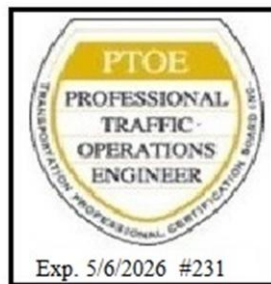




Armen Hovannessian
Transportation Consulting

**TERRENO GARDENA
1855 W. 139TH STREET
GARDENA, CALIFORNIA
TRAFFIC ASSESSMENT REPORT
JULY 1, 2025**



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INTRODUCTION

This traffic assessment study is prepared for the proposed Terreno Gardena warehouse development project located at 1855 W. 139th Street in Gardena, California. The methodology and base assumptions used in the analysis were established based on discussions with the City of Gardena staff. This study evaluates the potential project-specific transportation effects of the proposed project. The analysis focuses on traditional mobility considerations as well as safety, sustainability, smart growth, and the reduction of greenhouse gas emissions.

PROJECT DESCRIPTION

Project Characteristics

The project proposes constructing three new concrete tilt-up industrial buildings and associated parking and site improvements with 223,509 square foot total building area, 353 total parking stalls, and 46 total bike parking on a 488,943 square foot site.

Project Location

As illustrated in the project area map in Figure 1, the project is located on the northwest corner of the intersection of 139th Street and Western Avenue (APN Number 4061-025-130).

Figure 1 – Project Area Map

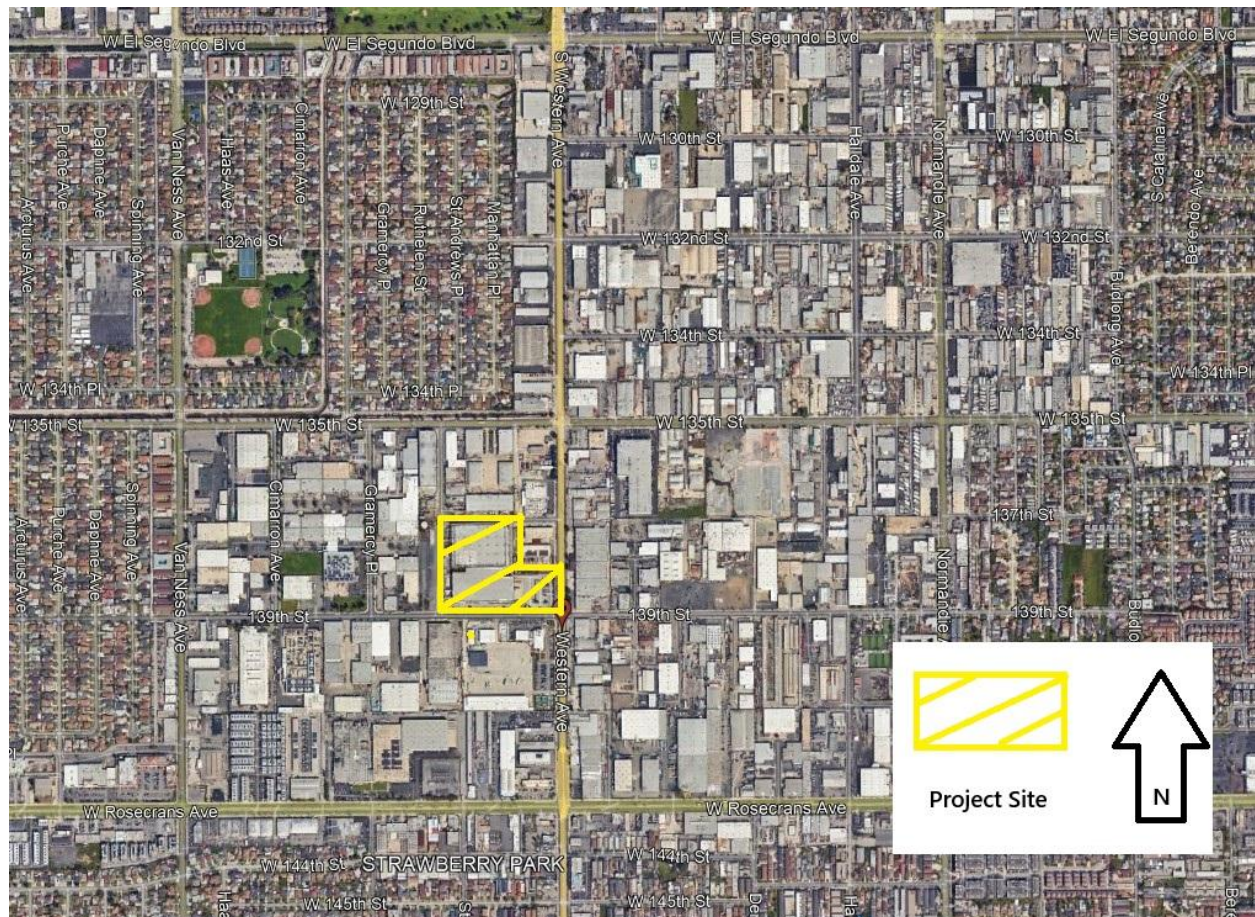


Figure 2 illustrates the project site plan showing the location of the proposed project driveways from the nearest intersection of 139th Street and Western Avenue.

As shown in Figure 2, the project proposes relocating two existing driveways on 139th Street and constructing one new driveway on Western Avenue. The two driveways on 139th Street will be 40 feet wide and used for commercial and passenger vehicles while the driveway on Western Avenue will be used by passenger vehicles only. Additionally, the project will improve one driveway on 137 Street and one driveway on St. Andrews Place for passenger and emergency vehicle access.

PARKING ANALYSIS

PROPOSED DEVELOPMENT ANALYSIS		EXISTING DEVELOPMENT ANALYSIS	
PROPOSED BUILDING A	FOOTPRINT: 34,863 S.F.	EXISTING BUILDING A	FOOTPRINT: 34,863 S.F.
PROPOSED BUILDING B	FOOTPRINT: 65,894 S.F.	EXISTING BUILDING B	FOOTPRINT: 65,894 S.F.
PROPOSED BUILDING C	FOOTPRINT: 65,894 S.F.	EXISTING BUILDING C	FOOTPRINT: 65,894 S.F.
PROPOSED BUILDING D	FOOTPRINT: 34,863 S.F.	EXISTING BUILDING D	FOOTPRINT: 34,863 S.F.
TOTAL	FOOTPRINT: 201,544 S.F.	TOTAL	FOOTPRINT: 201,544 S.F.
OFFICE	1,000	OFFICE	1,000
RETAIL	1,000	RETAIL	1,000
RESIDENTIAL	1,000	RESIDENTIAL	1,000
TOTAL	3,000	TOTAL	3,000
REQUIRED	100	REQUIRED	100
PROVIDED	100	PROVIDED	100

PROPOSED BUILDING A
FOOTPRINT: 34,863 S.F.

PROPOSED BUILDING B
FOOTPRINT: 65,894 S.F.

PROPOSED BUILDING C
FOOTPRINT: 65,894 S.F.

PROPOSED BUILDING D
FOOTPRINT: 34,863 S.F.

139TH ST.

WESTERN AVE.

ST. ANDREWS PL.

137TH ST.

135TH ST.

133TH ST.

131ST ST.

129TH ST.

127TH ST.

125TH ST.

123RD ST.

121ST ST.

119TH ST.

117TH ST.

115TH ST.

113TH ST.

111TH ST.

109TH ST.

107TH ST.

105TH ST.

103RD ST.

101ST ST.

99TH ST.

97TH ST.

95TH ST.

93RD ST.

91ST ST.

89TH ST.

87TH ST.

85TH ST.

83RD ST.

81ST ST.

79TH ST.

77TH ST.

75TH ST.

73RD ST.

71ST ST.

69TH ST.

67TH ST.

65TH ST.

63RD ST.

61ST ST.

59TH ST.

57TH ST.

55TH ST.

53RD ST.

51ST ST.

49TH ST.

47TH ST.

45TH ST.

43RD ST.

41ST ST.

39TH ST.

37TH ST.

35TH ST.

33RD ST.

31ST ST.

29TH ST.

27TH ST.

25TH ST.

23RD ST.

21ST ST.

19TH ST.

17TH ST.

15TH ST.

13TH ST.

11TH ST.

9TH ST.

7TH ST.

5TH ST.

3RD ST.

1ST ST.

0TH ST.

139TH ST.

137TH ST.

135TH ST.

133TH ST.

131ST ST.

129TH ST.

127TH ST.

125TH ST.

123RD ST.

121ST ST.

119TH ST.

117TH ST.

115TH ST.

113TH ST.

111TH ST.

109TH ST.

107TH ST.

105TH ST.

103RD ST.

101ST ST.

99TH ST.

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81ST ST.

79TH ST.

77TH ST.

75TH ST.

73RD ST.

71ST ST.

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67TH ST.

65TH ST.

63RD ST.

61ST ST.

59TH ST.

57TH ST.

55TH ST.

53RD ST.

51ST ST.

49TH ST.

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39TH ST.

37TH ST.

35TH ST.

33RD ST.

31ST ST.

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27TH ST.

25TH ST.

23RD ST.

21ST ST.

19TH ST.

17TH ST.

15TH ST.

13TH ST.

11TH ST.

9TH ST.

7TH ST.

5TH ST.

3RD ST.

1ST ST.

0TH ST.

139TH ST.

137TH ST.

135TH ST.

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125TH ST.

123RD ST.

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11TH ST.

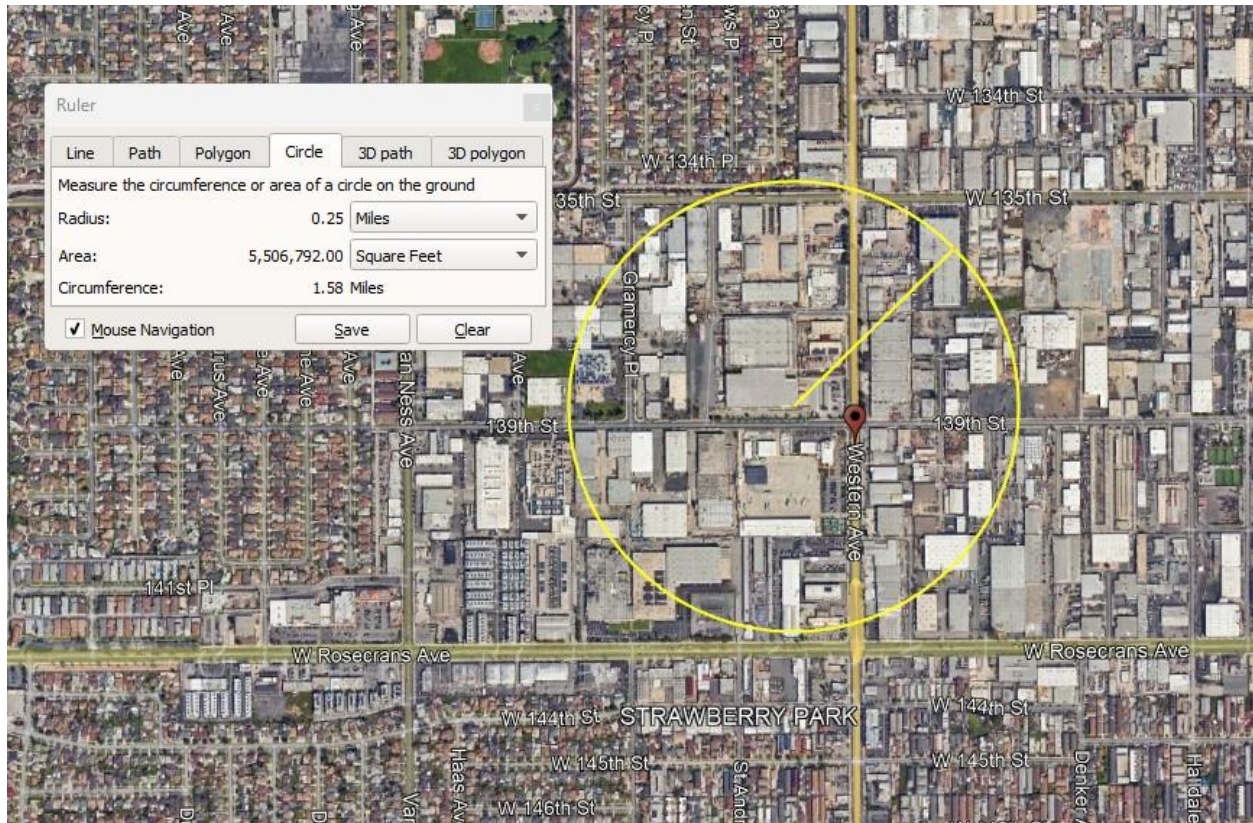
9TH ST.

7TH ST.

5TH ST.

A comprehensive analysis and an inventory of the existing transportation infrastructure and conditions within a ¼ mile radius of the project site, as shown in the aerial map in Figure 3, was collected. The collected data was analyzed to determine the roadway designations, classifications, and modal priorities.

Figure 3 – ¼ Mile Radius Area Map



The following describes the details of the transportation infrastructure in the vicinity of the project:

Non-Vehicular Transportation System

A review of the project area to evaluate the effects of the project on the non-vehicular transportation system for Pedestrian Facilities, Bicycle Facilities, and Transit Services was conducted.

Pedestrian Facilities

A review of the project area was conducted to evaluate the effects of the project on pedestrian activity within a ¼-mile radius of the project. As part of this analysis, we inventoried the existing sidewalks within 1,320 feet of the edge of the project site, as shown in Figure 3.

Sidewalks

A sidewalk inventory within the ¼ mile vicinity of the project was taken. The data collected for existing pedestrian sidewalks is listed in Table 1 below:

Table 1 - Sidewalk Inventory

Street Name	Street Side	Sidewalk Width	Condition
139 th Street	NS/SS	~8 Feet	Good
Western Avenue	ES/WS	~10 Feet	Good
135 th Street	NS/SS	~8 Feet	Good

Crosswalks, Curb Ramps & Pedestrian Push Buttons

Within ¼ mile vicinity of the project site, pedestrian crosswalks, curb ramps and pedestrian push buttons are available at the following locations, shown in Table 2:

Table 2 -Crosswalk, Curb Ramp & Pedestrian Push Button Inventory

Intersection Name		Control	Ped Push Button	Crosswalk Type	Curb Ramp	Cond.
139 th Street	Western Avenue	Signal	Yes	North Leg Regular	Yes	Good
				South Leg Regular	Yes	Good
				East Leg Regular	Yes	Good
				West Leg Regular	Yes	Good
137 th Street	Western Avenue	Stop Sign	N/A	North Leg No Crosswalk	No	N/A
				South Leg No Crosswalk	No	N/A
				N/A	N/A	N/A
				West Leg No Crosswalk	Yes	N/A
135 th Street	Western Avenue	Signal	Yes	North Leg Regular	Yes	Good
				South Leg Regular	Yes	Good
				East Leg Regular	Yes	Good
				West Leg Regular	Yes	Good

Bicycle Facilities

Within a ¼-mile radius of the project site bicycle facilities are not installed.

Transit Services

Transit services in the area are provided by City of Gardena Transit. The nearest transit lines to the project site are lines 1X and 2. Appendix 1 includes the transit route map.

Vehicular Transportation System

An assessment of the roadway system within ¼ mile radius of the project site was conducted. The assessment included the number of traffic lanes, direction of flow, and the presence of peak period travel lanes affecting roadway travel capacity, the presence of bicycle lanes, and any other significant street information.

Regional Freeway System

The project area is served by Interstate 105 (I-105), I-110, I-405, and State Route 91 freeways.

Area Roadway System

The project area is mainly served by the following surrounding roadways:

- Western Avenue
- 139th Street
- Van Ness Avenue

CEQA TRANSPORTATION IMPACT ANALYSIS

This analysis conforms to the requirements of Senate Bill 743 (SB 743) and is consistent with the California Environmental Quality Act (CEQA), requiring the use of Vehicle Miles Traveled (VMT) as the primary metric for evaluating a project's transportation impacts. The City of Gardena standard of significance for evaluating VMT was adopted from guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018.

A qualitative VMT analysis was used to determine the Project's VMT impact. As previously mentioned in the Project Description, the proposed project is comprised of 223,509 square feet of warehouse. The proposed uses will be replacing identical existing uses comprised of 233,634 square feet of warehouse. Both the existing and proposed warehouse uses include ancillary office uses, which are a part of the overall warehouse VMT. Therefore, the proposed project will be reducing the size of the warehouse use by a total of 10,125 square feet. As shown in the Project Trip Generation tables in this report (pages 9 and 10), the change in size of these identical uses will result in reduced vehicle trips difference between proposed and existing development on the project site. By replacing the uses on site with less square footage of same use, the project reduces VMT. Therefore, the project will have a less than significant VMT impact.

NON-CEQA CIRCULATION TRANSPORTATION ANALYSIS

Operational Evaluation

An operational evaluation of the project area was conducted to determine any project impact on access, safety, and circulation on the roadway network in the vicinity of the project.

Study Intersections

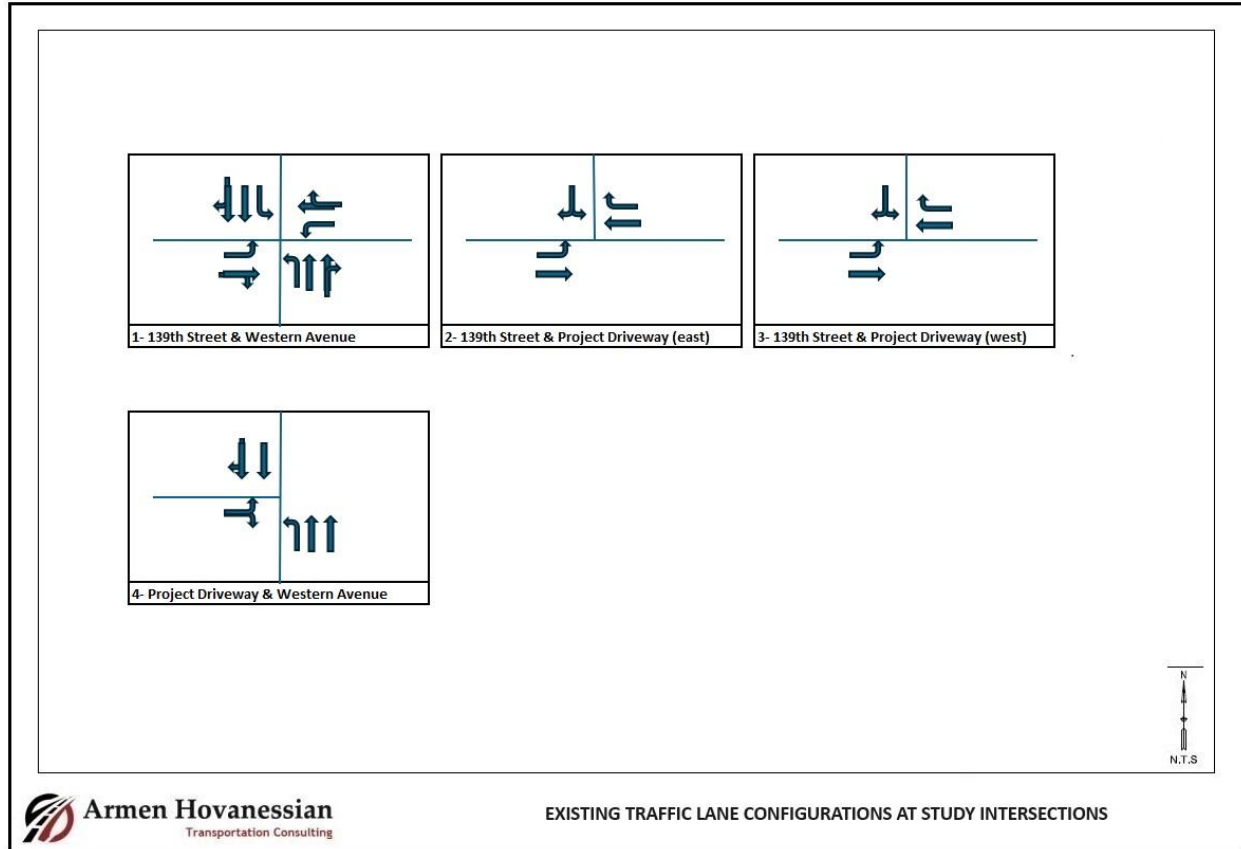
After consultation with the City of Gardena, it was determined that the following intersections would be analyzed and evaluated for operational assessment, as shown in Table 3 below:

Table 3 – Study Intersections

Intersection(s)	Configuration	Existing Control
139 th Street and Western Avenue	4-legged	Traffic Signal Control
139 th Street and Project Driveway East	T-intersection	Stop Sign Control
139 th Street and Project Driveway West	T-intersection	Stop Sign Control
Western Avenue and Project Driveway	T-intersection	Stop Sign Control

Refer to Figure 4 below for a depiction of the configurations of traffic lanes at the approaches to the study intersections.

Figure 4 – Study Intersections Lane Configurations

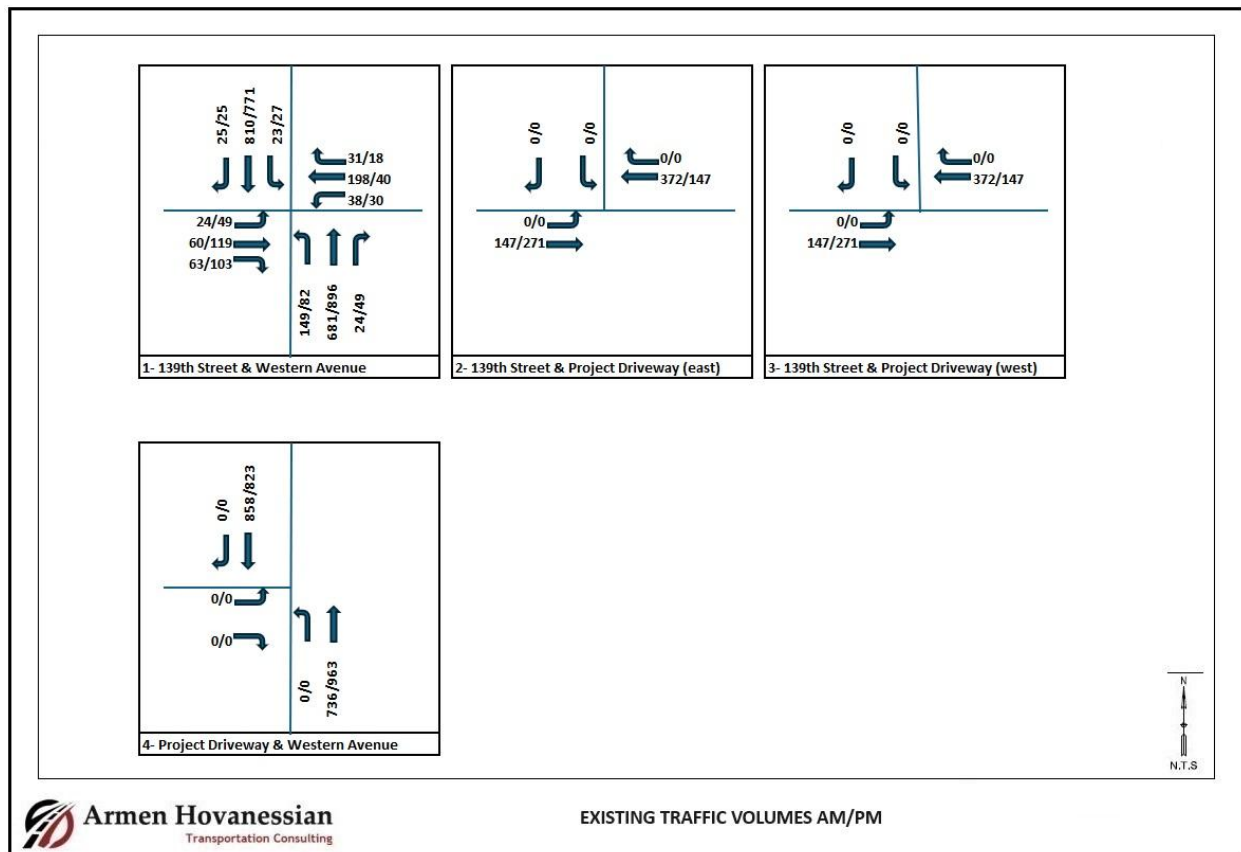


Traffic Volume Counts

Traffic volume counts were obtained for vehicular turning movements at the intersection of 139th Street and Western Avenue. The vehicle turning movement count was conducted on Wednesday, February 26, 2025, during the typical commuter hours of 7:00 AM to 10:00 AM and 3:00 PM to 6:00 PM, to obtain existing traffic volumes for the AM and PM peak hours.

Please refer to Appendix 2 for the manual traffic counts, and Figure 5 below for Existing (AM/PM Peak) Traffic Volumes for an illustration of the AM and PM peak-hour turning movement counts used for the study intersections. The traffic count data at the intersection of 139th Street and Western Avenue was used to calculate the through traffic movements on 139th Street and Western Avenue at the project driveways for the analysis.

Figure 5 – Existing Traffic Volumes at Study Intersections



Project Trip Generation

Trip rates from the *Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition* were used in this analysis for Warehousing, ITE code 150, and General Office ITE code 710.

As shown in the project trip generation Table 4 below, the project is forecasted to result in -3 AM and -1 PM net new peak hour and -16 daily trips after existing use trip credits. However, the calculations for the project driveways will not consider the existing use trip credits.

Table 4 - Project Trip Generation

	Land Use (ITE Code)	Size	Unit	AM Peak Hour Trips				PM Peak Hour Trips				Daily Trips	
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
Proposed	Warehousing (150)	223.509	KSF	0.21	Split	66%	34%	0.23	Split	24%	76%	1.71	383
					47	31	16		53	13	40		
	Total Proposed Trips				47	31	16		53	13	40		383
	Total New Trips				47	31	16		53	13	40		383
Existing	Warehousing (150)	233.526	KSF	0.21	Split	66%	34%	0.23	Split	24%	76%	1.71	399
					50	33	17		54	13	41		
	Total Existing Trips				50	33	17		54	13	41		399
NET INCREASE/DECREASE TRIPS					-3	-2	-1		-1	0	-1		-16
Source: ITE Trip Generation Manual, 11th Edition													

The client estimates approximately 70% of all the traffic to and from the site would be truck traffic. Therefore, using Passenger Car Equivalent (PCE) rate (2.5:1) for truck traffic will result in -6 AM and -2 PM net new peak hour and -33 daily trips after existing use trip credits. Table 5 below depicts a comparison of project trip generation with and without PCE.

Table 5 - Comparison of Project Trip Generation with & without PCE

	Land Use (ITE Code)	Size	Unit	AM Peak Hour Trips				PM Peak Hour Trips				Daily Trips	
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
Proposed	Warehousing (150)	223.509	KSF	0.21	Split	66%	34%	0.23	Split	24%	76%	1.71	383
					47	31	16		53	13	40		
	Total Proposed Trips without PCE				47	31	16		53	13	40		383
	Passenger Car Equivelant (PCE)												
	Warehousing (150) (PCE 2.5:1 at 70%)	223.509	KSF	2.50	96	64	33	2.50	109	27	82	2.50	785
					0	0	0		0	0	0		0
	Total New Trips with PCE				96	64	33		109	27	82		785
Existing	Warehousing (150)	233.526	KSF	0.21	Split	66%	34%	0.23	Split	24%	76%	1.71	399
					50	33	17		54	13	41		
	Total Existing Trips without PCE				50	33	17		54	13	41		399
	Passenger Car Equivelant (PCE)												
	Warehousing (150) (PCE 2.5:1 at 70%)	233.526	KSF	2.50	103	68	35	2.50	111	27	84	2.50	818
					0	0	0		0	0	0		0
	Total Existing Trips with PCE				103	68	35		111	27	84		818
NET INCREASE/DECREASE TRIPS without PCE					-3	-2	-1		-1	0	-1		-16
NET INCREASE/DECREASE TRIPS with PCE					-6	-4	-2		-2	0	-2		-33
Source: ITE Trip Generation Manual, 11th Edition													
* Assuming 70% Truck Traffic													

In summary, the proposed project would generate less traffic compared to the existing use on the project site. The local transportation analysis will use the more conservative trip generation numbers from Table 4 to analyze the project traffic.

Project Trip Distribution and Assignment

Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the project. The geographic distribution of project trips is based on the functional classification of streets in the vicinity, the magnitude of traffic volumes, as well as local knowledge of the roadway network. Based on the project trip generation, shown in Table 4, and the regional trip distribution assumptions, a proposed study area for the traffic analysis was derived. The location and the number of the intersections to be analyzed were reviewed and approved by the City of Gardena. Refer to Figures 6, 7, and 8 below for illustrations showing the Project's Trip Distributions and Assignments at the study intersections.

Figure 6 – Project Trip Distribution Percentages

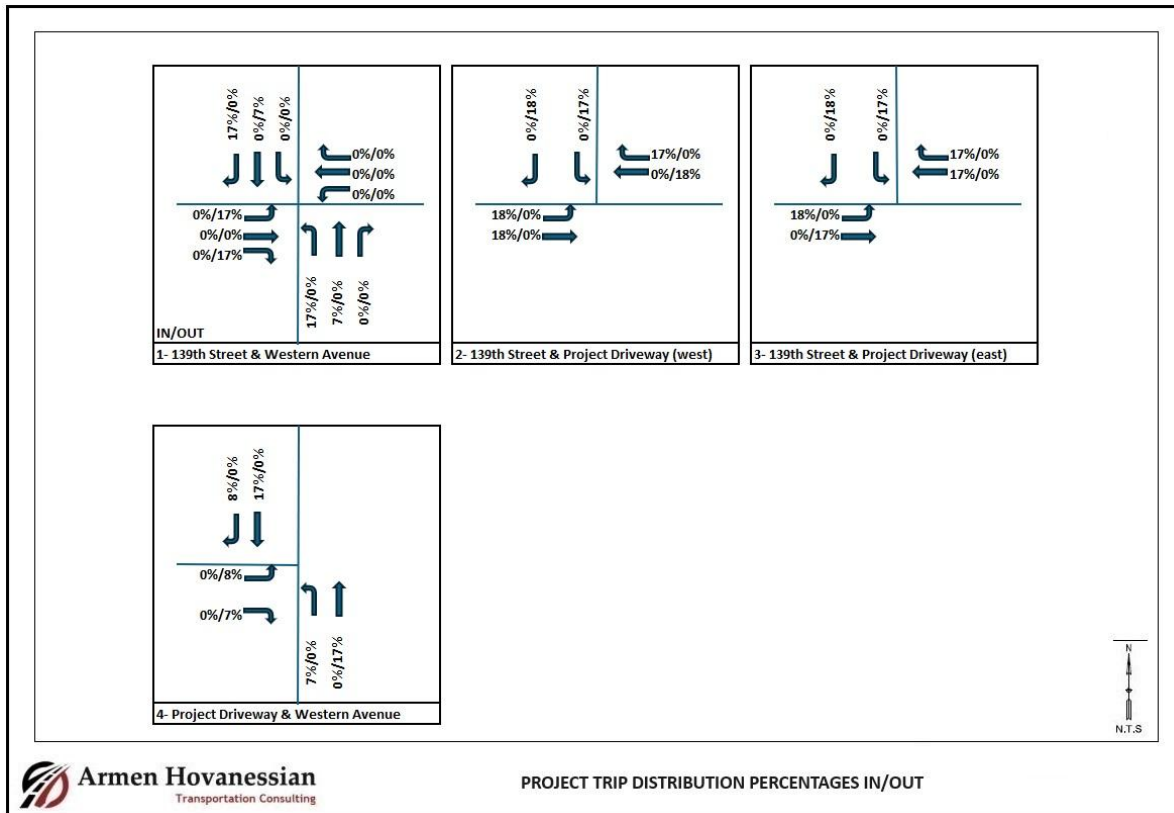


Figure 7 - Project Trip Assignments (Without Existing Use Credit at Driveways) for AM/PM Peak Hours

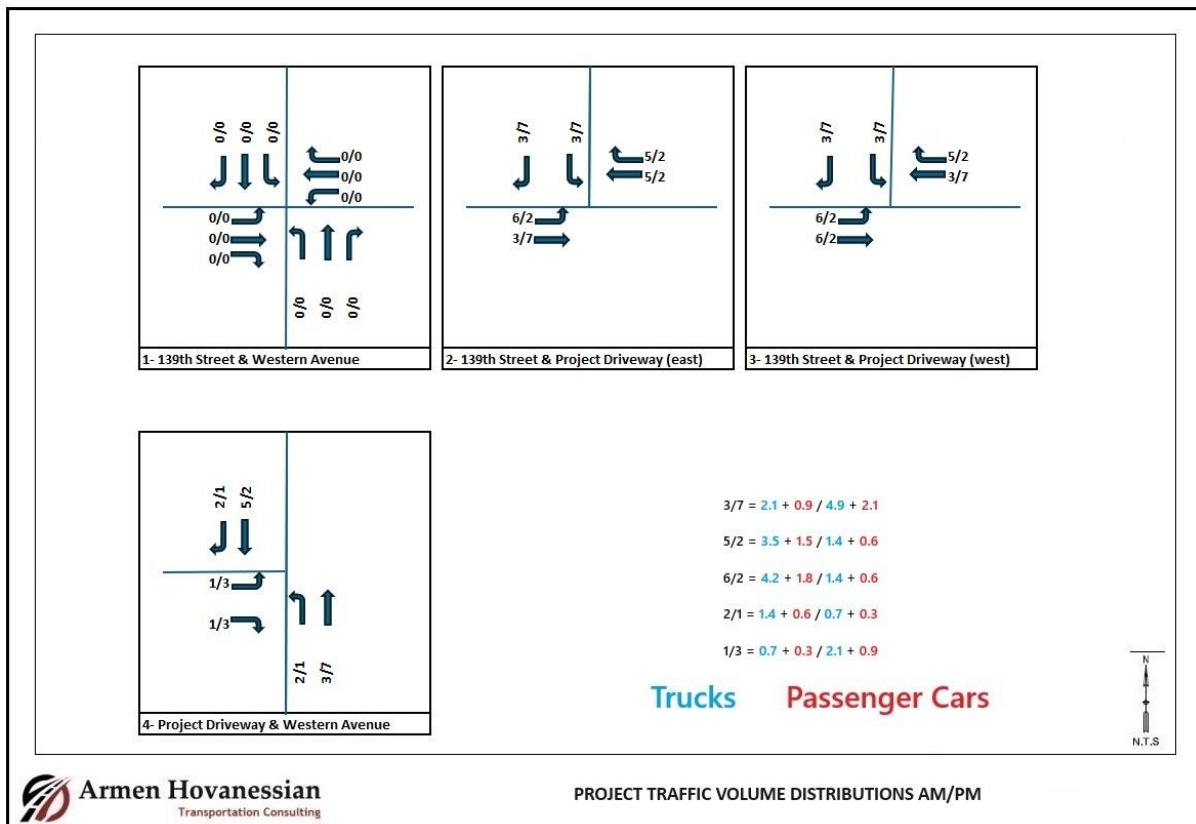
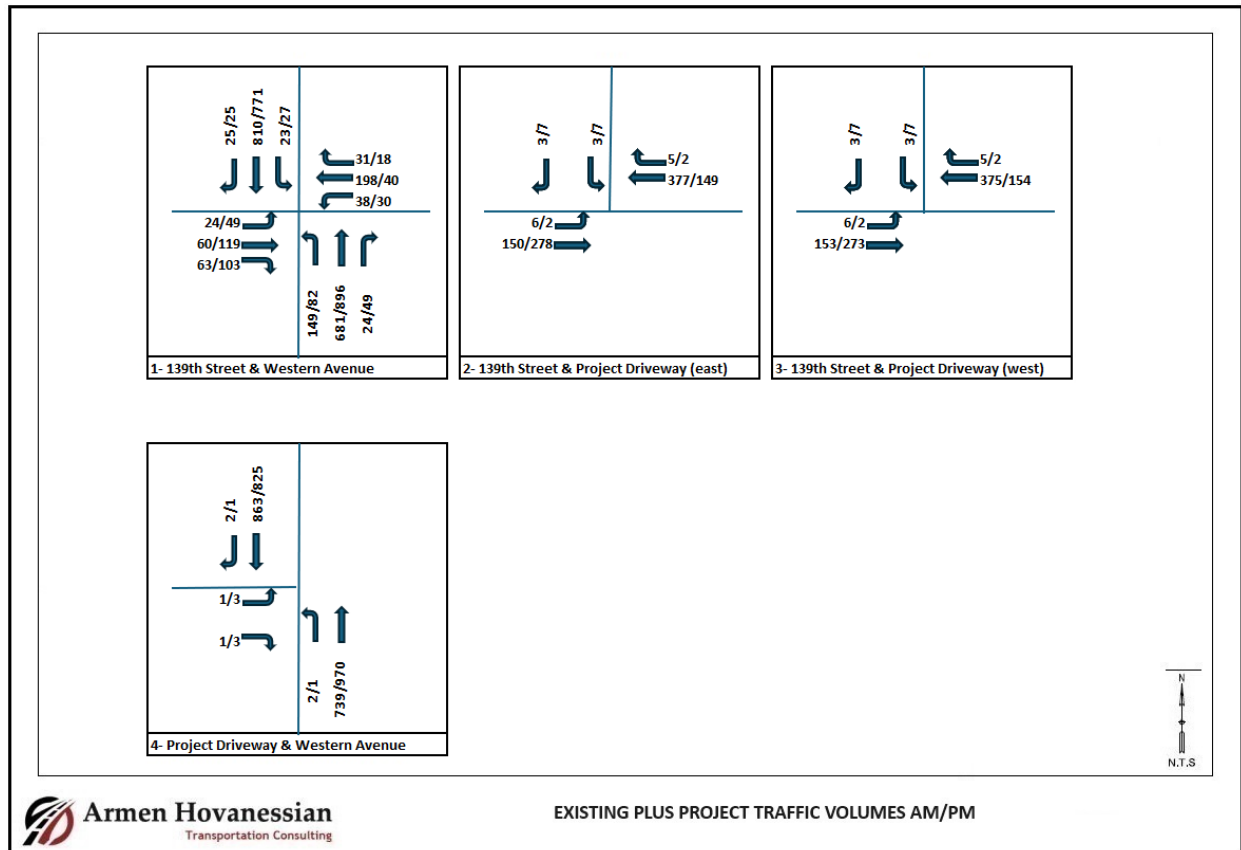


Figure 8 – Existing Plus Project Traffic Volumes (Without Existing Use Credit at Driveways)



Traffic Forecasts

In general, future peak hour traffic projections for the study intersections are estimated to include future growth due to (1) related projects within $\frac{1}{4}$ to $\frac{1}{2}$ mile of the project site and (2) ambient traffic growth. In this analysis the related projects within one (1) mile of the project site were included.

Related Projects

To understand the relative traffic impacts for the projected year of completion, this traffic study analyzed potential traffic trips due to the development of related projects in the area. Eleven such related projects were identified by the City of Gardena. A map of the related projects' location, with respect to the project site is shown in Figure 9. Therefore, the analysis at the study intersections will include the trips generated by the identified projects.

Figure 9 – Related Projects Map

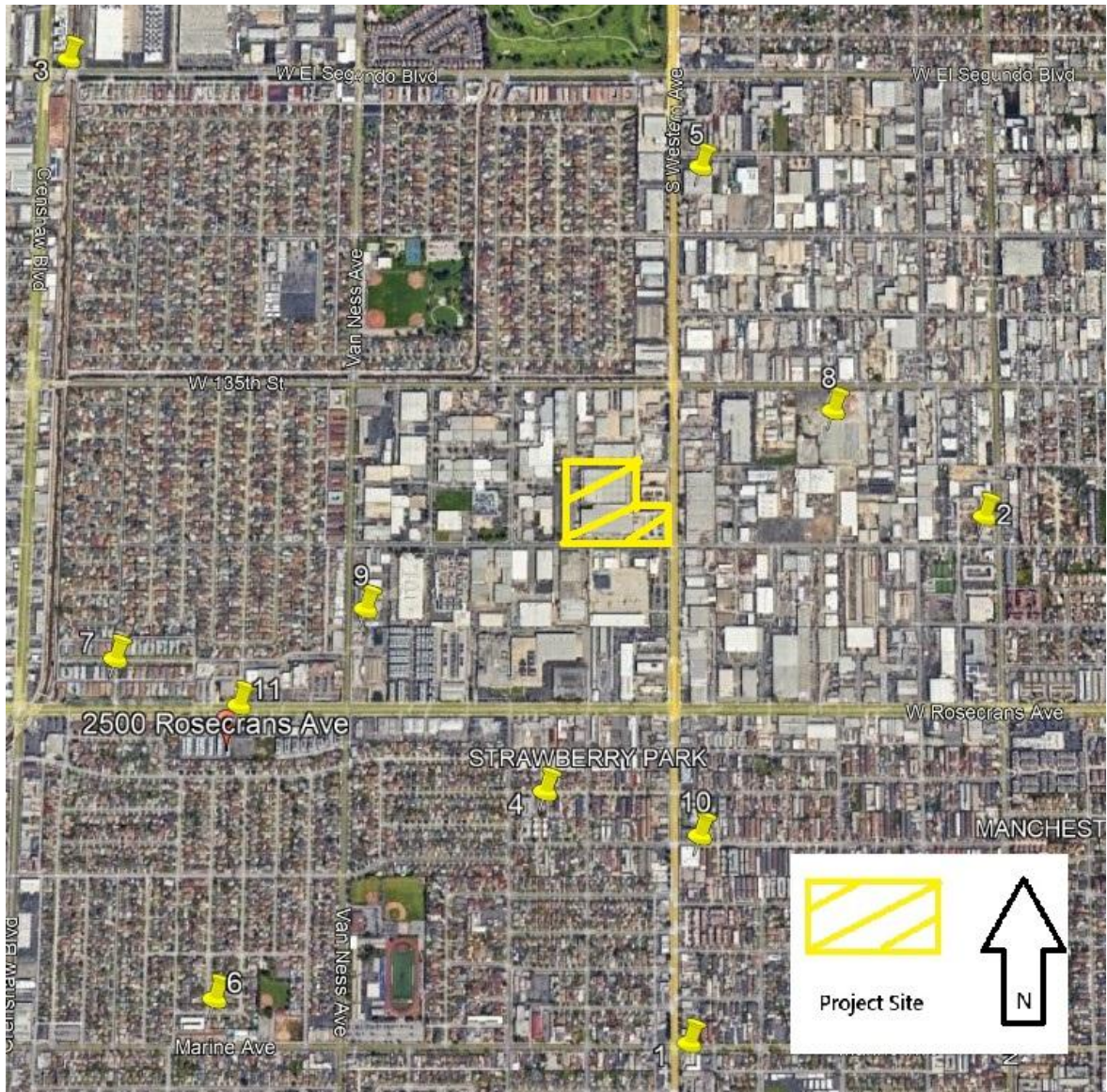


Table 6 provides information regarding the identified related project with the corresponding traffic volumes which will be included at the study intersections:

Table 6 - Related Projects List & Trip Generation

Project Number	Notes	Location	Land Use	Size	Unit	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips			
						Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
1		15106 S Western Ave	3,720-sf commercial building with drive-thru	3.72	SF	50.57	Split 189	52% 98	48% 91	50.94	Split 190	51% 97	49% 93	467.48	1740
2		13919 S Normandie Avenue	20 DU, Single-Room Occupancy	20	DU	0.47	Split 11	24% 3	76% 8	0.57	Split 13	62% 8	38% 5	6.74	135
3		12850 Crenshaw Boulevard(Transit-Oriented Develop. SP Project)	265 DU, Apartments Bldg.	265	DU	0.47	Split 125	24% 30	76% 95	0.57	Split 152	62% 94	38% 58	6.74	1787
4		1938 West 146th Street	6 DU, Townhomes	6	DU	0.55	Split 4	25% 1	75% 3	0.61	Split 5	62% 3	38% 2	7.2	44
5		13126 S Western Ave	121 DU, Single-Room Occupancy, 7 very low income units	121	DU	0.47	Split 58	24% 14	76% 44	0.57	Split 70	62% 43	38% 27	6.74	816
6		2545 Marine Ave	22 DU, Townhomes, including 2 affordable units	22	DU	0.55	Split 14	25% 4	75% 10	0.61	Split 15	62% 9	38% 6	7.2	159
7		2800 Rosecrans Ave	20 DU, Townhomes, 4 Live-work Units	20	DU	0.55	Split 12	25% 3	75% 9	0.61	Split 13	62% 8	38% 5	7.2	144
8		1600 W 135th St	190,860 SQ Warehouse Bldg.	198,860	KSF	0.21	Split 43	66% 28	34% 15	0.23	Split 46	24% 11	76% 35	1.71	341
9	*	14206 Van Ness Ave	Redevelopment of Self storage Facility, to develop a new 177,573 SF Bldg. and 8,000 SF office	177,573	KSF	0.12	Split 22	50% 11	50% 11	0.18	Split 32	50% 16	50% 16	2	356
10		14600 Western Ave	196 DU, Apartment Bldg. with 3,000 sf commercial space	196	DU	0.47	Split 94	24% 23	76% 71	0.57	Split 113	62% 70	38% 43	6.74	1322
11		2500-2508 Rosecrans Ave	53 DU, Townhomes, including 3 Live/Work	53	DU	0.55	Split 30	25% 8	75% 22	0.61	Split 34	62% 21	38% 13	7.2	382
Total New Trips							602	223	379		683	380	303		7226

Source: ITE Trip Generation Manual, 11th Edition
Source: San Diego Association of Governments (SANDAG) Trip Generation Manual

Source: ITE Trip Generation Manual, 11th Edition

* San Diego Association of Governments (SANDAG), Trip Generate Manual

Ambient Traffic Growth

To account for the future ambient traffic growth from intensification of existing developments, and other projects that are located further than a half mile from the project site, the existing traffic volumes were increased by an ambient growth rate of 1% per year to 2030 to be more conservative in calculating future traffic conditions despite the actual anticipated year of completion being 2026. These values were used in addition to the related project trip generation to forecast future traffic volumes without project traffic volumes as shown in Figure 10.

Figure 10 – Future (2030) Traffic Volumes Without Project

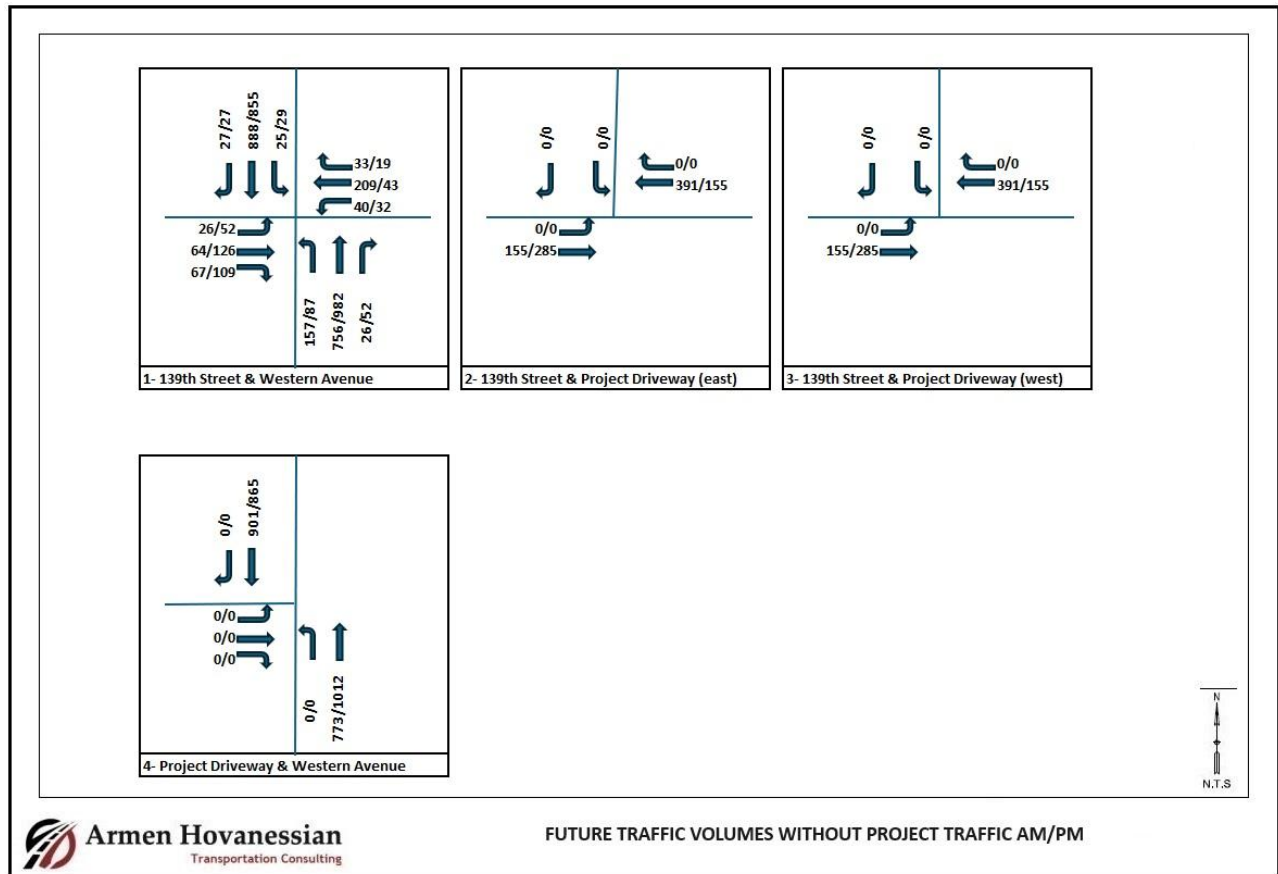
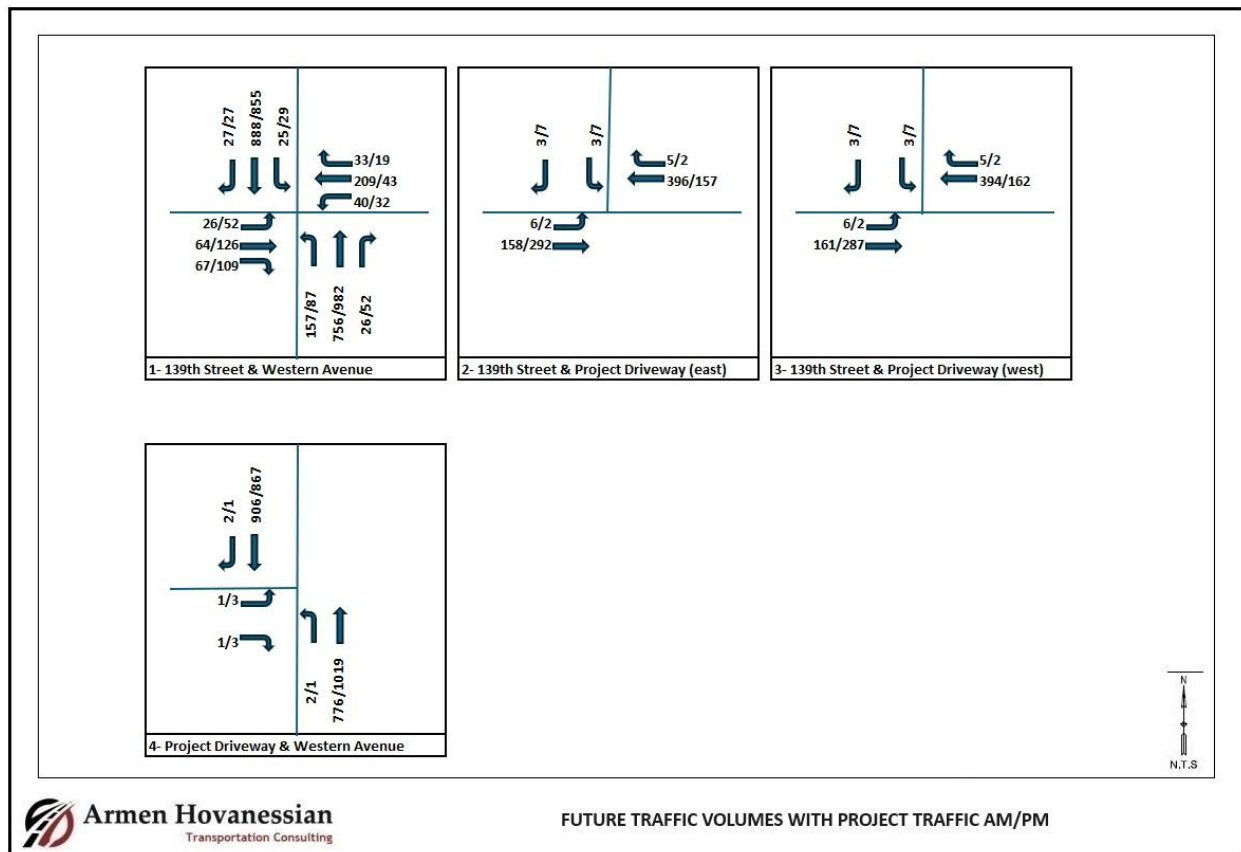


Figure 11 – Future (2030) Traffic Volumes with Project (Without Existing Use Credit at Driveways)



Operational Analysis

Operational analyses of vehicle delays, levels of service, and queueing were conducted at the study intersections for the following conditions:

- 1) Existing Traffic Conditions
- 2) Existing Plus Project Traffic Conditions
- 3) Future Without Project Traffic Conditions
- 4) Future Plus Project Traffic Conditions

Delay and Queueing Methodology

Signalized Intersections

For signalized intersections, the Highway Capacity Manual (HCM) operations methodology for performing signalized intersection capacity analysis is used. This method relies on the determination of a delay or Level of Service (LOS) at each of the study intersections by first determining their corresponding average control delay per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. It is a measure of driver discomfort, frustration, fuel consumption and lost travel time.

LOS varies from at best LOS A (free flow/excellent) to at worst LOS of F (stop-and-go/failure). Shown below, in Table 7, are the LOS categories and their corresponding HCM average control delay ranges for signalized intersections.

Table 7 - LOS at Signalized Intersection

Level of Service	Average Control Delay per Vehicle (Sec/Veh)	Definition
A	0 to 10.00	LOS A describes operations with a control delay of 10 s/veh or less. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable, or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	10.01 to 20.00	LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable, or the cycle length is short. More vehicles stop than with LOS A.
C	20.01 to 35.00	LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable, or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	35.01 to 55.00	LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective, or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	55.01 to 80.00	LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	Over 80.00	LOS F describes operations with control delay exceeding 80 s/veh. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Unsignalized Intersections

This analysis utilizes the Highway Capacity Manual (HCM) methodologies for performing stop-controlled intersection capacity analyses. For stop-controlled intersection analysis, LOS is calculated for each movement of the intersection and the most critical LOS (i.e., the movement with highest delay) is the one that represents the effectiveness of that intersection. The LOS thresholds for stop-controlled intersections differ from those for signalized intersections to reflect different driver expectations. Table 8 below shows the LOS categories and their most common corresponding HCM average control delay ranges for stop-controlled intersections.

Table 8 - LOS at Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Sec/Veh)
A	0 to 10.00
B	Over 10 to 15
C	Over 15 to 25
D	Over 25 to 35
E	Over 35 to 50
F	Over 50

Level of Service and Queueing Analysis

The results of the operational analyses for each study intersection are provided in tables Appendix 3 to summarize LOS, Delays and Queue Lengths for each traffic movement for the following traffic conditions:

- Existing
- Existing plus project
- Future without project
- Future with project

Please refer to Appendix 4 for the (HCM) analysis worksheets for the analyzed intersections.

Table 9 below provides a comparison of the intersectional LOS and Delay analysis for the aforementioned traffic conditions.

Table 9 - Comparison of Intersectional LOS & Delay for Various Conditions

Summary of Delay and Level of Service										
#	Intersection	Peak Hour	Existing		Existing + Project		Future		Future + Project	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	139th Street & Western Avenue	AM	26.2	C	26.2	C	26.8	C	26.8	C
		PM	25.3	C	25.4	C	26	C	26.2	C
2	139th Street & Project Driveway (east)	AM	0	A	0.2	A	0	A	0.2	A
		PM	0	A	0.5	A	0	A	0.5	A
3	139th Street & Project Driveway (west)	AM	0	A	0.2	A	0	A	0.2	A
		PM	0	A	0.5	A	0	A	0.5	A
4	Project Driveway & Western Avenue	AM	0	A	0	A	0	A	0	A
		PM	0	A	0.1	A	0	A	0.1	A

As shown in Table 8, the project does not have major adverse effects on access, safety, and circulation in the roadway system at the analyzed intersections.

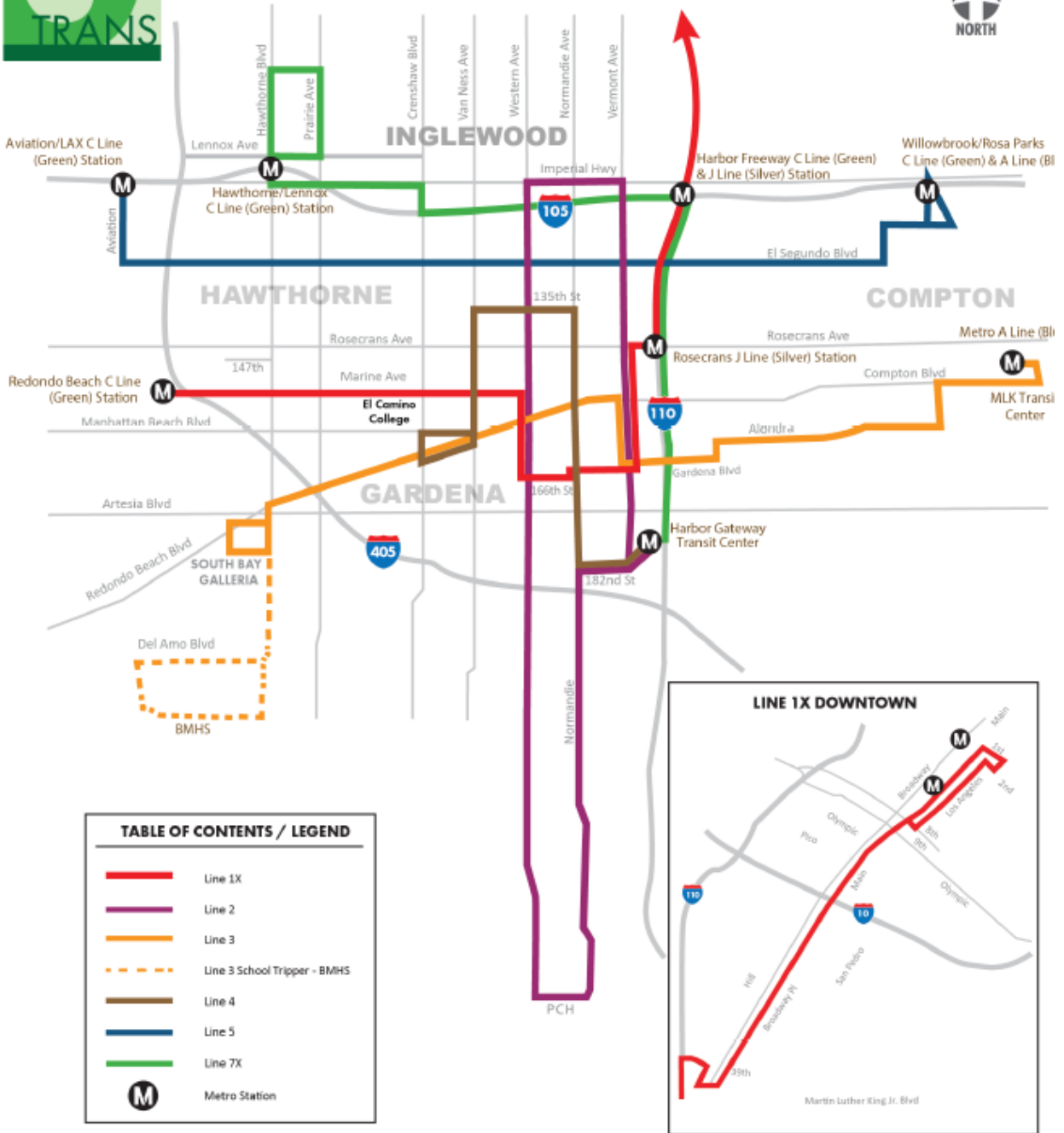
Recommended Actions

It is recommended to install a stop sign for egress traffic at each proposed project driveway.

Appendix 1 – Transit Related Information



SYSTEM MAP



Appendix 2 - Manual Traffic Counts

CITY TRAFFIC COUNTERS
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File Name : WesternAve_139thSt
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Groups Printed- Vehicles

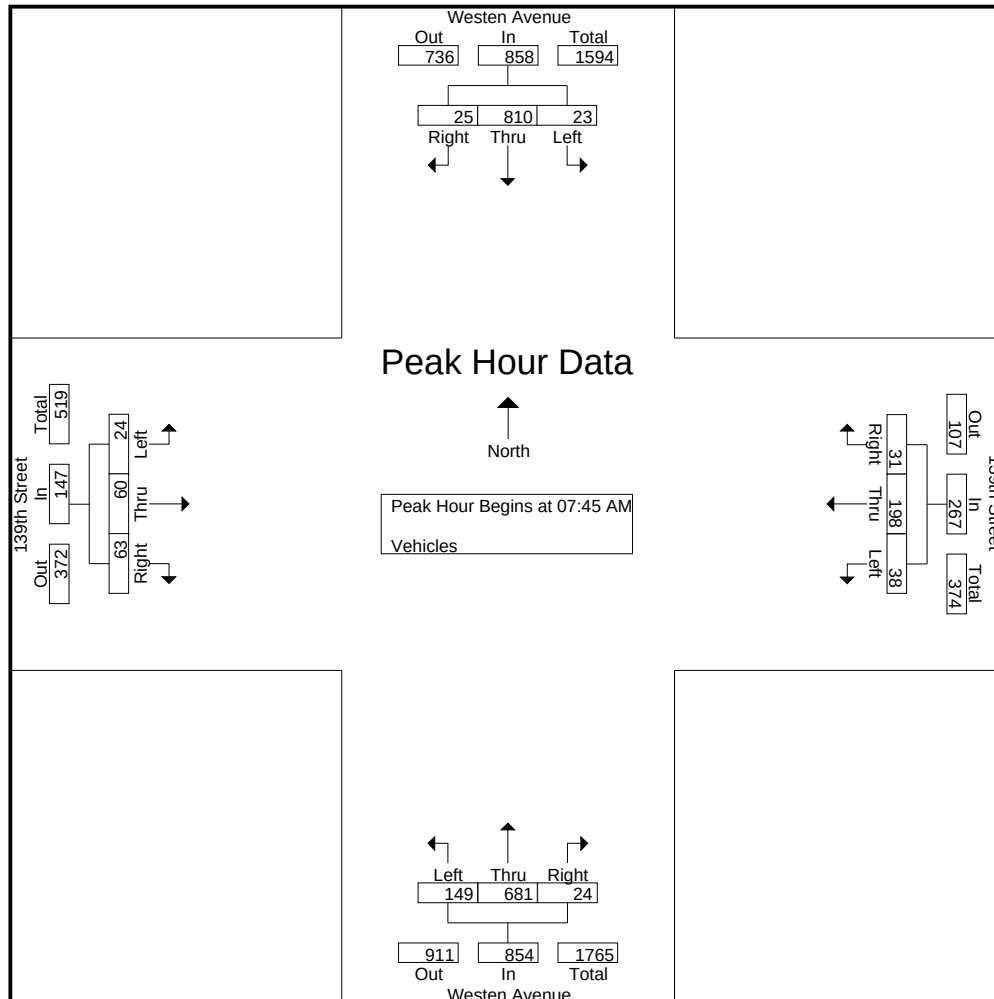
	Westen Avenue Southbound			139th Street Westbound			Westen Avenue Northbound			139th Street Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	10	118	8	11	17	1	28	114	7	4	4	3	325
07:15 AM	4	171	6	12	25	8	40	165	6	6	10	12	465
07:30 AM	1	184	6	8	39	3	23	136	7	5	10	12	434
07:45 AM	6	231	4	14	78	11	50	155	6	5	12	24	596
Total	21	704	24	45	159	23	141	570	26	20	36	51	1820
08:00 AM	5	209	8	12	67	10	35	181	7	8	17	12	571
08:15 AM	7	170	7	3	33	5	38	187	5	5	19	14	493
08:30 AM	5	200	6	9	20	5	26	158	6	6	12	13	466
08:45 AM	9	152	7	3	19	5	24	137	4	5	8	18	391
Total	26	731	28	27	139	25	123	663	22	24	56	57	1921
09:00 AM	6	116	9	5	17	6	20	157	5	3	12	8	364
09:15 AM	4	132	6	11	14	6	19	126	6	1	8	19	352
09:30 AM	3	123	5	4	12	7	26	140	7	2	3	14	346
09:45 AM	3	130	4	3	15	6	25	130	6	3	14	16	355
Total	16	501	24	23	58	25	90	553	24	9	37	57	1417
03:00 PM	9	206	2	7	18	6	21	197	7	4	19	27	523
03:15 PM	5	198	5	5	8	7	26	213	8	9	12	18	514
03:30 PM	8	174	5	7	7	2	21	222	16	18	37	33	550
03:45 PM	8	209	5	9	8	6	15	241	12	7	37	27	584
Total	30	787	17	28	41	21	83	873	43	38	105	105	2171
04:00 PM	6	190	10	9	17	3	20	220	13	15	33	25	561
04:15 PM	11	169	3	9	10	6	16	184	11	8	34	19	480
04:30 PM	8	196	3	6	17	9	17	229	8	12	37	30	572
04:45 PM	3	191	5	3	13	4	18	195	6	9	23	20	490
Total	28	746	21	27	57	22	71	828	38	44	127	94	2103
05:00 PM	9	205	6	12	9	11	15	227	10	10	27	26	567
05:15 PM	2	176	3	4	15	3	15	219	14	9	30	14	504
05:30 PM	7	240	6	7	14	2	18	239	9	4	24	19	589
05:45 PM	10	215	2	6	5	4	19	204	6	3	17	14	505
Total	28	836	17	29	43	20	67	889	39	26	98	73	2165
Grand Total	149	4305	131	179	497	136	575	4376	192	161	459	437	11597
Apprch %	3.2	93.9	2.9	22	61.2	16.7	11.2	85.1	3.7	15.2	43.4	41.3	
Total %	1.3	37.1	1.1	1.5	4.3	1.2	5	37.7	1.7	1.4	4	3.8	

CITY TRAFFIC COUNTERS

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	Westen Avenue Southbound				139th Street Westbound				Westen Avenue Northbound				139th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	6	231	4	241	14	78	11	103	50	155	6	211	5	12	24	41	596
08:00 AM	5	209	8	222	12	67	10	89	35	181	7	223	8	17	12	37	571
08:15 AM	7	170	7	184	3	33	5	41	38	187	5	230	5	19	14	38	493
08:30 AM	5	200	6	211	9	20	5	34	26	158	6	190	6	12	13	31	466
Total Volume	23	810	25	858	38	198	31	267	149	681	24	854	24	60	63	147	2126
% App. Total	2.7	94.4	2.9		14.2	74.2	11.6		17.4	79.7	2.8		16.3	40.8	42.9		
PHF	.821	.877	.781	.890	.679	.635	.705	.648	.745	.910	.857	.928	.750	.789	.656	.896	.892

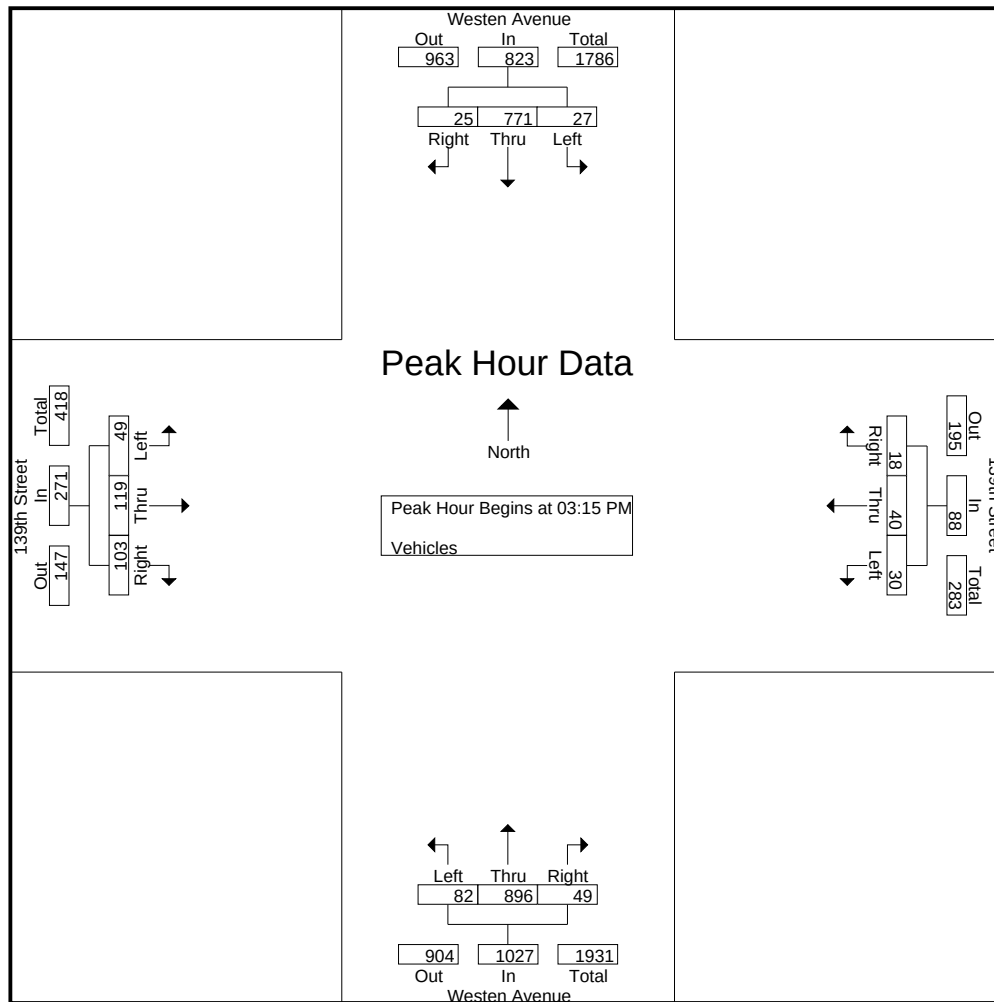


CITY TRAFFIC COUNTERS

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File Name : WesternAve_139thSt
 Site Code : 00000000
 Start Date : 2/26/2025
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	Westen Avenue Southbound				139th Street Westbound				Westen Avenue Northbound				139th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	5	198	5	208	5	8	7	20	26	213	8	247	9	12	18	39	514
03:30 PM	8	174	5	187	7	7	2	16	21	222	16	259	18	37	33	88	550
03:45 PM	8	209	5	222	9	8	6	23	15	241	12	268	7	37	27	71	584
04:00 PM	6	190	10	206	9	17	3	29	20	220	13	253	15	33	25	73	561
Total Volume	27	771	25	823	30	40	18	88	82	896	49	1027	49	119	103	271	2209
% App. Total	3.3	93.7	3		34.1	45.5	20.5		8	87.2	4.8		18.1	43.9	38		
PHF	.844	.922	.625	.927	.833	.588	.643	.759	.788	.929	.766	.958	.681	.804	.780	.770	.946



Appendix 3 - Tables for LOS, Delays and Queue Lengths

AM		139th Street			139th Street			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	60.6	60.1	60.1	58.2	71.5	71.5	11.6	16.6	16.6	8.2	17.6	17.6
	LOS	E	E	E	E	E	E	B	B	B	A	B	B
	95th% Queue (ft)	59	171	171	78	359	359	72	253	253	16	312	312
Existing Plus Project	Delay (Sec)	60.6	60.1	60.1	58.2	71.5	71.5	11.6	16.6	16.6	8.2	17.6	17.6
	LOS	E	E	E	E	E	E	B	B	B	A	B	B
	95th% Queue (ft)	59	171	171	78	359	359	72	253	253	16	312	312
Comparison of Existing to Existing Plus Project	Delay (Sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0

AM		139th Street			139th Street			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	62.6	60.8	60.8	58.7	73.6	73.6	13.0	17.2	17.2	8.5	18.3	18.3
	LOS	E	E	E	E	E	E	B	B	B	A	B	B
	95th% Queue (ft)	62	186	186	82	381	381	75	287	287	16	351	351
Future Plus Project	Delay (Sec)	62.6	60.8	60.8	58.7	73.6	73.6	13.1	17.2	17.2	8.5	18.3	18.3
	LOS	E	E	E	E	E	E	B	B	B	A	B	B
	95th% Queue (ft)	62	186	186	82	381	381	76	287	287	16	352	352
Comparison of Future to Future Plus Project	Delay (Sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0

PM		139th Street			139th Street			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	57.9	70.4	70.4	61.9	56.5	56.5	9.6	18.6	18.6	9.4	17.3	17.3
	LOS	E	E	E	E	E	E	A	B	B	A	B	B
	95th% Queue (ft)	94	330	330	69	94	94	42	366	366	18	294	294
Existing Plus Project	Delay (Sec)	58.0	70.7	70.7	62.1	56.5	56.5	9.6	18.6	18.6	9.4	17.3	17.3
	LOS	E	E	E	E	E	E	A	B	B	A	B	B
	95th% Queue (ft)	97	333	333	69	94	94	42	366	366	18	294	294
Comparison of Existing to Existing Plus Project	Delay (Sec)	0.1	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (ft)	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PM		139th Street			139th Street			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	58.2	72.5	72.5	64.1	56.8	56.8	10.3	19.4	19.4	10.2	18.0	18.0
	LOS	E	E	E	E	E	E	B	B	B	B	B	B
	95th% Queue (ft)	100	351	351	74	101	101	44	414	414	19	334	334
Future Plus Project	Delay (Sec)	58.4	73.0	73.0	64.6	56.8	56.8	10.3	19.4	19.4	10.2	18.0	18.0
	LOS	E	E	E	E	E	E	B	B	B	B	B	B
	95th% Queue (ft)	103	356	356	74	101	101	44	414	414	19	335	335
Comparison of Future to Future Plus Project	Delay (Sec)	0.2	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (ft)	3.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0

AM		139th Street			139th Street			Project Driveway (east)			Project Driveway (east)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Existing Plus Project	Delay (Sec)	8.2	0.0			0.0	0.0				11.1		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

AM		139th Street			139th Street			Project Driveway (east)			Project Driveway (east)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Future Plus Project	Delay (Sec)	8.2	0.0			0.0	0.0				11.3		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Comparison of Future to Future Plus Project	Delay (Sec)	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PM		139th Street			139th Street			Project Driveway (east)			Project Driveway (east)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Existing Plus Project	Delay (Sec)	7.5	0.0			0.0	0.0				9.8		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.1		0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

PM		139th Street			139th Street			Project Driveway (east)			Project Driveway (east)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Future Plus Project	Delay (Sec)	7.6	0.0			0.0	0.0				10.2		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.1		0.0
Comparison of Future to Future Plus Project	Delay (Sec)	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

AM		139th Street			139th Street			Project Driveway (west)			Project Driveway (west)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Existing Plus Project	Delay (Sec)	8.2	0.0			0.0	0.0				11.1		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

AM		139th Street			139th Street			Project Driveway (west)			Project Driveway (west)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Future Plus Project	Delay (Sec)	8.2	0.0			0.0	0.0				11.3		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Comparison of Future to Future Plus Project	Delay (Sec)	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PM		139th Street			139th Street			Project Driveway (west)			Project Driveway (west)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Existing Plus Project	Delay (Sec)	7.5	0.0			0.0	0.0				9.8		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.1		0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

PM		139th Street			139th Street			Project Driveway (west)			Project Driveway (west)		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	0.0	0.0			0.0	0.0				0.0		0.0
	LOS	A	A			A	A				A		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.0		0.0
Future Plus Project	Delay (Sec)	7.6	0.0			0.0	0.0				10.2		0.0
	LOS	A	A			A	A				B		A
	95th% Queue (veh)	0.0	0.0			0.0	0.0				0.1		0.0
Comparison of Future to Future Plus Project	Delay (Sec)	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0
	LOS	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

AM		Project Driveway			Project Driveway			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0		0.0				0.0	0.0			0.0	0.0
	LOS	A		A				A	A			A	A
	95th% Queue (veh)	0.0		0.0				0.0	0.0			0.0	0.0
Existing Plus Project	Delay (Sec)	21.2		0.0				10.0	0.0			0.0	0.0
	LOS	C		A				B	A			A	A
	95th% Queue (veh)	0.0		0.0				0.0	0.0			0.0	0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	21.2	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0
	LOS	C	No Change	No Change	No Change	No Change	No Change	B	No Change	No Change	No Change	No Change	No Change
	95th% Queue (veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PM		Project Driveway			Project Driveway			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	Delay (Sec)	0.0		0.0				0.0	0.0			0.0	0.0
	LOS	A		A				A	A			A	A
	95th% Queue (veh)	0.0		0.0				0.0	0.0			0.0	0.0
Existing Plus Project	Delay (Sec)	23.1		0.0				9.8	0.0			0.0	0.0
	LOS	C		A				A	A			A	A
	95th% Queue (veh)	0.1		0.0				0.0	0.0			0.0	0.0
Comparison of Existing to Existing Plus Project	Delay (Sec)	23.1	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0
	LOS	C	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (veh)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

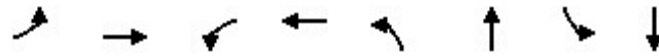
PM		Project Driveway			Project Driveway			Western Avenue			Western Avenue		
		Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Future	Delay (Sec)	0.0		0.0				0.0	0.0			0.0	0.0
	LOS	A		A				A	A			A	A
	95th% Queue (veh)	0.0		0.0				0.0	0.0			0.0	0.0
Future Plus Project	Delay (Sec)	24.9		0.0				10.0	0.0			0.0	0.0
	LOS	C		A				A	A			A	A
	95th% Queue (veh)	0.1		0.0				0.0	0.0			0.0	0.0
Comparison of Future to Future Plus Project	Delay (Sec)	24.9	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0
	LOS	C	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	95th% Queue (veh)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix 4 - (HCM) analysis worksheets

Queues

1: Western Ave. & 139th ST.

03/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	133	41	249	162	766	25	907
v/c Ratio	0.22	0.36	0.19	0.67	0.35	0.35	0.05	0.42
Control Delay	62.1	48.8	59.1	71.2	8.7	16.6	6.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	48.8	59.1	71.2	8.7	16.6	6.2	17.7
Queue Length 50th (ft)	24	101	38	255	48	212	7	264
Queue Length 95th (ft)	59	171	78	359	72	253	16	312
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	120	371	214	373	461	2166	525	2167
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.36	0.19	0.67	0.35	0.35	0.05	0.42
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

03/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	60	63	38	198	31	149	681	24	23	810	25
Future Volume (vph)	24	60	63	38	198	31	149	681	24	23	810	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1825		1770	3521		1770	3523	
Flt Permitted	0.32	1.00		0.57	1.00		0.26	1.00		0.31	1.00	
Satd. Flow (perm)	596	1720		1059	1825		484	3521		587	3523	
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)	26	65	68	41	215	34	162	740	26	25	880	27
RTOR Reduction (vph)	0	22	0	0	3	0	0	2	0	0	1	0
Lane Group Flow (vph)	26	111	0	41	246	0	162	764	0	25	906	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	120	349		214	370		458	2164		522	2165	
v/s Ratio Prot		0.06			c0.13		c0.03	0.22		0.00	c0.26	
v/s Ratio Perm	0.04			0.04			0.22			0.03		
v/c Ratio	0.22	0.32		0.19	0.66		0.35	0.35		0.05	0.42	
Uniform Delay, d1	56.5	57.7		56.2	62.4		9.4	16.1		8.0	17.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	2.4		2.0	9.1		2.1	0.5		0.2	0.6	
Delay (s)	60.6	60.1		58.2	71.5		11.6	16.6		8.2	17.6	
Level of Service	E	E		E	E		B	B		A	B	
Approach Delay (s)		60.2			69.6			15.7			17.3	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			26.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)			15.5		
Intersection Capacity Utilization			67.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	147	372	0	0	0
Future Vol, veh/h	0	147	372	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	-	-	700	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	160	404	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	404	0	-	0	564	404
Stage 1	-	-	-	-	404	-
Stage 2	-	-	-	-	160	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1155	-	-	-	487	647
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1155	-	-	-	487	647
Mov Cap-2 Maneuver	-	-	-	-	559	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	869	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1155	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	147	372	0	0	0
Future Vol, veh/h	0	147	372	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	400	-	-	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	160	404	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	404	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1155	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1155	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1155	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

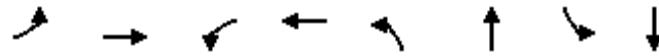
03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	0	0	0	0	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	1021	1083	1620	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1021	1083	1620	-	-	-
Mov Cap-2 Maneuver	1021	-	-	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1620	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Queues

1: Western Ave. & 139th ST.

07/01/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	133	41	249	164	767	25	909
v/c Ratio	0.22	0.36	0.19	0.67	0.36	0.35	0.05	0.42
Control Delay	62.1	48.8	59.1	71.2	8.7	16.6	6.2	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	48.8	59.1	71.2	8.7	16.6	6.2	17.6
Queue Length 50th (ft)	24	101	38	255	48	212	7	265
Queue Length 95th (ft)	59	171	78	359	73	253	16	312
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	120	371	214	373	460	2166	524	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.36	0.19	0.67	0.36	0.35	0.05	0.42
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

07/01/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	60	63	38	198	31	151	682	24	23	810	27
Future Volume (vph)	24	60	63	38	198	31	151	682	24	23	810	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1825		1770	3521		1770	3522	
Flt Permitted	0.32	1.00		0.57	1.00		0.26	1.00		0.31	1.00	
Satd. Flow (perm)	596	1720		1059	1825		482	3521		586	3522	
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)	26	65	68	41	215	34	164	741	26	25	880	29
RTOR Reduction (vph)	0	22	0	0	3	0	0	2	0	0	2	0
Lane Group Flow (vph)	26	111	0	41	246	0	164	765	0	25	907	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	120	349		214	370		457	2164		521	2164	
v/s Ratio Prot		0.06			c0.13		c0.03	0.22		0.00	c0.26	
v/s Ratio Perm	0.04			0.04			0.22			0.03		
v/c Ratio	0.22	0.32		0.19	0.66		0.36	0.35		0.05	0.42	
Uniform Delay, d1	56.5	57.7		56.2	62.4		9.5	16.1		8.0	17.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	2.4		2.0	9.1		2.2	0.5		0.2	0.6	
Delay (s)	60.6	60.1		58.2	71.5		11.6	16.6		8.2	17.6	
Level of Service	E	E		E	E		B	B		A	B	
Approach Delay (s)		60.2			69.6			15.7			17.3	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			26.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			68.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	150	377	5	3	4
Future Vol, veh/h	6	150	377	5	3	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	-	-	700	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	7	163	410	5	3	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	415	0	0 587 410
Stage 1	-	-	- 410 -
Stage 2	-	-	- 177 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1144	-	- 472 642
Stage 1	-	-	- 670 -
Stage 2	-	-	- 854 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1144	-	- 469 642
Mov Cap-2 Maneuver	-	-	- 547 -
Stage 1	-	-	- 666 -
Stage 2	-	-	- 854 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	598
HCM Lane V/C Ratio	0.006	-	-	-	0.013
HCM Control Delay (s)	8.2	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	153	375	5	3	4
Future Vol, veh/h	6	153	375	5	3	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	400	-	-	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	7	166	408	5	3	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	413	0	0 588 408
Stage 1	-	-	- 408 -
Stage 2	-	-	- 180 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1146	-	- 471 643
Stage 1	-	-	- 671 -
Stage 2	-	-	- 851 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1146	-	- 468 643
Mov Cap-2 Maneuver	-	-	- 547 -
Stage 1	-	-	- 667 -
Stage 2	-	-	- 851 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	598
HCM Lane V/C Ratio	0.006	-	-	-	0.013
HCM Control Delay (s)	8.2	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

07/01/2025

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	2	739	863	7
Future Vol, veh/h	1	1	2	739	863	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	1	1	2	803	938	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1348	473	946
Stage 1	942	-	-
Stage 2	406	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	142	538	721
Stage 1	340	-	-
Stage 2	641	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	142	538	721
Mov Cap-2 Maneuver	142	-	-
Stage 1	339	-	-
Stage 2	641	-	-

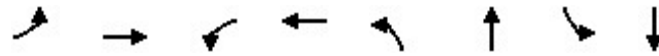
Approach	EB	NB	SB
HCM Control Delay, s	21.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	721	-	225	-	-
HCM Lane V/C Ratio	0.003	-	0.01	-	-
HCM Control Delay (s)	10	-	21.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues

1: Western Ave. & 139th ST.

03/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	143	43	263	171	850	27	994
v/c Ratio	0.26	0.39	0.21	0.71	0.40	0.39	0.06	0.46
Control Delay	64.3	50.2	59.6	73.4	9.4	17.2	6.2	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	50.2	59.6	73.4	9.4	17.2	6.2	18.4
Queue Length 50th (ft)	27	112	40	272	51	242	7	300
Queue Length 95th (ft)	62	186	82	381	75	287	16	351
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	109	371	206	373	426	2166	485	2167
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.39	0.21	0.71	0.40	0.39	0.06	0.46
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

03/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	67	40	209	33	157	756	26	25	888	27
Future Volume (vph)	26	64	67	40	209	33	157	756	26	25	888	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1824		1770	3522		1770	3524	
Flt Permitted	0.29	1.00		0.55	1.00		0.23	1.00		0.28	1.00	
Satd. Flow (perm)	542	1720		1018	1824		427	3522		524	3524	
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)	28	70	73	43	227	36	171	822	28	27	965	29
RTOR Reduction (vph)	0	22	0	0	3	0	0	2	0	0	1	0
Lane Group Flow (vph)	28	121	0	43	260	0	171	848	0	27	993	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	109	349		206	370		423	2164		483	2166	
v/s Ratio Prot		0.07			c0.14		c0.04	0.24		0.01	c0.28	
v/s Ratio Perm	0.05			0.04			0.25			0.03		
v/c Ratio	0.26	0.35		0.21	0.70		0.40	0.39		0.06	0.46	
Uniform Delay, d1	57.0	58.1		56.4	63.0		10.1	16.6		8.3	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	2.7		2.3	10.6		2.9	0.5		0.2	0.7	
Delay (s)	62.6	60.8		58.7	73.6		13.0	17.2		8.5	18.3	
Level of Service	E	E		E	E		B	B		A	B	
Approach Delay (s)		61.1			71.5			16.5			18.0	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay	26.8			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	170.0			Sum of lost time (s)			15.5					
Intersection Capacity Utilization	71.3%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	155	391	0	0	0
Future Vol, veh/h	0	155	391	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	-	-	700	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	168	425	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	425	0	-	0	593	425
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1134	-	-	-	468	629
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1134	-	-	-	468	629
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	862	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1134	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	155	391	0	0	0
Future Vol, veh/h	0	155	391	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	400	-	-	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	168	425	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	425	0	-	0	593	425
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1134	-	-	-	468	629
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1134	-	-	-	468	629
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	862	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1134	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	773	901	0
Future Vol, veh/h	0	0	0	773	901	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	0	0	840	979	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1399	490	979
Stage 1	979	-	-
Stage 2	420	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	132	524	701
Stage 1	325	-	-
Stage 2	631	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	132	524	701
Mov Cap-2 Maneuver	132	-	-
Stage 1	325	-	-
Stage 2	631	-	-

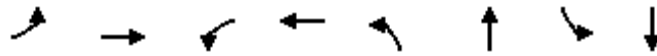
Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	701	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues

1: Western Ave. & 139th ST.

07/01/2025

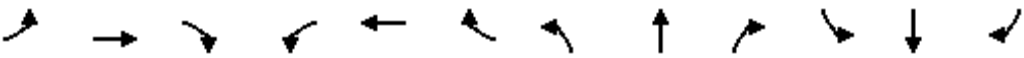


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	143	43	263	173	851	27	997
v/c Ratio	0.26	0.39	0.21	0.71	0.41	0.39	0.06	0.46
Control Delay	64.3	50.2	59.6	73.4	9.5	17.2	6.2	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	50.2	59.6	73.4	9.5	17.2	6.2	18.4
Queue Length 50th (ft)	27	112	40	272	51	242	7	301
Queue Length 95th (ft)	62	186	82	381	76	287	16	352
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	109	371	206	373	425	2166	485	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.39	0.21	0.71	0.41	0.39	0.06	0.46
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

07/01/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	67	40	209	33	159	757	26	25	888	29
Future Volume (vph)	26	64	67	40	209	33	159	757	26	25	888	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1824		1770	3522		1770	3522	
Flt Permitted	0.29	1.00		0.55	1.00		0.23	1.00		0.28	1.00	
Satd. Flow (perm)	542	1720		1018	1824		426	3522		523	3522	
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)	28	70	73	43	227	36	173	823	28	27	965	32
RTOR Reduction (vph)	0	22	0	0	3	0	0	2	0	0	2	0
Lane Group Flow (vph)	28	121	0	43	260	0	173	849	0	27	995	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	109	349		206	370		423	2164		482	2164	
v/s Ratio Prot		0.07			c0.14		c0.04	0.24		0.01	c0.28	
v/s Ratio Perm	0.05			0.04			0.25			0.03		
v/c Ratio	0.26	0.35		0.21	0.70		0.41	0.39		0.06	0.46	
Uniform Delay, d1	57.0	58.1		56.4	63.0		10.1	16.6		8.3	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	2.7		2.3	10.6		2.9	0.5		0.2	0.7	
Delay (s)	62.6	60.8		58.7	73.6		13.1	17.2		8.5	18.3	
Level of Service	E	E		E	E		B	B		A	B	
Approach Delay (s)		61.1			71.5			16.5			18.0	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay		26.8					HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		170.0					Sum of lost time (s)		15.5			
Intersection Capacity Utilization		71.4%					ICU Level of Service		C			
Analysis Period (min)		15										
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	158	396	5	3	3
Future Vol, veh/h	6	158	396	5	3	3
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	-	-	700	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	7	172	430	5	3	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	435	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1125	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1125	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1125	-	-	-	575
HCM Lane V/C Ratio	0.006	-	-	-	0.011
HCM Control Delay (s)	8.2	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	161	394	5	3	3
Future Vol, veh/h	6	161	394	5	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	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	7	175	428	5	3	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	433	0	0 617 428
Stage 1	-	-	- 428 -
Stage 2	-	-	- 189 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1127	-	- 453 627
Stage 1	-	-	- 657 -
Stage 2	-	-	- 843 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1127	-	- 450 627
Mov Cap-2 Maneuver	-	-	- 533 -
Stage 1	-	-	- 653 -
Stage 2	-	-	- 843 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1127	-	-	-	576
HCM Lane V/C Ratio	0.006	-	-	-	0.011
HCM Control Delay (s)	8.2	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

07/01/2025

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	2	776	906	2
Future Vol, veh/h	1	1	2	776	906	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	1	1	2	843	985	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1412	494	987
Stage 1	986	-	-
Stage 2	426	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	129	521	696
Stage 1	322	-	-
Stage 2	627	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	129	521	696
Mov Cap-2 Maneuver	129	-	-
Stage 1	321	-	-
Stage 2	627	-	-

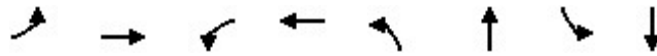
Approach	EB	NB	SB
HCM Control Delay, s	22.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	696	-	207	-	-
HCM Lane V/C Ratio	0.003	-	0.011	-	-
HCM Control Delay (s)	10.2	-	22.6	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues

1: Western Ave. & 139th ST.

03/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	241	33	63	89	1027	29	865
v/c Ratio	0.20	0.65	0.26	0.17	0.19	0.48	0.07	0.40
Control Delay	58.6	65.5	63.5	46.6	7.1	18.6	6.4	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	65.5	63.5	46.6	7.1	18.6	6.4	17.3
Queue Length 50th (ft)	50	227	31	47	25	314	8	248
Queue Length 95th (ft)	94	330	69	94	42	366	18	294
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	270	369	127	369	479	2160	414	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.65	0.26	0.17	0.19	0.48	0.07	0.40
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

03/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	119	103	30	40	18	82	896	49	27	771	25
Future Volume (vph)	49	119	103	30	40	18	82	896	49	27	771	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1733		1770	1774		1770	3512		1770	3523	
Flt Permitted	0.72	1.00		0.34	1.00		0.28	1.00		0.22	1.00	
Satd. Flow (perm)	1334	1733		627	1774		513	3512		407	3523	
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)	53	129	112	33	43	20	89	974	53	29	838	27
RTOR Reduction (vph)	0	18	0	0	10	0	0	2	0	0	1	0
Lane Group Flow (vph)	53	223	0	33	53	0	89	1025	0	29	864	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	270	351		127	360		476	2158		411	2165	
v/s Ratio Prot		c0.13			0.03		c0.02	c0.29		0.01	0.25	
v/s Ratio Perm	0.04			0.05			0.11			0.04		
v/c Ratio	0.20	0.63		0.26	0.15		0.19	0.47		0.07	0.40	
Uniform Delay, d1	56.2	62.0		57.0	55.7		8.7	17.8		9.1	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	8.5		4.9	0.9		0.9	0.8		0.3	0.6	
Delay (s)	57.9	70.4		61.9	56.5		9.6	18.6		9.4	17.3	
Level of Service	E	E		E	E		A	B		A	B	
Approach Delay (s)		68.2			58.4			17.9			17.0	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay		25.3					HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		170.0					Sum of lost time (s)		15.5			
Intersection Capacity Utilization		66.4%					ICU Level of Service		C			
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th TWSC
2: 139th St. & Proj. Dwy East

03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	271	147	0	0	0
Future Vol, veh/h	0	271	147	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	-	-	700	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	295	160	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	160	0	-	0	455	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1419	-	-	-	563	885
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1419	-	-	-	563	885
Mov Cap-2 Maneuver	-	-	-	-	622	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	755	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1419	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	271	147	0	0	0
Future Vol, veh/h	0	271	147	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	400	-	-	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	295	160	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	160	0	0 455 160
Stage 1	-	-	- 160 -
Stage 2	-	-	- 295 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1419	-	- 563 885
Stage 1	-	-	- 869 -
Stage 2	-	-	- 755 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1419	-	- 563 885
Mov Cap-2 Maneuver	-	-	- 622 -
Stage 1	-	-	- 869 -
Stage 2	-	-	- 755 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1419	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	963	823	0
Future Vol, veh/h	0	0	0	963	823	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	0	0	1047	895	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1419	448	895	0	-	0
Stage 1	895	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	128	558	754	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	128	558	754	-	-	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	559	-	-	-	-	-

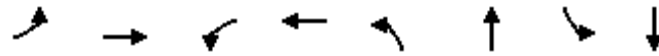
Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	754	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues

1: Western Ave. & 139th ST.

07/01/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	243	33	63	89	1027	29	866
v/c Ratio	0.20	0.66	0.26	0.17	0.19	0.48	0.07	0.40
Control Delay	58.8	65.8	63.8	46.6	7.1	18.6	6.4	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	65.8	63.8	46.6	7.1	18.6	6.4	17.3
Queue Length 50th (ft)	52	229	31	47	25	314	8	248
Queue Length 95th (ft)	97	333	69	94	42	366	18	294
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	270	369	125	369	479	2160	414	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.66	0.26	0.17	0.19	0.48	0.07	0.40
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

07/01/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	119	105	30	40	18	82	896	49	27	772	25
Future Volume (vph)	51	119	105	30	40	18	82	896	49	27	772	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1732		1770	1774		1770	3512		1770	3523	
Flt Permitted	0.72	1.00		0.33	1.00		0.27	1.00		0.22	1.00	
Satd. Flow (perm)	1334	1732		619	1774		512	3512		407	3523	
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)	55	129	114	33	43	20	89	974	53	29	839	27
RTOR Reduction (vph)	0	18	0	0	10	0	0	2	0	0	1	0
Lane Group Flow (vph)	55	225	0	33	53	0	89	1025	0	29	865	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	270	351		125	360		476	2158		411	2165	
v/s Ratio Prot		c0.13			0.03		c0.02	c0.29		0.01	0.25	
v/s Ratio Perm	0.04			0.05			0.11			0.04		
v/c Ratio	0.20	0.64		0.26	0.15		0.19	0.47		0.07	0.40	
Uniform Delay, d1	56.3	62.1		57.1	55.7		8.7	17.8		9.1	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	8.7		5.1	0.9		0.9	0.8		0.3	0.6	
Delay (s)	58.0	70.7		62.1	56.5		9.6	18.6		9.4	17.3	
Level of Service	E	E		E	E		A	B		A	B	
Approach Delay (s)		68.4			58.5			17.9			17.0	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			25.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)			15.5		
Intersection Capacity Utilization			66.5%				ICU Level of Service			C		
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	2	278	149	2	7	15
Future Vol, veh/h	2	278	149	2	7	15
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	-	-	700	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	2	302	162	2	8	16
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	164	0	-	0	468	162
Stage 1	-	-	-	-	162	-
Stage 2	-	-	-	-	306	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1414	-	-	-	553	883
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1414	-	-	-	552	883
Mov Cap-2 Maneuver	-	-	-	-	614	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	747	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		9.8		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1414	-	-	-	775	
HCM Lane V/C Ratio	0.002	-	-	-	0.031	
HCM Control Delay (s)	7.5	-	-	-	9.8	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	273	154	2	7	15
Future Vol, veh/h	2	273	154	2	7	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	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	2	297	167	2	8	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	169	0	0 468 167
Stage 1	-	-	- 167 -
Stage 2	-	-	- 301 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1409	-	- 553 877
Stage 1	-	-	- 863 -
Stage 2	-	-	- 751 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1409	-	- 552 877
Mov Cap-2 Maneuver	-	-	- 614 -
Stage 1	-	-	- 862 -
Stage 2	-	-	- 751 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1409	-	-	-	772
HCM Lane V/C Ratio	0.002	-	-	-	0.031
HCM Control Delay (s)	7.6	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

07/01/2025

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	3	1	970	825	2
Future Vol, veh/h	3	3	1	970	825	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	3	3	1	1054	897	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1427	450	899
Stage 1	898	-	-
Stage 2	529	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	126	556	751
Stage 1	358	-	-
Stage 2	555	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	126	556	751
Mov Cap-2 Maneuver	126	-	-
Stage 1	358	-	-
Stage 2	555	-	-

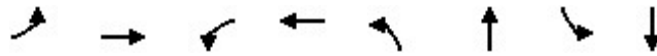
Approach	EB	NB	SB
HCM Control Delay, s	23.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	751	-	205	-	-
HCM Lane V/C Ratio	0.001	-	0.032	-	-
HCM Control Delay (s)	9.8	-	23.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Queues

1: Western Ave. & 139th ST.

03/14/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	255	35	68	95	1124	32	958
v/c Ratio	0.21	0.69	0.30	0.18	0.22	0.52	0.08	0.44
Control Delay	58.9	67.7	65.9	47.6	7.4	19.5	6.5	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	67.7	65.9	47.6	7.4	19.5	6.5	18.1
Queue Length 50th (ft)	54	244	34	52	27	357	9	285
Queue Length 95th (ft)	100	351	74	101	44	414	19	334
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	269	370	116	370	441	2160	379	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.69	0.30	0.18	0.22	0.52	0.08	0.44
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

03/14/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	126	109	32	43	19	87	982	52	29	855	27
Future Volume (vph)	52	126	109	32	43	19	87	982	52	29	855	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1733		1770	1776		1770	3512		1770	3523	
Flt Permitted	0.71	1.00		0.31	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	1328	1733		573	1776		450	3512		352	3523	
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)	57	137	118	35	47	21	95	1067	57	32	929	29
RTOR Reduction (vph)	0	18	0	0	10	0	0	2	0	0	1	0
Lane Group Flow (vph)	57	237	0	35	58	0	95	1122	0	32	957	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	269	351		116	360		438	2158		377	2165	
v/s Ratio Prot		c0.14			0.03		c0.02	c0.32		0.01	0.27	
v/s Ratio Perm	0.04			0.06			0.13			0.05		
v/c Ratio	0.21	0.67		0.30	0.16		0.22	0.52		0.08	0.44	
Uniform Delay, d1	56.4	62.6		57.5	55.8		9.2	18.5		9.7	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	9.9		6.6	1.0		1.1	0.9		0.4	0.7	
Delay (s)	58.2	72.5		64.1	56.8		10.3	19.4		10.2	18.0	
Level of Service	E	E		E	E		B	B		B	B	
Approach Delay (s)		69.9			59.3			18.7			17.7	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			26.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			69.6%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
2: 139th St. & Proj. Dwy East

03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	285	155	0	0	0
Future Vol, veh/h	0	285	155	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	-	-	700	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	310	168	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	168	0	-	0	478	168
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	310	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1410	-	-	-	546	876
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1410	-	-	-	546	876
Mov Cap-2 Maneuver	-	-	-	-	609	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	744	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1410	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	285	155	0	0	0
Future Vol, veh/h	0	285	155	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	400	-	-	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	310	168	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	168	0	-	0	478	168
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	310	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1410	-	-	-	546	876
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1410	-	-	-	546	876
Mov Cap-2 Maneuver	-	-	-	-	609	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	744	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1410	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

03/14/2025

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	1012	865	0
Future Vol, veh/h	0	0	0	1012	865	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	0	0	1100	940	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1490	470	940	0	-	0
Stage 1	940	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	115	540	725	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	540	725	-	-	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	542	-	-	-	-	-

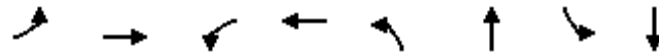
Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	725	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues

1: Western Ave. & 139th ST.

07/01/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	258	35	68	95	1124	32	959
v/c Ratio	0.22	0.70	0.31	0.18	0.22	0.52	0.08	0.44
Control Delay	59.1	68.3	66.5	47.6	7.4	19.5	6.5	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	68.3	66.5	47.6	7.4	19.5	6.5	18.1
Queue Length 50th (ft)	56	247	34	52	27	357	9	285
Queue Length 95th (ft)	103	356	74	101	44	414	19	335
Internal Link Dist (ft)		226		1257		1249		211
Turn Bay Length (ft)	130		130		130		130	
Base Capacity (vph)	269	369	113	370	440	2160	379	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.70	0.31	0.18	0.22	0.52	0.08	0.44
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Western Ave. & 139th ST.

07/01/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	126	111	32	43	19	87	982	52	29	856	27
Future Volume (vph)	54	126	111	32	43	19	87	982	52	29	856	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1732		1770	1776		1770	3512		1770	3523	
Flt Permitted	0.71	1.00		0.30	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	1328	1732		561	1776		450	3512		352	3523	
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)	59	137	121	35	47	21	95	1067	57	32	930	29
RTOR Reduction (vph)	0	18	0	0	10	0	0	2	0	0	1	0
Lane Group Flow (vph)	59	240	0	35	58	0	95	1122	0	32	958	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			2		3	8		7	4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Effective Green, g (s)	34.5	34.5		34.5	34.5		120.0	104.5		120.0	104.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.61		0.71	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.5	5.5		4.5	5.5	
Lane Grp Cap (vph)	269	351		113	360		438	2158		377	2165	
v/s Ratio Prot		c0.14			0.03		c0.02	c0.32		0.01	0.27	
v/s Ratio Perm	0.04			0.06			0.13			0.05		
v/c Ratio	0.22	0.68		0.31	0.16		0.22	0.52		0.08	0.44	
Uniform Delay, d1	56.5	62.7		57.6	55.8		9.2	18.5		9.7	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	10.3		7.0	1.0		1.1	0.9		0.4	0.7	
Delay (s)	58.4	73.0		64.6	56.8		10.3	19.4		10.2	18.0	
Level of Service	E	E		E	E		B	B		B	B	
Approach Delay (s)		70.3			59.5			18.7			17.7	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			26.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			69.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	292	157	2	7	7
Future Vol, veh/h	2	292	157	2	7	7
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	-	-	700	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	2	317	171	2	8	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	173	0	0 492 171
Stage 1	-	-	- 171 -
Stage 2	-	-	- 321 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1404	-	- 536 873
Stage 1	-	-	- 859 -
Stage 2	-	-	- 735 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1404	-	- 535 873
Mov Cap-2 Maneuver	-	-	- 601 -
Stage 1	-	-	- 858 -
Stage 2	-	-	- 735 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1404	-	-	-	712
HCM Lane V/C Ratio	0.002	-	-	-	0.021
HCM Control Delay (s)	7.6	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	287	162	2	7	7
Future Vol, veh/h	2	287	162	2	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	400	-	-	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	2	312	176	2	8	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	178	0	0 492 176
Stage 1	-	-	- 176 -
Stage 2	-	-	- 316 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1398	-	- 536 867
Stage 1	-	-	- 855 -
Stage 2	-	-	- 739 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1398	-	- 535 867
Mov Cap-2 Maneuver	-	-	- 602 -
Stage 1	-	-	- 854 -
Stage 2	-	-	- 739 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1398	-	-	-	711
HCM Lane V/C Ratio	0.002	-	-	-	0.021
HCM Control Delay (s)	7.6	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
4: Proj. Dwy & Western Ave.

07/01/2025

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	3	1	1019	867	1
Future Vol, veh/h	3	3	1	1019	867	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	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	3	3	1	1108	942	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1499	472	943	0	-	0
Stage 1	943	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	113	538	723	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	113	538	723	-	-	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	24.9	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	723	-	187	-	-	
HCM Lane V/C Ratio	0.002	-	0.035	-	-	
HCM Control Delay (s)	10	-	24.9	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	