

June 9, 2023

Attention: Mr. Joseph J. Capalbo, II
Attorney at Law
1100 Summer Street
Stamford, CT 06905

SLR Project No.: 141.21046.00002

**RE: Traffic Assessment – Proposed Residential Development
91 Hope Street – Stamford, Connecticut**

SLR International Corporation (SLR) has prepared this letter to summarize the traffic analysis for the proposed 30 Single-Family Attached Housing units to be located with site access at Hope Street in Stamford, Connecticut. The site location and area roadways are shown in **Figure 1**.

The existing information, including traffic volumes, and crash history, was collected to determine the existing conditions of the area around the proposed development.

Site Environs

Hope Street is a local street that runs north/south from the New Canaan town line to Glenbrook Road in Stamford. Within the site's vicinity, the street has one travel lane in each direction with no turn lanes at the nearby intersections. Sidewalks are present on both sides of the roadway. The posted speed limit within the site vicinity is 30 miles per hour (mph).

Crash Data Summary

Information on traffic crash statistics on Hope Street between Howes Avenue and Wenzel Terrace was obtained from the Connecticut Crash Data Repository for the roughly 5-year period of May 31, 2018, to June 01, 2023. The crash data collected for this period is shown in **Table 1**, summarized by location, type of collision and crash severity.

A total of 11 crashes each were reported at the intersections of Hope Street at Howes Avenue and Hope Street at Wenzel Terrace, and a total of 6 crashes were reported along the site frontage for the roughly 5-year period. Nearly 67 percent of the crashes in the study area resulted in property damage only. The most common collision type was rear-ended collisions, comprising approximately 52 percent of reported crashes, followed by angle collisions at approximately 24 percent.

The only crash which involved suspected serious injury was caused by the vehicles having sideswipe in the same direction and one of the vehicles hit the utility pole right after. Non-motorist crashes were not reported.

Based on this data, there were no abnormal crash frequencies and crash patterns found at the study intersections or adjacent roadways. Based on the *Connecticut Crash Facts Book* released by the Connecticut Department of Transportation (CTDOT), rear-end collisions and angle collisions constitute nearly 56 percent of the crashes in Connecticut during the 2017 period. Therefore, these types of crashes are common at the intersections.

Table 1: Crash Data Summary

Location	Type Of Collision							Crash Severity				
	Angle	Fixed Object	Head On	Rear End	Sideswipe, Opposite Direction	Sideswipe, Same Direction	Total	Possible Injury	Property Damage Only	Suspected Minor Injury	Suspected Serious Injury	Total
At Site Frontage on Hope Street	1	-	1	1	-	1	4	1	1	1	1	4
At Site Frontage on Howes Avenue	1	-	1	-	-	-	2	-	2	-	-	2
Hope Street at Howes Avenue	3	-	-	7	1	-	11	1	6	4	-	11
Hope Street at Wenzel Terrace	3	-	-	5	3	-	11	2	9	-	-	11
Hope Street b/w Wenzel Terrace and Site Driveway	-	1	-	4	-	-	5	1	4	-	-	5
Grand Total	8	1	2	17	4	1	33	5	22	5	1	33

Traffic Counts

New manual turning movement traffic counts were undertaken on Wednesday June 7, 2023, during the p.m. peak hour and on Thursday June 8, 2023, during the a.m. peak hour at the study intersection of Hope Street at Howes Avenue adjacent to the site. **Figure 2** shows the peak-hour traffic volumes from these new traffic counts during the weekday morning (7:15 a.m. to 8:15 a.m.) and afternoon (5:00 p.m. to 6:00 p.m.) peak hours.

Development Site Trip Generation and Distribution

The site traffic for the proposed residential development was estimated based on review of statistical data published by the Institute of Transportation Engineers (ITE). Using Land Use Code (LUC) #215, Single-Family Attached Housing, the development is expected to generate 14 total vehicle trips during the morning peak hour and 17 total vehicle trips during the afternoon peak hour.

Table 2 summarizes the vehicular trip generation estimates. As shown in the table, the proposed redevelopment is estimated to generate 14 total new vehicle trips (4 vehicles entering and 10 vehicles exiting) during the morning peak hour and 17 total new vehicle trips (10 vehicles entering and 7 vehicles exiting) during the afternoon peak hour.

Based on the existing roadway travel patterns, it is estimated that 60 percent of the site traffic will access the site from the north on Hope Street, which consists of 50 percent from the north and 10 percent from the west at the intersection of Hope Street at Howes Avenue, and 40



percent of the site traffic will access the site from the south on Hope Street. The site-generated traffic estimates are shown in **Figure 3** and **Figure 4**.

Table 2: Site-Generated Traffic Estimates

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	In	Out	Total	In	Out	Total
Land Use Code #215, Single-Family Attached Housing, 30 Dwelling Units	4	10	14	10	7	17

Intersection Sight Distance Analysis

Intersection sight distance (ISD) was measured at the proposed exit site driveway location in accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*. ISD is determined through the creation of clear sight triangles. Each quadrant of the intersection should contain a triangular area free of obstructions. For vehicles approaching an intersection, the length of the legs of the triangle should be long enough such that the driver can see any potentially conflicting vehicles in sufficient time to slow or stop before colliding. For vehicles departing from an intersection, the length of the legs of the triangle should be sufficient for a stopped driver to depart from the intersection and turn onto the main road safely.

Based on the posted speed limit of 30 mph, **335 feet** of sight distance is required for a passenger car turning left or right out of the site. Looking to the left, the available sight distance exceeds the sight distance requirement and looking to the right, the available sight distance meets the requirement. Periodic trimming of vegetation is required along the site frontage and within the Hope Street right of way (ROW) near the site to maintain proper visibility.

Estimated Future Roadway Traffic

Roadway traffic volumes were projected to year 2025 using an annual growth rate of 1 percent, which was suggested by the CTDOT Bureau of Policy and Planning. The 2025 background (no-build) traffic volumes for the weekday morning and afternoon peak-hour periods, which do not include site-generated traffic, are shown in **Figure 5**.

The estimated site-generated traffic volumes from the proposed development were then added to the 2025 background traffic volumes to derive the future 2025 combined (build) traffic volumes, which are shown in **Figure 6** for the weekday morning and weekday afternoon peak hours.

Intersection Capacity Analysis

The intersection of the site driveway at Hope Street is evaluated by means of capacity analysis techniques. Levels of Service (LOS) were then determined, which are qualitative measures of the efficiency of operations in terms of delay and inconvenience to motorists that range from LOS A through LOS F, with LOS A reflecting traffic flow with very low average control delay per vehicle while LOS F would reflect operations with long average delays. **Table 3** below summarizes the findings of future anticipated LOS at the intersection without (Background Conditions) versus with (Combined Conditions) the estimated future traffic from this proposed residential development.



As can be seen, all the lane movements at the intersection of the site driveway at Hope Street are expected to operate at excellent peak-hour LOS A or LOS B in the future even with the addition of site traffic from this proposed development.

Table 3: Capacity Analysis Summary

Intersection	Level Of Service	
	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
	Combined	Combined
Site Driveway at Hope Street (Stop-Sign-Controlled on minor street)		
Westbound Left/Right	B	B
Southbound Left/Through	A	A

Summary

This traffic assessment for the proposed 30 single-family attached housing units for 91 Hope Street finds that peak-hour LOS at the intersection of the site driveway at Hope Street is expected to be very good at LOS A or LOS B.

We hope this traffic assessment is useful to you and the City of Stamford in further understanding the traffic aspects of this proposed development. If you have any questions or need anything further, please do not hesitate to contact the undersigned.

Regards,

SLR International Corporation



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

Attachments

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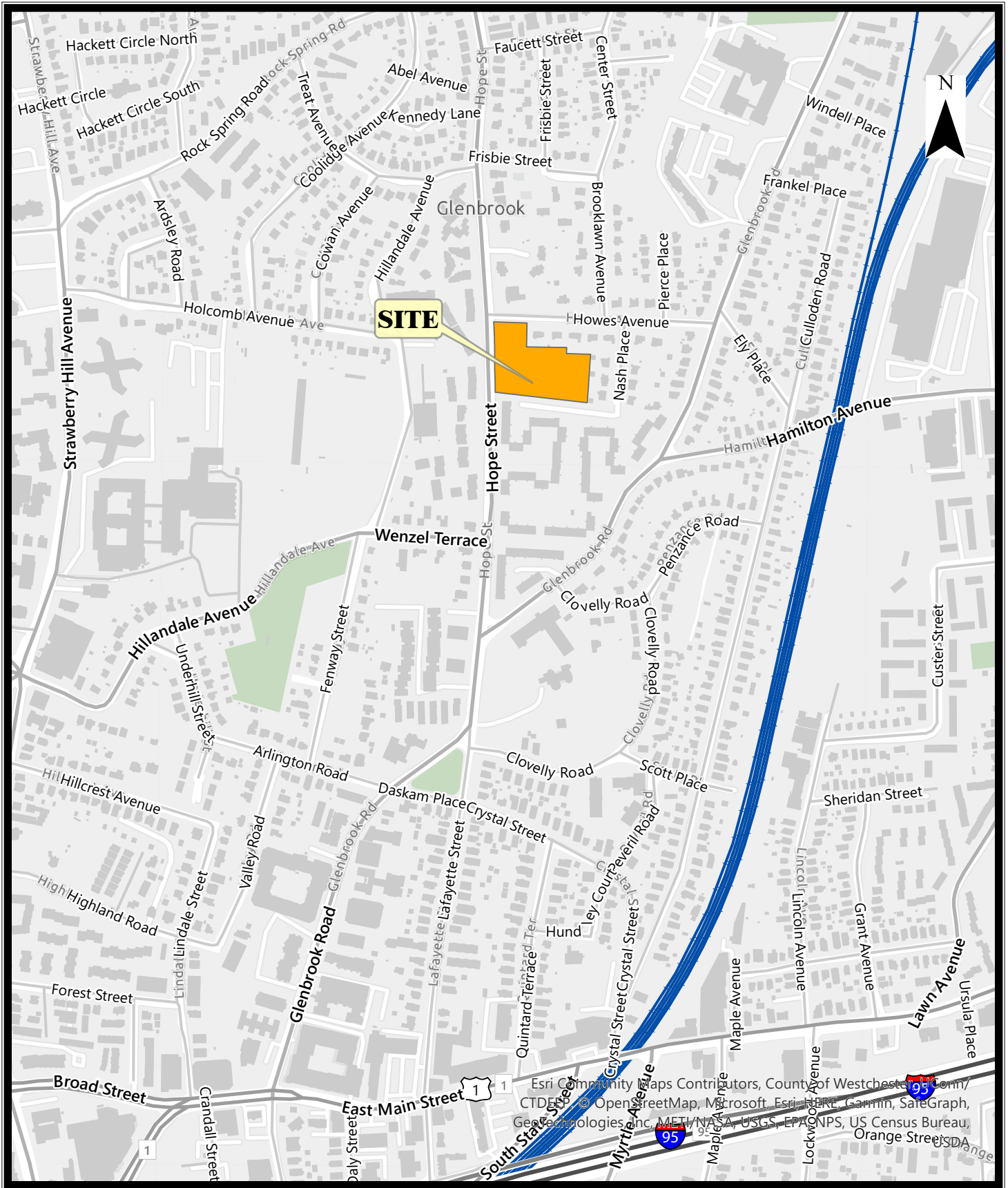
Figures

- Figure 1 – Site Location Map
- Figure 2 – Existing Weekday Peak-Hour Traffic Volumes (2023)
- Figure 3 – Site Traffic Distribution
- Figure 4 – Site-Generated Weekday Peak Hour Traffic Volumes
- Figure 5 – Future Background Weekday Peak Hour Traffic Volumes (2025)
- Figure 6 – Future Combined Weekday Peak Hour Traffic Volumes (2025)

Appendix

- Traffic Counts
- LOS Designation Descriptions
- *HCS7* Analysis Worksheets





SITE LOCATION MAP

0 500 1,000 Feet



**Proposed Residential Development
91 Hope Street
Stamford, Connecticut**

FIGURE 1



Figure 2
Existing Weekday Peak Hour Vehicular Traffic Volumes (2023)





Figure 3
Site Traffic Distribution





Figure 4
Site-Generated Weekday Peak Hour Traffic Volumes





Figure 5
Future Background Weekday Peak Hour Traffic Volumes (2025)



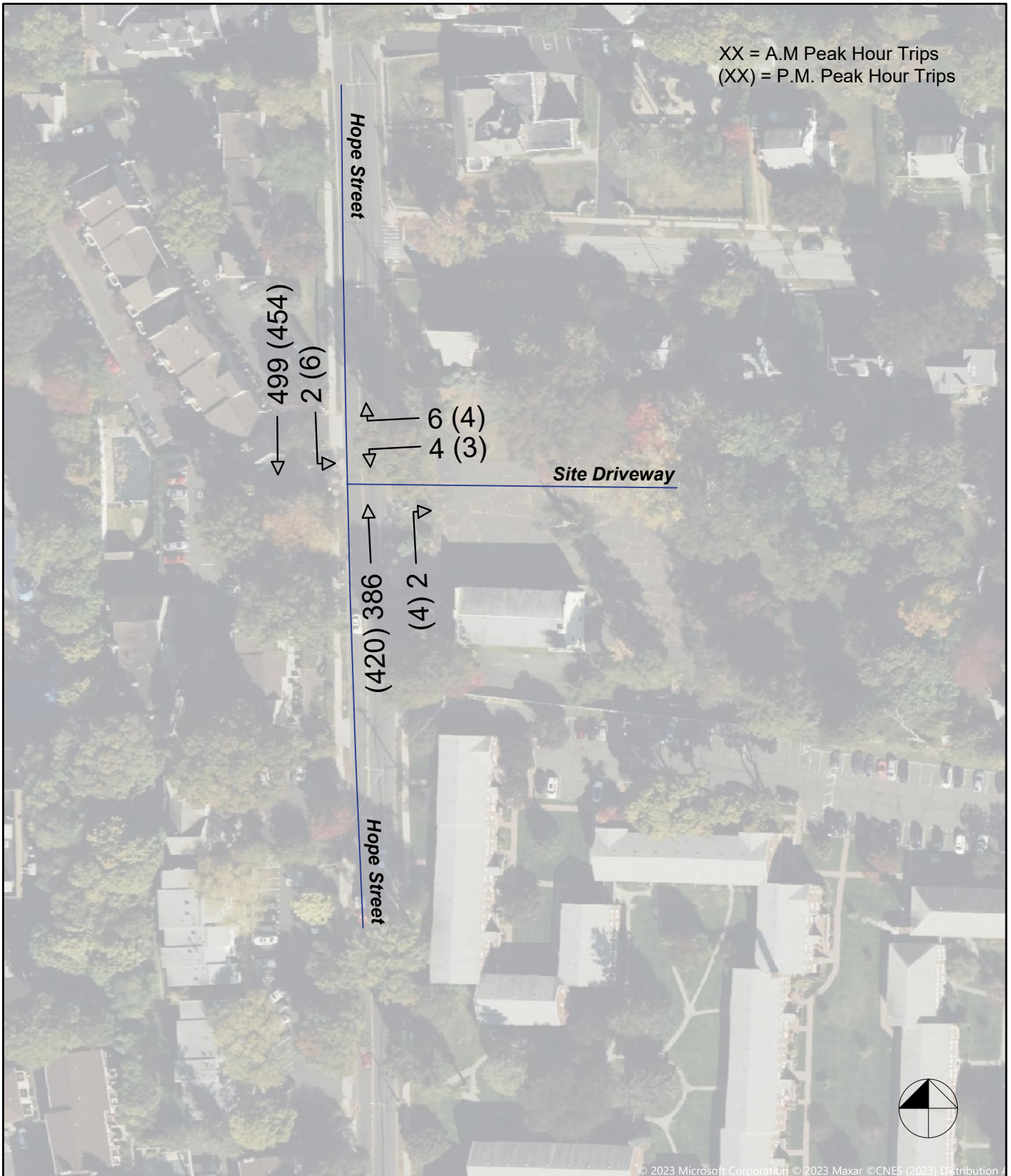


Figure 6
Future Combined Weekday Peak Hour Traffic Volumes (2025)



APPENDIX

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:

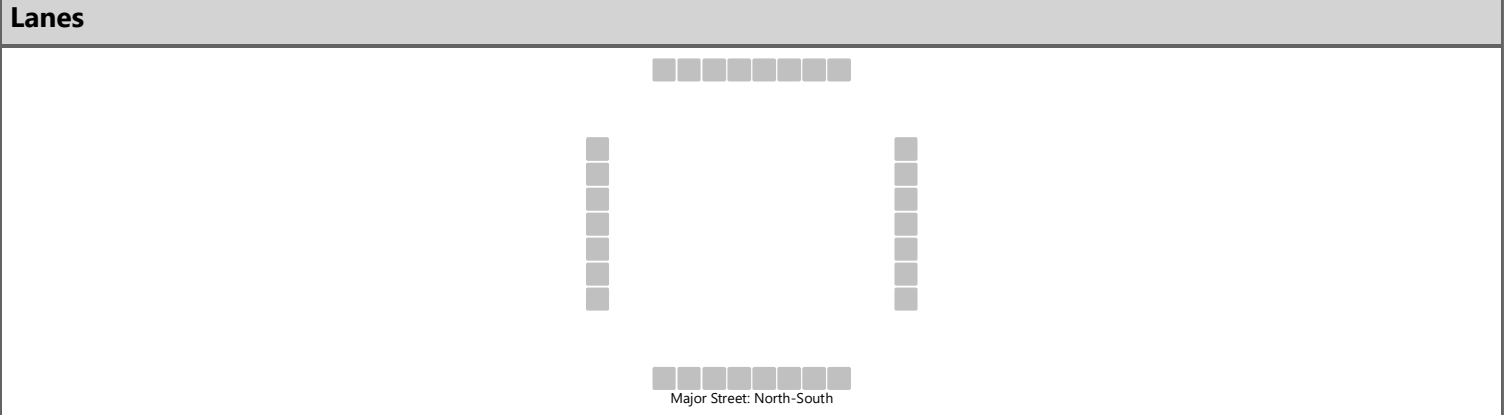
LEVEL-OF SERVICE CRITERIA FOR AWSC INTERSECTIONS	
LOS¹	CONTROL DELAY (s/veh)
A	≤ 10
B	$> 10 \text{ AND } \leq 15$
C	$> 15 \text{ AND } \leq 25$
D	$> 25 \text{ AND } \leq 35$
E	$> 35 \text{ AND } \leq 50$
F	> 50

Note: LOS criteria apply to each lane on a given approach and to each approach on the minor street.
 LOS is not calculated for major-street approaches or for the intersection as a whole.
 LOS F is assigned to a movement if the volume-to-capacity ratio exceeds 1.0, regardless of the control delay

Reference: Highway Capacity Manual Version 6.0, Transportation Research Board, 2016.

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	SLR			Intersection	Site Dwy with Hope Street		
Agency/Co.				Jurisdiction			
Date Performed	6/9/2023			East/West Street	Site Driveway		
Analysis Year	2025			North/South Street	Hope Street		
Time Analyzed	AM PEAK			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	91 Hope Street, Stamford						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						4		6			386	2		2	499	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

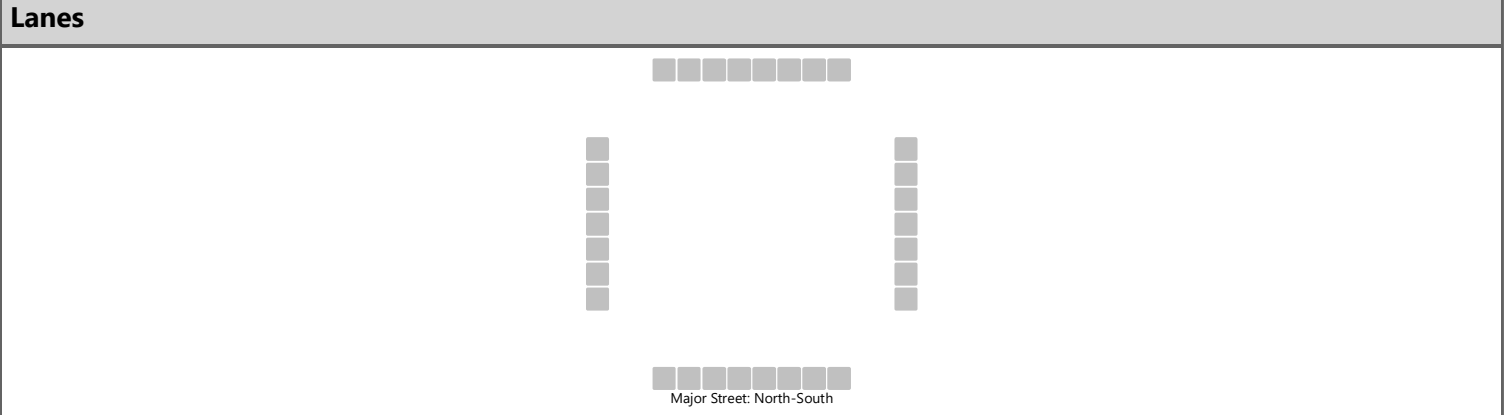
Base Critical Headway (sec)						7.1		6.2								4.1	
Critical Headway (sec)						6.43		6.23								4.13	
Base Follow-Up Headway (sec)						3.5		3.3								2.2	
Follow-Up Headway (sec)						3.53		3.33								2.23	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11										2	
Capacity, c (veh/h)						420										1132	
v/c Ratio						0.03										0.00	
95% Queue Length, Q ₉₅ (veh)						0.1										0.0	
Control Delay (s/veh)						13.8										8.2	
Level of Service (LOS)						B										A	
Approach Delay (s/veh)					13.8								0.1				
Approach LOS					B												

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	SLR			Intersection	Site Dwy		
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Analysis Year	2025			North/South Street	Hope Street		
Time Analyzed	PM PEAK			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	91 Hope Street, Stamford						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						3		4			420	4		6	454	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						8								7		
Capacity, c (veh/h)						402								1095		
v/c Ratio						0.02								0.01		
95% Queue Length, Q ₉₅ (veh)						0.1								0.0		
Control Delay (s/veh)						14.1								8.3		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					14.1								0.2			
Approach LOS					B											

TOTAL

4-6 PM Peak Hour	SBT	SBL	WBR	WBL	NBR	NBT
4:00 - 4:15	101	13	16	2	5	114
4:15 - 4:30	111	14	8	5	5	83
4:30 - 4:45	92	17	10	3	5	88
4:45-5:00	85	23	19	1	5	103
5:00 - 5:15	85	20	19	2	2	86
5:15 - 5:30	111	18	13	6	5	96
5:30 - 5:45	101	18	15	4	6	105
5:45 - 6:00	126	12	8	5	6	101

Truck :||

Busse :|||

Ped :

7-9 AM Peak Hour	SBT	SBL	WBR	WBL	NBR	NBT
7:00 - 7:15	102	10	22	6	4	85
7:15 - 7:30	108	12	24	5	5	93
7:30 - 7:45	110	11	26	4	5	95
7:45-8:00	116	16	17	6	5	94
8:00 - 8:15	125	14	18	10	2	75
8:15 - 8:30	110	16	20	6	1	65
8:30 - 8:45	108	9	20	7	3	68
8:45 - 9:00	135	18	31	18	6	95

50%

↓ ← 10%

↑ 40%