		11.0	27.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	4.0		5.0	4.0	
Act Effct Green (s)		13.8			14.0	14.0	20.1	19.4		20.1	19.4	
Actuated g/C Ratio		0.21			0.21	0.21	0.31	0.29		0.31	0.29	
v/c Ratio		0.63			0.59	0.27	0.07	0.67		0.11	0.35	
Control Delay		34.1			32.5	6.0	17.2	30.1		17.7	23.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		34.1			32.5	6.0	17.2	30.1		17.7	23.4	
LOS		C			C	A	B	C		B	C	
Approach Delay		34.1			23.4			29.2			22.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		85			83	0	8	115		8	52	
Queue Length 95th (ft)		170			170	16	28	#302		29	115	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		584			709	692	407	709		276	693	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.42			0.33	0.18	0.07	0.52		0.11	0.27	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 65.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 27.3
 Intersection Capacity Utilization 54.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Ø1	Ø2	Ø3	Ø4
24 s	28 s	11 s	27 s
		Ø7	Ø8
		11 s	27 s

Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Future Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Satd. Flow (prot)	0	1792	0	0	1688	0	0	1837	0	0	1795	0
Flt Permitted		0.976			0.993			0.997			0.969	
Satd. Flow (perm)	0	1792	0	0	1688	0	0	1837	0	0	1795	0
Lane Group Flow (vph)	0	112	0	0	249	0	0	195	0	0	317	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary











Control Type: Unsignalized

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	155	125	170	85	40
Future Volume (vph)	70	155	125	170	85	40
Satd. Flow (prot)	1787	1615	0	1838	1817	0
Flt Permitted	0.950			0.981		
Satd. Flow (perm)	1787	1615	0	1838	1817	0
Lane Group Flow (vph)	84	209	0	408	156	0
Sign Control	Stop			Stop	Stop	











Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 36.7%

ICU Level of Service A

Analysis Period (min) 15

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	90	295	10	315	510
Future Volume (vph)	0	90	295	10	315	510
Satd. Flow (prot)	1900	1615	1822	0	0	1822
Flt Permitted						0.980
Satd. Flow (perm)	1900	1615	1822	0	0	1822
Lane Group Flow (vph)	0	108	341	0	0	1007
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

Cookeville 2040 No-Build Conditions
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Future Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Satd. Flow (prot)	1805	1845	1553	1752	1769	0	1719	1900	1615	0	1853	0
Flt Permitted	0.511			0.106			0.950				0.984	
Satd. Flow (perm)	971	1845	1553	196	1769	0	1719	1900	1615	0	1853	0
Satd. Flow (RTOR)			190		9				187		1	
Lane Group Flow (vph)	10	598	436	43	280	0	154	157	18	0	719	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	12.0	40.0	40.0	12.0	40.0		15.0	15.0		38.0	38.0	
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		4.0	4.0			4.0	
Act Effct Green (s)	37.5	35.3	35.3	40.3	40.0		11.1	11.1	99.4		34.2	
Actuated g/C Ratio	0.38	0.36	0.36	0.41	0.40		0.11	0.11	1.00		0.34	
v/c Ratio	0.02	0.91	0.65	0.24	0.39		0.81	0.74	0.01		1.13	
Control Delay	16.5	52.1	20.4	20.0	22.8		75.5	66.4	0.0		109.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.5	52.1	20.4	20.0	22.8		75.5	66.4	0.0		109.0	
LOS	B	D	C	C	C		E	E	A		F	
Approach Delay		38.5			22.4			67.0			109.0	
Approach LOS		D			C			E			F	
Queue Length 50th (ft)	4	387	139	16	114		103	105	0		-590	
Queue Length 95th (ft)	13	#516	186	28	196		#220	126	0		#625	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	433	671	686	189	733		191	211	1615		637	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.89	0.64	0.23	0.38		0.81	0.74	0.01		1.13	

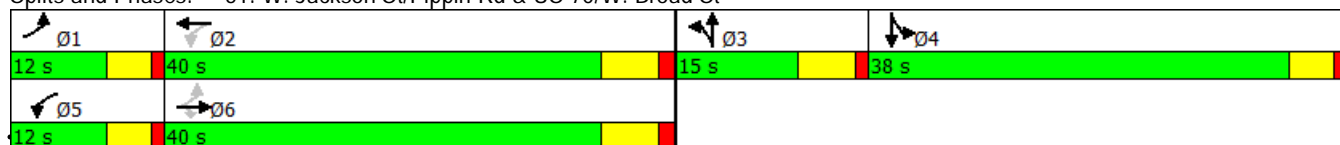
Intersection Summary

Cycle Length: 105
 Actuated Cycle Length: 99.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 61.2
 Intersection Capacity Utilization 67.5%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service C

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

Cookeville 2040 No-Build Conditions

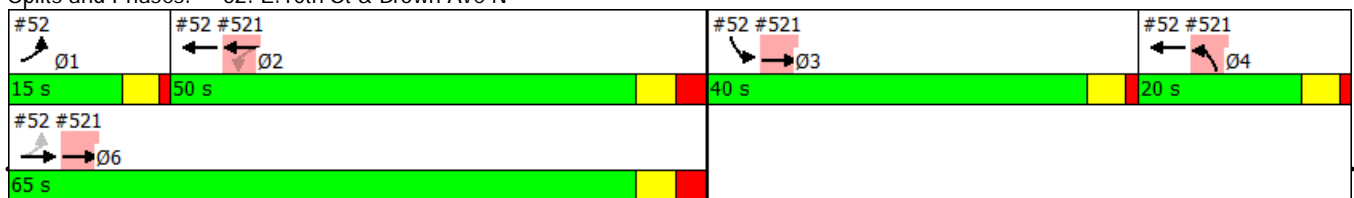
06/20/2017

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4
Lane Configurations								
Traffic Volume (vph)	35	590	900	145	160	35		
Future Volume (vph)	35	590	900	145	160	35		
Satd. Flow (prot)	1671	1845	1845	0	1643	0		
Flt Permitted	0.082				0.964			
Satd. Flow (perm)	144	1845	1845	0	1643	0		
Satd. Flow (RTOR)			11		14			
Lane Group Flow (vph)	39	615	1214	0	297	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	15.0	65.0			40.0		50.0	20.0
Total Lost Time (s)	5.0	4.0			5.4			
Act Effct Green (s)	53.8	54.8	65.1		24.6			
Actuated g/C Ratio	0.49	0.50	0.60		0.22			
v/c Ratio	0.19	0.67	1.10		0.78			
Control Delay	18.2	25.7	65.2		53.2			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	18.2	25.7	65.2		53.2			
LOS	B	C	E		D			
Approach Delay		25.2	65.2		53.2			
Approach LOS		C	E		D			
Queue Length 50th (ft)	14	317	~327		201			
Queue Length 95th (ft)	36	510	m128		229			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	212	1047	1102		538			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.18	0.59	1.10		0.55			

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 109.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.44
 Intersection Signal Delay: 51.5
 Intersection Capacity Utilization 75.0%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017

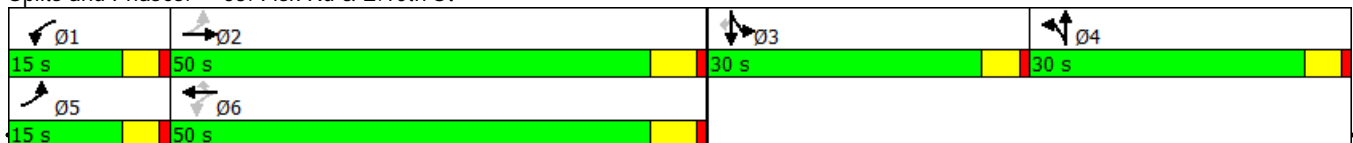
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Future Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Satd. Flow (prot)	1770	1832	0	1805	1863	1538	0	1820	0	0	1652	1583
Flt Permitted	0.083			0.088				0.990			0.960	
Satd. Flow (perm)	155	1832	0	167	1863	1538	0	1820	0	0	1652	1583
Satd. Flow (RTOR)		2				127		2				193
Lane Group Flow (vph)	78	753	0	27	844	295	0	382	0	0	379	193
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	15.0	50.0		15.0	50.0	50.0	30.0	30.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	4.0		5.0	4.0	4.0		5.0			5.0	5.0
Act Effct Green (s)	54.3	50.0		50.0	46.1	46.1		25.1			25.1	25.1
Actuated g/C Ratio	0.45	0.41		0.41	0.38	0.38		0.21			0.21	0.21
v/c Ratio	0.45	0.99		0.18	1.19	0.44		1.01			1.11	0.40
Control Delay	26.2	67.4		20.3	133.4	18.3		96.8			126.1	8.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	26.2	67.4		20.3	133.4	18.3		96.8			126.1	8.4
LOS	C	E		C	F	B		F			F	A
Approach Delay		63.5			101.6			96.8			86.4	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	33	-652		11	-820	96		-323			-349	0
Queue Length 95th (ft)	57	#790		23	#1088	156		217			#556	59
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	204	758		209	710	665		378			342	481
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.38	0.99		0.13	1.19	0.44		1.01			1.11	0.40

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 120.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 87.3
 Intersection Capacity Utilization 92.3%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	660	230	240	885	165	225
Future Volume (vph)	660	230	240	885	165	225
Satd. Flow (prot)	1776	1553	1805	1845	1770	1583
Flt Permitted			0.103		0.950	
Satd. Flow (perm)	1776	1553	196	1845	1770	1583
Satd. Flow (RTOR)		329				381
Lane Group Flow (vph)	750	329	353	1041	223	381
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	45.0	45.0	26.0		19.0	19.0
Total Lost Time (s)	4.0	4.0	5.0		5.4	4.7
Act Effct Green (s)	41.0	41.0	61.0	66.0	13.1	13.8
Actuated g/C Ratio	0.46	0.46	0.68	0.74	0.15	0.15
v/c Ratio	0.92	0.37	0.69	0.76	0.86	0.67
Control Delay	41.9	3.0	26.7	12.0	68.8	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	3.0	26.7	12.0	68.8	10.5
LOS	D	A	C	B	E	B
Approach Delay	30.1			15.7	32.0	
Approach LOS	C			B	C	
Queue Length 50th (ft)	388	0	124	299	125	0
Queue Length 95th (ft)	#605	10	137	401	#175	0
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	814	889	511	1361	269	572
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.37	0.69	0.76	0.83	0.67

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 24.0
 Intersection Capacity Utilization 69.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Future Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Satd. Flow (prot)	0	3243	0	1687	3471	0	0	0	0	1752	0	1583
Flt Permitted				0.132						0.950		
Satd. Flow (perm)	0	3243	0	234	3471	0	0	0	0	1752	0	1583
Satd. Flow (RTOR)		282										148
Lane Group Flow (vph)	0	1051	0	411	1113	0	0	0	0	243	0	488
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		55.0		15.0	70.0					20.0		20.0
Total Lost Time (s)		3.4		3.2	4.0					6.4		5.9
Act Effct Green (s)		27.6		42.9	42.1					13.7		14.2
Actuated g/C Ratio		0.42		0.65	0.64					0.21		0.21
v/c Ratio		0.69		1.00	0.50					0.67		1.07
Control Delay		13.8		63.7	7.3					36.8		85.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		13.8		63.7	7.3					36.8		85.2
LOS		B		E	A					D		F
Approach Delay		13.8			22.5						69.1	
Approach LOS		B			C						E	
Queue Length 50th (ft)		125		112	107					87		~162
Queue Length 95th (ft)		176		#317	120					145		#333
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		2602		412	3372					361		455
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.40		1.00	0.33					0.67		1.07

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 30.0

Intersection LOS: C

Intersection Capacity Utilization 68.3%

ICU Level of Service C

Analysis Period (min) 15

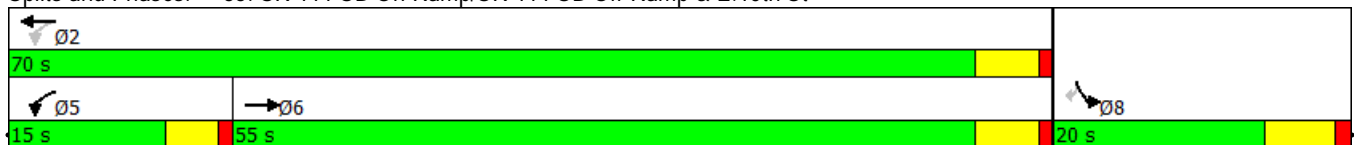
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Future Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Satd. Flow (prot)	1719	3539	0	0	3385	0	1703	0	1509	0	0	0
Flt Permitted	0.101						0.950					
Satd. Flow (perm)	183	3539	0	0	3385	0	1703	0	1509	0	0	0
Satd. Flow (RTOR)					23				242			
Lane Group Flow (vph)	148	718	0	0	1212	0	473	0	401	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	15.0	60.0			45.0		30.0		30.0			
Total Lost Time (s)	5.0	4.0			4.0		4.0		4.0			
Act Effct Green (s)	48.8	49.8			36.6		26.0		26.0			
Actuated g/C Ratio	0.58	0.59			0.44		0.31		0.31			
v/c Ratio	0.58	0.34			0.81		0.90		0.63			
Control Delay	20.0	9.0			25.5		51.7		15.7			
Queue Delay	0.0	0.0			49.6		0.0		0.0			
Total Delay	20.0	9.0			75.1		51.7		15.7			
LOS	B	A			E		D		B			
Approach Delay		10.9			75.1			35.2				
Approach LOS		B			E			D				
Queue Length 50th (ft)	33	92			278		250		69			
Queue Length 95th (ft)	82	113			334		#332		114			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	291	2380			1678		531		638			
Starvation Cap Reductn	0	0			698		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.51	0.30			1.24		0.89		0.63			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 44.4

Intersection LOS: D

Intersection Capacity Utilization 68.3%

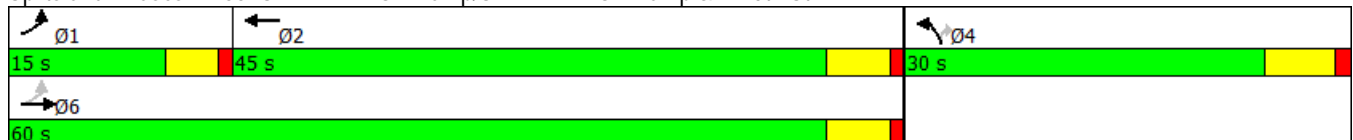
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	655	265	50	740	310	95
Future Volume (vph)	655	265	50	740	310	95
Satd. Flow (prot)	3331	0	1612	3471	1703	1455
Flt Permitted			0.120		0.950	
Satd. Flow (perm)	3331	0	204	3471	1703	1455
Satd. Flow (RTOR)	123					111
Lane Group Flow (vph)	1143	0	65	787	419	119
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	55.0		15.0	70.0	20.0	20.0
Total Lost Time (s)	4.0		5.0	4.0	4.0	4.0
Act Effct Green (s)	30.5		36.9	37.9	17.0	17.0
Actuated g/C Ratio	0.48		0.58	0.60	0.27	0.27
v/c Ratio	0.69		0.19	0.38	0.92	0.25
Control Delay	14.2		5.8	6.3	57.3	8.7
Queue Delay	0.2		0.0	0.0	0.0	0.0
Total Delay	14.4		5.8	6.3	57.3	8.7
LOS	B		A	A	E	A
Approach Delay	14.4			6.3	46.6	
Approach LOS	B			A	D	
Queue Length 50th (ft)	180		9	67	-202	3
Queue Length 95th (ft)	210		17	90	#334	35
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	2720		354	3229	457	471
Starvation Cap Reductn	670		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.56		0.18	0.24	0.92	0.25

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

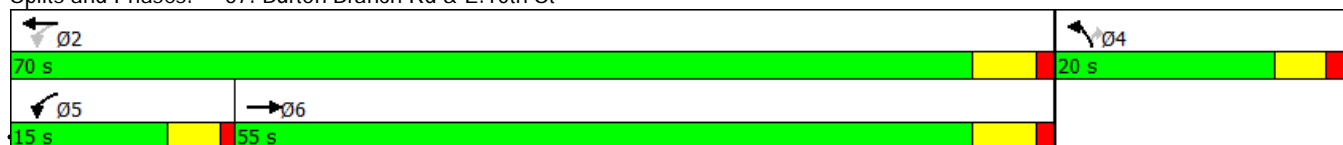
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 57: Burton Branch Rd & E.10th St



AM Peak Hour
WSP

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Future Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Satd. Flow (prot)	1687	1444	0	0	1724	0	1787	3499	0	1805	3397	0
Flt Permitted	0.537				0.918		0.241			0.176		
Satd. Flow (perm)	954	1444	0	0	1602	0	453	3499	0	334	3397	0
Satd. Flow (RTOR)		24			47			3			15	
Lane Group Flow (vph)	18	34	0	0	213	0	78	1021	0	111	881	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	25.0	25.0		25.0	25.0		14.0	50.0		15.0	51.0	
Total Lost Time (s)	4.0	4.0			4.0		5.0	4.0		5.0	4.0	
Act Effct Green (s)	13.9	13.9			13.9		33.3	29.5		33.9	29.8	
Actuated g/C Ratio	0.23	0.23			0.23		0.55	0.48		0.56	0.49	
v/c Ratio	0.08	0.10			0.53		0.20	0.60		0.31	0.53	
Control Delay	23.2	13.1			23.6		6.5	14.5		7.8	13.1	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	23.2	13.1			23.6		6.5	14.5		7.8	13.1	
LOS	C	B			C		A	B		A	B	
Approach Delay		16.6			23.6			14.0			12.5	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	5	3			53		9	142		14	113	
Queue Length 95th (ft)	22	26			71		16	253		22	204	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	352	548			621		472	2686		457	2652	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.05	0.06			0.34		0.17	0.38		0.24	0.33	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.3

Intersection LOS: B










Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	0	50	0	55
Future Volume (vph)	10	0	0	50	0	55
Satd. Flow (prot)	1770	0	0	1611	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1611	0	1863
Lane Group Flow (vph)	11	0	0	54	0	60
Sign Control	Yield		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%













ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

Cookeville 2040 No-Build Conditions

06/20/2017

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	10	10	10	1100	505	10
Future Volume (vph)	10	10	10	1100	505	10
Satd. Flow (prot)	864	0	0	5033	3466	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	864	0	0	5033	3466	0
Lane Group Flow (vph)	20	0	0	1374	683	0
Sign Control	Stop			Free	Free	







Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑	↑↑			
Traffic Volume (vph)	0	540	325	50	0	0
Future Volume (vph)	0	540	325	50	0	0
Satd. Flow (prot)	0	3336	3241	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3336	3241	0	0	0
Lane Group Flow (vph)	0	628	528	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 18.3%

ICU Level of Service A

Analysis Period (min) 15

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Future Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Satd. Flow (prot)	0	0	0	0	0	0	0	3349	0	0	3002	0
Flt Permitted								0.984				
Satd. Flow (perm)	0	0	0	0	0	0	0	3349	0	0	3002	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	1060	0	0	507	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.0%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

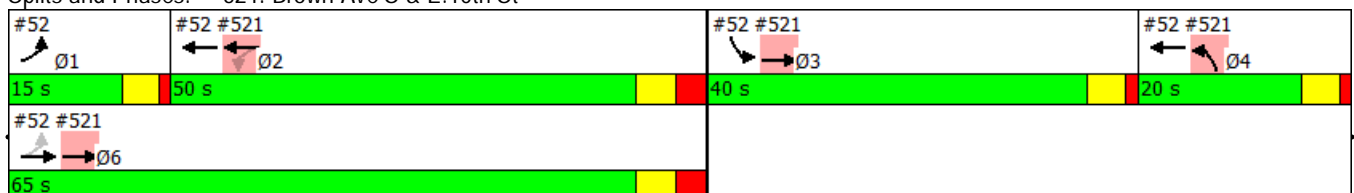
	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↗		↘	↖	↗				
Traffic Volume (vph)	720	25	10	995	50	10			
Future Volume (vph)	720	25	10	995	50	10			
Satd. Flow (prot)	1836	0	1805	1881	1778	0			
Flt Permitted			0.264		0.961				
Satd. Flow (perm)	1836	0	502	1881	1778	0			
Satd. Flow (RTOR)	6				8				
Lane Group Flow (vph)	818	0	24	1157	126	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			50.0	50.0	20.0		15.0	40.0	65.0
Total Lost Time (s)			4.0	4.0	5.4				
Act Effct Green (s)	83.5		46.9	46.9	14.9				
Actuated g/C Ratio	0.76		0.43	0.43	0.14				
v/c Ratio	0.58		0.11	1.44	0.51				
Control Delay	1.6		26.1	230.5	52.6				
Queue Delay	0.0		0.0	3.0	0.2				
Total Delay	1.6		26.1	233.5	52.8				
LOS	A		C	F	D				
Approach Delay	1.6			229.3	52.8				
Approach LOS	A			F	D				
Queue Length 50th (ft)	3		11	-1219	84				
Queue Length 95th (ft)	4		15	#1518	79				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1550		215	806	248				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	285	8				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.53		0.11	2.22	0.53				

Intersection Summary

Cycle Length: 125
 Actuated Cycle Length: 109.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.44
 Intersection Signal Delay: 131.2
 Intersection Capacity Utilization 70.2%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service C

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St



Intersection

Intersection Delay, s/veh 11.6
Intersection LOS B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Future Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Peak Hour Factor	0.92	0.63	0.63	0.63	0.92	0.71	0.69	0.79	0.92	1.00	0.69	0.83
Heavy Vehicles, %	2	3	0	0	2	0	0	2	2	20	1	0
Mvmt Flow	0	56	40	16	0	35	43	171	0	10	167	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.1	10.9	11.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	50%	13%	68%
Vol Thru, %	82%	36%	16%	24%
Vol Right, %	11%	14%	71%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	70	190	250
LT Vol	10	35	25	170
Through Vol	115	25	30	60
RT Vol	15	10	135	20
Lane Flow Rate	195	111	250	317
Geometry Grp	1	1	1	1
Degree of Util (X)	0.307	0.179	0.354	0.467
Departure Headway (Hd)	5.679	5.798	5.105	5.316
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	633	618	704	677
Service Time	3.721	3.848	3.146	3.353
HCM Lane V/C Ratio	0.308	0.18	0.355	0.468
HCM Control Delay	11.2	10.1	10.9	13
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.3	0.6	1.6	2.5

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	170	60	20
Future Vol, veh/h	0	170	60	20
Peak Hour Factor	0.92	0.83	0.75	0.63
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	205	80	32
Number of Lanes	0	0	1	0
Approach	SB			
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	13			
HCM LOS	B			

Intersection

Intersection Delay, s/veh 12
 Intersection LOS B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↶		↷	
Traffic Vol, veh/h	0	70	155	0	125	170	0	85	40
Future Vol, veh/h	0	70	155	0	125	170	0	85	40
Peak Hour Factor	0.92	0.83	0.74	0.92	0.79	0.68	0.92	0.75	0.94
Heavy Vehicles, %	2	1	0	2	2	1	2	1	0
Mvmt Flow	0	84	209	0	158	250	0	113	43
Number of Lanes	0	1	1	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	10.2	14.3	9.5
HCM LOS	B	B	A

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	42%	100%	0%	0%
Vol Thru, %	58%	0%	0%	68%
Vol Right, %	0%	0%	100%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	70	155	125
LT Vol	125	70	0	0
Through Vol	170	0	0	85
RT Vol	0	0	155	40
Lane Flow Rate	408	84	209	156
Geometry Grp	2	7	7	2
Degree of Util (X)	0.562	0.149	0.299	0.216
Departure Headway (Hd)	4.952	6.369	5.138	4.985
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	723	558	691	711
Service Time	3.025	4.167	2.935	3.079
HCM Lane V/C Ratio	0.564	0.151	0.302	0.219
HCM Control Delay	14.3	10.3	10.2	9.5
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	3.5	0.5	1.3	0.8

Intersection

Int Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↗		↵	↕↗
Traffic Vol, veh/h	20	65	975	80	55	730
Future Vol, veh/h	20	65	975	80	55	730
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	89	87	67	70	94
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	32	73	1121	119	79	777

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1725	620	0	0	1240	0
Stage 1	1180	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	7.5	6.94	-	-	4.1	-
Critical Hdwy Stg 1	6.5	-	-	-	-	-
Critical Hdwy Stg 2	6.5	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.2	-
Pot Cap-1 Maneuver	58	431	-	-	569	-
Stage 1	205	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	52	431	-	-	569	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	205	-	-	-	-	-
Stage 2	426	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	21.4		0		1.1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	147	431	569	-
HCM Lane V/C Ratio	-	-	0.216	0.169	0.138	-
HCM Control Delay (s)	-	-	36.1	15	12.3	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	0.8	0.6	0.5	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↗
Traffic Vol, veh/h	0	10	960	20	0	800
Future Vol, veh/h	0	10	960	20	0	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	63	89	75	25	92
Heavy Vehicles, %	0	8	3	3	0	5
Mvmt Flow	0	16	1079	27	0	870

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	539	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.06	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.38	-
Pot Cap-1 Maneuver	0	472	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	472	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 472	-
HCM Lane V/C Ratio	- 0.034	-
HCM Control Delay (s)	- 12.9	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.1	-

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↕	
Traffic Vol, veh/h	75	40	15	990	820	20
Future Vol, veh/h	75	40	15	990	820	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	94	63	86	85	54
Heavy Vehicles, %	1	3	0	3	4	7
Mvmt Flow	99	43	24	1151	965	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1606	501	1002	0	-	0
Stage 1	983	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	6.82	6.96	4.1	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.33	2.2	-	-	-
Pot Cap-1 Maneuver	~ 97	513	699	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	~ 94	513	699	-	-	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	483	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.9	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	699	-	218	513	-	-
HCM Lane V/C Ratio	0.034	-	0.453	0.083	-	-
HCM Control Delay (s)	10.3	-	34.5	12.7	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	2.2	0.3	-	-

Notes

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

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Future Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	42	100	100	100	63	84	52	63	86	63
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	2	0
Mvmt Flow	10	10	24	10	10	10	16	1065	115	40	936	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1592	2236	476	1707	2186	590	952	0	0	1181	0	0
Stage 1	1023	1023	-	1155	1155	-	-	-	-	-	-	-
Stage 2	569	1213	-	552	1031	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	73	43	541	60	46	456	730	-	-	599	-	-
Stage 1	256	316	-	213	274	-	-	-	-	-	-	-
Stage 2	479	257	-	491	313	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	48	34	541	38	37	456	730	-	-	599	-	-
Mov Cap-2 Maneuver	48	34	-	38	37	-	-	-	-	-	-	-
Stage 1	239	271	-	199	256	-	-	-	-	-	-	-
Stage 2	420	240	-	388	269	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	94.7	135	0.4	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	730	-	-	80	54	599	-	-
HCM Lane V/C Ratio	0.022	-	-	0.548	0.556	0.066	-	-
HCM Control Delay (s)	10	0.3	-	94.7	135	11.4	0.7	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	2.2	0.2	-	-

Intersection

Int Delay, s/veh 26.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Future Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	75	47	100	50	50	82	88	63	84	83
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	1	0
Mvmt Flow	10	15	27	43	10	30	30	951	125	63	952	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1629	2224	485	1685	2171	538	970	0	0	1076	0	0
Stage 1	1088	1088	-	1074	1074	-	-	-	-	-	-	-
Stage 2	541	1136	-	611	1097	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	44	533	63	47	493	719	-	-	656	-	-
Stage 1	234	294	-	238	299	-	-	-	-	-	-	-
Stage 2	498	279	-	453	291	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	39	31	533	~ 29	33	493	719	-	-	656	-	-
Mov Cap-2 Maneuver	39	31	-	~ 29	33	-	-	-	-	-	-	-
Stage 1	209	233	-	213	267	-	-	-	-	-	-	-
Stage 2	402	249	-	318	230	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	162.4	\$ 591	0.7	1.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	719	-	-	65 45	656	-	-
HCM Lane V/C Ratio	0.042	-	-	0.795 1.835	0.097	-	-
HCM Control Delay (s)	10.2	0.5	-	162.4 \$ 591	11.1	1	-
HCM Lane LOS	B	A	-	F F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.6 8.4	0.3	-	-

Notes

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

Intersection

Int Delay, s/veh	80											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	60	30	85	0	0	0	30	560	10	20	805	65
Future Vol, veh/h	60	30	85	0	0	0	30	560	10	20	805	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	71	86	25	25	25	78	84	100	75	74	69
Heavy Vehicles, %	4	0	1	0	0	0	8	3	0	0	1	3
Mvmt Flow	86	42	99	0	0	0	38	667	10	27	1088	94

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1598	1942	591	1367	1984	338	1182	0	0	677	0	0
Stage 1	1188	1188	-	749	749	-	-	-	-	-	-	-
Stage 2	410	754	-	618	1235	-	-	-	-	-	-	-
Critical Hdwy	7.58	6.5	6.92	7.5	6.5	6.9	4.26	-	-	4.1	-	-
Critical Hdwy Stg 1	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.58	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4	3.31	3.5	4	3.3	2.28	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 70	66	453	108	62	664	554	-	-	924	-	-
Stage 1	197	264	-	375	422	-	-	-	-	-	-	-
Stage 2	584	420	-	448	251	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 60	54	453	26	50	664	554	-	-	924	-	-
Mov Cap-2 Maneuver	~ 60	54	-	26	50	-	-	-	-	-	-	-
Stage 1	175	241	-	334	376	-	-	-	-	-	-	-
Stage 2	520	374	-	263	229	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 751.2	0	1.2	0.6
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	554	-	-	93	-	924	-	-
HCM Lane V/C Ratio	0.069	-	-	2.439	-	0.029	-	-
HCM Control Delay (s)	12	0.6	-	\$ 751.2	0	9	0.4	-
HCM Lane LOS	B	A	-	F	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	20.8	-	0.1	-	-

Notes

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

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Future Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	25	90	25	25	25	25	75	50	88	88	25
Heavy Vehicles, %	7	0	3	0	0	0	0	0	0	1	10	0
Mvmt Flow	131	0	111	0	0	0	0	953	30	102	210	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	892	1368	105	-	0	0	953	0	0
Stage 1	415	415	-	-	-	-	-	-	-
Stage 2	477	953	-	-	-	-	-	-	-
Critical Hdwy	6.94	6.5	6.96	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.94	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.94	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4	3.33	-	-	-	2.21	-	-
Pot Cap-1 Maneuver	272	148	926	0	-	-	723	-	0
Stage 1	620	596	-	0	-	-	-	-	0
Stage 2	576	340	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	234	0	926	-	-	-	723	-	-
Mov Cap-2 Maneuver	234	0	-	-	-	-	-	-	-
Stage 1	533	0	-	-	-	-	-	-	-
Stage 2	576	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25	0	3.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	234	926	723	-
HCM Lane V/C Ratio	-	-	0.559	0.12	0.141	-
HCM Control Delay (s)	-	-	38.3	9.4	10.8	-
HCM Lane LOS	-	-	E	A	B	-
HCM 95th %tile Q(veh)	-	-	3.1	0.4	0.5	-

Intersection

Int Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	15	300	545	0	0	400
Future Vol, veh/h	15	300	545	0	0	400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	86	77	25	25	84
Heavy Vehicles, %	25	4	3	0	0	7
Mvmt Flow	18	349	708	0	0	476

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	946	354	0	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	7.3	6.98	-	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.34	-	-	-	-
Pot Cap-1 Maneuver	222	637	-	0	0	-
Stage 1	393	-	-	0	0	-
Stage 2	715	-	-	0	0	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	222	637	-	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	17.6		0		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	222 637	-
HCM Lane V/C Ratio	-	0.081 0.548	-
HCM Control Delay (s)	-	22.6 17.3	-
HCM Lane LOS	-	C C	-
HCM 95th %tile Q(veh)	-	0.3 3.3	-

Intersection

Int Delay, s/veh 50.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↘	↑↑						↘	↗
Traffic Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Future Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	92	75	80	89	25	25	25	25	77	25	93
Heavy Vehicles, %	0	7	1	6	3	0	0	0	0	7	0	3
Mvmt Flow	0	663	307	150	1337	0	0	0	0	78	0	538

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	663	0	0	1969	2300	669
Stage 1	-	-	-	-	-	-	1637	1637	-
Stage 2	-	-	-	-	-	-	332	663	-
Critical Hdwy	-	-	-	4.22	-	-	6.94	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.94	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.94	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.57	4	3.33
Pot Cap-1 Maneuver	0	-	-	895	-	0	~ 52	39	~ 398
Stage 1	0	-	-	-	-	0	137	160	-
Stage 2	0	-	-	-	-	0	684	462	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	895	-	-	~ 43	0	~ 398
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 43	0	-
Stage 1	-	-	-	-	-	-	114	0	-
Stage 2	-	-	-	-	-	-	684	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1	250.5
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	895	-	43	398
HCM Lane V/C Ratio	-	-	0.168	-	1.812	1.351
HCM Control Delay (s)	-	-	9.8	-\$ 590.3	201.3	
HCM Lane LOS	-	-	A	-	F	F
HCM 95th %tile Q(veh)	-	-	0.6	-	8	25.4

Notes

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

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	800	630	640	60	0
Future Vol, veh/h	0	800	630	640	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	80	81	84	80	25
Heavy Vehicles, %	0	5	3	1	0	0
Mvmt Flow	0	1000	778	762	75	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	778	0	778
Stage 1	-	-	778
Stage 2	-	-	1000
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	848	0	400
Stage 1	-	0	456
Stage 2	-	0	359
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	848	-	400
Mov Cap-2 Maneuver	-	-	225
Stage 1	-	-	456
Stage 2	-	-	359

Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	848	-	-	225
HCM Lane V/C Ratio	-	-	-	0.333
HCM Control Delay (s)	0	-	-	28.8
HCM Lane LOS	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	1.4

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↔			↕
Traffic Vol, veh/h	0	90	295	10	315	510
Future Vol, veh/h	0	90	295	10	315	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	83	89	100	76	86
Heavy Vehicles, %	0	0	4	0	1	3
Mvmt Flow	0	108	331	10	414	593

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1758	336	0	0	341	0
Stage 1	336	-	-	-	-	-
Stage 2	1422	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	94	711	-	-	1224	-
Stage 1	728	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	47	711	-	-	1224	-
Mov Cap-2 Maneuver	97	-	-	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	112	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	11		0		3.9
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	711	1224	-
HCM Lane V/C Ratio	-	-	-	0.153	0.339	-
HCM Control Delay (s)	-	-	0	11	9.4	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.5	1.5	-

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↓	
Traffic Vol, veh/h	10	10	10	1100	505	10
Future Vol, veh/h	10	10	10	1100	505	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	63	81	75	100
Heavy Vehicles, %	100	100	0	3	4	0
Mvmt Flow	10	10	16	1358	673	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1253	342	683	0	-	0
Stage 1	678	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Critical Hdwy	8.25	8.9	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-
Critical Hdwy Stg 2	8	-	-	-	-	-
Follow-up Hdwy	4.65	4.3	2.2	-	-	-
Pot Cap-1 Maneuver	88	438	919	-	-	-
Stage 1	267	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	82	438	919	-	-	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	267	-	-	-	-	-
Stage 2	284	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	21.5		0.3		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	919	-	238	-	-
HCM Lane V/C Ratio	0.017	-	0.084	-	-
HCM Control Delay (s)	9	0.2	21.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Lanes, Volumes, Timings
 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

Cookeville 2040 No-Build Conditions

06/20/2017

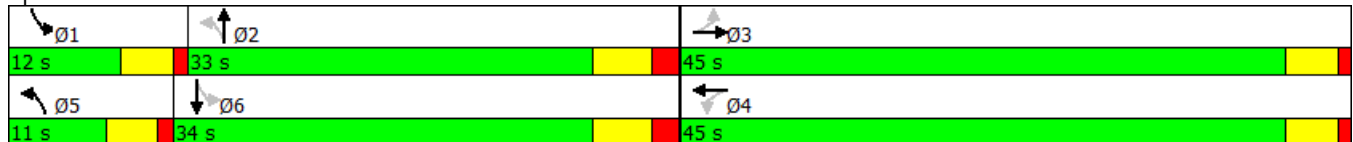
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	15	75	20	10	85	25	475	10	90	675	45
Future Volume (vph)	250	15	75	20	10	85	25	475	10	90	675	45
Satd. Flow (prot)	1770	1706	0	1703	1657	0	1805	3435	0	1787	3486	0
Flt Permitted	0.678			0.684			0.193			0.287		
Satd. Flow (perm)	1263	1706	0	1226	1657	0	367	3435	0	540	3486	0
Satd. Flow (RTOR)		77			99			5			10	
Lane Group Flow (vph)	510	113	0	37	123	0	30	603	0	127	848	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		11.0	33.0		12.0	34.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	35.8	35.8		35.8	35.8		28.7	22.5		31.0	25.6	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.37	0.29		0.40	0.33	
v/c Ratio	0.88	0.14		0.07	0.15		0.12	0.61		0.38	0.74	
Control Delay	40.5	6.5		14.3	5.3		15.1	28.1		18.2	29.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.5	6.5		14.3	5.3		15.1	28.1		18.2	29.1	
LOS	D	A		B	A		B	C		B	C	
Approach Delay		34.4			7.4			27.5			27.7	
Approach LOS		C			A			C			C	
Queue Length 50th (ft)	256	11		11	7		9	150		41	225	
Queue Length 95th (ft)	155	5		17	0		23	182		58	279	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	691	969		671	952		261	1262		340	1337	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.74	0.12		0.06	0.13		0.11	0.48		0.37	0.63	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 78.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 28.0
 Intersection Capacity Utilization 58.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	10	65	0	0	0	0	580	260	395	860	0
Future Volume (vph)	265	10	65	0	0	0	0	580	260	395	860	0
Satd. Flow (prot)	1649	1571	0	0	0	0	0	3383	0	1770	3539	0
Flt Permitted	0.950	0.976								0.149		
Satd. Flow (perm)	1649	1571	0	0	0	0	0	3383	0	278	3539	0
Satd. Flow (RTOR)		53						77				
Lane Group Flow (vph)	196	188	0	0	0	0	0	1124	0	494	935	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	45.0	45.0						27.0		18.0	45.0	
Total Lost Time (s)	5.2	5.2						4.7		4.5	4.7	
Act Effct Green (s)	12.8	12.8						22.4		40.6	40.4	
Actuated g/C Ratio	0.20	0.20						0.35		0.64	0.64	
v/c Ratio	0.59	0.52						0.90		0.99	0.41	
Control Delay	30.2	21.2						31.0		57.4	6.8	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	30.2	21.2						31.0		57.4	6.8	
LOS	C	C						C		E	A	
Approach Delay		25.8						31.0			24.3	
Approach LOS		C						C			C	
Queue Length 50th (ft)	71	47						195		134	76	
Queue Length 95th (ft)	131	61						236		#293	144	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	1042	1012						1248		498	2265	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.19	0.19						0.90		0.99	0.41	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 69.5%

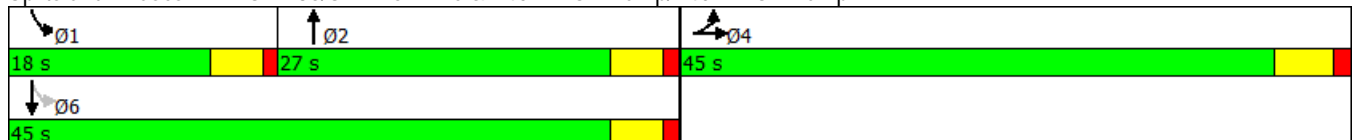
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	210	10	310	45	790	0	0	1055	325
Future Volume (vph)	0	0	0	210	10	310	45	790	0	0	1055	325
Satd. Flow (prot)	0	0	0	0	1762	1583	1671	3539	0	0	3409	0
Flt Permitted					0.954		0.116					
Satd. Flow (perm)	0	0	0	0	1762	1583	204	3539	0	0	3409	0
Satd. Flow (RTOR)						85					51	
Lane Group Flow (vph)	0	0	0	0	251	365	58	975	0	0	1642	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				45.0	45.0	45.0	10.6	45.0			34.4	
Total Lost Time (s)					5.4	5.4	4.5	5.5			5.5	
Act Effct Green (s)					18.5	18.5	36.6	35.5			29.9	
Actuated g/C Ratio					0.28	0.28	0.56	0.54			0.46	
v/c Ratio					0.50	0.72	0.23	0.51			1.03	
Control Delay					23.5	24.7	10.6	11.5			54.3	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					23.5	24.7	10.6	11.5			54.3	
LOS					C	C	B	B			D	
Approach Delay					24.2			11.5			54.3	
Approach LOS					C			B			D	
Queue Length 50th (ft)					90	108	9	115			~429	
Queue Length 95th (ft)					151	175	28	195			#639	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					1107	1025	256	2217			1590	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.23	0.36	0.23	0.44			1.03	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 65.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15

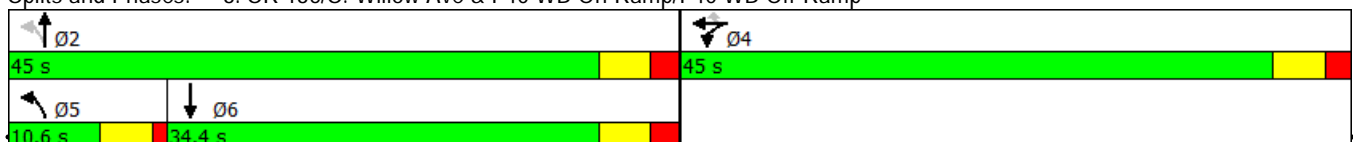
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	180	115	340	215	345	135	690	220	325	880	75
Future Volume (vph)	100	180	115	340	215	345	135	690	220	325	880	75
Satd. Flow (prot)	1736	1711	0	1805	1900	1615	1703	3412	0	1752	3524	0
Flt Permitted	0.596			0.200			0.155			0.129		
Satd. Flow (perm)	1089	1711	0	380	1900	1615	278	3412	0	238	3524	0
Satd. Flow (RTOR)		33				328		48			13	
Lane Group Flow (vph)	118	396	0	415	265	406	157	1058	0	361	1019	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	11.0	22.0		17.0	28.0	28.0	12.0	33.0		18.0	39.0	
Total Lost Time (s)	4.5	6.5		4.5	6.5	6.5	4.5	6.5		4.5	6.5	
Act Effct Green (s)	24.0	15.5		34.5	21.5	21.5	36.0	26.5		46.5	32.5	
Actuated g/C Ratio	0.27	0.17		0.38	0.24	0.24	0.40	0.29		0.52	0.36	
v/c Ratio	0.35	1.23		1.21	0.58	0.64	0.69	1.02		1.03	0.79	
Control Delay	22.7	161.0		143.0	36.3	12.0	31.8	64.2		80.8	31.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.7	161.0		143.0	36.3	12.0	31.8	64.2		80.8	31.0	
LOS	C	F		F	D	B	C	E		F	C	
Approach Delay		129.2			68.0			60.0			44.0	
Approach LOS		F			E			E			D	
Queue Length 50th (ft)	44	~266		~235	134	36	45	~315		~168	265	
Queue Length 95th (ft)	76	#349		#356	188	106	#102	#420		#342	345	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	337	321		343	454	635	229	1038		350	1282	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.35	1.23		1.21	0.58	0.64	0.69	1.02		1.03	0.79	

Intersection Summary














Cycle Length: 90
 Actuated Cycle Length: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 65.3
 Intersection Capacity Utilization 97.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	35	130	1035	135	70	1305
Future Volume (vph)	35	130	1035	135	70	1305
Satd. Flow (prot)	1805	1583	3507	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3507	0	1752	3574
Lane Group Flow (vph)	51	151	1230	0	111	1450
Sign Control	Stop		Free			Free

Intersection Summary












Control Type: Unsignalized

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	20	1145	10	0	1385
Future Volume (vph)	0	20	1145	10	0	1385
Satd. Flow (prot)	0	1644	3568	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3568	0	0	3539
Lane Group Flow (vph)	0	27	1196	0	0	1522
Sign Control	Stop		Free			Free

Intersection Summary












Control Type: Unsignalized

Intersection Capacity Utilization 42.0%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	35	40	1200	1285	55
Future Volume (vph)	35	35	40	1200	1285	55
Satd. Flow (prot)	1736	1553	1805	3574	3547	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3547	0
Lane Group Flow (vph)	35	51	45	1212	1470	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	405	430	195	600	170	390	730	135	210	840	115
Future Volume (vph)	140	405	430	195	600	170	390	730	135	210	840	115
Satd. Flow (prot)	1805	3574	1568	1787	3473	0	1787	3453	0	1770	3502	0
Flt Permitted	0.229			0.283			0.131			0.167		
Satd. Flow (perm)	435	3574	1568	532	3473	0	246	3453	0	311	3502	0
Satd. Flow (RTOR)			317		45			29			18	
Lane Group Flow (vph)	149	500	494	207	880	0	419	956	0	263	1047	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	13.0	23.0	23.0	13.0	23.0		22.0	37.0		17.0	32.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	6.6		5.5	6.6	
Act Effct Green (s)	24.9	17.5	17.5	25.0	17.5		48.1	30.7		37.8	25.4	
Actuated g/C Ratio	0.28	0.19	0.19	0.28	0.19		0.53	0.34		0.42	0.28	
v/c Ratio	0.64	0.72	0.88	0.82	1.24		1.01	0.80		0.84	1.05	
Control Delay	35.8	40.7	31.9	51.6	150.2		72.8	32.3		43.8	73.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.8	40.7	31.9	51.6	150.2		72.8	32.3		43.8	73.5	
LOS	D	D	C	D	F		E	C		D	E	
Approach Delay		36.3			131.4			44.6			67.5	
Approach LOS		D			F			D			E	
Queue Length 50th (ft)	60	141	100	87	-320		-191	250		87	-340	
Queue Length 95th (ft)	#115	173	#262	#168	#442		#383	328		#167	#467	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	235	694	560	252	711		414	1195		317	1001	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.63	0.72	0.88	0.82	1.24		1.01	0.80		0.83	1.05	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 68.0

Intersection LOS: E

Intersection Capacity Utilization 97.5%

ICU Level of Service F

Analysis Period (min) 15

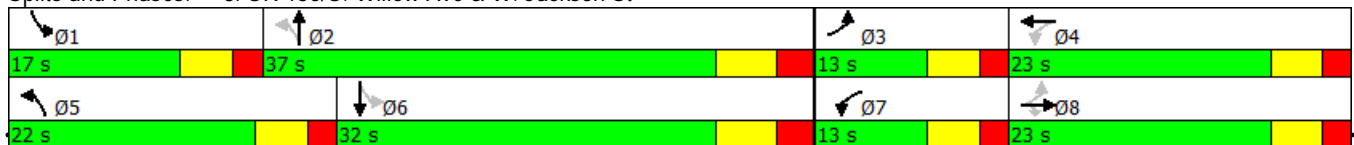
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



PM Peak HR
WSP

Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	100	40	130	140	95	35	900	90	70	1090	40
Future Volume (vph)	50	100	40	130	140	95	35	900	90	70	1090	40
Satd. Flow (prot)	0	1811	0	1787	1783	0	1805	3524	0	1787	3554	0
Flt Permitted		0.988		0.950			0.126			0.125		
Satd. Flow (perm)	0	1811	0	1787	1783	0	239	3524	0	235	3554	0
Satd. Flow (RTOR)		17		30			15			5		
Lane Group Flow (vph)	0	242	0	183	268	0	42	1008	0	84	1180	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	19.0	19.0		20.0	20.0		11.0	39.0		12.0	40.0	
Total Lost Time (s)		4.8		4.8	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)		13.4		14.3	14.3		35.7	30.7		37.9	33.5	
Actuated g/C Ratio		0.16		0.17	0.17		0.44	0.37		0.46	0.41	
v/c Ratio		0.78		0.59	0.80		0.19	0.76		0.34	0.81	
Control Delay		51.7		42.3	50.3		13.0	27.3		15.3	28.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		51.7		42.3	50.3		13.0	27.3		15.3	28.0	
LOS		D		D	D		B	C		B	C	
Approach Delay		51.7			47.0			26.8			27.2	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		125		97	132		11	252		23	314	
Queue Length 95th (ft)		#208		126	#235		25	327		42	402	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		337		341	365		232	1525		254	1612	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.72		0.54	0.73		0.18	0.66		0.33	0.73	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 82
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 32.0
 Intersection Capacity Utilization 75.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St

Ø1	Ø2	Ø3	Ø4
12 s	39 s	20 s	19 s
Ø5	Ø6		
11 s	40 s		

Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

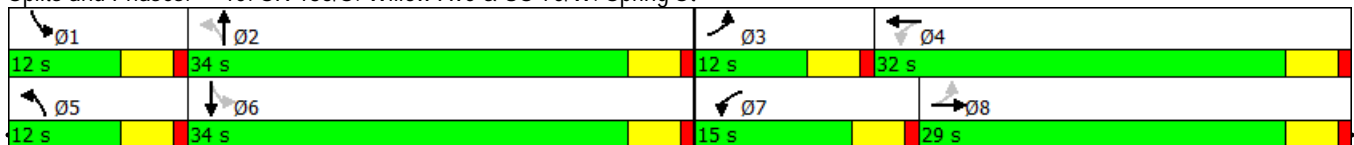
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	315	150	285	380	185	135	780	115	110	955	25
Future Volume (vph)	160	315	150	285	380	185	135	780	115	110	955	25
Satd. Flow (prot)	1787	1758	0	1805	1791	0	1787	3507	0	1685	3324	0
Flt Permitted	0.163			0.145			0.136			0.136		
Satd. Flow (perm)	307	1758	0	276	1791	0	256	3507	0	241	3324	0
Satd. Flow (RTOR)		28			21			20			3	
Lane Group Flow (vph)	213	551	0	343	696	0	153	986	0	149	1046	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	29.0		15.0	32.0		12.0	34.0		12.0	34.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	32.0	24.5		38.0	27.5		37.0	29.5		37.0	29.5	
Actuated g/C Ratio	0.36	0.27		0.42	0.31		0.41	0.33		0.41	0.33	
v/c Ratio	0.92	1.11		1.17	1.24		0.66	0.85		0.68	0.96	
Control Delay	63.3	103.9		128.8	151.9		30.4	35.9		33.1	49.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	63.3	103.9		128.8	151.9		30.4	35.9		33.1	49.6	
LOS	E	F		F	F		C	D		C	D	
Approach Delay		92.6			144.3			35.2			47.6	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	75	~349		~182	~491		49	267		48	303	
Queue Length 95th (ft)	#135	#512		#307	#530		#104	#358		69	#440	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	232	498		294	561		232	1163		219	1091	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.92	1.11		1.17	1.24		0.66	0.85		0.68	0.96	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 76.8
 Intersection Capacity Utilization 91.2%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



PM Peak HR
 WSP

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	120	85	160	205	80	110	885	55	75	875	85
Future Volume (vph)	90	120	85	160	205	80	110	885	55	75	875	85
Satd. Flow (prot)	1805	1763	0	1805	1822	0	1668	3323	0	1620	3283	0
Flt Permitted	0.355			0.344			0.124			0.135		
Satd. Flow (perm)	674	1763	0	654	1822	0	218	3323	0	230	3283	0
Satd. Flow (RTOR)		42			20			10			16	
Lane Group Flow (vph)	95	241	0	198	370	0	134	1025	0	75	1054	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.0	24.0		14.0	27.0		13.0	40.0		12.0	39.0	
Total Lost Time (s)	4.5	5.2		4.5	5.2		4.5	4.8		4.5	4.8	
Act Effct Green (s)	23.3	15.9		29.7	22.0		38.7	32.2		37.0	31.3	
Actuated g/C Ratio	0.29	0.20		0.36	0.27		0.48	0.40		0.45	0.38	
v/c Ratio	0.33	0.64		0.53	0.73		0.54	0.78		0.33	0.83	
Control Delay	22.5	34.5		25.4	39.0		20.8	27.2		14.9	30.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.5	34.5		25.4	39.0		20.8	27.2		14.9	30.3	
LOS	C	C		C	D		C	C		B	C	
Approach Delay		31.1			34.3			26.5			29.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	35	102		78	189		37	262		20	277	
Queue Length 95th (ft)	69	181		116	233		63	342		42	363	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	288	457		379	524		261	1507		239	1450	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.53		0.52	0.71		0.51	0.68		0.31	0.73	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.3

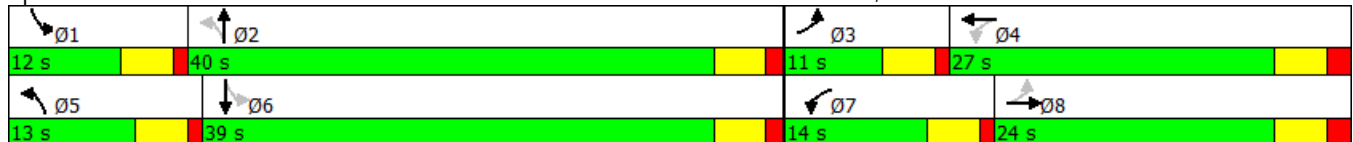
Intersection LOS: C

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	20	15	10	30	20	1025	20	15	1005	25
Future Volume (vph)	10	10	20	15	10	30	20	1025	20	15	1005	25
Satd. Flow (prot)	0	1772	0	0	1731	0	0	3353	0	0	3317	0
Flt Permitted		0.985			0.989			0.999			0.999	
Satd. Flow (perm)	0	1772	0	0	1731	0	0	3353	0	0	3317	0
Lane Group Flow (vph)	0	53	0	0	82	0	0	1133	0	0	1157	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 54.3%

















ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	30	30	10	35	20	995	45	15	980	20
Future Volume (vph)	15	15	30	30	10	35	20	995	45	15	980	20
Satd. Flow (prot)	0	1740	0	0	1711	0	0	3335	0	0	3321	0
Flt Permitted		0.985			0.979			0.999			0.999	
Satd. Flow (perm)	0	1740	0	0	1711	0	0	3335	0	0	3321	0
Lane Group Flow (vph)	0	81	0	0	97	0	0	1165	0	0	1163	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
 14: SR 135/N. Willow Ave & W. 7th St

Cookeville 2040 No-Build Conditions

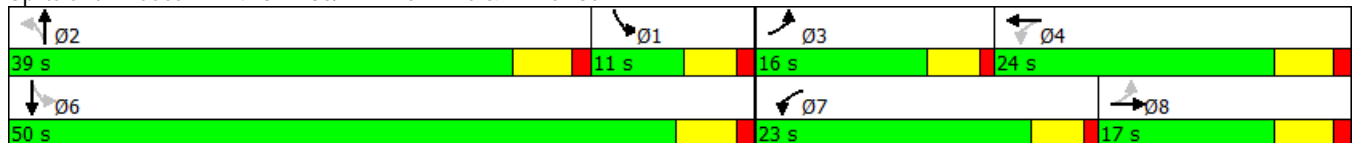
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	85	35	290	140	170	15	900	90	60	695	25
Future Volume (vph)	55	85	35	290	140	170	15	900	90	60	695	25
Satd. Flow (prot)	1770	1751	0	1805	1727	0	0	3315	0	0	3268	0
Flt Permitted	0.544			0.404				0.920			0.678	
Satd. Flow (perm)	1013	1751	0	768	1727	0	0	3053	0	0	2225	0
Satd. Flow (RTOR)		27			69			15			7	
Lane Group Flow (vph)	66	166	0	337	364	0	0	1070	0	0	907	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	16.0	17.0		23.0	24.0		39.0	39.0		11.0	50.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3			5.3			5.3	
Act Effct Green (s)	18.9	10.4		31.9	21.7			37.4			37.4	
Actuated g/C Ratio	0.24	0.13		0.40	0.27			0.47			0.47	
v/c Ratio	0.21	0.66		0.65	0.70			0.74			0.86	
Control Delay	19.7	43.5		25.6	32.7			20.6			28.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.7	43.5		25.6	32.7			20.6			28.8	
LOS	B	D		C	C			C			C	
Approach Delay		36.7			29.3			20.6			28.8	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	22	74		136	152			230			215	
Queue Length 95th (ft)	45	125		205	#307			307			295	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	408	289		558	527			1562			1297	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.57		0.60	0.69			0.69			0.70	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 79.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 26.5
 Intersection Capacity Utilization 89.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	10	100	10	15	10	85	1010	10	10	680	80
Future Volume (vph)	50	10	100	10	15	10	85	1010	10	10	680	80
Satd. Flow (prot)	0	1663	0	0	1778	0	0	3346	0	0	3280	0
Flt Permitted		0.984			0.988			0.995			0.999	
Satd. Flow (perm)	0	1663	0	0	1778	0	0	3346	0	0	3280	0
Lane Group Flow (vph)	0	191	0	0	41	0	0	1215	0	0	888	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
 16: SR 135/N. Willow Ave & University Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	35	20	130	30	85	10	955	85	15	635	20
Future Volume (vph)	35	35	20	130	30	85	10	955	85	15	635	20
Satd. Flow (prot)	1736	1679	0	1787	1630	0	0	3329	0	0	3312	0
Flt Permitted	0.833			0.430				0.948			0.899	
Satd. Flow (perm)	1522	1679	0	809	1630	0	0	3156	0	0	2983	0
Satd. Flow (RTOR)		21			142			13			6	
Lane Group Flow (vph)	45	60	0	197	196	0	0	1149	0	0	739	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	33.0		12.0	33.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	4.5	5.5		4.5	5.5			4.9			4.9	
Act Effct Green (s)	12.5	8.6		13.9	9.1			27.6			27.6	
Actuated g/C Ratio	0.23	0.16		0.26	0.17			0.51			0.51	
v/c Ratio	0.12	0.21		0.55	0.50			0.71			0.48	
Control Delay	16.2	20.3		23.2	14.5			13.7			10.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	16.2	20.3		23.2	14.5			13.7			10.5	
LOS	B	C		C	B			B			B	
Approach Delay		18.6			18.9			13.7			10.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	10	13		50	17			152			83	
Queue Length 95th (ft)	30	47		82	23			266			150	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	419	966		361	991			2412			2278	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.06		0.55	0.20			0.48			0.32	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 53.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 13.8
 Intersection Capacity Utilization 58.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr

Ø2	Ø3	Ø4
45 s	12 s	33 s
Ø6	Ø7	Ø8
45 s	12 s	33 s

Lanes, Volumes, Timings
 17: SR 135/N. Willow Ave & W. 12th St

Cookeville 2040 No-Build Conditions

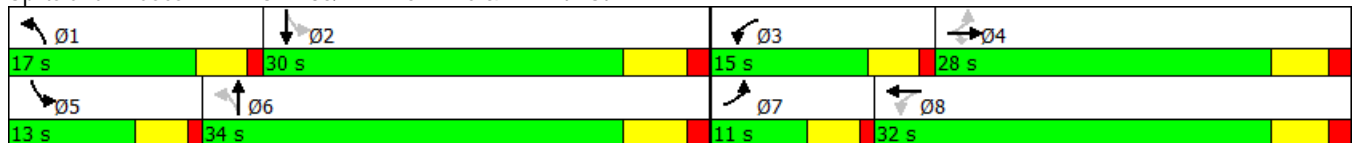
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	275	180	255	400	150	295	525	255	100	280	55
Future Volume (vph)	115	275	180	255	400	150	295	525	255	100	280	55
Satd. Flow (prot)	1752	1845	1615	1770	3420	0	1685	3176	0	1668	3285	0
Flt Permitted	0.376			0.269			0.412			0.197		
Satd. Flow (perm)	694	1845	1615	501	3420	0	731	3176	0	346	3285	0
Satd. Flow (RTOR)			198		63			107			26	
Lane Group Flow (vph)	129	320	198	277	621	0	307	821	0	145	371	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	11.0	28.0	28.0	15.0	32.0		17.0	34.0		13.0	30.0	
Total Lost Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.9		4.5	5.9	
Act Effct Green (s)	25.9	18.3	18.3	33.9	24.8		37.3	23.9		29.8	20.2	
Actuated g/C Ratio	0.32	0.22	0.22	0.42	0.30		0.46	0.29		0.37	0.25	
v/c Ratio	0.42	0.77	0.38	0.75	0.57		0.65	0.81		0.56	0.44	
Control Delay	21.0	44.0	6.7	32.3	25.2		22.1	30.9		23.0	26.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.0	44.0	6.7	32.3	25.2		22.1	30.9		23.0	26.3	
LOS	C	D	A	C	C		C	C		C	C	
Approach Delay		28.0			27.4			28.5			25.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	42	161	0	100	137		102	184		43	81	
Queue Length 95th (ft)	80	243	51	#174	194		172	265		60	126	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	306	517	595	374	1172		487	1182		268	1005	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.62	0.33	0.74	0.53		0.63	0.69		0.54	0.37	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 81.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 27.6
 Intersection Capacity Utilization 73.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	0	20	15	0	35	25	805	10	25	1130	345
Future Volume (vph)	295	0	20	15	0	35	25	805	10	25	1130	345
Satd. Flow (prot)	1736	1615	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.422			0.744			0.115			0.221		
Satd. Flow (perm)	771	1615	0	1414	1615	0	218	3539	1615	392	3505	1599
Satd. Flow (RTOR)		487			274				131			131
Lane Group Flow (vph)	311	21	0	24	51	0	40	982	10	25	1256	437
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	25.0	15.0		25.0	15.0		17.0	43.0	43.0	17.0	43.0	43.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Act Effct Green (s)	28.3	22.0		12.6	6.0		61.1	56.7	56.7	59.8	54.3	54.3
Actuated g/C Ratio	0.28	0.22		0.13	0.06		0.61	0.57	0.57	0.60	0.54	0.54
v/c Ratio	0.78	0.03		0.12	0.14		0.17	0.49	0.01	0.08	0.66	0.47
Control Delay	44.8	0.1		26.3	0.9		10.4	16.2	0.0	2.2	6.9	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.3	0.0	0.0	0.3	0.4
Total Delay	44.8	0.1		26.3	0.9		10.4	16.5	0.0	2.2	7.1	1.6
LOS	D	A		C	A		B	B	A	A	A	A
Approach Delay		42.0			9.0			16.1			5.7	
Approach LOS		D			A			B			A	
Queue Length 50th (ft)	162	0		10	0		10	183	0	1	50	0
Queue Length 95th (ft)	250	0		20	0		16	268	0	m2	m55	m2
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	425	735		455	394		335	2006	972	407	1904	928
Starvation Cap Reductn	0	0		0	0		0	0	0	0	181	155
Spillback Cap Reductn	0	0		0	30		0	394	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.03		0.05	0.14		0.12	0.61	0.01	0.06	0.73	0.57

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 13.0
 Intersection Capacity Utilization 64.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

Ø1	Ø2 (R)	Ø3	Ø4
17 s	43 s	25 s	15 s
Ø5	Ø6 (R)	Ø7	Ø8
17 s	43 s	25 s	15 s

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

06/20/2017

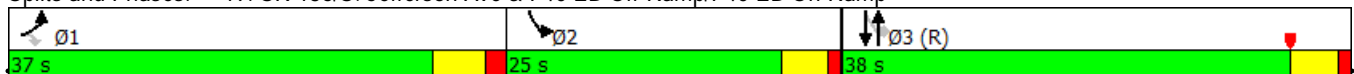
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	0	205	0	0	0	0	950	175	360	1290	0
Future Volume (vph)	270	0	205	0	0	0	0	950	175	360	1290	0
Satd. Flow (prot)	1736	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.120		
Satd. Flow (perm)	1736	0	1538	0	0	0	0	3574	1599	226	3539	0
Satd. Flow (RTOR)			250						219			
Lane Group Flow (vph)	307	0	250	0	0	0	0	1105	219	434	1418	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	37.0		37.0					38.0	38.0	25.0	38.0	
Total Lost Time (s)	5.4		5.4					4.6	4.6	4.5	4.6	
Act Effct Green (s)	23.1		23.1					33.4	33.4	62.5	33.4	
Actuated g/C Ratio	0.23		0.23					0.33	0.33	0.62	0.33	
v/c Ratio	0.77		0.46					0.93	0.32	0.73	1.20	
Control Delay	48.3		6.4					39.2	2.5	41.8	114.4	
Queue Delay	0.0		0.0					10.3	0.3	0.0	0.0	
Total Delay	48.3		6.4					49.5	2.8	41.8	114.5	
LOS	D		A					D	A	D	F	
Approach Delay		29.5						41.8			97.4	
Approach LOS		C						D			F	
Queue Length 50th (ft)	184		0					369	16	182	-588	
Queue Length 95th (ft)	244		38					#450	6	m#295	m#648	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	548		657					1193	679	594	1182	
Starvation Cap Reductn	0		0					90	142	0	6	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.56		0.38					1.00	0.41	0.73	1.21	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 30 (30%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 67.6
 Intersection Capacity Utilization 74.2%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

06/20/2017

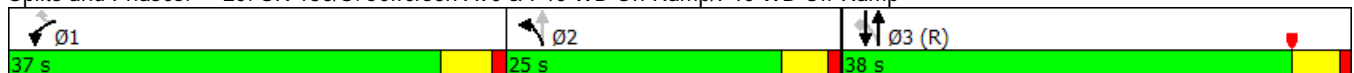
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	105	0	290	120	1090	0	0	1540	255
Future Volume (vph)	0	0	0	105	0	290	120	1090	0	0	1540	255
Satd. Flow (prot)	0	0	0	3213	0	1538	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.080					
Satd. Flow (perm)	0	0	0	3213	0	1538	145	3574	0	0	3574	1599
Satd. Flow (RTOR)						78						193
Lane Group Flow (vph)	0	0	0	118	0	354	140	1160	0	0	1638	280
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				37.0		37.0	25.0	38.0			38.0	38.0
Total Lost Time (s)				4.9		4.9	4.5	4.5			4.5	4.5
Act Effct Green (s)				23.8		23.8	62.3	66.8			49.8	49.8
Actuated g/C Ratio				0.24		0.24	0.62	0.67			0.50	0.50
v/c Ratio				0.15		0.83	0.49	0.49			0.92	0.31
Control Delay				28.6		44.3	28.6	17.4			22.8	1.3
Queue Delay				0.0		61.5	0.0	0.5			45.8	1.4
Total Delay				28.6		105.8	28.6	17.9			68.6	2.8
LOS				C		F	C	B			E	A
Approach Delay					86.5			19.1			59.0	
Approach LOS					F			B			E	
Queue Length 50th (ft)				30		170	74	262			544	0
Queue Length 95th (ft)				47		216	m95	m301			m#790	m18
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				1031		546	419	2387			1779	893
Starvation Cap Reductn				0		0	0	685			394	425
Spillback Cap Reductn				0		315	0	99			444	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.11		1.53	0.33	0.68			1.23	0.60

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 20 (20%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 48.4
 Intersection Capacity Utilization 74.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

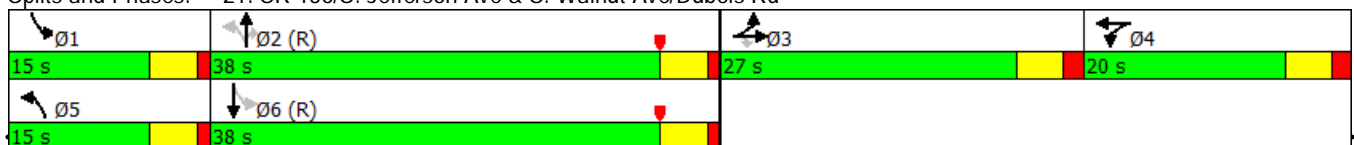


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	20	465	115	30	20	205	1110	75	10	1225	80
Future Volume (vph)	100	20	465	115	30	20	205	1110	75	10	1225	80
Satd. Flow (prot)	0	1794	1599	1770	1788	0	1787	3539	1568	1805	5118	0
Flt Permitted		0.960		0.950			0.100			0.121		
Satd. Flow (perm)	0	1794	1599	1770	1788	0	188	3539	1568	230	5118	0
Satd. Flow (RTOR)			294		27				125		14	
Lane Group Flow (vph)	0	166	541	122	69	0	233	1181	80	24	1424	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	27.0	27.0	27.0	20.0	20.0		15.0	38.0	38.0	15.0	38.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0		4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)		20.7	20.7	13.0	13.0		50.3	45.9	45.9	45.3	35.3	
Actuated g/C Ratio		0.21	0.21	0.13	0.13		0.50	0.46	0.46	0.45	0.35	
v/c Ratio		0.45	0.96	0.53	0.27		0.82	0.73	0.10	0.09	0.78	
Control Delay		38.4	47.7	49.2	28.6		51.0	28.3	2.7	18.7	32.7	
Queue Delay		0.0	7.9	0.0	0.0		8.0	1.6	0.5	0.0	13.4	
Total Delay		38.4	55.6	49.2	28.6		59.0	29.9	3.2	18.7	46.1	
LOS		D	E	D	C		E	C	A	B	D	
Approach Delay		51.6			41.8			33.0			45.7	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)		92	169	75	24		97	277	2	9	228	
Queue Length 95th (ft)		126	#340	129	46		#248	#560	m10	m10	m245	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		394	581	265	291		284	1626	787	270	1817	
Starvation Cap Reductn		0	0	0	0		29	262	477	0	0	
Spillback Cap Reductn		0	31	0	0		0	0	0	0	401	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.42	0.98	0.46	0.24		0.91	0.87	0.26	0.09	1.01	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 41.6
 Intersection Capacity Utilization 76.3%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	430	250	300	495	170	215	700	255	130	865	240
Future Volume (vph)	190	430	250	300	495	170	215	700	255	130	865	240
Satd. Flow (prot)	1770	1845	1599	1805	3480	0	1770	3539	1615	1805	3464	0
Flt Permitted	0.182			0.177			0.122			0.233		
Satd. Flow (perm)	339	1845	1599	336	3480	0	227	3539	1615	443	3464	0
Satd. Flow (RTOR)			263		39				271		39	
Lane Group Flow (vph)	216	439	263	313	759	0	269	729	271	151	1133	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	18.0	27.0	27.0	18.0	27.0		17.0	38.0	38.0	17.0	38.0	
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0		4.5	5.5	5.5	4.5	5.5	
Act Effct Green (s)	35.4	22.0	22.0	36.6	22.6		46.4	32.9	32.9	45.6	32.5	
Actuated g/C Ratio	0.35	0.22	0.22	0.37	0.23		0.46	0.33	0.33	0.46	0.32	
v/c Ratio	0.71	1.08	0.47	0.98	0.93		0.90	0.63	0.38	0.41	0.98	
Control Delay	35.3	107.5	7.3	71.9	55.4		70.9	20.5	6.9	14.2	31.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.3	107.5	7.3	71.9	55.4		70.9	20.5	6.9	14.2	31.6	
LOS	D	F	A	E	E		E	C	A	B	C	
Approach Delay		61.8			60.2			28.3			29.6	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	91	~315	0	147	241		133	35	0	21	198	
Queue Length 95th (ft)	#154	#504	64	#323	#333		#220	166	m73	m24	m#440	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	315	405	556	321	816		298	1164	713	374	1152	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.69	1.08	0.47	0.98	0.93		0.90	0.63	0.38	0.40	0.98	

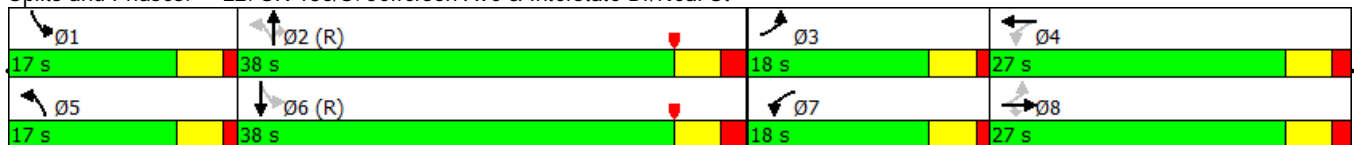
Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 42.9
 Intersection Capacity Utilization 99.0%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
 23: SR 136/S. Jefferson Ave & E. Veterans Dr

Cookeville 2040 No-Build Conditions

06/20/2017

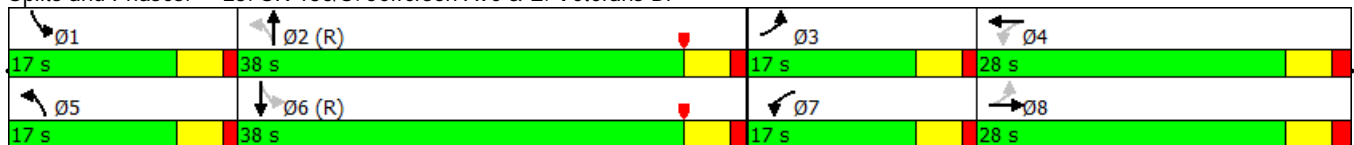
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	245	75	170	280	145	60	800	130	95	1065	95
Future Volume (vph)	80	245	75	170	280	145	60	800	130	95	1065	95
Satd. Flow (prot)	1805	1818	0	1752	1754	0	1805	3504	0	1752	3549	0
Flt Permitted	0.163			0.174			0.122			0.114		
Satd. Flow (perm)	310	1818	0	321	1754	0	232	3504	0	210	3549	0
Satd. Flow (RTOR)		15			27			20			14	
Lane Group Flow (vph)	96	388	0	183	533	0	63	992	0	109	1247	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	28.0		17.0	28.0		17.0	38.0		17.0	38.0	
Total Lost Time (s)	4.5	5.0		4.5	5.0		4.5	4.8		4.5	4.8	
Act Effct Green (s)	36.1	23.6		37.0	26.8		46.0	33.7		46.9	37.0	
Actuated g/C Ratio	0.36	0.24		0.37	0.27		0.46	0.34		0.47	0.37	
v/c Ratio	0.33	0.88		0.64	1.09		0.21	0.83		0.39	0.94	
Control Delay	22.2	58.5		31.0	103.2		9.3	29.1		23.4	41.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	2.1	
Total Delay	22.2	58.5		31.0	103.2		9.3	29.2		23.4	44.0	
LOS	C	E		C	F		A	C		C	D	
Approach Delay		51.3			84.7			28.0			42.3	
Approach LOS		D			F			C			D	
Queue Length 50th (ft)	38	233		76	-411		9	307		24	-456	
Queue Length 95th (ft)	65	#351		129	#546		m14	m362		75	#570	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	300	440		298	489		304	1194		292	1322	
Starvation Cap Reductn	0	0		0	0		0	0		0	29	
Spillback Cap Reductn	0	0		0	0		0	7		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.88		0.61	1.09		0.21	0.84		0.37	0.96	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 58 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 47.8
 Intersection Capacity Utilization 91.7%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

Cookeville 2040 No-Build Conditions

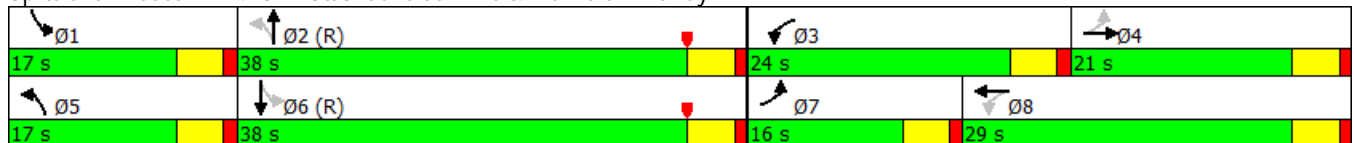
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	10	190	15	130	10	850	145	140	1090	15
Future Volume (vph)	0	0	10	190	15	130	10	850	145	140	1090	15
Satd. Flow (prot)	1900	1615	0	1805	1649	0	1805	3486	0	1787	3504	0
Flt Permitted				0.453			0.211			0.156		
Satd. Flow (perm)	1900	1615	0	861	1649	0	401	3486	0	293	3504	0
Satd. Flow (RTOR)		330			135			21			3	
Lane Group Flow (vph)	0	32	0	226	153	0	10	1016	0	156	1142	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	16.0	21.0		24.0	29.0		17.0	38.0		17.0	38.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)		12.0		25.8	25.8		60.1	48.1		64.9	61.9	
Actuated g/C Ratio		0.12		0.26	0.26		0.60	0.48		0.65	0.62	
v/c Ratio		0.07		0.61	0.29		0.02	0.60		0.41	0.53	
Control Delay		0.3		36.7	6.9		18.0	30.3		12.2	15.5	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.2	
Total Delay		0.3		36.7	6.9		18.0	30.4		12.2	15.7	
LOS		A		D	A		B	C		B	B	
Approach Delay		0.3			24.7			30.3			15.3	
Approach LOS		A			C			C			B	
Queue Length 50th (ft)		0		112	8		4	262		41	215	
Queue Length 95th (ft)		0		153	40		m6	m320		79	432	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		542		426	591		418	1688		384	2170	
Starvation Cap Reductn		0		0	0		0	61		0	0	
Spillback Cap Reductn		28		0	0		0	0		0	308	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.06		0.53	0.26		0.02	0.62		0.41	0.61	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 46 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 22.0
 Intersection Capacity Utilization 69.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
 25: SR 136/S. Jefferson Ave & Commerce Ave

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	15	75	100	10	55	55	1055	25	30	1180	30
Future Volume (vph)	100	15	75	100	10	55	55	1055	25	30	1180	30
Satd. Flow (prot)	1805	1670	0	1752	1618	0	1805	3592	0	1719	3596	0
Flt Permitted	0.478			0.678			0.099			0.159		
Satd. Flow (perm)	908	1670	0	1251	1618	0	188	3592	0	288	3596	0
Satd. Flow (RTOR)		99			87			4			3	
Lane Group Flow (vph)	149	123	0	217	103	0	73	1123	0	48	1390	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	15.0	29.0		15.0	29.0		11.0	45.0		11.0	45.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3		4.5	4.8		4.5	4.8	
Act Effct Green (s)	19.9	7.7		17.3	7.9		44.4	40.5		43.4	38.3	
Actuated g/C Ratio	0.25	0.10		0.22	0.10		0.56	0.51		0.55	0.48	
v/c Ratio	0.40	0.49		0.64	0.43		0.31	0.61		0.18	0.80	
Control Delay	26.9	18.9		34.9	17.5		10.8	16.8		8.6	22.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.9	18.9		34.9	17.5		10.8	16.8		8.6	22.7	
LOS	C	B		C	B		B	B		A	C	
Approach Delay		23.3			29.3			16.5			22.3	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	62	12		94	8		14	218		9	304	
Queue Length 95th (ft)	79	26		72	23		27	317		17	412	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	380	576		344	551		239	1948		276	1853	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.21		0.63	0.19		0.31	0.58		0.17	0.75	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 79.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 20.9
 Intersection Capacity Utilization 62.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave

Ø1	Ø2	Ø3	Ø4
11 s	45 s	15 s	29 s
Ø5	Ø6	Ø7	Ø8
11 s	45 s	15 s	29 s

Lanes, Volumes, Timings
 26: SR 136/S. Jefferson Ave & E. Jackson St

Cookeville 2040 No-Build Conditions

06/20/2017

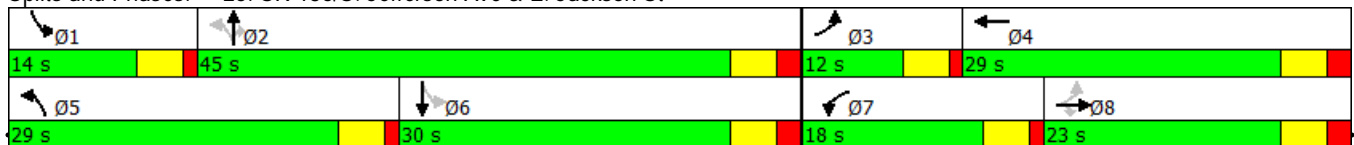
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	225	340	365	195	20	435	570	215	30	700	65
Future Volume (vph)	85	225	340	365	195	20	435	570	215	30	700	65
Satd. Flow (prot)	1787	1863	1599	3502	1855	0	1805	3610	1599	1685	3329	0
Flt Permitted	0.582			0.950			0.129			0.400		
Satd. Flow (perm)	1095	1863	1599	3502	1855	0	245	3610	1599	709	3329	0
Satd. Flow (RTOR)			391		5				276		9	
Lane Group Flow (vph)	105	239	391	401	265	0	494	663	276	43	866	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	23.0	23.0	18.0	29.0		29.0	45.0	45.0	14.0	30.0	
Total Lost Time (s)	4.5	5.4	5.4	4.5	5.4		4.5	5.3	5.3	4.5	5.3	
Act Effct Green (s)	24.3	16.1	16.1	13.3	24.4		54.2	46.5	46.5	32.3	24.7	
Actuated g/C Ratio	0.25	0.16	0.16	0.14	0.25		0.55	0.47	0.47	0.33	0.25	
v/c Ratio	0.33	0.78	0.66	0.85	0.57		0.95	0.39	0.31	0.14	1.02	
Control Delay	25.2	58.0	10.0	59.5	38.2		56.2	18.9	3.3	14.3	74.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	25.2	58.0	10.0	59.5	38.2		56.2	18.9	3.3	14.3	74.1	
LOS	C	E	A	E	D		E	B	A	B	E	
Approach Delay		27.7			51.0			28.8			71.3	
Approach LOS		C			D			C			E	
Queue Length 50th (ft)	45	146	0	130	148		258	152	0	12	~315	
Queue Length 95th (ft)	74	#252	69	#208	207		#444	195	26	22	#423	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	326	334	608	482	470		525	1712	903	348	847	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.32	0.72	0.64	0.83	0.56		0.94	0.39	0.31	0.12	1.02	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 98
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.8
 Intersection Capacity Utilization 84.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

Cookeville 2040 No-Build Conditions

06/20/2017

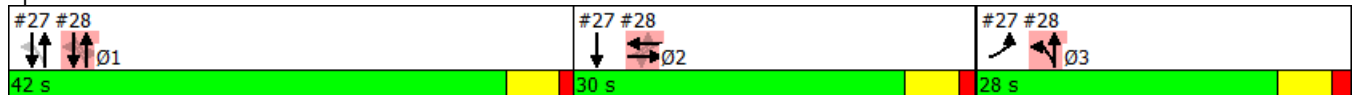
							Ø2
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				 	 		
Traffic Volume (vph)	150	30	15	645	720	0	
Future Volume (vph)	150	30	15	645	720	0	
Satd. Flow (prot)	1782	0	1452	3369	3369	0	
Flt Permitted	0.961		0.312				
Satd. Flow (perm)	1782	0	477	3369	3369	0	
Satd. Flow (RTOR)	10						
Lane Group Flow (vph)	234	0	18	686	791	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	28.0		42.0	42.0			30.0
Total Lost Time (s)	5.6		5.0	5.0			
Act Effct Green (s)	19.9		37.3	37.3	63.7		
Actuated g/C Ratio	0.21		0.40	0.40	0.68		
v/c Ratio	0.61		0.10	0.52	0.35		
Control Delay	40.3		22.4	24.6	0.6		
Queue Delay	0.0		0.0	0.0	0.3		
Total Delay	40.3		22.4	24.6	0.9		
LOS	D		C	C	A		
Approach Delay	40.3			24.5	0.9		
Approach LOS	D			C	A		
Queue Length 50th (ft)	128		7	179	3		
Queue Length 95th (ft)	173		22	237	4		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	433		188	1331	2412		
Starvation Cap Reductn	0		0	0	870		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.54		0.10	0.52	0.51		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 94.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 15.8
 Intersection Capacity Utilization 38.9%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
 28: SR 136/S. Jefferson Ave & E. Stevens St

Cookeville 2040 No-Build Conditions

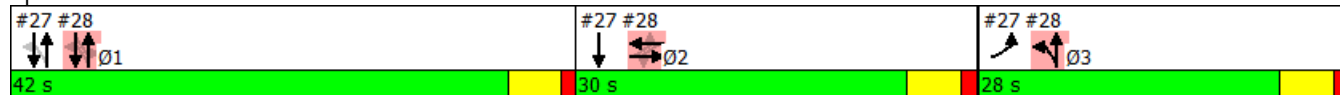
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	140	50	35	120	30	30	680	80	10	690	15
Future Volume (vph)	15	140	50	35	120	30	30	680	80	10	690	15
Satd. Flow (prot)	0	1822	0	0	1840	0	0	3295	0	0	3356	0
Flt Permitted		0.947			0.871			0.900			0.928	
Satd. Flow (perm)	0	1735	0	0	1615	0	0	2971	0	0	3117	0
Satd. Flow (RTOR)		17			10			28			3	
Lane Group Flow (vph)	0	236	0	0	235	0	0	895	0	0	801	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	30.0	30.0		30.0	30.0		28.0			42.0	42.0	
Total Lost Time (s)		5.3			5.3						5.0	
Act Effct Green (s)		21.1			21.1			57.8			37.3	
Actuated g/C Ratio		0.22			0.22			0.61			0.40	
v/c Ratio		0.59			0.64			0.47			0.65	
Control Delay		36.9			40.4			2.9			27.4	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		36.9			40.4			3.0			27.4	
LOS		D			D			A			C	
Approach Delay		36.9			40.4			3.0			27.4	
Approach LOS		D			D			A			C	
Queue Length 50th (ft)		121			126			16			223	
Queue Length 95th (ft)		199			172			20			293	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		470			433			1971			1234	
Starvation Cap Reductn		0			0			147			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.50			0.54			0.49			0.65	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 94.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 19.7
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

06/20/2017

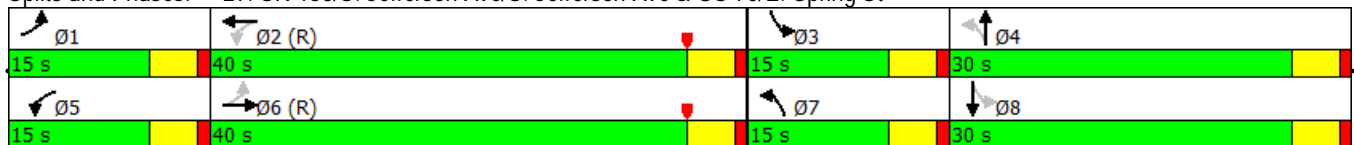
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	510	160	120	430	15	175	280	160	25	310	45
Future Volume (vph)	30	510	160	120	430	15	175	280	160	25	310	45
Satd. Flow (prot)	1805	1804	0	1752	1669	0	1668	1662	0	1685	1551	0
Flt Permitted	0.278			0.105			0.148			0.168		
Satd. Flow (perm)	528	1804	0	194	1669	0	260	1662	0	298	1551	0
Satd. Flow (RTOR)		18			2			35			7	
Lane Group Flow (vph)	30	781	0	150	491	0	199	506	0	35	429	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	45.8	35.8		48.0	41.8		38.1	31.8		35.6	25.6	
Actuated g/C Ratio	0.46	0.36		0.48	0.42		0.38	0.32		0.36	0.26	
v/c Ratio	0.08	1.19		0.60	0.70		0.81	0.92		0.14	1.07	
Control Delay	11.4	124.5		40.1	20.2		48.6	56.4		24.5	100.8	
Queue Delay	0.0	1.6		0.0	1.3		0.2	18.0		0.0	12.2	
Total Delay	11.4	126.2		40.1	21.5		48.8	74.5		24.5	113.0	
LOS	B	F		D	C		D	E		C	F	
Approach Delay		121.9			25.8			67.2			106.3	
Approach LOS		F			C			E			F	
Queue Length 50th (ft)	6	-602		63	107		84	-353		13	-283	
Queue Length 95th (ft)	m14	#755		m106	m#305		#189	#556		34	#449	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	378	657		256	698		246	552		252	401	
Starvation Cap Reductn	0	12		0	45		0	0		0	41	
Spillback Cap Reductn	0	132		0	76		1	55		9	11	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	1.49		0.59	0.79		0.81	1.02		0.14	1.19	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 81.0
 Intersection Capacity Utilization 92.7%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

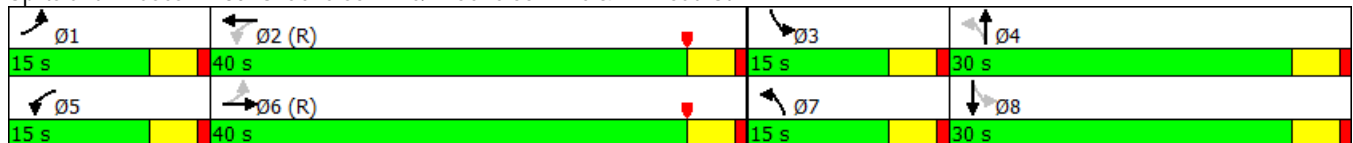
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	305	70	130	340	25	65	185	75	30	155	30
Future Volume (vph)	15	305	70	130	340	25	65	185	75	30	155	30
Satd. Flow (prot)	1805	1827	0	1805	1865	0	1668	1694	0	1685	1736	0
Flt Permitted	0.452			0.317			0.391			0.359		
Satd. Flow (perm)	859	1827	0	602	1865	0	687	1694	0	637	1736	0
Satd. Flow (RTOR)		14			3			19			8	
Lane Group Flow (vph)	24	431	0	163	430	0	80	286	0	38	217	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	54.6	44.6		58.1	53.7		28.9	22.8		27.8	19.8	
Actuated g/C Ratio	0.55	0.45		0.58	0.54		0.29	0.23		0.28	0.20	
v/c Ratio	0.04	0.52		0.34	0.43		0.27	0.71		0.14	0.62	
Control Delay	5.4	16.5		8.7	13.6		11.6	25.7		21.1	42.5	
Queue Delay	0.0	1.4		0.6	1.8		0.0	11.0		0.5	0.4	
Total Delay	5.4	18.0		9.3	15.5		11.6	36.6		21.6	42.8	
LOS	A	B		A	B		B	D		C	D	
Approach Delay		17.3			13.8			31.2			39.7	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	2	212		24	68		16	56		16	121	
Queue Length 95th (ft)	5	318		m44	326		m11	m198		30	168	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	572	822		478	1003		302	460		289	448	
Starvation Cap Reductn	0	137		83	402		0	70		0	0	
Spillback Cap Reductn	0	215		116	0		0	145		103	40	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.71		0.45	0.72		0.26	0.91		0.20	0.53	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 20 (20%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 22.5
 Intersection Capacity Utilization 66.3%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

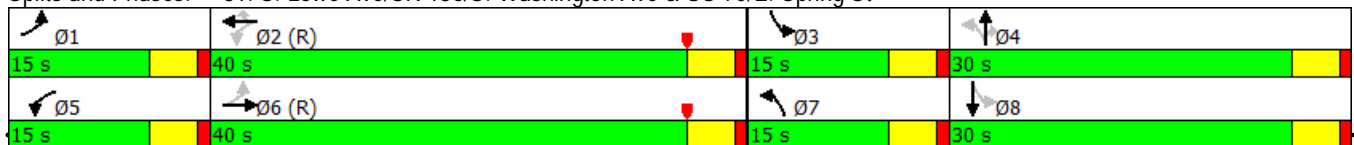
06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	500	55	100	430	55	45	315	310	105	315	65
Future Volume (vph)	160	500	55	100	430	55	45	315	310	105	315	65
Satd. Flow (prot)	1787	1840	0	1752	1863	1615	1745	1783	1546	1728	1784	0
Flt Permitted	0.270			0.114			0.164			0.234		
Satd. Flow (perm)	508	1840	0	210	1863	1615	301	1783	1546	426	1784	0
Satd. Flow (RTOR)		6				115			367		11	
Lane Group Flow (vph)	176	600	0	123	453	75	71	346	413	133	438	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	15.0	40.0		15.0	40.0	40.0	15.0	30.0	30.0	15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	47.9	37.6		47.7	37.5	37.5	34.0	23.9	23.9	35.3	27.0	
Actuated g/C Ratio	0.48	0.38		0.48	0.38	0.38	0.34	0.24	0.24	0.35	0.27	
v/c Ratio	0.47	0.86		0.48	0.65	0.11	0.29	0.81	0.64	0.47	0.90	
Control Delay	12.8	24.5		21.0	31.9	1.9	21.9	51.6	10.3	27.7	42.7	
Queue Delay	0.6	50.0		0.0	0.7	0.1	0.0	17.1	0.0	0.0	12.8	
Total Delay	13.4	74.6		21.0	32.7	1.9	21.9	68.8	10.3	27.7	55.5	
LOS	B	E		C	C	A	C	E	B	C	E	
Approach Delay		60.7			26.9			35.7			49.0	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	45	202		40	243	0	28	204	23	19	274	
Queue Length 95th (ft)	m43	m166		64	357	1	38	#333	48	76	#213	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	378	695		262	698	677	255	456	668	287	489	
Starvation Cap Reductn	0	186		0	0	0	0	0	0	0	46	
Spillback Cap Reductn	45	0		0	68	157	0	101	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.53	1.18		0.47	0.72	0.14	0.28	0.97	0.62	0.46	0.99	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 43.2
 Intersection Capacity Utilization 81.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

06/20/2017

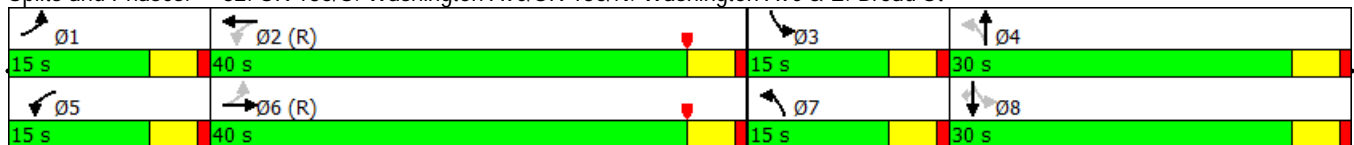
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	275	40	30	280	125	25	440	45	115	415	205
Future Volume (vph)	85	275	40	30	280	125	25	440	45	115	415	205
Satd. Flow (prot)	1787	1844	0	1805	1799	0	1745	1789	0	1745	1818	1546
Flt Permitted	0.124			0.365			0.331			0.106		
Satd. Flow (perm)	233	1844	0	694	1799	0	608	1789	0	195	1818	1546
Satd. Flow (RTOR)		9			28			5				241
Lane Group Flow (vph)	96	356	0	43	506	0	25	556	0	155	477	241
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	30.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	42.9	36.8		41.8	33.8		40.7	30.7		43.9	39.7	39.7
Actuated g/C Ratio	0.43	0.37		0.42	0.34		0.41	0.31		0.44	0.40	0.40
v/c Ratio	0.38	0.52		0.11	0.81		0.07	1.01		0.63	0.66	0.32
Control Delay	25.5	27.6		14.0	39.8		16.6	64.5		33.9	34.5	5.2
Queue Delay	0.0	1.8		0.0	7.7		0.0	9.7		0.0	3.5	0.0
Total Delay	25.5	29.4		14.0	47.6		16.6	74.2		33.9	38.0	5.2
LOS	C	C		B	D		B	E		C	D	A
Approach Delay		28.6			44.9			71.8			28.2	
Approach LOS		C			D			E			C	
Queue Length 50th (ft)	24	94		14	279		6	-389		60	229	0
Queue Length 95th (ft)	m84	262		24	351		m14	#599		95	#489	47
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	263	693		409	658		369	551		249	721	759
Starvation Cap Reductn	0	194		0	0		0	17		0	0	0
Spillback Cap Reductn	0	0		0	116		0	0		0	158	15
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.37	0.71		0.11	0.93		0.07	1.04		0.62	0.85	0.32

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 42.3
 Intersection Capacity Utilization 79.9%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	35	140	15	20	15	60	585	15	10	635	85
Future Volume (vph)	235	35	140	15	20	15	60	585	15	10	635	85
Satd. Flow (prot)	0	1764	0	0	1791	0	1711	1793	0	1745	3384	0
Flt Permitted		0.971			0.991		0.180			0.114		
Satd. Flow (perm)	0	1764	0	0	1791	0	324	1793	0	209	3384	0
Satd. Flow (RTOR)		24			22			2			23	
Lane Group Flow (vph)	0	501	0	0	82	0	77	755	0	10	834	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	31.0	31.0		11.0	11.0		13.0	45.0		13.0	45.0	
Total Lost Time (s)		4.8			4.8		4.5	4.6		4.5	4.6	
Act Effct Green (s)		26.4			6.2		43.0	41.4		37.6	31.4	
Actuated g/C Ratio		0.30			0.07		0.49	0.47		0.43	0.36	
v/c Ratio		0.92			0.56		0.28	0.89		0.05	0.68	
Control Delay		53.7			48.1		15.0	37.5		12.4	27.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		53.7			48.1		15.0	37.5		12.4	27.1	
LOS		D			D		B	D		B	C	
Approach Delay		53.7			48.1			35.4			26.9	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)		252			32		23	367		3	206	
Queue Length 95th (ft)		#513			44		39	#592		11	270	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		547			148		294	847		245	1580	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.92			0.55		0.26	0.89		0.04	0.53	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 87.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 36.7
 Intersection Capacity Utilization 78.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St

Ø1	Ø2	Ø3	Ø4
13 s	45 s	31 s	11 s
Ø5	Ø6		
13 s	45 s		

Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017




















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	310	40	230	215	355	50	620	340	320	415	60
Future Volume (vph)	150	310	40	230	215	355	50	620	340	320	415	60
Satd. Flow (prot)	1805	3534	0	3467	1900	1615	1719	3505	1615	1752	3517	0
Flt Permitted	0.950			0.950			0.431			0.160		
Satd. Flow (perm)	1805	3534	0	3467	1900	1615	780	3505	1615	295	3517	0
Satd. Flow (RTOR)		16				323		395		17		
Lane Group Flow (vph)	167	386	0	267	234	394	60	721	395	340	586	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	17.0	17.0		24.0	24.0	24.0	12.0	29.0	29.0	20.0	37.0	
Total Lost Time (s)	5.2	5.2		5.3	5.3	5.3	4.5	5.2	5.2	4.5	5.2	
Act Effct Green (s)	11.5	11.5		16.0	16.0	16.0	29.8	22.2	22.2	42.3	32.7	
Actuated g/C Ratio	0.14	0.14		0.19	0.19	0.19	0.35	0.26	0.26	0.50	0.39	
v/c Ratio	0.68	0.78		0.41	0.66	0.70	0.17	0.79	0.55	0.85	0.43	
Control Delay	52.5	47.8		32.7	41.9	14.4	14.1	36.8	6.3	39.7	21.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.5	47.8		32.7	41.9	14.4	14.1	36.8	6.3	39.7	21.3	
LOS	D	D		C	D	B	B	D	A	D	C	
Approach Delay		49.2			27.0			25.4			28.1	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	92	109		67	121	34	17	200	0	127	128	
Queue Length 95th (ft)	#182	#180		98	197	128	35	251	56	#278	153	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	253	510		772	422	610	364	993	740	415	1365	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.66	0.76		0.35	0.55	0.65	0.16	0.73	0.53	0.82	0.43	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 84.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 30.2
 Intersection Capacity Utilization 71.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	100	0	285	0	0	0	0	385	25	240	500	0
Future Volume (vph)	100	0	285	0	0	0	0	385	25	240	500	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3423	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3423	0	1711	3490	0
Lane Group Flow (vph)	0	116	331	0	0	0	0	481	0	276	556	0
Sign Control		Stop				Free		Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 40.3%













ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

Cookeville 2040 No-Build Conditions

06/20/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	40	180	335	0	0	795
Future Volume (vph)	40	180	335	0	0	795
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Lane Group Flow (vph)	58	228	399	0	0	846
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 32.0%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	900	810	0	0	550	115	260	0	75	0	0	0
Future Volume (vph)	900	810	0	0	550	115	260	0	75	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3434	0	0	1736	1583	0	0	0
Flt Permitted	0.233							0.950				
Satd. Flow (perm)	434	3574	0	0	3434	0	0	1736	1583	0	0	0
Satd. Flow (RTOR)					26				97			
Lane Group Flow (vph)	1047	920	0	0	714	0	0	356	125	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	1	6			2			3				
Permitted Phases	6						3		3			
Total Split (s)	26.0	45.0			19.0		45.0	45.0	45.0			
Total Lost Time (s)	4.5	6.5			6.5			5.9	5.9			
Act Effct Green (s)	40.8	38.8			12.6			19.9	19.9			
Actuated g/C Ratio	0.57	0.55			0.18			0.28	0.28			
v/c Ratio	1.60	0.47			1.14			0.74	0.24			
Control Delay	296.0	11.9			109.4			32.6	7.6			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	296.0	11.9			109.4			32.6	7.6			
LOS	F	B			F			C	A			
Approach Delay		163.2			109.4			26.1				
Approach LOS		F			F			C				
Queue Length 50th (ft)	~612	115			~187			140	9			
Queue Length 95th (ft)	#938	210			#351			48	17			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	655	1948			629			961	919			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			
Reduced v/c Ratio	1.60	0.47			1.14			0.37	0.14			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 71.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.60

Intersection Signal Delay: 130.2

Intersection LOS: F

Intersection Capacity Utilization 97.2%

ICU Level of Service F

Analysis Period (min) 15

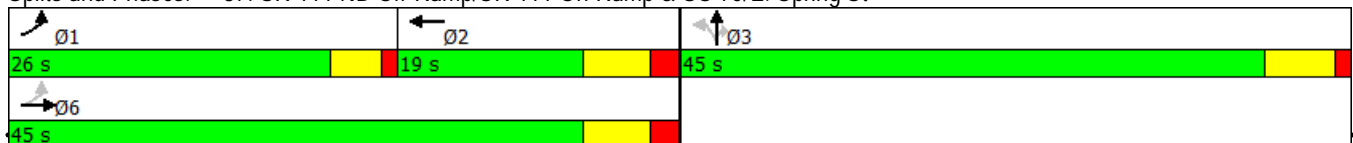
~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1665	350	70	740	0	0	0	0	45	0	380
Future Volume (vph)	0	1665	350	70	740	0	0	0	0	45	0	380
Satd. Flow (prot)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Lane Group Flow (vph)	0	2363	0	93	851	0	0	0	0	0	48	437
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 97.2%

ICU Level of Service F

Analysis Period (min) 15

Lanes, Volumes, Timings
 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

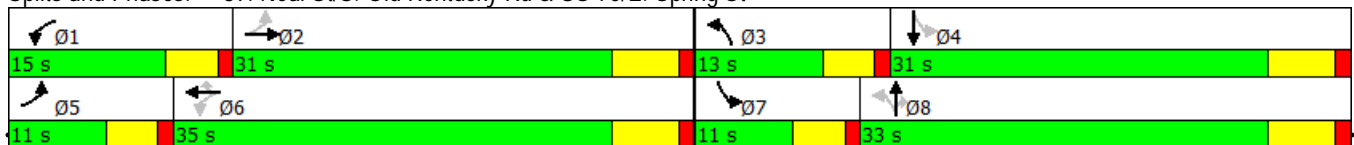
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1095	120	365	600	90	190	420	725	145	270	65
Future Volume (vph)	145	1095	120	365	600	90	190	420	725	145	270	65
Satd. Flow (prot)	1787	3498	0	1787	1845	1599	1805	1900	1615	1752	1817	0
Flt Permitted	0.157			0.136			0.244			0.158		
Satd. Flow (perm)	295	3498	0	256	1845	1599	464	1900	1615	291	1817	0
Satd. Flow (RTOR)		18					142		220		12	
Lane Group Flow (vph)	165	1423	0	392	690	102	284	512	884	158	398	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	11.0	31.0		15.0	35.0	35.0	13.0	33.0	33.0	11.0	31.0	
Total Lost Time (s)	4.5	5.6		4.5	5.6	5.6	4.5	5.7	5.7	4.5	5.7	
Act Effct Green (s)	33.0	25.4		41.0	29.4	29.4	37.0	27.3	27.3	33.0	25.3	
Actuated g/C Ratio	0.37	0.28		0.46	0.33	0.33	0.41	0.30	0.30	0.37	0.28	
v/c Ratio	0.77	1.42		1.33	1.15	0.17	0.90	0.89	1.37	0.75	0.77	
Control Delay	41.3	224.4		192.3	114.4	2.3	51.6	49.7	201.2	40.3	40.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.3	224.4		192.3	114.4	2.3	51.6	49.7	201.2	40.3	40.2	
LOS	D	F		F	F	A	D	D	F	D	D	
Approach Delay		205.4			130.5			129.7			40.2	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	54	-582		-241	-464	0	104	276	-583	54	201	
Queue Length 95th (ft)	#130	#694		#419	#641	16	115	#388	#698	#129	276	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	215	1000		295	602	617	317	576	643	212	519	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.77	1.42		1.33	1.15	0.17	0.90	0.89	1.37	0.75	0.77	

Intersection Summary










Cycle Length: 90
 Actuated Cycle Length: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.42
 Intersection Signal Delay: 144.0
 Intersection Capacity Utilization 101.4%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service G

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1060	440	440	140	10
Future Volume (vph)	0	1060	440	440	140	10
Satd. Flow (prot)	0	1881	1739	0	1796	0
Flt Permitted					0.956	
Satd. Flow (perm)	0	1881	1739	0	1796	0
Lane Group Flow (vph)	0	1233	936	0	198	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

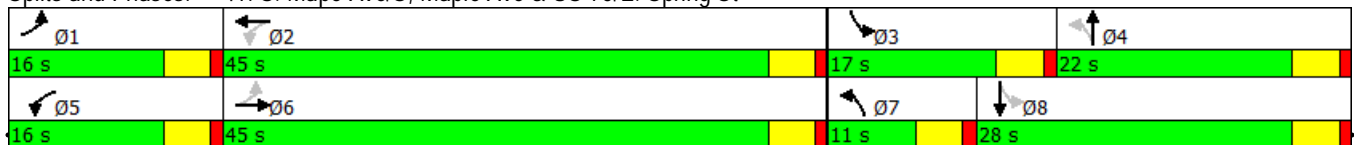
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	800	40	30	410	25	35	225	30	225	190	65
Future Volume (vph)	195	800	40	30	410	25	35	225	30	225	190	65
Satd. Flow (prot)	1805	1867	0	1703	1845	0	1805	1858	0	1805	1823	0
Flt Permitted	0.246			0.111			0.586			0.171		
Satd. Flow (perm)	467	1867	0	199	1845	0	1113	1858	0	325	1823	0
Satd. Flow (RTOR)		3			5			8			15	
Lane Group Flow (vph)	217	1015	0	54	456	0	45	322	0	292	284	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	45.0		16.0	45.0		11.0	22.0		17.0	28.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	49.3	40.6		42.2	35.0		23.9	17.5		34.6	28.2	
Actuated g/C Ratio	0.53	0.43		0.45	0.37		0.26	0.19		0.37	0.30	
v/c Ratio	0.55	1.25		0.26	0.66		0.14	0.91		0.92	0.51	
Control Delay	17.0	150.0		14.0	29.4		22.1	68.2		60.3	32.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		33.7	5.4	
Total Delay	17.0	150.0		14.0	29.4		22.1	68.2		94.0	37.4	
LOS	B	F		B	C		C	E		F	D	
Approach Delay		126.5			27.8			62.6			66.1	
Approach LOS		F			C			E			E	
Queue Length 50th (ft)	64	~794		15	222		18	190		134	146	
Queue Length 95th (ft)	105	#934		20	330		36	#310		#216	230	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	411	811		284	803		334	354		318	559	
Starvation Cap Reductn	0	0		0	0		0	0		43	211	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.53	1.25		0.19	0.57		0.13	0.91		1.06	0.82	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 93.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.25
 Intersection Signal Delay: 86.1
 Intersection Capacity Utilization 90.7%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

06/20/2017

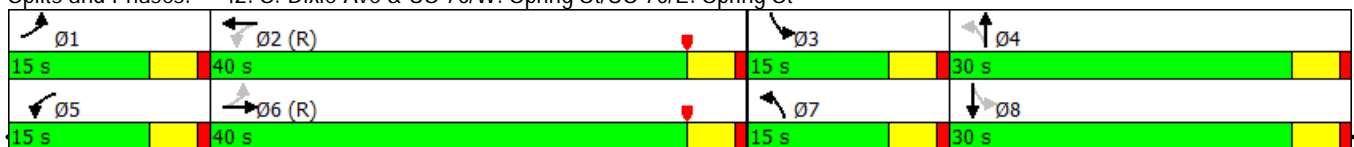
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	535	45	15	615	100	65	100	20	95	140	40
Future Volume (vph)	30	535	45	15	615	100	65	100	20	95	140	40
Satd. Flow (prot)	1805	1849	0	1805	1841	0	1805	1854	0	1787	1812	0
Flt Permitted	0.111			0.222			0.499			0.442		
Satd. Flow (perm)	211	1849	0	422	1841	0	948	1854	0	831	1812	0
Satd. Flow (RTOR)		6			10			9			13	
Lane Group Flow (vph)	36	667	0	18	770	0	68	166	0	136	202	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	58.4	54.4		57.5	51.5		26.1	16.0		27.4	19.1	
Actuated g/C Ratio	0.58	0.54		0.58	0.52		0.26	0.16		0.27	0.19	
v/c Ratio	0.13	0.66		0.05	0.81		0.20	0.55		0.42	0.57	
Control Delay	10.5	23.4		11.4	25.5		25.2	42.7		20.8	27.5	
Queue Delay	0.0	52.6		0.0	0.7		0.0	0.0		0.0	0.1	
Total Delay	10.5	76.0		11.4	26.2		25.2	42.7		20.8	27.6	
LOS	B	E		B	C		C	D		C	C	
Approach Delay		72.7			25.9			37.6			24.8	
Approach LOS		E			C			D			C	
Queue Length 50th (ft)	9	239		4	232		31	94		23	28	
Queue Length 95th (ft)	23	#602		m8	m#723		58	114		61	101	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	290	1008		389	952		341	479		328	475	
Starvation Cap Reductn	0	0		0	37		0	0		0	18	
Spillback Cap Reductn	0	429		0	0		0	1		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	1.15		0.05	0.84		0.20	0.35		0.41	0.44	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 43.0
 Intersection Capacity Utilization 68.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St



Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	555	85	70	660	40	85	245	40	50	360	60
Future Volume (vph)	60	555	85	70	660	40	85	245	40	50	360	60
Satd. Flow (prot)	1770	1844	0	1805	1858	0	1770	1841	0	1805	1852	0
Flt Permitted	0.098			0.098			0.142			0.344		
Satd. Flow (perm)	183	1844	0	186	1858	0	265	1841	0	654	1852	0
Satd. Flow (RTOR)		9			6			13			10	
Lane Group Flow (vph)	66	760	0	88	837	0	99	332	0	75	520	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.8		4.5	4.8	
Act Effct Green (s)	45.9	41.0		45.9	41.0		33.3	28.1		33.3	28.1	
Actuated g/C Ratio	0.48	0.43		0.48	0.43		0.35	0.30		0.35	0.30	
v/c Ratio	0.34	0.95		0.44	1.04		0.51	0.60		0.25	0.94	
Control Delay	17.3	51.2		19.9	73.1		29.1	34.5		21.4	61.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.3	51.2		19.9	73.1		29.1	34.5		21.4	61.2	
LOS	B	D		B	E		C	C		C	E	
Approach Delay		48.5			68.1			33.2			56.2	
Approach LOS		D			E			C			E	
Queue Length 50th (ft)	20	-484		27	-612		40	177		30	323	
Queue Length 95th (ft)	42	#654		47	#788		71	273		43	#469	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	198	799		201	803		196	560		308	562	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.95		0.44	1.04		0.51	0.59		0.24	0.93	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 95.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 54.3
 Intersection Capacity Utilization 85.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
11 s	45 s	11 s	33 s
Ø5	Ø6	Ø7	Ø8
11 s	45 s	11 s	33 s

Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	475	70	115	730	40	75	95	85	30	100	50
Future Volume (vph)	25	475	70	115	730	40	75	95	85	30	100	50
Satd. Flow (prot)	1805	1846	0	1805	1863	0	1805	1787	0	1656	1787	0
Flt Permitted	0.106			0.176			0.377			0.465		
Satd. Flow (perm)	201	1846	0	334	1863	0	716	1787	0	811	1787	0
Satd. Flow (RTOR)		9			3			27			20	
Lane Group Flow (vph)	33	608	0	153	931	0	99	252	0	36	202	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	45.0		15.0	45.0		15.0	25.0		15.0	25.0	
Total Lost Time (s)	4.5	4.8		4.5	4.8		4.5	4.8		4.5	4.8	
Act Effct Green (s)	42.4	35.4		48.6	43.0		23.8	18.2		19.9	14.2	
Actuated g/C Ratio	0.51	0.42		0.58	0.51		0.28	0.22		0.24	0.17	
v/c Ratio	0.14	0.77		0.44	0.97		0.31	0.62		0.14	0.63	
Control Delay	11.1	30.7		13.6	48.2		24.5	35.7		22.7	40.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.1	30.7		13.6	48.2		24.5	35.7		22.7	40.7	
LOS	B	C		B	D		C	D		C	D	
Approach Delay		29.7			43.3			32.6			37.9	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	7	279		36	-594		39	118		14	96	
Queue Length 95th (ft)	19	#520		62	#830		67	125		34	133	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	321	928		387	960		351	493		332	464	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.66		0.40	0.97		0.28	0.51		0.11	0.44	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 83.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 37.4
 Intersection Capacity Utilization 76.5%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 44: Scott Ave & US 70/W. Spring St



PM Peak HR
WSP

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	290	115	45	385	90	50	195	150	55	290	30
Future Volume (vph)	30	290	115	45	385	90	50	195	150	55	290	30
Satd. Flow (prot)	1805	1802	0	1805	1820	0	1805	1763	0	1805	1868	0
Flt Permitted	0.252			0.251			0.280			0.185		
Satd. Flow (perm)	479	1802	0	477	1820	0	532	1763	0	352	1868	0
Satd. Flow (RTOR)		24			15			47			6	
Lane Group Flow (vph)	38	524	0	49	551	0	79	443	0	66	375	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	11.0	45.0		11.0	45.0		11.0	33.0		11.0	33.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	45.8	40.9		46.7	43.0		33.8	28.8		33.8	28.8	
Actuated g/C Ratio	0.48	0.43		0.49	0.45		0.35	0.30		0.35	0.30	
v/c Ratio	0.12	0.67		0.15	0.67		0.29	0.79		0.30	0.66	
Control Delay	13.0	27.5		13.4	26.9		22.2	40.2		22.8	36.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	55.3		0.0	0.0	
Total Delay	13.0	27.5		13.4	26.9		22.2	95.6		22.8	36.9	
LOS	B	C		B	C		C	F		C	D	
Approach Delay		26.5			25.8			84.5			34.8	
Approach LOS		C			C			F			C	
Queue Length 50th (ft)	12	261		15	285		31	238		26	210	
Queue Length 95th (ft)	24	302		33	395		42	#357		49	300	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	321	785		324	826		275	564		224	566	
Starvation Cap Reductn	0	0		0	0		0	232		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.67		0.15	0.67		0.29	1.33		0.29	0.66	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 95.6
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 42.2
 Intersection Capacity Utilization 70.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St

11 s	45 s	11 s	33 s
11 s	45 s	11 s	33 s

Lanes, Volumes, Timings
 46: S. Dixie Ave/N. Dixie Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

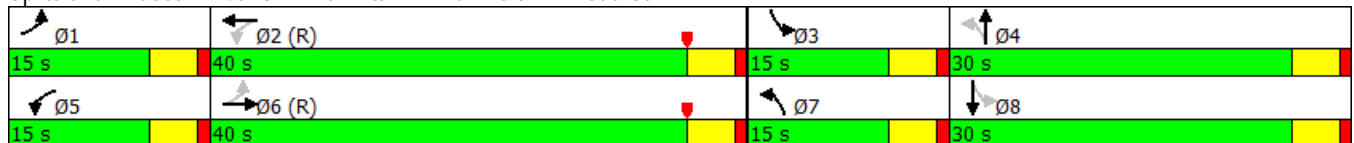
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	335	30	30	310	60	30	150	35	65	205	30
Future Volume (vph)	30	335	30	30	310	60	30	150	35	65	205	30
Satd. Flow (prot)	1805	1845	0	1736	1837	0	1805	1841	0	1805	1862	0
Flt Permitted	0.376			0.413			0.294			0.398		
Satd. Flow (perm)	714	1845	0	755	1837	0	559	1841	0	756	1862	0
Satd. Flow (RTOR)		7			11			13			7	
Lane Group Flow (vph)	38	392	0	38	432	0	42	217	0	88	323	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Act Effct Green (s)	56.3	50.3		56.3	50.3		28.3	20.3		29.4	23.3	
Actuated g/C Ratio	0.56	0.50		0.56	0.50		0.28	0.20		0.29	0.23	
v/c Ratio	0.07	0.42		0.07	0.47		0.15	0.57		0.27	0.74	
Control Delay	12.0	21.6		21.6	30.9		18.8	35.5		23.4	45.2	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.7		0.0	0.0	
Total Delay	12.0	21.6		21.6	31.1		18.8	36.2		23.4	45.2	
LOS	B	C		C	C		B	D		C	D	
Approach Delay		20.7			30.3			33.4			40.6	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	11	183		12	174		18	115		37	191	
Queue Length 95th (ft)	24	294		37	317		m22	m107		54	210	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	518	931		530	929		291	479		333	492	
Starvation Cap Reductn	0	0		0	74		0	84		0	0	
Spillback Cap Reductn	0	11		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.43		0.07	0.51		0.14	0.55		0.26	0.66	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 30.9
 Intersection Capacity Utilization 57.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	230	40	65	200	70	40	225	60	85	355	20
Future Volume (vph)	15	230	40	65	200	70	40	225	60	85	355	20
Satd. Flow (prot)	0	1848	0	0	1868	1583	1805	1835	0	1770	1885	0
Flt Permitted		0.997			0.986		0.242			0.327		
Satd. Flow (perm)	0	1848	0	0	1868	1583	460	1835	0	609	1885	0
Satd. Flow (RTOR)		8				124		14			3	
Lane Group Flow (vph)	0	332	0	0	323	80	53	308	0	120	420	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	28.0	28.0		31.0	31.0	31.0	11.0	29.0		12.0	30.0	
Total Lost Time (s)		4.5			4.5	4.5	4.5	5.4		4.5	5.4	
Act Effct Green (s)		20.1			20.7	20.7	26.6	20.9		28.9	24.0	
Actuated g/C Ratio		0.23			0.24	0.24	0.31	0.24		0.34	0.28	
v/c Ratio		0.76			0.72	0.17	0.21	0.67		0.39	0.79	
Control Delay		44.4			41.3	2.5	22.3	39.0		24.6	44.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		44.4			41.3	2.5	22.3	39.0		24.6	44.3	
LOS		D			D	A	C	D		C	D	
Approach Delay		44.4			33.6			36.6			39.9	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)		180			180	0	20	158		46	237	
Queue Length 95th (ft)		#286			262	11	40	268		71	#429	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		538			607	598	250	541		312	587	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.62			0.53	0.13	0.21	0.57		0.38	0.72	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 85.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 38.5
 Intersection Capacity Utilization 70.1%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

Ø1	Ø2	Ø3	Ø4
28 s	31 s	12 s	29 s
		Ø7	Ø8
		11 s	30 s

Lanes, Volumes, Timings
 48: S. Cedar Ave & E. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	55	10	30	40	205	10	85	30	230	160	60
Future Volume (vph)	55	55	10	30	40	205	10	85	30	230	160	60
Satd. Flow (prot)	0	1836	0	0	1717	0	0	1793	0	0	1794	0
Flt Permitted		0.974			0.994			0.997			0.976	
Satd. Flow (perm)	0	1836	0	0	1717	0	0	1793	0	0	1794	0
Lane Group Flow (vph)	0	160	0	0	342	0	0	145	0	0	492	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary











Control Type: Unsignalized

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	195	205	150	245	115
Future Volume (vph)	65	195	205	150	245	115
Satd. Flow (prot)	1787	1599	0	1837	1797	0
Flt Permitted	0.950			0.971		
Satd. Flow (perm)	1787	1599	0	1837	1797	0
Lane Group Flow (vph)	76	199	0	435	429	0
Sign Control	Stop			Stop	Stop	











Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	245	470	15	145	325
Future Volume (vph)	10	245	470	15	145	325
Satd. Flow (prot)	1805	1615	1855	0	0	1834
Flt Permitted	0.950					0.985
Satd. Flow (perm)	1805	1615	1855	0	0	1834
Lane Group Flow (vph)	16	310	612	0	0	543
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
 51: W. Jackson St/Pippin Rd & US 70/W. Broad St

Cookeville 2040 No-Build Conditions

06/20/2017

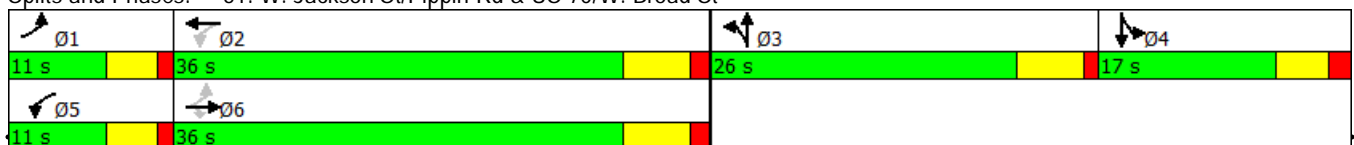
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	225	180	15	365	120	385	445	40	75	165	10
Future Volume (vph)	10	225	180	15	365	120	385	445	40	75	165	10
Satd. Flow (prot)	1805	1863	1553	1805	1807	0	1805	1900	1615	0	1854	0
Flt Permitted	0.144			0.519			0.950				0.984	
Satd. Flow (perm)	274	1863	1553	986	1807	0	1805	1900	1615	0	1854	0
Satd. Flow (RTOR)			198		24				218		2	
Lane Group Flow (vph)	24	262	198	24	566	0	464	484	43	0	288	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	11.0	36.0	36.0	11.0	36.0		26.0	26.0		17.0	17.0	
Total Lost Time (s)	4.5	5.9	5.9	4.5	5.9		5.5	5.5			5.1	
Act Effct Green (s)	31.5	27.8	27.8	31.5	27.8		20.7	20.7	81.1		12.0	
Actuated g/C Ratio	0.39	0.34	0.34	0.39	0.34		0.26	0.26	1.00		0.15	
v/c Ratio	0.11	0.41	0.30	0.05	0.89		1.01	1.00	0.03		1.04	
Control Delay	14.3	23.5	4.7	13.6	43.7		78.0	74.8	0.0		104.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	14.3	23.5	4.7	13.6	43.7		78.0	74.8	0.0		104.2	
LOS	B	C	A	B	D		E	E	A		F	
Approach Delay		15.4			42.5			73.1			104.2	
Approach LOS		B			D			E			F	
Queue Length 50th (ft)	7	91	0	7	234		228	237	0		~148	
Queue Length 95th (ft)	9	173	45	14	#498		#437	#509	0		#351	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	230	698	705	449	692		460	484	1615		276	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.10	0.38	0.28	0.05	0.82		1.01	1.00	0.03		1.04	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 81.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 57.3
 Intersection Capacity Utilization 77.1%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



PM Peak HR
 WSP

Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4
Lane Configurations								
Traffic Volume (vph)	25	1015	800	95	120	60		
Future Volume (vph)	25	1015	800	95	120	60		
Satd. Flow (prot)	1719	1900	1845	0	1722	0		
Flt Permitted	0.078				0.968			
Satd. Flow (perm)	141	1900	1845	0	1722	0		
Satd. Flow (RTOR)			11		24			
Lane Group Flow (vph)	35	1080	1005	0	240	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	11.0	60.0			19.3		49.0	10.7
Total Lost Time (s)	4.5	6.6			4.7			
Act Effct Green (s)	55.5	53.4	53.7		14.3			
Actuated g/C Ratio	0.62	0.60	0.60		0.16			
v/c Ratio	0.18	0.95	0.91		0.82			
Control Delay	8.8	36.6	13.2		55.9			
Queue Delay	0.0	6.7	0.0		0.0			
Total Delay	8.8	43.3	13.2		55.9			
LOS	A	D	B		E			
Approach Delay		42.2	13.2		55.9			
Approach LOS		D	B		E			
Queue Length 50th (ft)	7	533	~88		120			
Queue Length 95th (ft)	14	#856	m#80		#162			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	201	1131	1108		300			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	47	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.17	1.00	0.91		0.80			

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 31.3
 Intersection Capacity Utilization 73.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 52: E.10th St & Brown Ave N

#52 	#52 #521 	#52 #521 	#52 #521
Ø1	Ø2	Ø3	Ø4
11 s	49 s	19.3 s	10.7 s
#52 #521 			
Ø6			
60 s			

Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	885	25	15	655	240	40	60	20	215	40	105
Future Volume (vph)	115	885	25	15	655	240	40	60	20	215	40	105
Satd. Flow (prot)	1805	1872	0	1805	1900	1599	0	1804	0	0	1737	1599
Flt Permitted	0.108			0.123				0.986			0.960	
Satd. Flow (perm)	205	1872	0	234	1900	1599	0	1804	0	0	1737	1599
Satd. Flow (RTOR)		2				192		7				137
Lane Group Flow (vph)	132	957	0	15	744	304	0	164	0	0	287	121
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	12.0	34.0		12.0	34.0	34.0	24.0	24.0		20.0	20.0	20.0
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3		4.5			4.5	4.5
Act Effct Green (s)	40.7	38.5		35.7	28.8	28.8		12.4			15.5	15.5
Actuated g/C Ratio	0.49	0.46		0.43	0.35	0.35		0.15			0.19	0.19
v/c Ratio	0.55	1.10		0.07	1.13	0.45		0.59			0.88	0.29
Control Delay	23.0	86.6		12.7	104.9	10.7		40.4			63.4	6.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	23.0	86.6		12.7	104.9	10.7		40.4			63.4	6.8
LOS	C	F		B	F	B		D			E	A
Approach Delay		78.9			76.7			40.4			46.6	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	35	-545		4	-455	40		77			147	0
Queue Length 95th (ft)	81	#1000		15	#701	84		90			#274	33
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	245	870		247	659	680		430			325	411
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.54	1.10		0.06	1.13	0.45		0.38			0.88	0.29

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 82.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 70.9

Intersection LOS: E

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15

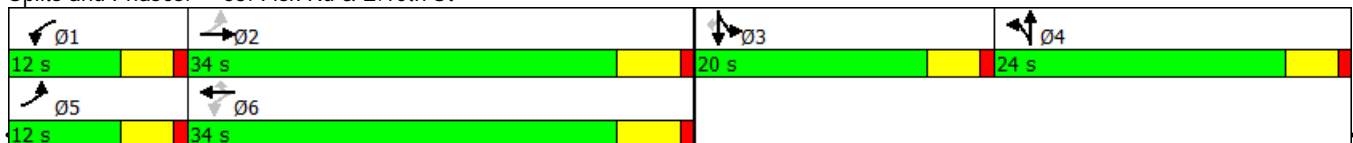
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	885	180	140	705	230	195
Future Volume (vph)	885	180	140	705	230	195
Satd. Flow (prot)	1863	1583	1787	1881	1770	1615
Flt Permitted			0.101		0.950	
Satd. Flow (perm)	1863	1583	190	1881	1770	1615
Satd. Flow (RTOR)		194				258
Lane Group Flow (vph)	962	194	169	750	307	283
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	45.0	45.0	14.0		31.0	31.0
Total Lost Time (s)	5.5	5.5	4.5		4.7	4.7
Act Effct Green (s)	39.7	39.7	50.2	54.7	19.1	19.1
Actuated g/C Ratio	0.48	0.48	0.60	0.66	0.23	0.23
v/c Ratio	1.08	0.23	0.57	0.61	0.75	0.50
Control Delay	79.6	3.1	20.4	11.7	41.9	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.6	3.1	20.4	11.7	41.9	7.9
LOS	E	A	C	B	D	A
Approach Delay	66.8			13.3	25.6	
Approach LOS	E			B	C	
Queue Length 50th (ft)	~570	0	29	195	149	10
Queue Length 95th (ft)	#894	37	90	379	186	24
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	888	856	298	1238	562	689
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.23	0.57	0.61	0.55	0.41

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 83.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 39.2
 Intersection Capacity Utilization 79.3%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St

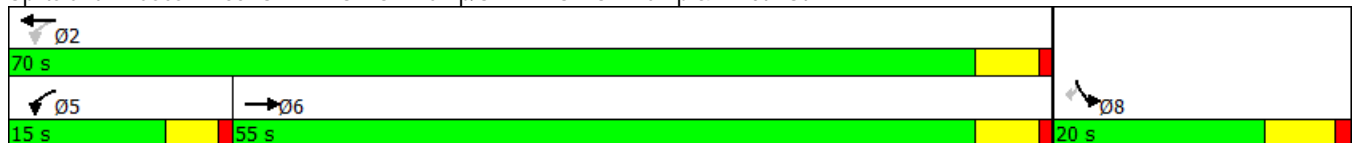


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	860	265	280	735	0	0	0	0	115	0	190
Future Volume (vph)	0	860	265	280	735	0	0	0	0	115	0	190
Satd. Flow (prot)	0	3441	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.098						0.950		
Satd. Flow (perm)	0	3441	0	181	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		71										224
Lane Group Flow (vph)	0	1320	0	318	766	0	0	0	0	128	0	224
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		55.0		15.0	70.0					20.0		20.0
Total Lost Time (s)		5.3		4.5	5.3					5.9		5.9
Act Effct Green (s)		36.2		52.2	51.4					13.4		13.4
Actuated g/C Ratio		0.48		0.69	0.68					0.18		0.18
v/c Ratio		0.79		0.92	0.32					0.41		0.48
Control Delay		19.3		54.0	5.3					35.2		8.9
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		19.3		54.0	5.3					35.2		8.9
LOS		B		D	A					D		A
Approach Delay		19.3			19.6						18.5	
Approach LOS		B			B						B	
Queue Length 50th (ft)		243		95	65					54		0
Queue Length 95th (ft)		293		#277	91					123		51
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		2301		344	3072					332		478
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.57		0.92	0.25					0.39		0.47

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 76.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 19.3
 Intersection Capacity Utilization 72.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	705	0	0	775	290	240	0	450	0	0	0
Future Volume (vph)	275	705	0	0	775	290	240	0	450	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3420	0	1787	0	1599	0	0	0
Flt Permitted	0.107						0.950					
Satd. Flow (perm)	199	3574	0	0	3420	0	1787	0	1599	0	0	0
Satd. Flow (RTOR)					99				194			
Lane Group Flow (vph)	357	801	0	0	1174	0	267	0	517	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	15.0	60.0			45.0		30.0		30.0			
Total Lost Time (s)	4.5	5.3			5.3		5.9		5.9			
Act Effct Green (s)	48.9	48.1			32.8		21.7		21.7			
Actuated g/C Ratio	0.60	0.59			0.40		0.27		0.27			
v/c Ratio	1.10	0.38			0.82		0.56		0.91			
Control Delay	101.0	9.4			24.9		31.9		40.8			
Queue Delay	0.0	0.0			31.6		0.0		0.0			
Total Delay	101.0	9.4			56.5		31.9		40.8			
LOS	F	A			E		C		D			
Approach Delay		37.7			56.5			37.8				
Approach LOS		D			E			D				
Queue Length 50th (ft)	~172	110			261		120		170			
Queue Length 95th (ft)	#269	141			343		210		#357			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	326	2450			1751		539		618			
Starvation Cap Reductn	0	0			639		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	1.10	0.33			1.06		0.50		0.84			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 44.8

Intersection LOS: D

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

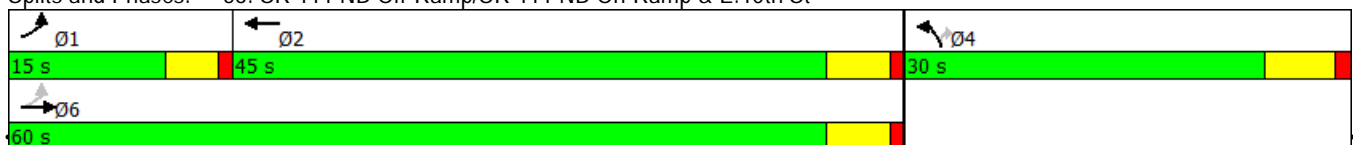
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1040	110	35	885	170	50
Future Volume (vph)	1040	110	35	885	170	50
Satd. Flow (prot)	3517	0	1805	3574	1805	1615
Flt Permitted			0.106		0.950	
Satd. Flow (perm)	3517	0	201	3574	1805	1615
Satd. Flow (RTOR)	22					91
Lane Group Flow (vph)	1308	0	39	973	298	91
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	55.0		15.0	70.0	20.0	20.0
Total Lost Time (s)	5.6		4.5	5.6	5.4	5.4
Act Effct Green (s)	33.4		41.8	40.7	15.8	15.8
Actuated g/C Ratio	0.49		0.61	0.60	0.23	0.23
v/c Ratio	0.76		0.10	0.46	0.72	0.21
Control Delay	17.3		4.4	7.4	42.3	9.1
Queue Delay	0.4		0.0	0.0	0.0	0.0
Total Delay	17.7		4.4	7.4	42.3	9.1
LOS	B		A	A	D	A
Approach Delay	17.7			7.2	34.5	
Approach LOS	B			A	C	
Queue Length 50th (ft)	254		5	95	138	0
Queue Length 95th (ft)	320		13	124	153	7
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	2683		389	3113	416	443
Starvation Cap Reductn	783		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.69		0.10	0.31	0.72	0.21

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 68.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 16.2
 Intersection Capacity Utilization 52.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

Cookeville 2040 No-Build Conditions

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

06/20/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	15	35	55	10	95	10	1130	15	65	1305	10
Future Volume (vph)	50	15	35	55	10	95	10	1130	15	65	1305	10
Satd. Flow (prot)	1787	1636	0	0	1682	0	1626	3568	0	1787	3533	0
Flt Permitted	0.613				0.837		0.130			0.147		
Satd. Flow (perm)	1153	1636	0	0	1433	0	223	3568	0	277	3533	0
Satd. Flow (RTOR)		90			72			3			1	
Lane Group Flow (vph)	98	120	0	0	173	0	16	1183	0	76	1444	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	22.0	22.0		22.0	22.0		12.0	56.0		12.0	56.0	
Total Lost Time (s)	5.5	5.5			5.5		4.5	6.5		4.5	6.5	
Act Effct Green (s)	11.2	11.2			11.2		38.9	32.2		42.3	39.1	
Actuated g/C Ratio	0.17	0.17			0.17		0.60	0.50		0.65	0.61	
v/c Ratio	0.49	0.34			0.56		0.06	0.66		0.22	0.68	
Control Delay	36.7	13.5			25.0		4.6	15.2		5.6	11.3	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	36.7	13.5			25.0		4.6	15.2		5.6	11.3	
LOS	D	B			C		A	B		A	B	
Approach Delay		23.9			25.0			15.1			11.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	34	10			34		2	182		8	153	
Queue Length 95th (ft)	52	13			116		5	286		22	381	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	311	508			440		310	2876		367	2847	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.32	0.24			0.39		0.05	0.41		0.21	0.51	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 64.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.3

Intersection LOS: B










Intersection Capacity Utilization 71.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

Ø1	Ø2	Ø3
12 s	56 s	22 s
Ø5	Ø6	Ø4
12 s	56 s	22 s

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	0	0	180	0	65
Future Volume (vph)	15	0	0	180	0	65
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Lane Group Flow (vph)	18	0	0	234	0	68
Sign Control	Yield		Free			Free

Intersection Summary










Control Type: Unsignalized

Intersection Capacity Utilization 14.5%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	20	10	990	1275	10
Future Volume (vph)	20	20	10	990	1275	10
Satd. Flow (prot)	1723	0	0	5131	3603	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1723	0	0	5131	3603	0
Lane Group Flow (vph)	59	0	0	1037	1330	0
Sign Control	Stop			Free	Free	









Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 45.6%

ICU Level of Service A

Analysis Period (min) 15

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	10	780	715	60	0	0
Future Volume (vph)	10	780	715	60	0	0
Satd. Flow (prot)	0	3328	3327	0	0	0
Flt Permitted		0.999				
Satd. Flow (perm)	0	3328	3327	0	0	0
Lane Group Flow (vph)	0	867	849	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 31.9%

ICU Level of Service A

Analysis Period (min) 15

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	100	365	10	0	740	100
Future Volume (vph)	0	0	0	0	0	0	100	365	10	0	740	100
Satd. Flow (prot)	0	0	0	0	0	0	0	3294	0	0	3386	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	0	0	0	0	0	0	3294	0	0	3386	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	565	0	0	887	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 43.6%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

Cookeville 2040 No-Build Conditions

06/20/2017

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↗		↘	↖	↗				
Traffic Volume (vph)	1100	25	10	870	30	20			
Future Volume (vph)	1100	25	10	870	30	20			
Satd. Flow (prot)	1890	0	1805	1881	1745	0			
Flt Permitted			0.085		0.970				
Satd. Flow (perm)	1890	0	162	1881	1745	0			
Satd. Flow (RTOR)	9				27				
Lane Group Flow (vph)	1228	0	16	967	69	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			49.0	49.0	10.7		11.0	19.3	60.0
Total Lost Time (s)			6.6	6.6	4.7				
Act Effct Green (s)	74.3		46.9	46.9	6.0				
Actuated g/C Ratio	0.83		0.52	0.52	0.07				
v/c Ratio	0.78		0.19	0.98	0.49				
Control Delay	3.0		21.0	49.5	39.6				
Queue Delay	0.0		0.0	38.9	0.3				
Total Delay	3.0		21.0	88.3	39.9				
LOS	A		C	F	D				
Approach Delay	3.0			87.2	39.9				
Approach LOS	A			F	D				
Queue Length 50th (ft)	3		5	-622	23				
Queue Length 95th (ft)	m14		14	#859	47				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1574		84	983	141				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	143	4				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.78		0.19	1.15	0.50				

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 89.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 40.5

Intersection LOS: D

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 521: Brown Ave S & E.10th St

#52 ↗ Ø1	#52 #521 ← ← Ø2	#52 #521 ↘ Ø3	#52 #521 ← ← Ø4
11 s	49 s	19.3 s	10.7 s
#52 #521 ↗ Ø6			
60 s			

Intersection

Intersection Delay, s/veh	20
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	55	55	10	0	30	40	205	0	10	85	30
Future Vol, veh/h	0	55	55	10	0	30	40	205	0	10	85	30
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	87	63	10	0	43	69	230	0	10	99	36
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.5	15.7	11.6
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	46%	11%	51%
Vol Thru, %	68%	46%	15%	36%
Vol Right, %	24%	8%	75%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	120	275	450
LT Vol	10	55	30	230
Through Vol	85	55	40	160
RT Vol	30	10	205	60
Lane Flow Rate	145	161	343	493
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.295	0.55	0.798
Departure Headway (Hd)	6.334	6.62	5.774	5.83
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	565	541	624	626
Service Time	4.396	4.684	3.827	3.83
HCM Lane V/C Ratio	0.257	0.298	0.55	0.788
HCM Control Delay	11.6	12.5	15.7	27.9
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1	1.2	3.3	7.9

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	230	160	60
Future Vol, veh/h	0	230	160	60
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	247	170	75
Number of Lanes	0	0	1	0
Approach	SB			
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	27.9			
HCM LOS	D			

Intersection

Intersection Delay, s/veh 16.1
 Intersection LOS C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↶	↷			↷		↶	
Traffic Vol, veh/h	0	65	195	0	205	150	0	245	115
Future Vol, veh/h	0	65	195	0	205	150	0	245	115
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	76	199	0	259	176	0	278	151
Number of Lanes	0	1	1	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	11.6	18.6	16.4
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	58%	100%	0%	0%
Vol Thru, %	42%	0%	0%	68%
Vol Right, %	0%	0%	100%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	65	195	360
LT Vol	205	65	0	0
Through Vol	150	0	0	245
RT Vol	0	0	195	115
Lane Flow Rate	436	76	199	430
Geometry Grp	2	7	7	2
Degree of Util (X)	0.661	0.151	0.331	0.621
Departure Headway (Hd)	5.455	7.209	5.985	5.2
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	663	497	599	692
Service Time	3.497	4.963	3.739	3.244
HCM Lane V/C Ratio	0.658	0.153	0.332	0.621
HCM Control Delay	18.6	11.3	11.7	16.4
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5	0.5	1.4	4.3

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑		↘	↑↑
Traffic Vol, veh/h	35	130	1035	135	70	1305
Future Vol, veh/h	35	130	1035	135	70	1305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	51	151	1067	163	111	1450

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2095	615	0	0	1230	0
Stage 1	1148	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	~ 46	434	-	-	557	-
Stage 1	269	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 37	434	-	-	557	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	269	-	-	-	-	-
Stage 2	274	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	24.4		0		0.9
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	434	557	-
HCM Lane V/C Ratio	-	-	0.36	0.348	0.199	-
HCM Control Delay (s)	-	-	44.2	17.7	13.1	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.5	1.5	0.7	-

Notes

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

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↗
Traffic Vol, veh/h	0	20	1145	10	0	1385
Future Vol, veh/h	0	20	1145	10	0	1385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	27	1180	16	0	1522

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	590	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	456	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	456	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 456	-
HCM Lane V/C Ratio	- 0.058	-
HCM Control Delay (s)	- 13.4	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.2	-

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↕	
Traffic Vol, veh/h	35	35	40	1200	1285	55
Future Vol, veh/h	35	35	40	1200	1285	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	35	51	45	1212	1397	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2130	735	1470	0	-	0
Stage 1	1433	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	41	358	465	-	-	-
Stage 1	183	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	37	358	465	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	183	-	-	-	-	-
Stage 2	406	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	27.4		0.5		0
HCM LOS	D				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	465	-	129	358	-	-
HCM Lane V/C Ratio	0.098	-	0.271	0.142	-	-
HCM Control Delay (s)	13.6	-	43	16.7	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1	0.5	-	-

Intersection

Int Delay, s/veh 18.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	10	20	15	10	30	20	1025	20	15	1005	25
Future Vol, veh/h	10	10	20	15	10	30	20	1025	20	15	1005	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	16	16	21	18	16	48	27	1079	27	18	1104	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1759	2317	570	1742	2322	553	1140	0	0	1106	0	0
Stage 1	1158	1158	-	1146	1146	-	-	-	-	-	-	-
Stage 2	601	1159	-	596	1176	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	55	38	470	57	38	482	620	-	-	639	-	-
Stage 1	212	273	-	215	276	-	-	-	-	-	-	-
Stage 2	459	272	-	462	267	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	26	31	470	28	31	482	620	-	-	639	-	-
Mov Cap-2 Maneuver	26	31	-	28	31	-	-	-	-	-	-	-
Stage 1	188	252	-	190	245	-	-	-	-	-	-	-
Stage 2	343	241	-	381	246	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 334.9	\$ 303.6	0.8	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	620	-	-	45	65	639	-	-
HCM Lane V/C Ratio	0.043	-	-	1.178	1.255	0.028	-	-
HCM Control Delay (s)	11.1	0.6	-	\$ 334.9	\$ 303.6	10.8	0.4	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5	6.7	0.1	-	-

Notes

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

Intersection

Int Delay, s/veh 47.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	15	15	30	30	10	35	20	995	45	15	980	20
Future Vol, veh/h	15	15	30	30	10	35	20	995	45	15	980	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0
Mvmt Flow	24	15	42	42	10	45	32	1070	63	30	1101	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1780	2374	566	1783	2358	567	1133	0	0	1133	0	0
Stage 1	1177	1177	-	1165	1165	-	-	-	-	-	-	-
Stage 2	603	1197	-	618	1193	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	53	35	473	53	36	462	624	-	-	624	-	-
Stage 1	206	267	-	210	271	-	-	-	-	-	-	-
Stage 2	458	261	-	448	263	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	28	26	473	~ 22	27	462	624	-	-	624	-	-
Mov Cap-2 Maneuver	28	26	-	~ 22	27	-	-	-	-	-	-	-
Stage 1	177	232	-	180	233	-	-	-	-	-	-	-
Stage 2	340	224	-	332	229	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 438.9	\$ 834.9	0.9	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	624	-	-	53	41	624	-	-
HCM Lane V/C Ratio	0.051	-	-	1.529	2.369	0.048	-	-
HCM Control Delay (s)	11.1	0.7	-	\$ 438.9	\$ 834.9	11.1	0.7	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	7.5	10.5	0.2	-	-

Notes

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

Intersection

Int Delay, s/veh 86.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	50	10	100	10	15	10	85	1010	10	10	680	80
Future Vol, veh/h	50	10	100	10	15	10	85	1010	10	10	680	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	63	10	118	10	15	16	113	1086	16	10	791	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1631	2183	439	1741	2219	551	878	0	0	1102	0	0
Stage 1	854	854	-	1321	1321	-	-	-	-	-	-	-
Stage 2	777	1329	-	420	898	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	47	557	57	44	483	778	-	-	641	-	-
Stage 1	324	378	-	168	228	-	-	-	-	-	-	-
Stage 2	360	226	-	587	361	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 27	28	557	23	27	483	778	-	-	641	-	-
Mov Cap-2 Maneuver	~ 27	28	-	23	27	-	-	-	-	-	-	-
Stage 1	202	366	-	105	142	-	-	-	-	-	-	-
Stage 2	194	141	-	436	350	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	\$ 982.6			\$ 303.4			2.4			0.3		
HCM LOS	F			F								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	778	-	-	66	40	641	-	-
HCM Lane V/C Ratio	0.146	-	-	2.881	1.022	0.016	-	-
HCM Control Delay (s)	10.4	1.6	-	\$ 982.6	\$ 303.4	10.7	0.2	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.5	-	-	19.2	4	0	-	-

Notes

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

Intersection

Int Delay, s/veh 17.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↗		↕	↕↕	
Traffic Vol, veh/h	100	0	285	0	0	0	0	385	25	240	500	0
Future Vol, veh/h	100	0	285	0	0	0	0	385	25	240	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	116	0	331	0	0	0	0	448	33	276	556	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1331	1555	278	-	0	0	448	0	0
Stage 1	1107	1107	-	-	-	-	-	-	-
Stage 2	224	448	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	137	114	725	0	-	-	1109	-	0
Stage 1	263	288	-	0	-	-	-	-	0
Stage 2	771	576	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	~ 103	0	725	-	-	-	1109	-	-
Mov Cap-2 Maneuver	~ 103	0	-	-	-	-	-	-	-
Stage 1	198	0	-	-	-	-	-	-	-
Stage 2	771	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	63.8	0	3.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	103	725	1109	-
HCM Lane V/C Ratio	-	-	1.129	0.457	0.249	-
HCM Control Delay (s)	-	-	205.3	14.1	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	7.5	2.4	1	-

Notes

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

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	40	180	335	0	0	795
Future Vol, veh/h	40	180	335	0	0	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	58	228	399	0	0	846

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	822	199	0	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	302	806	-	0	0	-
Stage 1	632	-	-	0	0	-
Stage 2	614	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	302	806	-	-	-	-
Mov Cap-2 Maneuver	302	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	614	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	302 806	-
HCM Lane V/C Ratio	-	0.192 0.283	-
HCM Control Delay (s)	-	19.7 11.2	-
HCM Lane LOS	-	C B	-
HCM 95th %tile Q(veh)	-	0.7 1.2	-

Intersection

Int Delay, s/veh 12.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↘	↑↑						↘	↗
Traffic Vol, veh/h	0	1665	350	70	740	0	0	0	0	45	0	380
Future Vol, veh/h	0	1665	350	70	740	0	0	0	0	45	0	380
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	1914	449	93	851	0	0	0	0	48	0	437

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1914	0	0	1994	2951	425
Stage 1	-	-	-	-	-	-	1037	1037	-
Stage 2	-	-	-	-	-	-	957	1914	-
Critical Hdwy	-	-	-	4.22	-	-	7.62	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.62	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.62	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	290	-	0	~ 34	15	580
Stage 1	0	-	-	-	-	0	240	311	-
Stage 2	0	-	-	-	-	0	269	117	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	290	-	-	~ 26	10	580
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 26	10	-
Stage 1	-	-	-	-	-	-	240	211	-
Stage 2	-	-	-	-	-	-	269	117	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	96.2
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	290	-	26	580
HCM Lane V/C Ratio	-	-	0.322	-	1.841	0.753
HCM Control Delay (s)	-	-	23.2	-\$ 720.8	27.7	
HCM Lane LOS	-	-	C	-	F	D
HCM 95th %tile Q(veh)	-	-	1.4	-	5.8	6.7

Notes

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

Intersection

Int Delay, s/veh 8.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	1060	440	440	140	10
Future Vol, veh/h	0	1060	440	440	140	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	1233	478	458	182	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	478	0	1711
Stage 1	-	-	478
Stage 2	-	-	1233
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1095	0	~ 101
Stage 1	-	0	628
Stage 2	-	0	278
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1095	-	~ 101
Mov Cap-2 Maneuver	-	-	213
Stage 1	-	-	628
Stage 2	-	-	278

Approach	EB	WB	SB
HCM Control Delay, s	0	0	77.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1095	-	-	225
HCM Lane V/C Ratio	-	-	-	0.879
HCM Control Delay (s)	0	-	-	77.8
HCM Lane LOS	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	7.1

Notes

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

Intersection

Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔			↔
Traffic Vol, veh/h	10	245	470	15	145	325
Future Vol, veh/h	10	245	470	15	145	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	16	310	588	24	169	374

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1310	599	0	0	611	0
Stage 1	599	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	177	505	-	-	978	-
Stage 1	553	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	138	505	-	-	978	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	2.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	267	505	978	-
HCM Lane V/C Ratio	-	-	0.059	0.614	0.172	-
HCM Control Delay (s)	-	-	19.3	22.8	9.4	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	4.1	0.6	-

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	YY			↑↑↑	↑↑	
Traffic Vol, veh/h	20	20	10	990	1275	10
Future Vol, veh/h	20	20	10	990	1275	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	27	32	16	1021	1314	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1762	665	1330	0	-	0
Stage 1	1322	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.25	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	99	407	526	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	92	407	526	-	-	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	40.2		0.5		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	526	-	159	-	-
HCM Lane V/C Ratio	0.03	-	0.367	-	-
HCM Control Delay (s)	12.1	0.3	40.2	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-

Appendix D: 2040 Optimized Conditions Synchro Reports

Lanes, Volumes, Timings
1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Future Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Satd. Flow (prot)	1770	1788	0	1703	1651	0	1805	3416	0	1787	3216	0
Flt Permitted	0.630			0.706			0.424			0.224		
Satd. Flow (perm)	1174	1788	0	1265	1651	0	806	3416	0	421	3216	0
Satd. Flow (RTOR)		31			116			9			120	
Lane Group Flow (vph)	133	79	0	56	140	0	42	999	0	113	603	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		12.0	47.0		16.0	51.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	6.0		5.5	6.0	
Act Effct Green (s)	14.9	14.9		14.9	14.9		58.6	52.9		61.7	56.3	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.65	0.59		0.69	0.63	
v/c Ratio	0.69	0.25		0.27	0.38		0.07	0.50		0.28	0.29	
Control Delay	52.2	21.7		33.9	11.6		5.6	13.7		5.1	1.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	52.2	21.7		33.9	11.6		5.6	13.7		5.1	1.8	
LOS	D	C		C	B		A	B		A	A	
Approach Delay		40.8			17.9			13.3			2.3	
Approach LOS		D			B			B			A	
Queue Length 50th (ft)	72	24		28	12		6	169		4	4	
Queue Length 95th (ft)	60	18		33	0		17	243		11	9	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	280	450		302	482		600	2012		454	2061	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.47	0.18		0.19	0.29		0.07	0.50		0.25	0.29	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 54 (60%), Referenced to phase 2:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.8

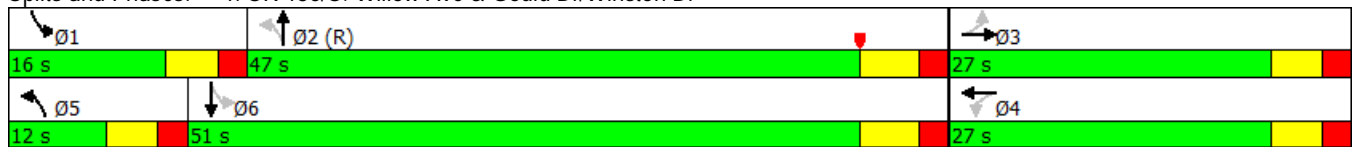
Intersection Capacity Utilization 51.5%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Future Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Satd. Flow (prot)	1649	1594	0	0	0	0	0	3397	0	1770	3539	0
Flt Permitted	0.950	0.971								0.091		
Satd. Flow (perm)	1649	1594	0	0	0	0	0	3397	0	170	3539	0
Satd. Flow (RTOR)		29						74				
Lane Group Flow (vph)	236	229	0	0	0	0	0	1305	0	281	663	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	36.0	36.0						38.0		16.0	54.0	
Total Lost Time (s)	6.0	6.0						5.5		5.5	5.5	
Act Effct Green (s)	18.7	18.7						38.6		59.8	59.8	
Actuated g/C Ratio	0.21	0.21						0.43		0.66	0.66	
v/c Ratio	0.69	0.65						0.87		0.72	0.28	
Control Delay	42.9	36.2						32.8		25.2	6.2	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	42.9	36.2						32.8		25.2	6.2	
LOS	D	D						C		C	A	
Approach Delay		39.6						32.8			11.8	
Approach LOS		D						C			B	
Queue Length 50th (ft)	132	110						204		82	85	
Queue Length 95th (ft)	191	105						395		#155	122	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	549	550						1499		392	2353	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.43	0.42						0.87		0.72	0.28	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.7

Intersection LOS: C

Intersection Capacity Utilization 66.4%

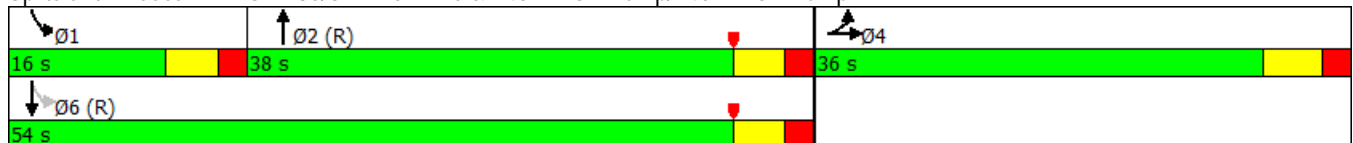
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Future Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Satd. Flow (prot)	0	0	0	0	1761	1583	1671	3539	0	0	3413	0
Flt Permitted					0.954		0.201					
Satd. Flow (perm)	0	0	0	0	1761	1583	354	3539	0	0	3413	0
Satd. Flow (RTOR)							97				53	
Lane Group Flow (vph)	0	0	0	0	315	435	71	1210	0	0	898	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				40.0	40.0	40.0	11.7	50.0			38.3	
Total Lost Time (s)					5.5	5.5	5.5	5.5			5.5	
Act Effct Green (s)					26.4	26.4	52.6	52.6			42.6	
Actuated g/C Ratio					0.29	0.29	0.58	0.58			0.47	
v/c Ratio					0.61	0.82	0.23	0.59			0.55	
Control Delay					31.4	34.7	3.9	6.3			14.0	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					31.4	34.7	3.9	6.3			14.0	
LOS					C	C	A	A			B	
Approach Delay					33.3			6.2			14.0	
Approach LOS					C			A			B	
Queue Length 50th (ft)					151	178	2	26			107	
Queue Length 95th (ft)					208	236	m16	301			m160	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)							200	200				
Base Capacity (vph)					675	666	306	2066			1642	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.47	0.65	0.23	0.59			0.55	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 74 (82%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.5

Intersection LOS: B

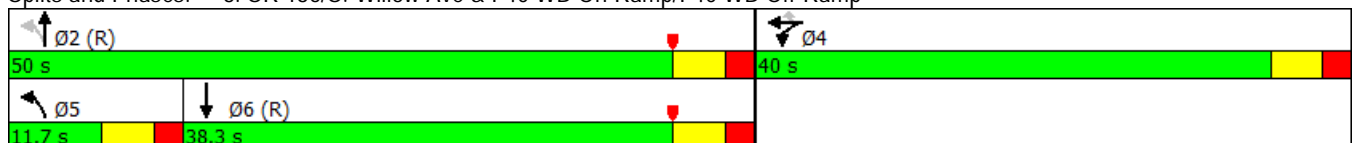
Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Future Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Satd. Flow (prot)	1736	1730	0	1805	1900	1615	1703	3412	0	1752	3539	0
Flt Permitted	0.697			0.212			0.410			0.109		
Satd. Flow (perm)	1273	1730	0	403	1900	1615	735	3412	0	201	3539	0
Satd. Flow (RTOR)		26					212	55			10	
Lane Group Flow (vph)	88	334	0	256	93	212	81	1448	0	228	558	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	12.0	20.0		15.0	23.0	23.0	12.0	43.0		12.0	43.0	
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Act Effct Green (s)	20.9	13.5		27.5	18.9	18.9	43.9	36.5		45.1	38.9	
Actuated g/C Ratio	0.23	0.15		0.31	0.21	0.21	0.49	0.41		0.50	0.43	
v/c Ratio	0.27	1.19		0.95	0.23	0.42	0.19	1.02		1.08	0.36	
Control Delay	24.3	148.2		71.1	33.2	7.6	6.7	48.9		104.9	18.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.3	148.2		71.1	33.2	7.6	6.7	48.9		104.9	18.5	
LOS	C	F		E	C	A	A	D		F	B	
Approach Delay		122.4			40.8			46.7			43.5	
Approach LOS		F			D			D			D	
Queue Length 50th (ft)	35	~219		113	46	0	12	~391		~95	112	
Queue Length 95th (ft)	66	#303		#203	80	48	m20	#527		#240	155	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	330	281		270	399	506	429	1416		212	1535	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.27	1.19		0.95	0.23	0.42	0.19	1.02		1.08	0.36	

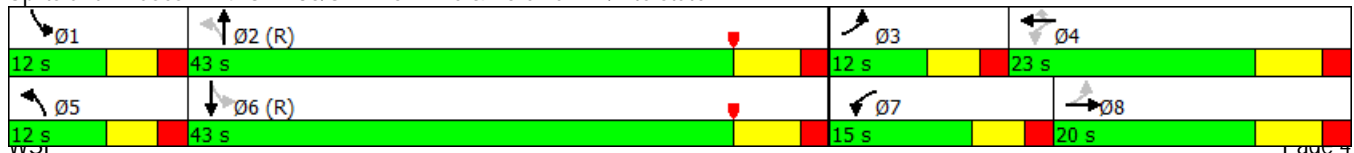
Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 78 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 54.6
 Intersection Capacity Utilization 92.5%
 Analysis Period (min) 15












Intersection LOS: D
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	65	975	80	55	730
Future Volume (vph)	20	65	975	80	55	730
Satd. Flow (prot)	1805	1583	3531	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3531	0	1752	3574
Lane Group Flow (vph)	29	76	1101	0	87	811
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.3












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	20	65	975	80	55	730
Future Vol, veh/h	20	65	975	80	55	730
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	29	76	1005	96	87	811

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1633	551	0	0	1102	0
Stage 1	1053	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	94	478	-	-	623	-
Stage 1	301	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	478	-	-	623	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	455	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	17.3		0		1.1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	200	478	623	-
HCM Lane V/C Ratio	-	-	0.145	0.158	0.14	-
HCM Control Delay (s)	-	-	26	13.9	11.7	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.6	0.5	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	10	960	20	0	800
Future Volume (vph)	0	10	960	20	0	800
Satd. Flow (prot)	0	1644	3557	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3557	0	0	3539
Lane Group Flow (vph)	0	13	1022	0	0	879
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 37.2%

Analysis Period (min) 15

ICU Level of Service A

Intersection

Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑			↑↑
Traffic Vol, veh/h	0	10	960	20	0	800
Future Vol, veh/h	0	10	960	20	0	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	13	990	32	0	879

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	495	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	525	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	525	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 525	-
HCM Lane V/C Ratio	- 0.025	-
HCM Control Delay (s)	- 12	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.1	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	75	40	15	990	820	20
Future Volume (vph)	75	40	15	990	820	20
Satd. Flow (prot)	1736	1553	1805	3574	3559	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3559	0
Lane Group Flow (vph)	75	58	17	1000	918	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Int Delay, s/veh 1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗↗	↗↖	
Traffic Vol, veh/h	75	40	15	990	820	20
Future Vol, veh/h	75	40	15	990	820	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	75	58	17	1000	891	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1439	459	918	0	-	0
Stage 1	905	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	121	544	752	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	544	752	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	20.2		0.2		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	752	-	244	544	-	-
HCM Lane V/C Ratio	0.023	-	0.307	0.107	-	-
HCM Control Delay (s)	9.9	-	26.2	12.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	0.4	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Future Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Satd. Flow (prot)	1805	3574	1568	1787	3386	0	1787	3460	0	1770	3548	0
Flt Permitted	0.538			0.261			0.308			0.176		
Satd. Flow (perm)	1022	3574	1568	491	3386	0	579	3460	0	328	3548	0
Satd. Flow (RTOR)			345		149			27			6	
Lane Group Flow (vph)	90	481	345	128	358	0	210	906	0	169	616	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	12.0	23.0	23.0	14.0	25.0		18.0	37.0		16.0	35.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	6.0		5.5	6.0	
Act Effct Green (s)	23.3	16.5	16.5	27.7	20.6		44.3	33.1		41.5	31.7	
Actuated g/C Ratio	0.26	0.18	0.18	0.31	0.23		0.49	0.37		0.46	0.35	
v/c Ratio	0.28	0.73	0.61	0.47	0.40		0.49	0.70		0.56	0.49	
Control Delay	22.8	41.8	8.8	26.7	18.8		15.6	27.8		25.2	20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.8	41.8	8.8	26.7	18.8		15.6	27.8		25.2	20.8	
LOS	C	D	A	C	B		B	C		C	C	
Approach Delay		27.5			20.9			25.5			21.8	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	34	135	0	49	52		62	233		78	180	
Queue Length 95th (ft)	68	166	62	92	93		101	303		68	232	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	326	694	582	278	893		463	1294		324	1254	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.69	0.59	0.46	0.40		0.45	0.70		0.52	0.49	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 7 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 66.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

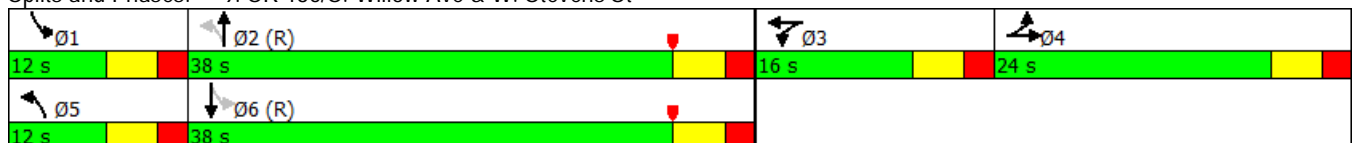
2040 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Future Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Satd. Flow (prot)	0	1843	0	1787	1785	0	1805	3551	0	1787	3561	0
Flt Permitted		0.988		0.950			0.334			0.204		
Satd. Flow (perm)	0	1843	0	1787	1785	0	635	3551	0	384	3561	0
Satd. Flow (RTOR)		8			27			6			3	
Lane Group Flow (vph)	0	241	0	49	114	0	24	892	0	72	720	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	24.0	24.0		16.0	16.0		12.0	38.0		12.0	38.0	
Total Lost Time (s)		5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		15.6		9.0	9.0		46.5	41.5		49.0	46.4	
Actuated g/C Ratio		0.17		0.10	0.10		0.52	0.46		0.54	0.52	
v/c Ratio		0.74		0.28	0.56		0.06	0.54		0.23	0.39	
Control Delay		47.6		40.9	40.2		5.3	17.3		8.8	15.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		47.6		40.9	40.2		5.3	17.3		8.8	15.3	
LOS		D		D	D		A	B		A	B	
Approach Delay		47.6			40.4			17.0			14.7	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)		125		26	47		2	242		13	164	
Queue Length 95th (ft)		178		47	92		m8	311		m26	m239	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		385		208	232		413	1639		312	1837	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.63		0.24	0.49		0.06	0.54		0.23	0.39	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 61 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 21.4
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St



Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

2040 Optimized AM Timing Plan
 07/12/2017

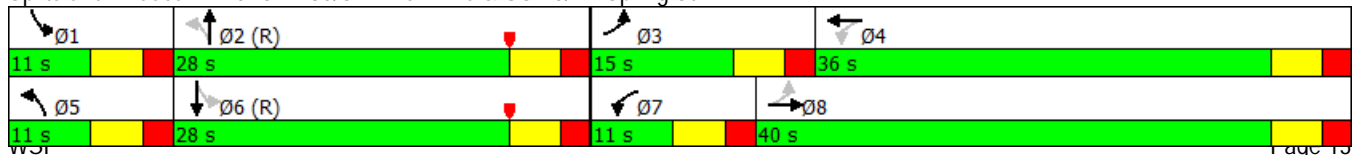
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Future Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Satd. Flow (prot)	1787	1800	0	1805	1814	0	1787	3511	0	1685	3317	0
Flt Permitted	0.187			0.130			0.209			0.169		
Satd. Flow (perm)	352	1800	0	247	1814	0	393	3511	0	300	3317	0
Satd. Flow (RTOR)		16			14			17			5	
Lane Group Flow (vph)	220	735	0	181	499	0	97	898	0	115	695	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	15.0	40.0		11.0	36.0		11.0	28.0		11.0	28.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	43.8	34.5		36.2	30.7		28.0	22.5		29.1	24.7	
Actuated g/C Ratio	0.49	0.38		0.40	0.34		0.31	0.25		0.32	0.27	
v/c Ratio	0.69	1.05		0.93	0.79		0.47	1.01		0.64	0.76	
Control Delay	25.4	76.9		69.2	37.1		23.9	52.9		38.2	40.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	76.9		69.2	37.1		23.9	52.9		38.2	40.1	
LOS	C	E		E	D		C	D		D	D	
Approach Delay		65.0			45.7			50.1			39.8	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	67	-455		54	248		8	-268		61	211	
Queue Length 95th (ft)	89	#626		#152	283		m47	#377		94	#292	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	323	699		195	629		207	890		181	914	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.68	1.05		0.93	0.79		0.47	1.01		0.64	0.76	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 84 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 51.0
 Intersection Capacity Utilization 88.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Future Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Satd. Flow (prot)	1805	1819	0	1805	1841	0	1668	3331	0	1620	3286	0
Flt Permitted	0.446			0.595			0.240			0.188		
Satd. Flow (perm)	847	1819	0	1130	1841	0	421	3331	0	321	3286	0
Satd. Flow (RTOR)		20			13			7			14	
Lane Group Flow (vph)	174	263	0	43	149	0	67	929	0	60	811	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	29.0		13.0	25.0		12.0	36.0		12.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	28.4	21.4		19.8	13.0		45.6	40.0		45.4	39.8	
Actuated g/C Ratio	0.32	0.24		0.22	0.14		0.51	0.44		0.50	0.44	
v/c Ratio	0.46	0.59		0.14	0.54		0.22	0.63		0.23	0.55	
Control Delay	25.3	33.9		20.2	38.6		6.5	11.3		13.8	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.3	33.9		20.2	38.6		6.5	11.3		13.8	22.3	
LOS	C	C		C	D		A	B		B	C	
Approach Delay		30.5			34.5			11.0			21.7	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	73	131		17	73		7	51		15	183	
Queue Length 95th (ft)	m109	m196		31	99		m8	m282		40	275	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	390	498		313	409		310	1482		261	1462	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.53		0.14	0.36		0.22	0.63		0.23	0.55	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 20.0

Intersection LOS: B

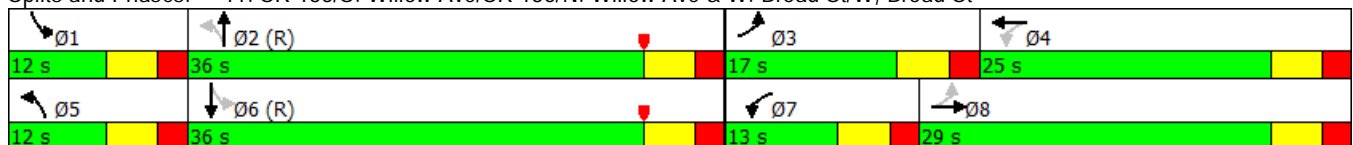
Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

2040 Optimized AM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Future Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Satd. Flow (prot)	0	1800	0	0	1783	0	0	3326	0	0	3324	0
Flt Permitted		0.982			0.987			0.999			0.998	
Satd. Flow (perm)	0	1800	0	0	1783	0	0	3326	0	0	3324	0
Lane Group Flow (vph)	0	43	0	0	44	0	0	1035	0	0	929	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Future Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	16	16	11	12	16	16	13	942	80	30	885	14

















Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1458	2001	449	1519	1968	511	899	0	0	1022	0	0
Stage 1	952	952	-	1009	1009	-	-	-	-	-	-	-
Stage 2	506	1049	-	510	959	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	92	61	563	83	63	513	764	-	-	687	-	-
Stage 1	283	341	-	261	320	-	-	-	-	-	-	-
Stage 2	522	307	-	519	338	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	63	53	563	57	55	513	764	-	-	687	-	-
Mov Cap-2 Maneuver	63	53	-	57	55	-	-	-	-	-	-	-
Stage 1	272	311	-	251	307	-	-	-	-	-	-	-
Stage 2	461	295	-	441	309	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	105.1	90.8	0.3	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	764	-	-	74	82	687	-	-
HCM Lane V/C Ratio	0.017	-	-	0.573	0.534	0.044	-	-
HCM Control Delay (s)	9.8	0.2	-	105.1	90.8	10.5	0.4	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	2.3	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

2040 Optimized AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Future Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Satd. Flow (prot)	0	1755	0	0	1748	0	0	3279	0	0	3313	0
Flt Permitted		0.987			0.976			0.999			0.996	
Satd. Flow (perm)	0	1755	0	0	1748	0	0	3279	0	0	3313	0
Lane Group Flow (vph)	0	59	0	0	57	0	0	1018	0	0	1003	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 11.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Future Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0
Mvmt Flow	16	15	28	28	10	19	24	839	155	80	899	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1543	2112	461	1581	2047	497	923	0	0	994	0	0
Stage 1	1071	1071	-	964	964	-	-	-	-	-	-	-
Stage 2	472	1041	-	617	1083	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	80	52	553	75	57	513	748	-	-	704	-	-
Stage 1	239	300	-	278	336	-	-	-	-	-	-	-
Stage 2	547	310	-	449	296	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	49	37	553	38	40	513	748	-	-	704	-	-
Mov Cap-2 Maneuver	49	37	-	38	40	-	-	-	-	-	-	-
Stage 1	221	230	-	257	311	-	-	-	-	-	-	-
Stage 2	472	287	-	305	227	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	140.3	247.2	0.5	1.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	76	56	704	-	-
HCM Lane V/C Ratio	0.032	-	-	0.777	1.025	0.114	-	-
HCM Control Delay (s)	10	0.3	-	140.3	247.2	10.8	1.1	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.8	4.7	0.4	-	-

Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

2040 Optimized AM Timing Plan

07/12/2017

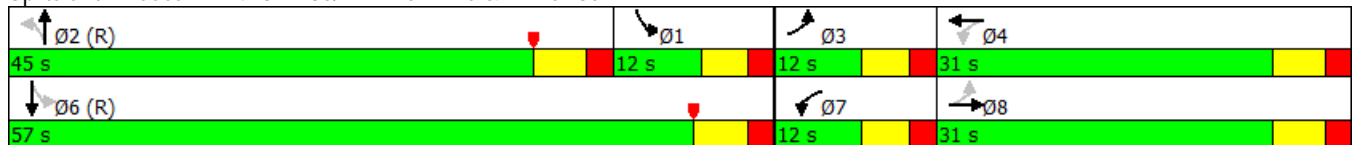
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Future Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Satd. Flow (prot)	1770	1773	0	1805	1720	0	0	3201	0	0	3272	0
Flt Permitted	0.685			0.249				0.924			0.652	
Satd. Flow (perm)	1276	1773	0	473	1720	0	0	2961	0	0	2146	0
Satd. Flow (RTOR)		17			68			96			5	
Lane Group Flow (vph)	72	341	0	116	112	0	0	796	0	0	984	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	31.0		12.0	31.0		45.0	45.0		12.0	57.0	
Total Lost Time (s)	5.5	6.0		5.5	6.0			6.0			6.0	
Act Effct Green (s)	29.1	22.1		31.3	25.1			53.2			53.2	
Actuated g/C Ratio	0.29	0.22		0.31	0.25			0.53			0.53	
v/c Ratio	0.18	0.84		0.48	0.23			0.49			0.86	
Control Delay	22.2	54.2		29.0	14.9			14.5			23.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	22.2	54.2		29.0	14.9			14.5			23.8	
LOS	C	D		C	B			B			C	
Approach Delay		48.7			22.1			14.5			23.8	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	30	195		50	22			143			98	
Queue Length 95th (ft)	55	255		84	65			200			#403	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	405	456		244	493			1620			1143	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.75		0.48	0.23			0.49			0.86	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 24.8
 Intersection Capacity Utilization 83.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

















95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

2040 Optimized AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	30	85	0	0	0	30	560	10	20	805	65
Future Volume (vph)	60	30	85	0	0	0	30	560	10	20	805	65
Satd. Flow (prot)	0	1701	0	0	1900	0	0	3346	0	0	3298	0
Flt Permitted		0.982						0.997			0.999	
Satd. Flow (perm)	0	1701	0	0	1900	0	0	3346	0	0	3298	0
Lane Group Flow (vph)	0	205	0	0	0	0	0	658	0	0	1027	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 29

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	60	30	85	0	0	0	30	560	10	20	805	65
Future Vol, veh/h	60	30	85	0	0	0	30	560	10	20	805	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	75	30	100	0	0	0	40	602	16	20	936	71

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1392	1709	503	1213	1737	309	1007	0	0	618	0	0
Stage 1	1011	1011	-	690	690	-	-	-	-	-	-	-
Stage 2	381	698	-	523	1047	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	103	92	506	140	88	693	696	-	-	972	-	-
Stage 1	260	320	-	406	449	-	-	-	-	-	-	-
Stage 2	619	445	-	510	308	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	93	80	506	72	76	693	696	-	-	972	-	-
Mov Cap-2 Maneuver	93	80	-	72	76	-	-	-	-	-	-	-
Stage 1	237	305	-	370	409	-	-	-	-	-	-	-
Stage 2	565	406	-	351	293	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	262.4	0	1	0.4
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	696	-	-	149	-	972	-
HCM Lane V/C Ratio	0.057	-	-	1.376	-	0.021	-
HCM Control Delay (s)	10.5	0.4	-	262.4	0	8.8	0.2
HCM Lane LOS	B	A	-	F	A	A	A
HCM 95th %tile Q(veh)	0.2	-	-	12.9	-	0.1	-

Lanes, Volumes, Timings
16: SR 135/N. Willow Ave & University Dr

2040 Optimized AM Timing Plan
07/12/2017

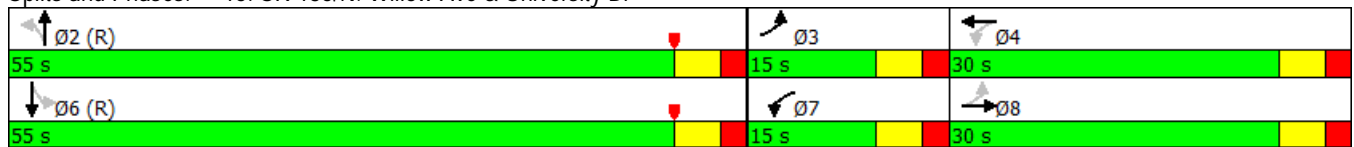
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Future Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Satd. Flow (prot)	1736	1692	0	1787	1658	0	0	3235	0	0	3301	0
Flt Permitted	0.678			0.551				0.906			0.756	
Satd. Flow (perm)	1239	1692	0	1037	1658	0	0	2934	0	0	2511	0
Satd. Flow (RTOR)		14			12			69			6	
Lane Group Flow (vph)	26	72	0	53	123	0	0	680	0	0	1051	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	15.0	30.0		15.0	30.0		55.0	55.0		55.0	55.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Act Effct Green (s)	15.9	10.3		19.7	16.1			67.6			67.6	
Actuated g/C Ratio	0.16	0.10		0.20	0.16			0.68			0.68	
v/c Ratio	0.11	0.39		0.20	0.44			0.34			0.62	
Control Delay	28.4	39.2		29.8	39.0			6.0			9.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	28.4	39.2		29.8	39.0			6.0			9.4	
LOS	C	D		C	D			A			A	
Approach Delay		36.3			36.2			6.0			9.4	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	13	36		27	59			64			52	
Queue Length 95th (ft)	27	73		38	68			91			342	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	275	425		282	415			2005			1699	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.09	0.17		0.19	0.30			0.34			0.62	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 68 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 11.9
 Intersection Capacity Utilization 66.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
17: SR 135/N. Willow Ave & W. 12th St

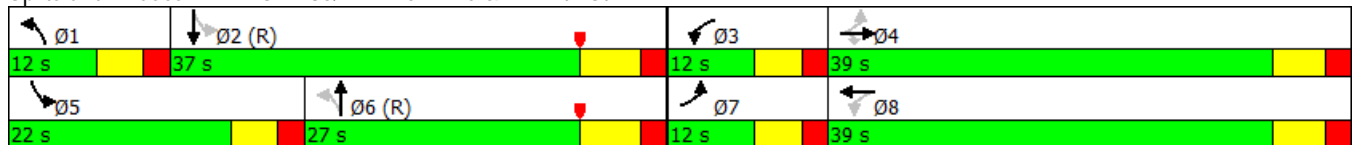
2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Future Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Satd. Flow (prot)	1752	1845	1615	1770	3478	0	1685	3063	0	1668	3312	0
Flt Permitted	0.604			0.104			0.450			0.204		
Satd. Flow (perm)	1114	1845	1615	194	3478	0	798	3063	0	358	3312	0
Satd. Flow (RTOR)			283		31			236			15	
Lane Group Flow (vph)	129	587	368	272	237	0	73	437	0	239	541	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	12.0	39.0	39.0	12.0	39.0		12.0	27.0		22.0	37.0	
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	6.5		5.5	6.5	
Act Effct Green (s)	41.9	33.0	33.0	51.7	39.1		21.5	14.1		35.5	24.9	
Actuated g/C Ratio	0.42	0.33	0.33	0.52	0.39		0.22	0.14		0.36	0.25	
v/c Ratio	0.25	0.97	0.51	0.83	0.17		0.32	0.69		0.74	0.65	
Control Delay	14.7	63.3	9.4	47.4	18.8		22.6	23.1		38.2	36.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.7	63.3	9.4	47.4	18.8		22.6	23.1		38.2	36.8	
LOS	B	E	A	D	B		C	C		D	D	
Approach Delay		39.2			34.1			23.0			37.2	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	39	365	38	115	44		25	83		114	164	
Queue Length 95th (ft)	79	#541	117	#343	77		46	136		117	204	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	520	608	722	329	1377		230	815		343	1020	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.97	0.51	0.83	0.17		0.32	0.54		0.70	0.53	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 3 (3%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 34.9
 Intersection Capacity Utilization 81.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

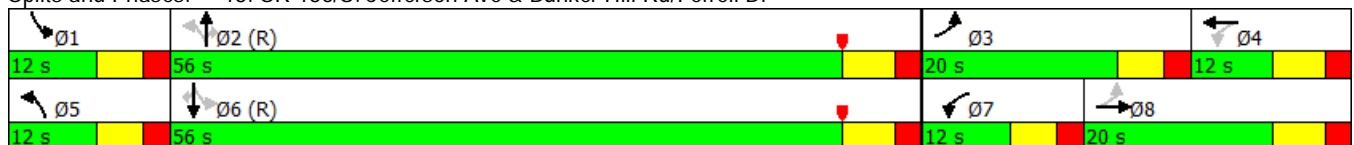
2040 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Future Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Satd. Flow (prot)	1736	1061	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.400			0.720			0.282			0.099		
Satd. Flow (perm)	731	1061	0	1368	1615	0	536	3539	1615	176	3505	1599
Satd. Flow (RTOR)		16			213				213			213
Lane Group Flow (vph)	195	56	0	16	58	0	32	1427	10	25	817	152
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	20.0	20.0		12.0	12.0		12.0	56.0	56.0	12.0	56.0	56.0
Total Lost Time (s)	5.5	6.0		5.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Act Effct Green (s)	22.4	17.1		11.4	6.0		64.4	61.3	61.3	63.2	58.9	58.9
Actuated g/C Ratio	0.22	0.17		0.11	0.06		0.64	0.61	0.61	0.63	0.59	0.59
v/c Ratio	0.67	0.29		0.09	0.20		0.08	0.66	0.01	0.12	0.40	0.15
Control Delay	44.3	32.6		29.5	1.5		7.6	16.9	0.0	4.1	6.0	0.3
Queue Delay	1.7	0.0		0.0	0.2		0.0	0.5	0.0	0.0	0.1	0.0
Total Delay	46.0	32.6		29.5	1.7		7.6	17.3	0.0	4.1	6.1	0.3
LOS	D	C		C	A		A	B	A	A	A	A
Approach Delay		43.0			7.7			17.0			5.2	
Approach LOS		D			A			B			A	
Queue Length 50th (ft)	104	20		8	0		7	273	0	2	50	0
Queue Length 95th (ft)	170	10		17	0		12	407	0	m4	50	0
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	316	205		188	297		427	2168	1072	209	2065	1030
Starvation Cap Reductn	0	0		0	0		0	0	0	0	207	0
Spillback Cap Reductn	38	0		0	53		0	309	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.27		0.09	0.24		0.07	0.77	0.01	0.12	0.44	0.15

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 88 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 14.9
 Intersection Capacity Utilization 59.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

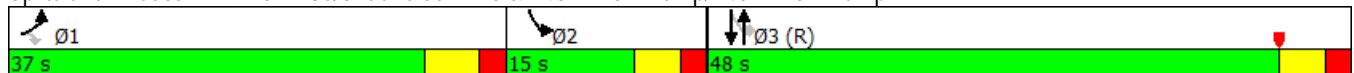
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Future Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Satd. Flow (prot)	1736	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.094		
Satd. Flow (perm)	1736	0	1538	0	0	0	0	3574	1599	177	3539	0
Satd. Flow (RTOR)			232						148			
Lane Group Flow (vph)	432	0	232	0	0	0	0	1442	163	157	758	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	37.0		37.0					48.0	48.0	15.0	48.0	
Total Lost Time (s)	6.0		6.0					5.5	5.5	5.5	5.5	
Act Effct Green (s)	28.3		28.3					42.5	42.5	54.7	42.5	
Actuated g/C Ratio	0.28		0.28					0.42	0.42	0.55	0.42	
v/c Ratio	0.88		0.39					0.95	0.21	0.54	0.50	
Control Delay	54.4		5.5					36.3	5.4	36.2	20.5	
Queue Delay	0.0		0.0					13.4	0.0	0.0	0.0	
Total Delay	54.4		5.5					49.8	5.4	36.2	20.5	
LOS	D		A					D	A	D	C	
Approach Delay		37.3						45.3			23.2	
Approach LOS		D						D			C	
Queue Length 50th (ft)	254		0					468	4	80	88	
Queue Length 95th (ft)	#389		37					#428	32	136	212	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	538		636					1518	764	293	1504	
Starvation Cap Reductn	0		0					106	0	0	0	
Spillback Cap Reductn	0		0					3	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.80		0.36					1.02	0.21	0.54	0.50	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 73 (73%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 37.3
 Intersection Capacity Utilization 79.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Future Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Satd. Flow (prot)	0	0	0	1656	0	2707	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.309					
Satd. Flow (perm)	0	0	0	1656	0	2707	559	3574	0	0	3574	1599
Satd. Flow (RTOR)												176
Lane Group Flow (vph)	0	0	0	174	0	549	134	1601	0	0	713	176
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				35.0		35.0	20.0	45.0			45.0	45.0
Total Lost Time (s)				6.0		6.0	5.5	5.5			5.5	5.5
Act Effct Green (s)				24.9		24.9	58.1	63.6			46.1	46.1
Actuated g/C Ratio				0.25		0.25	0.58	0.64			0.46	0.46
v/c Ratio				0.42		0.81	0.29	0.70			0.43	0.21
Control Delay				34.0		45.4	7.0	7.6			9.7	0.9
Queue Delay				0.0		6.2	0.0	2.1			0.2	0.4
Total Delay				34.0		51.6	7.0	9.6			9.9	1.3
LOS				C		D	A	A			A	A
Approach Delay					47.3			9.4			8.2	
Approach LOS					D			A			A	
Queue Length 50th (ft)				93		186	21	133			65	0
Queue Length 95th (ft)				146		214	m23	m143			77	3
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				480		785	506	2271			1646	831
Starvation Cap Reductn				0		0	0	327			269	320
Spillback Cap Reductn				0		183	0	495			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.36		0.91	0.26	0.90			0.52	0.34

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 87 (87%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.3

Intersection LOS: B

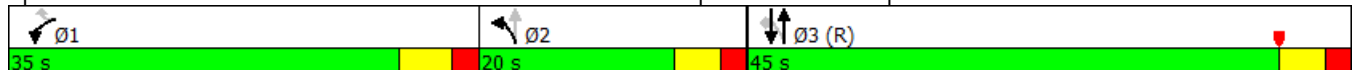
Intersection Capacity Utilization 79.5%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

2040 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	15	210	35	10	10	295	1605	55	15	620	80
Future Volume (vph)	60	15	210	35	10	10	295	1605	55	15	620	80
Satd. Flow (prot)	0	1797	1599	1770	1763	0	1787	3539	1568	1805	5057	0
Flt Permitted		0.961		0.950			0.267			0.096		
Satd. Flow (perm)	0	1797	1599	1770	1763	0	502	3539	1568	182	5057	0
Satd. Flow (RTOR)			244		13				147		32	
Lane Group Flow (vph)	0	103	244	37	27	0	335	1707	59	36	774	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	17.0	17.0	17.0	19.0	19.0		26.0	48.0	48.0	16.0	38.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)		11.5	11.5	12.0	12.0		63.3	54.2	54.2	52.9	42.9	
Actuated g/C Ratio		0.12	0.12	0.12	0.12		0.63	0.54	0.54	0.53	0.43	
v/c Ratio		0.50	0.61	0.17	0.12		0.66	0.89	0.06	0.14	0.35	
Control Delay		50.7	12.7	41.9	27.4		12.5	22.9	0.1	15.9	28.9	
Queue Delay		0.0	0.0	0.0	0.0		0.9	14.8	0.0	0.0	0.0	
Total Delay		50.7	12.7	41.9	27.4		13.4	37.7	0.1	15.9	28.9	
LOS		D	B	D	C		B	D	A	B	C	
Approach Delay		24.0			35.7			32.8			28.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)		63	0	22	8		61	~650	0	11	149	
Queue Length 95th (ft)		95	60	52	25		119	#780	m0	14	216	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		206	399	238	249		583	1917	917	267	2188	
Starvation Cap Reductn		0	0	0	0		79	241	0	0	0	
Spillback Cap Reductn		0	0	0	0		0	0	0	0	0	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.50	0.61	0.16	0.11		0.66	1.02	0.06	0.13	0.35	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 85 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 30.8
 Intersection Capacity Utilization 77.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

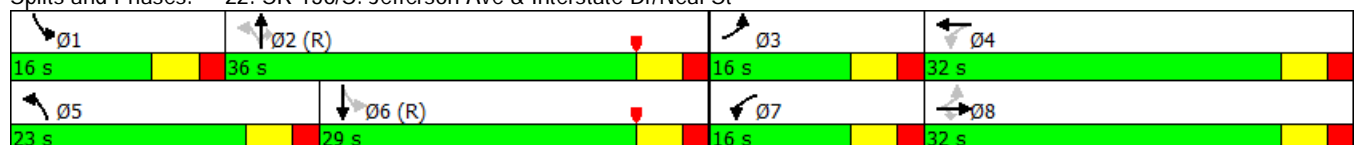
2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	280	140	190	295	80	225	930	420	65	335	105
Future Volume (vph)	145	280	140	190	295	80	225	930	420	65	335	105
Satd. Flow (prot)	1770	1845	1599	1805	3502	0	1770	3539	1615	1805	3454	0
Flt Permitted	0.359			0.315			0.360			0.184		
Satd. Flow (perm)	669	1845	1599	598	3502	0	671	3539	1615	350	3454	0
Satd. Flow (RTOR)			207		30				447		40	
Lane Group Flow (vph)	165	286	147	198	429	0	281	969	447	76	451	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	16.0	32.0	32.0	16.0	32.0		23.0	36.0	36.0	16.0	29.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	31.0	20.6	20.6	31.0	20.6		51.6	40.1	40.1	42.7	32.7	
Actuated g/C Ratio	0.31	0.21	0.21	0.31	0.21		0.52	0.40	0.40	0.43	0.33	
v/c Ratio	0.51	0.75	0.30	0.64	0.58		0.56	0.68	0.49	0.26	0.39	
Control Delay	27.2	49.6	2.8	31.9	35.6		8.1	10.4	3.3	11.6	24.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	27.2	49.6	2.8	31.9	35.6		8.1	10.4	3.3	11.6	24.0	
LOS	C	D	A	C	D		A	B	A	B	C	
Approach Delay		31.9			34.5			8.1			22.2	
Approach LOS		C			C			A			C	
Queue Length 50th (ft)	72	172	0	89	121		10	74	9	15	137	
Queue Length 95th (ft)	108	246	16	130	149		m12	m250	m56	m15	188	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	323	488	575	312	950		544	1417	914	303	1155	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.51	0.59	0.26	0.63	0.45		0.52	0.68	0.49	0.25	0.39	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 19.2
 Intersection Capacity Utilization 77.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

2040 Optimized AM Timing Plan

07/12/2017

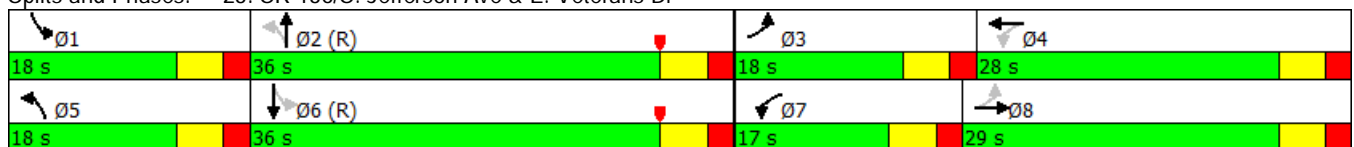
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Future Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Satd. Flow (prot)	1805	1820	0	1752	1724	0	1805	3538	0	1752	3563	0
Flt Permitted	0.202			0.335			0.448			0.105		
Satd. Flow (perm)	384	1820	0	618	1724	0	851	3538	0	194	3563	0
Satd. Flow (RTOR)		14			40			9			11	
Lane Group Flow (vph)	48	291	0	65	406	0	47	1087	0	75	481	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	18.0	29.0		17.0	28.0		18.0	36.0		18.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	32.3	22.7		32.0	25.4		48.7	39.1		49.8	42.6	
Actuated g/C Ratio	0.32	0.23		0.32	0.25		0.49	0.39		0.50	0.43	
v/c Ratio	0.16	0.69		0.20	0.87		0.09	0.78		0.27	0.32	
Control Delay	20.2	42.9		20.9	53.3		6.9	19.8		20.7	13.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	42.9		20.9	53.3		6.9	19.8		20.7	13.1	
LOS	C	D		C	D		A	B		C	B	
Approach Delay		39.7			48.8			19.2			14.1	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	18	160		25	234		7	314		10	124	
Queue Length 95th (ft)	38	225		53	#365		m10	#486		57	47	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	303	445		330	467		537	1388		292	1524	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.65		0.20	0.87		0.09	0.78		0.26	0.32	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 26.4
 Intersection Capacity Utilization 84.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
24: SR 136/S. Jefferson Ave & Walmart Driveway

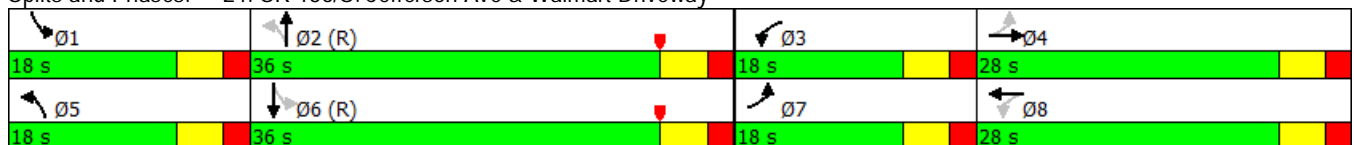
2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Future Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Satd. Flow (prot)	1900	1900	0	1805	1615	0	1805	3546	0	1787	3452	0
Flt Permitted				0.950			0.466			0.202		
Satd. Flow (perm)	1900	1900	0	1805	1615	0	885	3546	0	380	3452	0
Satd. Flow (RTOR)					496			5			4	
Lane Group Flow (vph)	0	0	0	42	16	0	10	1129	0	33	505	0
Turn Type	pm+pt			pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	18.0	28.0		18.0	28.0		18.0	36.0		18.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)				12.0	12.0		80.7	75.7		82.9	82.7	
Actuated g/C Ratio				0.12	0.12		0.81	0.76		0.83	0.83	
v/c Ratio				0.19	0.03		0.01	0.42		0.07	0.18	
Control Delay				42.2	0.1		0.4	2.4		1.1	1.1	
Queue Delay				0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay				42.2	0.1		0.4	2.5		1.1	1.1	
LOS				D	A		A	A		A	A	
Approach Delay					30.6			2.5			1.1	
Approach LOS					C			A			A	
Queue Length 50th (ft)				25	0		0	66		0	0	
Queue Length 95th (ft)				53	0		m1	m78		1	6	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)				225	747		832	2685		491	2855	
Starvation Cap Reductn				0	0		0	400		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.19	0.02		0.01	0.49		0.07	0.18	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 61 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 3.0
 Intersection Capacity Utilization 49.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
25: SR 136/S. Jefferson Ave & Commerce Ave

2040 Optimized AM Timing Plan

07/12/2017

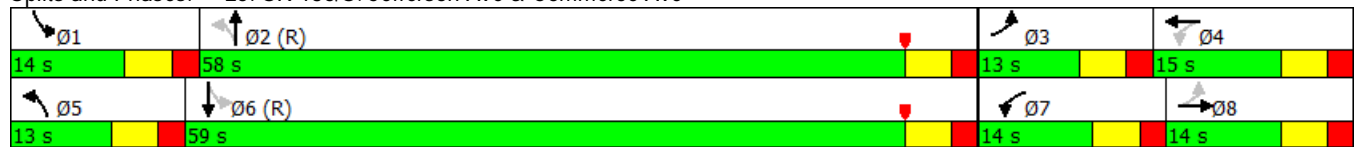
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Future Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Satd. Flow (prot)	1805	1773	0	1752	1676	0	1805	3556	0	1719	3596	0
Flt Permitted	0.726			0.546			0.382			0.207		
Satd. Flow (perm)	1379	1773	0	1007	1676	0	726	3556	0	375	3596	0
Satd. Flow (RTOR)		13			32			17			4	
Lane Group Flow (vph)	15	29	0	43	48	0	27	1096	0	48	655	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	13.0	14.0		14.0	15.0		13.0	58.0		14.0	59.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	10.9	6.8		14.1	10.4		72.3	69.6		73.0	69.9	
Actuated g/C Ratio	0.11	0.07		0.14	0.10		0.72	0.70		0.73	0.70	
v/c Ratio	0.08	0.22		0.21	0.24		0.05	0.44		0.13	0.26	
Control Delay	32.4	33.1		35.4	23.1		0.9	2.3		5.9	10.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.4	33.1		35.4	23.1		0.9	2.3		5.9	10.4	
LOS	C	C		D	C		A	A		A	B	
Approach Delay		32.9			28.9			2.3			10.1	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	8	10		23	8		1	14		13	128	
Queue Length 95th (ft)	18	24		25	24		1	81		23	201	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	196	162		216	226		610	2483		391	2521	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.18		0.20	0.21		0.04	0.44		0.12	0.26	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 17 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.44
 Intersection Signal Delay: 7.0
 Intersection Capacity Utilization 45.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave



Lanes, Volumes, Timings
26: SR 136/S. Jefferson Ave & E. Jackson St

2040 Optimized AM Timing Plan
07/12/2017

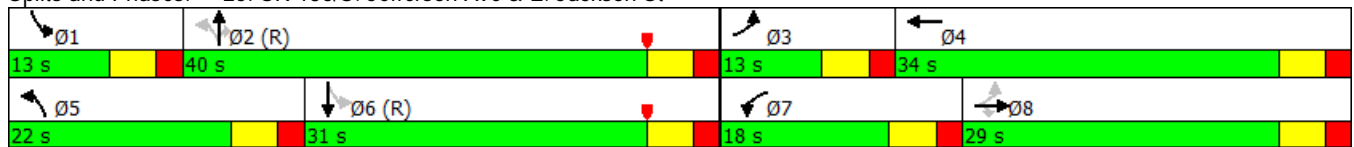
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Future Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Satd. Flow (prot)	1787	1863	1599	3502	1857	0	1805	3610	1599	1685	3339	0
Flt Permitted	0.671			0.950			0.459			0.423		
Satd. Flow (perm)	1262	1863	1599	3502	1857	0	872	3610	1599	750	3339	0
Satd. Flow (RTOR)			264		5				288		6	
Lane Group Flow (vph)	49	160	264	176	135	0	210	605	288	22	357	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	13.0	29.0	29.0	18.0	34.0		22.0	40.0	40.0	13.0	31.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	21.3	14.2	14.2	10.2	19.7		59.1	54.1	54.1	48.6	42.3	
Actuated g/C Ratio	0.21	0.14	0.14	0.10	0.20		0.59	0.54	0.54	0.49	0.42	
v/c Ratio	0.16	0.61	0.58	0.49	0.36		0.34	0.31	0.29	0.05	0.25	
Control Delay	24.5	49.2	10.1	47.0	36.1		3.9	5.0	1.6	4.4	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	24.5	49.2	10.1	47.0	36.1		3.9	5.0	1.6	4.4	13.9	
LOS	C	D	B	D	D		A	A	A	A	B	
Approach Delay		24.8			42.2			3.9			13.4	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	22	97	0	55	75		10	15	0	4	88	
Queue Length 95th (ft)	40	154	58	87	108		15	81	20	4	142	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	313	437	577	437	532		668	1953	997	443	1415	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.37	0.46	0.40	0.25		0.31	0.31	0.29	0.05	0.25	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 30 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 15.1
 Intersection Capacity Utilization 50.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

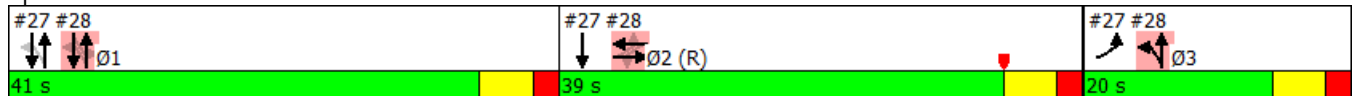
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	40	10	10	500	320	0	
Future Volume (vph)	40	10	10	500	320	0	
Satd. Flow (prot)	1775	0	1452	3369	3369	0	
Flt Permitted	0.962		0.541				
Satd. Flow (perm)	1775	0	827	3369	3369	0	
Satd. Flow (RTOR)	11						
Lane Group Flow (vph)	65	0	12	532	352	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	20.0		41.0	41.0			39.0
Total Lost Time (s)	6.0		6.0	6.0			
Act Effct Green (s)	14.0		31.6	31.6	74.0		
Actuated g/C Ratio	0.14		0.32	0.32	0.74		
v/c Ratio	0.25		0.05	0.50	0.14		
Control Delay	35.6		17.0	27.2	0.4		
Queue Delay	0.0		0.0	0.0	0.2		
Total Delay	35.6		17.0	27.2	0.7		
LOS	D		B	C	A		
Approach Delay	35.6			27.0	0.7		
Approach LOS	D			C	A		
Queue Length 50th (ft)	31		6	177	2		
Queue Length 95th (ft)	60		20	235	2		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	257		289	1179	2480		
Starvation Cap Reductn	0		0	0	1457		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.25		0.04	0.45	0.34		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 15 (15%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 17.9
 Intersection Capacity Utilization 28.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
28: SR 136/S. Jefferson Ave & E. Stevens St

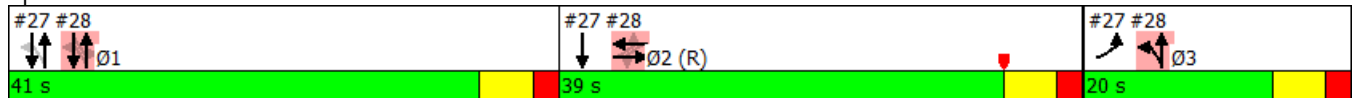
2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Future Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Satd. Flow (prot)	0	1836	0	0	1845	0	0	3338	0	0	3346	0
Flt Permitted		0.894			0.903			0.930			0.915	
Satd. Flow (perm)	0	1660	0	0	1683	0	0	3110	0	0	3068	0
Satd. Flow (RTOR)		11			9			7			4	
Lane Group Flow (vph)	0	219	0	0	195	0	0	611	0	0	372	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	39.0	39.0		39.0	39.0		20.0			41.0	41.0	
Total Lost Time (s)		6.0			6.0						6.0	
Act Effct Green (s)		36.4			36.4			45.6			31.6	
Actuated g/C Ratio		0.36			0.36			0.46			0.32	
v/c Ratio		0.36			0.32			0.42			0.38	
Control Delay		25.4			24.8			2.5			19.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.4			24.8			2.5			19.6	
LOS		C			C			A			B	
Approach Delay		25.4			24.8			2.5			19.6	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		101			89			10			58	
Queue Length 95th (ft)		168			125			6			m75	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		611			618			1559			1076	
Starvation Cap Reductn		0			0			9			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.36			0.32			0.39			0.35	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 15 (15%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 13.8
 Intersection Capacity Utilization 52.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

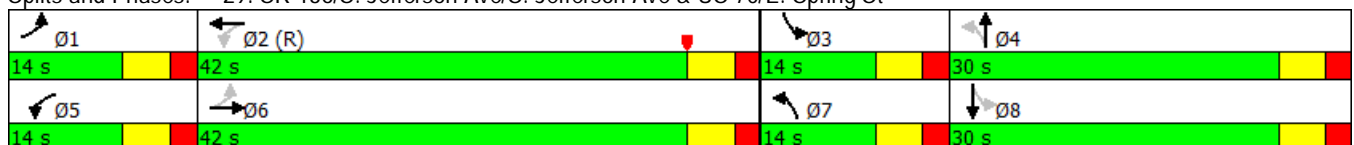
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Future Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Satd. Flow (prot)	1805	1829	0	1752	1669	0	1668	1706	0	1685	1551	0
Flt Permitted	0.322			0.137			0.407			0.304		
Satd. Flow (perm)	612	1829	0	253	1669	0	715	1706	0	539	1551	0
Satd. Flow (RTOR)		9			2			16			7	
Lane Group Flow (vph)	25	617	0	150	534	0	102	344	0	28	236	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	42.0		14.0	42.0		14.0	30.0		14.0	30.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	50.3	42.3		54.2	50.8		29.8	24.7		27.9	21.5	
Actuated g/C Ratio	0.50	0.42		0.54	0.51		0.30	0.25		0.28	0.22	
v/c Ratio	0.06	0.79		0.57	0.63		0.35	0.80		0.12	0.70	
Control Delay	12.7	27.4		33.2	15.7		11.9	30.6		16.2	37.2	
Queue Delay	0.0	2.3		0.6	1.2		0.0	0.0		0.0	2.1	
Total Delay	12.7	29.7		33.8	16.9		11.9	30.6		16.2	39.3	
LOS	B	C		C	B		B	C		B	D	
Approach Delay		29.0			20.6			26.3			36.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	3	315		55	91		13	45		8	121	
Queue Length 95th (ft)	m13	#518		m99	m#478		21	#327		20	146	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	412	778		264	849		294	458		250	385	
Starvation Cap Reductn	0	20		16	142		0	0		0	60	
Spillback Cap Reductn	0	73		0	2		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.88		0.60	0.76		0.35	0.75		0.11	0.73	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 73 (73%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 26.6
 Intersection Capacity Utilization 77.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

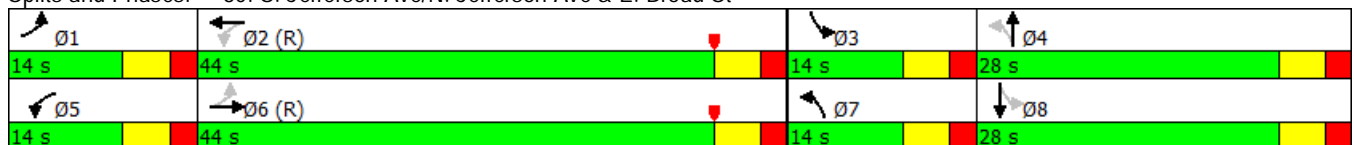
2040 Optimized AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Future Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Satd. Flow (prot)	1805	1829	0	1805	1867	0	1668	1713	0	1685	1740	0
Flt Permitted	0.398			0.524			0.553			0.503		
Satd. Flow (perm)	756	1829	0	996	1867	0	971	1713	0	892	1740	0
Satd. Flow (RTOR)		14			3			13			7	
Lane Group Flow (vph)	24	224	0	113	489	0	74	247	0	19	117	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	44.0		14.0	44.0		14.0	28.0		14.0	28.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	55.9	47.9		60.0	56.4		25.4	21.8		22.1	15.7	
Actuated g/C Ratio	0.56	0.48		0.60	0.56		0.25	0.22		0.22	0.16	
v/c Ratio	0.05	0.25		0.17	0.46		0.24	0.64		0.07	0.42	
Control Delay	8.3	13.1		9.5	13.7		27.1	40.3		23.1	39.1	
Queue Delay	0.0	0.0		0.0	6.6		0.0	6.5		0.0	0.0	
Total Delay	8.3	13.1		9.5	20.2		27.1	46.8		23.1	39.2	
LOS	A	B		A	C		C	D		C	D	
Approach Delay		12.7			18.2			42.2			36.9	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	5	59		37	172		48	160		9	67	
Queue Length 95th (ft)	10	92		m21	m99		m17	m51		20	99	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	515	883		667	1054		308	422		268	396	
Starvation Cap Reductn	0	0		0	505		0	126		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	3	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.25		0.17	0.89		0.24	0.83		0.07	0.30	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 80 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 25.0
 Intersection Capacity Utilization 54.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Future Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Satd. Flow (prot)	1787	1843	0	1752	1863	1615	1745	1783	1546	1728	1782	0
Flt Permitted	0.242			0.202			0.220			0.279		
Satd. Flow (perm)	455	1843	0	373	1863	1615	404	1783	1546	507	1782	0
Satd. Flow (RTOR)		5					147		147		11	
Lane Group Flow (vph)	99	508	0	185	516	41	48	352	107	101	432	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	14.0	38.0		14.0	38.0	38.0	14.0	34.0	34.0	14.0	34.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	46.3	38.0		48.3	41.1	41.1	32.2	25.7	25.7	33.7	28.6	
Actuated g/C Ratio	0.46	0.38		0.48	0.41	0.41	0.32	0.26	0.26	0.34	0.29	
v/c Ratio	0.31	0.72		0.62	0.67	0.05	0.20	0.77	0.21	0.37	0.84	
Control Delay	10.8	19.8		17.4	24.8	0.8	19.8	46.2	2.9	19.3	35.0	
Queue Delay	0.1	3.1		0.0	0.2	0.0	0.0	3.4	0.0	0.0	3.2	
Total Delay	10.9	22.9		17.4	25.0	0.8	19.8	49.6	2.9	19.3	38.2	
LOS	B	C		B	C	A	B	D	A	B	D	
Approach Delay		21.0			21.8			36.9			34.6	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	17	88		34	342	0	18	199	0	13	259	
Queue Length 95th (ft)	m28	m#436		m53	m#456	m0	27	301	5	m26	#140	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	324	703		302	765	750	245	508	545	274	543	
Starvation Cap Reductn	0	111		0	0	0	0	0	0	0	50	
Spillback Cap Reductn	16	0		0	27	73	1	84	0	0	5	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.86		0.61	0.70	0.06	0.20	0.83	0.20	0.37	0.88	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 73 (73%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 78.6%

ICU Level of Service D

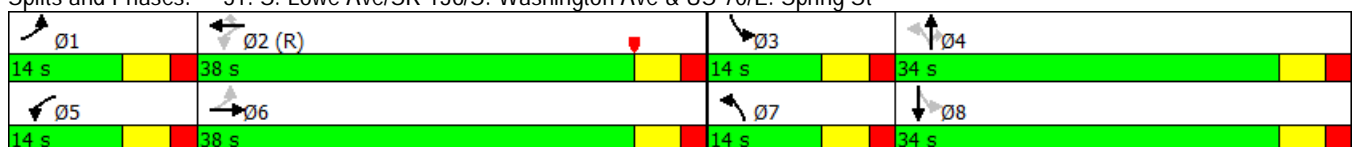
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Future Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Satd. Flow (prot)	1787	1827	0	1805	1787	0	1745	1803	0	1745	1818	1546
Flt Permitted	0.108			0.643			0.261			0.160		
Satd. Flow (perm)	203	1827	0	1222	1787	0	479	1803	0	294	1818	1546
Satd. Flow (RTOR)		15			33			3				165
Lane Group Flow (vph)	51	182	0	43	704	0	25	457	0	68	460	165
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	14.0	41.0		14.0	41.0		15.0	30.0		15.0	30.0	30.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	5.5
Act Effct Green (s)	47.5	42.6		46.3	39.9		33.4	27.0		36.5	32.8	32.8
Actuated g/C Ratio	0.48	0.43		0.46	0.40		0.33	0.27		0.36	0.33	0.33
v/c Ratio	0.23	0.23		0.07	0.96		0.10	0.94		0.30	0.77	0.27
Control Delay	16.0	15.4		6.5	45.7		15.9	50.3		22.8	42.2	6.0
Queue Delay	0.0	0.4		0.0	6.7		0.0	4.7		0.0	7.0	0.1
Total Delay	16.0	15.9		6.5	52.3		15.9	55.0		22.8	49.2	6.0
LOS	B	B		A	D		B	D		C	D	A
Approach Delay		15.9			49.7			52.9			36.3	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	10	95		11	-501		5	106		27	233	0
Queue Length 95th (ft)	m34	84		m5	m#640		m14	#466		44	#465	41
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	231	787		619	732		286	488		245	597	618
Starvation Cap Reductn	0	296		0	0		0	16		0	0	0
Spillback Cap Reductn	0	0		0	26		11	0		0	98	39
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.37		0.07	1.00		0.09	0.97		0.28	0.92	0.28

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 74 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 42.5
 Intersection Capacity Utilization 79.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

2040 Optimized AM Timing Plan
 07/12/2017

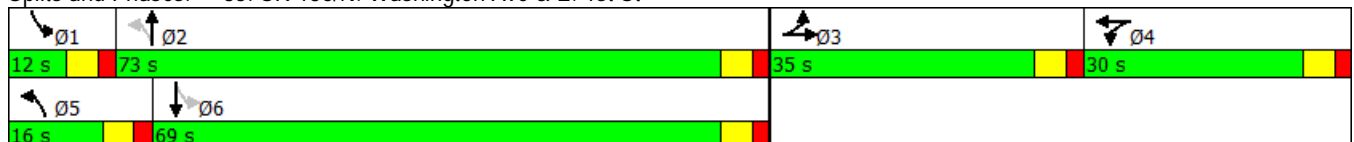
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Future Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Satd. Flow (prot)	0	1786	0	0	1839	0	1711	1796	0	1745	3391	0
Flt Permitted		0.965			0.997		0.212			0.123		
Satd. Flow (perm)	0	1786	0	0	1839	0	382	1796	0	226	3391	0
Satd. Flow (RTOR)		7			8			1			15	
Lane Group Flow (vph)	0	241	0	0	189	0	115	754	0	10	787	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	35.0	35.0		30.0	30.0		16.0	73.0		12.0	69.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		21.5			17.6		58.7	55.4		49.8	43.2	
Actuated g/C Ratio		0.19			0.15		0.51	0.48		0.43	0.37	
v/c Ratio		0.72			0.66		0.37	0.88		0.05	0.62	
Control Delay		59.5			60.5		19.5	42.3		16.7	31.0	
Queue Delay		0.0			0.0		0.0	0.2		0.0	0.0	
Total Delay		59.5			60.5		19.5	42.5		16.7	31.0	
LOS		E			E		B	D		B	C	
Approach Delay		59.5			60.5			39.5			30.9	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)		164			127		43	447		4	240	
Queue Length 95th (ft)		310			140		78	732		15	355	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		492			423		322	1122		189	1999	
Starvation Cap Reductn		0			0		0	57		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.49			0.45		0.36	0.71		0.05	0.39	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 115.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 40.4
 Intersection Capacity Utilization 68.1%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

2040 Optimized AM Timing Plan
 07/12/2017

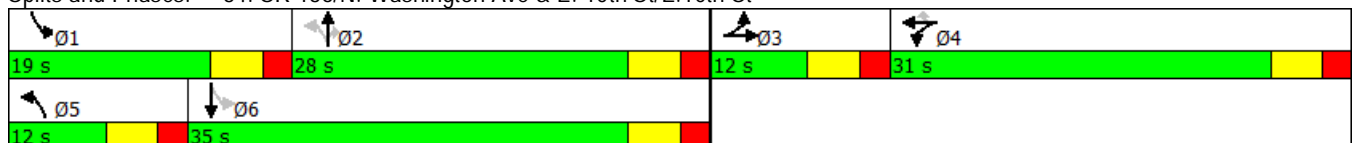
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Future Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Satd. Flow (prot)	1805	3527	0	3467	1900	1615	1719	3505	1615	1752	3511	0
Flt Permitted	0.950			0.950			0.194			0.197		
Satd. Flow (perm)	1805	3527	0	3467	1900	1615	351	3505	1615	363	3511	0
Satd. Flow (RTOR)		17					283		230		19	
Lane Group Flow (vph)	72	133	0	448	304	283	60	628	180	372	974	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	12.0	12.0		31.0	31.0	31.0	12.0	28.0	28.0	19.0	35.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	6.5	6.5		20.4	20.4	20.4	26.4	20.0	20.0	39.2	30.1	
Actuated g/C Ratio	0.08	0.08		0.25	0.25	0.25	0.32	0.24	0.24	0.47	0.36	
v/c Ratio	0.51	0.46		0.53	0.65	0.46	0.28	0.74	0.32	0.93	0.76	
Control Delay	53.3	39.3		29.4	35.3	6.0	17.6	35.6	3.3	50.4	29.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.3	39.3		29.4	35.3	6.0	17.6	35.6	3.3	50.4	29.3	
LOS	D	D		C	D	A	B	D	A	D	C	
Approach Delay		44.2			24.7			27.6			35.1	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	39	32		107	147	0	17	162	0	131	246	
Queue Length 95th (ft)	#94	63		143	231	57	37	220	20	#325	287	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	143	296		1081	592	698	221	965	611	401	1308	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.45		0.41	0.51	0.41	0.27	0.65	0.29	0.93	0.74	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 82.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 30.7
 Intersection Capacity Utilization 72.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Future Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3442	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3442	0	1711	3490	0
Lane Group Flow (vph)	0	99	116	0	0	0	0	851	0	103	206	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 39.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.5













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↕↔		↔	↕↕	
Traffic Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Future Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	99	0	116	0	0	0	0	831	20	103	206	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	828	1243	103	-	0	0	831	0	0
Stage 1	412	412	-	-	-	-	-	-	-
Stage 2	416	831	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	296	176	938	0	-	-	797	-	0
Stage 1	617	598	-	0	-	-	-	-	0
Stage 2	614	387	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	258	0	938	-	-	-	797	-	-
Mov Cap-2 Maneuver	258	0	-	-	-	-	-	-	-
Stage 1	537	0	-	-	-	-	-	-	-
Stage 2	614	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	258	938	797	-
HCM Lane V/C Ratio	-	-	0.383	0.124	0.13	-
HCM Control Delay (s)	-	-	27.4	9.4	10.2	-
HCM Lane LOS	-	-	D	A	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0.4	0.4	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	15	300	545	0	0	400
Future Volume (vph)	15	300	545	0	0	400
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Lane Group Flow (vph)	22	380	649	0	0	426
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	15	300	545	0	0	400
Future Vol, veh/h	15	300	545	0	0	400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	22	380	649	0	0	426

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	862	324	0	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	285	669	-	0	0	-
Stage 1	469	-	-	0	0	-
Stage 2	787	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	285	669	-	-	-	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	469	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	17.3		0		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	- 285	669	-
HCM Lane V/C Ratio	- 0.076	0.568	-
HCM Control Delay (s)	- 18.7	17.2	-
HCM Lane LOS	- C	C	-
HCM 95th %tile Q(veh)	- 0.2	3.6	-

Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Future Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3453	0	1736	0	1583	0	0	0
Flt Permitted	0.088						0.950					
Satd. Flow (perm)	164	3574	0	0	3453	0	1736	0	1583	0	0	0
Satd. Flow (RTOR)					19				99			
Lane Group Flow (vph)	314	455	0	0	1092	0	610	0	117	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		3					
Permitted Phases	6								3			
Total Split (s)	23.0	70.0			47.0		50.0		50.0			
Total Lost Time (s)	5.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	63.7	62.7			39.7		42.9		42.9			
Actuated g/C Ratio	0.53	0.53			0.33		0.36		0.36			
v/c Ratio	0.97	0.24			0.94		0.98		0.18			
Control Delay	76.7	15.7			53.5		69.0		7.8			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	76.7	15.7			53.5		69.0		7.8			
LOS	E	B			D		E		A			
Approach Delay		40.6			53.5			59.1				
Approach LOS		D			D			E				
Queue Length 50th (ft)	191	96			421		464		9			
Queue Length 95th (ft)	#347	124			#557		462		15			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	323	1906			1186		627		634			
Starvation Cap Reductn	0	0			0		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.97	0.24			0.92		0.97		0.18			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 51.3

Intersection LOS: D

Intersection Capacity Utilization 84.3%

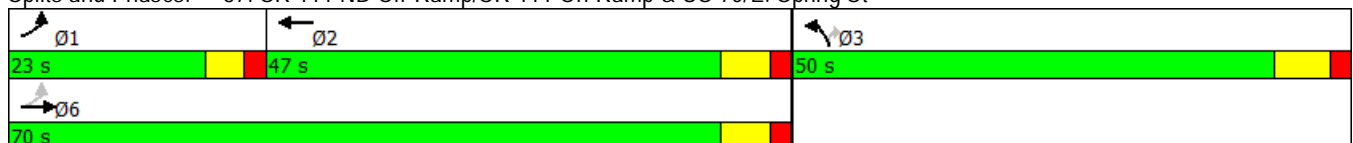
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St




















Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Future Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Satd. Flow (prot)	0	3403	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3403	0	1703	3539	0	0	0	0	0	1703	1599
Lane Group Flow (vph)	0	996	0	160	1368	0	0	0	0	0	64	575
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

Intersection

Int Delay, s/veh 56.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↓	↑↑						↓	↓
Traffic Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Future Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	701	295	160	1368	0	0	0	0	64	0	575

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	701	0	0	2039	2389	684
Stage 1	-	-	-	-	-	-	1688	1688	-
Stage 2	-	-	-	-	-	-	351	701	-
Critical Hdwy	-	-	-	4.22	-	-	6.92	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	5.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.92	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	866	-	0	~ 47	34	~ 393
Stage 1	0	-	-	-	-	0	130	151	-
Stage 2	0	-	-	-	-	0	672	444	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	866	-	-	~ 38	0	~ 393
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 38	0	-
Stage 1	-	-	-	-	-	-	106	0	-
Stage 2	-	-	-	-	-	-	672	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.1	279.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	866	-	38	393
HCM Lane V/C Ratio	-	-	0.185	-	1.68	1.462
HCM Control Delay (s)	-	-	10.1	-\$ 560.9	248	
HCM Lane LOS	-	-	B	-	F	F
HCM 95th %tile Q(veh)	-	-	0.7	-	6.8	29.9

Notes

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

Lanes, Volumes, Timings
 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

2040 Optimized AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Future Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Satd. Flow (prot)	1787	3322	0	1787	1845	1599	1805	1900	1615	1752	1834	0
Flt Permitted	0.130			0.110			0.188			0.422		
Satd. Flow (perm)	245	3322	0	207	1845	1599	357	1900	1615	778	1834	0
Satd. Flow (RTOR)		144				182			238		5	
Lane Group Flow (vph)	85	858	0	570	1092	170	112	171	238	201	561	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	12.0	37.0		37.0	62.0	62.0	12.0	27.0	27.0	19.0	34.0	
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5	
Act Effct Green (s)	36.9	29.5		67.5	57.0	57.0	28.8	21.3	21.3	40.1	27.5	
Actuated g/C Ratio	0.31	0.25		0.57	0.48	0.48	0.24	0.18	0.18	0.34	0.23	
v/c Ratio	0.53	0.92		1.07	1.24	0.20	0.68	0.50	0.49	0.55	1.31	
Control Delay	33.2	52.2		91.1	146.1	2.8	51.9	50.8	9.2	35.9	193.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.2	52.2		91.1	146.1	2.8	51.9	50.8	9.2	35.9	193.5	
LOS	C	D		F	F	A	D	D	A	D	F	
Approach Delay		50.5			115.7			32.0			151.9	
Approach LOS		D			F			C			F	
Queue Length 50th (ft)	28	289		~437	~1072	0	61	122	0	116	~563	
Queue Length 95th (ft)	61	#386		#662	#1261	30	77	176	48	182	#696	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	160	958		535	883	860	165	339	484	375	428	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.53	0.90		1.07	1.24	0.20	0.68	0.50	0.49	0.54	1.31	

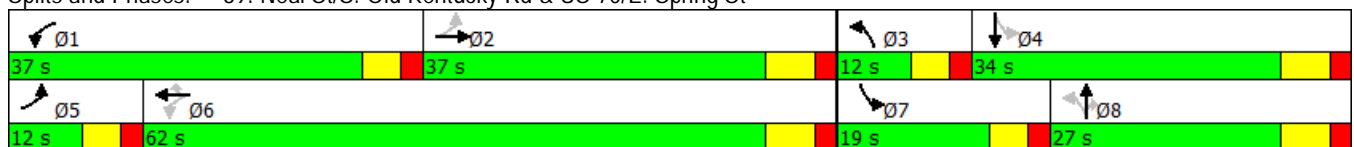
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.31
 Intersection Signal Delay: 96.6
 Intersection Capacity Utilization 105.2%
 Analysis Period (min) 15










Intersection LOS: F
 ICU Level of Service G

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	800	630	640	60	0
Future Volume (vph)	0	800	630	640	60	0
Satd. Flow (prot)	0	1881	1738	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1881	1738	0	1805	0
Lane Group Flow (vph)	0	930	1352	0	78	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↖	
Traffic Vol, veh/h	0	800	630	640	60	0
Future Vol, veh/h	0	800	630	640	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	930	685	667	78	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	685	0	-	0	1615	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	930	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	918	-	-	0	115	452
Stage 1	-	-	-	0	504	-
Stage 2	-	-	-	0	387	-
Platoon blocked, %		-		-		-
Mov Cap-1 Maneuver	918	-	-	-	115	452
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	387	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	25.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	918	-	-	251
HCM Lane V/C Ratio	-	-	-	0.31
HCM Control Delay (s)	0	-	-	25.7
HCM Lane LOS	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	1.3

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

2040 Optimized AM Timing Plan

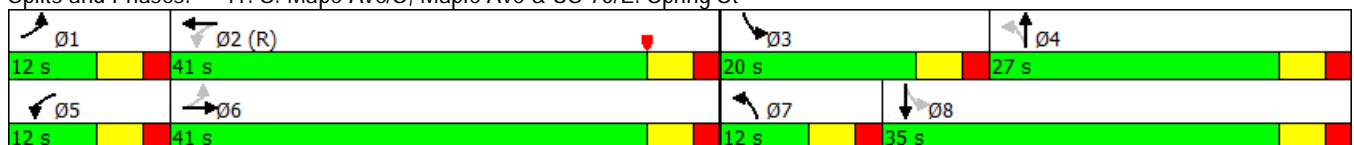
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Future Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Satd. Flow (prot)	1805	1865	0	1703	1855	0	1805	1852	0	1805	1804	0
Flt Permitted	0.118			0.118			0.560			0.177		
Satd. Flow (perm)	224	1865	0	212	1855	0	1064	1852	0	336	1804	0
Satd. Flow (RTOR)		4			2			9			22	
Lane Group Flow (vph)	78	640	0	71	587	0	26	380	0	292	332	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	41.0		12.0	41.0		12.0	27.0		20.0	35.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	43.6	38.4		43.6	38.4		27.6	21.4		41.0	36.2	
Actuated g/C Ratio	0.44	0.38		0.44	0.38		0.28	0.21		0.41	0.36	
v/c Ratio	0.39	0.89		0.38	0.82		0.08	0.95		0.84	0.50	
Control Delay	15.9	44.1		20.7	40.5		18.9	72.0		61.0	21.7	
Queue Delay	0.1	0.0		0.0	2.3		0.0	0.0		55.6	18.6	
Total Delay	16.0	44.1		20.7	42.8		18.9	72.0		116.6	40.3	
LOS	B	D		C	D		B	E		F	D	
Approach Delay		41.1			40.4			68.6			76.0	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	17	411		24	348		10	235		160	94	
Queue Length 95th (ft)	m28	#560		29	#552		22	#352		m183	m113	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	200	717		188	712		344	405		350	667	
Starvation Cap Reductn	0	0		0	0		0	0		109	323	
Spillback Cap Reductn	5	0		0	49		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.40	0.89		0.38	0.89		0.08	0.94		1.21	0.97	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 26 (26%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 54.6
 Intersection Capacity Utilization 81.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Future Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Satd. Flow (prot)	1805	1847	0	1805	1855	0	1805	1879	0	1787	1769	0
Flt Permitted	0.259			0.259			0.692			0.481		
Satd. Flow (perm)	492	1847	0	492	1855	0	1315	1879	0	905	1769	0
Satd. Flow (RTOR)		8			7			3			20	
Lane Group Flow (vph)	30	633	0	36	633	0	52	173	0	57	100	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	50.0		14.0	50.0		15.0	21.0		15.0	21.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	60.4	55.6		60.4	55.6		20.8	14.0		20.9	14.1	
Actuated g/C Ratio	0.60	0.56		0.60	0.56		0.21	0.14		0.21	0.14	
v/c Ratio	0.07	0.61		0.09	0.61		0.17	0.65		0.22	0.38	
Control Delay	9.0	21.4		6.2	12.3		27.3	51.8		33.5	37.7	
Queue Delay	0.0	0.6		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	9.0	22.0		6.2	12.5		27.3	51.8		33.5	37.7	
LOS	A	C		A	B		C	D		C	D	
Approach Delay		21.4			12.1			46.1			36.2	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	7	306		8	269		25	104		17	21	
Queue Length 95th (ft)	18	458		m8	140		52	132		52	95	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	410	1030		410	1034		331	296		280	294	
Starvation Cap Reductn	0	0		0	62		0	0		0	0	
Spillback Cap Reductn	0	127		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.70		0.09	0.65		0.16	0.58		0.20	0.34	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 81 (81%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 22.4

Intersection LOS: C

Intersection Capacity Utilization 61.9%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

14 s	50 s	15 s	21 s
14 s	50 s	15 s	21 s

Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

2040 Optimized AM Timing Plan
07/12/2017

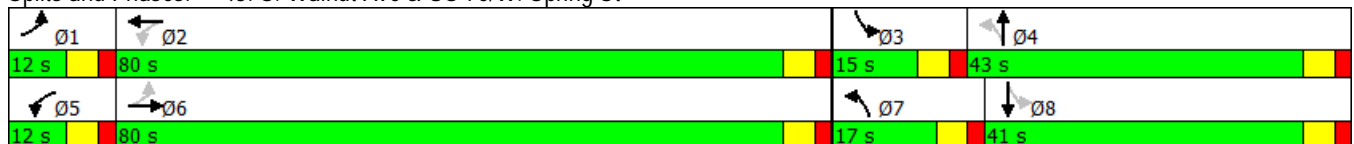
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Future Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Satd. Flow (prot)	1770	1851	0	1805	1860	0	1770	1852	0	1805	1832	0
Flt Permitted	0.187			0.101			0.415			0.303		
Satd. Flow (perm)	348	1851	0	192	1860	0	773	1852	0	576	1832	0
Satd. Flow (RTOR)		6			4			6			10	
Lane Group Flow (vph)	60	777	0	50	669	0	93	356	0	22	207	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	80.0		12.0	80.0		17.0	43.0		15.0	41.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	59.8	55.1		59.9	55.1		35.4	29.9		29.6	24.6	
Actuated g/C Ratio	0.53	0.49		0.53	0.49		0.31	0.26		0.26	0.22	
v/c Ratio	0.22	0.86		0.24	0.74		0.28	0.72		0.09	0.51	
Control Delay	14.5	38.4		15.4	30.8		33.8	51.7		32.3	47.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.5	38.4		15.4	30.8		33.8	51.7		32.3	47.9	
LOS	B	D		B	C		C	D		C	D	
Approach Delay		36.7			29.7			48.0			46.4	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	20	541		17	424		52	267		12	143	
Queue Length 95th (ft)	46	728		35	599		102	439		26	227	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	280	1258		210	1263		362	725		282	681	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.62		0.24	0.53		0.26	0.49		0.08	0.30	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 112.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 37.7
 Intersection Capacity Utilization 80.0%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St



Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

2040 Optimized AM Timing Plan
07/12/2017

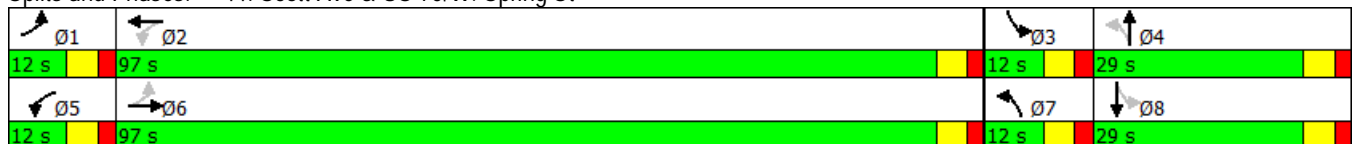
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Future Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Satd. Flow (prot)	1805	1857	0	1805	1861	0	1805	1785	0	1656	1739	0
Flt Permitted	0.311			0.146			0.581			0.663		
Satd. Flow (perm)	591	1857	0	277	1861	0	1104	1785	0	1156	1739	0
Satd. Flow (RTOR)		6			4			17			26	
Lane Group Flow (vph)	20	763	0	60	610	0	53	148	0	18	93	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	97.0		12.0	97.0		12.0	29.0		12.0	29.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	49.9	45.4		52.5	50.5		18.9	16.9		16.4	11.8	
Actuated g/C Ratio	0.57	0.52		0.60	0.58		0.22	0.19		0.19	0.14	
v/c Ratio	0.05	0.79		0.20	0.57		0.18	0.41		0.07	0.36	
Control Delay	7.4	25.7		8.8	15.8		32.4	38.3		32.0	35.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.4	25.7		8.8	15.8		32.4	38.3		32.0	35.8	
LOS	A	C		A	B		C	D		C	D	
Approach Delay		25.2			15.2			36.8			35.2	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	4	339		11	163		23	60		8	35	
Queue Length 95th (ft)	12	595		26	367		57	102		29	75	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	442	1714		297	1717		298	562		261	554	
Starvation Cap Reductn	0	38		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.46		0.20	0.36		0.18	0.26		0.07	0.17	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 87.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 23.4
 Intersection Capacity Utilization 55.4%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 44: Scott Ave & US 70/W. Spring St



Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

2040 Optimized AM Timing Plan

07/12/2017

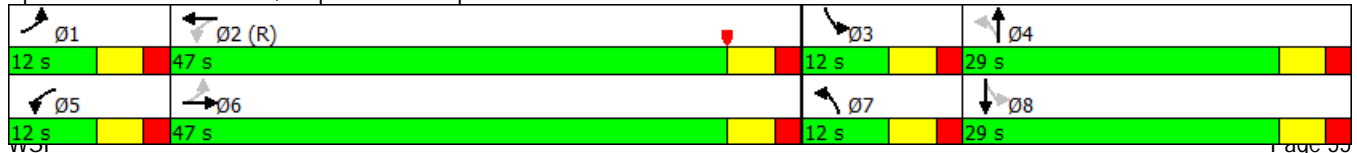
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Future Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Satd. Flow (prot)	1805	1778	0	1805	1801	0	1805	1832	0	1805	1883	0
Flt Permitted	0.099			0.521			0.141			0.318		
Satd. Flow (perm)	188	1778	0	990	1801	0	268	1832	0	604	1883	0
Satd. Flow (RTOR)		36			21			15			3	
Lane Group Flow (vph)	13	226	0	66	814	0	56	362	0	42	465	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	47.0		12.0	47.0		12.0	29.0		12.0	29.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	48.8	43.9		52.4	51.1		32.2	28.3		31.0	25.9	
Actuated g/C Ratio	0.49	0.44		0.52	0.51		0.32	0.28		0.31	0.26	
v/c Ratio	0.07	0.28		0.12	0.88		0.30	0.68		0.16	0.95	
Control Delay	9.1	15.9		11.9	34.4		26.9	25.6		23.1	68.9	
Queue Delay	0.0	84.6		3.8	0.0		0.0	1.9		0.0	14.2	
Total Delay	9.1	100.5		15.7	34.4		26.9	27.5		23.1	83.1	
LOS	A	F		B	C		C	C		C	F	
Approach Delay		95.6			33.0			27.4			78.1	
Approach LOS		F			C			C			E	
Queue Length 50th (ft)	5	86		19	406		13	83		18	~323	
Queue Length 95th (ft)	m9	m94		40	#763		m17	m104		38	#493	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	197	800		571	930		186	529		266	489	
Starvation Cap Reductn	0	0		0	0		0	68		0	0	
Spillback Cap Reductn	0	721		438	0		0	0		0	32	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	2.86		0.50	0.88		0.30	0.79		0.16	1.02	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 33 (33%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 50.4
 Intersection Capacity Utilization 86.1%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

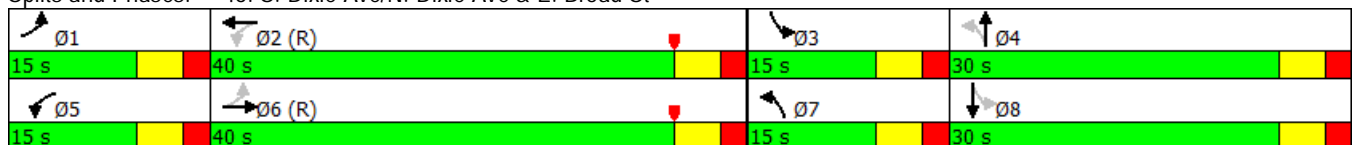
2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Future Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Satd. Flow (prot)	1805	1847	0	1736	1820	0	1805	1862	0	1805	1849	0
Flt Permitted	0.386			0.610			0.645			0.417		
Satd. Flow (perm)	733	1847	0	1114	1820	0	1226	1862	0	792	1849	0
Satd. Flow (RTOR)		6			17			7			10	
Lane Group Flow (vph)	26	215	0	26	463	0	28	193	0	54	158	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	59.9	56.7		59.9	56.7		22.2	15.8		24.0	18.8	
Actuated g/C Ratio	0.60	0.57		0.60	0.57		0.22	0.16		0.24	0.19	
v/c Ratio	0.05	0.20		0.04	0.45		0.09	0.65		0.20	0.44	
Control Delay	10.2	14.5		4.3	7.9		13.1	28.5		25.8	37.4	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.2		0.0	0.0	
Total Delay	10.2	14.5		4.3	8.2		13.1	28.7		25.8	37.4	
LOS	B	B		A	A		B	C		C	D	
Approach Delay		14.1			8.0			26.7			34.5	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	6	55		3	150		7	49		25	88	
Queue Length 95th (ft)	17	145		m7	65		m11	62		40	109	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	544	1049		732	1038		341	461		290	467	
Starvation Cap Reductn	0	0		0	155		0	34		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.20		0.04	0.52		0.08	0.45		0.19	0.34	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 89 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 51.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Future Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Satd. Flow (prot)	0	1858	0	0	1877	1583	1805	1852	0	1770	1872	0
Flt Permitted		0.996			0.990		0.643			0.339		
Satd. Flow (perm)	0	1858	0	0	1877	1583	1222	1852	0	631	1872	0
Satd. Flow (RTOR)		4				102		7			4	
Lane Group Flow (vph)	0	227	0	0	241	102	40	344	0	42	156	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	39.0	39.0		45.0	45.0	45.0	13.0	53.0		13.0	53.0	
Total Lost Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Act Effct Green (s)		18.0			18.9	18.9	27.5	23.7		27.4	23.7	
Actuated g/C Ratio		0.21			0.22	0.22	0.32	0.28		0.32	0.28	
v/c Ratio		0.58			0.58	0.24	0.09	0.66		0.14	0.30	
Control Delay		40.4			39.9	9.1	20.1	36.5		20.7	29.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		40.4			39.9	9.1	20.1	36.5		20.7	29.0	
LOS		D			D	A	C	D		C	C	
Approach Delay		40.4			30.7			34.8			27.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)		114			122	0	13	169		14	68	
Queue Length 95th (ft)		234			243	43	35	336		34	150	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		811			963	862	450	1146		313	1157	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.25	0.12	0.09	0.30		0.13	0.13	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 85.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 33.4
 Intersection Capacity Utilization 56.3%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

39 s	45 s	13 s	53 s
		13 s	53 s

Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

2040 Optimized AM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Future Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Satd. Flow (prot)	0	1819	0	0	1724	0	0	1821	0	0	1795	0
Flt Permitted		0.971			0.993			0.997			0.967	
Satd. Flow (perm)	0	1819	0	0	1724	0	0	1821	0	0	1795	0
Lane Group Flow (vph)	0	95	0	0	240	0	0	162	0	0	272	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Intersection Delay, s/veh 10.3
Intersection LOS B











Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Future Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	56	29	10	0	36	52	152	0	10	134	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		9.3				10				9.6		
HCM LOS		A				A				A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	50%	13%	68%
Vol Thru, %	82%	36%	16%	24%
Vol Right, %	11%	14%	71%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	70	190	250
LT Vol	10	35	25	170
Through Vol	115	25	30	60
RT Vol	15	10	135	20
Lane Flow Rate	162	94	240	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.23	0.142	0.313	0.386
Departure Headway (Hd)	5.11	5.406	4.81	5.114
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	664	752	709
Service Time	3.125	3.432	2.81	3.114
HCM Lane V/C Ratio	0.23	0.142	0.319	0.384
HCM Control Delay	9.6	9.3	10	11.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.9	0.5	1.3	1.8

Intersection
 Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	170	60	20
Future Vol, veh/h	0	170	60	20
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	183	64	25
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		11.3		
HCM LOS		B		

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	155	125	170	85	40
Future Volume (vph)	70	155	125	170	85	40
Satd. Flow (prot)	1787	1599	0	1848	1797	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1787	1599	0	1848	1797	0
Lane Group Flow (vph)	81	158	0	358	150	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 36.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Intersection Delay, s/veh 10.6
 Intersection LOS B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↘	↗			↖		↗	
Traffic Vol, veh/h	0	70	155	0	125	170	0	85	40
Future Vol, veh/h	0	70	155	0	125	170	0	85	40
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	81	158	0	158	200	0	97	53
Number of Lanes	0	1	1	0	0	1	0	1	0
Approach		EB			NB			SB	
Opposing Approach					SB			NB	
Opposing Lanes		0			1			1	
Conflicting Approach Left		SB			EB				
Conflicting Lanes Left		1			2			0	
Conflicting Approach Right		NB						EB	
Conflicting Lanes Right		1			0			2	
HCM Control Delay		9.5			12.1			9	
HCM LOS		A			B			A	











Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	42%	100%	0%	0%
Vol Thru, %	58%	0%	0%	68%
Vol Right, %	0%	0%	100%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	70	155	125
LT Vol	125	70	0	0
Through Vol	170	0	0	85
RT Vol	0	0	155	40
Lane Flow Rate	358	81	158	149
Geometry Grp	2	7	7	2
Degree of Util (X)	0.475	0.14	0.219	0.198
Departure Headway (Hd)	4.769	6.204	4.993	4.765
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	752	575	713	748
Service Time	2.819	3.979	2.766	2.829
HCM Lane V/C Ratio	0.476	0.141	0.222	0.199
HCM Control Delay	12.1	10	9.2	9
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.6	0.5	0.8	0.7

Lanes, Volumes, Timings

50: US 70/W. Spring St/US 70/W. Broad St & W. Broad St

2040 Optimized AM Timing Plan

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	90	295	10	315	510
Future Volume (vph)	0	90	295	10	315	510
Satd. Flow (prot)	1900	1615	1853	0	0	1830
Flt Permitted						0.981
Satd. Flow (perm)	1900	1615	1853	0	0	1830
Lane Group Flow (vph)	0	114	385	0	0	952
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖			↗
Traffic Vol, veh/h	0	90	295	10	315	510
Future Vol, veh/h	0	90	295	10	315	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	0	114	369	16	366	586

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1696	377	0	0	385	0
Stage 1	377	-	-	-	-	-
Stage 2	1319	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	103	674	-	-	1185	-
Stage 1	698	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	56	674	-	-	1185	-
Mov Cap-2 Maneuver	117	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	137	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	11.4		0		3.6
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	674	1185	-
HCM Lane V/C Ratio	-	-	-	0.169	0.309	-
HCM Control Delay (s)	-	-	0	11.4	9.4	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.6	1.3	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

2040 Optimized AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Future Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Satd. Flow (prot)	1805	1863	1553	1805	1835	0	1805	1900	1615	0	1860	0
Flt Permitted	0.495			0.103			0.950				0.984	
Satd. Flow (perm)	940	1863	1553	196	1835	0	1805	1900	1615	0	1860	0
Satd. Flow (RTOR)			141		9				191		1	
Lane Group Flow (vph)	24	570	374	48	269	0	169	114	16	0	612	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	12.0	43.0	43.0	12.0	43.0		21.0	21.0		44.0	44.0	
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	6.5			5.5	
Act Effct Green (s)	42.6	36.6	36.6	43.8	39.0		13.6	13.6	116.8		38.6	
Actuated g/C Ratio	0.36	0.31	0.31	0.38	0.33		0.12	0.12	1.00		0.33	
v/c Ratio	0.06	0.98	0.64	0.30	0.44		0.80	0.52	0.01		1.00	
Control Delay	21.6	73.1	27.4	26.4	33.3		78.1	58.1	0.0		75.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	21.6	73.1	27.4	26.4	33.3		78.1	58.1	0.0		75.2	
LOS	C	E	C	C	C		E	E	A		E	
Approach Delay		54.2			32.3			66.3			75.2	
Approach LOS		D			C			E			E	
Queue Length 50th (ft)	11	-446	158	22	163		129	84	0		-505	
Queue Length 95th (ft)	13	#631	269	32	247		#206	145	0		#720	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	391	583	583	163	618		225	236	1615		615	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.06	0.98	0.64	0.29	0.44		0.75	0.48	0.01		1.00	

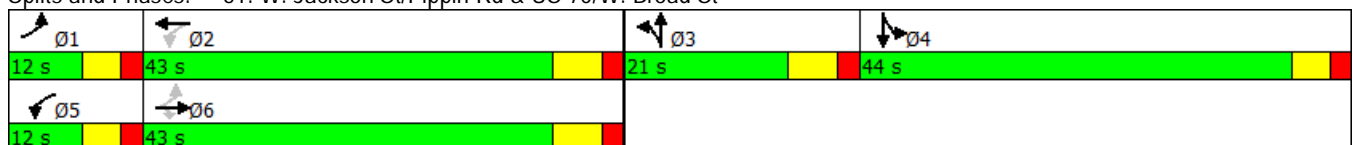
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 116.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 58.5
 Intersection Capacity Utilization 70.9%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service C

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	35	590	900	145	160	35		
Future Volume (vph)	35	590	900	145	160	35		
Satd. Flow (prot)	1719	1900	1835	0	1739	0		
Flt Permitted	0.070				0.961			
Satd. Flow (perm)	127	1900	1835	0	1739	0		
Satd. Flow (RTOR)			15		9			
Lane Group Flow (vph)	49	628	1177	0	260	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	12.0	69.0			19.0		57.0	12.0
Total Lost Time (s)	5.5	5.5			5.5			
Act Effct Green (s)	60.9	60.9	59.4		13.5			
Actuated g/C Ratio	0.62	0.62	0.61		0.14			
v/c Ratio	0.27	0.53	1.05		1.04			
Control Delay	10.6	12.1	34.7		111.3			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	10.6	12.1	34.7		111.3			
LOS	B	B	C		F			
Approach Delay		12.0	34.7		111.3			
Approach LOS		B	C		F			
Queue Length 50th (ft)	11	199	~138		~180			
Queue Length 95th (ft)	19	285	m#78		#254			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	185	1240	1123		249			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.26	0.51	1.05		1.04			

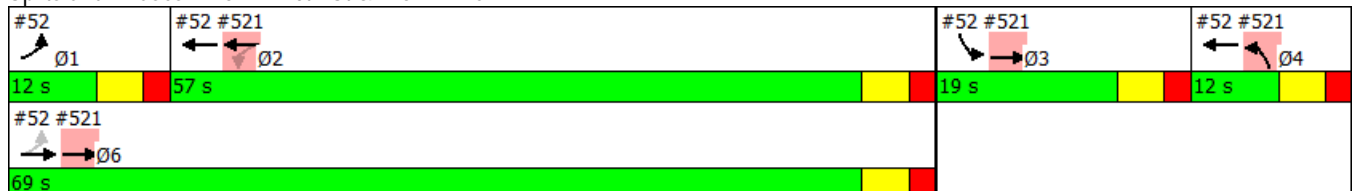
Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 97.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 36.9
 Intersection Capacity Utilization 76.3%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Future Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Satd. Flow (prot)	1805	1867	0	1805	1900	1599	0	1833	0	0	1741	1599
Flt Permitted	0.055			0.194				0.989			0.961	
Satd. Flow (perm)	104	1867	0	369	1900	1599	0	1833	0	0	1741	1599
Satd. Flow (RTOR)		2				118		2				182
Lane Group Flow (vph)	75	660	0	20	920	310	0	318	0	0	349	195
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	12.0	74.0		12.0	74.0	74.0	30.0	30.0		34.0	34.0	34.0
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5		5.5			5.5	5.5
Act Effct Green (s)	77.3	72.4		74.7	67.5	67.5		24.5			28.5	28.5
Actuated g/C Ratio	0.52	0.48		0.50	0.45	0.45		0.16			0.19	0.19
v/c Ratio	0.59	0.73		0.08	1.08	0.40		1.06			1.06	0.43
Control Delay	41.3	38.1		17.2	92.7	18.1		125.5			122.1	11.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	41.3	38.1		17.2	92.7	18.1		125.5			122.1	11.7
LOS	D	D		B	F	B		F			F	B
Approach Delay		38.4			73.0			125.5			82.6	
Approach LOS		D			E			F			F	
Queue Length 50th (ft)	35	539		9	-999	121		-338			-372	11
Queue Length 95th (ft)	#77	710		23	#1210	157		285			#506	74
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	127	901		246	855	784		301			330	451
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.59	0.73		0.08	1.08	0.40		1.06			1.06	0.43

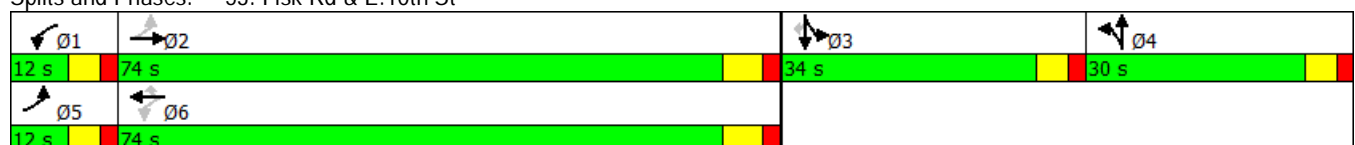
Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 71.8
 Intersection Capacity Utilization 95.7%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	660	230	240	885	165	225
Future Volume (vph)	660	230	240	885	165	225
Satd. Flow (prot)	1863	1583	1787	1881	1770	1615
Flt Permitted			0.124		0.950	
Satd. Flow (perm)	1863	1583	233	1881	1770	1615
Satd. Flow (RTOR)		247				326
Lane Group Flow (vph)	717	247	289	941	220	326
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	45.2	45.2	23.0		21.8	21.8
Total Lost Time (s)	6.5	6.5	5.5		5.5	5.5
Act Effct Green (s)	39.3	39.3	58.8	64.3	14.7	14.7
Actuated g/C Ratio	0.44	0.44	0.65	0.71	0.16	0.16
v/c Ratio	0.88	0.30	0.61	0.70	0.76	0.61
Control Delay	37.9	3.2	21.6	15.3	53.4	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	3.2	21.6	15.3	53.4	9.3
LOS	D	A	C	B	D	A
Approach Delay	29.0			16.7	27.0	
Approach LOS	C			B	C	
Queue Length 50th (ft)	367	0	92	312	118	0
Queue Length 95th (ft)	#592	42	m138	m382	157	14
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	814	830	470	1343	320	559
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.30	0.61	0.70	0.69	0.58

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 24 (27%), Referenced to phase 2:EBWB and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 23.1
 Intersection Capacity Utilization 71.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Future Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Satd. Flow (prot)	0	3381	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.112						0.950		
Satd. Flow (perm)	0	3381	0	207	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		109										140
Lane Group Flow (vph)	0	1002	0	420	927	0	0	0	0	200	0	471
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		35.0		25.0	60.0					30.0		30.0
Total Lost Time (s)		6.5		5.5	6.5					7.0		7.0
Act Effct Green (s)		30.2		55.3	54.3					22.2		22.2
Actuated g/C Ratio		0.34		0.61	0.60					0.25		0.25
v/c Ratio		0.83		0.94	0.43					0.46		0.95
Control Delay		17.9		42.4	7.5					32.4		54.6
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		17.9		42.4	7.5					32.4		54.6
LOS		B		D	A					C		D
Approach Delay		17.9			18.4						48.0	
Approach LOS		B			B						D	
Queue Length 50th (ft)		115		176	113					95		192
Queue Length 95th (ft)		227		m#329	114					160		#341
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		1206		462	2155					452		508
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.83		0.91	0.43					0.44		0.93

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 44 (49%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 24.8

Intersection LOS: C

Intersection Capacity Utilization 72.1%

ICU Level of Service C

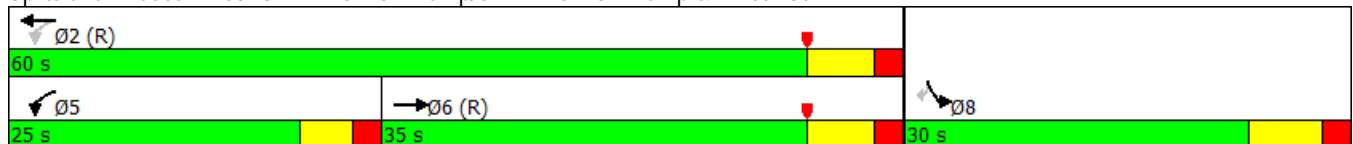
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Future Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3497	0	1787	0	1599	0	0	0
Flt Permitted	0.118						0.950					
Satd. Flow (perm)	220	3574	0	0	3497	0	1787	0	1599	0	0	0
Satd. Flow (RTOR)					27				217			
Lane Group Flow (vph)	175	693	0	0	1110	0	394	0	351	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	16.0	57.0			41.0		33.0		33.0			
Total Lost Time (s)	5.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	54.0	53.0			38.4		23.5		23.5			
Actuated g/C Ratio	0.60	0.59			0.43		0.26		0.26			
v/c Ratio	0.61	0.33			0.74		0.85		0.61			
Control Delay	11.9	4.1			25.0		48.7		15.4			
Queue Delay	0.0	0.5			1.7		0.0		0.4			
Total Delay	11.9	4.5			26.7		48.7		15.8			
LOS	B	A			C		D		B			
Approach Delay		6.0			26.7			33.2				
Approach LOS		A			C			C				
Queue Length 50th (ft)	28	88			143		204		59			
Queue Length 95th (ft)	m33	m102			250		#338		135			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	312	2104			1507		516		616			
Starvation Cap Reductn	0	0			231		0		0			
Spillback Cap Reductn	0	883			0		0		53			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.56	0.57			0.87		0.76		0.62			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 72.1%

ICU Level of Service C

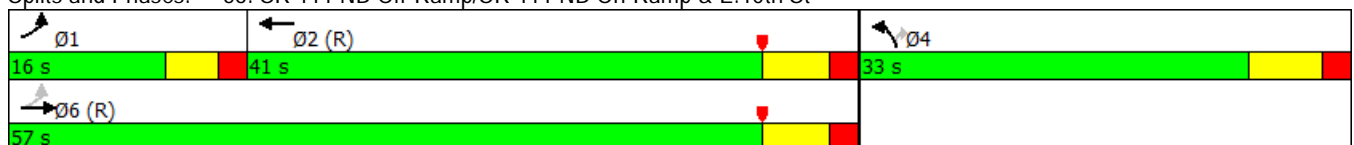
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	655	265	50	740	310	95
Future Volume (vph)	655	265	50	740	310	95
Satd. Flow (prot)	3406	0	1805	3574	1805	1615
Flt Permitted			0.103		0.950	
Satd. Flow (perm)	3406	0	196	3574	1805	1615
Satd. Flow (RTOR)	84					165
Lane Group Flow (vph)	1071	0	56	813	544	173
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	34.0		16.0	50.0	40.0	40.0
Total Lost Time (s)	6.5		5.5	6.5	5.5	5.5
Act Effct Green (s)	34.6		48.0	47.0	31.0	31.0
Actuated g/C Ratio	0.38		0.53	0.52	0.34	0.34
v/c Ratio	0.79		0.20	0.44	0.87	0.26
Control Delay	26.1		13.2	14.9	43.6	4.7
Queue Delay	1.8		0.0	0.1	33.4	0.0
Total Delay	27.9		13.2	15.0	77.0	4.7
LOS	C		B	B	E	A
Approach Delay	27.9			14.9	59.5	
Approach LOS	C			B	E	
Queue Length 50th (ft)	316		15	151	275	3
Queue Length 95th (ft)	#434		35	205	205	2
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	1359		292	1864	691	720
Starvation Cap Reductn	150		0	0	0	0
Spillback Cap Reductn	0		0	190	173	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.89		0.19	0.49	1.05	0.24

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 88 (98%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.2

Intersection LOS: C

Intersection Capacity Utilization 66.7%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Future Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Satd. Flow (prot)	1787	1700	0	0	1708	0	1626	3568	0	1787	3494	0
Flt Permitted	0.692				0.904		0.274			0.237		
Satd. Flow (perm)	1302	1700	0	0	1563	0	469	3568	0	446	3494	0
Satd. Flow (RTOR)		26			62			2			7	
Lane Group Flow (vph)	29	46	0	0	160	0	63	955	0	70	870	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	26.0	26.0		26.0	26.0		14.0	50.0		14.0	50.0	
Total Lost Time (s)	5.5	5.5			5.5		5.5	6.5		5.5	6.5	
Act Effct Green (s)	9.6	9.6			9.6		30.3	25.5		30.0	25.3	
Actuated g/C Ratio	0.18	0.18			0.18		0.56	0.47		0.55	0.47	
v/c Ratio	0.13	0.14			0.49		0.15	0.57		0.17	0.53	
Control Delay	23.5	14.9			20.4		5.6	13.7		5.7	13.3	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	23.5	14.9			20.4		5.6	13.7		5.7	13.3	
LOS	C	B			C		A	B		A	B	
Approach Delay		18.3			20.4			13.2			12.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	8	6			29		6	127		7	113	
Queue Length 95th (ft)	17	13			91		14	220		22	198	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	520	695			661		459	2911		475	2851	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.06	0.07			0.24		0.14	0.33		0.15	0.31	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 54.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 13.7

Intersection Capacity Utilization 60.5%

Analysis Period (min) 15










Intersection LOS: B

ICU Level of Service B

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

14 s	50 s	26 s
14 s	50 s	26 s

Lanes, Volumes, Timings
95: Foutch Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	0	50	0	55
Future Volume (vph)	10	0	0	50	0	55
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Lane Group Flow (vph)	12	0	0	65	0	57
Sign Control	Yield		Free			Free

Intersection Summary













Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	10	10	10	1100	505	10
Future Volume (vph)	10	10	10	1100	505	10
Satd. Flow (prot)	1721	0	0	5131	3596	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1721	0	0	5131	3596	0
Lane Group Flow (vph)	29	0	0	1150	537	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 0.4









Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↑	
Traffic Vol, veh/h	10	10	10	1100	505	10
Future Vol, veh/h	10	10	10	1100	505	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	13	16	16	1134	521	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1014	268	536	0	-	0
Stage 1	529	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Critical Hdwy	6.25	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	271	736	1042	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	260	736	1042	-	-	-
Mov Cap-2 Maneuver	260	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	14.7		0.2		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1042	-	401	-	-
HCM Lane V/C Ratio	0.015	-	0.073	-	-
HCM Control Delay (s)	8.5	0.1	14.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lanes, Volumes, Timings
 271: Foutch Dr & SR 136/S. Jefferson Ave

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	540	325	50	0	0
Future Volume (vph)	0	540	325	50	0	0
Satd. Flow (prot)	0	3369	3297	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3369	3297	0	0	0
Lane Group Flow (vph)	0	593	409	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 18.3%

Analysis Period (min) 15

ICU Level of Service A

Lanes, Volumes, Timings

2040 Optimized AM Timing Plan

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Future Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Satd. Flow (prot)	0	0	0	0	0	0	0	3285	0	0	3269	0
Flt Permitted								0.985				
Satd. Flow (perm)	0	0	0	0	0	0	0	3285	0	0	3269	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	955	0	0	466	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.0%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↘		↙	↖	↗				
Traffic Volume (vph)	720	25	10	995	50	10			
Future Volume (vph)	720	25	10	995	50	10			
Satd. Flow (prot)	1887	0	1805	1881	1786	0			
Flt Permitted			0.357		0.960				
Satd. Flow (perm)	1887	0	678	1881	1786	0			
Satd. Flow (RTOR)	12				7				
Lane Group Flow (vph)	819	0	16	1106	83	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			57.0	57.0	12.0		12.0	19.0	69.0
Total Lost Time (s)			5.5	5.5	5.5				
Act Effct Green (s)	80.0		51.6	51.6	6.5				
Actuated g/C Ratio	0.82		0.53	0.53	0.07				
v/c Ratio	0.53		0.04	1.11	0.66				
Control Delay	1.5		12.6	89.1	67.4				
Queue Delay	0.0		0.0	1.1	12.6				
Total Delay	1.5		12.6	90.3	80.1				
LOS	A		B	F	F				
Approach Delay	1.5			89.1	80.1				
Approach LOS	A			F	F				
Queue Length 50th (ft)	0		5	-829	48				
Queue Length 95th (ft)	m0		11	#1076	#76				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1530		359	995	125				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	194	25				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.54		0.04	1.38	0.83				

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 97.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 53.3
 Intersection Capacity Utilization 66.5%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service C

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 521: Brown Ave S & E.10th St



Lanes, Volumes, Timings
 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

2040 Optimized PM Timing Plan
 07/12/2017

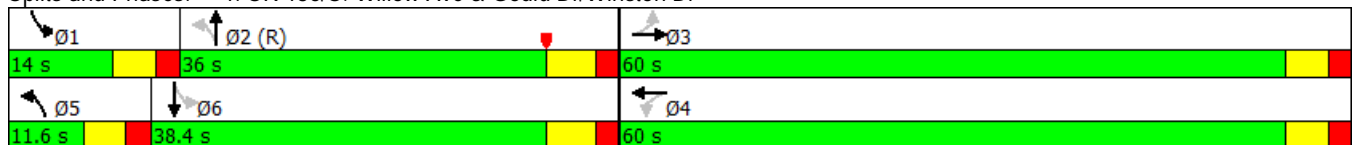
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	15	75	20	10	85	25	475	10	90	675	45
Future Volume (vph)	250	15	75	20	10	85	25	475	10	90	675	45
Satd. Flow (prot)	1770	1706	0	1703	1657	0	1805	3435	0	1787	3486	0
Flt Permitted	0.678			0.684			0.216			0.266		
Satd. Flow (perm)	1263	1706	0	1226	1657	0	410	3435	0	500	3486	0
Satd. Flow (RTOR)		77			99			4			8	
Lane Group Flow (vph)	510	113	0	37	123	0	30	603	0	127	848	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	60.0	60.0		60.0	60.0		11.6	36.0		14.0	38.4	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	6.0		5.5	6.0	
Act Effct Green (s)	49.4	49.4		49.4	49.4		41.7	35.0		48.0	42.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.38	0.32		0.44	0.38	
v/c Ratio	0.90	0.14		0.07	0.15		0.13	0.55		0.40	0.63	
Control Delay	47.8	6.3		15.6	4.9		21.0	34.5		17.7	20.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.8	6.3		15.6	4.9		21.0	34.5		17.7	20.8	
LOS	D	A		B	A		C	C		B	C	
Approach Delay		40.3			7.4			33.8			20.4	
Approach LOS		D			A			C			C	
Queue Length 50th (ft)	307	13		14	9		12	195		25	184	
Queue Length 95th (ft)	169	4		18	0		29	229		39	130	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	625	884		607	870		233	1096		322	1337	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.82	0.13		0.06	0.14		0.13	0.55		0.39	0.63	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 34 (31%), Referenced to phase 2:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 59.8%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	10	65	0	0	0	0	580	260	395	860	0
Future Volume (vph)	265	10	65	0	0	0	0	580	260	395	860	0
Satd. Flow (prot)	1649	1571	0	0	0	0	0	3383	0	1770	3539	0
Flt Permitted	0.950	0.976								0.085		
Satd. Flow (perm)	1649	1571	0	0	0	0	0	3383	0	158	3539	0
Satd. Flow (RTOR)		33						71				
Lane Group Flow (vph)	196	188	0	0	0	0	0	1124	0	494	935	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	36.0	36.0						42.0		32.0	74.0	
Total Lost Time (s)	6.0	6.0						5.5		5.5	5.5	
Act Effct Green (s)	18.5	18.5						41.7		80.0	80.0	
Actuated g/C Ratio	0.17	0.17						0.38		0.73	0.73	
v/c Ratio	0.71	0.64						0.85		0.83	0.36	
Control Delay	56.4	44.4						32.0		26.6	5.5	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	56.4	44.4						32.0		26.6	5.5	
LOS	E	D						C		C	A	
Approach Delay		50.5						32.0			12.8	
Approach LOS		D						C			B	
Queue Length 50th (ft)	138	108						230		183	125	
Queue Length 95th (ft)	205	107						265		#330	191	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	449	452						1326		594	2572	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.44	0.42						0.85		0.83	0.36	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 50 (45%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 25.1
 Intersection Capacity Utilization 70.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	210	10	310	45	790	0	0	1055	325
Future Volume (vph)	0	0	0	210	10	310	45	790	0	0	1055	325
Satd. Flow (prot)	0	0	0	0	1762	1583	1671	3539	0	0	3409	0
Flt Permitted					0.954		0.061					
Satd. Flow (perm)	0	0	0	0	1762	1583	107	3539	0	0	3409	0
Satd. Flow (RTOR)							134				58	
Lane Group Flow (vph)	0	0	0	0	251	365	58	975	0	0	1642	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				37.0	37.0	37.0	11.6	73.0			61.4	
Total Lost Time (s)					5.5	5.5	5.5	5.5			5.5	
Act Effct Green (s)					23.4	23.4	75.6	75.6			65.9	
Actuated g/C Ratio					0.21	0.21	0.69	0.69			0.60	
v/c Ratio					0.67	0.83	0.35	0.40			0.79	
Control Delay					47.8	41.1	12.1	3.5			15.2	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					47.8	41.1	12.1	3.5			15.2	
LOS					D	D	B	A			B	
Approach Delay					43.9			4.0			15.2	
Approach LOS					D			A			B	
Queue Length 50th (ft)					163	160	4	80			256	
Queue Length 95th (ft)					228	226	m11	177			m256	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					504	548	166	2432			2066	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.50	0.67	0.35	0.40			0.79	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 109 (99%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.0

Intersection LOS: B

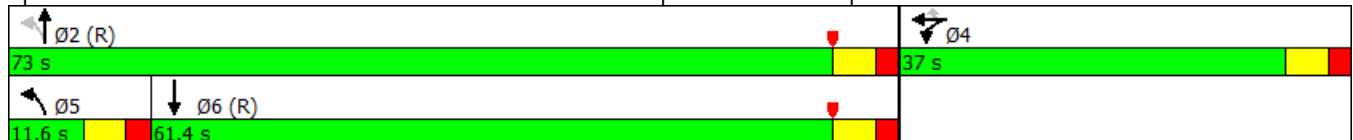
Intersection Capacity Utilization 70.5%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

2040 Optimized PM Timing Plan

07/12/2017

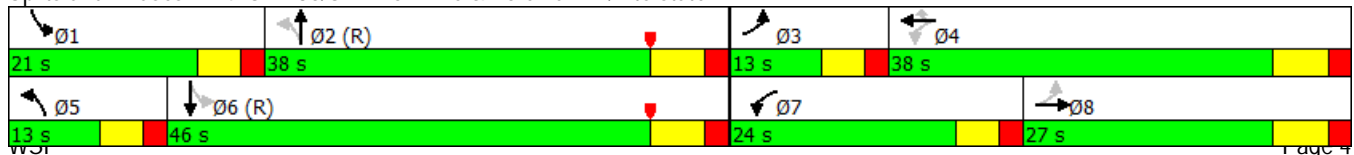
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	180	115	340	215	345	135	690	220	325	880	75
Future Volume (vph)	100	180	115	340	215	345	135	690	220	325	880	75
Satd. Flow (prot)	1736	1711	0	1805	1900	1615	1703	3412	0	1752	3524	0
Flt Permitted	0.596			0.154			0.144			0.108		
Satd. Flow (perm)	1089	1711	0	293	1900	1615	258	3412	0	199	3524	0
Satd. Flow (RTOR)		28					314	39			11	
Lane Group Flow (vph)	118	396	0	415	265	406	157	1058	0	361	1019	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Total Split (s)	13.0	27.0		24.0	38.0	38.0	13.0	38.0		21.0	46.0	
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Act Effct Green (s)	28.9	20.5		45.5	31.6	31.6	40.0	31.5		53.5	39.5	
Actuated g/C Ratio	0.26	0.19		0.41	0.29	0.29	0.36	0.29		0.49	0.36	
v/c Ratio	0.36	1.16		1.11	0.49	0.59	0.82	1.05		1.15	0.80	
Control Delay	25.5	138.1		108.1	36.1	12.0	58.9	69.3		125.5	37.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.5	138.1		108.1	36.1	12.0	58.9	69.3		125.5	37.2	
LOS	C	F		F	D	B	E	E		F	D	
Approach Delay		112.2			54.6			68.0			60.3	
Approach LOS		F			D			E			E	
Queue Length 50th (ft)	52	~316		~281	155	49	51	~412		~248	334	
Queue Length 95th (ft)	85	#395		#405	208	123	m#154	#508		#436	417	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	331	341		375	546	687	192	1004		315	1272	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.36	1.16		1.11	0.49	0.59	0.82	1.05		1.15	0.80	

Intersection Summary














Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 96 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 67.4
 Intersection Capacity Utilization 99.4%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	35	130	1035	135	70	1305
Future Volume (vph)	35	130	1035	135	70	1305
Satd. Flow (prot)	1805	1583	3507	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3507	0	1752	3574
Lane Group Flow (vph)	51	151	1230	0	111	1450
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	35	130	1035	135	70	1305
Future Vol, veh/h	35	130	1035	135	70	1305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	51	151	1067	163	111	1450

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2095	615	0	0	1230	0
Stage 1	1148	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	~ 46	434	-	-	557	-
Stage 1	269	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 37	434	-	-	557	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	269	-	-	-	-	-
Stage 2	274	-	-	-	-	-












Approach	WB	NB	SB
HCM Control Delay, s	24.4	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	434	557	-
HCM Lane V/C Ratio	-	-	0.36	0.348	0.199	-
HCM Control Delay (s)	-	-	44.2	17.7	13.1	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.5	1.5	0.7	-

Notes

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

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	20	1145	10	0	1385
Future Volume (vph)	0	20	1145	10	0	1385
Satd. Flow (prot)	0	1644	3568	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3568	0	0	3539
Lane Group Flow (vph)	0	27	1196	0	0	1522
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↕
Traffic Vol, veh/h	0	20	1145	10	0	1385
Future Vol, veh/h	0	20	1145	10	0	1385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	27	1180	16	0	1522

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	590	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	456	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	456	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	13.4		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 456	-
HCM Lane V/C Ratio	- 0.058	-
HCM Control Delay (s)	- 13.4	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.2	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	35	35	40	1200	1285	55
Future Volume (vph)	35	35	40	1200	1285	55
Satd. Flow (prot)	1736	1553	1805	3574	3547	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3547	0
Lane Group Flow (vph)	35	51	45	1212	1470	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 47.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕↕	↕↔	
Traffic Vol, veh/h	35	35	40	1200	1285	55
Future Vol, veh/h	35	35	40	1200	1285	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	35	51	45	1212	1397	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2130	735	1470	0	-	0
Stage 1	1433	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	41	358	465	-	-	-
Stage 1	183	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	37	358	465	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	183	-	-	-	-	-
Stage 2	406	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	27.4		0.5		0
HCM LOS	D				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	465	-	129	358	-	-
HCM Lane V/C Ratio	0.098	-	0.271	0.142	-	-
HCM Control Delay (s)	13.6	-	43	16.7	-	-
HCM Lane LOS	B	-	E	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1	0.5	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

2040 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	405	430	195	600	170	390	730	135	210	840	115
Future Volume (vph)	140	405	430	195	600	170	390	730	135	210	840	115
Satd. Flow (prot)	1805	3574	1568	1787	3473	0	1787	3453	0	1770	3502	0
Flt Permitted	0.178			0.294			0.115			0.160		
Satd. Flow (perm)	338	3574	1568	553	3473	0	216	3453	0	298	3502	0
Satd. Flow (RTOR)			330		43			26			16	
Lane Group Flow (vph)	149	500	494	207	880	0	419	956	0	263	1047	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	11.8	28.0	28.0	12.8	29.0		24.0	40.3		18.9	35.2	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	6.0		5.5	6.0	
Act Effct Green (s)	28.8	22.5	22.5	30.8	23.5		53.4	34.9		42.5	29.2	
Actuated g/C Ratio	0.29	0.22	0.22	0.31	0.24		0.53	0.35		0.42	0.29	
v/c Ratio	0.79	0.62	0.81	0.80	1.04		1.03	0.78		0.83	1.01	
Control Delay	54.6	38.9	24.1	49.6	77.3		82.3	34.0		43.0	53.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.6	38.9	24.1	49.6	77.3		82.3	34.0		43.0	53.8	
LOS	D	D	C	D	E		F	C		D	D	
Approach Delay		34.5			72.0			48.7			51.6	
Approach LOS		C			E			D			D	
Queue Length 50th (ft)	66	152	99	96	-308		-236	280		64	-342	
Queue Length 95th (ft)	#143	182	#229	#156	#434		#427	360		#143	#502	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150			150			150		
Base Capacity (vph)	189	804	608	260	849		405	1220		325	1033	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.79	0.62	0.81	0.80	1.04		1.03	0.78		0.81	1.01	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 70 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 51.4
 Intersection Capacity Utilization 97.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
9: SR 135/S. Willow Ave & W. Stevens St

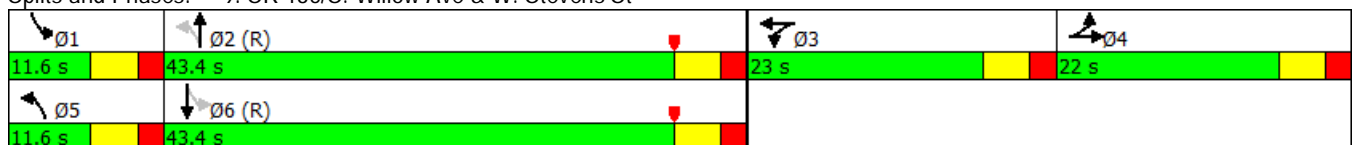
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	100	40	130	140	95	35	900	90	70	1090	40
Future Volume (vph)	50	100	40	130	140	95	35	900	90	70	1090	40
Satd. Flow (prot)	0	1811	0	1787	1783	0	1805	3524	0	1787	3554	0
Flt Permitted		0.988		0.950			0.103			0.146		
Satd. Flow (perm)	0	1811	0	1787	1783	0	196	3524	0	275	3554	0
Satd. Flow (RTOR)		15			27			13			5	
Lane Group Flow (vph)	0	242	0	183	268	0	42	1008	0	84	1180	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	22.0	22.0		23.0	23.0		11.6	43.4		11.6	43.4	
Total Lost Time (s)		5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		15.5		16.4	16.4		47.1	42.2		48.3	44.7	
Actuated g/C Ratio		0.16		0.16	0.16		0.47	0.42		0.48	0.45	
v/c Ratio		0.83		0.63	0.85		0.22	0.68		0.37	0.74	
Control Delay		61.9		48.8	61.2		9.9	22.7		8.7	15.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		61.9		48.8	61.2		9.9	22.7		8.7	15.6	
LOS		E		D	E		A	C		A	B	
Approach Delay		61.9			56.2			22.2			15.2	
Approach LOS		E			E			C			B	
Queue Length 50th (ft)		140		108	150		13	304		10	354	
Queue Length 95th (ft)		#218		137	#251		m13	m344		m9	m334	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)				75			100			150		
Base Capacity (vph)		311		312	334		190	1493		227	1590	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.78		0.59	0.80		0.22	0.68		0.37	0.74	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 30 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 27.5
 Intersection Capacity Utilization 78.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St



Lanes, Volumes, Timings
10: SR 135/S. Willow Ave & US 70/W. Spring St

2040 Optimized PM Timing Plan
07/12/2017

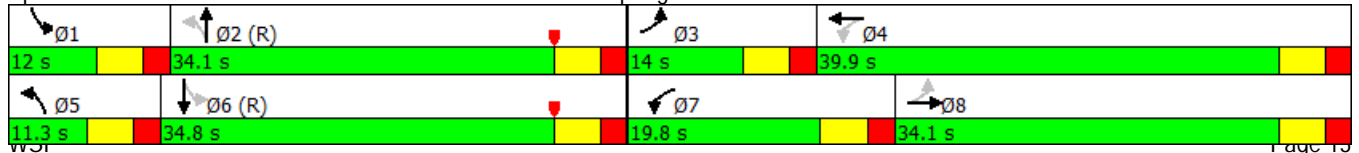
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	315	150	285	380	185	135	780	115	110	955	25
Future Volume (vph)	160	315	150	285	380	185	135	780	115	110	955	25
Satd. Flow (prot)	1787	1758	0	1805	1791	0	1787	3507	0	1685	3324	0
Flt Permitted	0.140			0.117			0.140			0.137		
Satd. Flow (perm)	263	1758	0	222	1791	0	263	3507	0	243	3324	0
Satd. Flow (RTOR)		25			20			17			3	
Lane Group Flow (vph)	213	551	0	343	696	0	153	986	0	149	1046	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	14.0	34.1		19.8	39.9		11.3	34.1		12.0	34.8	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	37.1	28.6		48.4	34.4		34.4	28.6		35.8	29.3	
Actuated g/C Ratio	0.37	0.29		0.48	0.34		0.34	0.29		0.36	0.29	
v/c Ratio	0.94	1.06		1.03	1.11		0.86	0.97		0.83	1.07	
Control Delay	70.7	90.6		84.8	100.4		53.1	54.0		46.6	81.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.7	90.6		84.8	100.4		53.1	54.0		46.6	81.7	
LOS	E	F		F	F		D	D		D	F	
Approach Delay		85.0			95.2			53.9			77.3	
Approach LOS		F			F			D			E	
Queue Length 50th (ft)	83	~376		~183	~502		70	346		71	~396	
Queue Length 95th (ft)	#155	#542		#311	#530		m#121	#468		m#103	#527	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125			125			175			150		
Base Capacity (vph)	227	520		333	629		178	1015		180	976	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.94	1.06		1.03	1.11		0.86	0.97		0.83	1.07	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 81 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 76.8
 Intersection Capacity Utilization 94.5%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

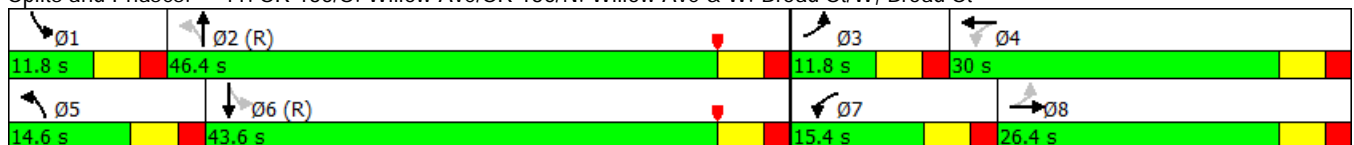
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	120	85	160	205	80	110	885	55	75	875	85
Future Volume (vph)	90	120	85	160	205	80	110	885	55	75	875	85
Satd. Flow (prot)	1805	1763	0	1805	1822	0	1668	3323	0	1620	3283	0
Flt Permitted	0.283			0.310			0.119			0.171		
Satd. Flow (perm)	538	1763	0	589	1822	0	209	3323	0	292	3283	0
Satd. Flow (RTOR)		38			18			10			15	
Lane Group Flow (vph)	95	241	0	198	370	0	134	1025	0	75	1054	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	11.8	26.4		15.4	30.0		14.6	46.4		11.8	43.6	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	24.8	18.2		32.4	24.2		52.6	45.5		47.5	41.1	
Actuated g/C Ratio	0.25	0.18		0.32	0.24		0.53	0.46		0.48	0.41	
v/c Ratio	0.44	0.68		0.63	0.81		0.58	0.68		0.34	0.78	
Control Delay	29.1	41.9		33.7	49.9		20.3	17.3		14.4	27.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.1	41.9		33.7	49.9		20.3	17.3		14.4	27.9	
LOS	C	D		C	D		C	B		B	C	
Approach Delay		38.3			44.3			17.7			27.0	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	41	119		89	212		18	323		17	288	
Queue Length 95th (ft)	m75	m194		129	256		m18	m327		m27	376	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	217	398		315	463		243	1517		224	1359	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.61		0.63	0.80		0.55	0.68		0.33	0.78	

Intersection Summary

















Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 27 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 27.9
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

2040 Optimized PM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	20	15	10	30	20	1025	20	15	1005	25
Future Volume (vph)	10	10	20	15	10	30	20	1025	20	15	1005	25
Satd. Flow (prot)	0	1772	0	0	1731	0	0	3353	0	0	3317	0
Flt Permitted		0.985			0.989			0.999			0.999	
Satd. Flow (perm)	0	1772	0	0	1731	0	0	3353	0	0	3317	0
Lane Group Flow (vph)	0	53	0	0	82	0	0	1133	0	0	1157	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 18.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	10	20	15	10	30	20	1025	20	15	1005	25
Future Vol, veh/h	10	10	20	15	10	30	20	1025	20	15	1005	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	16	16	21	18	16	48	27	1079	27	18	1104	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1759	2317	570	1742	2322	553	1140	0	0	1106	0	0
Stage 1	1158	1158	-	1146	1146	-	-	-	-	-	-	-
Stage 2	601	1159	-	596	1176	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	55	38	470	57	38	482	620	-	-	639	-	-
Stage 1	212	273	-	215	276	-	-	-	-	-	-	-
Stage 2	459	272	-	462	267	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	26	31	470	28	31	482	620	-	-	639	-	-
Mov Cap-2 Maneuver	26	31	-	28	31	-	-	-	-	-	-	-
Stage 1	188	252	-	190	245	-	-	-	-	-	-	-
Stage 2	343	241	-	381	246	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 334.9	\$ 303.6	0.8	0.6
HCM LOS	F	F		

















Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	620	-	-	45	65	639	-	-
HCM Lane V/C Ratio	0.043	-	-	1.178	1.255	0.028	-	-
HCM Control Delay (s)	11.1	0.6	-	\$ 334.9	\$ 303.6	10.8	0.4	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5	6.7	0.1	-	-

Notes

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

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

2040 Optimized PM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	30	30	10	35	20	995	45	15	980	20
Future Volume (vph)	15	15	30	30	10	35	20	995	45	15	980	20
Satd. Flow (prot)	0	1740	0	0	1711	0	0	3335	0	0	3321	0
Flt Permitted		0.985			0.979			0.999			0.999	
Satd. Flow (perm)	0	1740	0	0	1711	0	0	3335	0	0	3321	0
Lane Group Flow (vph)	0	81	0	0	97	0	0	1165	0	0	1163	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Int Delay, s/veh 47.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	15	15	30	30	10	35	20	995	45	15	980	20
Future Vol, veh/h	15	15	30	30	10	35	20	995	45	15	980	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0
Mvmt Flow	24	15	42	42	10	45	32	1070	63	30	1101	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1780	2374	566	1783	2358	567	1133	0	0	1133	0	0
Stage 1	1177	1177	-	1165	1165	-	-	-	-	-	-	-
Stage 2	603	1197	-	618	1193	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	53	35	473	53	36	462	624	-	-	624	-	-
Stage 1	206	267	-	210	271	-	-	-	-	-	-	-
Stage 2	458	261	-	448	263	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	28	26	473	~ 22	27	462	624	-	-	624	-	-
Mov Cap-2 Maneuver	28	26	-	~ 22	27	-	-	-	-	-	-	-
Stage 1	177	232	-	180	233	-	-	-	-	-	-	-
Stage 2	340	224	-	332	229	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 438.9	\$ 834.9	0.9	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	624	-	-	53	41	624	-	-
HCM Lane V/C Ratio	0.051	-	-	1.529	2.369	0.048	-	-
HCM Control Delay (s)	11.1	0.7	-	\$ 438.9	\$ 834.9	11.1	0.7	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	7.5	10.5	0.2	-	-

Notes

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

Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

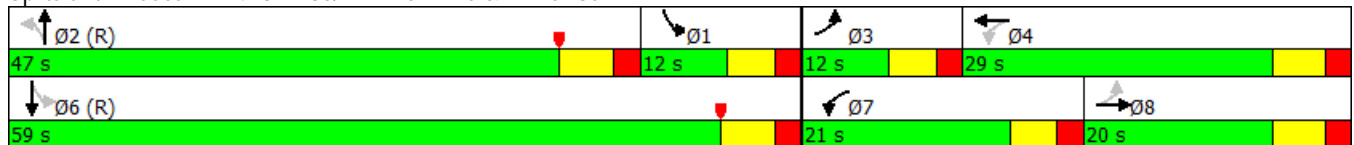
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	85	35	290	140	170	15	900	90	60	695	25
Future Volume (vph)	55	85	35	290	140	170	15	900	90	60	695	25
Satd. Flow (prot)	1770	1751	0	1805	1727	0	0	3315	0	0	3268	0
Flt Permitted	0.494			0.362				0.917			0.675	
Satd. Flow (perm)	920	1751	0	688	1727	0	0	3043	0	0	2215	0
Satd. Flow (RTOR)		24			64			14			7	
Lane Group Flow (vph)	66	166	0	337	364	0	0	1070	0	0	907	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	20.0		21.0	29.0		47.0	47.0		12.0	59.0	
Total Lost Time (s)	5.5	6.0		5.5	6.0			6.0			6.0	
Act Effct Green (s)	19.4	12.1		35.5	25.0			53.0			53.0	
Actuated g/C Ratio	0.19	0.12		0.36	0.25			0.53			0.53	
v/c Ratio	0.28	0.72		0.77	0.76			0.66			0.77	
Control Delay	25.7	53.1		39.4	40.9			9.0			25.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	25.7	53.1		39.4	40.9			9.0			25.9	
LOS	C	D		D	D			A			C	
Approach Delay		45.3			40.2			9.0			25.9	
Approach LOS		D			D			A			C	
Queue Length 50th (ft)	26	87		155	176			83			192	
Queue Length 95th (ft)	53	136		#263	#332			86			328	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75								
Base Capacity (vph)	237	265		438	480			1620			1199	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.28	0.63		0.77	0.76			0.66			0.76	

Intersection Summary

















Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 24.7
 Intersection Capacity Utilization 92.3%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

2040 Optimized PM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	10	100	10	15	10	85	1010	10	10	680	80
Future Volume (vph)	50	10	100	10	15	10	85	1010	10	10	680	80
Satd. Flow (prot)	0	1663	0	0	1778	0	0	3346	0	0	3280	0
Flt Permitted		0.984			0.988			0.995			0.999	
Satd. Flow (perm)	0	1663	0	0	1778	0	0	3346	0	0	3280	0
Lane Group Flow (vph)	0	191	0	0	41	0	0	1215	0	0	888	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

Intersection

Int Delay, s/veh 86.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	50	10	100	10	15	10	85	1010	10	10	680	80
Future Vol, veh/h	50	10	100	10	15	10	85	1010	10	10	680	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	63	10	118	10	15	16	113	1086	16	10	791	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1631	2183	439	1741	2219	551	878	0	0	1102	0	0
Stage 1	854	854	-	1321	1321	-	-	-	-	-	-	-
Stage 2	777	1329	-	420	898	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	47	557	57	44	483	778	-	-	641	-	-
Stage 1	324	378	-	168	228	-	-	-	-	-	-	-
Stage 2	360	226	-	587	361	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 27	28	557	23	27	483	778	-	-	641	-	-
Mov Cap-2 Maneuver	~ 27	28	-	23	27	-	-	-	-	-	-	-
Stage 1	202	366	-	105	142	-	-	-	-	-	-	-
Stage 2	194	141	-	436	350	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 982.6	\$ 303.4	2.4	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	778	-	-	66	40	641	-	-
HCM Lane V/C Ratio	0.146	-	-	2.881	1.022	0.016	-	-
HCM Control Delay (s)	10.4	1.6	-	\$ 982.6	\$ 303.4	10.7	0.2	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.5	-	-	19.2	4	0	-	-

Notes

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

Lanes, Volumes, Timings
16: SR 135/N. Willow Ave & University Dr

2040 Optimized PM Timing Plan

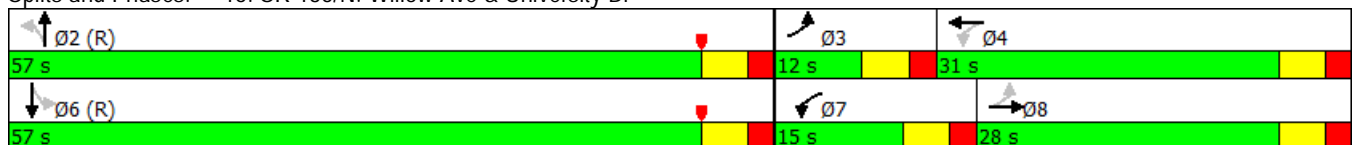
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	35	20	130	30	85	10	955	85	15	635	20
Future Volume (vph)	35	35	20	130	30	85	10	955	85	15	635	20
Satd. Flow (prot)	1736	1679	0	1787	1630	0	0	3329	0	0	3312	0
Flt Permitted	0.634			0.428				0.948			0.889	
Satd. Flow (perm)	1158	1679	0	805	1630	0	0	3156	0	0	2950	0
Satd. Flow (RTOR)		21			127			13			7	
Lane Group Flow (vph)	45	60	0	197	196	0	0	1149	0	0	739	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	28.0		15.0	31.0		57.0	57.0		57.0	57.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Act Effct Green (s)	14.4	8.2		25.5	17.4			63.4			63.4	
Actuated g/C Ratio	0.14	0.08		0.26	0.17			0.63			0.63	
v/c Ratio	0.21	0.38		0.57	0.51			0.57			0.39	
Control Delay	28.3	37.4		36.3	19.2			5.1			9.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	28.3	37.4		36.3	19.2			5.1			9.7	
LOS	C	D		D	B			A			A	
Approach Delay		33.5			27.8			5.1			9.7	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	21	24		101	39			78			125	
Queue Length 95th (ft)	40	61		109	33			117			m192	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	211	394		344	511			2004			1872	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.15		0.57	0.38			0.57			0.39	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 12 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 11.5
 Intersection Capacity Utilization 59.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
17: SR 135/N. Willow Ave & W. 12th St

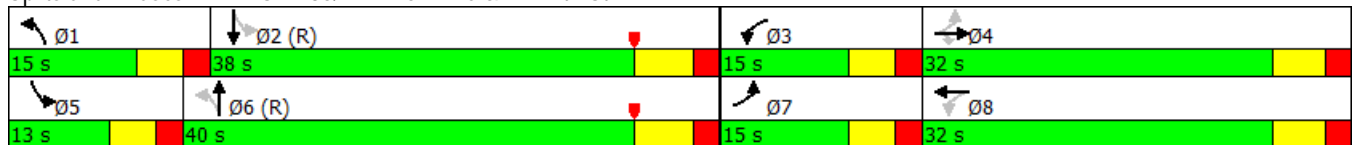
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	275	180	255	400	150	295	525	255	100	280	55
Future Volume (vph)	115	275	180	255	400	150	295	525	255	100	280	55
Satd. Flow (prot)	1752	1845	1615	1770	3420	0	1685	3176	0	1668	3285	0
Flt Permitted	0.274			0.247			0.452			0.220		
Satd. Flow (perm)	505	1845	1615	460	3420	0	802	3176	0	386	3285	0
Satd. Flow (RTOR)			198		54			100			25	
Lane Group Flow (vph)	129	320	198	277	621	0	307	821	0	145	371	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	15.0	32.0	32.0	15.0	32.0		15.0	40.0		13.0	38.0	
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	6.5		5.5	6.5	
Act Effct Green (s)	31.4	21.8	21.8	37.4	25.0		46.7	34.2		40.3	31.0	
Actuated g/C Ratio	0.31	0.22	0.22	0.37	0.25		0.47	0.34		0.40	0.31	
v/c Ratio	0.48	0.80	0.39	0.84	0.69		0.65	0.71		0.56	0.36	
Control Delay	25.4	51.6	6.7	47.6	35.4		15.0	18.5		24.6	26.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	51.6	6.7	47.6	35.4		15.0	18.5		24.6	26.4	
LOS	C	D	A	D	D		B	B		C	C	
Approach Delay		32.6			39.2			17.6			25.9	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	50	193	0	119	171		79	214		52	94	
Queue Length 95th (ft)	89	262	53	#250	228		101	238		66	128	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	281	479	566	331	930		475	1180		263	1093	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.67	0.35	0.84	0.67		0.65	0.70		0.55	0.34	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 27 (27%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.1
 Intersection Capacity Utilization 76.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

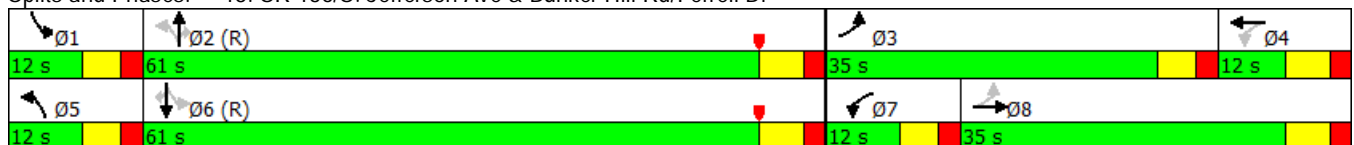
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	0	20	15	0	35	25	805	10	25	1130	345
Future Volume (vph)	295	0	20	15	0	35	25	805	10	25	1130	345
Satd. Flow (prot)	1736	1615	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.403			0.744			0.116			0.215		
Satd. Flow (perm)	736	1615	0	1414	1615	0	220	3539	1615	382	3505	1599
Satd. Flow (RTOR)		202			198				177			177
Lane Group Flow (vph)	311	21	0	24	51	0	40	982	10	25	1256	437
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	35.0	35.0		12.0	12.0		12.0	61.0	61.0	12.0	61.0	61.0
Total Lost Time (s)	5.5	6.0		5.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Act Effct Green (s)	33.7	28.4		11.5	6.0		72.2	67.7	67.7	70.7	65.2	65.2
Actuated g/C Ratio	0.28	0.24		0.10	0.05		0.60	0.56	0.56	0.59	0.54	0.54
v/c Ratio	0.76	0.04		0.15	0.19		0.18	0.49	0.01	0.09	0.66	0.46
Control Delay	49.4	0.1		32.7	1.6		13.0	19.6	0.0	3.6	7.4	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.4	0.5
Total Delay	49.4	0.1		32.7	1.6		13.0	19.6	0.0	3.6	7.7	2.4
LOS	D	A		C	A		B	B	A	A	A	A
Approach Delay		46.3			11.5			19.1			6.3	
Approach LOS		D			B			B			A	
Queue Length 50th (ft)	197	0		13	0		13	281	0	2	53	0
Queue Length 95th (ft)	282	0		22	0		20	315	0	m3	78	3
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	468	572		159	268		219	1995	987	296	1903	949
Starvation Cap Reductn	0	0		0	0		0	0	0	0	209	198
Spillback Cap Reductn	0	0		0	0		0	21	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.04		0.15	0.19		0.18	0.50	0.01	0.08	0.74	0.58

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 64.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	0	205	0	0	0	0	950	175	360	1290	0
Future Volume (vph)	270	0	205	0	0	0	0	950	175	360	1290	0
Satd. Flow (prot)	1736	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.136		
Satd. Flow (perm)	1736	0	1538	0	0	0	0	3574	1599	256	3539	0
Satd. Flow (RTOR)			250						219			
Lane Group Flow (vph)	307	0	250	0	0	0	0	1105	219	434	1418	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	1							3		2	3	
Permitted Phases			1						3	3		
Total Split (s)	30.0		30.0					60.0	60.0	30.0	60.0	
Total Lost Time (s)	6.0		6.0					5.5	5.5	5.5	5.5	
Act Effct Green (s)	23.2		23.2					54.5	54.5	79.8	54.5	
Actuated g/C Ratio	0.19		0.19					0.45	0.45	0.66	0.45	
v/c Ratio	0.91		0.50					0.68	0.26	0.88	0.88	
Control Delay	79.3		8.7					21.0	2.0	58.3	21.5	
Queue Delay	0.0		0.0					0.5	0.4	0.0	4.1	
Total Delay	79.3		8.7					21.5	2.4	58.3	25.6	
LOS	E		A					C	A	E	C	
Approach Delay		47.7						18.4			33.3	
Approach LOS		D						B			C	
Queue Length 50th (ft)	233		0					161	6	269	126	
Queue Length 95th (ft)	#379		47					176	8	#362	268	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	347		507					1623	845	493	1607	
Starvation Cap Reductn	0		0					178	285	0	130	
Spillback Cap Reductn	0		1					0	0	0	25	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.88		0.49					0.76	0.39	0.88	0.96	

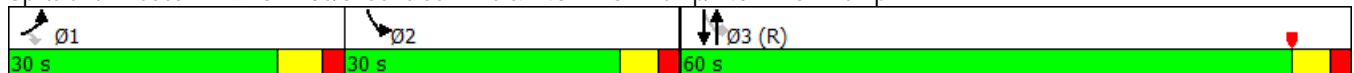
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 24 (20%), Referenced to phase 3:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 30.1
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	105	0	290	120	1090	0	0	1540	255
Future Volume (vph)	0	0	0	105	0	290	120	1090	0	0	1540	255
Satd. Flow (prot)	0	0	0	1656	0	2707	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.059					
Satd. Flow (perm)	0	0	0	1656	0	2707	107	3574	0	0	3574	1599
Satd. Flow (RTOR)												139
Lane Group Flow (vph)	0	0	0	118	0	354	140	1160	0	0	1638	280
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				1			2	3			3	
Permitted Phases						1	3	2				3
Total Split (s)				69.0		69.0	18.0	33.0			33.0	33.0
Total Lost Time (s)				6.0		6.0	5.5	5.5			5.5	5.5
Act Effct Green (s)				21.7		21.7	81.3	86.8			68.2	68.2
Actuated g/C Ratio				0.18		0.18	0.68	0.72			0.57	0.57
v/c Ratio				0.39		0.72	0.56	0.45			0.81	0.29
Control Delay				46.1		54.6	45.7	5.3			13.3	2.0
Queue Delay				0.0		0.4	0.0	0.1			7.8	1.2
Total Delay				46.1		55.0	45.7	5.4			21.0	3.1
LOS				D		D	D	A			C	A
Approach Delay					52.8			9.7			18.4	
Approach LOS					D			A			B	
Queue Length 50th (ft)				81		148	77	111			134	2
Queue Length 95th (ft)				129		173	m122	m126			#801	m14
Internal Link Dist (ft)		382				483		407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				869		1421	252	2583			2029	968
Starvation Cap Reductn				0		0	0	286			364	472
Spillback Cap Reductn				71		624	0	454			55	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.15		0.44	0.56	0.54			0.98	0.56

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 3:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 76.7%

ICU Level of Service D

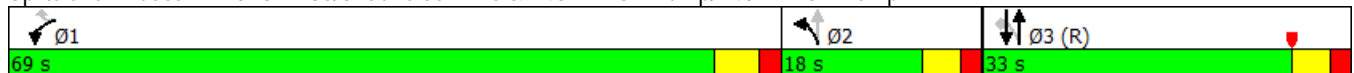
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

2040 Optimized PM Timing Plan
 07/12/2017

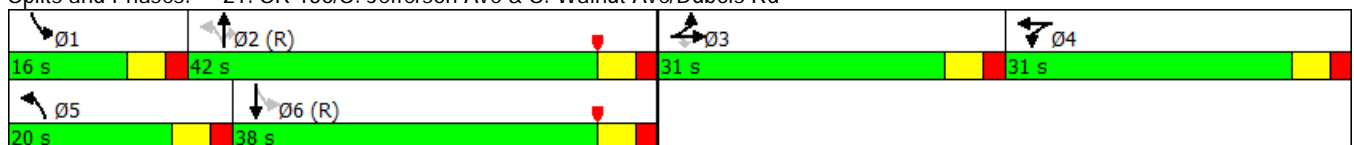
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	20	465	115	30	20	205	1110	75	10	1225	80
Future Volume (vph)	100	20	465	115	30	20	205	1110	75	10	1225	80
Satd. Flow (prot)	0	1794	1599	1770	1788	0	1787	3539	1568	1805	5118	0
Flt Permitted		0.960		0.950			0.077			0.144		
Satd. Flow (perm)	0	1794	1599	1770	1788	0	145	3539	1568	274	5118	0
Satd. Flow (RTOR)			362		24				123		11	
Lane Group Flow (vph)	0	166	541	122	69	0	233	1181	80	24	1424	0
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	31.0	31.0	31.0	31.0	31.0		20.0	42.0	42.0	16.0	38.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)		21.5	21.5	14.4	14.4		67.6	58.3	58.3	56.2	46.2	
Actuated g/C Ratio		0.18	0.18	0.12	0.12		0.56	0.49	0.49	0.47	0.38	
v/c Ratio		0.52	0.93	0.58	0.29		0.78	0.69	0.10	0.09	0.72	
Control Delay		49.4	38.8	60.4	35.4		53.8	24.3	1.7	14.1	25.6	
Queue Delay		0.0	3.9	0.3	0.0		23.6	1.2	0.3	0.0	0.0	
Total Delay		49.4	42.8	60.7	35.4		77.3	25.5	2.0	14.1	25.6	
LOS		D	D	E	D		E	C	A	B	C	
Approach Delay		44.3			51.6			32.3			25.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		112	144	91	32		145	278	1	7	175	
Queue Length 95th (ft)		148	#301	149	54		240	#584	7	m8	m#432	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100	25			50			100		
Base Capacity (vph)		381	624	376	398		316	1718	824	263	1977	
Starvation Cap Reductn		0	0	0	0		79	301	417	0	0	
Spillback Cap Reductn		0	40	52	0		0	0	0	0	21	
Storage Cap Reductn		0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio		0.44	0.93	0.38	0.17		0.98	0.83	0.20	0.09	0.73	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 12 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 32.9
 Intersection Capacity Utilization 78.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	430	250	300	495	170	215	700	255	130	865	240
Future Volume (vph)	190	430	250	300	495	170	215	700	255	130	865	240
Satd. Flow (prot)	1770	1845	1599	1805	3480	0	1770	3539	1615	1805	3464	0
Flt Permitted	0.147			0.128			0.096			0.254		
Satd. Flow (perm)	274	1845	1599	243	3480	0	179	3539	1615	483	3464	0
Satd. Flow (RTOR)			245		34				271		32	
Lane Group Flow (vph)	216	439	263	313	759	0	269	729	271	151	1133	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Total Split (s)	20.0	34.0	34.0	22.0	36.0		20.0	46.0	46.0	18.0	44.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	42.2	28.5	28.5	47.8	31.3		56.3	41.8	41.8	49.7	38.5	
Actuated g/C Ratio	0.35	0.24	0.24	0.40	0.26		0.47	0.35	0.35	0.41	0.32	
v/c Ratio	0.81	1.00	0.46	1.01	0.81		0.97	0.59	0.37	0.47	1.00	
Control Delay	51.1	89.7	8.9	86.7	48.0		91.6	41.5	12.7	14.9	37.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	51.1	89.7	8.9	86.7	48.0		91.6	41.5	12.7	14.9	37.6	
LOS	D	F	A	F	D		F	D	B	B	D	
Approach Delay		57.5			59.3			46.0			34.9	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	109	~343	11	~197	282		197	165	37	25	~96	
Queue Length 95th (ft)	#215	#558	82	#387	337		#277	254	120	m28	m#134	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	278	438	566	311	933		276	1232	738	342	1133	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.78	1.00	0.46	1.01	0.81		0.97	0.59	0.37	0.44	1.00	

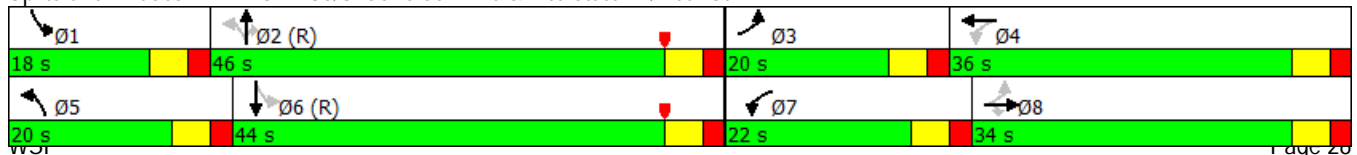
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 48.3
 Intersection Capacity Utilization 101.1%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service G

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

2040 Optimized PM Timing Plan
07/12/2017

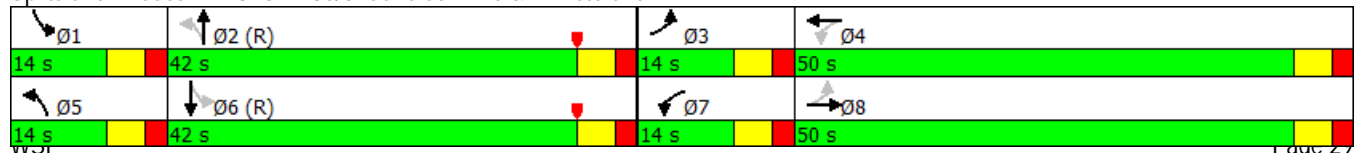
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	245	75	170	280	145	60	800	130	95	1065	95
Future Volume (vph)	80	245	75	170	280	145	60	800	130	95	1065	95
Satd. Flow (prot)	1805	1818	0	1752	1754	0	1805	3504	0	1752	3549	0
Flt Permitted	0.131			0.308			0.099			0.094		
Satd. Flow (perm)	249	1818	0	568	1754	0	188	3504	0	173	3549	0
Satd. Flow (RTOR)		15			28			16			11	
Lane Group Flow (vph)	96	388	0	183	533	0	63	992	0	109	1247	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	14.0	50.0		14.0	50.0		14.0	42.0		14.0	42.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	48.0	39.5		48.0	39.5		50.0	40.6		51.1	43.7	
Actuated g/C Ratio	0.40	0.33		0.40	0.33		0.42	0.34		0.43	0.36	
v/c Ratio	0.46	0.64		0.59	0.90		0.31	0.83		0.55	0.96	
Control Delay	25.6	37.3		28.8	54.6		19.0	40.5		39.0	48.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	1.9	
Total Delay	25.6	37.3		28.8	54.6		19.0	40.5		39.0	50.7	
LOS	C	D		C	D		B	D		D	D	
Approach Delay		35.0			48.0			39.2			49.7	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	41	238		83	364		26	381		23	-578	
Queue Length 95th (ft)	64	295		126	435		m48	#417		m99	#715	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	209	683		310	668		205	1197		197	1300	
Starvation Cap Reductn	0	0		0	0		0	0		0	20	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.57		0.59	0.80		0.31	0.83		0.55	0.97	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 80 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 44.3
 Intersection Capacity Utilization 91.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
 24: SR 136/S. Jefferson Ave & Walmart Driveway

2040 Optimized PM Timing Plan

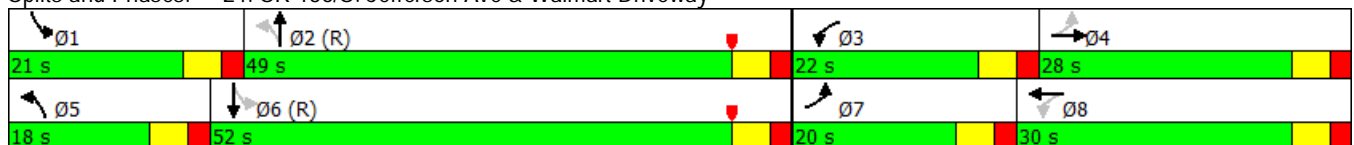
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	10	190	15	130	10	850	145	140	1090	15
Future Volume (vph)	0	0	10	190	15	130	10	850	145	140	1090	15
Satd. Flow (prot)	1900	1615	0	1805	1649	0	1805	3486	0	1787	3504	0
Flt Permitted				0.417			0.218			0.179		
Satd. Flow (perm)	1900	1615	0	792	1649	0	414	3486	0	337	3504	0
Satd. Flow (RTOR)		268			135			18			3	
Lane Group Flow (vph)	0	32	0	226	153	0	10	1016	0	156	1142	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	20.0	28.0		22.0	30.0		18.0	49.0		21.0	52.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		12.0		26.3	26.3		76.1	64.1		82.5	79.2	
Actuated g/C Ratio		0.10		0.22	0.22		0.63	0.53		0.69	0.66	
v/c Ratio		0.08		0.74	0.33		0.02	0.54		0.40	0.49	
Control Delay		0.4		54.9	9.4		5.3	9.9		6.8	10.9	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.4	
Total Delay		0.4		54.9	9.4		5.3	10.0		6.8	11.3	
LOS		A		D	A		A	B		A	B	
Approach Delay		0.4			36.5			10.0			10.8	
Approach LOS		A			D			A			B	
Queue Length 50th (ft)		0		144	10		1	120		52	297	
Queue Length 95th (ft)		0		202	49		m2	155		m30	502	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		520		317	515		408	1869		421	2313	
Starvation Cap Reductn		0		0	0		0	163		0	0	
Spillback Cap Reductn		47		0	0		0	0		0	614	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.07		0.71	0.30		0.02	0.60		0.37	0.67	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 89 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 13.9
 Intersection Capacity Utilization 71.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
25: SR 136/S. Jefferson Ave & Commerce Ave

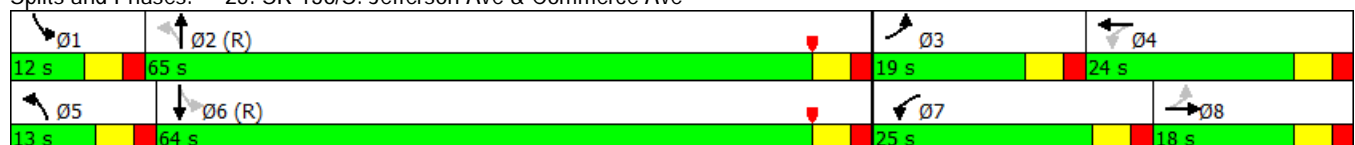
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	15	75	100	10	55	55	1055	25	30	1180	30
Future Volume (vph)	100	15	75	100	10	55	55	1055	25	30	1180	30
Satd. Flow (prot)	1805	1670	0	1752	1618	0	1805	3592	0	1719	3596	0
Flt Permitted	0.690			0.294			0.102			0.178		
Satd. Flow (perm)	1311	1670	0	542	1618	0	194	3592	0	322	3596	0
Satd. Flow (RTOR)		99			87			4			3	
Lane Group Flow (vph)	149	123	0	217	103	0	73	1123	0	48	1390	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	19.0	18.0		25.0	24.0		13.0	65.0		12.0	64.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	20.2	8.3		30.6	13.6		74.1	68.2		73.0	67.7	
Actuated g/C Ratio	0.17	0.07		0.26	0.11		0.62	0.57		0.61	0.56	
v/c Ratio	0.55	0.59		0.70	0.40		0.34	0.55		0.18	0.69	
Control Delay	43.4	27.5		48.9	17.7		12.7	6.7		3.5	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.4	27.5		48.9	17.7		12.7	6.7		3.5	9.7	
LOS	D	C		D	B		B	A		A	A	
Approach Delay		36.2			38.9			7.1			9.5	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	93	18		142	11		6	66		3	68	
Queue Length 95th (ft)	102	30		94	24		12	218		m4	431	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			125			125		
Base Capacity (vph)	293	262		336	323		222	2043		274	2029	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.47		0.65	0.32		0.33	0.55		0.18	0.69	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 13.8
 Intersection Capacity Utilization 64.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave



Lanes, Volumes, Timings
26: SR 136/S. Jefferson Ave & E. Jackson St

2040 Optimized PM Timing Plan
07/12/2017

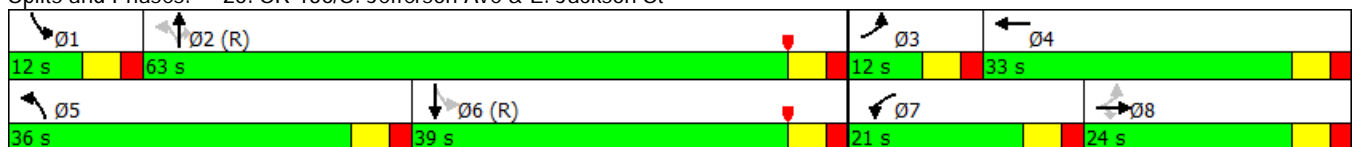
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	225	340	365	195	20	435	570	215	30	700	65
Future Volume (vph)	85	225	340	365	195	20	435	570	215	30	700	65
Satd. Flow (prot)	1787	1863	1599	3502	1855	0	1805	3610	1599	1685	3329	0
Flt Permitted	0.543			0.950			0.099			0.400		
Satd. Flow (perm)	1021	1863	1599	3502	1855	0	188	3610	1599	709	3329	0
Satd. Flow (RTOR)			391		4				276		8	
Lane Group Flow (vph)	105	239	391	401	265	0	494	663	276	43	866	0
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8				2		2	6		
Total Split (s)	12.0	24.0	24.0	21.0	33.0		36.0	63.0	63.0	12.0	39.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	24.3	17.8	17.8	15.5	26.7		70.3	60.7	60.7	41.4	35.0	
Actuated g/C Ratio	0.20	0.15	0.15	0.13	0.22		0.59	0.51	0.51	0.34	0.29	
v/c Ratio	0.42	0.87	0.69	0.89	0.64		0.97	0.36	0.29	0.15	0.89	
Control Delay	36.6	78.9	11.4	74.0	49.2		55.2	22.4	8.0	13.8	37.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.6	78.9	11.4	74.0	49.2		55.2	22.4	8.0	13.8	37.5	
LOS	D	E	B	E	D		E	C	A	B	D	
Approach Delay		37.0			64.1			31.0			36.4	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	58	182	0	159	183		341	238	48	10	137	
Queue Length 95th (ft)	91	#317	77	#246	245		#528	272	103	m23	#424	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	248	287	577	452	428		520	1826	945	298	978	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.42	0.83	0.68	0.89	0.62		0.95	0.36	0.29	0.14	0.89	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 79 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 39.4
 Intersection Capacity Utilization 86.1%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



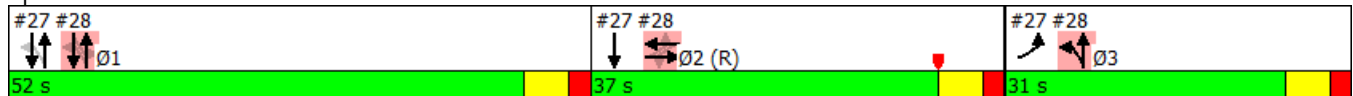
Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	150	30	15	645	720	0	
Future Volume (vph)	150	30	15	645	720	0	
Satd. Flow (prot)	1782	0	1452	3369	3369	0	
Flt Permitted	0.961		0.317				
Satd. Flow (perm)	1782	0	485	3369	3369	0	
Satd. Flow (RTOR)	8						
Lane Group Flow (vph)	234	0	18	686	791	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	31.0		52.0	52.0			37.0
Total Lost Time (s)	6.0		6.0	6.0			
Act Effct Green (s)	23.7		47.3	47.3	84.3		
Actuated g/C Ratio	0.20		0.39	0.39	0.70		
v/c Ratio	0.66		0.09	0.52	0.33		
Control Delay	52.0		13.5	14.0	0.6		
Queue Delay	0.0		0.0	0.0	0.4		
Total Delay	52.0		13.5	14.0	0.9		
LOS	D		B	B	A		
Approach Delay	52.0			14.0	0.9		
Approach LOS	D			B	A		
Queue Length 50th (ft)	160		4	82	3		
Queue Length 95th (ft)	208		m12	122	3		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	377		190	1328	2367		
Starvation Cap Reductn	0		0	0	941		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.62		0.09	0.52	0.55		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 106 (88%), Referenced to phase 2:SBT and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 13.1
 Intersection Capacity Utilization 40.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
28: SR 136/S. Jefferson Ave & E. Stevens St

2040 Optimized PM Timing Plan
07/12/2017

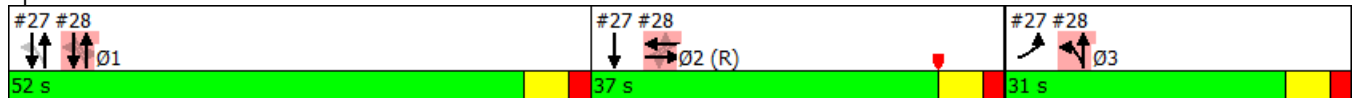
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	140	50	35	120	30	30	680	80	10	690	15
Future Volume (vph)	15	140	50	35	120	30	30	680	80	10	690	15
Satd. Flow (prot)	0	1822	0	0	1840	0	0	3295	0	0	3356	0
Flt Permitted		0.952			0.885			0.886			0.924	
Satd. Flow (perm)	0	1744	0	0	1641	0	0	2925	0	0	3104	0
Satd. Flow (RTOR)		15			9			23			2	
Lane Group Flow (vph)	0	236	0	0	235	0	0	895	0	0	801	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	37.0	37.0		37.0	37.0		31.0			52.0	52.0	
Total Lost Time (s)		6.0			6.0						6.0	
Act Effct Green (s)		31.0			31.0			71.0			47.3	
Actuated g/C Ratio		0.26			0.26			0.59			0.39	
v/c Ratio		0.51			0.55			0.49			0.65	
Control Delay		40.1			42.5			5.9			23.2	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		40.1			42.5			6.0			23.2	
LOS		D			D			A			C	
Approach Delay		40.1			42.5			6.0			23.2	
Approach LOS		D			D			A			C	
Queue Length 50th (ft)		147			152			44			221	
Queue Length 95th (ft)		229			197			65			m216	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		461			430			1849			1225	
Starvation Cap Reductn		0			0			153			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.51			0.55			0.53			0.65	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 106 (88%), Referenced to phase 2:SBT and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 20.0
 Intersection Capacity Utilization 72.6%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	510	160	120	430	15	175	280	160	25	310	45
Future Volume (vph)	30	510	160	120	430	15	175	280	160	25	310	45
Satd. Flow (prot)	1805	1804	0	1752	1669	0	1668	1662	0	1685	1551	0
Flt Permitted	0.292			0.084			0.164			0.166		
Satd. Flow (perm)	555	1804	0	155	1669	0	288	1662	0	294	1551	0
Satd. Flow (RTOR)		15			2			29			6	
Lane Group Flow (vph)	30	781	0	150	491	0	199	506	0	35	429	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	51.0		16.0	51.0		16.0	37.0		16.0	37.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	55.7	45.7		58.5	52.2		44.5	38.2		41.5	31.5	
Actuated g/C Ratio	0.46	0.38		0.49	0.44		0.37	0.32		0.35	0.26	
v/c Ratio	0.08	1.12		0.71	0.68		0.88	0.92		0.16	1.04	
Control Delay	15.7	102.7		56.7	19.7		59.3	51.4		21.2	92.5	
Queue Delay	0.0	2.1		0.0	3.2		0.0	10.7		0.0	21.7	
Total Delay	15.7	104.9		56.7	22.9		59.3	62.1		21.3	114.2	
LOS	B	F		E	C		E	E		C	F	
Approach Delay		101.6			30.8			61.3			107.2	
Approach LOS		F			C			E			F	
Queue Length 50th (ft)	8	~700		85	132		108	~175		13	~323	
Queue Length 95th (ft)	m20	#856		m131	m182		#223	#480		29	#479	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	369	696		215	727		227	548		224	411	
Starvation Cap Reductn	0	22		0	55		0	0		0	67	
Spillback Cap Reductn	0	178		0	146		0	38		6	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	1.51		0.70	0.85		0.88	0.99		0.16	1.25	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 73 (61%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 74.4

Intersection LOS: E

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

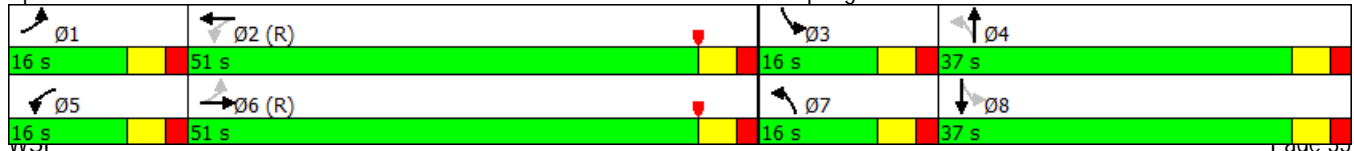
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

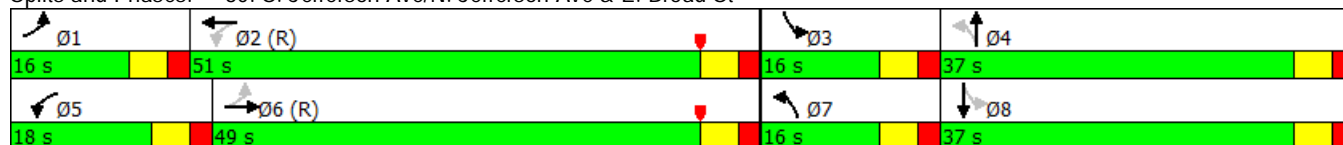
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	305	70	130	340	25	65	185	75	30	155	30
Future Volume (vph)	15	305	70	130	340	25	65	185	75	30	155	30
Satd. Flow (prot)	1805	1827	0	1805	1865	0	1668	1694	0	1685	1736	0
Flt Permitted	0.432			0.336			0.389			0.351		
Satd. Flow (perm)	821	1827	0	638	1865	0	683	1694	0	622	1736	0
Satd. Flow (RTOR)		11			3			16			7	
Lane Group Flow (vph)	24	431	0	163	430	0	80	286	0	38	217	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	49.0		18.0	51.0		16.0	37.0		16.0	37.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	66.4	56.4		70.8	63.7		33.1	26.7		31.2	23.2	
Actuated g/C Ratio	0.55	0.47		0.59	0.53		0.28	0.22		0.26	0.19	
v/c Ratio	0.04	0.50		0.34	0.43		0.29	0.74		0.15	0.64	
Control Delay	10.7	18.6		12.5	17.5		30.0	46.3		26.8	50.7	
Queue Delay	0.0	0.4		0.1	1.4		0.0	2.2		0.1	5.6	
Total Delay	10.7	19.0		12.7	19.0		30.0	48.5		26.8	56.3	
LOS	B	B		B	B		C	D		C	E	
Approach Delay		18.5			17.2			44.5			51.9	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	6	133		48	163		48	172		20	149	
Queue Length 95th (ft)	12	172		m51	m152		m16	m48		35	196	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	543	867		500	991		276	462		256	460	
Starvation Cap Reductn	0	72		27	363		0	80		0	0	
Spillback Cap Reductn	0	133		45	0		0	58		20	183	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.59		0.36	0.68		0.29	0.75		0.16	0.78	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 82 (68%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 28.9
 Intersection Capacity Utilization 69.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	500	55	100	430	55	45	315	310	105	315	65
Future Volume (vph)	160	500	55	100	430	55	45	315	310	105	315	65
Satd. Flow (prot)	1787	1840	0	1752	1863	1615	1745	1783	1546	1728	1784	0
Flt Permitted	0.286			0.136			0.188			0.264		
Satd. Flow (perm)	538	1840	0	251	1863	1615	345	1783	1546	480	1784	0
Satd. Flow (RTOR)		5					123		343		9	
Lane Group Flow (vph)	176	600	0	123	453	75	71	346	413	133	438	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	16.0	49.0		16.0	49.0	49.0	16.0	39.0	39.0	16.0	39.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	57.3	46.9		57.0	46.8	46.8	40.7	30.6	30.6	42.2	33.9	
Actuated g/C Ratio	0.48	0.39		0.48	0.39	0.39	0.34	0.26	0.26	0.35	0.28	
v/c Ratio	0.48	0.83		0.50	0.62	0.11	0.30	0.76	0.64	0.48	0.86	
Control Delay	11.8	24.1		18.5	32.8	6.1	25.9	52.7	12.1	21.2	36.5	
Queue Delay	0.7	51.1		0.0	0.1	0.1	0.0	1.8	0.0	0.0	11.8	
Total Delay	12.4	75.2		18.5	33.0	6.2	25.9	54.5	12.1	21.2	48.3	
LOS	B	E		B	C	A	C	D	B	C	D	
Approach Delay		61.0			27.1			31.0			42.0	
Approach LOS		E			C			C			D	
Queue Length 50th (ft)	50	281		63	316	10	33	240	41	25	80	
Queue Length 95th (ft)	m48	m261		78	447	25	44	350	62	55	#198	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	366	722		251	726	704	240	497	678	278	515	
Starvation Cap Reductn	0	211		0	0	0	0	0	0	0	64	
Spillback Cap Reductn	45	0		0	18	162	3	56	0	0	19	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.55	1.17		0.49	0.64	0.14	0.30	0.78	0.61	0.48	0.97	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 40.5

Intersection LOS: D

Intersection Capacity Utilization 85.2%

ICU Level of Service E

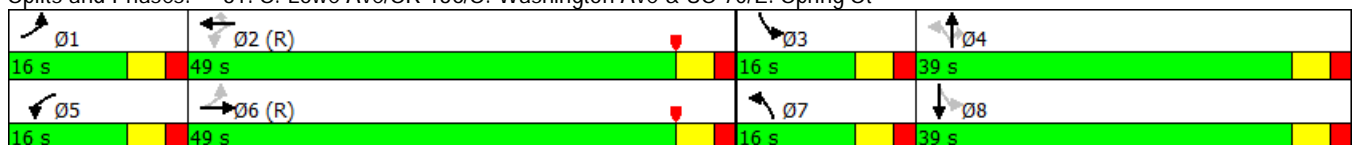
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

07/12/2017

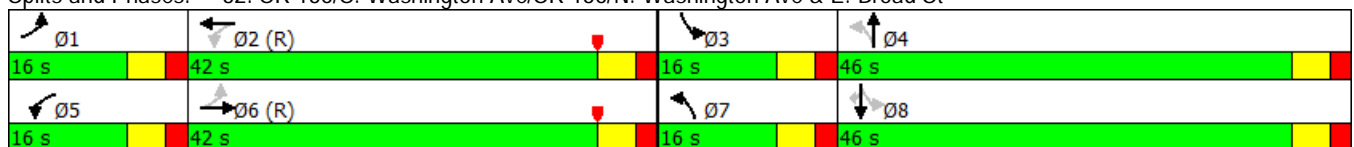
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	275	40	30	280	125	25	440	45	115	415	205
Future Volume (vph)	85	275	40	30	280	125	25	440	45	115	415	205
Satd. Flow (prot)	1787	1844	0	1805	1799	0	1745	1789	0	1745	1818	1546
Flt Permitted	0.107			0.357			0.292			0.118		
Satd. Flow (perm)	201	1844	0	678	1799	0	536	1789	0	217	1818	1546
Satd. Flow (RTOR)		7			22			5				241
Lane Group Flow (vph)	96	356	0	43	506	0	25	556	0	155	477	241
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	16.0	42.0		16.0	42.0		16.0	46.0		16.0	46.0	46.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	5.5
Act Effct Green (s)	49.6	41.4		48.1	38.1		49.3	39.3		52.2	45.9	45.9
Actuated g/C Ratio	0.41	0.34		0.40	0.32		0.41	0.33		0.44	0.38	0.38
v/c Ratio	0.44	0.56		0.12	0.86		0.08	0.94		0.69	0.69	0.33
Control Delay	34.6	30.0		17.8	54.0		14.0	48.0		37.6	38.5	4.7
Queue Delay	0.0	1.7		0.0	3.7		0.0	5.2		0.0	0.2	0.0
Total Delay	34.6	31.7		17.8	57.7		14.0	53.1		37.6	38.7	4.7
LOS	C	C		B	E		B	D		D	D	A
Approach Delay		32.3			54.6			51.5			29.2	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	21	229		26	389		7	187		68	328	0
Queue Length 95th (ft)	m96	196		m31	#497		m14	#578		91	439	44
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	222	641		373	586		328	608		227	695	739
Starvation Cap Reductn	0	145		0	0		0	29		0	0	0
Spillback Cap Reductn	0	0		0	36		0	0		0	18	4
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.43	0.72		0.12	0.92		0.08	0.96		0.68	0.70	0.33

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 72 (60%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 40.7
 Intersection Capacity Utilization 83.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

2040 Optimized PM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	35	140	15	20	15	60	585	15	10	635	85
Future Volume (vph)	235	35	140	15	20	15	60	585	15	10	635	85
Satd. Flow (prot)	0	1764	0	0	1791	0	1711	1793	0	1745	3384	0
Flt Permitted		0.971			0.991		0.201			0.119		
Satd. Flow (perm)	0	1764	0	0	1791	0	362	1793	0	219	3384	0
Satd. Flow (RTOR)		15			15			2			20	
Lane Group Flow (vph)	0	501	0	0	82	0	77	755	0	10	834	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	35.0	35.0		16.0	16.0		12.0	87.0		12.0	87.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		31.2			9.0		54.9	54.0		49.5	43.1	
Actuated g/C Ratio		0.28			0.08		0.50	0.49		0.45	0.39	
v/c Ratio		0.98			0.51		0.29	0.86		0.05	0.62	
Control Delay		76.7			59.1		16.4	35.7		12.9	27.1	
Queue Delay		0.0			0.0		0.0	0.1		0.0	0.0	
Total Delay		76.7			59.1		16.4	35.8		12.9	27.1	
LOS		E			E		B	D		B	C	
Approach Delay		76.7			59.1			34.0			26.9	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)		331			44		28	449		4	243	
Queue Length 95th (ft)		#859			67		43	599		11	294	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		511			194		265	1370		194	2589	
Starvation Cap Reductn		0			0		0	52		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.98			0.42		0.29	0.57		0.05	0.32	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 41.7
 Intersection Capacity Utilization 80.5%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St

Ø1	Ø2	Ø3	Ø4
12 s	87 s	35 s	16 s
Ø5	Ø6		
12 s	87 s		

Lanes, Volumes, Timings
 34: SR 136/N. Washington Ave & E. 10th St/E.10th St

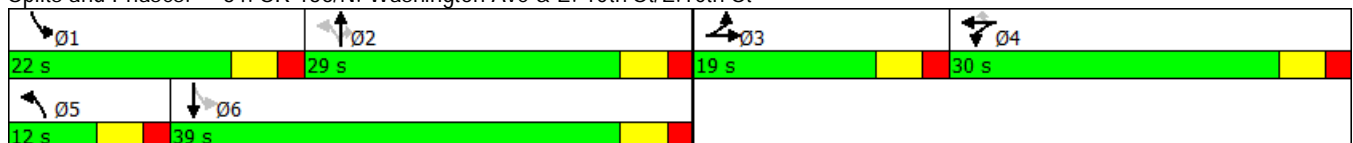
2040 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	310	40	230	215	355	50	620	340	320	415	60
Future Volume (vph)	150	310	40	230	215	355	50	620	340	320	415	60
Satd. Flow (prot)	1805	3534	0	3467	1900	1615	1719	3505	1615	1752	3517	0
Flt Permitted	0.950			0.950			0.431			0.140		
Satd. Flow (perm)	1805	3534	0	3467	1900	1615	780	3505	1615	258	3517	0
Satd. Flow (RTOR)		15				319		395		15		
Lane Group Flow (vph)	167	386	0	267	234	394	60	721	395	340	586	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	19.0	19.0		30.0	30.0	30.0	12.0	29.0	29.0	22.0	39.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	12.9	12.9		18.3	18.3	18.3	29.1	22.7	22.7	44.4	35.2	
Actuated g/C Ratio	0.14	0.14		0.20	0.20	0.20	0.32	0.25	0.25	0.48	0.38	
v/c Ratio	0.66	0.76		0.39	0.62	0.69	0.19	0.84	0.57	0.88	0.43	
Control Delay	53.0	48.6		33.8	41.7	14.2	17.4	44.1	7.0	48.5	23.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.0	48.6		33.8	41.7	14.2	17.4	44.1	7.0	48.5	23.8	
LOS	D	D		C	D	B	B	D	A	D	C	
Approach Delay		49.9			27.2			30.3			32.8	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	96	114		72	129	38	19	216	0	148	138	
Queue Length 95th (ft)	#192	#190		102	205	133	41	#306	60	#335	175	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	266	534		928	508	665	313	900	708	393	1351	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.63	0.72		0.29	0.46	0.59	0.19	0.80	0.56	0.87	0.43	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 92.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 33.2
 Intersection Capacity Utilization 72.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	0	285	0	0	0	0	385	25	240	500	0
Future Volume (vph)	100	0	285	0	0	0	0	385	25	240	500	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3423	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3423	0	1711	3490	0
Lane Group Flow (vph)	0	116	331	0	0	0	0	481	0	276	556	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 17.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	100	0	285	0	0	0	0	385	25	240	500	0
Future Vol, veh/h	100	0	285	0	0	0	0	385	25	240	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	116	0	331	0	0	0	0	448	33	276	556	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1331	1555	278	-	0	0	448	0	0
Stage 1	1107	1107	-	-	-	-	-	-	-
Stage 2	224	448	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	137	114	725	0	-	-	1109	-	0
Stage 1	263	288	-	0	-	-	-	-	0
Stage 2	771	576	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	~ 103	0	725	-	-	-	1109	-	-
Mov Cap-2 Maneuver	~ 103	0	-	-	-	-	-	-	-
Stage 1	198	0	-	-	-	-	-	-	-
Stage 2	771	0	-	-	-	-	-	-	-













Approach	EB	NB	SB
HCM Control Delay, s	63.8	0	3.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	103	725	1109	-
HCM Lane V/C Ratio	-	-	1.129	0.457	0.249	-
HCM Control Delay (s)	-	-	205.3	14.1	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	7.5	2.4	1	-

Notes

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

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	40	180	335	0	0	795
Future Volume (vph)	40	180	335	0	0	795
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Lane Group Flow (vph)	58	228	399	0	0	846
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 32.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	40	180	335	0	0	795
Future Vol, veh/h	40	180	335	0	0	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	58	228	399	0	0	846

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	822	199	0	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	302	806	-	0	0	-
Stage 1	632	-	-	0	0	-
Stage 2	614	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	302	806	-	-	-	-
Mov Cap-2 Maneuver	302	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	614	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	-	302 806	-
HCM Lane V/C Ratio	-	0.192 0.283	-
HCM Control Delay (s)	-	19.7 11.2	-
HCM Lane LOS	-	C B	-
HCM 95th %tile Q(veh)	-	0.7 1.2	-

Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	900	810	0	0	550	115	260	0	75	0	0	0
Future Volume (vph)	900	810	0	0	550	115	260	0	75	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3434	0	1736	0	1583	0	0	0
Flt Permitted	0.118						0.950					
Satd. Flow (perm)	220	3574	0	0	3434	0	1736	0	1583	0	0	0
Satd. Flow (RTOR)					17				114			
Lane Group Flow (vph)	1047	920	0	0	714	0	356	0	125	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		3					
Permitted Phases	6								3			
Total Split (s)	80.0	115.0			35.0		35.0		35.0			
Total Lost Time (s)	5.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	109.5	108.5			28.5		28.0		28.0			
Actuated g/C Ratio	0.73	0.72			0.19		0.19		0.19			
v/c Ratio	1.13	0.36			1.07		1.10		0.32			
Control Delay	102.0	8.2			110.6		134.0		13.1			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	102.0	8.2			110.6		134.0		13.1			
LOS	F	A			F		F		B			
Approach Delay		58.1			110.6			102.6				
Approach LOS		E			F			F				
Queue Length 50th (ft)	~1130	160			-400		~393		9			
Queue Length 95th (ft)	#1290	186			#531		#424		12			
Internal Link Dist (ft)		490			552			852			886	
Turn Bay Length (ft)	100								250			
Base Capacity (vph)	930	2585			666		324		388			
Starvation Cap Reductn	0	0			0		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	1.13	0.36			1.07		1.10		0.32			

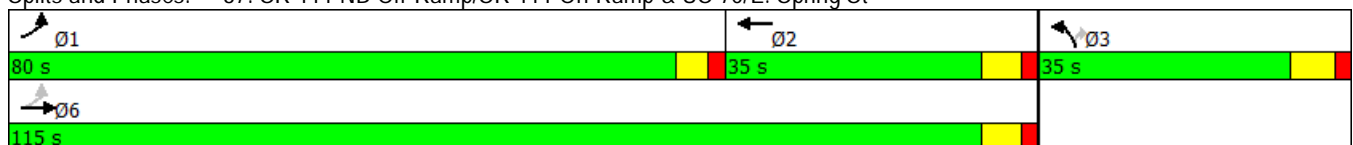
Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 76.7
 Intersection Capacity Utilization 99.0%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St




















Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1665	350	70	740	0	0	0	0	45	0	380
Future Volume (vph)	0	1665	350	70	740	0	0	0	0	45	0	380
Satd. Flow (prot)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3449	0	1703	3539	0	0	0	0	0	1703	1599
Lane Group Flow (vph)	0	2363	0	93	851	0	0	0	0	0	48	437
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 99.0%

ICU Level of Service F

Analysis Period (min) 15

Intersection

Int Delay, s/veh 9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑	↑
Traffic Vol, veh/h	0	1665	350	70	740	0	0	0	0	45	0	380
Future Vol, veh/h	0	1665	350	70	740	0	0	0	0	45	0	380
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	1914	449	93	851	0	0	0	0	48	0	437

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1914	0	0	1994	2951	425
Stage 1	-	-	-	-	-	-	1037	1037	-
Stage 2	-	-	-	-	-	-	957	1914	-
Critical Hdwy	-	-	-	4.22	-	-	6.92	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	5.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.92	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	290	-	0	50	15	580
Stage 1	0	-	-	-	-	0	294	311	-
Stage 2	0	-	-	-	-	0	324	117	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	290	-	-	~ 34	0	580
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 34	0	-
Stage 1	-	-	-	-	-	-	200	0	-
Stage 2	-	-	-	-	-	-	324	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	72.1
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	290	-	34	580
HCM Lane V/C Ratio	-	-	0.322	-	1.408	0.753
HCM Control Delay (s)	-	-	23.2	-\$ 477.5	27.7	
HCM Lane LOS	-	-	C	-	F	D
HCM 95th %tile Q(veh)	-	-	1.4	-	5.2	6.7

Notes

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

Lanes, Volumes, Timings
 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

2040 Optimized PM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1095	120	365	600	90	190	420	725	145	270	65
Future Volume (vph)	145	1095	120	365	600	90	190	420	725	145	270	65
Satd. Flow (prot)	1787	3498	0	1787	1845	1599	1805	1900	1615	1752	1817	0
Flt Permitted	0.142			0.071			0.103			0.148		
Satd. Flow (perm)	267	3498	0	134	1845	1599	196	1900	1615	273	1817	0
Satd. Flow (RTOR)		11					145		261		7	
Lane Group Flow (vph)	165	1423	0	392	690	102	284	512	884	158	398	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Total Split (s)	14.0	57.0		28.0	71.0	71.0	25.0	52.0	52.0	13.0	40.0	
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5	
Act Effct Green (s)	60.0	50.5		79.5	64.5	64.5	59.5	45.5	45.5	42.0	33.5	
Actuated g/C Ratio	0.40	0.34		0.53	0.43	0.43	0.40	0.30	0.30	0.28	0.22	
v/c Ratio	0.86	1.20		1.23	0.87	0.13	0.99	0.89	1.32	1.05	0.97	
Control Delay	61.0	141.6		168.3	52.1	1.3	93.8	68.4	182.6	124.7	93.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.0	141.6		168.3	52.1	1.3	93.8	68.4	182.6	124.7	93.2	
LOS	E	F		F	D	A	F	E	F	F	F	
Approach Delay		133.2			86.2			132.8			102.2	
Approach LOS		F			F			F			F	
Queue Length 50th (ft)	81	-886		-421	609	0	227	479	-928	-110	384	
Queue Length 95th (ft)	#187	#991		#636	755	9	223	556	#1006	#253	#520	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80					100	130			100		
Base Capacity (vph)	192	1184		318	793	770	286	576	671	150	411	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.86	1.20		1.23	0.87	0.13	0.99	0.89	1.32	1.05	0.97	

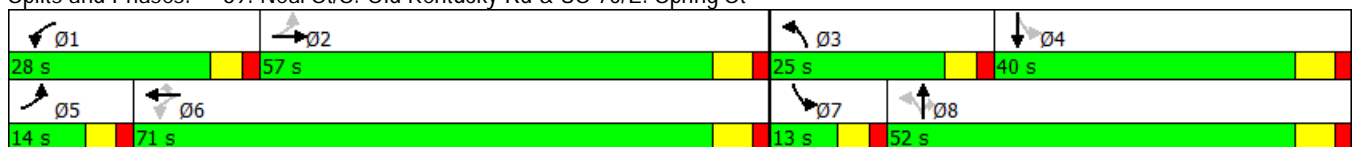
Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.32
 Intersection Signal Delay: 118.5
 Intersection Capacity Utilization 104.5%
 Analysis Period (min) 15










Intersection LOS: F
 ICU Level of Service G

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1060	440	440	140	10
Future Volume (vph)	0	1060	440	440	140	10
Satd. Flow (prot)	0	1881	1739	0	1796	0
Flt Permitted					0.956	
Satd. Flow (perm)	0	1881	1739	0	1796	0
Lane Group Flow (vph)	0	1233	936	0	198	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 8.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	0	1060	440	440	140	10
Future Vol, veh/h	0	1060	440	440	140	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	1233	478	458	182	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	478	0	-	0	1711	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	1233	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1095	-	-	0	~ 101	591
Stage 1	-	-	-	0	628	-
Stage 2	-	-	-	0	278	-
Platoon blocked, %		-		-		-
Mov Cap-1 Maneuver	1095	-	-	-	~ 101	591
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	278	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	77.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	1095	-	-	225
HCM Lane V/C Ratio	-	-	-	0.879
HCM Control Delay (s)	0	-	-	77.8
HCM Lane LOS	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	7.1

Notes

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

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

2040 Optimized PM Timing Plan
 07/12/2017

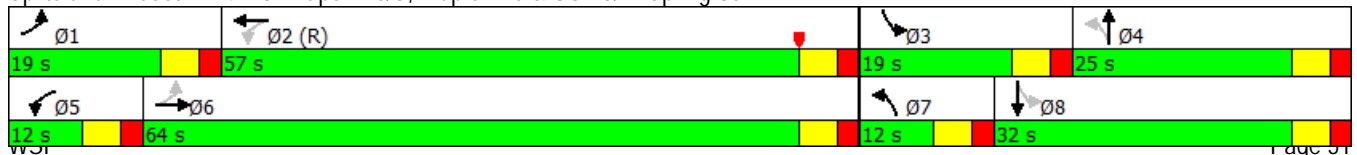
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	800	40	30	410	25	35	225	30	225	190	65
Future Volume (vph)	195	800	40	30	410	25	35	225	30	225	190	65
Satd. Flow (prot)	1805	1867	0	1703	1845	0	1805	1858	0	1805	1823	0
Flt Permitted	0.300			0.077			0.493			0.153		
Satd. Flow (perm)	570	1867	0	138	1845	0	937	1858	0	291	1823	0
Satd. Flow (RTOR)		3			4			6			12	
Lane Group Flow (vph)	217	1015	0	54	456	0	45	322	0	292	284	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	19.0	64.0		12.0	57.0		12.0	25.0		19.0	32.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	70.3	60.9		59.6	53.2		25.9	19.5		38.5	28.9	
Actuated g/C Ratio	0.59	0.51		0.50	0.44		0.22	0.16		0.32	0.24	
v/c Ratio	0.48	1.07		0.36	0.56		0.18	1.05		1.11	0.64	
Control Delay	11.3	76.1		18.9	28.0		31.0	113.4		118.0	34.8	
Queue Delay	13.7	0.0		0.0	67.7		0.0	2.3		1.5	10.5	
Total Delay	25.1	76.1		18.9	95.7		31.0	115.8		119.4	45.3	
LOS	C	E		B	F		C	F		F	D	
Approach Delay		67.1			87.6			105.4			82.9	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	57	-912		17	255		24	-268		-195	200	
Queue Length 95th (ft)	m74	#1005		21	368		45	#391		#281	263	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	473	949		153	821		250	306		263	447	
Starvation Cap Reductn	0	0		0	0		0	0		27	133	
Spillback Cap Reductn	231	0		0	655		0	2		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.90	1.07		0.35	2.75		0.18	1.06		1.24	0.90	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 20 (17%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 79.6
 Intersection Capacity Utilization 94.0%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

07/12/2017

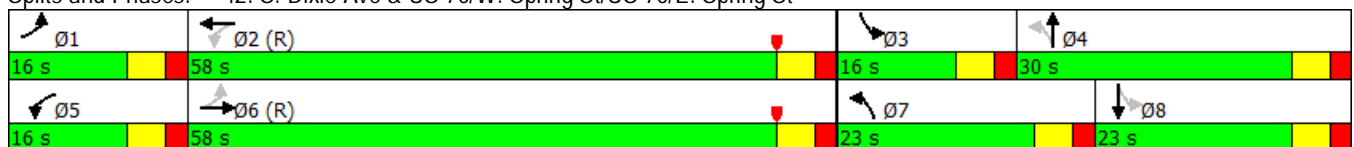
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	535	45	15	615	100	65	100	20	95	140	40
Future Volume (vph)	30	535	45	15	615	100	65	100	20	95	140	40
Satd. Flow (prot)	1805	1849	0	1805	1841	0	1805	1854	0	1787	1812	0
Flt Permitted	0.144			0.245			0.465			0.448		
Satd. Flow (perm)	274	1849	0	466	1841	0	884	1854	0	843	1812	0
Satd. Flow (RTOR)		6			9			7			9	
Lane Group Flow (vph)	36	667	0	18	770	0	68	166	0	136	202	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	58.0		16.0	58.0		23.0	30.0		16.0	23.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	72.8	68.8		71.7	65.7		28.5	18.2		29.6	21.2	
Actuated g/C Ratio	0.61	0.57		0.60	0.55		0.24	0.15		0.25	0.18	
v/c Ratio	0.12	0.63		0.05	0.76		0.24	0.58		0.47	0.62	
Control Delay	11.0	23.3		10.3	23.5		32.6	52.8		23.7	30.2	
Queue Delay	0.0	4.8		0.0	1.3		0.0	2.1		1.3	1.2	
Total Delay	11.0	28.1		10.3	24.8		32.6	54.9		25.0	31.5	
LOS	B	C		B	C		C	D		C	C	
Approach Delay		27.3			24.5			48.4			28.9	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	10	280		4	390		39	116		26	91	
Queue Length 95th (ft)	25	594		m7	m#800		70	137		75	124	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	300	1062		396	1012		384	384		290	333	
Starvation Cap Reductn	0	0		0	97		0	0		0	35	
Spillback Cap Reductn	0	319		0	0		0	116		52	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.90		0.05	0.84		0.18	0.62		0.57	0.68	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 86 (72%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 28.9
 Intersection Capacity Utilization 70.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St



Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	555	85	70	660	40	85	245	40	50	360	60
Future Volume (vph)	60	555	85	70	660	40	85	245	40	50	360	60
Satd. Flow (prot)	1770	1844	0	1805	1858	0	1770	1841	0	1805	1852	0
Flt Permitted	0.060			0.083			0.090			0.359		
Satd. Flow (perm)	112	1844	0	158	1858	0	168	1841	0	682	1852	0
Satd. Flow (RTOR)		7			4			9			7	
Lane Group Flow (vph)	66	760	0	88	837	0	99	332	0	75	520	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	77.0		12.0	77.0		12.0	49.0		12.0	49.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	71.8	65.3		73.3	68.3		49.5	44.6		48.0	41.5	
Actuated g/C Ratio	0.50	0.46		0.52	0.48		0.35	0.31		0.34	0.29	
v/c Ratio	0.50	0.90		0.56	0.94		0.75	0.57		0.27	0.95	
Control Delay	31.4	49.2		30.0	54.1		66.2	46.9		33.7	78.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.6	
Total Delay	31.4	49.2		30.0	54.1		66.2	46.9		33.7	78.8	
LOS	C	D		C	D		E	D		C	E	
Approach Delay		47.8			51.8			51.3			73.1	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	29	645		39	764		65	275		48	498	
Queue Length 95th (ft)	61	745		59	#965		#134	384		63	#631	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	133	942		157	948		132	582		282	579	
Starvation Cap Reductn	0	0		0	0		0	0		0	5	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.81		0.56	0.88		0.75	0.57		0.27	0.91	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 142.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 55.1
 Intersection Capacity Utilization 88.1%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
12 s	77 s	12 s	49 s
Ø5	Ø6	Ø7	Ø8
12 s	77 s	12 s	49 s

Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	475	70	115	730	40	75	95	85	30	100	50
Future Volume (vph)	25	475	70	115	730	40	75	95	85	30	100	50
Satd. Flow (prot)	1805	1846	0	1805	1863	0	1805	1787	0	1656	1787	0
Flt Permitted	0.078			0.191			0.328			0.507		
Satd. Flow (perm)	148	1846	0	363	1863	0	623	1787	0	884	1787	0
Satd. Flow (RTOR)		6			2			21			16	
Lane Group Flow (vph)	33	608	0	153	931	0	99	252	0	36	202	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	58.0		17.0	63.0		20.0	55.0		20.0	55.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	55.0	48.7		64.6	58.3		31.6	25.2		24.2	16.8	
Actuated g/C Ratio	0.51	0.45		0.59	0.54		0.29	0.23		0.22	0.15	
v/c Ratio	0.19	0.73		0.43	0.93		0.34	0.59		0.15	0.70	
Control Delay	13.8	32.0		14.6	42.9		31.8	42.7		29.4	54.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.8	32.0		14.6	42.9		31.8	42.7		29.4	54.2	
LOS	B	C		B	D		C	D		C	D	
Approach Delay		31.1			38.9			39.6			50.4	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	9	341		44	639		54	161		19	130	
Queue Length 95th (ft)	22	559		74	#942		80	152		40	164	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	175	906		370	999		346	835		357	833	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.67		0.41	0.93		0.29	0.30		0.10	0.24	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 108.7
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 38.0
 Intersection Capacity Utilization 79.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 44: Scott Ave & US 70/W. Spring St

Ø1	Ø2	Ø3	Ø4
12 s	63 s	20 s	55 s
Ø5	Ø6	Ø7	Ø8
17 s	58 s	20 s	55 s

Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

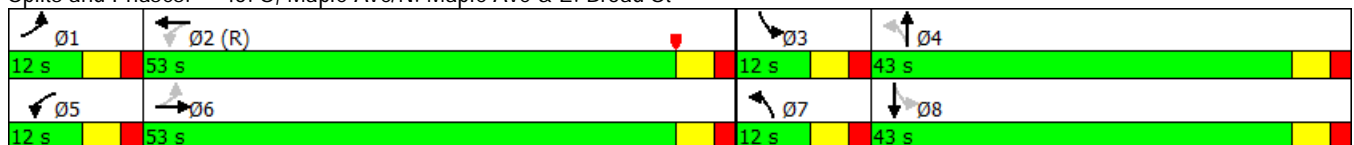
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	290	115	45	385	90	50	195	150	55	290	30
Future Volume (vph)	30	290	115	45	385	90	50	195	150	55	290	30
Satd. Flow (prot)	1805	1802	0	1805	1820	0	1805	1763	0	1805	1868	0
Flt Permitted	0.223			0.225			0.328			0.244		
Satd. Flow (perm)	424	1802	0	428	1820	0	623	1763	0	464	1868	0
Satd. Flow (RTOR)		19			12			41			6	
Lane Group Flow (vph)	38	524	0	49	551	0	79	443	0	66	375	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	53.0		12.0	53.0		12.0	43.0		12.0	43.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	55.0	49.9		56.2	52.3		45.1	39.9		45.1	39.9	
Actuated g/C Ratio	0.46	0.42		0.47	0.44		0.38	0.33		0.38	0.33	
v/c Ratio	0.14	0.69		0.18	0.69		0.27	0.72		0.27	0.60	
Control Delay	10.6	27.9		17.4	33.5		33.0	44.7		24.6	38.6	
Queue Delay	0.0	13.1		0.2	0.0		0.2	56.4		0.0	13.7	
Total Delay	10.6	41.0		17.7	33.5		33.2	101.0		24.6	52.3	
LOS	B	D		B	C		C	F		C	D	
Approach Delay		38.9			32.2			90.7			48.1	
Approach LOS		D			C			F			D	
Queue Length 50th (ft)	7	329		19	356		42	236		31	245	
Queue Length 95th (ft)	m10	350		41	472		m45	m256		55	337	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	269	760		275	799		298	613		246	624	
Starvation Cap Reductn	0	0		0	0		25	278		0	0	
Spillback Cap Reductn	0	218		51	0		0	0		0	228	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.97		0.22	0.69		0.29	1.32		0.27	0.95	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 6 (5%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 51.7
 Intersection Capacity Utilization 73.5%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

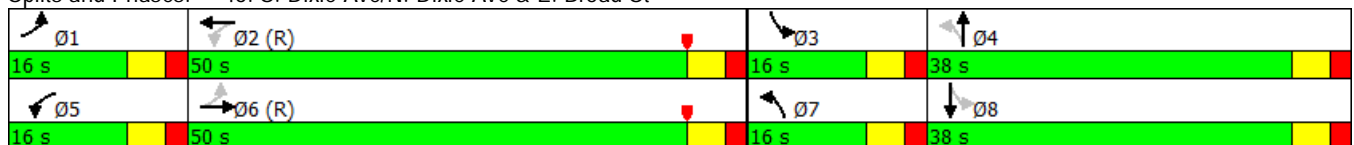
2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	335	30	30	310	60	30	150	35	65	205	30
Future Volume (vph)	30	335	30	30	310	60	30	150	35	65	205	30
Satd. Flow (prot)	1805	1845	0	1736	1837	0	1805	1841	0	1805	1862	0
Flt Permitted	0.389			0.425			0.235			0.428		
Satd. Flow (perm)	739	1845	0	776	1837	0	446	1841	0	813	1862	0
Satd. Flow (RTOR)		6			10			11			6	
Lane Group Flow (vph)	38	392	0	38	432	0	42	217	0	88	323	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	16.0	50.0		16.0	50.0		16.0	38.0		16.0	38.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	67.7	61.7		67.7	61.7		33.1	25.1		34.1	25.6	
Actuated g/C Ratio	0.56	0.51		0.56	0.51		0.28	0.21		0.28	0.21	
v/c Ratio	0.08	0.41		0.07	0.46		0.18	0.55		0.28	0.80	
Control Delay	14.0	23.7		8.1	13.6		24.4	43.8		28.6	58.8	
Queue Delay	0.0	0.0		0.0	0.1		0.0	1.0		0.0	0.0	
Total Delay	14.0	23.7		8.1	13.8		24.4	44.8		28.6	58.8	
LOS	B	C		A	B		C	D		C	E	
Approach Delay		22.8			13.3			41.5			52.4	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	13	210		8	88		25	141		47	235	
Queue Length 95th (ft)	29	338		14	99		m27	m126		62	241	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	512	951		523	949		243	506		322	511	
Starvation Cap Reductn	0	0		0	69		0	123		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.41		0.07	0.49		0.17	0.57		0.27	0.63	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 30.8
 Intersection Capacity Utilization 59.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

2040 Optimized PM Timing Plan
 07/12/2017

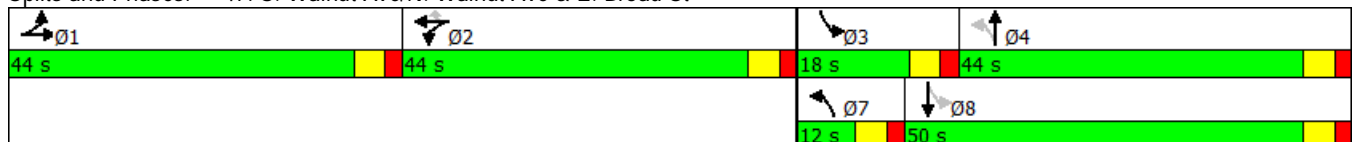
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	230	40	65	200	70	40	225	60	85	355	20
Future Volume (vph)	15	230	40	65	200	70	40	225	60	85	355	20
Satd. Flow (prot)	0	1848	0	0	1868	1583	1805	1835	0	1770	1885	0
Flt Permitted		0.997			0.986		0.280			0.277		
Satd. Flow (perm)	0	1848	0	0	1868	1583	532	1835	0	516	1885	0
Satd. Flow (RTOR)		6				138		9			2	
Lane Group Flow (vph)	0	332	0	0	323	80	53	308	0	120	420	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	44.0	44.0		44.0	44.0	44.0	12.0	44.0		18.0	50.0	
Total Lost Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Act Effct Green (s)		26.7			26.6	26.6	33.9	27.1		42.7	34.5	
Actuated g/C Ratio		0.23			0.23	0.23	0.30	0.24		0.37	0.30	
v/c Ratio		0.76			0.75	0.17	0.23	0.70		0.39	0.74	
Control Delay		54.8			54.7	0.8	29.2	50.3		30.4	48.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		54.8			54.7	0.8	29.2	50.3		30.4	48.1	
LOS		D			D	A	C	D		C	D	
Approach Delay		54.8			44.0			47.2			44.2	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)		223			221	0	24	200		57	283	
Queue Length 95th (ft)		389			375	0	54	371		98	496	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		665			668	655	234	662		341	781	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.50			0.48	0.12	0.23	0.47		0.35	0.54	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 114.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 47.0
 Intersection Capacity Utilization 72.7%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service C

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St



Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

2040 Optimized PM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	55	10	30	40	205	10	85	30	230	160	60
Future Volume (vph)	55	55	10	30	40	205	10	85	30	230	160	60
Satd. Flow (prot)	0	1836	0	0	1717	0	0	1793	0	0	1794	0
Flt Permitted		0.974			0.994			0.997			0.976	
Satd. Flow (perm)	0	1836	0	0	1717	0	0	1793	0	0	1794	0
Lane Group Flow (vph)	0	160	0	0	342	0	0	145	0	0	492	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

Intersection
Intersection Delay, s/veh 20
Intersection LOS C











Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	
Traffic Vol, veh/h	0	55	55	10	0	30	40	205	0	10	85	30
Future Vol, veh/h	0	55	55	10	0	30	40	205	0	10	85	30
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	87	63	10	0	43	69	230	0	10	99	36
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		12.5				15.7				11.6		
HCM LOS		B				C				B		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	46%	11%	51%
Vol Thru, %	68%	46%	15%	36%
Vol Right, %	24%	8%	75%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	120	275	450
LT Vol	10	55	30	230
Through Vol	85	55	40	160
RT Vol	30	10	205	60
Lane Flow Rate	145	161	343	493
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.295	0.55	0.798
Departure Headway (Hd)	6.334	6.62	5.774	5.83
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	565	541	624	626
Service Time	4.396	4.684	3.827	3.83
HCM Lane V/C Ratio	0.257	0.298	0.55	0.788
HCM Control Delay	11.6	12.5	15.7	27.9
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1	1.2	3.3	7.9

Intersection
 Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	230	160	60
Future Vol, veh/h	0	230	160	60
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	247	170	75
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		27.9		
HCM LOS		D		

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	195	205	150	245	115
Future Volume (vph)	65	195	205	150	245	115
Satd. Flow (prot)	1787	1599	0	1837	1797	0
Flt Permitted	0.950			0.971		
Satd. Flow (perm)	1787	1599	0	1837	1797	0
Lane Group Flow (vph)	76	199	0	435	429	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15











Intersection									
Intersection Delay, s/veh	16.1								
Intersection LOS	C								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↘	↗			↖		↗	
Traffic Vol, veh/h	0	65	195	0	205	150	0	245	115
Future Vol, veh/h	0	65	195	0	205	150	0	245	115
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	76	199	0	259	176	0	278	151
Number of Lanes	0	1	1	0	0	1	0	1	0
Approach	EB				NB		SB		
Opposing Approach					SB		NB		
Opposing Lanes	0				1		1		
Conflicting Approach Left	SB				EB				
Conflicting Lanes Left	1				2		0		
Conflicting Approach Right	NB						EB		
Conflicting Lanes Right	1				0		2		
HCM Control Delay	11.6				18.6		16.4		
HCM LOS	B				C		C		
Lane	NBLn1	EBLn1	EBLn2	SBLn1					
Vol Left, %	58%	100%	0%	0%					
Vol Thru, %	42%	0%	0%	68%					
Vol Right, %	0%	0%	100%	32%					
Sign Control	Stop	Stop	Stop	Stop					
Traffic Vol by Lane	355	65	195	360					
LT Vol	205	65	0	0					
Through Vol	150	0	0	245					
RT Vol	0	0	195	115					
Lane Flow Rate	436	76	199	430					
Geometry Grp	2	7	7	2					
Degree of Util (X)	0.661	0.151	0.331	0.621					
Departure Headway (Hd)	5.455	7.209	5.985	5.2					
Convergence, Y/N	Yes	Yes	Yes	Yes					
Cap	663	497	599	692					
Service Time	3.497	4.963	3.739	3.244					
HCM Lane V/C Ratio	0.658	0.153	0.332	0.621					
HCM Control Delay	18.6	11.3	11.7	16.4					
HCM Lane LOS	C	B	B	C					
HCM 95th-tile Q	5	0.5	1.4	4.3					

Lanes, Volumes, Timings

50: US 70/W. Spring St/US 70/W. Broad St & W. Broad St

2040 Optimized PM Timing Plan

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	245	470	15	145	325
Future Volume (vph)	10	245	470	15	145	325
Satd. Flow (prot)	1805	1615	1855	0	0	1834
Flt Permitted	0.950					0.985
Satd. Flow (perm)	1805	1615	1855	0	0	1834
Lane Group Flow (vph)	16	310	612	0	0	543
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖			↗
Traffic Vol, veh/h	10	245	470	15	145	325
Future Vol, veh/h	10	245	470	15	145	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	16	310	588	24	169	374

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1310	599	0	0	611	0
Stage 1	599	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	177	505	-	-	978	-
Stage 1	553	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	505	-	-	978	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	22.6		0		2.9
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	267	505	978	-
HCM Lane V/C Ratio	-	-	0.059	0.614	0.172	-
HCM Control Delay (s)	-	-	19.3	22.8	9.4	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	4.1	0.6	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	225	180	15	365	120	385	445	40	75	165	10
Future Volume (vph)	10	225	180	15	365	120	385	445	40	75	165	10
Satd. Flow (prot)	1805	1863	1553	1805	1807	0	1805	1900	1615	0	1854	0
Flt Permitted	0.135			0.500			0.950				0.984	
Satd. Flow (perm)	256	1863	1553	950	1807	0	1805	1900	1615	0	1854	0
Satd. Flow (RTOR)			193		20				229		2	
Lane Group Flow (vph)	24	262	198	24	566	0	464	484	43	0	288	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Split	NA	Free	Split	NA	
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			
Total Split (s)	12.0	36.0	36.0	12.0	36.0		31.0	31.0		21.0	21.0	
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	6.5			5.5	
Act Effct Green (s)	33.0	29.6	29.6	33.0	29.6		24.6	24.6	92.8		15.6	
Actuated g/C Ratio	0.36	0.32	0.32	0.36	0.32		0.27	0.27	1.00		0.17	
v/c Ratio	0.12	0.44	0.32	0.06	0.96		0.97	0.96	0.03		0.92	
Control Delay	18.9	29.0	5.8	17.9	60.5		70.8	67.9	0.0		74.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	18.9	29.0	5.8	17.9	60.5		70.8	67.9	0.0		74.9	
LOS	B	C	A	B	E		E	E	A		E	
Approach Delay		19.0			58.8			66.3			74.9	
Approach LOS		B			E			E			E	
Queue Length 50th (ft)	9	111	2	9	289		250	260	0		156	
Queue Length 95th (ft)	11	202	53	17	#592		#455	#531	0		#350	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350					
Base Capacity (vph)	200	594	626	398	590		478	503	1615		312	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.12	0.44	0.32	0.06	0.96		0.97	0.96	0.03		0.92	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 92.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 55.8
 Intersection Capacity Utilization 78.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St

12 s	36 s	31 s	21 s
12 s	36 s		

Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

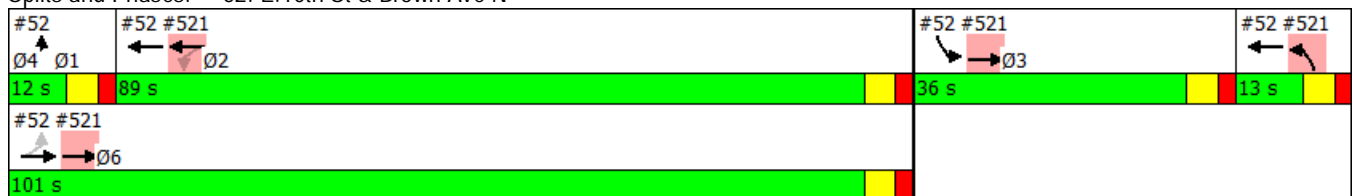
							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	25	1015	800	95	120	60		
Future Volume (vph)	25	1015	800	95	120	60		
Satd. Flow (prot)	1719	1900	1845	0	1722	0		
Flt Permitted	0.068				0.968			
Satd. Flow (perm)	123	1900	1845	0	1722	0		
Satd. Flow (RTOR)			8		15			
Lane Group Flow (vph)	35	1080	1005	0	240	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	12.0	101.0			36.0		89.0	13.0
Total Lost Time (s)	5.5	5.5			5.5			
Act Effct Green (s)	88.5	88.5	88.7		25.3			
Actuated g/C Ratio	0.64	0.64	0.64		0.18			
v/c Ratio	0.23	0.89	0.85		0.73			
Control Delay	13.4	31.9	7.4		65.2			
Queue Delay	0.0	0.1	0.0		0.0			
Total Delay	13.4	32.0	7.4		65.2			
LOS	B	C	A		E			
Approach Delay		31.4	7.4		65.2			
Approach LOS		C	A		E			
Queue Length 50th (ft)	11	800	18		205			
Queue Length 95th (ft)	21	#1129	#104		242			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	155	1338	1261		399			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	12	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.23	0.81	0.80		0.60			

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 138.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 24.6
 Intersection Capacity Utilization 72.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

2040 Optimized PM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	885	25	15	655	240	40	60	20	215	40	105
Future Volume (vph)	115	885	25	15	655	240	40	60	20	215	40	105
Satd. Flow (prot)	1805	1872	0	1805	1900	1599	0	1804	0	0	1737	1599
Flt Permitted	0.072			0.071				0.986			0.960	
Satd. Flow (perm)	137	1872	0	135	1900	1599	0	1804	0	0	1737	1599
Satd. Flow (RTOR)		1				121		4				121
Lane Group Flow (vph)	132	957	0	15	744	304	0	164	0	0	287	121
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2			6		6						3
Total Split (s)	13.0	60.0		12.0	59.0	59.0	37.0	37.0		41.0	41.0	41.0
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5		5.5			5.5	5.5
Act Effct Green (s)	65.4	61.7		60.1	52.9	52.9		16.6			25.8	25.8
Actuated g/C Ratio	0.52	0.49		0.48	0.42	0.42		0.13			0.20	0.20
v/c Ratio	0.77	1.04		0.10	0.93	0.41		0.68			0.81	0.29
Control Delay	53.3	75.2		19.7	56.1	18.5		66.5			66.1	8.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	53.3	75.2		19.7	56.1	18.5		66.5			66.1	8.8
LOS	D	E		B	E	B		E			E	A
Approach Delay		72.6			44.8			66.5			49.1	
Approach LOS		E			D			E			D	
Queue Length 50th (ft)	52	732		6	569	99		126			224	0
Queue Length 95th (ft)	#187	#1436		21	#969	168		143			312	46
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175		175						250
Base Capacity (vph)	171	916		151	797	741		457			492	540
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.77	1.04		0.10	0.93	0.41		0.36			0.58	0.22

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 126.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 57.9
 Intersection Capacity Utilization 88.4%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St

12 s	60 s	41 s	37 s
13 s	59 s		

Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	885	180	140	705	230	195
Future Volume (vph)	885	180	140	705	230	195
Satd. Flow (prot)	1863	1583	1787	1881	1770	1615
Flt Permitted			0.076		0.950	
Satd. Flow (perm)	1863	1583	143	1881	1770	1615
Satd. Flow (RTOR)		194				205
Lane Group Flow (vph)	962	194	169	750	307	283
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases		2	1 2			4
Total Split (s)	59.0	59.0	12.0		29.0	29.0
Total Lost Time (s)	6.5	6.5	5.5		5.5	5.5
Act Effct Green (s)	52.5	52.5	62.5	68.0	21.0	21.0
Actuated g/C Ratio	0.52	0.52	0.62	0.68	0.21	0.21
v/c Ratio	0.98	0.21	0.71	0.59	0.83	0.56
Control Delay	49.8	2.4	45.8	12.8	56.7	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	2.4	45.8	12.8	56.7	14.9
LOS	D	A	D	B	E	B
Approach Delay	41.8			18.8	36.7	
Approach LOS	D			B	D	
Queue Length 50th (ft)	574	0	80	156	184	41
Queue Length 95th (ft)	#870	32	#155	265	221	55
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)		400	125		175	
Base Capacity (vph)	978	923	237	1279	415	536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.21	0.71	0.59	0.74	0.53

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 38 (38%), Referenced to phase 2:EBWB and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 32.7
 Intersection Capacity Utilization 81.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	860	265	280	735	0	0	0	0	115	0	190
Future Volume (vph)	0	860	265	280	735	0	0	0	0	115	0	190
Satd. Flow (prot)	0	3441	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.097						0.950		
Satd. Flow (perm)	0	3441	0	179	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		54										224
Lane Group Flow (vph)	0	1320	0	318	766	0	0	0	0	128	0	224
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		53.0		27.0	80.0					20.0		20.0
Total Lost Time (s)		6.5		5.5	6.5					7.0		7.0
Act Effct Green (s)		50.7		74.5	73.5					13.0		13.0
Actuated g/C Ratio		0.51		0.74	0.74					0.13		0.13
v/c Ratio		0.75		0.79	0.29					0.56		0.56
Control Delay		10.6		20.2	3.0					50.9		11.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		10.6		20.2	3.0					50.9		11.5
LOS		B		C	A					D		B
Approach Delay		10.6			8.0						25.8	
Approach LOS		B			A						C	
Queue Length 50th (ft)		99		55	41					78		0
Queue Length 95th (ft)		m218		m98	m95					138		55
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		1770		471	2626					230		400
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.75		0.68	0.29					0.56		0.56

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 64 (64%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 11.5

Intersection LOS: B

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	705	0	0	775	290	240	0	450	0	0	0
Future Volume (vph)	275	705	0	0	775	290	240	0	450	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3420	0	1787	0	1599	0	0	0
Flt Permitted	0.091						0.950					
Satd. Flow (perm)	170	3574	0	0	3420	0	1787	0	1599	0	0	0
Satd. Flow (RTOR)					78				193			
Lane Group Flow (vph)	357	801	0	0	1174	0	267	0	517	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	24.0	67.0			43.0		33.0		33.0			
Total Lost Time (s)	5.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	62.7	61.7			38.5		24.8		24.8			
Actuated g/C Ratio	0.63	0.62			0.38		0.25		0.25			
v/c Ratio	0.92	0.36			0.86		0.60		0.95			
Control Delay	43.5	5.5			35.8		39.3		52.9			
Queue Delay	0.0	0.2			10.7		0.0		46.6			
Total Delay	43.5	5.8			46.5		39.3		99.5			
LOS	D	A			D		D		F			
Approach Delay		17.4			46.5			79.0				
Approach LOS		B			D			E				
Queue Length 50th (ft)	156	137			368		148		214			
Queue Length 95th (ft)	#209	61			#243		232		#391			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	402	2203			1365		464		558			
Starvation Cap Reductn	0	0			184		0		0			
Spillback Cap Reductn	0	616			0		0		127			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.89	0.50			0.99		0.58		1.20			

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 43.8

Intersection LOS: D

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



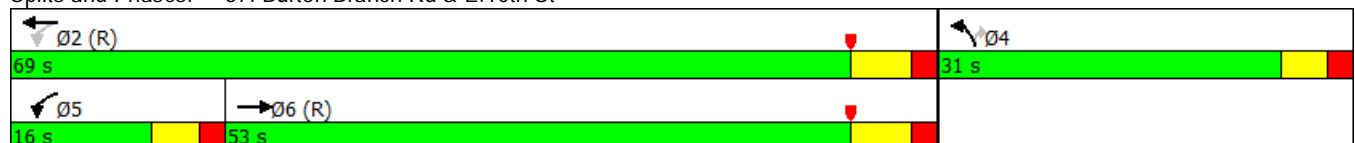
Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Volume (vph)	1040	110	35	885	170	50
Future Volume (vph)	1040	110	35	885	170	50
Satd. Flow (prot)	3517	0	1805	3574	1805	1615
Flt Permitted			0.119		0.950	
Satd. Flow (perm)	3517	0	226	3574	1805	1615
Satd. Flow (RTOR)	17					91
Lane Group Flow (vph)	1308	0	39	973	298	91
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	53.0		16.0	69.0	31.0	31.0
Total Lost Time (s)	6.5		5.5	6.5	5.5	5.5
Act Effct Green (s)	57.8		68.1	67.1	20.9	20.9
Actuated g/C Ratio	0.58		0.68	0.67	0.21	0.21
v/c Ratio	0.64		0.13	0.41	0.79	0.22
Control Delay	17.5		7.1	8.6	52.5	7.8
Queue Delay	0.4		0.0	0.2	0.2	0.0
Total Delay	17.9		7.1	8.7	52.7	7.8
LOS	B		A	A	D	A
Approach Delay	17.9			8.7	42.2	
Approach LOS	B			A	D	
Queue Length 50th (ft)	410		7	134	180	0
Queue Length 95th (ft)	m486		20	196	149	5
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	2039		319	2397	460	479
Starvation Cap Reductn	291		0	0	0	0
Spillback Cap Reductn	0		0	554	13	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.75		0.12	0.53	0.67	0.19

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 4 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 18.0
 Intersection Capacity Utilization 53.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	15	35	55	10	95	10	1130	15	65	1305	10
Future Volume (vph)	50	15	35	55	10	95	10	1130	15	65	1305	10
Satd. Flow (prot)	1787	1636	0	0	1682	0	1626	3568	0	1787	3533	0
Flt Permitted	0.607				0.837		0.125			0.147		
Satd. Flow (perm)	1142	1636	0	0	1433	0	214	3568	0	277	3533	0
Satd. Flow (RTOR)		90			74		3			1		
Lane Group Flow (vph)	98	120	0	0	173	0	16	1183	0	76	1444	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	24.0	24.0		24.0	24.0		12.0	54.0		12.0	54.0	
Total Lost Time (s)	5.5	5.5			5.5		5.5	6.5		5.5	6.5	
Act Effct Green (s)	11.4	11.4			11.4		37.9	32.2		41.4	39.4	
Actuated g/C Ratio	0.17	0.17			0.17		0.58	0.49		0.63	0.60	
v/c Ratio	0.49	0.33			0.56		0.06	0.67		0.23	0.68	
Control Delay	36.6	13.3			24.3		5.3	15.9		6.4	11.9	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	36.6	13.3			24.3		5.3	15.9		6.4	11.9	
LOS	D	B			C		A	B		A	B	
Approach Delay		23.7			24.3			15.7			11.6	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	35	10			35		2	188		9	153	
Queue Length 95th (ft)	51	12			112		6	302		26	415	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	343	554			482		274	2681		335	2654	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.29	0.22			0.36		0.06	0.44		0.23	0.54	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 65.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.7

Intersection Capacity Utilization 72.0%

Analysis Period (min) 15










Intersection LOS: B

ICU Level of Service C

Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

12 s	54 s	24 s
12 s	54 s	24 s

Lanes, Volumes, Timings
95: Foutch Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	0	0	180	0	65
Future Volume (vph)	15	0	0	180	0	65
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Lane Group Flow (vph)	18	0	0	234	0	68
Sign Control	Yield		Free			Free

Intersection Summary













Control Type: Unsignalized

Intersection Capacity Utilization 14.5%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	20	20	10	990	1275	10
Future Volume (vph)	20	20	10	990	1275	10
Satd. Flow (prot)	1723	0	0	5131	3603	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1723	0	0	5131	3603	0
Lane Group Flow (vph)	59	0	0	1037	1330	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 45.6%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 1.2









Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↑	
Traffic Vol, veh/h	20	20	10	990	1275	10
Future Vol, veh/h	20	20	10	990	1275	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	27	32	16	1021	1314	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1762	665	1330	0	-	0
Stage 1	1322	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.25	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	99	407	526	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	92	407	526	-	-	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	40.2		0.5		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	526	-	159	-	-
HCM Lane V/C Ratio	0.03	-	0.367	-	-
HCM Control Delay (s)	12.1	0.3	40.2	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-

Lanes, Volumes, Timings
 271: Foutch Dr & SR 136/S. Jefferson Ave

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	10	780	715	60	0	0
Future Volume (vph)	10	780	715	60	0	0
Satd. Flow (prot)	0	3328	3327	0	0	0
Flt Permitted		0.999				
Satd. Flow (perm)	0	3328	3327	0	0	0
Lane Group Flow (vph)	0	867	849	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 31.9%

Analysis Period (min) 15

ICU Level of Service A

Lanes, Volumes, Timings

2040 Optimized PM Timing Plan

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	100	365	10	0	740	100
Future Volume (vph)	0	0	0	0	0	0	100	365	10	0	740	100
Satd. Flow (prot)	0	0	0	0	0	0	0	3294	0	0	3386	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	0	0	0	0	0	0	3294	0	0	3386	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	565	0	0	887	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 43.6%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↘		↙	↖	↗				
Traffic Volume (vph)	1100	25	10	870	30	20			
Future Volume (vph)	1100	25	10	870	30	20			
Satd. Flow (prot)	1890	0	1805	1881	1745	0			
Flt Permitted			0.168		0.970				
Satd. Flow (perm)	1890	0	319	1881	1745	0			
Satd. Flow (RTOR)	7				16				
Lane Group Flow (vph)	1228	0	16	967	69	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			89.0	89.0	13.0		12.0	36.0	101.0
Total Lost Time (s)			5.5	5.5	5.5				
Act Effct Green (s)	119.4		79.6	79.6	7.7				
Actuated g/C Ratio	0.86		0.58	0.58	0.06				
v/c Ratio	0.75		0.09	0.89	0.62				
Control Delay	2.5		16.9	39.2	77.7				
Queue Delay	0.0		0.0	0.8	0.0				
Total Delay	2.5		16.9	40.0	77.7				
LOS	A		B	D	E				
Approach Delay	2.5			39.7	77.7				
Approach LOS	A			D	E				
Queue Length 50th (ft)	2		7	802	51				
Queue Length 95th (ft)	2		14	#1161	81				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	1703		196	1159	111				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	49	0				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.72		0.08	0.87	0.62				

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 138.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 20.8
 Intersection Capacity Utilization 73.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 521: Brown Ave S & E.10th St



Appendix E: Cost Estimate Details

APPENDIX E – Details of Preliminary Cost Estimates

LOCATION OF PROPOSED IMPROVEMENT	PRELIMINARY COST ESTIMATE
State Route 135 (South Willow Avenue) at Interstate 40 Eastbound	
Addition of Channelization Island at Southeast Corner of Intersection	\$35,000
Removal of Pedestrian Crossing at North Side of Intersection	\$15,000
Addition of Pedestrian Crossing at South Side of Intersection	\$25,000
LOCATION TOTAL	\$75,000
State Route 135 (South Willow Avenue) at Interstate 40 Westbound	
Removal of Pedestrian Crossing at South Side of Intersection	\$15,000
Addition of Pedestrian Crossing at North Side of Intersection	\$25,000
LOCATION TOTAL	\$40,000
State Route 135 (South Willow Avenue) at Interstate Drive / Foreman Drive	
Addition of Dual Southbound Left-Turn Lanes	\$260,000
LOCATION TOTAL	\$260,000
State Route 135 (South Willow Avenue) at West Jackson Street	
Addition of Dual Northbound Left-Turn Lanes	\$245,000
Addition of Westbound Right-Turn Lane	\$197,000
Modification of Driveway Access at Southwest Corner of Intersection	\$150,000
LOCATION TOTAL	\$592,000
State Route 135 (South Willow Avenue) at West Stevens Street	
Addition of Eastbound Left-Turn Lane	\$197,000
Signal Phasing Optimization	\$25,000
LOCATION TOTAL	\$222,000
State Route 24 (US Route 70N, West Spring Street) at State Route 135 (South Willow Avenue)	
Addition of Eastbound and Westbound Right-Turn Lanes	\$490,000
Modification of Driveway Access at Northeast Corner of Intersection	\$150,000
LOCATION TOTAL	\$640,000
State Route 135 (North Willow Avenue) from West Broad Street to West 12th Street	
Addition of EB and WB Right-Turn Lanes at West 3 rd Street, West 4 th Street, and West 9 th Street	\$1,182,000
Addition of Two-Way Left-Turn Lane from West Broad Street to West 12 th Street	\$35,800,000
LOCATION TOTAL	\$36,982,000
State Route 135 (North Willow Avenue) at State Route 290 (West 12th Street)	
Addition of Channelization Island at Northwest Corner of Intersection	\$35,000
Refurbishment of Pedestrian Crossing at West Side of Intersection	\$20,000
LOCATION TOTAL	\$55,000
State Route 136 (South Jefferson Avenue) at Interstate Drive / Neal Street	
Addition of Dual Westbound Left-Turn Lanes	\$197,000
Addition of Dual Northbound Left-Turn Lanes	\$244,000
LOCATION TOTAL	\$441,000
State Route 136 (South Jefferson Avenue) at South Walnut Avenue / Dubois Street	
Removal of Westbound Left-Turn Phase and Signal Phasing Optimization	\$35,000
LOCATION TOTAL	\$35,000
State Route 136 (South Jefferson Avenue) at Interstate 40 Westbound	
Implementation of Westbound No Right-Turn on Red	\$10,000
LOCATION TOTAL	\$10,000

LOCATION OF PROPOSED IMPROVEMENT	PRELIMINARY COST ESTIMATE
State Route 136 (South Jefferson Avenue) at Interstate 40 Eastbound	
Addition of Dual Eastbound Left-Turn Lanes	\$98,000
LOCATION TOTAL	\$98,000
State Route 136 (South Jefferson Avenue) at Bunker Hill Road	
Signal Timing and Coordination Improvements Study	\$50,000
LOCATION TOTAL	\$50,000
State Route 136 (South Jefferson Avenue) at Jackson Street	
Addition of Dual Northbound Left-Turn Lanes	\$245,000
LOCATION TOTAL	\$245,000
State Route 24 (US Route 70N, East Spring Street) at Interstate 40	
Signal Warrant Analysis for Two Intersections	\$30,000
LOCATION TOTAL	\$30,000
State Route 24 (US Route 70N, East Spring Street) at State Route 111 Northbound	
Addition of Dual Northbound Left-Turn Lanes	\$98,000
Widening of State Route 111 Northbound On-Ramp	\$248,000
LOCATION TOTAL	\$346,000
State Route 24 (US Route 70N, East Spring Street) at State Route 111 Southbound	
Signal Warrant Analysis for Intersection	\$15,000
LOCATION TOTAL	\$15,000
State Route 24 (US Route 70N, West Broad Street) at West Jackson Street	
Addition of Southbound Left-Turn Lane	\$172,000
Signal Phasing Optimization	\$25,000
LOCATION TOTAL	\$197,000
East 10th Street from State Route 136 (North Washington Avenue) to Chocolate Drive	
Widen Roadway from Three to Five Lanes	\$27,924,000
LOCATION TOTAL	\$27,924,000
East 10th Street at Fisk Road	
Addition of Southbound Left-Turn Lane	\$172,000
Addition of Northbound Left-Turn Lane	\$172,000
LOCATION TOTAL	\$354,000
East 10th Street at State Route 111 Northbound	
Addition of Northbound Right-Turn Lane	\$98,000
Implementation of Northbound No Right-Turn on Red	\$10,000
LOCATION TOTAL	\$108,000
GRAND TOTAL	\$68,719,000

Appendix F: 2040 Recommendations Synchro Reports

Lanes, Volumes, Timings
1: SR 135/S. Willow Ave & Gould Dr/Winston Dr

2040 Recommended AM Timing Plan
07/12/2017

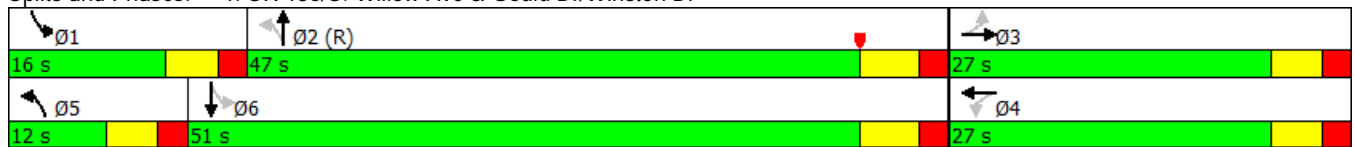
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Future Volume (vph)	65	20	30	30	10	100	35	770	25	80	355	135
Satd. Flow (prot)	1770	1788	0	1703	1651	0	1805	3416	0	1787	3216	0
Flt Permitted	0.630			0.706			0.424			0.224		
Satd. Flow (perm)	1174	1788	0	1265	1651	0	806	3416	0	421	3216	0
Satd. Flow (RTOR)		31			116			9			120	
Lane Group Flow (vph)	133	79	0	56	140	0	42	999	0	113	603	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		12.0	47.0		16.0	51.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	6.0		5.5	6.0	
Act Effct Green (s)	14.9	14.9		14.9	14.9		58.6	52.9		61.7	56.3	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.65	0.59		0.69	0.63	
v/c Ratio	0.69	0.25		0.27	0.38		0.07	0.50		0.28	0.29	
Control Delay	52.2	21.7		33.9	11.6		5.6	13.7		5.2	1.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	52.2	21.7		33.9	11.6		5.6	13.7		5.2	1.7	
LOS	D	C		C	B		A	B		A	A	
Approach Delay		40.8			17.9			13.3			2.3	
Approach LOS		D			B			B			A	
Queue Length 50th (ft)	72	24		28	12		6	169		4	4	
Queue Length 95th (ft)	60	18		33	0		17	243		11	9	
Internal Link Dist (ft)		927			612			1063			1812	
Turn Bay Length (ft)	200			150			200			200		
Base Capacity (vph)	280	450		302	482		600	2012		454	2061	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.47	0.18		0.19	0.29		0.07	0.50		0.25	0.29	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 54 (60%), Referenced to phase 2:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 12.8
 Intersection Capacity Utilization 51.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 1: SR 135/S. Willow Ave & Gould Dr/Winston Dr



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Future Volume (vph)	345	10	60	0	0	0	0	700	275	225	610	0
Satd. Flow (prot)	1649	1594	0	0	0	0	0	3397	0	1770	3539	0
Flt Permitted	0.950	0.971								0.091		
Satd. Flow (perm)	1649	1594	0	0	0	0	0	3397	0	170	3539	0
Satd. Flow (RTOR)		29						74				
Lane Group Flow (vph)	236	229	0	0	0	0	0	1305	0	281	663	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Total Split (s)	36.0	36.0						38.0		16.0	54.0	
Total Lost Time (s)	6.0	6.0						5.5		5.5	5.5	
Act Effct Green (s)	18.7	18.7						38.6		59.8	59.8	
Actuated g/C Ratio	0.21	0.21						0.43		0.66	0.66	
v/c Ratio	0.69	0.65						0.87		0.72	0.28	
Control Delay	42.9	36.2						32.8		25.4	6.2	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	42.9	36.2						32.8		25.4	6.2	
LOS	D	D						C		C	A	
Approach Delay		39.6						32.8			11.9	
Approach LOS		D						C			B	
Queue Length 50th (ft)	132	110						204		81	84	
Queue Length 95th (ft)	191	105						395		#176	127	
Internal Link Dist (ft)		409			271			1812			858	
Turn Bay Length (ft)	200									410		
Base Capacity (vph)	549	550						1499		392	2353	
Starvation Cap Reductn	0	0						0		0	0	
Spillback Cap Reductn	0	0						0		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.43	0.42						0.87		0.72	0.28	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.7

Intersection LOS: C

Intersection Capacity Utilization 66.4%

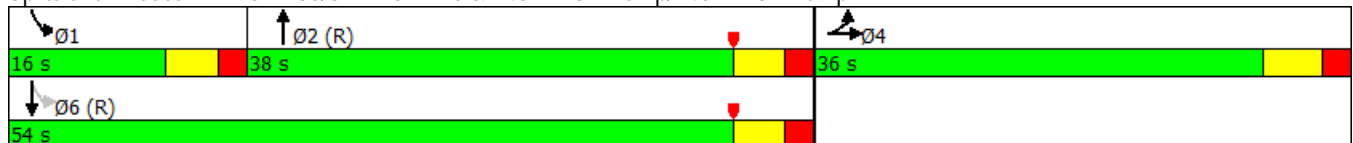
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 135/S. Willow Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Future Volume (vph)	0	0	0	265	10	370	55	980	0	0	580	175
Satd. Flow (prot)	0	0	0	0	1761	1583	1671	3539	0	0	3413	0
Flt Permitted					0.954		0.201					
Satd. Flow (perm)	0	0	0	0	1761	1583	354	3539	0	0	3413	0
Satd. Flow (RTOR)						97					53	
Lane Group Flow (vph)	0	0	0	0	315	435	71	1210	0	0	898	0
Turn Type				Split	NA	Perm	pm+pt	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4	2					
Total Split (s)				40.0	40.0	40.0	12.0	50.0			38.0	
Total Lost Time (s)					5.5	5.5	5.5	5.5			5.5	
Act Effct Green (s)					26.4	26.4	52.6	52.6			42.5	
Actuated g/C Ratio					0.29	0.29	0.58	0.58			0.47	
v/c Ratio					0.61	0.82	0.23	0.59			0.55	
Control Delay					31.4	34.7	3.8	6.2			14.0	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					31.4	34.7	3.8	6.2			14.0	
LOS					C	C	A	A			B	
Approach Delay					33.3			6.1			14.0	
Approach LOS					C			A			B	
Queue Length 50th (ft)					151	178	2	14			122	
Queue Length 95th (ft)					208	236	m14	298			168	
Internal Link Dist (ft)		874			1170			858			839	
Turn Bay Length (ft)						200	200					
Base Capacity (vph)					675	666	308	2066			1640	
Starvation Cap Reductn					0	0	0	0			0	
Spillback Cap Reductn					0	0	0	0			0	
Storage Cap Reductn					0	0	0	0			0	
Reduced v/c Ratio					0.47	0.65	0.23	0.59			0.55	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 73 (81%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.5

Intersection LOS: B

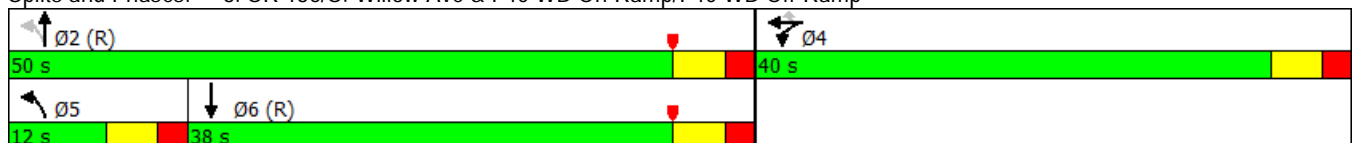
Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SR 135/S. Willow Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings
4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr

2040 Recommended AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Future Volume (vph)	75	165	85	210	75	180	70	950	295	205	495	30
Satd. Flow (prot)	1736	3288	0	1805	1900	1615	1703	3412	0	3400	3539	0
Flt Permitted	0.697			0.270			0.431			0.950		
Satd. Flow (perm)	1273	3288	0	513	1900	1615	773	3412	0	3400	3539	0
Satd. Flow (RTOR)		95				212		57			10	
Lane Group Flow (vph)	88	334	0	256	93	212	81	1448	0	228	558	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4		4	2					
Total Split (s)	12.0	15.0		17.0	20.0	20.0	12.0	45.0		13.0	46.0	
Total Lost Time (s)	5.5	6.5		5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Act Effct Green (s)	15.9	8.5		26.1	15.9	15.9	45.9	38.5		7.5	41.9	
Actuated g/C Ratio	0.18	0.09		0.29	0.18	0.18	0.51	0.43		0.08	0.47	
v/c Ratio	0.34	0.84		0.82	0.28	0.46	0.18	0.97		0.81	0.34	
Control Delay	28.4	48.9		48.9	36.5	8.8	5.9	35.0		63.0	16.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.4	48.9		48.9	36.5	8.8	5.9	35.0		63.0	16.4	
LOS	C	D		D	D	A	A	C		E	B	
Approach Delay		44.6			31.7			33.4			29.9	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	37	71		119	48	0	11	371		67	105	
Queue Length 95th (ft)	69	#96		#175	83	50	m18	#506		#126	145	
Internal Link Dist (ft)		811			944			839			2060	
Turn Bay Length (ft)	150			150			50			150		
Base Capacity (vph)	259	396		314	336	459	462	1492		283	1652	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.34	0.84		0.82	0.28	0.46	0.18	0.97		0.81	0.34	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 77 (86%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 33.7

Intersection LOS: C

Intersection Capacity Utilization 80.4%

ICU Level of Service D

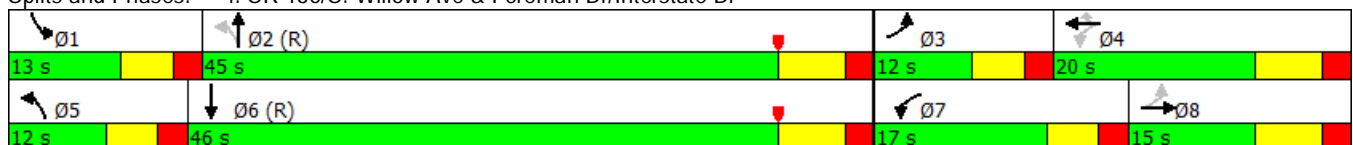
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: SR 135/S. Willow Ave & Foreman Dr/Interstate Dr














AM Peak
WSP

Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

2040 Recommended AM Timing Plan

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	65	975	80	55	730
Future Volume (vph)	20	65	975	80	55	730
Satd. Flow (prot)	1805	1583	3531	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3531	0	1752	3574
Lane Group Flow (vph)	29	76	1101	0	87	811
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.3












Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	20	65	975	80	55	730
Future Vol, veh/h	20	65	975	80	55	730
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	29	76	1005	96	87	811

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1633	551	0	0	1102	0
Stage 1	1053	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	94	478	-	-	623	-
Stage 1	301	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	478	-	-	623	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	455	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	17.3		0		1.1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	200	478	623	-
HCM Lane V/C Ratio	-	-	0.145	0.158	0.14	-
HCM Control Delay (s)	-	-	26	13.9	11.7	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.6	0.5	-

Lanes, Volumes, Timings
 6: SR 135/S. Willow Ave & Ashwood Dr

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	10	960	20	0	800
Future Volume (vph)	0	10	960	20	0	800
Satd. Flow (prot)	0	1644	3557	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1644	3557	0	0	3539
Lane Group Flow (vph)	0	13	1022	0	0	879
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 37.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 0.1














Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↕
Traffic Vol, veh/h	0	10	960	20	0	800
Future Vol, veh/h	0	10	960	20	0	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	75	97	63	25	91
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	13	990	32	0	879

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	495	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	525	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	525	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 525	-
HCM Lane V/C Ratio	- 0.025	-
HCM Control Delay (s)	- 12	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.1	-

Lanes, Volumes, Timings
 7: SR 135/S. Willow Ave & Lone Oak Dr

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	75	40	15	990	820	20
Future Volume (vph)	75	40	15	990	820	20
Satd. Flow (prot)	1736	1553	1805	3574	3559	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1805	3574	3559	0
Lane Group Flow (vph)	75	58	17	1000	918	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↘
Traffic Vol, veh/h	75	40	15	990	820	20
Future Vol, veh/h	75	40	15	990	820	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	30	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	69	88	99	92	75
Heavy Vehicles, %	4	4	0	1	1	2
Mvmt Flow	75	58	17	1000	891	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1439	459	918	0	-	0
Stage 1	905	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.2	-	-	-
Pot Cap-1 Maneuver	121	544	752	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	544	752	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	20.2		0.2		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	752	-	244	544	-	-
HCM Lane V/C Ratio	0.023	-	0.307	0.107	-	-
HCM Control Delay (s)	9.9	-	26.2	12.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	0.4	-	-

Lanes, Volumes, Timings
8: SR 135/S. Willow Ave & W. Jackson St

2040 Recommended AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Future Volume (vph)	85	390	300	120	190	115	195	700	120	135	540	25
Satd. Flow (prot)	1805	3574	1568	1787	3610	1615	3467	3460	0	1770	3548	0
Flt Permitted	0.621			0.271			0.950			0.174		
Satd. Flow (perm)	1180	3574	1568	510	3610	1615	3467	3460	0	324	3548	0
Satd. Flow (RTOR)			345				170		27		6	
Lane Group Flow (vph)	90	481	345	128	209	149	210	906	0	169	616	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4		4				6		
Total Split (s)	12.0	23.0	23.0	13.0	24.0	24.0	16.0	38.0		16.0	38.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.0		5.5	6.0	
Act Effct Green (s)	23.5	16.5	16.5	26.7	20.0	20.0	9.8	33.5		42.9	33.1	
Actuated g/C Ratio	0.26	0.18	0.18	0.30	0.22	0.22	0.11	0.37		0.48	0.37	
v/c Ratio	0.25	0.73	0.61	0.48	0.26	0.30	0.56	0.69		0.56	0.47	
Control Delay	22.8	41.8	8.8	27.9	30.7	5.5	44.0	27.1		28.3	13.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.8	41.8	8.8	27.9	30.7	5.5	44.0	27.1		28.3	13.8	
LOS	C	D	A	C	C	A	D	C		C	B	
Approach Delay		27.5			22.2			30.3			16.9	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	34	135	0	49	53	0	58	232		12	184	
Queue Length 95th (ft)	70	166	62	94	84	20	94	297		101	58	
Internal Link Dist (ft)		1238			1065			2054			612	
Turn Bay Length (ft)	225		175	150		150	150			150		
Base Capacity (vph)	358	694	582	267	801	491	404	1317		327	1326	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.25	0.69	0.59	0.48	0.26	0.30	0.52	0.69		0.52	0.46	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 7 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 25.1

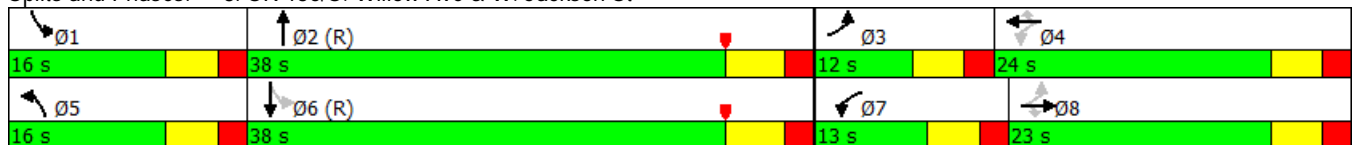
Intersection LOS: C

Intersection Capacity Utilization 66.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: SR 135/S. Willow Ave & W. Jackson St



Lanes, Volumes, Timings
 9: SR 135/S. Willow Ave & W. Stevens St

2040 Recommended AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Future Volume (vph)	50	125	20	35	60	40	20	840	40	60	675	15
Satd. Flow (prot)	1805	1851	0	1787	1785	0	1805	3551	0	1787	3561	0
Flt Permitted	0.615			0.568			0.348			0.221		
Satd. Flow (perm)	1168	1851	0	1069	1785	0	661	3551	0	416	3561	0
Satd. Flow (RTOR)		10			30			7			3	
Lane Group Flow (vph)	57	184	0	49	114	0	24	892	0	72	720	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	12.0	22.0		12.0	22.0		12.0	44.0		12.0	44.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	19.7	15.0		18.3	12.4		51.2	46.2		54.2	51.3	
Actuated g/C Ratio	0.22	0.17		0.20	0.14		0.57	0.51		0.60	0.57	
v/c Ratio	0.19	0.58		0.18	0.42		0.05	0.49		0.20	0.35	
Control Delay	23.9	40.4		23.9	30.0		17.4	31.7		19.1	25.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.9	40.4		23.9	30.0		17.4	31.7		19.1	25.1	
LOS	C	D		C	C		B	C		B	C	
Approach Delay		36.5			28.1			31.3			24.6	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	24	94		20	43		11	273		33	201	
Queue Length 95th (ft)	48	140		34	83		m21	347		m52	m273	
Internal Link Dist (ft)		761			793			608			1346	
Turn Bay Length (ft)	100			75			100			150		
Base Capacity (vph)	308	363		274	351		460	1854		354	2049	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.51		0.18	0.32		0.05	0.48		0.20	0.35	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 29.1

Intersection LOS: C

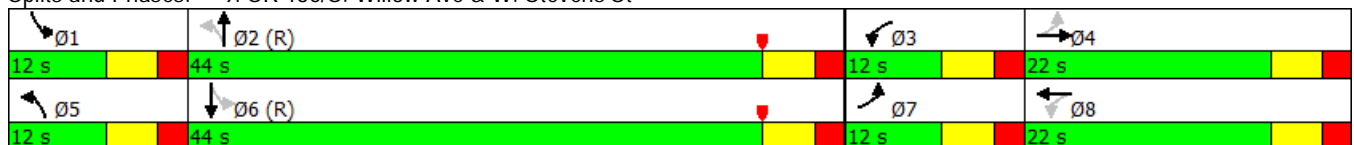
Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SR 135/S. Willow Ave & W. Stevens St



Lanes, Volumes, Timings
 10: SR 135/S. Willow Ave & US 70/W. Spring St

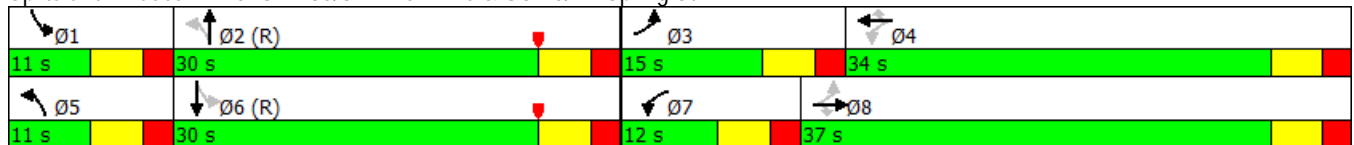
2040 Recommended AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Future Volume (vph)	165	505	120	150	305	90	85	715	100	85	625	25
Satd. Flow (prot)	1787	1863	1553	1805	1863	1599	1787	3511	0	1685	3317	0
Flt Permitted	0.266			0.142			0.240			0.153		
Satd. Flow (perm)	500	1863	1553	270	1863	1599	451	3511	0	271	3317	0
Satd. Flow (RTOR)			164			164		17			5	
Lane Group Flow (vph)	220	587	148	181	407	92	97	898	0	115	695	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4		4	2			6		
Total Split (s)	15.0	37.0	37.0	12.0	34.0	34.0	11.0	30.0		11.0	30.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	
Act Effct Green (s)	39.8	30.5	30.5	35.0	28.1	28.1	30.5	24.9		31.7	27.3	
Actuated g/C Ratio	0.44	0.34	0.34	0.39	0.31	0.31	0.34	0.28		0.35	0.30	
v/c Ratio	0.62	0.93	0.23	0.82	0.70	0.15	0.41	0.91		0.62	0.69	
Control Delay	22.6	52.0	3.8	46.9	34.7	0.8	28.9	43.7		35.6	35.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.6	52.0	3.8	46.9	34.7	0.8	28.9	43.7		35.6	35.9	
LOS	C	D	A	D	C	A	C	D		D	D	
Approach Delay		37.7			33.4			42.2			35.9	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	71	313	0	57	201	0	15	71		59	207	
Queue Length 95th (ft)	94	#473	22	#133	237	4	90	#351		92	273	
Internal Link Dist (ft)		2100			700			1346			1053	
Turn Bay Length (ft)	125		125	125		125	175			150		
Base Capacity (vph)	357	652	650	221	589	618	235	983		185	1010	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.62	0.90	0.23	0.82	0.69	0.15	0.41	0.91		0.62	0.69	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 84 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 37.7
 Intersection Capacity Utilization 80.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 135/S. Willow Ave & US 70/W. Spring St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Future Volume (vph)	165	175	55	35	90	25	55	815	40	60	680	60
Satd. Flow (prot)	1805	1819	0	1805	1841	0	1668	3331	0	1620	3286	0
Flt Permitted	0.446			0.595			0.240			0.188		
Satd. Flow (perm)	847	1819	0	1130	1841	0	421	3331	0	321	3286	0
Satd. Flow (RTOR)		20			13			7			14	
Lane Group Flow (vph)	174	263	0	43	149	0	67	929	0	60	811	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	17.0	29.0		13.0	25.0		12.0	36.0		12.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	28.4	21.4		19.8	13.0		45.6	40.0		45.4	39.8	
Actuated g/C Ratio	0.32	0.24		0.22	0.14		0.51	0.44		0.50	0.44	
v/c Ratio	0.46	0.59		0.14	0.54		0.22	0.63		0.23	0.55	
Control Delay	25.3	33.9		20.2	38.6		5.8	10.9		13.8	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.3	33.9		20.2	38.6		5.8	10.9		13.8	22.3	
LOS	C	C		C	D		A	B		B	C	
Approach Delay		30.5			34.5			10.5			21.7	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	73	131		17	73		5	39		15	183	
Queue Length 95th (ft)	m110	m198		31	99		m7	m300		40	275	
Internal Link Dist (ft)		1729			1357			1053			841	
Turn Bay Length (ft)	75						150			50		
Base Capacity (vph)	390	498		313	409		310	1482		261	1462	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.53		0.14	0.36		0.22	0.63		0.23	0.55	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 19.8

Intersection LOS: B

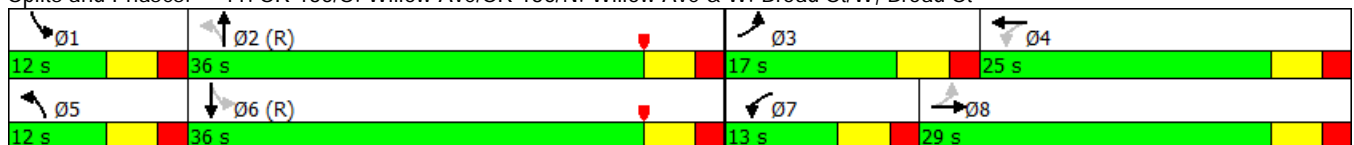
Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15





















m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: SR 135/S. Willow Ave/SR 135/N. Willow Ave & W. Broad St/W, Broad St



Lanes, Volumes, Timings
 12: SR 135/N. Willow Ave & W. 3rd St

2040 Recommended AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Future Volume (vph)	10	10	10	10	10	10	10	895	60	25	805	10
Satd. Flow (prot)	0	1854	1615	0	1860	1615	1805	3329	0	1805	3330	0
Flt Permitted		0.976			0.979		0.950			0.950		
Satd. Flow (perm)	0	1854	1615	0	1860	1615	1805	3329	0	1805	3330	0
Lane Group Flow (vph)	0	32	11	0	28	16	13	1022	0	30	899	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 43.3%

Analysis Period (min) 15

ICU Level of Service A

Intersection

Int Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔↔		↔	↔↔	
Traffic Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Future Vol, veh/h	10	10	10	10	10	10	10	895	60	25	805	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	100	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	94	83	63	63	75	95	75	83	91	71
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	16	16	11	12	16	16	13	942	80	30	885	14





















Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1458	2001	449	1519	1968	511	899	0	0	1022	0	0
Stage 1	952	952	-	1009	1009	-	-	-	-	-	-	-
Stage 2	506	1049	-	510	959	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	92	61	563	83	63	513	764	-	-	687	-	-
Stage 1	283	341	-	261	320	-	-	-	-	-	-	-
Stage 2	522	307	-	519	338	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	68	57	563	61	59	513	764	-	-	687	-	-
Mov Cap-2 Maneuver	68	57	-	61	59	-	-	-	-	-	-	-
Stage 1	278	326	-	257	315	-	-	-	-	-	-	-
Stage 2	472	302	-	463	323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	87.4	74	0.1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	764	-	-	62	563	60	513	687	-	-
HCM Lane V/C Ratio	0.017	-	-	0.512	0.019	0.465	0.031	0.044	-	-
HCM Control Delay (s)	9.8	-	-	112.8	11.5	109.1	12.2	10.5	-	-
HCM Lane LOS	A	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2	0.1	1.8	0.1	0.1	-	-

Lanes, Volumes, Timings
 13: SR 135/N. Willow Ave & W. 4th St

2040 Recommended AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Future Volume (vph)	10	15	20	20	10	15	15	780	110	40	800	15
Satd. Flow (prot)	0	1852	1615	0	1832	1553	1805	3282	0	1805	3323	0
Flt Permitted		0.975			0.964		0.950			0.950		
Satd. Flow (perm)	0	1852	1615	0	1832	1553	1805	3282	0	1805	3323	0
Lane Group Flow (vph)	0	31	28	0	38	19	24	994	0	80	923	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 46.7%

Analysis Period (min) 15

ICU Level of Service A

Intersection

Int Delay, s/veh 6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔↔		↔	↔↔	
Traffic Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Future Vol, veh/h	10	15	20	20	10	15	15	780	110	40	800	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	100	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	100	71	71	100	78	63	93	71	50	89	63
Heavy Vehicles, %	0	0	0	0	0	4	0	0	2	0	1	0
Mvmt Flow	16	15	28	28	10	19	24	839	155	80	899	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1543	2112	461	1581	2047	497	923	0	0	994	0	0
Stage 1	1071	1071	-	964	964	-	-	-	-	-	-	-
Stage 2	472	1041	-	617	1083	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	80	52	553	75	57	513	748	-	-	704	-	-
Stage 1	239	300	-	278	336	-	-	-	-	-	-	-
Stage 2	547	310	-	449	296	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	58	45	553	47	49	513	748	-	-	704	-	-
Mov Cap-2 Maneuver	58	45	-	47	49	-	-	-	-	-	-	-
Stage 1	231	266	-	269	325	-	-	-	-	-	-	-
Stage 2	494	300	-	356	262	-	-	-	-	-	-	-






















Approach	EB	WB	NB	SB
HCM Control Delay, s	84.9	139.8	0.2	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	51	553	48	513	704	-	-
HCM Lane V/C Ratio	0.032	-	-	0.605	0.051	0.795	0.037	0.114	-	-
HCM Control Delay (s)	10	-	-	151.5	11.9	204.1	12.3	10.8	-	-
HCM Lane LOS	A	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0.2	3.2	0.1	0.4	-	-

Lanes, Volumes, Timings
14: SR 135/N. Willow Ave & W. 7th St

2040 Recommended AM Timing Plan

07/12/2017

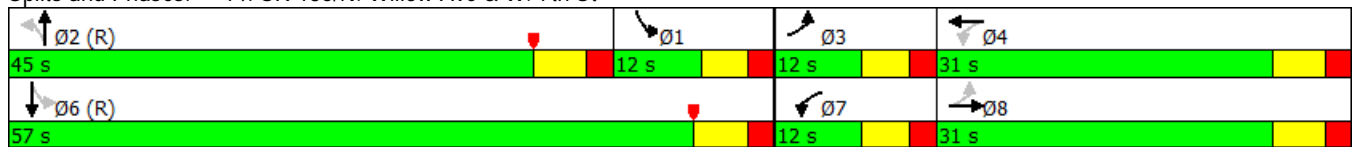
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Future Volume (vph)	60	205	50	100	40	55	10	500	215	100	725	20
Satd. Flow (prot)	1770	1773	0	1805	1720	0	1805	3201	0	1805	3280	0
Flt Permitted	0.685			0.243			0.234			0.255		
Satd. Flow (perm)	1276	1773	0	462	1720	0	445	3201	0	484	3280	0
Satd. Flow (RTOR)		17			68			101			6	
Lane Group Flow (vph)	72	341	0	116	112	0	16	780	0	128	856	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8		7	4			2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	12.0	31.0		12.0	31.0		45.0	45.0		12.0	57.0	
Total Lost Time (s)	5.5	6.0		5.5	6.0		6.0	6.0		5.5	6.0	
Act Effct Green (s)	30.9	22.5		35.5	26.6		38.8	38.8		50.8	50.3	
Actuated g/C Ratio	0.31	0.22		0.36	0.27		0.39	0.39		0.51	0.50	
v/c Ratio	0.17	0.83		0.39	0.22		0.09	0.60		0.40	0.52	
Control Delay	19.6	52.4		23.4	14.1		23.8	24.2		24.0	19.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.6	52.4		23.4	14.1		23.8	24.2		24.0	19.7	
LOS	B	D		C	B		C	C		C	B	
Approach Delay		46.7			18.8			24.2			20.3	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	28	195		46	21		7	186		38	147	
Queue Length 95th (ft)	52	255		80	65		15	250		71	216	
Internal Link Dist (ft)		675			1002			1211			498	
Turn Bay Length (ft)	25			75			150			150		
Base Capacity (vph)	434	462		295	515		183	1377		333	1739	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.74		0.39	0.22		0.09	0.57		0.38	0.49	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 49 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 25.9
 Intersection Capacity Utilization 68.0%
 Analysis Period (min) 15






















Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 14: SR 135/N. Willow Ave & W. 7th St



Lanes, Volumes, Timings
 15: SR 135/N. Willow Ave & W. 9th St

2040 Recommended AM Timing Plan
 07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	30	85	5	10	5	30	560	10	20	805	65
Future Volume (vph)	60	30	85	5	10	5	30	560	10	20	805	65
Satd. Flow (prot)	0	1835	1538	0	1870	1615	1805	3356	0	1643	3158	0
Flt Permitted		0.966			0.984		0.950			0.950		
Satd. Flow (perm)	0	1835	1538	0	1870	1615	1805	3356	0	1643	3158	0
Lane Group Flow (vph)	0	105	100	0	15	8	40	618	0	18	1009	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 44.1%

Analysis Period (min) 15

ICU Level of Service A

Intersection

Int Delay, s/veh 15.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔↔		↔	↔↔	
Traffic Vol, veh/h	60	30	85	5	10	5	30	560	10	20	805	65
Future Vol, veh/h	60	30	85	5	10	5	30	560	10	20	805	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	100	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	100	85	100	100	63	75	93	63	100	86	92
Heavy Vehicles, %	0	0	5	0	0	0	0	0	0	0	1	2
Mvmt Flow	75	30	100	5	10	8	40	602	16	20	936	71

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1397	1709	503	1213	1737	309	1007	0	0	618	0	0
Stage 1	1011	1011	-	690	690	-	-	-	-	-	-	-
Stage 2	386	698	-	523	1047	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.35	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	102	92	506	140	88	693	696	-	-	972	-	-
Stage 1	260	320	-	406	449	-	-	-	-	-	-	-
Stage 2	614	445	-	510	308	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	86	85	506	77	81	693	696	-	-	972	-	-
Mov Cap-2 Maneuver	86	85	-	77	81	-	-	-	-	-	-	-
Stage 1	245	313	-	383	423	-	-	-	-	-	-	-
Stage 2	559	419	-	362	302	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	138	42.9	0.6	0.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	696	-	-	86	506	80	693	972	-	-
HCM Lane V/C Ratio	0.057	-	-	1.221	0.198	0.188	0.011	0.021	-	-
HCM Control Delay (s)	10.5	-	-	256.2	13.9	60.1	10.3	8.8	0.1	-
HCM Lane LOS	B	-	-	F	B	F	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	7.6	0.7	0.6	0	0.1	-	-

Lanes, Volumes, Timings
16: SR 135/N. Willow Ave & University Dr

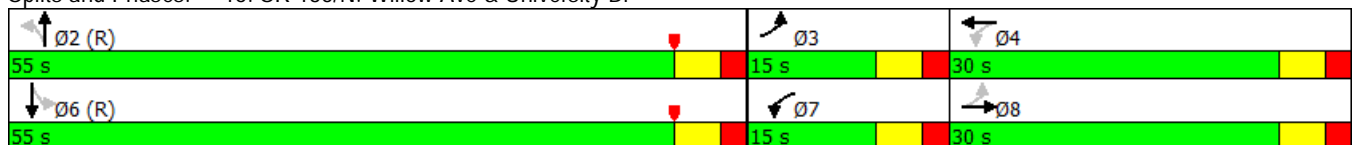
2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Future Volume (vph)	20	50	15	35	55	15	20	440	165	75	830	25
Satd. Flow (prot)	1736	1692	0	1787	1658	0	1805	3235	0	0	3301	0
Flt Permitted	0.678			0.551			0.229				0.763	
Satd. Flow (perm)	1239	1692	0	1037	1658	0	435	3235	0	0	2534	0
Satd. Flow (RTOR)		14			12			73			6	
Lane Group Flow (vph)	26	72	0	53	123	0	20	660	0	0	1051	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			2			6	
Permitted Phases	8			4			2			6		
Total Split (s)	15.0	30.0		15.0	30.0		55.0	55.0		55.0	55.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	15.9	10.3		19.7	16.1		67.6	67.6		67.6	67.6	
Actuated g/C Ratio	0.16	0.10		0.20	0.16		0.68	0.68		0.68	0.68	
v/c Ratio	0.11	0.39		0.20	0.44		0.07	0.30		0.61	0.61	
Control Delay	28.4	39.2		29.8	39.0		5.7	4.2		7.6	7.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.4	39.2		29.8	39.0		5.7	4.2		7.6	7.6	
LOS	C	D		C	D		A	A		A	A	
Approach Delay		36.3			36.2			4.2			7.6	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	13	36		27	59		2	35			65	
Queue Length 95th (ft)	27	73		38	68		m7	66			m283	
Internal Link Dist (ft)		789			874			862			1102	
Turn Bay Length (ft)	100			100			150					
Base Capacity (vph)	275	425		282	415		294	2210			1714	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.09	0.17		0.19	0.30		0.07	0.30		0.61	0.61	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 64 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 65.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: SR 135/N. Willow Ave & University Dr



Lanes, Volumes, Timings
17: SR 135/N. Willow Ave & W. 12th St

2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Future Volume (vph)	115	505	335	250	170	40	70	195	215	165	435	55
Satd. Flow (prot)	1752	1845	1615	1770	3478	0	1685	3063	0	1668	3312	0
Flt Permitted	0.604			0.112			0.450			0.227		
Satd. Flow (perm)	1114	1845	1615	209	3478	0	798	3063	0	399	3312	0
Satd. Flow (RTOR)			288		34			236			13	
Lane Group Flow (vph)	129	587	368	272	237	0	73	437	0	239	541	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Total Split (s)	16.0	43.0	43.0	18.0	45.0		12.0	20.0		19.0	27.0	
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0		5.5	6.5		5.5	6.5	
Act Effct Green (s)	44.5	35.1	35.1	52.0	38.9		23.0	15.5		35.3	24.5	
Actuated g/C Ratio	0.44	0.35	0.35	0.52	0.39		0.23	0.16		0.35	0.24	
v/c Ratio	0.23	0.91	0.49	0.89	0.17		0.30	0.65		0.77	0.66	
Control Delay	12.6	50.0	8.1	54.1	17.2		23.1	23.5		44.2	39.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.6	50.0	8.1	54.1	17.2		23.1	23.5		44.2	39.4	
LOS	B	D	A	D	B		C	C		D	D	
Approach Delay		31.3			36.9			23.4			40.9	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	37	341	33	112	42		34	88		117	168	
Queue Length 95th (ft)	65	#492	105	#265	68		46	137		135	#233	
Internal Link Dist (ft)		1178			1081			1102			1094	
Turn Bay Length (ft)	100			220			100			220		
Base Capacity (vph)	580	682	778	307	1404		243	678		315	823	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.86	0.47	0.89	0.17		0.30	0.64		0.76	0.66	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 99 (99%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 33.5
 Intersection Capacity Utilization 81.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 135/N. Willow Ave & W. 12th St



Lanes, Volumes, Timings
 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr

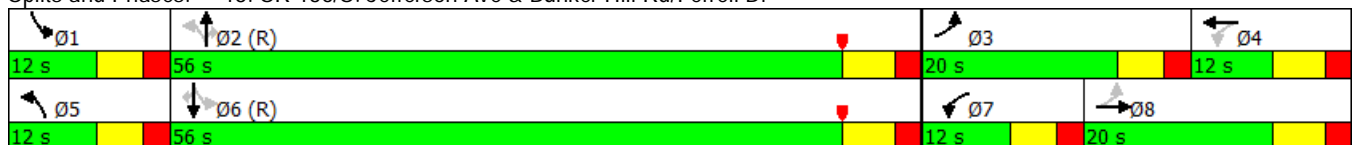
2040 Recommended AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Future Volume (vph)	185	10	15	10	0	40	20	1170	10	25	735	120
Satd. Flow (prot)	1736	1061	0	1805	1615	0	1805	3539	1615	1687	3505	1599
Flt Permitted	0.400			0.720			0.282			0.099		
Satd. Flow (perm)	731	1061	0	1368	1615	0	536	3539	1615	176	3505	1599
Satd. Flow (RTOR)		16			213				213			213
Lane Group Flow (vph)	195	56	0	16	58	0	32	1427	10	25	817	152
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		6
Total Split (s)	20.0	20.0		12.0	12.0		12.0	56.0	56.0	12.0	56.0	56.0
Total Lost Time (s)	5.5	6.0		5.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Act Effct Green (s)	22.4	17.1		11.4	6.0		64.4	61.3	61.3	63.2	58.9	58.9
Actuated g/C Ratio	0.22	0.17		0.11	0.06		0.64	0.61	0.61	0.63	0.59	0.59
v/c Ratio	0.67	0.29		0.09	0.20		0.08	0.66	0.01	0.12	0.40	0.15
Control Delay	44.3	32.6		29.5	1.5		7.6	16.9	0.0	7.0	8.8	1.1
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.4	0.0	0.0	0.2	0.0
Total Delay	44.3	32.6		29.5	1.5		7.6	17.3	0.0	7.0	8.9	1.1
LOS	D	C		C	A		A	B	A	A	A	A
Approach Delay		41.7			7.6			17.0			7.7	
Approach LOS		D			A			B			A	
Queue Length 50th (ft)	104	20		8	0		7	273	0	2	40	0
Queue Length 95th (ft)	170	10		17	0		12	407	0	m12	173	3
Internal Link Dist (ft)		573			734			200			263	
Turn Bay Length (ft)	200			25			175		150	100		50
Base Capacity (vph)	316	205		188	297		427	2168	1072	209	2065	1030
Starvation Cap Reductn	0	0		0	0		0	0	0	0	472	0
Spillback Cap Reductn	0	0		0	17		0	285	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.27		0.09	0.21		0.07	0.76	0.01	0.12	0.51	0.15

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 81 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 15.6
 Intersection Capacity Utilization 59.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SR 136/S. Jefferson Ave & Bunker Hill Rd/Ferrell Dr



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Future Volume (vph)	380	0	190	0	0	0	0	1240	130	130	690	0
Satd. Flow (prot)	3367	0	1538	0	0	0	0	3574	1599	1787	3539	0
Flt Permitted	0.950									0.072		
Satd. Flow (perm)	3367	0	1538	0	0	0	0	3574	1599	135	3539	0
Satd. Flow (RTOR)			232						163			
Lane Group Flow (vph)	432	0	232	0	0	0	0	1442	163	157	758	0
Turn Type	Prot		Perm					NA	Perm	pm+pt	NA	
Protected Phases	4							2		1	6	
Permitted Phases			4						2	6		
Total Split (s)	24.0		24.0					57.6	57.6	18.4	76.0	
Total Lost Time (s)	6.0		6.0					5.5	5.5	5.5	5.5	
Act Effct Green (s)	16.7		16.7					52.1	52.1	71.8	71.8	
Actuated g/C Ratio	0.17		0.17					0.52	0.52	0.72	0.72	
v/c Ratio	0.77		0.52					0.77	0.18	0.47	0.30	
Control Delay	49.7		9.4					15.7	1.2	33.0	0.4	
Queue Delay	0.0		0.0					1.5	0.0	0.0	0.0	
Total Delay	49.7		9.4					17.2	1.2	33.0	0.4	
LOS	D		A					B	A	C	A	
Approach Delay		35.6						15.6			6.0	
Approach LOS		D						B			A	
Queue Length 50th (ft)	135		0					428	13	58	2	
Queue Length 95th (ft)	182		45					109	0	97	2	
Internal Link Dist (ft)		458			312			263			407	
Turn Bay Length (ft)			200							250		
Base Capacity (vph)	606		467					1862	911	332	2542	
Starvation Cap Reductn	0		0					239	0	0	0	
Spillback Cap Reductn	0		0					35	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.71		0.50					0.89	0.18	0.47	0.30	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 82 (82%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.0

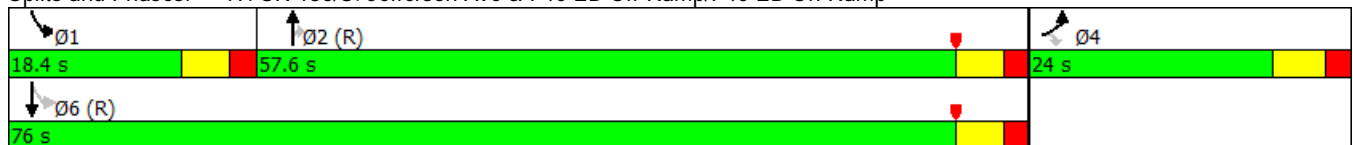
Intersection LOS: B

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 19: SR 136/S. Jefferson Ave & I-40 EB Off-Ramp/I-40 EB On-Ramp



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Future Volume (vph)	0	0	0	155	0	450	115	1505	0	0	670	160
Satd. Flow (prot)	0	0	0	1656	0	2707	1719	3574	0	0	3574	1599
Flt Permitted				0.950			0.252					
Satd. Flow (perm)	0	0	0	1656	0	2707	456	3574	0	0	3574	1599
Satd. Flow (RTOR)							87					176
Lane Group Flow (vph)	0	0	0	174	0	549	134	1601	0	0	713	176
Turn Type				Prot		Perm	pm+pt	NA			NA	Perm
Protected Phases				8			5	2			6	
Permitted Phases						8	2	5				6
Total Split (s)				32.0		32.0	18.0	68.0			50.0	50.0
Total Lost Time (s)				6.0		6.0	5.5	5.5			5.5	5.5
Act Effct Green (s)				22.1		22.1	66.4	66.4			31.5	31.5
Actuated g/C Ratio				0.22		0.22	0.66	0.66			0.32	0.32
v/c Ratio				0.48		0.82	0.20	0.68			0.63	0.28
Control Delay				37.6		41.7	8.1	9.1			26.4	5.6
Queue Delay				0.0		51.4	0.0	0.4			0.4	0.3
Total Delay				37.6		93.1	8.1	9.6			26.8	5.9
LOS				D		F	A	A			C	A
Approach Delay					79.7			9.5			22.6	
Approach LOS					E			A			C	
Queue Length 50th (ft)				96		160	21	135			236	0
Queue Length 95th (ft)				153		191	m28	151			160	20
Internal Link Dist (ft)		382			483			407			133	
Turn Bay Length (ft)				275		275	250					
Base Capacity (vph)				430		768	672	2371			1590	809
Starvation Cap Reductn				0		0	0	314			401	271
Spillback Cap Reductn				0		267	0	114			0	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.40		1.10	0.20	0.78			0.60	0.33

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 77 (77%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 28.2

Intersection LOS: C

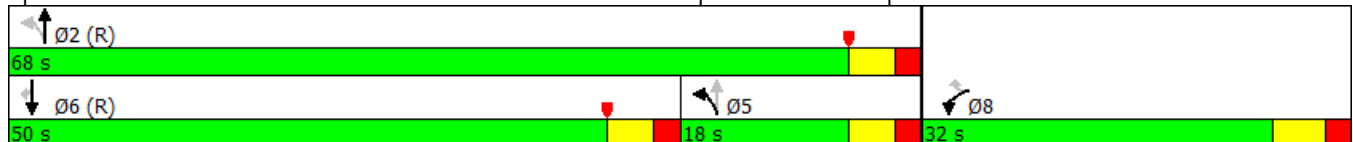
Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SR 136/S. Jefferson Ave & I-40 WB On-Ramp/I-40 WB Off-Ramp



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	15	210	0	10	10	295	1605	55	15	620	80
Future Volume (vph)	60	15	210	0	10	10	295	1605	55	15	620	80
Satd. Flow (prot)	0	1797	1599	0	1776	0	1787	3539	1568	1805	5057	0
Flt Permitted		0.961					0.282			0.085		
Satd. Flow (perm)	0	1797	1599	0	1776	0	530	3539	1568	162	5057	0
Satd. Flow (RTOR)			244		13				147		32	
Lane Group Flow (vph)	0	103	244	0	27	0	335	1707	59	36	774	0
Turn Type	Split	NA	Perm		NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases			3				2		2	6		
Total Split (s)	18.0	18.0	18.0		18.0		26.0	48.0	48.0	16.0	38.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)		12.2	12.2		12.0		68.9	60.5	60.5	60.5	50.5	
Actuated g/C Ratio		0.12	0.12		0.12		0.69	0.60	0.60	0.60	0.50	
v/c Ratio		0.47	0.60		0.12		0.62	0.80	0.06	0.14	0.30	
Control Delay		48.6	12.0		27.4		10.8	16.7	0.1	14.7	26.3	
Queue Delay		0.0	1.1		0.0		0.3	2.3	0.0	0.0	0.0	
Total Delay		48.6	13.1		27.4		11.1	19.0	0.1	14.7	26.3	
LOS		D	B		C		B	B	A	B	C	
Approach Delay		23.7			27.4			17.2			25.8	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)		62	0		8		9	164	0	9	140	
Queue Length 95th (ft)		94	59		25		131	#801	m0	14	219	
Internal Link Dist (ft)		530			587			133			582	
Turn Bay Length (ft)			100				50			100		
Base Capacity (vph)		224	413		233		628	2141	1006	271	2571	
Starvation Cap Reductn		0	0		0		49	294	0	0	0	
Spillback Cap Reductn		0	50		0		0	0	0	0	150	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.46	0.67		0.12		0.58	0.92	0.06	0.13	0.32	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 85 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 77.2%

ICU Level of Service D

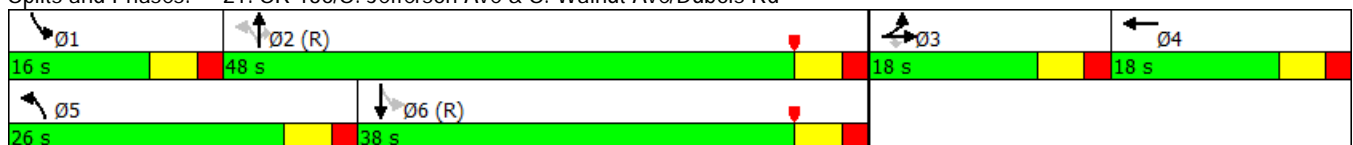
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: SR 136/S. Jefferson Ave & S. Walnut Ave/Dubois Rd



Lanes, Volumes, Timings
22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St

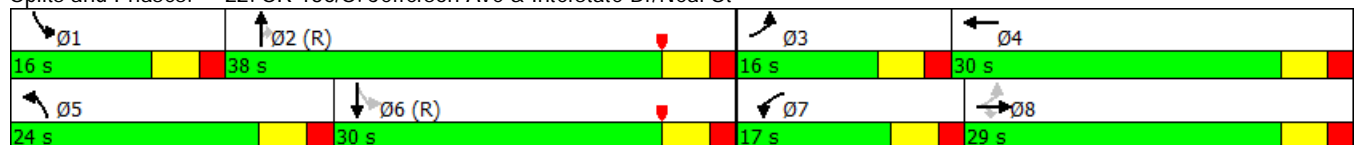
2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	280	140	225	295	80	225	930	420	65	335	105
Future Volume (vph)	145	280	140	225	295	80	225	930	420	65	335	105
Satd. Flow (prot)	1770	1845	1599	3502	3502	0	3433	3539	1615	1805	3454	0
Flt Permitted	0.367			0.950			0.950			0.181		
Satd. Flow (perm)	684	1845	1599	3502	3502	0	3433	3539	1615	344	3454	0
Satd. Flow (RTOR)			207		29				447		41	
Lane Group Flow (vph)	165	286	147	234	429	0	281	969	447	76	451	0
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8						2	6		
Total Split (s)	16.0	29.0	29.0	17.0	30.0		24.0	38.0	38.0	16.0	30.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	30.2	19.8	19.8	11.0	20.4		13.5	40.3	40.3	43.7	33.7	
Actuated g/C Ratio	0.30	0.20	0.20	0.11	0.20		0.14	0.40	0.40	0.44	0.34	
v/c Ratio	0.52	0.78	0.30	0.61	0.58		0.61	0.68	0.49	0.26	0.38	
Control Delay	27.7	53.0	3.0	49.5	36.1		52.0	13.0	3.7	11.1	23.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	27.7	53.0	3.0	49.5	36.1		52.0	13.0	3.7	11.1	23.8	
LOS	C	D	A	D	D		D	B	A	B	C	
Approach Delay		33.7			40.8			17.0			22.0	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	71	173	0	74	120		74	268	81	8	134	
Queue Length 95th (ft)	112	257	16	113	154		m93	216	m48	m19	188	
Internal Link Dist (ft)		1125			846			582			1693	
Turn Bay Length (ft)	175			125			125			125		
Base Capacity (vph)	321	433	534	402	879		635	1424	917	305	1191	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.51	0.66	0.28	0.58	0.49		0.44	0.68	0.49	0.25	0.38	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 25.2
 Intersection Capacity Utilization 75.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: SR 136/S. Jefferson Ave & Interstate Dr/Neal St



Lanes, Volumes, Timings
23: SR 136/S. Jefferson Ave & E. Veterans Dr

2040 Recommended AM Timing Plan

07/12/2017

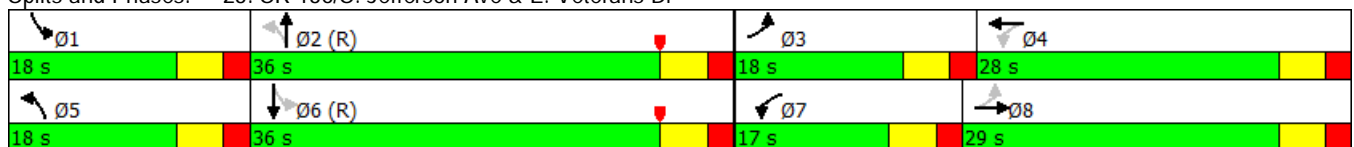
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Future Volume (vph)	40	185	55	60	180	140	45	945	75	65	420	30
Satd. Flow (prot)	1805	1820	0	1752	1724	0	1805	3538	0	1752	3563	0
Flt Permitted	0.202			0.335			0.448			0.105		
Satd. Flow (perm)	384	1820	0	618	1724	0	851	3538	0	194	3563	0
Satd. Flow (RTOR)		14			40			9			11	
Lane Group Flow (vph)	48	291	0	65	406	0	47	1087	0	75	481	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	18.0	29.0		17.0	28.0		18.0	36.0		18.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	32.3	22.7		32.0	25.4		48.7	39.1		49.8	42.6	
Actuated g/C Ratio	0.32	0.23		0.32	0.25		0.49	0.39		0.50	0.43	
v/c Ratio	0.16	0.69		0.20	0.87		0.09	0.78		0.27	0.32	
Control Delay	20.2	42.9		20.9	53.3		6.9	19.5		22.6	23.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	42.9		20.9	53.3		6.9	19.5		22.6	23.0	
LOS	C	D		C	D		A	B		C	C	
Approach Delay		39.7			48.8			19.0			23.0	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	18	160		25	234		7	381		15	155	
Queue Length 95th (ft)	38	225		53	#365		m11	#480		54	166	
Internal Link Dist (ft)		1014			884			1693			283	
Turn Bay Length (ft)	150			150			150			125		
Base Capacity (vph)	303	445		330	467		537	1388		292	1524	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.65		0.20	0.87		0.09	0.78		0.26	0.32	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 28.3
 Intersection Capacity Utilization 84.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: SR 136/S. Jefferson Ave & E. Veterans Dr



Lanes, Volumes, Timings
24: SR 136/S. Jefferson Ave & Walmart Driveway

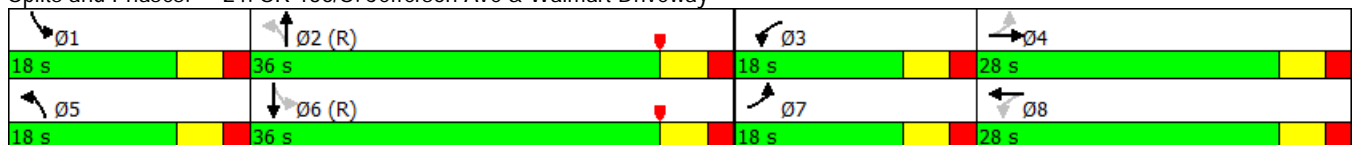
2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Future Volume (vph)	0	0	0	35	0	15	10	1055	50	30	475	10
Satd. Flow (prot)	1900	1900	0	1805	1615	0	1805	3546	0	1787	3452	0
Flt Permitted				0.950			0.466			0.202		
Satd. Flow (perm)	1900	1900	0	1805	1615	0	885	3546	0	380	3452	0
Satd. Flow (RTOR)					496			5			4	
Lane Group Flow (vph)	0	0	0	42	16	0	10	1129	0	33	505	0
Turn Type	pm+pt			pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	18.0	28.0		18.0	28.0		18.0	36.0		18.0	36.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)				12.0	12.0		80.7	75.7		82.9	82.7	
Actuated g/C Ratio				0.12	0.12		0.81	0.76		0.83	0.83	
v/c Ratio				0.19	0.03		0.01	0.42		0.07	0.18	
Control Delay				42.2	0.1		0.6	2.2		1.0	1.0	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				42.2	0.1		0.6	2.3		1.0	1.0	
LOS				D	A		A	A		A	A	
Approach Delay					30.6			2.2			1.0	
Approach LOS					C			A			A	
Queue Length 50th (ft)				25	0		0	64		0	3	
Queue Length 95th (ft)				53	0		m0	m74		4	0	
Internal Link Dist (ft)		175			382			47			1774	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)				225	747		832	2685		491	2855	
Starvation Cap Reductn				0	0		0	180		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.19	0.02		0.01	0.45		0.07	0.18	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 52 (52%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 2.8
 Intersection Capacity Utilization 49.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SR 136/S. Jefferson Ave & Walmart Driveway



Lanes, Volumes, Timings
25: SR 136/S. Jefferson Ave & Commerce Ave

2040 Recommended AM Timing Plan

07/12/2017

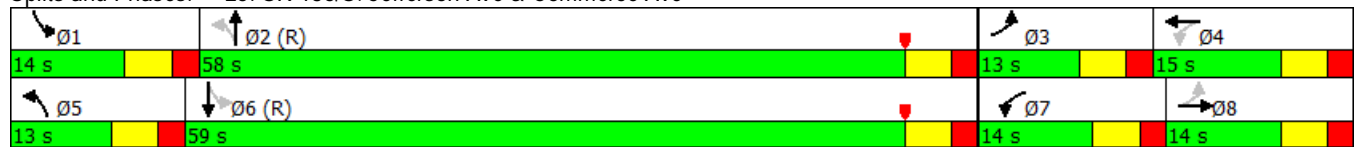
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Future Volume (vph)	10	10	10	20	10	20	20	960	75	30	555	15
Satd. Flow (prot)	1805	1773	0	1752	1676	0	3502	3556	0	1719	3596	0
Flt Permitted	0.726			0.546			0.384			0.206		
Satd. Flow (perm)	1379	1773	0	1007	1676	0	1415	3556	0	373	3596	0
Satd. Flow (RTOR)		13			32			17			4	
Lane Group Flow (vph)	15	29	0	43	48	0	27	1096	0	48	655	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Total Split (s)	13.0	14.0		14.0	15.0		13.0	58.0		14.0	59.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	10.9	6.8		14.1	10.4		72.1	69.6		73.2	70.1	
Actuated g/C Ratio	0.11	0.07		0.14	0.10		0.72	0.70		0.73	0.70	
v/c Ratio	0.08	0.22		0.21	0.24		0.02	0.44		0.13	0.26	
Control Delay	32.4	33.1		35.4	23.1		1.1	3.0		6.4	7.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.4	33.1		35.4	23.1		1.1	3.0		6.4	7.9	
LOS	C	C		D	C		A	A		A	A	
Approach Delay		32.9			28.9			3.0			7.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	8	10		23	8		0	22		10	90	
Queue Length 95th (ft)	18	24		25	24		0	92		10	65	
Internal Link Dist (ft)		193			738			1774			1034	
Turn Bay Length (ft)				100			150			125		
Base Capacity (vph)	196	162		216	226		1189	2483		390	2522	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.18		0.20	0.21		0.02	0.44		0.12	0.26	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 13 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.44
 Intersection Signal Delay: 6.6
 Intersection Capacity Utilization 45.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 25: SR 136/S. Jefferson Ave & Commerce Ave



Lanes, Volumes, Timings
26: SR 136/S. Jefferson Ave & E. Jackson St

2040 Recommended AM Timing Plan

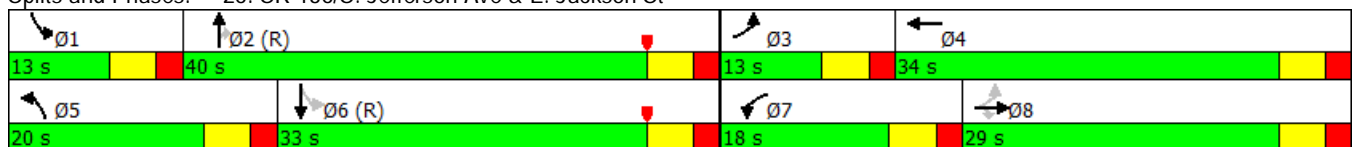
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Future Volume (vph)	40	150	230	160	100	10	185	520	225	15	295	20
Satd. Flow (prot)	1787	1863	1599	3502	1857	0	3502	3610	1599	1685	3339	0
Flt Permitted	0.671			0.950			0.950			0.423		
Satd. Flow (perm)	1262	1863	1599	3502	1857	0	3502	3610	1599	750	3339	0
Satd. Flow (RTOR)			264		5				288		7	
Lane Group Flow (vph)	49	160	264	176	135	0	210	605	288	22	357	0
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8						2	6		
Total Split (s)	13.0	29.0	29.0	18.0	34.0		20.0	40.0	40.0	13.0	33.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	21.3	14.2	14.2	10.2	19.7		11.3	54.1	54.1	48.6	42.3	
Actuated g/C Ratio	0.21	0.14	0.14	0.10	0.20		0.11	0.54	0.54	0.49	0.42	
v/c Ratio	0.16	0.61	0.58	0.49	0.36		0.53	0.31	0.29	0.05	0.25	
Control Delay	24.5	49.2	10.1	47.0	36.1		32.9	21.4	11.7	26.9	44.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	24.5	49.2	10.1	47.0	36.1		32.9	21.4	11.7	26.9	44.2	
LOS	C	D	B	D	D		C	C	B	C	D	
Approach Delay		24.8			42.2			21.0			43.2	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	22	97	0	55	75		54	128	49	12	120	
Queue Length 95th (ft)	40	154	58	87	108		105	255	146	27	164	
Internal Link Dist (ft)		578			301			1034			1031	
Turn Bay Length (ft)	100			175			150		500	180		
Base Capacity (vph)	313	437	577	437	532		507	1953	997	443	1415	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.37	0.46	0.40	0.25		0.41	0.31	0.29	0.05	0.25	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 66 (66%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 28.4
 Intersection Capacity Utilization 50.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 26: SR 136/S. Jefferson Ave & E. Jackson St



Lanes, Volumes, Timings
 27: SR 136/S. Jefferson Ave & Foutch Dr

2040 Recommended AM Timing Plan
 07/12/2017

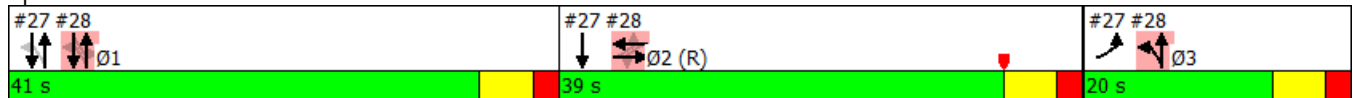
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	40	10	10	500	320	0	
Future Volume (vph)	40	10	10	500	320	0	
Satd. Flow (prot)	1775	0	1452	3369	3369	0	
Flt Permitted	0.962		0.541				
Satd. Flow (perm)	1775	0	827	3369	3369	0	
Satd. Flow (RTOR)	11						
Lane Group Flow (vph)	65	0	12	532	352	0	
Turn Type	Prot		Perm	NA	NA		
Protected Phases	3			1	1 2		2
Permitted Phases			1				
Total Split (s)	20.0		41.0	41.0			39.0
Total Lost Time (s)	6.0		6.0	6.0			
Act Effct Green (s)	14.0		31.6	31.6	74.0		
Actuated g/C Ratio	0.14		0.32	0.32	0.74		
v/c Ratio	0.25		0.05	0.50	0.14		
Control Delay	35.6		9.4	15.4	0.4		
Queue Delay	0.0		0.0	0.0	0.2		
Total Delay	35.6		9.4	15.4	0.7		
LOS	D		A	B	A		
Approach Delay	35.6			15.2	0.7		
Approach LOS	D			B	A		
Queue Length 50th (ft)	31		3	186	2		
Queue Length 95th (ft)	60		5	51	2		
Internal Link Dist (ft)	70			1031	110		
Turn Bay Length (ft)			125				
Base Capacity (vph)	257		289	1179	2480		
Starvation Cap Reductn	0		0	0	1457		
Spillback Cap Reductn	0		0	0	0		
Storage Cap Reductn	0		0	0	0		
Reduced v/c Ratio	0.25		0.04	0.45	0.34		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 11 (11%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 11.3
 Intersection Capacity Utilization 28.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 27: SR 136/S. Jefferson Ave & Foutch Dr



Lanes, Volumes, Timings
28: SR 136/S. Jefferson Ave & E. Stevens St

2040 Recommended AM Timing Plan
07/12/2017

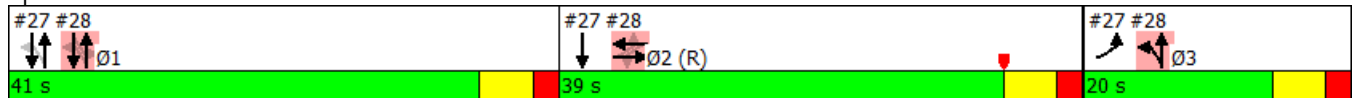
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Future Volume (vph)	30	125	30	35	100	20	20	510	20	10	310	10
Satd. Flow (prot)	0	1836	0	0	1845	0	0	3338	0	0	3346	0
Flt Permitted		0.894			0.903			0.930			0.915	
Satd. Flow (perm)	0	1660	0	0	1683	0	0	3110	0	0	3068	0
Satd. Flow (RTOR)		11			9			7			4	
Lane Group Flow (vph)	0	219	0	0	195	0	0	611	0	0	372	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			2		3	1 3			1	
Permitted Phases	2			2			1 3			1		
Total Split (s)	39.0	39.0		39.0	39.0		20.0			41.0	41.0	
Total Lost Time (s)		6.0			6.0						6.0	
Act Effct Green (s)		36.4			36.4			45.6			31.6	
Actuated g/C Ratio		0.36			0.36			0.46			0.32	
v/c Ratio		0.36			0.32			0.42			0.38	
Control Delay		25.4			24.8			5.5			19.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.4			24.8			5.5			19.6	
LOS		C			C			A			B	
Approach Delay		25.4			24.8			5.5			19.6	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		101			89			11			58	
Queue Length 95th (ft)		168			125			66			m75	
Internal Link Dist (ft)		321			386			1			1911	
Turn Bay Length (ft)												
Base Capacity (vph)		611			618			1559			1076	
Starvation Cap Reductn		0			0			9			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.36			0.32			0.39			0.35	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 11 (11%), Referenced to phase 2:SBT and 6., Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 15.1
 Intersection Capacity Utilization 52.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 28: SR 136/S. Jefferson Ave & E. Stevens St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St

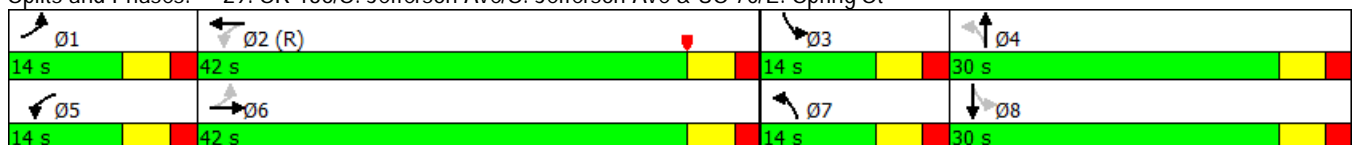
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Future Volume (vph)	25	455	75	120	470	15	90	245	65	20	170	25
Satd. Flow (prot)	1805	1829	0	1752	1669	0	1668	1706	0	1685	1551	0
Flt Permitted	0.322			0.137			0.407			0.304		
Satd. Flow (perm)	612	1829	0	253	1669	0	715	1706	0	539	1551	0
Satd. Flow (RTOR)		9			2			16			7	
Lane Group Flow (vph)	25	617	0	150	534	0	102	344	0	28	236	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	42.0		14.0	42.0		14.0	30.0		14.0	30.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	50.3	42.3		54.2	50.8		29.8	24.7		27.9	21.5	
Actuated g/C Ratio	0.50	0.42		0.54	0.51		0.30	0.25		0.28	0.22	
v/c Ratio	0.06	0.79		0.57	0.63		0.35	0.80		0.12	0.70	
Control Delay	12.7	27.4		33.2	15.7		18.7	37.6		16.3	37.2	
Queue Delay	0.0	2.3		0.6	1.2		0.0	0.0		0.0	2.1	
Total Delay	12.7	29.7		33.8	16.9		18.7	37.6		16.3	39.3	
LOS	B	C		C	B		B	D		B	D	
Approach Delay		29.0			20.6			33.3			36.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	3	315		55	91		12	45		8	122	
Queue Length 95th (ft)	m13	#518		m99	m#478		66	#199		20	146	
Internal Link Dist (ft)		356			188			1911			200	
Turn Bay Length (ft)	200			65						65		
Base Capacity (vph)	412	778		264	849		294	458		250	385	
Starvation Cap Reductn	0	20		16	142		0	0		0	60	
Spillback Cap Reductn	0	73		0	2		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.88		0.60	0.76		0.35	0.75		0.11	0.73	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 69 (69%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 77.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 136/S. Jefferson Ave/S. Jefferson Ave & US 70/E. Spring St



Lanes, Volumes, Timings
 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St

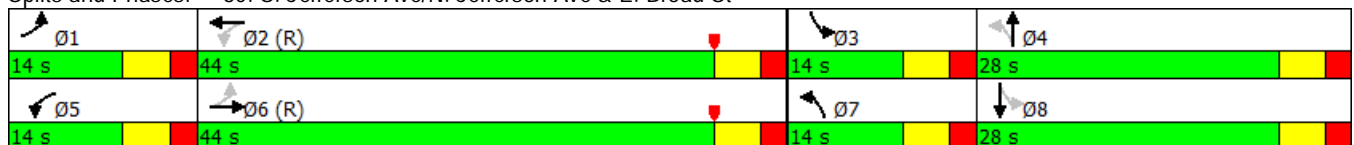
2040 Recommended AM Timing Plan
 07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Future Volume (vph)	15	160	35	90	390	25	60	175	50	15	85	15
Satd. Flow (prot)	1805	1829	0	1805	1867	0	1668	1713	0	1685	1740	0
Flt Permitted	0.398			0.524			0.553			0.503		
Satd. Flow (perm)	756	1829	0	996	1867	0	971	1713	0	892	1740	0
Satd. Flow (RTOR)		14			3			13			7	
Lane Group Flow (vph)	24	224	0	113	489	0	74	247	0	19	117	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	44.0		14.0	44.0		14.0	28.0		14.0	28.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	55.9	47.9		60.0	56.4		25.4	21.8		22.1	15.7	
Actuated g/C Ratio	0.56	0.48		0.60	0.56		0.25	0.22		0.22	0.16	
v/c Ratio	0.05	0.25		0.17	0.46		0.24	0.64		0.07	0.42	
Control Delay	8.3	13.1		9.5	13.7		27.3	40.4		23.1	39.1	
Queue Delay	0.0	0.0		0.0	6.6		0.0	6.5		0.0	0.0	
Total Delay	8.3	13.1		9.5	20.3		27.3	46.9		23.1	39.2	
LOS	A	B		A	C		C	D		C	D	
Approach Delay		12.7			18.3			42.4			36.9	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	5	59		37	170		48	160		9	67	
Queue Length 95th (ft)	10	92		m21	m99		m16	m51		20	99	
Internal Link Dist (ft)		353			196			200			580	
Turn Bay Length (ft)	200			65			65			50		
Base Capacity (vph)	515	883		667	1054		308	422		268	396	
Starvation Cap Reductn	0	0		0	505		0	126		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	3	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.25		0.17	0.89		0.24	0.83		0.07	0.30	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 76 (76%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 25.1
 Intersection Capacity Utilization 54.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S. Jefferson Ave/N. Jefferson Ave & E. Broad St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Future Volume (vph)	90	430	40	150	490	30	30	320	80	80	310	65
Satd. Flow (prot)	1787	1843	0	1752	1863	1615	1745	1783	1546	1728	1782	0
Flt Permitted	0.242			0.202			0.220			0.279		
Satd. Flow (perm)	455	1843	0	373	1863	1615	404	1783	1546	507	1782	0
Satd. Flow (RTOR)		5					147		147		11	
Lane Group Flow (vph)	99	508	0	185	516	41	48	352	107	101	432	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4		4	8		
Total Split (s)	14.0	38.0		14.0	38.0	38.0	14.0	34.0	34.0	14.0	34.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	46.3	38.0		48.3	41.1	41.1	32.2	25.7	25.7	33.7	28.6	
Actuated g/C Ratio	0.46	0.38		0.48	0.41	0.41	0.32	0.26	0.26	0.34	0.29	
v/c Ratio	0.31	0.72		0.62	0.67	0.05	0.20	0.77	0.21	0.37	0.84	
Control Delay	10.8	19.8		17.4	24.8	0.8	19.8	46.2	2.9	19.3	35.0	
Queue Delay	0.1	3.1		0.0	0.2	0.0	0.0	3.4	0.0	0.0	3.2	
Total Delay	10.9	22.9		17.4	25.0	0.8	19.8	49.6	2.9	19.3	38.2	
LOS	B	C		B	C	A	B	D	A	B	D	
Approach Delay		21.0			21.8			36.9			34.6	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	17	88		34	342	0	18	199	0	13	259	
Queue Length 95th (ft)	m28	m#436		m53	m#456	m0	27	301	5	m26	#140	
Internal Link Dist (ft)		188			1101			264			195	
Turn Bay Length (ft)	60			100		100	100			50		
Base Capacity (vph)	324	703		302	765	750	245	508	545	274	543	
Starvation Cap Reductn	0	111		0	0	0	0	0	0	0	50	
Spillback Cap Reductn	16	0		0	27	73	1	84	0	0	5	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.86		0.61	0.70	0.06	0.20	0.83	0.20	0.37	0.88	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 69 (69%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 78.6%

ICU Level of Service D

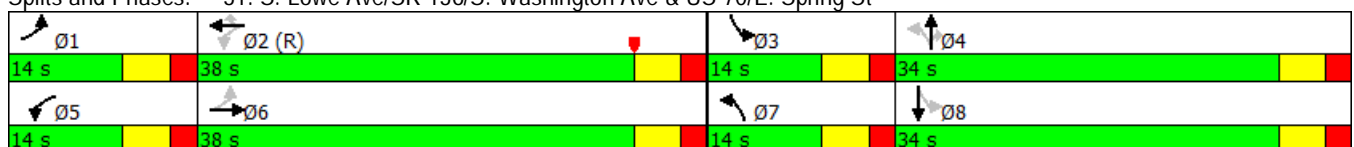
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: S. Lowe Ave/SR 136/S. Washington Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St

07/12/2017

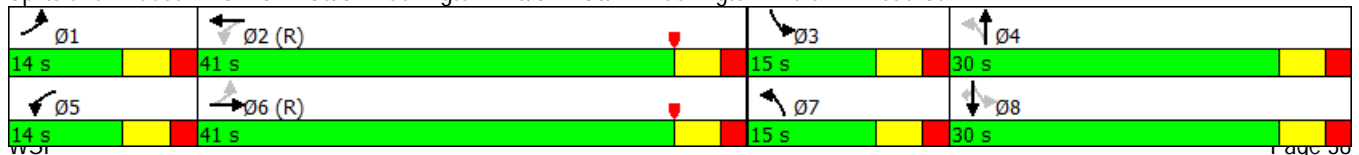
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Future Volume (vph)	45	130	30	30	365	195	25	380	20	50	400	140
Satd. Flow (prot)	1787	1827	0	1805	1787	0	1745	1803	0	1745	1818	1546
Flt Permitted	0.108			0.643			0.261			0.160		
Satd. Flow (perm)	203	1827	0	1222	1787	0	479	1803	0	294	1818	1546
Satd. Flow (RTOR)		15			33			3				165
Lane Group Flow (vph)	51	182	0	43	704	0	25	457	0	68	460	165
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Total Split (s)	14.0	41.0		14.0	41.0		15.0	30.0		15.0	30.0	30.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	5.5
Act Effct Green (s)	47.5	42.6		46.3	39.9		33.4	27.0		36.5	32.8	32.8
Actuated g/C Ratio	0.48	0.43		0.46	0.40		0.33	0.27		0.36	0.33	0.33
v/c Ratio	0.23	0.23		0.07	0.96		0.10	0.94		0.30	0.77	0.27
Control Delay	16.0	15.4		6.5	45.7		15.9	50.3		22.8	42.2	6.0
Queue Delay	0.0	0.4		0.0	6.3		0.0	4.7		0.0	7.0	0.0
Total Delay	16.0	15.9		6.5	52.0		15.9	55.0		22.8	49.2	6.0
LOS	B	B		A	D		B	D		C	D	A
Approach Delay		15.9			49.4			52.9			36.3	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	10	95		11	-501		5	106		27	233	0
Queue Length 95th (ft)	m34	84		m5	m#640		m14	#466		44	#465	41
Internal Link Dist (ft)		196			1084			195			349	
Turn Bay Length (ft)	60			100			65			100		
Base Capacity (vph)	231	787		619	732		286	488		245	597	618
Starvation Cap Reductn	0	296		0	0		0	16		0	0	0
Spillback Cap Reductn	0	0		0	25		8	0		0	98	31
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.37		0.07	1.00		0.09	0.97		0.28	0.92	0.28

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 70 (70%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 42.4
 Intersection Capacity Utilization 79.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: SR 136/S. Washington Ave/SR 136/N. Washington Ave & E. Broad St



Lanes, Volumes, Timings
 33: SR 136/N. Washington Ave & E. 1st St

2040 Recommended AM Timing Plan

07/12/2017

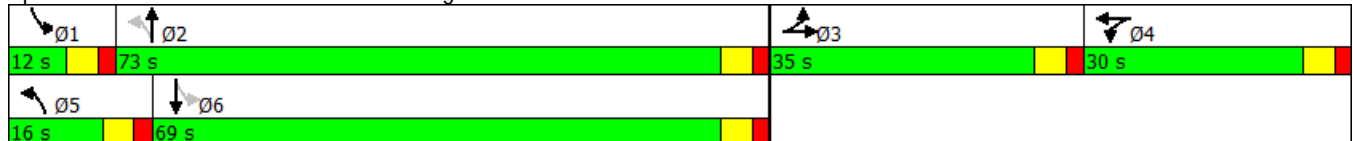
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Future Volume (vph)	140	15	40	10	75	20	90	590	10	10	605	75
Satd. Flow (prot)	0	1786	0	0	1839	0	1711	1796	0	1745	3391	0
Flt Permitted		0.965			0.997		0.212			0.123		
Satd. Flow (perm)	0	1786	0	0	1839	0	382	1796	0	226	3391	0
Satd. Flow (RTOR)		7			8			1			15	
Lane Group Flow (vph)	0	241	0	0	189	0	115	754	0	10	787	0
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases							2			6		
Total Split (s)	35.0	35.0		30.0	30.0		16.0	73.0		12.0	69.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)		21.5			17.6		58.7	55.4		49.8	43.2	
Actuated g/C Ratio		0.19			0.15		0.51	0.48		0.43	0.37	
v/c Ratio		0.72			0.66		0.37	0.88		0.05	0.62	
Control Delay		59.5			60.5		19.5	42.3		16.7	31.0	
Queue Delay		0.0			0.0		0.0	0.2		0.0	0.0	
Total Delay		59.5			60.5		19.5	42.5		16.7	31.0	
LOS		E			E		B	D		B	C	
Approach Delay		59.5			60.5			39.5			30.9	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)		164			127		43	447		4	240	
Queue Length 95th (ft)		310			140		78	732		15	355	
Internal Link Dist (ft)		234			474			256			166	
Turn Bay Length (ft)										50		
Base Capacity (vph)		492			423		322	1122		189	1999	
Starvation Cap Reductn		0			0		0	57		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.49			0.45		0.36	0.71		0.05	0.39	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 115.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 40.4
 Intersection Capacity Utilization 68.1%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 33: SR 136/N. Washington Ave & E. 1st St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

34: SR 136/N. Washington Ave & E. 10th St/E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Future Volume (vph)	65	105	15	385	280	255	50	540	155	350	680	110
Satd. Flow (prot)	1805	3527	0	3467	1900	1615	1719	3505	1615	1752	3511	0
Flt Permitted	0.950			0.950			0.194			0.197		
Satd. Flow (perm)	1805	3527	0	3467	1900	1615	351	3505	1615	363	3511	0
Satd. Flow (RTOR)		17					283		230		19	
Lane Group Flow (vph)	72	133	0	448	304	283	60	628	180	372	974	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases						4	2		2	6		
Total Split (s)	12.0	12.0		31.0	31.0	31.0	12.0	28.0	28.0	19.0	35.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Act Effct Green (s)	6.5	6.5		20.4	20.4	20.4	26.4	20.0	20.0	39.2	30.1	
Actuated g/C Ratio	0.08	0.08		0.25	0.25	0.25	0.32	0.24	0.24	0.47	0.36	
v/c Ratio	0.51	0.46		0.53	0.65	0.46	0.28	0.74	0.32	0.93	0.76	
Control Delay	53.3	39.3		29.4	35.3	6.0	17.6	35.6	3.3	50.4	29.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.3	39.3		29.4	35.3	6.0	17.6	35.6	3.3	50.4	29.3	
LOS	D	D		C	D	A	B	D	A	D	C	
Approach Delay		44.2			24.7			27.6			35.1	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	39	32		107	147	0	17	162	0	131	246	
Queue Length 95th (ft)	#94	63		143	231	57	37	220	20	#325	287	
Internal Link Dist (ft)		135			2500			631			700	
Turn Bay Length (ft)	100			215		215	100			100		
Base Capacity (vph)	143	296		1081	592	698	221	965	611	401	1308	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.45		0.41	0.51	0.41	0.27	0.65	0.29	0.93	0.74	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 82.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 72.4%

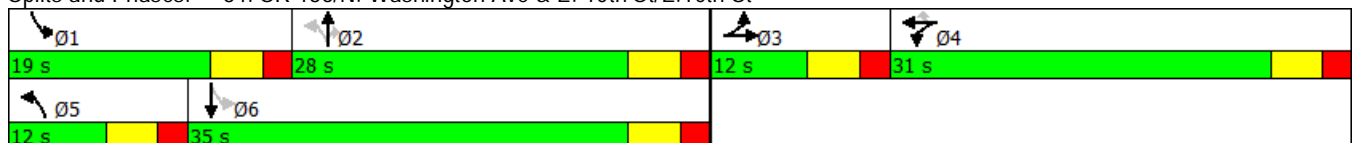
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 34: SR 136/N. Washington Ave & E. 10th St/E.10th St




















Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

35: US 70/E. Spring St & I-40 EB Off-Ramps/I-40 EB On-Ramp

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Future Volume (vph)	85	0	100	0	0	0	0	715	15	90	185	0
Satd. Flow (prot)	0	1656	1615	0	0	0	0	3442	0	1711	3490	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1656	1615	0	0	0	0	3442	0	1711	3490	0
Lane Group Flow (vph)	0	99	116	0	0	0	0	851	0	103	206	0
Sign Control		Stop			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 39.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔↔		↔	↔↔	
Traffic Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Future Vol, veh/h	85	0	100	0	0	0	0	715	15	90	185	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	200	-	-	-	-	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	25	86	25	25	25	25	86	75	87	90	25
Heavy Vehicles, %	9	0	0	0	0	0	0	1	0	2	0	0
Mvmt Flow	99	0	116	0	0	0	0	831	20	103	206	0













Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	828	1243	103	-	0	0	831	0	0
Stage 1	412	412	-	-	-	-	-	-	-
Stage 2	416	831	-	-	-	-	-	-	-
Critical Hdwy	6.98	6.5	6.9	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.98	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.98	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.3	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	296	176	938	0	-	-	797	-	0
Stage 1	617	598	-	0	-	-	-	-	0
Stage 2	614	387	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	258	0	938	-	-	-	797	-	-
Mov Cap-2 Maneuver	258	0	-	-	-	-	-	-	-
Stage 1	537	0	-	-	-	-	-	-	-
Stage 2	614	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	258	938	797	-
HCM Lane V/C Ratio	-	-	0.383	0.124	0.13	-
HCM Control Delay (s)	-	-	27.4	9.4	10.2	-
HCM Lane LOS	-	-	D	A	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0.4	0.4	-

Lanes, Volumes, Timings
 36: US 70/E. Spring St & I-40 WB Off-Ramp

2040 Recommended AM Timing Plan
 07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	15	300	545	0	0	400
Future Volume (vph)	15	300	545	0	0	400
Satd. Flow (prot)	1687	1568	3323	0	0	3455
Flt Permitted	0.950					
Satd. Flow (perm)	1687	1568	3323	0	0	3455
Lane Group Flow (vph)	22	380	649	0	0	426
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑			↑↑
Traffic Vol, veh/h	15	300	545	0	0	400
Future Vol, veh/h	15	300	545	0	0	400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	300	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	79	84	25	25	94
Heavy Vehicles, %	7	3	5	0	0	1
Mvmt Flow	22	380	649	0	0	426

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	862	324	0	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.94	6.96	-	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.33	-	-	-	-
Pot Cap-1 Maneuver	285	669	-	0	0	-
Stage 1	469	-	-	0	0	-
Stage 2	787	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	285	669	-	-	-	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	469	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	17.3		0		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	- 285	669	-
HCM Lane V/C Ratio	- 0.076	0.568	-
HCM Control Delay (s)	- 18.7	17.2	-
HCM Lane LOS	- C	C	-
HCM 95th %tile Q(veh)	- 0.2	3.6	-

Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Future Volume (vph)	270	400	0	0	875	145	445	0	70	0	0	0
Satd. Flow (prot)	3433	3574	0	0	3453	0	3367	0	1583	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	3574	0	0	3453	0	3367	0	1583	0	0	0
Satd. Flow (RTOR)					28				121			
Lane Group Flow (vph)	314	455	0	0	1092	0	610	0	117	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	1	6			2		3					
Permitted Phases									3			
Total Split (s)	19.0	62.0			43.0		28.0		28.0			
Total Lost Time (s)	6.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	11.5	49.5			31.5		18.7		18.7			
Actuated g/C Ratio	0.14	0.60			0.38		0.23		0.23			
v/c Ratio	0.66	0.21			0.81		0.79		0.26			
Control Delay	42.0	7.7			28.0		39.4		7.1			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	42.0	7.7			28.0		39.4		7.1			
LOS	D	A			C		D		A			
Approach Delay		21.7			28.0			34.2				
Approach LOS		C			C			C				
Queue Length 50th (ft)	86	54			270		163		0			
Queue Length 95th (ft)	125	74			350		175		8			
Internal Link Dist (ft)		490			552			852			379	
Turn Bay Length (ft)	100						250		250			
Base Capacity (vph)	532	2459			1578		876		501			
Starvation Cap Reductn	0	0			0		0		0			
Spillback Cap Reductn	0	0			0		0		0			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.59	0.19			0.69		0.70		0.23			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 82

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 27.8

Intersection Capacity Utilization 70.5%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C

Splits and Phases: 37: SR 111 NB Off-Ramp/SR 111 On-Ramp & US 70/E. Spring St




















Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

38: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & US 70/E. Spring St

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Future Volume (vph)	0	610	230	120	1190	0	0	0	0	60	0	500
Satd. Flow (prot)	0	3403	0	1703	3539	0	0	0	0	0	1703	1599
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3403	0	1703	3539	0	0	0	0	0	1703	1599
Lane Group Flow (vph)	0	996	0	160	1368	0	0	0	0	0	64	575
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 70.5%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 56.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑	↑
Traffic Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Future Vol, veh/h	0	610	230	120	1190	0	0	0	0	60	0	500
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	100	-	-	-	-	-	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	87	78	75	87	25	25	25	25	94	25	87
Heavy Vehicles, %	0	2	0	6	2	0	0	0	0	6	0	1
Mvmt Flow	0	701	295	160	1368	0	0	0	0	64	0	575

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	701	0	0	2039	2389	684
Stage 1	-	-	-	-	-	-	1688	1688	-
Stage 2	-	-	-	-	-	-	351	701	-
Critical Hdwy	-	-	-	4.22	-	-	6.92	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	5.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.92	5.5	-
Follow-up Hdwy	-	-	-	2.26	-	-	3.56	4	3.31
Pot Cap-1 Maneuver	0	-	-	866	-	0	~ 47	34	~ 393
Stage 1	0	-	-	-	-	0	130	151	-
Stage 2	0	-	-	-	-	0	672	444	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	866	-	-	~ 38	0	~ 393
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 38	0	-
Stage 1	-	-	-	-	-	-	106	0	-
Stage 2	-	-	-	-	-	-	672	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.1	279.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	866	-	38	393
HCM Lane V/C Ratio	-	-	0.185	-	1.68	1.462
HCM Control Delay (s)	-	-	10.1	-\$ 560.9	248	
HCM Lane LOS	-	-	B	-	F	F
HCM 95th %tile Q(veh)	-	-	0.7	-	6.8	29.9

Notes

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

Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Future Volume (vph)	75	440	240	530	950	150	75	140	195	185	410	60
Satd. Flow (prot)	1787	3574	1568	3467	3505	1599	1805	1900	1615	1752	3484	0
Flt Permitted	0.158			0.327			0.337			0.525		
Satd. Flow (perm)	297	3574	1568	1193	3505	1599	640	1900	1615	968	3484	0
Satd. Flow (RTOR)			267				176		242		15	
Lane Group Flow (vph)	85	500	358	570	1092	170	112	171	238	201	561	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Total Split (s)	12.0	35.0	35.0	19.0	42.0	42.0	12.0	23.0	23.0	13.0	24.0	
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5	
Act Effct Green (s)	31.3	23.7	23.7	42.9	32.9	32.9	22.0	14.4	14.4	25.4	18.8	
Actuated g/C Ratio	0.38	0.29	0.29	0.52	0.40	0.40	0.27	0.17	0.17	0.31	0.23	
v/c Ratio	0.37	0.49	0.56	0.59	0.79	0.23	0.43	0.52	0.50	0.55	0.70	
Control Delay	16.3	26.2	10.7	14.3	27.8	3.6	26.8	38.7	8.3	29.1	37.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.3	26.2	10.7	14.3	27.8	3.6	26.8	38.7	8.3	29.1	37.1	
LOS	B	C	B	B	C	A	C	D	A	C	D	
Approach Delay		19.5			21.4			22.3			35.0	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	22	117	37	86	281	0	44	88	0	84	157	
Queue Length 95th (ft)	43	160	43	118	344	33	60	136	42	142	196	
Internal Link Dist (ft)		1084			512			1234			867	
Turn Bay Length (ft)	80		100	150		100	130			100		
Base Capacity (vph)	232	1260	725	996	1540	801	263	388	522	368	800	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.37	0.40	0.49	0.57	0.71	0.21	0.43	0.44	0.46	0.55	0.70	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 23.6

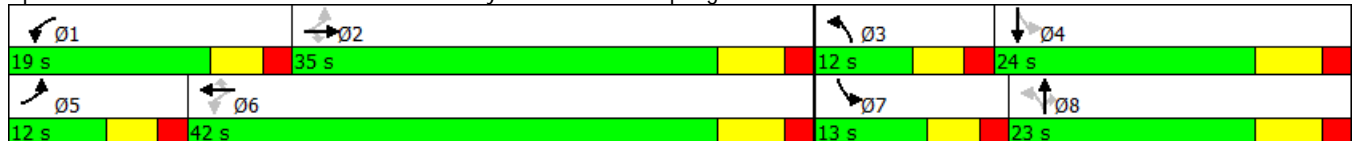
Intersection LOS: C

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15










Splits and Phases: 39: Neal St/S. Old Kentucky Rd & US 70/E. Spring St



Lanes, Volumes, Timings
 40: US 70/E. Spring St & E. Broad St

2040 Recommended AM Timing Plan

07/12/2017

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	800	630	640	60	0
Future Volume (vph)	0	800	630	640	60	0
Satd. Flow (prot)	0	1881	1738	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1881	1738	0	1805	0
Lane Group Flow (vph)	0	930	1352	0	78	0
Sign Control		Free	Free		Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 82.3%

Analysis Period (min) 15

ICU Level of Service E

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	0	800	630	640	60	0
Future Vol, veh/h	0	800	630	640	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	25	86	92	96	77	63
Heavy Vehicles, %	0	1	3	1	0	0
Mvmt Flow	0	930	685	667	78	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	685	0	685
Stage 1	-	-	685
Stage 2	-	-	930
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	918	0	452
Stage 1	-	0	504
Stage 2	-	0	387
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	918	-	452
Mov Cap-2 Maneuver	-	-	251
Stage 1	-	-	504
Stage 2	-	-	387

Approach	EB	WB	SB
HCM Control Delay, s	0	0	25.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	SBLn1
Capacity (veh/h)	918	-	-	251
HCM Lane V/C Ratio	-	-	-	0.31
HCM Control Delay (s)	0	-	-	25.7
HCM Lane LOS	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	1.3

Lanes, Volumes, Timings
 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St

2040 Recommended AM Timing Plan

07/12/2017

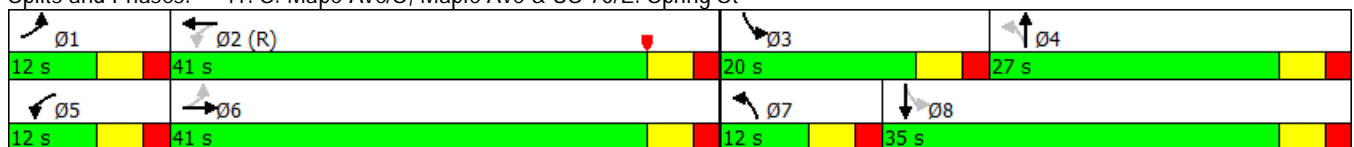
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Future Volume (vph)	70	500	30	40	550	15	20	260	40	225	205	95
Satd. Flow (prot)	1805	1865	0	1703	1855	0	1805	1852	0	1805	1804	0
Flt Permitted	0.118			0.118			0.560			0.177		
Satd. Flow (perm)	224	1865	0	212	1855	0	1064	1852	0	336	1804	0
Satd. Flow (RTOR)		4			2			9			22	
Lane Group Flow (vph)	78	640	0	71	587	0	26	380	0	292	332	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	41.0		12.0	41.0		12.0	27.0		20.0	35.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	43.6	38.4		43.6	38.4		27.6	21.4		41.0	36.2	
Actuated g/C Ratio	0.44	0.38		0.44	0.38		0.28	0.21		0.41	0.36	
v/c Ratio	0.39	0.89		0.38	0.82		0.08	0.95		0.84	0.50	
Control Delay	15.9	44.1		20.7	40.5		18.9	72.0		61.0	21.7	
Queue Delay	0.1	0.0		0.0	2.3		0.0	0.0		55.6	18.6	
Total Delay	16.0	44.1		20.7	42.8		18.9	72.0		116.6	40.3	
LOS	B	D		C	D		B	E		F	D	
Approach Delay		41.1			40.4			68.6			76.0	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	17	411		24	348		10	235		160	94	
Queue Length 95th (ft)	m28	#560		29	#552		22	#352		m183	m113	
Internal Link Dist (ft)		1101			737			412			149	
Turn Bay Length (ft)	75			80			70			50		
Base Capacity (vph)	200	717		188	712		344	405		350	667	
Starvation Cap Reductn	0	0		0	0		0	0		109	323	
Spillback Cap Reductn	5	0		0	49		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.40	0.89		0.38	0.89		0.08	0.94		1.21	0.97	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 22 (22%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 54.6
 Intersection Capacity Utilization 81.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: S. Mape Ave/S, Maple Ave & US 70/E. Spring St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Future Volume (vph)	25	505	45	30	535	55	50	115	10	40	60	30
Satd. Flow (prot)	1805	1847	0	1805	1855	0	1805	1879	0	1787	1769	0
Flt Permitted	0.259			0.259			0.692			0.481		
Satd. Flow (perm)	492	1847	0	492	1855	0	1315	1879	0	905	1769	0
Satd. Flow (RTOR)		8			7			3			20	
Lane Group Flow (vph)	30	633	0	36	633	0	52	173	0	57	100	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	14.0	50.0		14.0	50.0		15.0	21.0		15.0	21.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	60.4	55.6		60.4	55.6		20.8	14.0		20.9	14.1	
Actuated g/C Ratio	0.60	0.56		0.60	0.56		0.21	0.14		0.21	0.14	
v/c Ratio	0.07	0.61		0.09	0.61		0.17	0.65		0.22	0.38	
Control Delay	9.0	21.4		6.6	12.6		27.3	51.8		33.5	37.7	
Queue Delay	0.0	0.6		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	9.0	22.0		6.6	12.8		27.3	51.8		33.5	37.7	
LOS	A	C		A	B		C	D		C	D	
Approach Delay		21.4			12.4			46.1			36.2	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	7	306		8	278		25	104		17	21	
Queue Length 95th (ft)	18	458		m8	140		52	132		52	95	
Internal Link Dist (ft)		1308			356			107			209	
Turn Bay Length (ft)	100			60			50			60		
Base Capacity (vph)	410	1030		410	1034		331	296		280	294	
Starvation Cap Reductn	0	0		0	62		0	0		0	0	
Spillback Cap Reductn	0	127		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.70		0.09	0.65		0.16	0.58		0.20	0.34	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 77 (77%), Referenced to phase 2:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 61.9%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 42: S. Dixie Ave & US 70/W. Spring St/US 70/E. Spring St

14 s	50 s	15 s	21 s
14 s	50 s	15 s	21 s

Lanes, Volumes, Timings
43: S. Walnut Ave & US 70/W. Spring St

2040 Recommended AM Timing Plan

07/12/2017

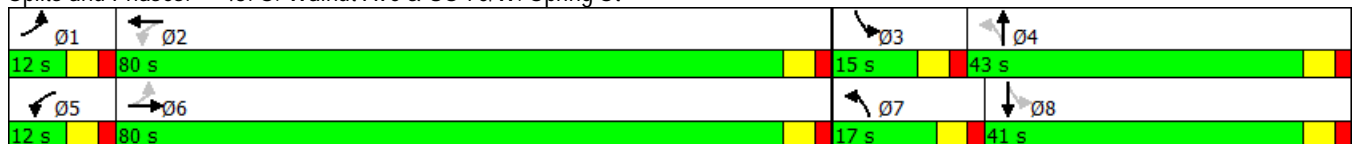
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Future Volume (vph)	55	585	70	40	530	30	80	275	35	15	130	35
Satd. Flow (prot)	1770	1851	0	1805	1860	0	1770	1852	0	1805	1832	0
Flt Permitted	0.187			0.101			0.415			0.303		
Satd. Flow (perm)	348	1851	0	192	1860	0	773	1852	0	576	1832	0
Satd. Flow (RTOR)		6			4			6			10	
Lane Group Flow (vph)	60	777	0	50	669	0	93	356	0	22	207	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	80.0		12.0	80.0		17.0	43.0		15.0	41.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	59.8	55.1		59.9	55.1		35.4	29.9		29.6	24.6	
Actuated g/C Ratio	0.53	0.49		0.53	0.49		0.31	0.26		0.26	0.22	
v/c Ratio	0.22	0.86		0.24	0.74		0.28	0.72		0.09	0.51	
Control Delay	14.5	38.4		15.4	30.8		33.8	51.7		32.3	47.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.5	38.4		15.4	30.8		33.8	51.7		32.3	47.9	
LOS	B	D		B	C		C	D		C	D	
Approach Delay		36.7			29.7			48.0			46.4	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	20	541		17	424		52	267		12	143	
Queue Length 95th (ft)	46	728		35	599		102	439		26	227	
Internal Link Dist (ft)		1097			1308			83			571	
Turn Bay Length (ft)	75			75			65			150		
Base Capacity (vph)	280	1258		210	1263		362	725		282	681	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.62		0.24	0.53		0.26	0.49		0.08	0.30	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 112.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 37.7
 Intersection Capacity Utilization 80.0%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 43: S. Walnut Ave & US 70/W. Spring St



Lanes, Volumes, Timings
44: Scott Ave & US 70/W. Spring St

2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Future Volume (vph)	15	625	60	45	475	30	40	55	50	15	35	35
Satd. Flow (prot)	1805	1857	0	1805	1861	0	1805	1785	0	1656	1739	0
Flt Permitted	0.311			0.146			0.581			0.663		
Satd. Flow (perm)	591	1857	0	277	1861	0	1104	1785	0	1156	1739	0
Satd. Flow (RTOR)		6			4			17			26	
Lane Group Flow (vph)	20	763	0	60	610	0	53	148	0	18	93	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	97.0		12.0	97.0		12.0	29.0		12.0	29.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	49.9	45.4		52.5	50.5		18.9	16.9		16.4	11.8	
Actuated g/C Ratio	0.57	0.52		0.60	0.58		0.22	0.19		0.19	0.14	
v/c Ratio	0.05	0.79		0.20	0.57		0.18	0.41		0.07	0.36	
Control Delay	7.4	25.7		8.8	15.8		32.4	38.3		32.0	35.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.4	25.7		8.8	15.8		32.4	38.3		32.0	35.8	
LOS	A	C		A	B		C	D		C	D	
Approach Delay		25.2			15.2			36.8			35.2	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	4	339		11	163		23	60		8	35	
Queue Length 95th (ft)	12	595		26	367		57	102		29	75	
Internal Link Dist (ft)		700			1097			288			469	
Turn Bay Length (ft)	75			75			40			75		
Base Capacity (vph)	442	1714		297	1717		298	562		261	554	
Starvation Cap Reductn	0	38		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.46		0.20	0.36		0.18	0.26		0.07	0.17	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 87.3
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 23.4
 Intersection Capacity Utilization 55.4%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 44: Scott Ave & US 70/W. Spring St



Lanes, Volumes, Timings
45: S, Maple Ave/N. Maple Ave & E. Broad St

2040 Recommended AM Timing Plan

07/12/2017

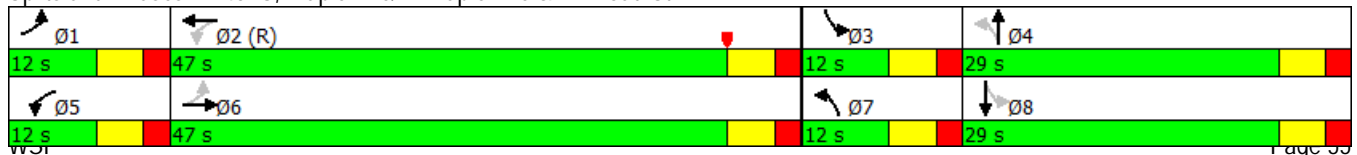
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Future Volume (vph)	10	110	65	60	530	170	35	235	60	35	380	20
Satd. Flow (prot)	1805	1778	0	1805	1801	0	1805	1832	0	1805	1883	0
Flt Permitted	0.099			0.521			0.141			0.318		
Satd. Flow (perm)	188	1778	0	990	1801	0	268	1832	0	604	1883	0
Satd. Flow (RTOR)		36			21			15			3	
Lane Group Flow (vph)	13	226	0	66	814	0	56	362	0	42	465	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	12.0	47.0		12.0	47.0		12.0	29.0		12.0	29.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	48.8	43.9		52.4	51.1		32.2	28.3		31.0	25.9	
Actuated g/C Ratio	0.49	0.44		0.52	0.51		0.32	0.28		0.31	0.26	
v/c Ratio	0.07	0.28		0.12	0.88		0.30	0.68		0.16	0.95	
Control Delay	9.1	15.9		11.9	34.4		26.9	25.6		23.1	68.9	
Queue Delay	0.0	84.6		3.8	0.0		0.0	1.9		0.0	14.2	
Total Delay	9.1	100.5		15.7	34.4		26.9	27.5		23.1	83.1	
LOS	A	F		B	C		C	C		C	F	
Approach Delay		95.6			33.0			27.4			78.1	
Approach LOS		F			C			C			E	
Queue Length 50th (ft)	5	86		19	406		13	83		18	~323	
Queue Length 95th (ft)	m9	m94		40	#763		m17	m104		38	#493	
Internal Link Dist (ft)		1084			778			149			437	
Turn Bay Length (ft)	60			65			40			85		
Base Capacity (vph)	197	800		571	930		186	529		266	489	
Starvation Cap Reductn	0	0		0	0		0	68		0	0	
Spillback Cap Reductn	0	721		438	0		0	0		0	32	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	2.86		0.50	0.88		0.30	0.79		0.16	1.02	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 29 (29%), Referenced to phase 2:WBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 50.4
 Intersection Capacity Utilization 86.1%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 45: S, Maple Ave/N. Maple Ave & E. Broad St



Lanes, Volumes, Timings
46: S. Dixie Ave/N. Dixie Ave & E. Broad St

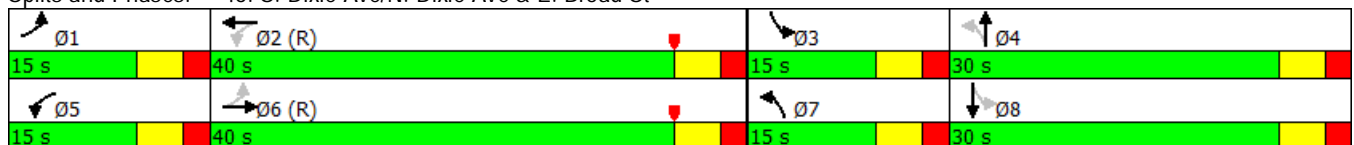
2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Future Volume (vph)	20	185	15	20	305	90	20	145	20	40	95	20
Satd. Flow (prot)	1805	1847	0	1736	1820	0	1805	1862	0	1805	1849	0
Flt Permitted	0.386			0.610			0.645			0.417		
Satd. Flow (perm)	733	1847	0	1114	1820	0	1226	1862	0	792	1849	0
Satd. Flow (RTOR)		6			17			7			10	
Lane Group Flow (vph)	26	215	0	26	463	0	28	193	0	54	158	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Total Split (s)	15.0	40.0		15.0	40.0		15.0	30.0		15.0	30.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Act Effct Green (s)	59.9	56.7		59.9	56.7		22.2	15.8		24.0	18.8	
Actuated g/C Ratio	0.60	0.57		0.60	0.57		0.22	0.16		0.24	0.19	
v/c Ratio	0.05	0.20		0.04	0.45		0.09	0.65		0.20	0.44	
Control Delay	10.2	14.5		4.3	7.9		13.1	28.5		25.8	37.4	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.2		0.0	0.0	
Total Delay	10.2	14.5		4.3	8.2		13.1	28.7		25.8	37.4	
LOS	B	B		A	A		B	C		C	D	
Approach Delay		14.1			8.0			26.7			34.5	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)	6	55		3	151		7	49		25	88	
Queue Length 95th (ft)	17	145		m7	65		m11	62		40	109	
Internal Link Dist (ft)		1234			353			209			174	
Turn Bay Length (ft)	130			45			60			75		
Base Capacity (vph)	544	1049		732	1038		341	461		290	467	
Starvation Cap Reductn	0	0		0	155		0	34		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.20		0.04	0.52		0.08	0.45		0.19	0.34	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 85 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 51.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: S. Dixie Ave/N. Dixie Ave & E. Broad St



Lanes, Volumes, Timings
47: S. Walnut Ave/N. Walnut Ave & E. Broad St

2040 Recommended AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Future Volume (vph)	15	160	20	35	165	90	30	270	50	30	125	15
Satd. Flow (prot)	0	1858	0	0	1877	1583	1805	1852	0	1770	1872	0
Flt Permitted		0.996			0.990		0.643			0.339		
Satd. Flow (perm)	0	1858	0	0	1877	1583	1222	1852	0	631	1872	0
Satd. Flow (RTOR)		4				102		7			4	
Lane Group Flow (vph)	0	227	0	0	241	102	40	344	0	42	156	0
Turn Type	custom	NA		custom	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	1	1		2	2		7	4		3	8	
Permitted Phases	1			2		2	4			8		
Total Split (s)	39.0	39.0		45.0	45.0	45.0	13.0	53.0		13.0	53.0	
Total Lost Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Act Effct Green (s)		18.0			18.9	18.9	27.5	23.7		27.4	23.7	
Actuated g/C Ratio		0.21			0.22	0.22	0.32	0.28		0.32	0.28	
v/c Ratio		0.58			0.58	0.24	0.09	0.66		0.14	0.30	
Control Delay		40.4			39.9	9.1	20.1	36.5		20.7	29.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		40.4			39.9	9.1	20.1	36.5		20.7	29.0	
LOS		D			D	A	C	D		C	C	
Approach Delay		40.4			30.7			34.8			27.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)		114			122	0	13	169		14	68	
Queue Length 95th (ft)		234			243	43	35	336		34	150	
Internal Link Dist (ft)		512			1234			571			477	
Turn Bay Length (ft)							120			140		
Base Capacity (vph)		811			963	862	450	1146		313	1157	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.28			0.25	0.12	0.09	0.30		0.13	0.13	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 85.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 33.4
 Intersection Capacity Utilization 56.3%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

















Splits and Phases: 47: S. Walnut Ave/N. Walnut Ave & E. Broad St

39 s	45 s	13 s	53 s
		13 s	53 s

Lanes, Volumes, Timings
48: S. Cedar Ave & E. Broad St

2040 Recommended AM Timing Plan

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Future Volume (vph)	35	25	10	25	30	135	10	115	15	170	60	20
Satd. Flow (prot)	0	1819	0	0	1724	0	0	1821	0	0	1795	0
Flt Permitted		0.971			0.993			0.997			0.967	
Satd. Flow (perm)	0	1819	0	0	1724	0	0	1821	0	0	1795	0
Lane Group Flow (vph)	0	95	0	0	240	0	0	162	0	0	272	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
Intersection Delay, s/veh 10.3
Intersection LOS B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Future Vol, veh/h	0	35	25	10	0	25	30	135	0	10	115	15
Peak Hour Factor	0.92	0.63	0.87	1.00	0.92	0.69	0.58	0.89	0.92	1.00	0.86	0.83
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	3	0
Mvmt Flow	0	56	29	10	0	36	52	152	0	10	134	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		9.3				10				9.6		
HCM LOS		A				A				A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	50%	13%	68%
Vol Thru, %	82%	36%	16%	24%
Vol Right, %	11%	14%	71%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	70	190	250
LT Vol	10	35	25	170
Through Vol	115	25	30	60
RT Vol	15	10	135	20
Lane Flow Rate	162	94	240	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.23	0.142	0.313	0.386
Departure Headway (Hd)	5.11	5.406	4.81	5.114
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	664	752	709
Service Time	3.125	3.432	2.81	3.114
HCM Lane V/C Ratio	0.23	0.142	0.319	0.384
HCM Control Delay	9.6	9.3	10	11.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.9	0.5	1.3	1.8











Intersection
 Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↔	
Traffic Vol, veh/h	0	170	60	20
Future Vol, veh/h	0	170	60	20
Peak Hour Factor	0.92	0.93	0.94	0.80
Heavy Vehicles, %	2	1	2	0
Mvmt Flow	0	183	64	25
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		11.3		
HCM LOS		B		

Lanes, Volumes, Timings
 49: S. Cedar Ave/N. Cedar Ave & W, Broad St

2040 Recommended AM Timing Plan

07/12/2017

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	155	125	170	85	40
Future Volume (vph)	70	155	125	170	85	40
Satd. Flow (prot)	1787	1599	0	1848	1797	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1787	1599	0	1848	1797	0
Lane Group Flow (vph)	81	158	0	358	150	0
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 36.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Intersection Delay, s/veh 10.6
 Intersection LOS B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↘	↗			↖		↗	
Traffic Vol, veh/h	0	70	155	0	125	170	0	85	40
Future Vol, veh/h	0	70	155	0	125	170	0	85	40
Peak Hour Factor	0.92	0.86	0.98	0.92	0.79	0.85	0.92	0.88	0.76
Heavy Vehicles, %	2	1	1	2	0	1	2	1	0
Mvmt Flow	0	81	158	0	158	200	0	97	53
Number of Lanes	0	1	1	0	0	1	0	1	0
Approach		EB			NB			SB	
Opposing Approach					SB			NB	
Opposing Lanes		0			1			1	
Conflicting Approach Left		SB			EB				
Conflicting Lanes Left		1			2			0	
Conflicting Approach Right		NB						EB	
Conflicting Lanes Right		1			0			2	
HCM Control Delay		9.5			12.1			9	
HCM LOS		A			B			A	











Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	42%	100%	0%	0%
Vol Thru, %	58%	0%	0%	68%
Vol Right, %	0%	0%	100%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	70	155	125
LT Vol	125	70	0	0
Through Vol	170	0	0	85
RT Vol	0	0	155	40
Lane Flow Rate	358	81	158	149
Geometry Grp	2	7	7	2
Degree of Util (X)	0.475	0.14	0.219	0.198
Departure Headway (Hd)	4.769	6.204	4.993	4.765
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	752	575	713	748
Service Time	2.819	3.979	2.766	2.829
HCM Lane V/C Ratio	0.476	0.141	0.222	0.199
HCM Control Delay	12.1	10	9.2	9
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.6	0.5	0.8	0.7

Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

50: US 70/W. Spring St/US 70/W. Broad St & W. Broad St

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	90	295	10	315	510
Future Volume (vph)	0	90	295	10	315	510
Satd. Flow (prot)	1900	1615	1853	0	0	1830
Flt Permitted						0.981
Satd. Flow (perm)	1900	1615	1853	0	0	1830
Lane Group Flow (vph)	0	114	385	0	0	952
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖			↗
Traffic Vol, veh/h	0	90	295	10	315	510
Future Vol, veh/h	0	90	295	10	315	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	79	80	63	86	87
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	0	114	369	16	366	586

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1696	377	0	0	385	0
Stage 1	377	-	-	-	-	-
Stage 2	1319	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	103	674	-	-	1185	-
Stage 1	698	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	56	674	-	-	1185	-
Mov Cap-2 Maneuver	117	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	137	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	11.4		0		3.6
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	674	1185	-
HCM Lane V/C Ratio	-	-	-	0.169	0.309	-
HCM Control Delay (s)	-	-	0	11.4	9.4	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.6	1.3	-

Lanes, Volumes, Timings
51: W. Jackson St/Pippin Rd & US 70/W. Broad St

2040 Recommended AM Timing Plan
07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Future Volume (vph)	10	490	340	30	200	35	140	105	15	160	360	10
Satd. Flow (prot)	1805	1863	1553	1805	1835	0	1805	1900	1615	1787	1892	0
Flt Permitted	0.531			0.121			0.950			0.950		
Satd. Flow (perm)	1009	1863	1553	230	1835	0	1805	1900	1615	1787	1892	0
Satd. Flow (RTOR)			218		11				289		1	
Lane Group Flow (vph)	24	570	374	48	269	0	169	114	16	198	414	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Free	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2					Free			
Total Split (s)	12.0	37.0	37.0	12.0	37.0		21.0	21.0		30.0	30.0	
Total Lost Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	5.5		5.5	5.5	
Act Effct Green (s)	35.5	30.9	30.9	36.5	33.1		12.5	18.4	91.5	21.2	22.7	
Actuated g/C Ratio	0.39	0.34	0.34	0.40	0.36		0.14	0.20	1.00	0.23	0.25	
v/c Ratio	0.05	0.90	0.56	0.24	0.40		0.68	0.30	0.01	0.48	0.88	
Control Delay	16.8	51.5	15.1	19.5	25.3		54.2	34.9	0.0	39.0	56.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.8	51.5	15.1	19.5	25.3		54.2	34.9	0.0	39.0	56.1	
LOS	B	D	B	B	C		D	C	A	D	E	
Approach Delay		36.6			24.4			44.0			50.6	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	9	~364	79	17	108		103	59	0	120	255	
Queue Length 95th (ft)	11	#545	177	27	210		158	116	0	161	#422	
Internal Link Dist (ft)		1551			2304			1891			664	
Turn Bay Length (ft)	100		100	100			350			150		
Base Capacity (vph)	449	630	669	205	671		289	419	1615	522	514	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.90	0.56	0.23	0.40		0.58	0.27	0.01	0.38	0.81	

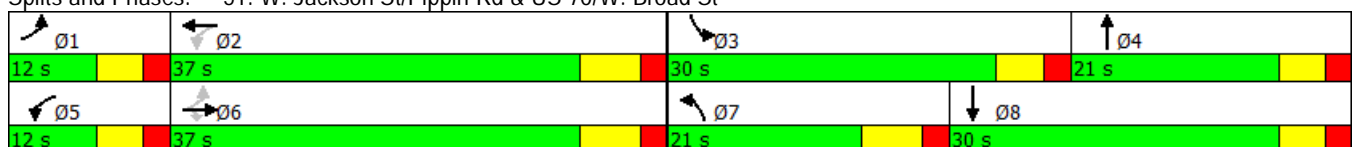
Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 91.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 39.7
 Intersection Capacity Utilization 67.7%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service C

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 51: W. Jackson St/Pippin Rd & US 70/W. Broad St



Lanes, Volumes, Timings
52: E.10th St & Brown Ave N

							Ø2	Ø4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (vph)	35	590	900	145	160	35		
Future Volume (vph)	35	590	900	145	160	35		
Satd. Flow (prot)	1719	3610	3477	0	1739	0		
Flt Permitted	0.118				0.961			
Satd. Flow (perm)	214	3610	3477	0	1739	0		
Satd. Flow (RTOR)			32		11			
Lane Group Flow (vph)	49	628	1177	0	260	0		
Turn Type	pm+pt	NA	NA		Prot			
Protected Phases	1	6	2 4		3		2	4
Permitted Phases	6							
Total Split (s)	11.5	55.0			23.0		43.5	12.0
Total Lost Time (s)	5.5	5.5			5.5			
Act Effct Green (s)	43.2	43.2	46.1		15.8			
Actuated g/C Ratio	0.52	0.52	0.56		0.19			
v/c Ratio	0.22	0.33	0.60		0.76			
Control Delay	11.8	11.7	1.9		47.2			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	11.8	11.7	1.9		47.2			
LOS	B	B	A		D			
Approach Delay		11.7	1.9		47.2			
Approach LOS		B	A		D			
Queue Length 50th (ft)	12	96	6		135			
Queue Length 95th (ft)	22	129	0		175			
Internal Link Dist (ft)		2500	23		665			
Turn Bay Length (ft)	100							
Base Capacity (vph)	223	2204	2030		384			
Starvation Cap Reductn	0	0	0		0			
Spillback Cap Reductn	0	0	0		0			
Storage Cap Reductn	0	0	0		0			
Reduced v/c Ratio	0.22	0.28	0.58		0.68			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 82.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 10.6

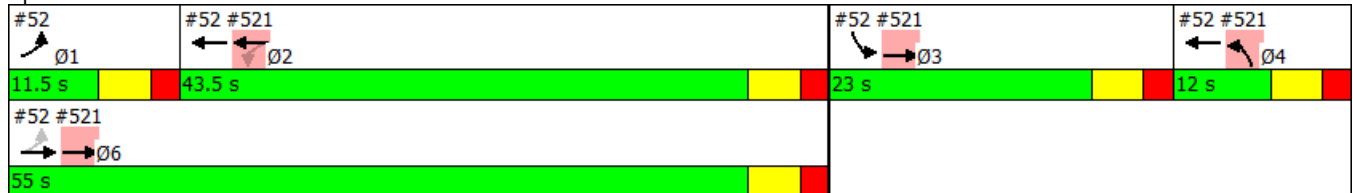
Intersection Capacity Utilization 49.7%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 52: E.10th St & Brown Ave N



Lanes, Volumes, Timings
53: Fisk Rd & E.10th St

2040 Recommended AM Timing Plan

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Future Volume (vph)	65	600	25	20	810	245	60	145	15	255	55	170
Satd. Flow (prot)	1805	3548	0	1805	3464	0	1805	1838	0	1703	1900	1599
Flt Permitted	0.110			0.359			0.714			0.294		
Satd. Flow (perm)	209	3548	0	682	3464	0	1357	1838	0	527	1900	1599
Satd. Flow (RTOR)		7			57			4				195
Lane Group Flow (vph)	75	660	0	20	1230	0	72	246	0	283	66	195
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Total Split (s)	12.0	38.0		12.0	38.0		11.0	24.0		16.0	29.0	29.0
Total Lost Time (s)	5.5	6.5		5.5	6.5		5.5	5.5		5.5	5.5	5.5
Act Effct Green (s)	39.7	36.3		37.3	31.6		20.8	15.3		31.1	23.1	23.1
Actuated g/C Ratio	0.47	0.43		0.44	0.37		0.25	0.18		0.37	0.27	0.27
v/c Ratio	0.34	0.43		0.05	0.92		0.20	0.73		0.83	0.13	0.34
Control Delay	16.3	19.3		12.0	38.6		20.2	46.3		43.7	26.6	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	16.3	19.3		12.0	38.6		20.2	46.3		43.7	26.6	6.0
LOS	B	B		B	D		C	D		D	C	A
Approach Delay		19.0			38.1			40.4			28.1	
Approach LOS		B			D			D			C	
Queue Length 50th (ft)	20	113		5	335		26	127		117	29	0
Queue Length 95th (ft)	43	207		17	#480		49	134		#206	56	45
Internal Link Dist (ft)		2105			3570			811			723	
Turn Bay Length (ft)	200			175			100			150		250
Base Capacity (vph)	223	1542		391	1344		365	410		342	547	599
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.34	0.43		0.05	0.92		0.20	0.60		0.83	0.12	0.33

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 84.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 31.5

Intersection LOS: C

Intersection Capacity Utilization 77.1%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 53: Fisk Rd & E.10th St



Lanes, Volumes, Timings
54: N. Old Kentucky Rd & E.10th St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Volume (vph)	660	230	240	885	165	225
Future Volume (vph)	660	230	240	885	165	225
Satd. Flow (prot)	3405	0	1787	3574	1770	1615
Flt Permitted			0.207		0.950	
Satd. Flow (perm)	3405	0	389	3574	1770	1615
Satd. Flow (RTOR)	67					326
Lane Group Flow (vph)	964	0	289	941	220	326
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	1 2	4	
Permitted Phases			1 2			4
Total Split (s)	45.2		23.0		21.8	21.8
Total Lost Time (s)	6.5		5.5		5.5	5.5
Act Effct Green (s)	41.3		58.8	64.3	14.7	14.7
Actuated g/C Ratio	0.46		0.65	0.71	0.16	0.16
v/c Ratio	0.60		0.57	0.37	0.76	0.61
Control Delay	19.4		16.8	4.1	53.4	9.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	19.4		16.8	4.1	53.4	9.3
LOS	B		B	A	D	A
Approach Delay	19.4			7.0	27.0	
Approach LOS	B			A	C	
Queue Length 50th (ft)	205		74	50	118	0
Queue Length 95th (ft)	271		m104	m97	157	14
Internal Link Dist (ft)	3570			975	734	
Turn Bay Length (ft)			125		175	
Base Capacity (vph)	1600		530	2507	320	559
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.60		0.55	0.38	0.69	0.58

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 31 (34%), Referenced to phase 2:EBWB and 6:, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 15.4
 Intersection Capacity Utilization 62.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 54: N. Old Kentucky Rd & E.10th St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Future Volume (vph)	0	560	295	370	890	0	0	0	0	180	0	400
Satd. Flow (prot)	0	3381	0	1752	3574	0	0	0	0	1770	0	1583
Flt Permitted				0.112						0.950		
Satd. Flow (perm)	0	3381	0	207	3574	0	0	0	0	1770	0	1583
Satd. Flow (RTOR)		109										140
Lane Group Flow (vph)	0	1002	0	420	927	0	0	0	0	200	0	471
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases				2								8
Total Split (s)		35.0		25.0	60.0					30.0		30.0
Total Lost Time (s)		6.5		5.5	6.5					7.0		7.0
Act Effct Green (s)		30.2		55.3	54.3					22.2		22.2
Actuated g/C Ratio		0.34		0.61	0.60					0.25		0.25
v/c Ratio		0.83		0.94	0.43					0.46		0.95
Control Delay		20.5		42.4	7.5					32.4		54.6
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		20.5		42.4	7.5					32.4		54.6
LOS		C		D	A					C		D
Approach Delay		20.5			18.4						48.0	
Approach LOS		C			B						D	
Queue Length 50th (ft)		88		176	113					95		192
Queue Length 95th (ft)		150		m#329	114					160		#341
Internal Link Dist (ft)		570			785			708			972	
Turn Bay Length (ft)				120								150
Base Capacity (vph)		1206		462	2155					452		508
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.83		0.91	0.43					0.44		0.93

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 44 (49%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 25.7

Intersection LOS: C

Intersection Capacity Utilization 72.1%

ICU Level of Service C

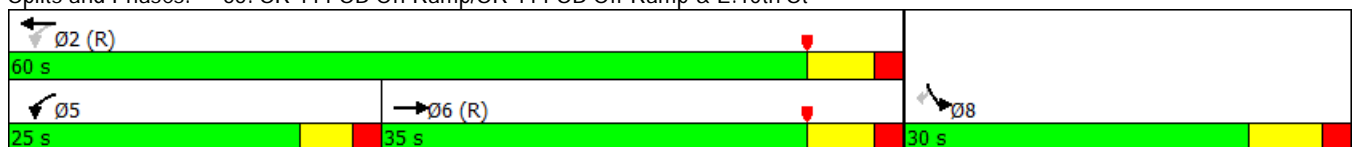
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 55: SR 111 SB On-Ramp/SR 111 SB Off-Ramp & E.10th St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Future Volume (vph)	135	610	0	0	890	140	355	0	305	0	0	0
Satd. Flow (prot)	1770	3574	0	0	3497	0	1787	0	2814	0	0	0
Flt Permitted	0.118						0.950					
Satd. Flow (perm)	220	3574	0	0	3497	0	1787	0	2814	0	0	0
Satd. Flow (RTOR)					27							
Lane Group Flow (vph)	175	693	0	0	1110	0	394	0	351	0	0	0
Turn Type	pm+pt	NA			NA		Prot		Perm			
Protected Phases	1	6			2		4					
Permitted Phases	6								4			
Total Split (s)	16.0	57.0			41.0		33.0		33.0			
Total Lost Time (s)	5.5	6.5			6.5		7.0		7.0			
Act Effct Green (s)	54.0	53.0			38.4		23.5		23.5			
Actuated g/C Ratio	0.60	0.59			0.43		0.26		0.26			
v/c Ratio	0.61	0.33			0.74		0.85		0.48			
Control Delay	11.9	4.1			23.3		48.7		29.9			
Queue Delay	0.0	0.2			1.3		0.0		0.1			
Total Delay	11.9	4.3			24.6		48.7		30.0			
LOS	B	A			C		D		C			
Approach Delay		5.8			24.6			39.9				
Approach LOS		A			C			D				
Queue Length 50th (ft)	29	88			143		204		92			
Queue Length 95th (ft)	m33	m102			243		#338		130			
Internal Link Dist (ft)		785			131			909			832	
Turn Bay Length (ft)	400								150			
Base Capacity (vph)	312	2104			1507		516		812			
Starvation Cap Reductn	0	0			204		0		0			
Spillback Cap Reductn	0	592			0		0		57			
Storage Cap Reductn	0	0			0		0		0			
Reduced v/c Ratio	0.56	0.46			0.85		0.76		0.46			

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 22.8

Intersection LOS: C

Intersection Capacity Utilization 72.1%

ICU Level of Service C

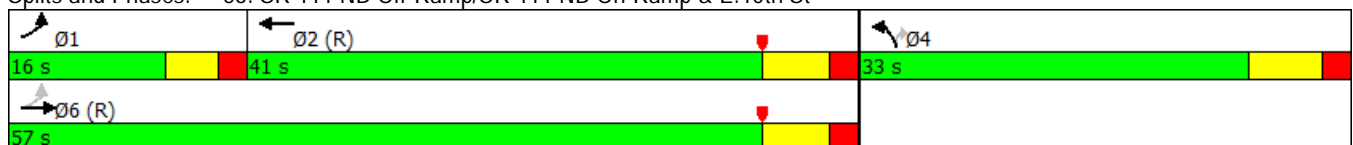
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 56: SR 111 NB Off-Ramp/SR 111 NB On-Ramp & E.10th St



Lanes, Volumes, Timings
57: Burton Branch Rd & E.10th St

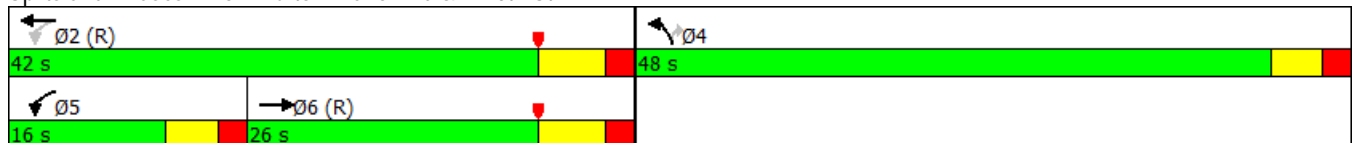
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	655	265	50	740	310	95
Future Volume (vph)	655	265	50	740	310	95
Satd. Flow (prot)	3406	0	1805	3574	1805	1615
Flt Permitted			0.110		0.950	
Satd. Flow (perm)	3406	0	209	3574	1805	1615
Satd. Flow (RTOR)	75					173
Lane Group Flow (vph)	1071	0	56	813	544	173
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Total Split (s)	26.0		16.0	42.0	48.0	48.0
Total Lost Time (s)	6.5		5.5	6.5	5.5	5.5
Act Effct Green (s)	32.0		45.4	44.4	33.6	33.6
Actuated g/C Ratio	0.36		0.50	0.49	0.37	0.37
v/c Ratio	0.85		0.20	0.46	0.81	0.24
Control Delay	38.4		15.7	17.4	34.7	3.3
Queue Delay	7.8		0.0	0.1	18.7	0.0
Total Delay	46.2		15.7	17.5	53.4	3.3
LOS	D		B	B	D	A
Approach Delay	46.2			17.4	41.3	
Approach LOS	D			B	D	
Queue Length 50th (ft)	328		16	155	269	0
Queue Length 95th (ft)	#493		42	244	173	0
Internal Link Dist (ft)	131			316	647	
Turn Bay Length (ft)			100			175
Base Capacity (vph)	1260		291	1764	852	853
Starvation Cap Reductn	162		0	0	0	0
Spillback Cap Reductn	0		0	190	305	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.98		0.19	0.52	0.99	0.20

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 35.4
 Intersection Capacity Utilization 66.7%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 57: Burton Branch Rd & E.10th St



Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

61: SR 135/S. Willow Ave & County Services Dr/Orchard St

07/12/2017

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Future Volume (vph)	15	10	10	35	35	80	40	915	10	60	755	40
Satd. Flow (prot)	1787	1700	0	0	1708	0	1626	3568	0	1787	3494	0
Flt Permitted	0.692				0.904		0.274			0.237		
Satd. Flow (perm)	1302	1700	0	0	1563	0	469	3568	0	446	3494	0
Satd. Flow (RTOR)		26			62			2			7	
Lane Group Flow (vph)	29	46	0	0	160	0	63	955	0	70	870	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			3		5	2		1	6	
Permitted Phases	4			3			2			6		
Total Split (s)	26.0	26.0		26.0	26.0		14.0	50.0		14.0	50.0	
Total Lost Time (s)	5.5	5.5			5.5		5.5	6.5		5.5	6.5	
Act Effct Green (s)	9.6	9.6			9.6		30.3	25.5		30.0	25.3	
Actuated g/C Ratio	0.18	0.18			0.18		0.56	0.47		0.55	0.47	
v/c Ratio	0.13	0.14			0.49		0.15	0.57		0.17	0.53	
Control Delay	23.5	14.9			20.4		5.6	13.7		5.7	13.3	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	23.5	14.9			20.4		5.6	13.7		5.7	13.3	
LOS	C	B			C		A	B		A	B	
Approach Delay		18.3			20.4			13.2			12.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	8	6			29		6	127		7	113	
Queue Length 95th (ft)	17	13			91		14	220		22	198	
Internal Link Dist (ft)		674			289			17			564	
Turn Bay Length (ft)	100						100			200		
Base Capacity (vph)	520	695			661		459	2911		475	2851	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.06	0.07			0.24		0.14	0.33		0.15	0.31	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 54.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 13.7

Intersection Capacity Utilization 60.5%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B










Splits and Phases: 61: SR 135/S. Willow Ave & County Services Dr/Orchard St

Ø1	Ø2	Ø3
14 s	50 s	26 s
Ø5	Ø6	Ø4
14 s	50 s	26 s

Lanes, Volumes, Timings
95: Foutch Dr

2040 Recommended AM Timing Plan

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	0	50	0	55
Future Volume (vph)	10	0	0	50	0	55
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Lane Group Flow (vph)	12	0	0	65	0	57
Sign Control	Yield		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%













ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
 241: SR 136/S. Jefferson Ave & Fairground St

2040 Recommended AM Timing Plan

07/12/2017

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
Traffic Volume (vph)	10	10	10	1100	505	10
Future Volume (vph)	10	10	10	1100	505	10
Satd. Flow (prot)	1721	0	0	5131	3596	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1721	0	0	5131	3596	0
Lane Group Flow (vph)	29	0	0	1150	537	0
Sign Control	Stop			Free	Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 38.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection
 Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑↑	↑↑	
Traffic Vol, veh/h	10	10	10	1100	505	10
Future Vol, veh/h	10	10	10	1100	505	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	63	63	97	97	63
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	13	16	16	1134	521	16









Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1014	268	536	0	-	0
Stage 1	529	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Critical Hdwy	6.25	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	271	736	1042	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	260	736	1042	-	-	-
Mov Cap-2 Maneuver	260	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	14.7		0.2		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1042	-	401	-	-
HCM Lane V/C Ratio	0.015	-	0.073	-	-
HCM Control Delay (s)	8.5	0.1	14.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lanes, Volumes, Timings
 271: Foutch Dr & SR 136/S. Jefferson Ave

2040 Recommended AM Timing Plan
 07/12/2017

						
Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	540	325	50	0	0
Future Volume (vph)	0	540	325	50	0	0
Satd. Flow (prot)	0	3369	3297	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3369	3297	0	0	0
Lane Group Flow (vph)	0	593	409	0	0	0
Sign Control		Free	Free		Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 18.3%

Analysis Period (min) 15

ICU Level of Service A

Lanes, Volumes, Timings

2040 Recommended AM Timing Plan

361: US 70/E. Spring St & I-40 WB On-Ramp (SB)/I-40 WB On-Ramp (NB)

07/12/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Future Volume (vph)	0	0	0	0	0	0	255	545	10	0	285	145
Satd. Flow (prot)	0	0	0	0	0	0	0	3285	0	0	3269	0
Flt Permitted								0.985				
Satd. Flow (perm)	0	0	0	0	0	0	0	3285	0	0	3269	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	955	0	0	466	0
Sign Control		Free			Free			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 42.0%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
521: Brown Ave S & E.10th St

2040 Recommended AM Timing Plan
07/12/2017

	→	↘	↙	←	↖	↗	Ø1	Ø3	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑		↘	↑↑	↘				
Traffic Volume (vph)	720	25	10	995	50	10			
Future Volume (vph)	720	25	10	995	50	10			
Satd. Flow (prot)	3581	0	1805	3574	1786	0			
Flt Permitted			0.343		0.960				
Satd. Flow (perm)	3581	0	652	3574	1786	0			
Satd. Flow (RTOR)	24				8				
Lane Group Flow (vph)	819	0	16	1106	83	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	3 6			2	4		1	3	6
Permitted Phases			2						
Total Split (s)			43.5	43.5	12.0		11.5	23.0	55.0
Total Lost Time (s)			5.5	5.5	5.5				
Act Effct Green (s)	64.6		36.9	36.9	6.6				
Actuated g/C Ratio	0.78		0.45	0.45	0.08				
v/c Ratio	0.29		0.05	0.69	0.55				
Control Delay	0.4		16.1	22.1	51.9				
Queue Delay	0.0		0.0	0.0	0.0				
Total Delay	0.4		16.1	22.1	51.9				
LOS	A		B	C	D				
Approach Delay	0.4			22.0	51.9				
Approach LOS	A			C	D				
Queue Length 50th (ft)	0		5	269	42				
Queue Length 95th (ft)	0		13	346	68				
Internal Link Dist (ft)	23			2105	565				
Turn Bay Length (ft)			115						
Base Capacity (vph)	2898		305	1675	150				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	0	0				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.28		0.05	0.66	0.55				

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 82.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.5

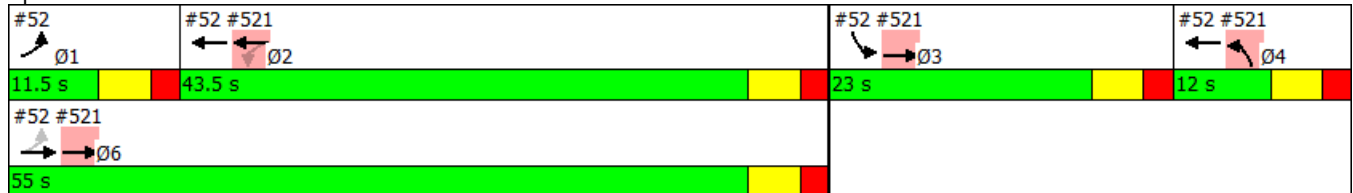
Intersection Capacity Utilization 41.7%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A












Splits and Phases: 521: Brown Ave S & E.10th St



Lanes, Volumes, Timings
 5: SR 135/S. Willow Ave & Fairground St

2040 Recommended PM Timing Plan

07/12/2017

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	130	1035	135	70	1305
Future Volume (vph)	35	130	1035	135	70	1305
Satd. Flow (prot)	1805	1583	3507	0	1752	3574
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1583	3507	0	1752	3574
Lane Group Flow (vph)	51	151	1230	0	111	1450
Sign Control	Stop		Free			Free

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	35	130	1035	135	70	1305
Future Vol, veh/h	35	130	1035	135	70	1305
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	86	97	83	63	90
Heavy Vehicles, %	0	2	1	0	3	1
Mvmt Flow	51	151	1067	163	111	1450

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2095	615	0	0	1230	0
Stage 1	1148	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	~ 46	434	-	-	557	-
Stage 1	269	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 37	434	-	-	557	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	269	-	-	-	-	-
Stage 2	274	-	-	-	-	-

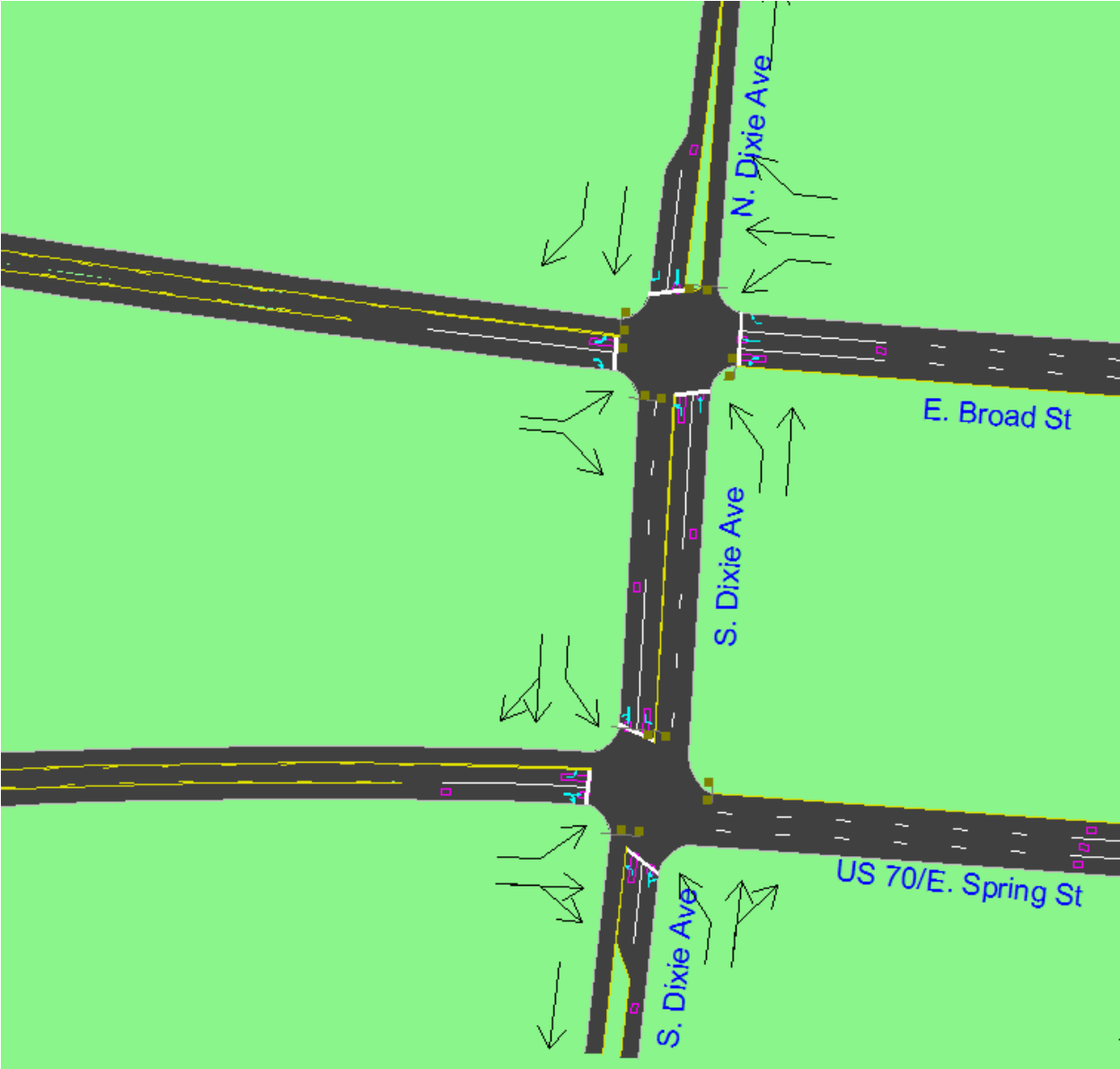
Approach	WB	NB	SB
HCM Control Delay, s	24.4	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	434	557	-
HCM Lane V/C Ratio	-	-	0.36	0.348	0.199	-
HCM Control Delay (s)	-	-	44.2	17.7	13.1	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.5	1.5	0.7	-

Notes

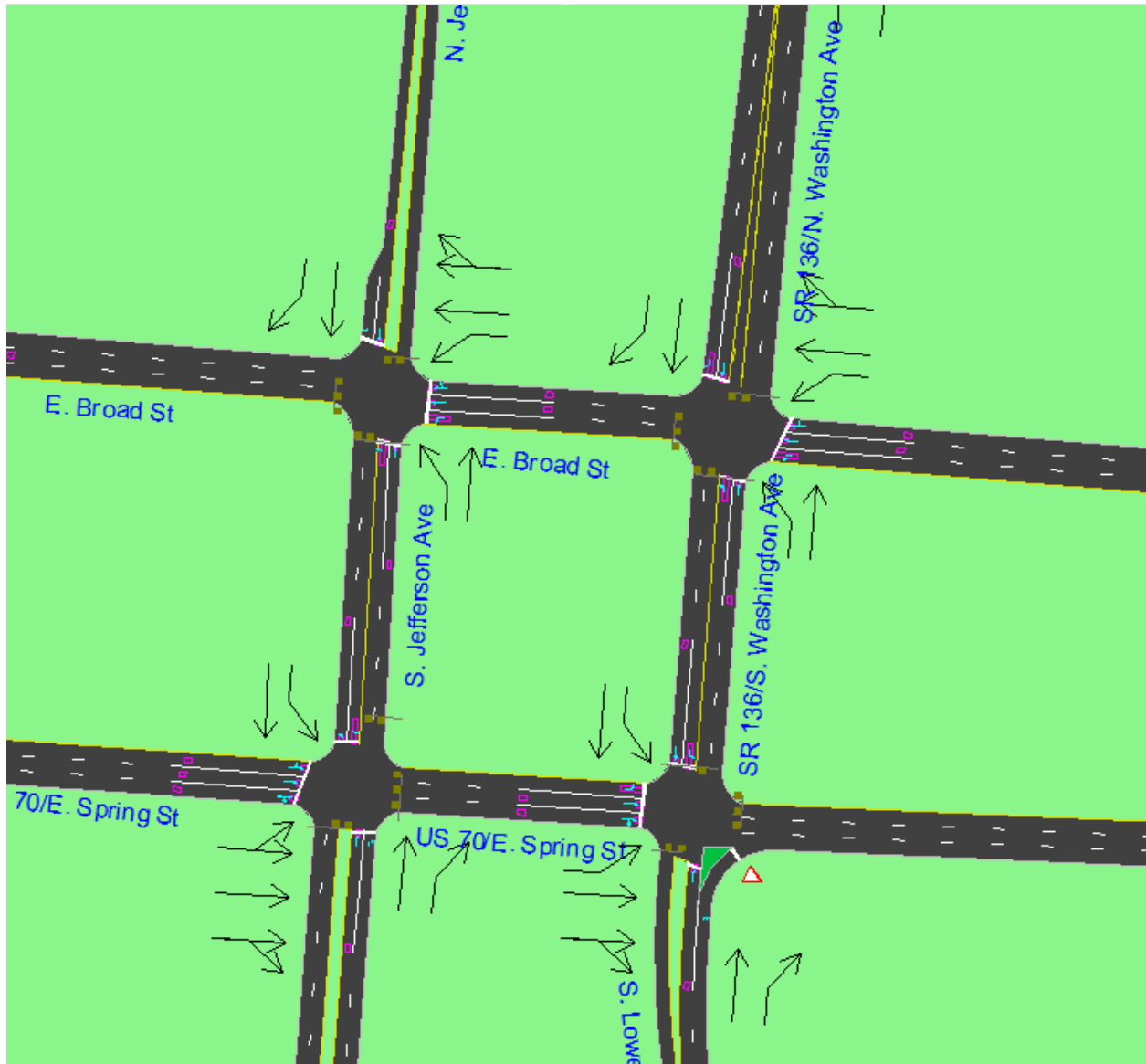
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Appendix G: One-Way Pair Lane Configuration

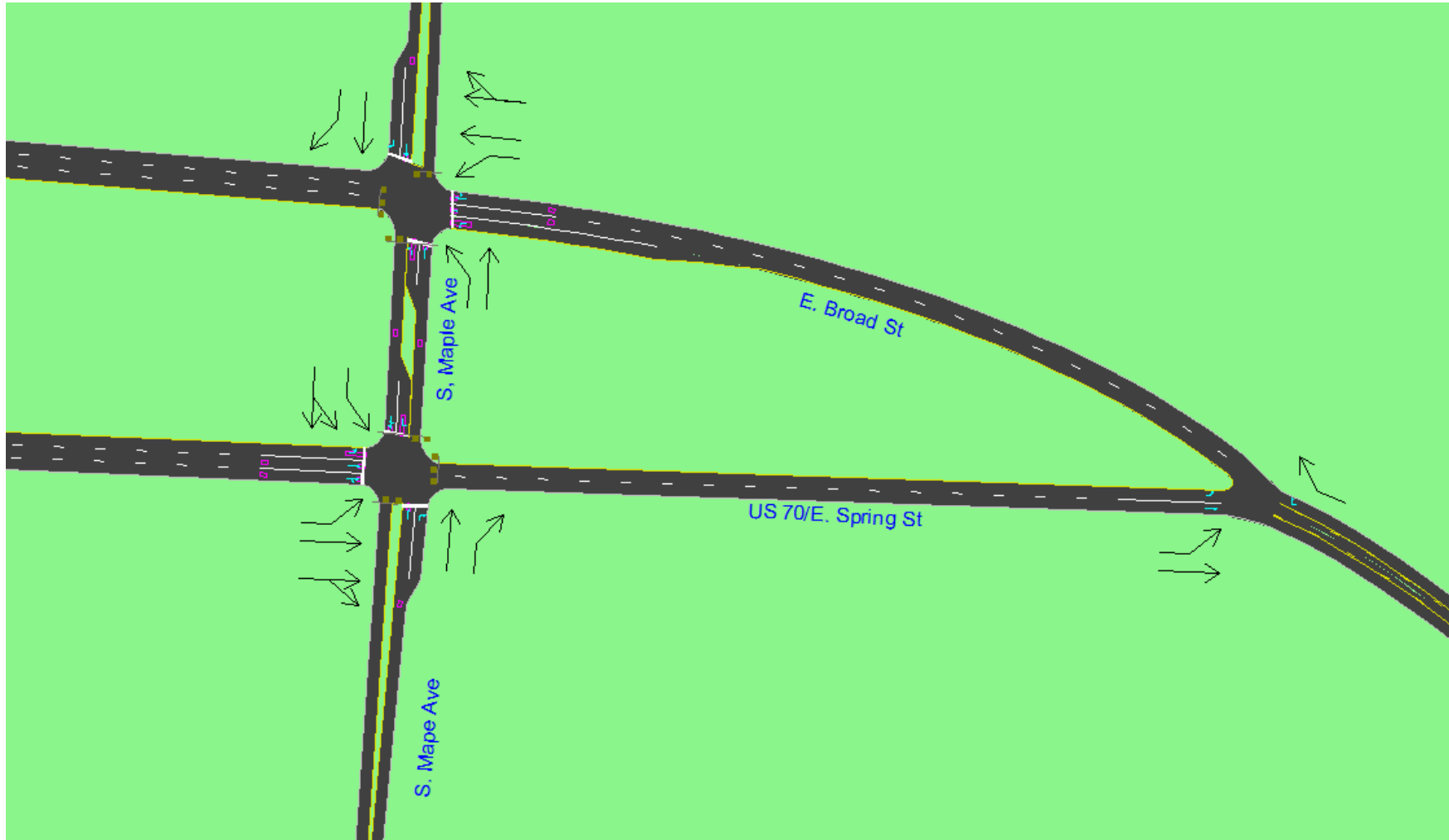


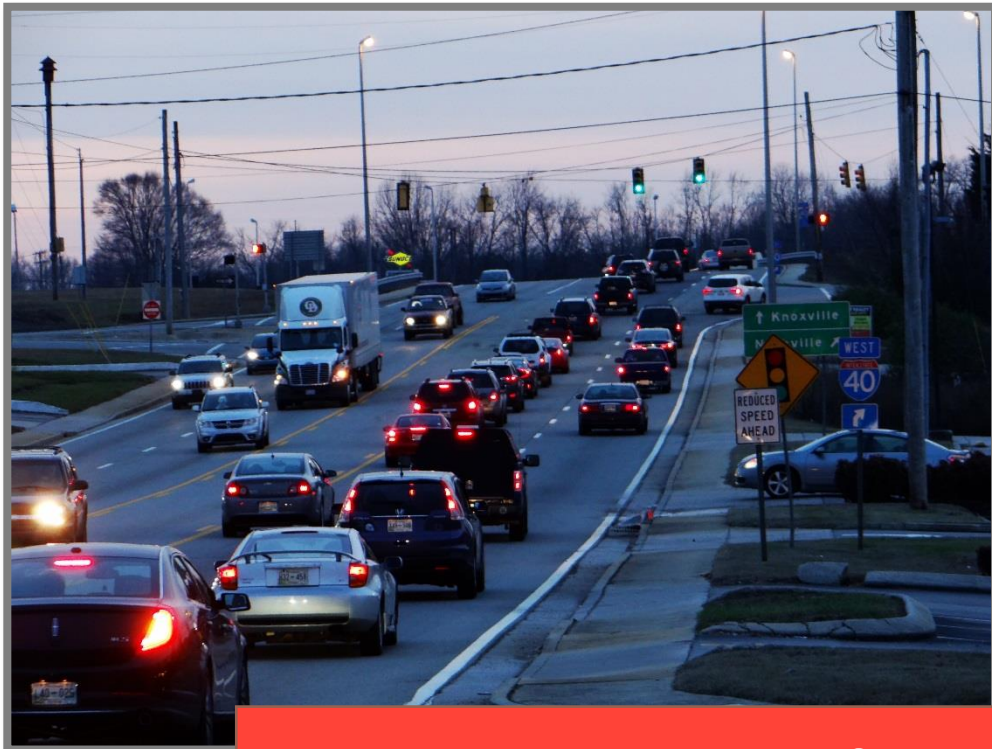
One-Way Pair Lane Configuration at Dixie Avenue

One-Way Pair Lane Configuration at Jefferson Avenue and Washington Avenue



One-Way Pair Lane Configuration at Maple Avenue





City of Cookeville Major Street Plan Update

October 2017

Table of Contents

1. Introduction	1
2. Data Collection	1
3. Roadway Segment Level of Service Analysis.....	1
3.1. Methodology.....	1
3.2. Level of Service Results	2
4. Growth Rate Methodology	9
5. Future Roadway Segment Level of Service Analysis	10
5.1. Future Volume Development	10
5.2. Programmed Improvements.....	10
5.3. 2040 No-Build Level of Service Results	15
6. Projects to Address Corridors with Failing LOS.....	24
6.1. Construction of Northern East-West Connector	24
6.2. Widening of Highway 70N near I-40.....	24
6.3. Widening of East Spring Street east of downtown	24
6.4. Widening of West 12th Street	25
6.5. East 10th Street.....	25
6.6. S. Walnut Avenue.....	25
6.7. E. Spring Street from Walnut Avenue to Broad Street	26
6.8. East-West Connectivity near I-40.....	26
7. Recommendations From 2017 Cookeville Corridor Analysis	27
8. All Recommended MSP Projects.....	27

List of Tables

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP.....	5
Table 2: Annual Growth Rate Based on Historical Traffic Counts.....	9
Table 3: Growth Rates Used to Forecast 2040 AADT Volumes.....	10
Table 4: Current Status of Projects in the 2030 Cookeville Plan (as of October 2017)	11
Table 5: 2040 No-Build Roadway Segment Level of Service.....	18
Table 6: Roadway Segments Failing in 2040 No-Build conditions (Summarized from Table 5)	23
Table 7: Proposed Improvements on Key Corridors, by General Priority.....	29
Table 8: Proposed Projects, Major Street Plan	30

List of Figures

Figure 1: FDOT Generalized Service Volumes (figure referenced in Cookeville 2003 MRTP)	2
Figure 2: Existing Level of Service (2015) by Roadway Segment	4
Figure 3: Current Status of Transportation Projects in the Cookeville 2030 Plan	16
Figure 4: Projected Level of Service by Roadway Segment, 2040 No-Build Conditions	17
Figure 5: Improvements Recommended by the Cookeville Corridor Analysis	28

1. Introduction

Part of the update to the City's Major Street Plan involves estimating the current level of service (LOS) for each functionally classified road. This technical memo discusses data collection, the analysis method used, and recommends an annual growth rate to be applied to existing traffic volumes to forecast future year traffic. It then presents updated roadway LOS for existing conditions (2015) and compares those values to the LOS projections developed for the 2003 Cookeville Major Route Transportation Plan.

2. Data Collection

Average Annual Daily Traffic (AADT) counts were obtained from Tennessee Department of Transportation (TDOT) traffic history¹ and supplemented with AADT counts performed by the City of Cookeville. At the majority of the locations, the most recent traffic counts were from 2015. Counts that were collected prior to 2015 were "grown" to 2015 volumes using the same growth rates assumed for projecting future year AADT (see Section 4, *Growth Rate Methodology*).

At a few locations where 2015 forecasts were based on much older count data, new counts were conducted by TDOT in September 2017 to verify AADT volume trends. The 2017 counts were found to be lower than the forecasted 2015 counts. To be conservative, the higher 2015 forecasts were used for projecting future year AADT. This traffic forecasting analysis used the highest volume along a segment when AADT counts were available at multiple locations along the segment.

3. Roadway Segment Level of Service Analysis

3.1. Methodology

The methods used to calculate LOS for the 2003 MRTP were reviewed with the goal of using a comparable approach so that values could be compared between the old and new plans.

The 2003 MRTP used 2002 traffic volumes to determine segment LOS values along street and roadway segments throughout Cookeville. The 2002 traffic volumes were projected to what were then future years of 2007 and 2027, and LOS values were determined for each of these two horizon years. Roadway segment LOS was estimated based on using the Florida Department of Transportation (FDOT) generalized planning methodology. The thresholds for the tables referenced in 2003 are shown graphically in **Figure 1**. As shown in the figure, link level of service values were determined using the number of lanes, signal spacing, and the link volume as inputs.

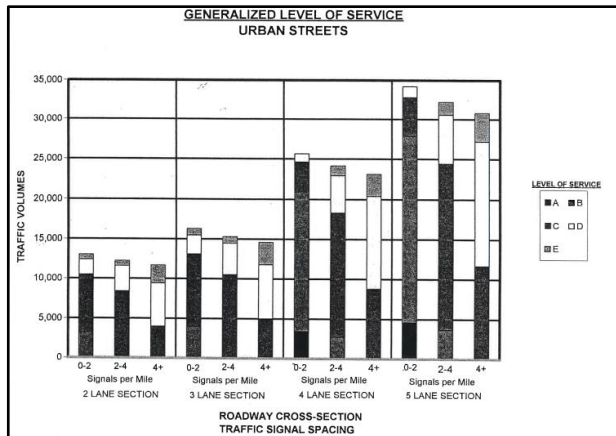
To facilitate a reasonable comparison with the 2003 MRTP, this analysis therefore uses the latest (2013) FDOT generalized service planning tables to determine the existing LOS for each roadway functional class, by segment. The LOS volume thresholds in the latest FDOT tables² vary based on the following factors:

- Population of surrounding area (Urbanized, Transitioning, Rural)
- Facility Type (signalized arterial, freeway, uninterrupted flow highway)
- Posted speed limit
- Geometry (number of lanes, median type, presence of turn lanes, etc.)

¹ <https://www.tdot.tn.gov/APPLICATIONS/traffichistory>

² <http://www.fdot.gov/planning/systems/programs/sm/los/pdfs/fdot%202012%20generalized%20service%20volume%20tables.pdf>

Figure 1: FDOT Generalized Service Volumes (figure referenced in Cookeville 2003 MRTP)



The 2003 MRTP update states that the thresholds in the Class I and Class II Signalized Arterials section of Table 2 of the FDOT tables were used to determine the segment LOS. However, it is not clear how the LOS of *unsignalized* street and roadway segments was determined in the 2003 MRTP, and there is no guidance included with criteria reference shown in Figure 1. The 2013 Florida Quality/Level of Service Handbook³, which provides guidance for using the current generalized planning tables, also does not include guidance for unsignalized street and roadway segments.

This study therefore used the thresholds for a 2-lane undivided roadway in the Class II Signalized Arterials section of Table 2 of the FDOT tables with a 10% reduction in thresholds for non-state roadways as the base thresholds for unsignalized road segments. This provides a relatively conservative estimate for LOS thresholds for these roadways. Fisk Road, which has three lanes (center lane is reversible), was analyzed as a 2-lane roadway to be conservative.

3.2. Level of Service Results

Figure 2 shows the existing LOS for each functionally classified roadway in the city, by segment. In urban areas, LOS C and D are considered adequate, while LOS F represents undesirable operating conditions.

Table 1 lists each roadway segment and its current LOS, compared to the values from the 2003 MRTP for the years 2002, 2007, and 2027. Three roadway segments currently operate at a failing level of service (LOS E or F):

- E. Spring Street (US 70N/SR 24) from SR 111 to I-40 (LOS E)
- E. 10th Street from Washington Avenue (SR 136) to Chocolate Drive (LOS F)
- E. Spring Street (US 70N/SR 24 from Avery Trace Middle School to Broad Street (LOS F)

E. 10th Street serves as a key corridor for those accessing Cookeville from north and east of the city but has limited capacity (two lanes plus a center turn lane). The relative importance of this segment is evidenced by the AADT, which exceeded 17,000 vehicles per day in 2015. This volume is higher than the traffic volumes on SR 24/US 70N in Cookeville and is high enough to result in an LOS F for this 3-lane

³ <http://www.fdot.gov/planning/systems/programs/SM/los/pdfs/2013%20QLOS%20Handbook.pdf>

facility. In addition to the traffic volumes, several factors along E. 10th Street further exacerbate the congestion issues including uncoordinated traffic signals and close spacing between driveways.

Similarly, E. Spring Street (US 70N/SR 24) serves as a key east-west corridor into and out of Cookeville to and from points south and east of the city. The two failing segments are both located east of downtown. The segment operating at LOS F, just east of downtown, has seen an increase of 1,800 vehicles per day in traffic volume since the 2003 MRTTP report, which also documented this segment as operating at LOS F. Since the 2003 report was completed, this segment has been widened for a short distance to provide a center turn amidst multi-family residential and commercial driveways; however, the analysis still shows the segment operating at LOS F. The segment operating at LOS E is a two-lane segment with limited right or left-turn lanes that serves primarily suburban and semi-rural land uses.

As part of the existing conditions analysis it was noted that a reversible lane operation exists on Fisk Road between E. 10th Street and Shag Rag Road. A safety analysis of this segment determined that there is presently no significant crash history along this segment. However, as traffic on this roadway segment continues to increase this segment should be monitored to ensure that it continues to operate safely. Details of the crash history and safety analysis can be found in the Safety Report.

Figure 2: Existing Level of Service (2015) by Roadway Segment

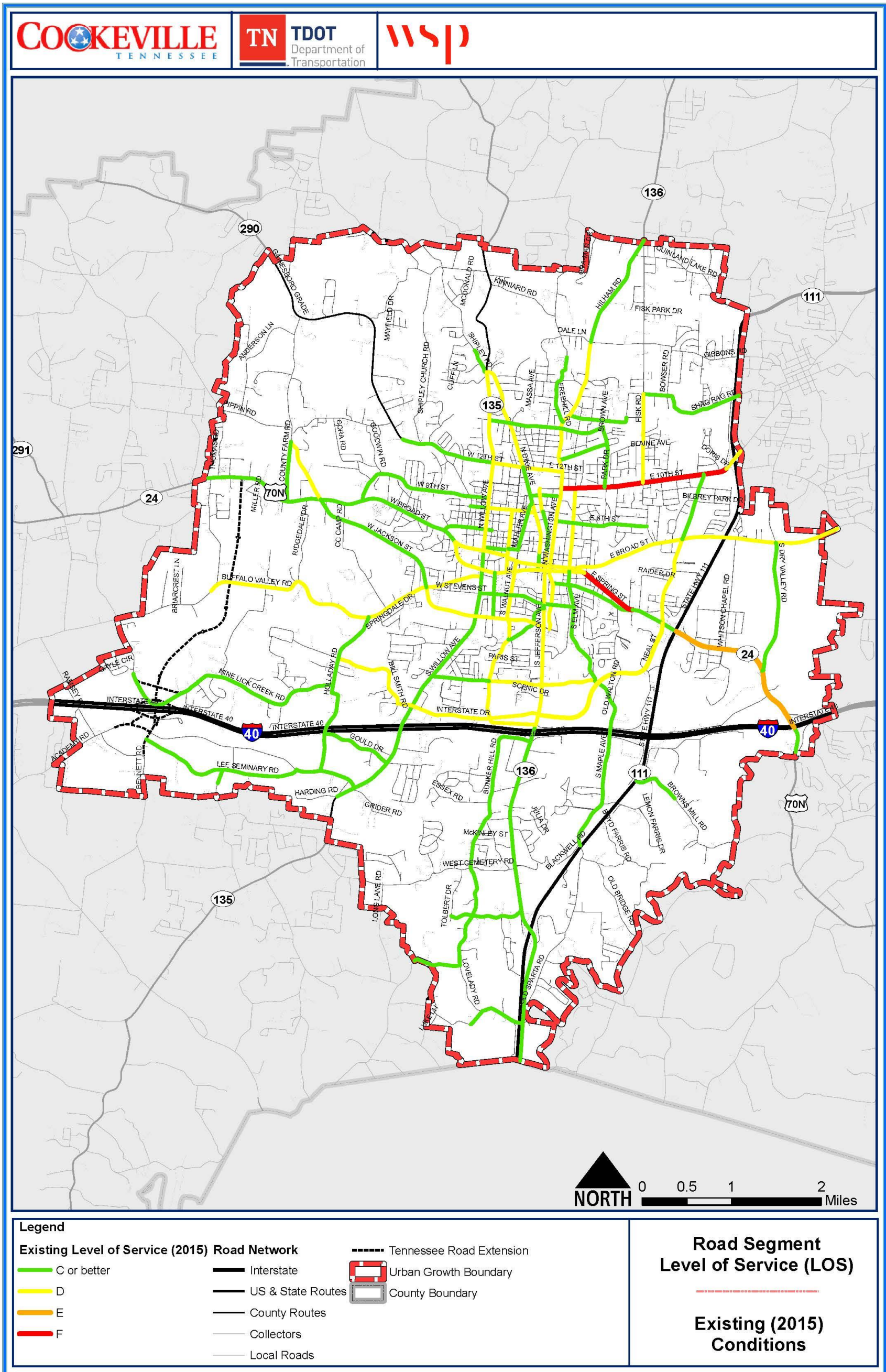


Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street	From	To	Class	2015 AADT	2015 LOS	2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
1st Street West	Cedar Ave	Walnut Ave	Minor Collector	4,200	C				
1st Street East	Willow Ave	Cedar Ave	Minor Collector	948	C				
4th Street West	Broad St	Whitney Ave	Minor Collector	1,966	C	1,525	B	B	B
6th Street East	Washington Ave	Fisk Rd	Minor Collector	1967*	C	1,334	B	B	B
7th Street	Willow Ave	Dixie Ave	Major Collector	8,414	D	8,711	D	D	F
7th Street West	Franklin Ave	Willow Ave	Minor Collector	3,523	C	2,778	B	B	C
9th Street East	Dixie Ave	Washington Ave	Minor Collector	1,150†	C				
9th Street West/Crescent Drive	Broad St	Willow Ave	Minor Collector	3,083	C	2,360			
10th Street East	Washington Ave	Chocolate	Major Arterial	17,505	F	14,127	D	E	F
10th Street East	Chocolate	City Limits	Major Arterial	13,907	D	12,536	B	B	B
12th Street (SR 290)	City Limits	Franklin Ave	Minor Arterial	9,700†	C	7,500	C	C	D
12th Street (SR 290)	Franklin Ave	Willow Ave	Minor Arterial	9,283	C	8,272	B	B	B
12th Street	Willow Ave	Mississippi Ave	Minor Arterial	13796*	D	7,157	C	C	C
12th Street	Mississippi Ave	Washington Ave	Minor Arterial	10,116	D	5,093	C	C	C
15th Street East	Washington Ave	Brown Ave	Minor Arterial	1,677	C	1,369	B	B	B
20th Street East	Washington Ave	Summerfield Rd	Minor Collector	3,232	C	2,851	B	B	C
Bill Smith Road / Foreman Drive	Holladay Rd	Willow Ave	Major Collector	4,936	D	4,386	C	C	C
Broad Street / US 70N	City Limits	Jackson St	Major Arterial	8,362	C	8,588	C	C	F
Broad Street / US 70N	Jackson St	Spring St	Major Arterial	7,789	C	8,588	C	C	F
Broad Street	Spring St	Cedar Ave	Major Collector	6,687	D	6,171	C	C	C
Broad Street	Cedar Ave	Washington Ave	Major Collector	6992*	D	7,030	D	D	D
Broad Street	Washington Ave	Spring Extension	Major Collector	7941*	D	7,568	C	C	D
Broad Street	Spring Extension	US 111	Major Collector	5,461	D	4,300	C	C	C
Broad Street / Buck Mt. Road	US 111	City Limits	Major Collector	4,750	D	3,248	C	C	C
Brown Avenue	10th St.	Jere Whitson Rd	Minor Collector	2,646	C	2,531	B	B	C
Brown's Mill Road	US 111	City Limits	Minor Collector	900†	C				

†AADT is factored 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street	From	To	Class	2015 AADT	2015 LOS	2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Buffalo Valley Road	City Limits	Jackson St	Major Collector	6,508	D	4,651	C	C	C
Buffalo Valley Road	Jackson St	Willow Ave	Minor Collector	5,543	D	4,016	C	C	C
Bunker Hill Road	City Limits	Davis Rd	Major Collector	2516*	C	2,000	B	B	C
Bunker Hill Road	Davis Rd	S Jefferson Ave	Minor Collector	4,482	C	719	B	B	B
Cane Creek Road	City Limits	Lee Seminary Rd	Major Collector	328**	C				
Cedar Avenue	Spring St	7th St	Major Collector	4985*	D	3,784	C	C	C
County Farm Road	Spring St / US 70N	Pippin Rd	Minor Collector	923	C	Segment added to provide context			
Dixie Avenue	Spring St	1st St	Major Collector	4,520	C	7,109	D	D	D
Dixie Avenue	1st St	Mahler Ave	Major Collector	4769*	D	7,109	C	C	D
Dixie Avenue	Mahler Ave	12th St	Major Collector	8,353	C	7,308	C	C	D
Dixie Avenue	12th St	Willow Ave	Major Collector	4828*	D	6,606	C	C	D
Dry Valley Road	US 70N	Buck Mountain Rd	Major Collector	2,688	C	2,234	B	B	C
Fairground Street	Willow Ave	Walnut Ave	Major Collector	4124*	C	2,182	B	B	C
Fisk Road	10th St	City Limits	Major Collector	6,116	D	4,118	C	C	C
Foutch Drive	Walnut Ave	Jefferson Ave	Minor Collector	751	C	2,635	B	B	C
Freehill Road	Washington Ave	City Limits	Minor Collector	1275*	C	1,141	B	B	B
Gould Drive	Holladay Rd	Willow Ave	Minor Collector	2254*	C	2,362	B	B	C
Hawkins Crawford Road	City Limits	Mine Lick Creek Rd	Minor Collector	2,000	C				
Holladay Road	Lee Seminary Rd	Buffalo Valley Rd	Minor Collector	889*	C	3,700	C	C	C
Hudgens Street	Lowe Ave	Spring St	Minor Collector	2,854	C	2,944	B	C	C
Interstate Drive	Willow Ave	Jefferson Ave	Major Arterial	15,197	D	12,929	B	B	B

+AADT is factored 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTTP

Street	From	To	Class	2015 AADT	2015 LOS	2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Jackson Street	Broad St	Cane Creek Elementary	Major Arterial	10,132	C	8,138	B	B	B
Jackson Street	Cane Creek Elementary	Buffalo Valley Rd	Major Arterial	11,161	C	9,088	C	C	C
Jackson Street	Buffalo Valley Rd	Willow Ave	Major Arterial	18,260	D	11,281	C	C	C
Jackson Street	Willow Ave	Scott Ave	Minor Arterial	13182***	D	13,117	D	D	D
Jackson Street	Scott Ave	Walnut Ave	Minor Arterial	13,048	D	13,117	D	D	E
Jackson Street	Walnut Ave	Jefferson Ave	Minor Arterial	13,246	D	13,117	B	B	B
Jefferson Avenue	City Limits	US 111 NB Ramps	Minor Collector	2,598	C	2,427	B	B	C
Jefferson Avenue (SR 136)	US 111 NB Ramps	Davis Rd	Major Arterial	11,270	C	13,331	D	D	F
Jefferson Avenue (SR 136)	Davis Rd	Bunker Hill Rd	Major Arterial	14,836	C	13,331	B	B	C
Jefferson Avenue (SR 136)	Bunker Hill Rd	I-40	Major Arterial	14,836	C	13,331	D	D	D
Jefferson Avenue (SR 136)	I-40	Stevens St	Major Arterial	24,357	D	25,551	D	D	F
Jefferson Avenue (SR 136)	Stevens St	Spring St	Major Arterial	15,138	D	15,280	D	D	F
Jefferson Avenue	Spring St	1st St	Minor Collector	7874***	D	1,924	C	C	C
Jefferson Avenue	1st St	7th St	Minor Collector	2221*	C	2,060	B	B	C
Jefferson Avenue	7th St	10th St	Minor Collector	5,870	D	4,828	C	C	C
Jere Whitson Road	Willow Ave	Brown Ave	Minor Collector	4184*	C	4,166	C	C	C
Lee Seminary Road	Bennett Rd	Holladay Rd	Minor Collector	910	C				
Lee Seminary Road	Holladay Rd	Burgess Falls Rd	Minor Collector	1,063	C				
Lovelady Road	City Limits	Jefferson Ave	Minor Collector	441	C	533	B	B	B
Lowe Avenue	Jackson St	Spring St	Minor Arterial	11048***	D	11,870	D	D	D
Mahler Avenue	1st St	6th St	Major Collector	4,209	C	2,702	B	B	C
Mahler Avenue	6th St	Dixie Ave	Major Collector	4,209	C	2,702	B	B	C
Maple Avenue	10th St	Broad St	Major Collector	6154**	D	2,983	B	C	C
Maple Avenue	Broad St	Hudgens St	Major Collector	4602*	C	1,392	B		
Maple Avenue	Hudgens St	Veterans Dr	Major Collector	3,647	C	2,123	B	B	C
Maple Avenue	Veterans Dr	I-40 Overpass	Minor Collector	4,204	C	2,196	B	B	B
Maple Avenue	I-40 Overpass	US 111	Minor Collector	2,626	C	3,517	C	C	C
Mine Lick Creek Road	City Limits	Holladay Rd	Minor Collector	1148*	C				
Neal Street	Jefferson Ave	Spring St	Major Arterial	14,630	D	11,269	B	B	B

+AADT is factored 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 1: Existing LOS (2015) by Roadway Segment, Compared to 2003 MRTP

Street	From	To	Class	2015 AADT	2015 LOS	2002 AADT	2002 LOS	Projected 2007 LOS	Projected 2027 LOS
Old Kentucky Road	Spring St	Broad St	Major Collector	7,732	D	5,701	C	C	C
Old Kentucky Road	Broad St	10th St	Major Collector	5,837	C	Segment added to provide context			
Pigeon Roost Creek Road	City Limits	Jefferson Ave	Minor Collector	1,127	C	1,247	B	B	B
Pippin Road	US 70N	County Farm Rd	Minor Collector	5656*	D	Segment added to provide context			
Scott Avenue	Jackson St	Spring St	Minor Collector	3797*	C	2,827	C	C	C
Summerfield Road / Shag Rag Road	Fisk Rd	City Limits	Minor Collector	1,579	C	1,712	B	B	B
Shipleigh Road	City Limits	Willow Ave	Minor Collector	2382*	C	2,343	B	B	C
Stevens Street	Willow Ave	Maple Avenue	Minor Collector	4,478	C	3,369	C	C	C
Veterans Drive	Walnut Ave	Neal St	Minor Collector	8,255	D	5,068	C	C	C
Walnut Avenue	Broad St	Interstate Dr	Major Collector	8,931	D	4,845	C	C	C
Walnut Avenue	Interstate Dr	Jefferson Ave	Minor Collector	5,879	D	4,056	D	D	D
N Washington Ave (SR 136)	Spring St	Broad Ave	Major Arterial	10301***	D	12,495	E	E	F
N Washington Ave (SR 136)	Broad Ave	1st St	Major Arterial	11,523	D	12,495	C	C	C
N Washington Ave (SR 136)	1st St	10th St	Major Arterial	16,640	D	13,484	D	E	F
N Washington Ave (SR 136)	10th St	15 St/17th*	Major Arterial	15,256	D	9,446	B	B	B
N Washington Ave (SR 136)	15 St/17th	Whitaker Springs	Major Arterial	9660*	D	5,582	D	D	D
N Washington Ave (SR 136)	Whitaker Springs	City Limits	Minor Arterial	4,867	C	5,671	C	C	C
N Willow Ave (SR 135)	Dixie Ave	12th St	Major Arterial	8,495	D	7,711	C	C	E
N Willow Ave (SR 135)	12th St	Broad St	Major Arterial	16,076	D	15,361	C	C	F
S Willow Ave (SR 135)	Broad St	I-40	Major Arterial	24,690	C	23,878	C	D	F
S Willow Ave (SR 135)	I-40	City Limits	Major Arterial	14,925	C	14,943	F	F	F
Spring St East (US 70N)	City Limits	I-40	Major Arterial	8,623	C	8,170	C	C	F
Spring St East (US 70N)	I-40	US 111	Major Arterial	11,256	E				
Spring St East (US 70N)	US 111	Old Kentucky Rd	Major Arterial	17,034	C	12,294	D	D	D
Spring St East (US 70N)	Old Kentucky Rd	School	Major Arterial	13,802	C	13,495	D	D	F
Spring St East (US 70N)	School	Split	Major Arterial	15269*	F	13,495	F	F	F
Spring St East (US 70N)	Split	Walnut Ave	Major Arterial	10,760	D	10,312	D	D	F
Spring St East (US 70N)	Walnut Ave	Broad St	Major Arterial	8,341	D	8,415	C	C	D

†AADT is factored 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

4. Growth Rate Methodology

Before projecting future roadway LOS, it is necessary to determine the traffic growth rates to be applied.

Growth rates for the SR 135, SR 136 and SR 24/US 70N corridors have already been proposed and documented separately in the Corridor Analysis Existing Conditions Report. (See Table 9 in that report.)

A 1 percent annual growth rate is recommended for use on the city's other arterial corridors, based on analysis of historical growth rates across all count locations in Cookeville, excluding I-40 and SR 111. As shown in **Table 2**, the average of the 5, 10, and 15-year historical traffic growth rate for these stations is just over 1 percent.

Table 2: Annual Growth Rate Based on Historical Traffic Counts

Count Stations	Annual Growth Rate			Average
	5-year	10-year	15-year	
<i>Cookeville Stations</i>	0.29%	1.28%	1.45%	1.01%

With a conservative assumption that the major arterials will reach saturation, causing motorists to use non-arterial routes, it is reasonable to assume that traffic volumes will grow at a higher rate for non-arterial roadways. Accordingly, a 1.5 percent annual growth rate in traffic volumes has been used to project future volumes on corridors that are not functionally classified as arterials.

5. Future Roadway Segment Level of Service Analysis

5.1. Future Volume Development

Annual Average Daily Traffic (AADT) volumes were forecast for the 2040 conditions using the growth rates listed in **Table 3** and the 2015 AADT volumes (**Table 1**, Section 3.2).

Table 3: Growth Rates Used to Forecast 2040 AADT Volumes

Corridor	Growth Rate
S. Willow Ave./N. Willow Ave. (SR 135)	0.50%
S. Jefferson Ave./N. Washington Ave. (SR 136)	0.75%
Spring Street/Broad Street (US 70N, SR 24)	2.00%
E. 10th Street	1.00%
Broad Street	0.50%
All Other Arterial Corridors	1.00%
All Other Collector Corridors	1.50%

Source: *Cookeville Corridor Analysis, WSP, 2017.*

Future volumes were forecast using a growth formula based on the following equation and rounded-up to the nearest multiple of 25:

$$\text{Future AADT} = \text{Existing AADT} \times [1 + \text{growth rate}(\text{future year} - \text{existing year})]$$

Once 2040 volumes were forecast, the 2040 Level of Service (LOS) for each roadway segment was determined using the most recent Florida Department of Transportation (FDOT) generalized service planning tables⁴. The Existing Roadway LOS report also used the FDOT service planning tables.

5.2. Programmed Improvements

The current list of proposed improvements to the transportation network in Cookeville is found in the Cookeville 2030 Plan⁵. A list of all projects and their status as of October 2017 is shown in **Table 4** and depicted in map form in **Figure 3**. This list was reviewed with City of Cookeville staff to document the current status of each project (categorized as completed, in progress, funded, or not funded). At the time of writing, of the 38 total projects, six projects have been completed, two projects are in progress and two projects are funded.

Projects in progress include the construction of the new “5th exit” interchange on I-40 (Project 1) and the Bennett Road Extension project (now called Tennessee Avenue) to connect the new interchange to West Broad Street (US 70N, SR 24) (Project 2). The remaining length of Tennessee Avenue, from West Broad Street (US 70N, SR 24 north to Gainesboro Grade (SR 290) is not currently programmed for funds.

⁴ <http://www.fdot.gov/planning/systems/programs/sm/los/pdfs/fdot%202012%20generalized%20service%20volume%20tables.pdf>

⁵ <http://www.cookeville-tn.gov/uploads/planning/files/compplan/Cookeville2030Plan.pdf>

Table 4: Current Status of Projects in the 2030 Cookeville Plan (as of October 2017)

Project No.	Project Name	Limits	Description	Status
1	Construction of I-40 interchange at Mine Lick Creek Rd			In Progress
2	Construction of Western North-South Connector	I-40 to US 70N in progress. US 70N to SR 290 not funded.		In Progress (Partial Project)
3	Construction of Southern East-West Connector	SR 111 in White County to new interchange	E-W connection S. of I-40 from SR 111, SR 136, and SR 135 to I-40	
4	Construction of Northern East-West Connector		E-W connection N. of Cookeville from SR 111, SR 136, and SR 135 to SR 290.	
5	Construction of Regional Industrial/Business Park Street		Highlands Park Boulevard	Complete
6	Extension and Widening of Lee Seminary Rd			Complete
7	Widening of S. Willow Ave. (SR 135)	South of I-40	Increase capacity on SR 135 South of I-40	
8	Construction of Bunker Hill Rd. Tunnel/Bridge	Connect Bunker Hill Road to S. Walnut Avenue	N-S connection parallel to and between SR 135 and SR 136	
9	Construction of I-40 Parallel Access Street	Bunker Hill Road S. of I-40 to Green Gate Lane	E-W connection S. of I-40 from SR 136 to SR 135	
10	Extension of W. Cemetery Rd	Bunker Hill Road to SR 136		Complete

(continued from previous page)

Project No.	Project Name	Limits	Description	Status
11	Extension of Farrell Dr.		E-W connection from SR 136 to S. Maple Ave	
12	Widening of E. Spring St. (US 70N, SR 24)	SR 111 to I-40	Widen US 70N to 5 lanes	
13	Widening of E. Spring Street (US 70N, SR 24)	Avery Trace MS (near SR 111) to Broad Street	Widen to 3 or 5 lanes	
14	Widening of W. Broad Street (US 70N, SR 24)	W. Spring St. to N-S Road in Project No. 2	Widen to 3 or 5 lanes	
15	Improvements to East Hudgens St. and S. Maple Ave. Intersection			Complete
16	Widening of E. 10th St.	SR 111 to SR 136	Widen to 5 lanes	
17	Extension of Foreman Dr.	SR 135 to Holladay Rd	Construct Road	
18	Extension of Commerce Ave. to Veterans Dr.	Whitson Ave to Veterans Dr	Construct Road	
19	Construction of turn lane on W. Jackson St.	SR 135 to SR 136	Add center turn lane	
20	Improvements to Buffalo Valley Rd. at W. Jackson St. Intersection			Funded
21	Widening of N. Willow Ave. (SR 135)	Broad St. to 12th St	Add center turn lane	
22	Improvements to E. 7th St.			Complete

(continued from previous page)

Project No.	Project Name	Limits	Description	Status
23	Improvements to Broad St. and Cedar St. Intersection		Realign intersection	
24	Extension of E. 15th St.	Brown Ave. to Fisk Rd.	Construct Road	
25	Widening of S. Jefferson Ave. (SR 136)	I-40 to SR 111	Widen existing road from 2 to 5 lanes; 11 foot lanes, curb and gutter, sidewalk	Funded
26	Construction of Connector Street from Bunker Hill Rd. to S. Jefferson Ave. (SR 136)	Bunker Hill Road S. of I-40 to SR 136	Construct 3 lane roadway	
27	Construction of Connector Street from SR 111 to Salem Church Rd	SR 111 to Salem Church Rd.	Signalize intersection and construct 3 lane road	
28	Widening of W. Cemetery Rd.	Bunker Hill Road to SR 135		
29	Improvements to Stevens St.	S. Lowe Ave to Buffalo Valley Rd.	Widen and realign intersection at Jackson St.	
30	Widening of W. 12th Street	Mississippi Ave to SR 136	Widen to match cross section west of project	
31	Extension of and improvements to Old Walton Rd.	Neal St to US 70N	Widen and add sidewalks	
32	Improvements to Holladay Rd.	Lee Seminary to Buffalo Valley	Widen and add sidewalks	
33	Construction of I-40 Parallel Access Street	SR 111 S. of I-40 to US 70N	Construct 2 or 3 lane roadway	

(continued from previous page)

Project No.	Project Name	Limits	Description	Status
34	Widening of W. Jackson St.	US 70N to Buffalo Valley	Add center turn lane	
35	Construction of Intersection and Connecting Street on Tennessee Ave	700 ft S. of Nashville and Eastern RR ROW	Construct roadway and intersection to encourage development	
36	Construction of Intersection and Connecting Street on Tennessee Ave	1400 ft S. of Buffalo Valley Road	Construct roadway and intersection to encourage development	
37	Construction of Intersection and Connecting Street on Tennessee Ave	1500 ft S. of Project No. 36	Construct roadway and intersection to encourage development	
38	Construction of Intersection and Connecting Street on Tennessee Ave	1500 ft north of I-40	Construct roadway and intersection to encourage development	

Projects 21 and 25 (widening N. Willow Avenue from Broad Street north to W. 12th Street, and widening S. Jefferson Avenue from I-40 to SR 111) will be funded through Tennessee's IMPROVE Act motor fuel tax increase. It was therefore assumed in the 2040 No-Build analysis that these widening projects would be completed by the year 2040. In addition, a new roadway segment, Stevens Street from Jackson Street to Willow Avenue (SR 135), was added to the 2040 analysis as a result of the planned intersection improvements at Buffalo Valley Road and Stevens Street.

With the exception of the projects noted above, 2040 No-Build LOS conditions were determined based on current roadway geometries along with 2040 forecast AADT volumes. Tennessee Avenue, which is currently under construction, was not included in the analysis since there are no existing traffic volumes to use as a base to forecast future volumes. It is assumed that Tennessee Avenue has been designed to operate at an LOS D or better in the year 2040.

5.3. 2040 No-Build Level of Service Results

Using the methodology documented in Section 3.1, the 2040 No-Build LOS was computed for each functionally classified roadway in the city, by segment. **Figure 4** shows the 2040 No-Build LOS for these roadway segments on a map; **Table 5** shows the projected AADT and LOS for the 2040 No-Build scenario, along with the existing conditions (2015) AADT and segment LOS.

Note that in urban areas, LOS C and D are considered adequate, while LOS E and F represent undesirable operating conditions.

Figure 3: Current Status of Transportation Projects in the Cookeville 2030 Plan

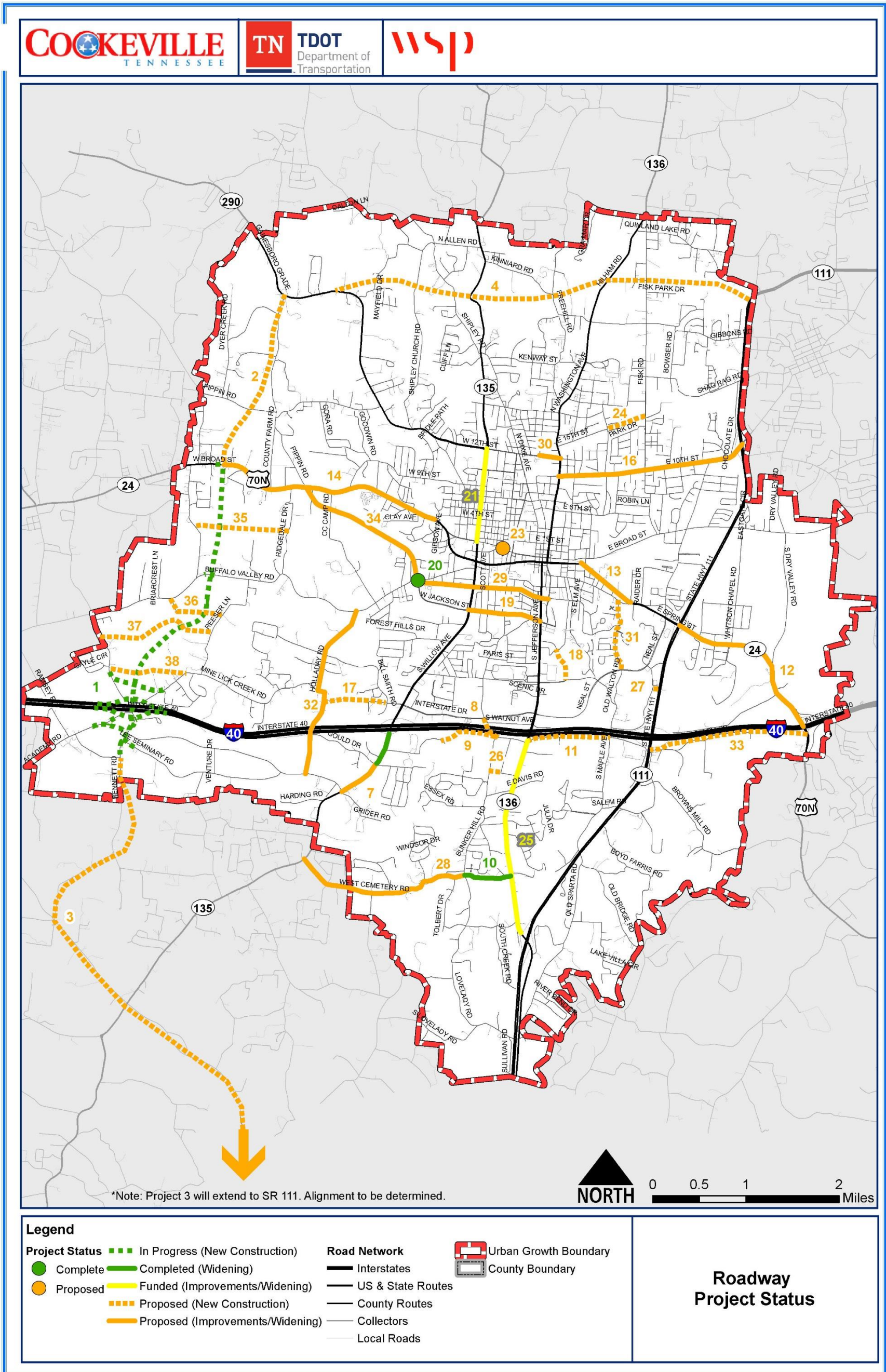


Figure 4: Projected Level of Service by Roadway Segment, 2040 No-Build Conditions

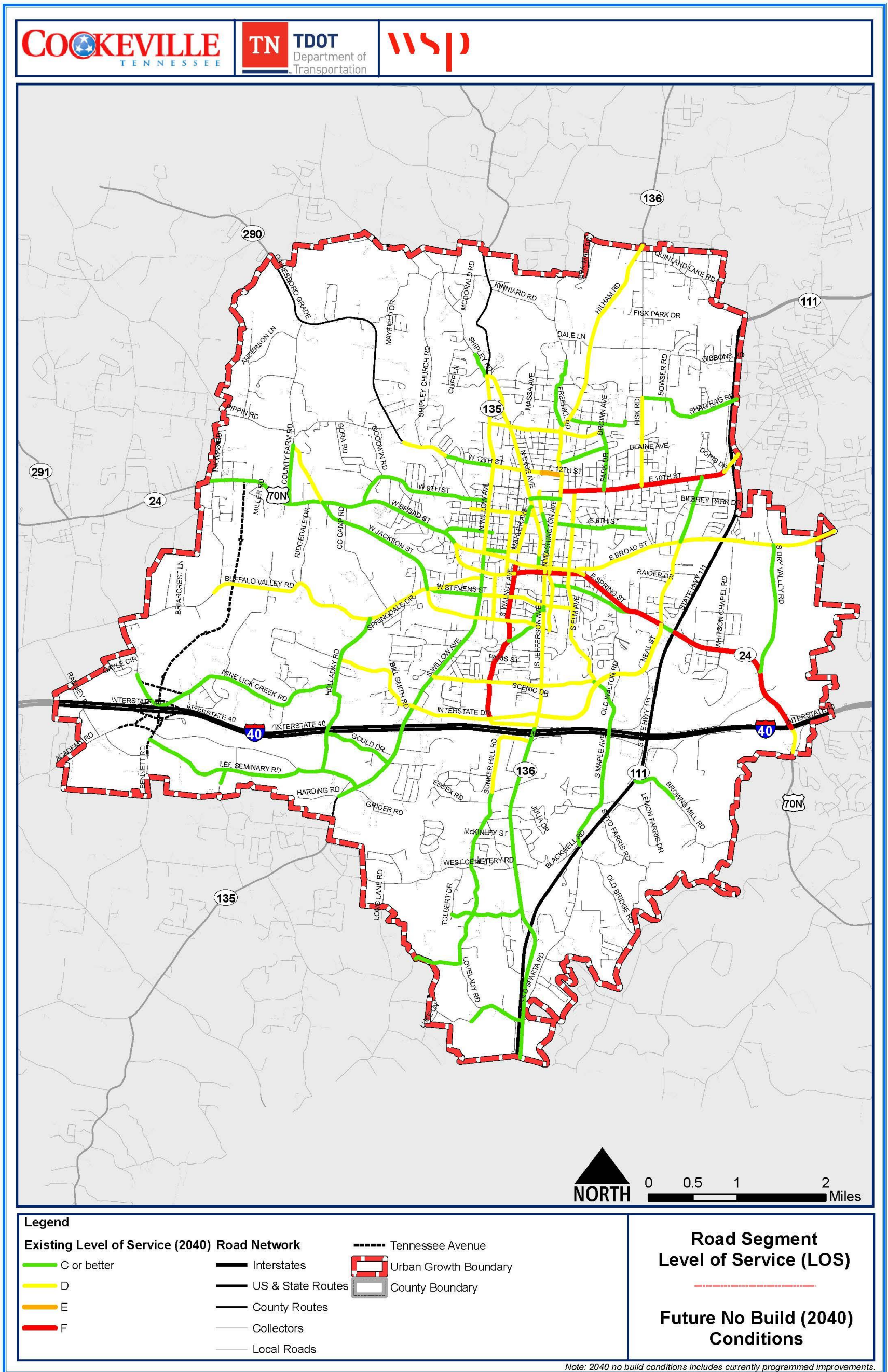


Table 5: 2040 No-Build Roadway Segment Level of Service

Street Name	From	To	Class	2015 AADT	2015 LOS	2040 AADT	2040 No-Build LOS
1st Street West	Cedar Ave	Walnut Ave	Minor Collector	4,200	C	5,775	D
1st Street East	Willow Ave	Cedar Ave	Minor Collector	948	C	1,325	C
4th Street West	Broad St	Whitney Ave	Minor Collector	1,966	C	2,725	C
6th Street East	Washington Ave	Fisk Rd	Minor Collector	1967*	C	2,725	C
7th Street	Willow Ave	Dixie Ave	Major Collector	8,414	D	11,575	D
7th Street West	Franklin Ave	Willow Ave	Minor Collector	3,523	C	4,850	D
9th Street East	Dixie Ave	Washington Ave	Minor Collector	1,150†	C	1,550	C
9th Street West/Crescent Drive	Broad St	Willow Ave	Minor Collector	3,083	C	4,250	C
10th Street East	Washington Ave	Chocolate	Major Arterial	17,505	F	21,900	F
10th Street East	Chocolate	City Limits	Major Arterial	13,907	D	17,400	D
12th Street (SR 290)	City Limits	Franklin Ave	Minor Arterial	9,700†	C	11,900	D
12th Street (SR 290)	Franklin Ave	Willow Ave	Minor Arterial	9,283	C	11,625	C
12th Street	Willow Ave	Mississippi Ave	Minor Arterial	13796*	D	17,250	D
12th Street	Mississippi Ave	Washington Ave	Minor Arterial	10,116	D	12,650	E
15th Street East	Washington Ave	Brown Ave	Minor Arterial	1,677	C	2,100	C
20th Street East	Washington Ave	Summerfield Rd	Minor Collector	3,232	C	4,450	C
Bill Smith Road / Foreman Drive	Holladay Rd	Willow Ave	Major Collector	4,936	D	6,800	D
Broad Street / US 70N	City Limits	Jackson St	Major Arterial	8,362	C	12,550	C
Broad Street / US 70N	Jackson St	Spring St	Major Arterial	7,789	C	11,700	C
Broad Street	Spring St	Cedar Ave	Major Collector	6,687	D	7,525	D
Broad Street	Cedar Ave	Washington Ave	Major Collector	6992*	D	7,875	D
Broad Street	Washington Ave	Spring Extension	Major Collector	7941*	D	8,950	D
Broad Street	Spring Extension	US 111	Major Collector	5,461	D	7,525	D
Broad Street / Buck Mt. Road	US 111	City Limits	Major Collector	4,750	D	6,550	D

†AADT is 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 5: 2040 No-Build Roadway Segment Level of Service

Street Name	From	To	Class	2015 AADT	2015 LOS	2040 AADT	2040 No-Build LOS
Brown Avenue	10th St.	Jere Whitson Rd	Minor Collector	2,646	C	3,650	C
Brown's Mill Road	US 111	City Limits	Minor Collector	900†	C	1,225	C
Buffalo Valley Road	City Limits	Jackson St	Major Collector	6,508	D	8,950	D
Buffalo Valley Road	Jackson St	Willow Ave	Minor Collector	5,543	D	7,625	D
Bunker Hill Road	City Limits	Davis Rd	Major Collector	2516*	C	3,475	C
Bunker Hill Road	Davis Rd	S Jefferson Ave	Minor Collector	4,482	C	6,175	D
Cane Creek Road	City Limits	Lee Seminary Rd	Major Collector	328**	C	475	C
Cedar Avenue	Spring St	7th St	Major Collector	4985*	D	6,875	D
County Farm Road	Spring St / US 70N	Pippin Rd	Minor Collector	923	C	1,275	C
Dixie Avenue	Spring St	1st St	Major Collector	4,520	C	6,225	C
Dixie Avenue	1st St	Mahler Ave	Major Collector	4769*	D	6,575	D
Dixie Avenue	Mahler Ave	12th St	Major Collector	8,353	C	11,500	D
Dixie Avenue	12th St	Willow Ave	Major Collector	4828*	D	6,650	D
Dry Valley Road	US 70N	Buck Mountain Rd	Major Collector	2,688	C	3,700	C
Fairground Street	Willow Ave	Walnut Ave	Major Collector	4124*	C	5,675	D
Fisk Road	10th St	City Limits	Major Collector	6,116	D	8,425	D
Foutch Drive	Walnut Ave	Jefferson Ave	Minor Collector	751	C	1,050	C
Freehill Road	Washington Ave	City Limits	Minor Collector	1275*	C	1,775	C
Gould Drive	Holladay Rd	Willow Ave	Minor Collector	2254*	C	3,100	C

†AADT is 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 5: 2040 No-Build Roadway Segment Level of Service

Street Name	From	To	Class	2015 AADT	2015 LOS	2040 AADT	2040 No-Build LOS
Hawkins Crawford Road	City Limits	Mine Lick Creek Rd	Minor Collector	2,000	C	2,750	C
Holladay Road	Lee Seminary Rd	Buffalo Valley Rd	Minor Collector	889*	C	1,225	C
Hudgens Street	Lowe Ave	Spring St	Minor Collector	2,854	C	3,925	C
Interstate Drive	Willow Ave	Jefferson Ave	Major Arterial	15,197	D	19,000	D
Jackson Street	Broad St	Cane Creek Elementary	Major Arterial	10,132	C	12,675	C
Jackson Street	Cane Creek Elementary	Buffalo Valley Rd	Major Arterial	11,161	C	13,975	C
Jackson Street	Buffalo Valley Rd	Willow Ave	Major Arterial	18,260	D	22,825	D
Jackson Street	Willow Ave	Scott Ave	Minor Arterial	13182***	D	16,500	D
Jackson Street	Scott Ave	Walnut Ave	Minor Arterial	13,048	D	16,325	D
Jackson Street	Walnut Ave	Jefferson Ave	Minor Arterial	13,246	D	16,575	D
Jefferson Avenue	City Limits	US 111 NB Ramps	Minor Collector	2,598	C	3,100	C
Jefferson Avenue (SR 136)	US 111 NB Ramps	Davis Rd	Major Arterial	11,270	C	13,400	C
Jefferson Avenue (SR 136)	Davis Rd	Bunker Hill Rd	Major Arterial	14,836	C	17,625	C
Jefferson Avenue (SR 136)	Bunker Hill Rd	I-40	Major Arterial	14,836	C	17,625	C
Jefferson Avenue (SR 136)	I-40	Stevens St	Major Arterial	24,357	D	28,925	D
Jefferson Avenue (SR 136)	Stevens St	Spring St	Major Arterial	15,138	D	18,000	D
Jefferson Avenue	Spring St	1st St	Minor Collector	7874***	D	10,850	D
Jefferson Avenue	1st St	7th St	Minor Collector	2221*	C	3,075	C
Jefferson Avenue	7th St	10th St	Minor Collector	5,870	D	8,075	D
Jere Whitson Road	Willow Ave	Brown Ave	Minor Collector	4184*	C	5,775	D
Lee Seminary Road	Bennett Rd	Holladay Rd	Minor Collector	910	C	1,275	C
Lee Seminary Road	Holladay Rd	Burgess Falls Rd	Minor Collector	1,063	C	1,475	C
Lovelady Road	City Limits	Jefferson Ave	Minor Collector	441	C	625	C
Lowe Avenue	Jackson St	Spring St	Minor Arterial	11048***	D	13,825	D

†AADT is 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 5: 2040 No-Build Roadway Segment Level of Service

Street Name	From	To	Class	2015 AADT	2015 LOS	2040 AADT	2040 No-Build LOS
Mahler Avenue	1st St	6th St	Major Collector	4,209	C	5,800	D
Mahler Avenue	6th St	Dixie Ave	Major Collector	4,209	C	5,800	C
Maple Avenue	10th St	Broad St	Major Collector	6154**	D	8,475	D
Maple Avenue	Broad St	Hudgens St	Major Collector	4602*	C	6,350	D
Maple Avenue	Hudgens St	Veterans Dr	Major Collector	3,647	C	5,025	D
Maple Avenue	Veterans Dr	I-40 Overpass	Minor Collector	4,204	C	5,800	C
Maple Avenue	I-40 Overpass	US 111	Minor Collector	2,626	C	3,625	C
Mine Lick Creek Road	City Limits	Holladay Rd	Minor Collector	1148*	C	1,600	C
Neal Street	Jefferson Ave	Spring St	Major Arterial	14,630	D	18,300	D
Old Kentucky Road	Spring St	Broad St	Major Collector	7,732	D	10,650	D
Old Kentucky Road	Broad St	10th St	Major Collector	5,837	C	8,050	C
Pigeon Roost Creek Road	City Limits	Jefferson Ave	Minor Collector	1,127	C	1,550	C
Pippin Road	US 70N	County Farm Rd	Minor Collector	5656*	D	7,800	D
Scott Avenue	Jackson St	Spring St	Minor Collector	3797*	C	5,225	D
Summerfield Road / Shag Rag Road	Fisk Rd	City Limits	Minor Collector	1,579	C	2,175	C
Shipleigh Road	City Limits	Willow Ave	Minor Collector	2382*	C	3,300	C
Stevens Street	Buffalo Valley Rd	Willow Ave	Minor Collector	-	-	3,950	C
Stevens Street	Willow Ave	Maple Avenue	Minor Collector	4,478	C	6,175	D
Veterans Drive	Walnut Ave	Neal St	Minor Collector	8,255	D	11,375	D
Walnut Avenue	Broad St	Interstate Dr	Major Collector	8,931	D	12,300	F
Walnut Avenue	Interstate Dr	Jefferson Ave	Minor Collector	5,879	D	8,100	D

†AADT is 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Table 5: 2040 No-Build Roadway Segment Level of Service

Street Name	From	To	Class	2015 AADT	2015 LOS	2040 AADT	2040 No-Build LOS
N Washington Ave (SR 136)	Spring St	Broad Ave	Major Arterial	10301***	D	12,250	D
N Washington Ave (SR 136)	Broad Ave	1st St	Major Arterial	11,523	D	13,700	D
N Washington Ave (SR 136)	1st St	10th St	Major Arterial	16,640	D	19,775	D
N Washington Ave (SR 136)	10th St	15 St/17th*	Major Arterial	15,256	D	18,125	D
N Washington Ave (SR 136)	15 St/17th	Whitaker Springs	Major Arterial	9660*	D	11,475	D
N Washington Ave (SR 136)	Whitaker Springs	City Limits	Minor Arterial	4,867	C	5,800	D
N Willow Ave (SR 135)	Dixie Ave	12th St	Major Arterial	8,495	D	9,575	D
N Willow Ave (SR 135)	12th St	Broad St	Major Arterial	16,076	D	18,100	D
S Willow Ave (SR 135)	Broad St	I-40	Major Arterial	24,690	C	27,800	C
S Willow Ave (SR 135)	I-40	City Limits	Major Arterial	14,925	C	16,800	C
Spring St East (US 70N)	City Limits	I-40	Major Arterial	8,623	C	12,950	D
Spring St East (US 70N)	I-40	SR 111	Major Arterial	11,256	E	16,900	F
Spring St East (US 70N)	SR 111	Old Kentucky Rd	Major Arterial	17,034	C	25,575	C
Spring St East (US 70N)	Old Kentucky Rd	School	Major Arterial	13,802	C	20,725	F
Spring St East (US 70N)	School	Split	Major Arterial	15269*	F	22,925	F
Spring St East (US 70N)	Split	Walnut Ave	Major Arterial	10,760	D	16,150	F
Spring St East (US 70N)	Walnut Ave	Broad St	Major Arterial	8,341	D	12,525	D

†AADT is 2017 value

*AADT value was forecasted from 2013 AADT value

**AADT value was forecasted from 2012 AADT value

***AADT value was forecasted from 2007 AADT value

Based on this analysis, seven roadway segments are forecast to operate at a failing LOS in 2040 No-Build conditions, even with the completion of projects already in progress and those already funded. The road segments projected to be over capacity by 2040 are shown below in **Table 6**.

Table 6: Roadway Segments Failing in 2040 No-Build conditions (Summarized from Table 5)

Route	From	To	2040 No-Build LOS
E. 10 th St.	N. Washington Ave. (SR 136)	Chocolate Dr.	F
W. 12 th St.	Mississippi Ave.	N. Washington Ave. (SR 136)	E
S. Walnut Ave.	Broad St.	Interstate Dr.	F
E. Spring St. (US 70N, SR 24)	I-40	SR 111	F
E. Spring St. (US 70N, SR 24)	S. Old Kentucky Rd./Neal St.	Avery Trace Middle School	F
E. Spring St. (US 70N, SR 24)	Avery Trace Middle School	Broad St.	F
E. Spring St. (US 70N, SR 24)	Broad St.	Walnut Ave.	F

Since the section of E. 10th Street shown in the table is already operating at LOS F, its deficiencies were discussed in the existing LOS results (Section 3.2). As traffic volumes continue to grow, the operations on this segment will further deteriorate unless there is an increase in roadway capacity or reduction in vehicular demand on this corridor.

Similarly, two segments along Spring Street (US 70N, SR 24) are already operating at a failing LOS in existing conditions: SR 111 to I-40, and Avery Trace Middle School to Broad Street. Future year forecasts indicate traffic volumes will cause two additional segments of Spring Street to operate at a failing LOS in 2040.

The section of W. 12th Street that is failing in the 2040 LOS analysis is a short (approximately 0.25 mile) two-lane segment of the W. 12th Street corridor. There is a four-lane undivided cross section on the west side of the segment, an at-grade railroad crossing in the middle of the segment, and a traffic signal on the east side of the segment. The transition from a four-lane roadway to a two-lane roadway results in an eastbound choke point at Mississippi Avenue.

S. Walnut Avenue, as a two-lane roadway with center turn lane, currently operates at LOS C. It is one of only three north-south corridors, including S. Willow Avenue (SR 135) and S. Jefferson Avenue (SR 136), which connect downtown Cookeville and Interstate Drive. Traffic volumes on this corridor are projected to exceed the roadway capacity and operate at an LOS F by 2040.

6. Projects to Address Corridors with Failing LOS

Several of the projects in the current (2003) Major Street Plan will help to address delays and operational issues on the corridors where demand is expected to exceed roadway capacity. As further discussed below, these projects should be carried forward into the new MSP to help meet the adopted goals and policies of the *Cookeville 2030 Plan*. This includes the policy that “all segments of the transportation system should be designed and located to meet future as well as present demands.”

There are two significant areas that are projected to have roadway capacity problems, but are not directly addressed by any projects in the current plan: S. Walnut Street, and E. Spring Street between Walnut Avenue and Broad Street. Although these segments could be considered for widening, adding lanes would have a major impact on adjoining land uses and may not be consistent with the City’s other goals for livability and community development. The policies in the *Cookeville 2030 Plan* call for major streets to be “located in a manner that will minimize disruption to neighborhoods, open space and recreational areas, and/or environmentally sensitive areas.” As further discussed below, some relief might be provided in these areas through targeted improvements to other streets to help distribute traffic demand across a greater number of facilities.

Providing multiple routes among a community’s major origins and destinations has a variety of benefits: in addition to improving traffic circulation, it greatly enhances local safety and security. Emergency and homeland security officials often use the terms “resiliency” and “redundancy” to describe a desirable road network. Large residential subdivisions are typically required to have more than one entrance so that emergency responders can reach them (or residents can evacuate) even if the primary entrance is blocked. Similarly, a city that has multiple routes to its critical facilities (*redundancy*) is more *resilient* to disasters, whether they are natural or intentionally caused.

6.1. Construction of Northern East-West Connector

This project, included in the *Cookeville 2030 Plan* (Project 4), proposes to construct a three to five-lane major arterial roadway connecting SR 111 west to SR 290. This project would likely help moderate growing demand on E. 10th Street – which is already over capacity in existing conditions — by providing a continuous east-west corridor connecting SR 111, N. Washington Avenue (SR 136), N. Willow Avenue (SR 135) and Gainesboro Grade (SR 290) north of the city.

6.2. Widening of Highway 70N near I-40

This project, included as part of the *Cookeville 2030 Plan* (Project 12), proposes to widen E. Spring Street (US 70N, SR 24) between SR 111 and I-40 from a two-lane roadway to a five-lane roadway. The project is significant because this segment already operates at LOS E in existing conditions and is forecast to operate at LOS F without any improvements by 2040. Widening this section is expected to improve roadway operations in 2040 from LOS F to LOS C.

6.3. Widening of East Spring Street east of downtown

This project, included as part of the *Cookeville 2030 Plan* (Project 13), proposes to widen E. Spring Street (US 70N, SR 24) between Avery Trace Middle School and the Broad Street split east of downtown Cookeville to a consistent three-lane or five-lane roadway section. This section currently operates at LOS F in existing conditions, and operations will likely continue to degrade as new development at the edges

of the city generates additional traffic. Widening to five lanes is expected to improve 2040 operations from LOS F to LOS C.

6.4. Widening of West 12th Street

This project, included as part of the Cookeville 2030 Plan (Project 30), proposes to widen W. 12th Street between Mississippi Avenue and N. Washington Avenue (SR 136) to a four-lane undivided roadway to match the 12th Street cross section west of the project. This will eliminate the current eastbound choke point and increase capacity. Roadway operations in 2040 are projected to improve from LOS E to LOS D as a result of the widening project.

6.5. East 10th Street

This project, included as part of the Cookeville 2030 Plan (Project 16), proposes to widen E. 10th Street from a three-lane to a five-lane roadway. This segment currently operates at LOS F in existing conditions, and operations will likely continue to degrade if demand increases at the current rate.

Widening to five lanes would be expected to improve roadway operations in 2040 from LOS F to LOS D. LOS D is the minimum acceptable level of service for roadways in urban areas. Given the projected cost (\$24.2 million in 2017 dollars) and the impact to adjoining property owners, the City may wish to first explore other means of improving traffic along E. 10th Street.

It is possible that capacity improvements to adjacent routes and the construction of new roadways could divert traffic demand away from East 10th Street to the point where it might not be necessary to widen to five lanes. Projects already mentioned in this section that may contribute to this scenario include the widening of E. Spring Street and US 70N (Projects 12 & 13) and the construction of a Northern East-West connector (Project 4). When one or more of these projects is complete a new analysis of 10th Street could be undertaken to assess the traffic volumes and determine future traffic demand for the corridor.

The Cookeville area is likely, after the 2020 Census, to reach the population threshold at which it would become a federally designated Metropolitan Planning Organization (MPO). While smaller MPOs are not required to have a travel demand model, it has been the standard practice in Tennessee for all MPOs to have a travel demand model. MPO designation within the next few years could therefore lead to the availability of additional planning tools (e.g., a travel demand model) that can more precisely identify the shifts in traffic flows and demand associated with various roadway improvements. Such analysis can help guide decisions about using limited funds and resources, to avoid unnecessary improvements or make more strategic decisions about the E. 10th Street corridor.

6.6. S. Walnut Avenue

No improvements to S. Walnut Avenue are proposed in the City's current plans. By the year 2040, the route is projected to be over capacity from Broad Street to Interstate Drive. Widening S. Walnut Avenue from 3 lanes to 5 lanes would improve operations from LOS F to LOS D. However, adding lanes to this section of S. Walnut Avenue would significantly impact the surrounding land uses, including parks and single-family homes, many of which are immediately adjacent to the roadway. Limiting the widening project to the portion not directly adjacent to residential communities (i.e. south of E. Veterans Drive) would likely not mitigate congestion, as traffic volumes are relatively consistent throughout the segment.

Given the capacity concerns and limitations on widening, the City may wish to weigh the desirability of extending S. Walnut Avenue south of I-40 to Bunker Hill Road, as proposed in the current MSP (Project 8).

The project's key advantage is to create additional network connectivity by providing an alternative north-south connection to the busy S. Willow Avenue (SR 135) and S. Jefferson Avenue (SR 136) corridors. However, both SR 135 and SR 136 are proposed for improvements, including signal system optimization and targeted intersection projects. Neither corridor is projected to be over capacity in 2040, whereas S. Walnut Avenue is expected to reach LOS F even if it is not connected to the expanding road network south of the interstate.

6.7. E. Spring Street from Walnut Avenue to Broad Street

The section of E. Spring Street (US 70N, SR 24) between Walnut Avenue and Broad Street – currently operating at LOS D – is projected to worsen to LOS F by 2040. Similar to S. Walnut Avenue, widening this segment of Spring Street may not be a context-sensitive nor practical solution. This section runs through the historic downtown area where there are high levels of pedestrian traffic, and where available right-of-way is very constrained due to historic buildings.

Planned improvements to other nearby east-west routes, such as Stevens Street and W. Jackson Street, should help to draw some traffic demand from E. Spring Street. The *Cookeville Corridor Analysis* also identifies other possible operational improvements in the downtown area which may help reduce delay along E. Spring Street, including relocation of mid-block crosswalks, removal of certain on-street parking spaces, and/or designating the downtown portions of Broad and Spring Streets as a one-way pair.

6.8. East-West Connectivity near I-40

Three projects in the current MSP are focused on the creation of new access roads running parallel to I-40 on the south side of the interstate. One possible benefit is to provide a continuous alternate route for local traffic that may currently be using I-40 for short trips between interchanges. If this is one of the City's goals, then it may be valuable to discuss with TDOT the potential for making this local access road function somewhat similar to a collector-distributor (CD) system along I-40 connecting the interchanges serving Cookeville. This could improve traffic flow on the interstate as well as the local roadways through the City of Cookeville. TDOT is about to begin updating its statewide plan for the I-40/81 corridor (completed in 2008) so this would be a timely discussion.

Another potential purpose for these new roads is to provide access for proposed commercial land uses shown in the Cookeville 2030 Plan. Since the new access roads would essentially create a continuous link between SR 135, S. Jefferson Avenue (SR 136), SR 111 and E. Spring Street (US 70, SR 24), their intersections with these major routes are likely to significantly change traffic patterns.

As currently shown, the new access roads would intersect each of these major arterials very close to the I-40 interchanges. It is important to avoid creating future backups that block access to the interstate ramps. As the city further defines the function and alignment of the new routes, detailed traffic analysis should be performed to ensure that new major intersections are adequately spaced from the busy I-40 interchanges. For example, west of S. Jefferson Avenue, the new local access road could tie in at Henley Street rather than following Bunker Hill Road.

7. Recommendations From 2017 Cookeville Corridor Analysis

As noted above, a separate, more detailed analysis of traffic operations and safety was conducted for several of the City's key corridors:

- Willow Avenue (SR 135)
- Jefferson Avenue/Washington Avenue (SR 136)
- Spring and Broad Streets (US 70N / SR 24)
- E. 10th Street

That 2017 report (the *Cookeville Corridor Analysis*) resulted in recommended signal timing and optimization plans for the City to implement immediately. However, it also includes a set of capital projects recommended for implementation on these key corridors. The recommended corridor improvements are primarily located at intersections, and consist mainly of adding turn lanes and channelizing existing turn lanes.

It is recommended that the City include these proposed improvements into the new MSP, to consolidate all of its transportation projects in one document for reference and planning purposes.

Figure 5 shows the location of proposed improvement projects from the *Cookeville Corridor Analysis*. **Table 7** lists the projects in recommended order of implementation, based on a number of considerations. These factors include whether the location is already operating below acceptable LOS, and whether there are also immediate safety concerns that would be addressed by the improvement. Near-term priority was assigned to projects that can yield temporary improvement at low cost while a longer-term solution is being designed for the same corridor. Consideration was also given to whether locations need to be addressed as a group.

8. All Recommended MSP Projects

Table 8 consolidates the list of all recommended projects for the Major Street Plan. This list reflects the level of service analysis and other issues discussed in this report, and incorporates the additional recommendations from the *Cookeville Corridor Analysis*.

Figure 5: Improvements Recommended by the Cookeville Corridor Analysis

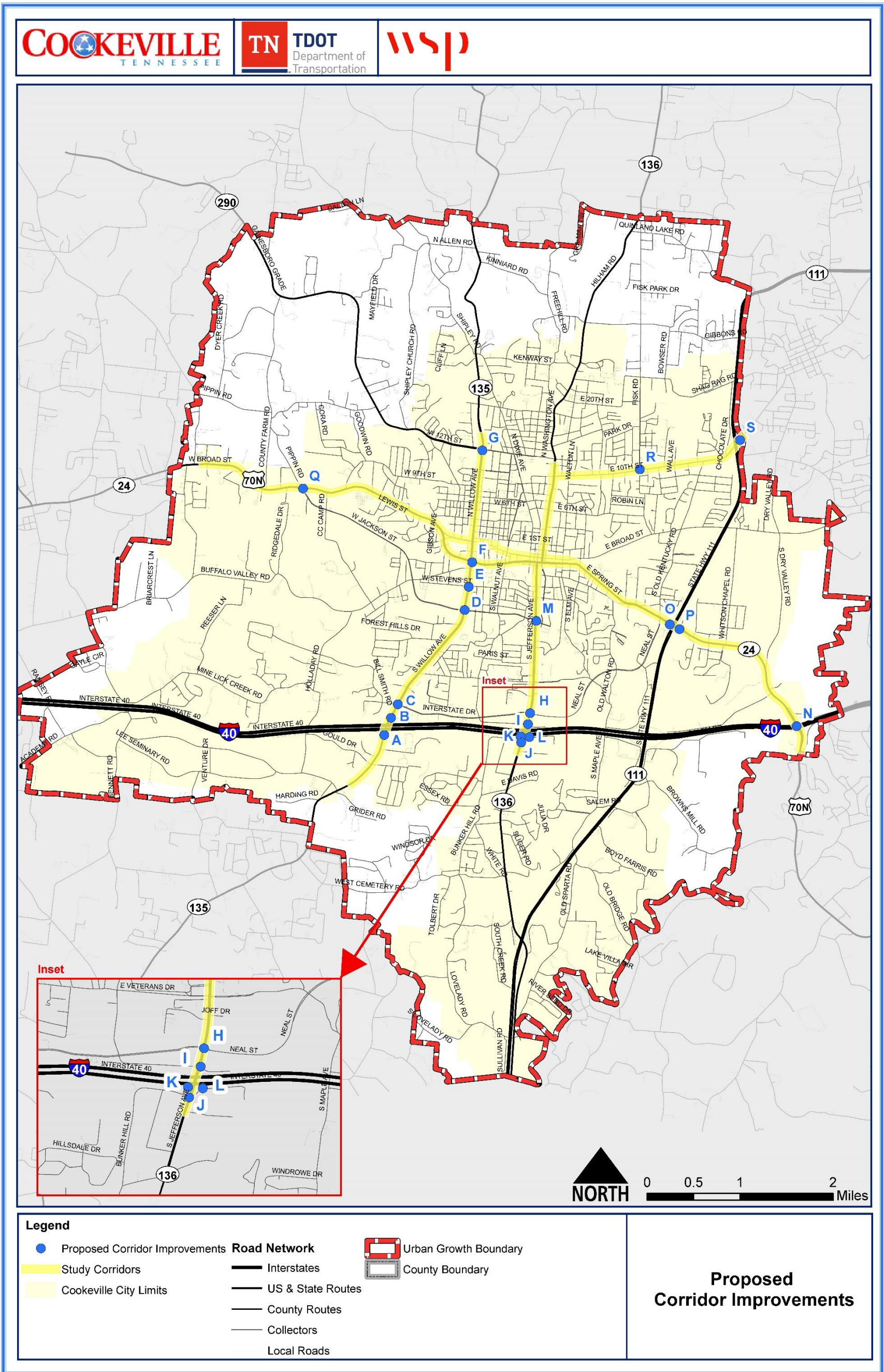


Table 7: Proposed Improvements from Cookeville Corridor Analysis

Project No.	Location of Proposed Improvement	Priority	Est. Cost (2017 Dollars)
A	S. Willow Ave. (SR 135) at Interstate 40 Eastbound	Near-term	\$75,000
B	S. Willow Ave. (SR 135) at Interstate 40 Westbound	Near-term	\$40,000
D	S. Willow Ave. (SR 135) at W. Jackson St.	Near-term	\$592,000
21 (MSP)	N. Willow Ave. (SR 135) from W. Broad St. to W. 12th St. (includes EB and WB right-turn lanes at W. 3 rd , W. 4 th and W. 9 th St. intersections)	Near-term	\$36,982,000
G	N. Willow Ave. (SR 135) at W. 12th St. (SR 290)	Near-term	\$55,000
R	E. 10th St. at Fisk Rd.	Near-term	\$354,000
F	S. Willow Ave. (SR 135) at W. Spring St. (US 70N, SR 24)	Mid-term	\$640,000
H	S. Jefferson Ave. (SR 136) at Bunker Hill Rd.	Mid-term	\$50,000
I	S. Jefferson Ave. (SR 136) at Interstate 40 Eastbound ramp		\$98,000
J	S. Jefferson Ave. (SR 136) at Interstate 40 Westbound ramp		\$10,000
K	S. Jefferson Ave. (SR 136) at S. Walnut Ave. / Dubois St.		\$35,000
L	S. Jefferson Ave. (SR 136) at Interstate Dr. / Neal St.		\$441,000
O	E. Spring St. (US 70N, SR 24) at SR 111 Southbound ramp	Mid-term	\$15,000
P	E. Spring St. (US 70N, SR 24) at SR 111 Northbound ramp		\$346,000
Q	W. Broad St. (US 70N, SR 24) at W. Jackson St.	Mid-term	\$197,000
16 (MSP)	E. 10th St. from N. Washington Ave. (SR 136) to Chocolate Dr.	Mid-term	\$27,924,000
S	E. 10th St. at SR 111 Northbound ramp	Mid-term	\$108,000
C	S. Willow Ave. (SR 135) at Interstate Drive / Foreman Drive	Long-term	\$260,000
E	S. Willow Avenue (SR 135) at W. Stevens St.	Long-term	\$222,000
M	S. Jefferson Avenue (SR 136) at Jackson St.	Long-term	\$245,000
N	E. Spring St. (US 70N, SR 24) at Interstate 40	Long-term	\$30,000
GRAND TOTAL			\$68,719,000

TABLE 8: PROPOSED PROJECTS, MAJOR STREET PLAN

Proj. No.	Project Name	Limits	Description	Project Status	Priority	Comments
In Progress						
1	Construction of I-40 interchange at Mine Lick Creek Rd			In Progress	-	
2	Construction of Western North-South Connector	I-40 to SR 290		In Progress (partial project)	-	I-40 to US 70N in progress. US 70N to SR 290 not funded.
25	Widening of S. Jefferson Ave. (SR 136)	SR 111 to I-40	Widen existing road from 2 to 5 lanes; 11 foot lanes, curb and gutter, sidewalk	Funded	H	Will be fully funded through IMPROVE Act
21	Widening of N. Willow Ave. (SR 135)	W. Broad St. to W. 12th St.	Add center turn lane. Also add EB and WB right-turn lanes on W. 3rd, W. 4th and W. 9th Streets at intersections with N. Willow Avenue.	Funded	H	Will be fully funded through IMPROVE Act
Not Yet Underway						
A	S. Willow Ave. (SR 135) at I-40 eastbound ramp		Add right-turn channelization in southeast corner of the intersection. Move ped crossing from north side of intersection to south side.		H	Relatively low-cost, provides immediate safety benefits; keep future widening (Project #7) in mind when designing channelization.
B	S. Willow Ave. (SR 135) at I-40 westbound ramp		Move ped crossing from south side of intersection to north side.		H	Relatively low-cost, provides immediate safety benefits and more efficient signal timing
D	S. Willow Ave. (SR 135) at W. Jackson St.		Provide dual northbound left-turn lanes. Provide exclusive westbound right-turn lane. Review access points on eastbound approach.		H	Need to reduce PM peak hour congestion; also high crash area
G	N. Willow Ave. (SR 135) at W. 12th St. (SR 290)		Add a right-turn channelization island in the northwest corner of the intersection. Update crosswalk markings.		H	Relatively low-cost, provides immediate safety benefits to pedestrians, including students
R	E. 10th St. at Fisk Rd.		Provide dedicated left-turn lanes, both northbound and southbound		H	Can be implemented near-term to help with congestion prior to widening project
12	Widening of E. Spring St. (US 70N, SR 24)	SR 111 to I-40	Widen US 70N to 5 lanes		H	Critical east-west corridor into downtown
13	Widening of E. Spring St. (US 70N, SR 24)	E. Broad St. to SR 111	Widen to 5 lanes		H	Critical east-west corridor into downtown
30	Widening of W. 12th St.	Mississippi Ave. to N. Washington Ave. (SR 136)	Widen to match cross section west of project		H	Helps improve east-west connections as alternative to E. 10th St
4	Construction of Northern East-West Connector	SR 290 to SR 111	New east-west route north of Cookeville, including grade-separated interchange at SR 111 and Quinland Lake Rd.		H	Could serve as an east-west alternate and potentially alleviate traffic on 12th St. and E. 10th St. In near-term, enhance signal coordination between intersections at SR 136 & E. 10th St and SR 136 & E. 12th St. to improve traffic flow between 12th and E. 10th.
16	Widening of E. 10th St.	N. Washington Ave. (SR 136) to SR 111	Widen to 5 lanes		H	Critical east-west corridor into Cookeville to & from areas north and east. However, this is a high-cost, high-impact project. Building the Northern E-W Connector (Project #4) may help reduce demand.
29	Widening of Stevens St.	Buffalo Valley Rd. to S. Lowe Ave.	Widen to 3 lanes with sidewalks		H	In conjunction with redevelopment occurring in the area

TABLE 8: PROPOSED PROJECTS, MAJOR STREET PLAN

Proj. No.	Project Name	Limits	Description	Project Status	Priority	Comments
E	S. Willow Ave (SR 135) at W. Stevens St.		Add eastbound left-turn lane.		H	
H	S. Jefferson Ave. (SR 136) at Bunker Hill Rd.		Needs to include solution for Pilot truck stop access.		H	Projects H through L should be implemented together, and should be implemented in conjunction with Project #25 (Widening of SR 136 between I-40 and SR 111). Close proximity of these five intersections means that poor operations or queuing at one intersection can cause upstream effects.
I	S. Jefferson Ave. (SR 136) at I-40 eastbound ramp		Provide dual eastbound left-turn lanes.		H	
J	S. Jefferson Ave. (SR 136) at I-40 westbound ramp		Improve channelization of the two right-turn lanes. Implement no right-turn on red. Consider converting inner right-turn lane to shared right-left turn lane.		H	
K	S. Jefferson Ave. (SR 136) at S. Walnut Ave. / Dubois St.		Consider prohibiting westbound left turns.		H	
L	S. Jefferson Ave. (SR 136) at Interstate Dr./Neal St.		Add dual westbound left-turn lanes on Interstate Dr. Provide dual northbound left-turn lanes on S. Jefferson Ave.		H	
O	E. Spring St. (US 70N, SR 24) at SR 111 southbound ramp		Monitor, and signalize when traffic volumes warrant it.		M	Project P should be implemented in conjunction with Projects #12 and 13 (Widening of E. Spring St.) and Project O should be evaluated for signal warrants at the same time. Investigate interchange redesign, including non-conventional solutions such as a Diverging Diamond Interchange (DDI).
P	E. Spring St. (US 70N, SR 24) at SR 111 northbound ramp		Provide dual northbound left-turn lanes. Add receiving lane on the SR 111 on-ramp.		H	
F	S. Willow Ave. (SR 135) at W. Spring St. (US 70N, SR 24)		Provide right-turn lanes on eastbound and westbound approaches. Review access on westbound approach.		M	Critical node, but still acceptable LOS in 2017 after signal optimization.
Q	W. Broad St. (US 70N, SR 24) at W. Jackson St. / Pippin Rd.		Provide a southbound left-turn lane on Pippin Rd.		M	
S	E. 10th St. at SR 111 northbound ramp		Provide additional northbound right-turn lane. Restrict right turns on red.		M	
19	Construction of Turn Lane on W. Jackson St.	SR 135 to SR 136	Add center turn lane		M	Projected for LOS D in 2040. Could begin programming ROW acquisition, as Jackson St. serves as key east-west corridor
9	Construction of I-40 Parallel Access St.	Green Gate Ln. to Bunker Hill Rd. (S. of I-40)	E-W connection S. of I-40 from SR 135 to SR 136		M	Discuss with TDOT the possibility of a collector-distributor ramp system along eastbound I-40 between SR 135 and SR 136.
18	Extension of Commerce Ave. to E. Veterans Dr.	Whitson Ave. to E. Veterans Dr.	Construct new road		L	A new roadway could help mitigate congestion on SR 136 between I-40 & Commerce St. However, note that a previous geotechnical study revealed significant presence of caves and sinkholes, so this is likely to be a costly project.
34	Widening of W. Jackson St.	W. Broad Street (US 70N, SR 24) to Buffalo Valley Rd.	Add center turn lane		M	Evaluate after Tennessee Ave. is complete
14	Widening of W. Broad Street (US 70N, SR 24)	W. Spring St. to Tennessee Ave. (Project #2)	Widen to 3 or 5 lanes		M	Projected 2040 LOS is still acceptable on W. Broad Street west of Cookeville; recommend monitoring future growth
17	Extension of Foreman Drive	Holladay Rd. towards S. Willow Ave. (SR 135)	Construct new road to complete connection between Holladay Rd. and S. Willow Ave. (SR 135)		M	Consider in conjunction with improvements to Bill Smith Rd, outline ROW acquisition timeframe

TABLE 8: PROPOSED PROJECTS, MAJOR STREET PLAN

Proj. No.	Project Name	Limits	Description	Project Status	Priority	Comments
7	Widening of S. Willow Ave. (SR 135)	South of I-40	Increase capacity on SR 135 south of I-40	Complete from I-40 to Gould Drive	M	Once Highlands Business Park opens, and traffic from Academy Sports begins using the area, traffic volumes will increase.
23	Improvements to Broad St. and Cedar St. Intersection		Realign intersection		M	Additional studies needed, given proximity of railroad and potential historic resources
26	Extend Henley Dr. from Bunker Hill Rd. to existing terminus at Sams St.	Bunker Hill Rd. to S. Jefferson Ave. (SR 136) via Henley Dr.	Construct 3 lane roadway		M	Shift Sam's Club traffic to access SR 136 from Henley Dr. instead of using existing Bunker Hill /SR 136 intersection. This would improve operational issues along SR 136 near I-40.
3	Construction of Southern East-West Connector	New Tennessee Ave. interchange on I-40 to SR 111 in White County	E-W connection S. of I-40 from Tennessee Ave to SR 111 in White County (including interchanges with SR 135 and SR 136)		M	Provides east-west connectivity south of I-40 and alleviates use of I-40 as a local arterial
C	S. Willow Ave. (SR 135) at Interstate Dr/Foreman Dr.		Provide dual southbound left-turn lanes. Add eastbound through-right lane		L	
M	S. Jefferson Ave. (SR 136) at E. Jackson St.		Provide dual northbound left-turn lanes.		L	
N	E. Spring St. (US 70N, SR 24) at I-40 ramps		Monitor delay and queue lengths, and perform signal warrant analysis when delays increase.		L	
8	Construction of Bunker Hill Rd. Tunnel/Bridge (S. Walnut Ave. Extension)	Connect Bunker Hill Rd. to S. Walnut Avenue	N-S connection parallel to and between SR 135 and SR 136		L	Advise further study once S. Jefferson Ave. is continuously operating at LOS E, or if land use changes significantly
27	Construction of Connector Street from Salem Church Rd. to SR 111	Salem Church Rd. to SR 111	Signalize intersection and construct 3 lane road extending Osler Dr. (at the existing median U-turn facility on SR 111, entrance to Fortis Institute and Border States Electric properties).		L	Evaluate further (the need for signalization of the SR 111 and Osler Dr. intersection & extension to Salem Church Rd.) if development along Neal Street intensifies
28	Widening of W. Cemetery Rd.	Burgess Falls Rd. (SR 135) to Bunker Hill Rd.			L	Continue to evaluate as development increases south of I-40. As development intensifies, program ROW acquisition.
24	Extension of E. 15th St.	Brown Ave. to Fisk Rd.	Construct new road		L	Recommend more thorough study to assess which street (15th, 20th, Summerfield Rd) would be best to extend in this area of Cookeville
11	Extension of Ferrell Dr.	S. Jefferson Ave. (SR 136) to S. Maple Ave.	New east-west connection		L	Outline ROW acquisition timeline to provide future alternate E-W route south of I-40
31	Extension of and improvements to Old Walton Rd.	Neal St. to E. Spring St. (US 70N, SR 24)	Widen and add sidewalks		L	Recommend acquiring ROW when planning & constructing Project #13
32	Improvements to Holladay Rd.	Lee Seminary Rd. to Buffalo Valley Rd.	Widen and add sidewalks		L	Evaluate further as development west of S. Willow Avenue intensifies
33	Construction of I-40 Parallel Access Street	SR 111 S. of I-40 to E. Spring St. (US 70N, SR 24)	Construct 2 or 3 lane roadway		L	Evaluate further as development east of SR 111 intensifies, begin planning and programming ROW acquisition
35	Construction of Intersection and Connecting Street on Tennessee Ave	700 ft S. of Nashville & Eastern Rail ROW	Encourage development		L	Evaluate after Tennessee Ave. is complete
36	Construction of Intersection and Connecting Street on Tennessee Ave	1400 ft S. of Buffalo Valley Rd.	Encourage development		L	Evaluate after Tennessee Ave. is complete
37	Construction of Intersection and Connecting Street on Tennessee Ave	1500 ft S. of Project No. 36	Encourage development		L	Evaluate after Tennessee Ave. is complete
38	Construction of Intersection and Connecting Street on Tennessee Ave	1500 ft N. of I-40	Encourage development		L	Evaluate after Tennessee Ave. is complete