TRAFFIC IMPACT STUDY

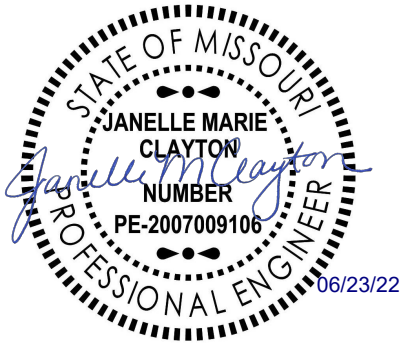
TUDOR ROAD MULTIFAMILY DEVELOPMENT

LEE'S SUMMIT, MISSOURI

Prepared For:
Phelps Engineering, Inc.

Prepared By:
Janelle Clayton, PE, PTOE

June 22, 2022



MERGE MIDWEST ENGINEERING

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INTRODUCTION

This traffic impact study presents the results of traffic analysis completed in conjunction with the Tudor Road Multifamily development. The development consists of seven four-story apartment buildings.

The proposed development is generally located in the southwest quadrant of the Douglas Street & Tudor Road intersection in Lee's Summit, Missouri. The approximate location of the proposed development is shown in the Google Earth image below.

This study analyzed the traffic impacts at the following intersections:

a. Ward Road & Tudor Road
b. Tudor Road & Commerce Drive / Sloan Street-Realigned Main Street
c. Tudor Road & Proposed Drive 1 / Existing Gated Police Station Entrance
d. Tudor Road & Douglas Street
e. Douglas Street & Chipman Road
f. Chipman Road & Commerce Drive
g. Commerce Drive & Proposed Drive 2

The City has requested that traffic for the planned *Lee's Summit Logistics* development located in the northwest quadrant of the intersection of Tudor Road & Sloan Street be included in the analysis. Therefore, the following volume scenarios were analyzed:

a. Existing
b. Existing + Tudor Road Multifamily Site
c. Existing + Tudor Road Multifamily Site + Planned *Lee's Summit Logistics* Development
d. Future + Tudor Road Multifamily Site + Planned *Lee's Summit Logistics* Development

EXISTING CONDITIONS

Existing Traffic Volumes: Existing AM and PM peak-hour traffic volumes at the following intersections were recorded by Gewalt-Hamilton Associates (GHA) via video camera during the hours of 7:00-9:00 AM and 4:00-6:00 PM on Tuesday, June 7th, 2022. The counts were processed by Miovision Technologies, Inc. and can be found in the Appendix. The resulting peak hours of the intersections are listed below:

Intersection	AM Peak Hour	PM Peak Hour
Ward Road & Tudor Road	7:30 – 8:30 AM	4:45 – 5:45 PM
Tudor Road & Main St	7:30 – 8:30 AM	4:45 – 5:45 PM
Tudor Road & Douglas Street	7:15 – 8:15 AM	4:30 – 5:30 PM
Chipman Rd & Douglas Street	8:00 – 9:00 AM	4:30 – 5:30 PM
Chipman Road & Commerce Dr	8:00 – 9:00 AM	4:30 – 5:30 PM

The nearby interchange of Chipman Road & US-50 is currently under construction. Chipman Road is closed to the west of the site to US-50. Detours are currently being utilized on adjacent roadways to the site. Historic traffic counts at the intersections of Tudor Road & Douglas Street, Chipman Road & Douglas Street, and Chipman Road & Commerce Drive were provided by City staff to compare to the existing recorded counts.

The traffic study completed for the planned *Lee's Summit Logistics* development also included some existing traffic counts from June 2nd, 2021. The existing counts provided in the study also included traffic volumes from unbuilt portions of the *Summit Orchards* development. These adjusted existing traffic volumes were also compared to the existing recorded counts.

The higher volume for each movement from the existing counts, the historic counts, and the Lee's Summit Logistics existing counts was selected for each movement and balanced through the network to represent existing breaks in volumes between intersections. **Figure 1** depicts the adjusted existing AM and PM peak-hour traffic volumes.

According to *Exhibit 1 – Existing Land Use* in the City's *Thoroughfare Master Plan*, the existing parcel is a mix of agricultural, single-family residential and commercial land uses. *Exhibit 2 – Future Land Use* shows the parcel with a commercial (office/retail) land use. This site is mostly vacant today with the exception of the Advanced Risk Management building that fronts the west side of Douglas Road.

Existing Roadway Network: Current roadway characteristics near the study area are summarized in **Table 1.**

Table 1: Existing Roadway Characteristics

Roadway	Classification	Section	Median Type	Posted Speed Limit
Tudor Rd	Minor Arterial	4-Lane, Curb & Gutter	Median-Divided	35 mph
Ward Rd	Major Arterial	4-Lane, Curb & Gutter	Median-Divided	35 mph
Sloan	Local	2-Lane Grass Ditch	Undivided	25 mph
Commerce Dr	Commercial Collector	2-Lane Curb & Gutter	Undivided	25 mph
Douglas St	Major Arterial	4-Lane Curb & Gutter	Undivided South of Tudor Median-Divided North of Tudor	45 mph
Chipman Rd	Major Arterial	4-Lane Curb & Gutter	Median-Divided	45 mph

Classifications as shown on the City's Thoroughfare Master Plan

The existing traffic control at the study intersections are summarized in **Table 2** below:

Table 2: Current Intersection Control

Intersection	Intersection Control
Ward St & Tudor Rd	Traffic Signal
Tudor Rd & Sloan St / Commerce Dr	Stop-Control on Minor Approaches
Tudor Rd & Gated Police Station Entrance	Stop-Control on Minor Approach
Tudor Rd & Douglas St	Traffic Signal
Chipman Rd & Douglas St	Traffic Signal
Chipman Rd & Commerce Dr	Traffic Signal

It should be noted that the intersection of Tudor Road & Main Street will be vacated in the near future. Main Street will be realigned to connect to Sloan Street. For purposes of this study, the realigned configuration has been assumed as the existing condition.

Existing Multimodal Facilities: According to *Exhibit 3 – Greenway Master Plan* in the City's *Thoroughfare Master Plan*, Tudor Road and Chipman Road have a multi-use trail, and portions of these roadways near the development site are considered "Planned Community Connectors". Commerce Drive is also considered a "Planned Community Connector".

Exhibit 4 – Bicycle Transportation Plan in the City's *Thoroughfare Master Plan* indicates Tudor Road has an Existing Route (Path) along the frontage of the proposed development as well as a Planned Route (Path) and a Planned Route (Street Accommodation). Chipman Road has an Existing Route (Path). The portion of Commerce Road from Chipman Road to Main Street has an Existing Route (Street Accommodation) and also has a Planned Route (Path).

The City contracts with the Kansas City Area Transportation Authority (KCATA) to provide transit services. There is a RideKC Lee's Summit Express park-and-ride lot located near US-50 Highway & Chipman Road.

PROPOSED CONDITIONS

Proposed Land Use: The proposed Tudor Road Multifamily development will consist of 349 units of apartments in seven separate 4-story buildings. The site plan for the proposed development is shown on **Exhibit 1.**

Proposed Access Plan: Two access driveways are proposed to serve the development and are summarized in **Table 3** below. Note: Distances taken from center of intersection.

Table 3: Proposed Site Access

Access Name	Intersecting Roadway	Access Type	Access Location
Drive 1	Tudor Road	Full Access	Approx. 365' east of Commerce Drive / Sloan Street. Aligns with Police Station Entrance
Drive 2	Commerce Drive	Full Access	Approx. 165' north of Main Street

According to the City's *Access Management Code*, the minimum distance for a driveway along a minor arterial (Tudor Road) is 400'. Drive 1 would be 35' shy of this distance. However, it is ideal to line up with the existing Police Station entrance rather than create another access point.

The minimum distance for a driveway on a commercial collector is 300'. The proposed location of Drive 2 only provides 165' of separation. Discussions were had with the project team suggesting relocating the driveway further north. The site is challenging with grading as there is a low point along Commerce Drive further north and the team would suggest leaving the driveway in the proposed location to avoid having the driveway located at a low spot.

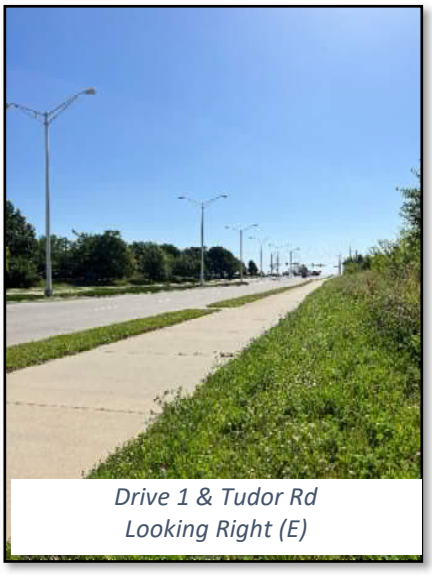
Throat Distances: The driveway throat distance for Drive 1 and Drive 2 is approximately 55'. The throat distance was measured to the first parking stall available into the site. The nearest intersecting parking isles are much farther into the site. The City's *Access Management Code* indicates that 75' throat length is desirable for a driveway that intersects a collector road (Commerce Drive) and 100' throat length is desirable for a driveway that intersects an arterial road (Tudor Road). If the first parking stall is considered a conflict point, the parking lot layouts should be modified to provide the required throat lengths at each driveway location. If the throat length is considered to the first conflicting intersection, then adequate throat lengths are provided.

Auxiliary Turn Lanes: According to the *Access Management Code,* a left-turn lane will be required at the intersection of Tudor Road & Drive 1. No other turn lanes are required per the *Access Management Code* or for capacity reasons at the driveway intersections.

Intersection Sight Distance: Intersection sight-distance measurements were taken in the field at the proposed driveway intersections. The City's Access Management Code indicated that 440' of sight distance is required for the intersection of Tudor Road & Drive 1. In addition, 280' of sight distance is required for the intersection of Commerce Drive & Drive 2. Adequate intersection sight distance is provided at all the driveway locations as shown in the photos below.

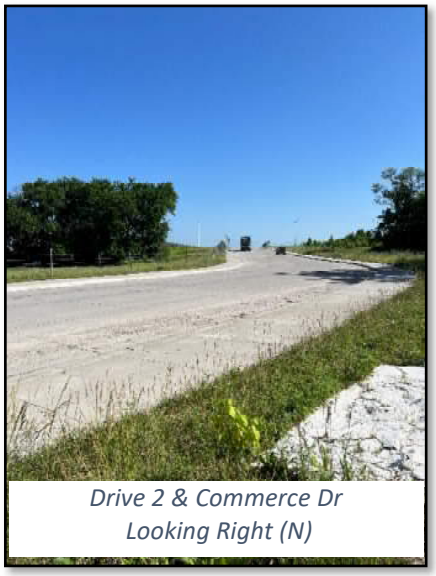
Drive 1 & Tudor Road

Drive 1 & Tudor Rd
Looking Left (W)



Drive 1 & Tudor Rd
Looking Right (E)

Drive 2 & Commerce Drive



Drive 2 & Commerce Dr
Looking Right (N)

Drive 2 & Commerce Dr
Looking Left (S)

Trip Generation: The estimated trip generation for the proposed Tudor Road Multifamily development was based upon the 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual.* **Table 4** depicts the trip generation for the site.

Table 4:
Proposed Trip Generation

				AM Peak Hour (VPH)			PM Peak Hour (VPH)		
Land Use	Qty	Unit	ADT (VPD)	TOTAL	IN	OUT	TOTAL	IN	OUT
221 – Multifamily Housing (Mid-Rise)	**349**	**DU**	**1,584**	**142**	**33**	**109**	**136**	**83**	**53**

Estimates of the expected trip distribution to and from the Tudor Road Multifamily development were based upon the available and planned street network and existing traffic flow. The trip-distribution patterns that were utilized are as follows:

- To/From the north via Ward Road 20%
- To/From the north via Douglas Street 25%
- To/From the east via Tudor Road 15%
- To/From the south via Douglas Street 10%
- To/From the south via Ward Road 15%

Existing + Site Traffic Volumes: The trips for the Tudor Road Multifamily development were added to the existing traffic volumes (adjusted as noted previously) to calculate the E*xisting + Site* AM and PM peak-hour volumes and are shown on **Figures 2 & 3,** respectively.

Existing + Site + Planned Traffic Volumes: The expected development-related traffic volumes for the full buildout of the *Lee's Summit Logistics* development were added to the *Existing + Site* volumes to calculate the *Existing + Site + Planned* AM and PM peak-hour volumes. The resulting volumes are shown on **Figures 4 & 5,** respectively.

Future + Site + Planned Traffic Volumes: The existing traffic volumes, adjusted as noted previously, at the intersections of Ward Road & Tudor Road, Tudor Road & Douglas Street, and Douglas Street & Chipman Road, were grown at 2% per year for 20 years to develop the future background volumes. The volumes were then pushed through the other study intersections to increase the through volumes. The Tudor Road Multifamily development-related volumes and the expected development-related traffic volumes for the full buildout of the *Lee's Summit Logistics* development were added to the background future volumes to calculate the *Future + Site + Planned* AM and PM peak-hour volumes. The resulting volumes are shown on **Figures 6 & 7,** respectively.

ANALYSES

A series of intersection capacity analyses were completed at the study intersections to determine the expected levels of service, the lengths of delays, and the vehicle queues experienced by drivers. The study intersections were analyzed based upon the 6th Edition of the Transportation Research Board's (TRB) *Highway Capacity Manual*. A description of the level-of-service criteria used in these analyses is shown below:

Level of Service Definitions		
Level of Service	**Signalized Intersection Average Control Delay (sec/veh)**	**Unsignalized Intersection Average Control Delay (sec/veh)**
A	<10	<10
B	<20	<15
C	<35	<25
D	<55	<35
E	<80	<50
F	≥80	≥50

The amount of control delay is assigned a level of service based on driver acceptance, with LOS "A" representing little or no delay and LOS "F" representing long delays. The queues shown on the figures represent the 95th percentile queue, or the queue that has only a 5% chance of being

exceeded during the peak hour. It should be noted that all completed analyses utilized the Synchro 11 software package, and analysis output is included in the Appendix attached to this report. Existing signal timings for the study intersections were provided by City Staff and the Mid-America Regional Council Operation Greenlight Staff. These timings were utilized in the analysis for all scenarios. The signalized intersections of Douglas Street & Chipman Road and Chipman Road & Commerce Drive are currently operating in coordination along Chipman Road. All other signalized intersections are running "FREE" during the peak hours.

Existing Traffic Conditions: Figures 8 & 9 depict the results of the completed analyses for the *Existing* AM and PM peak-hour traffic volume scenario. The completed analyses indicate that most of the intersections and individual movements at the study intersections currently operate at LOS "C" or better during the peak hours. The intersection of Tudor Road & Douglas Street currently operates at LOS "D" during the PM peak hour. This is due to the large volume of westbound right-turns at the intersection. The actual count showed 182 vehicles per hour (vph) turning right. The adjusted volume, reflecting the higher of the historic and the *Lee's Summit Logistics* volume is 259 vph. There is not a separate westbound right-turn lane to serve this movement, which results in the lower level of service.

The eastbound and westbound left-turn movements at the intersection of Chipman Road & Commerce Drive currently operate at LOS "E" during the PM peak hour, but with minimal queues.

The eastbound left-turn movement at the intersection of Chipman Road & Douglas Street currently operates at LOS "E" during the PM peak hour, but with a queue that fits into existing storage.

Existing + Site Traffic Conditions: As shown on **Figures 10 & 11,** the completed analyses indicate that very similar operations to the *Existing* condition would be expected with the addition of the Tudor Multifamily site-generated traffic. LOS "C" or better would be expected for most movements and intersections except for the movements noted in the *Existing* conditions analysis.

Existing + Site + Planned Traffic Conditions: As shown on **Figures 12 & 13,** the completed analyses indicate that most of the individual movements at the study intersections would be expected to operate at LOS "C" or better during the peak hours for the *Existing + Site + Planned* scenario. As with the other scenarios, the westbound right-turn movement at the intersection of Douglas Street & Tudor Road, the eastbound and westbound left-turn movements at the intersection of Chipman Road & Commerce Drive and the eastbound left-turn lane at the intersection of Chipman Road & Douglas Street would continue to experience poor levels of service during the PM peak hour, but with queues that are contained in existing storage.

Future + Site + Planned Traffic Conditions: As shown on **Figures 14 & 15,** the completed analyses indicate that if volumes increase as projected, poor levels of service would be expected for the intersection of Tudor Road & Douglas Street and Chipman Road & Douglas Street. Geometric improvements will most likely need to be constructed to provide acceptable operations at these intersections in the future to achieve acceptable operations.

Some of the stop-controlled approaches at the unsignalized intersections would experience LOS "E" or LOS "F" during the peak hours, but with minimal queueing. It is not uncommon for side-street movements to encounter longer wait times during the peak hours at unsignalized intersections. The delay values are not overly excessive, and the maximum queue would not exceed 100' (4 vehicles).

SUMMARY & RECOMMENDATIONS

This traffic study summarizes the anticipated traffic impacts of the proposed Tudor Road Multifamily development. The City requested that the traffic volumes for the approved adjacent *Lee's Summit Logistics* development be included in the analysis as "planned traffic" for the Existing + Site + Planned volume scenario.

In general, acceptable traffic operations can be expected throughout the study network with the addition of the Tudor Road Multifamily development and with the addition of the traffic from the full buildout of the Lee's Summit Logistics development.

A few of the movements at signalized intersections currently experience poor levels of service during the PM peak hour. The westbound right-turn movement at the intersection of Douglas Street & Tudor Road currently operates a LOS "F" during the PM peak hour due to the high volume of right-turns an no separate right-turn lane. The eastbound and westbound left-turn movements at the intersection of Chipman Road & Commerce Drive currently operate at LOS "E" during the PM peak hour, but with minimal queues. The eastbound left-turn movement at the intersection of Chipman Road & Douglas Street currently operates at LOS "E" during the PM peak hour, but with a queue that fits into existing storage. The addition of the site-generated traffic does not significantly degrade these movements.

To adhere to the City's *Access Management Code,* a westbound left-turn lane is required at the intersection of Tudor Road & Drive 1. The lane should be constructed to provide 200' of storage plus taper. No other turn lanes are recommended at the proposed driveway intersections.

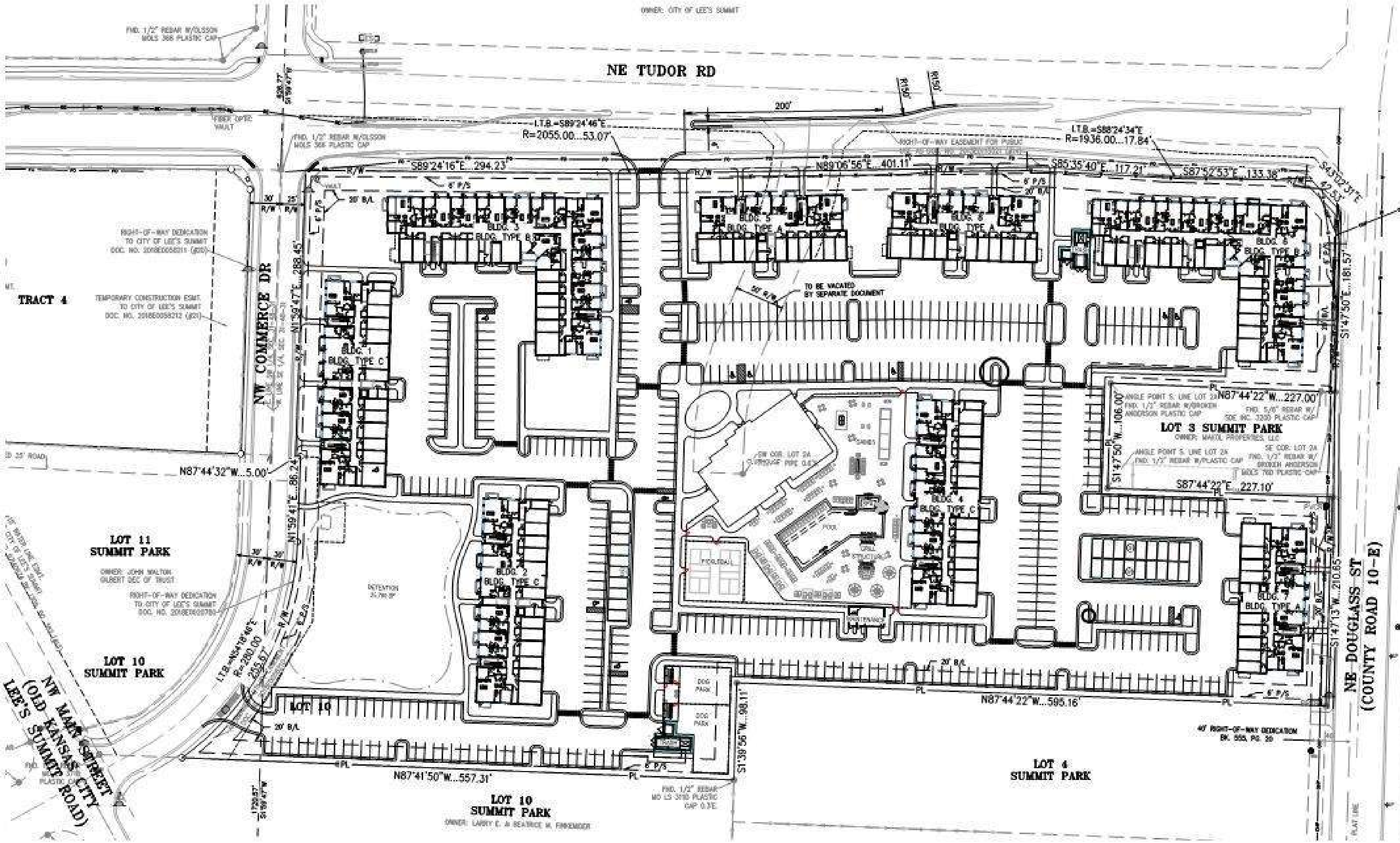
We appreciate the opportunity to serve you on this very important project. Please feel free to contact us if you should have any questions.

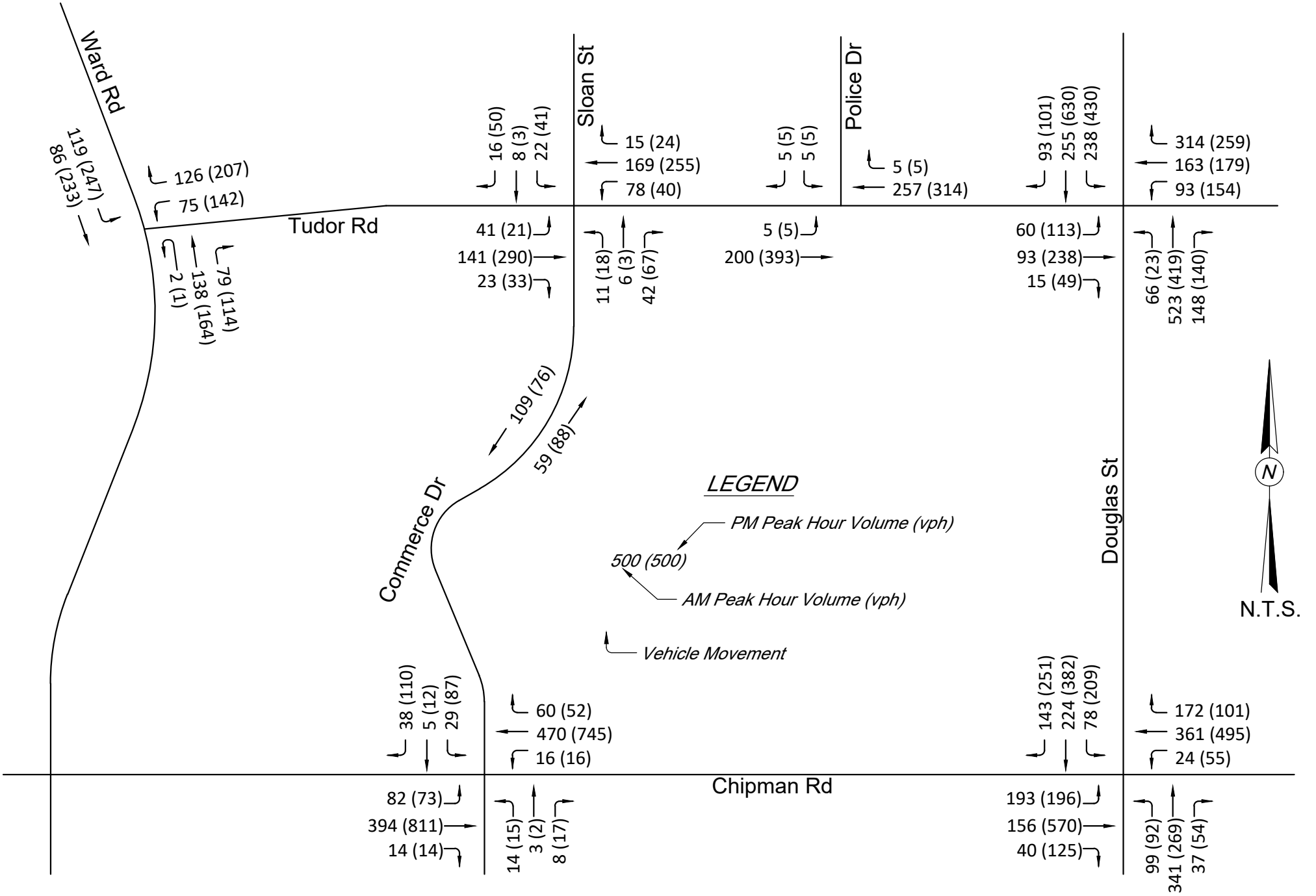
Respectfully submitted,

Merge Midwest Engineering, LLC

Janelle M. Clayton, P.E., PTOE
Manager / Co-Owner

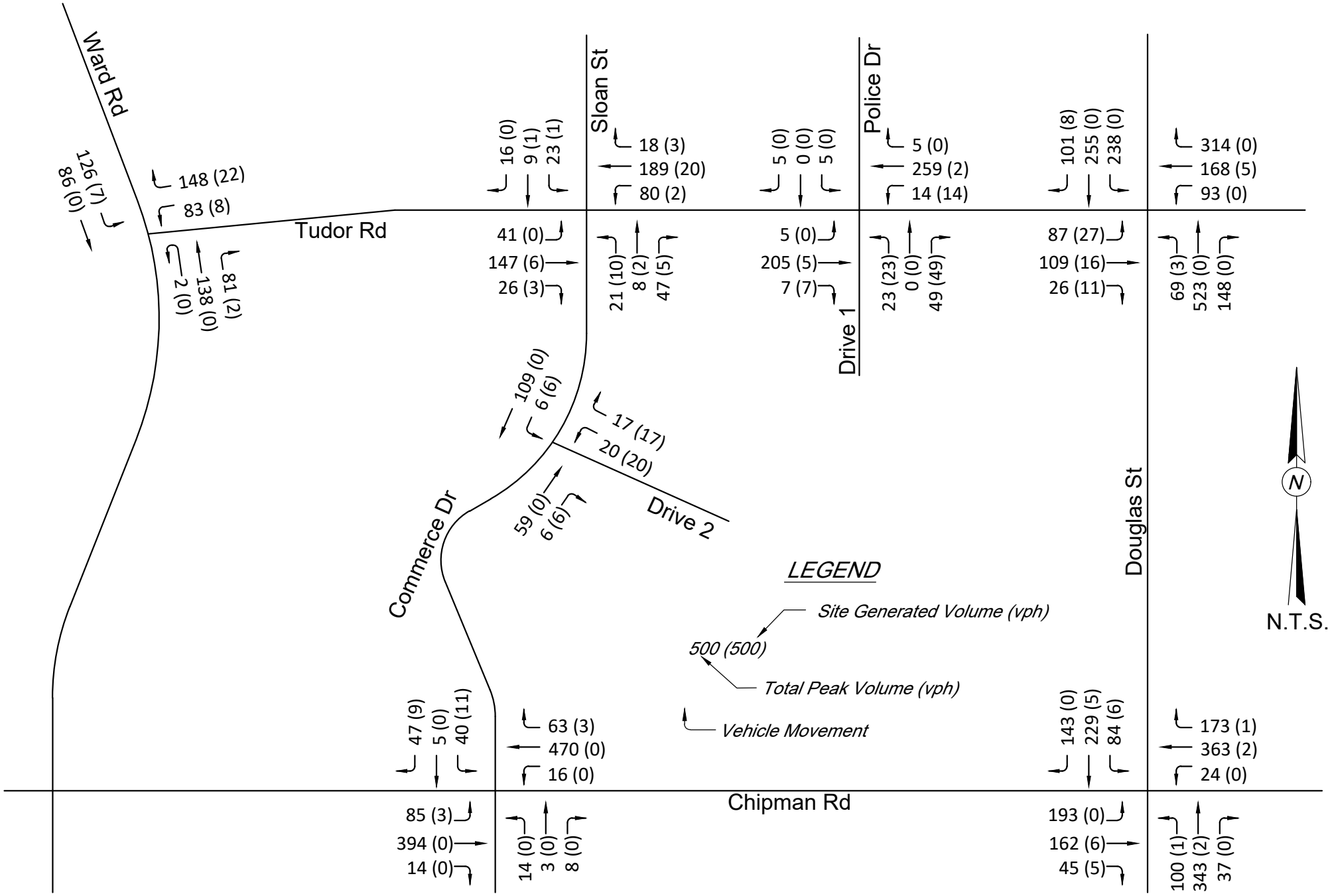
EXHIBIT 1


NE TUDOR RD
NW COMMERCE DR
NE DOUGLASS ST
(COUNTY ROAD 10-E)
TRACT 4
LOT 11
SUMMIT PARK
LOT 10
SUMMIT PARK
NW MAIN STREET
(OLD KANSAS CITY
LEE'S SUMMIT ROAD)
LOT 3 SUMMIT PARK
LOT 4
SUMMIT PARK
LOT 10
SUMMIT PARK
S89°24'16"E...294.23'
N89°06'56"E...401.11'
S85°35'40"E...117.21'
S87°52'53"E...133.38'
N87°44'22"W...227.00'
S87°44'22"E...227.10'
N87°44'22"W...595.16'
N87°41'50"W...557.31'
N87°44'32"W...5.00'
S1°47'50"E...181.57'
S1°47'13"W...210.65'
S1°39'56"W...98.11'
R=2055.00...53.07'
R=1936.00...17.84'
200'

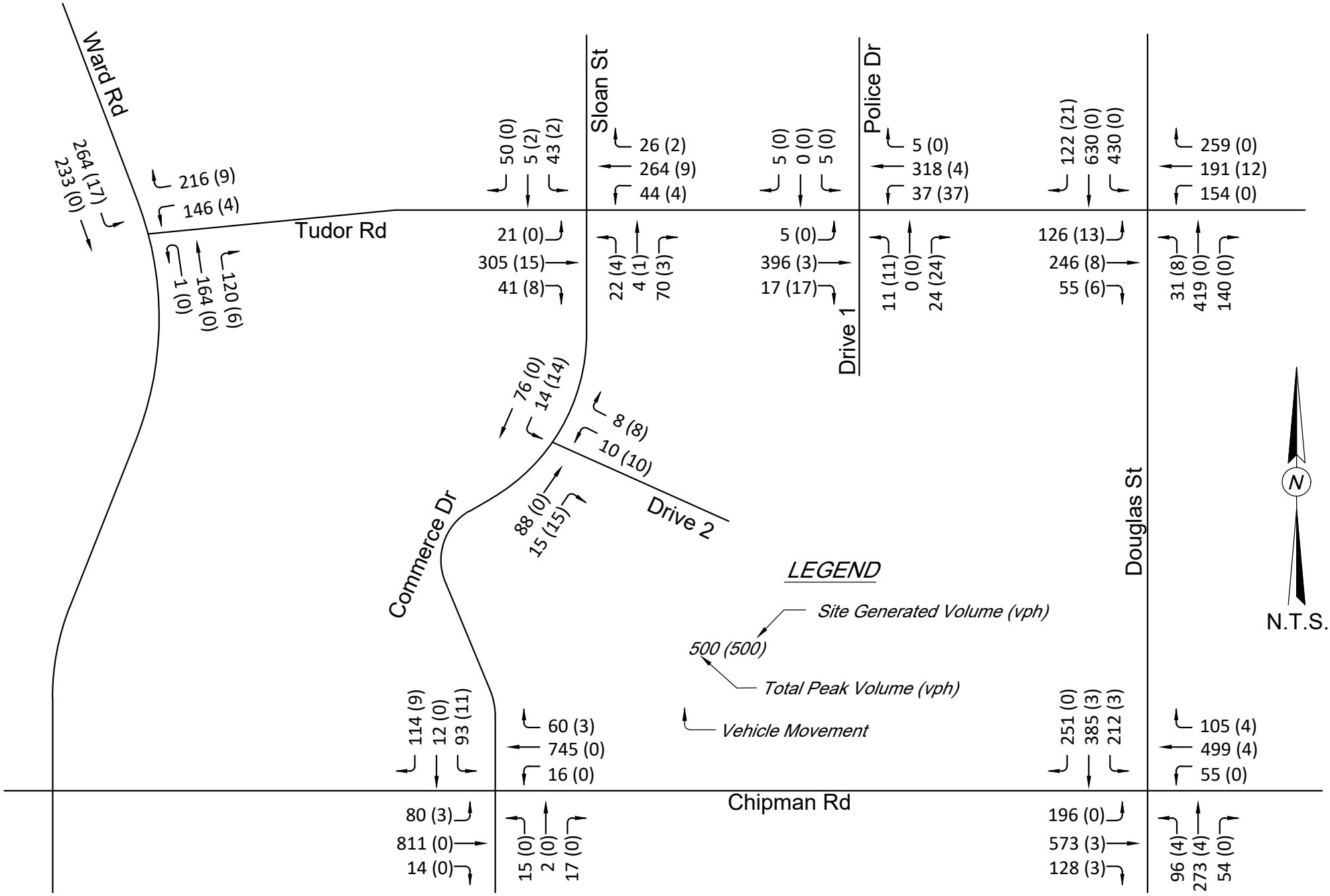


MERGE MIDWEST ENGINEERING

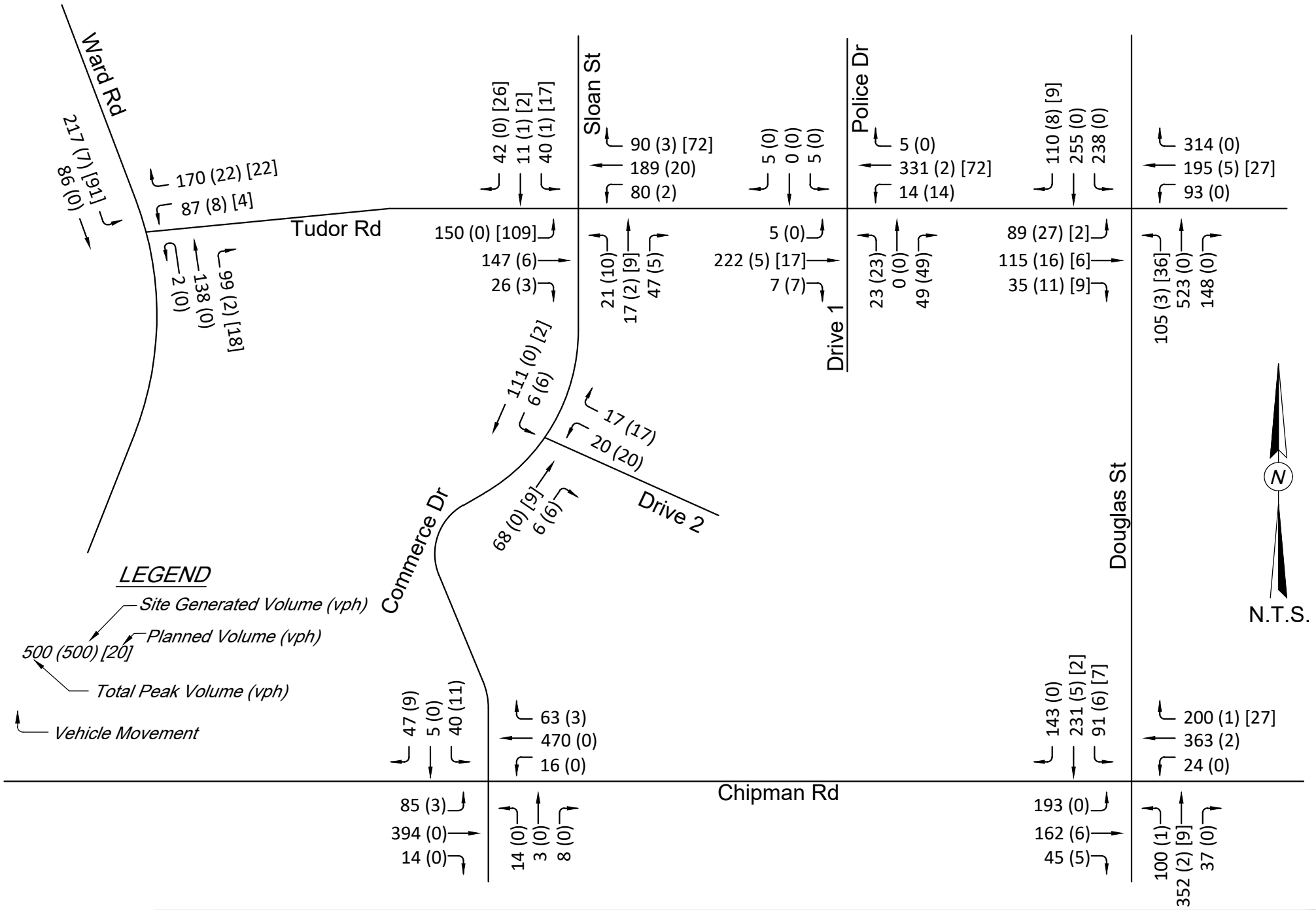
PROJECT NUMBER 22035	FIGURE 1	EXISTING TRAFFIC VOLUMES
DATE JUNE 2022		



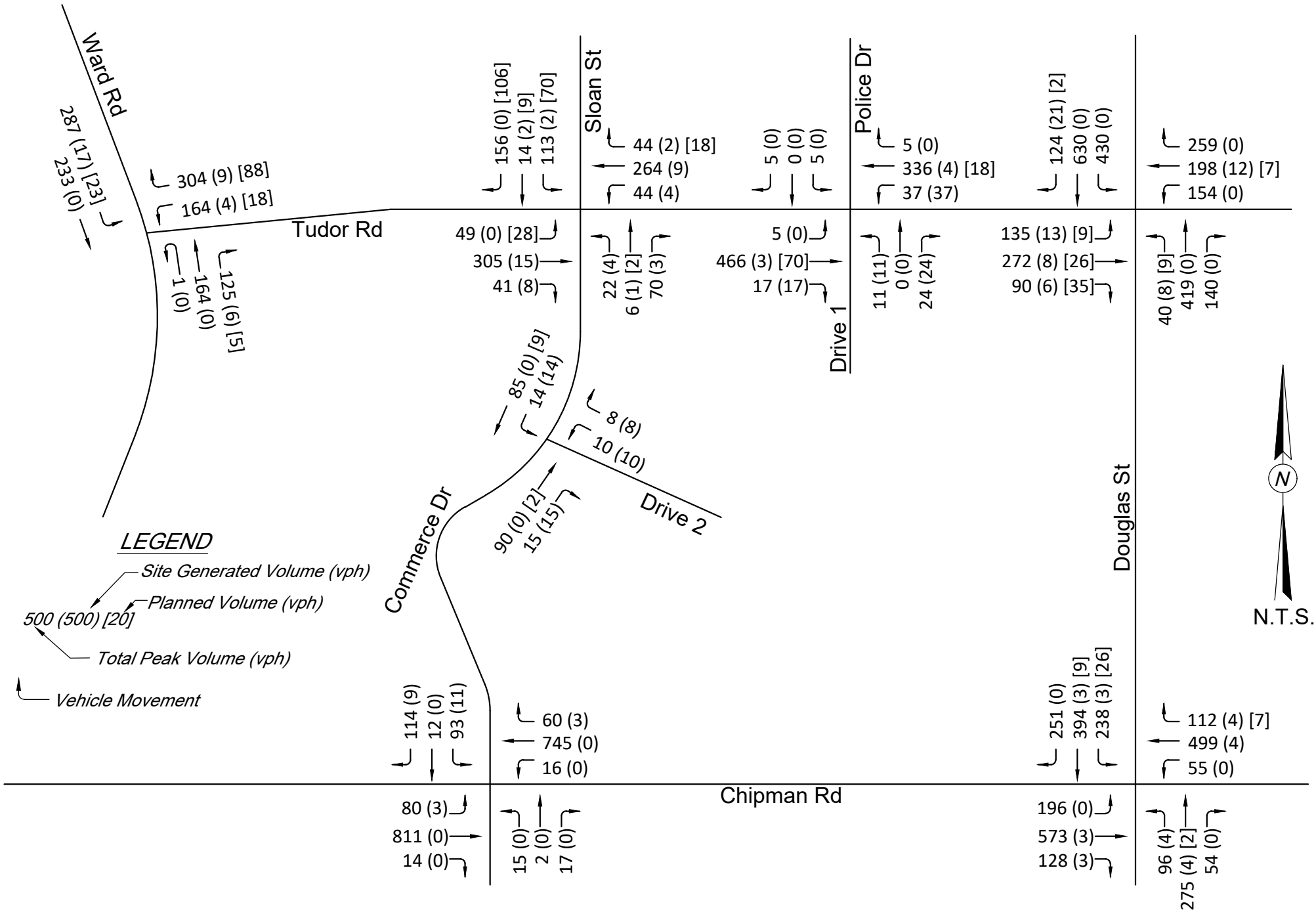
MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 2	EXISTING + SITE TRAFFIC VOLUMES AM PEAK HOUR



MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 3	EXISTING + SITE TRAFFIC VOLUMES PM PEAK HOUR

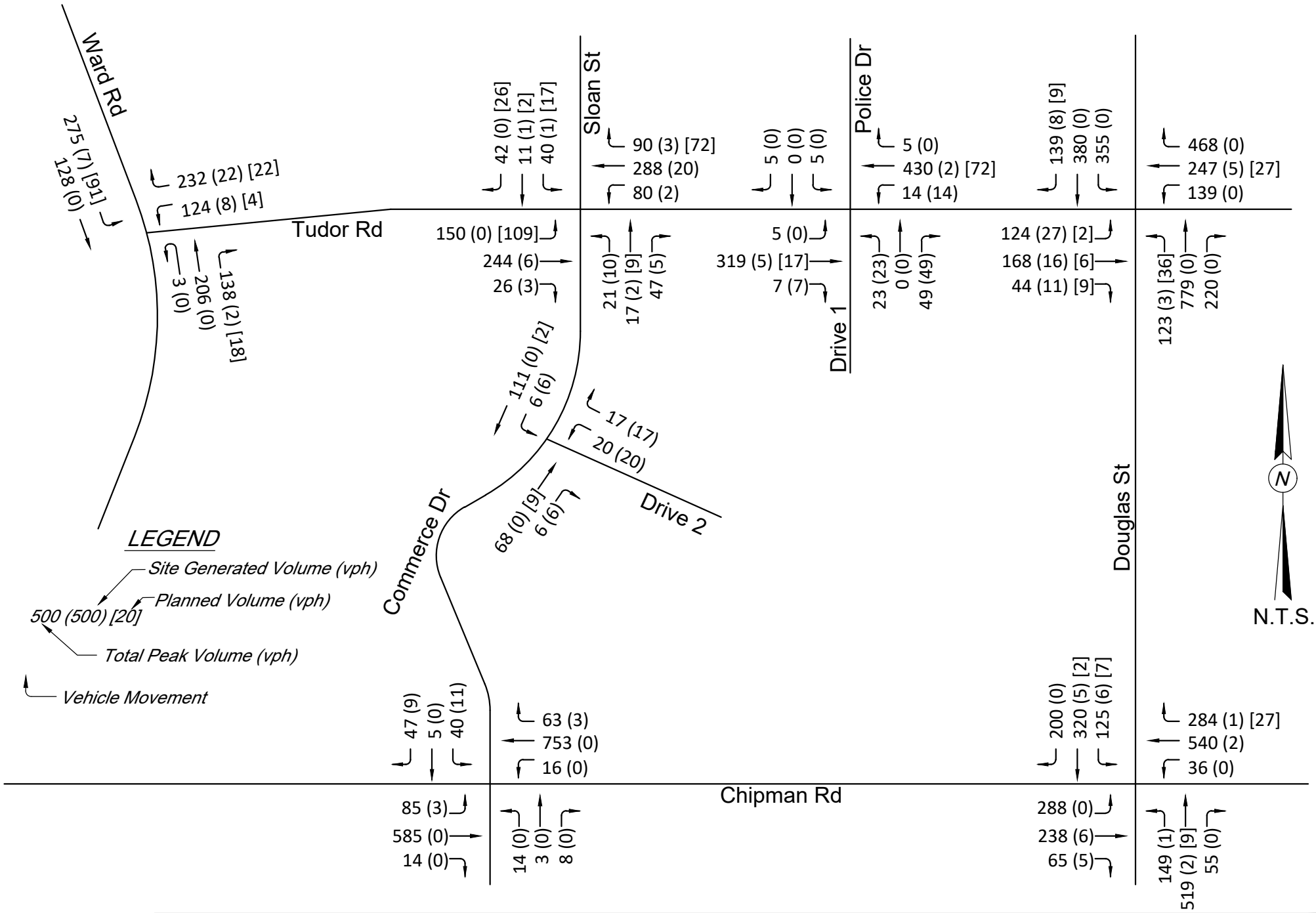


MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 4	EXISTING + SITE + PLANNED TRAFFIC VOLUMES AM PEAK HOUR



MERGE MIDWEST ENGINEERING

PROJECT NUMBER 22035	FIGURE 5	EXISTING + SITE + PLANNED TRAFFIC VOLUMES PM PEAK HOUR
DATE JUNE 2022		



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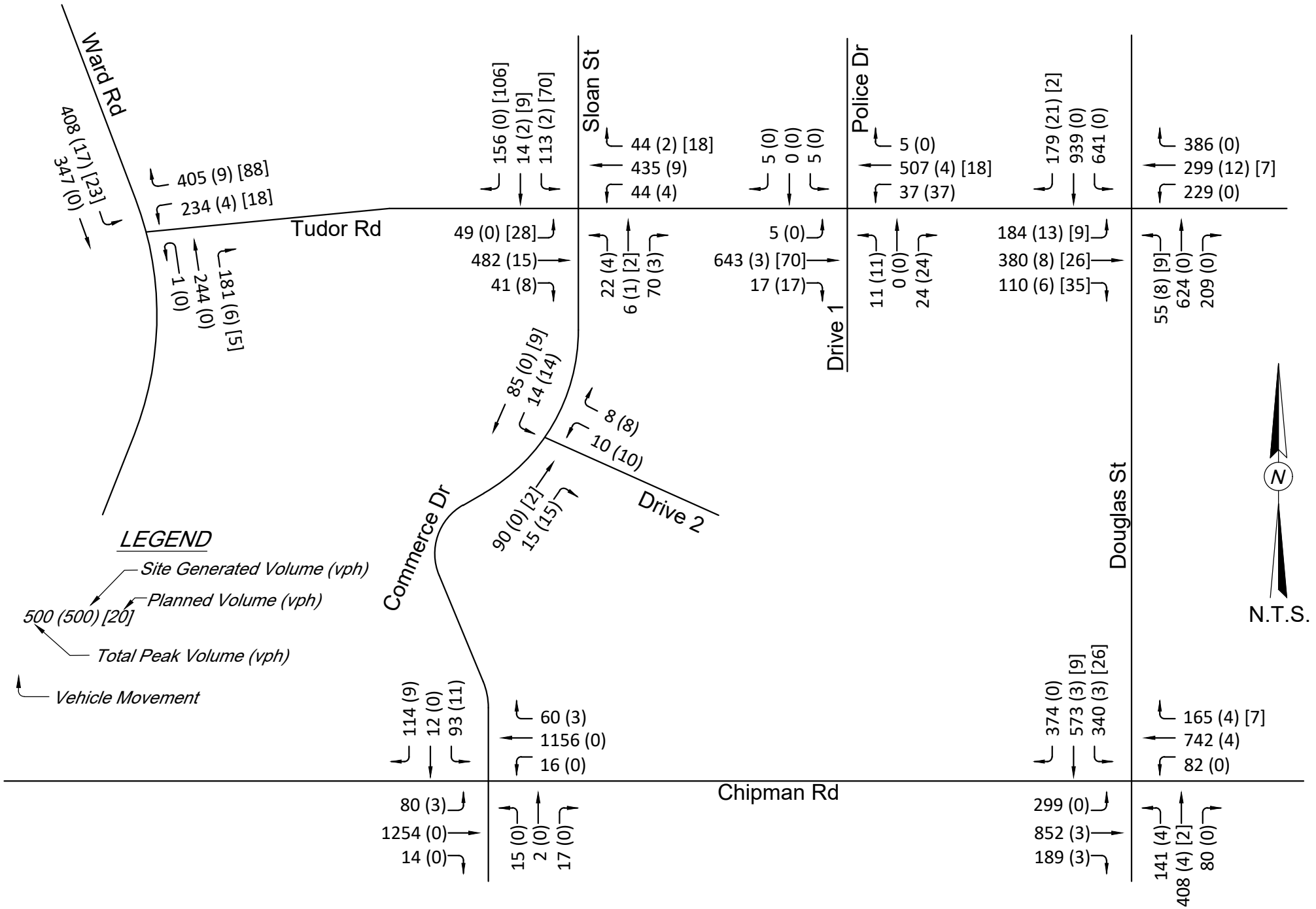
PROJECT NUMBER
22035

DATE
JUNE 2022

FIGURE 6

FUTURE + SITE + PLANNED
TRAFFIC VOLUMES
AM PEAK HOUR



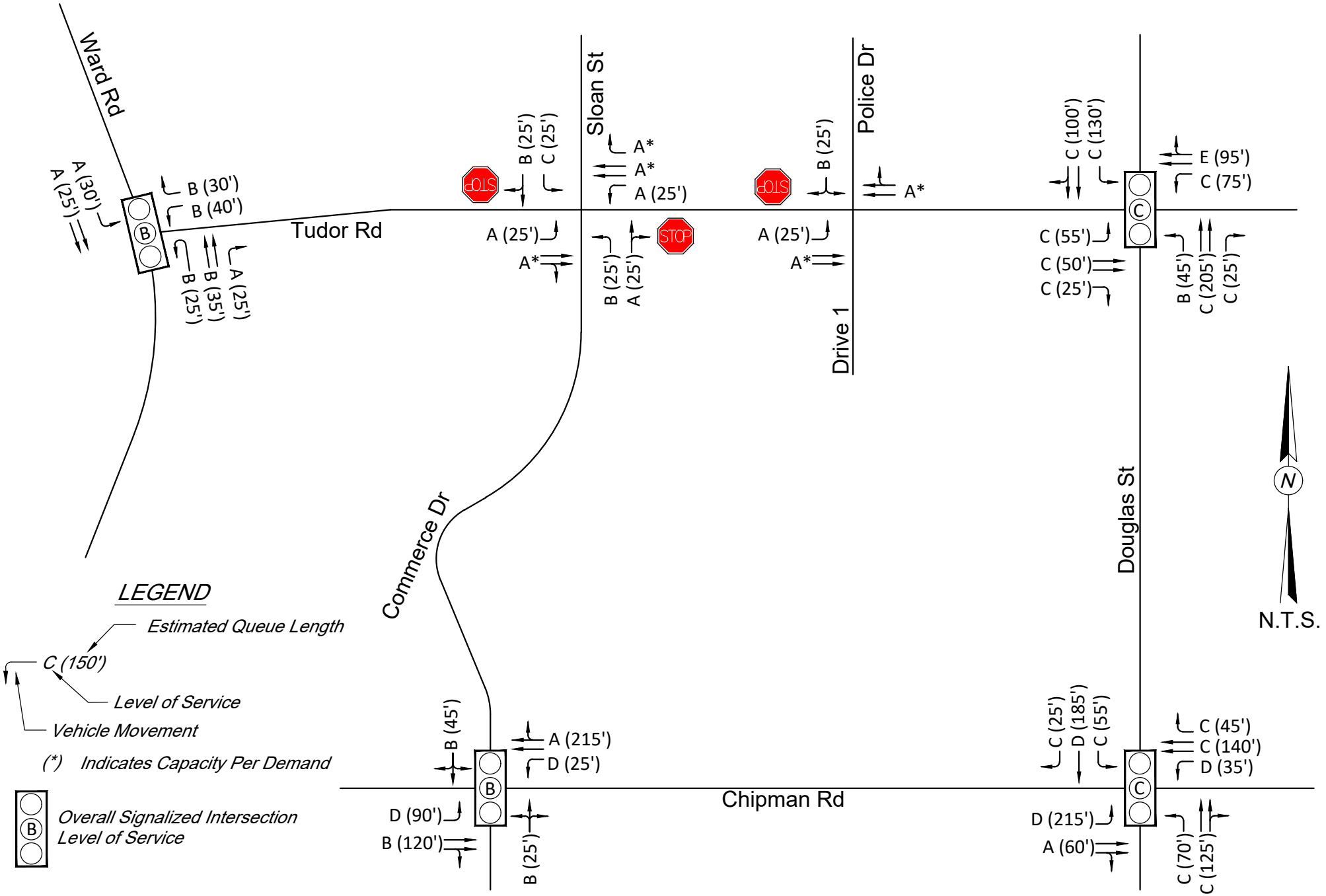
MERGE MIDWEST ENGINEERING

PROJECT NUMBER
22035

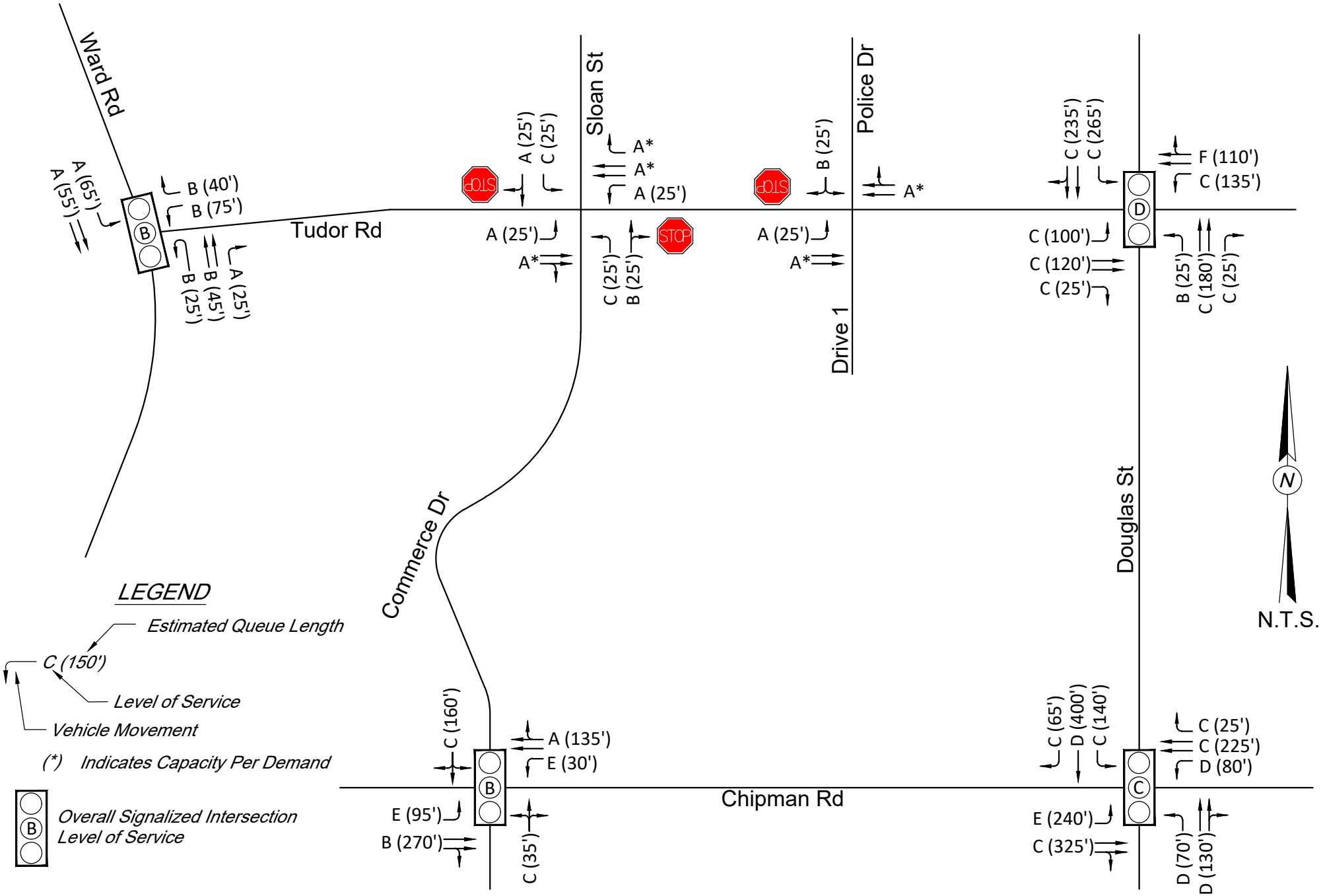
DATE
JUNE 2022

FIGURE 7

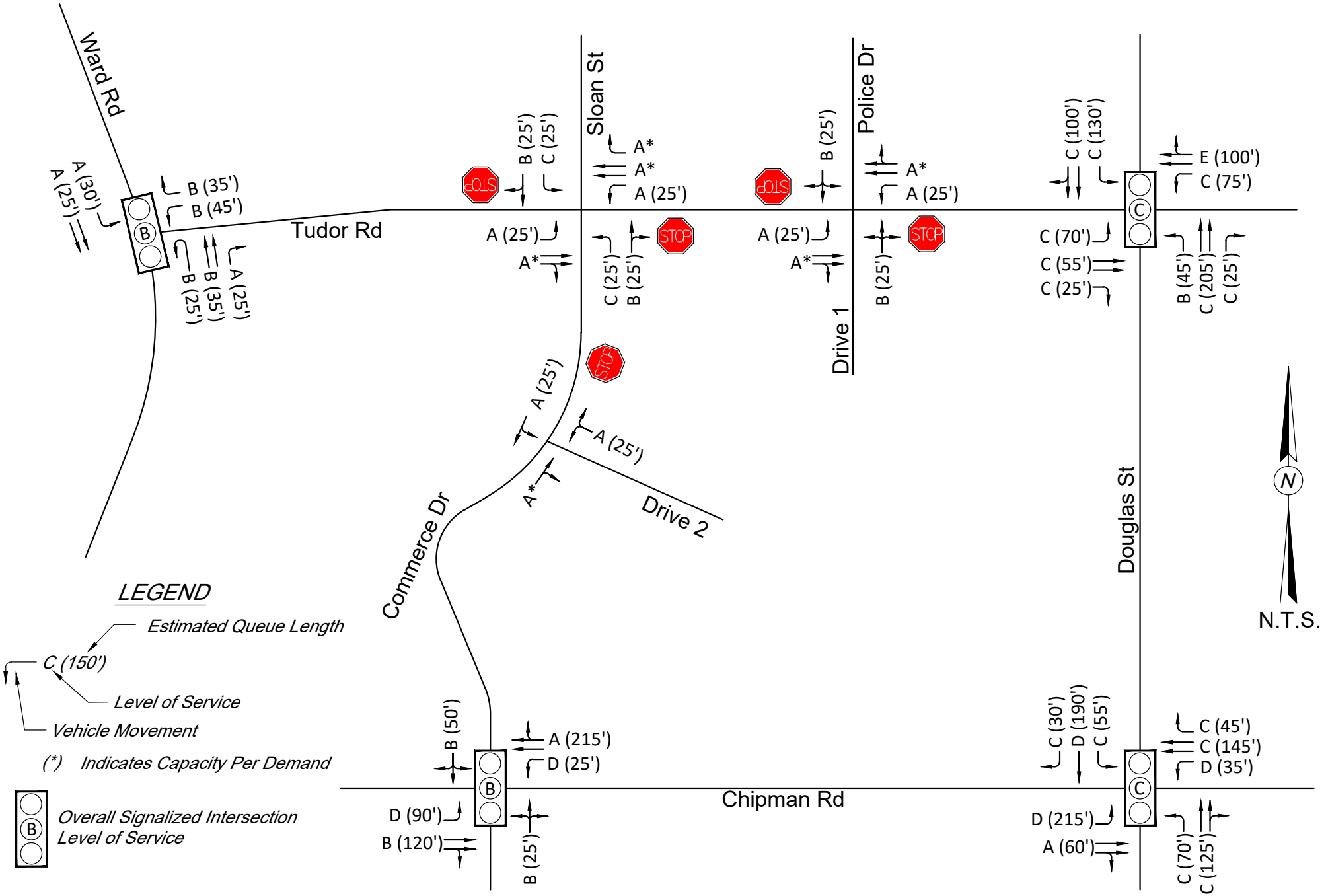
FUTURE + SITE + PLANNED
TRAFFIC VOLUMES
PM PEAK HOUR



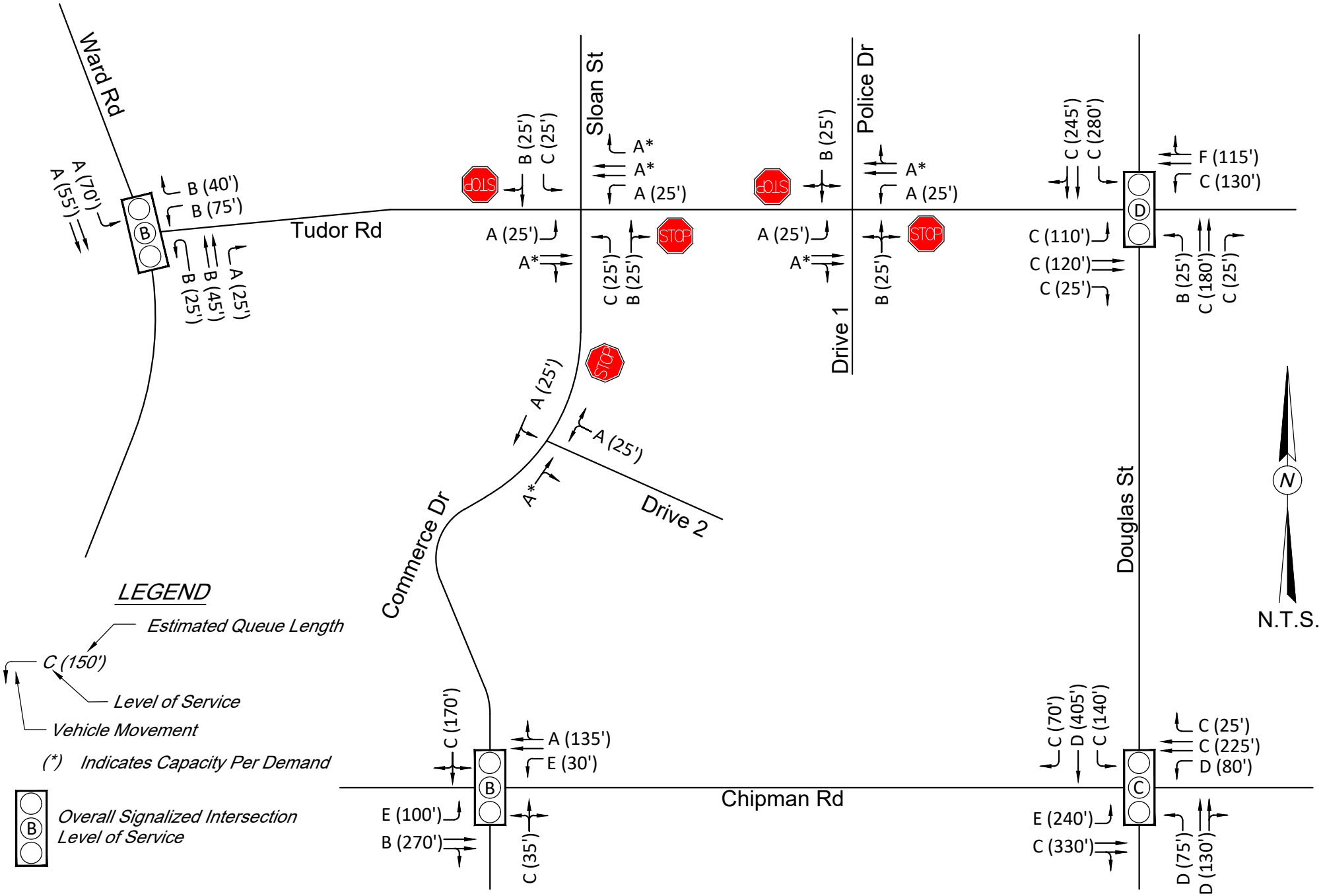
MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 8	EXISTING LEVELS OF SERVICE AM PEAK HOUR



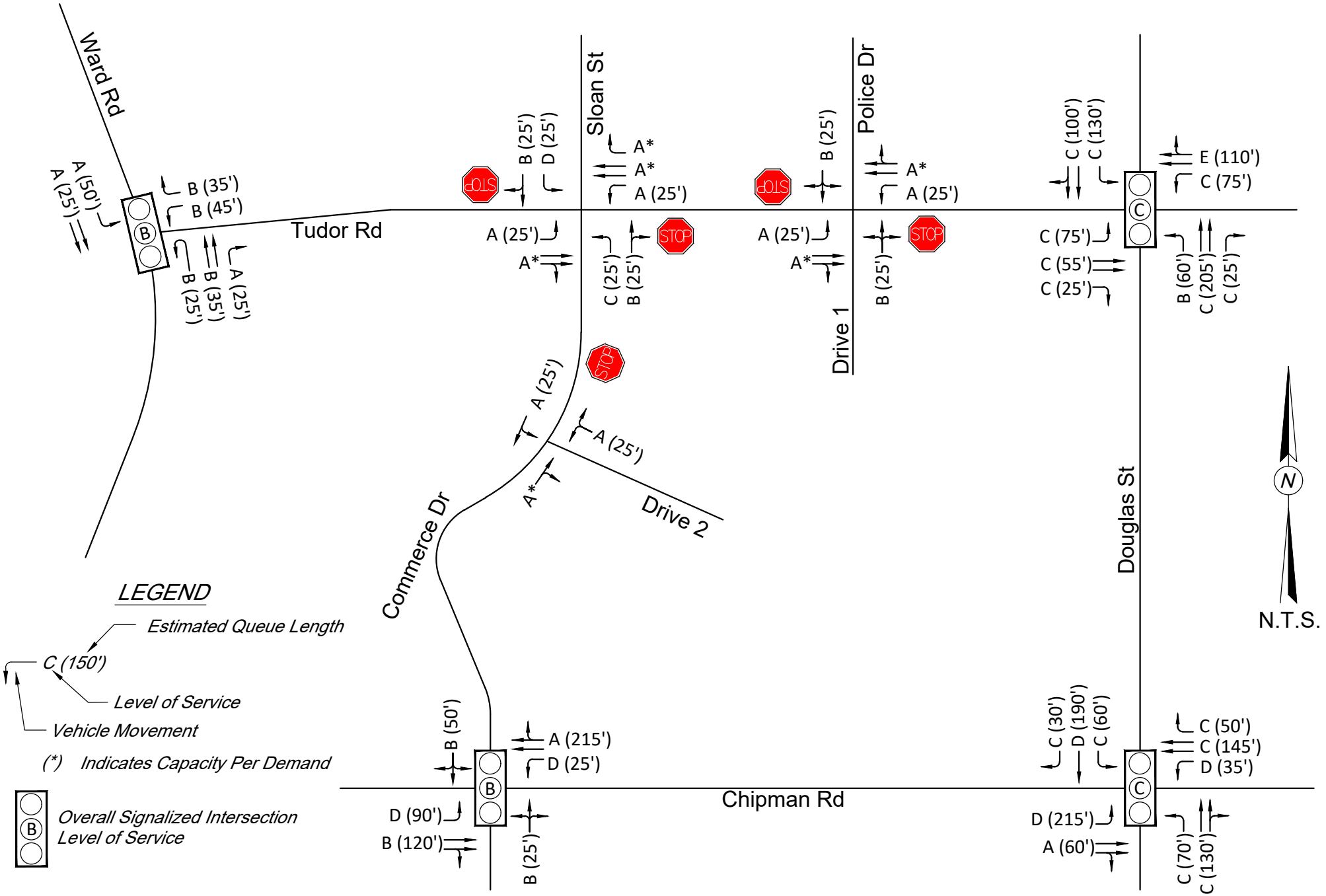
MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 9	EXISTING LEVELS OF SERVICE PM PEAK HOUR



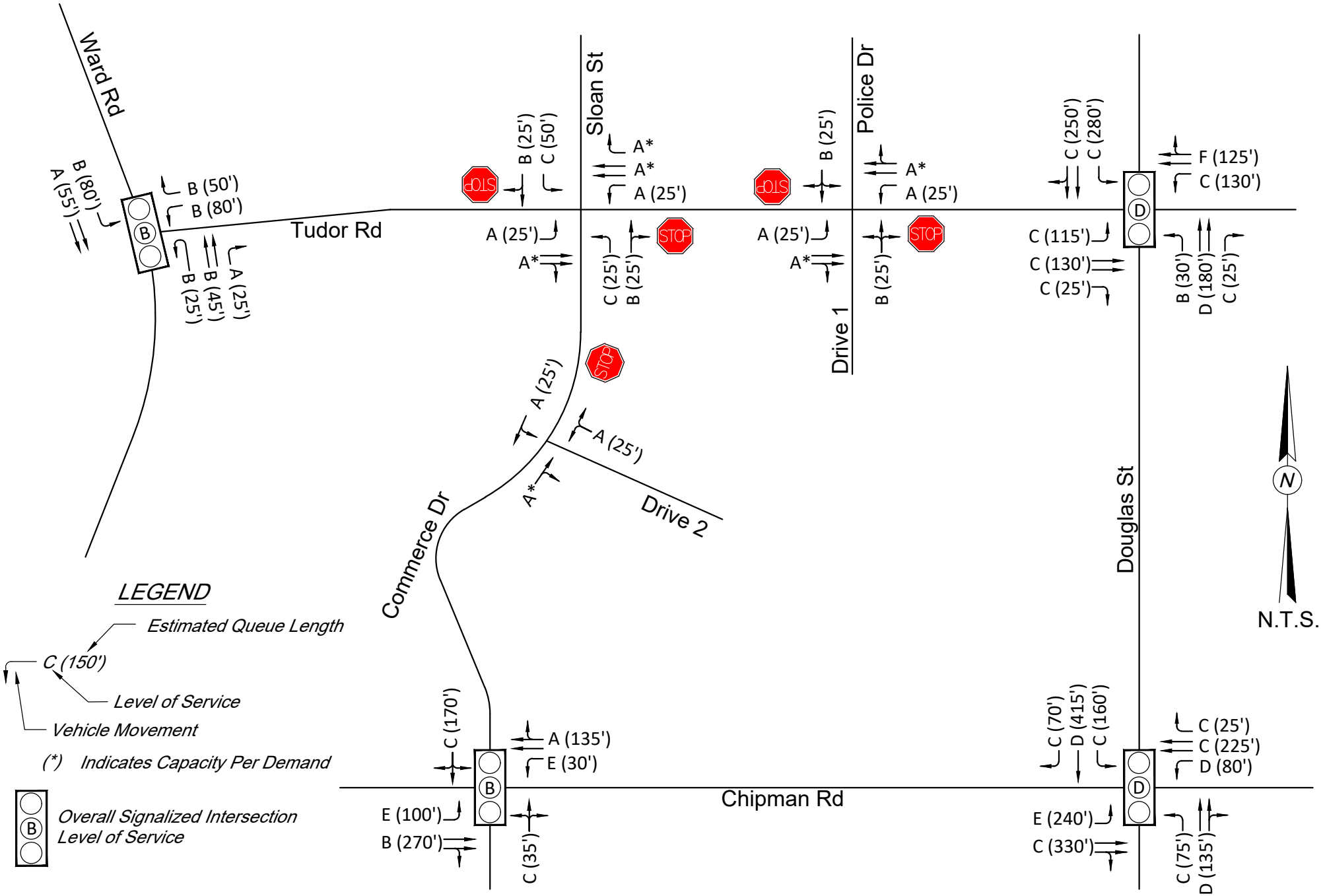
MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 10	EXISTING + SITE LEVELS OF SERVICE AM PEAK HOUR



MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 11	EXISTING + SITE LEVELS OF SERVICE PM PEAK HOUR



MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 12	EXISTING + SITE + PLANNED LEVELS OF SERVICE AM PEAK HOUR



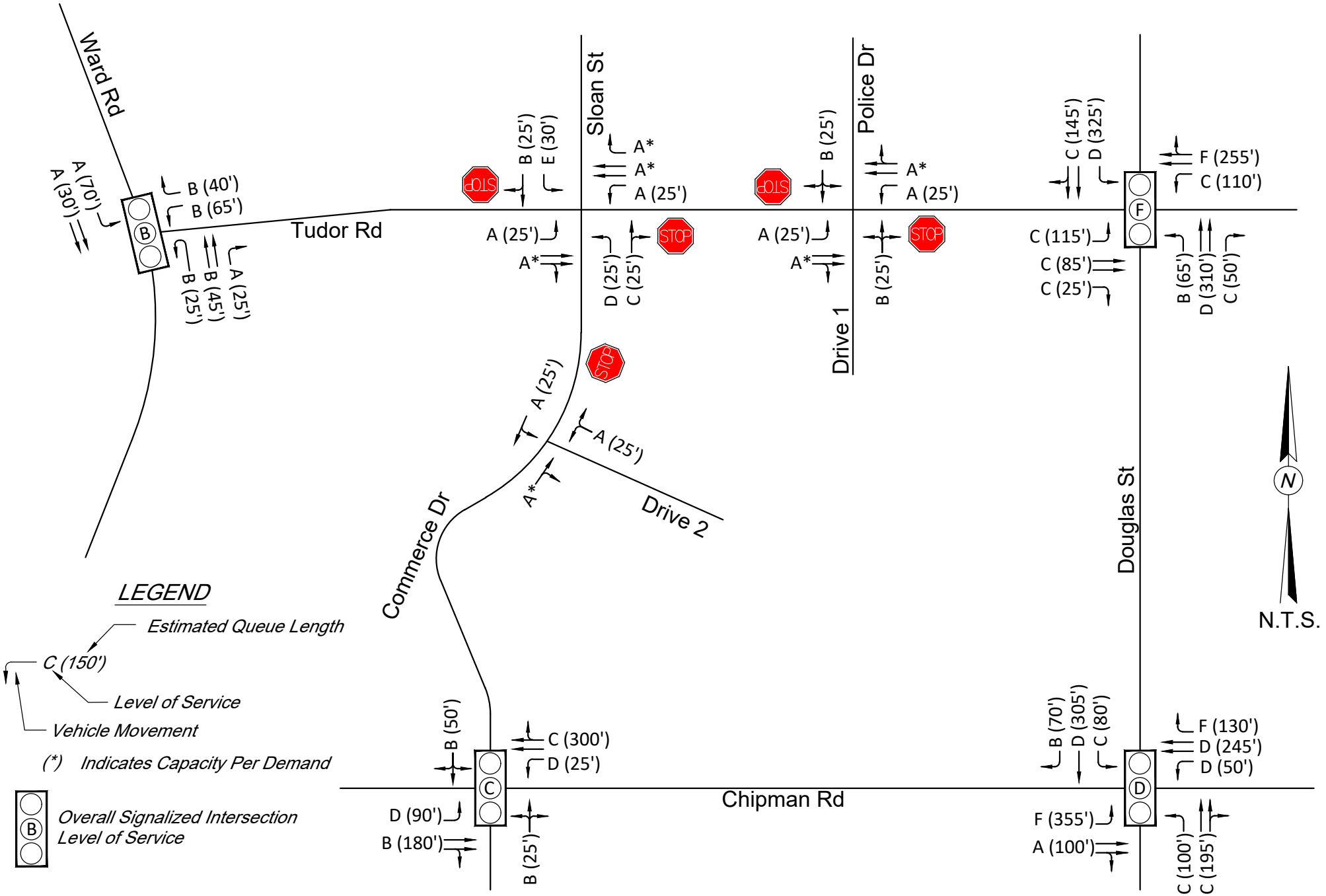
MERGE MIDWEST ENGINEERING

PROJECT NUMBER
22035

DATE
JUNE 2022

FIGURE 13

EXISTING + SITE + PLANNED
LEVELS OF SERVICE
PM PEAK HOUR



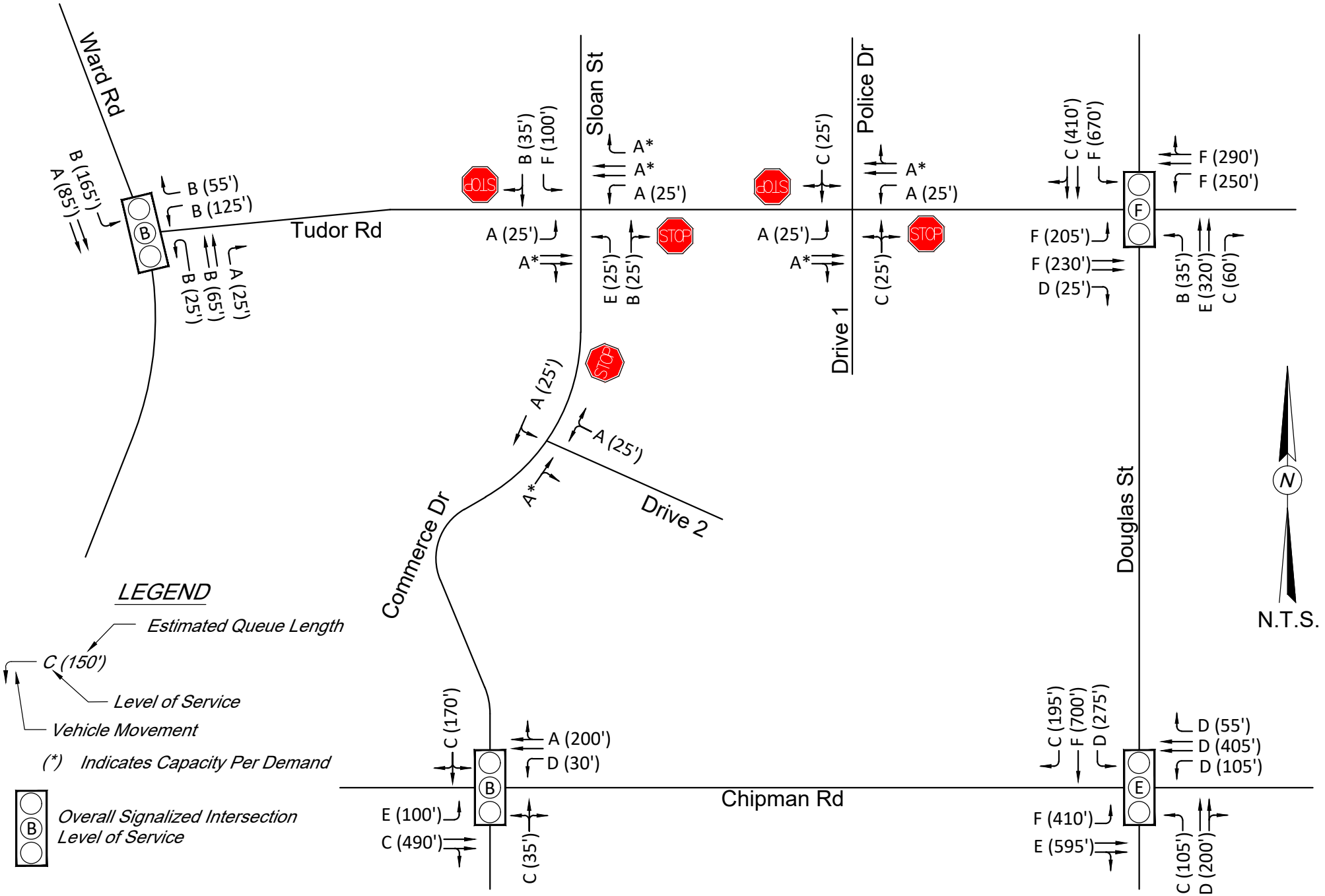
MERGE MIDWEST ENGINEERING

PROJECT NUMBER
22035

DATE
JUNE 2022

FIGURE 14

FUTURE + SITE + PLANNED
LEVELS OF SERVICE
AM PEAK HOUR



MERGE MIDWEST ENGINEERING	PROJECT NUMBER 22035 DATE JUNE 2022	FIGURE 15	FUTURE + SITE + PLANNED LEVELS OF SERVICE PM PEAK HOUR

Appendix

MERGE MIDWEST ENGINEERING

Traffic Counts

Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

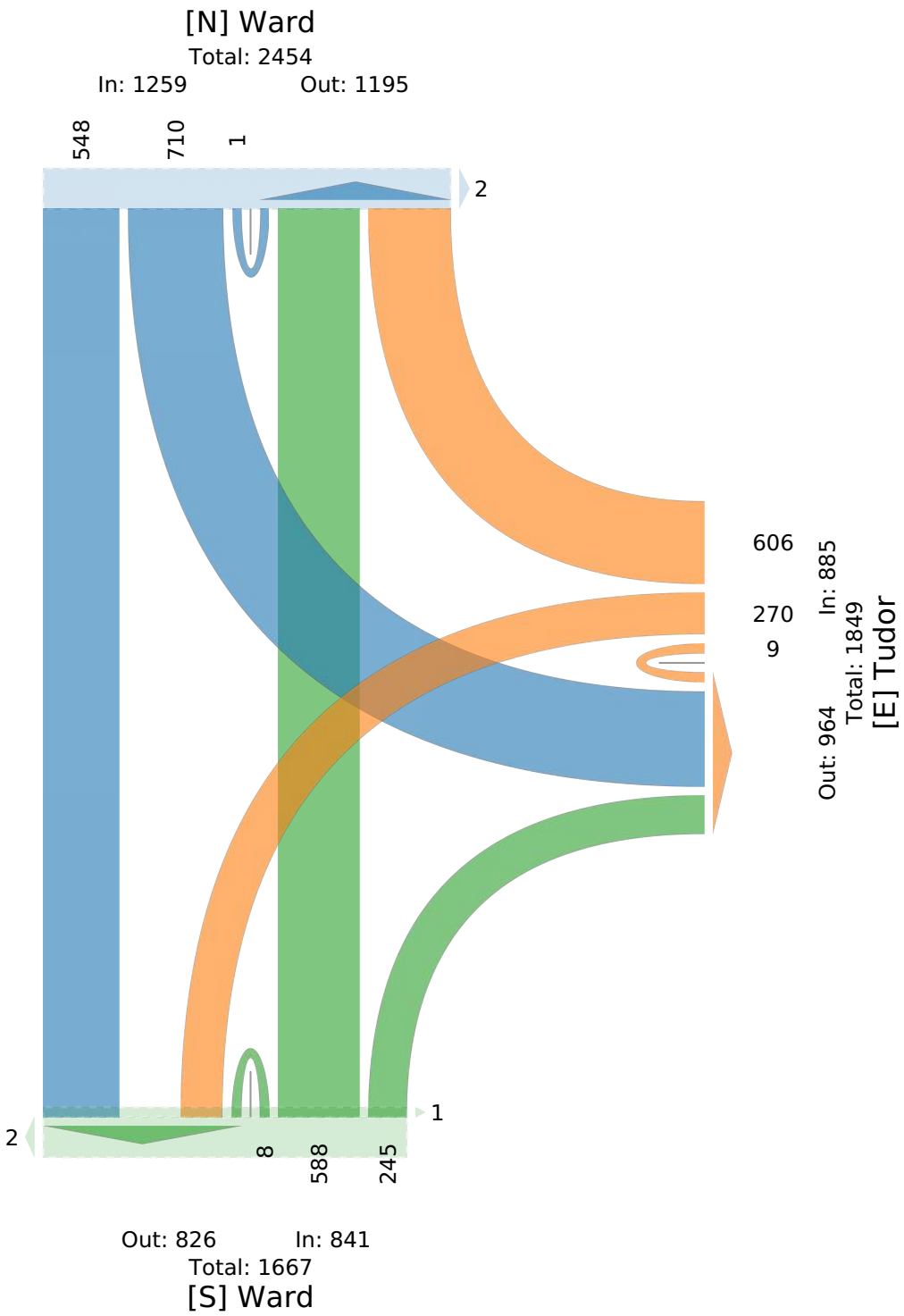
Leg / Direction	Ward Southbound					Tudor Westbound					Ward Northbound					
Time	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	**Int**
2022-06-07 7:00AM	20	28	0	**48**	1	15	7	0	**22**	0	3	28	1	**32**	0	**102**
7:15AM	11	25	0	**36**	0	32	6	0	**38**	0	13	44	1	**58**	0	**132**
7:30AM	24	22	0	**46**	0	30	16	1	**47**	0	12	35	0	**47**	0	**140**
7:45AM	21	33	0	**54**	0	37	13	1	**51**	0	16	27	0	**43**	0	**148**
Hourly Total	76	108	0	**184**	1	114	42	2	**158**	0	44	134	2	**180**	0	**522**
8:00AM	14	29	0	**43**	0	28	11	0	**39**	0	14	43	2	**59**	0	**141**
8:15AM	17	35	0	**52**	0	31	15	1	**47**	0	17	33	0	**50**	0	**149**
8:30AM	15	30	0	**45**	0	27	9	0	**36**	0	4	33	0	**37**	0	**118**
8:45AM	21	39	0	**60**	0	34	16	0	**50**	0	14	26	0	**40**	0	**150**
Hourly Total	67	133	0	**200**	0	120	51	1	**172**	0	49	135	2	**186**	0	**558**
4:00PM	34	44	0	**78**	1	51	25	0	**76**	0	16	34	0	**50**	0	**204**
4:15PM	39	62	0	**101**	0	33	19	2	**54**	0	14	50	2	**66**	0	**221**
4:30PM	62	55	0	**117**	0	41	13	1	**55**	0	14	33	0	**47**	0	**219**
4:45PM	56	67	0	**123**	0	49	26	2	**77**	0	22	26	0	**48**	0	**248**
Hourly Total	191	228	0	**419**	1	174	83	5	**262**	0	66	143	2	**211**	0	**892**
5:00PM	54	57	0	**111**	0	55	35	0	**90**	0	23	53	0	**76**	1	**277**
5:15PM	61	63	0	**124**	0	61	24	1	**86**	0	19	43	1	**63**	2	**273**
5:30PM	62	60	0	**122**	0	42	17	0	**59**	0	20	40	0	**60**	0	**241**
5:45PM	37	61	1	**99**	0	40	18	0	**58**	0	24	40	1	**65**	0	**222**
Hourly Total	214	241	1	**456**	0	198	94	1	**293**	0	86	176	2	**264**	3	**1013**
Total	548	710	1	**1259**	2	606	270	9	**885**	0	245	588	8	**841**	3	**2985**
% Approach	43.5%	56.4%	0.1%	**-**	-	68.5%	30.5%	1.0%	**-**	-	29.1%	69.9%	1.0%	**-**	-	-
% Total	18.4%	23.8%	0%	**42.2%**	-	20.3%	9.0%	0.3%	**29.6%**	-	8.2%	19.7%	0.3%	**28.2%**	-	-
Lights	535	706	1	**1242**	-	603	268	9	**880**	-	239	584	8	**831**	-	2953
% Lights	97.6%	99.4%	100%	**98.6%**	-	99.5%	99.3%	100%	**99.4%**	-	97.6%	99.3%	100%	**98.8%**	-	98.9%
Articulated Trucks	3	1	0	**4**	-	1	0	0	**1**	-	0	0	0	**0**	-	5
% Articulated Trucks	0.5%	0.1%	0%	**0.3%**	-	0.2%	0%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0.2%
Buses and Single-Unit Trucks	10	3	0	**13**	-	2	2	0	**4**	-	6	4	0	**10**	-	27
% Buses and Single-Unit Trucks	1.8%	0.4%	0%	**1.0%**	-	0.3%	0.7%	0%	**0.5%**	-	2.4%	0.7%	0%	**1.2%**	-	0.9%
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	3	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

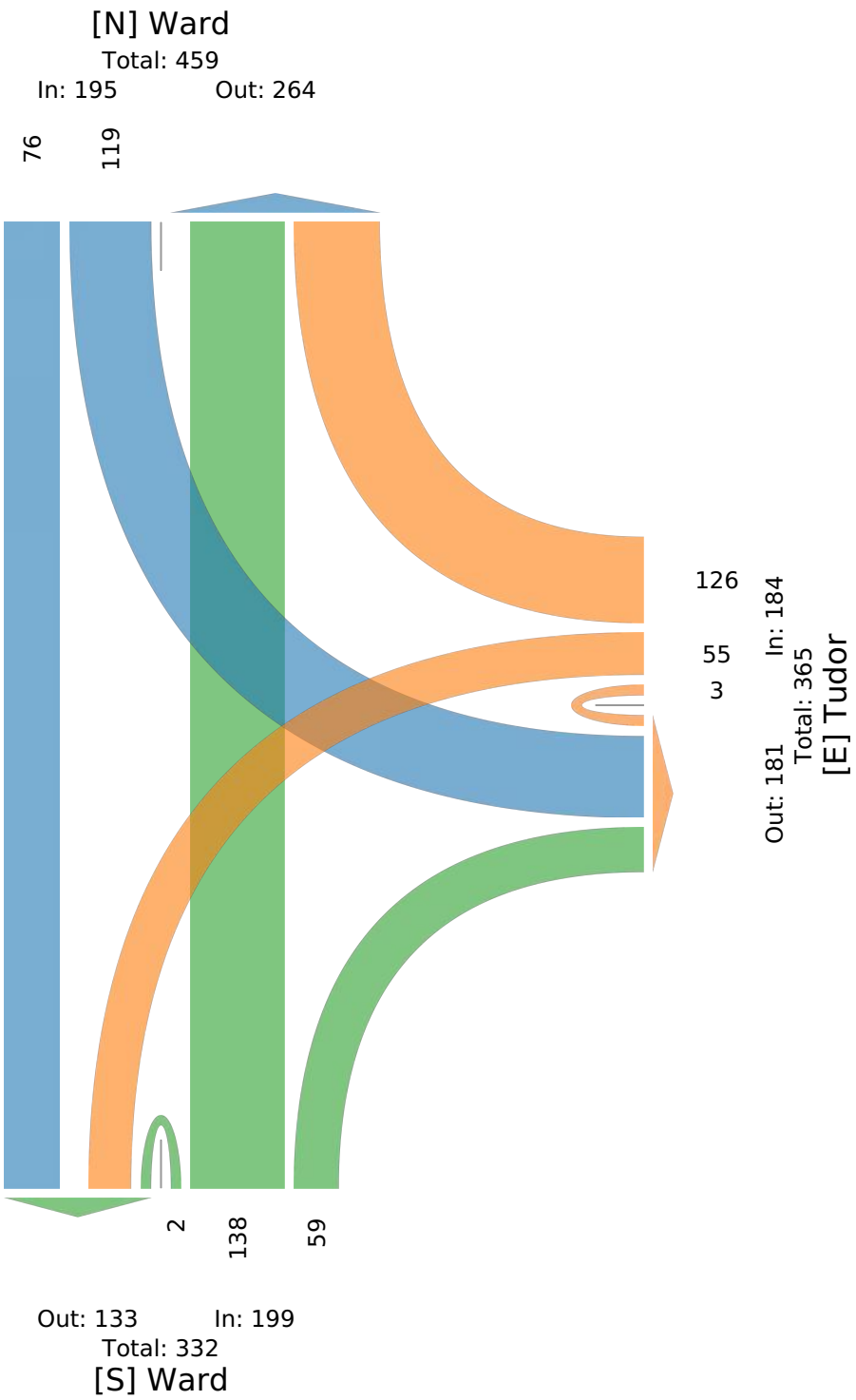
Leg Direction	Ward Southbound					Tudor Westbound					Ward Northbound					
Time	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	**Int**
2022-06-07 7:30AM	24	22	0	**46**	0	30	16	1	**47**	0	12	35	0	**47**	0	**140**
7:45AM	21	33	0	**54**	0	37	13	1	**51**	0	16	27	0	**43**	0	**148**
8:00AM	14	29	0	**43**	0	28	11	0	**39**	0	14	43	2	**59**	0	**141**
8:15AM	17	35	0	**52**	0	31	15	1	**47**	0	17	33	0	**50**	0	**149**
Total	76	119	0	**195**	0	126	55	3	**184**	0	59	138	2	**199**	0	**578**
% Approach	39.0%	61.0%	0%	**-**	-	68.5%	29.9%	1.6%	**-**	-	29.6%	69.3%	1.0%	**-**	-	**-**
% Total	13.1%	20.6%	0%	**33.7%**	-	21.8%	9.5%	0.5%	**31.8%**	-	10.2%	23.9%	0.3%	**34.4%**	-	**-**
PHF	0.792	0.850	-	**0.903**	-	0.851	0.859	0.750	**0.902**	-	0.868	0.802	0.250	**0.843**	-	0.970
Lights	76	117	0	**193**	-	125	54	3	**182**	-	58	138	2	**198**	-	573
% Lights	100%	98.3%	0%	**99.0%**	-	99.2%	98.2%	100%	**98.9%**	-	98.3%	100%	100%	**99.5%**	-	99.1%
Articulated Trucks	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Buses and Single-Unit Trucks	0	2	0	**2**	-	1	1	0	**2**	-	1	0	0	**1**	-	5
% Buses and Single-Unit Trucks	0%	1.7%	0%	**1.0%**	-	0.8%	1.8%	0%	**1.1%**	-	1.7%	0%	0%	**0.5%**	-	0.9%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

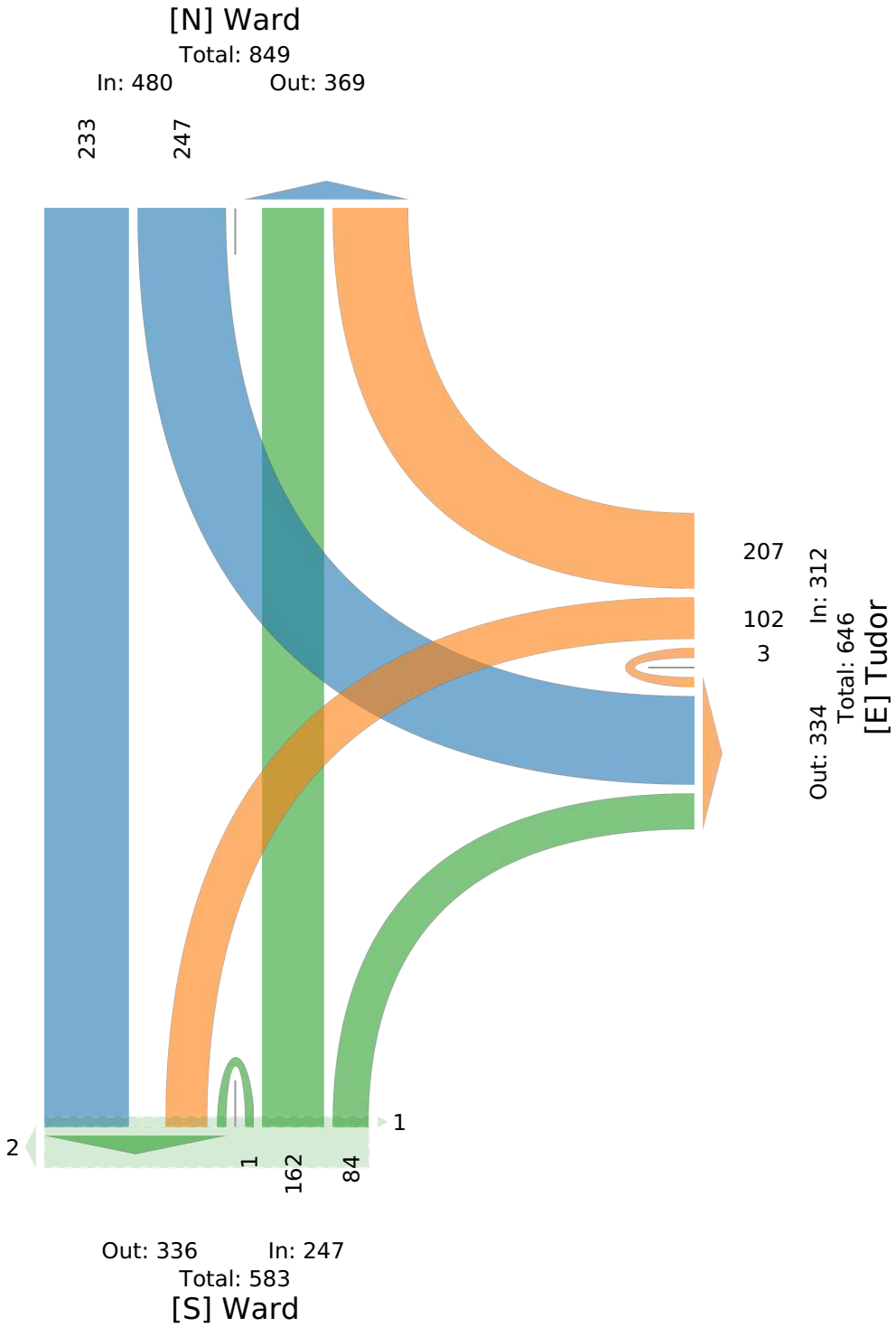
Leg Direction	Ward Southbound					Tudor Westbound					Ward Northbound					
Time	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	**Int**
2022-06-07 4:45PM	56	67	0	**123**	0	49	26	2	**77**	0	22	26	0	**48**	0	**248**
5:00PM	54	57	0	**111**	0	55	35	0	**90**	0	23	53	0	**76**	1	**277**
5:15PM	61	63	0	**124**	0	61	24	1	**86**	0	19	43	1	**63**	2	**273**
5:30PM	62	60	0	**122**	0	42	17	0	**59**	0	20	40	0	**60**	0	**241**
Total	233	247	0	**480**	0	207	102	3	**312**	0	84	162	1	**247**	3	**1039**
% Approach	48.5%	51.5%	0%	**-**	-	66.3%	32.7%	1.0%	**-**	-	34.0%	65.6%	0.4%	**-**	-	**-**
% Total	22.4%	23.8%	0%	**46.2%**	-	19.9%	9.8%	0.3%	**30.0%**	-	8.1%	15.6%	0.1%	**23.8%**	-	**-**
PHF	0.940	0.922	-	**0.968**	-	0.848	0.729	0.375	**0.867**	-	0.913	0.764	0.250	**0.813**	-	0.938
Lights	228	247	0	**475**	-	205	102	3	**310**	-	83	161	1	**245**	-	1030
% Lights	97.9%	100%	0%	**99.0%**	-	99.0%	100%	100%	**99.4%**	-	98.8%	99.4%	100%	**99.2%**	-	99.1%
Articulated Trucks	1	0	0	**1**	-	1	0	0	**1**	-	0	0	0	**0**	-	2
% Articulated Trucks	0.4%	0%	0%	**0.2%**	-	0.5%	0%	0%	**0.3%**	-	0%	0%	0%	**0%**	-	0.2%
Buses and Single-Unit Trucks	4	0	0	**4**	-	1	0	0	**1**	-	1	1	0	**2**	-	7
% Buses and Single-Unit Trucks	1.7%	0%	0%	**0.8%**	-	0.5%	0%	0%	**0.3%**	-	1.2%	0.6%	0%	**0.8%**	-	0.7%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NW Ward Road - TMC

Tue Jun 7, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959806, Location: 38.930406, -94.392548

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Main Street & Tudor Road - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

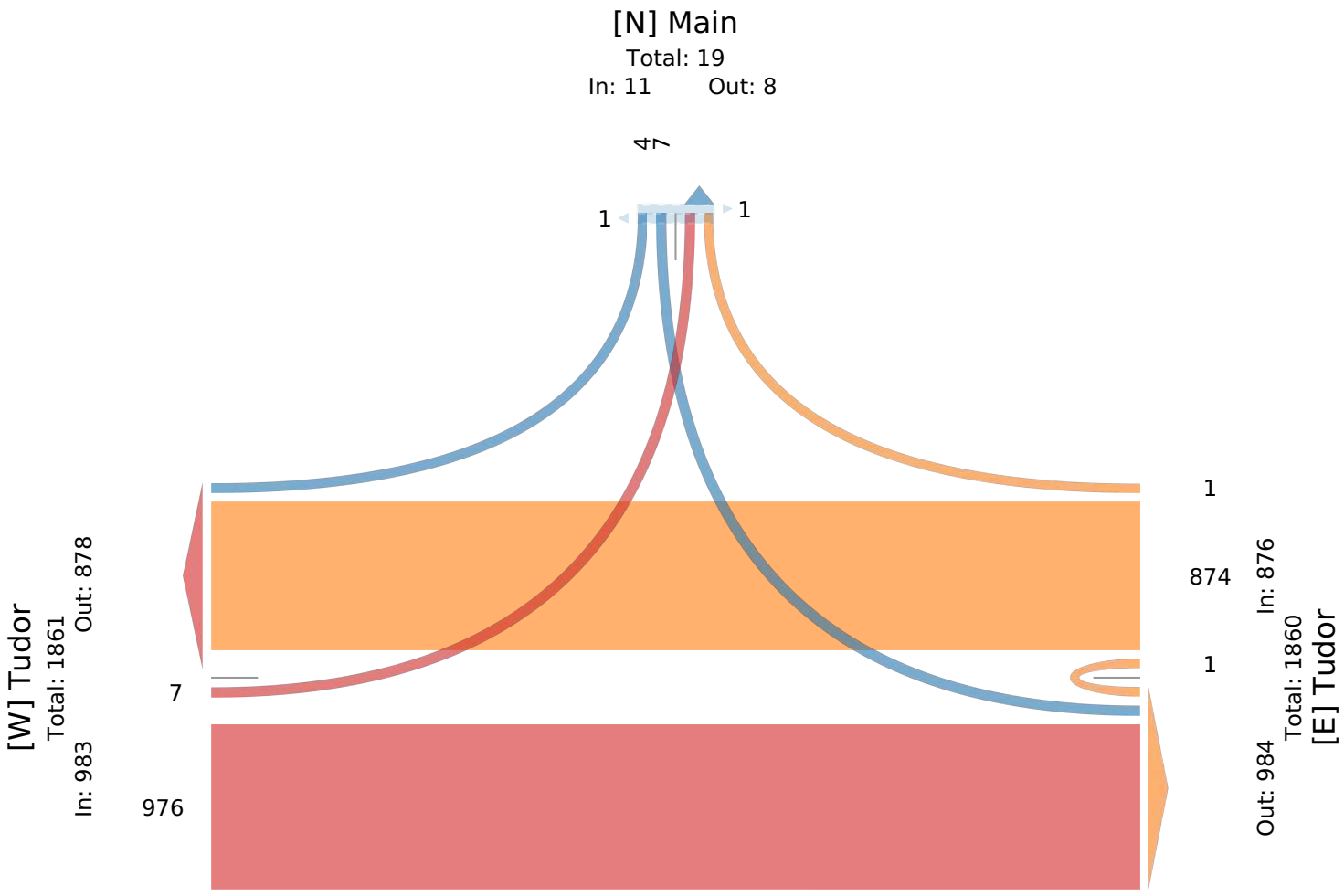
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Main Southbound					Tudor Westbound					Tudor Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 7:00AM	0	0	0	**0**	0	0	18	0	**18**	0	30	4	0	**34**	0	**52**
7:15AM	0	0	0	**0**	0	0	38	0	**38**	0	40	0	0	**40**	0	**78**
7:30AM	0	0	0	**0**	0	1	53	0	**54**	0	36	0	0	**36**	0	**90**
7:45AM	0	0	0	**0**	0	0	51	0	**51**	0	53	0	0	**53**	0	**104**
Hourly Total	0	0	0	**0**	0	1	160	0	**161**	0	159	4	0	**163**	0	**324**
8:00AM	0	0	0	**0**	0	0	40	0	**40**	0	43	2	0	**45**	0	**85**
8:15AM	0	0	0	**0**	0	0	46	0	**46**	0	53	0	0	**53**	0	**99**
8:30AM	0	0	0	**0**	0	0	39	0	**39**	0	37	0	0	**37**	0	**76**
8:45AM	0	0	0	**0**	0	0	53	0	**53**	0	57	0	0	**57**	0	**110**
Hourly Total	0	0	0	**0**	0	0	178	0	**178**	0	190	2	0	**192**	0	**370**
4:00PM	0	0	0	**0**	0	0	73	0	**73**	0	59	0	0	**59**	0	**132**
4:15PM	0	0	0	**0**	1	0	50	0	**50**	0	79	0	0	**79**	0	**129**
4:30PM	0	0	0	**0**	0	0	55	0	**55**	0	73	0	0	**73**	0	**128**
4:45PM	0	0	0	**0**	0	0	78	0	**78**	0	90	0	0	**90**	0	**168**
Hourly Total	0	0	0	**0**	1	0	256	0	**256**	0	301	0	0	**301**	0	**557**
5:00PM	0	0	0	**0**	0	0	82	0	**82**	0	87	0	0	**87**	0	**169**
5:15PM	0	0	0	**0**	0	0	80	0	**80**	0	77	0	0	**77**	0	**157**
5:30PM	4	4	0	**8**	0	0	55	0	**55**	0	80	0	0	**80**	0	**143**
5:45PM	0	3	0	**3**	1	0	63	1	**64**	0	82	1	0	**83**	0	**150**
Hourly Total	4	7	0	**11**	1	0	280	1	**281**	0	326	1	0	**327**	0	**619**
Total	4	7	0	**11**	2	1	874	1	**876**	0	976	7	0	**983**	0	**1870**
% Approach	36.4%	63.6%	0%	**-**	-	0.1%	99.8%	0.1%	**-**	-	99.3%	0.7%	0%	**-**	-	-
% Total	0.2%	0.4%	0%	**0.6%**	-	0.1%	46.7%	0.1%	**46.8%**	-	52.2%	0.4%	0%	**52.6%**	-	-
Lights	4	7	0	**11**	-	1	869	1	**871**	-	966	5	0	**971**	-	1853
% Lights	100%	100%	0%	**100%**	-	100%	99.4%	100%	**99.4%**	-	99.0%	71.4%	0%	**98.8%**	-	99.1%
Articulated Trucks	0	0	0	**0**	-	0	1	0	**1**	-	1	0	0	**1**	-	2
% Articulated Trucks	0%	0%	0%	**0%**	-	0%	0.1%	0%	**0.1%**	-	0.1%	0%	0%	**0.1%**	-	0.1%
Buses and Single-Unit Trucks	0	0	0	**0**	-	0	4	0	**4**	-	9	2	0	**11**	-	15
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	-	0%	0.5%	0%	**0.5%**	-	0.9%	28.6%	0%	**1.1%**	-	0.8%
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Main Street & Tudor Road - TMC
Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Main Street & Tudor Road - TMC

Tue Jun 7, 2022
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

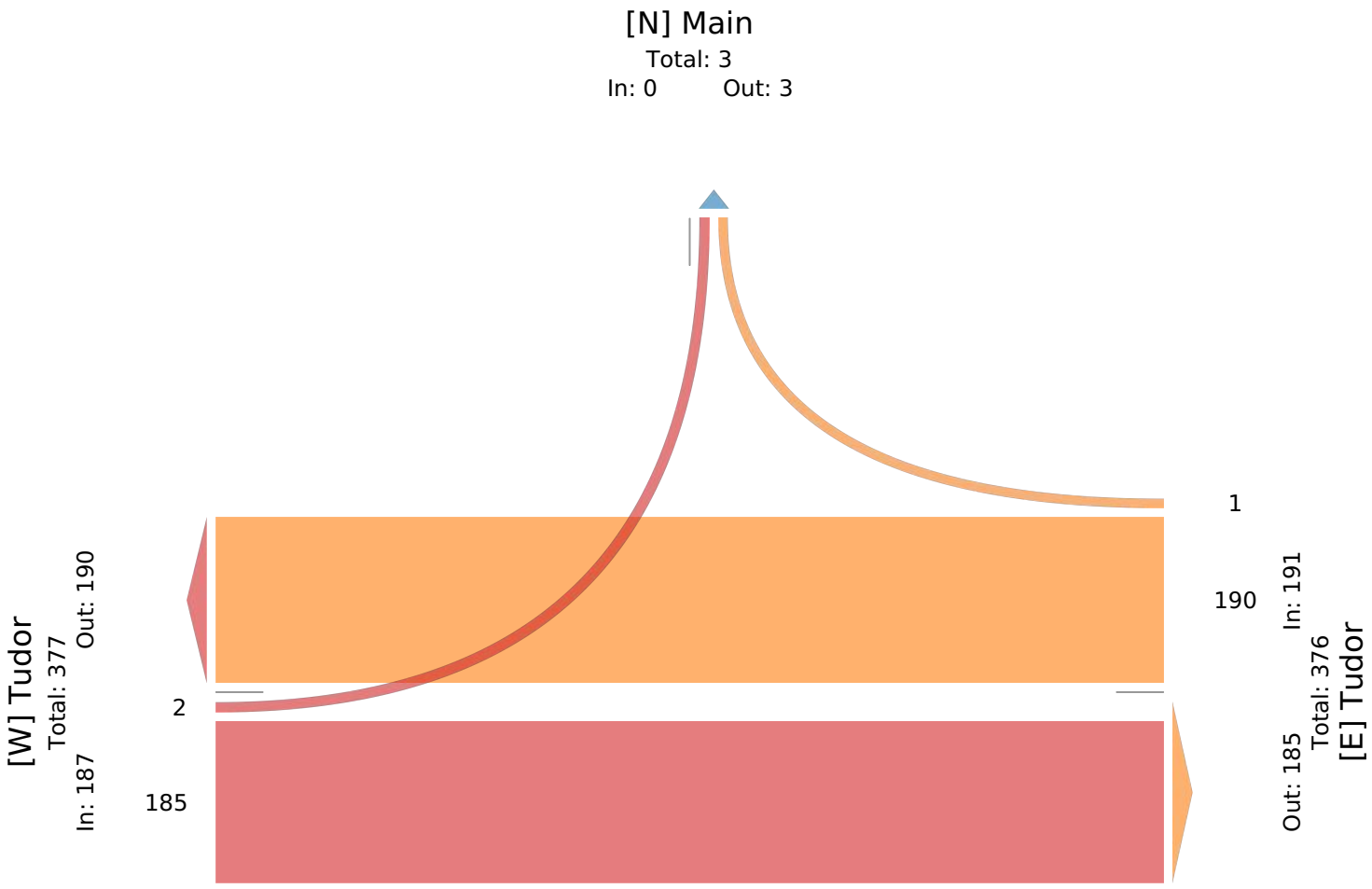
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Main Southbound					Tudor Westbound					Tudor Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 7:30AM	0	0	0	**0**	0	1	53	0	**54**	0	36	0	0	**36**	0	**90**
7:45AM	0	0	0	**0**	0	0	51	0	**51**	0	53	0	0	**53**	0	**104**
8:00AM	0	0	0	**0**	0	0	40	0	**40**	0	43	2	0	**45**	0	**85**
8:15AM	0	0	0	**0**	0	0	46	0	**46**	0	53	0	0	**53**	0	**99**
Total	0	0	0	**0**	0	1	190	0	**191**	0	185	2	0	**187**	0	**378**
% Approach	0%	0%	0%	**-**	-	0.5%	99.5%	0%	**-**	-	98.9%	1.1%	0%	**-**	-	**-**
% Total	0%	0%	0%	**0%**	-	0.3%	50.3%	0%	**50.5%**	-	48.9%	0.5%	0%	**49.5%**	-	**-**
PHF	-	-	-	**-**	-	0.250	0.896	-	**0.884**	-	0.873	0.250	-	**0.882**	-	0.909
Lights	0	0	0	**0**	-	1	188	0	**189**	-	181	0	0	**181**	-	370
% Lights	0%	0%	0%	**-**	-	100%	98.9%	0%	**99.0%**	-	97.8%	0%	0%	**96.8%**	-	97.9%
Articulated Trucks	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	**-**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Buses and Single-Unit Trucks	0	0	0	**0**	-	0	2	0	**2**	-	4	2	0	**6**	-	8
% Buses and Single-Unit Trucks	0%	0%	0%	**-**	-	0%	1.1%	0%	**1.0%**	-	2.2%	100%	0%	**3.2%**	-	2.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Main Street & Tudor Road - TMC
Tue Jun 7, 2022
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Main Street & Tudor Road - TMC

Tue Jun 7, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

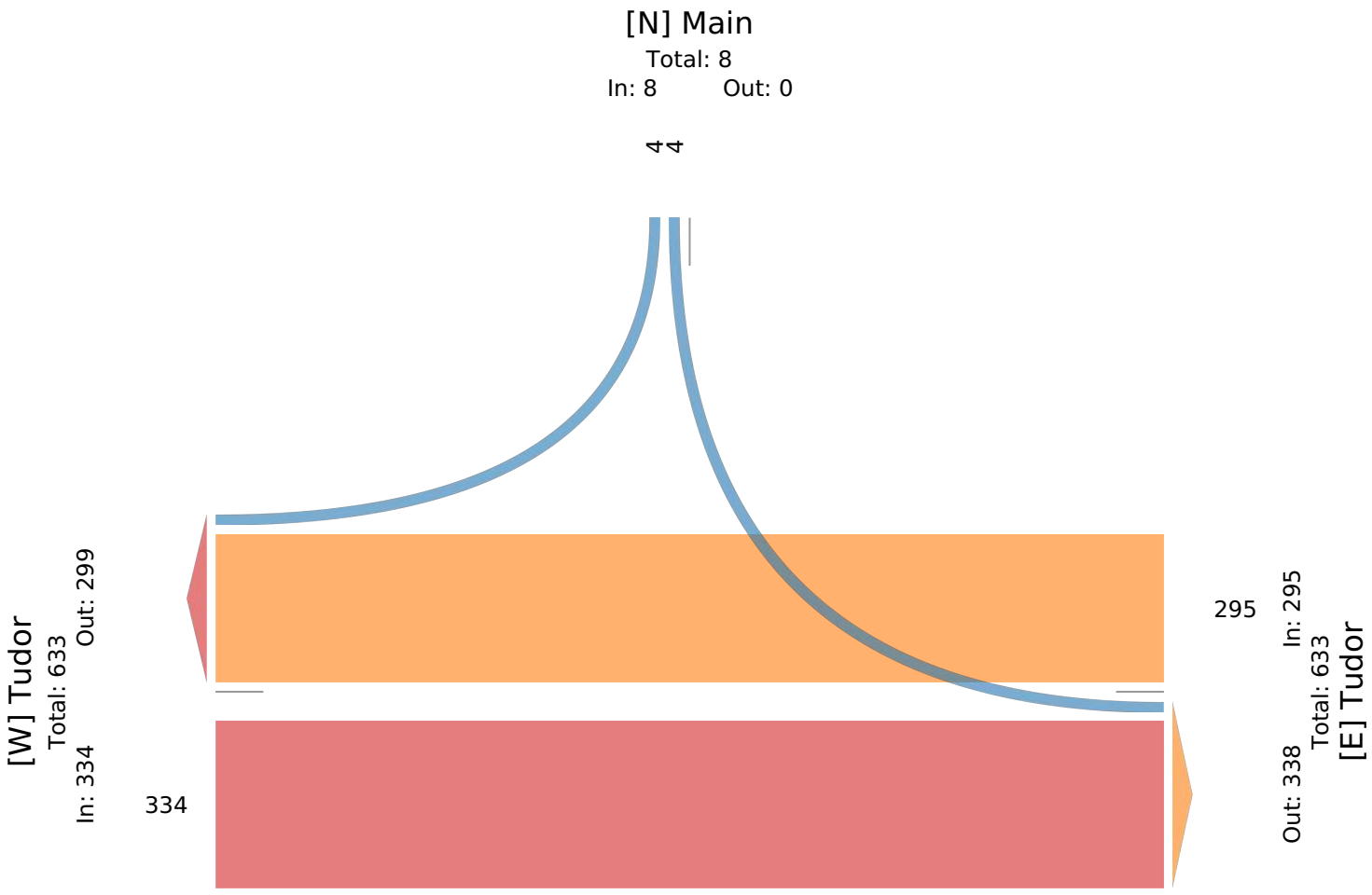
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Main Southbound					Tudor Westbound					Tudor Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 4:45PM	0	0	0	**0**	0	0	78	0	**78**	0	90	0	0	**90**	0	**168**
5:00PM	0	0	0	**0**	0	0	82	0	**82**	0	87	0	0	**87**	0	**169**
5:15PM	0	0	0	**0**	0	0	80	0	**80**	0	77	0	0	**77**	0	**157**
5:30PM	4	4	0	**8**	0	0	55	0	**55**	0	80	0	0	**80**	0	**143**
Total	4	4	0	**8**	0	0	295	0	**295**	0	334	0	0	**334**	0	**637**
% Approach	50.0%	50.0%	0%	**-**	-	0%	100%	0%	**-**	-	100%	0%	0%	**-**	-	**-**
% Total	0.6%	0.6%	0%	**1.3%**	-	0%	46.3%	0%	**46.3%**	-	52.4%	0%	0%	**52.4%**	-	**-**
PHF	0.250	0.250	-	**0.250**	-	-	0.899	-	**0.899**	-	0.928	-	-	**0.928**	-	0.942
Lights	4	4	0	**8**	-	0	293	0	**293**	-	334	0	0	**334**	-	635
% Lights	100%	100%	0%	**100%**	-	0%	99.3%	0%	**99.3%**	-	100%	0%	0%	**100%**	-	99.7%
Articulated Trucks	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	**0**	-	1
% Articulated Trucks	0%	0%	0%	**0%**	-	0%	0.3%	0%	**0.3%**	-	0%	0%	0%	**0%**	-	0.2%
Buses and Single-Unit Trucks	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	**0**	-	1
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	-	0%	0.3%	0%	**0.3%**	-	0%	0%	0%	**0%**	-	0.2%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Main Street & Tudor Road - TMC
Tue Jun 7, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959802, Location: 38.93072, -94.385379

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

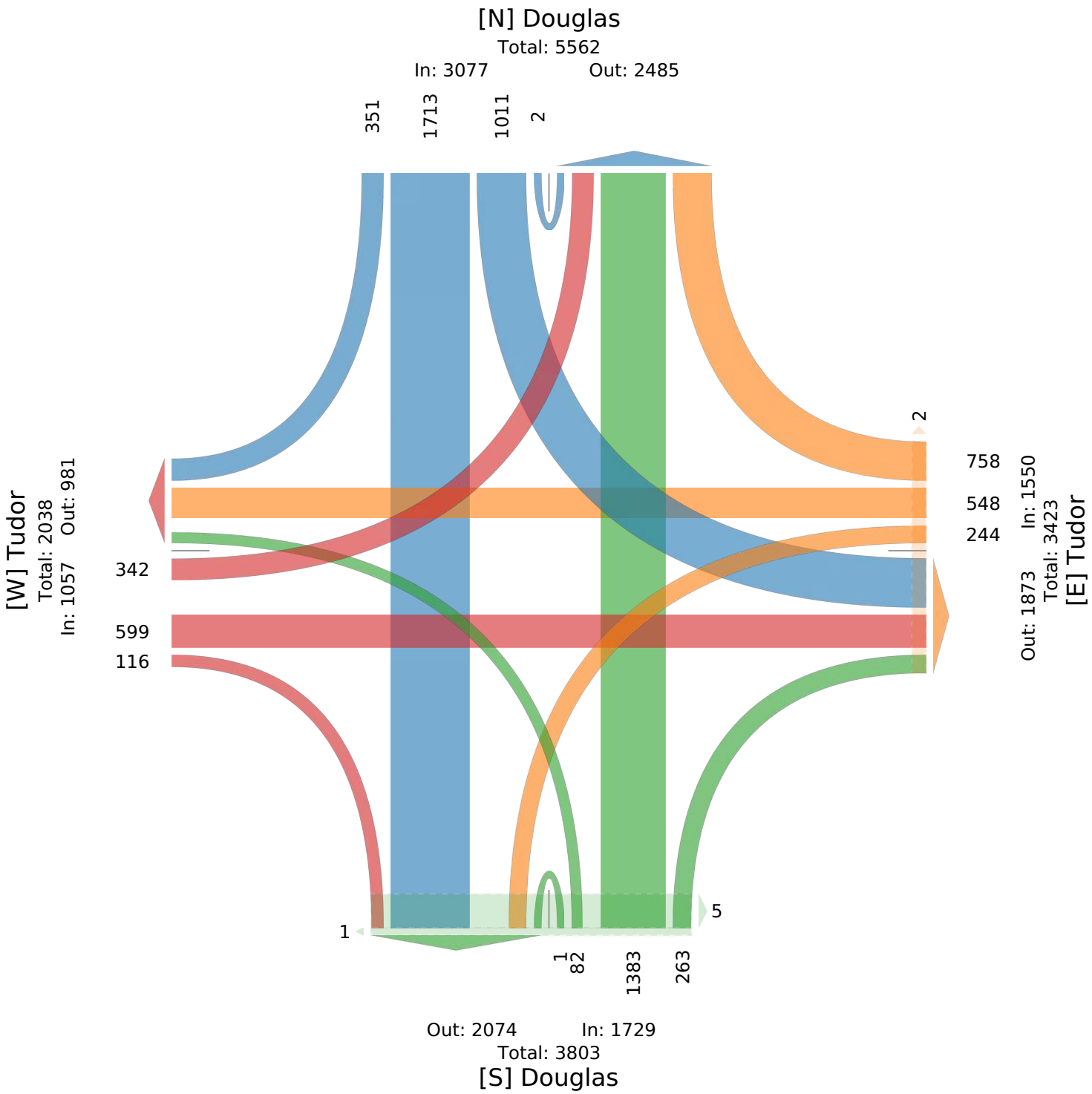
Leg	Douglas						Tudor						Douglas						Tudor						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 7:00AM	18	39	36	0	**93**	0	44	16	2	0	**62**	0	10	67	3	0	**80**	1	3	13	6	0	**22**	0	**257**
7:15AM	17	55	62	0	**134**	0	70	33	12	0	**115**	0	19	79	6	0	**104**	0	1	24	12	0	**37**	0	**390**
7:30AM	23	69	47	0	**139**	0	68	32	17	0	**117**	0	12	95	7	0	**114**	0	3	11	15	0	**29**	0	**399**
7:45AM	27	65	47	0	**139**	0	54	40	10	0	**104**	0	15	99	13	0	**127**	0	4	14	16	0	**34**	0	**404**
Hourly Total	85	228	192	0	**505**	0	236	121	41	0	**398**	0	56	340	29	0	**425**	1	11	62	49	0	**122**	0	**1450**
8:00AM	26	70	47	0	**143**	0	52	27	10	0	**89**	0	10	59	3	0	**72**	0	5	14	17	0	**36**	0	**340**
8:15AM	23	66	56	0	**145**	0	47	28	16	0	**91**	0	9	78	2	0	**89**	0	5	30	19	0	**54**	0	**379**
8:30AM	21	93	46	0	**160**	0	36	20	11	0	**67**	0	12	84	7	0	**103**	0	1	20	7	0	**28**	0	**358**
8:45AM	21	104	49	0	**174**	0	38	32	18	0	**88**	1	32	75	6	1	**114**	1	8	30	21	0	**59**	0	**435**
Hourly Total	91	333	198	0	**622**	0	173	107	55	0	**335**	1	63	296	18	1	**378**	1	19	94	64	0	**177**	0	**1512**
4:00PM	21	141	69	1	**232**	0	45	39	17	0	**101**	0	17	97	2	0	**116**	0	9	54	33	0	**96**	0	**545**
4:15PM	19	141	64	0	**224**	0	46	29	9	0	**84**	0	17	79	0	0	**96**	2	11	50	27	0	**88**	0	**492**
4:30PM	20	165	82	0	**267**	0	37	29	23	0	**89**	0	20	115	4	0	**139**	1	8	54	33	0	**95**	0	**590**
4:45PM	34	144	99	1	**278**	0	31	53	20	0	**104**	0	27	92	3	0	**122**	0	15	63	24	0	**102**	0	**606**
Hourly Total	94	591	314	2	**1001**	0	159	150	69	0	**378**	0	81	383	9	0	**473**	3	43	221	117	0	**381**	0	**2233**
5:00PM	22	167	80	0	**269**	0	84	41	33	0	**158**	1	27	108	8	0	**143**	0	17	63	26	0	**106**	0	**676**
5:15PM	20	124	100	0	**244**	0	30	56	18	0	**104**	0	17	83	8	0	**108**	0	9	58	23	0	**90**	0	**546**
5:30PM	18	148	62	0	**228**	0	41	35	12	0	**88**	0	12	86	5	0	**103**	1	6	48	33	0	**87**	0	**506**
5:45PM	21	122	65	0	**208**	0	35	38	16	0	**89**	0	7	87	5	0	**99**	0	11	53	30	0	**94**	0	**490**
Hourly Total	81	561	307	0	**949**	0	190	170	79	0	**439**	1	63	364	26	0	**453**	1	43	222	112	0	**377**	0	**2218**
Total	351	1713	1011	2	**3077**	0	758	548	244	0	**1550**	2	263	1383	82	1	**1729**	6	116	599	342	0	**1057**	0	**7413**
% Approach	11.4%	55.7%	32.9%	0.1%	**-**	-	48.9%	35.4%	15.7%	0%	**-**	-	15.2%	80.0%	4.7%	0.1%	**-**	-	11.0%	56.7%	32.4%	0%	**-**	-	-
% Total	4.7%	23.1%	13.6%	0%	**41.5%**	-	10.2%	7.4%	3.3%	0%	**20.9%**	-	3.5%	18.7%	1.1%	0%	**23.3%**	-	1.6%	8.1%	4.6%	0%	**14.3%**	-	-
Lights	350	1695	989	2	**3036**	-	744	546	242	0	**1532**	-	259	1353	80	1	**1693**	-	115	595	340	0	**1050**	-	7311
% Lights	99.7%	98.9%	97.8%	100%	**98.7%**	-	98.2%	99.6%	99.2%	0%	**98.8%**	-	98.5%	97.8%	97.6%	100%	**97.9%**	-	99.1%	99.3%	99.4%	0%	**99.3%**	-	98.6%
Articulated Trucks	0	2	3	0	**5**	-	1	0	1	0	**2**	-	2	7	0	0	**9**	-	0	0	0	0	**0**	-	16
% Articulated Trucks	0%	0.1%	0.3%	0%	**0.2%**	-	0.1%	0%	0.4%	0%	**0.1%**	-	0.8%	0.5%	0%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Buses and Single-Unit Trucks	1	16	19	0	**36**	-	13	2	1	0	**16**	-	2	23	2	0	**27**	-	1	4	2	0	**7**	-	86
% Buses and Single-Unit Trucks	0.3%	0.9%	1.9%	0%	**1.2%**	-	1.7%	0.4%	0.4%	0%	**1.0%**	-	0.8%	1.7%	2.4%	0%	**1.6%**	-	0.9%	0.7%	0.6%	0%	**0.7%**	-	1.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	83.3%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	16.7%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

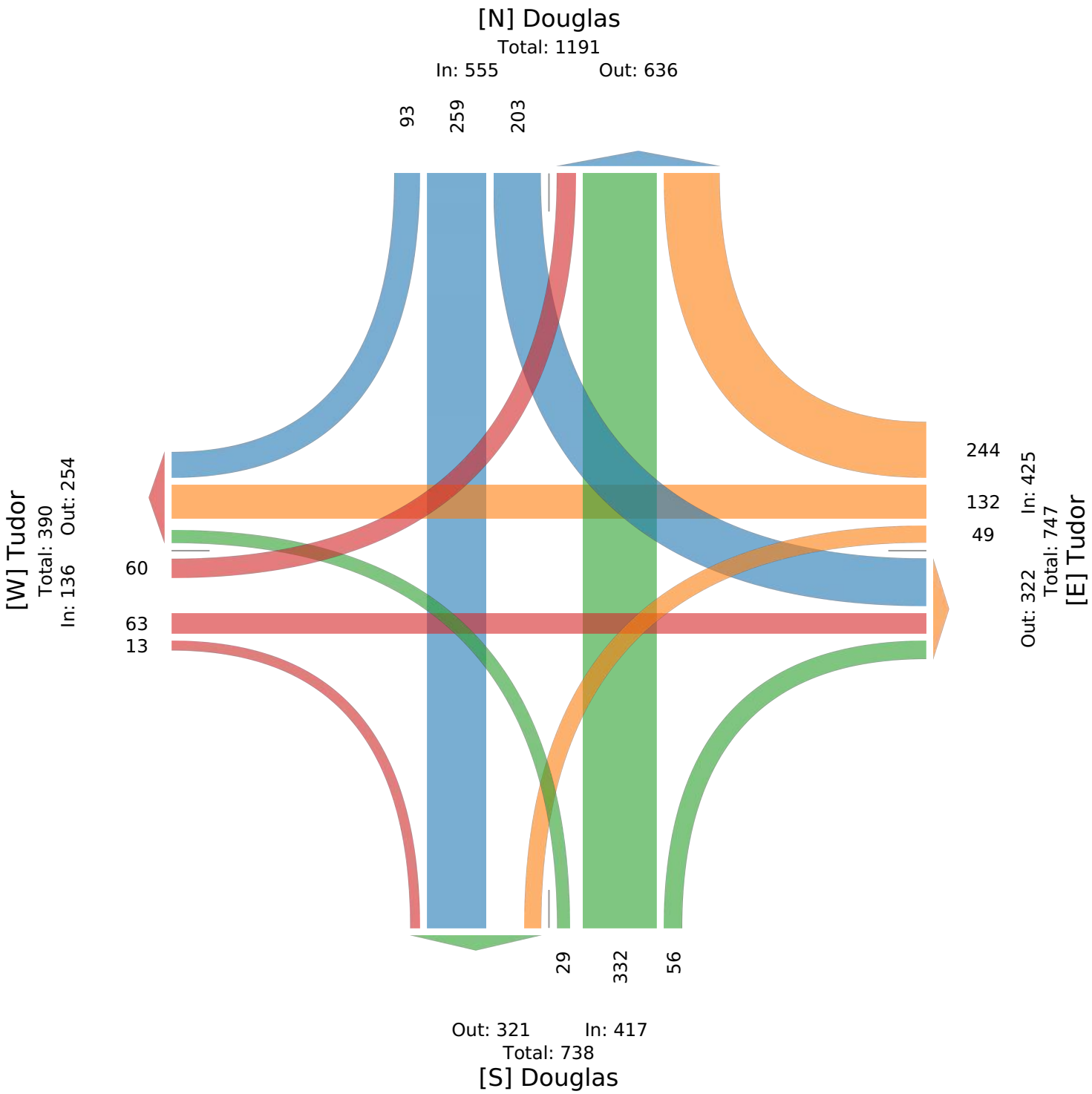
Leg / Direction	Douglas Southbound						Tudor Westbound						Douglas Northbound						Tudor Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 7:15AM	17	55	62	0	**134**	0	70	33	12	0	**115**	0	19	79	6	0	**104**	0	1	24	12	0	**37**	0	**390**
7:30AM	23	69	47	0	**139**	0	68	32	17	0	**117**	0	12	95	7	0	**114**	0	3	11	15	0	**29**	0	**399**
7:45AM	27	65	47	0	**139**	0	54	40	10	0	**104**	0	15	99	13	0	**127**	0	4	14	16	0	**34**	0	**404**
8:00AM	26	70	47	0	**143**	0	52	27	10	0	**89**	0	10	59	3	0	**72**	0	5	14	17	0	**36**	0	**340**
Total	93	259	203	0	**555**	0	244	132	49	0	**425**	0	56	332	29	0	**417**	0	13	63	60	0	**136**	0	**1533**
% Approach	16.8%	46.7%	36.6%	0%	**-**	-	57.4%	31.1%	11.5%	0%	**-**	-	13.4%	79.6%	7.0%	0%	**-**	-	9.6%	46.3%	44.1%	0%	**-**	-	**-**
% Total	6.1%	16.9%	13.2%	0%	**36.2%**	-	15.9%	8.6%	3.2%	0%	**27.7%**	-	3.7%	21.7%	1.9%	0%	**27.2%**	-	0.8%	4.1%	3.9%	0%	**8.9%**	-	**-**
PHF	0.861	0.925	0.819	-	**0.970**	-	0.871	0.825	0.721	-	**0.908**	-	0.737	0.838	0.558	-	**0.821**	-	0.650	0.656	0.882	-	**0.919**	-	0.949
Lights	92	253	201	0	**546**	-	240	131	47	0	**418**	-	54	326	29	0	**409**	-	13	62	58	0	**133**	-	1506
% Lights	98.9%	97.7%	99.0%	0%	**98.4%**	-	98.4%	99.2%	95.9%	0%	**98.4%**	-	96.4%	98.2%	100%	0%	**98.1%**	-	100%	98.4%	96.7%	0%	**97.8%**	-	98.2%
Articulated Trucks	0	1	1	0	**2**	-	0	0	1	0	**1**	-	1	2	0	0	**3**	-	0	0	0	0	**0**	-	6
% Articulated Trucks	0%	0.4%	0.5%	0%	**0.4%**	-	0%	0%	2.0%	0%	**0.2%**	-	1.8%	0.6%	0%	0%	**0.7%**	-	0%	0%	0%	0%	**0%**	-	0.4%
Buses and Single-Unit Trucks	1	5	1	0	**7**	-	4	1	1	0	**6**	-	1	4	0	0	**5**	-	0	1	2	0	**3**	-	21
% Buses and Single-Unit Trucks	1.1%	1.9%	0.5%	0%	**1.3%**	-	1.6%	0.8%	2.0%	0%	**1.4%**	-	1.8%	1.2%	0%	0%	**1.2%**	-	0%	1.6%	3.3%	0%	**2.2%**	-	1.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

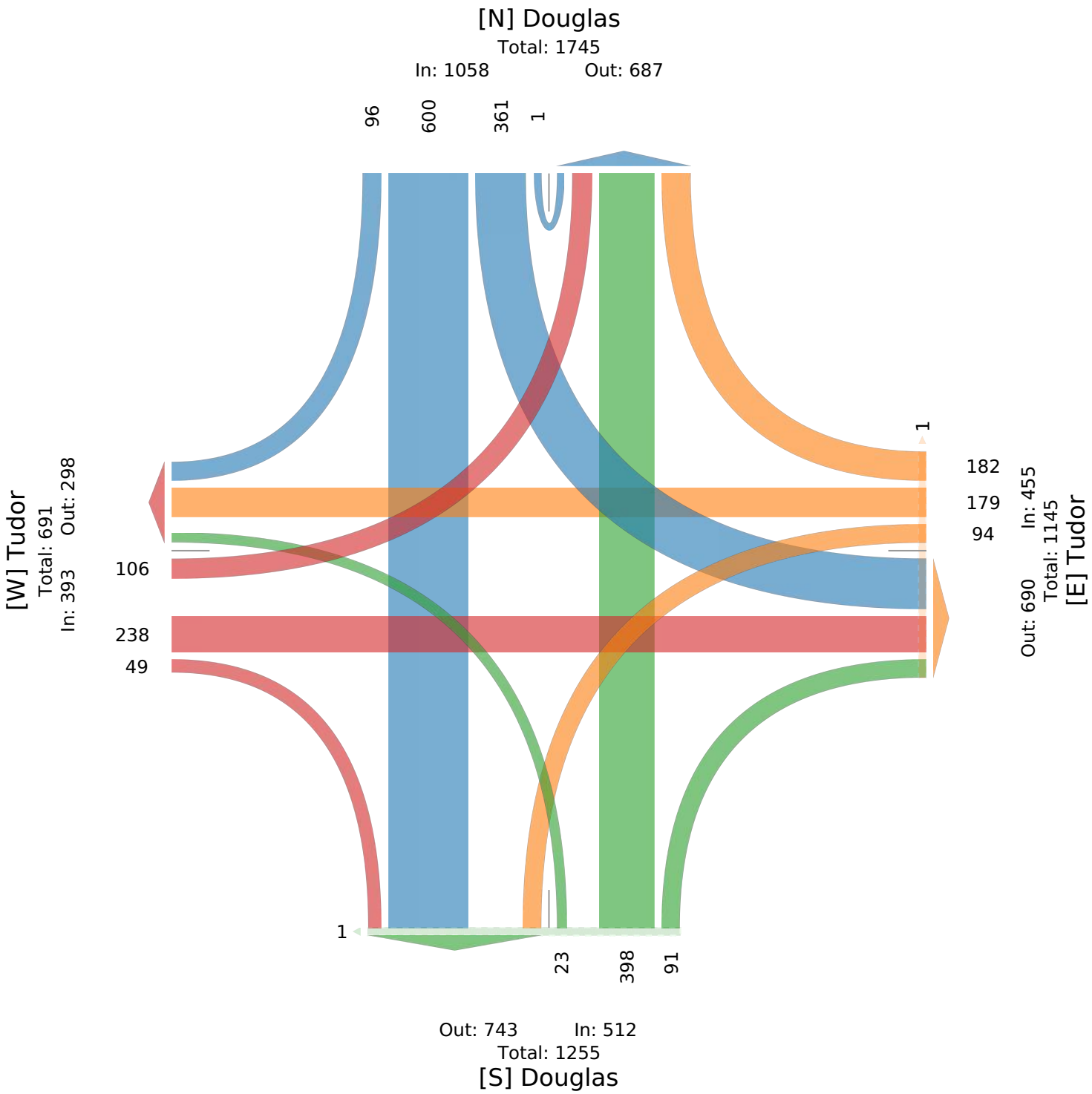
Leg	Douglas						Tudor						Douglas						Tudor						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 4:30PM	20	165	82	0	**267**	0	37	29	23	0	**89**	0	20	115	4	0	**139**	1	8	54	33	0	**95**	0	**590**
4:45PM	34	144	99	1	**278**	0	31	53	20	0	**104**	0	27	92	3	0	**122**	0	15	63	24	0	**102**	0	**606**
5:00PM	22	167	80	0	**269**	0	84	41	33	0	**158**	1	27	108	8	0	**143**	0	17	63	26	0	**106**	0	**676**
5:15PM	20	124	100	0	**244**	0	30	56	18	0	**104**	0	17	83	8	0	**108**	0	9	58	23	0	**90**	0	**546**
Total	96	600	361	1	**1058**	0	182	179	94	0	**455**	1	91	398	23	0	**512**	1	49	238	106	0	**393**	0	**2418**
% Approach	9.1%	56.7%	34.1%	0.1%	**-**	-	40.0%	39.3%	20.7%	0%	**-**	-	17.8%	77.7%	4.5%	0%	**-**	-	12.5%	60.6%	27.0%	0%	**-**	-	**-**
% Total	4.0%	24.8%	14.9%	0%	**43.8%**	-	7.5%	7.4%	3.9%	0%	**18.8%**	-	3.8%	16.5%	1.0%	0%	**21.2%**	-	2.0%	9.8%	4.4%	0%	**16.3%**	-	**-**
PHF	0.706	0.898	0.903	0.250	**0.951**	-	0.542	0.799	0.712	-	**0.720**	-	0.843	0.865	0.719	-	**0.895**	-	0.721	0.944	0.803	-	**0.927**	-	0.894
Lights	96	597	352	1	**1046**	-	175	179	94	0	**448**	-	91	393	22	0	**506**	-	49	236	106	0	**391**	-	2391
% Lights	100%	99.5%	97.5%	100%	**98.9%**	-	96.2%	100%	100%	0%	**98.5%**	-	100%	98.7%	95.7%	0%	**98.8%**	-	100%	99.2%	100%	0%	**99.5%**	-	98.9%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses and Single-Unit Trucks	0	3	9	0	**12**	-	7	0	0	0	**7**	-	0	5	1	0	**6**	-	0	2	0	0	**2**	-	27
% Buses and Single-Unit Trucks	0%	0.5%	2.5%	0%	**1.1%**	-	3.8%	0%	0%	0%	**1.5%**	-	0%	1.3%	4.3%	0%	**1.2%**	-	0%	0.8%	0%	0%	**0.5%**	-	1.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tudor Road & NE Douglas Street - TMC

Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959803, Location: 38.930614, -94.379523

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NE Douglas Street & NW Chipman Road - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

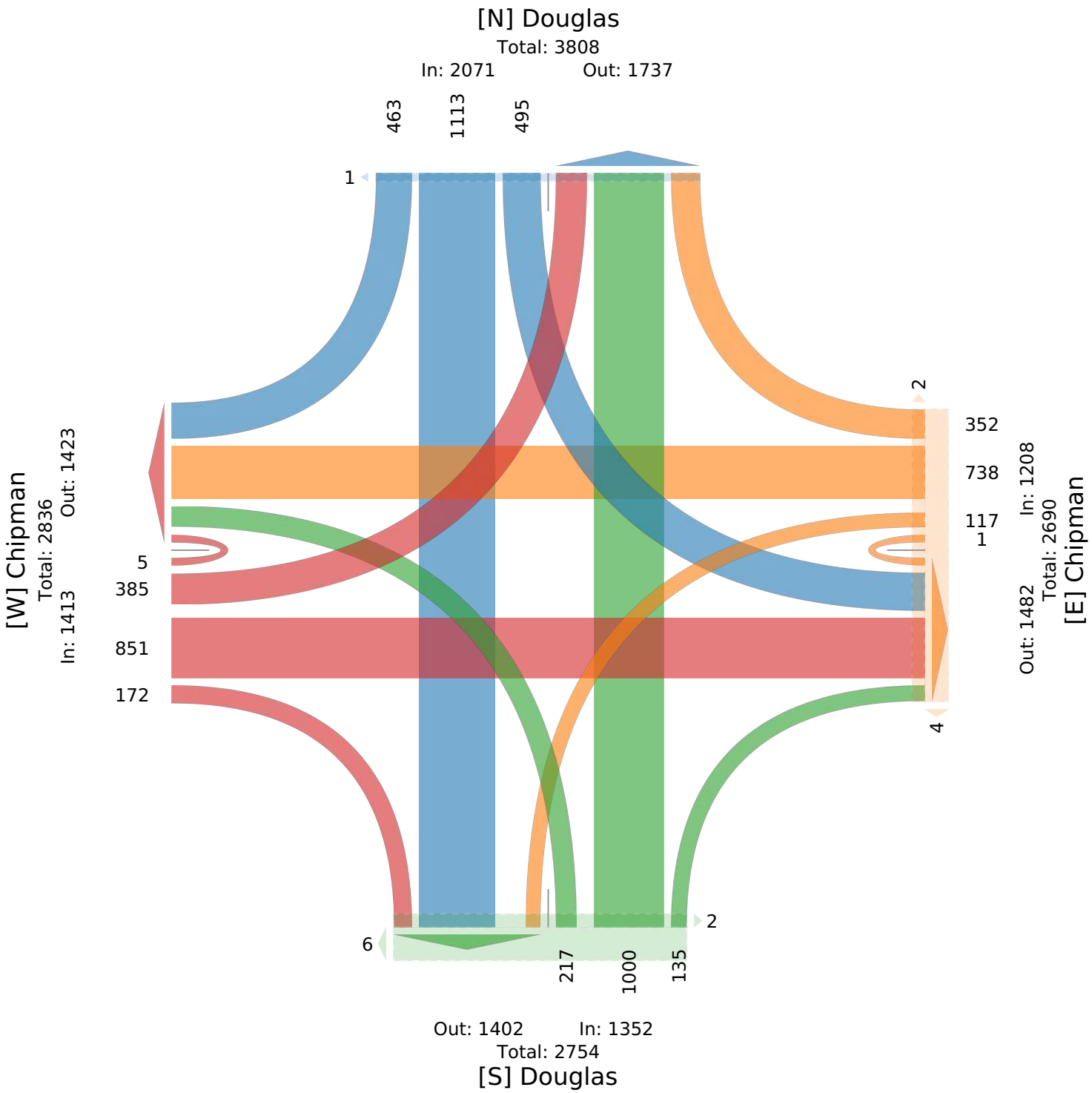
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Douglas						Chipman						Douglas						Chipman						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 7:00AM	9	28	6	0	**43**	0	21	31	2	0	**54**	0	5	57	8	0	**70**	0	1	18	10	0	**29**	0	**196**
7:15AM	24	35	8	0	**67**	0	25	39	1	0	**65**	0	3	70	13	0	**86**	0	2	11	21	0	**34**	0	**252**
7:30AM	19	54	10	0	**83**	0	27	37	3	0	**67**	0	5	83	8	0	**96**	0	3	21	15	0	**39**	0	**285**
7:45AM	27	45	13	0	**85**	0	19	40	4	0	**63**	0	5	85	19	0	**109**	0	5	29	23	0	**57**	0	**314**
Hourly Total	79	162	37	0	**278**	0	92	147	10	0	**249**	0	18	295	48	0	**361**	0	11	79	69	0	**159**	0	**1047**
8:00AM	20	48	14	0	**82**	0	15	34	1	0	**50**	0	10	47	11	0	**68**	0	4	26	13	0	**43**	0	**243**
8:15AM	19	48	17	0	**84**	0	18	26	2	0	**46**	0	4	58	14	0	**76**	0	4	33	23	2	**62**	0	**268**
8:30AM	27	58	23	0	**108**	0	18	30	6	0	**54**	0	7	59	15	0	**81**	0	6	34	24	2	**66**	0	**309**
8:45AM	35	70	24	0	**129**	0	18	36	7	0	**61**	0	9	60	8	0	**77**	0	5	35	33	1	**74**	0	**341**
Hourly Total	101	224	78	0	**403**	0	69	126	16	0	**211**	0	30	224	48	0	**302**	0	19	128	93	5	**245**	0	**1161**
4:00PM	32	90	43	0	**165**	0	25	46	16	0	**87**	1	7	48	10	0	**65**	0	13	84	31	0	**128**	0	**445**
4:15PM	31	86	48	0	**165**	1	23	55	10	0	**88**	0	11	56	11	0	**78**	0	20	70	21	0	**111**	0	**442**
4:30PM	33	95	54	0	**182**	0	33	58	11	0	**102**	0	16	74	21	0	**111**	1	18	79	39	0	**136**	0	**531**
4:45PM	42	101	50	0	**193**	0	15	77	10	0	**102**	2	11	62	21	0	**94**	5	18	81	40	0	**139**	0	**528**
Hourly Total	138	372	195	0	**705**	1	96	236	47	0	**379**	3	45	240	63	0	**348**	6	69	314	131	0	**514**	0	**1946**
5:00PM	52	110	57	0	**219**	0	26	60	9	1	**96**	2	10	70	13	0	**93**	0	24	95	28	0	**147**	0	**555**
5:15PM	35	76	47	0	**158**	0	27	60	13	0	**100**	1	17	63	18	0	**98**	1	17	79	19	0	**115**	0	**471**
5:30PM	28	89	42	0	**159**	0	21	61	12	0	**94**	0	5	57	8	0	**70**	1	11	74	24	0	**109**	0	**432**
5:45PM	30	80	39	0	**149**	0	21	48	10	0	**79**	0	10	51	19	0	**80**	0	21	82	21	0	**124**	0	**432**
Hourly Total	145	355	185	0	**685**	0	95	229	44	1	**369**	3	42	241	58	0	**341**	2	73	330	92	0	**495**	0	**1890**
Total	463	1113	495	0	**2071**	1	352	738	117	1	**1208**	6	135	1000	217	0	**1352**	8	172	851	385	5	**1413**	0	**6044**
% Approach	22.4%	53.7%	23.9%	0%	**-**	-	29.1%	61.1%	9.7%	0.1%	**-**	-	10.0%	74.0%	16.1%	0%	**-**	-	12.2%	60.2%	27.2%	0.4%	**-**	-	-
% Total	7.7%	18.4%	8.2%	0%	**34.3%**	-	5.8%	12.2%	1.9%	0%	**20.0%**	-	2.2%	16.5%	3.6%	0%	**22.4%**	-	2.8%	14.1%	6.4%	0.1%	**23.4%**	-	-
Lights	459	1098	492	0	**2049**	-	347	731	114	1	**1193**	-	135	980	214	0	**1329**	-	166	842	375	5	**1388**	-	5959
% Lights	99.1%	98.7%	99.4%	0%	**98.9%**	-	98.6%	99.1%	97.4%	100%	**98.8%**	-	100%	98.0%	98.6%	0%	**98.3%**	-	96.5%	98.9%	97.4%	100%	**98.2%**	-	98.6%
Articulated Trucks	1	2	0	0	**3**	-	1	0	0	0	**1**	-	0	5	1	0	**6**	-	1	2	3	0	**6**	-	16
% Articulated Trucks	0.2%	0.2%	0%	0%	**0.1%**	-	0.3%	0%	0%	0%	**0.1%**	-	0%	0.5%	0.5%	0%	**0.4%**	-	0.6%	0.2%	0.8%	0%	**0.4%**	-	0.3%
Buses and Single-Unit Trucks	3	13	3	0	**19**	-	4	7	3	0	**14**	-	0	15	2	0	**17**	-	5	7	7	0	**19**	-	69
% Buses and Single-Unit Trucks	0.6%	1.2%	0.6%	0%	**0.9%**	-	1.1%	0.9%	2.6%	0%	**1.2%**	-	0%	1.5%	0.9%	0%	**1.3%**	-	2.9%	0.8%	1.8%	0%	**1.3%**	-	1.1%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	- 100%	-	-	-	-	-	- 100%	-	-	-	-	-	- 75.0%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	- 25.0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NE Douglas Street & NW Chipman Road - TMC
Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NE Douglas Street & NW Chipman Road - TMC

Tue Jun 7, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

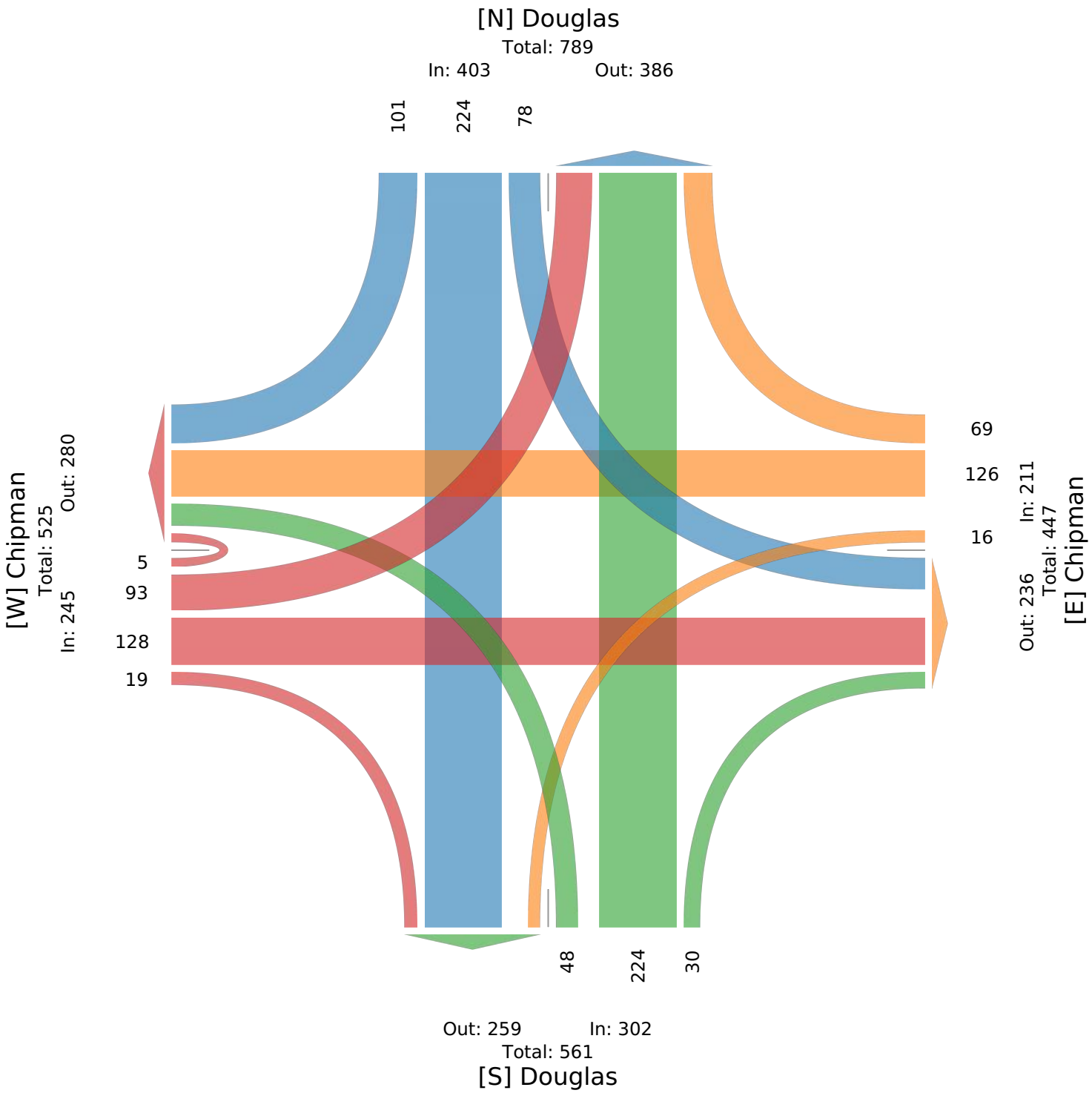
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Douglas						Chipman						Douglas						Chipman						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:00AM	20	48	14	0	**82**	0	15	34	1	0	**50**	0	10	47	11	0	**68**	0	4	26	13	0	**43**	0	**243**
8:15AM	19	48	17	0	**84**	0	18	26	2	0	**46**	0	4	58	14	0	**76**	0	4	33	23	2	**62**	0	**268**
8:30AM	27	58	23	0	**108**	0	18	30	6	0	**54**	0	7	59	15	0	**81**	0	6	34	24	2	**66**	0	**309**
8:45AM	35	70	24	0	**129**	0	18	36	7	0	**61**	0	9	60	8	0	**77**	0	5	35	33	1	**74**	0	**341**
Total	101	224	78	0	**403**	0	69	126	16	0	**211**	0	30	224	48	0	**302**	0	19	128	93	5	**245**	0	**1161**
% Approach	25.1%	55.6%	19.4%	0%	**-**	-	32.7%	59.7%	7.6%	0%	**-**	-	9.9%	74.2%	15.9%	0%	**-**	-	7.8%	52.2%	38.0%	2.0%	**-**	-	-
% Total	8.7%	19.3%	6.7%	0%	**34.7%**	-	5.9%	10.9%	1.4%	0%	**18.2%**	-	2.6%	19.3%	4.1%	0%	**26.0%**	-	1.6%	11.0%	8.0%	0.4%	**21.1%**	-	-
PHF	0.721	0.800	0.813	-	**0.781**	-	0.958	0.875	0.571	-	**0.865**	-	0.750	0.933	0.800	-	**0.932**	-	0.792	0.914	0.705	0.625	**0.828**	-	0.851
Lights	99	220	78	0	**397**	-	67	121	15	0	**203**	-	30	215	46	0	**291**	-	16	125	89	5	**235**	-	1126
% Lights	98.0%	98.2%	100%	0%	**98.5%**	-	97.1%	96.0%	93.8%	0%	**96.2%**	-	100%	96.0%	95.8%	0%	**96.4%**	-	84.2%	97.7%	95.7%	100%	**95.9%**	-	97.0%
Articulated Trucks	1	1	0	0	**2**	-	0	0	0	0	**0**	-	0	3	0	0	**3**	-	1	0	1	0	**2**	-	7
% Articulated Trucks	1.0%	0.4%	0%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0%	1.3%	0%	0%	**1.0%**	-	5.3%	0%	1.1%	0%	**0.8%**	-	0.6%
Buses and Single-Unit Trucks	1	3	0	0	**4**	-	2	5	1	0	**8**	-	0	6	2	0	**8**	-	2	3	3	0	**8**	-	28
% Buses and Single-Unit Trucks	1.0%	1.3%	0%	0%	**1.0%**	-	2.9%	4.0%	6.3%	0%	**3.8%**	-	0%	2.7%	4.2%	0%	**2.6%**	-	10.5%	2.3%	3.2%	0%	**3.3%**	-	2.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NE Douglas Street & NW Chipman Road - TMC
Tue Jun 7, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NE Douglas Street & NW Chipman Road - TMC

Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

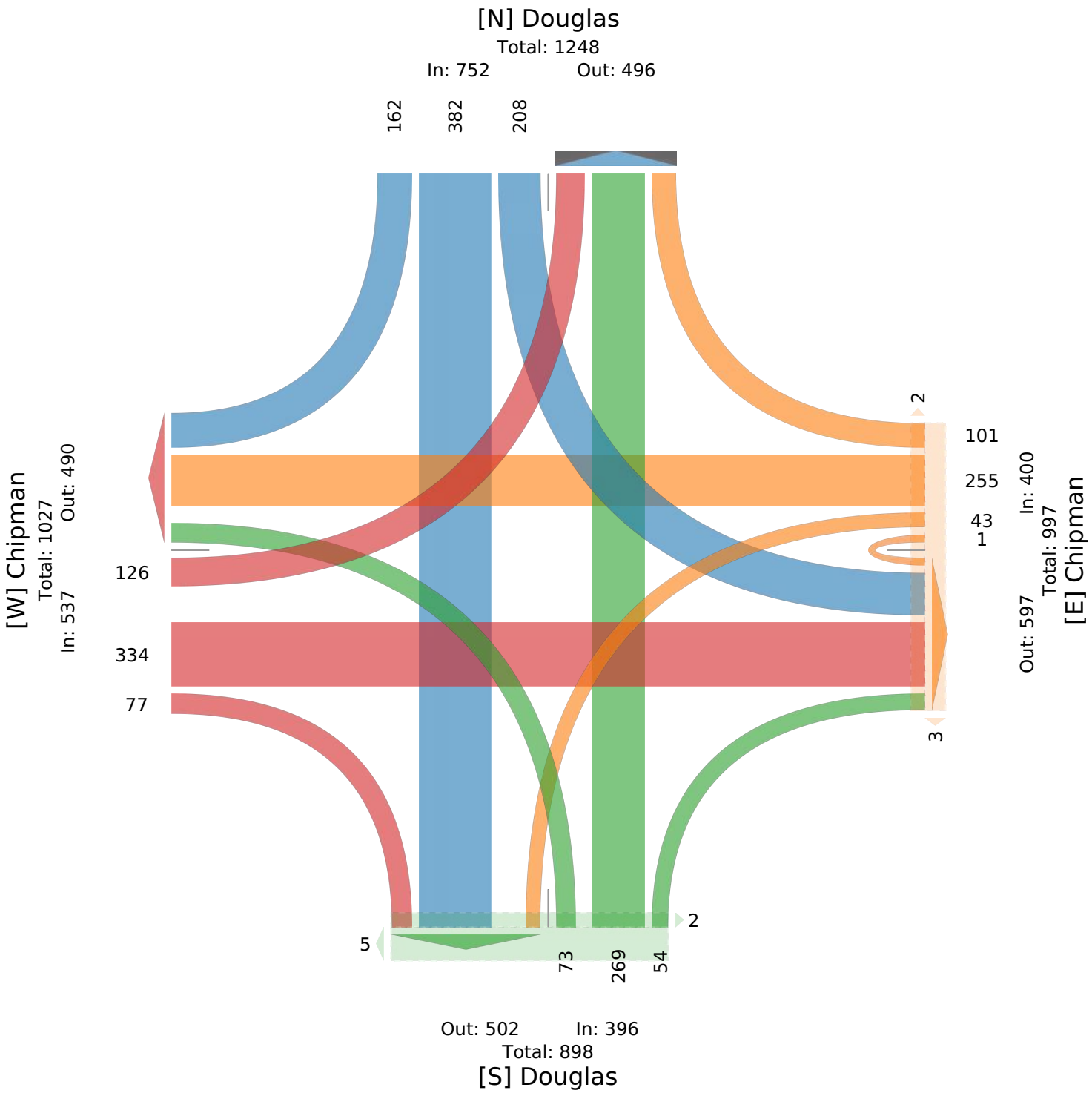
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg / Direction	Douglas Southbound						Chipman Westbound						Douglas Northbound						Chipman Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 4:30PM	33	95	54	0	**182**	0	33	58	11	0	**102**	0	16	74	21	0	**111**	1	18	79	39	0	**136**	0	**531**
4:45PM	42	101	50	0	**193**	0	15	77	10	0	**102**	2	11	62	21	0	**94**	5	18	81	40	0	**139**	0	**528**
5:00PM	52	110	57	0	**219**	0	26	60	9	1	**96**	2	10	70	13	0	**93**	0	24	95	28	0	**147**	0	**555**
5:15PM	35	76	47	0	**158**	0	27	60	13	0	**100**	1	17	63	18	0	**98**	1	17	79	19	0	**115**	0	**471**
Total	162	382	208	0	**752**	0	101	255	43	1	**400**	5	54	269	73	0	**396**	7	77	334	126	0	**537**	0	**2085**
% Approach	21.5%	50.8%	27.7%	0%	**-**	-	25.3%	63.8%	10.8%	0.3%	**-**	-	13.6%	67.9%	18.4%	0%	**-**	-	14.3%	62.2%	23.5%	0%	**-**	-	**-**
% Total	7.8%	18.3%	10.0%	0%	**36.1%**	-	4.8%	12.2%	2.1%	0%	**19.2%**	-	2.6%	12.9%	3.5%	0%	**19.0%**	-	3.7%	16.0%	6.0%	0%	**25.8%**	-	**-**
PHF	0.779	0.868	0.912	-	**0.858**	-	0.765	0.828	0.827	0.250	**0.980**	-	0.794	0.909	0.869	-	**0.892**	-	0.802	0.879	0.788	-	**0.913**	-	0.939
Lights	161	380	208	0	**749**	-	100	254	41	1	**396**	-	54	266	73	0	**393**	-	76	333	126	0	**535**	-	2073
% Lights	99.4%	99.5%	100%	0%	**99.6%**	-	99.0%	99.6%	95.3%	100%	**99.0%**	-	100%	98.9%	100%	0%	**99.2%**	-	98.7%	99.7%	100%	0%	**99.6%**	-	99.4%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Buses and Single-Unit Trucks	1	2	0	0	**3**	-	1	1	2	0	**4**	-	0	3	0	0	**3**	-	1	1	0	0	**2**	-	12
% Buses and Single-Unit Trucks	0.6%	0.5%	0%	0%	**0.4%**	-	1.0%	0.4%	4.7%	0%	**1.0%**	-	0%	1.1%	0%	0%	**0.8%**	-	1.3%	0.3%	0%	0%	**0.4%**	-	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	5	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	71.4%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	28.6%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NE Douglas Street & NW Chipman Road - TMC
Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959804, Location: 38.925031, -94.379845

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

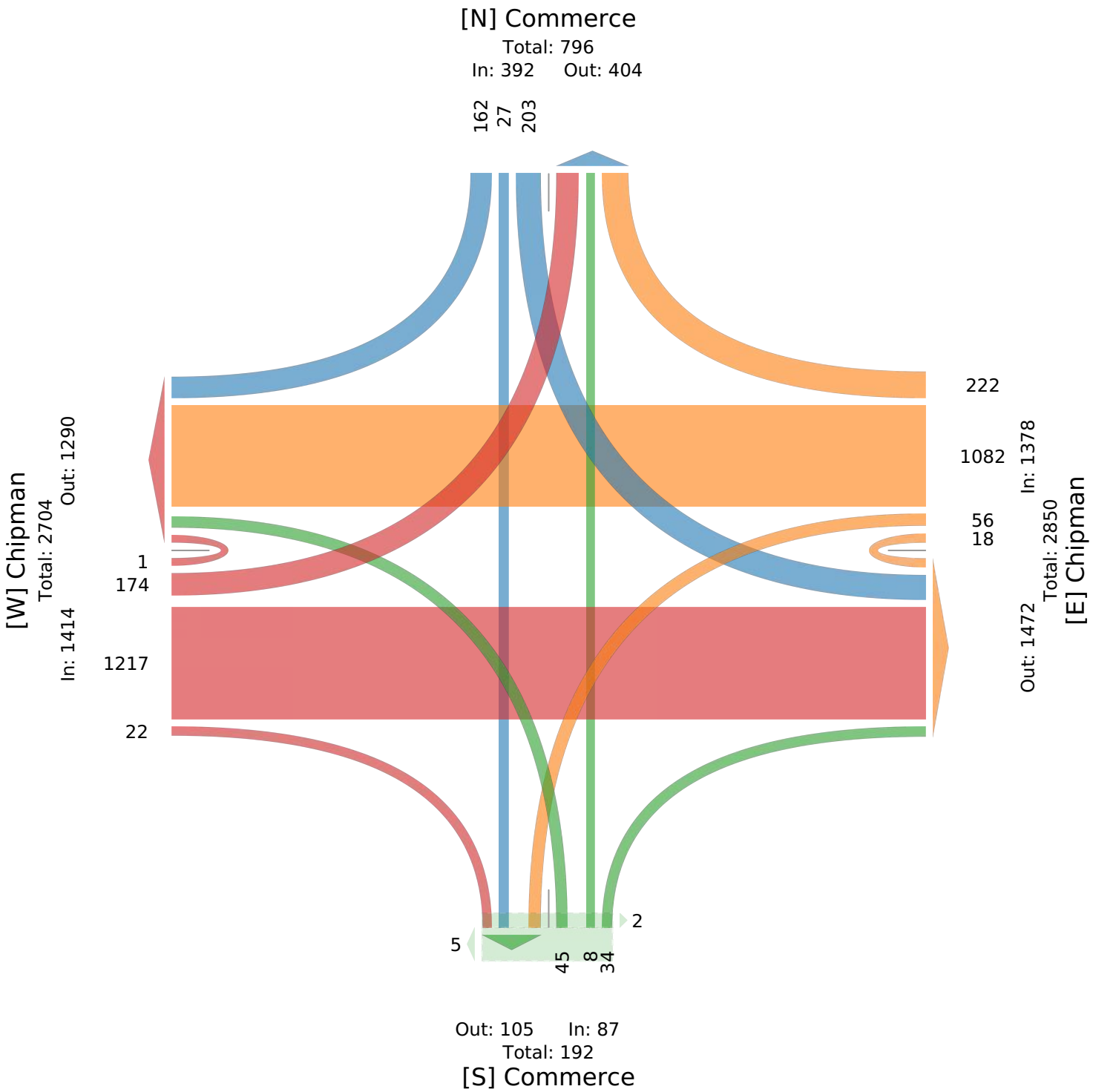
Leg	Commerce						Chipman						Commerce						Chipman						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 7:00AM	0	2	1	0	**3**	0	9	31	6	0	**46**	0	2	0	2	0	**4**	0	2	26	6	0	**34**	0	**87**
7:15AM	6	1	4	0	**11**	0	10	57	0	0	**67**	0	2	0	1	0	**3**	0	3	38	8	0	**49**	0	**130**
7:30AM	10	1	4	0	**15**	0	16	42	5	0	**63**	0	2	2	1	0	**5**	0	1	34	6	0	**41**	0	**124**
7:45AM	5	0	7	0	**12**	0	33	42	7	1	**83**	0	0	1	1	0	**2**	0	2	47	13	0	**62**	0	**159**
Hourly Total	21	4	16	0	**41**	0	68	172	18	1	**259**	0	6	3	5	0	**14**	0	8	145	33	0	**186**	0	**500**
8:00AM	9	2	8	0	**19**	0	18	41	2	1	**62**	0	4	1	6	0	**11**	0	0	31	10	0	**41**	0	**133**
8:15AM	8	1	11	0	**20**	0	14	36	5	2	**57**	0	0	1	5	0	**6**	0	1	53	9	0	**63**	0	**146**
8:30AM	10	2	6	0	**18**	0	15	52	3	4	**74**	0	2	1	2	0	**5**	0	1	53	14	0	**68**	0	**165**
8:45AM	11	0	4	0	**15**	0	13	50	6	3	**72**	0	2	0	1	0	**3**	0	2	64	19	0	**85**	0	**175**
Hourly Total	38	5	29	0	**72**	0	60	179	16	10	**265**	0	8	3	14	0	**25**	0	4	201	52	0	**257**	0	**619**
4:00PM	18	1	24	0	**43**	0	9	78	6	3	**96**	0	3	0	2	0	**5**	0	0	103	6	0	**109**	0	**253**
4:15PM	4	2	17	0	**23**	0	7	91	0	0	**98**	0	2	0	3	0	**5**	1	0	94	5	1	**100**	0	**226**
4:30PM	9	2	21	0	**32**	0	11	96	6	1	**114**	0	1	1	2	0	**4**	2	0	113	13	0	**126**	0	**276**
4:45PM	12	2	22	0	**36**	0	22	94	5	1	**122**	0	0	1	2	0	**3**	2	2	118	24	0	**144**	0	**305**
Hourly Total	43	7	84	0	**134**	0	49	359	17	5	**430**	0	6	2	9	0	**17**	5	2	428	48	1	**479**	0	**1060**
5:00PM	18	6	32	0	**56**	0	11	111	1	0	**123**	0	7	0	8	0	**15**	0	2	114	4	0	**120**	0	**314**
5:15PM	10	2	12	0	**24**	0	8	93	4	1	**106**	0	4	0	3	0	**7**	0	2	114	6	0	**122**	0	**259**
5:30PM	17	0	15	0	**32**	0	5	92	0	0	**97**	0	2	0	2	0	**4**	2	1	104	9	0	**114**	0	**247**
5:45PM	15	3	15	0	**33**	0	21	76	0	1	**98**	0	1	0	4	0	**5**	0	3	111	22	0	**136**	0	**272**
Hourly Total	60	11	74	0	**145**	0	45	372	5	2	**424**	0	14	0	17	0	**31**	2	8	443	41	0	**492**	0	**1092**
Total	162	27	203	0	**392**	0	222	1082	56	18	**1378**	0	34	8	45	0	**87**	7	22	1217	174	1	**1414**	0	**3271**
% Approach	41.3%	6.9%	51.8%	0%	**-**	-	16.1%	78.5%	4.1%	1.3%	**-**	-	39.1%	9.2%	51.7%	0%	**-**	-	1.6%	86.1%	12.3%	0.1%	**-**	-	-
% Total	5.0%	0.8%	6.2%	0%	**12.0%**	-	6.8%	33.1%	1.7%	0.6%	**42.1%**	-	1.0%	0.2%	1.4%	0%	**2.7%**	-	0.7%	37.2%	5.3%	0%	**43.2%**	-	-
Lights	157	27	199	0	**383**	-	221	1070	55	18	**1364**	-	29	8	44	0	**81**	-	21	1198	172	1	**1392**	-	3220
% Lights	96.9%	100%	98.0%	0%	**97.7%**	-	99.5%	98.9%	98.2%	100%	**99.0%**	-	85.3%	100%	97.8%	0%	**93.1%**	-	95.5%	98.4%	98.9%	100%	**98.4%**	-	98.4%
Articulated Trucks	0	0	0	0	**0**	-	0	1	1	0	**2**	-	4	0	0	0	**4**	-	0	1	1	0	**2**	-	8
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0.1%	1.8%	0%	**0.1%**	-	11.8%	0%	0%	0%	**4.6%**	-	0%	0.1%	0.6%	0%	**0.1%**	-	0.2%
Buses and Single-Unit Trucks	5	0	4	0	**9**	-	1	11	0	0	**12**	-	1	0	1	0	**2**	-	1	18	1	0	**20**	-	43
% Buses and Single-Unit Trucks	3.1%	0%	2.0%	0%	**2.3%**	-	0.5%	1.0%	0%	0%	**0.9%**	-	2.9%	0%	2.2%	0%	**2.3%**	-	4.5%	1.5%	0.6%	0%	**1.4%**	-	1.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57.1%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.9%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

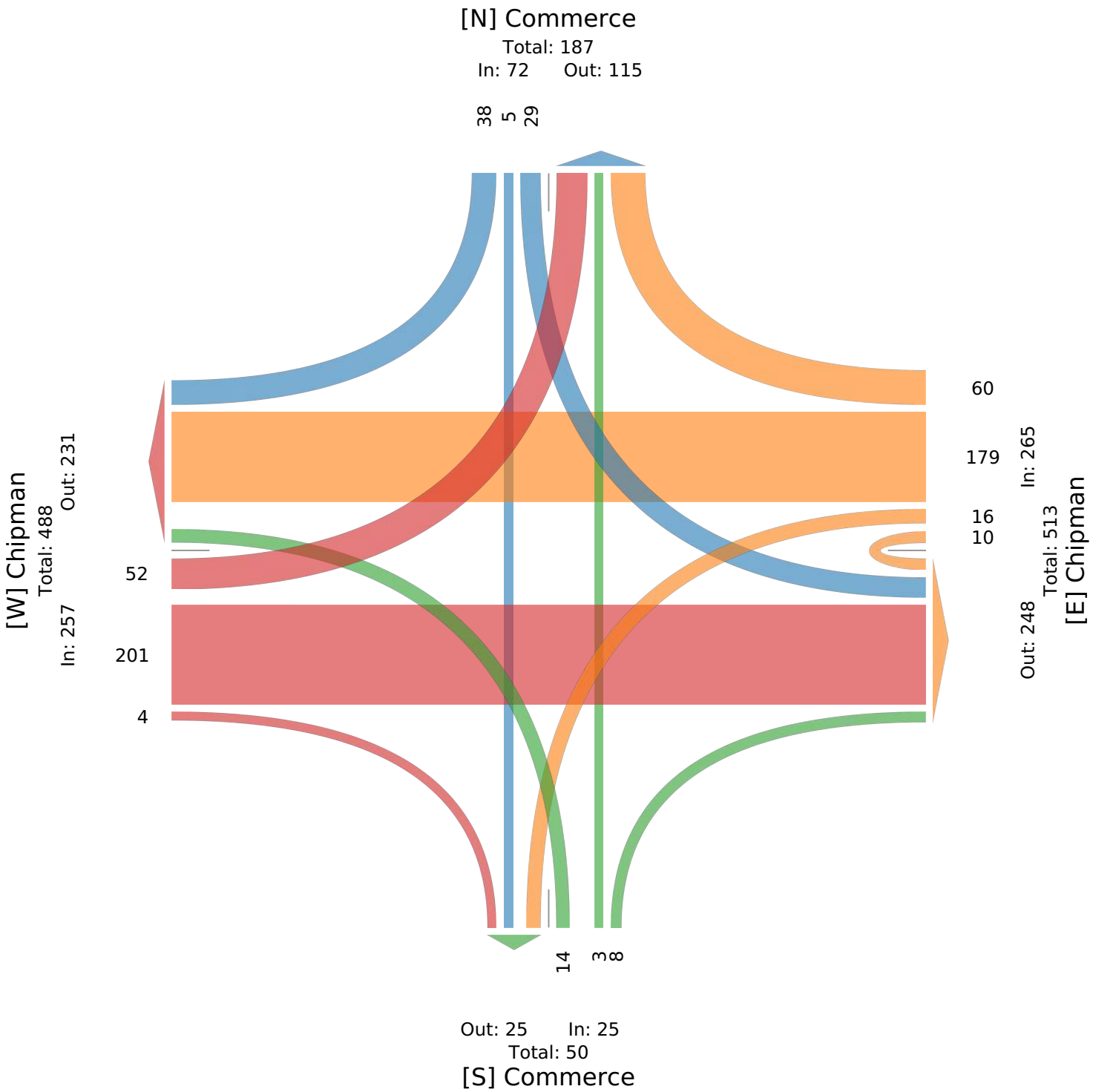
Leg	Commerce						Chipman						Commerce						Chipman						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:00AM	9	2	8	0	**19**	0	18	41	2	1	**62**	0	4	1	6	0	**11**	0	0	31	10	0	**41**	0	**133**
8:15AM	8	1	11	0	**20**	0	14	36	5	2	**57**	0	0	1	5	0	**6**	0	1	53	9	0	**63**	0	**146**
8:30AM	10	2	6	0	**18**	0	15	52	3	4	**74**	0	2	1	2	0	**5**	0	1	53	14	0	**68**	0	**165**
8:45AM	11	0	4	0	**15**	0	13	50	6	3	**72**	0	2	0	1	0	**3**	0	2	64	19	0	**85**	0	**175**
Total	38	5	29	0	**72**	0	60	179	16	10	**265**	0	8	3	14	0	**25**	0	4	201	52	0	**257**	0	**619**
% Approach	52.8%	6.9%	40.3%	0%	**-**	-	22.6%	67.5%	6.0%	3.8%	**-**	-	32.0%	12.0%	56.0%	0%	**-**	-	1.6%	78.2%	20.2%	0%	**-**	-	-
% Total	6.1%	0.8%	4.7%	0%	**11.6%**	-	9.7%	28.9%	2.6%	1.6%	**42.8%**	-	1.3%	0.5%	2.3%	0%	**4.0%**	-	0.6%	32.5%	8.4%	0%	**41.5%**	-	-
PHF	0.864	0.625	0.659	-	**0.900**	-	0.833	0.861	0.667	0.625	**0.895**	-	0.500	0.750	0.583	-	**0.568**	-	0.500	0.785	0.684	-	**0.756**	-	0.884
Lights	34	5	29	0	**68**	-	59	172	15	10	**256**	-	7	3	13	0	**23**	-	4	191	52	0	**247**	-	594
% Lights	89.5%	100%	100%	0%	**94.4%**	-	98.3%	96.1%	93.8%	100%	**96.6%**	-	87.5%	100%	92.9%	0%	**92.0%**	-	100%	95.0%	100%	0%	**96.1%**	-	96.0%
Articulated Trucks	0	0	0	0	**0**	-	0	0	1	0	**1**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	2
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	6.3%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	0%	0.5%	0%	0%	**0.4%**	-	0.3%
Buses and Single-Unit Trucks	4	0	0	0	**4**	-	1	7	0	0	**8**	-	1	0	1	0	**2**	-	0	9	0	0	**9**	-	23
% Buses and Single-Unit Trucks	10.5%	0%	0%	0%	**5.6%**	-	1.7%	3.9%	0%	0%	**3.0%**	-	12.5%	0%	7.1%	0%	**8.0%**	-	0%	4.5%	0%	0%	**3.5%**	-	3.7%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg / Direction	Commerce Southbound						Chipman Westbound						Commerce Northbound						Chipman Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 4:30PM	9	2	21	0	**32**	0	11	96	6	1	**114**	0	1	1	2	0	**4**	2	0	113	13	0	**126**	0	**276**
4:45PM	12	2	22	0	**36**	0	22	94	5	1	**122**	0	0	1	2	0	**3**	2	2	118	24	0	**144**	0	**305**
5:00PM	18	6	32	0	**56**	0	11	111	1	0	**123**	0	7	0	8	0	**15**	0	2	114	4	0	**120**	0	**314**
5:15PM	10	2	12	0	**24**	0	8	93	4	1	**106**	0	4	0	3	0	**7**	0	2	114	6	0	**122**	0	**259**
Total	49	12	87	0	**148**	0	52	394	16	3	**465**	0	12	2	15	0	**29**	4	6	459	47	0	**512**	0	**1154**
% Approach	33.1%	8.1%	58.8%	0%	**-**	-	11.2%	84.7%	3.4%	0.6%	**-**	-	41.4%	6.9%	51.7%	0%	**-**	-	1.2%	89.6%	9.2%	0%	**-**	-	-
% Total	4.2%	1.0%	7.5%	0%	**12.8%**	-	4.5%	34.1%	1.4%	0.3%	**40.3%**	-	1.0%	0.2%	1.3%	0%	**2.5%**	-	0.5%	39.8%	4.1%	0%	**44.4%**	-	-
PHF	0.681	0.500	0.680	-	**0.661**	-	0.591	0.887	0.667	0.750	**0.945**	-	0.429	0.500	0.469	-	**0.483**	-	0.750	0.972	0.490	-	**0.889**	-	0.919
Lights	49	12	85	0	**146**	-	52	392	16	3	**463**	-	12	2	15	0	**29**	-	6	457	45	0	**508**	-	1146
% Lights	100%	100%	97.7%	0%	**98.6%**	-	100%	99.5%	100%	100%	**99.6%**	-	100%	100%	100%	0%	**100%**	-	100%	99.6%	95.7%	0%	**99.2%**	-	99.3%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	1	0	**1**	-	1
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	2.1%	0%	**0.2%**	-	0.1%
Buses and Single-Unit Trucks	0	0	2	0	**2**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	0	2	1	0	**3**	-	7
% Buses and Single-Unit Trucks	0%	0%	2.3%	0%	**1.4%**	-	0%	0.5%	0%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	0%	0.4%	2.1%	0%	**0.6%**	-	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

NW Chipman Road & NW Commerce Drive - TMC

Tue Jun 7, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 959805, Location: 38.925148, -94.384619

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

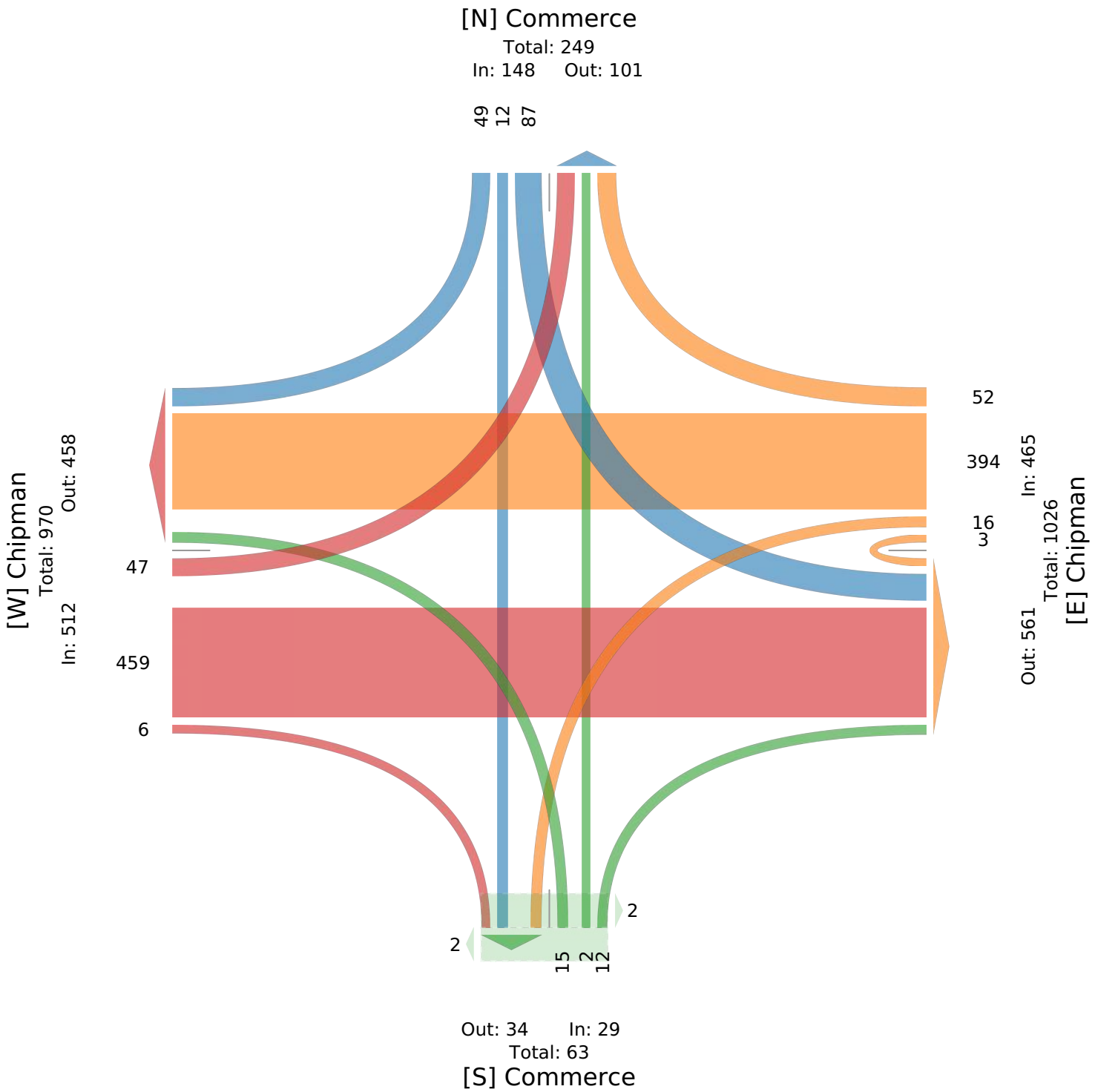


FIGURE 2

Existing plus Approved Development Conditions
Peak Hour Volumes

Tudor Road Development
Lee's Summit, MO

LEGEND

AM (PM) Peak Hour Volume

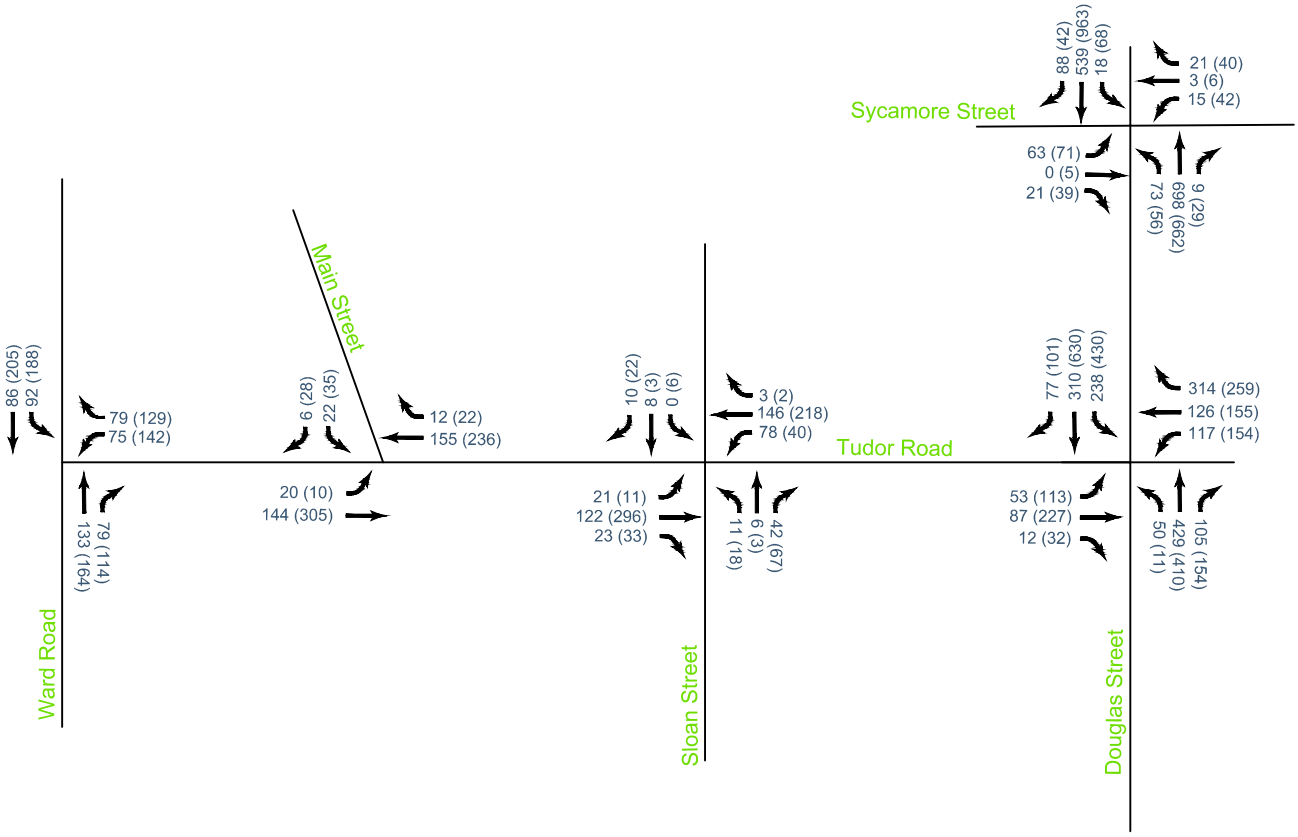


FIGURE 6

Phase 1
Trip Distribution
Tudor Road Development
Lee's Summit, MO

olsson

LEGEND

AM (PM) Peak Hour Vehicle Trips (Car)

[AM (PM)] Peak Hour Vehicle Trips (Truck)

XX% AM/PM Car Trip Distribution Percentages

XX% AM/PM Truck Trip Distribution Percentages

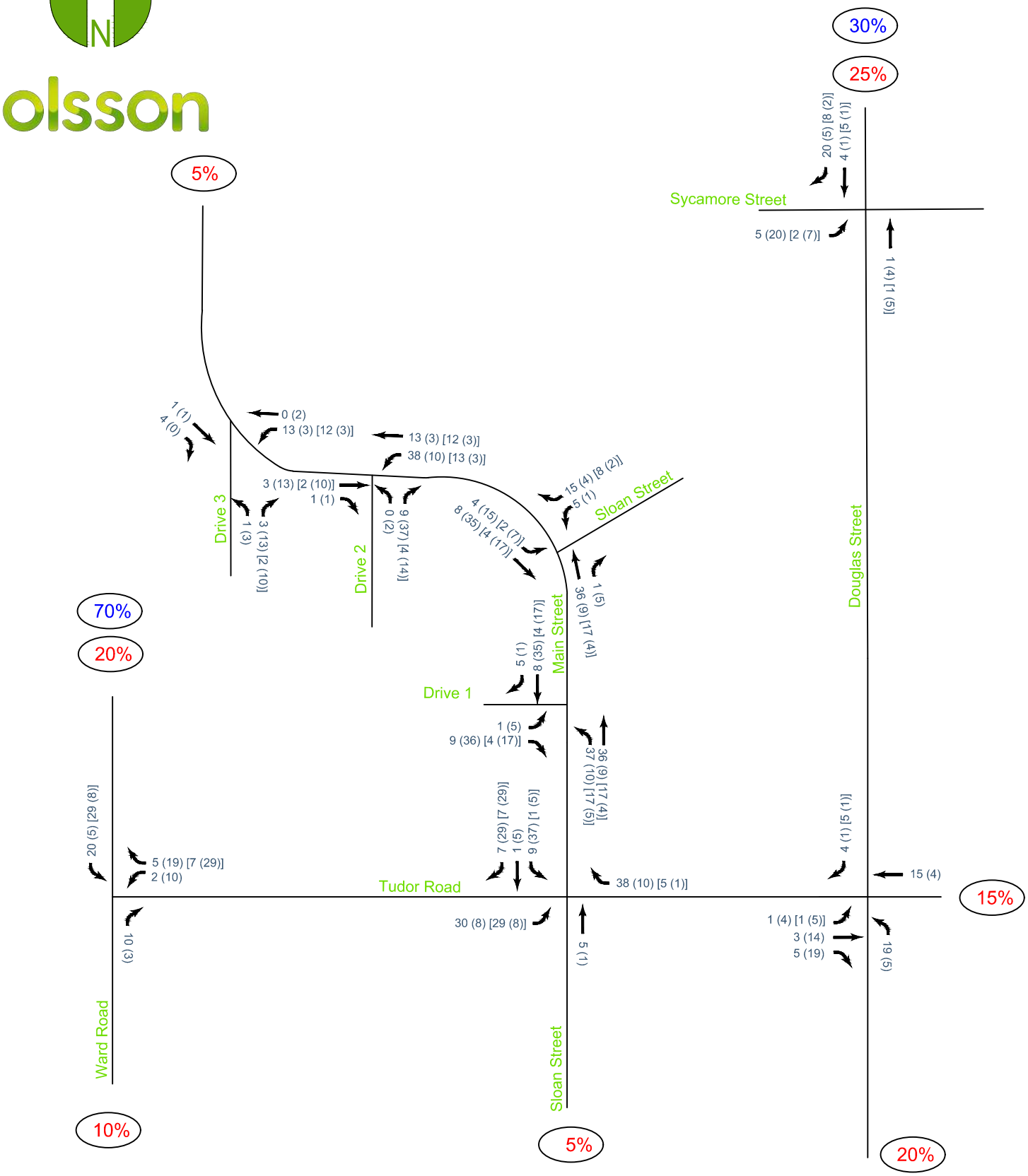


FIGURE 10

Phase 2
Trip Distribution
Tudor Road Development
Lee's Summit, MO

olsson

LEGEND

AM (PM) AM (PM) Peak Hour Car Trips

[AM (PM)] AM (PM) Peak Hour Truck Trips

XX% AM/PM Car Trip Distribution Percentages

XX% AM/PM Truck Trip Distribution Percentages

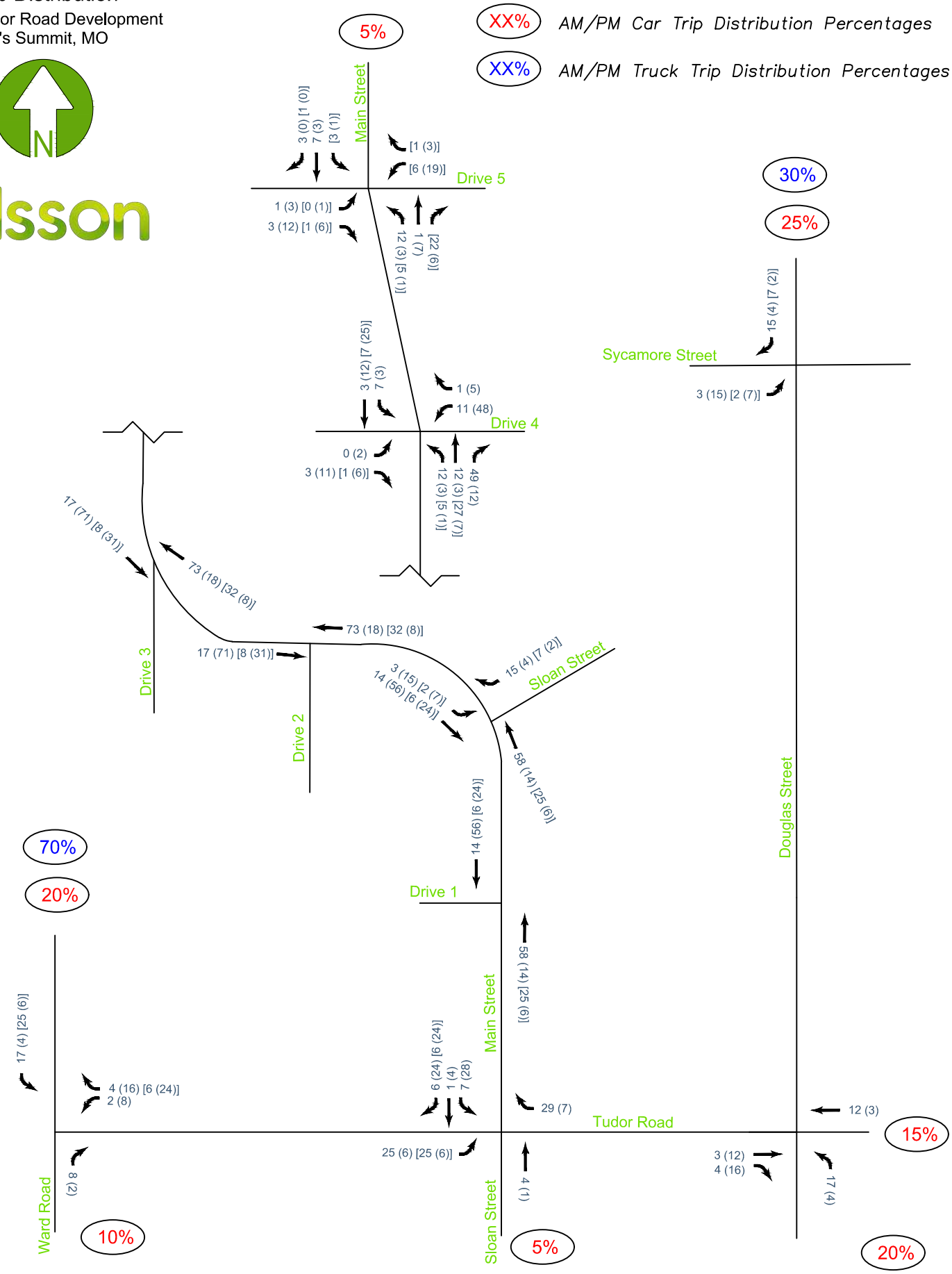


FIGURE 10

Phase 2
Trip Distribution
Tudor Road Development
Lee's Summit, MO

olsson

LEGEND

AM (PM) AM (PM) Peak Hour Car Trips

[AM (PM)] AM (PM) Peak Hour Truck Trips

XX% AM/PM Car Trip Distribution Percentages

XX% AM/PM Truck Trip Distribution Percentages

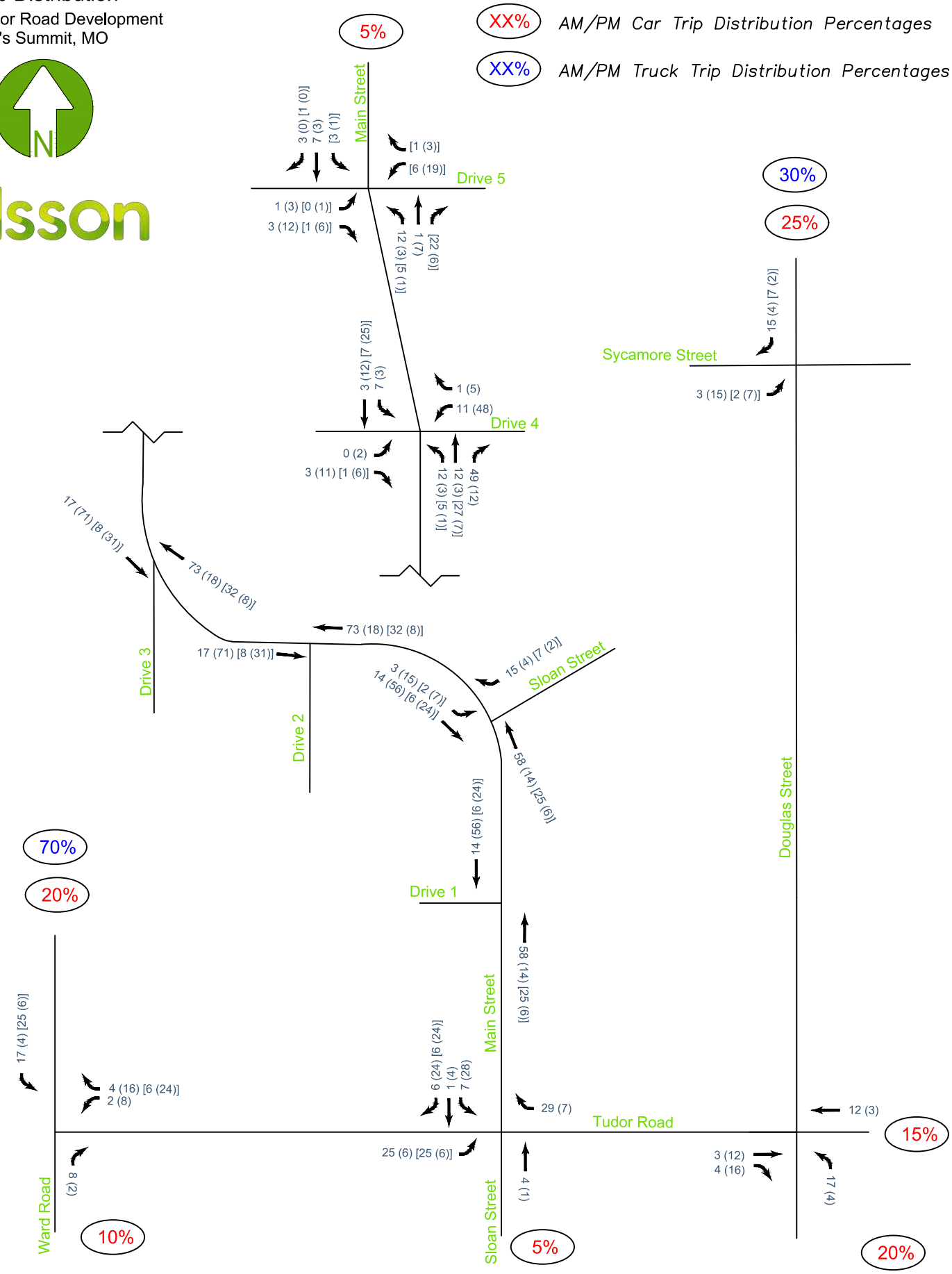


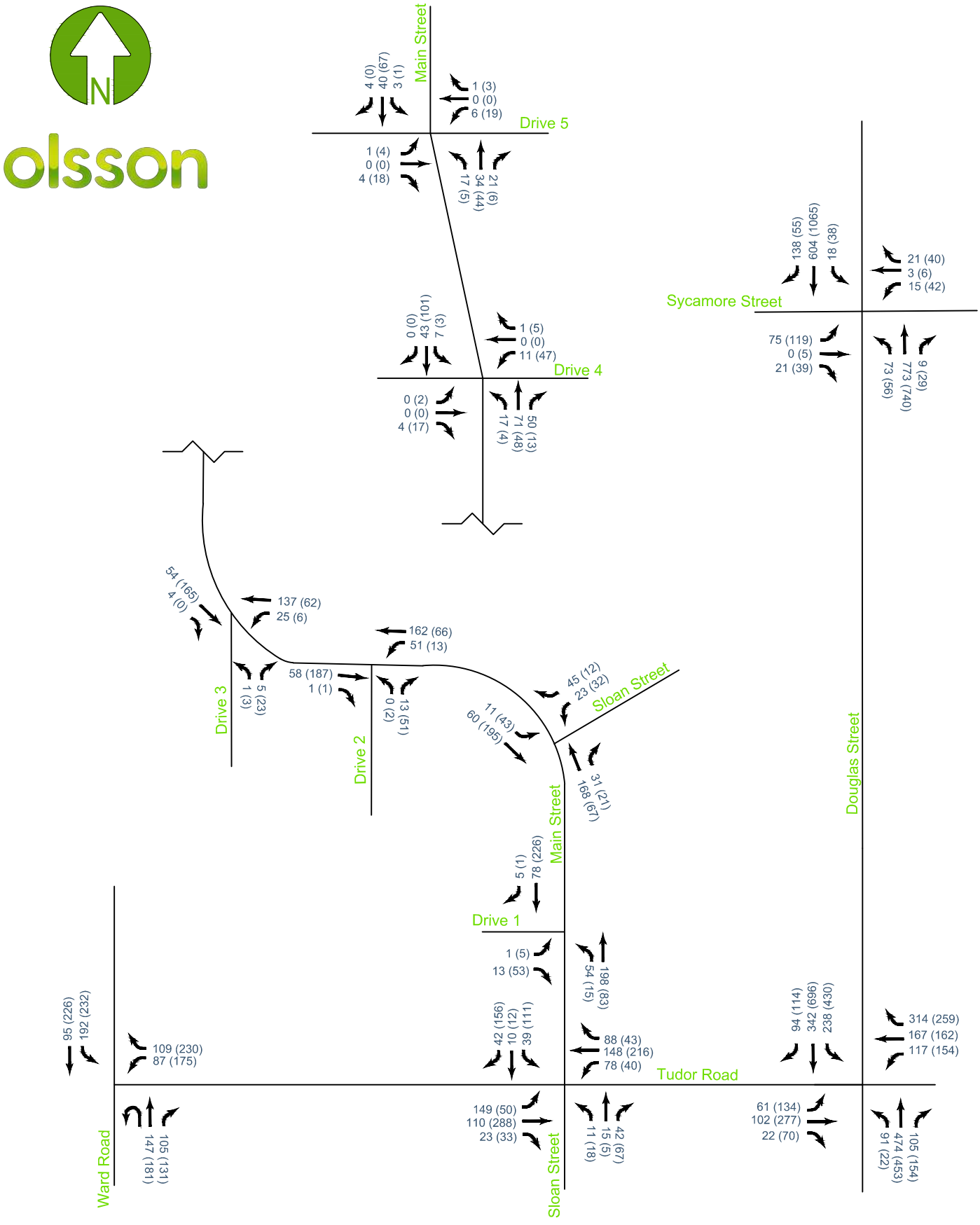
FIGURE 11

Build Year 2026 plus Approved plus Full Build Development
Peak Hour Volumes

Tudor Road Development
Lee's Summit, MO

LEGEND

AM (PM) Peak Hour Volume



MERGE MIDWEST ENGINEERING

Trip Generation

Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

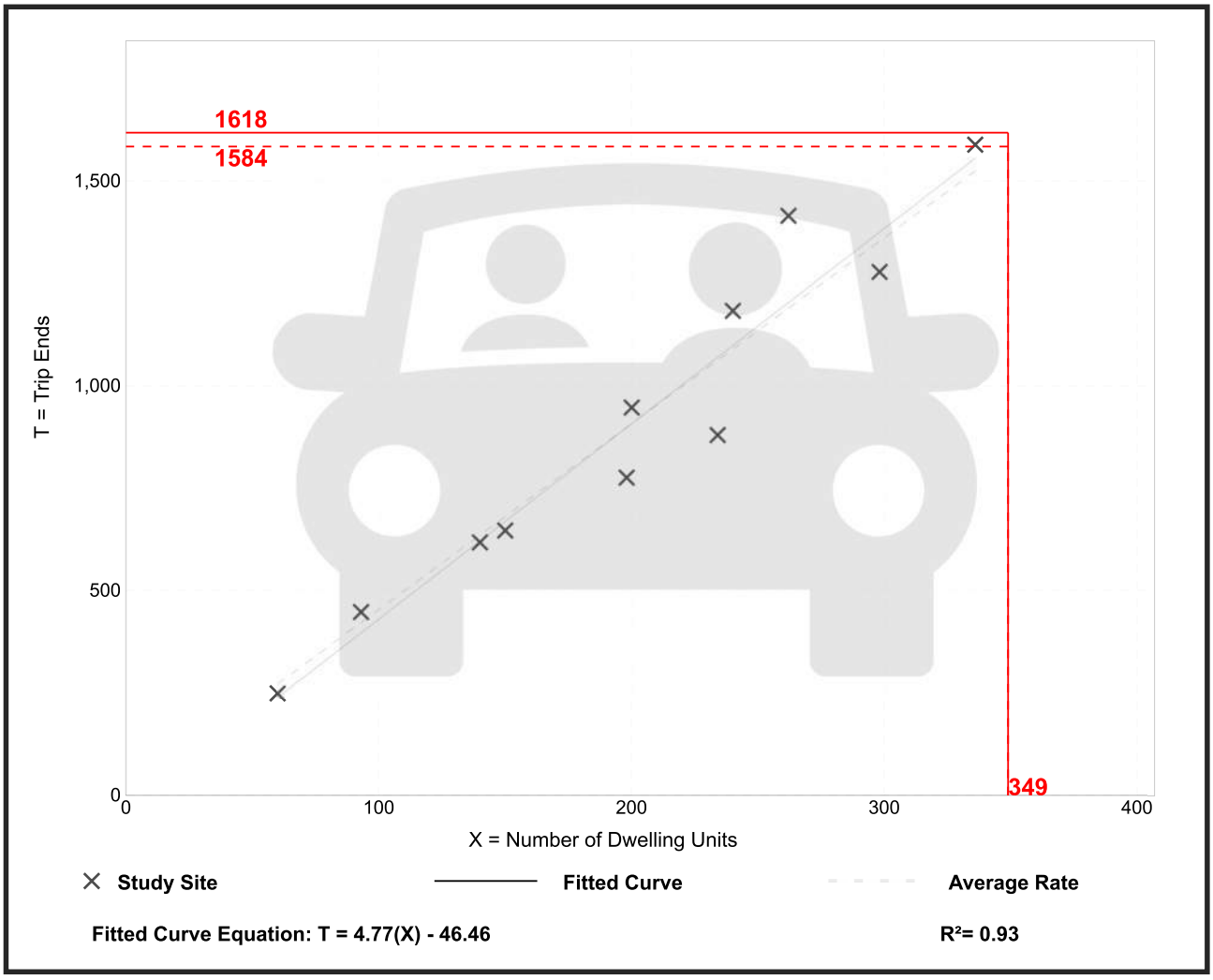
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Dwelling Units: 201
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



Fitted Curve Equation: T = 4.77(X) - 46.46

R^2= 0.93

Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

Calculated Trip Ends:
Average Rate: 1584 (Total), 792 (Entry), 792 (Exit)
Fitted Curve: 1618 (Total), 809 (Entry), 809 (Exit)

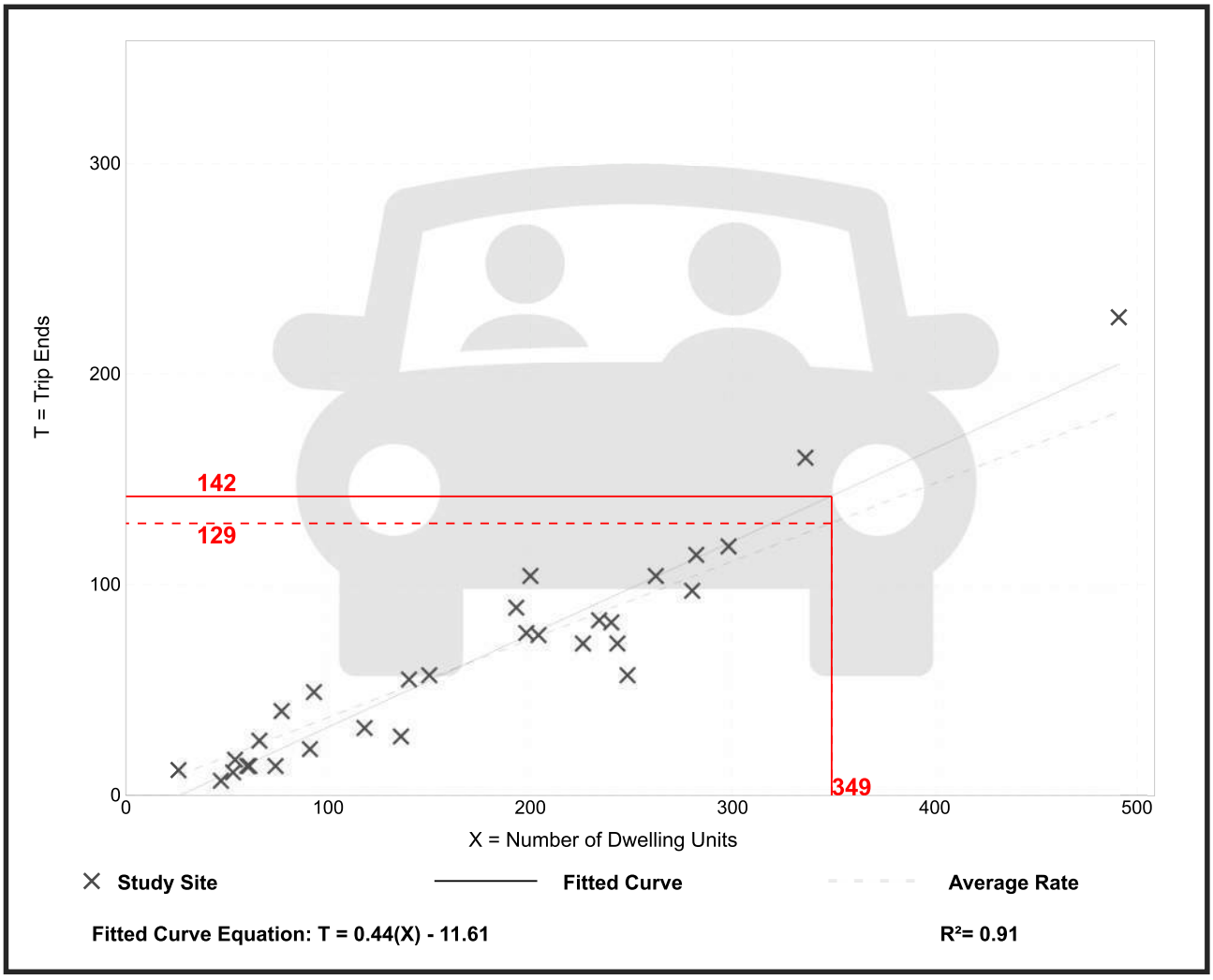
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



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Calculated Trip Ends:
Average Rate: 129 (Total), 30 (Entry), 99 (Exit)
Fitted Curve: 142 (Total), 33 (Entry), 109 (Exit)

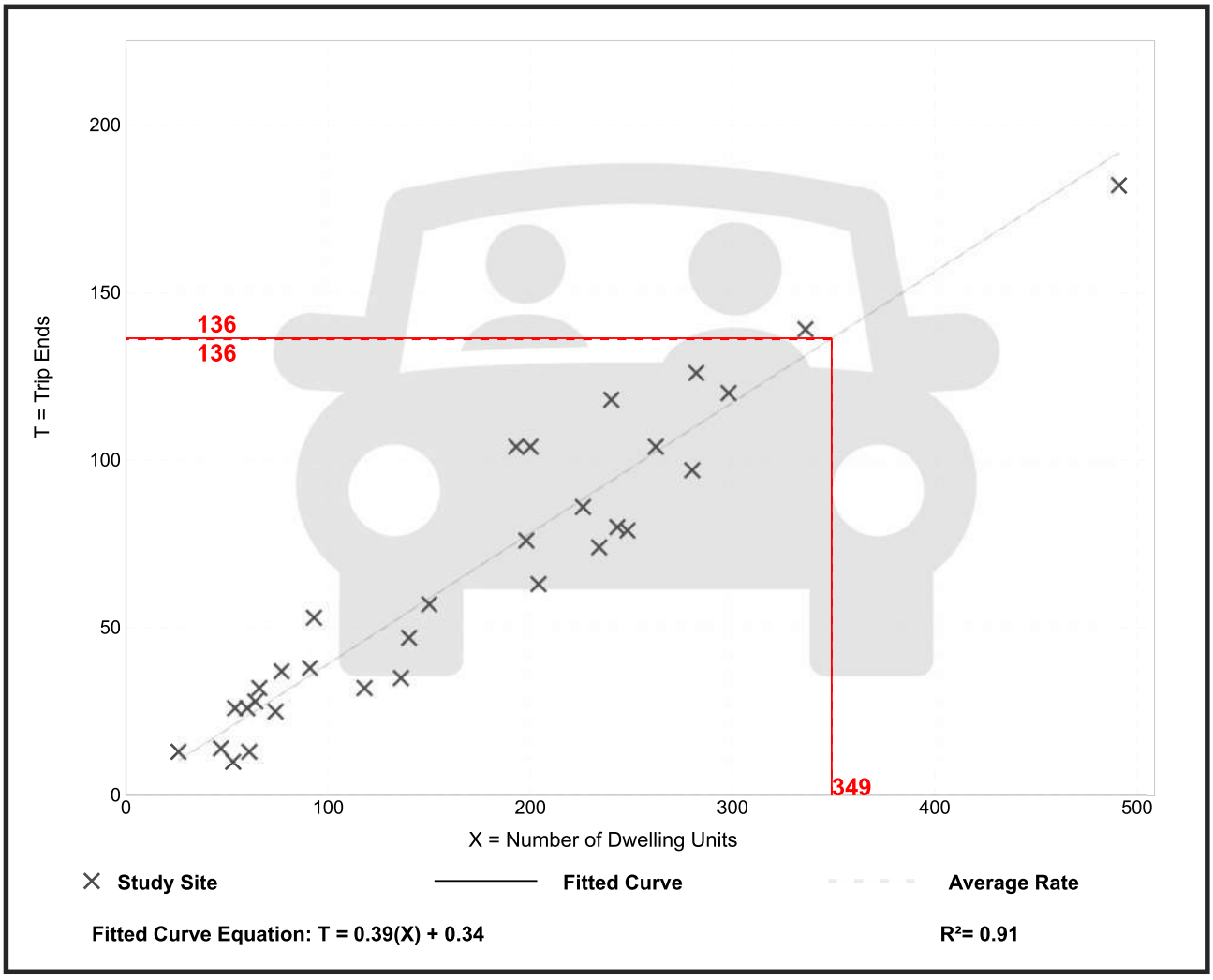
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



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Calculated Trip Ends:
Average Rate: 136 (Total), 83 (Entry), 53 (Exit)
Fitted Curve: 136 (Total), 83 (Entry), 53 (Exit)

MERGE MIDWEST ENGINEERING

Synchro Reports

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	75	126	2	138	79	119	86
Future Volume (veh/h)	75	126	2	138	79	119	86
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	77	130		142	81	123	89
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	337	300		762	640	678	1834
Arrive On Green	0.19	0.19		0.21	0.21	0.15	0.52
Sat Flow, veh/h	1781	1585		3647	1585	1781	3647
Grp Volume(v), veh/h	77	130		142	81	123	89
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1777
Q Serve(g_s), s	1.4	2.7		1.2	1.2	1.7	0.5
Cycle Q Clear(g_c), s	1.4	2.7		1.2	1.2	1.7	0.5
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	337	300		762	640	678	1834
V/C Ratio(X)	0.23	0.43		0.19	0.13	0.18	0.05
Avail Cap(c_a), veh/h	1217	1083		4712	2402	809	4712
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	13.4		12.0	7.0	8.0	4.5
Incr Delay (d2), s/veh	0.1	0.4		0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.8		0.4	0.3	0.5	0.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.9	13.7		12.0	7.0	8.1	4.5
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	207			223			212
Approach Delay, s/veh	13.4			10.2			6.6
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		24.8			11.3	13.5		12.6
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			8.5	49.5		25.5
Max Q Clear Time (g_c+I1), s		2.5			3.7	3.2		4.7
Green Ext Time (p_c), s		0.4			0.1	0.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	75	126	2	138	79	119	86
Future Volume (vph)	75	126	2	138	79	119	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3539
Flt Permitted	0.950		0.950			0.662	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1233	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		130			81		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	130	2	142	81	123	89
Shared Lane Traffic (%)							
Lane Group Flow (vph)	77	130	2	142	81	123	89
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	55.0	31.0	14.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	55.0%	31.0%	14.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.2	8.2	8.2	13.6	23.8	18.2	21.3
Actuated g/C Ratio	0.22	0.22	0.22	0.36	0.62	0.48	0.56
v/c Ratio	0.20	0.29	0.01	0.11	0.08	0.17	0.05
Control Delay	15.3	5.9	13.0	14.0	1.8	6.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	5.9	13.0	14.0	1.8	6.0	8.6
LOS	B	A	B	B	A	A	A
Approach Delay	9.4			9.6			7.1
Approach LOS	A			A			A
Queue Length 50th (ft)	15	0	0	14	0	12	4
Queue Length 95th (ft)	40	30	4	31	12	28	21

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1208	1121	402	3539	1506	723	3539
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	0.12	0.00	0.04	0.05	0.17	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 38.1			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	141	23	78	169	15	11	6	42	22	8	16
Future Vol, veh/h	41	141	23	78	169	15	11	6	42	22	8	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	155	25	86	186	16	12	7	46	24	9	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	180	0	0	528	632	90	529	628	93
Stage 1	-	-	-	-	-	-	258	258	-	358	358	-
Stage 2	-	-	-	-	-	-	270	374	-	171	270	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1367	-	-	1393	-	-	433	396	950	433	398	946
Stage 1	-	-	-	-	-	-	724	693	-	633	626	-
Stage 2	-	-	-	-	-	-	713	616	-	814	685	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1367	-	-	1393	-	-	388	359	950	378	361	946
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	359	-	378	361	-
Stage 1	-	-	-	-	-	-	700	670	-	612	587	-
Stage 2	-	-	-	-	-	-	647	578	-	742	662	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	2.3	10.8	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	388	788	1367	-	-	1393	-	-	378	614
HCM Lane V/C Ratio	0.031	0.067	0.033	-	-	0.062	-	-	0.064	0.043
HCM Control Delay (s)	14.6	9.9	7.7	-	-	7.8	-	-	15.2	11.1
HCM Lane LOS	B	A	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.2	0.1	-	-	0.2	-	-	0.2	0.1

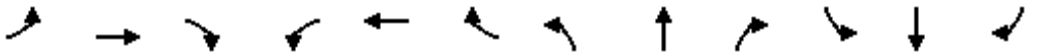
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	200	257	5	5	5
Future Vol, veh/h	5	200	257	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	217	279	5	5	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	401	142
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1275	-	-	-	577	880
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1275	-	-	-	575	880
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1275	-	-	-	696
HCM Lane V/C Ratio	0.004	-	-	-	0.016
HCM Control Delay (s)	7.8	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0



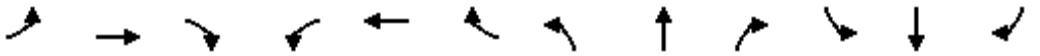
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	93	15	93	163	314	66	523	148	238	255	93
Future Volume (veh/h)	60	93	15	93	163	314	66	523	148	238	255	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1870	1841	1870	1870	1870	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	63	98	16	98	172	331	69	551	156	251	268	98
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	4	2	2	2	2	4	2	2	2
Cap, veh/h	213	721	322	454	382	341	420	751	442	399	744	265
Arrive On Green	0.06	0.20	0.20	0.07	0.22	0.22	0.06	0.21	0.21	0.14	0.29	0.29
Sat Flow, veh/h	1767	3554	1585	1753	1777	1585	1781	3554	1560	1781	2566	916
Grp Volume(v), veh/h	63	98	16	98	172	331	69	551	156	251	184	182
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1753	1777	1585	1781	1777	1560	1781	1777	1705
Q Serve(g_s), s	1.9	1.6	0.6	3.1	6.0	14.8	1.9	10.4	5.7	7.6	5.9	6.1
Cycle Q Clear(g_c), s	1.9	1.6	0.6	3.1	6.0	14.8	1.9	10.4	5.7	7.6	5.9	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	213	721	322	454	382	341	420	751	442	399	515	494
V/C Ratio(X)	0.30	0.14	0.05	0.22	0.45	0.97	0.16	0.73	0.35	0.63	0.36	0.37
Avail Cap(c_a), veh/h	339	863	385	509	382	341	465	1107	598	553	799	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	23.4	23.0	20.0	24.4	27.9	15.9	26.4	20.4	18.7	20.1	20.2
Incr Delay (d2), s/veh	0.8	0.1	0.1	0.2	0.8	40.9	0.2	1.4	0.5	1.6	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.7	0.2	1.2	2.5	9.1	0.7	4.1	2.0	2.9	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	23.5	23.0	20.2	25.3	68.8	16.1	27.8	20.9	20.3	20.6	20.7
LnGrp LOS	C	C	C	C	C	E	B	C	C	C	C	C
Approach Vol, veh/h		177			601			776			617	
Approach Delay, s/veh		22.9			48.4			25.4			20.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	27.6	10.9	22.0	16.8	21.9	11.7	21.1
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	32.2	9.4	15.4	16.2	* 22	7.4	17.4
Max Q Clear Time (g_c+I1), s	3.9	8.1	3.9	16.8	9.6	12.4	5.1	3.6
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.4	2.8	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

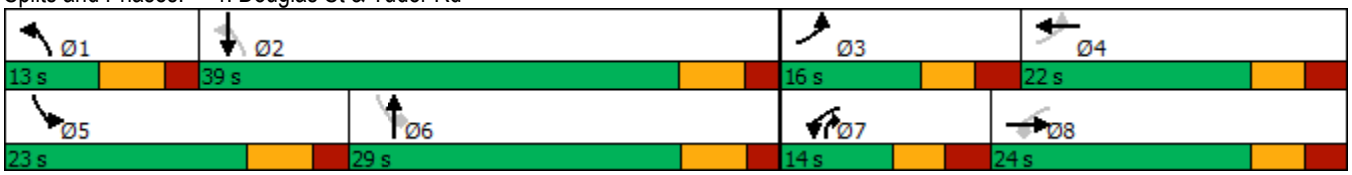


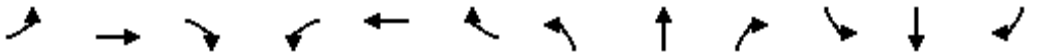
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	93	15	93	163	314	66	523	148	238	255	93
Future Volume (vph)	60	93	15	93	163	314	66	523	148	238	255	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.901				0.850		0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3539	1583	1736	3189	0	1770	3539	1553	1770	3398	0
Flt Permitted	0.324			0.690			0.534			0.352		
Satd. Flow (perm)	598	3539	1583	1261	3189	0	995	3539	1553	656	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		331				207		64	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	63	98	16	98	172	331	69	551	156	251	268	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	98	16	98	503	0	69	551	156	251	366	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	16.0	24.0	24.0	14.0	22.0		13.0	29.0	14.0	23.0	39.0	
Total Split (%)	17.8%	26.7%	26.7%	15.6%	24.4%		14.4%	32.2%	15.6%	25.6%	43.3%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	17.4	10.5	10.5	15.9	13.0		30.5	16.6	31.1	28.1	25.7	
Actuated g/C Ratio	0.25	0.15	0.15	0.23	0.18		0.43	0.24	0.44	0.40	0.36	
v/c Ratio	0.23	0.19	0.03	0.29	0.58		0.14	0.66	0.19	0.56	0.29	
Control Delay	21.1	30.0	0.1	21.7	13.9		11.8	30.5	1.7	17.6	16.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	21.1	30.0	0.1	21.7	13.9		11.8	30.5	1.7	17.6	16.3	
LOS	C	C	A	C	B		B	C	A	B	B	
Approach Delay		24.1			15.2			23.1			16.8	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	19	20	0	31	37		16	117	0	63	53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	52	46	0	74	95		41	202	17	128	97	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	326	934	631	346	1043		504	1196	811	580	1692	
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	0.19	0.10	0.03	0.28	0.48		0.14	0.46	0.19	0.43	0.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 19.2		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Douglas St & Tudor Rd





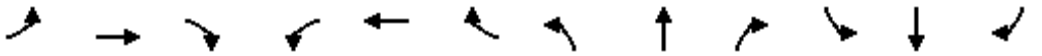
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	156	40	24	361	172	99	341	37	78	224	143
Future Volume (veh/h)	193	156	40	24	361	172	99	341	37	78	224	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1663	1811	1841	1856	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	184	47	28	425	202	116	401	44	92	264	168
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	2	16	6	4	3	4	4	2	2	2	2
Cap, veh/h	263	1097	273	80	1020	459	253	676	74	287	324	512
Arrive On Green	0.25	0.65	0.65	0.05	0.29	0.29	0.07	0.21	0.21	0.06	0.17	0.17
Sat Flow, veh/h	1753	2819	702	1725	3497	1572	1753	3180	347	1781	1870	1585
Grp Volume(v), veh/h	227	114	117	28	425	202	116	220	225	92	264	168
Grp Sat Flow(s),veh/h/ln	1753	1777	1744	1725	1749	1572	1753	1749	1778	1781	1870	1585
Q Serve(g_s), s	9.9	2.0	2.1	1.3	7.8	8.4	4.3	9.0	9.1	3.3	10.9	6.4
Cycle Q Clear(g_c), s	9.9	2.0	2.1	1.3	7.8	8.4	4.3	9.0	9.1	3.3	10.9	6.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	263	691	679	80	1020	459	253	372	378	287	324	512
V/C Ratio(X)	0.86	0.17	0.17	0.35	0.42	0.44	0.46	0.59	0.60	0.32	0.82	0.33
Avail Cap(c_a), veh/h	289	691	679	274	1020	459	289	372	378	294	435	606
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	29.2	8.9	8.9	37.0	22.8	23.0	25.2	28.4	28.4	25.2	31.8	20.5
Incr Delay (d2), s/veh	20.8	0.5	0.5	2.6	1.3	3.1	1.3	2.5	2.5	0.6	8.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.8	0.8	0.6	3.1	0.4	1.7	3.8	3.9	1.4	5.3	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	9.4	9.5	39.6	24.1	26.1	26.5	30.8	30.9	25.8	40.2	20.9
LnGrp LOS	D	A	A	D	C	C	C	C	C	C	D	C
Approach Vol, veh/h		458			655			561			524	
Approach Delay, s/veh		29.6			25.4			30.0			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	37.4	12.3	20.2	17.8	29.6	9.2	23.4
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 13	* 16	7.5	* 19	* 13	* 16	5.0	* 16
Max Q Clear Time (g_c+I1), s	3.3	4.1	6.3	12.9	11.9	10.4	5.3	11.1
Green Ext Time (p_c), s	0.0	0.8	0.0	1.0	0.1	1.5	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



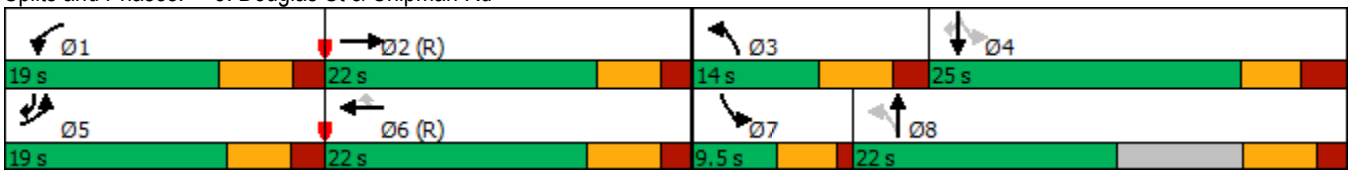
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	156	40	24	361	172	99	341	37	78	224	143
Future Volume (vph)	193	156	40	24	361	172	99	341	37	78	224	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.969				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3336	0	1703	3471	1568	1736	3426	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.341			0.494		
Satd. Flow (perm)	1736	3336	0	1703	3471	1568	623	3426	0	920	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				202		15				168
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	4%	2%	16%	6%	4%	3%	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	227	184	47	28	425	202	116	401	44	92	264	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	231	0	28	425	202	116	445	0	92	264	168
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	22.0		9.5	25.0	19.0
Total Split (%)	23.8%	27.5%		23.8%	27.5%	27.5%	17.5%	27.5%		11.9%	31.3%	23.8%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	13.4	34.9		8.2	21.1	21.1	25.0	19.1		22.1	15.7	35.5
Actuated g/C Ratio	0.17	0.44		0.10	0.26	0.26	0.31	0.24		0.28	0.20	0.44
v/c Ratio	0.78	0.16		0.16	0.46	0.36	0.39	0.54		0.29	0.72	0.21
Control Delay	65.9	16.1		35.1	29.1	6.5	20.6	27.4		17.8	41.4	2.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.9	16.1		35.1	29.1	6.5	20.6	27.4		17.8	41.4	2.8
LOS	E	B		D	C	A	C	C		B	D	A
Approach Delay		40.8			22.4			26.0			24.9	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	124	13		13	103	0	38	95		28	123	0

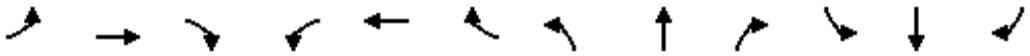
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#211	56		35	140	45	65	124		51	182	25
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	300	1475		270	916	562	299	1004		313	433	804
Starvation Cap Reductn	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	0.76	0.16		0.10	0.46	0.36	0.39	0.44		0.29	0.61	0.21

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 62 (78%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 27.7 Intersection LOS: C
Intersection Capacity Utilization 58.8% 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: 5: Douglas St & Chipman Rd

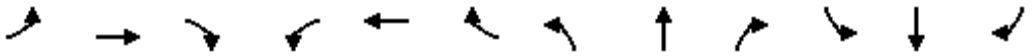




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	394	14	16	470	60	14	3	8	29	5	38
Future Volume (veh/h)	82	394	14	16	470	60	14	3	8	29	5	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1870	1811	1841	1870	1796	1870	1707	1870	1870	1737
Adj Flow Rate, veh/h	93	448	16	18	534	68	16	3	9	33	6	43
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	5	2	6	4	2	7	2	13	2	2	11
Cap, veh/h	121	1496	53	43	1232	156	336	72	160	243	63	268
Arrive On Green	0.07	0.44	0.44	0.05	0.79	0.79	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3417	122	1725	3122	396	800	218	482	544	190	809
Grp Volume(v), veh/h	93	227	237	18	298	304	28	0	0	82	0	0
Grp Sat Flow(s),veh/h/ln	1781	1735	1804	1725	1749	1769	1500	0	0	1543	0	0
Q Serve(g_s), s	4.1	6.8	6.8	0.8	4.4	4.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	6.8	6.8	0.8	4.4	4.4	0.9	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.22	0.57		0.32	0.40		0.52
Lane Grp Cap(c), veh/h	121	759	790	43	690	698	568	0	0	574	0	0
V/C Ratio(X)	0.77	0.30	0.30	0.42	0.43	0.43	0.05	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	234	759	790	140	690	698	568	0	0	574	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.7	14.5	14.6	37.5	5.6	5.6	18.2	0.0	0.0	18.8	0.0	0.0
Incr Delay (d2), s/veh	13.6	1.0	1.0	8.5	1.8	1.8	0.2	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.5	2.6	0.4	1.4	1.5	0.4	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	15.6	15.5	46.0	7.4	7.4	18.3	0.0	0.0	19.3	0.0	0.0
LnGrp LOS	D	B	B	D	A	A	B	A	A	B	A	A
Approach Vol, veh/h		557			620			28			82	
Approach Delay, s/veh		21.3			8.5			18.3			19.3	
Approach LOS		C			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	40.5		32.0	10.9	37.1		32.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	30.5		26.5	10.5	26.5		26.5				
Max Q Clear Time (g_c+I1), s	2.8	8.8		4.7	6.1	6.4		2.9				
Green Ext Time (p_c), s	0.0	3.5		0.5	0.1	4.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		15.0	
HCM 6th LOS		B	



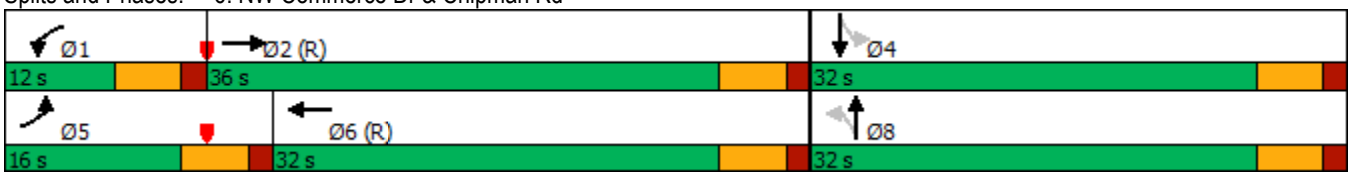
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	394	14	16	470	60	14	3	8	29	5	38
Future Volume (vph)	82	394	14	16	470	60	14	3	8	29	5	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.983			0.957			0.929	
Flt Protected	0.950			0.950				0.972			0.980	
Satd. Flow (prot)	1770	3424	0	1703	3420	0	0	1631	0	0	1621	0
Flt Permitted	0.950			0.950				0.873			0.897	
Satd. Flow (perm)	1770	3424	0	1703	3420	0	0	1464	0	0	1484	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			18			9			43	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	5%	2%	6%	4%	2%	7%	2%	13%	2%	2%	11%
Adj. Flow (vph)	93	448	16	18	534	68	16	3	9	33	6	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	464	0	18	602	0	0	28	0	0	82	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	16.0	36.0		12.0	32.0		32.0	32.0		32.0	32.0	
Total Split (%)	20.0%	45.0%		15.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	9.5	40.1		6.5	30.0			26.5			26.5	
Actuated g/C Ratio	0.12	0.50		0.08	0.38			0.33			0.33	
v/c Ratio	0.44	0.27		0.13	0.47			0.06			0.16	
Control Delay	39.5	12.8		32.4	34.8			14.5			11.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	39.5	12.8		32.4	34.8			14.5			11.5	
LOS	D	B		C	C			B			B	
Approach Delay		17.2			34.7			14.5			11.5	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	43	61		9	162			6			13	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	86	118		m22	212			23			42	
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	232	1718		138	1294			490			520	
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	0.40	0.27		0.13	0.47			0.06			0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 52 (65%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 38.7%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	142	207	1	164	114	247	233
Future Volume (veh/h)	142	207	1	164	114	247	233
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1856
Adj Flow Rate, veh/h	151	220		174	121	263	248
Peak Hour Factor	0.94	0.94		0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2		2	2	2	3
Cap, veh/h	351	312		712	630	690	1860
Arrive On Green	0.20	0.20		0.20	0.20	0.19	0.53
Sat Flow, veh/h	1781	1585		3647	1585	1781	3618
Grp Volume(v), veh/h	151	220		174	121	263	248
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1763
Q Serve(g_s), s	3.0	5.2		1.6	2.0	4.2	1.4
Cycle Q Clear(g_c), s	3.0	5.2		1.6	2.0	4.2	1.4
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	351	312		712	630	690	1860
V/C Ratio(X)	0.43	0.70		0.24	0.19	0.38	0.13
Avail Cap(c_a), veh/h	1137	1012		4316	2237	777	4370
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	14.9		13.4	7.9	8.8	4.8
Incr Delay (d2), s/veh	0.3	1.1		0.1	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.6		0.5	0.5	1.1	0.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.4	16.0		13.5	7.9	8.9	4.8
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	371			295			511
Approach Delay, s/veh	15.4			11.2			6.9
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.6			13.1	13.5		13.4
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			9.5	48.5		25.5
Max Q Clear Time (g_c+I1), s		3.4			6.2	4.0		7.2
Green Ext Time (p_c), s		1.1			0.1	0.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	142	207	1	164	114	247	233
Future Volume (vph)	142	207	1	164	114	247	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3505
Flt Permitted	0.950		0.950			0.642	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1196	3505
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		220			121		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	151	220	1	174	121	263	248
Shared Lane Traffic (%)							
Lane Group Flow (vph)	151	220	1	174	121	263	248
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	54.0	31.0	15.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	54.0%	31.0%	15.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.6	8.6	8.0	8.1	22.2	16.7	19.7
Actuated g/C Ratio	0.21	0.21	0.19	0.19	0.53	0.40	0.47
v/c Ratio	0.41	0.44	0.00	0.26	0.14	0.44	0.15
Control Delay	18.5	6.1	15.0	16.0	1.8	8.7	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	6.1	15.0	16.0	1.8	8.7	8.8
LOS	B	A	B	B	A	A	A
Approach Delay	11.1			10.2			8.7
Approach LOS	B			B			A
Queue Length 50th (ft)	31	0	0	17	0	28	12

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Queue Length 95th (ft)	71	39	3	41	15	65	52
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1078	1050	359	3539	1521	632	3505
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	0.14	0.21	0.00	0.05	0.08	0.42	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 41.9			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	290	33	40	255	24	18	3	67	41	3	50
Future Vol, veh/h	21	290	33	40	255	24	18	3	67	41	3	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	309	35	43	271	26	19	3	71	44	3	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	297	0	0	344	0	0	594	754	172	557	745	136
Stage 1	-	-	-	-	-	-	371	371	-	357	357	-
Stage 2	-	-	-	-	-	-	223	383	-	200	388	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1261	-	-	1212	-	-	389	337	842	413	341	888
Stage 1	-	-	-	-	-	-	622	618	-	633	627	-
Stage 2	-	-	-	-	-	-	759	610	-	783	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	1212	-	-	349	320	842	360	324	888
Mov Cap-2 Maneuver	-	-	-	-	-	-	349	320	-	360	324	-
Stage 1	-	-	-	-	-	-	611	607	-	622	605	-
Stage 2	-	-	-	-	-	-	685	589	-	701	597	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1	11.3	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	349	787	1261	-	-	1212	-	-	360	808
HCM Lane V/C Ratio	0.055	0.095	0.018	-	-	0.035	-	-	0.121	0.07
HCM Control Delay (s)	15.9	10.1	7.9	-	-	8.1	-	-	16.4	9.8
HCM Lane LOS	C	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.2	0.3	0.1	-	-	0.1	-	-	0.4	0.2

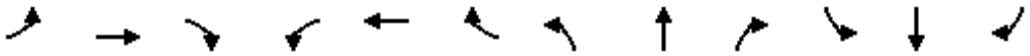
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	393	314	5	5	5
Future Vol, veh/h	5	393	314	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	80	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	427	341	5	5	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	346	0	-	0	568	173
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	224	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1210	-	-	-	453	840
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1210	-	-	-	451	840
Mov Cap-2 Maneuver	-	-	-	-	451	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1210	-	-	-	587
HCM Lane V/C Ratio	0.004	-	-	-	0.019
HCM Control Delay (s)	8	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



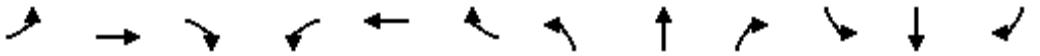
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	238	49	154	179	259	23	419	140	430	630	101
Future Volume (veh/h)	113	238	49	154	179	259	23	419	140	430	630	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	1870	1870	1841	1870	1870	1870	1870	1856
Adj Flow Rate, veh/h	127	267	55	173	201	291	26	471	157	483	708	113
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	4	2	2	2	4	2	2	2	2	3
Cap, veh/h	232	465	204	342	279	249	288	627	446	575	1208	193
Arrive On Green	0.08	0.13	0.13	0.11	0.16	0.16	0.03	0.18	0.18	0.25	0.39	0.39
Sat Flow, veh/h	1781	3554	1560	1781	1777	1585	1753	3554	1585	1781	3069	490
Grp Volume(v), veh/h	127	267	55	173	201	291	26	471	157	483	410	411
Grp Sat Flow(s),veh/h/ln	1781	1777	1560	1781	1777	1585	1753	1777	1585	1781	1777	1782
Q Serve(g_s), s	4.6	5.6	2.5	6.5	8.5	12.4	0.7	10.0	6.2	16.9	14.4	14.4
Cycle Q Clear(g_c), s	4.6	5.6	2.5	6.5	8.5	12.4	0.7	10.0	6.2	16.9	14.4	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	232	465	204	342	279	249	288	627	446	575	699	701
V/C Ratio(X)	0.55	0.57	0.27	0.51	0.72	1.17	0.09	0.75	0.35	0.84	0.59	0.59
Avail Cap(c_a), veh/h	258	512	225	344	279	249	369	867	553	676	836	838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	32.3	31.0	25.8	31.7	33.3	14.6	30.9	22.7	19.0	18.9	18.9
Incr Delay (d2), s/veh	2.0	1.3	0.7	1.2	8.8	111.2	0.1	2.4	0.5	8.2	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.4	1.0	2.7	4.2	12.2	0.2	4.2	2.3	7.3	5.4	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	33.6	31.7	27.0	40.5	144.6	14.7	33.3	23.1	27.1	19.7	19.7
LnGrp LOS	C	C	C	C	D	F	B	C	C	C	B	B
Approach Vol, veh/h		449			665			654			1304	
Approach Delay, s/veh		31.7			82.5			30.2			22.4	
Approach LOS		C			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	37.9	12.9	19.0	26.5	20.7	14.9	16.9
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	37.2	7.4	12.4	24.2	* 19	8.4	11.4
Max Q Clear Time (g_c+I1), s	2.7	16.4	6.6	14.4	18.9	12.0	8.5	7.6
Green Ext Time (p_c), s	0.0	4.7	0.0	0.0	0.8	2.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



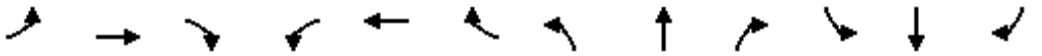
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	238	49	154	179	259	23	419	140	430	630	101
Future Volume (vph)	113	238	49	154	179	259	23	419	140	430	630	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.911				0.850		0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1553	1770	3224	0	1736	3539	1583	1770	3460	0
Flt Permitted	0.291			0.587			0.263			0.385		
Satd. Flow (perm)	542	3539	1553	1093	3224	0	480	3539	1583	717	3460	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		291				207		24	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	4%	2%	2%	2%	2%	3%
Adj. Flow (vph)	127	267	55	173	201	291	26	471	157	483	708	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	267	55	173	492	0	26	471	157	483	821	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	14.0	18.0	18.0	15.0	19.0		13.0	26.0	15.0	31.0	44.0	
Total Split (%)	15.6%	20.0%	20.0%	16.7%	21.1%		14.4%	28.9%	16.7%	34.4%	48.9%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	20.2	10.4	10.4	18.6	14.6		40.3	15.7	30.7	35.7	37.9	
Actuated g/C Ratio	0.25	0.13	0.13	0.23	0.18		0.49	0.19	0.38	0.44	0.47	
v/c Ratio	0.52	0.59	0.12	0.55	0.60		0.08	0.69	0.22	0.84	0.51	
Control Delay	31.9	40.8	0.6	31.3	17.7		9.8	37.2	1.9	29.3	17.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.9	40.8	0.6	31.3	17.7		9.8	37.2	1.9	29.3	17.2	
LOS	C	D	A	C	B		A	D	A	C	B	
Approach Delay		33.3			21.3			27.6			21.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	50	71	0	70	52		6	124	0	156	128	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	99	116	0	131	106		17	177	17	#262	233	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	247	501	469	324	825		335	849	729	661	1688	
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	0.53	0.12	0.53	0.60		0.08	0.55	0.22	0.73	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 24.6		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.

Splits and Phases: 4: Douglas St & Tudor Rd



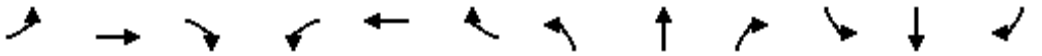
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	570	125	55	495	101	92	269	54	209	382	251
Future Volume (veh/h)	196	570	125	55	495	101	92	269	54	209	382	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	209	606	133	59	527	107	98	286	57	222	406	267
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	1100	241	115	1111	496	202	608	120	401	452	599
Arrive On Green	0.14	0.38	0.38	0.06	0.31	0.31	0.06	0.21	0.21	0.12	0.24	0.24
Sat Flow, veh/h	1781	2898	635	1781	3554	1585	1781	2961	582	1781	1870	1585
Grp Volume(v), veh/h	209	371	368	59	527	107	98	170	173	222	406	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1756	1781	1777	1585	1781	1777	1766	1781	1870	1585
Q Serve(g_s), s	11.5	16.4	16.4	3.2	12.0	5.0	4.3	8.4	8.6	9.5	21.0	12.6
Cycle Q Clear(g_c), s	11.5	16.4	16.4	3.2	12.0	5.0	4.3	8.4	8.6	9.5	21.0	12.6
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	243	674	667	115	1111	496	202	365	363	401	452	599
V/C Ratio(X)	0.86	0.55	0.55	0.51	0.47	0.22	0.49	0.47	0.48	0.55	0.90	0.45
Avail Cap(c_a), veh/h	289	674	667	191	1111	496	283	474	471	418	498	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	42.3	24.3	24.4	45.3	27.7	25.3	30.3	34.9	35.0	26.1	36.7	23.3
Incr Delay (d2), s/veh	17.9	2.8	2.9	3.5	1.5	1.0	1.8	0.9	1.0	1.3	15.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	7.0	6.9	1.5	5.0	1.9	1.8	3.6	3.6	3.9	11.1	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	27.2	27.2	48.8	29.2	26.3	32.1	35.8	36.0	27.3	52.7	23.7
LnGrp LOS	E	C	C	D	C	C	C	D	D	C	D	C
Approach Vol, veh/h		948			693			441			895	
Approach Delay, s/veh		34.5			30.4			35.1			37.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	44.3	12.4	30.6	19.4	37.6	16.0	27.0
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 11	* 27	10.5	* 27	* 16	* 22	12.5	* 27
Max Q Clear Time (g_c+I1), s	5.2	18.4	6.3	23.0	13.5	14.0	11.5	10.6
Green Ext Time (p_c), s	0.0	2.8	0.1	1.1	0.1	2.2	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

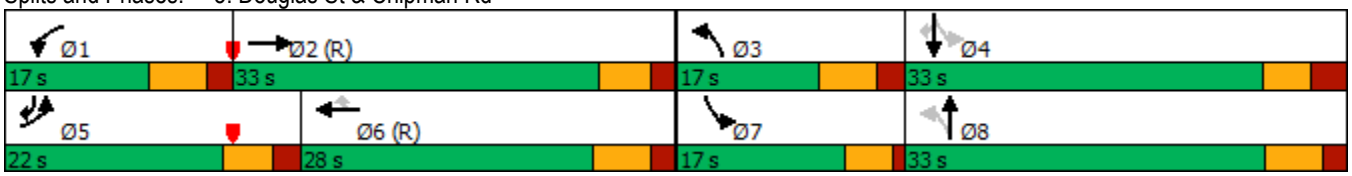


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	570	125	55	495	101	92	269	54	209	382	251
Future Volume (vph)	196	570	125	55	495	101	92	269	54	209	382	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.973				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3444	0	1770	3539	1583	1770	3451	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.250			0.441		
Satd. Flow (perm)	1770	3444	0	1770	3539	1583	466	3451	0	821	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				177		23				201
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	209	606	133	59	527	107	98	286	57	222	406	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	739	0	59	527	107	98	343	0	222	406	267
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	22.0	33.0		17.0	28.0	28.0	17.0	33.0		17.0	33.0	22.0
Total Split (%)	22.0%	33.0%		17.0%	28.0%	28.0%	17.0%	33.0%		17.0%	33.0%	22.0%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	15.2	36.5		9.1	27.5	27.5	30.7	22.2		38.2	26.2	47.8
Actuated g/C Ratio	0.15	0.36		0.09	0.28	0.28	0.31	0.22		0.38	0.26	0.48
v/c Ratio	0.78	0.58		0.37	0.54	0.19	0.38	0.44		0.52	0.83	0.31
Control Delay	61.2	46.6		49.2	35.4	1.3	23.0	32.0		23.7	51.0	5.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	61.2	46.6		49.2	35.4	1.3	23.0	32.0		23.7	51.0	5.1
LOS	E	D		D	D	A	C	C		C	D	A
Approach Delay		49.8			31.3			30.0			30.5	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	141	160		36	164	0	37	89		87	240	20
Queue Length 95th (ft)	#238	324		76	222	6	69	127		138	#397	65

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	290	1273		189	975	564	288	938		434	500	878
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	0.72	0.58		0.31	0.54	0.19	0.34	0.37		0.51	0.81	0.30

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 64 (64%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 36.8		Intersection LOS: D	
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.			

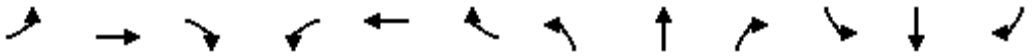
Splits and Phases: 5: Douglas St & Chipman Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	811	14	16	745	52	15	2	17	87	12	110
Future Volume (veh/h)	73	811	14	16	745	52	15	2	17	87	12	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	882	15	17	810	57	16	2	18	95	13	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	1814	31	40	1591	112	228	43	219	225	47	245
Arrive On Green	0.06	0.51	0.51	0.05	0.94	0.94	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3575	61	1781	3368	237	576	142	718	572	153	805
Grp Volume(v), veh/h	79	438	459	17	427	440	36	0	0	228	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1828	1437	0	0	1529	0	0
Q Serve(g_s), s	4.4	16.1	16.1	0.9	2.6	2.6	0.0	0.0	0.0	9.1	0.0	0.0
Cycle Q Clear(g_c), s	4.4	16.1	16.1	0.9	2.6	2.6	1.5	0.0	0.0	11.9	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.13	0.44		0.50	0.42		0.53
Lane Grp Cap(c), veh/h	103	902	943	40	839	863	490	0	0	517	0	0
V/C Ratio(X)	0.77	0.49	0.49	0.42	0.51	0.51	0.07	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	223	902	943	116	839	863	490	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.5	16.1	16.1	47.1	1.5	1.5	24.7	0.0	0.0	28.2	0.0	0.0
Incr Delay (d2), s/veh	15.7	1.9	1.8	8.7	2.0	1.9	0.3	0.0	0.0	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.4	6.6	0.5	1.0	1.0	0.7	0.0	0.0	4.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	18.0	17.9	55.8	3.5	3.4	25.0	0.0	0.0	30.9	0.0	0.0
LnGrp LOS	E	B	B	E	A	A	C	A	A	C	A	A
Approach Vol, veh/h		976			884			36			228	
Approach Delay, s/veh		21.5			4.5			25.0			30.9	
Approach LOS		C			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	56.2		36.0	11.3	52.7		36.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	46.5		30.5	12.5	40.5		30.5				
Max Q Clear Time (g_c+I1), s	2.9	18.1		13.9	6.4	4.6		3.5				
Green Ext Time (p_c), s	0.0	8.3		1.7	0.1	8.5		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		15.5	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	811	14	16	745	52	15	2	17	87	12	110
Future Volume (vph)	73	811	14	16	745	52	15	2	17	87	12	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990			0.932			0.929	
Flt Protected	0.950			0.950				0.978			0.980	
Satd. Flow (prot)	1770	3529	0	1770	3504	0	0	1698	0	0	1696	0
Flt Permitted	0.950			0.950				0.854			0.852	
Satd. Flow (perm)	1770	3529	0	1770	3504	0	0	1483	0	0	1474	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			18			58	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	882	15	17	810	57	16	2	18	95	13	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	897	0	17	867	0	0	36	0	0	228	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	18.0	52.0		12.0	46.0		36.0	36.0		36.0	36.0	
Total Split (%)	18.0%	52.0%		12.0%	46.0%		36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	10.3	53.7		6.5	45.2			30.5			30.5	
Actuated g/C Ratio	0.10	0.54		0.06	0.45			0.30			0.30	
v/c Ratio	0.43	0.47		0.15	0.55			0.08			0.47	
Control Delay	49.0	16.4		54.9	12.1			16.0			24.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	49.0	16.4		54.9	12.1			16.0			24.3	
LOS	D	B		D	B			B			C	
Approach Delay		19.0			12.9			16.0			24.3	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	48	155		11	91			8			86	
Queue Length 95th (ft)	93	267		m27	132			31			158	
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)												
Base Capacity (vph)	221	1896		115	1587			464			489	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.36	0.47		0.15	0.55			0.08			0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 71 (71%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

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

Splits and Phases: 6: NW Commerce Dr & Chipman Rd

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	83	148	2	138	81	126	86
Future Volume (veh/h)	83	148	2	138	81	126	86
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	86	153		142	84	130	89
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	346	308		752	644	678	1829
Arrive On Green	0.19	0.19		0.21	0.21	0.16	0.51
Sat Flow, veh/h	1781	1585		3647	1585	1781	3647
Grp Volume(v), veh/h	86	153		142	84	130	89
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1777
Q Serve(g_s), s	1.5	3.3		1.2	1.3	1.9	0.5
Cycle Q Clear(g_c), s	1.5	3.3		1.2	1.3	1.9	0.5
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	346	308		752	644	678	1829
V/C Ratio(X)	0.25	0.50		0.19	0.13	0.19	0.05
Avail Cap(c_a), veh/h	1201	1069		4653	2383	797	4653
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	13.6		12.2	7.0	8.1	4.6
Incr Delay (d2), s/veh	0.1	0.5		0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9		0.4	0.3	0.5	0.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.0	14.0		12.3	7.1	8.2	4.6
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	239			226			219
Approach Delay, s/veh	13.7			10.3			6.7
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		25.0			11.5	13.5		12.8
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			8.5	49.5		25.5
Max Q Clear Time (g_c+I1), s		2.5			3.9	3.3		5.3
Green Ext Time (p_c), s		0.4			0.1	0.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	83	148	2	138	81	126	86
Future Volume (vph)	83	148	2	138	81	126	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3539
Flt Permitted	0.950		0.950			0.662	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1233	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		153			84		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	153	2	142	84	130	89
Shared Lane Traffic (%)							
Lane Group Flow (vph)	86	153	2	142	84	130	89
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	55.0	31.0	14.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	55.0%	31.0%	14.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.0	8.0	8.0	9.7	24.5	15.9	17.5
Actuated g/C Ratio	0.20	0.20	0.20	0.25	0.62	0.41	0.45
v/c Ratio	0.24	0.34	0.01	0.16	0.08	0.21	0.06
Control Delay	15.7	6.0	13.0	14.2	1.8	6.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	6.0	13.0	14.2	1.8	6.3	8.6
LOS	B	A	B	B	A	A	A
Approach Delay	9.5			9.7			7.2
Approach LOS	A			A			A
Queue Length 50th (ft)	17	0	0	14	0	13	4
Queue Length 95th (ft)	43	32	4	31	12	30	21

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1156	1087	385	3539	1538	628	3539
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	0.07	0.14	0.01	0.04	0.05	0.21	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 39.2			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 34.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	147	26	80	189	18	21	8	47	23	9	16
Future Vol, veh/h	41	147	26	80	189	18	21	8	47	23	9	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	162	29	88	208	20	23	9	52	25	10	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	191	0	0	552	671	96	560	665	104
Stage 1	-	-	-	-	-	-	267	267	-	384	384	-
Stage 2	-	-	-	-	-	-	285	404	-	176	281	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1337	-	-	1380	-	-	416	376	942	411	379	931
Stage 1	-	-	-	-	-	-	715	687	-	611	610	-
Stage 2	-	-	-	-	-	-	698	598	-	809	677	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1337	-	-	1380	-	-	370	340	942	353	343	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	340	-	353	343	-
Stage 1	-	-	-	-	-	-	691	664	-	590	571	-
Stage 2	-	-	-	-	-	-	630	560	-	729	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	2.2	11.6	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	370	749	1337	-	-	1380	-	-	353	576
HCM Lane V/C Ratio	0.062	0.081	0.034	-	-	0.064	-	-	0.072	0.048
HCM Control Delay (s)	15.4	10.2	7.8	-	-	7.8	-	-	16	11.6
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0.3	0.1	-	-	0.2	-	-	0.2	0.1

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	205	7	14	259	5	23	0	49	5	0	5
Future Vol, veh/h	5	205	7	14	259	5	23	0	49	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	223	8	15	282	5	25	0	53	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	287	0	0	231	0	0	408	554	116	437	556	144
Stage 1	-	-	-	-	-	-	237	237	-	315	315	-
Stage 2	-	-	-	-	-	-	171	317	-	122	241	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1272	-	-	1334	-	-	528	439	914	503	438	877
Stage 1	-	-	-	-	-	-	745	708	-	671	654	-
Stage 2	-	-	-	-	-	-	814	653	-	869	705	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1272	-	-	1334	-	-	518	432	914	468	431	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	432	-	468	431	-
Stage 1	-	-	-	-	-	-	742	705	-	668	647	-
Stage 2	-	-	-	-	-	-	800	646	-	815	702	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	10.5	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	735	1272	-	-	1334	-	-	610
HCM Lane V/C Ratio	0.106	0.004	-	-	0.011	-	-	0.018
HCM Control Delay (s)	10.5	7.8	-	-	7.7	-	-	11
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

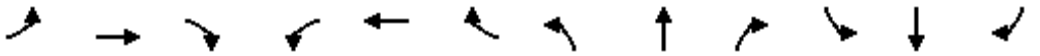
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	109	26	93	168	314	69	523	148	238	255	101
Future Volume (veh/h)	87	109	26	93	168	314	69	523	148	238	255	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1870	1841	1870	1870	1870	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	92	115	27	98	177	331	73	551	156	251	268	106
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	4	2	2	2	2	4	2	2	2
Cap, veh/h	226	748	334	450	377	336	414	747	439	396	720	278
Arrive On Green	0.07	0.21	0.21	0.07	0.21	0.21	0.06	0.21	0.21	0.14	0.29	0.29
Sat Flow, veh/h	1767	3554	1585	1753	1777	1585	1781	3554	1560	1781	2507	967
Grp Volume(v), veh/h	92	115	27	98	177	331	73	551	156	251	188	186
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1753	1777	1585	1781	1777	1560	1781	1777	1696
Q Serve(g_s), s	2.9	1.9	1.0	3.1	6.3	15.1	2.0	10.5	5.8	7.8	6.1	6.4
Cycle Q Clear(g_c), s	2.9	1.9	1.0	3.1	6.3	15.1	2.0	10.5	5.8	7.8	6.1	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	226	748	334	450	377	336	414	747	439	396	510	487
V/C Ratio(X)	0.41	0.15	0.08	0.22	0.47	0.99	0.18	0.74	0.36	0.63	0.37	0.38
Avail Cap(c_a), veh/h	331	851	380	503	377	336	455	1091	590	545	787	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	23.4	23.0	19.9	25.1	28.5	16.3	26.8	20.8	19.0	20.6	20.7
Incr Delay (d2), s/veh	1.2	0.1	0.1	0.2	0.9	45.0	0.2	1.5	0.5	1.7	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.8	0.4	1.2	2.6	9.5	0.7	4.2	2.0	3.0	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	23.5	23.1	20.1	26.0	73.5	16.5	28.3	21.3	20.7	21.1	21.2
LnGrp LOS	C	C	C	C	C	E	B	C	C	C	C	C
Approach Vol, veh/h		234			606			780			625	
Approach Delay, s/veh		23.1			51.0			25.8			21.0	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	27.7	11.7	22.0	16.9	22.1	11.8	21.9
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	32.2	9.4	15.4	16.2	* 22	7.4	17.4
Max Q Clear Time (g_c+I1), s	4.0	8.4	4.9	17.1	9.8	12.5	5.1	3.9
Green Ext Time (p_c), s	0.0	2.0	0.1	0.0	0.4	2.7	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

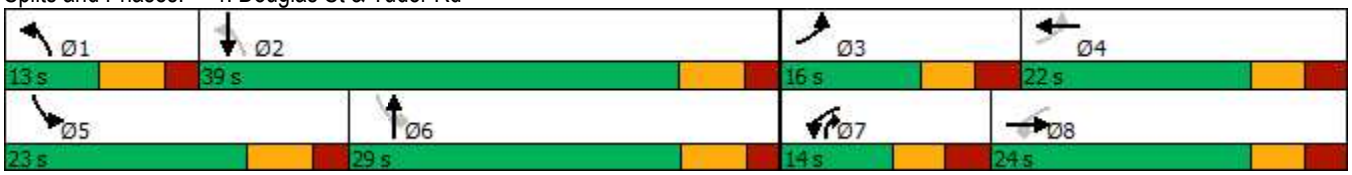


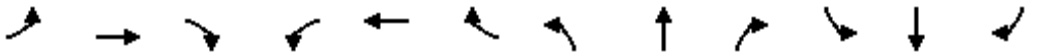
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	109	26	93	168	314	69	523	148	238	255	101
Future Volume (vph)	87	109	26	93	168	314	69	523	148	238	255	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.902				0.850		0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3539	1583	1736	3192	0	1770	3539	1553	1770	3387	0
Flt Permitted	0.377			0.679			0.530			0.354		
Satd. Flow (perm)	695	3539	1583	1240	3192	0	987	3539	1553	659	3387	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		331				207		73	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	92	115	27	98	177	331	73	551	156	251	268	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	115	27	98	508	0	73	551	156	251	374	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	16.0	24.0	24.0	14.0	22.0		13.0	29.0	14.0	23.0	39.0	
Total Split (%)	17.8%	26.7%	26.7%	15.6%	24.4%		14.4%	32.2%	15.6%	25.6%	43.3%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	16.8	11.3	11.3	16.8	10.6		30.9	16.7	31.3	28.4	26.1	
Actuated g/C Ratio	0.23	0.16	0.16	0.23	0.15		0.43	0.23	0.44	0.40	0.36	
v/c Ratio	0.33	0.21	0.05	0.29	0.67		0.15	0.67	0.20	0.57	0.29	
Control Delay	22.4	30.0	0.2	21.5	16.5		12.2	31.1	1.7	18.0	16.2	
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	30.0	0.2	21.5	16.5		12.2	31.1	1.7	18.0	16.2	
LOS	C	C	A	C	B		B	C	A	B	B	
Approach Delay		23.6			17.3			23.5			17.0	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	29	24	0	31	39		18	123	0	67	55	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	70	52	0	74	97		43	202	17	128	97	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	329	920	626	353	989		498	1180	804	574	1668	
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	0.28	0.13	0.04	0.28	0.51		0.15	0.47	0.19	0.44	0.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 20.0		Intersection LOS: C	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Douglas St & Tudor Rd





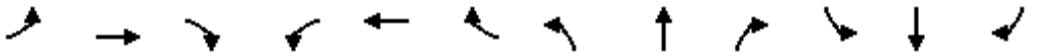
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	162	45	24	363	173	100	343	37	84	229	143
Future Volume (veh/h)	193	162	45	24	363	173	100	343	37	84	229	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1663	1811	1841	1856	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	191	53	28	427	204	118	404	44	99	269	168
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	2	16	6	4	3	4	4	2	2	2	2
Cap, veh/h	263	1066	288	80	1008	453	254	675	73	292	328	516
Arrive On Green	0.25	0.64	0.64	0.05	0.29	0.29	0.07	0.21	0.21	0.06	0.18	0.18
Sat Flow, veh/h	1753	2765	747	1725	3497	1572	1753	3183	345	1781	1870	1585
Grp Volume(v), veh/h	227	121	123	28	427	204	118	221	227	99	269	168
Grp Sat Flow(s),veh/h/ln	1753	1777	1736	1725	1749	1572	1753	1749	1779	1781	1870	1585
Q Serve(g_s), s	9.9	2.2	2.3	1.3	7.9	8.5	4.3	9.1	9.2	3.6	11.1	6.4
Cycle Q Clear(g_c), s	9.9	2.2	2.3	1.3	7.9	8.5	4.3	9.1	9.2	3.6	11.1	6.4
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	263	685	669	80	1008	453	254	371	377	292	328	516
V/C Ratio(X)	0.86	0.18	0.18	0.35	0.42	0.45	0.46	0.60	0.60	0.34	0.82	0.33
Avail Cap(c_a), veh/h	289	685	669	274	1008	453	289	371	377	293	435	606
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	29.2	9.1	9.2	37.0	23.1	23.3	25.0	28.4	28.5	24.9	31.8	20.4
Incr Delay (d2), s/veh	20.8	0.5	0.6	2.6	1.3	3.2	1.3	2.6	2.7	0.7	8.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.8	0.9	0.6	3.2	3.3	1.8	3.8	3.9	1.5	5.4	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	9.7	9.7	39.6	24.4	26.5	26.4	31.0	31.1	25.6	40.5	20.7
LnGrp LOS	D	A	A	D	C	C	C	C	C	C	D	C
Approach Vol, veh/h		471			659			566			536	
Approach Delay, s/veh		29.1			25.7			30.1			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	37.2	12.4	20.4	17.8	29.4	9.5	23.4
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 13	* 16	7.5	* 19	* 13	* 16	5.0	* 16
Max Q Clear Time (g_c+I1), s	3.3	4.3	6.3	13.1	11.9	10.5	5.6	11.2
Green Ext Time (p_c), s	0.0	0.9	0.0	1.0	0.1	1.5	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



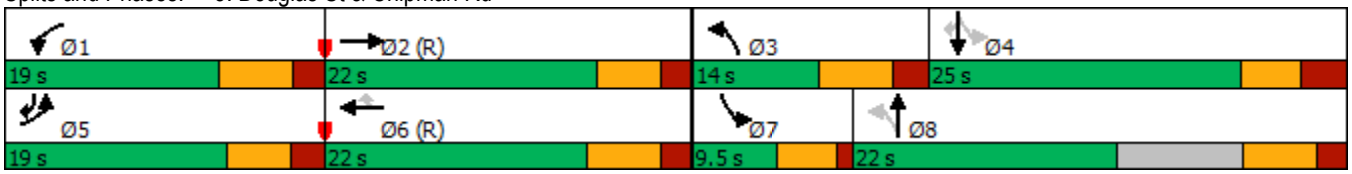
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	162	45	24	363	173	100	343	37	84	229	143
Future Volume (vph)	193	162	45	24	363	173	100	343	37	84	229	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.967				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3323	0	1703	3471	1568	1736	3426	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.335			0.493		
Satd. Flow (perm)	1736	3323	0	1703	3471	1568	612	3426	0	918	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40				204		15				166
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	4%	2%	16%	6%	4%	3%	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	227	191	53	28	427	204	118	404	44	99	269	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	244	0	28	427	204	118	448	0	99	269	168
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	22.0		9.5	25.0	19.0
Total Split (%)	23.8%	27.5%		23.8%	27.5%	27.5%	17.5%	27.5%		11.9%	31.3%	23.8%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	13.3	34.8		8.2	21.1	21.1	25.1	19.2		22.2	15.8	35.5
Actuated g/C Ratio	0.17	0.44		0.10	0.26	0.26	0.31	0.24		0.28	0.20	0.44
v/c Ratio	0.79	0.17		0.16	0.47	0.36	0.40	0.54		0.32	0.73	0.21
Control Delay	65.7	15.9		35.1	29.2	6.5	20.8	27.4		18.3	41.9	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.7	15.9		35.1	29.2	6.5	20.8	27.4		18.3	41.9	2.9
LOS	E	B		D	C	A	C	C		B	D	A
Approach Delay		39.9			22.4			26.0			25.3	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	124	13		13	103	0	38	95		30	125	1

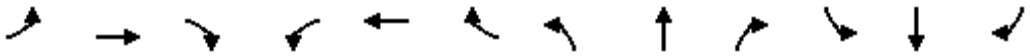
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#211	60		35	141	45	66	125		54	186	26
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	299	1467		270	913	562	298	1004		314	433	804
Starvation Cap Reductn	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	0.76	0.17		0.10	0.47	0.36	0.40	0.45		0.32	0.62	0.21

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 62 (78%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 27.7 Intersection LOS: C
Intersection Capacity Utilization 59.2% 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: 5: Douglas St & Chipman Rd

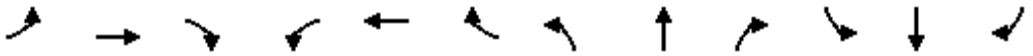




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	394	14	16	470	63	14	3	8	40	5	47
Future Volume (veh/h)	85	394	14	16	470	63	14	3	8	40	5	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1870	1811	1841	1870	1796	1870	1707	1870	1870	1737
Adj Flow Rate, veh/h	97	448	16	18	534	72	16	3	9	45	6	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	5	2	6	4	2	7	2	13	2	2	11
Cap, veh/h	126	1496	53	43	1214	163	337	72	160	260	54	259
Arrive On Green	0.07	0.44	0.44	0.05	0.78	0.78	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3417	122	1725	3098	416	803	218	484	590	162	781
Grp Volume(v), veh/h	97	227	237	18	301	305	28	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1781	1735	1804	1725	1749	1766	1505	0	0	1533	0	0
Q Serve(g_s), s	4.3	6.8	6.8	0.8	4.5	4.6	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	6.8	6.8	0.8	4.5	4.6	0.9	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.24	0.57		0.32	0.43		0.51
Lane Grp Cap(c), veh/h	126	759	790	43	685	692	569	0	0	572	0	0
V/C Ratio(X)	0.77	0.30	0.30	0.42	0.44	0.44	0.05	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	234	759	790	140	685	692	569	0	0	572	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.5	14.5	14.6	37.5	5.7	5.8	18.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	13.2	1.0	1.0	8.5	1.9	1.9	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.5	2.6	0.4	1.5	1.5	0.4	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	15.6	15.5	45.9	7.6	7.6	18.3	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	D	B	B	D	A	A	B	A	A	B	A	A
Approach Vol, veh/h		561			624			28			104	
Approach Delay, s/veh		21.5			8.7			18.3			19.8	
Approach LOS		C			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	40.5		32.0	11.1	36.9		32.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	30.5		26.5	10.5	26.5		26.5				
Max Q Clear Time (g_c+I1), s	2.8	8.8		5.6	6.3	6.6		2.9				
Green Ext Time (p_c), s	0.0	3.5		0.7	0.1	4.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		15.2	
HCM 6th LOS		B	



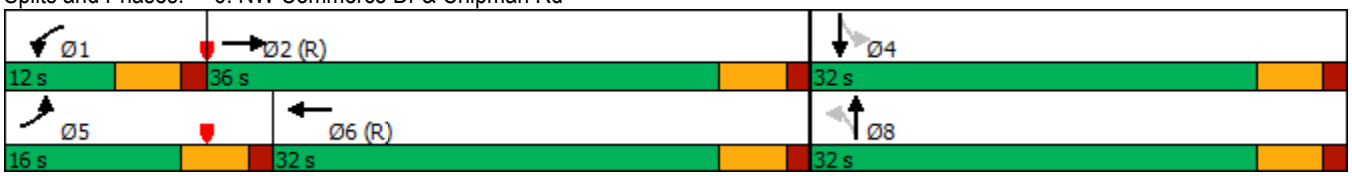
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	394	14	16	470	63	14	3	8	40	5	47
Future Volume (vph)	85	394	14	16	470	63	14	3	8	40	5	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.957			0.931	
Flt Protected	0.950			0.950				0.972			0.979	
Satd. Flow (prot)	1770	3424	0	1703	3416	0	0	1631	0	0	1625	0
Flt Permitted	0.950			0.950				0.867			0.880	
Satd. Flow (perm)	1770	3424	0	1703	3416	0	0	1454	0	0	1460	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			20			9			53	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	5%	2%	6%	4%	2%	7%	2%	13%	2%	2%	11%
Adj. Flow (vph)	97	448	16	18	534	72	16	3	9	45	6	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	464	0	18	606	0	0	28	0	0	104	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	16.0	36.0		12.0	32.0		32.0	32.0		32.0	32.0	
Total Split (%)	20.0%	45.0%		15.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	9.5	40.1		6.5	30.0			26.5			26.5	
Actuated g/C Ratio	0.12	0.50		0.08	0.38			0.33			0.33	
v/c Ratio	0.46	0.27		0.13	0.47			0.06			0.20	
Control Delay	40.0	12.8		32.1	35.0			14.5			11.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	40.0	12.8		32.1	35.0			14.5			11.7	
LOS	D	B		C	D			B			B	
Approach Delay		17.5			34.9			14.5			11.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	45	61		9	163			6			17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	89	118		m22	213			23			50	
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	232	1718		138	1292			487			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	0.42	0.27		0.13	0.47			0.06			0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 52 (65%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	17	59	6	6	109
Future Vol, veh/h	20	17	59	6	6	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	20	69	7	7	128

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	215	73	0	0	76	0
Stage 1	73	-	-	-	-	-
Stage 2	142	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	773	989	-	-	1523	-
Stage 1	950	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	769	989	-	-	1523	-
Mov Cap-2 Maneuver	769	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	881	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	857	1523	-
HCM Lane V/C Ratio	-	-	0.051	0.005	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	146	216	1	164	120	264	233
Future Volume (veh/h)	146	216	1	164	120	264	233
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1856
Adj Flow Rate, veh/h	155	230		174	128	281	248
Peak Hour Factor	0.94	0.94		0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2		2	2	2	3
Cap, veh/h	352	313		710	630	690	1861
Arrive On Green	0.20	0.20		0.20	0.20	0.19	0.53
Sat Flow, veh/h	1781	1585		3647	1585	1781	3618
Grp Volume(v), veh/h	155	230		174	128	281	248
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1763
Q Serve(g_s), s	3.1	5.5		1.7	2.1	4.6	1.4
Cycle Q Clear(g_c), s	3.1	5.5		1.7	2.1	4.6	1.4
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	352	313		710	630	690	1861
V/C Ratio(X)	0.44	0.73		0.25	0.20	0.41	0.13
Avail Cap(c_a), veh/h	1134	1009		4302	2232	773	4444
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	15.1		13.5	7.9	8.9	4.8
Incr Delay (d2), s/veh	0.3	1.3		0.1	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.7		0.5	0.5	1.2	0.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.5	16.3		13.6	8.0	9.0	4.8
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	385			302			529
Approach Delay, s/veh	15.6			11.2			7.1
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.6			13.1	13.5		13.4
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		50.5			9.5	48.5		25.5
Max Q Clear Time (g_c+I1), s		3.4			6.6	4.1		7.5
Green Ext Time (p_c), s		1.1			0.1	0.9		0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

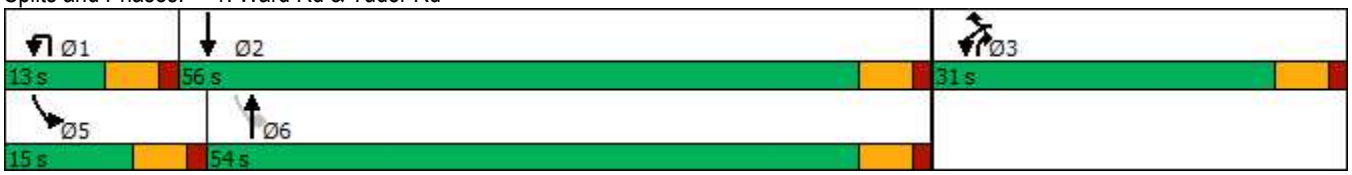
User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	146	216	1	164	120	264	233
Future Volume (vph)	146	216	1	164	120	264	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3505
Flt Permitted	0.950		0.950			0.642	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1196	3505
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		230			128		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	155	230	1	174	128	281	248
Shared Lane Traffic (%)							
Lane Group Flow (vph)	155	230	1	174	128	281	248
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	13.0	54.0	31.0	15.0	56.0
Total Split (%)	31.0%	31.0%	13.0%	54.0%	31.0%	15.0%	56.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.7	8.7	7.5	8.1	22.2	16.8	19.9
Actuated g/C Ratio	0.21	0.21	0.18	0.19	0.53	0.40	0.47
v/c Ratio	0.42	0.45	0.00	0.26	0.14	0.47	0.15
Control Delay	18.7	6.1	15.0	16.1	1.8	9.1	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	6.1	15.0	16.1	1.8	9.1	8.6
LOS	B	A	B	B	A	A	A
Approach Delay	11.2			10.1			8.9
Approach LOS	B			B			A
Queue Length 50th (ft)	32	0	0	18	0	30	12

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Queue Length 95th (ft)	72	39	3	41	15	70	51
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1075	1052	316	3539	1482	630	3505
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	0.14	0.22	0.00	0.05	0.09	0.45	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 42			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd



Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	305	41	44	264	26	22	4	70	43	5	50
Future Vol, veh/h	21	305	41	44	264	26	22	4	70	43	5	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	324	44	47	281	28	23	4	74	46	5	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	368	0	0	627	793	184	583	787	141
Stage 1	-	-	-	-	-	-	390	390	-	375	375	-
Stage 2	-	-	-	-	-	-	237	403	-	208	412	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1248	-	-	1187	-	-	368	320	827	396	322	881
Stage 1	-	-	-	-	-	-	606	606	-	618	615	-
Stage 2	-	-	-	-	-	-	745	598	-	775	593	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1248	-	-	1187	-	-	326	302	827	341	304	881
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	302	-	341	304	-
Stage 1	-	-	-	-	-	-	595	595	-	607	590	-
Stage 2	-	-	-	-	-	-	666	574	-	688	582	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.1	11.8	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	326	756	1248	-	-	1187	-	-	341	751
HCM Lane V/C Ratio	0.072	0.104	0.018	-	-	0.039	-	-	0.134	0.078
HCM Control Delay (s)	16.9	10.3	7.9	-	-	8.2	-	-	17.2	10.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0.3	0.1	-	-	0.1	-	-	0.5	0.3

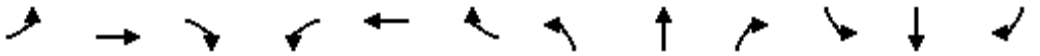
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	396	17	37	318	5	11	0	24	5	0	5
Future Vol, veh/h	5	396	17	37	318	5	11	0	24	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	430	18	40	346	5	12	0	26	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	351	0	0	448	0	0	702	880	224	654	887	176
Stage 1	-	-	-	-	-	-	449	449	-	429	429	-
Stage 2	-	-	-	-	-	-	253	431	-	225	458	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1204	-	-	1109	-	-	325	284	779	352	282	837
Stage 1	-	-	-	-	-	-	559	571	-	574	582	-
Stage 2	-	-	-	-	-	-	729	581	-	757	565	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1109	-	-	313	273	779	330	271	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	313	273	-	330	271	-
Stage 1	-	-	-	-	-	-	557	569	-	572	561	-
Stage 2	-	-	-	-	-	-	698	560	-	729	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	12.3	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	531	1204	-	-	1109	-	-	473
HCM Lane V/C Ratio	0.072	0.005	-	-	0.036	-	-	0.023
HCM Control Delay (s)	12.3	8	-	-	8.4	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1



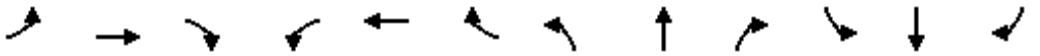
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	246	55	154	191	259	31	419	140	430	630	122
Future Volume (veh/h)	126	246	55	154	191	259	31	419	140	430	630	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	1870	1870	1841	1870	1870	1870	1870	1856
Adj Flow Rate, veh/h	142	276	62	173	215	291	35	471	157	483	708	137
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	4	2	2	2	4	2	2	2	2	3
Cap, veh/h	245	532	234	336	275	246	283	616	422	572	1139	220
Arrive On Green	0.09	0.15	0.15	0.09	0.16	0.16	0.04	0.17	0.17	0.25	0.38	0.38
Sat Flow, veh/h	1781	3554	1560	1781	1777	1585	1753	3554	1585	1781	2970	574
Grp Volume(v), veh/h	142	276	62	173	215	291	35	471	157	483	423	422
Grp Sat Flow(s),veh/h/ln	1781	1777	1560	1781	1777	1585	1753	1777	1585	1781	1777	1767
Q Serve(g_s), s	5.3	5.7	2.8	6.5	9.3	12.4	0.9	10.1	6.5	17.2	15.4	15.5
Cycle Q Clear(g_c), s	5.3	5.7	2.8	6.5	9.3	12.4	0.9	10.1	6.5	17.2	15.4	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	245	532	234	336	275	246	283	616	422	572	681	677
V/C Ratio(X)	0.58	0.52	0.27	0.51	0.78	1.18	0.12	0.76	0.37	0.84	0.62	0.62
Avail Cap(c_a), veh/h	277	595	261	336	275	246	350	813	509	667	804	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	31.3	30.1	25.7	32.5	33.8	15.1	31.5	23.9	19.3	20.0	20.0
Incr Delay (d2), s/veh	2.3	0.8	0.6	1.3	13.4	116.4	0.2	3.1	0.5	8.7	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.4	1.1	2.7	4.9	12.5	0.3	4.3	2.4	7.5	5.9	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	32.1	30.7	27.0	45.9	150.2	15.3	34.6	24.5	28.0	21.1	21.1
LnGrp LOS	C	C	C	C	D	F	B	C	C	C	C	C
Approach Vol, veh/h		480			679			663			1328	
Approach Delay, s/veh		30.8			85.8			31.2			23.6	
Approach LOS		C			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	37.5	13.6	19.0	26.7	20.7	14.0	18.6
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	36.2	8.4	12.4	24.2	* 18	7.4	13.4
Max Q Clear Time (g_c+I1), s	2.9	17.5	7.3	14.4	19.2	12.1	8.5	7.7
Green Ext Time (p_c), s	0.0	4.7	0.0	0.0	0.8	1.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	39.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



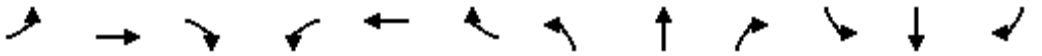
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	246	55	154	191	259	31	419	140	430	630	122
Future Volume (vph)	126	246	55	154	191	259	31	419	140	430	630	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.914				0.850		0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1553	1770	3235	0	1736	3539	1583	1770	3449	0
Flt Permitted	0.370			0.582			0.246			0.382		
Satd. Flow (perm)	689	3539	1553	1084	3235	0	449	3539	1583	712	3449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		291				207		30	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	4%	2%	2%	2%	2%	3%
Adj. Flow (vph)	142	276	62	173	215	291	35	471	157	483	708	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	276	62	173	506	0	35	471	157	483	845	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	15.0	20.0	20.0	14.0	19.0		13.0	25.0	14.0	31.0	43.0	
Total Split (%)	16.7%	22.2%	22.2%	15.6%	21.1%		14.4%	27.8%	15.6%	34.4%	47.8%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	18.9	11.4	11.4	18.9	10.8		38.9	15.4	29.7	35.6	35.3	
Actuated g/C Ratio	0.23	0.14	0.14	0.23	0.13		0.48	0.19	0.36	0.44	0.43	
v/c Ratio	0.53	0.56	0.13	0.55	0.75		0.11	0.71	0.22	0.84	0.56	
Control Delay	31.2	38.6	0.6	31.7	22.4		10.5	38.0	2.0	29.9	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	31.2	38.6	0.6	31.7	22.4		10.5	38.0	2.0	29.9	19.7	
LOS	C	D	A	C	C		B	D	A	C	B	
Approach Delay		31.5			24.8			28.1			23.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	57	73	0	71	57		8	125	0	157	184	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	108	116	0	129	113		22	180	18	#279	245	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	275	588	500	313	744		314	804	708	657	1586	
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	0.52	0.47	0.12	0.55	0.68		0.11	0.59	0.22	0.74	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 81.6
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 78.3% 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: 4: Douglas St & Tudor Rd



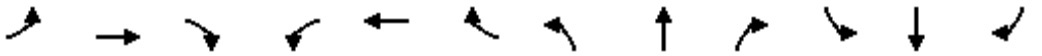
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	573	128	55	499	105	96	273	54	212	385	251
Future Volume (veh/h)	196	573	128	55	499	105	96	273	54	212	385	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	209	610	136	59	531	112	102	290	57	226	410	267
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	1086	242	115	1098	490	205	617	120	405	455	602
Arrive On Green	0.14	0.38	0.38	0.06	0.31	0.31	0.06	0.21	0.21	0.12	0.24	0.24
Sat Flow, veh/h	1781	2889	643	1781	3554	1585	1781	2968	575	1781	1870	1585
Grp Volume(v), veh/h	209	375	371	59	531	112	102	172	175	226	410	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1755	1781	1777	1585	1781	1777	1767	1781	1870	1585
Q Serve(g_s), s	11.5	16.7	16.8	3.2	12.1	5.3	4.4	8.5	8.7	9.7	21.2	12.6
Cycle Q Clear(g_c), s	11.5	16.7	16.8	3.2	12.1	5.3	4.4	8.5	8.7	9.7	21.2	12.6
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	243	668	660	115	1098	490	205	369	367	405	455	602
V/C Ratio(X)	0.86	0.56	0.56	0.51	0.48	0.23	0.50	0.47	0.48	0.56	0.90	0.44
Avail Cap(c_a), veh/h	289	668	660	191	1098	490	283	474	472	419	498	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	42.3	24.7	24.7	45.3	28.1	25.7	30.1	34.7	34.8	25.9	36.7	23.1
Incr Delay (d2), s/veh	17.9	3.0	3.0	3.5	1.5	1.1	1.9	0.9	1.0	1.3	15.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	7.1	7.0	1.5	5.1	2.0	1.9	3.6	3.7	4.0	11.2	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	27.7	27.7	48.8	29.6	26.8	32.0	35.7	35.8	27.2	52.6	23.6
LnGrp LOS	E	C	C	D	C	C	C	D	D	C	D	C
Approach Vol, veh/h		955			702			449			903	
Approach Delay, s/veh		34.8			30.7			34.9			37.6	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	43.9	12.6	30.7	19.4	37.2	16.2	27.2
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 11	* 27	10.5	* 27	* 16	* 22	12.5	* 27
Max Q Clear Time (g_c+I1), s	5.2	18.8	6.4	23.2	13.5	14.1	11.7	10.7
Green Ext Time (p_c), s	0.0	2.7	0.1	1.1	0.1	2.2	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

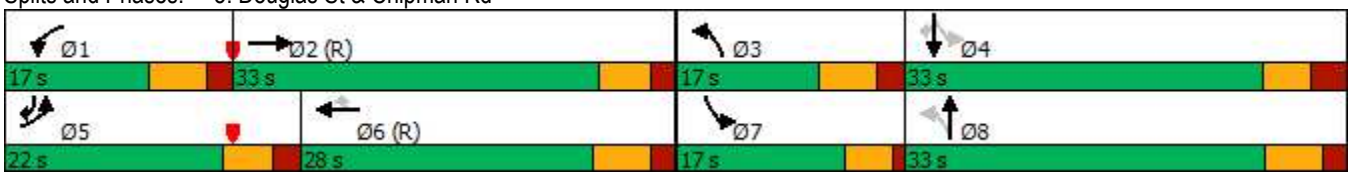


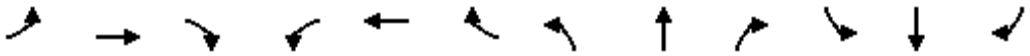
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	573	128	55	499	105	96	273	54	212	385	251
Future Volume (vph)	196	573	128	55	499	105	96	273	54	212	385	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.973				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3444	0	1770	3539	1583	1770	3451	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.243			0.440		
Satd. Flow (perm)	1770	3444	0	1770	3539	1583	453	3451	0	820	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				177		22				193
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	209	610	136	59	531	112	102	290	57	226	410	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	746	0	59	531	112	102	347	0	226	410	267
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	22.0	33.0		17.0	28.0	28.0	17.0	33.0		17.0	33.0	22.0
Total Split (%)	22.0%	33.0%		17.0%	28.0%	28.0%	17.0%	33.0%		17.0%	33.0%	22.0%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	15.2	36.3		9.1	27.3	27.3	30.9	22.3		38.3	26.3	47.9
Actuated g/C Ratio	0.15	0.36		0.09	0.27	0.27	0.31	0.22		0.38	0.26	0.48
v/c Ratio	0.78	0.59		0.37	0.55	0.20	0.40	0.44		0.53	0.84	0.31
Control Delay	61.0	46.5		49.2	35.7	1.7	23.2	32.1		23.8	51.4	5.4
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	46.5		49.2	35.7	1.7	23.2	32.1		23.8	51.4	5.4
LOS	E	D		D	D	A	C	C		C	D	A
Approach Delay		49.7			31.4			30.1			30.9	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	141	161		36	166	0	38	90		88	242	23
Queue Length 95th (ft)	#238	326		76	223	9	71	129		140	#402	68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	291	1266		189	971	563	285	937		435	501	876
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	0.72	0.59		0.31	0.55	0.20	0.36	0.37		0.52	0.82	0.30

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 64 (64%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 36.8		Intersection LOS: D	
Intersection Capacity Utilization 73.0%		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: 5: Douglas St & Chipman Rd

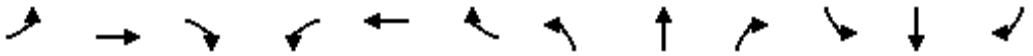




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	811	14	16	745	60	15	2	17	93	12	114
Future Volume (veh/h)	80	811	14	16	745	60	15	2	17	93	12	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	882	15	17	810	65	16	2	18	101	13	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1814	31	40	1556	125	226	43	218	229	45	243
Arrive On Green	0.06	0.51	0.51	0.05	0.93	0.93	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3575	61	1781	3332	267	572	142	714	583	148	795
Grp Volume(v), veh/h	87	438	459	17	432	443	36	0	0	238	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1822	1428	0	0	1527	0	0
Q Serve(g_s), s	4.8	16.1	16.1	0.9	3.1	3.1	0.0	0.0	0.0	9.9	0.0	0.0
Cycle Q Clear(g_c), s	4.8	16.1	16.1	0.9	3.1	3.1	1.5	0.0	0.0	12.6	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.15	0.44		0.50	0.42		0.52
Lane Grp Cap(c), veh/h	112	902	943	40	830	851	487	0	0	517	0	0
V/C Ratio(X)	0.77	0.49	0.49	0.42	0.52	0.52	0.07	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	223	902	943	116	830	851	487	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.1	16.1	16.1	47.1	1.9	1.9	24.7	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	14.8	1.9	1.8	8.6	2.1	2.0	0.3	0.0	0.0	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.4	6.6	0.5	1.1	1.1	0.7	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	18.0	17.9	55.7	3.9	3.9	25.0	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	E	B	B	E	A	A	C	A	A	C	A	A
Approach Vol, veh/h		984			892			36			238	
Approach Delay, s/veh		21.7			4.9			25.0			31.3	
Approach LOS		C			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	56.2		36.0	11.8	52.2		36.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	46.5		30.5	12.5	40.5		30.5				
Max Q Clear Time (g_c+I1), s	2.9	18.1		14.6	6.8	5.1		3.5				
Green Ext Time (p_c), s	0.0	8.3		1.8	0.1	8.6		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		15.9	
HCM 6th LOS		B	

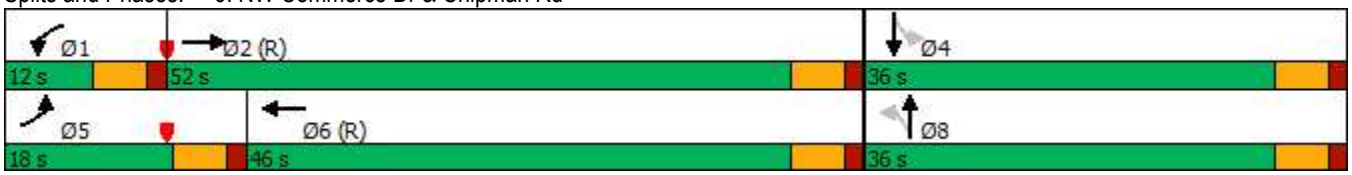


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	811	14	16	745	60	15	2	17	93	12	114
Future Volume (vph)	80	811	14	16	745	60	15	2	17	93	12	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.989			0.932			0.930	
Flt Protected	0.950			0.950				0.978			0.979	
Satd. Flow (prot)	1770	3529	0	1770	3500	0	0	1698	0	0	1696	0
Flt Permitted	0.950			0.950				0.852			0.848	
Satd. Flow (perm)	1770	3529	0	1770	3500	0	0	1479	0	0	1469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			18			56	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	882	15	17	810	65	16	2	18	101	13	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	897	0	17	875	0	0	36	0	0	238	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	18.0	52.0		12.0	46.0		36.0	36.0		36.0	36.0	
Total Split (%)	18.0%	52.0%		12.0%	46.0%		36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	10.6	53.7		6.5	44.9			30.5			30.5	
Actuated g/C Ratio	0.11	0.54		0.06	0.45			0.30			0.30	
v/c Ratio	0.46	0.47		0.15	0.55			0.08			0.49	
Control Delay	49.7	16.4		54.9	12.4			16.0			25.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	49.7	16.4		54.9	12.4			16.0			25.4	
LOS	D	B		D	B			B			C	
Approach Delay		19.3			13.2			16.0			25.4	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	53	155		11	94			8			93	
Queue Length 95th (ft)	100	267		m26	134			31			168	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	221	1896		115	1578			463			486	
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	0.39	0.47		0.15	0.55			0.08			0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 71 (71%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	8	88	15	14	76
Future Vol, veh/h	10	8	88	15	14	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	104	18	16	89

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	234	113	0	0	122	0
Stage 1	113	-	-	-	-	-
Stage 2	121	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	754	940	-	-	1465	-
Stage 1	912	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	746	940	-	-	1465	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	821	1465	-
HCM Lane V/C Ratio	-	-	0.026	0.011	-
HCM Control Delay (s)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	87	170	2	138	99	217	86
Future Volume (veh/h)	87	170	2	138	99	217	86
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	90	175		142	102	224	89
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	342	304		722	626	707	1878
Arrive On Green	0.19	0.19		0.20	0.20	0.19	0.53
Sat Flow, veh/h	1781	1585		3647	1585	1781	3647
Grp Volume(v), veh/h	90	175		142	102	224	89
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1777
Q Serve(g_s), s	1.7	3.9		1.3	1.6	3.5	0.5
Cycle Q Clear(g_c), s	1.7	3.9		1.3	1.6	3.5	0.5
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	342	304		722	626	707	1878
V/C Ratio(X)	0.26	0.58		0.20	0.16	0.32	0.05
Avail Cap(c_a), veh/h	1154	1027		4468	2297	761	4468
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	14.4		13.0	7.7	8.4	4.5
Incr Delay (d2), s/veh	0.2	0.6		0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.2		0.4	0.4	0.9	0.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.7	15.1		13.1	7.7	8.5	4.5
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	265			244			313
Approach Delay, s/veh	14.6			10.8			7.4
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.3			12.8	13.5		13.1
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			8.5	49.5		25.5
Max Q Clear Time (g_c+I1), s		2.5			5.5	3.6		5.9
Green Ext Time (p_c), s		0.4			0.1	0.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	87	170	2	138	99	217	86
Future Volume (vph)	87	170	2	138	99	217	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3539
Flt Permitted	0.950		0.950			0.662	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1233	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		175			102		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	90	175	2	142	102	224	89
Shared Lane Traffic (%)							
Lane Group Flow (vph)	90	175	2	142	102	224	89
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	55.0	31.0	14.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	55.0%	31.0%	14.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.0	8.0	8.0	8.0	21.5	16.2	19.0
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.53	0.40	0.47
v/c Ratio	0.26	0.39	0.01	0.20	0.12	0.38	0.05
Control Delay	16.2	6.2	13.5	14.7	1.9	7.6	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	6.2	13.5	14.7	1.9	7.6	8.6
LOS	B	A	B	B	A	A	A
Approach Delay	9.6			9.3			7.9
Approach LOS	A			A			A
Queue Length 50th (ft)	17	0	0	14	0	23	4
Queue Length 95th (ft)	45	35	4	31	13	48	21

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1109	1057	369	3539	1522	612	3539
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	0.08	0.17	0.01	0.04	0.07	0.37	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 40.7			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	150	147	26	80	189	90	21	17	47	40	11	42
Future Vol, veh/h	150	147	26	80	189	90	21	17	47	40	11	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	165	162	29	88	208	99	23	19	52	44	12	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	307	0	0	191	0	0	793	990	96	805	905	104
Stage 1	-	-	-	-	-	-	507	507	-	384	384	-
Stage 2	-	-	-	-	-	-	286	483	-	421	521	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1250	-	-	1380	-	-	279	245	942	274	275	931
Stage 1	-	-	-	-	-	-	516	538	-	611	610	-
Stage 2	-	-	-	-	-	-	697	551	-	581	530	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1380	-	-	218	199	942	206	223	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	199	-	206	223	-
Stage 1	-	-	-	-	-	-	448	467	-	530	571	-
Stage 2	-	-	-	-	-	-	607	516	-	458	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	1.7	16.3	18.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	218	473	1250	-	-	1380	-	-	206	561
HCM Lane V/C Ratio	0.106	0.149	0.132	-	-	0.064	-	-	0.213	0.104
HCM Control Delay (s)	23.5	13.9	8.3	-	-	7.8	-	-	27.2	12.2
HCM Lane LOS	C	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.3	0.5	0.5	-	-	0.2	-	-	0.8	0.3

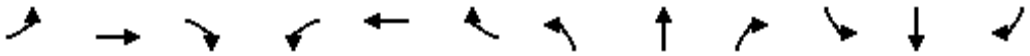
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	222	7	14	331	5	23	0	49	5	0	5
Future Vol, veh/h	5	222	7	14	331	5	23	0	49	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	241	8	15	360	5	25	0	53	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	365	0	0	249	0	0	465	650	125	524	652	183
Stage 1	-	-	-	-	-	-	255	255	-	393	393	-
Stage 2	-	-	-	-	-	-	210	395	-	131	259	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1190	-	-	1314	-	-	481	387	902	436	386	828
Stage 1	-	-	-	-	-	-	727	695	-	603	604	-
Stage 2	-	-	-	-	-	-	773	603	-	859	692	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1190	-	-	1314	-	-	472	381	902	405	380	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	472	381	-	405	380	-
Stage 1	-	-	-	-	-	-	724	692	-	601	597	-
Stage 2	-	-	-	-	-	-	759	596	-	805	689	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	10.8	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	699	1190	-	-	1314	-	-	544
HCM Lane V/C Ratio	0.112	0.005	-	-	0.012	-	-	0.02
HCM Control Delay (s)	10.8	8	-	-	7.8	-	-	11.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1



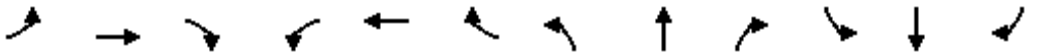
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	115	35	93	195	314	105	523	148	238	255	110
Future Volume (veh/h)	89	115	35	93	195	314	105	523	148	238	255	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1870	1841	1870	1870	1870	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	94	121	37	98	205	331	111	551	156	251	268	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	4	2	2	2	2	4	2	2	2
Cap, veh/h	226	749	334	445	376	336	415	747	439	395	675	284
Arrive On Green	0.07	0.21	0.21	0.07	0.21	0.21	0.07	0.21	0.21	0.14	0.28	0.28
Sat Flow, veh/h	1767	3554	1585	1753	1777	1585	1781	3554	1560	1781	2436	1027
Grp Volume(v), veh/h	94	121	37	98	205	331	111	551	156	251	194	190
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1753	1777	1585	1781	1777	1560	1781	1777	1686
Q Serve(g_s), s	2.9	2.0	1.4	3.1	7.5	15.1	3.1	10.5	5.8	7.8	6.4	6.7
Cycle Q Clear(g_c), s	2.9	2.0	1.4	3.1	7.5	15.1	3.1	10.5	5.8	7.8	6.4	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.61
Lane Grp Cap(c), veh/h	226	749	334	445	376	336	415	747	439	395	492	467
V/C Ratio(X)	0.42	0.16	0.11	0.22	0.54	0.99	0.27	0.74	0.36	0.63	0.39	0.41
Avail Cap(c_a), veh/h	331	850	379	499	376	336	438	1090	589	544	787	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	23.4	23.2	19.9	25.5	28.5	16.7	26.8	20.9	19.1	21.3	21.4
Incr Delay (d2), s/veh	1.2	0.1	0.1	0.2	1.6	45.2	0.3	1.5	0.5	1.7	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.8	0.5	1.2	3.1	9.6	1.2	4.2	2.0	3.0	2.5	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	23.5	23.3	20.1	27.2	73.7	17.0	28.3	21.4	20.7	21.8	22.0
LnGrp LOS	C	C	C	C	C	E	B	C	C	C	C	C
Approach Vol, veh/h		252			634			818			635	
Approach Delay, s/veh		23.2			50.4			25.5			21.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	26.9	11.7	22.0	16.9	22.1	11.8	21.9
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	32.2	9.4	15.4	16.2	* 22	7.4	17.4
Max Q Clear Time (g_c+I1), s	5.1	8.7	4.9	17.1	9.8	12.5	5.1	4.0
Green Ext Time (p_c), s	0.0	2.0	0.1	0.0	0.4	2.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

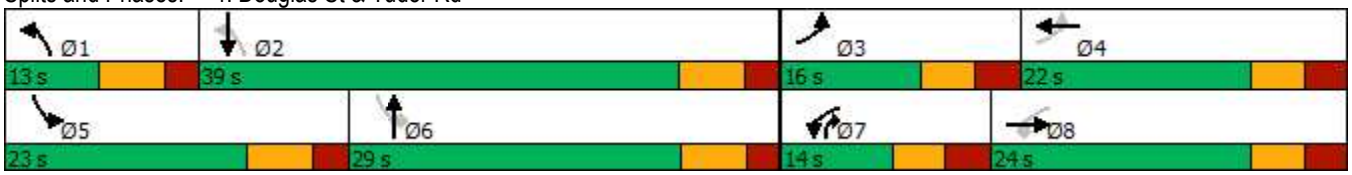


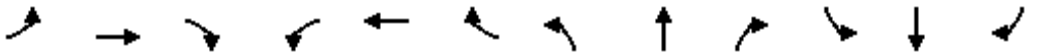
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	115	35	93	195	314	105	523	148	238	255	110
Future Volume (vph)	89	115	35	93	195	314	105	523	148	238	255	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.907				0.850		0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3539	1583	1736	3210	0	1770	3539	1553	1770	3380	0
Flt Permitted	0.364			0.675			0.524			0.352		
Satd. Flow (perm)	671	3539	1583	1233	3210	0	976	3539	1553	656	3380	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		331				207		84	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	94	121	37	98	205	331	111	551	156	251	268	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	121	37	98	536	0	111	551	156	251	384	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	16.0	24.0	24.0	14.0	22.0		13.0	29.0	14.0	23.0	39.0	
Total Split (%)	17.8%	26.7%	26.7%	15.6%	24.4%		14.4%	32.2%	15.6%	25.6%	43.3%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	17.2	11.8	11.8	17.2	11.0		31.1	16.8	31.4	28.6	26.3	
Actuated g/C Ratio	0.24	0.16	0.16	0.24	0.15		0.43	0.23	0.43	0.40	0.36	
v/c Ratio	0.33	0.21	0.07	0.28	0.70		0.23	0.67	0.20	0.57	0.30	
Control Delay	22.5	30.0	0.3	21.5	17.8		13.1	31.5	1.7	18.3	16.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.5	30.0	0.3	21.5	17.8		13.1	31.5	1.7	18.3	16.0	
LOS	C	C	A	C	B		B	C	A	B	B	
Approach Delay		22.9			18.3			23.3			16.9	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	30	26	0	31	46		28	125	0	69	56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	71	54	0	74	108		60	202	17	128	97	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	327	913	623	357	988		493	1170	801	569	1658	
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	0.29	0.13	0.06	0.27	0.54		0.23	0.47	0.19	0.44	0.23	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Douglas St & Tudor Rd





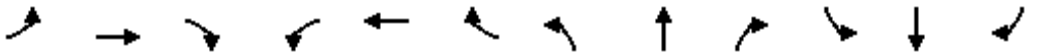
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	162	45	24	363	200	100	352	37	91	231	143
Future Volume (veh/h)	193	162	45	24	363	200	100	352	37	91	231	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1663	1811	1841	1856	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	191	53	28	427	235	118	414	44	107	272	168
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	2	16	6	4	3	4	4	2	2	2	2
Cap, veh/h	263	1063	287	80	1004	451	254	680	72	290	331	518
Arrive On Green	0.25	0.64	0.64	0.05	0.29	0.29	0.07	0.21	0.21	0.06	0.18	0.18
Sat Flow, veh/h	1753	2765	747	1725	3497	1572	1753	3191	337	1781	1870	1585
Grp Volume(v), veh/h	227	121	123	28	427	235	118	226	232	107	272	168
Grp Sat Flow(s),veh/h/ln	1753	1777	1736	1725	1749	1572	1753	1749	1780	1781	1870	1585
Q Serve(g_s), s	9.9	2.2	2.3	1.3	7.9	10.0	4.3	9.3	9.4	3.9	11.2	6.4
Cycle Q Clear(g_c), s	9.9	2.2	2.3	1.3	7.9	10.0	4.3	9.3	9.4	3.9	11.2	6.4
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	263	683	667	80	1004	451	254	373	379	290	331	518
V/C Ratio(X)	0.86	0.18	0.18	0.35	0.43	0.52	0.47	0.61	0.61	0.37	0.82	0.32
Avail Cap(c_a), veh/h	289	683	667	274	1004	451	289	373	379	290	435	606
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	29.2	9.2	9.2	37.0	23.2	23.9	25.0	28.4	28.5	24.9	31.7	20.3
Incr Delay (d2), s/veh	20.8	0.5	0.6	2.6	1.3	4.3	1.3	2.8	2.9	0.8	9.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.8	0.9	0.6	3.2	3.9	1.7	3.9	4.0	1.6	5.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	9.8	9.8	39.6	24.5	28.2	26.3	31.2	31.4	25.7	40.7	20.6
LnGrp LOS	D	A	A	D	C	C	C	C	C	C	D	C
Approach Vol, veh/h		471			690			576			547	
Approach Delay, s/veh		29.2			26.4			30.3			31.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	37.0	12.4	20.6	17.8	29.3	9.5	23.5
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 13	* 16	7.5	* 19	* 13	* 16	5.0	* 16
Max Q Clear Time (g_c+I1), s	3.3	4.3	6.3	13.2	11.9	12.0	5.9	11.4
Green Ext Time (p_c), s	0.0	0.9	0.0	1.0	0.1	1.2	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



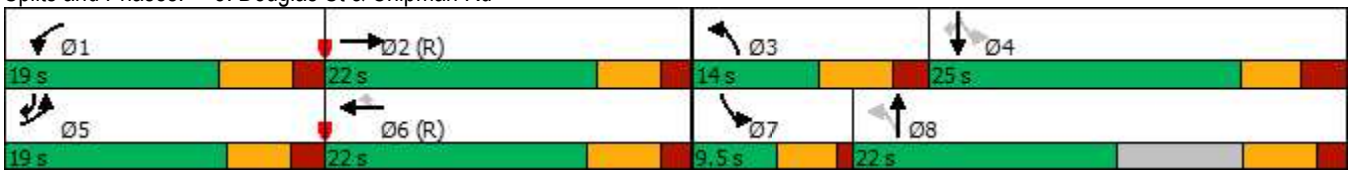
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	162	45	24	363	200	100	352	37	91	231	143
Future Volume (vph)	193	162	45	24	363	200	100	352	37	91	231	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.967				0.850		0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3323	0	1703	3471	1568	1736	3429	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.332			0.488		
Satd. Flow (perm)	1736	3323	0	1703	3471	1568	607	3429	0	909	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40				235		14				166
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	4%	2%	16%	6%	4%	3%	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	227	191	53	28	427	235	118	414	44	107	272	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	244	0	28	427	235	118	458	0	107	272	168
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	22.0		9.5	25.0	19.0
Total Split (%)	23.8%	27.5%		23.8%	27.5%	27.5%	17.5%	27.5%		11.9%	31.3%	23.8%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	13.3	34.7		8.2	21.0	21.0	25.1	19.2		22.3	15.9	35.6
Actuated g/C Ratio	0.17	0.43		0.10	0.26	0.26	0.31	0.24		0.28	0.20	0.44
v/c Ratio	0.79	0.17		0.16	0.47	0.40	0.40	0.55		0.34	0.74	0.21
Control Delay	66.0	15.9		35.1	29.2	6.5	20.7	27.6		18.9	42.0	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.0	15.9		35.1	29.2	6.5	20.7	27.6		18.9	42.0	2.9
LOS	E	B		D	C	A	C	C		B	D	A
Approach Delay		40.0			21.7			26.2			25.5	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	124	13		13	103	0	38	98		33	127	1

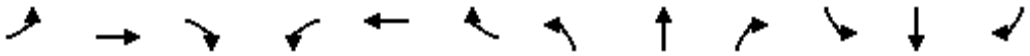
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#211	60		35	141	47	66	128		58	187	26
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	298	1463		270	911	584	298	1004		315	433	804
Starvation Cap Reductn	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	0.76	0.17		0.10	0.47	0.40	0.40	0.46		0.34	0.63	0.21

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 62 (78%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 59.3% 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: 5: Douglas St & Chipman Rd

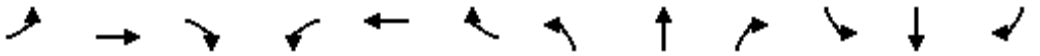




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	394	14	16	470	63	14	3	8	40	5	47
Future Volume (veh/h)	85	394	14	16	470	63	14	3	8	40	5	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1870	1811	1841	1870	1796	1870	1707	1870	1870	1737
Adj Flow Rate, veh/h	97	448	16	18	534	72	16	3	9	45	6	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	5	2	6	4	2	7	2	13	2	2	11
Cap, veh/h	126	1496	53	43	1214	163	337	72	160	260	54	259
Arrive On Green	0.07	0.44	0.44	0.05	0.78	0.78	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3417	122	1725	3098	416	803	218	484	590	162	781
Grp Volume(v), veh/h	97	227	237	18	301	305	28	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1781	1735	1804	1725	1749	1766	1505	0	0	1533	0	0
Q Serve(g_s), s	4.3	6.8	6.8	0.8	4.5	4.6	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	6.8	6.8	0.8	4.5	4.6	0.9	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.24	0.57		0.32	0.43		0.51
Lane Grp Cap(c), veh/h	126	759	790	43	685	692	569	0	0	572	0	0
V/C Ratio(X)	0.77	0.30	0.30	0.42	0.44	0.44	0.05	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	234	759	790	140	685	692	569	0	0	572	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.5	14.5	14.6	37.5	5.7	5.8	18.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	13.2	1.0	1.0	8.5	1.9	1.9	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.5	2.6	0.4	1.5	1.5	0.4	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	15.6	15.5	45.9	7.6	7.6	18.3	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	D	B	B	D	A	A	B	A	A	B	A	A
Approach Vol, veh/h		561			624			28			104	
Approach Delay, s/veh		21.5			8.7			18.3			19.8	
Approach LOS		C			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	40.5		32.0	11.1	36.9		32.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	30.5		26.5	10.5	26.5		26.5				
Max Q Clear Time (g_c+I1), s	2.8	8.8		5.6	6.3	6.6		2.9				
Green Ext Time (p_c), s	0.0	3.5		0.7	0.1	4.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		15.2	
HCM 6th LOS		B	



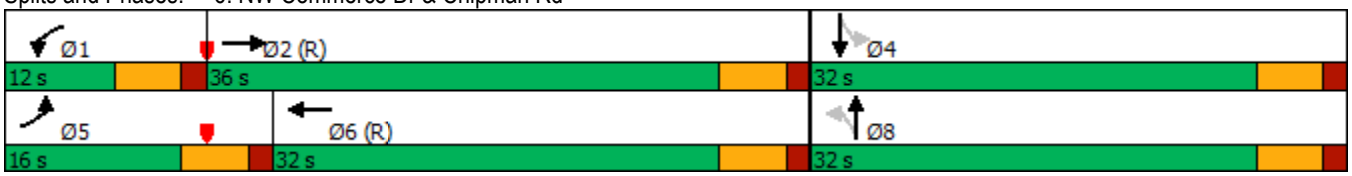
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	394	14	16	470	63	14	3	8	40	5	47
Future Volume (vph)	85	394	14	16	470	63	14	3	8	40	5	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.957			0.931	
Flt Protected	0.950			0.950				0.972			0.979	
Satd. Flow (prot)	1770	3424	0	1703	3416	0	0	1631	0	0	1625	0
Flt Permitted	0.950			0.950				0.867			0.880	
Satd. Flow (perm)	1770	3424	0	1703	3416	0	0	1454	0	0	1460	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			20			9			53	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	5%	2%	6%	4%	2%	7%	2%	13%	2%	2%	11%
Adj. Flow (vph)	97	448	16	18	534	72	16	3	9	45	6	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	464	0	18	606	0	0	28	0	0	104	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	16.0	36.0		12.0	32.0		32.0	32.0		32.0	32.0	
Total Split (%)	20.0%	45.0%		15.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	9.5	40.1		6.5	30.0			26.5			26.5	
Actuated g/C Ratio	0.12	0.50		0.08	0.38			0.33			0.33	
v/c Ratio	0.46	0.27		0.13	0.47			0.06			0.20	
Control Delay	40.0	12.8		32.1	35.1			14.5			11.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	40.0	12.8		32.1	35.1			14.5			11.7	
LOS	D	B		C	D			B			B	
Approach Delay		17.5			35.0			14.5			11.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	45	61		9	163			6			17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	89	118		m22	213			23			50	
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	232	1718		138	1292			487			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	0.42	0.27		0.13	0.47			0.06			0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 52 (65%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 25.3		Intersection LOS: C	
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	17	68	6	6	111
Future Vol, veh/h	20	17	68	6	6	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	20	80	7	7	131

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	229	84	0	0	87	0
Stage 1	84	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	759	975	-	-	1509	-
Stage 1	939	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	755	975	-	-	1509	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	842	1509	-
HCM Lane V/C Ratio	-	-	0.052	0.005	-
HCM Control Delay (s)	-	-	9.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	164	304	1	164	125	287	233
Future Volume (veh/h)	164	304	1	164	125	287	233
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1856
Adj Flow Rate, veh/h	174	323		174	133	305	248
Peak Hour Factor	0.94	0.94		0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2		2	2	2	3
Cap, veh/h	452	402		657	695	640	1735
Arrive On Green	0.25	0.25		0.18	0.18	0.18	0.49
Sat Flow, veh/h	1781	1585		3647	1585	1781	3618
Grp Volume(v), veh/h	174	323		174	133	305	248
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1763
Q Serve(g_s), s	3.5	8.3		1.8	2.2	5.7	1.7
Cycle Q Clear(g_c), s	3.5	8.3		1.8	2.2	5.7	1.7
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	452	402		657	695	640	1735
V/C Ratio(X)	0.38	0.80		0.26	0.19	0.48	0.14
Avail Cap(c_a), veh/h	1049	934		3982	2178	710	4032
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	15.1		15.1	7.4	10.6	6.0
Incr Delay (d2), s/veh	0.2	1.4		0.1	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.5		0.6	0.5	1.7	0.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.6	16.6		15.2	7.5	10.8	6.0
LnGrp LOS	B	B		B	A	B	A
Approach Vol, veh/h	497			307			553
Approach Delay, s/veh	15.5			11.9			8.7
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.8			13.3	13.5		16.5
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			9.5	48.5		25.5
Max Q Clear Time (g_c+I1), s		3.7			7.7	4.2		10.3
Green Ext Time (p_c), s		1.1			0.1	0.9		0.8

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

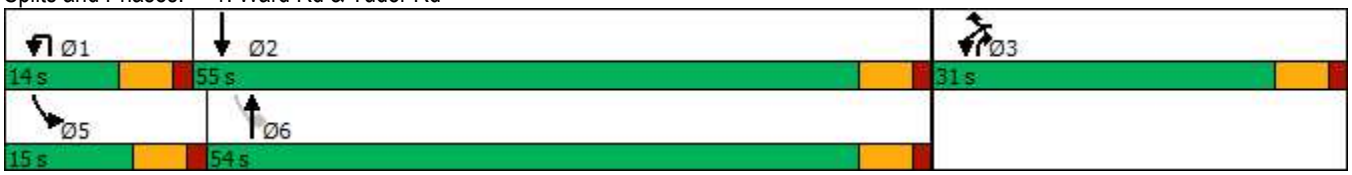
User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	164	304	1	164	125	287	233
Future Volume (vph)	164	304	1	164	125	287	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3505
Flt Permitted	0.950		0.950			0.642	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1196	3505
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		323			133		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	174	323	1	174	133	305	248
Shared Lane Traffic (%)							
Lane Group Flow (vph)	174	323	1	174	133	305	248
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	54.0	31.0	15.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	54.0%	31.0%	15.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	9.0	9.0	8.0	8.1	22.6	17.0	20.0
Actuated g/C Ratio	0.21	0.21	0.19	0.19	0.53	0.40	0.47
v/c Ratio	0.46	0.55	0.00	0.26	0.15	0.51	0.15
Control Delay	19.3	6.4	15.0	16.4	1.8	9.9	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	6.4	15.0	16.4	1.8	9.9	9.0
LOS	B	A	B	B	A	A	A
Approach Delay	10.9			10.1			9.5
Approach LOS	B			B			A
Queue Length 50th (ft)	37	0	0	18	0	34	13

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Queue Length 95th (ft)	80	46	3	41	15	80	53
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1063	1080	354	3539	1468	623	3505
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	0.16	0.30	0.00	0.05	0.09	0.49	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 42.5			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 45.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd



Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	305	41	44	264	44	22	6	70	113	14	156
Future Vol, veh/h	49	305	41	44	264	44	22	6	70	113	14	156
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	324	44	47	281	47	23	6	74	120	15	166

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	328	0	0	368	0	0	692	872	184	644	847	141
Stage 1	-	-	-	-	-	-	450	450	-	375	375	-
Stage 2	-	-	-	-	-	-	242	422	-	269	472	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1228	-	-	1187	-	-	330	287	827	358	297	881
Stage 1	-	-	-	-	-	-	558	570	-	618	615	-
Stage 2	-	-	-	-	-	-	740	587	-	713	557	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1228	-	-	1187	-	-	241	264	827	300	273	881
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	264	-	300	273	-
Stage 1	-	-	-	-	-	-	535	546	-	592	590	-
Stage 2	-	-	-	-	-	-	562	564	-	614	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1	13.1	16.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	241	708	1228	-	-	1187	-	-	300	744
HCM Lane V/C Ratio	0.097	0.114	0.042	-	-	0.039	-	-	0.401	0.243
HCM Control Delay (s)	21.5	10.7	8.1	-	-	8.2	-	-	24.8	11.4
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	1.9	1

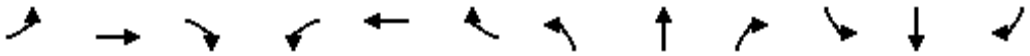
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	466	17	37	336	5	11	0	24	5	0	5
Future Vol, veh/h	5	466	17	37	336	5	11	0	24	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	507	18	40	365	5	12	0	26	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	525	0	0	789	976	263	712	983	185
Stage 1	-	-	-	-	-	-	526	526	-	448	448	-
Stage 2	-	-	-	-	-	-	263	450	-	264	535	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1185	-	-	1038	-	-	281	250	735	320	247	826
Stage 1	-	-	-	-	-	-	503	527	-	560	571	-
Stage 2	-	-	-	-	-	-	719	570	-	718	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1185	-	-	1038	-	-	270	239	735	299	236	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	239	-	299	236	-
Stage 1	-	-	-	-	-	-	501	525	-	558	549	-
Stage 2	-	-	-	-	-	-	687	548	-	690	520	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	13.2	13.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	1185	-	-	1038	-	-	439
HCM Lane V/C Ratio	0.08	0.005	-	-	0.039	-	-	0.025
HCM Control Delay (s)	13.2	8.1	-	-	8.6	-	-	13.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1



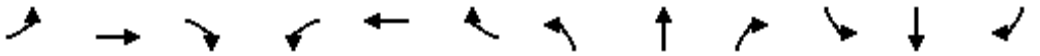
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	272	90	154	198	259	40	419	140	430	630	124
Future Volume (veh/h)	135	272	90	154	198	259	40	419	140	430	630	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	1870	1870	1841	1870	1870	1870	1870	1856
Adj Flow Rate, veh/h	152	306	101	173	222	291	45	471	157	483	708	139
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	4	2	2	2	4	2	2	2	2	3
Cap, veh/h	254	548	241	326	273	244	287	614	419	570	1113	218
Arrive On Green	0.09	0.15	0.15	0.09	0.15	0.15	0.05	0.17	0.17	0.25	0.38	0.38
Sat Flow, veh/h	1781	3554	1560	1781	1777	1585	1753	3554	1585	1781	2962	581
Grp Volume(v), veh/h	152	306	101	173	222	291	45	471	157	483	425	422
Grp Sat Flow(s),veh/h/ln	1781	1777	1560	1781	1777	1585	1753	1777	1585	1781	1777	1766
Q Serve(g_s), s	5.7	6.4	4.7	6.5	9.8	12.4	1.2	10.2	6.5	17.4	15.8	15.8
Cycle Q Clear(g_c), s	5.7	6.4	4.7	6.5	9.8	12.4	1.2	10.2	6.5	17.4	15.8	15.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	254	548	241	326	273	244	287	614	419	570	668	664
V/C Ratio(X)	0.60	0.56	0.42	0.53	0.81	1.19	0.16	0.77	0.37	0.85	0.64	0.64
Avail Cap(c_a), veh/h	275	590	259	326	273	244	341	806	505	661	797	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	31.6	30.9	25.7	33.0	34.1	15.5	31.8	24.2	19.6	20.6	20.7
Incr Delay (d2), s/veh	3.1	1.0	1.2	1.7	16.9	120.6	0.3	3.3	0.6	9.0	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.7	1.8	2.8	5.3	12.7	0.5	4.3	2.4	7.6	6.1	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	32.6	32.0	27.4	49.9	154.7	15.7	35.1	24.8	28.5	21.9	21.9
LnGrp LOS	C	C	C	C	D	F	B	D	C	C	C	C
Approach Vol, veh/h		559			686			673			1330	
Approach Delay, s/veh		31.6			88.7			31.4			24.3	
Approach LOS		C			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	37.1	14.0	19.0	26.9	20.8	14.0	19.0
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	36.2	8.4	12.4	24.2	* 18	7.4	13.4
Max Q Clear Time (g_c+I1), s	3.2	17.8	7.7	14.4	19.4	12.2	8.5	8.4
Green Ext Time (p_c), s	0.0	4.7	0.0	0.0	0.7	1.8	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



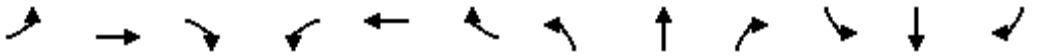
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	272	90	154	198	259	40	419	140	430	630	124
Future Volume (vph)	135	272	90	154	198	259	40	419	140	430	630	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.915				0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1553	1770	3238	0	1736	3539	1583	1770	3445	0
Flt Permitted	0.360			0.538			0.245			0.381		
Satd. Flow (perm)	671	3539	1553	1002	3238	0	448	3539	1583	710	3445	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		291				207		30	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	4%	2%	2%	2%	2%	3%
Adj. Flow (vph)	152	306	101	173	222	291	45	471	157	483	708	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	306	101	173	513	0	45	471	157	483	847	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	15.0	20.0	20.0	14.0	19.0		13.0	25.0	14.0	31.0	43.0	
Total Split (%)	16.7%	22.2%	22.2%	15.6%	21.1%		14.4%	27.8%	15.6%	34.4%	47.8%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	19.2	11.8	11.8	19.2	11.1		39.1	15.5	29.7	35.8	35.5	
Actuated g/C Ratio	0.23	0.14	0.14	0.23	0.14		0.48	0.19	0.36	0.44	0.43	
v/c Ratio	0.57	0.60	0.21	0.57	0.74		0.15	0.71	0.22	0.84	0.56	
Control Delay	32.7	39.5	1.0	32.4	22.6		10.9	38.3	2.0	30.2	19.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.7	39.5	1.0	32.4	22.6		10.9	38.3	2.0	30.2	19.9	
LOS	C	D	A	C	C		B	D	A	C	B	
Approach Delay		30.7			25.1			28.0			23.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	62	82	0	71	59		11	127	0	161	188	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	114	127	0	129	116		26	180	18	#279	246	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	273	584	498	305	741		313	798	705	653	1574	
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	0.52	0.20	0.57	0.69		0.14	0.59	0.22	0.74	0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 78.9%		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: 4: Douglas St & Tudor Rd



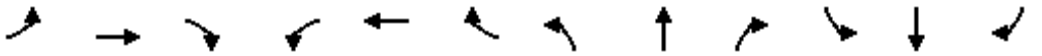
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	573	128	55	499	112	96	275	54	238	394	251
Future Volume (veh/h)	196	573	128	55	499	112	96	275	54	238	394	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	209	610	136	59	531	119	102	293	57	253	419	267
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	1074	239	115	1084	484	204	605	116	413	462	608
Arrive On Green	0.14	0.37	0.37	0.06	0.31	0.31	0.06	0.20	0.20	0.13	0.25	0.25
Sat Flow, veh/h	1781	2889	643	1781	3554	1585	1781	2974	571	1781	1870	1585
Grp Volume(v), veh/h	209	375	371	59	531	119	102	173	177	253	419	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1755	1781	1777	1585	1781	1777	1768	1781	1870	1585
Q Serve(g_s), s	11.5	16.8	16.9	3.2	12.2	5.6	4.5	8.6	8.8	10.8	21.7	12.5
Cycle Q Clear(g_c), s	11.5	16.8	16.9	3.2	12.2	5.6	4.5	8.6	8.8	10.8	21.7	12.5
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	243	661	653	115	1084	484	204	362	360	413	462	608
V/C Ratio(X)	0.86	0.57	0.57	0.51	0.49	0.25	0.50	0.48	0.49	0.61	0.91	0.44
Avail Cap(c_a), veh/h	289	661	653	191	1084	484	282	474	472	413	498	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	42.3	25.0	25.0	45.3	28.4	26.1	30.4	35.1	35.2	25.6	36.5	22.9
Incr Delay (d2), s/veh	17.9	3.1	3.2	3.5	1.6	1.2	1.9	1.0	1.0	2.2	16.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	7.2	7.1	1.5	5.1	2.2	1.9	3.7	3.7	4.5	11.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	28.1	28.2	48.8	30.0	27.3	32.3	36.1	36.3	27.8	53.4	23.3
LnGrp LOS	E	C	C	D	C	C	C	D	D	C	D	C
Approach Vol, veh/h		955			709			452			939	
Approach Delay, s/veh		35.1			31.1			35.3			37.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	43.5	12.6	31.1	19.4	36.8	17.0	26.8
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 11	* 27	10.5	* 27	* 16	* 22	12.5	* 27
Max Q Clear Time (g_c+I1), s	5.2	18.9	6.5	23.7	13.5	14.2	12.8	10.8
Green Ext Time (p_c), s	0.0	2.7	0.1	1.0	0.1	2.2	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

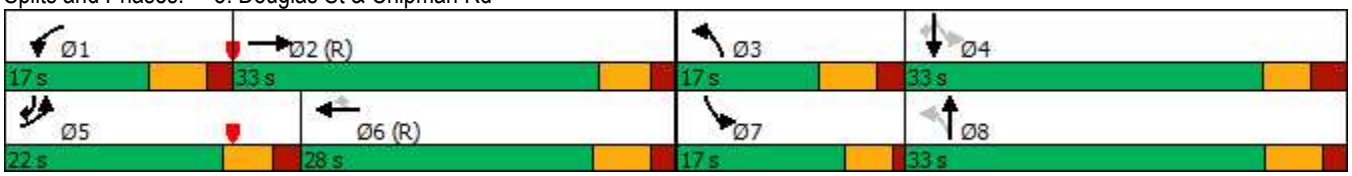


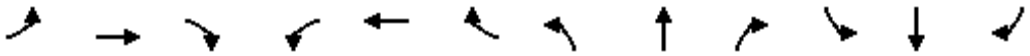
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	573	128	55	499	112	96	275	54	238	394	251
Future Volume (vph)	196	573	128	55	499	112	96	275	54	238	394	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.973				0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3444	0	1770	3539	1583	1770	3454	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.241			0.431		
Satd. Flow (perm)	1770	3444	0	1770	3539	1583	449	3454	0	803	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				177		22				193
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	209	610	136	59	531	119	102	293	57	253	419	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	746	0	59	531	119	102	350	0	253	419	267
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	22.0	33.0		17.0	28.0	28.0	17.0	33.0		17.0	33.0	22.0
Total Split (%)	22.0%	33.0%		17.0%	28.0%	28.0%	17.0%	33.0%		17.0%	33.0%	22.0%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	15.1	35.8		9.1	26.9	26.9	31.1	22.5		39.0	26.8	48.3
Actuated g/C Ratio	0.15	0.36		0.09	0.27	0.27	0.31	0.22		0.39	0.27	0.48
v/c Ratio	0.78	0.60		0.37	0.56	0.21	0.40	0.44		0.58	0.84	0.31
Control Delay	61.9	46.8		49.2	36.0	2.2	23.1	32.0		25.2	51.1	5.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	61.9	46.8		49.2	36.0	2.2	23.1	32.0		25.2	51.1	5.4
LOS	E	D		D	D	A	C	C		C	D	A
Approach Delay		50.1			31.4			30.0			31.1	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	142	161		36	167	0	38	90		99	246	23
Queue Length 95th (ft)	#238	326		76	223	14	71	131		157	#415	68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	289	1248		189	957	558	285	938		436	504	881
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	0.72	0.60		0.31	0.55	0.21	0.36	0.37		0.58	0.83	0.30

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 64 (64%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 37.0		Intersection LOS: D	
Intersection Capacity Utilization 73.5%		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: 5: Douglas St & Chipman Rd

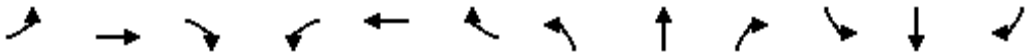




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	811	14	16	745	60	15	2	17	93	12	114
Future Volume (veh/h)	80	811	14	16	745	60	15	2	17	93	12	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	882	15	17	810	65	16	2	18	101	13	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1814	31	40	1556	125	226	43	218	229	45	243
Arrive On Green	0.06	0.51	0.51	0.05	0.93	0.93	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3575	61	1781	3332	267	572	142	714	583	148	795
Grp Volume(v), veh/h	87	438	459	17	432	443	36	0	0	238	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1822	1428	0	0	1527	0	0
Q Serve(g_s), s	4.8	16.1	16.1	0.9	3.1	3.1	0.0	0.0	0.0	9.9	0.0	0.0
Cycle Q Clear(g_c), s	4.8	16.1	16.1	0.9	3.1	3.1	1.5	0.0	0.0	12.6	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.15	0.44		0.50	0.42		0.52
Lane Grp Cap(c), veh/h	112	902	943	40	830	851	487	0	0	517	0	0
V/C Ratio(X)	0.77	0.49	0.49	0.42	0.52	0.52	0.07	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	223	902	943	116	830	851	487	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.1	16.1	16.1	47.1	1.9	1.9	24.7	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	14.8	1.9	1.8	8.6	2.1	2.0	0.3	0.0	0.0	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.4	6.6	0.5	1.1	1.1	0.7	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	18.0	17.9	55.7	3.9	3.9	25.0	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	E	B	B	E	A	A	C	A	A	C	A	A
Approach Vol, veh/h		984			892			36			238	
Approach Delay, s/veh		21.7			4.9			25.0			31.3	
Approach LOS		C			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	56.2		36.0	11.8	52.2		36.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	46.5		30.5	12.5	40.5		30.5				
Max Q Clear Time (g_c+I1), s	2.9	18.1		14.6	6.8	5.1		3.5				
Green Ext Time (p_c), s	0.0	8.3		1.8	0.1	8.6		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		15.9	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	811	14	16	745	60	15	2	17	93	12	114
Future Volume (vph)	80	811	14	16	745	60	15	2	17	93	12	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.989			0.932			0.930	
Flt Protected	0.950			0.950				0.978			0.979	
Satd. Flow (prot)	1770	3529	0	1770	3500	0	0	1698	0	0	1696	0
Flt Permitted	0.950			0.950				0.852			0.848	
Satd. Flow (perm)	1770	3529	0	1770	3500	0	0	1479	0	0	1469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			18			56	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	882	15	17	810	65	16	2	18	101	13	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	897	0	17	875	0	0	36	0	0	238	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	18.0	52.0		12.0	46.0		36.0	36.0		36.0	36.0	
Total Split (%)	18.0%	52.0%		12.0%	46.0%		36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	10.6	53.7		6.5	44.9			30.5			30.5	
Actuated g/C Ratio	0.11	0.54		0.06	0.45			0.30			0.30	
v/c Ratio	0.46	0.47		0.15	0.55			0.08			0.49	
Control Delay	49.7	16.4		54.8	12.2			16.0			25.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	49.7	16.4		54.8	12.2			16.0			25.4	
LOS	D	B		D	B			B			C	
Approach Delay		19.3			13.0			16.0			25.4	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	53	155		11	94			8			93	
Queue Length 95th (ft)	100	267		m26	134			31			168	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	221	1896		115	1578			463			486	
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	0.39	0.47		0.15	0.55			0.08			0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 71 (71%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: NW Commerce Dr & Chipman Rd

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	8	90	15	14	85
Future Vol, veh/h	10	8	90	15	14	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	106	18	16	100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	247	115	0	0	124	0
Stage 1	115	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	741	937	-	-	1463	-
Stage 1	910	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	732	937	-	-	1463	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	811	1463	-
HCM Lane V/C Ratio	-	-	0.026	0.011	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	124	232	2	206	138	275	128
Future Volume (veh/h)	124	232	2	206	138	275	128
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	128	239		212	142	284	132
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	359	320		706	634	669	1867
Arrive On Green	0.20	0.20		0.20	0.20	0.19	0.53
Sat Flow, veh/h	1781	1585		3647	1585	1781	3647
Grp Volume(v), veh/h	128	239		212	142	284	132
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1777
Q Serve(g_s), s	2.5	5.7		2.0	2.4	4.7	0.7
Cycle Q Clear(g_c), s	2.5	5.7		2.0	2.4	4.7	0.7
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	359	320		706	634	669	1867
V/C Ratio(X)	0.36	0.75		0.30	0.22	0.42	0.07
Avail Cap(c_a), veh/h	1127	1003		4366	2267	706	4366
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	15.1		13.8	8.0	9.0	4.7
Incr Delay (d2), s/veh	0.2	1.3		0.1	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.8		0.7	0.6	1.3	0.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.1	16.4		13.8	8.0	9.2	4.7
LnGrp LOS	B	B		B	A	A	A
Approach Vol, veh/h	367			354			416
Approach Delay, s/veh	15.6			11.5			7.8
Approach LOS	B			B			A

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.7			13.2	13.5		13.6
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			8.5	49.5		25.5
Max Q Clear Time (g_c+I1), s		2.7			6.7	4.4		7.7
Green Ext Time (p_c), s		0.5			0.1	1.1		0.5

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	124	232	2	206	138	275	128
Future Volume (vph)	124	232	2	206	138	275	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3539
Flt Permitted	0.950		0.950			0.619	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1153	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		239			142		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	128	239	2	212	142	284	132
Shared Lane Traffic (%)							
Lane Group Flow (vph)	128	239	2	212	142	284	132
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	55.0	31.0	14.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	55.0%	31.0%	14.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	8.3	8.3	8.0	8.1	22.0	16.4	19.4
Actuated g/C Ratio	0.20	0.20	0.19	0.20	0.53	0.40	0.47
v/c Ratio	0.36	0.47	0.01	0.30	0.16	0.49	0.08
Control Delay	17.6	6.3	14.0	15.7	1.7	9.2	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	6.3	14.0	15.7	1.7	9.2	8.7
LOS	B	A	B	B	A	A	A
Approach Delay	10.2			10.1			9.0
Approach LOS	B			B			A
Queue Length 50th (ft)	26	0	0	22	0	31	6
Queue Length 95th (ft)	61	40	4	45	15	68	30

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	1094	1069	364	3539	1508	592	3539
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	0.22	0.01	0.06	0.09	0.48	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 41.3			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 42.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Ward Rd & Tudor Rd

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	150	244	26	80	288	90	21	17	47	40	11	42
Future Vol, veh/h	150	244	26	80	288	90	21	17	47	40	11	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	165	268	29	88	316	99	23	19	52	44	12	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	415	0	0	297	0	0	953	1204	149	966	1119	158
Stage 1	-	-	-	-	-	-	613	613	-	492	492	-
Stage 2	-	-	-	-	-	-	340	591	-	474	627	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1140	-	-	1261	-	-	214	183	871	209	205	859
Stage 1	-	-	-	-	-	-	446	481	-	527	546	-
Stage 2	-	-	-	-	-	-	648	493	-	540	474	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1140	-	-	1261	-	-	161	145	871	150	163	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	145	-	150	163	-
Stage 1	-	-	-	-	-	-	381	411	-	451	508	-
Stage 2	-	-	-	-	-	-	557	458	-	415	405	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	1.4	20.3	24.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	161	374	1140	-	-	1261	-	-	150	455
HCM Lane V/C Ratio	0.143	0.188	0.145	-	-	0.07	-	-	0.293	0.128
HCM Control Delay (s)	31.1	16.8	8.7	-	-	8.1	-	-	38.7	14.1
HCM Lane LOS	D	C	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.5	0.7	0.5	-	-	0.2	-	-	1.1	0.4

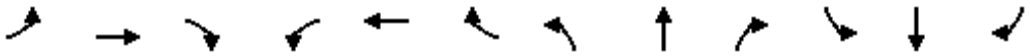
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	319	7	14	430	5	23	0	49	5	0	5
Future Vol, veh/h	5	319	7	14	430	5	23	0	49	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	347	8	15	467	5	25	0	53	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	472	0	0	355	0	0	625	863	178	684	865	236
Stage 1	-	-	-	-	-	-	361	361	-	500	500	-
Stage 2	-	-	-	-	-	-	264	502	-	184	365	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1086	-	-	1200	-	-	369	291	834	335	290	766
Stage 1	-	-	-	-	-	-	630	624	-	521	541	-
Stage 2	-	-	-	-	-	-	718	540	-	800	622	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1086	-	-	1200	-	-	362	286	834	310	285	766
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	286	-	310	285	-
Stage 1	-	-	-	-	-	-	627	621	-	518	535	-
Stage 2	-	-	-	-	-	-	704	534	-	745	619	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	12	13.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	589	1086	-	-	1200	-	-	441
HCM Lane V/C Ratio	0.133	0.005	-	-	0.013	-	-	0.025
HCM Control Delay (s)	12	8.3	-	-	8	-	-	13.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1



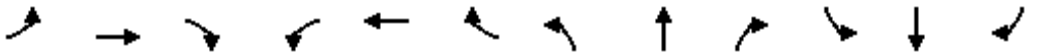
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	168	44	139	247	468	123	779	220	355	380	139
Future Volume (veh/h)	124	168	44	139	247	468	123	779	220	355	380	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1870	1841	1870	1870	1870	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	131	177	46	146	260	493	129	820	232	374	400	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	4	2	2	2	2	4	2	2	2
Cap, veh/h	213	574	256	373	314	281	424	953	557	418	964	348
Arrive On Green	0.07	0.16	0.16	0.09	0.18	0.18	0.07	0.27	0.27	0.17	0.38	0.38
Sat Flow, veh/h	1767	3554	1585	1753	1777	1585	1781	3554	1560	1781	2558	923
Grp Volume(v), veh/h	131	177	46	146	260	493	129	820	232	374	276	270
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1753	1777	1585	1781	1777	1560	1781	1777	1704
Q Serve(g_s), s	5.2	3.8	2.2	5.9	12.3	15.4	3.8	19.1	9.8	12.9	10.0	10.2
Cycle Q Clear(g_c), s	5.2	3.8	2.2	5.9	12.3	15.4	3.8	19.1	9.8	12.9	10.0	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	213	574	256	373	314	281	424	953	557	418	669	642
V/C Ratio(X)	0.62	0.31	0.18	0.39	0.83	1.76	0.30	0.86	0.42	0.90	0.41	0.42
Avail Cap(c_a), veh/h	213	574	256	406	314	281	435	1033	592	440	719	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	32.2	31.5	26.8	34.5	35.8	15.3	30.3	21.1	20.2	20.0	20.1
Incr Delay (d2), s/veh	5.2	0.3	0.3	0.7	16.4	355.2	0.4	7.1	0.5	19.8	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.6	0.8	2.4	6.5	33.4	1.4	8.5	3.5	7.0	3.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	32.5	31.8	27.4	51.0	391.0	15.7	37.4	21.6	40.0	20.4	20.5
LnGrp LOS	C	C	C	C	D	F	B	D	C	D	C	C
Approach Vol, veh/h		354			899			1181			920	
Approach Delay, s/veh		32.6			233.6			31.9			28.4	
Approach LOS		C			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	39.6	13.0	22.0	21.9	30.1	14.3	20.7
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	35.2	6.4	15.4	16.2	* 25	9.4	12.4
Max Q Clear Time (g_c+I1), s	5.8	12.2	7.2	17.4	14.9	21.1	7.9	5.8
Green Ext Time (p_c), s	0.0	3.0	0.0	0.0	0.2	2.2	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	85.1
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



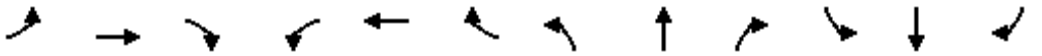
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	168	44	139	247	468	123	779	220	355	380	139
Future Volume (vph)	124	168	44	139	247	468	123	779	220	355	380	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.902				0.850		0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3539	1583	1736	3192	0	1770	3539	1553	1770	3398	0
Flt Permitted	0.260			0.640			0.400			0.167		
Satd. Flow (perm)	480	3539	1583	1169	3192	0	745	3539	1553	311	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		305				207		68	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	131	177	46	146	260	493	129	820	232	374	400	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	177	46	146	753	0	129	820	232	374	546	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	13.0	19.0	19.0	16.0	22.0		13.0	32.0	16.0	23.0	42.0	
Total Split (%)	14.4%	21.1%	21.1%	17.8%	24.4%		14.4%	35.6%	17.8%	25.6%	46.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	21.8	12.9	12.9	21.8	15.4		40.2	24.0	39.6	40.0	33.8	
Actuated g/C Ratio	0.25	0.15	0.15	0.25	0.17		0.45	0.27	0.45	0.45	0.38	
v/c Ratio	0.63	0.34	0.10	0.42	0.93		0.31	0.86	0.29	0.92	0.41	
Control Delay	38.4	36.9	0.4	27.5	42.0		13.0	40.9	4.0	53.2	18.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.4	36.9	0.4	27.5	42.0		13.0	40.9	4.0	53.2	18.4	
LOS	D	D	A	C	D		B	D	A	D	B	
Approach Delay		32.7			39.6			30.6			32.5	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	55	48	0	62	138		34	228	8	154	100	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#112	81	0	110	#255		63	#306	47	#325	142	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	209	515	478	354	806		411	1010	816	407	1391	
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	0.34	0.10	0.41	0.93		0.31	0.81	0.28	0.92	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 33.8		Intersection LOS: C	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 4: Douglas St & Tudor Rd



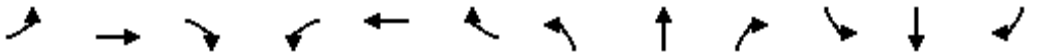
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	288	238	65	36	540	284	149	519	55	125	320	200
Future Volume (veh/h)	288	238	65	36	540	284	149	519	55	125	320	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1663	1811	1841	1856	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	339	280	76	42	635	334	175	611	65	147	376	235
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	2	16	6	4	3	4	4	2	2	2	2
Cap, veh/h	289	839	224	105	715	322	278	895	95	285	419	617
Arrive On Green	0.28	0.51	0.51	0.06	0.20	0.20	0.09	0.28	0.28	0.06	0.22	0.22
Sat Flow, veh/h	1753	2775	739	1725	3497	1572	1753	3190	339	1781	1870	1585
Grp Volume(v), veh/h	339	177	179	42	635	334	175	335	341	147	376	235
Grp Sat Flow(s),veh/h/ln	1753	1777	1737	1725	1749	1572	1753	1749	1780	1781	1870	1585
Q Serve(g_s), s	13.2	4.7	4.9	1.9	14.1	16.4	6.1	13.6	13.7	5.0	15.6	8.5
Cycle Q Clear(g_c), s	13.2	4.7	4.9	1.9	14.1	16.4	6.1	13.6	13.7	5.0	15.6	8.5
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	289	538	526	105	715	322	278	491	499	285	419	617
V/C Ratio(X)	1.17	0.33	0.34	0.40	0.89	1.04	0.63	0.68	0.68	0.52	0.90	0.38
Avail Cap(c_a), veh/h	289	538	526	274	715	322	278	491	499	285	435	630
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	29.0	15.0	15.0	36.2	30.9	31.8	22.5	25.6	25.6	23.0	30.1	17.5
Incr Delay (d2), s/veh	105.9	1.5	1.6	2.5	15.3	60.6	4.5	3.8	3.8	1.5	19.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	1.8	1.9	0.8	7.0	11.1	2.6	5.7	5.8	2.1	8.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.9	16.5	16.6	38.6	46.2	92.4	27.1	29.4	29.5	24.5	49.4	17.9
LnGrp LOS	F	B	B	D	D	F	C	C	C	C	D	B
Approach Vol, veh/h		695			1011			851			758	
Approach Delay, s/veh		74.3			61.2			29.0			34.8	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	30.5	14.0	24.3	19.0	22.7	9.5	28.8
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 13	* 16	7.5	* 19	* 13	* 16	5.0	* 16
Max Q Clear Time (g_c+I1), s	3.9	6.9	8.1	17.6	15.2	18.4	7.0	15.7
Green Ext Time (p_c), s	0.0	1.2	0.0	0.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



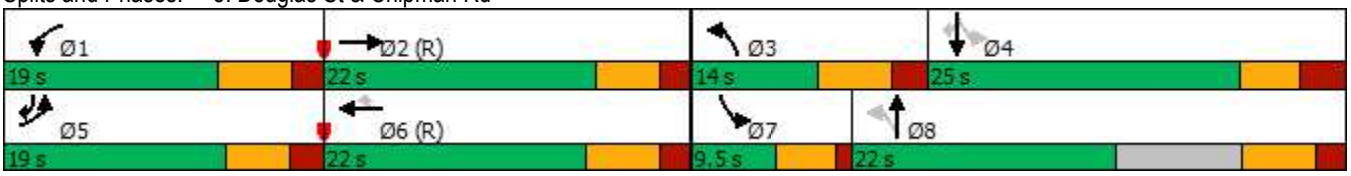
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	238	65	36	540	284	149	519	55	125	320	200
Future Volume (vph)	288	238	65	36	540	284	149	519	55	125	320	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.968				0.850		0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3328	0	1703	3471	1568	1736	3429	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.196			0.322		
Satd. Flow (perm)	1736	3328	0	1703	3471	1568	358	3429	0	600	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				208		14				106
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	4%	2%	16%	6%	4%	3%	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	339	280	76	42	635	334	175	611	65	147	376	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	339	356	0	42	635	334	175	676	0	147	376	235
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	19.0	22.0		19.0	22.0	22.0	14.0	22.0		9.5	25.0	19.0
Total Split (%)	23.8%	27.5%		23.8%	27.5%	27.5%	17.5%	27.5%		11.9%	31.3%	23.8%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	13.7	26.7		8.5	15.7	15.7	30.0	22.7		25.0	18.1	38.2
Actuated g/C Ratio	0.17	0.33		0.11	0.20	0.20	0.38	0.28		0.31	0.23	0.48
v/c Ratio	1.14	0.31		0.23	0.93	0.70	0.67	0.69		0.57	0.90	0.29
Control Delay	139.8	20.0		35.9	54.7	20.8	30.3	29.1		25.4	55.8	7.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	139.8	20.0		35.9	54.7	20.8	30.3	29.1		25.4	55.8	7.8
LOS	F	C		D	D	C	C	C		C	E	A
Approach Delay		78.4			42.7			29.4			35.0	
Approach LOS		E			D			C			D	
Queue Length 50th (ft)	~217	23		20	165	56	56	152		44	181	35

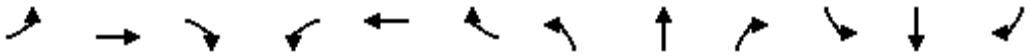
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#353	97		46	#242	129	#98	195		76	#302	70
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	298	1136		270	681	474	263	1004		260	433	811
Starvation Cap 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	1.14	0.31		0.16	0.93	0.70	0.67	0.67		0.57	0.87	0.29

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 62 (78%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 45.0 Intersection LOS: D
Intersection Capacity Utilization 76.8% 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: 5: Douglas St & Chipman Rd

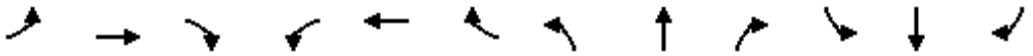




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	585	14	16	753	63	14	3	8	40	5	47
Future Volume (veh/h)	85	585	14	16	753	63	14	3	8	40	5	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1870	1811	1841	1870	1796	1870	1707	1870	1870	1737
Adj Flow Rate, veh/h	97	665	16	18	856	72	16	3	9	45	6	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	5	2	6	4	2	7	2	13	2	2	11
Cap, veh/h	126	1516	36	43	1280	108	337	72	160	260	54	259
Arrive On Green	0.07	0.44	0.44	0.02	0.39	0.39	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3462	83	1725	3265	275	803	218	484	590	162	781
Grp Volume(v), veh/h	97	333	348	18	458	470	28	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1781	1735	1811	1725	1749	1791	1505	0	0	1533	0	0
Q Serve(g_s), s	4.3	10.7	10.7	0.8	17.3	17.3	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	10.7	10.7	0.8	17.3	17.3	0.9	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.15	0.57		0.32	0.43		0.51
Lane Grp Cap(c), veh/h	126	759	793	43	685	702	569	0	0	572	0	0
V/C Ratio(X)	0.77	0.44	0.44	0.42	0.67	0.67	0.05	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	234	759	793	140	685	702	569	0	0	572	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.5	15.6	15.7	38.4	20.0	20.0	18.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	13.2	1.8	1.8	5.5	3.1	3.0	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.1	4.2	0.4	6.8	6.9	0.4	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	17.5	17.4	43.9	23.1	23.0	18.3	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	D	B	B	D	C	C	B	A	A	B	A	A
Approach Vol, veh/h		778			946			28			104	
Approach Delay, s/veh		21.5			23.5			18.3			19.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	40.5		32.0	11.1	36.9		32.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	30.5		26.5	10.5	26.5		26.5				
Max Q Clear Time (g_c+I1), s	2.8	12.7		5.6	6.3	19.3		2.9				
Green Ext Time (p_c), s	0.0	5.0		0.7	0.1	3.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		22.3	
HCM 6th LOS		C	



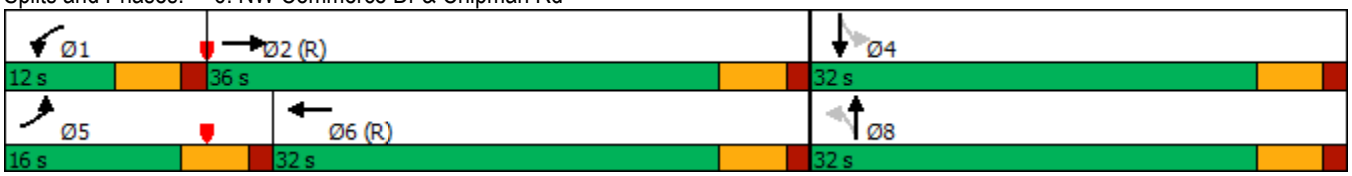
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	585	14	16	753	63	14	3	8	40	5	47
Future Volume (vph)	85	585	14	16	753	63	14	3	8	40	5	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.988			0.957			0.931	
Flt Protected	0.950			0.950				0.972			0.979	
Satd. Flow (prot)	1770	3427	0	1703	3435	0	0	1631	0	0	1625	0
Flt Permitted	0.950			0.950				0.867			0.880	
Satd. Flow (perm)	1770	3427	0	1703	3435	0	0	1454	0	0	1460	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			12			9			53	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	5%	2%	6%	4%	2%	7%	2%	13%	2%	2%	11%
Adj. Flow (vph)	97	665	16	18	856	72	16	3	9	45	6	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	681	0	18	928	0	0	28	0	0	104	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	16.0	36.0		12.0	32.0		32.0	32.0		32.0	32.0	
Total Split (%)	20.0%	45.0%		15.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	9.5	40.1		6.5	30.0			26.5			26.5	
Actuated g/C Ratio	0.12	0.50		0.08	0.38			0.33			0.33	
v/c Ratio	0.46	0.40		0.13	0.72			0.06			0.20	
Control Delay	40.0	14.1		29.6	45.0			14.5			11.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	40.0	14.1		29.6	45.0			14.5			11.7	
LOS	D	B		C	D			B			B	
Approach Delay		17.3			44.7			14.5			11.7	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)	45	97		9	263			6			17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	89	180		m15	m298			23			50	
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	232	1719		138	1294			487			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	0.42	0.40		0.13	0.72			0.06			0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 52 (65%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	17	68	6	6	111
Future Vol, veh/h	20	17	68	6	6	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	20	80	7	7	131

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	229	84	0	0	87	0
Stage 1	84	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	759	975	-	-	1509	-
Stage 1	939	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	755	975	-	-	1509	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	842	1509	-
HCM Lane V/C Ratio	-	-	0.052	0.005	-
HCM Control Delay (s)	-	-	9.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	234	405	1	244	181	408	347
Future Volume (veh/h)	234	405	1	244	181	408	347
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1856
Adj Flow Rate, veh/h	249	431		260	193	434	369
Peak Hour Factor	0.94	0.94		0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2		2	2	2	3
Cap, veh/h	562	500		572	756	574	1632
Arrive On Green	0.32	0.32		0.16	0.16	0.19	0.46
Sat Flow, veh/h	1781	1585		3647	1585	1781	3618
Grp Volume(v), veh/h	249	431		260	193	434	369
Grp Sat Flow(s),veh/h/ln	1781	1585		1777	1585	1781	1763
Q Serve(g_s), s	5.5	12.7		3.3	3.6	9.5	3.1
Cycle Q Clear(g_c), s	5.5	12.7		3.3	3.6	9.5	3.1
Prop In Lane	1.00	1.00			1.00	1.00	
Lane Grp Cap(c), veh/h	562	500		572	756	574	1632
V/C Ratio(X)	0.44	0.86		0.45	0.26	0.76	0.23
Avail Cap(c_a), veh/h	914	813		3469	2048	574	3512
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	16.0		18.9	7.7	14.4	8.0
Incr Delay (d2), s/veh	0.2	2.9		0.2	0.1	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.1		1.2	0.9	4.1	0.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.7	18.9		19.1	7.8	19.5	8.0
LnGrp LOS	B	B		B	A	B	A
Approach Vol, veh/h	680			453			803
Approach Delay, s/veh	17.0			14.3			14.2
Approach LOS	B			B			B

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		28.5			15.0	13.5		21.2
Change Period (Y+Rc), s		5.5			5.5	5.5		5.5
Max Green Setting (Gmax), s		49.5			9.5	48.5		25.5
Max Q Clear Time (g_c+I1), s		5.1			11.5	5.6		14.7
Green Ext Time (p_c), s		1.6			0.0	1.4		1.0

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

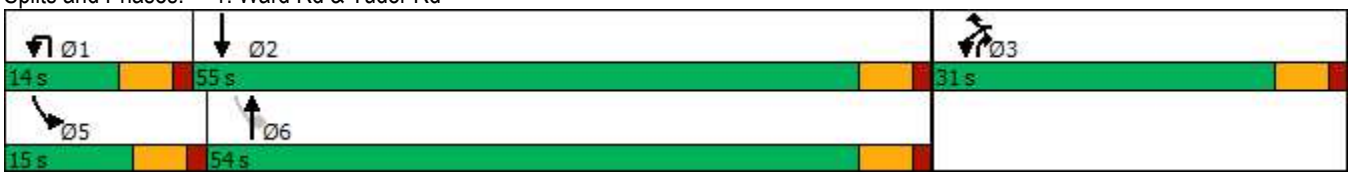
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	234	405	1	244	181	408	347
Future Volume (vph)	234	405	1	244	181	408	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	90		90	150	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	25		25			25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1770	1583	1770	3539	1583	1770	3505
Flt Permitted	0.950		0.950			0.591	
Satd. Flow (perm)	1770	1583	1770	3539	1583	1101	3505
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		431			193		
Link Speed (mph)	35			35			35
Link Distance (ft)	2620			1884			949
Travel Time (s)	51.0			36.7			18.5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	249	431	1	260	193	434	369
Shared Lane Traffic (%)							
Lane Group Flow (vph)	249	431	1	260	193	434	369
Turn Type	Prot	Prot	Prot	NA	pm+ov	D.P+P	NA
Protected Phases	3	3	1	6	3	5	2
Permitted Phases					6	6	
Detector Phase	3	3	1	6	3	5	2
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.5	30.5	13.5	53.5	30.5	13.5	23.5
Total Split (s)	31.0	31.0	14.0	54.0	31.0	15.0	55.0
Total Split (%)	31.0%	31.0%	14.0%	54.0%	31.0%	15.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead	Lag		Lead	Lag
Lead-Lag Optimize?			Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	None	None	Min
Act Effct Green (s)	11.0	11.0	8.1	9.0	25.6	18.3	21.6
Actuated g/C Ratio	0.24	0.24	0.18	0.20	0.56	0.40	0.47
v/c Ratio	0.59	0.61	0.00	0.38	0.20	0.76	0.22
Control Delay	21.8	6.2	18.0	18.5	1.4	20.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	6.2	18.0	18.5	1.4	20.0	10.0
LOS	C	A	B	B	A	C	B
Approach Delay	11.9			11.2			15.4
Approach LOS	B			B			B
Queue Length 50th (ft)	56	0	0	31	0	62	23

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Queue Length 95th (ft)	121	53	4	64	17	#163	85
Internal Link Dist (ft)	2540			1804			869
Turn Bay Length (ft)			90		90	150	
Base Capacity (vph)	989	1075	330	3464	1443	583	3444
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	0.25	0.40	0.00	0.08	0.13	0.74	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 46			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 56.1%		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: 1: Ward Rd & Tudor Rd



Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	482	41	44	435	44	22	6	70	113	14	156
Future Vol, veh/h	49	482	41	44	435	44	22	6	70	113	14	156
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	185	-	-	110	-	150	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	513	44	47	463	47	23	6	74	120	15	166

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	510	0	0	557	0	0	972	1243	279	921	1218	232
Stage 1	-	-	-	-	-	-	639	639	-	557	557	-
Stage 2	-	-	-	-	-	-	333	604	-	364	661	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1051	-	-	1010	-	-	207	173	718	225	179	770
Stage 1	-	-	-	-	-	-	431	469	-	482	510	-
Stage 2	-	-	-	-	-	-	654	486	-	627	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1051	-	-	1010	-	-	140	157	718	182	162	770
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	157	-	182	162	-
Stage 1	-	-	-	-	-	-	410	446	-	458	486	-
Stage 2	-	-	-	-	-	-	474	463	-	527	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.7	17.7	30.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	140	560	1051	-	-	1010	-	-	182	588
HCM Lane V/C Ratio	0.167	0.144	0.05	-	-	0.046	-	-	0.661	0.308
HCM Control Delay (s)	35.8	12.5	8.6	-	-	8.7	-	-	56.6	13.8
HCM Lane LOS	E	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.6	0.5	0.2	-	-	0.1	-	-	3.9	1.3

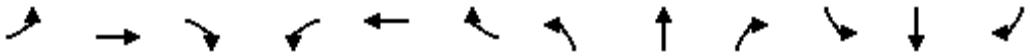
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	643	17	37	507	5	11	0	24	5	0	5
Future Vol, veh/h	5	643	17	37	507	5	11	0	24	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	80	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	699	18	40	551	5	12	0	26	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	717	0	0	1074	1354	359	994	1361	278
Stage 1	-	-	-	-	-	-	718	718	-	634	634	-
Stage 2	-	-	-	-	-	-	356	636	-	360	727	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1011	-	-	880	-	-	174	148	638	199	147	719
Stage 1	-	-	-	-	-	-	386	431	-	434	471	-
Stage 2	-	-	-	-	-	-	634	470	-	631	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1011	-	-	880	-	-	166	141	638	183	140	719
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	141	-	183	140	-
Stage 1	-	-	-	-	-	-	384	429	-	432	450	-
Stage 2	-	-	-	-	-	-	601	449	-	602	425	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	17	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	337	1011	-	-	880	-	-	292
HCM Lane V/C Ratio	0.113	0.005	-	-	0.046	-	-	0.037
HCM Control Delay (s)	17	8.6	-	-	9.3	-	-	17.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1



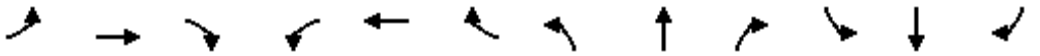
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	380	110	229	299	386	55	624	209	641	939	179
Future Volume (veh/h)	184	380	110	229	299	386	55	624	209	641	939	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	1870	1870	1841	1870	1870	1870	1870	1856
Adj Flow Rate, veh/h	207	427	124	257	336	434	62	701	235	720	1055	201
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	4	2	2	2	4	2	2	2	2	3
Cap, veh/h	206	410	180	246	245	218	231	722	470	602	1318	250
Arrive On Green	0.07	0.12	0.12	0.09	0.14	0.14	0.05	0.20	0.20	0.29	0.44	0.44
Sat Flow, veh/h	1781	3554	1560	1781	1777	1585	1753	3554	1585	1781	2979	566
Grp Volume(v), veh/h	207	427	124	257	336	434	62	701	235	720	628	628
Grp Sat Flow(s),veh/h/ln	1781	1777	1560	1781	1777	1585	1753	1777	1585	1781	1777	1768
Q Serve(g_s), s	6.4	10.4	6.9	8.4	12.4	12.4	1.7	17.6	11.0	26.2	27.5	27.7
Cycle Q Clear(g_c), s	6.4	10.4	6.9	8.4	12.4	12.4	1.7	17.6	11.0	26.2	27.5	27.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	206	410	180	246	245	218	231	722	470	602	786	783
V/C Ratio(X)	1.00	1.04	0.69	1.04	1.37	1.99	0.27	0.97	0.50	1.20	0.80	0.80
Avail Cap(c_a), veh/h	206	410	180	246	245	218	261	722	470	602	786	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	39.8	38.3	35.2	38.8	38.9	16.9	35.6	26.2	23.7	21.7	21.7
Incr Delay (d2), s/veh	63.3	55.5	10.5	69.6	192.0	461.3	0.6	26.4	0.8	103.5	5.8	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	7.6	3.1	6.0	18.3	32.6	0.6	9.8	4.1	27.0	11.4	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.8	95.3	48.8	104.8	230.9	500.2	17.5	62.1	27.0	127.3	27.5	27.7
LnGrp LOS	F	F	D	F	F	F	B	E	C	F	C	C
Approach Vol, veh/h		758			1027			998			1976	
Approach Delay, s/veh		88.7			313.1			51.0			63.9	
Approach LOS		F			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	46.7	13.0	19.0	33.0	25.1	15.0	17.0
Change Period (Y+Rc), s	* 6.7	6.8	6.6	6.6	6.8	* 6.8	6.6	6.6
Max Green Setting (Gmax), s	* 6.3	38.2	6.4	12.4	26.2	* 18	8.4	10.4
Max Q Clear Time (g_c+I1), s	3.7	29.7	8.4	14.4	28.2	19.6	10.4	12.4
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	118.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



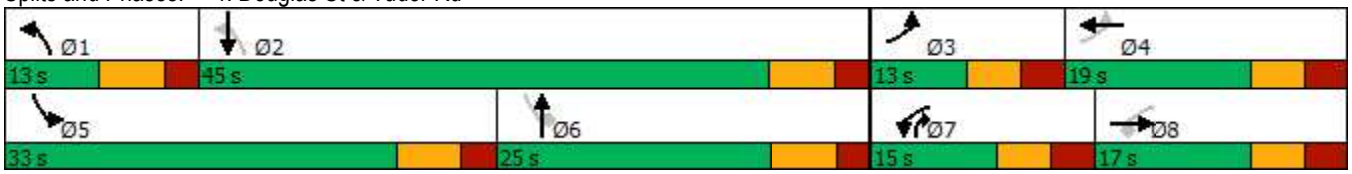
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	380	110	229	299	386	55	624	209	641	939	179
Future Volume (vph)	184	380	110	229	299	386	55	624	209	641	939	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	165		145	145		0	150		100	330		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.915				0.850		0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1553	1770	3238	0	1736	3539	1583	1770	3449	0
Flt Permitted	0.323			0.385			0.099			0.204		
Satd. Flow (perm)	602	3539	1553	717	3238	0	181	3539	1583	380	3449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			290		301				207		30	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		741			1490			2041			805	
Travel Time (s)		14.4			29.0			30.9			12.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	4%	2%	2%	2%	2%	3%
Adj. Flow (vph)	207	427	124	257	336	434	62	701	235	720	1055	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	427	124	257	770	0	62	701	235	720	1256	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	4		8	8			2		6	6		
Detector Phase	3	8	8	7	4		1	6	7	5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	12.6	12.6	12.6	12.6	12.6		12.7	16.7	12.6	12.8	16.8	
Total Split (s)	13.0	17.0	17.0	15.0	19.0		13.0	25.0	15.0	33.0	45.0	
Total Split (%)	14.4%	18.9%	18.9%	16.7%	21.1%		14.4%	27.8%	16.7%	36.7%	50.0%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		4.4	4.4	3.6	4.4	4.4	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.3	2.3	3.0	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.7	6.7	6.6	6.8	6.8	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	18.8	10.4	10.4	18.8	12.4		45.9	18.3	33.4	44.4	40.8	
Actuated g/C Ratio	0.21	0.12	0.12	0.21	0.14		0.51	0.20	0.37	0.49	0.45	
v/c Ratio	1.00	1.05	0.29	1.04	1.09		0.31	0.97	0.33	1.22	0.79	
Control Delay	94.2	97.6	1.6	99.1	85.8		13.4	65.0	5.5	137.5	26.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	94.2	97.6	1.6	99.1	85.8		13.4	65.0	5.5	137.5	26.2	
LOS	F	F	A	F	F		B	E	A	F	C	
Approach Delay		81.0			89.2			47.8			66.7	
Approach LOS		F			F			D			E	
Queue Length 50th (ft)	95	~140	0	~129	~177		15	210	10	~462	322	

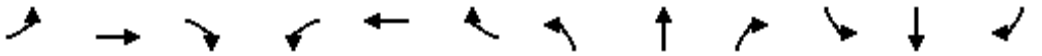
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#203	#230	0	#250	#289		31	#320	56	#669	407	
Internal Link Dist (ft)		661			1410			1961			725	
Turn Bay Length (ft)	165		145	145			150		100	330		
Base Capacity (vph)	208	408	435	248	705		201	719	717	592	1580	
Starvation 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	1.00	1.05	0.29	1.04	1.09		0.31	0.97	0.33	1.22	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 69.9 Intersection LOS: E
Intersection Capacity Utilization 105.9% ICU Level of Service G
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: 4: Douglas St & Tudor Rd





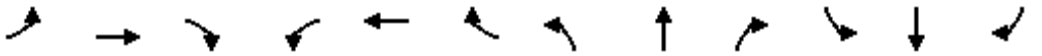
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	852	189	82	742	165	141	408	80	340	573	374
Future Volume (veh/h)	299	852	189	82	742	165	141	408	80	340	573	374
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	318	906	201	87	789	176	150	434	85	362	610	398
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	938	208	130	854	381	217	720	140	393	498	678
Arrive On Green	0.05	0.11	0.11	0.07	0.24	0.24	0.08	0.24	0.24	0.13	0.27	0.27
Sat Flow, veh/h	1781	2891	641	1781	3554	1585	1781	2967	577	1781	1870	1585
Grp Volume(v), veh/h	318	557	550	87	789	176	150	259	260	362	610	398
Grp Sat Flow(s),veh/h/ln	1781	1777	1755	1781	1777	1585	1781	1777	1767	1781	1870	1585
Q Serve(g_s), s	16.2	31.2	31.2	4.8	21.7	9.5	6.2	12.9	13.1	12.5	26.6	19.2
Cycle Q Clear(g_c), s	16.2	31.2	31.2	4.8	21.7	9.5	6.2	12.9	13.1	12.5	26.6	19.2
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	289	577	570	130	854	381	217	431	429	393	498	678
V/C Ratio(X)	1.10	0.97	0.97	0.67	0.92	0.46	0.69	0.60	0.61	0.92	1.23	0.59
Avail Cap(c_a), veh/h	289	577	570	191	854	381	259	474	472	393	498	678
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.51	0.51
Uniform Delay (d), s/veh	47.3	44.1	44.1	45.2	37.1	32.5	27.9	33.6	33.6	29.7	36.7	21.8
Incr Delay (d2), s/veh	72.1	22.0	22.4	5.9	17.0	4.0	6.0	1.8	1.9	16.3	110.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	18.2	18.0	2.2	10.9	3.9	2.9	5.5	5.6	4.3	26.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.4	66.1	66.5	51.0	54.1	36.4	33.9	35.3	35.6	46.0	147.6	22.5
LnGrp LOS	F	E	E	D	D	D	C	D	D	D	F	C
Approach Vol, veh/h		1425			1052			669			1370	
Approach Delay, s/veh		78.1			50.9			35.1			84.4	
Approach LOS		E			D			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	38.8	14.7	33.0	22.0	30.3	17.0	30.7
Change Period (Y+Rc), s	* 6.3	* 6.3	6.5	* 6.4	* 5.8	* 6.3	4.5	* 6.4
Max Green Setting (Gmax), s	* 11	* 27	10.5	* 27	* 16	* 22	12.5	* 27
Max Q Clear Time (g_c+I1), s	6.8	33.2	8.2	28.6	18.2	23.7	14.5	15.1
Green Ext Time (p_c), s	0.1	0.0	0.1	0.0	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	67.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

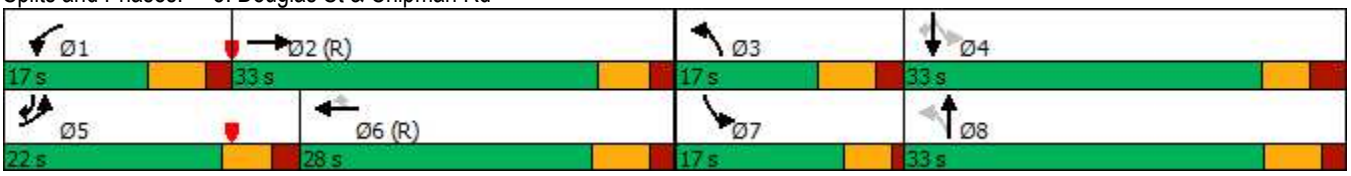


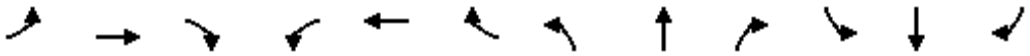
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	852	189	82	742	165	141	408	80	340	573	374
Future Volume (vph)	299	852	189	82	742	165	141	408	80	340	573	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		0	200		200	90		0	180		180
Storage Lanes	1		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.973				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3444	0	1770	3539	1583	1770	3451	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.150			0.331		
Satd. Flow (perm)	1770	3444	0	1770	3539	1583	279	3451	0	617	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				177		22				107
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1360			1199			649			2041	
Travel Time (s)		20.6			18.2			9.8			30.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	318	906	201	87	789	176	150	434	85	362	610	398
Shared Lane Traffic (%)												
Lane Group Flow (vph)	318	1107	0	87	789	176	150	519	0	362	610	398
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		8.0	10.0	10.0	5.0	10.0		5.0	10.0	6.0
Minimum Split (s)	11.8	15.8		14.3	16.3	16.3	11.5	16.3		9.5	16.4	11.8
Total Split (s)	22.0	33.0		17.0	28.0	28.0	17.0	33.0		17.0	33.0	22.0
Total Split (%)	22.0%	33.0%		17.0%	28.0%	28.0%	17.0%	33.0%		17.0%	33.0%	22.0%
Yellow Time (s)	3.8	3.8		4.4	4.4	4.4	4.4	4.4		3.5	3.6	3.8
All-Red Time (s)	2.0	2.0		1.9	1.9	1.9	2.1	1.9		1.0	2.8	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8		6.3	6.3	6.3	6.5	6.3		4.5	6.4	5.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	Min		None	None	None
Act Effct Green (s)	16.2	31.1		9.6	21.7	21.7	36.1	26.7		41.9	27.5	50.1
Actuated g/C Ratio	0.16	0.31		0.10	0.22	0.22	0.36	0.27		0.42	0.28	0.50
v/c Ratio	1.11	1.02		0.51	1.03	0.37	0.62	0.55		0.90	1.19	0.47
Control Delay	121.7	74.4		53.6	79.4	7.4	30.4	32.8		48.6	138.5	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	121.7	74.4		53.6	79.4	7.4	30.4	32.8		48.6	138.5	13.9
LOS	F	E		D	E	A	C	C		D	F	B
Approach Delay		85.0			65.3			32.2			78.6	
Approach LOS		F			E			C			E	
Queue Length 50th (ft)	~242	~408		53	~284	0	58	143		154	~483	115
Queue Length 95th (ft)	m#406	#591		102	#403	53	104	197		#273	#695	195

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1280			1119			569			1961	
Turn Bay Length (ft)	335			200		200	90			180		180
Base Capacity (vph)	286	1089		189	767	482	259	937		402	512	846
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	1.11	1.02		0.46	1.03	0.37	0.58	0.55		0.90	1.19	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 64 (64%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 70.6		Intersection LOS: E	
Intersection Capacity Utilization 95.9%		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: 5: Douglas St & Chipman Rd

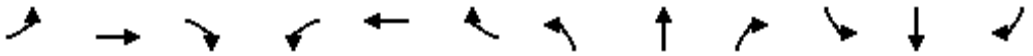




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	1254	14	16	1156	60	15	2	17	93	12	114
Future Volume (veh/h)	80	1254	14	16	1156	60	15	2	17	93	12	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	1363	15	17	1257	65	16	2	18	101	13	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1827	20	40	1605	83	226	43	218	229	45	243
Arrive On Green	0.06	0.51	0.51	0.05	0.93	0.93	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3600	40	1781	3438	178	572	142	714	583	148	795
Grp Volume(v), veh/h	87	672	706	17	649	673	36	0	0	238	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1863	1781	1777	1838	1428	0	0	1527	0	0
Q Serve(g_s), s	4.8	30.0	30.0	0.9	9.0	9.0	0.0	0.0	0.0	9.9	0.0	0.0
Cycle Q Clear(g_c), s	4.8	30.0	30.0	0.9	9.0	9.0	1.5	0.0	0.0	12.6	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.10	0.44		0.50	0.42		0.52
Lane Grp Cap(c), veh/h	112	902	945	40	830	858	487	0	0	517	0	0
V/C Ratio(X)	0.77	0.75	0.75	0.42	0.78	0.78	0.07	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	223	902	945	116	830	858	487	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.47	0.47	0.47	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.1	19.5	19.5	47.1	2.1	2.1	24.7	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	14.8	5.6	5.3	4.7	3.5	3.5	0.3	0.0	0.0	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	12.4	12.9	0.4	1.8	1.8	0.7	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	25.1	24.9	51.8	5.6	5.5	25.0	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	E	C	C	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1465			1339			36			238	
Approach Delay, s/veh		27.1			6.1			25.0			31.3	
Approach LOS		C			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	56.2		36.0	11.8	52.2		36.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	46.5		30.5	12.5	40.5		30.5				
Max Q Clear Time (g_c+I1), s	2.9	32.0		14.6	6.8	11.0		3.5				
Green Ext Time (p_c), s	0.0	9.5		1.8	0.1	14.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

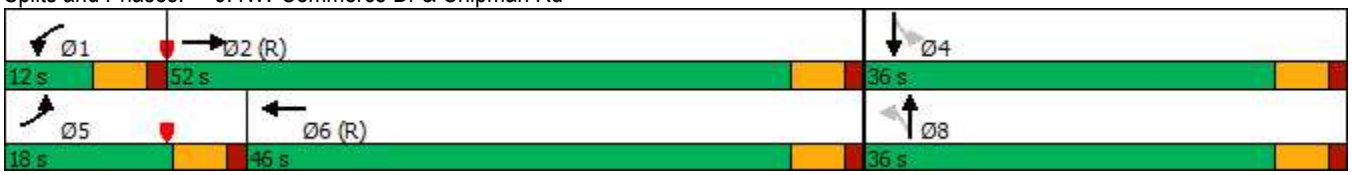


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1254	14	16	1156	60	15	2	17	93	12	114
Future Volume (vph)	80	1254	14	16	1156	60	15	2	17	93	12	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	95		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.932			0.930	
Flt Protected	0.950			0.950				0.978			0.979	
Satd. Flow (prot)	1770	3532	0	1770	3514	0	0	1698	0	0	1696	0
Flt Permitted	0.950			0.950				0.852			0.848	
Satd. Flow (perm)	1770	3532	0	1770	3514	0	0	1479	0	0	1469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			6			18			56	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		2665			1360			926			1728	
Travel Time (s)		40.4			20.6			25.3			47.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1363	15	17	1257	65	16	2	18	101	13	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	1378	0	17	1322	0	0	36	0	0	238	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.5	32.5		11.5	25.5		11.5	11.5		31.5	31.5	
Total Split (s)	18.0	52.0		12.0	46.0		36.0	36.0		36.0	36.0	
Total Split (%)	18.0%	52.0%		12.0%	46.0%		36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	10.6	53.7		6.5	44.9			30.5			30.5	
Actuated g/C Ratio	0.11	0.54		0.06	0.45			0.30			0.30	
v/c Ratio	0.46	0.73		0.15	0.84			0.08			0.49	
Control Delay	49.7	21.6		50.1	19.8			16.0			25.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	49.7	21.6		50.1	19.8			16.0			25.4	
LOS	D	C		D	B			B			C	
Approach Delay		23.3			20.2			16.0			25.4	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	53	293		11	184			8			93	
Queue Length 95th (ft)	100	490		m16	m196			31			168	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		2585			1280			846			1648	
Turn Bay Length (ft)	90			95								
Base Capacity (vph)	221	1896		115	1582			463			486	
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	0.39	0.73		0.15	0.84			0.08			0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 71 (71%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: NW Commerce Dr & Chipman Rd



Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	8	90	15	14	85
Future Vol, veh/h	10	8	90	15	14	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	106	18	16	100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	247	115	0	0	124	0
Stage 1	115	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	741	937	-	-	1463	-
Stage 1	910	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	732	937	-	-	1463	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	811	1463	-
HCM Lane V/C Ratio	-	-	0.026	0.011	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-