Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 8707

June 15, 2021

Ms. Jean M. Bubon, AICP
Town Planner
Town of Sturbridge
301 Main Street
Sturbridge, MA 01566

Re: Response to Follow-Up Peer Review
Proposed Travel Center - 195 Charlton Road (Route 20)
Sturbridge, Massachusetts

Dear Jean:

Vanasse & Associates, Inc. (VAI) is providing responses to the follow-up comments that were raised in the June 3, 2021 Peer Review memorandum prepared by Pare Corporation (Pare) on behalf of the Town in reference to their review of the April 2021 *Transportation Impact Assessment* (the "April 2021 TIA") and the subsequent May 20, 2021 Response to Comments letter prepared by VAI in support of the proposed travel center to be located at 195 Charlton Road (Route 20) in Sturbridge, Massachusetts (hereafter referred to as the "Project"). Listed below are the comments that were identified by Pare in the subject memorandum that required a response followed by our response on behalf of the Applicant.

Vanasse Traffic Impact Study, dated April 2021 and Response to Comments dated May 20, 2021:

Project Description

Comment 1: *The applicant's traffic engineer has stated that an EENF is being prepared for the project pursuant to the requirements of the MEPA and will be followed by the preparation of an EIR. Has further coordination occurred with MassDOT and where does the EENF stand.*

Response: The EENF has been filed with the MEPA Office and was noticed in the June 9, 2021 Environmental Monitor (EEA No. 16389). The Project proponent consulted with MassDOT prior to the filing of the EENF and the accompanying Transportation Impact Assessment incorporates the initial comments that were provided by MassDOT.

Comment 2: *Also has any further progress been made with the relocation of the bank driveway been made. Without this realignment of the driveway, left turn movements out of the bank driveway will be difficult due to queuing of traffic at the light.*

Response: Subject to MassDOT review and approval, Cornerstone Bank has agreed to relocate their driveway so as to be located opposite the primary Project site driveway and included as a part of the proposed signalized intersection.

Comment 3: *Also, for the secondary access, the study does not take into account the business across the street and what impacts the two-way left turn lane may have on truck traffic exiting the proposed site that will need to cross two travel lanes and the proposed two-way left turn lane. Please provide further clarification.*

Response: The planned improvements to Route 20 will include the addition of a center turn lane that will facilitate left-turn movements entering and exiting the east Project site driveway and the driveways located along this section of Route 20 opposite the Project site. The center turn lane allows left-turn movements to be completed in two stages, with vehicles using the center turn lane to wait for a gap in traffic in the opposing direction of travel to complete the left-turn maneuver without impeding through traffic. The April 2021 TIA documents that the available lines of sight along this section of Route 20 meet or exceed the minimum sight distance to allow a vehicle to safely exit the subject driveways and cross two lanes of traffic to complete left-turn maneuvers. Further and as acknowledged by Pare, the proposed traffic signal that will be installed at the primary Project site driveway intersection will create gaps in the flow of eastbound traffic that will allow for trucks to exit from the driveway in a safe manner.

As presented in the May 20, 2021 Response to Comments letter, the number of trucks exiting from the east driveway is expected to be relatively minor and will be dispersed given the limited accommodations that are afforded to park such vehicles within the Project site (two parking spaces) and the time that is required to fuel such vehicles at the four (4) pump diesel pumps. These modest accommodations for parking and fueling of large trucks physically limit the number of trucks exiting from the east driveway.

Existing Traffic Volumes

Comment: *.....please provide more information related to traffic from business across Route 20 at the secondary access to the proposed site and an analysis of how this intersection will operate. Pare reviewed this development in 2017. The proposed office use was anticipated to generate 98 trips [in] the morning peak hour (86 in/12 out) and 124 trips in the p.m. peak hour (22 in/102 out). Please provide volumes that could/are anticipated during the peak conditions and what the impacts are. Also, please clarify the impact of the additional traffic.*

Response: A review of the occupancy of the office building located at 198 Charlton Road (opposite the Project site) at the time that the traffic counts that form the basis of the April 2021 TIA was performed (October 2020) indicates that the building was approximately 1/3 occupied. As such, the traffic volumes associated with the office building were increased to reflect the predicted traffic volumes that were identified by PARE (98 vehicle trips during the weekday morning peak-hour and 124 vehicle trips during the weekday evening peak-hour; traffic volumes were assumed to be negligible during the Saturday midday peak-hour). The driveway to the office building and the associated traffic volumes have been added to the traffic volume networks, with Figures 3R, 4R and 5R depicting the revised 2020 Existing (as counted) peak-hour traffic volumes. Figures 6R, 7R and 8R depicted the revised 2028 No-Build peak-hour traffic volumes which incorporate traffic volumes associated with full occupancy of the office building. Figures 13R, 14R and 15R depict the corresponding 2028 Build condition peak-hour traffic volumes.

Tables 9R and 10R summarize the results of the revised traffic operations analyses that reflect the revised traffic volumes shown on the aforementioned figures. A comparison of the analysis results that were presented in Tables 9 and 10 of the April 2021 TIA to those presented in Tables 9R and 10R indicates no significant changes occurred as a result of the addition of traffic volumes associated will the full occupancy of the office building located at 198 Charlton Road. That being said, we note that the addition of the center turn lane to Route 20 was identified to improve traffic operations for vehicles exiting the driveway to 198 Charlton Road and the east Project site driveway. The aforementioned traffic volume networks, analysis summary tables and the detailed analysis worksheets are attached.

Project-Generated Traffic

Comment: *Pare agrees that Automobile Sales LUC 840 for the electrical vehicle discovery center is the best comparable use to determine trips. It is understood that classes/seminars could be taught at this center attracting a significant number of visitors/users. Were these volumes considered?*

As discussed at the Planning Board hearing, it was previously stated [that] 70+ individuals could be attending classes/seminars and they may extend to a release time of late afternoon, i.e. the p.m. peak hour. Provide analysis taking into account the impacts of these peak volumes.

Response: The traffic volume projections that were developed for the EV Discovery Center using Institute of Transportation Engineers (ITE) Land Use Code (LUC) 840, *Automobile Sales (New)*,[1] estimate that this use could generate approximately 38 vehicle trips during the weekday evening peak-hour, which is a reasonable approximation of the volume of traffic that could be attributable to a class or seminar with approximately 70 participants recognizing that some participants will carpool and that not all participants will leave the site during the same period. That being said, it is clear from the traffic operations analysis that the traffic signal system and the accompanying geometric improvements at the primary Project site driveway afford sufficient reserve capacity to accommodate traffic volume fluctuations that may occur related to the hosting of classes and seminars at the EV Discovery Center.

Traffic Operations Analysis

Comment 1: *Route 20 at Hall Road- Existing movements northbound operate at LOS E and F during peak hours. Future No-Build versus Future Build indicates no significant reduction in LOS but there is significant delay northbound. The applicant is to perform a detailed Traffic Signal Warrant Analysis for the Route 20/Hall Road intersection. The results of that and the impacts on this project should be discussed.*

Applicant states that a warrant analysis will be performed and provided to Town and MassDOT. The applicant should provide more information as to why the proposed signal could help traffic at Hall Road.

Response: The proposed traffic signal that is to be installed at the primary Project site driveway intersection with Route 20 will create gaps in the flow of traffic in the westbound direction

[1] *Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.

on Route 20 that will increase the number of gaps in traffic to allow left-turn movements to exit from Hall Road. As an added improvement to address the increase in eastbound traffic on Route 20 resulting from the Project, "Do Not Block" pavement markings and accompanying signs can be installed on Route 20 at Hall Road subject to the review and approval of MassDOT.

Comment 2: *Route 20 at the Exit-Only Driveway - Level of Service appears acceptable based on volumes generated. There is a concern however that this is going to be truck traffic only and most will be travelling westbound towards the Turnpike. Traffic exiting the site heading westbound will need to cross two eastbound travel lanes. How will this intersection work with proposed signal in place? Gaps may be created due to signal but what will queues be like for traffic heading westbound. This should be addressed.*

Response: As noted previously, the number of trucks exiting from the east driveway is expected to be relatively minor and will be dispersed given the limited accommodations that are afforded to park such vehicles within the Project site (two parking spaces) and the time that is required to fuel such vehicles at the four (4) pumps. These modest accommodations for parking and fueling of large trucks physically limit on the number of trucks exiting from the east driveway.

A review of the predicted vehicle queue on the Route 20 westbound approach to the traffic signal indicates that the longest 95th percentile vehicle queue is expected to be 109 feet in the left-turn lane and 162 feet in the through travel lanes, neither of which will block the exit-only Project site driveway which is located approximately 340 feet east of the stop-line for westbound traffic at the proposed traffic signal.

Comment 3: *As previously noted, the development (office space) at 198 Charlton Road is not included in the analysis. Also, a two-way left turn lane in the median is proposed at this driveway. Analyze this intersection with the traffic from the development at 198 Charlton Road and with the left turn lane being installed into that site.*

Response: The subject intersection has been assessed as discussed previously and operating conditions for vehicles exiting both the driveway to 198 Charlton Road and the east Project site driveway were shown to improve with the addition of the center turn lane along Route 20.

Comment 4: *Also, more supporting documentation as to why it is felt truck traffic will take a right turn out of the proposed site. In addition to the proposed Pilot stop, there is a diesel fueling station on the Turnpike east of Route 84. Trucks heading east will be anticipated to use this site if heading eastbound instead of using the proposed site and the signalized roadway of Route 20 if heading eastbound. Please provide more justification as to why truck traffic leaving site may be making right turns.*

Response: Given the fueling opportunities for trucks on I-84 and I-90, there would be no reason for trucks to exit these facilities to patronize the Project site unless they have a destination along Route 20. A truck traveling westbound on Route 20 destined to I-84 or I-90 may patronize the Project site and would turn left from the east driveway. Trucks that exit I-84 that have a destination to the east on Route 20 that patronize the Project site would turn right when exiting. A review of traffic patterns along Route 20 in the vicinity of the Project site indicates that the directional flow during the peak hours is approximately 50/50. Based on these factors, it can reasonably be concluded that the predominant exiting maneuver for

trucks from the east driveway would be right turns. That being said and as discussed herein, the number of trucks that are expected to exit the east Project site driveway is expected to be relatively minor and dispersed throughout the day.

Sturbridge Police Department Comments, dated May 20, 2021:

Comment: *See response to previous comment 'Route 20 at the Exit-Only Driveway'.*

Response: See responses to Pare follow-up comments pertaining to the Route 20 east Project site driveway.

We trust that this information is responsive to the follow-up Peer Review comments that were provided by Pare in their June 3, 2021 memorandum. If you should have any questions or would like to discuss our responses in more detail, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

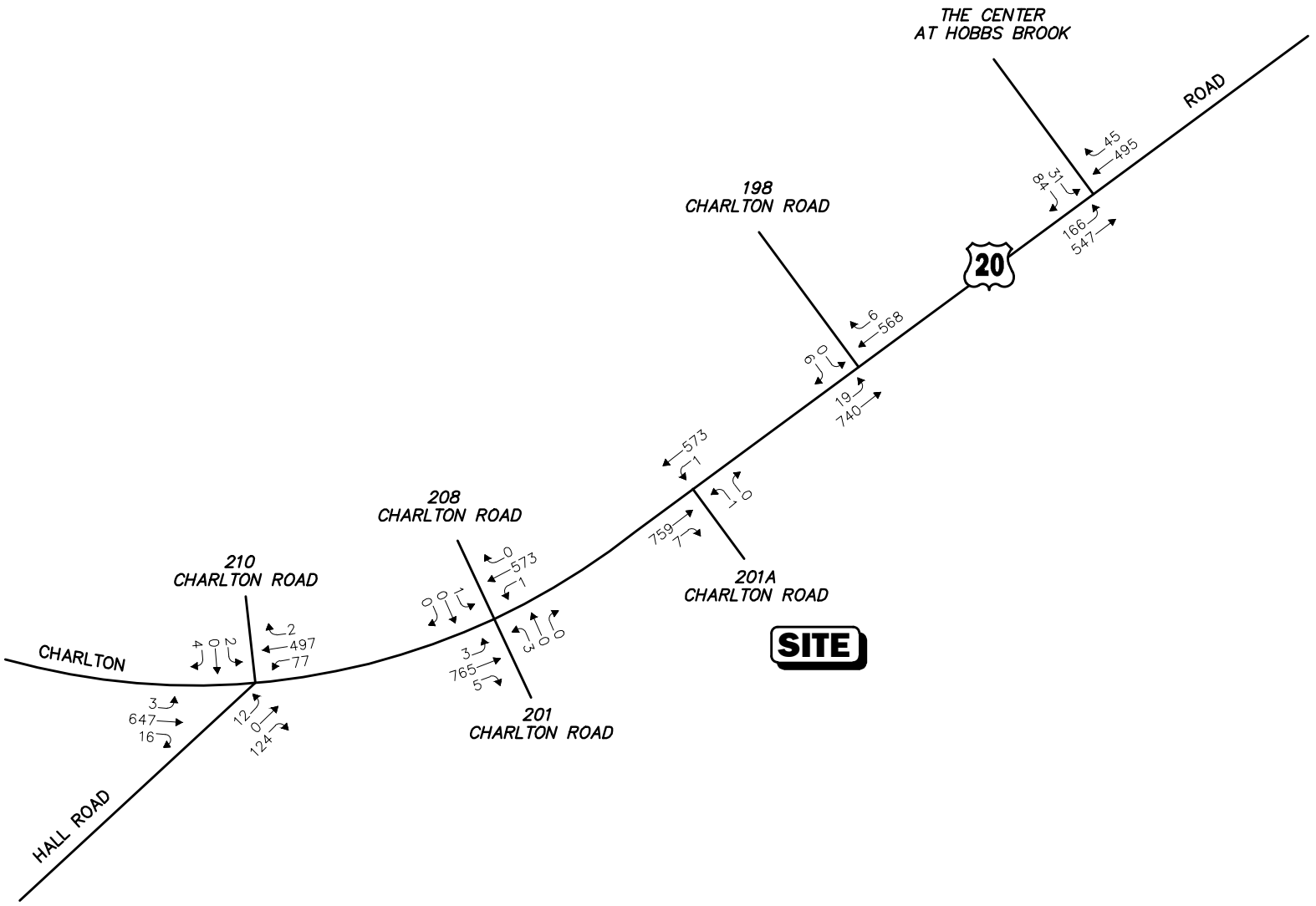
Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/jsd

Attachments



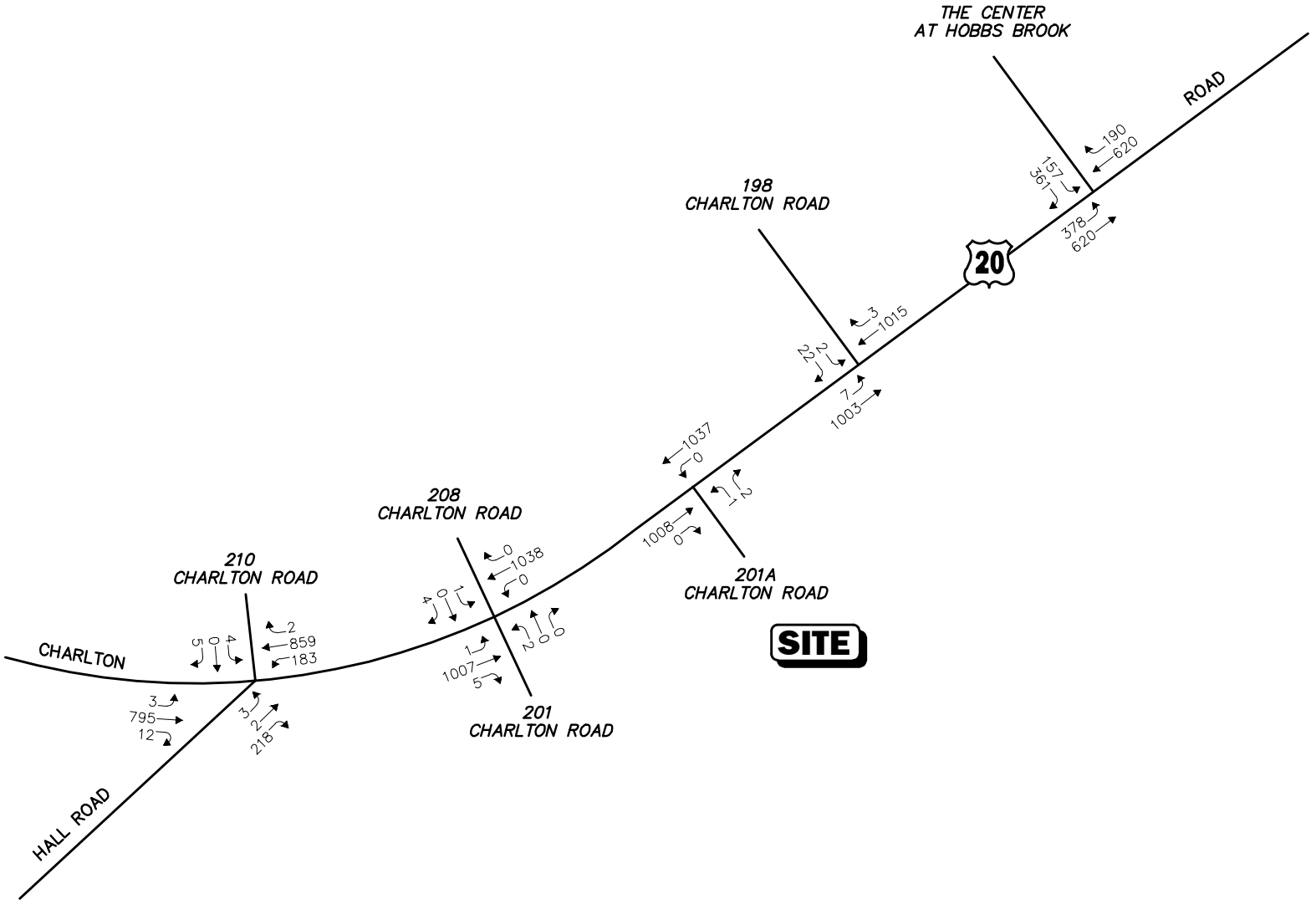
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 3R

2020 Existing
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc



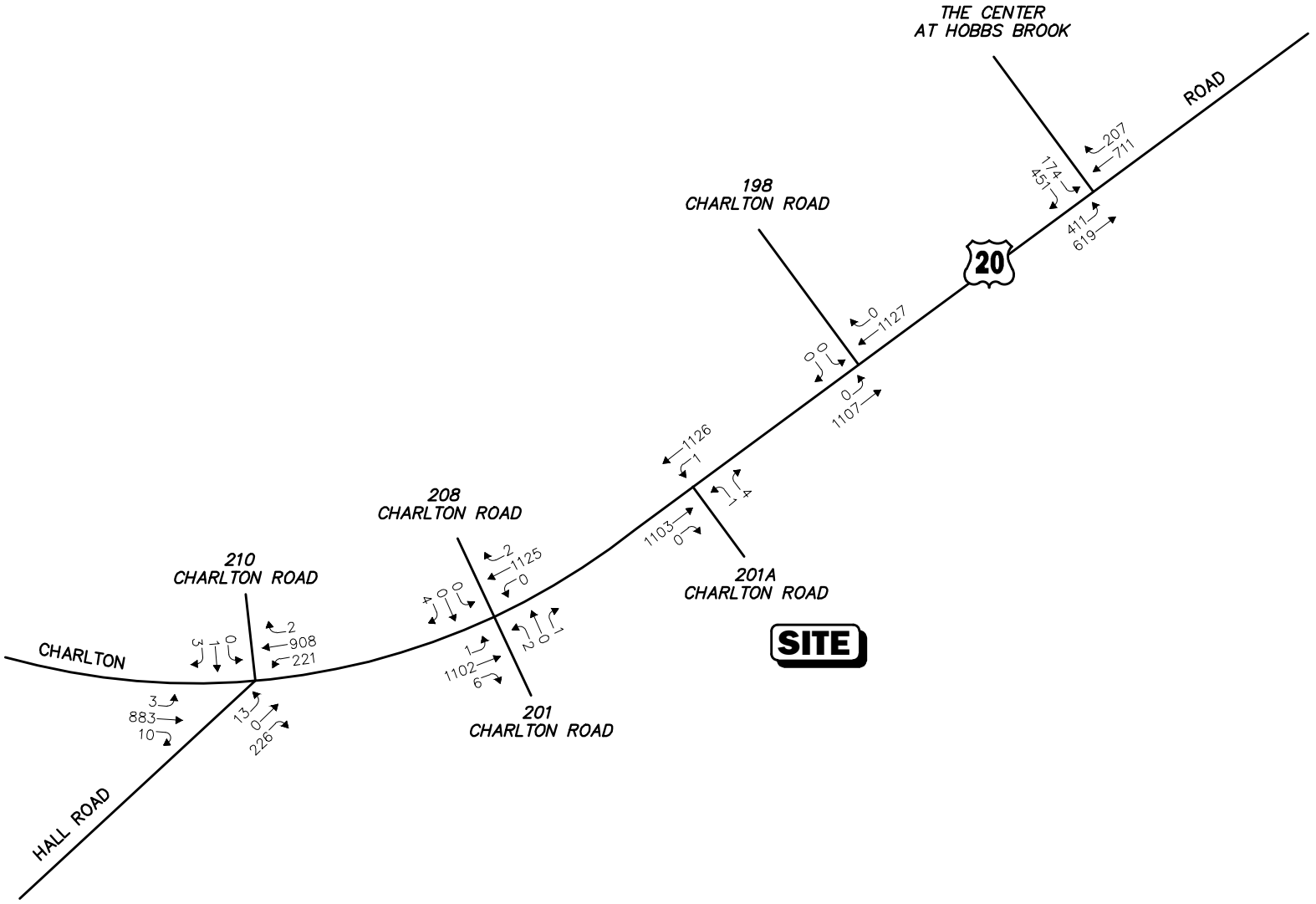
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 4R

Vanasse & Associates inc

2020 Existing
Weekday Evening
Peak-Hour Traffic Volumes



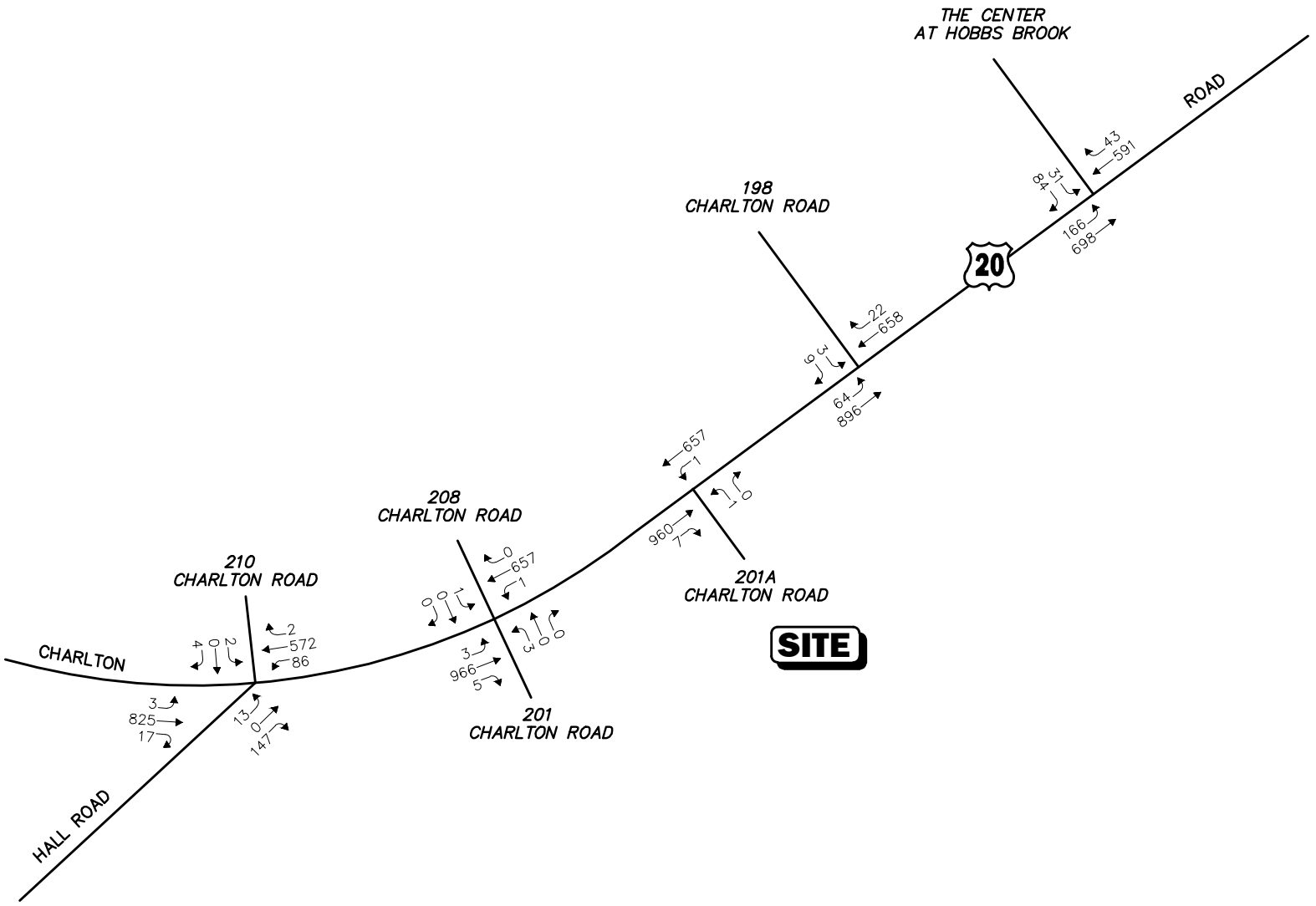
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 5R

Vanasse & Associates inc

2020 Existing
Saturday Midday
Peak-Hour Traffic Volumes



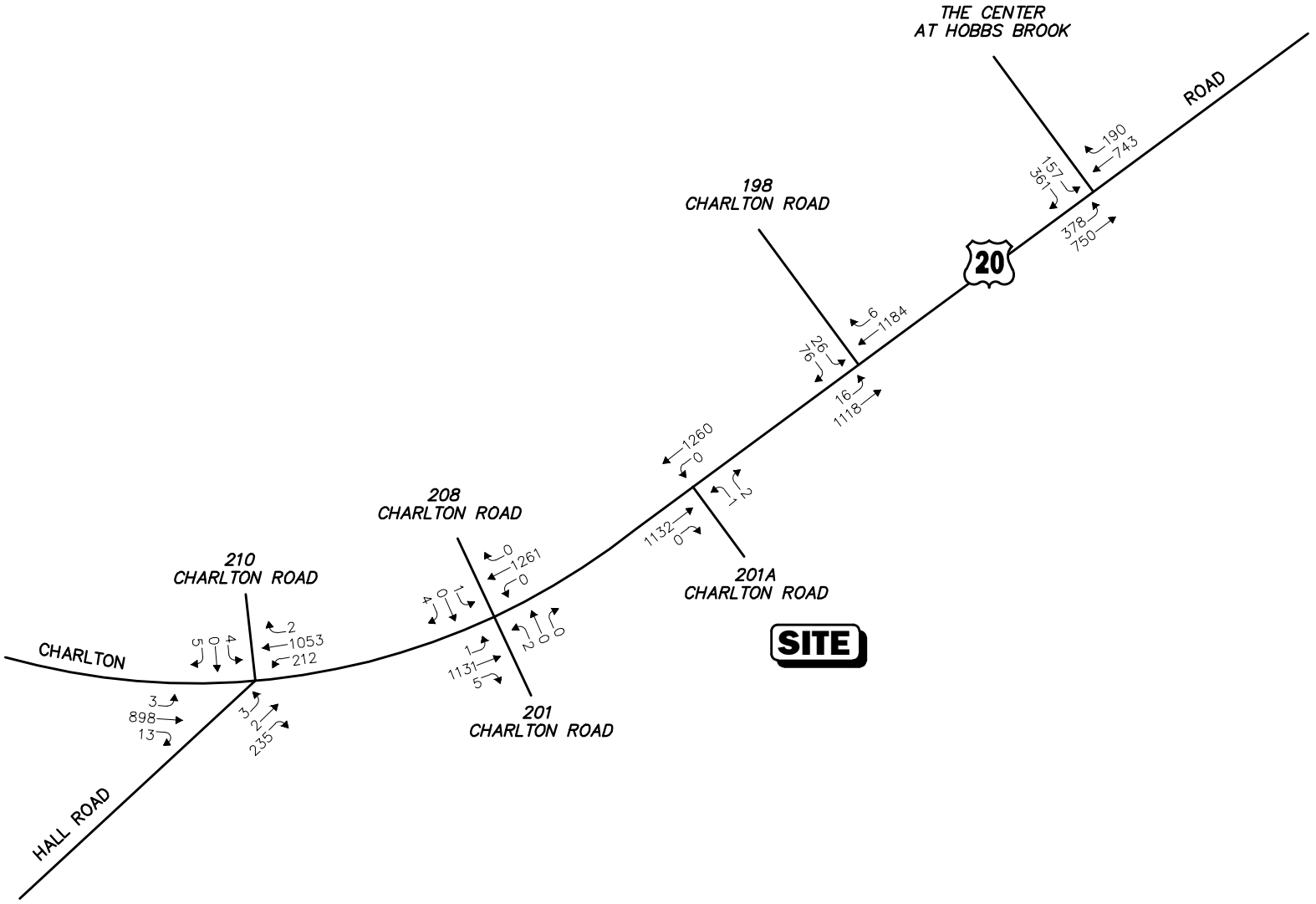
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 6R

2028 No-Build
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc



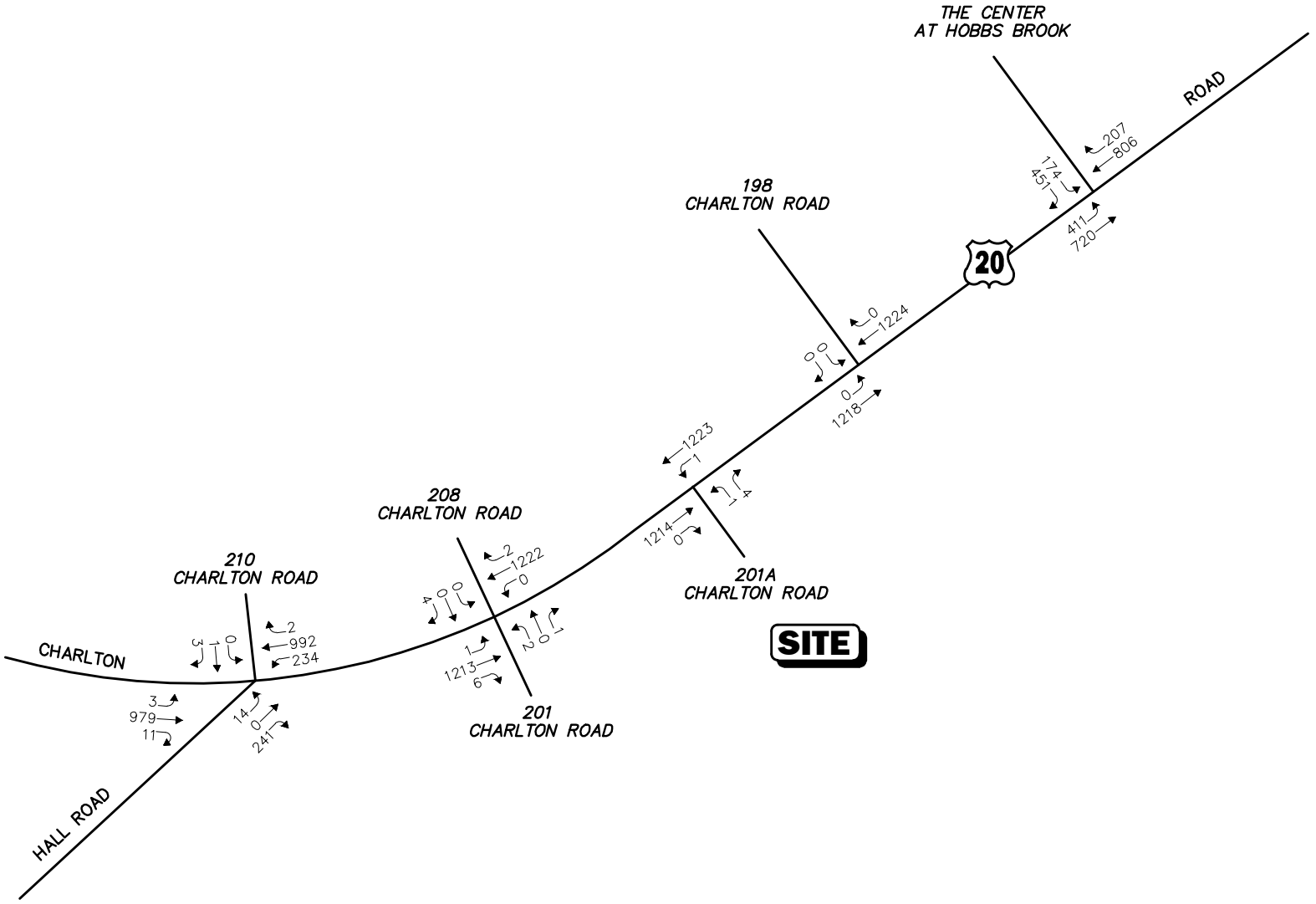
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 7R

2028 No-Build
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc



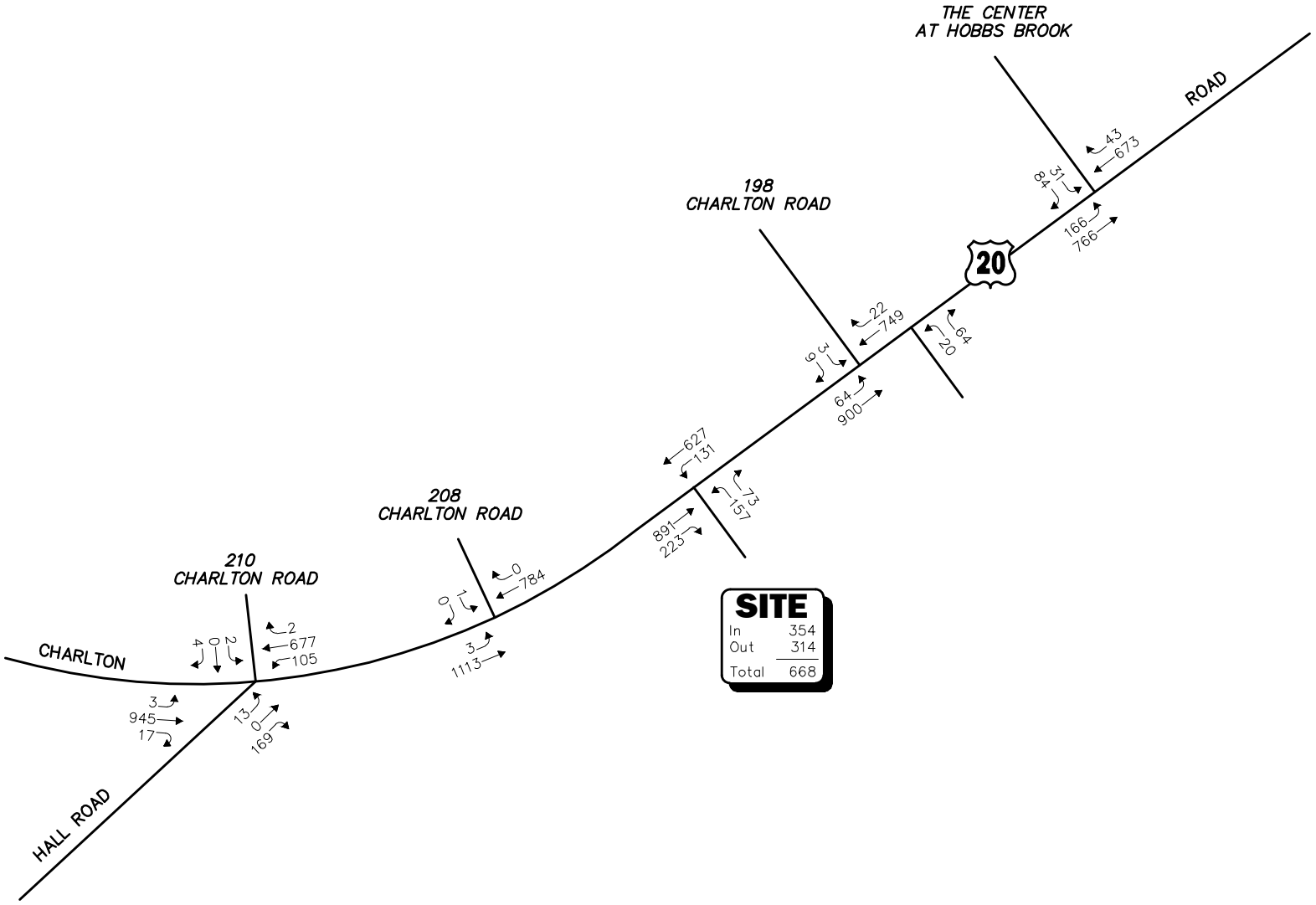
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 8R

Vanasse & Associates inc

2028 No-Build
Saturday Midday
Peak-Hour Traffic Volumes



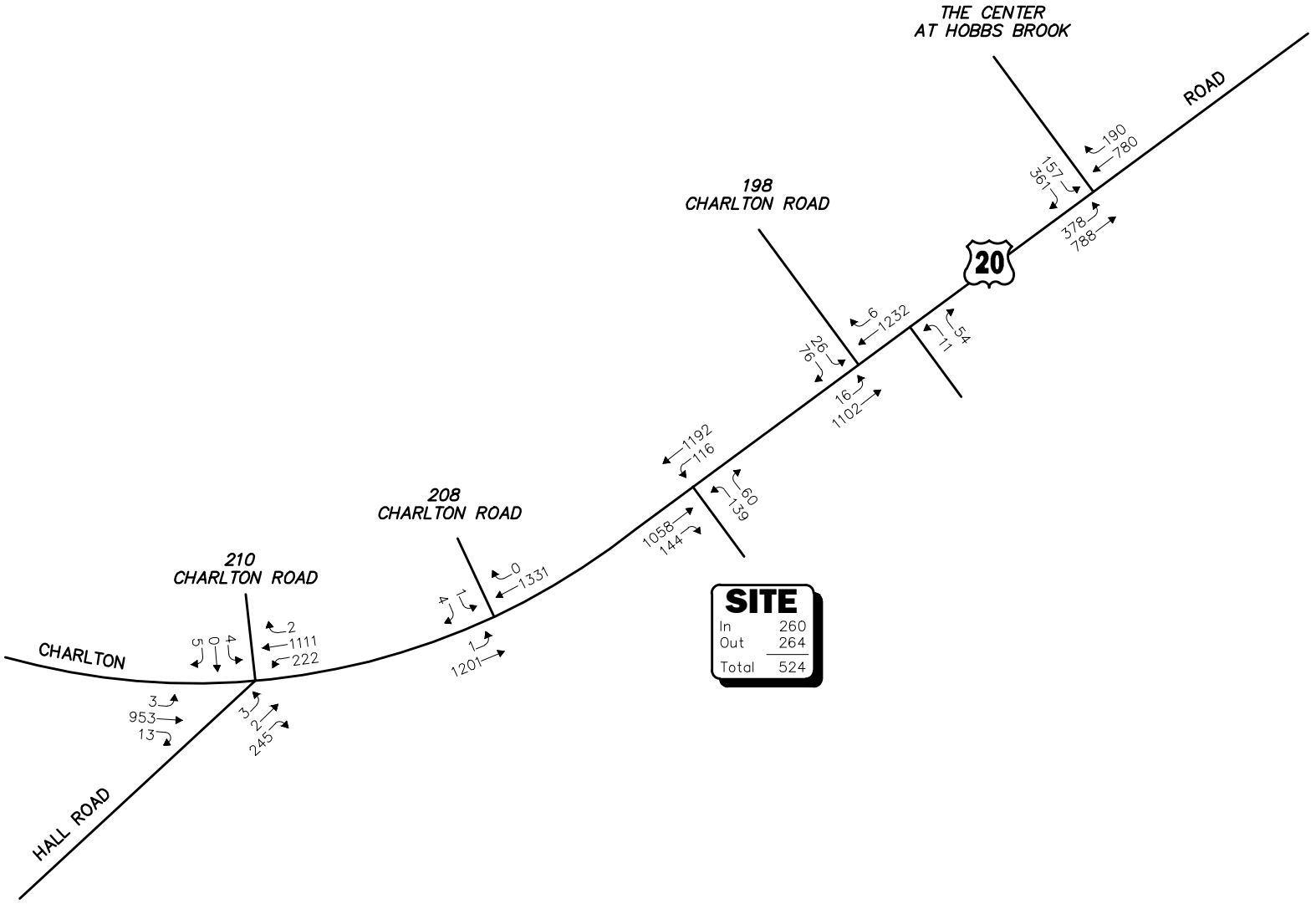
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 13R

2028 Build
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc



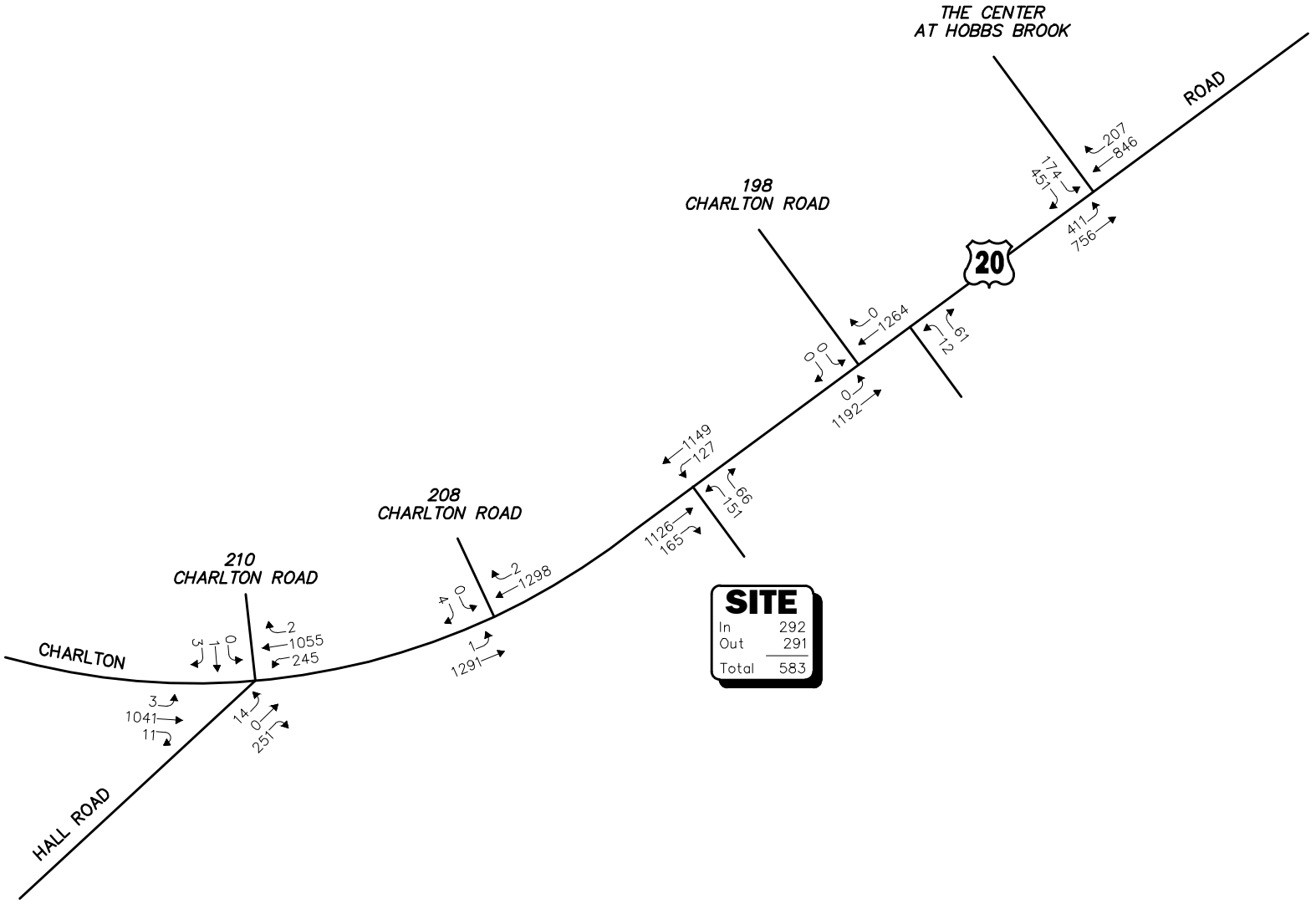
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 14R

2028 Build
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 15R

Vanasse & Associates inc

2028 Build
Saturday Midday
Peak-Hour Traffic Volumes

Table 9R
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/ Peak-Hour/Movement	2020 Existing				2028 No-Build				2028 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
Route 20 at The Center at Hobbs Brook Driveway												
Weekday Morning:												
Route 20 EB LT	0.43	16.8	B	2/5	0.45	18.5	B	2/5	0.46	19.8	B	3/5
Route 20 EB TH	0.26	2.0	A	1/2	0.33	2.0	A	2/2	0.35	2.0	A	2/3
Route 20 WB TH	0.44	10.5	B	3/5	0.49	10.6	B	4/6	0.54	10.9	B	5/7
The Center at Hobbs Brook Driveway SB LT	0.15	21.6	C	1/1	0.16	23.7	C	1/1	0.17	25.3	C	1/1
The Center at Hobbs Brook Driveway SB RT	0.07	11.6	B	0/1	0.09	13.1	B	0/1	0.13	14.5	B	1/1
Overall	--	**7.0**	**A**	--	--	**8.8**	**A**	--	--	**8.2**	**A**	--
Weekday Evening:												
Route 20 EB LT	0.65	21.5	C	6/12	0.69	25.0	C	7/13	0.70	26.3	C	7/14
Route 20 EB TH	0.26	3.0	A	2/3	0.31	3.0	A	2/3	0.33	3.0	A	2/4
Route 20 WB TH	0.57	19.3	B	5/8	0.62	19.5	B	7/9	0.63	19.6	B	7/10
The Center at Hobbs Brook Driveway SB LT	0.33	26.5	C	2/3	0.34	28.9	C	2/3	0.35	29.7	C	2/3
The Center at Hobbs brook Driveway SB RT	0.36	11.2	B	2/5	0.41	13.4	B	3/7	0.42	14.2	B	4/8
Overall	--	**12.9**	**B**	--	--	**13.8**	**B**	--	--	**14.0**	**B**	--
Saturday Midday:												
Route 20 EB LT	0.73	25.7	C	8/16	0.76	29.7	C	8/18	0.78	31.7	C	9/18
Route 20 EB TH	0.26	3.0	A	2/3	0.30	3.0	A	2/3	0.31	3.0	A	2/4
Route 20 WB TH	0.63	21.5	C	6/9	0.66	21.5	C	8/11	0.67	21.6	C	8/11
The Center at Hobbs Brook Driveway SB LT	0.39	30.0	C	2/3	0.40	32.1	C	2/4	0.41	33.0	C	2/4
The Center at Hobbs Brook Driveway SB RT	0.52	13.9	B	5/10	0.56	16.4	B	6/12	0.58	17.5	B	6/13
Overall	--	**15.2**	**B**	--	--	**16.1**	**B**	--	--	**16.6**	**B**	--

See notes at end of table.

Table 9R (Continued)
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/ Peak-Hour/Movement	2020 Existing				2028 No-Build				2028 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
Route 20 at the Main Project Site Driveway												
Weekday Morning:												
Route 20 EB TH/RT	--	--	--	--	--	--	--	--	0.72	13.7	B	9/12
Route 20 WB LT	--	--	--	--	--	--	--	--	0.57	28.2	C	3/5
Route 20 WB TH	--	--	--	--	--	--	--	--	0.29	3.6	A	2/3
Main Project Site Driveway NB LT	--	--	--	--	--	--	--	--	0.71	33.9	C	3/5
Main Project Site Driveway NB TH/RT	--	--	--	--	--	--	--	--	0.05	23.3	C	0/0
Driveway SB LT/TH/RT	--	--	--	--	--	--	--	--	0.01	21.4	C	0/0
Overall	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**13.6**	**B**	**--**
Weekday Evening:												
Route 20 EB TH/RT	--	--	--	--	--	--	--	--	0.75	14.3	B	10/13
Route 20 WB LT	--	--	--	--	--	--	--	--	0.49	25.4	C	2/4
Route 20 WB TH	--	--	--	--	--	--	--	--	0.52	4.3	A	5/7
Main Project Site Driveway NB LT	--	--	--	--	--	--	--	--	0.68	32.3	C	3/5
Main Project Site Driveway NB TH/RT	--	--	--	--	--	--	--	--	0.04	23.3	C	0/0
Driveway SB LT/TH/RT	--	--	--	--	--	--	--	--	0.02	21.5	C	0/0
Overall	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**11.6**	**B**	**--**
Saturday Midday:												
Route 20 EB TH/RT	--	--	--	--	--	--	--	--	0.77	14.1	B	11/14
Route 20 WB LT	--	--	--	--	--	--	--	--	0.65	33.8	C	3/5
Route 20 WB TH	--	--	--	--	--	--	--	--	0.50	4.5	A	5/7
Main Project Site Driveway NB LT	--	--	--	--	--	--	--	--	0.71	34.9	C	3/5
Main Project Site Driveway NB TH/RT	--	--	--	--	--	--	--	--	0.05	22.2	C	0/0
Driveway SB LT/TH/RT	--	--	--	--	--	--	--	--	0.03	22.1	C	0/0
Overall	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**12.5**	**B**	**--**

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level of service.
[d]Queue length in vehicle.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Table 10R
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2020 Existing				2028 No-Build				2028 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Route 20 at Hall Road												
Weekday Morning:												
Route 20 EB LT/TH/RT	666	0.0	A	0	845	0.0	A	0	965	0.0	A	0
Route 20 WB LT	77	9.6	A	1	86	10.7	B	1	105	11.8	B	1
Route 20 WB TH/RT	499	0.0	A	0	574	0.0	A	0	679	0.0	A	0
Hall Road NB LT	12	39.3	E	1	13	>50.0	F	1	13	>50.0	F	2
Hall Road NB TH/RT	124	12.8	B	1	147	15.6	C	2	169	18.9	C	3
Driveway SB LT/TH/RT	6	21.6	C	0	6	32.1	D	0	6	>50.0	F	1
Weekday Evening:												
Route 20 EB LT/TH/RT	810	0.1	A	0	914	0.1	A	0	969	0.1	A	0
Route 20 WB LT	183	11.1	B	1	212	12.4	B	2	222	13.2	B	2
Route 20 WB TH/RT	861	0.0	A	0	1,055	0.0	A	0	1,113	0.0	A	0
Hall Road NB LT	3	>50.0	F	0	3	>50.0	F	1	3	>50.0	F	1
Hall Road NB TH/RT	220	19.3	C	3	237	27.4	D	5	247	35,8	E	6
Driveway SB LT/TH/RT	9	>50.0	F	2	9	>50.0	F	3	9	>50.0	F	4
Saturday Midday:												
Route 20 EB LT/TH/RT	896	0.0	A	0	993	0.1	A	0	1,055	0.1	A	0
Route 20 WB LT	221	12.4	B	2	234	13.8	B	2	245	15.0	B	2
Route 20 WB TH/RT	910	0.0	A	0	994	0.0	A	0	1,057	0.0	A	0
Hall Road NB LT	13	>50.0	F	2	14	>50.0	F	2	14	>50.0	F	3
Hall Road NB TH/RT	216	16.5	C	2	241	19.5	C	3	251	21.7	C	4
Driveway SB LT/TH/RT	4	>50.0	F	1	4	>50.0	F	1	4	>50.0	F	1

See notes at end of table.

Table 10R (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2020 Existing				2028 No-Build				2028 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Route 20 at the 201 and 208 Charlton Road Driveways												
Weekday Morning:												
Route 20 EB LT/TH/RT	773	0.0	A	0	974	0.0	A	0	1,116	0.1	A	0
Route 20 WB LT/TH/RT	574	0.0	A	0	658	0.0	A	0	784	0.0	A	0
201 Charlton Road Driveway NB LT/TH/RT	3	41.0	E	0	3	>50.0	F	1	--	--	--	--
208 Charlton Road Driveway SB LT/TH/RT	1	38.7	D	0	1	39.6	E	0	1	43.3	E	0
Weekday Evening:												
Route 20 EB LT/TH/RT	1,013	0.0	A	0	1,137	0.0	A	0	1,202	0.0	A	0
Route 20 WB LT/TH/RT	1,038	0.0	A	0	1,261	0.0	A	0	1,331	0.0	A	0
201 Charlton Road Driveway NB LT/TH/RT	2	>50.0	F	0	2	>50.0	F	1	--	--	--	--
208 Charlton Road SB LT/TH/RT	5	23.4	C	0	5	33.1	D	0	5	30.0	D	0
Saturday Midday:												
Route 20 EB LT/TH/RT	1,109	0.0	A	0	1,220	0.0	A	0	1,282	0.1	A	0
Route 20 WB LT/TH/RT	1,127	0.0	A	0	1,224	0.0	A	0	1,300	0.0	A	0
201 Charlton Road Driveway NB LT/TH/RT	3	>50.0	F	1	3	>50.0	F	1	--	--	--	--
208 Charlton Road SB LT/TH/RT	4	13.6	B	0	4	14.4	B	0	4	16.1	C	0
Route 20 at the 201A Charlton Road Driveway												
Weekday Morning:												
Route 20 EB TH/RT	766	0.0	A	0	967	0.0	A	0				
Route 20 WB LT/TH	574	0.0	A	0	658	0.0	A	0				
201A Charlton Road Driveway NB LT/RT	1	25.2	D	0	1	35.8	E	0				
Weekday Evening:									Driveway Closed under Build Conditions			
Route 20 EB TH/RT	1.008	0.0	A	0	1,132	0.0	A	0				
Route 20 WB LT/TH	1,037	0.0	A	0	1,260	0.0	A	0				
201A Charlton Road Driveway NB LT/RT	3	23.2	C	0	3	30.2	D	0				
Saturday Midday:												
Route 20 EB TH/RT	1,103	0.0	A	0	1,214	0.0	A	0				
Route 20 WB LT/TH	1,127	0.0	A	0	1,224	0.0	A	0				
201A Charlton Road Driveway NB LT/RT	5	22.1	C	0	5	26.2	D	0				

See notes at end of table.

Table 10R (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2020 Existing				2028 No-Build				2028 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Route 20 at the 198 Charlton Road Driveway and the Exit-Only Project Site Driveway												
Weekday Morning:												
Route 20 EB LT	--	--	--	--	--	--	--	--	64	10.0	A	1
Route 20 EB LT/TH	759	0.4	A	0	960	1.3	A	1	--	--	--	--
Route 20 EB TH	--	--	--	--	--	--	--	--	900	0.0	A	0
Route 20 WB TH/RT	574	0.0	A	0	680	0.0	A	0	771	0.0	A	0
198 Charlton Road Driveway SB LT	0	0.0	A	0	3	36.9	E	0	3	25.3	D	0
198 Charlton Road SB RT	6	10.3	B	0	9	10.8	B	0	9	11.3	B	0
Exit-Only Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	84	19.5	C	1
Weekday Evening:												
Route 20 EB LT	--	--	--	--	--	--	--	--	16	12.3	B	0
Route 20 EB LT/TH	1,010	0.3	A	0	1,134	0.8	A	0	--	--	--	--
Route 20 EB TH	--	--	--	--	--	--	--	--	1,102	0.0	A	0
Route 20 WB TH/RT	1.018	0.0	A	0	1,190	0.0	A	0	1,238	0.0	A	0
198 Charlton Road Driveway SB LT	2	49.0	E	0	26	>50.0	F	2	26	48.2	E	1
198 Charlton Road SB RT	22	12.9	B	0	76	15.9	C	1	76	16.4	C	1
Exit-Only Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	64	20.5	C	1
Saturday Midday:												
Route 20 EB LT	--	--	--	--	--	--	--	--	0	0.0	A	0
Route 20 EB LT/TH	1,107	0.0	A	0	1,218	0.0	A	0	--	--	--	--
Route 20 EB TH	--	--	--	--	--	--	--	--	1,192	0.0	A	0
Route 20 WB TH/RT	1,127	0.0	A	0	1,224	0.0	A	0	1,264	0.0	A	0
198 Charlton Road Driveway SB LT	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0
198 Charlton Road Driveway SB RT	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0
Exit-Only Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	73	21.4	C	1

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level of service.
[d]Queue length in vehicles.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

ATTACHMENTS

MANUAL TURNING MOVEMENT COUNTS
CAPACITY ANALYSIS WORKSHEETS

MANUAL TURNING MOVEMENT COUNTS

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 1

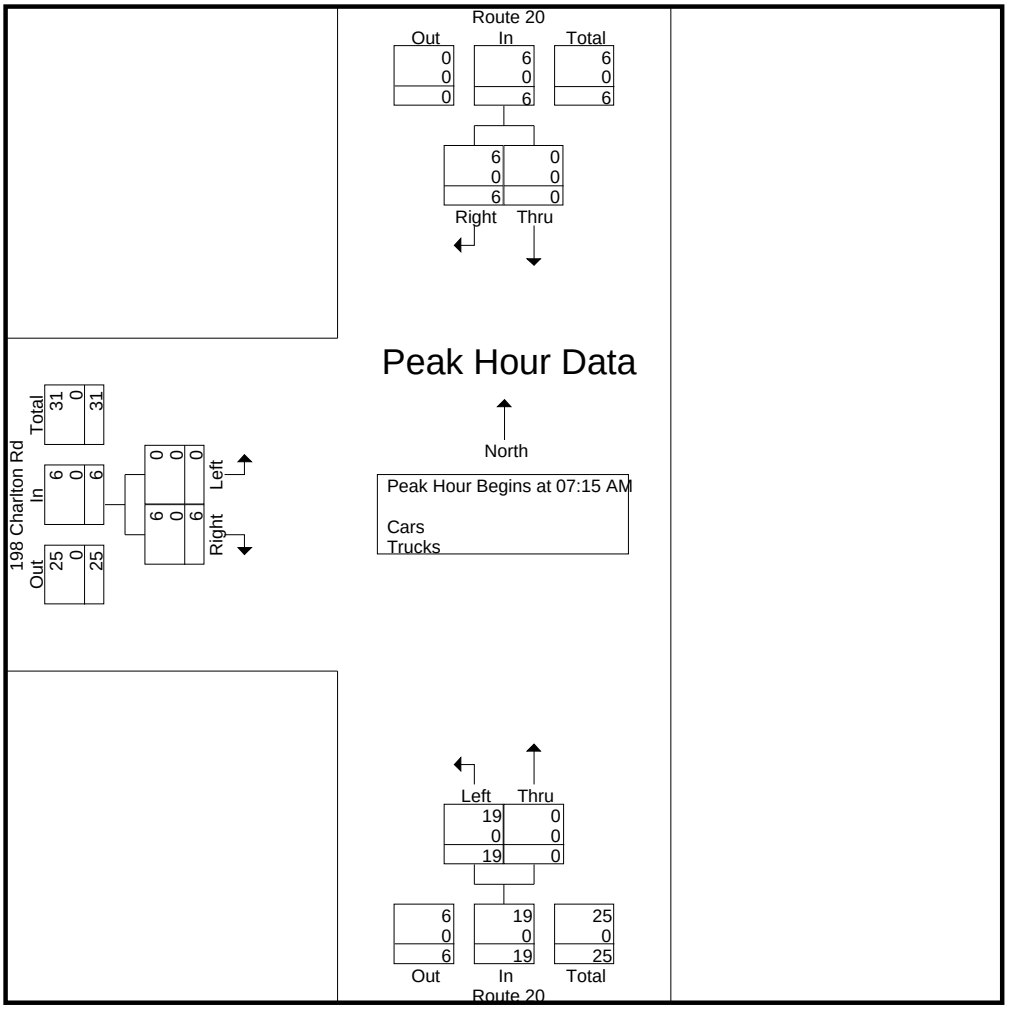
Groups Printed- Cars - Trucks

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	0	0	2	0	1	0	3
07:15 AM	0	1	3	0	0	2	6
07:30 AM	0	2	7	0	0	2	11
07:45 AM	0	1	5	0	0	1	7
Total	0	4	17	0	1	5	27
08:00 AM	0	2	4	0	0	1	7
08:15 AM	0	0	3	0	0	1	4
08:30 AM	0	1	3	0	0	2	6
08:45 AM	0	3	2	0	1	2	8
Total	0	6	12	0	1	6	25
Grand Total	0	10	29	0	2	11	52
Apprch %	0	100	100	0	15.4	84.6	
Total %	0	19.2	55.8	0	3.8	21.2	
Cars	0	10	29	0	2	11	52
% Cars	0	100	100	0	100	100	100
Trucks	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	1	1	3	0	3	0	**2**	**2**	6
07:30 AM	0	**2**	**2**	**7**	0	**7**	0	2	2	**11**
07:45 AM	0	1	1	5	0	5	0	1	1	7
08:00 AM	0	2	2	4	0	4	0	1	1	7
Total Volume	0	6	6	19	0	19	0	6	6	31
% App. Total	0	100		100	0		0	100		
PHF	.000	.750	.750	.679	.000	.679	.000	.750	.750	.705
Cars	0	6	6	19	0	19	0	6	6	31
% Cars	0	100	100	100	0	100	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

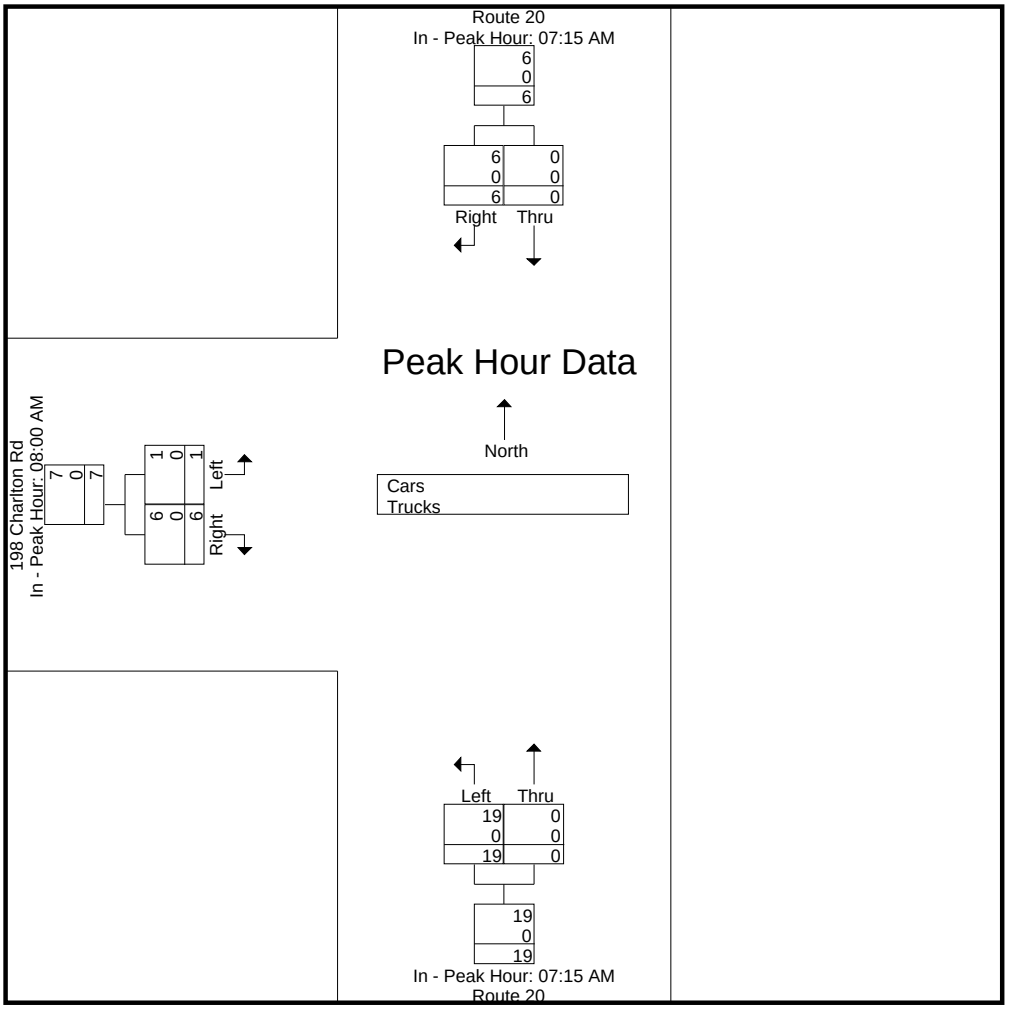
	07:15 AM			07:15 AM			08:00 AM		
+0 mins.	0	1	1	3	0	3	0	1	1
+15 mins.	0	**2**	**2**	**7**	0	**7**	0	1	1
+30 mins.	0	1	1	5	0	5	0	**2**	2
+45 mins.	0	2	2	4	0	4	**1**	2	**3**
Total Volume	0	6	6	19	0	19	1	6	7
% App. Total	0	100		100	0		14.3	85.7	
PHF	.000	.750	.750	.679	.000	.679	.250	.750	.583
Cars	0	6	6	19	0	19	1	6	7
% Cars	0	100	100	100	0	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 4

Groups Printed- Cars

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	0	0	2	0	1	0	3
07:15 AM	0	1	3	0	0	2	6
07:30 AM	0	2	7	0	0	2	11
07:45 AM	0	1	5	0	0	1	7
Total	0	4	17	0	1	5	27
08:00 AM	0	2	4	0	0	1	7
08:15 AM	0	0	3	0	0	1	4
08:30 AM	0	1	3	0	0	2	6
08:45 AM	0	3	2	0	1	2	8
Total	0	6	12	0	1	6	25
Grand Total	0	10	29	0	2	11	52
Apprch %	0	100	100	0	15.4	84.6	
Total %	0	19.2	55.8	0	3.8	21.2	

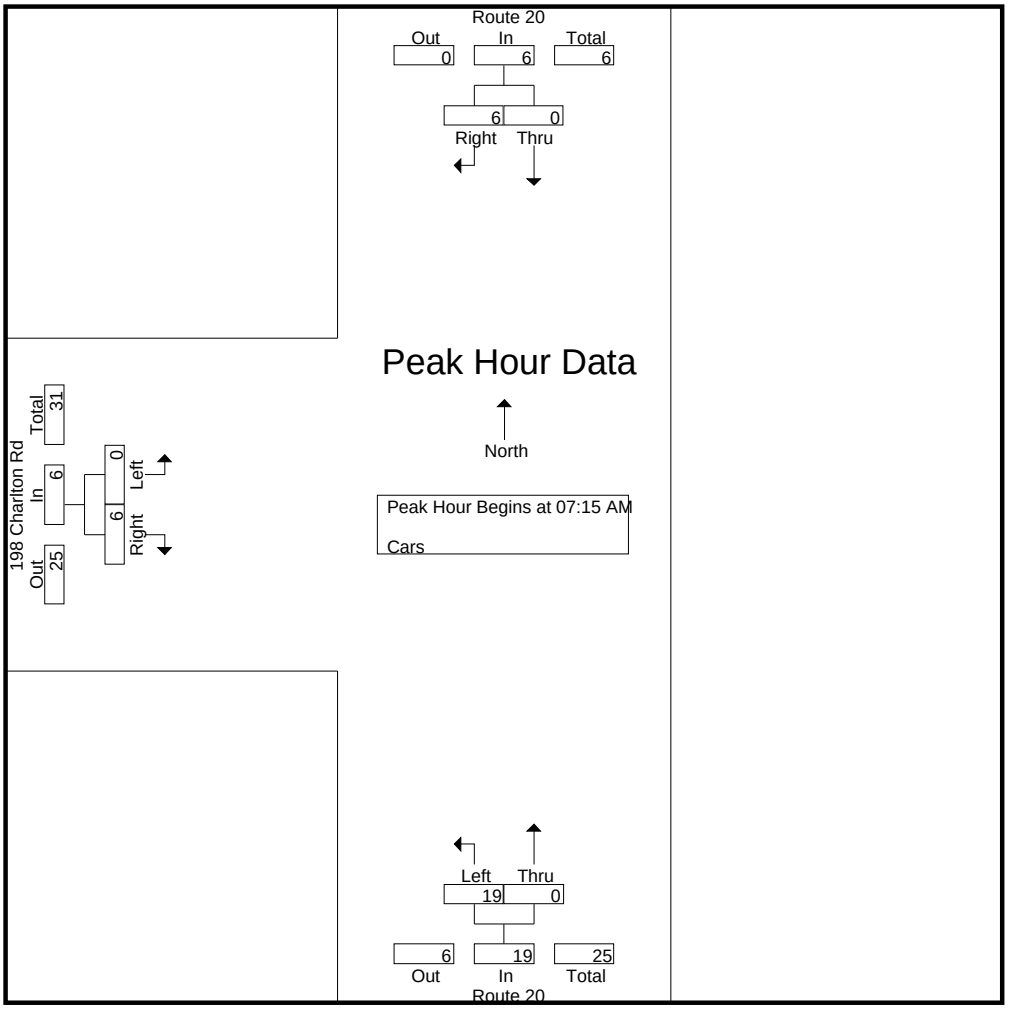
	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	1	1	3	0	3	0	**2**	**2**	6
07:30 AM	0	**2**	**2**	**7**	0	**7**	0	2	2	**11**
07:45 AM	0	1	1	5	0	5	0	1	1	7
08:00 AM	0	2	2	4	0	4	0	1	1	7
Total Volume	0	6	6	19	0	19	0	6	6	31
% App. Total	0	100		100	0		0	100		
PHF	.000	.750	.750	.679	.000	.679	.000	.750	.750	.705

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 5



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

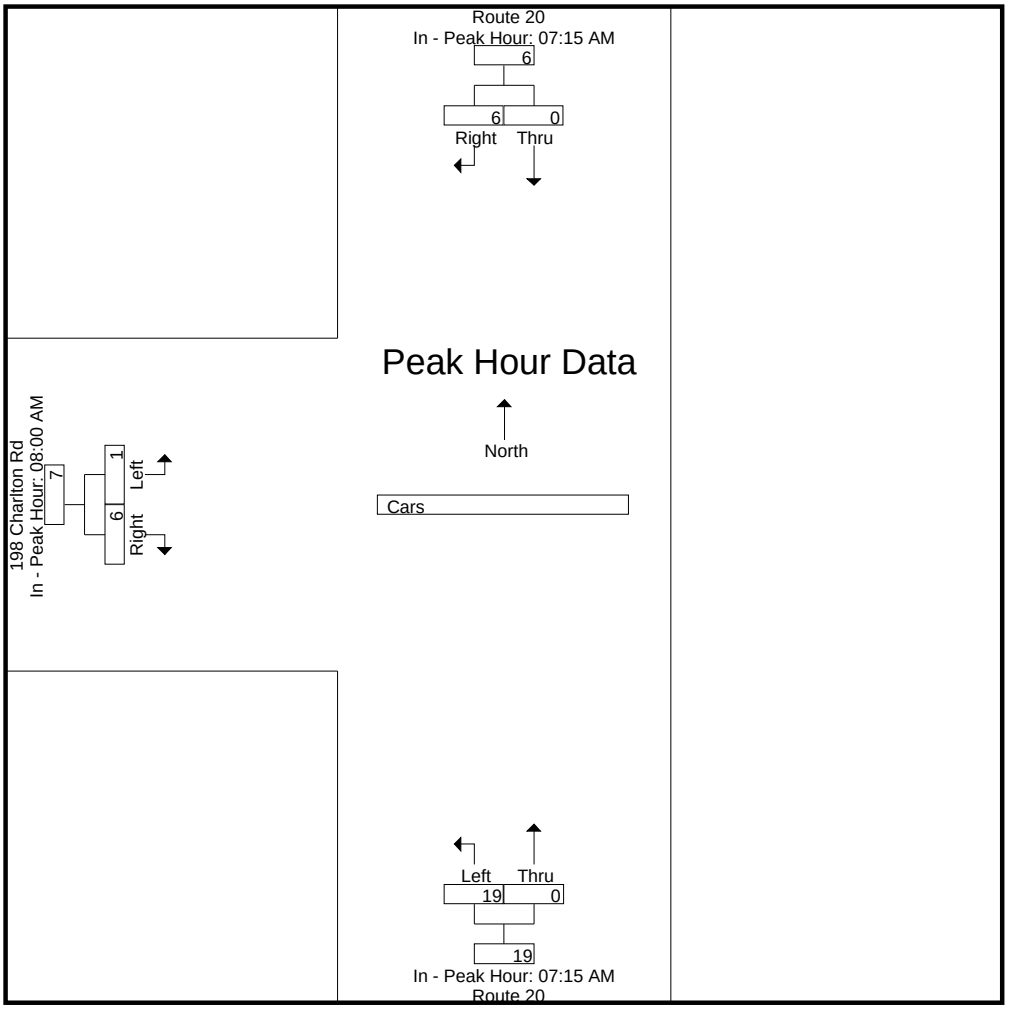
	07:15 AM			07:15 AM			08:00 AM		
+0 mins.	0	1	1	3	0	3	0	1	1
+15 mins.	0	**2**	**2**	**7**	0	**7**	0	1	1
+30 mins.	0	1	1	5	0	5	0	**2**	2
+45 mins.	0	2	2	4	0	4	**1**	2	**3**
Total Volume	0	6	6	19	0	19	1	6	7
% App. Total	0	100		100	0		14.3	85.7	
PHF	.000	.750	.750	.679	.000	.679	.250	.750	.583

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 7

Groups Printed- Trucks

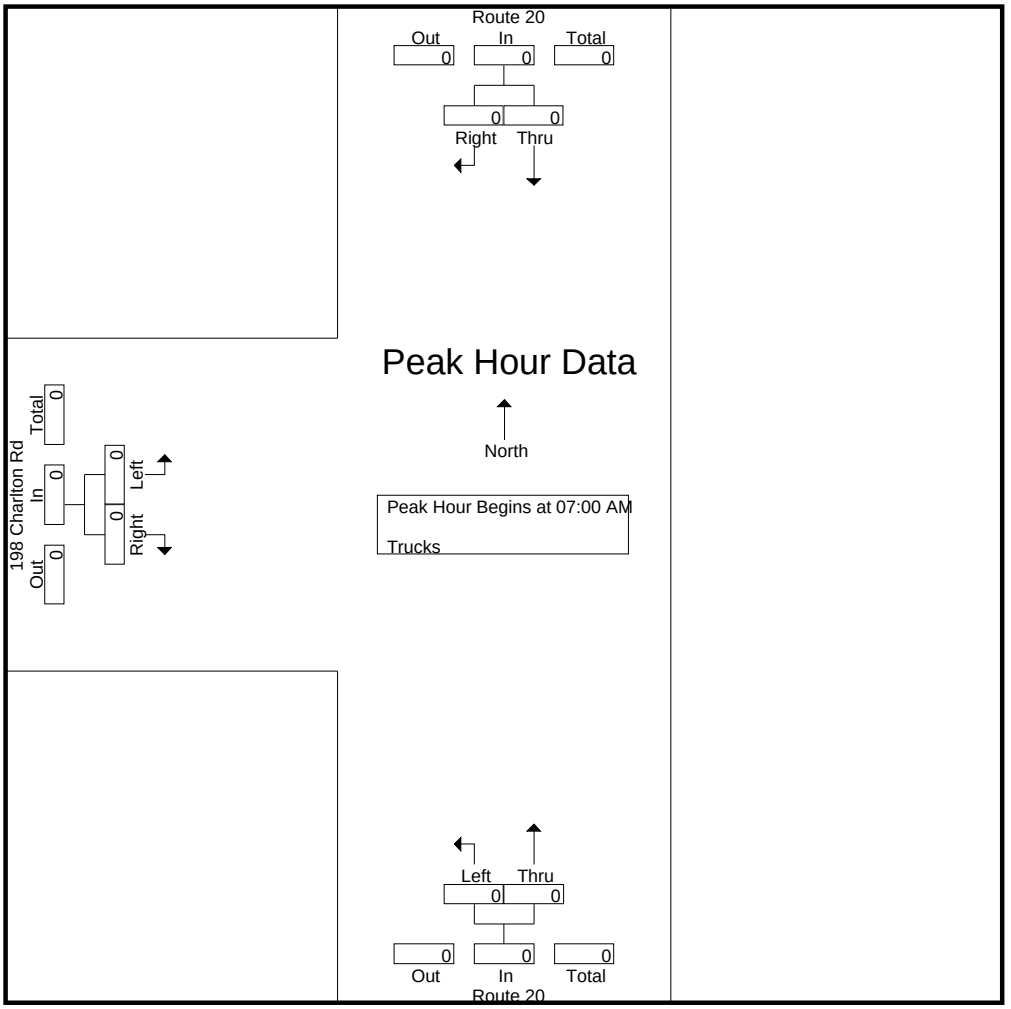
	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 8



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

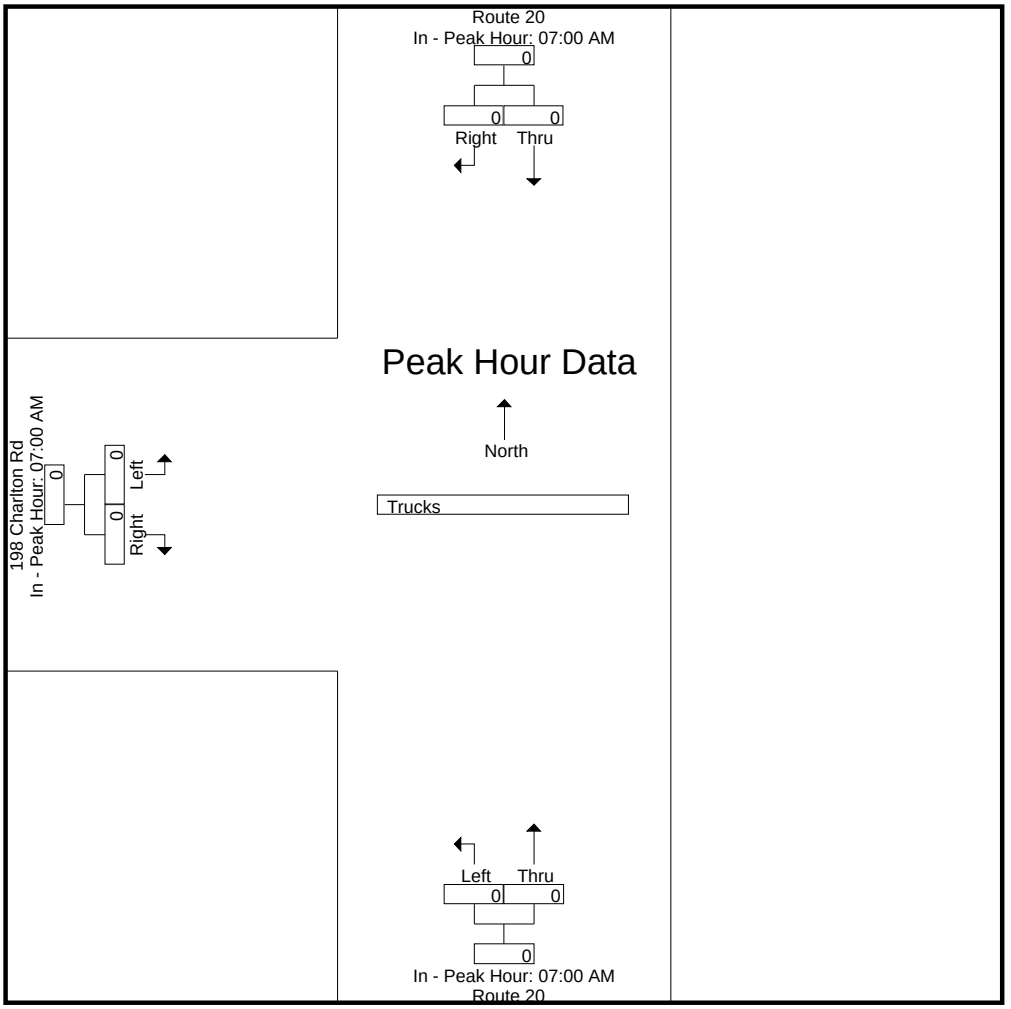
	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 10

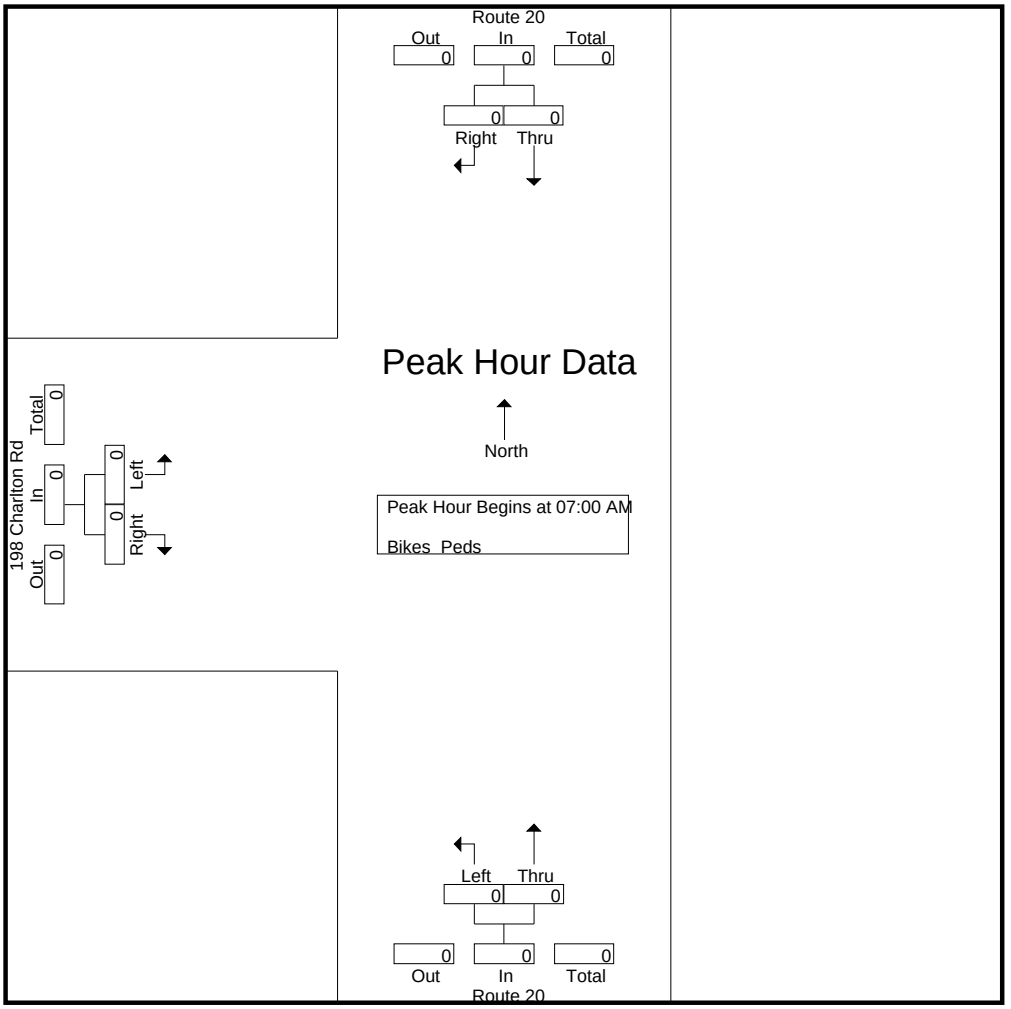
Groups Printed- Bikes Peds

	Route 20 From North			Route 20 From South			198 Charlton Rd From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 11



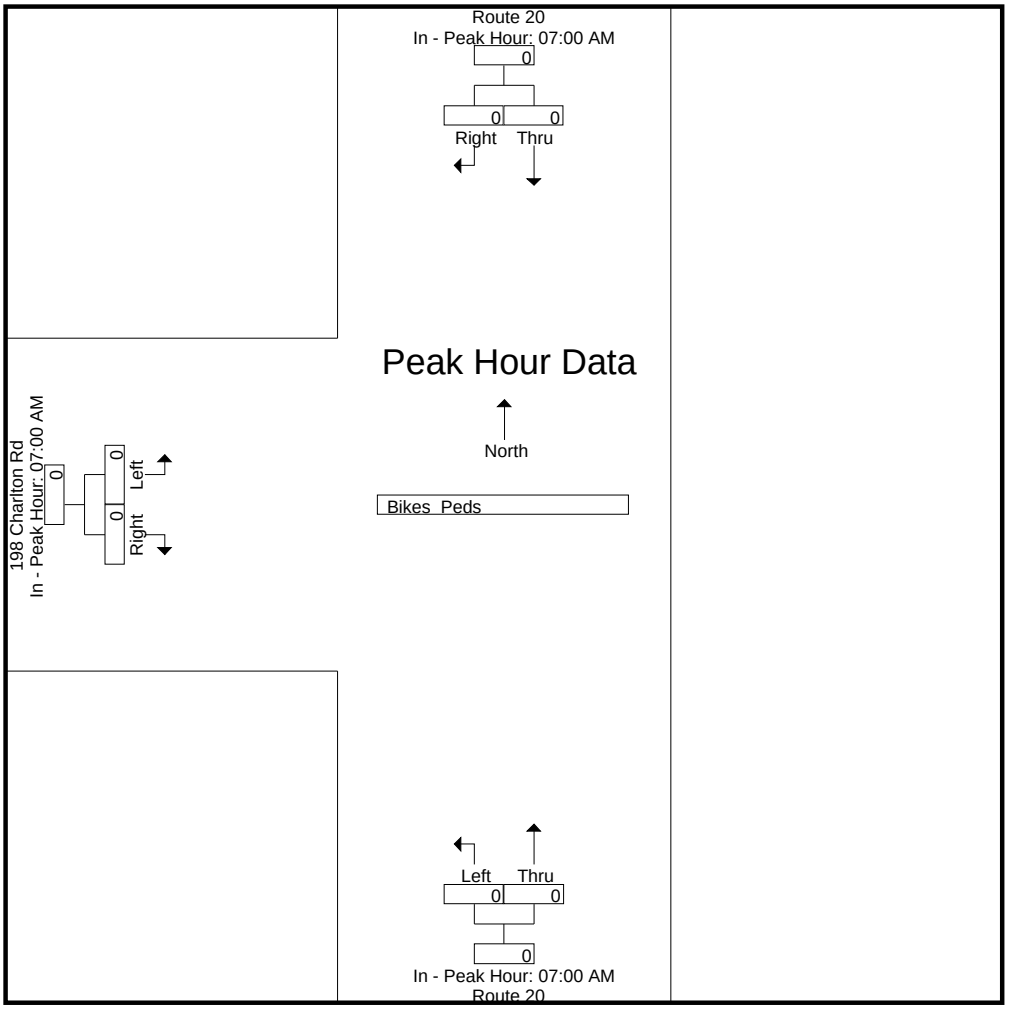
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 1

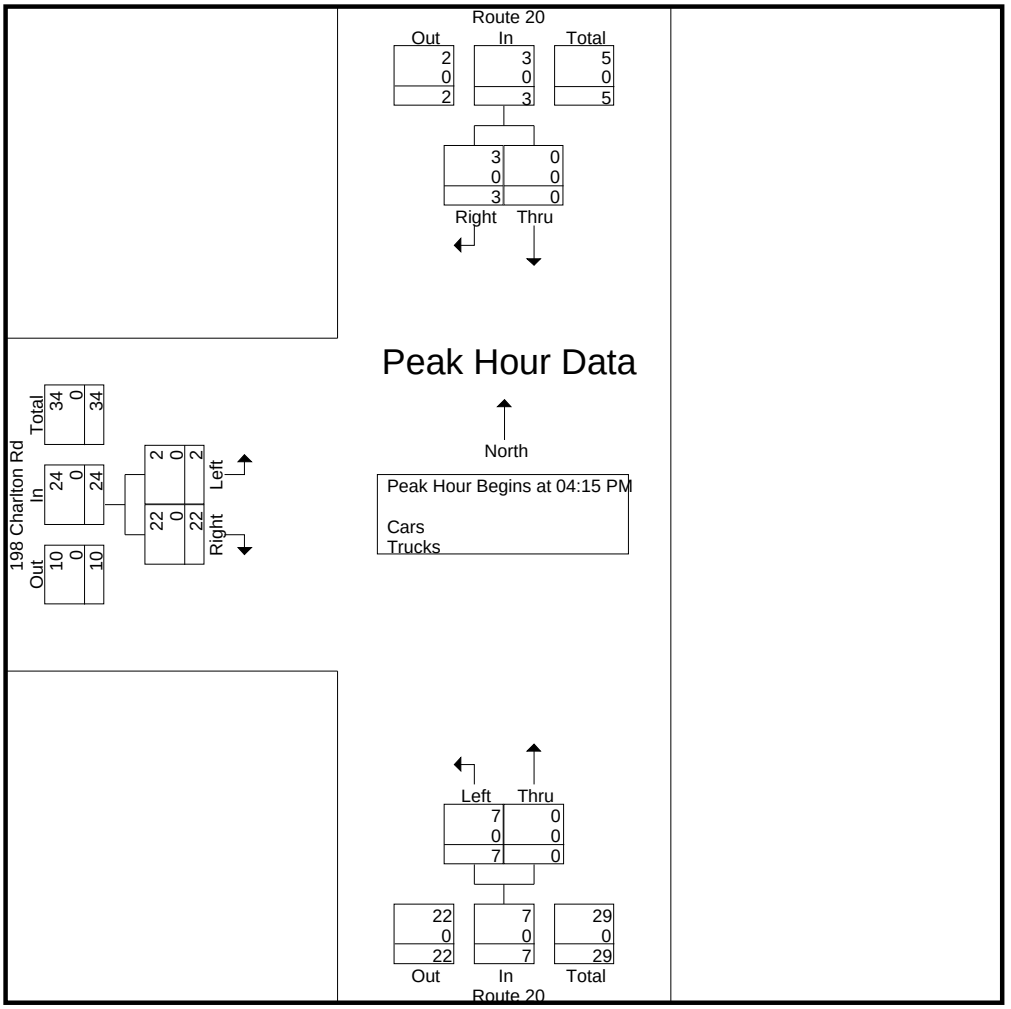
Groups Printed- Cars - Trucks

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	0	1	1	0	0	2	4
04:15 PM	0	0	4	0	0	5	9
04:30 PM	0	0	2	0	2	5	9
04:45 PM	0	3	1	0	0	4	8
Total	0	4	8	0	2	16	30
05:00 PM	0	0	0	0	0	8	8
05:15 PM	0	1	0	0	3	2	6
05:30 PM	0	0	2	0	0	6	8
05:45 PM	0	1	1	0	1	4	7
Total	0	2	3	0	4	20	29
Grand Total	0	6	11	0	6	36	59
Apprch %	0	100	100	0	14.3	85.7	
Total %	0	10.2	18.6	0	10.2	61	
Cars	0	6	11	0	6	36	59
% Cars	0	100	100	0	100	100	100
Trucks	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	0	0	**4**	0	**4**	0	5	5	**9**
04:30 PM	0	0	0	2	0	2	**2**	5	7	9
04:45 PM	0	**3**	**3**	1	0	1	0	4	4	8
05:00 PM	0	0	0	0	0	0	0	**8**	**8**	8
Total Volume	0	3	3	7	0	7	2	22	24	34
% App. Total	0	100		100	0		8.3	91.7		
PHF	.000	.250	.250	.438	.000	.438	.250	.688	.750	.944
Cars	0	3	3	7	0	7	2	22	24	34
% Cars	0	100	100	100	0	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

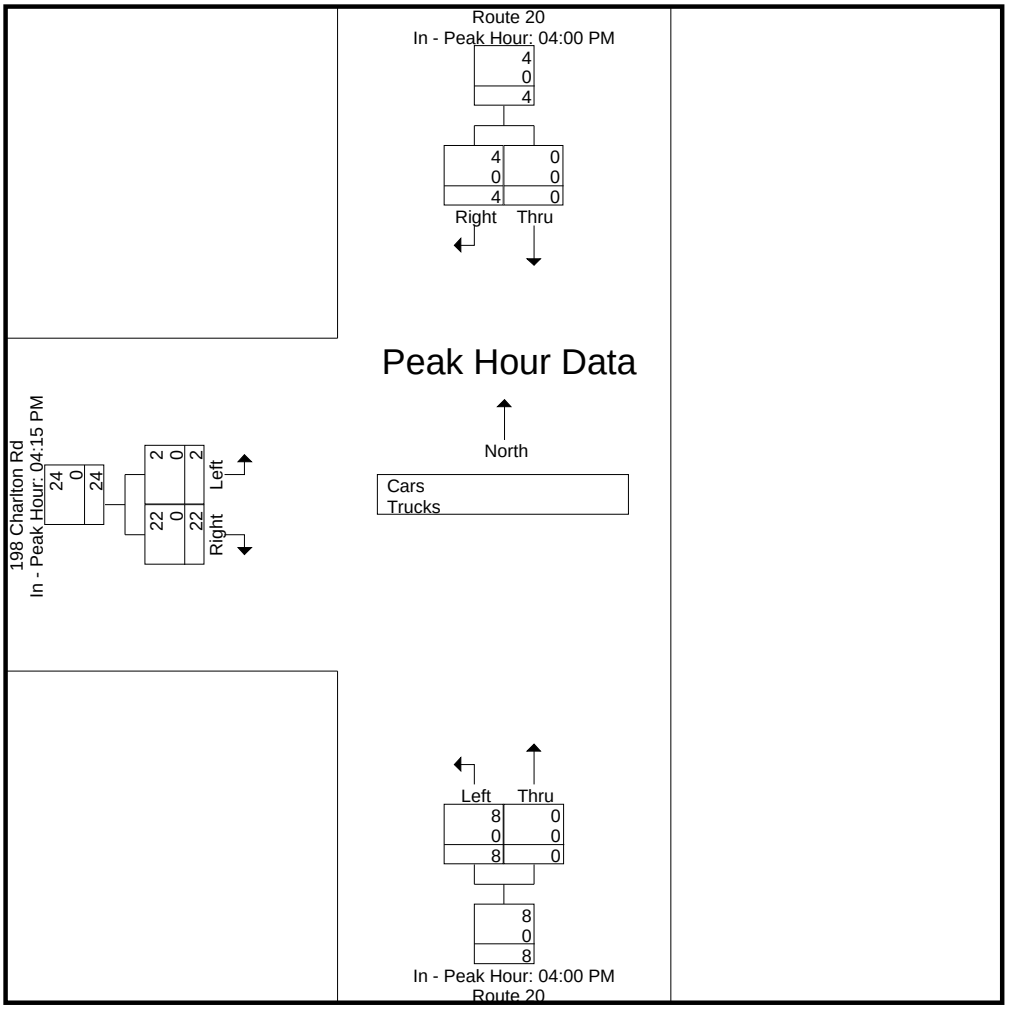
	04:00 PM			04:00 PM			04:15 PM		
+0 mins.	0	1	1	1	0	1	0	5	5
+15 mins.	0	0	0	**4**	0	**4**	**2**	5	7
+30 mins.	0	0	0	2	0	2	0	4	4
+45 mins.	0	**3**	**3**	1	0	1	0	**8**	**8**
Total Volume	0	4	4	8	0	8	2	22	24
% App. Total	0	100		100	0		8.3	91.7	
PHF	.000	.333	.333	.500	.000	.500	.250	.688	.750
Cars	0	4	4	8	0	8	2	22	24
% Cars	0	100	100	100	0	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 4

Groups Printed- Cars

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	0	1	1	0	0	2	4
04:15 PM	0	0	4	0	0	5	9
04:30 PM	0	0	2	0	2	5	9
04:45 PM	0	3	1	0	0	4	8
Total	0	4	8	0	2	16	30
05:00 PM	0	0	0	0	0	8	8
05:15 PM	0	1	0	0	3	2	6
05:30 PM	0	0	2	0	0	6	8
05:45 PM	0	1	1	0	1	4	7
Total	0	2	3	0	4	20	29
Grand Total	0	6	11	0	6	36	59
Apprch %	0	100	100	0	14.3	85.7	
Total %	0	10.2	18.6	0	10.2	61	

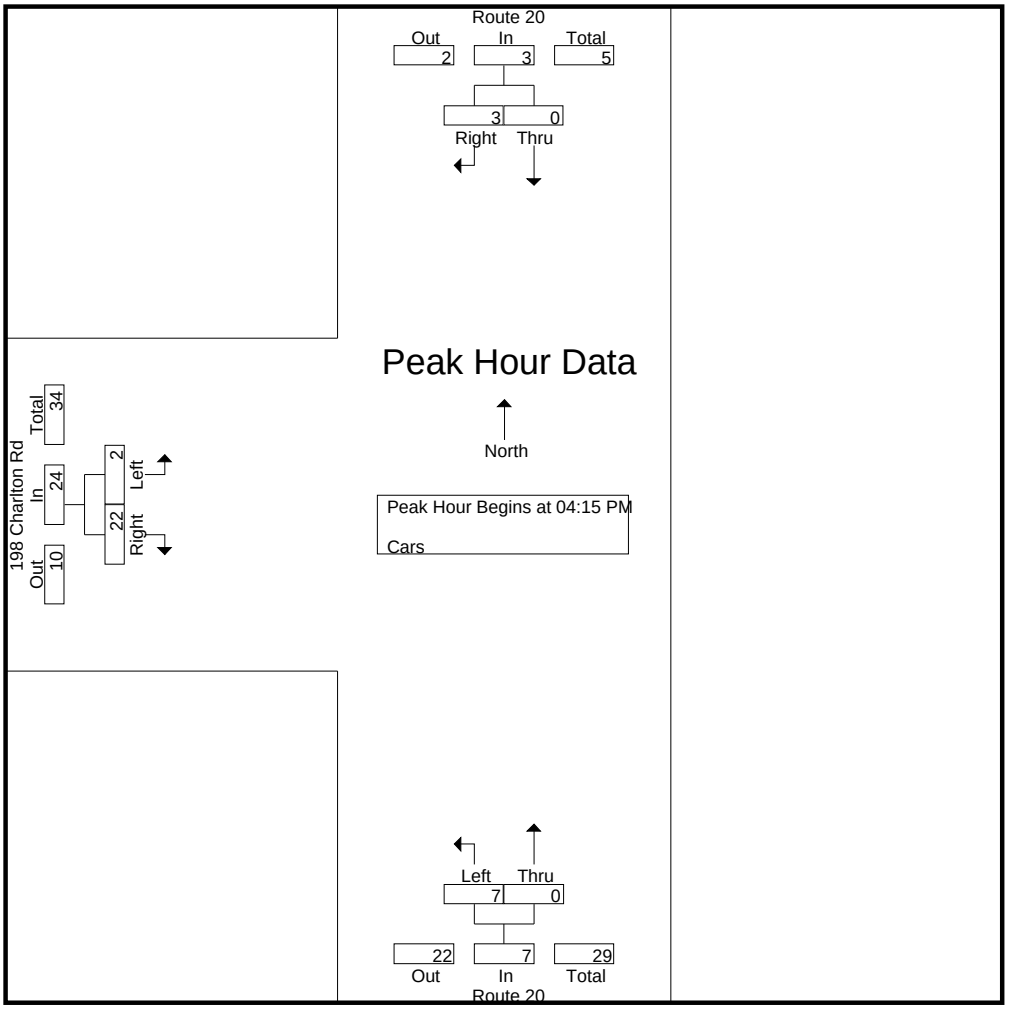
	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	0	0	**4**	0	**4**	0	5	5	**9**
04:30 PM	0	0	0	2	0	2	**2**	5	7	9
04:45 PM	0	**3**	**3**	1	0	1	0	4	4	8
05:00 PM	0	0	0	0	0	0	0	**8**	**8**	8
Total Volume	0	3	3	7	0	7	2	22	24	34
% App. Total	0	100		100	0		8.3	91.7		
PHF	.000	.250	.250	.438	.000	.438	.250	.688	.750	.944

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 5



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

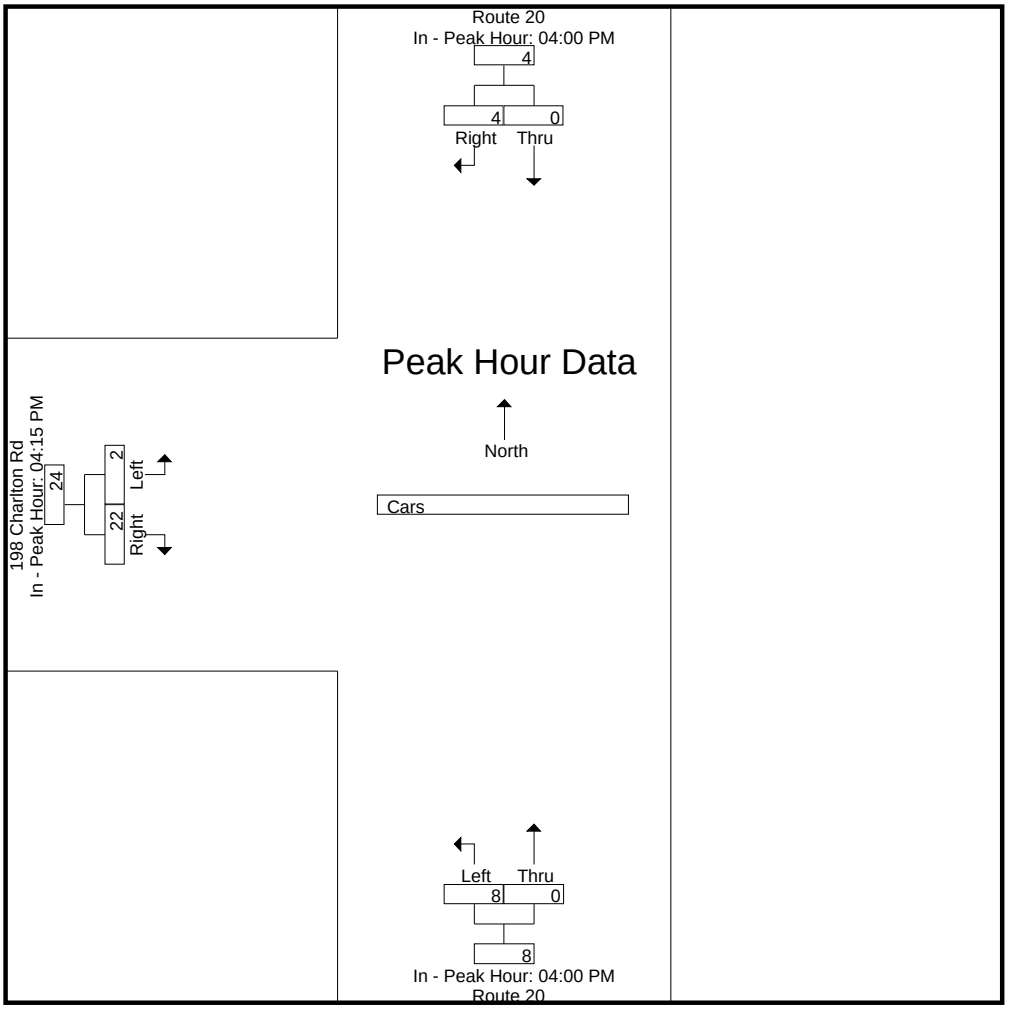
	04:00 PM			04:00 PM			04:15 PM		
+0 mins.	0	1	1	1	0	1	0	5	5
+15 mins.	0	0	0	**4**	0	**4**	**2**	5	7
+30 mins.	0	0	0	2	0	2	0	4	4
+45 mins.	0	**3**	**3**	1	0	1	0	**8**	**8**
Total Volume	0	4	4	8	0	8	2	22	24
% App. Total	0	100		100	0		8.3	91.7	
PHF	.000	.333	.333	.500	.000	.500	.250	.688	.750

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 7

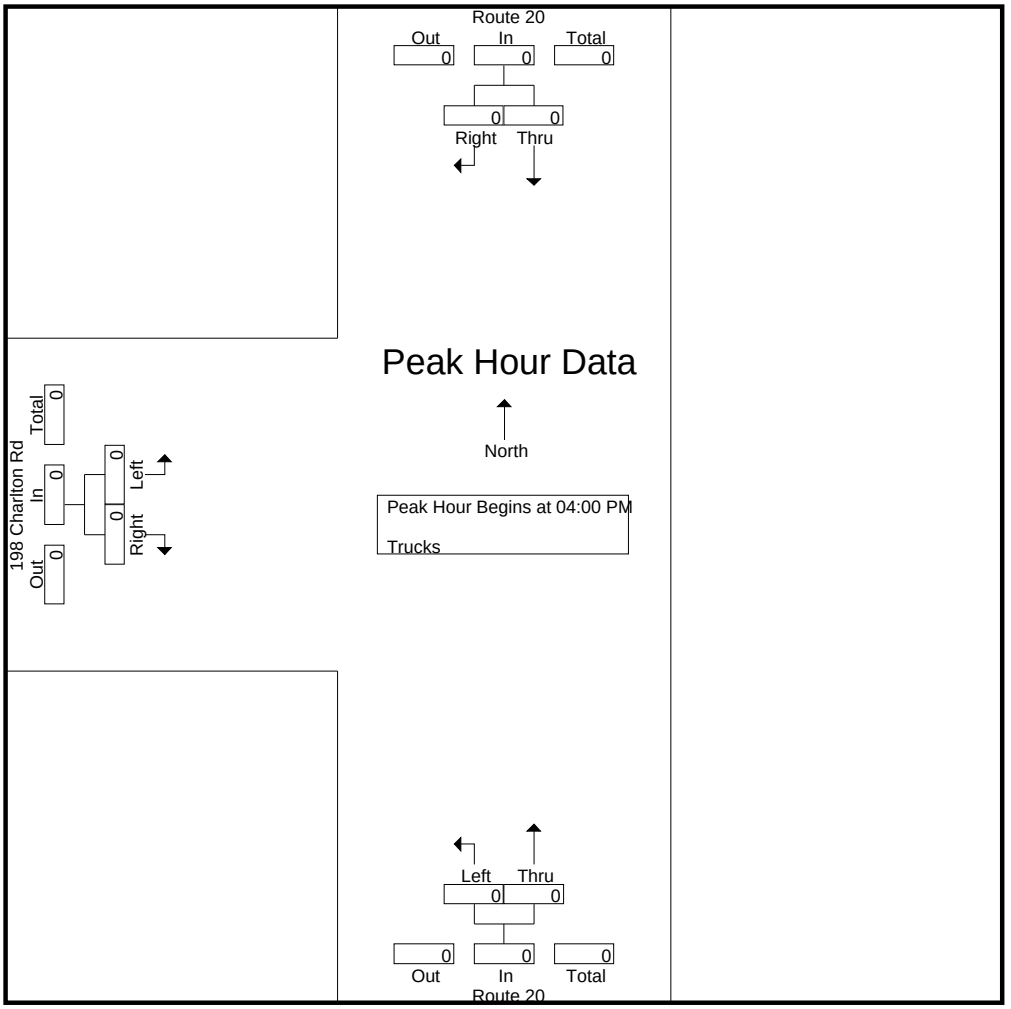
Groups Printed- Trucks

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 8



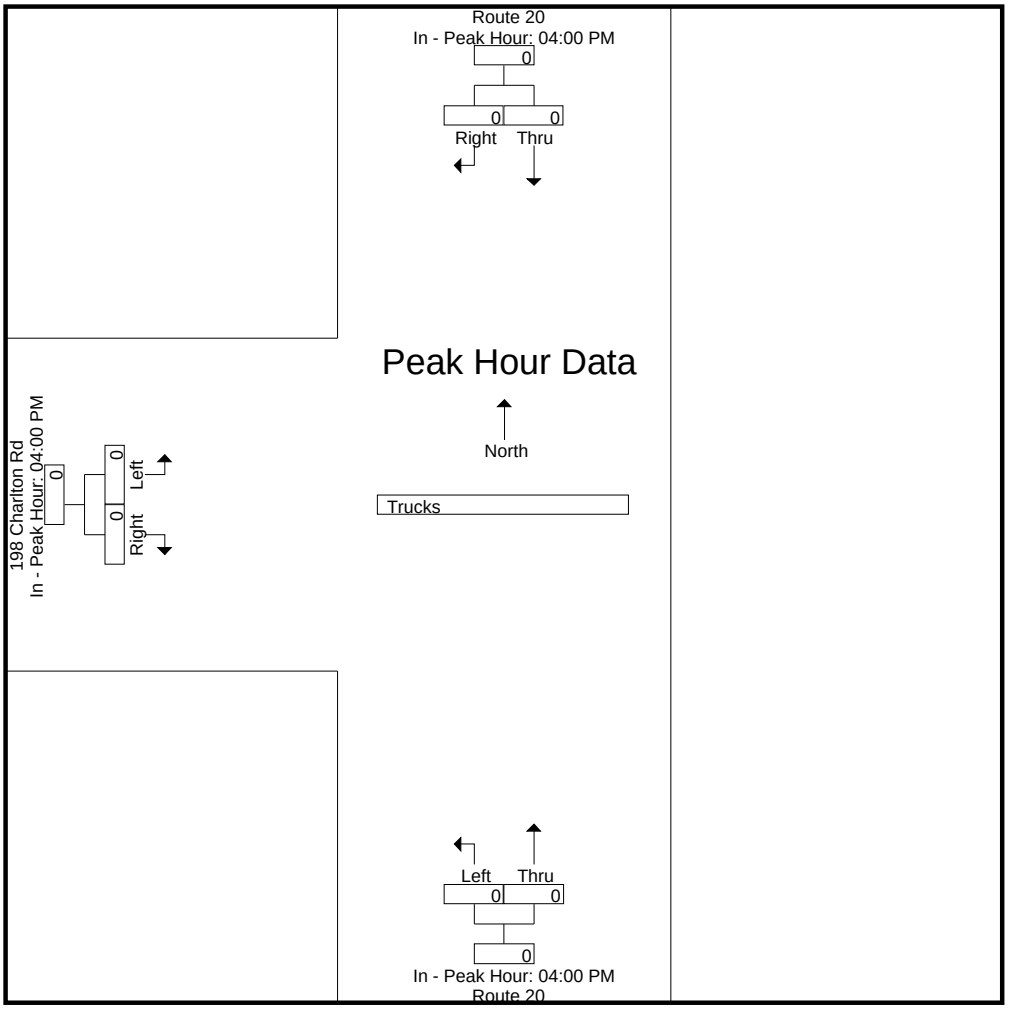
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 10

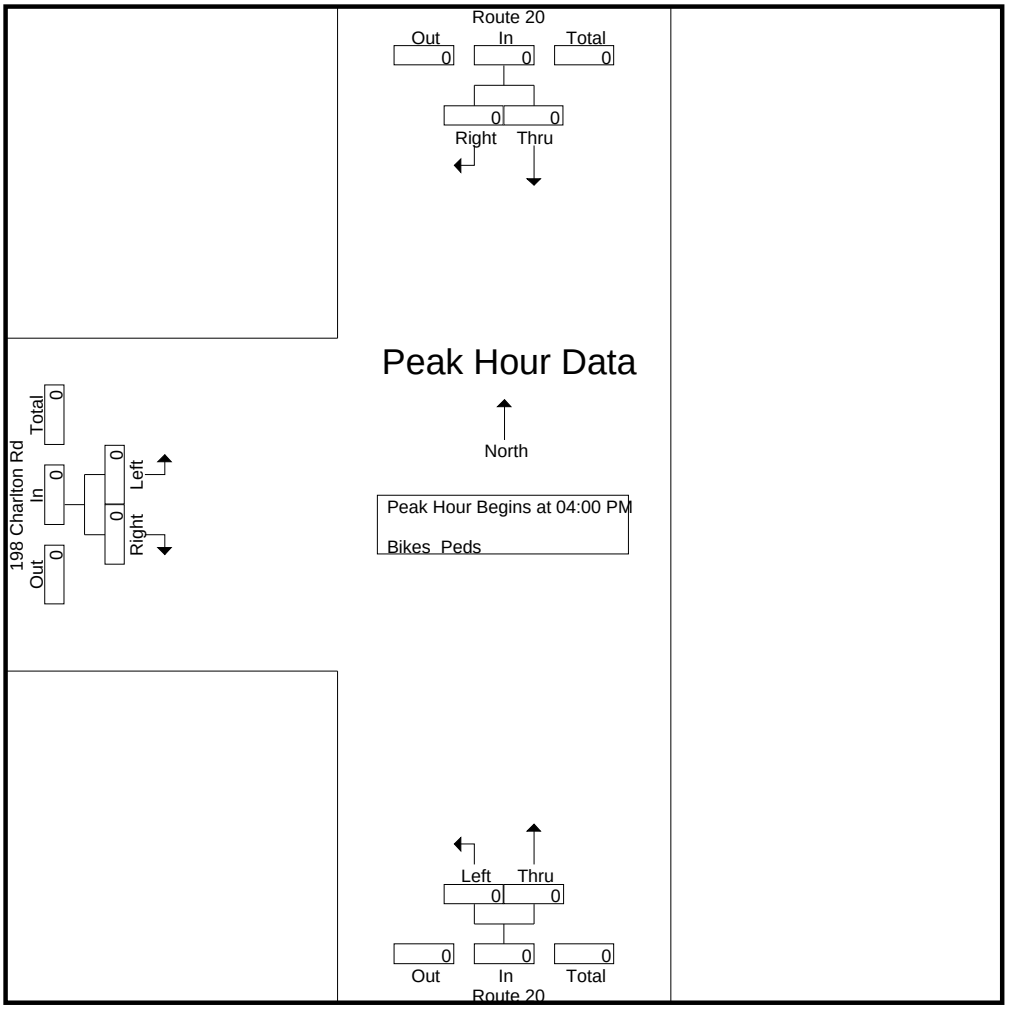
Groups Printed- Bikes Peds

	Route 20 From North			Route 20 From South			198 Charlton Rd From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 11



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

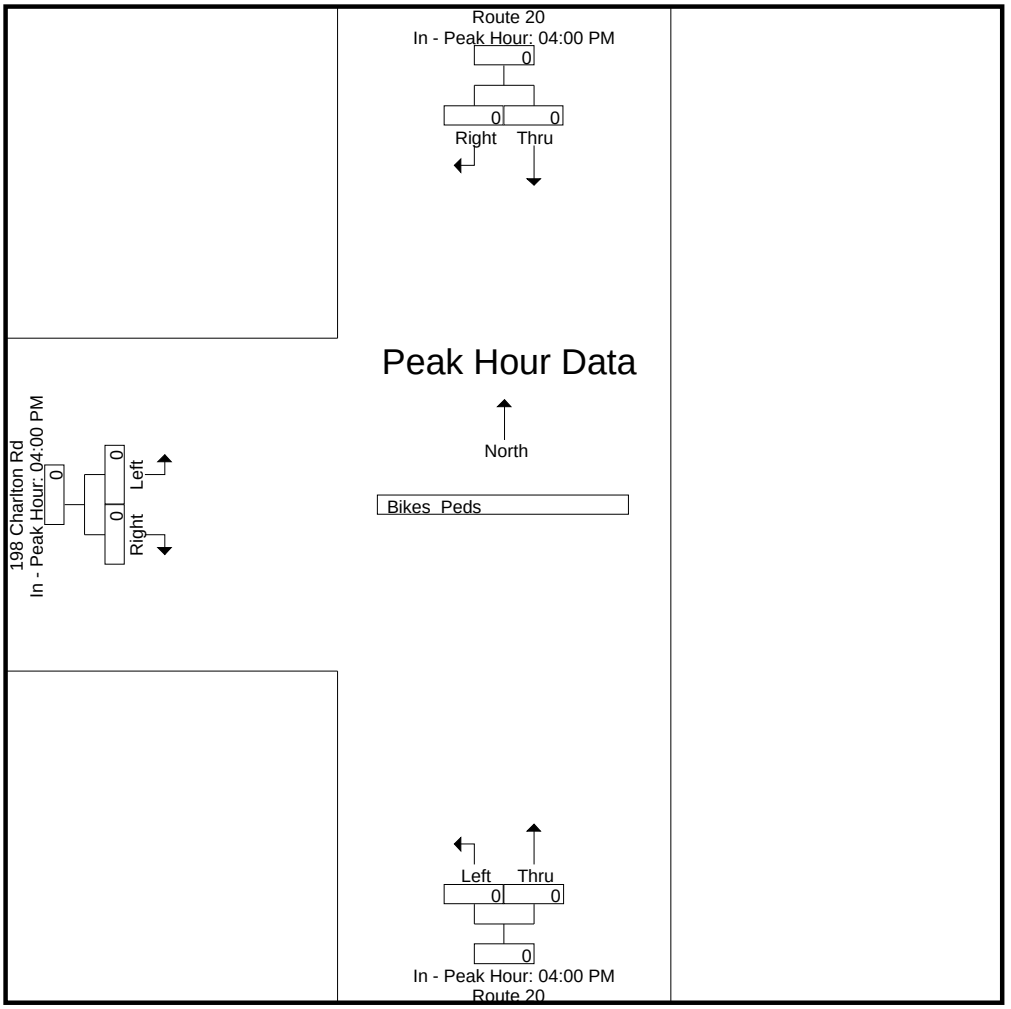
	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Road
City/State : Sturbridge, MA
Weather : Clear

File Name : 87070006
Site Code : 87070006
Start Date : 10/1/2020
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 1

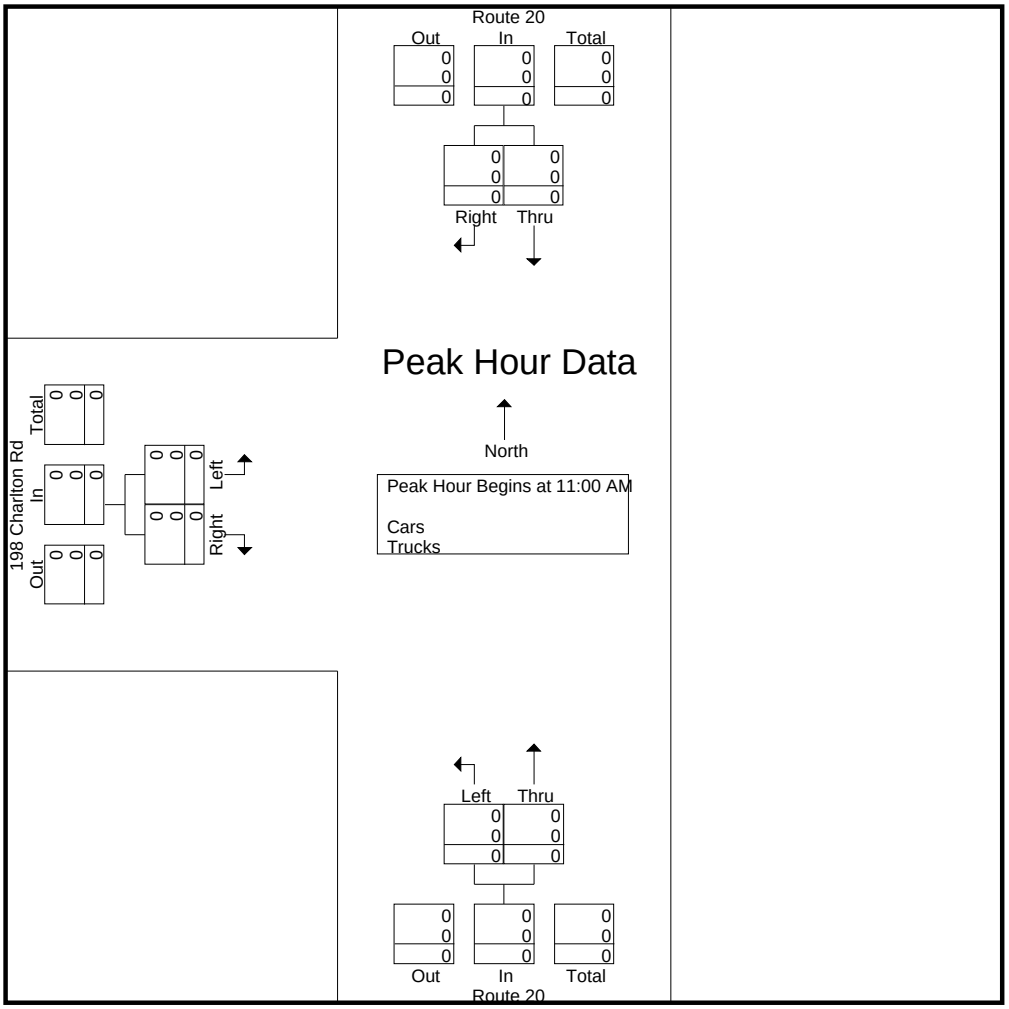
Groups Printed- Cars - Trucks

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1
Grand Total	0	1	0	0	0	0	1
Apprch %	0	100	0	0	0	0	
Total %	0	100	0	0	0	0	
Cars	0	1	0	0	0	0	1
% Cars	0	100	0	0	0	0	100
Trucks	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0

	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Cars	0	0	0	0	0	0	0	0	0	0
% Cars	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

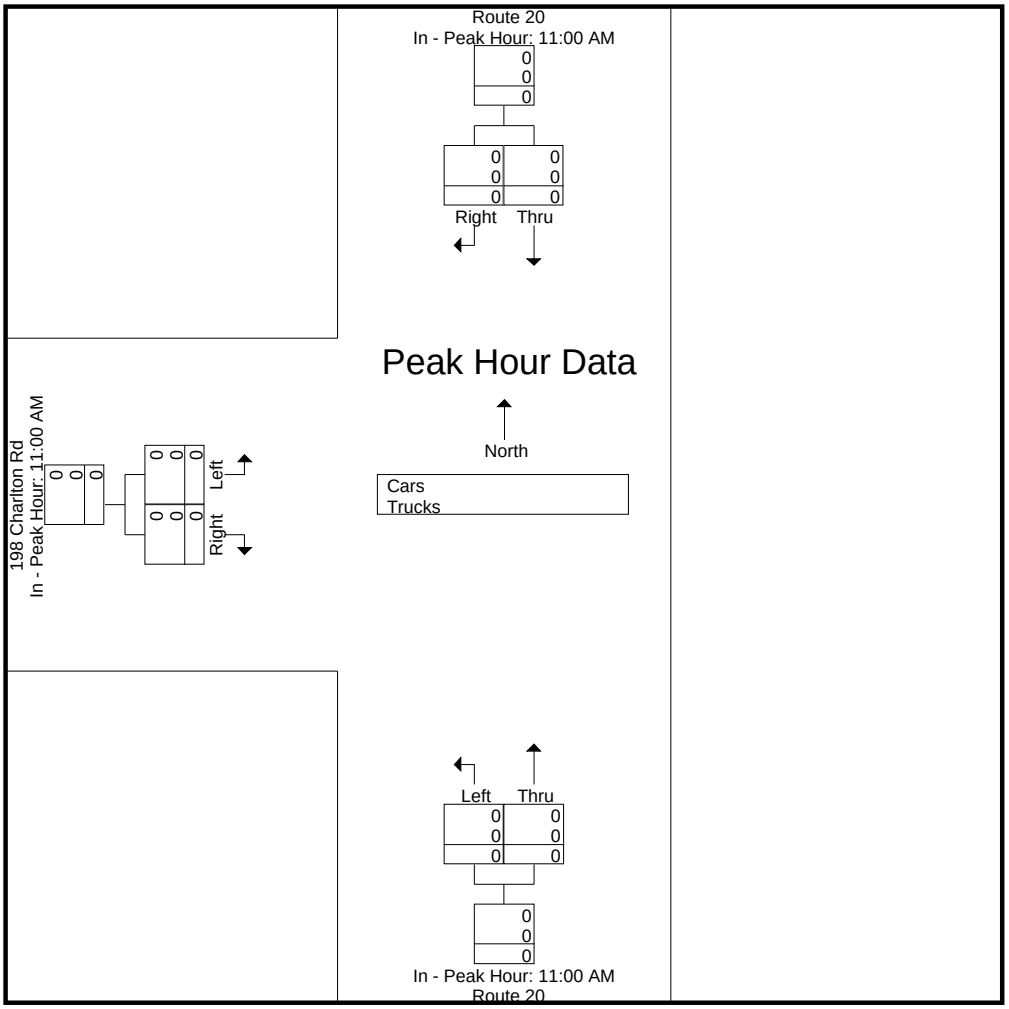
	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000
Cars	0	0	0	0	0	0	0	0	0
% Cars	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 4

Groups Printed- Cars

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1
Grand Total	0	1	0	0	0	0	1
Apprch %	0	100	0	0	0	0	
Total %	0	100	0	0	0	0	

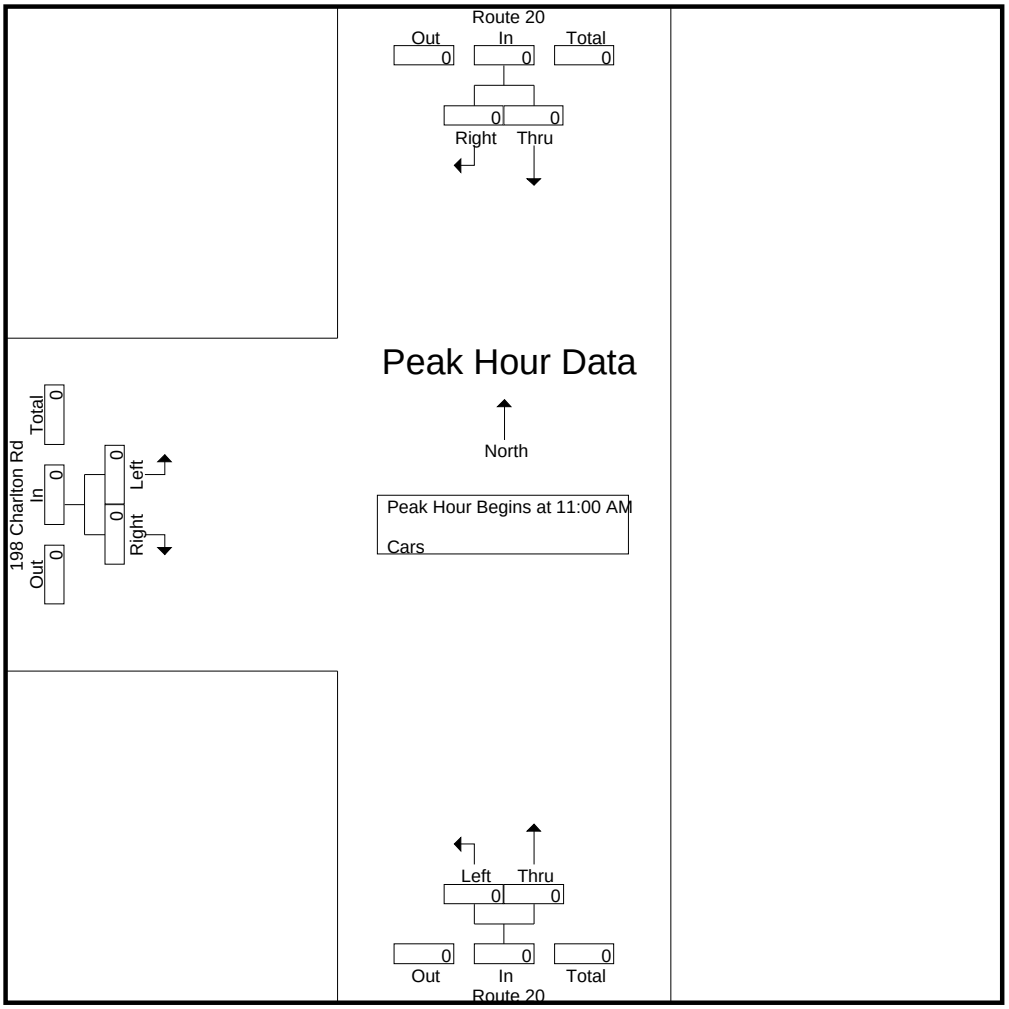
	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 5



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

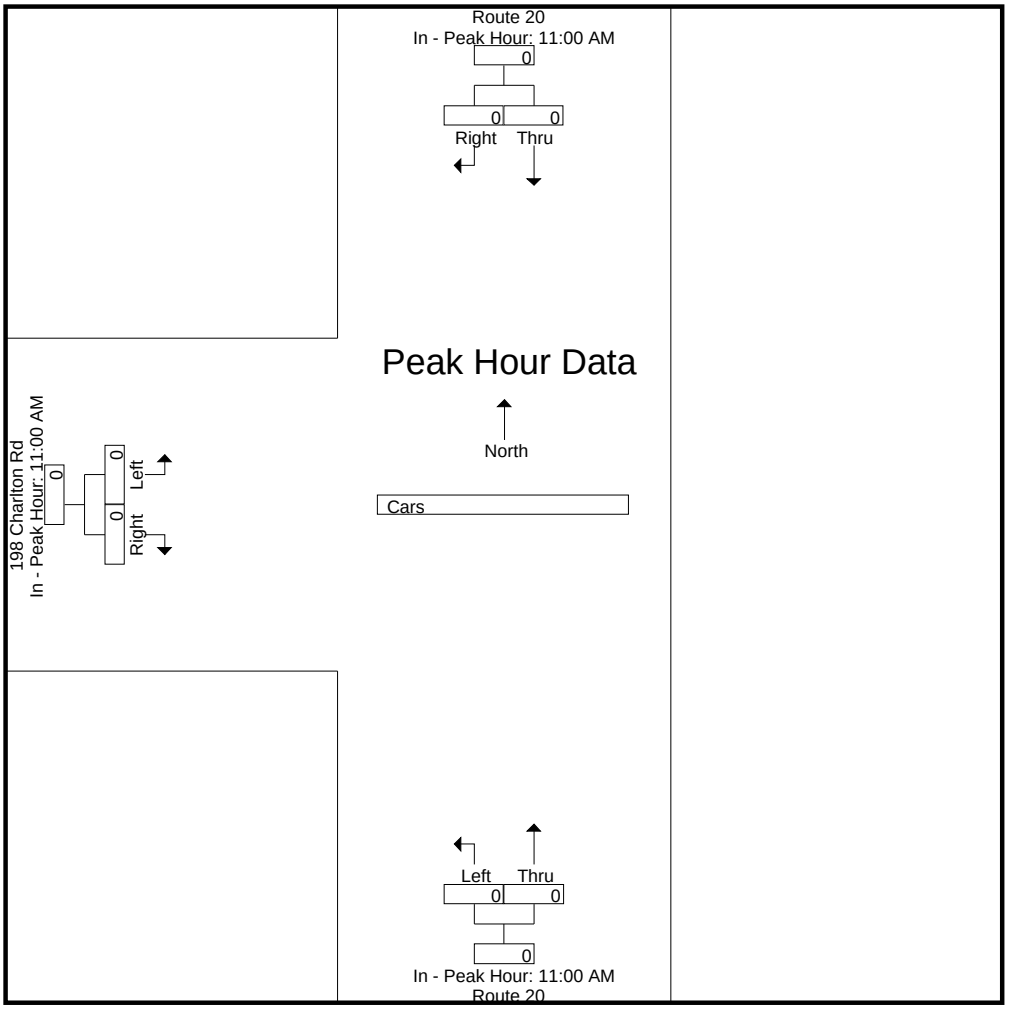
	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 7

Groups Printed- Trucks

	Route 20 From North		Route 20 From South		198 Charlton Rd From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

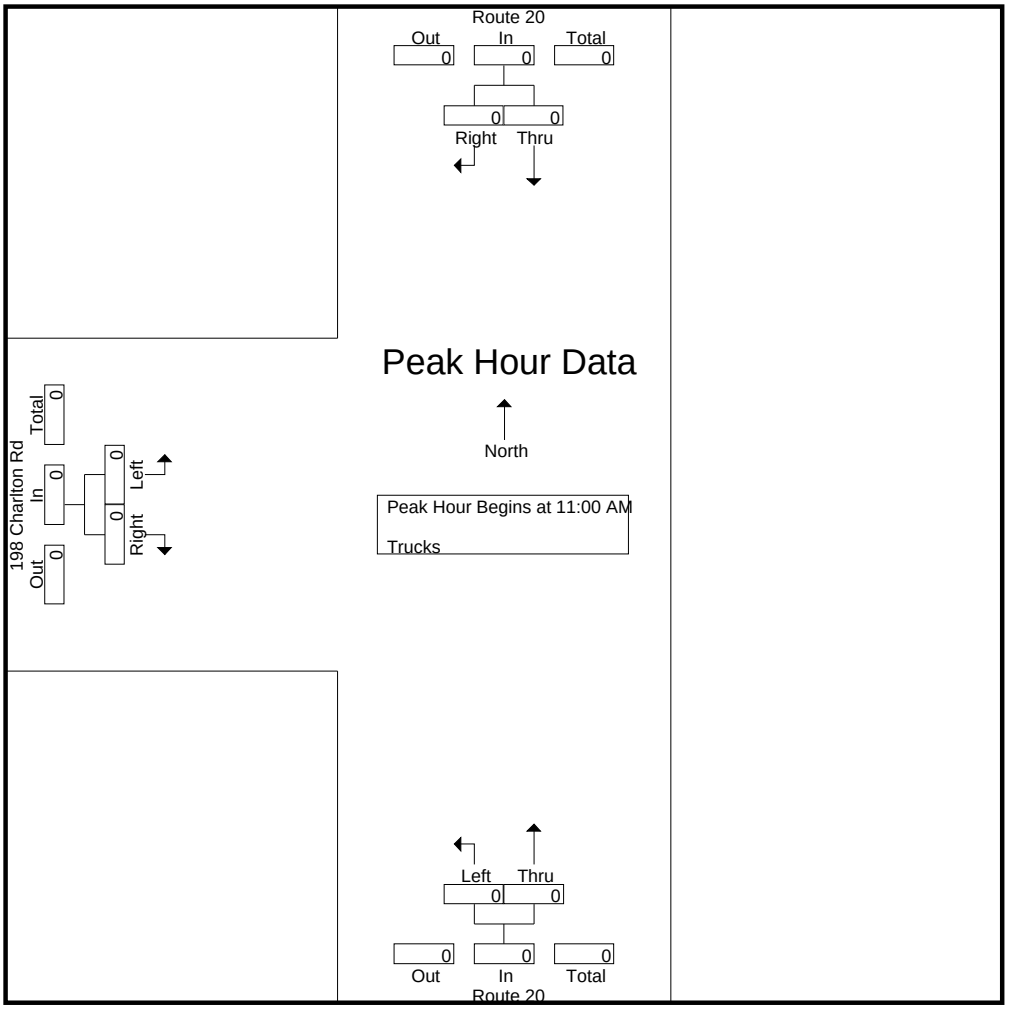
	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 8



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

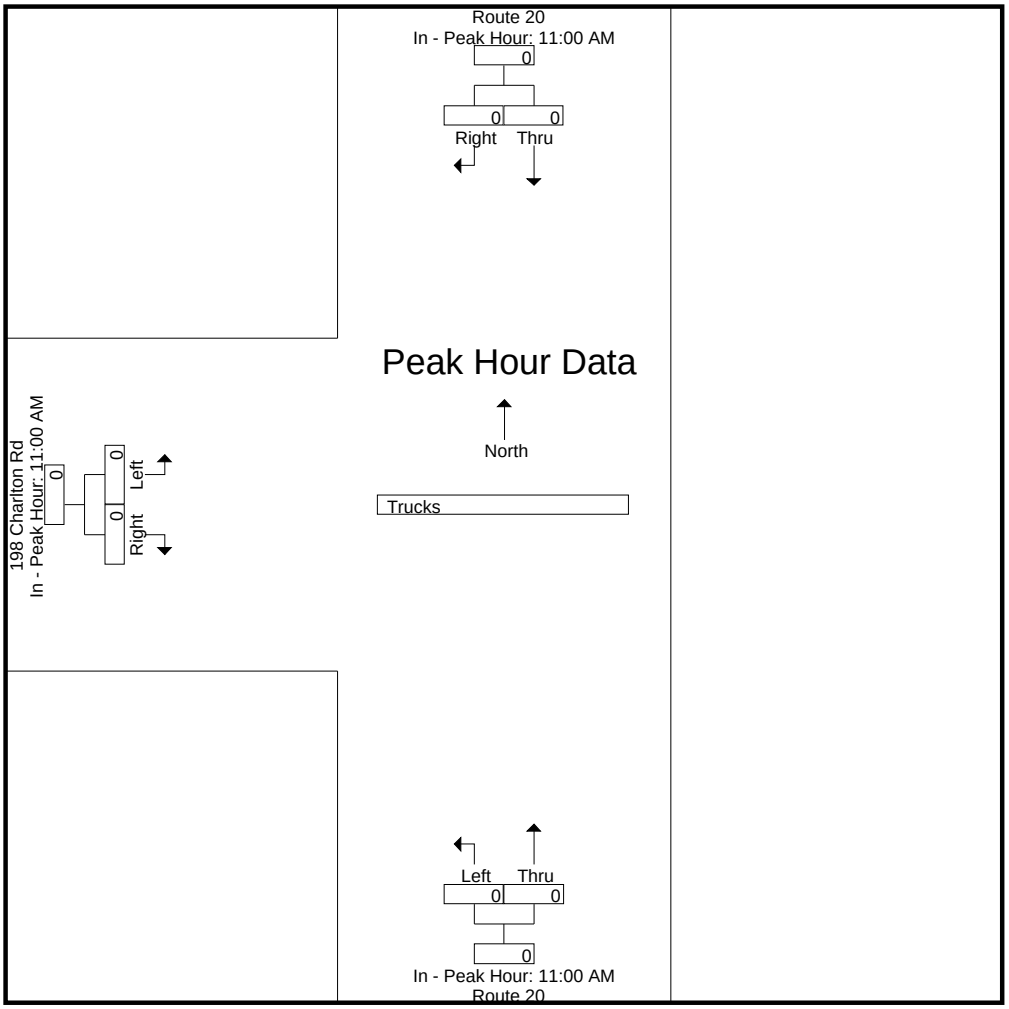
	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 10

Groups Printed- Bikes Peds

	Route 20 From North			Route 20 From South			198 Charlton Rd From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

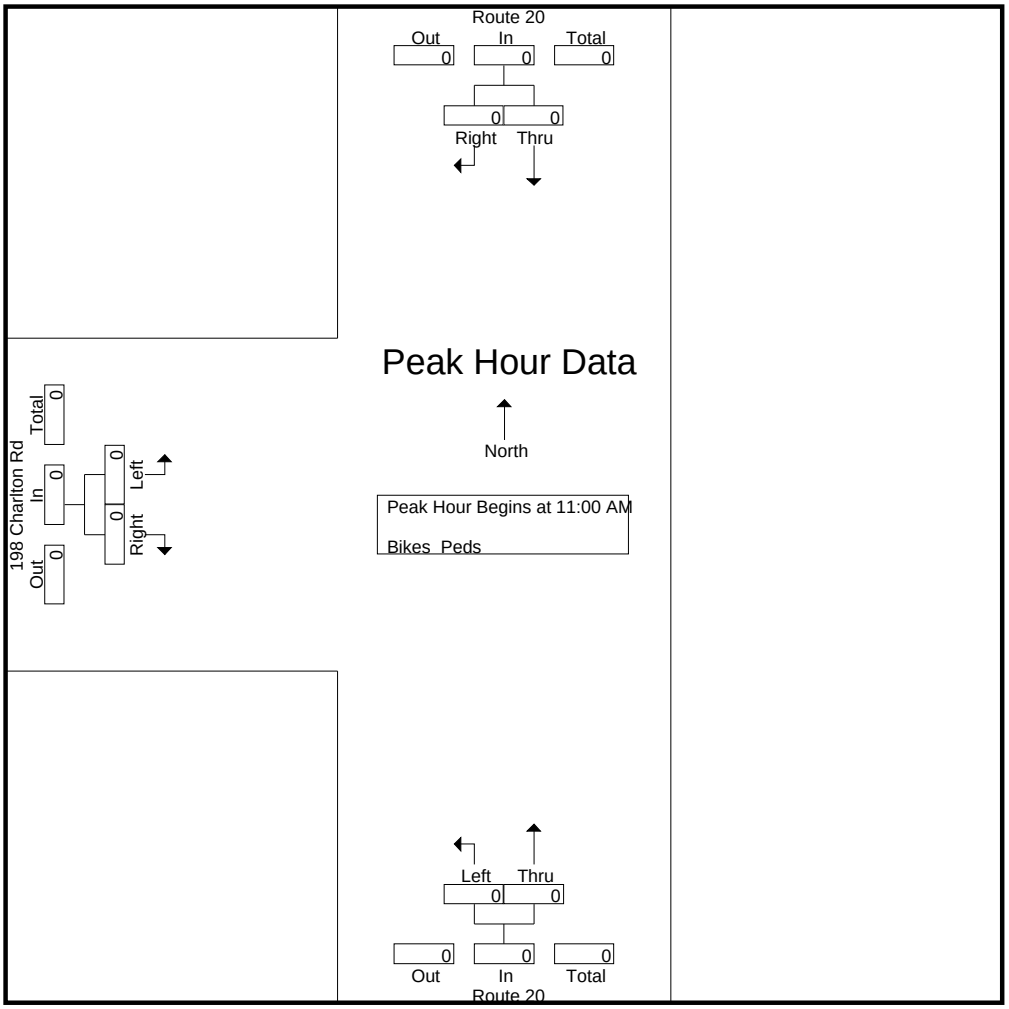
	Route 20 From North			Route 20 From South			198 Charlton Rd From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 11



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

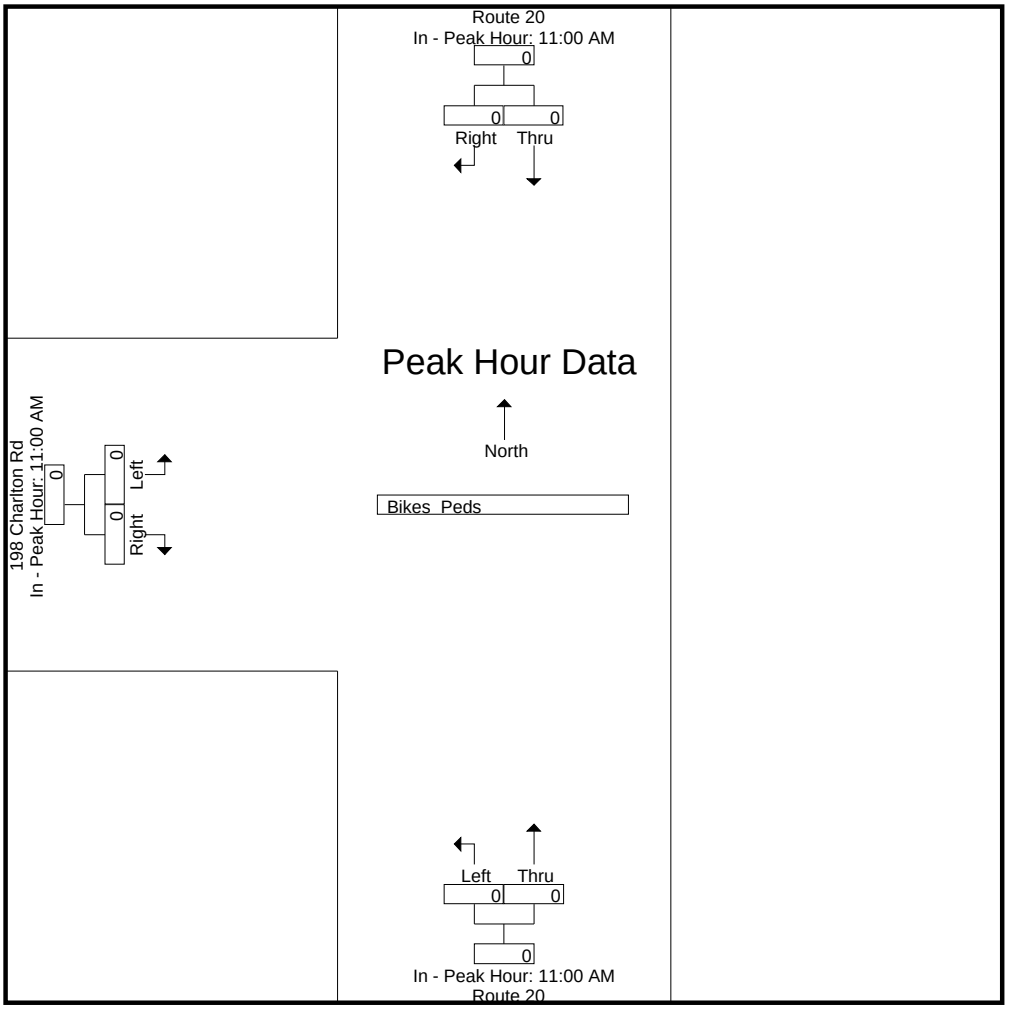
	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 20
E/W Street : 198 Charlton Rd
City/State : Sturbridge, MA
Weather : Clear

File Name : 870700S6
Site Code : 87070006
Start Date : 10/3/2020
Page No : 12



CAPACITY ANALYSIS WORKSHEETS

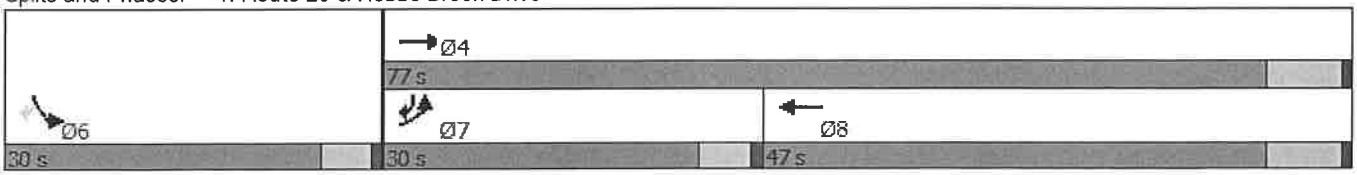
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	166	698	591	43	31	84
Future Volume (vph)	166	698	591	43	31	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	11	12	12	12
Storage Length (ft)	265			115	160	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		30	30		30	
Link Distance (ft)		1177	1858		490	
Travel Time (s)		26.8	42.2		11.1	
Peak Hour Factor	0.85	0.85	0.82	0.82	0.69	0.69
Heavy Vehicles (%)	2%	11%	10%	3%	0%	12%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	821	721	52	45	122
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Detector Phase	7	4	8		6	7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	23.0	23.0		21.0	9.0
Total Split (s)	30.0	77.0	47.0		30.0	30.0
Total Split (%)	28.0%	72.0%	43.9%		28.0%	28.0%
Yellow Time (s)	4.0	6.0	6.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	-1.0	-3.0	-3.0		-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	Min	Min		None	None
v/c Ratio	0.43	0.30	0.48	0.03	0.09	0.21
Control Delay	22.3	2.3	12.5	0.0	25.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	2.3	12.5	0.0	25.3	4.9
Queue Length 50th (ft)	55	37	89	0	6	4
Queue Length 95th (ft)	119	55	143	0	18	18
Internal Link Dist (ft)		1097	1778		410	
Turn Bay Length (ft)	265			115	160	
Base Capacity (vph)	962	3252	2585	1568	1843	960
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	0.20	0.25	0.28	0.03	0.02	0.13

Intersection Summary

Area Type: Other
Cycle Length: 107

Actuated Cycle Length: 53
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Route 20 & Hobbs Brook Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	166	698	591	43	31	84
Future Volume (vph)	166	698	591	43	31	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	12	11	12	12	12
Total Lost time (s)	4.0	4.0	4.0	1.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1829	3252	3172	1568	3502	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1829	3252	3172	1568	3502	1442
Peak-hour factor, PHF	0.85	0.85	0.82	0.82	0.69	0.69
Adj. Flow (vph)	195	821	721	52	45	122
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	195	821	721	52	45	53
Heavy Vehicles (%)	2%	11%	10%	3%	0%	12%
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Actuated Green, G (s)	12.1	39.4	22.3	54.9	3.5	15.6
Effective Green, g (s)	13.1	42.4	25.3	54.9	4.5	17.6
Actuated g/C Ratio	0.24	0.77	0.46	1.00	0.08	0.32
Clearance Time (s)	5.0	7.0	7.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	436	2511	1461	1568	287	567
v/s Ratio Prot	c0.11	0.25	c0.23		c0.01	0.02
v/s Ratio Perm				0.03		0.01
v/c Ratio	0.45	0.33	0.49	0.03	0.16	0.09
Uniform Delay, d1	17.8	1.9	10.3	0.0	23.4	13.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.3	0.0	0.3	0.1
Delay (s)	18.5	2.0	10.6	0.0	23.7	13.1
Level of Service	B	A	B	A	C	B
Approach Delay (s)		5.2	9.9		16.0	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

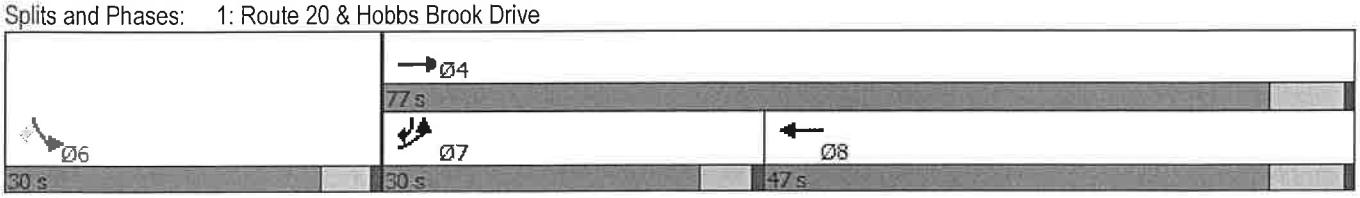
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	378	750	743	190	157	361
Future Volume (vph)	378	750	743	190	157	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	11	12	12	12
Storage Length (ft)	265			115	160	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		30	30		30	
Link Distance (ft)		1097	1575		490	
Travel Time (s)		24.9	35.8		11.1	
Peak Hour Factor	0.91	0.91	0.95	0.95	0.94	0.94
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	415	824	782	200	167	384
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Detector Phase	7	4	8		6	7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	23.0	23.0		21.0	9.0
Total Split (s)	30.0	77.0	47.0		30.0	30.0
Total Split (%)	28.0%	72.0%	43.9%		28.0%	28.0%
Yellow Time (s)	4.0	6.0	6.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	-1.0	-3.0	-3.0		-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	Min	Min		None	None
v/c Ratio	0.69	0.31	0.62	0.12	0.34	0.44
Control Delay	30.4	3.4	21.6	0.2	32.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	3.4	21.6	0.2	32.6	11.1
Queue Length 50th (ft)	162	47	156	0	37	77
Queue Length 95th (ft)	#320	79	224	0	72	172
Internal Link Dist (ft)		1017	1495		410	
Turn Bay Length (ft)	265			115	160	
Base Capacity (vph)	674	3306	2026	1615	1267	935
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	0.62	0.25	0.39	0.12	0.13	0.41

Intersection Summary

Area Type: Other
Cycle Length: 107

Actuated Cycle Length: 73.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 20 & Hobbs Brook Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	378	750	743	190	157	361
Future Volume (vph)	378	750	743	190	157	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	12	11	12	12	12
Total Lost time (s)	4.0	4.0	4.0	1.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1865	3505	3388	1615	3502	1615
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1865	3505	3388	1615	3502	1615
Peak-hour factor, PHF	0.91	0.91	0.95	0.95	0.94	0.94
Adj. Flow (vph)	415	824	782	200	167	384
RTOR Reduction (vph)	0	0	0	0	0	44
Lane Group Flow (vph)	415	824	782	200	167	340
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Actuated Green, G (s)	22.6	52.0	24.4	73.2	9.2	31.8
Effective Green, g (s)	23.6	55.0	27.4	73.2	10.2	33.8
Actuated g/C Ratio	0.32	0.75	0.37	1.00	0.14	0.46
Clearance Time (s)	5.0	7.0	7.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	601	2633	1268	1615	487	833
v/s Ratio Prot	c0.22	0.24	c0.23		0.05	c0.13
v/s Ratio Perm				0.12		0.08
v/c Ratio	0.69	0.31	0.62	0.12	0.34	0.41
Uniform Delay, d1	21.6	3.0	18.6	0.0	28.5	13.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.1	0.9	0.2	0.4	0.3
Delay (s)	25.0	3.0	19.5	0.2	28.9	13.4
Level of Service	C	A	B	A	C	B
Approach Delay (s)		10.4	15.6		18.1	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

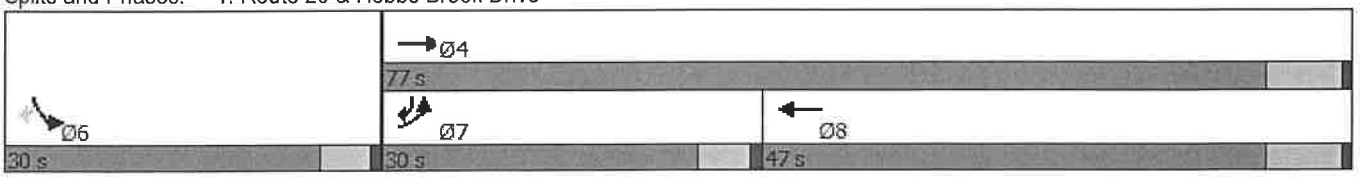
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	166	766	673	43	31	84
Future Volume (vph)	166	766	673	43	31	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	11	12	12	12
Storage Length (ft)	265			115	160	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		30	30		30	
Link Distance (ft)		1460	2084		490	
Travel Time (s)		33.2	47.4		11.1	
Peak Hour Factor	0.85	0.85	0.82	0.82	0.69	0.69
Heavy Vehicles (%)	2%	11%	10%	3%	0%	12%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	901	821	52	45	122
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Detector Phase	7	4	8		6	7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	23.0	23.0		21.0	9.0
Total Split (s)	30.0	77.0	47.0		30.0	30.0
Total Split (%)	28.0%	72.0%	43.9%		28.0%	28.0%
Yellow Time (s)	4.0	6.0	6.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	-1.0	-3.0	-3.0		-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	Min	Min		None	None
v/c Ratio	0.44	0.32	0.52	0.03	0.09	0.22
Control Delay	24.2	2.3	12.7	0.0	27.6	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	2.3	12.7	0.0	27.6	7.6
Queue Length 50th (ft)	59	42	108	0	7	10
Queue Length 95th (ft)	129	61	166	0	19	29
Internal Link Dist (ft)		1380	2004		410	
Turn Bay Length (ft)	265			115	160	
Base Capacity (vph)	913	3213	2497	1568	1749	902
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.28	0.33	0.03	0.03	0.14

Intersection Summary

Area Type: Other
Cycle Length: 107

Actuated Cycle Length: 56.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Route 20 & Hobbs Brook Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	166	766	673	43	31	84
Future Volume (vph)	166	766	673	43	31	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	12	11	12	12	12
Total Lost time (s)	4.0	4.0	4.0	1.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1829	3252	3172	1568	3502	1442
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1829	3252	3172	1568	3502	1442
Peak-hour factor, PHF	0.85	0.85	0.82	0.82	0.69	0.69
Adj. Flow (vph)	195	901	821	52	45	122
RTOR Reduction (vph)	0	0	0	0	0	49
Lane Group Flow (vph)	195	901	821	52	45	73
Heavy Vehicles (%)	2%	11%	10%	3%	0%	12%
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Actuated Green, G (s)	12.6	42.6	25.0	58.1	3.5	16.1
Effective Green, g (s)	13.6	45.6	28.0	58.1	4.5	18.1
Actuated g/C Ratio	0.23	0.78	0.48	1.00	0.08	0.31
Clearance Time (s)	5.0	7.0	7.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	428	2552	1528	1568	271	548
v/s Ratio Prot	c0.11	0.28	c0.26		0.01	c0.03
v/s Ratio Perm				0.03		0.02
v/c Ratio	0.46	0.35	0.54	0.03	0.17	0.13
Uniform Delay, d1	19.1	1.9	10.5	0.0	25.0	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.4	0.0	0.3	0.1
Delay (s)	19.8	1.9	10.9	0.0	25.3	14.5
Level of Service	B	A	B	A	C	B
Approach Delay (s)		5.1	10.2		17.4	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

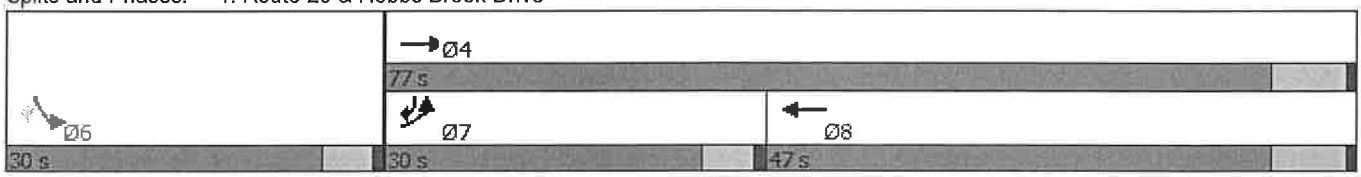
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	378	788	780	190	157	361
Future Volume (vph)	378	788	780	190	157	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	11	12	12	12
Storage Length (ft)	265			115	160	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		30	30		30	
Link Distance (ft)		1393	1780		490	
Travel Time (s)		31.7	40.5		11.1	
Peak Hour Factor	0.91	0.91	0.95	0.95	0.94	0.94
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	415	866	821	200	167	384
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Detector Phase	7	4	8		6	7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	23.0	23.0		21.0	9.0
Total Split (s)	30.0	77.0	47.0		30.0	30.0
Total Split (%)	28.0%	72.0%	43.9%		28.0%	28.0%
Yellow Time (s)	4.0	6.0	6.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	-1.0	-3.0	-3.0		-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	Min	Min		None	None
v/c Ratio	0.70	0.33	0.63	0.12	0.35	0.45
Control Delay	32.0	3.4	21.6	0.2	33.6	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	3.4	21.6	0.2	33.6	12.3
Queue Length 50th (ft)	167	51	167	0	38	84
Queue Length 95th (ft)	#350	84	237	0	74	187
Internal Link Dist (ft)		1313	1700		410	
Turn Bay Length (ft)	265			115	160	
Base Capacity (vph)	659	3297	1983	1615	1239	913
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	0.63	0.26	0.41	0.12	0.13	0.42

Intersection Summary

Area Type: Other
Cycle Length: 107

Actuated Cycle Length: 75.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 20 & Hobbs Brook Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	378	788	780	190	157	361
Future Volume (vph)	378	788	780	190	157	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	12	11	12	12	12
Total Lost time (s)	4.0	4.0	4.0	1.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1865	3505	3388	1615	3502	1615
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1865	3505	3388	1615	3502	1615
Peak-hour factor, PHF	0.91	0.91	0.95	0.95	0.94	0.94
Adj. Flow (vph)	415	866	821	200	167	384
RTOR Reduction (vph)	0	0	0	0	0	39
Lane Group Flow (vph)	415	866	821	200	167	345
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				Free		6
Actuated Green, G (s)	22.7	53.6	25.9	74.9	9.3	32.0
Effective Green, g (s)	23.7	56.6	28.9	74.9	10.3	34.0
Actuated g/C Ratio	0.32	0.76	0.39	1.00	0.14	0.45
Clearance Time (s)	5.0	7.0	7.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	590	2648	1307	1615	481	819
v/s Ratio Prot	c0.22	0.25	c0.24		0.05	c0.13
v/s Ratio Perm				0.12		0.08
v/c Ratio	0.70	0.33	0.63	0.12	0.35	0.42
Uniform Delay, d1	22.5	3.0	18.6	0.0	29.3	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.1	1.0	0.2	0.4	0.4
Delay (s)	26.3	3.0	19.6	0.2	29.7	14.2
Level of Service	C	A	B	A	C	B
Approach Delay (s)		10.6	15.8		18.9	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

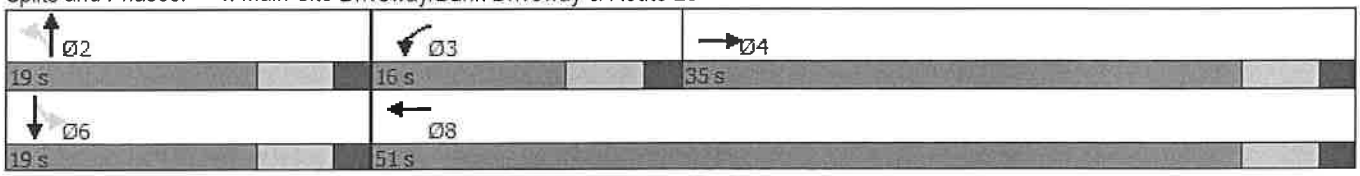
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	891	223	131	627	0	157	0	73	4	0	6
Future Volume (vph)	0	891	223	131	627	0	157	0	73	4	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		50	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		150			407			200			213	
Travel Time (s)		3.4			9.3			4.5			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)									0			
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1210	0	142	682	0	171	79	0	0	11	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Detector Phase		4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		22.0		10.0	22.0		18.0	18.0		19.0	19.0	
Total Split (s)		35.0		16.0	51.0		19.0	19.0		19.0	19.0	
Total Split (%)		50.0%		22.9%	72.9%		27.1%	27.1%		27.1%	27.1%	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	0.0			-2.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	6.0			4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None		None	None		None	None	
v/c Ratio		0.65		0.38	0.27		0.50	0.14			0.02	
Control Delay		16.4		29.8	4.5		30.4	0.5			0.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		16.4		29.8	4.5		30.4	0.5			0.1	
Queue Length 50th (ft)		217		56	53		66	0			0	
Queue Length 95th (ft)		300		108	75		126	0			0	
Internal Link Dist (ft)		70			327			120			133	
Turn Bay Length (ft)				125								
Base Capacity (vph)		1868		435	2506		429	658			565	
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		0.65		0.33	0.27		0.40	0.12			0.02	

Intersection Summary

Area Type: Other
Cycle Length: 70

Actuated Cycle Length: 59.9
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Main Site Driveway/Bank Driveway & Route 20



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	891	223	131	627	0	157	0	73	4	0	6
Future Volume (vph)	0	891	223	131	627	0	157	0	73	4	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	6.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frt		0.97		1.00	1.00		1.00	0.85			0.91	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)		3303		1770	3374		1770	1583			1672	
Flt Permitted		1.00		0.95	1.00		0.75	1.00			0.90	
Satd. Flow (perm)		3303		1770	3374		1398	1583			1525	
Peak-hour factor, PHF	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)	0	968	242	142	682	0	171	0	79	4	0	7
RTOR Reduction (vph)	0	29	0	0	0	0	0	68	0	0	9	0
Lane Group Flow (vph)	0	1181	0	142	682	0	171	11	0	0	2	0
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)									0			
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		28.8		6.7	41.5		8.7	8.7			8.7	
Effective Green, g (s)		30.8		8.7	43.5		10.7	8.7			10.7	
Actuated g/C Ratio		0.50		0.14	0.70		0.17	0.14			0.17	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1635		247	2359		240	221			262	
v/s Ratio Prot		c0.36		c0.08	0.20			0.01				
v/s Ratio Perm							c0.12				0.00	
v/c Ratio		0.72		0.57	0.29		0.71	0.05			0.01	
Uniform Delay, d1		12.3		25.0	3.5		24.3	23.2			21.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.6		3.2	0.1		9.6	0.1			0.0	
Delay (s)		13.9		28.2	3.6		33.9	23.3			21.4	
Level of Service		B		C	A		C	C			C	
Approach Delay (s)		13.9			7.8			30.5			21.4	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1058	144	116	1192	0	139	0	60	6	0	25
Future Volume (vph)	0	1058	144	116	1192	0	139	0	60	6	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		59	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		184			389			200			189	
Travel Time (s)		4.2			8.8			4.5			4.3	
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1307	0	126	1296	0	151	65	0	0	34	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Detector Phase		4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		22.0		10.0	22.0		17.0	17.0		18.0	18.0	
Total Split (s)		35.0		17.0	52.0		18.0	18.0		18.0	18.0	
Total Split (%)		50.0%		24.3%	74.3%		25.7%	25.7%		25.7%	25.7%	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	0.0			-2.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	6.0			4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None		None	None		None	None	
v/c Ratio		0.67		0.32	0.49		0.46	0.11			0.07	
Control Delay		17.1		27.9	5.6		30.5	0.4			0.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		17.1		27.9	5.6		30.5	0.4			0.3	
Queue Length 50th (ft)		240		48	120		58	0			0	
Queue Length 95th (ft)		#337		95	161		115	0			0	
Internal Link Dist (ft)		104			309			120			109	
Turn Bay Length (ft)				125								
Base Capacity (vph)		1962		502	2686		418	653			571	
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		0.67		0.25	0.48		0.36	0.10			0.06	

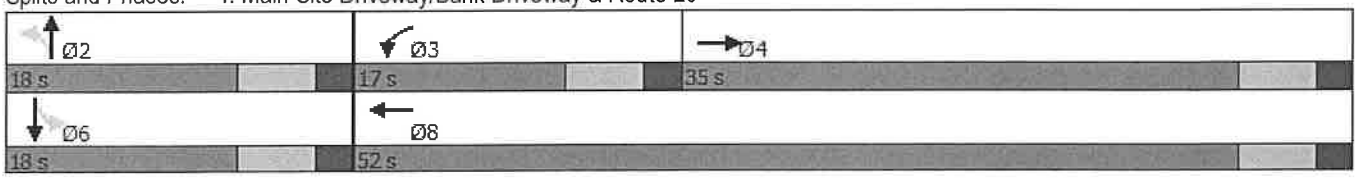
Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 58.9
Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Splits and Phases: 4: Main Site Driveway/Bank Driveway & Route 20



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1058	144	116	1192	0	139	0	60	6	0	25
Future Volume (vph)	0	1058	144	116	1192	0	139	0	60	6	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	6.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frt		0.98		1.00	1.00		1.00	0.85			0.89	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3475		1770	3539		1770	1583			1646	
Flt Permitted		1.00		0.95	1.00		0.73	1.00			0.93	
Satd. Flow (perm)		3475		1770	3539		1369	1583			1550	
Peak-hour factor, PHF	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)	0	1150	157	126	1296	0	151	0	65	7	0	27
RTOR Reduction (vph)	0	14	0	0	0	0	0	57	0	0	28	0
Lane Group Flow (vph)	0	1293	0	126	1296	0	151	8	0	0	6	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		28.1		6.9	41.0		7.9	7.9			7.9	
Effective Green, g (s)		30.1		8.9	43.0		9.9	7.9			9.9	
Actuated g/C Ratio		0.49		0.15	0.71		0.16	0.13			0.16	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1717		258	2498		222	205			251	
v/s Ratio Prot		c0.37		0.07	c0.37			0.01				
v/s Ratio Perm							c0.11				0.00	
v/c Ratio		0.75		0.49	0.52		0.68	0.04			0.02	
Uniform Delay, d1		12.4		23.9	4.2		24.0	23.2			21.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.9		1.5	0.2		8.3	0.1			0.0	
Delay (s)		14.3		25.4	4.3		32.3	23.3			21.5	
Level of Service		B		C	A		C	C			C	
Approach Delay (s)		14.3			6.2			29.6			21.5	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1126	165	127	1149	0	151	0	66	9	0	31
Future Volume (vph)	0	1126	165	127	1149	0	151	0	66	9	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	125		0	0		50	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		208			395			200			207	
Travel Time (s)		4.7			9.0			4.5			4.7	
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1403	0	138	1249	0	164	72	0	0	44	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Detector Phase		4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		22.0		10.0	22.0		18.0	18.0		18.0	18.0	
Total Split (s)		37.0		14.0	51.0		19.0	19.0		19.0	19.0	
Total Split (%)		52.9%		20.0%	72.9%		27.1%	27.1%		27.1%	27.1%	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None		None	None		None	None	
v/c Ratio		0.69		0.44	0.48		0.52	0.13			0.10	
Control Delay		16.7		33.0	5.8		31.5	0.5			0.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		16.7		33.0	5.8		31.5	0.5			0.4	
Queue Length 50th (ft)		260		56	120		64	0			0	
Queue Length 95th (ft)		#356		109	162		122	0			0	
Internal Link Dist (ft)		128			315			120			127	
Turn Bay Length (ft)				125								
Base Capacity (vph)		2026		337	2623		387	631			541	
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		0.69		0.41	0.48		0.42	0.11			0.08	

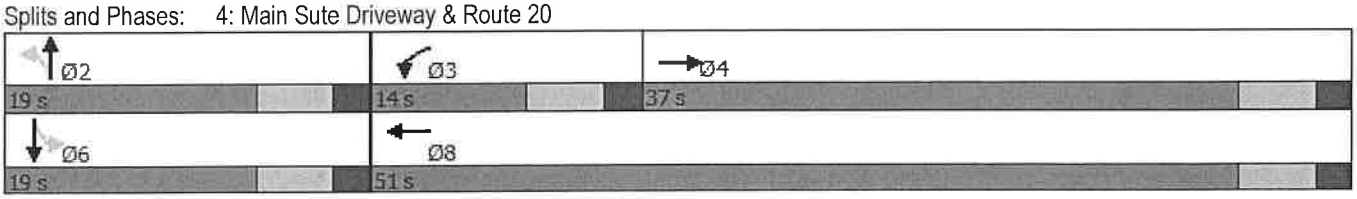
Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 60.9
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Splits and Phases: 4: Main Sute Driveway & Route 20



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1126	165	127	1149	0	151	0	66	9	0	31
Future Volume (vph)	0	1126	165	127	1149	0	151	0	66	9	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frt		0.98		1.00	1.00		1.00	0.85			0.90	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3471		1770	3539		1770	1583			1650	
Flt Permitted		1.00		0.95	1.00		0.73	1.00			0.92	
Satd. Flow (perm)		3471		1770	3539		1357	1583			1542	
Peak-hour factor, PHF	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)	0	1224	179	138	1249	0	164	0	72	10	0	34
RTOR Reduction (vph)	0	15	0	0	0	0	0	60	0	0	37	0
Lane Group Flow (vph)	0	1388	0	138	1249	0	164	12	0	0	7	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		31.2		5.6	42.8		8.8	8.8			8.8	
Effective Green, g (s)		33.2		7.6	44.8		10.8	10.8			10.8	
Actuated g/C Ratio		0.52		0.12	0.70		0.17	0.17			0.17	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1811		211	2492		230	268			261	
v/s Ratio Prot		c0.40		c0.08	0.35			0.01				
v/s Ratio Perm							c0.12				0.00	
v/c Ratio		0.77		0.65	0.50		0.71	0.05			0.03	
Uniform Delay, d1		12.1		26.7	4.3		24.9	22.1			22.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.0		7.1	0.2		10.0	0.1			0.0	
Delay (s)		14.1		33.8	4.5		34.9	22.2			22.1	
Level of Service		B		C	A		C	C			C	
Approach Delay (s)		14.1			7.4			31.0			22.1	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	825	17	86	572	2	13	0	147	2	0	4
Future Volume (vph)	3	825	17	86	572	2	13	0	147	2	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	13	12	12	15	16	12	12	12	12
Storage Length (ft)	0		0	250		0	0		0	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			310			692			212	
Travel Time (s)		17.1			7.0			15.7			4.8	
Peak Hour Factor	0.91	0.91	0.91	0.79	0.79	0.79	0.70	0.70	0.70	0.75	0.75	0.75
Heavy Vehicles (%)	0%	11%	7%	1%	10%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	929	0	109	727	0	19	210	0	0	8	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	3	825	17	86	572	2	13	0	147	2	0	4
Future Vol, veh/h	3	825	17	86	572	2	13	0	147	2	0	4
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	-	-	-	250	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	79	79	79	70	70	70	75	75	75
Heavy Vehicles, %	0	11	7	1	10	0	0	0	1	0	0	0
Mvmt Flow	3	907	19	109	724	3	19	0	210	3	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	727	0	0	926	0	0	1503	1868	463	1404	1876	364
Stage 1	-	-	-	-	-	-	923	923	-	944	944	-
Stage 2	-	-	-	-	-	-	580	945	-	460	932	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.5	6.5	6.92	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.21	-	-	3.5	4	3.31	3.5	4	3.3
Pot Cap-1 Maneuver	886	-	-	740	-	-	85	73	548	101	72	639
Stage 1	-	-	-	-	-	-	294	351	-	286	344	-
Stage 2	-	-	-	-	-	-	472	343	-	556	348	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	886	-	-	740	-	-	74	62	548	55	61	639
Mov Cap-2 Maneuver	-	-	-	-	-	-	74	62	-	55	61	-
Stage 1	-	-	-	-	-	-	292	349	-	284	293	-
Stage 2	-	-	-	-	-	-	399	293	-	341	346	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	20	32.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	74	548	886	-	-	740	-	-	141
HCM Lane V/C Ratio	0.251	0.383	0.004	-	-	0.147	-	-	0.057
HCM Control Delay (s)	69.2	15.6	9.1	0	-	10.7	-	-	32.1
HCM Lane LOS	F	C	A	A	-	B	-	-	D
HCM 95th %tile Q(veh)	0.9	1.8	0	-	-	0.5	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	898	13	212	1053	2	3	2	235	4	0	5
Future Volume (vph)	3	898	13	212	1053	2	3	2	235	4	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	13	12	12	15	16	12	12	12	12
Storage Length (ft)	0		0	250		0	0		0	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			310			692			212	
Travel Time (s)		17.1			7.0			15.7			4.8	
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.85	0.85	0.85	0.45	0.45	0.45
Heavy Vehicles (%)	33%	3%	0%	1%	3%	50%	0%	0%	0%	25%	0%	20%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	983	0	223	1110	0	4	278	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↑↕		↰	↕			↕	
Traffic Vol, veh/h	3	898	13	212	1053	2	3	2	235	4	0	5
Future Vol, veh/h	3	898	13	212	1053	2	3	2	235	4	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	-	-	-	250	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	95	95	95	85	85	85	45	45	45
Heavy Vehicles, %	33	3	0	1	3	50	0	0	0	25	0	20
Mvmt Flow	3	966	14	223	1108	2	4	2	276	9	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1110	0	0	980	0	0	1979	2535	490	2045	2541	555
Stage 1	-	-	-	-	-	-	979	979	-	1555	1555	-
Stage 2	-	-	-	-	-	-	1000	1556	-	490	986	-
Critical Hdwy	4.76	-	-	4.12	-	-	7.5	6.5	6.9	8	6.5	7.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	7	5.5	-
Follow-up Hdwy	2.53	-	-	2.21	-	-	3.5	4	3.3	3.75	4	3.5
Pot Cap-1 Maneuver	472	-	-	706	-	-	38	28	529	25	27	432
Stage 1	-	-	-	-	-	-	272	331	-	94	176	-
Stage 2	-	-	-	-	-	-	264	176	-	473	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	472	-	-	706	-	-	28	19	529	~ 8	18	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	28	19	-	~ 8	18	-
Stage 1	-	-	-	-	-	-	268	326	-	93	120	-
Stage 2	-	-	-	-	-	-	176	120	-	221	323	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.1	28.9	$ 547.2
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	28	431	472	-	-	706	-	-	18
HCM Lane V/C Ratio	0.126	0.647	0.007	-	-	0.316	-	-	1.111
HCM Control Delay (s)	151.3	27.4	12.7	0.1	-	12.4	-	-	$ 547.2
HCM Lane LOS	F	D	B	A	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	4.5	0	-	-	1.4	-	-	2.9

Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	945	17	105	677	2	13	0	169	2	0	4
Future Volume (vph)	3	945	17	105	677	2	13	0	169	2	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	13	12	12	15	16	12	12	12	12
Storage Length (ft)	0		0	250		0	0		0	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			160			692			212	
Travel Time (s)		17.1			3.6			15.7			4.8	
Peak Hour Factor	0.91	0.91	0.91	0.79	0.79	0.79	0.70	0.70	0.70	0.75	0.75	0.75
Heavy Vehicles (%)	0%	11%	7%	1%	10%	0%	0%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1060	0	133	860	0	19	241	0	0	8	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

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	3	945	17	105	677	2	13	0	169	2	0	4
Future Vol, veh/h	3	945	17	105	677	2	13	0	169	2	0	4
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	-	-	-	250	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	79	79	79	70	70	70	75	75	75
Heavy Vehicles, %	0	11	7	1	10	0	0	0	1	0	0	0
Mvmt Flow	3	1038	19	133	857	3	19	0	241	3	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	860	0	0	1057	0	0	1749	2180	529	1650	2188	430
Stage 1	-	-	-	-	-	-	1054	1054	-	1125	1125	-
Stage 2	-	-	-	-	-	-	695	1126	-	525	1063	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.5	6.5	6.92	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.21	-	-	3.5	4	3.31	3.5	4	3.3
Pot Cap-1 Maneuver	790	-	-	660	-	-	56	47	497	66	46	579
Stage 1	-	-	-	-	-	-	245	305	-	222	283	-
Stage 2	-	-	-	-	-	-	403	282	-	509	302	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	790	-	-	660	-	-	47	37	497	29	36	579
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	37	-	29	36	-
Stage 1	-	-	-	-	-	-	243	302	-	220	226	-
Stage 2	-	-	-	-	-	-	319	225	-	259	299	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	26.5	55.6
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	47	497	790	-	-	660	-	-	79
HCM Lane V/C Ratio	0.395	0.486	0.004	-	-	0.201	-	-	0.101
HCM Control Delay (s)	124.8	18.9	9.6	0	-	11.8	-	-	55.6
HCM Lane LOS	F	C	A	A	-	B	-	-	F
HCM 95th %tile Q(veh)	1.4	2.6	0	-	-	0.7	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	953	13	222	1111	2	3	2	245	4	0	5
Future Volume (vph)	3	953	13	222	1111	2	3	2	245	4	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	13	12	12	15	16	12	12	12	12
Storage Length (ft)	0		0	250		0	0		0	0		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			211			692			212	
Travel Time (s)		17.1			4.8			15.7			4.8	
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.85	0.85	0.85	0.45	0.45	0.45
Heavy Vehicles (%)	33%	3%	0%	1%	3%	50%	0%	0%	0%	25%	0%	20%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1042	0	234	1171	0	4	290	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	12.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↕		↰	↱			↕	
Traffic Vol, veh/h	3	953	13	222	1111	2	3	2	245	4	0	5
Future Vol, veh/h	3	953	13	222	1111	2	3	2	245	4	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	-	-	-	250	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	95	95	95	85	85	85	45	45	45
Heavy Vehicles, %	33	3	0	1	3	50	0	0	0	25	0	20
Mvmt Flow	3	1025	14	234	1169	2	4	2	288	9	0	11

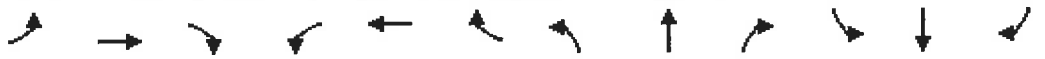
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1171	0	0	1039	0	0	2091	2677	520	2158	2683	586
Stage 1	-	-	-	-	-	-	1038	1038	-	1638	1638	-
Stage 2	-	-	-	-	-	-	1053	1639	-	520	1045	-
Critical Hdwy	4.76	-	-	4.12	-	-	7.5	6.5	6.9	8	6.5	7.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	7	5.5	-
Follow-up Hdwy	2.53	-	-	2.21	-	-	3.5	4	3.3	3.75	4	3.5
Pot Cap-1 Maneuver	444	-	-	671	-	-	31	22	506	20	22	411
Stage 1	-	-	-	-	-	-	251	311	-	83	160	-
Stage 2	-	-	-	-	-	-	245	160	-	452	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	444	-	-	671	-	-	22	14	506	~ 5	14	411
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	14	-	~ 5	14	-
Stage 1	-	-	-	-	-	-	247	306	-	82	104	-
Stage 2	-	-	-	-	-	-	155	104	-	190	303	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.2	37.7	$ 1065.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	22	394	444	-	-	671	-	-	11
HCM Lane V/C Ratio	0.16	0.738	0.007	-	-	0.348	-	-	1.818
HCM Control Delay (s)	197.7	35.8	13.2	0.1	-	13.2	-		$ 1065.6
HCM Lane LOS	F	E	B	A	-	B	-	-	F
HCM 95th %tile Q(veh)	0.5	5.8	0	-	-	1.6	-	-	3.4

Notes

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	966	5	1	657	0	3	0	0	1	0	0
Future Volume (vph)	3	966	5	1	657	0	3	0	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	16	12	12	16	12
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		310			261			200			250	
Travel Time (s)		7.0			5.9			4.5			5.7	
Peak Hour Factor	0.91	0.91	0.91	0.79	0.79	0.79	0.50	0.50	0.50	0.50	0.50	0.50
Heavy Vehicles (%)	0%	7%	33%	0%	7%	0%	33%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1070	0	0	833	0	0	6	0	0	2	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	966	5	1	657	0	3	0	0	1	0	0
Future Vol, veh/h	3	966	5	1	657	0	3	0	0	1	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	79	79	79	50	50	50	50	50	50
Heavy Vehicles, %	0	7	33	0	7	0	33	0	0	0	0	0
Mvmt Flow	3	1062	5	1	832	0	6	0	0	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	832	0	0	1067	0	0	1489	1905	534	1371	1907	416
Stage 1	-	-	-	-	-	-	1071	1071	-	834	834	-
Stage 2	-	-	-	-	-	-	418	834	-	537	1073	-
Critical Hdwy	4.1	-	-	4.1	-	-	8.16	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	7.16	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.16	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.83	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	809	-	-	661	-	-	64	69	496	107	69	591
Stage 1	-	-	-	-	-	-	187	300	-	333	386	-
Stage 2	-	-	-	-	-	-	507	386	-	501	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	809	-	-	661	-	-	63	68	496	106	68	591
Mov Cap-2 Maneuver	-	-	-	-	-	-	63	68	-	106	68	-
Stage 1	-	-	-	-	-	-	185	297	-	330	385	-
Stage 2	-	-	-	-	-	-	505	385	-	496	296	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	68.1	39.6
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	63	809	-	-	661	-	-	106
HCM Lane V/C Ratio	0.095	0.004	-	-	0.002	-	-	0.019
HCM Control Delay (s)	68.1	9.5	0	-	10.5	0	-	39.6
HCM Lane LOS	F	A	A	-	B	A	-	E
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Volume (vph)	1	1131	5	0	1261	0	2	0	0	1	0	4
Future Volume (vph)	1	1131	5	0	1261	0	2	0	0	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	16	12	12	16	12
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		310			261			200			250	
Travel Time (s)		7.0			5.9			4.5			5.7	
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.50	0.50	0.50	0.50	0.50	0.50
Heavy Vehicles (%)	0%	2%	40%	0%	2%	0%	0%	0%	0%	0%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1222	0	0	1327	0	0	4	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1131	5	0	1261	0	2	0	0	1	0	4
Future Vol, veh/h	1	1131	5	0	1261	0	2	0	0	1	0	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	95	95	95	50	50	50	50	50	50
Heavy Vehicles, %	0	2	40	0	2	0	0	0	0	0	0	25
Mvmt Flow	1	1216	5	0	1327	0	4	0	0	2	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1327	0	0	1221	0	0	1885	2548	611	1937	2550	664
Stage 1	-	-	-	-	-	-	1221	1221	-	1327	1327	-
Stage 2	-	-	-	-	-	-	664	1327	-	610	1223	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	7.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.55
Pot Cap-1 Maneuver	527	-	-	578	-	-	44	27	442	40	27	353
Stage 1	-	-	-	-	-	-	194	255	-	167	227	-
Stage 2	-	-	-	-	-	-	421	227	-	453	254	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	527	-	-	578	-	-	43	27	442	40	27	353
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	27	-	40	27	-
Stage 1	-	-	-	-	-	-	193	253	-	166	227	-
Stage 2	-	-	-	-	-	-	411	227	-	450	252	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	97.1	33.1
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	43	527	-	-	578	-	-	138
HCM Lane V/C Ratio	0.093	0.002	-	-	-	-	-	0.072
HCM Control Delay (s)	97.1	11.8	0	-	0	-	-	33.1
HCM Lane LOS	F	B	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	1113	784	0	1	0
Future Volume (vph)	3	1113	784	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		160	150		165	
Travel Time (s)		3.6	3.4		3.8	
Peak Hour Factor	0.91	0.91	0.79	0.79	0.50	0.50
Heavy Vehicles (%)	0%	7%	7%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1226	992	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↑	↑↕		⅄	
Traffic Vol, veh/h	3	1113	784	0	1	0
Future Vol, veh/h	3	1113	784	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	79	79	50	50
Heavy Vehicles, %	0	7	7	0	0	0
Mvmt Flow	3	1223	992	0	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	992	0	-	0	1610	496
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	618	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	705	-	-	-	97	525
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	506	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	705	-	-	-	96	525
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	320	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	43.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	705	-	-	-	96
HCM Lane V/C Ratio	0.005	-	-	-	0.021
HCM Control Delay (s)	10.1	0.1	-	-	43.3
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	1201	1331	0	1	4
Future Volume (vph)	1	1201	1331	0	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		211	184		212	
Travel Time (s)		4.8	4.2		4.8	
Peak Hour Factor	0.93	0.93	0.95	0.95	0.50	0.50
Heavy Vehicles (%)	0%	2%	2%	0%	0%	25%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1292	1401	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↑	↑↕		↾	
Traffic Vol, veh/h	1	1201	1331	0	1	4
Future Vol, veh/h	1	1201	1331	0	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	95	95	50	50
Heavy Vehicles, %	0	2	2	0	0	25
Mvmt Flow	1	1291	1401	0	2	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1401	0	-	0	2049	701
Stage 1	-	-	-	-	1401	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.1	-	-	-	6.8	7.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.55
Pot Cap-1 Maneuver	494	-	-	-	49	332
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	488	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	494	-	-	-	49	332
Mov Cap-2 Maneuver	-	-	-	-	49	-
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	488	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	494	-	-	-	154
HCM Lane V/C Ratio	0.002	-	-	-	0.065
HCM Control Delay (s)	12.3	0	-	-	30
HCM Lane LOS	B	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	960	7	1	657	1	0
Future Volume (vph)	960	7	1	657	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	261			429	367	
Travel Time (s)	5.9			9.8	8.3	
Peak Hour Factor	0.91	0.91	0.79	0.79	0.50	0.50
Heavy Vehicles (%)	7%	0%	0%	7%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1063	0	0	833	2	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	960	7	1	657	1	0
Future Vol, veh/h	960	7	1	657	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	79	79	50	50
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	1055	8	1	832	2	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1063	0	1477	532
Stage 1	-	-	-	-	1059	-
Stage 2	-	-	-	-	418	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	663	-	119	497
Stage 1	-	-	-	-	299	-
Stage 2	-	-	-	-	638	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	663	-	119	497
Mov Cap-2 Maneuver	-	-	-	-	119	-
Stage 1	-	-	-	-	299	-
Stage 2	-	-	-	-	636	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	35.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	119	-	-	663	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s)	35.8	-	-	10.4	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1132	0	0	1260	1	2
Future Volume (vph)	1132	0	0	1260	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	261			509	367	
Travel Time (s)	5.9			11.6	8.3	
Peak Hour Factor	0.93	0.93	0.95	0.95	0.50	0.50
Heavy Vehicles (%)	7%	0%	0%	7%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1217	0	0	1326	6	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↳			↰↑	Y	
Traffic Vol, veh/h	1132	0	0	1260	1	2
Future Vol, veh/h	1132	0	0	1260	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	95	95	50	50
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	1217	0	0	1326	2	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1217	0	1880	609
Stage 1	-	-	-	-	1217	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	580	-	64	443
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	580	-	64	443
Mov Cap-2 Maneuver	-	-	-	-	64	-
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	480	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	30.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	149	-	-	580	-
HCM Lane V/C Ratio	0.04	-	-	-	-
HCM Control Delay (s)	30.2	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	740	568	6	0	6
Future Volume (vph)	19	740	568	6	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		399	1207		236	
Travel Time (s)		9.1	27.4		5.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	825	624	0	0	7
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↑	↑↕		↰	↱
Traffic Vol, veh/h	19	740	568	6	0	6
Future Vol, veh/h	19	740	568	6	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	21	804	617	7	0	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	624	0	-	0	1065	312
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	444	-
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	953	-	-	-	218	684
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	953	-	-	-	209	684
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	614	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	953	-	-	-	-	684
HCM Lane V/C Ratio	0.022	-	-	-	-	0.01
HCM Control Delay (s)	8.9	0.2	-	-	0	10.3
HCM Lane LOS	A	A	-	-	A	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	1003	1015	3	2	22
Future Volume (vph)	7	1003	1015	3	2	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		479	1127		332	
Travel Time (s)		10.9	25.6		7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1098	1106	0	2	24
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

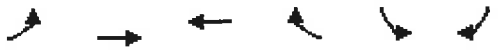
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱
Traffic Vol, veh/h	7	1003	1015	3	2	22
Future Vol, veh/h	7	1003	1015	3	2	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	8	1090	1103	3	2	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1106	0	-	0	1666	553
Stage 1	-	-	-	-	1105	-
Stage 2	-	-	-	-	561	-
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	627	-	-	-	87	477
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	627	-	-	-	84	477
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	535	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	627	-	-	-	84	477
HCM Lane V/C Ratio	0.012	-	-	-	0.026	0.05
HCM Control Delay (s)	10.8	0.2	-	-	49	12.9
HCM Lane LOS	B	A	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1107	1127	0	0	0
Future Volume (vph)	0	1107	1127	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		449	1157		343	
Travel Time (s)		10.2	26.3		7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1203	1225	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↰	↱
Traffic Vol, veh/h	0	1107	1127	0	0	0
Future Vol, veh/h	0	1107	1127	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	0	1203	1225	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1225	0	-	0	1827	613
Stage 1	-	-	-	-	1225	-
Stage 2	-	-	-	-	602	-
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	565	-	-	-	68	435
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	565	-	-	-	68	435
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	510	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	565	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	896	658	22	3	9
Future Volume (vph)	64	896	658	22	3	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		429	1177		319	
Travel Time (s)		9.8	26.8		7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1044	739	0	3	10
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↑	↑↕		↰	↱
Traffic Vol, veh/h	64	896	658	22	3	9
Future Vol, veh/h	64	896	658	22	3	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	70	974	715	24	3	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	739	0	-	0	1354	370
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	627	-
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	863	-	-	-	141	627
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	495	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	863	-	-	-	116	627
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	495	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	863	-	-	-	116	627
HCM Lane V/C Ratio	0.081	-	-	-	0.028	0.016
HCM Control Delay (s)	9.5	0.7	-	-	36.9	10.8
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	1118	1184	6	26	76
Future Volume (vph)	16	1118	1184	6	26	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		509	1097		283	
Travel Time (s)		11.6	24.9		6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1232	1294	0	28	83
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		↰	↱
Traffic Vol, veh/h	16	1118	1184	6	26	76
Future Vol, veh/h	16	1118	1184	6	26	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	17	1215	1287	7	28	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1294	0	-	0	1933	647
Stage 1	-	-	-	-	1291	-
Stage 2	-	-	-	-	642	-
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	531	-	-	-	58	414
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	531	-	-	-	52	414
Mov Cap-2 Maneuver	-	-	-	-	52	-
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	486	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	46.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	531	-	-	-	52	414
HCM Lane V/C Ratio	0.033	-	-	-	0.543	0.2
HCM Control Delay (s)	12	0.6	-	-	137.3	15.9
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0.1	-	-	-	2.1	0.7

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1218	1224	0	0	0
Future Volume (vph)	0	1218	1224	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30	30		30	
Link Distance (ft)		619	987		365	
Travel Time (s)		14.1	22.4		8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1324	1330	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

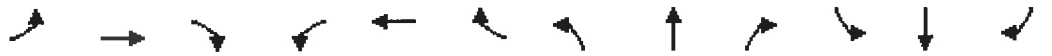
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↰	↱
Traffic Vol, veh/h	0	1218	1224	0	0	0
Future Vol, veh/h	0	1218	1224	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	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	0	1324	1330	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1330	0	-	0	1992	665
Stage 1	-	-	-	-	1330	-
Stage 2	-	-	-	-	662	-
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	515	-	-	-	53	403
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	515	-	-	-	53	403
Mov Cap-2 Maneuver	-	-	-	-	53	-
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	475	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	515	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	900	0	0	749	22	20	0	64	3	0	9
Future Volume (vph)	64	900	0	0	749	22	20	0	64	3	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		407			1460			367			255	
Travel Time (s)		9.3			33.2			8.3			5.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	978	0	0	838	0	0	92	0	3	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

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	64	900	0	0	749	22	20	0	64	3	0	9
Future Vol, veh/h	64	900	0	0	749	22	20	0	64	3	0	9
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	75	-	-	-	-	-	-	-	-	0	-	0
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	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	70	978	0	0	814	24	22	0	70	3	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	838	0	-	-	-	0	1525	1956	489	1455	-	419
Stage 1	-	-	-	-	-	-	1118	1118	-	826	-	-
Stage 2	-	-	-	-	-	-	407	838	-	629	-	-
Critical Hdwy	4.14	-	-	-	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	792	-	0	0	-	-	81	63	525	91	0	583
Stage 1	-	-	0	0	-	-	221	281	-	332	0	-
Stage 2	-	-	0	0	-	-	592	380	-	437	0	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	792	-	-	-	-	-	74	57	525	74	-	583
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	154	-	181	-	-
Stage 1	-	-	-	-	-	-	202	256	-	303	-	-
Stage 2	-	-	-	-	-	-	582	380	-	346	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	19.5	14.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	338	792	-	-	-	181	583
HCM Lane V/C Ratio	0.27	0.088	-	-	-	0.018	0.017
HCM Control Delay (s)	19.5	10	-	-	-	25.3	11.3
HCM Lane LOS	C	A	-	-	-	D	B
HCM 95th %tile Q(veh)	1.1	0.3	-	-	-	0.1	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1102	0	0	1232	6	11	0	53	26	0	76
Future Volume (vph)	16	1102	0	0	1232	6	11	0	53	26	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		389			1393			367			219	
Travel Time (s)		8.8			31.7			8.3			5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1198	0	0	1346	0	0	70	0	28	0	83
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

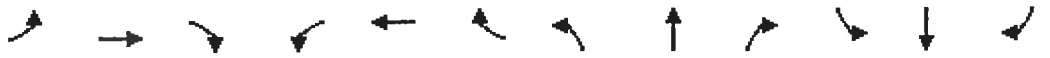
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	1102	0	0	1232	6	11	0	53	26	0	76
Future Vol, veh/h	16	1102	0	0	1232	6	11	0	53	26	0	76
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	75	-	-	-	-	-	-	-	-	0	-	0
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	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	17	1198	0	0	1339	7	12	0	58	28	0	83

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1346	0	-	-	-	0	1902	2578	599	1976	-	673
Stage 1	-	-	-	-	-	-	1232	1232	-	1343	-	-
Stage 2	-	-	-	-	-	-	670	1346	-	633	-	-
Critical Hdwy	4.14	-	-	-	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	508	-	0	0	-	-	42	25	445	37	0	398
Stage 1	-	-	0	0	-	-	188	248	-	160	0	-
Stage 2	-	-	0	0	-	-	413	218	-	434	0	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	508	-	-	-	-	-	32	24	445	31	-	398
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	111	-	111	-	-
Stage 1	-	-	-	-	-	-	182	240	-	155	-	-
Stage 2	-	-	-	-	-	-	327	218	-	365	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	20.5	24.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	301	508	-	-	-	111	398
HCM Lane V/C Ratio	0.231	0.034	-	-	-	0.255	0.208
HCM Control Delay (s)	20.5	12.3	-	-	-	48.2	16.4
HCM Lane LOS	C	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	-	0.9	0.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1192	0	0	1264	0	12	0	61	0	0	0
Future Volume (vph)	0	1192	0	0	1264	0	12	0	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		395			1383			367			291	
Travel Time (s)		9.0			31.4			8.3			6.6	
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1296	0	0	1374	0	0	79	0	0	0	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1192	0	0	1264	0	12	0	61	0	0	0
Future Vol, veh/h	0	1192	0	0	1264	0	12	0	61	0	0	0
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	75	-	-	-	-	-	-	-	-	0	-	0
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	0	1296	0	0	1374	0	13	0	66	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1374	0	0	-	-	0	1983	2670	648	2022	-	687
Stage 1	-	-	-	-	-	-	1296	1296	-	1374	-	-
Stage 2	-	-	-	-	-	-	687	1374	-	648	-	-
Critical Hdwy	4.14	-	-	-	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	495	-	-	0	-	-	36	22	413	34	0	389
Stage 1	-	-	-	0	-	-	171	231	-	153	0	-
Stage 2	-	-	-	0	-	-	403	211	-	425	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	495	-	-	-	-	-	36	22	413	29	-	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	111	-	109	-	-
Stage 1	-	-	-	-	-	-	171	231	-	153	-	-
Stage 2	-	-	-	-	-	-	403	211	-	357	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	21.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	298	495	-	-	-	-	-	-
HCM Lane V/C Ratio	0.266	-	-	-	-	-	-	-
HCM Control Delay (s)	21.4	0	-	-	-	-	0	0
HCM Lane LOS	C	A	-	-	-	-	A	A
HCM 95th %tile Q(veh)	1	0	-	-	-	-	-	-