SLR International Corporation
195 Church Street, 7th Floor, New Haven, Connecticut, 06510

June 22, 2023

Attention: Ms. Connie DeBoever
Nautilus Botanicals
49 Quinnipiac Avenue
North Haven, CT 06473

SLR Project No.: 141.21623.00001

RE: Traffic Study for Proposed Cannabis Sales
1110 East Main Street, Stamford, Connecticut

Dear Ms. DeBoever,

At your request, SLR International Corporation (SLR) has undertaken this study to evaluate the traffic-related implications associated with the proposed project to be located at 1110 East Main Street (U.S. Route 1) in Stamford, Connecticut. **Figure 1** displays the site location and area roadways. The use will occupy 2,077 square feet (SF) of the existing commercial building, which previously housed a small market with a drive-thru. Proposed is a hybrid cannabis retailer. The canopy and drive-thru on the west side will be raised to make room for additional on-site parking and the drive-thru on the east side will be infilled. Ingress to the site will be from Standish Road, and egress will be onto East Main Street south of the existing building.

The work comprising the study consisted of several tasks, including data collection, review of roadway and traffic conditions, estimation of site-generated traffic volumes, and assessment of future traffic operations. For this study, the following intersections were evaluated as directed by the City of Stamford Traffic, Transportation and Parking (TTP) staff:

- East Main Street at Exit 9 southbound ramps and Courtland Avenue (Signalized)
- East Main Street at Standish Road (Unsignalized)
- East Main Street at Blachley Road (Signalized)

Figure 2 displays the study area.

EXISTING CONDITIONS

The existing information, involving the vehicle volumes, transit, and crash history, was collected to determine the existing conditions of the area around the proposed project.

Site Environs

East Main Street (U.S. Route 1) is classified as a principal arterial that runs generally east-west through this section of Stamford. The posted speed limit along the roadway is 30 miles per hour (mph). Adjacent to the site, the arterial has two lanes in each direction with turn lanes at key intersections. On-street parking is generally not permitted, except for a half-dozen spaces that are carved out of the frontage of a strip retail center just east of this site. Concrete sidewalks are

present on both sides of the roadway. The land use along East Main Street near the project site is a mix of residential and commercial.

Courtland Avenue is classified as a principal arterial and runs in the south-north direction with its southern terminus at its intersection with East Main Street and its northern terminus at its intersection with Glenbrook Road. The posted speed limit along the roadway is 30 mph. Adjacent to the site, the arterial has one lane in each direction separated with a raised brick-paved median and turn lanes at key intersections. On-street parallel parking is not permitted. Concrete sidewalks are present on both sides of the roadway. The land use along Courtland Avenue near the project site is mainly residential. The roadway is under the jurisdiction of the City of Stamford.

Standish Road is classified as a local roadway that runs north/south from Seaton Road to the north to East Main Street to the south. On-street parallel parking is permitted on the east and north sides of the street, and sidewalks are present on both sides. The Land Use along Standish Road is residential. The roadway is under the jurisdiction of the City of Stamford.

Blachley Road is classified as a local roadway that runs north/south from East Main Street to the north, and to Cove Road to the south. On-street parallel parking is not permitted near the project site. Sidewalks are present on both sides. The Land Use along Blachley Road is a mix of residential and commercial. The roadway is under the jurisdiction of the City of Stamford.

Existing Transit Routes

CTtransit is Connecticut Department of Transportation's (CTDOT) bus service. CTtransit Stamford operates 15 local bus routes. Buses connect with other services in Norwalk, with the New Haven Line in several locations, the Harlem Line on Metro-North Railroad, and with Bee-Line buses in Westchester County, New York. CTtransit Stamford also operates the I-Bus, an express service between downtown Stamford and White Plains, New York. CTtransit Stamford bus routes 341 and 342 have a stop in front of the project site.

Route 341 (Norwalk) operates between the Stamford Transportation Center and the Norwalk Wheels Hub. Route 342 (East Main Street) provides additional service between the Stamford Transportation Center and East Main Street in Stamford. Route 342 follows the same route as Route 341, with the last stop for Route 342 being at East Main St. and Blachley Rd. (McDonald’s).

The routes operate from approximately 4:55 a.m. to midnight (12:00 a.m.) on weekdays, and 5:30 a.m. to 10:30 p.m. on weekends. Operating frequencies are approximately 20 minutes during the peak periods and approximately 30 minutes the rest of the day.

Crash Data Summary

Information on traffic crash statistics for the study intersections was obtained from the Connecticut Crash Data Repository for slightly more than the 5-year period of January 1, 2018, to February 28, 2023. The crash data collected for this period is shown in **Table 1**, summarized by location.

Table 1 Crash Data Summary

Location	Crash Severity				Type of Collision						
	Property Damage Only	Possible Injury	Suspected Minor Injury	Fatal	Angle	Head-on	Rear End	Sideswipe (Opposite Direction)	Sideswipe (Same Direction)	Pedestrian/Bikes	Other
Intersection											
East Main Street at Standish Road	34	8	7	0	22	2	10	0	12	1	2

A total of 49 crashes were reported at the intersection of East Main Street at Standish Road for the 5-year period. In terms of severity, more than two-thirds of the crashes resulted in property damage only. The remaining crashes reported possible or suspected personal injury. There were no fatalities at this intersection. In terms of the type of collision, nearly one-half were reported as angle collisions, 10 crashes were rear-end type, and 12 were sideswipe (opposite and same direction). One crash included a bicycle or a pedestrian. The frequency and types of crashes were not remarkable within the context of the location.

Existing Traffic Volumes

Reliable Traffic Counts, LLC (RTC) of East Haven, Connecticut collected Turning Movement Counts (TMC) data for the study area intersections on Friday, May 12, 2023, from 4:00 p.m. to 6:00 p.m. and on Saturday, May 13, 2023, from 11:00 a.m. to 1:00 p.m. to capture both the weekday evening peak periods as well as Saturday midday peak periods. The TMC data included bicycle and pedestrian counts. The peak hours within the study area were established from 5:00 p.m. to 6:00 p.m. during the afternoon period, and 12:00 a.m. to 1:00 p.m. during Saturday midday. The existing peak-hour traffic volumes are shown in **Figure 3**. The counts are included in the Appendix.

PROPOSED PROJECT

As stated previously, the proposed project is a hybrid cannabis retailer to be located in the existing commercial building. Ingress and egress to the site will be consistent with the existing site, with ingress via an existing curb cut on Standish Road east of the existing building, and egress via an existing curb cut on East Main Street south of the existing building.

Proposed Project Trip Generation

SLR used the Institute of Transportation Engineers (ITE)[1] publication *Trip Generation, 11th Edition* to estimate the vehicle trip rates for the dispensary, and to establish the net trips as a result of the proposed retail shop and dispensary. Trip generation rates for the dispensary were based on the Land Use Code (LUC) 882 (Marijuana Dispensary). Note the following characteristics for this use:

- Size – 2,077 square feet (Note that we round up to 2,300 square feet (SF) of GFA for this analysis).
- Hours of Operation: 9:00 a.m. to 9:00 p.m. (Monday through Sunday)
- Number of employees at the proposed Facility: 5 to 6 people (per shift)
- We expect an average of two deliveries per week during normal business hours
- To remain conservative in our analysis, we assumed that all site generated trips will be new vehicular trips and did not adjust based on other travel mode characteristics (walking/bicycle or transit). Similarly, no reduction for pass-by trips was included in the analysis.
- The Applicant has also arranged for nearby off-site parking for employees. To be conservative we assumed all trips would enter and exit the site.

Table 2 summarizes the site-generated traffic estimates for the proposed project during the study peak hours.

Table 2 Proposed Project Traffic Estimates

Land Use	Units	Weekday P.M. Peak Hour			Saturday Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Project							
882 – Marijuana Dispensary	2,300 SF*	28	29	57	33	33	66

*Actual size of facility is 2,077 SF. 2,300 SF used for analysis.

As shown in Table 2, the proposed project is estimated to generate 57 vehicle trips (28 vehicles entering and 29 vehicles exiting) during the weekday afternoon peak hour and 66 vehicle trips (33 vehicles entering and 33 vehicles exiting) during the Saturday midday peak hour.

Proposed Project Trip Distribution

The geographic distribution of the proposed project site-generated traffic was estimated based on review of the roadway traffic patterns near the project site driveways. **Figure 4** illustrates the distribution for the proposed project site-generated traffic through the study area.

[1] *Trip Generation, 11th Edition*, Institute of Transportation Engineers, 2021

Based on the proposed project trip generation and trip distribution, the resulting proposed project site-generated trips were assigned to the study area intersections. **Figure 5** displays the resulting proposed project trip assignment.

FUTURE (2024) CONDITIONS

The proposed project is anticipated to be completed by 2024. Future (2024) Conditions were evaluated both with and without the proposed project to determine possible traffic impacts.

Background Traffic Volumes

The background traffic scenario is reflective of Future (2024) Conditions if the proposed project was not built. Background (2024) Conditions generally includes traffic associated with other nearby expected upcoming developments that will be completed by 2024 as well as general traffic growth.

Based on correspondence with the CTDOT Bureau of Policy and Planning, there are no pending developments in the area.

At the direction of the CTDOT, the existing traffic volumes were projected to Future (2024) Conditions using a growth rate of 0.40 percent per year. Background (2024) Conditions peak-hour traffic volumes were estimated by applying the growth rate to the existing peak-hour traffic volumes (shown in Figure 3). The resultant Background (2024) Conditions peak-hour traffic volumes are shown in **Figure 6**.

Combined Traffic Volumes

The combined traffic scenario is reflective of Future (2024) Conditions once the proposed project is completed. Combined (2024) Conditions peak-hour traffic volumes were estimated by adding the proposed project trip assignment (shown in Figure 5) to the Background (2024) Conditions traffic volumes (shown in Figure 6). The resultant Combined (2024) Conditions peak-hour traffic volumes are shown in **Figure 7**.

INTERSECTION CAPACITY ANALYSIS

Intersection capacity analysis was performed at the study intersections under Background and Combined (2024) Conditions to evaluate each intersection's ability to process traffic volumes. These evaluations were used to determine possible traffic impacts from the proposed project based on the comparison of background and combined traffic operations.

Intersection operation results are expressed as a level of service (LOS). LOS is used to provide a qualitative evaluation of the efficiency of operations of an intersection in terms of delay and inconvenience based on certain quantitative calculations. A description of the various LOS designations, A through F, is given in the Appendix. LOS A describes operations with very low average control delay per vehicle while LOS F describes operations with long average delays. The study intersections were evaluated using *Synchro 11* (*Trafficware*) traffic analysis software package. **Table 3** summarizes the capacity analysis findings under Background and Combined (2024) Conditions. The *Synchro* analysis worksheets are included in the Appendix.

Table 3 Capacity Analysis Summary Future (2024) Conditions

Intersection/Lane Group	Level of Service			
	Weekday P.M. Peak Hour		Saturday Midday Peak Hour	
	Background	Combined	Background	Combined
Signalized				
East Main Street (Route 1) at I-95 SB Off-Ramp				
Eastbound Through	B	B	C	C
Westbound Through	D	D	D	D
Southbound Left	E	E	E	E
Southbound Right	D	D	D	D
Overall	***D***	***D***	***D***	***D***
East Main Street (Route 1) at Courtland Avenue				
Eastbound Left	*F*	*F*	*F*	*F*
Eastbound Through	*D*	*D*	*D*	*D*
Westbound Left	*D*	*D*	*C*	*C*
Westbound Through	*A*	*A*	*A*	*A*
Westbound Right	*B*	*B*	*A*	*A*
Southbound Left	*D*	*D*	*D*	*D*
Southbound Through	*D*	*D*	*D*	*D*
Southbound Right	*D*	*C*	*C*	*C*
Overall	***C***	***C***	***C***	***C***
East Main Street (Route 1) at Blachley Road				
Eastbound Through/Right	C	C	B	B
Westbound Left	C	C	B	B
Westbound Through	A	A	A	A
Northbound Left	C	C	C	C
Northbound Right	D	D	D	D
Overall	***C***	***C***	***B***	***B***
Unsignalized				
East Main Street (US Route 1) at Standish Road				
Eastbound Left	B	B	B	B
Southbound Left/Right	E	E	D	D
East Main Street (US Route 1) at Site Drive				
Southbound Left/Right	n/a	E	n/a	D

Notes: LOS calculations were performed using *Synchro 11*.

It is important to note that LOS A to LOS D are generally considered acceptable conditions. However, in urban areas, LOS E during peak hours is often deemed acceptable and can indicate an efficient tradeoff between traffic flow and the amount of land devoted to the movement of motor vehicles.

As shown in Table 3, when comparing to Background (2024), all individual movements at the study area intersections are not expected to degrade in LOS as a result of the proposed project. All individual movements at the study intersections are expected to continue operating at their existing LOS during both peak hours under Background and Combined (2024) Conditions, and the minimal number of vehicles added to the adjacent roadway as a result of this use, will have no impact on the operation of the study area roadways and intersections.

QUEUE ANALYSIS

The study intersection queues were also evaluated using *Synchro 11* (*Trafficware*) traffic analysis software package. For analysis, 95th percentile queues are recorded. The *Synchro* analysis worksheets are included in the Appendix. All approach lanes are expected to provide adequate storage length under Background and Combined (2024) Conditions during both peak periods.

SIGHT DISTANCE

Sight distance is the length of roadway ahead that is visible to the roadway user. In most cases, specific sight distance measures apply to motor vehicles and bicyclists. At intersections, sight distance is provided to allow drivers to perceive the presence of potentially conflicting vehicles. This should occur in sufficient time for a motorist to stop or adjust their speed, as appropriate, to avoid colliding in the intersection. Sight distance also allows drivers of stopped vehicles with a sufficient view of the intersecting roadway to decide when to enter or cross the intersecting roadway. The American Association of State Highway and Transportations Officials' (AASHTO) *A Policy on the Geometric Design of Highways and Streets* provides procedures to determine desirable sight distances at intersections. CTDOT design manual mirrors the AASHTO guidance and provides tables for both intersectional and stopping sight distance requirements by design speed.

Stopping Sight Distance (SSD) is the length of the roadway ahead that is visible to the driver and should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. SSD is the sum of the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop, to the instant the brakes are applied, and the distance needed to stop the vehicle from the instant brake application begins. CTDOT guidelines suggest an SSD of 200 feet for a 30-mph road on generally level terrain.

Intersection Sight Distance (ISD) is the length of the leg of the departure sight triangle along the major road in both directions for a vehicle stopped on the minor road waiting to depart. The critical departure sight triangles for the site driveway are for traffic approaching from either the left or right for left turns from the site driveway onto East Main Street. The ISD values associated with a design speed of 30 mph from CTDOT is 335 feet.

Based on the above criteria, an evaluation of the adequacy of sightlines from the driveway exit was made. The results of the analysis are provided below in Table 4. As shown, both SSD and ISD are adequate for both the eastbound and westbound traffic approaching the site driveway.

Table 4 Proposed Sight Distance Evaluation

Intersection	Posted Speed (mph)	Minimum (Feet)	Measured (Feet)	Obstruction
East Main Street At The Site Driveway				
Stopping Sight Distance				
East Main Street – Eastbound	30	200	200'+	n/a
East Main Street – Westbound	30	200	200'+	n/a
Intersection Sight Distance				
Looking To The Right From Driveway	30	335	335'+	n/a
Looking To The Left From Driveway	30	335	335'+	n/a

SUMMARY

This study was conducted to assess the traffic and parking impacts of the proposed project to be located at 1110 East Main Street in Stamford, Connecticut. The proposed project plans to occupy 2,077-SF of an existing commercial building, with a hybrid cannabis retailer.

To determine a profile of existing conditions, data assembly efforts were undertaken. Estimates of traffic that would be generated by the proposed project were developed based on statistical data published by ITE, and intersection capacity analysis and queue analysis were performed at the study intersections under Background and Combined (2024) Conditions. ***Based on the results of the capacity and queue analysis, it is our opinion that the increase in traffic because of the proposed project will have no measurable impact on the surrounding roadway system. As such, no traffic mitigation is necessary.*** With the proposed project, all individual movements at the study intersections are not expected to degrade in LOS, compared to Background (2024) Conditions.

We hope this report is useful to you and the City of Stamford. If you have any questions or need anything further, please do not hesitate to contact either of the undersigned.

Regards,

SLR International Corporation

David G. Sullivan, PE
U.S. Manager of Traffic & Transportation Planning
dsullivan@slrconsulting.com

Nick H. Havan, PE, PTOE, ENV SP
Principal Transportation Engineer
nhavan@slrconsulting.com

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Figures

- Figure 1 – Site Location Map
- Figure 2 – Study Area
- Figure 3 – Existing (2023) Conditions Peak-Hour Traffic Volumes
- Figure 4 – Proposed Project Trip Distribution
- Figure 5 – Proposed Project Peak-Hour Trip Assignment
- Figure 6 – Background (2024) Conditions Peak-Hour Traffic Volumes
- Figure 7 – Combined (2024) Conditions Peak-Hour Traffic Volumes

Appendix

- Traffic Counts
- LOS Designation Descriptions
- *Synchro* Analysis Worksheets

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REVISIONS

STUDY LOCATION MAP

STAMFORD DISPENSARY TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 1

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Drawing: W:\CADDESIGN\21623.00001-DE\CAD\STAMFORD DISPENSARY TRAFFIC FIGURES.DWG Layout: Tab:FIG 1
Plotted by: MAGUIB On this date: Fri, 2023 May 26 - 4:18pm

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W E
S

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REVISIONS

STUDY AREA

STAMFORD DISPENSARY
TRAFFIC STUDY
EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 2

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Drawing: W:\CADDESIGN\21623.00001-DE\CAD\STAMFORD DISPENSARY TRAFFIC FIGURES.DWG Layout: Tab:FIG 2

Plotted by: MAGUIRE On this date: Fri, 2023 May 26 - 4:21pm

LEGEND:

PM (SATURDAY)
XX (XX)

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REVISIONS

EXISTING (2023) CONDITIONS PEAK - HOUR TRAFFIC VOLUMES

STAMFORD DISPENSARY
TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
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SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 3

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LEGEND:

IN (OUT)
XX (XX)

PROPOSED PROJECT TRIP DISTRIBUTION

STAMFORD DISPENSARY
TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 4

REVISIONS

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LEGEND:

PM (SATURDAY)
XX (XX)

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S

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REVISIONS

PROPOSED PROJECT TRIP ASSIGNMENT

STAMFORD DISPENSARY
TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 5

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Drawing: W:\CADDESIGN\21623.00001-DEL\CAD\STAMFORD DISPENSARY TRAFFIC FIGURES.DWG Layout: Tab:FIG 5

Plotted by: MAGUIB On this date: Thu, 2023 June 1 - 3:51pm

LEGEND:

PM (SATURDAY)
XX (XX)

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REVISIONS

BACKGROUND (2024) CONDITIONS PEAK - HOUR TRAFFIC VOLUMES

STAMFORD DISPENSARY
TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 6

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Plotted by: MAGUIB On this date: Fri, 2023 May 26 - 4:56pm

LEGEND:

PM (SATURDAY)
XX (XX)

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REVISIONS

COMBINED (2024) CONDITIONS PEAK - HOUR TRAFFIC VOLUMES

STAMFORD DISPENSARY
TRAFFIC STUDY

EAST MAIN STREET (STATE ROUTE 1)
STAMFORD, CT

MA	MA	NH
DESIGNED	DRAWN	CHECKED

SCALE: NTS

DATE: MAY 26, 2023

PROJECT NO.: 21623.00001

SHEET NO.: FIG 7

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Plotted by: MAGUIB On this date: Thu, 2023 June 1 - 3:54pm

Table 1

ON STREET PARKING OBSERVATIONS

Friday May 12th, 2023

Stamford, CT

	Standish Rd.(1)	***E. Main St.(2)***
TIME	***13 Available Spaces***	***6 Available Spaces***
Before 4:00 p.m.	*9*	*6*
After 6:00 p.m.	*12*	*4*

Notes:

(1) On Standish Rd. between Revere Dr. and E. Main St.(Rte. 1)

(2) North side of E. Main St. (Rte.1) between Standish Rd. and Courtland Ave.

Source: Reliable Traffic Counts, LLC field observations conducted on Friday May 12, 2023

Table 2

ON STREET PARKING OBSERVATIONS

Saturday May 13th, 2023

Stamford, CT

	Standish Rd.(1)	***E. Main St.(2)***
TIME	***13 Available Spaces***	***6 Available Spaces***
Before 4:00 p.m.	*13*	*5*
After 6:00 p.m.	*12*	*4*

Notes:

(1) On Standish Rd. between Revere Dr. and E. Main St.(Rte. 1)

(2) North side of E. Main St. (Rte.1) between Standish Rd. and Courtland Ave.

Source: Reliable Traffic Counts, LLC field observations conducted on Friday May 12, 2023

Int 1

Project #: 141.21623.00001 Enter inputs in yellow cells only
Project Name: 1110 East Main St
Location: Stamford
Date of Counts: 5/12/2023 5/13/2023

Start Time	I-95 SB OFF RAMP SOUTHBOUND				RTE. 1 WESTBOUND				NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Weekday	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	VEH	PEDS
07:00 AM																	0	0
07:15 AM																	0	0
07:30 AM																	0	0
07:45 AM																	0	0
08:00 AM																	0	0
08:15 AM																	0	0
08:30 AM																	0	0
08:45 AM																	0	0
04:00 PM	42	0	26	0	0	0	0	0	0	0	0	0	0	0	1	0	69	0
04:15 PM	76	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	121	0
04:30 PM	43	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	73	0
04:45 PM	78	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0
05:00 PM	84	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	123	0
05:15 PM	97	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	153	0
05:30 PM	85	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	123	0
05:45 PM	78	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0
Saturday																		
11:00 AM	50	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0
11:15 AM	60	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0
11:30 AM	70	0	36	0	0	0	0	0	0	0	0	0	0	1	0	0	107	0
11:45 AM	84	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	124	0
12:00 PM	74	0	41	0	0	1	0	0	0	0	0	0	0	2	0	0	118	0
12:15 PM	60	0	49	0	0	1	0	0	0	0	0	0	0	0	0	0	110	0
12:30 PM	42	0	20	0	2	0	0	0	0	0	0	0	0	0	0	0	64	0
12:45 PM	52	0	42	0	0	1	0	0	0	0	0	0	0	0	0	0	95	0
01:00 PM																	0	0
01:15 PM																	0	0
01:30 PM																	0	0
01:45 PM																	0	0

INTERSECTION PEAK HOUR

	I-95 SB OFF RAMP SOUTHBOUND				RTE. 1 WESTBOUND				NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	VEH	PEDS
PM PEAK	05:00 PM																	
	344	0	166	0	0	0	0	0	0	0	0	0	0	0	0	0	510	0

Int 2

Project #: 141.21623.00001 Enter inputs in yellow cells only unless you need to fix a formula
Project Name: 1110 East Main St
Location: Stamford
Date of Counts: 5/12/2023

	COURTLAND AVE. SOUTHBOUND				RTE. 1 WESTBOUND				I-95 SB ON RAMPS NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time																	VEH	PEDS
07:00 AM																	0	0
07:15 AM																	0	0
07:30 AM																	0	0
07:45 AM																	0	0
08:00 AM																	0	0
08:15 AM																	0	0
08:30 AM																	0	0
08:45 AM																	0	0
04:00 PM	31	42	40	0	86	126	42	0	0	0	0	0	36	155	30	0	588	0
04:15 PM	34	52	50	0	98	151	46	0	0	0	0	0	36	176	36	0	679	0
04:30 PM	31	40	39	3	94	147	47	0	0	0	0	0	32	183	31	0	644	3
04:45 PM	32	51	53	0	102	163	53	0	0	0	0	0	27	161	31	0	673	0
05:00 PM	40	46	61	2	92	176	51	0	0	0	0	0	32	174	33	0	705	2
05:15 PM	57	38	56	0	88	187	48	0	0	0	0	0	47	174	30	0	725	0
05:30 PM	36	39	60	1	96	166	46	0	0	0	0	0	43	192	42	0	720	1
05:45 PM	39	34	63	2	110	154	56	0	0	0	0	0	34	152	30	0	672	2
Saturday																		
11:00 AM	42	29	66	3	77	129	54	0	0	0	0	0	33	223	32	0	685	3
11:15 AM	21	50	49	0	87	121	38	0	0	0	0	0	33	192	28	0	619	0
11:30 AM	33	43	49	0	77	120	55	0	0	0	0	0	30	187	23	0	617	0
11:45 AM	46	47	54	2	93	148	50	0	0	0	0	0	20	178	34	0	670	2
12:00 PM	34	43	56	0	83	174	38	0	0	0	0	0	17	162	36	0	643	0
12:15 PM	39	49	75	3	79	190	38	0	0	0	0	0	27	136	40	0	673	3
12:30 PM	42	35	63	0	82	162	41	0	0	0	0	0	35	143	42	0	645	0
12:45 PM	51	31	80	0	83	171	52	0	0	0	0	0	34	181	34	0	717	0
01:00 PM																	0	0
01:15 PM																	0	0
01:30 PM																	0	0
01:45 PM																	0	0

INTERSECTION PEAK HOUR

	COURTLAND AVE. SOUTHBOUND				RTE. 1 WESTBOUND				I-95 SB ON RAMPS NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	VEH	PEDS
PM PEAK	04:45 PM																	
	165	174	230	3	378	692	198	0	0	0	0	0	149	701	136	0	2823	3

Int 3

Project #: 141.21623.00001
Project Name: 1110 East Main St
Location: Stamford
Date of Counts: 5/12/2023

Enter inputs in yellow cells only unless you need to fix a formula

	STANDISH RD. SOUTHBOUND				RTE. 1 WESTBOUND				NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time																	VEH	PEDS
07:00 AM																	0	0
07:15 AM																	0	0
07:30 AM																	0	0
07:45 AM																	0	0
08:00 AM																	0	0
08:15 AM																	0	0
08:30 AM																	0	0
08:45 AM																	0	0
04:00 PM	1	0	4	0	3	156	0	0	0	0	0	0	0	192	4	0	360	0
04:15 PM	2	0	1	0	5	187	0	0	0	0	0	0	0	227	8	0	430	0
04:30 PM	6	0	4	0	4	186	0	0	0	0	0	0	0	289	9	0	498	0
04:45 PM	2	0	3	0	3	191	0	0	0	0	0	0	1	253	13	0	466	0
05:00 PM	5	0	3	0	8	229	0	0	0	0	0	0	0	254	5	0	504	0
05:15 PM	5	0	6	0	12	223	0	0	0	0	0	0	0	284	7	0	537	0
05:30 PM	1	1	6	0	11	192	0	0	0	0	0	0	0	300	8	0	519	0
05:45 PM	0	0	5	1	11	202	0	0	0	0	0	0	0	256	6	0	480	1
Saturday																		
11:00 AM	3	0	6	0	6	151	0	0	0	0	0	0	0	291	2	0	459	0
11:15 AM	2	0	2	4	5	148	0	0	0	0	0	0	0	261	5	0	423	4
11:30 AM	1	0	3	4	12	154	0	0	0	0	0	0	0	250	2	0	422	4
11:45 AM	6	0	2	4	9	192	0	0	0	0	0	0	0	240	10	0	459	4
12:00 PM	1	0	2	5	3	220	0	0	0	0	0	0	0	220	5	0	451	5
12:15 PM	3	0	3	3	7	220	0	0	0	0	0	0	0	215	13	0	461	3
12:30 PM	1	0	2	4	5	199	0	0	0	0	0	0	0	226	6	0	439	4
12:45 PM	1	0	2	2	10	206	0	0	0	0	0	0	0	261	6	0	486	2
01:00 PM																	0	0
01:15 PM																	0	0
01:30 PM																	0	0
01:45 PM																	0	0

INTERSECTION PEAK HOUR

	STANDISH RD. SOUTHBOUND				RTE. 1 WESTBOUND				NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	VEH	PEDS
PM PEAK	05:00 PM																	
	11	1	20	1	42	846	0	0	0	0	0	0	0	1094	26	0	2040	1

Int 4

Project #: 141.21623.00001 Enter inputs in yellow cells only unless you need to fix a formula
Project Name: 1110 East Main St
Location: Stamford
Date of Counts: 5/12/2023

	SOUTHBOUND				RTE. 1 WESTBOUND				BLACHLEY RD. NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time																	VEH	PEDS
07:00 AM																	0	0
07:15 AM																	0	0
07:30 AM																	0	0
07:45 AM																	0	0
08:00 AM																	0	0
08:15 AM																	0	0
08:30 AM																	0	0
08:45 AM																	0	0
04:00 PM	0	2	1	0	0	143	44	0	66	0	32	0	15	143	2	1	448	1
04:15 PM	0	0	2	0	0	154	54	0	67	1	29	0	15	191	0	0	513	0
04:30 PM	0	0	1	0	1	142	43	0	70	1	19	1	33	255	0	0	565	1
04:45 PM	0	0	0	0	0	152	59	0	73	0	34	0	32	233	0	0	583	0
05:00 PM	0	0	0	0	0	177	80	0	75	0	41	0	44	260	0	0	677	0
05:15 PM	0	0	0	0	0	215	46	0	82	0	51	0	38	271	1	0	704	0
05:30 PM	0	0	0	0	0	193	46	0	85	1	45	0	35	302	0	0	707	0
05:45 PM	0	0	0	0	0	141	57	0	86	0	45	0	38	217	0	0	584	0
Saturday																		
11:00 AM	0	0	0	0	0	165	50	0	49	0	44	0	22	195	0	0	525	0
11:15 AM	0	0	0	0	0	168	52	0	52	0	41	0	26	200	0	0	539	0
11:30 AM	0	0	0	0	0	170	55	0	53	0	40	0	25	206	0	1	549	1
11:45 AM	0	1	0	0	0	180	69	0	56	0	41	0	28	300	0	1	675	1
12:00 PM	0	0	0	0	0	202	62	0	73	0	62	1	33	225	0	0	657	1
12:15 PM	0	0	0	0	0	230	50	0	62	1	41	1	28	211	0	0	623	1
12:30 PM	0	0	0	0	0	194	32	2	63	0	54	0	25	215	0	0	583	2
12:45 PM	0	0	0	1	0	207	51	0	82	2	35	0	29	303	0	1	709	2
01:00 PM																	0	0
01:15 PM																	0	0
01:30 PM																	0	0
01:45 PM																	0	0

INTERSECTION PEAK HOUR

	SOUTHBOUND				RTE. 1 WESTBOUND				BLACHLEY RD. NORTHBOUND				E. MAIN ST. EASTBOUND				ALL	
Start Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	VEH	PEDS
PM PEAK	05:00 PM																	
	0	0	0	0	0	726	229	0	328	1	182	0	155	1050	1	0	2672	0

LEVEL OF SERVICE

FOR

SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group. Specific descriptions of each LOS for signalized intersections are provided below:

Level of Service A describes operations with very low control delay, up to 10 s/veh and a volume-to-capacity ratio no greater than 1.0. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with delay greater than 10 and up to 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 s/veh and a volume-to-capacity ratio no greater than 1.0. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 s/veh and a volume-to-capacity ratio no greater than 1.0. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with control delay greater than 55 and up to 80 s/veh and a volume-to-capacity ratio no greater than 1.0. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 s/veh. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels. LOS F is assigned to any movement when the v/c ratio is greater than 1.0, regardless of the calculated delay.

Level of Service (LOS)	Signalized Intersection	Volume/Capacity Ratio (V/C)	Expected Delay to Minor Street
A	$\leq$ 10 sec	$\leq$ 1	Little or no delay
B	10-20 sec	$\leq$ 1	Short traffic delays
C	20-35 sec	$\leq$ 1	Average traffic delays
D	35-55 sec	$\leq$ 1	Long traffic delays
E	55-80 sec	$\leq$ 1	Very long delays
F	$\geq$ 80 sec	$\geq$ 1	Extreme delays

Reference: Highway Capacity Manual 6th Edition, Transportation Research Board, 2016.

LEVEL OF SERVICE

FOR TWO-WAY

STOP SIGN CONTROLLED INTERSECTIONS

The level of service for a TWSC (two-way stop controlled) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria are given in the Table. LOS criteria are given below:

Level of Service (LOS)	Unsignalized Intersection	Volume/Capacity Ratio (V/C)	Expected Delay to Minor Street
A	$\leq$ 10 sec	$\leq$ 1	Little or no delay
B	10-15 sec	$\leq$ 1	Short traffic delays
C	15-25 sec	$\leq$ 1	Average traffic delays
D	25-35 sec	$\leq$ 1	Long traffic delays
E	35-50 sec	$\leq$ 1	Very long delays
F	$\geq$ 50 sec	$\geq$ 1	Extreme delays

Reference: Highway Capacity Manual 6th Edition, Transportation Research Board, 2016.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1054	156	230	729	184	329
Future Volume (veh/h)	1054	156	230	729	184	329
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1211	177	319	868	207	346
Peak Hour Factor	0.87	0.88	0.72	0.84	0.89	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1539	224	359	2383	434	386
Arrive On Green	0.49	0.49	0.12	0.66	0.24	0.24
Sat Flow, veh/h	3257	460	1810	3705	1810	1610
Grp Volume(v), veh/h	689	699	319	868	207	346
Grp Sat Flow(s),veh/h/ln	1805	1817	1810	1805	1810	1610
Q Serve(g_s), s	28.5	28.9	8.2	9.7	8.8	18.7
Cycle Q Clear(g_c), s	28.5	28.9	8.2	9.7	8.8	18.7
Prop In Lane		0.25	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	879	885	359	2383	434	386
V/C Ratio(X)	0.78	0.79	0.89	0.36	0.48	0.90
Avail Cap(c_a), veh/h	879	885	628	2383	503	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	19.3	19.9	6.8	29.4	33.1
Incr Delay (d2), s/veh	6.9	7.1	3.5	0.4	0.8	18.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	13.0	3.5	3.3	3.9	9.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.1	26.4	23.4	7.3	30.2	51.7
LnGrp LOS	C	C	C	A	C	D
Approach Vol, veh/h	1388			1187	553	
Approach Delay, s/veh	26.2			11.6	43.6	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.6	48.8				64.4	25.6
Change Period (Y+Rc), s	5.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	24.0	27.0				56.0	25.0
Max Q Clear Time (g_c+I1), s	10.2	30.9				11.7	20.7
Green Ext Time (p_c), s	0.4	0.0				7.6	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	1098	849	42	21	11
Future Vol, veh/h	26	1098	849	42	21	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	91	92	88	83	55
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	32	1207	923	48	25	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	971	0	-	0	1615	486
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	668	-
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	718	-	-	-	97	533
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	718	-	-	-	93	533
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	477	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	40.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	718	-	-	-	146
HCM Lane V/C Ratio	0.045	-	-	-	0.31
HCM Control Delay (s)	10.2	-	-	-	40.4
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	695	157	202	686	388	0	0	0	241	158	173
Future Volume (vph)	136	695	157	202	686	388	0	0	0	241	158	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	8.3		5.2	5.7	5.7				6.4	6.4	6.4
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)	1787	3504		1787	3610	1599				1715	1775	1615
Flt Permitted	0.95	1.00		0.24	1.00	1.00				0.95	0.99	1.00
Satd. Flow (perm)	1787	3504		456	3610	1599				1715	1775	1615
Peak-hour factor, PHF	0.80	0.90	0.83	0.90	0.91	0.88	0.92	0.92	0.92	0.95	0.85	0.75
Adj. Flow (vph)	170	772	189	224	754	441	0	0	0	254	186	231
RTOR Reduction (vph)	0	15	0	0	0	217	0	0	0	0	0	95
Lane Group Flow (vph)	170	946	0	224	754	224	0	0	0	216	224	136
Heavy Vehicles (%)	1%	0%	0%	1%	0%	1%	0%	0%	0%	0%	1%	0%
Turn Type	Prot	NA		pm+pt	NA	Prot				Prot	NA	pt+ov
Protected Phases	5	2		1	6 8	6 8				9	13	13 5
Permitted Phases				6 8								
Actuated Green, G (s)	15.4	56.7		77.2	73.4	73.4				35.9	35.9	57.7
Effective Green, g (s)	15.4	56.7		71.5	73.4	73.4				35.9	35.9	57.7
Actuated g/C Ratio	0.11	0.39		0.50	0.51	0.51				0.25	0.25	0.40
Clearance Time (s)	6.9	8.3		5.2						6.4	6.4	
Vehicle Extension (s)	1.5	2.5		1.5						1.5	1.5	
Lane Grp Cap (vph)	190	1375		260	1835	812				426	441	645
v/s Ratio Prot	c0.10	0.27		0.02	0.21	0.14				0.13	c0.13	0.08
v/s Ratio Perm				c0.40								
v/c Ratio	0.89	0.69		0.86	0.41	0.28				0.51	0.51	0.21
Uniform Delay, d1	63.7	36.5		32.6	22.1	20.3				46.6	46.7	28.4
Progression Factor	1.00	1.00		0.78	0.22	0.59				1.00	1.00	1.00
Incremental Delay, d2	36.5	2.8		20.1	0.0	0.1				0.3	0.3	0.1
Delay (s)	100.2	39.3		45.4	4.9	12.1				47.0	47.0	28.5
Level of Service	F	D		D	A	B				D	D	C
Approach Delay (s)		48.5			13.6			0.0			40.6	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	936	931	0	167	345
Future Volume (vph)	0	936	931	0	167	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.3	5.7		6.4	6.4
Lane Util. Factor		0.95	0.91		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	5187		1805	2842
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	5187		1805	2842
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.74	0.89
Adj. Flow (vph)	0	1017	1012	0	226	388
RTOR Reduction (vph)	0	0	0	0	0	330
Lane Group Flow (vph)	0	1017	1012	0	226	58
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		56.7	46.0		21.7	21.7
Effective Green, g (s)		56.7	46.0		21.7	21.7
Actuated g/C Ratio		0.39	0.32		0.15	0.15
Clearance Time (s)		8.3	5.7		6.4	6.4
Vehicle Extension (s)		2.5	2.5		1.5	1.5
Lane Grp Cap (vph)		1417	1652		271	427
v/s Ratio Prot		c0.28	0.20		c0.13	0.02
v/s Ratio Perm						
v/c Ratio		0.72	0.61		0.83	0.14
Uniform Delay, d1		37.1	41.7		59.6	53.2
Progression Factor		0.41	1.00		1.00	1.00
Incremental Delay, d2		2.4	1.7		18.5	0.1
Delay (s)		17.5	43.4		78.1	53.3
Level of Service		B	D		E	D
Approach Delay (s)		17.5	43.4		62.4	
Approach LOS		B	D		E	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	958	115	196	836	196	281
Future Volume (veh/h)	958	115	196	836	196	281
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1101	131	272	995	220	296
Peak Hour Factor	0.87	0.88	0.72	0.84	0.89	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1815	216	387	2484	383	341
Arrive On Green	0.56	0.56	0.09	0.69	0.21	0.21
Sat Flow, veh/h	3344	386	1810	3705	1810	1610
Grp Volume(v), veh/h	611	621	272	995	220	296
Grp Sat Flow(s),veh/h/ln	1805	1831	1810	1805	1810	1610
Q Serve(g_s), s	20.3	20.4	5.3	10.7	9.8	16.0
Cycle Q Clear(g_c), s	20.3	20.4	5.3	10.7	9.8	16.0
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1008	1022	387	2484	383	341
V/C Ratio(X)	0.61	0.61	0.70	0.40	0.57	0.87
Avail Cap(c_a), veh/h	1008	1022	735	2484	503	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	13.3	12.7	6.0	31.8	34.2
Incr Delay (d2), s/veh	2.7	2.7	0.9	0.5	1.4	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	8.4	2.3	3.5	4.4	7.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.0	16.0	13.6	6.5	33.2	47.5
LnGrp LOS	B	B	B	A	C	D
Approach Vol, veh/h	1232			1267	516	
Approach Delay, s/veh	16.0			8.0	41.4	
Approach LOS	B			A	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.7	55.3				66.9	23.1
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	25.0	27.0				56.0	25.0
Max Q Clear Time (g_c+I1), s	7.3	22.4				12.7	18.0
Green Ext Time (p_c), s	0.4	3.0				9.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	926	848	25	9	6
Future Vol, veh/h	30	926	848	25	9	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	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	58	88	96	63	88	75
Heavy Vehicles, %	0	0	0	8	0	0
Mvmt Flow	52	1052	883	40	10	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	923	0	-	0	1533	462
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	630	-
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	748	-	-	-	109	552
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	748	-	-	-	101	552
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	498	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	30.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	748	-	-	-	157
HCM Lane V/C Ratio	0.069	-	-	-	0.116
HCM Control Delay (s)	10.2	-	-	-	30.9
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	624	113	170	700	328	0	0	0	275	159	167
Future Volume (vph)	153	624	113	170	700	328	0	0	0	275	159	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	8.3		5.2	5.7	5.7				6.4	6.4	6.4
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)	1805	3522		1805	3610	1583				1698	1739	1615
Flt Permitted	0.95	1.00		0.29	1.00	1.00				0.95	0.99	1.00
Satd. Flow (perm)	1805	3522		545	3610	1583				1698	1739	1615
Peak-hour factor, PHF	0.90	0.86	0.81	0.81	0.92	0.99	0.25	0.25	0.25	0.86	0.81	0.81
Adj. Flow (vph)	170	726	140	210	761	331	0	0	0	320	196	206
RTOR Reduction (vph)	0	11	0	0	0	165	0	0	0	0	0	92
Lane Group Flow (vph)	170	855	0	210	761	166	0	0	0	253	263	114
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	0%	0%	1%	3%	0%
Turn Type	Prot	NA		pm+pt	NA	Prot				Prot	NA	pt+ov
Protected Phases	5	2		1	6 8	6 8				9	13	13 5
Permitted Phases				6 8								
Actuated Green, G (s)	15.3	56.7		76.1	72.3	72.3				37.1	37.1	58.8
Effective Green, g (s)	15.3	56.7		70.4	72.3	72.3				37.1	37.1	58.8
Actuated g/C Ratio	0.11	0.39		0.49	0.50	0.50				0.26	0.26	0.41
Clearance Time (s)	6.9	8.3		5.2						6.4	6.4	
Vehicle Extension (s)	1.5	2.5		1.5						1.5	1.5	
Lane Grp Cap (vph)	191	1382		298	1807	792				436	446	657
v/s Ratio Prot	c0.09	0.24		0.02	0.21	0.10				0.15	c0.15	0.07
v/s Ratio Perm				c0.32								
v/c Ratio	0.89	0.62		0.70	0.42	0.21				0.58	0.59	0.17
Uniform Delay, d1	63.7	35.2		28.4	22.8	20.1				46.9	47.0	27.3
Progression Factor	1.00	1.00		0.60	0.17	0.00				1.00	1.00	1.00
Incremental Delay, d2	35.6	2.1		5.0	0.0	0.0				1.3	1.3	0.0
Delay (s)	99.3	37.3		21.9	3.8	0.0				48.1	48.3	27.3
Level of Service	F	D		C	A	A				D	D	C
Approach Delay (s)		47.4			5.8			0.0			42.2	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	899	969	0	153	229
Future Volume (vph)	0	899	969	0	153	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.3	5.7		6.4	6.4
Lane Util. Factor		0.95	0.91		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	5187		1805	2842
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	5187		1805	2842
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.78	0.77
Adj. Flow (vph)	0	977	1053	0	196	297
RTOR Reduction (vph)	0	0	0	0	0	255
Lane Group Flow (vph)	0	977	1053	0	196	42
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		56.7	46.1		20.5	20.5
Effective Green, g (s)		56.7	46.1		20.5	20.5
Actuated g/C Ratio		0.39	0.32		0.14	0.14
Clearance Time (s)		8.3	5.7		6.4	6.4
Vehicle Extension (s)		2.5	2.5		1.5	1.5
Lane Grp Cap (vph)		1417	1655		256	403
v/s Ratio Prot		c0.27	0.20		c0.11	0.01
v/s Ratio Perm						
v/c Ratio		0.69	0.64		0.77	0.10
Uniform Delay, d1		36.5	42.0		59.6	54.0
Progression Factor		0.50	1.00		1.00	1.00
Incremental Delay, d2		2.2	1.9		11.6	0.0
Delay (s)		20.5	43.9		71.2	54.0
Level of Service		C	D		E	D
Approach Delay (s)		20.5	43.9		60.8	
Approach LOS		C	D		E	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1065	156	233	746	184	332
Future Volume (veh/h)	1065	156	233	746	184	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1224	177	324	888	207	349
Peak Hour Factor	0.87	0.88	0.72	0.84	0.89	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1567	226	364	2377	437	389
Arrive On Green	0.49	0.49	0.12	0.66	0.24	0.24
Sat Flow, veh/h	3262	456	1810	3705	1810	1610
Grp Volume(v), veh/h	695	706	324	888	207	349
Grp Sat Flow(s),veh/h/ln	1805	1818	1810	1805	1810	1610
Q Serve(g_s), s	28.5	28.9	8.3	10.0	8.8	18.9
Cycle Q Clear(g_c), s	28.5	28.9	8.3	10.0	8.8	18.9
Prop In Lane		0.25	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	893	899	364	2377	437	389
V/C Ratio(X)	0.78	0.78	0.89	0.37	0.47	0.90
Avail Cap(c_a), veh/h	893	899	651	2377	503	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	18.8	20.1	7.0	29.2	33.1
Incr Delay (d2), s/veh	6.6	6.8	3.0	0.5	0.8	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	12.9	3.6	3.5	3.9	9.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.3	25.6	23.1	7.4	30.0	51.9
LnGrp LOS	C	C	C	A	C	D
Approach Vol, veh/h	1401			1212	556	
Approach Delay, s/veh	25.5			11.6	43.8	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.7	49.5				64.3	25.7
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	25.0	27.0				56.0	25.0
Max Q Clear Time (g_c+I1), s	10.3	30.9				12.0	20.9
Green Ext Time (p_c), s	0.4	0.0				7.8	0.8

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	1117	849	56	21	11
Future Vol, veh/h	40	1117	849	56	21	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	91	92	88	83	55
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	49	1227	923	64	25	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	987	0	-	0	1667	494
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	712	-
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	708	-	-	-	89	526
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	453	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	83	526
Mov Cap-2 Maneuver	-	-	-	-	83	-
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	453	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	45.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	132
HCM Lane V/C Ratio	0.07	-	-	-	0.343
HCM Control Delay (s)	10.5	-	-	-	45.9
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	695	176	202	697	388	0	0	0	241	158	176
Future Volume (vph)	136	695	176	202	697	388	0	0	0	241	158	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	8.3		5.2	5.7	5.7				6.4	6.4	6.4
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)	1787	3493		1787	3610	1599				1715	1775	1615
Flt Permitted	0.95	1.00		0.23	1.00	1.00				0.95	0.99	1.00
Satd. Flow (perm)	1787	3493		433	3610	1599				1715	1775	1615
Peak-hour factor, PHF	0.80	0.90	0.83	0.90	0.91	0.88	0.92	0.92	0.92	0.95	0.85	0.75
Adj. Flow (vph)	170	772	212	224	766	441	0	0	0	254	186	235
RTOR Reduction (vph)	0	17	0	0	0	213	0	0	0	0	0	104
Lane Group Flow (vph)	170	967	0	224	766	228	0	0	0	216	224	131
Heavy Vehicles (%)	1%	0%	0%	1%	0%	1%	0%	0%	0%	0%	1%	0%
Turn Type	Prot	NA		pm+pt	NA	Prot				Prot	NA	pt+ov
Protected Phases	5	2		1	6 8	6 8				9	13	13 5
Permitted Phases				6 8								
Actuated Green, G (s)	15.4	55.2		78.4	74.6	74.6				34.7	34.7	56.5
Effective Green, g (s)	15.4	55.2		72.7	74.6	74.6				34.7	34.7	56.5
Actuated g/C Ratio	0.11	0.38		0.50	0.52	0.52				0.24	0.24	0.39
Clearance Time (s)	6.9	8.3		5.2						6.4	6.4	
Vehicle Extension (s)	1.5	2.5		1.5						1.5	1.5	
Lane Grp Cap (vph)	190	1335		253	1865	826				412	426	631
v/s Ratio Prot	c0.10	0.28		0.02	0.21	0.14				0.13	c0.13	0.08
v/s Ratio Perm				c0.42								
v/c Ratio	0.89	0.72		0.89	0.41	0.28				0.52	0.53	0.21
Uniform Delay, d1	63.7	38.1		33.1	21.4	19.7				47.7	47.7	29.1
Progression Factor	1.00	1.00		0.89	0.23	0.62				1.00	1.00	1.00
Incremental Delay, d2	36.5	3.4		24.3	0.0	0.1				0.6	0.5	0.1
Delay (s)	100.2	41.5		53.7	4.9	12.3				48.2	48.2	29.2
Level of Service	F	D		D	A	B				D	D	C
Approach Delay (s)		50.2			14.8			0.0			41.6	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	936	931	0	167	348
Future Volume (vph)	0	936	931	0	167	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.3	5.7		6.4	6.4
Lane Util. Factor		0.95	0.91		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	5187		1805	2842
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	5187		1805	2842
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.74	0.89
Adj. Flow (vph)	0	1017	1012	0	226	391
RTOR Reduction (vph)	0	0	0	0	0	325
Lane Group Flow (vph)	0	1017	1012	0	226	66
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		55.2	44.5		24.4	24.4
Effective Green, g (s)		55.2	44.5		24.4	24.4
Actuated g/C Ratio		0.38	0.31		0.17	0.17
Clearance Time (s)		8.3	5.7		6.4	6.4
Vehicle Extension (s)		2.5	2.5		1.5	1.5
Lane Grp Cap (vph)		1380	1598		305	480
v/s Ratio Prot		c0.28	0.20		c0.13	0.02
v/s Ratio Perm						
v/c Ratio		0.74	0.63		0.74	0.14
Uniform Delay, d1		38.4	42.9		57.0	51.0
Progression Factor		0.38	1.00		1.00	1.00
Incremental Delay, d2		2.7	1.9		8.2	0.0
Delay (s)		17.4	44.9		65.2	51.1
Level of Service		B	D		E	D
Approach Delay (s)		17.4	44.9		56.3	
Approach LOS		B	D		E	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	1138	860	0	19	10
Future Vol, veh/h	0	1138	860	0	19	10
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1237	935	0	21	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1554	468
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	619	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	104	542
Stage 1	0	-	-	0	342	-
Stage 2	0	-	-	0	499	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	104	542
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	36.9
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	144
HCM Lane V/C Ratio	-	-	0.219
HCM Control Delay (s)	-	-	36.9
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	961	115	199	845	196	284
Future Volume (veh/h)	961	115	199	845	196	284
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1105	131	276	1006	220	299
Peak Hour Factor	0.87	0.88	0.72	0.84	0.89	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1805	214	386	2478	387	344
Arrive On Green	0.56	0.56	0.09	0.69	0.21	0.21
Sat Flow, veh/h	3346	385	1810	3705	1810	1610
Grp Volume(v), veh/h	613	623	276	1006	220	299
Grp Sat Flow(s),veh/h/ln	1805	1831	1810	1805	1810	1610
Q Serve(g_s), s	20.6	20.7	5.4	10.9	9.8	16.1
Cycle Q Clear(g_c), s	20.6	20.7	5.4	10.9	9.8	16.1
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1002	1017	386	2478	387	344
V/C Ratio(X)	0.61	0.61	0.72	0.41	0.57	0.87
Avail Cap(c_a), veh/h	1002	1017	732	2478	503	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	13.5	13.1	6.1	31.7	34.2
Incr Delay (d2), s/veh	2.8	2.8	0.9	0.5	1.3	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	8.6	2.5	3.6	4.4	7.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	16.3	14.0	6.6	33.0	47.7
LnGrp LOS	B	B	B	A	C	D
Approach Vol, veh/h	1236			1282	519	
Approach Delay, s/veh	16.3			8.2	41.5	
Approach LOS	B			A	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.8	55.0				66.8	23.2
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	25.0	27.0				56.0	25.0
Max Q Clear Time (g_c+I1), s	7.4	22.7				12.9	18.1
Green Ext Time (p_c), s	0.4	2.9				9.3	1.1

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	942	859	25	9	6
Future Vol, veh/h	46	942	859	25	9	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	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	58	88	96	63	88	75
Heavy Vehicles, %	0	0	0	8	0	0
Mvmt Flow	79	1070	895	40	10	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	935	0	-	0	1608	468
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	693	-
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	741	-	-	-	98	547
Stage 1	-	-	-	-	356	-
Stage 2	-	-	-	-	463	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	741	-	-	-	88	547
Mov Cap-2 Maneuver	-	-	-	-	88	-
Stage 1	-	-	-	-	318	-
Stage 2	-	-	-	-	463	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	34.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	741	-	-	-	139
HCM Lane V/C Ratio	0.107	-	-	-	0.131
HCM Control Delay (s)	10.4	-	-	-	34.8
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	624	134	170	714	328	0	0	0	275	159	170
Future Volume (vph)	153	624	134	170	714	328	0	0	0	275	159	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	8.3		5.2	5.7	5.7				6.4	6.4	6.4
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95	0.99	1.00
Satd. Flow (prot)	1805	3510		1805	3610	1583				1698	1739	1615
Flt Permitted	0.95	1.00		0.27	1.00	1.00				0.95	0.99	1.00
Satd. Flow (perm)	1805	3510		514	3610	1583				1698	1739	1615
Peak-hour factor, PHF	0.90	0.86	0.81	0.81	0.92	0.99	0.25	0.25	0.25	0.86	0.81	0.81
Adj. Flow (vph)	170	726	165	210	776	331	0	0	0	320	196	210
RTOR Reduction (vph)	0	14	0	0	0	168	0	0	0	0	0	88
Lane Group Flow (vph)	170	877	0	210	776	163	0	0	0	253	263	122
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	0%	0%	1%	3%	0%
Turn Type	Prot	NA		pm+pt	NA	Prot				Prot	NA	pt+ov
Protected Phases	5	2		1	6 8	6 8				9	13	13 5
Permitted Phases				6 8								
Actuated Green, G (s)	15.3	55.2		74.8	71.0	71.0				38.4	38.4	60.1
Effective Green, g (s)	15.3	55.2		69.1	71.0	71.0				38.4	38.4	60.1
Actuated g/C Ratio	0.11	0.38		0.48	0.49	0.49				0.27	0.27	0.42
Clearance Time (s)	6.9	8.3		5.2						6.4	6.4	
Vehicle Extension (s)	1.5	2.5		1.5						1.5	1.5	
Lane Grp Cap (vph)	191	1341		279	1775	778				451	462	672
v/s Ratio Prot	c0.09	0.25		0.02	0.21	0.10				0.15	c0.15	0.08
v/s Ratio Perm				c0.34								
v/c Ratio	0.89	0.65		0.75	0.44	0.21				0.56	0.57	0.18
Uniform Delay, d1	63.7	36.7		30.6	23.8	20.8				45.7	45.8	26.6
Progression Factor	1.00	1.00		0.67	0.17	0.00				1.00	1.00	1.00
Incremental Delay, d2	35.6	2.5		7.9	0.1	0.0				1.0	1.0	0.0
Delay (s)	99.3	39.2		28.3	4.0	0.0				46.7	46.8	26.7
Level of Service	F	D		C	A	A				D	D	C
Approach Delay (s)		48.9			6.9			0.0			40.9	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	899	980	0	153	232
Future Volume (vph)	0	899	980	0	153	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.3	5.7		6.4	6.4
Lane Util. Factor		0.95	0.91		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3610	5187		1805	2842
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3610	5187		1805	2842
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.78	0.77
Adj. Flow (vph)	0	977	1065	0	196	301
RTOR Reduction (vph)	0	0	0	0	0	258
Lane Group Flow (vph)	0	977	1065	0	196	43
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		55.2	44.6		20.7	20.7
Effective Green, g (s)		55.2	44.6		20.7	20.7
Actuated g/C Ratio		0.38	0.31		0.14	0.14
Clearance Time (s)		8.3	5.7		6.4	6.4
Vehicle Extension (s)		2.5	2.5		1.5	1.5
Lane Grp Cap (vph)		1380	1602		258	407
v/s Ratio Prot		c0.27	0.21		c0.11	0.02
v/s Ratio Perm						
v/c Ratio		0.71	0.66		0.76	0.11
Uniform Delay, d1		37.8	43.4		59.5	53.8
Progression Factor		0.49	1.00		1.00	1.00
Incremental Delay, d2		2.4	2.2		10.8	0.0
Delay (s)		21.0	45.6		70.3	53.8
Level of Service		C	D		E	D
Approach Delay (s)		21.0	45.6		60.3	
Approach LOS		C	D		E	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	144.4	Sum of lost time (s)	26.3
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	967	865	0	21	12
Future Vol, veh/h	0	967	865	0	21	12
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1051	940	0	23	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1466	470
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	119	540
Stage 1	0	-	-	0	340	-
Stage 2	0	-	-	0	557	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	119	540
Mov Cap-2 Maneuver	-	-	-	-	119	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	557	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32.6
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	166
HCM Lane V/C Ratio	-	-	0.216
HCM Control Delay (s)	-	-	32.6
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	0.8