

Traffic Impact Study Proposed Warehouse/Distribution Development

Chicago, Illinois



Prepared For:

**Brookfield
Properties**

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I. Executive Summary

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed warehouse/distribution development to be built in Chicago, Illinois. The objectives of the traffic study are as follows:

- Determine the existing vehicular, pedestrian, bicycle, and public transportation conditions in the study area to establish a base condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any street, access, bicycle, and pedestrian modifications and/or improvements that will be necessary to effectively accommodate and mitigate future conditions.

Vehicle, pedestrian, and bicycle counts were conducted during the weekday morning and weekday evening peak periods at the intersections of Western Avenue with 45th Street and 47th Street, Western Boulevard with 45th Street and 47th Street, 43rd Street with Oakley Avenue, and 47th Street with Oakley Avenue in order to determine the general peak hour of traffic activity during these time periods.

As proposed, the site will be redeveloped with approximately 588,880 square feet of warehouse/distribution space in three buildings. Access to the site will be provided via 45th Street, Oakley Avenue, a proposed access drive on 47th Street that will replace an existing Wheatland Tube Company access drive, and a proposed access drive on Western Boulevard.

Based on the preceding analyses and recommendations, the following conclusions have been made:

- Area intersections have sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications are required.
- The proposed access system will be adequate in accommodating the traffic estimated to be generated by the development.
- The proposed development will replace the Wheatland Tube Company which operates with a similar access system and generates truck traffic.

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O’Hara, Aboona, Inc. (KLOA, Inc.) for a proposed warehouse/distribution development to be located in Chicago, Illinois. The site, which currently contains the Wheatland Tube Company, is located in the northeast quadrant of the intersection of Western Boulevard with 47th Street. As proposed, the site will be redeveloped with approximately 588,880 square feet of warehouse/distribution space in three buildings. Access to the site will be provided via 45th Street, 47th Street, Western Boulevard, Western Avenue and Oakley Avenue

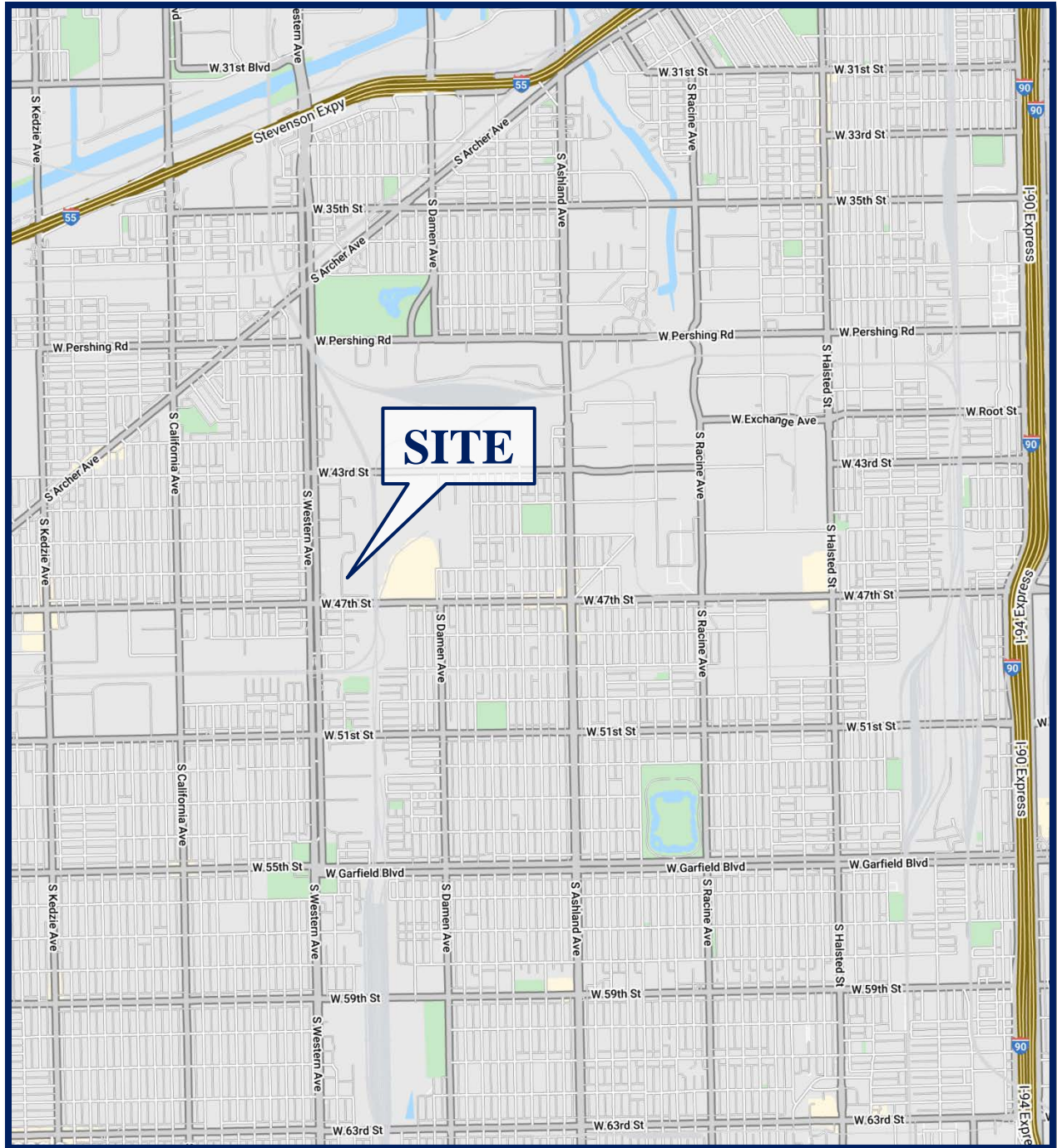
The purpose of this study was to examine existing traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area, and determine if any improvements to the transportation system are required to accommodate the proposed development. **Figure 1** shows the location of the site in relation to the area street system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

- Existing street conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the development.
- Traffic analyses for the weekday morning and weekday evening peak hours
- Evaluation and recommendations with respect to adequacy of the site access, on-site circulation, and adjacent street system.

Traffic capacity analyses were conducted for the weekday morning and weekday evening peak hours for the following conditions:

1. Year 2021 Base Conditions – Analyzes the capacity of the existing roadway system using peak hour traffic volumes conducted in 2021 and adjusted to represent pre-pandemic conditions.
2. Year 2027 Total Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the Year 2021 base traffic volumes, ambient area growth not attributable to any particular development, and the additional traffic estimated to be generated by the proposed development.



Site Location

Figure 1



Aerial View of Site

Figure 2

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a database for projecting future conditions. The following provides a description of the geographical location of the site, physical characteristics of the area street system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

The site, which currently contains the Wheatland Tube Company is generally bounded by Bevolution Group and the 4425 Western Boulevard industrial building to the north, the CSX Transportation railroad tracks to the east, Home Depot, 555 International, and Western Boulevard to the west, and the 47th Street to the south. The area offers a mixture of residential, industrial, and commercial uses. Chase Mechanical, Surplus Tiles Direct, Altman Machinery Company, and KD Steel are located north of the site. A BP gas station and Advance Auto Parts are located in the northeast quadrant of the intersection of Western Boulevard and 47th Street.







Existing Street System Characteristics

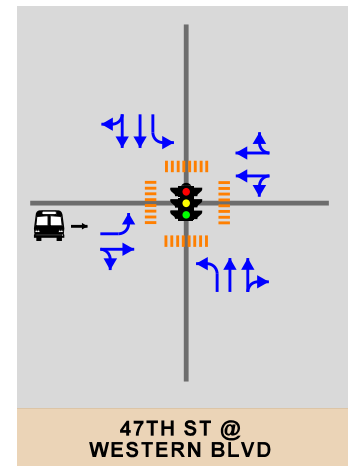
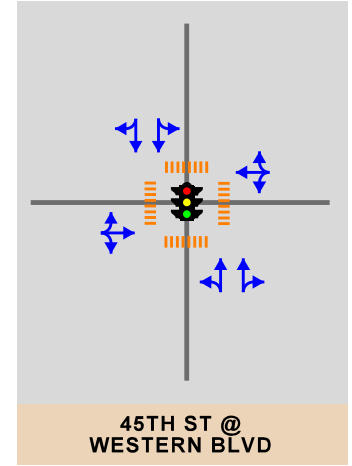
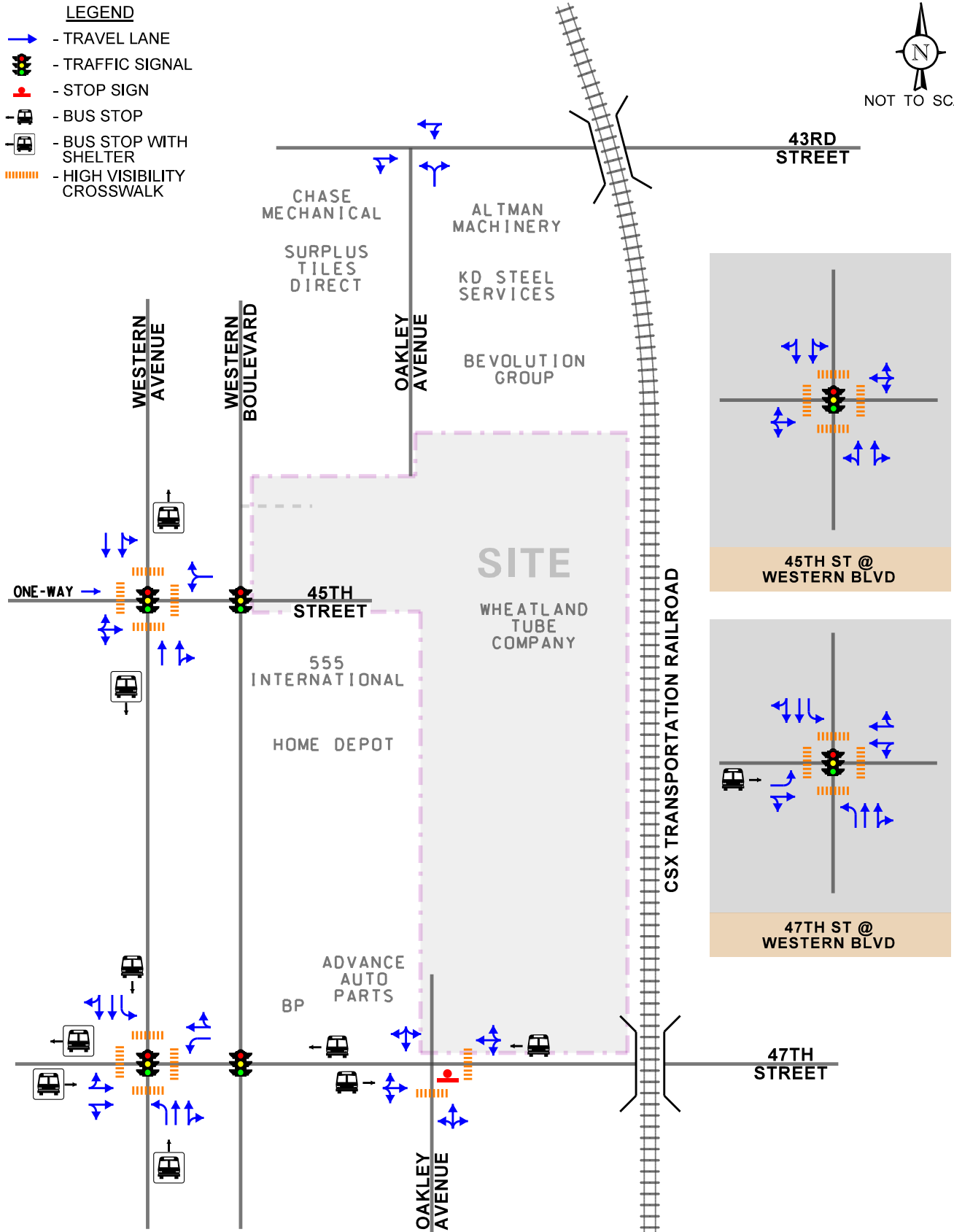
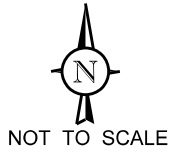
The characteristics of the existing streets near the development are described below and illustrated in **Figure 3**. All streets are under the jurisdiction of the Chicago Department of Transportation (CDOT) unless otherwise noted.

Western Avenue is a north-south, principal arterial street that provides two lanes in each direction and runs parallel to Western Boulevard. At its signalized intersection with 45th Street, Western Avenue provides a through lane and a shared through/right-turn lane on the northbound approach and a through lane and a shared through/left-turn lane on the southbound approach. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with 47th Street, Western Avenue provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on the west side of the street. Western Avenue is under the jurisdiction of the Illinois Department of Transportation (IDOT), is designated as a Strategic Regional Arterial (SRA) route, and carries an Annual Average Daily Traffic of 19,800 vehicles north of 47th Street and 22,800 vehicles south of 47th Street (IDOT 2018).

Western Boulevard is a north-south, major collector street that provides two lanes in each direction and runs parallel to Western Avenue. At its signalized intersection with 45th Street, Western Boulevard provides a shared through/left-turn lane and a shared through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with 47th Street, Western Boulevard provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on the east side of the street except for Monday through Friday 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M. Western Boulevard is under the jurisdiction of IDOT, is not designated as an SRA route, and carries an Annual Average Daily Traffic of 15,400 vehicles.

LEGEND

-  - TRAVEL LANE
-  - TRAFFIC SIGNAL
-  - STOP SIGN
-  - BUS STOP
-  - BUS STOP WITH SHELTER
-  - HIGH VISIBILITY CROSSWALK



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Existing Street Characteristics



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Figure: 3

47th Street is an east-west, minor arterial street that generally provides one lane in each direction. At its signalized intersection with Western Avenue, 47th Street provides a shared through/left-turn lane and a shared through/right-turn lane on the eastbound approach and an exclusive left turn lane and a shared through/right-turn lane on the westbound approach. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with Western Boulevard, 47th Street provides an exclusive left turn lane and a shared through/right-turn lane on the eastbound approach and a shared through/left-turn lane and a shared through/right-turn lane on the westbound approach. At its unsignalized intersection with Oakley Avenue and the site access drive, 47th Street provides one lane in each direction and no exclusive turn lanes. The east and south legs of this intersection provide high visibility crosswalks. Parking is generally permitted on both sides of the street. West of Western Boulevard, 47th Street is under the jurisdiction of the Cook County Department of Transportation and Highways (CCDOH). East of Western Boulevard, 47th Street is under the jurisdiction of CDOT. 47th Street carries an AADT of 11,800 vehicles east of 47th Street and 19,300 vehicles west of 47th Street (IDOT 2018).

45th Street is an east-west, local street that extends west from Oakley Avenue and provides one lane in each direction. West of Western Avenue, 45th Street operates in a one-way eastbound only direction. At its signalized intersection with Western Avenue, 45th Street provides a shared left-turn/through/right-turn lane on the eastbound approach and a shared left-turn/right-turn lane on the westbound approach. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with Western Boulevard, 45th Street provides a shared left-turn through/right-turn lane on both approaches. Parking is generally permitted on both sides of the street west of Western Boulevard.

43rd Street is an east-west, major collector street that generally provides one lane in each direction. At its unsignalized intersection with Oakley Avenue, 43rd Street provides one lane in each direction and no exclusive turn lanes. Parking is generally permitted on both sides of the street. 43rd Street carries an AADT of 7,800 vehicles (IDOT 2018).

Oakley Avenue is a north south, local street that generally provides one lane in each direction. The northern segment of Oakley Avenue extends from 43rd Street to 45th Street and the southern segment extends from 47th Street to 49th Street. At its unsignalized intersection with 43rd Street, Oakley Avenue provides a shared left-turn/right-turn lane on the northbound approach. At its unsignalized intersection with 47th Street, Oakley Avenue provides a shared left-turn/through/right-turn lane on the northbound approach and is under stop sign control. Parking is generally permitted on both sides of the street.

Alternative Modes of Transportation

Accessibility to and from the area is enhanced by the various alternative modes of transportation serving the area as summarized below.

Public Transportation. The area is served by the Chicago Transit Authority (CTA) rapid transit via the Western Orange Line station located approximately 1,500 feet southwest of the site. The CTA Orange Line provides rapid transit rail service between the “Loop” and Midway Airport. Service is provided seven days a week and on holidays.

In addition, the following bus routes serve the immediate area and have stops near the facility:

Route 47 (47th) provides service along 47th Street from Lake Park Avenue to Midway Airport. Service is provided seven days a week and on holidays from approximately 4:00 A.M. to 12:30 A.M. Notable stops include the CTA Green, Red, and Orange lines and Tilden High School.

Route 48 (South Damen) provides service along South Damen Avenue from the Western Avenue Orange Line station to 87th Street. Service is provided Monday through Friday from approximately 6:30 A.M. to 9:30 A.M. and 2:00 P.M. to 6:30 P.M.

Route 49 (Western) provides service along Western Avenue from Berwyn Avenue to 79th Street. Service is generally provided 24-hours a day every day of the week, including holidays (Night Owl Service provided on Route N49). Notable stops include the CTA Brown, Blue (O'Hare and Forest Park Branches), Pink, and Orange lines as well as multiple Metra stations.

Route X49 (Western Express) provides service along Western Avenue from Berwyn Avenue to 79th Street. This route makes limited stops during the weekday morning (5:30 A.M. to 10:15 A.M.) and evening (2:30 P.M. to 7:00 P.M.) rush hours.

Route 94 (California) provides service along California Avenue from Addison Street to 74th Street. Service is provided seven days a week and on holidays from approximately 5:00 A.M. to 11:30 P.M. Notable stops include the CTA Green, Pink, and Orange lines and Mount Sinai Hospital.

Pedestrian Accommodations. Sidewalks are provided on both sides of 43rd Street, 45th Street, 47th Street, and the southern segment of Oakley Avenue and on the west side of Western Avenue and the east side of Western Boulevard. High-visibility crosswalks are provided at all signalized intersection within the study area and on the east and south legs of the intersection of 47th Street with Oakley Avenue.

Bike Facilities. According to the City of Chicago's *Streets for Cycling Plan 2020*, Western Avenue and Western Boulevard are as a Crosstown Bike Route.

Year 2021 Base Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts using Miovision Scout Video Collection Units on Tuesday, June 1 and 2, 2021 during the weekday morning (6:00 A.M. to 9:00 A.M.) and weekday evening (3:00 P.M. to 6:00 P.M.) peak periods at the following intersections:

- Western Avenue with 45th Street
- Western Avenue with 47th Street
- Western Boulevard with 45th Street
- Western Boulevard with 47th Street
- 43rd Street with Oakley Avenue
- 47th Street with Oakley Avenue and the site access drive

The results of the traffic counts indicated that the weekday morning peak hour of traffic occurs from 7:30 A.M. to 8:30 A.M. and the weekday evening peak hour of traffic occurs from 3:30 P.M. to 4:30 P.M. Copies of the traffic count summary sheets are included in the Appendix. In order to accurately represent Year 2021 conditions due to the ongoing pandemic, the traffic volumes were compared with hourly counts previously conducted by IDOT on Western Boulevard south of the site in 2018. Based on the comparison, the 2021 traffic counts were increased by 25 percent during the weekday morning peak hour only.

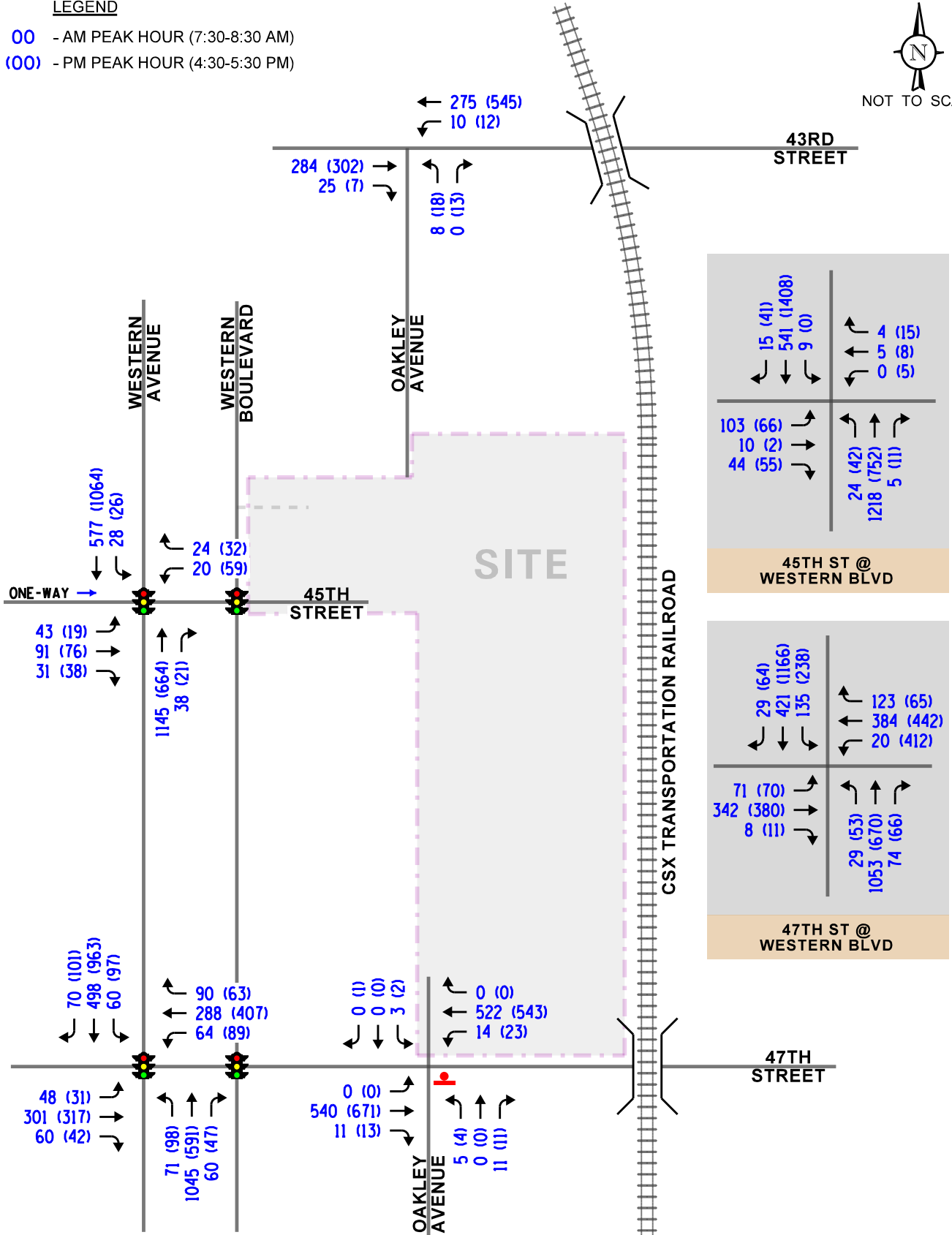
Figure 4 illustrates the Year 2021 base peak hour vehicle traffic volumes, inclusive of heavy vehicles. **Figure 5** illustrates the Year 2021 base heavy vehicle peak hour traffic volumes. **Figure 6** illustrates the existing pedestrian and bicycle volumes, showing direction of travel.

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



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Year 2021 Base Traffic Volumes



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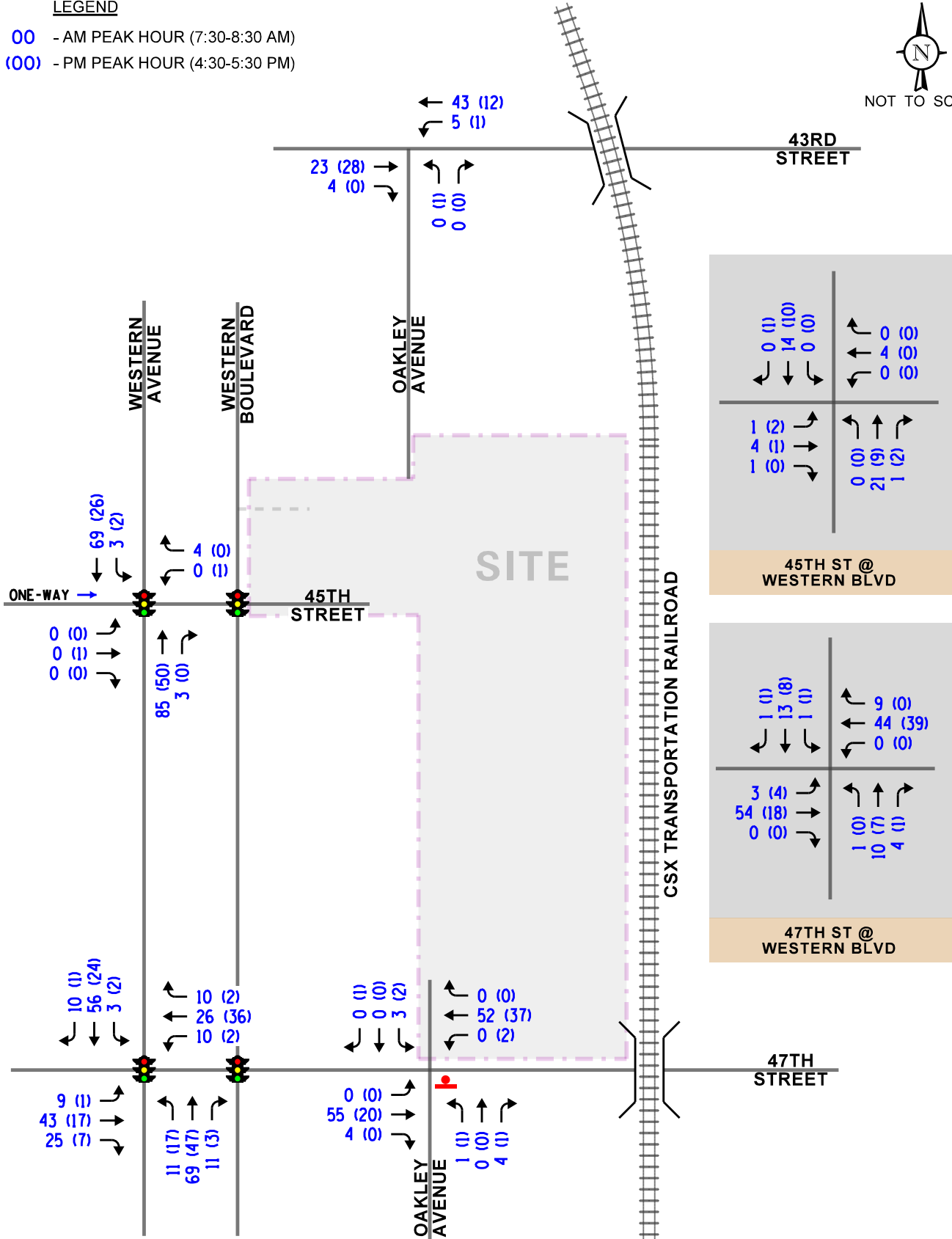
Figure: 4

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



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Proposed Industrial Development
Chicago, Illinois

Year 2021 Base Truck Traffic Volumes

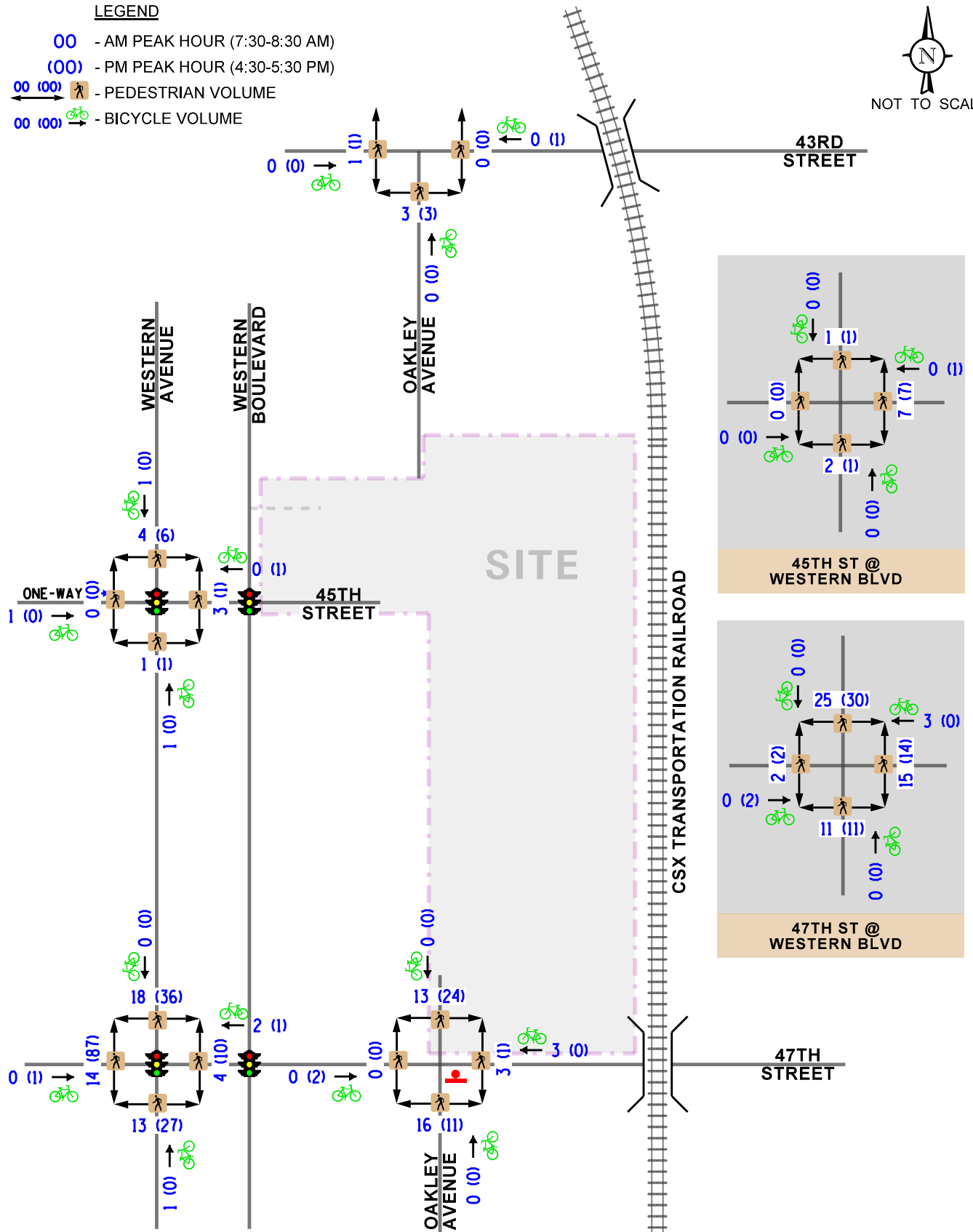
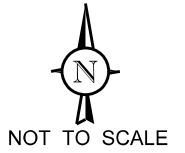


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Figure: 5

LEGEND

- 00 - AM PEAK HOUR (7:30-8:30 AM)
- (00) - PM PEAK HOUR (4:30-5:30 PM)
- 00 (00) [pedestrian icon] - PEDESTRIAN VOLUME
- 00 (00) [bicycle icon] - BICYCLE VOLUME



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Existing Pedestrian and Bicycle
Traffic Volumes



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Figure: 6

3. Traffic Characteristics of the Proposed Development

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Development Plan

As proposed, the site will be developed with approximately 588,880 square feet of warehouse/distribution space in three buildings. Access to the development is proposed to be provided as follows:

- Via 45th Street which is signalized with Western Avenue and Western Boulevard and Oakley Avenue which is unsignalized at its intersection with 43rd Street.
- A full movement access drive on 47th Street located approximately 500 feet east of Western Boulevard opposite Oakley Avenue. This access drive will provide one inbound lane and one outbound lane wide enough to accommodate truck turning movements with outbound movements under stop sign control. This access drive will replace an existing access drive at this location serving Wheatland Tube Company including its truck traffic.
- A full movement access drive on the east side of Western Boulevard located approximately 300 feet north of 45th Street. This access drive, which will primarily serve the approximate 63,320 square-foot building, will provide one inbound lane and one outbound lane with outbound movements under stop sign control.

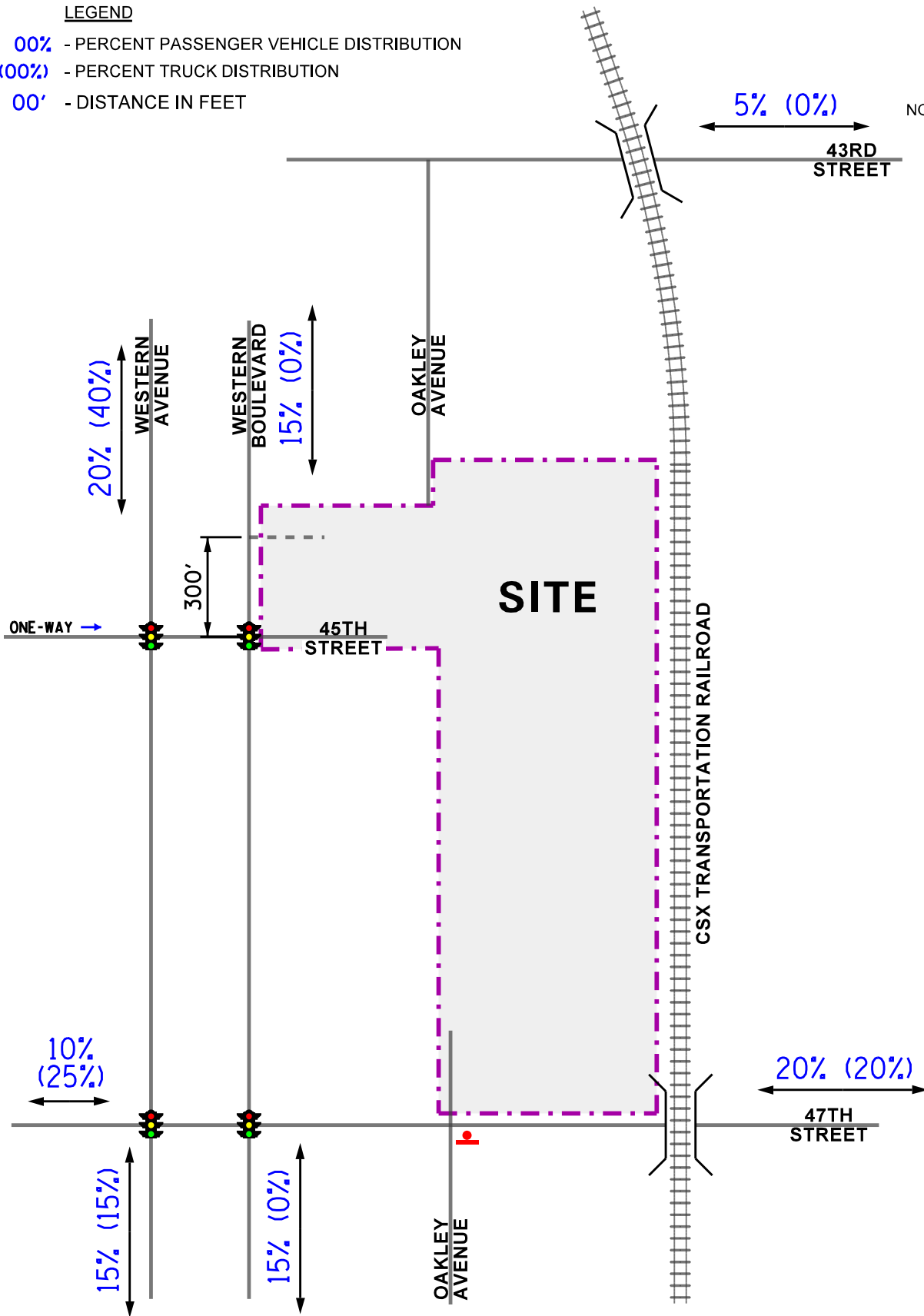
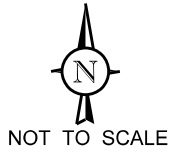
A copy of the preliminary site plan is included in the appendix.

Directional Distribution

The directions from which employee and truck traffic will approach and depart the site was estimated based on existing travel patterns, as determined from the traffic counts and the proposed access system of the development. **Figure 7** illustrates the directional distribution of traffic. It should be noted that all truck traffic is expected to approach and depart the site via 45th Street, which has a signalized intersection with Western Boulevard and Western Avenue, or via the 47th Street access drive which currently serves truck traffic from Wheatland Tube Company.

LEGEND

- 00%** - PERCENT PASSENGER VEHICLE DISTRIBUTION
- (00%)** - PERCENT TRUCK DISTRIBUTION
- 00'** - DISTANCE IN FEET



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Estimated Directional Distribution



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Figure: 7

Peak Hour Traffic Volumes

The total number of peak hour vehicle trips estimated to be generated by the proposed industrial development was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE) for Land-Use Code 150 (Warehouse). **Table 1** summarizes the trips projected to be generated by the development during the peak hours and on a daily basis. **Table 5** summarizes the trips projected to be generated by the development throughout the day. Copies of the ITE trip generation sheets are included in the Appendix.

Table 1
ESTIMATED DAILY AND PEAK HOUR SITE GENERATED TRAFFIC

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips	
		In	Out	Total	In	Out	Total	In	Out
150	Warehouse (588,880 s.f.)	72	22	94	27	70	97	485	485
	Trucks	8	12	20	13	11	24	177	177
	Passenger Vehicles	64	10	74	14	59	73	308	308

Table 2
ESTIMATED 24-HOUR SITE GENERATED TRAFFIC

Hour	General Light Industrial (ITE Land-Use Code 150) – 588,880 s.f.								
	Trucks			Passenger Vehicles			Total		
	In	Out	Total	In	Out	Total	In	Out	Total
0:00	1	1	2	0	1	1	1	2	3
1:00	1	0	1	0	4	4	1	4	5
2:00	2	2	4	0	0	0	2	2	4
3:00	3	1	4	0	1	1	3	2	5
4:00	3	6	9	3	0	3	6	6	12
5:00	6	6	12	13	5	18	19	11	30
6:00	9	6	15	35	8	43	44	14	58
7:00	6	14	20	35	8	43	41	22	63
8:00	8	12	20	29	12	41	37	24	61
9:00	21	13	34	21	15	36	42	28	70
10:00	14	21	35	15	8	23	29	29	58
11:00	19	21	40	16	15	31	35	36	71
12:00	14	9	23	32	29	61	46	38	84
13:00	14	14	28	19	13	32	33	27	60
14:00	11	11	22	27	19	46	38	30	68
15:00	18	14	32	13	42	55	31	56	87
16:00	13	11	24	11	36	47	24	47	71
17:00	6	8	14	17	35	52	23	43	66
18:00	2	2	4	7	25	32	9	27	36
19:00	1	1	2	4	6	10	5	7	12
20:00	3	2	5	1	2	3	4	4	8
21:00	1	2	3	2	16	18	3	18	21
22:00	0	0	0	6	2	8	6	2	8
23:00	1	0	1	2	6	8	3	6	9
Total	177	177	354	308	308	616	485	485	970

Based on daily trips (Table 1) and ITE's Hourly Distribution of Entering and Exiting Truck Trips and Vehicle Trips tables.

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed subject development.

Development Traffic Assignment

The estimated weekday morning and weekday evening peak hour traffic volumes that will be generated by the proposed development were assigned to the street system in accordance with the previously described directional distribution (Figure 7). **Figure 8** illustrates the traffic assignment of the new passenger vehicle trips for the development. **Figure 9** illustrates the traffic assignment of the new truck trips for the development.

Ambient Traffic Growth

To account for any additional increase in traffic due to other factors or developments not previously discussed, an ambient growth factor of 0.5 percent per year was also applied to the study area over a six-year period to represent Year 2027 no-build conditions. Furthermore, in order to account for the increase in population in the study area, bicycle and pedestrian volumes were increased by 10 percent at each intersection. **Figure 10** illustrates the Year 2027 No Build Volumes.

Total Projected Traffic Volumes

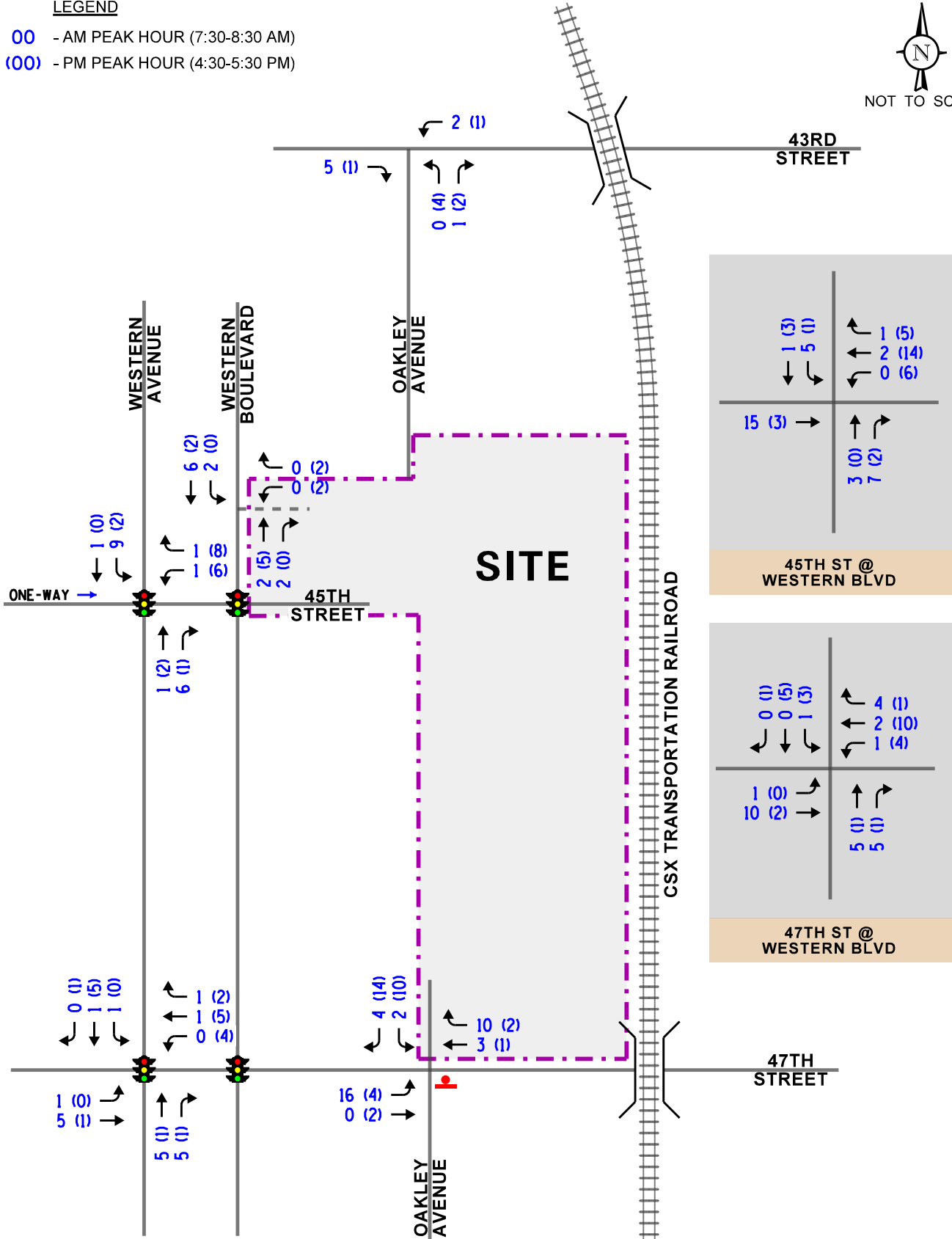
The Year 2021 base traffic volumes increased by the ambient growth in the area, were combined with the new peak hour traffic volumes generated by the subject development to determine the Year 2027 total traffic volumes, shown in **Figure 11**. It should be noted that the existing traffic turning to and from the Wheatland Tube Company access drive on 47th Street was removed from the area roadway system, but no traffic was removed from 45th Street or Oakley Avenue.

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



NOT TO SCALE



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Chicago, Illinois

Estimated Site-Generated
Passenger Vehicle Traffic Volumes

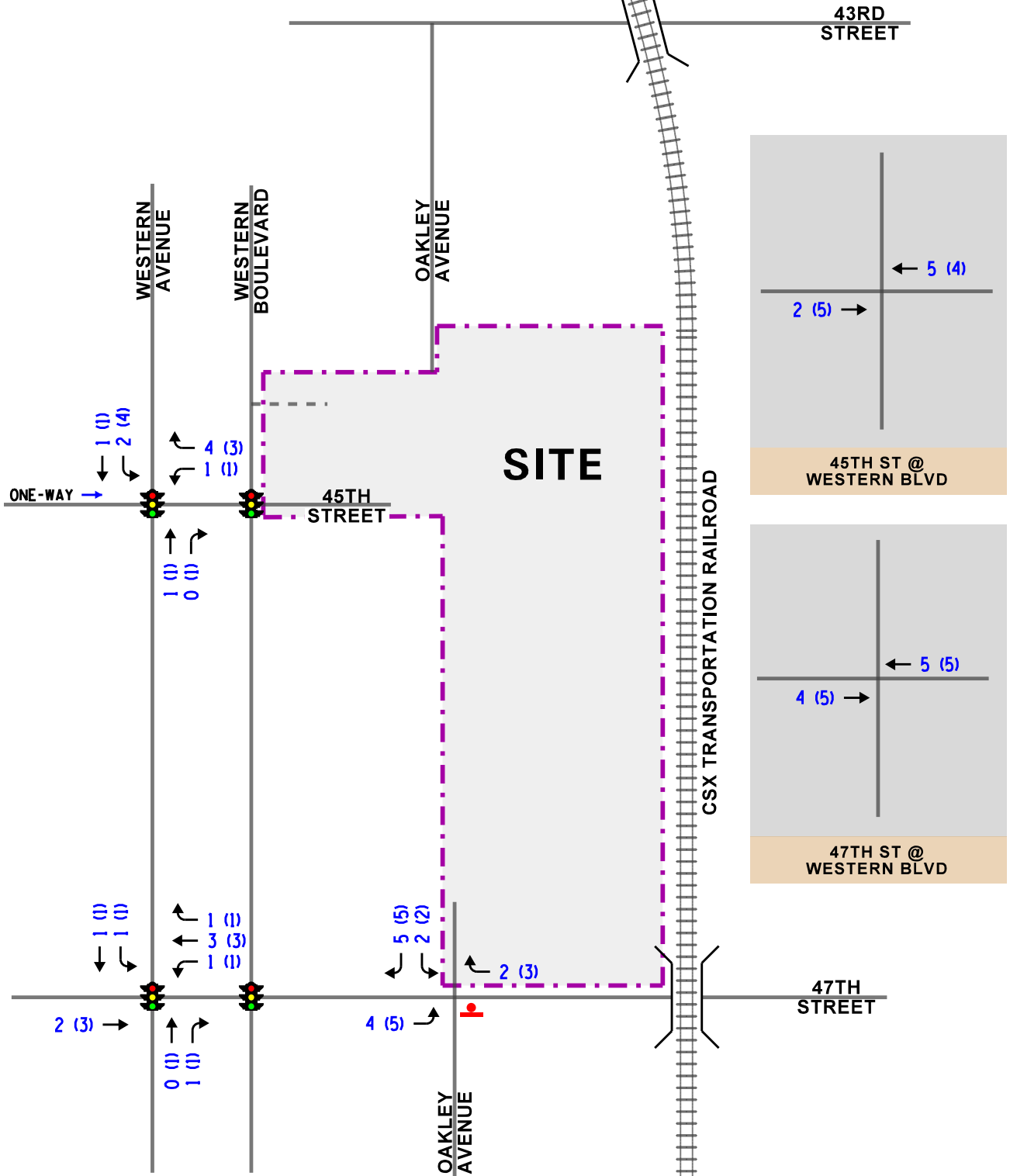
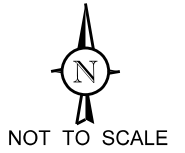


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Figure: 8

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



Proposed Industrial Development
Chicago, Illinois

Estimated Site-Generated
Truck Traffic Volumes



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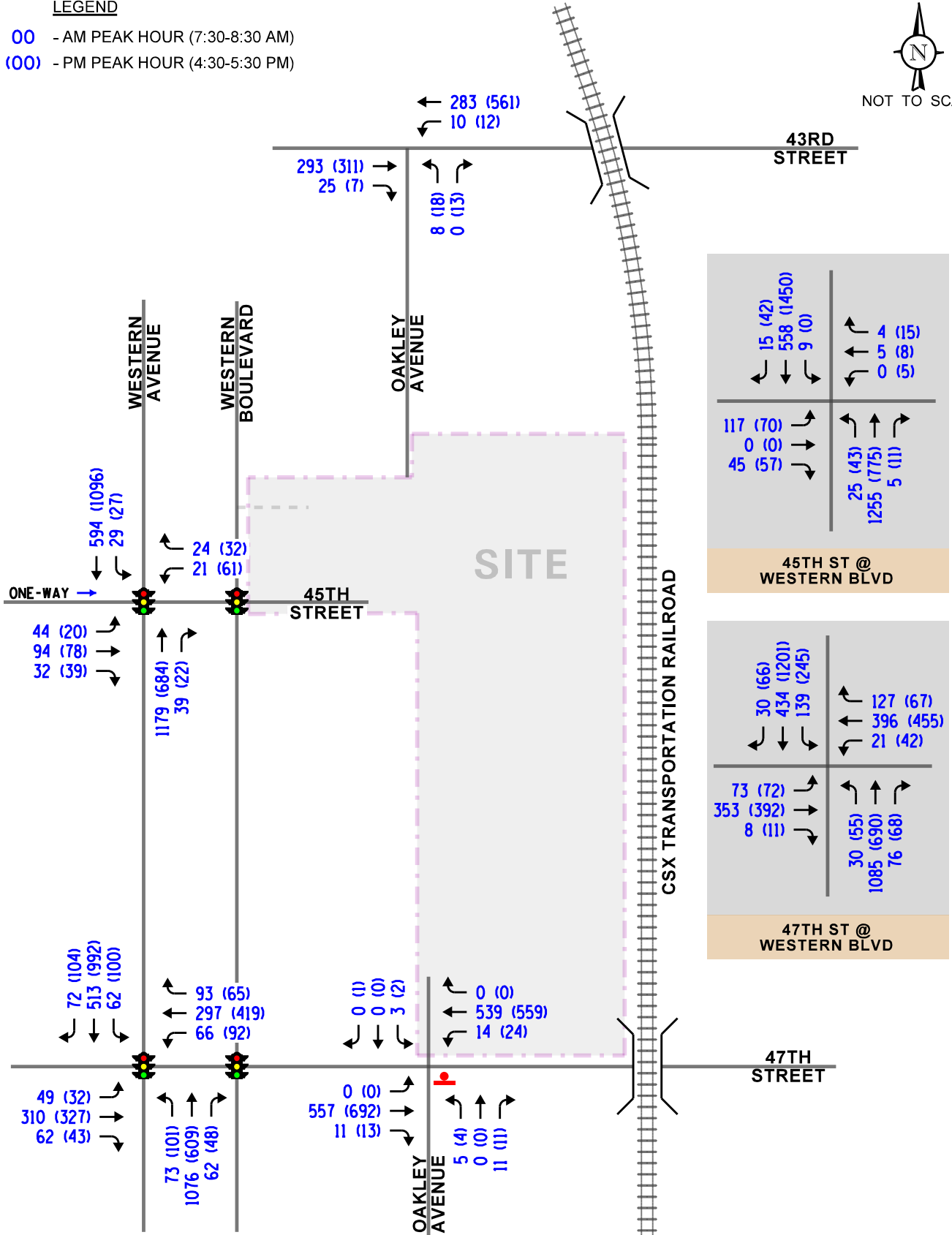
Figure: 9

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



NOT TO SCALE



Proposed Industrial Development
Chicago, Illinois

Year 2027 No-Build Traffic Volumes



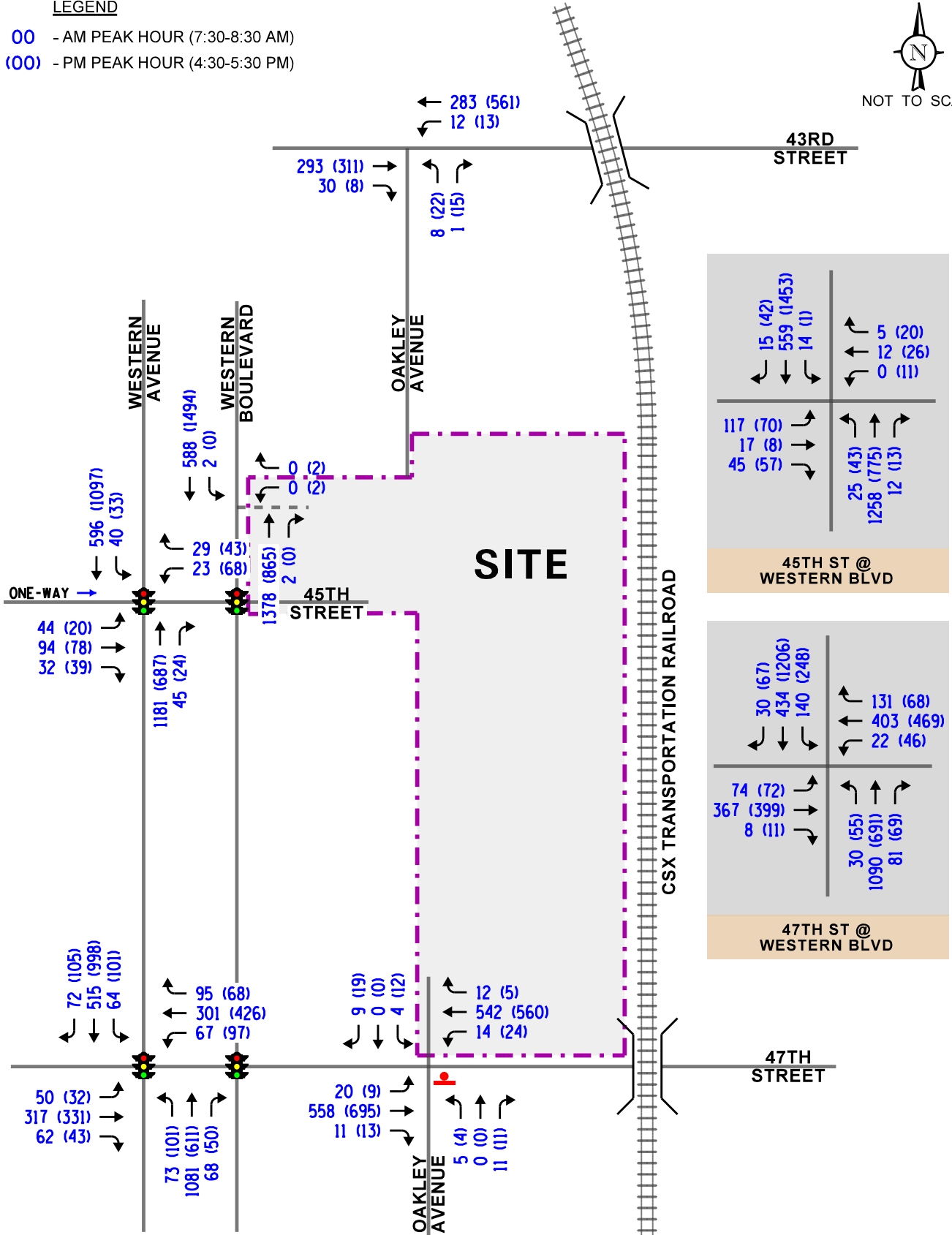
Job No: 21-129 Figure: 10

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:30-5:30 PM)



NOT TO SCALE



Proposed Industrial Development
Chicago, Illinois

Year 2027 Total Projected Traffic Volumes



Job No: 21-129 Figure: 11

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the street system and access drives are projected to operate and whether any street improvements or modifications are required.

Traffic Analyses

Intersection analyses were performed for the weekday morning and weekday evening peak hours for the Year 2021 base and Year 2027 total projected traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM), 6th Edition* and analyzed using Synchro/SimTraffic 11 software. The analysis for the signalized intersections were conducted utilizing actual cycle lengths, phasings, and offsets.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the Year 2021 base and Year 2027 total projected conditions are presented in **Tables 3** through **8**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 3

CAPACITY ANALYSIS RESULTS – WESTERN AVENUE WITH 45TH STREET

	Peak Hour	Eastbound	Westbound	Northbound	Southbound	Overall
		L/T/R	L/T/R	L/T/R	L/T/R	
Year 2021 Base Conditions	Weekday Morning Peak Hour	D 40.4	C 29.7	A 4.5	B 13.2	B 10.6
	Weekday Evening Peak Hour	C 34.8	D 43.0	A 3.0	B 16.6	B 14.4
Year 2027 Total Projected Conditions	Weekday Morning Peak Hour	D 41.5	C 24.4	A 4.6	B 14.3	B 11.1
	Weekday Evening Peak Hour	C 35.2	C 34.1	A 3.2	B 17.5	B 14.7
Letter denotes Level of Service Delay is measured in seconds.		L – Left-Turns T – Through		R – Right-Turns		

Table 4

CAPACITY ANALYSIS RESULTS – WESTERN BOULEVARD WITH 45TH STREET

	Peak Hour	Eastbound	Westbound	Northbound	Southbound	Overall
		L/T/R	L/T/R	L/T/R	L/T/R	
Year 2021 Base Conditions	Weekday Morning Peak Hour	C 23.0	C 26.6	A 5.7	B 10.1	A 8.4
	Weekday Evening Peak Hour	C 20.1	C 20.6	A 4.2	B 16.8	B 12.8
Year 2027 Total Projected Conditions	Weekday Morning Peak Hour	C 29.3	C 27.5	A 6.2	B 10.3	A 9.5
	Weekday Evening Peak Hour	C 24.9	C 24.7	A 4.8	B 19.0	B 14.7
Letter denotes Level of Service Delay is measured in seconds.		L – Left-Turns T – Through		R – Right-Turns		

Table 5

CAPACITY ANALYSIS RESULTS – WESTERN AVENUE WITH 47TH STREET

	Peak Hour	Eastbound		Westbound		Northbound		Southbound		Overall
		L/T/R	L/T/R	L	T/R	L	T/R			
Year 2021 Base Conditions	Weekday Morning Peak Hour	D 38.2	A 8.9	A 8.2	B 16.8	D 45.9	D 36.2	D 40.7	D 36.3	
			A – 8.3		D – 44.1		D – 40.3			
Year 2021 Base Conditions	Weekday Evening Peak Hour	D 40.6	B 15.4	C 26.2	D 37.3	C 25.1	C 22.9	D 43.3	C 34.3	
			C – 24.5		C – 26.7		D – 41.6			
Year 2027 Total Projected Conditions	Weekday Morning Peak Hour	D 39.9	A 8.9	A 8.4	B 16.3	E 73.5	D 38.9	D 40.4	D 48.1	
			A – 8.5		E – 70.1		D – 40.2			
Year 2027 Total Projected Conditions	Weekday Evening Peak Hour	D 42.3	B 16.3	D 38.6	D 41.5	C 25.8	C 23.1	D 44.1	D 37.1	
			C – 35.0		C – 27.8		D – 42.3			
Letter denotes Level of Service Delay is measured in seconds.			L – Left-Turns T – Through			R – Right-Turns				

Table 6

CAPACITY ANALYSIS RESULTS – WESTERN BOULEVARD WITH 47TH STREET

	Peak Hour	Eastbound		Westbound	Northbound		Southbound		Overall
		L	T/R	L/T/R	L	T/R	L	T/R	
Year 2021 Base Conditions	Weekday Morning Peak Hour	B 18.8	C 24.8	C 34.9	B 14.6	D 48.3	E 67.0	D 42.9	D 41.5
		C – 23.8			D – 47.5		D – 48.5		
Year 2021 Base Conditions	Weekday Evening Peak Hour	B 17.7	B 19.8	D 38.8	C 24.3	C 34.8	C 27.1	D 50.4	D 38.5
		B – 19.5			C – 34.1		D – 46.6		
Year 2027 Total Projected Conditions	Weekday Morning Peak Hour	C 20.1	C 28.9	D 35.9	B 14.7	E 55.3	E 70.5	D 43.0	D 45.3
		C – 27.4			D – 54.3		D – 49.4		
Year 2027 Total Projected Conditions	Weekday Evening Peak Hour	B 18.4	C 21.0	D 43.6	C 24.9	C 36.1	C 27.7	E 63.1	D 44.5
		C – 20.6			C – 35.3		E – 57.3		
Letter denotes Level of Service Delay is measured in seconds.			L – Left-Turns T – Through			R – Right-Turns			

Table 7

CAPACITY ANALYSIS RESULTS – UNSIGNALIZED - BASE CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
43rd Street with Oakley Avenue				
• Eastbound Left Turn	A	8.7	A	8.0
• Northbound Approach	B	13.9	C	15.2
47th Street with Oakley Avenue and the Site Access Drive				
• Eastbound Left Turn	--	--	--	--
• Westbound Left Turn	A	8.8	A	9.5
• Northbound Approach	C	19.5	C	22.3
• Southbound Approach	E	43.8	D	30.6
LOS = Level of Service Delay is measured in seconds.				

Table 8

CAPACITY ANALYSIS RESULTS – UNSIGNALIZED – PROJECTED CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
43rd Street with Oakley Avenue				
• Eastbound Left Turn	A	8.6	A	8.1
• Northbound Approach	B	13.4	C	15.9
47th Street with Oakley Avenue and the Site Access Drive				
• Eastbound Left Turn	A	9.3	B	10.1
• Westbound Left Turn	A	8.9	A	9.6
• Northbound Approach	C	21.8	C	24.9
• Southbound Approach	C	23.7	D	34.1
Western Boulevard the Site Access Drive				
• Westbound Approach	--	--	D	30.2
• Southbound Left Turn	B	12.7	--	--
LOS = Level of Service Delay is measured in seconds.				

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any street and traffic control improvements necessary to accommodate the development-generated traffic.

Western Avenue with 45th Street

The results of the capacity analysis indicate that overall, this intersection currently operates at Level of Service (LOS) B during the weekday morning and weekday evening peak hours. Furthermore, all movements operate at an acceptable LOS D or better during both peak hours and through movements on Western Avenue operate at LOS B or better.

Under Year 2027 total projected conditions, the intersection is projected to continue operating at LOS B during the weekday morning and weekday evening peak hours with increases in delay of less than one second. Furthermore, all movements are projected to continue to operate at an acceptable LOS D or better during both peak hours and through movements on Western Avenue are projected to continue to operate at LOS B or better. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

Western Avenue with 47th Street

The results of the capacity analysis indicate that overall, this intersection currently operates at LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. Furthermore, all movements operate at an acceptable LOS C or better during both peak hours and through movements on Western Avenue operate at LOS B or better.

Under Year 2027 total projected conditions, the overall intersection is projected to continue operating at the same LOS during the weekday morning and weekday evening peak hours with increases in delay of approximately one to two seconds. Furthermore, the westbound approach, which will accommodate outbound site traffic, is projected to operate at LOS C during both peak hours and through movements on Western Avenue are projected to continue to operate at LOS B or better during both peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

Western Avenue with 47th Street

The results of the capacity analysis indicate that overall, this intersection currently operates at LOS D during the weekday morning peak hour and LOS C during the weekday evening peak hour. Furthermore, all the intersection movements operate at an acceptable LOS D or better during both peak hours.

Under Year 2027 total projected conditions, the overall intersection is projected to continue operating at the same LOS during the weekday morning and weekday evening peak hours with increases in delay of approximately 12 and three seconds, respectively. This increase in delay is primarily the result of the northbound right-turn movement which is projected to operate at LOS E due to the nature of Western Avenue/Western Boulevard wherein northbound right-turn vehicles may be unable to turn onto 47th Street given the limited space. However, northbound through movements are able to bypass right-turning cars in the northbound through lane, this movement is projected to continue to operate with a volume to capacity ratio (v/c) of less than one, and 95th percentile queues for this movement are projected to increase by only one to two vehicles indicating that vehicles will still be able to turn a majority of the time. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

Western Avenue with 47th Street

The results of the capacity analysis indicate that overall, this intersection currently operates at LOS D during the weekday morning and weekday evening peak hours. Furthermore, all the intersection movements operate at LOS E or better during both peak hours.

Under Year 2027 total projected conditions, the overall intersection is projected to continue operating at the same LOS during the weekday morning and weekday evening peak hours with increases in delay of approximately four and six seconds, respectively. Furthermore, all movements are projected to continue to operate at LOS E or better. It should be noted that westbound queues at this intersection are projected to extend up to 270 feet and will not block the location of the proposed access drive. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

43rd Street with Oakley Avenue

The results of the capacity analysis indicate that the northbound movement at this intersection currently operates LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Furthermore, westbound left turns operate at LOS A during both peak hours.

Under Year 2027 total projected conditions, the northbound movement at this intersection, which will include outbound site traffic, is projected to continue to operate at LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Furthermore, westbound left turns are projected to continue to operate at LOS A during both peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

47th Street with Oakley Avenue and the Site Access Drive

The results of the capacity analysis indicate that northbound (Oakley Avenue) movements at this intersection currently operate at LOS C during the weekday morning and weekday evening peak hours and southbound (Wheatland Tube Company) movements operate at LOS E during the weekday morning peak hour and LOS D during the weekday evening peak hours. Furthermore, eastbound and westbound left turns operate at LOS A during both peak hours.

As proposed, the Wheatland Tube Company Access Drive will be replaced with a full movement access drive serving the site. This access drive will provide one inbound lane and one outbound lane wide enough to accommodate truck turning movements with outbound movements under stop sign control.

Under Year 2027 total projected conditions, the northbound (Oakley Avenue) movement at this intersection is projected to continue to operate at LOS C during the weekday morning peak hour and LOS C during the weekday evening peak hour and the southbound (Proposed Access Drive) access drive is projected to operate at LOS C during the weekday morning peak hour and LOS D during the weekday evening peak hours. Furthermore, eastbound and westbound left turns are projected to operate at LOS B or better during both peak hours with 95th percentile queues of one to two vehicles. As such, this access drive will be adequate in accommodating the traffic generated by the development and will have a limited impact on Oakley Avenue and 47th Street traffic.

Western Boulevard with the Proposed Site Access Drive

As proposed, a full movement access drive will be provided on the east side of Western Boulevard located approximately 300 feet north of 45th Street. This access drive, which will primarily serve the approximate 63,320 square-foot building, will provide one inbound lane and one outbound lane with outbound movements under stop sign control.

The results of the capacity analysis indicate that outbound movements from the access drive on to Western Boulevard are projected to operate at LOS D during the weekday evening peak hour. Furthermore, the southbound left-turn movement from Western Boulevard on to the access drive is projected to operate at LOS B during the weekday morning peak hour. As such, this access drive will be adequate in accommodating the traffic generated by the development.

6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- Access to the development is proposed to be provided as follows:
 - Via 45th Street which is signalized with Western Avenue and Western Boulevard and Oakley Avenue which is unsignalized at its intersection with 43rd Street.
 - A full movement access drive on 47th Street located approximately 500 feet east of Western Boulevard opposite Oakley Avenue. This access drive will provide one inbound lane and one outbound lane wide enough to accommodate truck turning movements with outbound movements under stop sign control. This access drive will replace an existing access drive at this location serving Wheatland Tube Company including its truck traffic.
 - A full movement access drive on the east side of Western Boulevard located approximately 300 feet north of 45th Street. This access drive, which will primarily serve the approximate 63,320 square-foot building, will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
- Area intersections have sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control modifications are required.
- The proposed access system will be adequate in accommodating the traffic estimated to be generated by the development.
- The proposed development will replace the Wheatland Tube Company which operates with a similar access system and generates truck traffic.

Appendix

Traffic Count Summary Sheets
Preliminary Site Plan
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 43rd Street and Oakley Avenue
Site Code:
Start Date: 06/01/2021
Page No: 1

Turning Movement Data

Start Time	43rd Street Eastbound					43rd Street Westbound					Oakley Avenue Northbound					Int. Total
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
3:00 PM	0	65	2	1	67	0	2	121	0	123	0	4	1	0	5	195
3:15 PM	0	60	2	1	62	0	3	132	0	135	0	5	4	2	9	206
3:30 PM	0	89	4	0	93	0	1	134	0	135	0	4	5	0	9	237
3:45 PM	0	69	1	0	70	0	3	139	0	142	0	2	3	2	5	217
Hourly Total	0	283	9	2	292	0	9	526	0	535	0	15	13	4	28	855
4:00 PM	0	69	3	1	72	0	1	111	0	112	0	7	5	0	12	196
4:15 PM	0	89	6	0	95	0	2	138	0	140	0	4	1	0	5	240
4:30 PM	1	66	0	1	67	1	0	159	0	160	0	4	6	1	10	237
4:45 PM	0	78	3	0	81	0	3	137	0	140	0	2	1	1	3	224
Hourly Total	1	302	12	2	315	1	6	545	0	552	0	17	13	2	30	897
5:00 PM	0	81	2	0	83	0	4	133	0	137	0	6	2	1	8	228
5:15 PM	0	77	2	0	79	0	5	116	0	121	0	6	4	0	10	210
5:30 PM	0	55	6	0	61	0	5	98	0	103	0	0	5	0	5	169
5:45 PM	0	66	3	0	69	0	4	100	0	104	0	3	2	1	5	178
Hourly Total	0	279	13	0	292	0	18	447	0	465	0	15	13	2	28	785
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	0	67	5	0	72	0	1	51	0	52	0	6	8	1	14	138
6:15 AM	0	57	4	0	61	0	4	50	0	54	0	0	2	1	2	117
6:30 AM	0	64	1	0	65	0	2	52	0	54	0	1	1	0	2	121
6:45 AM	0	67	3	0	70	0	5	52	0	57	0	0	1	0	1	128
Hourly Total	0	255	13	0	268	0	12	205	0	217	0	7	12	2	19	504
7:00 AM	0	35	2	0	37	0	1	52	0	53	0	1	0	0	1	91
7:15 AM	0	49	2	0	51	0	3	47	0	50	0	0	1	0	1	102
7:30 AM	0	50	5	0	55	0	2	58	0	60	0	2	0	0	2	117
7:45 AM	0	64	3	0	67	0	2	60	0	62	0	1	1	2	2	131
Hourly Total	0	198	12	0	210	0	8	217	0	225	0	4	2	2	6	441
8:00 AM	0	50	7	0	57	0	1	55	0	56	0	1	1	0	2	115
8:15 AM	0	63	5	1	68	0	3	47	0	50	0	2	1	1	3	121
8:30 AM	0	43	2	0	45	0	3	58	4	61	0	1	2	1	3	109
8:45 AM	0	62	2	0	64	0	2	41	0	43	0	0	1	1	1	108
Hourly Total	0	218	16	1	234	0	9	201	4	210	0	4	5	3	9	453
Grand Total	1	1535	75	5	1611	1	62	2141	4	2204	0	62	58	15	120	3935
Approach %	0.1	95.3	4.7	-	-	0.0	2.8	97.1	-	-	0.0	51.7	48.3	-	-	-
Total %	0.0	39.0	1.9	-	40.9	0.0	1.6	54.4	-	56.0	0.0	1.6	1.5	-	3.0	-
Lights	1	1419	68	-	1488	1	41	2001	-	2043	0	57	46	-	103	3634
% Lights	100.0	92.4	90.7	-	92.4	100.0	66.1	93.5	-	92.7	-	91.9	79.3	-	85.8	92.4

Buses	0	28	0	-	28	0	0	30	-	30	0	0	0	-	0	58
% Buses	0.0	1.8	0.0	-	1.7	0.0	0.0	1.4	-	1.4	-	0.0	0.0	-	0.0	1.5
Single-Unit Trucks	0	48	4	-	52	0	3	65	-	68	0	2	4	-	6	126
% Single-Unit Trucks	0.0	3.1	5.3	-	3.2	0.0	4.8	3.0	-	3.1	-	3.2	6.9	-	5.0	3.2
Articulated Trucks	0	37	3	-	40	0	18	41	-	59	0	3	8	-	11	110
% Articulated Trucks	0.0	2.4	4.0	-	2.5	0.0	29.0	1.9	-	2.7	-	4.8	13.8	-	9.2	2.8
Bicycles on Road	0	3	0	-	3	0	0	4	-	4	0	0	0	-	0	7
% Bicycles on Road	0.0	0.2	0.0	-	0.2	0.0	0.0	0.2	-	0.2	-	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	5	-	-	-	-	4	-	-	-	-	15	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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 (847)518-9990

Count Name: 43rd Street and Oakley Avenue
 Site Code:
 Start Date: 06/01/2021
 Page No: 3

Turning Movement Peak Hour Data (4:30 PM)

Start Time	43rd Street Eastbound					43rd Street Westbound					Oakley Avenue Northbound					Int. Total
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
4:30 PM	1	66	0	1	67	1	0	159	0	160	0	4	6	1	10	237
4:45 PM	0	78	3	0	81	0	3	137	0	140	0	2	1	1	3	224
5:00 PM	0	81	2	0	83	0	4	133	0	137	0	6	2	1	8	228
5:15 PM	0	77	2	0	79	0	5	116	0	121	0	6	4	0	10	210
Total	1	302	7	1	310	1	12	545	0	558	0	18	13	3	31	899
Approach %	0.3	97.4	2.3	-	-	0.2	2.2	97.7	-	-	0.0	58.1	41.9	-	-	-
Total %	0.1	33.6	0.8	-	34.5	0.1	1.3	60.6	-	62.1	0.0	2.0	1.4	-	3.4	-
PHF	0.250	0.932	0.583	-	0.934	0.250	0.600	0.857	-	0.872	0.000	0.750	0.542	-	0.775	0.948
Lights	1	274	7	-	282	1	11	527	-	539	0	17	13	-	30	851
% Lights	100.0	90.7	100.0	-	91.0	100.0	91.7	96.7	-	96.6	-	94.4	100.0	-	96.8	94.7
Buses	0	9	0	-	9	0	0	3	-	3	0	0	0	-	0	12
% Buses	0.0	3.0	0.0	-	2.9	0.0	0.0	0.6	-	0.5	-	0.0	0.0	-	0.0	1.3
Single-Unit Trucks	0	9	0	-	9	0	0	9	-	9	0	0	0	-	0	18
% Single-Unit Trucks	0.0	3.0	0.0	-	2.9	0.0	0.0	1.7	-	1.6	-	0.0	0.0	-	0.0	2.0
Articulated Trucks	0	10	0	-	10	0	1	5	-	6	0	1	0	-	1	17
% Articulated Trucks	0.0	3.3	0.0	-	3.2	0.0	8.3	0.9	-	1.1	-	5.6	0.0	-	3.2	1.9
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	-	0.2	-	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name: 43rd Street and Oakley Avenue
 Site Code:
 Start Date: 06/01/2021
 Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

Start Time	43rd Street Eastbound					43rd Street Westbound					Oakley Avenue Northbound					Int. Total
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
7:30 AM	0	50	5	0	55	0	2	58	0	60	0	2	0	0	2	117
7:45 AM	0	64	3	0	67	0	2	60	0	62	0	1	1	2	2	131
8:00 AM	0	50	7	0	57	0	1	55	0	56	0	1	1	0	2	115
8:15 AM	0	63	5	1	68	0	3	47	0	50	0	2	1	1	3	121
Total	0	227	20	1	247	0	8	220	0	228	0	6	3	3	9	484
Approach %	0.0	91.9	8.1	-	-	0.0	3.5	96.5	-	-	0.0	66.7	33.3	-	-	-
Total %	0.0	46.9	4.1	-	51.0	0.0	1.7	45.5	-	47.1	0.0	1.2	0.6	-	1.9	-
PHF	0.000	0.887	0.714	-	0.908	0.000	0.667	0.917	-	0.919	0.000	0.750	0.750	-	0.750	0.924
Lights	0	209	17	-	226	0	4	186	-	190	0	5	2	-	7	423
% Lights	-	92.1	85.0	-	91.5	-	50.0	84.5	-	83.3	-	83.3	66.7	-	77.8	87.4
Buses	0	0	0	-	0	0	0	7	-	7	0	0	0	-	0	7
% Buses	-	0.0	0.0	-	0.0	-	0.0	3.2	-	3.1	-	0.0	0.0	-	0.0	1.4
Single-Unit Trucks	0	10	2	-	12	0	0	16	-	16	0	1	0	-	1	29
% Single-Unit Trucks	-	4.4	10.0	-	4.9	-	0.0	7.3	-	7.0	-	16.7	0.0	-	11.1	6.0
Articulated Trucks	0	8	1	-	9	0	4	11	-	15	0	0	1	-	1	25
% Articulated Trucks	-	3.5	5.0	-	3.6	-	50.0	5.0	-	6.6	-	0.0	33.3	-	11.1	5.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 45th Street with Western Avenue
Site Code:
Start Date: 06/01/2021
Page No: 1

Turning Movement Data

Start Time	45th Street Eastbound					45th Street Westbound					Western Avenue Northbound					Western Avenue Southbound					Int. Total			
	U-Turn	Left	Thru	Right	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru		Right	Peds	App. Total
3:00 PM	0	5	21	7	33	0	12	0	7	0	19	0	0	206	3	0	209	0	6	250	0	2	256	517
3:15 PM	0	9	15	12	36	0	12	0	3	0	15	0	0	154	11	0	165	0	5	255	0	1	260	476
3:30 PM	0	5	28	7	40	0	12	0	10	0	22	0	0	142	18	1	160	0	6	239	0	3	245	467
3:45 PM	0	8	19	7	34	0	14	0	6	0	20	0	0	146	4	0	150	0	13	270	0	5	283	487
Hourly Total	0	27	83	33	143	0	50	0	26	0	76	0	0	648	36	1	684	0	30	1014	0	11	1044	1947
4:00 PM	0	2	11	8	21	0	17	0	3	0	20	0	0	182	8	0	190	0	4	287	0	1	291	522
4:15 PM	0	2	26	7	35	0	11	0	3	0	14	0	0	158	9	1	167	1	8	272	0	1	281	497
4:30 PM	0	6	24	6	36	0	18	1	4	0	23	0	0	171	4	1	175	0	2	268	0	0	270	504
4:45 PM	0	3	18	13	34	0	8	0	9	1	17	0	0	155	9	0	164	0	6	251	0	4	257	472
Hourly Total	0	13	79	34	126	0	54	1	19	1	74	0	0	666	30	2	696	1	20	1078	0	6	1099	1995
5:00 PM	0	6	16	14	36	0	15	0	12	0	27	0	0	154	7	0	161	0	12	269	0	1	281	505
5:15 PM	0	4	18	5	27	0	18	0	7	0	25	0	0	174	1	0	175	0	6	276	0	1	282	509
5:30 PM	0	10	15	5	30	0	15	0	6	1	21	0	0	171	2	1	173	0	5	290	0	0	295	519
5:45 PM	0	4	22	6	32	0	6	0	6	0	12	0	0	158	5	0	163	0	6	259	0	1	265	472
Hourly Total	0	24	71	30	125	0	54	0	31	1	85	0	0	657	15	1	672	0	29	1094	0	3	1123	2005
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	0	14	20	3	37	0	13	0	7	1	20	0	0	218	5	0	223	0	3	77	0	1	80	360
6:15 AM	0	5	18	5	28	0	2	0	2	0	4	0	0	213	2	1	215	0	5	78	0	1	83	330
6:30 AM	0	5	25	8	38	0	2	0	2	0	4	0	0	273	5	0	278	0	4	102	0	0	106	426
6:45 AM	0	4	14	2	20	0	2	0	5	0	7	0	0	234	5	0	239	0	1	66	0	0	67	333
Hourly Total	0	28	77	18	123	0	19	0	16	1	35	0	0	938	17	1	955	0	13	323	0	2	336	1449
7:00 AM	0	13	15	2	30	0	2	0	5	0	7	0	0	242	14	0	256	0	7	92	0	0	99	392
7:15 AM	0	12	25	5	42	0	4	0	3	0	7	0	0	242	7	0	249	0	5	95	0	0	100	398
7:30 AM	0	8	14	4	26	0	5	0	7	0	12	0	0	232	9	0	241	0	5	115	0	1	120	399
7:45 AM	0	8	19	7	34	0	2	0	5	2	7	0	0	226	8	0	234	0	3	119	0	1	122	397
Hourly Total	0	41	73	18	132	0	13	0	20	2	33	0	0	942	38	0	980	0	20	421	0	2	441	1586
8:00 AM	0	9	17	8	34	0	2	0	1	0	3	0	0	203	4	1	207	0	6	121	0	0	127	371
8:15 AM	0	10	18	6	34	0	7	0	5	1	12	0	0	248	9	0	257	0	8	107	1	2	116	419
8:30 AM	0	12	17	6	35	0	6	0	0	1	6	0	0	204	10	1	214	0	3	112	1	2	116	371
8:45 AM	0	7	23	9	39	0	5	0	5	0	10	0	0	171	6	1	177	0	5	140	0	0	145	371
Hourly Total	0	38	75	29	142	0	20	0	11	2	31	0	0	826	29	3	855	0	22	480	2	4	504	1532
Grand Total	0	171	458	162	791	0	210	1	123	7	334	0	0	4677	165	8	4842	1	134	4410	2	28	4547	10514
Approach %	0.0	21.6	57.9	20.5	-	0.0	62.9	0.3	36.8	-	-	0.0	0.0	96.6	3.4	-	-	0.0	2.9	97.0	0.0	-	-	-
Total %	0.0	1.6	4.4	1.5	7.5	0.0	2.0	0.0	1.2	-	3.2	0.0	0.0	44.5	1.6	-	46.1	0.0	1.3	41.9	0.0	-	43.2	-
Lights	0	168	454	160	782	0	202	0	115	-	317	0	0	4275	155	-	4430	1	121	4047	1	-	4170	9699

% Lights	-	98.2	99.1	98.8	98.9	-	96.2	0.0	93.5	-	94.9	-	-	91.4	93.9	-	91.5	100.0	90.3	91.8	50.0	-	91.7	92.2
Buses	0	1	0	0	1	0	0	0	0	-	0	0	0	92	0	-	92	0	2	89	0	-	91	184
% Buses	-	0.6	0.0	0.0	0.1	-	0.0	0.0	0.0	-	0.0	-	-	2.0	0.0	-	1.9	0.0	1.5	2.0	0.0	-	2.0	1.8
Single-Unit Trucks	0	0	2	1	3	0	2	0	1	-	3	0	0	135	1	-	136	0	4	141	0	-	145	287
% Single-Unit Trucks	-	0.0	0.4	0.6	0.4	-	1.0	0.0	0.8	-	0.9	-	-	2.9	0.6	-	2.8	0.0	3.0	3.2	0.0	-	3.2	2.7
Articulated Trucks	0	0	1	0	1	0	6	0	7	-	13	0	0	173	8	-	181	0	7	131	0	-	138	333
% Articulated Trucks	-	0.0	0.2	0.0	0.1	-	2.9	0.0	5.7	-	3.9	-	-	3.7	4.8	-	3.7	0.0	5.2	3.0	0.0	-	3.0	3.2
Bicycles on Road	0	2	1	1	4	0	0	1	0	-	1	0	0	2	1	-	3	0	0	2	1	-	3	11
% Bicycles on Road	-	1.2	0.2	0.6	0.5	-	0.0	100.0	0.0	-	0.3	-	-	0.0	0.6	-	0.1	0.0	0.0	0.0	50.0	-	0.1	0.1
Pedestrians	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-	28	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 45th Street with Western Avenue
Site Code:
Start Date: 06/01/2021
Page No: 3

Turning Movement Peak Hour Data (4:30 PM)

Start Time	45th Street Eastbound					45th Street Westbound						Western Avenue Northbound						Western Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	6	24	6	36	0	18	1	4	0	23	0	0	171	4	1	175	0	2	268	0	0	270	504
4:45 PM	0	3	18	13	34	0	8	0	9	1	17	0	0	155	9	0	164	0	6	251	0	4	257	472
5:00 PM	0	6	16	14	36	0	15	0	12	0	27	0	0	154	7	0	161	0	12	269	0	1	281	505
5:15 PM	0	4	18	5	27	0	18	0	7	0	25	0	0	174	1	0	175	0	6	276	0	1	282	509
Total	0	19	76	38	133	0	59	1	32	1	92	0	0	654	21	1	675	0	26	1064	0	6	1090	1990
Approach %	0.0	14.3	57.1	28.6	-	0.0	64.1	1.1	34.8	-	-	0.0	0.0	96.9	3.1	-	-	0.0	2.4	97.6	0.0	-	-	-
Total %	0.0	1.0	3.8	1.9	6.7	0.0	3.0	0.1	1.6	-	4.6	0.0	0.0	32.9	1.1	-	33.9	0.0	1.3	53.5	0.0	-	54.8	-
PHF	0.000	0.792	0.792	0.679	0.924	0.000	0.819	0.250	0.667	-	0.852	0.000	0.000	0.940	0.583	-	0.964	0.000	0.542	0.964	0.000	-	0.966	0.977
Lights	0	19	75	38	132	0	58	0	32	-	90	0	0	592	21	-	613	0	24	1025	0	-	1049	1884
% Lights	-	100.0	98.7	100.0	99.2	-	98.3	0.0	100.0	-	97.8	-	-	90.5	100.0	-	90.8	-	92.3	96.3	-	-	96.2	94.7
Buses	0	0	0	0	0	0	0	0	0	-	0	0	0	17	0	-	17	0	0	13	0	-	13	30
% Buses	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	-	-	2.6	0.0	-	2.5	-	0.0	1.2	-	-	1.2	1.5
Single-Unit Trucks	0	0	1	0	1	0	0	0	0	-	0	0	0	13	0	-	13	0	0	13	0	-	13	27
% Single-Unit Trucks	-	0.0	1.3	0.0	0.8	-	0.0	0.0	0.0	-	0.0	-	-	2.0	0.0	-	1.9	-	0.0	1.2	-	-	1.2	1.4
Articulated Trucks	0	0	0	0	0	0	1	0	0	-	1	0	0	32	0	-	32	0	2	13	0	-	15	48
% Articulated Trucks	-	0.0	0.0	0.0	0.0	-	1.7	0.0	0.0	-	1.1	-	-	4.9	0.0	-	4.7	-	7.7	1.2	-	-	1.4	2.4
Bicycles on Road	0	0	0	0	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	0.0	-	0.0	100.0	0.0	-	1.1	-	-	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Pedestrians	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 45th Street with Western Avenue
Site Code:
Start Date: 06/01/2021
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

Start Time	45th Street Eastbound					45th Street Westbound					Western Avenue Northbound					Western Avenue Southbound					Int. Total			
	U-Turn	Left	Thru	Right	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru		Right	Peds	App. Total
7:30 AM	0	8	14	4	26	0	5	0	7	0	12	0	0	232	9	0	241	0	5	115	0	1	120	399
7:45 AM	0	8	19	7	34	0	2	0	5	2	7	0	0	226	8	0	234	0	3	119	0	1	122	397
8:00 AM	0	9	17	8	34	0	2	0	1	0	3	0	0	203	4	1	207	0	6	121	0	0	127	371
8:15 AM	0	10	18	6	34	0	7	0	5	1	12	0	0	248	9	0	257	0	8	107	1	2	116	419
Total	0	35	68	25	128	0	16	0	18	3	34	0	0	909	30	1	939	0	22	462	1	4	485	1586
Approach %	0.0	27.3	53.1	19.5	-	0.0	47.1	0.0	52.9	-	-	0.0	0.0	96.8	3.2	-	-	0.0	4.5	95.3	0.2	-	-	-
Total %	0.0	2.2	4.3	1.6	8.1	0.0	1.0	0.0	1.1	-	2.1	0.0	0.0	57.3	1.9	-	59.2	0.0	1.4	29.1	0.1	-	30.6	-
PHF	0.000	0.875	0.895	0.781	0.941	0.000	0.571	0.000	0.643	-	0.708	0.000	0.000	0.916	0.833	-	0.913	0.000	0.688	0.955	0.250	-	0.955	0.946
Lights	0	34	68	25	127	0	16	0	15	-	31	0	0	837	28	-	865	0	18	396	1	-	415	1438
% Lights	-	97.1	100.0	100.0	99.2	-	100.0	-	83.3	-	91.2	-	-	92.1	93.3	-	92.1	-	81.8	85.7	100.0	-	85.6	90.7
Buses	0	0	0	0	0	0	0	0	0	-	0	0	0	14	0	-	14	0	2	18	0	-	20	34
% Buses	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	-	1.5	0.0	-	1.5	-	9.1	3.9	0.0	-	4.1	2.1
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	-	0	0	0	30	0	-	30	0	1	23	0	-	24	54
% Single-Unit Trucks	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	-	3.3	0.0	-	3.2	-	4.5	5.0	0.0	-	4.9	3.4
Articulated Trucks	0	0	0	0	0	0	0	0	3	-	3	0	0	27	2	-	29	0	1	24	0	-	25	57
% Articulated Trucks	-	0.0	0.0	0.0	0.0	-	0.0	-	16.7	-	8.8	-	-	3.0	6.7	-	3.1	-	4.5	5.2	0.0	-	5.2	3.6
Bicycles on Road	0	1	0	0	1	0	0	0	0	-	0	0	0	1	0	-	1	0	0	1	0	-	1	3
% Bicycles on Road	-	2.9	0.0	0.0	0.8	-	0.0	-	0.0	-	0.0	-	-	0.1	0.0	-	0.1	-	0.0	0.2	0.0	-	0.2	0.2
Pedestrians	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
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Count Name: 45th Street with Western
Boulevard
Site Code:
Start Date: 06/01/2021
Page No: 1

Turning Movement Data

Start Time	45th Street Eastbound						45th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	18	0	20	0	38	0	3	4	1	3	8	0	10	164	2	0	176	0	0	307	8	0	315	537
3:15 PM	0	12	0	11	0	23	0	1	0	1	3	2	0	7	201	1	0	209	0	0	367	6	0	373	607
3:30 PM	0	35	1	17	0	53	0	1	3	0	3	4	0	13	226	2	1	241	0	1	330	8	3	339	637
3:45 PM	0	20	0	12	2	32	0	0	2	0	4	2	0	12	216	0	2	228	0	0	389	8	2	397	659
Hourly Total	0	85	1	60	2	146	0	5	9	2	13	16	0	42	807	5	3	854	0	1	1393	30	5	1424	2440
4:00 PM	0	18	2	14	1	34	0	10	8	6	1	24	0	4	207	0	1	211	0	2	293	7	0	302	571
4:15 PM	0	25	0	15	0	40	0	3	2	4	0	9	0	9	185	2	0	196	0	2	366	5	0	373	618
4:30 PM	0	15	0	14	0	29	0	0	2	3	1	5	0	8	182	1	1	191	0	0	357	10	0	367	592
4:45 PM	0	18	1	12	0	31	0	1	2	3	1	6	0	10	190	6	0	206	0	0	345	8	0	353	596
Hourly Total	0	76	3	55	1	134	0	14	14	16	3	44	0	31	764	9	2	804	0	4	1361	30	0	1395	2377
5:00 PM	0	17	1	17	0	35	0	2	4	2	4	8	0	10	191	2	0	203	0	0	370	9	0	379	625
5:15 PM	0	13	0	12	0	25	0	2	1	7	1	10	0	14	189	2	0	205	0	0	336	14	1	350	590
5:30 PM	0	13	3	13	0	29	0	0	1	2	0	3	1	11	150	5	0	167	0	2	344	11	0	357	556
5:45 PM	0	11	2	15	0	28	0	2	1	3	0	6	0	5	170	3	0	178	0	1	334	5	1	340	552
Hourly Total	0	54	6	57	0	117	0	6	7	14	5	27	1	40	700	12	0	753	0	3	1384	39	2	1426	2323
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	0	15	7	6	1	28	0	14	15	5	1	34	0	2	181	2	1	185	0	5	54	2	0	61	308
6:15 AM	0	18	1	7	0	26	0	5	1	0	2	6	0	3	236	6	1	245	0	3	61	1	0	65	342
6:30 AM	0	17	2	8	0	27	0	0	1	0	2	1	0	1	270	0	0	271	0	1	65	3	0	69	368
6:45 AM	0	23	2	5	0	30	0	0	1	0	2	1	0	3	256	3	0	262	0	0	73	0	0	73	366
Hourly Total	0	73	12	26	1	111	0	19	18	5	7	42	0	9	943	11	2	963	0	9	253	6	0	268	1384
7:00 AM	0	20	2	7	0	29	0	0	1	0	0	1	0	4	231	3	0	238	0	2	72	3	0	77	345
7:15 AM	0	25	1	11	0	37	0	2	1	1	0	4	0	3	249	5	0	257	0	1	102	0	0	103	401
7:30 AM	0	19	2	8	0	29	0	0	1	0	4	1	0	5	277	2	0	284	0	1	116	4	1	121	435
7:45 AM	0	21	0	8	0	29	0	0	2	3	1	5	0	8	265	2	0	275	0	3	105	3	0	111	420
Hourly Total	0	85	5	34	0	124	0	2	5	4	5	11	0	20	1022	12	0	1054	0	7	395	10	1	412	1601
8:00 AM	0	14	4	7	0	25	0	0	0	0	0	0	0	0	231	0	1	231	0	3	103	1	0	107	363
8:15 AM	0	28	2	12	0	42	0	0	1	0	2	1	0	6	201	0	1	207	0	0	109	4	0	113	363
8:30 AM	0	19	2	5	0	26	0	1	0	0	0	1	0	5	218	3	1	226	0	2	112	4	0	118	371
8:45 AM	0	19	0	10	0	29	0	1	1	0	2	2	0	8	221	0	1	229	0	0	112	2	0	114	374
Hourly Total	0	80	8	34	0	122	0	2	2	0	4	4	0	19	871	3	4	893	0	5	436	11	0	452	1471
Grand Total	0	453	35	266	4	754	0	48	55	41	37	144	1	161	5107	52	11	5321	0	29	5222	126	8	5377	11596
Approach %	0.0	60.1	4.6	35.3	-	-	0.0	33.3	38.2	28.5	-	-	0.0	3.0	96.0	1.0	-	-	0.0	0.5	97.1	2.3	-	-	-
Total %	0.0	3.9	0.3	2.3	-	6.5	0.0	0.4	0.5	0.4	-	1.2	0.0	1.4	44.0	0.4	-	45.9	0.0	0.3	45.0	1.1	-	46.4	-
Lights	0	448	20	259	-	727	0	45	44	40	-	129	1	158	5023	43	-	5225	0	27	5142	122	-	5291	11372

% Lights	-	98.9	57.1	97.4	-	96.4	-	93.8	80.0	97.6	-	89.6	100.0	98.1	98.4	82.7	-	98.2	-	93.1	98.5	96.8	-	98.4	98.1
Buses	0	1	0	2	-	3	0	0	0	0	-	0	0	0	26	0	-	26	0	0	23	0	-	23	52
% Buses	-	0.2	0.0	0.8	-	0.4	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.5	0.0	-	0.5	-	0.0	0.4	0.0	-	0.4	0.4
Single-Unit Trucks	0	3	2	2	-	7	0	1	1	1	-	3	0	1	45	1	-	47	0	1	42	2	-	45	102
% Single-Unit Trucks	-	0.7	5.7	0.8	-	0.9	-	2.1	1.8	2.4	-	2.1	0.0	0.6	0.9	1.9	-	0.9	-	3.4	0.8	1.6	-	0.8	0.9
Articulated Trucks	0	1	12	2	-	15	0	2	9	0	-	11	0	2	8	8	-	18	0	1	14	2	-	17	61
% Articulated Trucks	-	0.2	34.3	0.8	-	2.0	-	4.2	16.4	0.0	-	7.6	0.0	1.2	0.2	15.4	-	0.3	-	3.4	0.3	1.6	-	0.3	0.5
Bicycles on Road	0	0	1	1	-	2	0	0	1	0	-	1	0	0	5	0	-	5	0	0	1	0	-	1	9
% Bicycles on Road	-	0.0	2.9	0.4	-	0.3	-	0.0	1.8	0.0	-	0.7	0.0	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	4	-	-	-	-	37	-	-	-	-	-	-	11	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 45th Street with Western
Boulevard
Site Code:
Start Date: 06/01/2021
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Turning Movement Peak Hour Data (4:30 PM)

Start Time	45th Street Eastbound						45th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	15	0	14	0	29	0	0	2	3	1	5	0	8	182	1	1	191	0	0	357	10	0	367	592
4:45 PM	0	18	1	12	0	31	0	1	2	3	1	6	0	10	190	6	0	206	0	0	345	8	0	353	596
5:00 PM	0	17	1	17	0	35	0	2	4	2	4	8	0	10	191	2	0	203	0	0	370	9	0	379	625
5:15 PM	0	13	0	12	0	25	0	2	1	7	1	10	0	14	189	2	0	205	0	0	336	14	1	350	590
Total	0	63	2	55	0	120	0	5	9	15	7	29	0	42	752	11	1	805	0	0	1408	41	1	1449	2403
Approach %	0.0	52.5	1.7	45.8	-	-	0.0	17.2	31.0	51.7	-	-	0.0	5.2	93.4	1.4	-	-	0.0	0.0	97.2	2.8	-	-	-
Total %	0.0	2.6	0.1	2.3	-	5.0	0.0	0.2	0.4	0.6	-	1.2	0.0	1.7	31.3	0.5	-	33.5	0.0	0.0	58.6	1.7	-	60.3	-
PHF	0.000	0.875	0.500	0.809	-	0.857	0.000	0.625	0.563	0.536	-	0.725	0.000	0.750	0.984	0.458	-	0.977	0.000	0.000	0.951	0.732	-	0.956	0.961
Lights	0	62	1	55	-	118	0	5	8	15	-	28	0	42	740	9	-	791	0	0	1397	41	-	1438	2375
% Lights	-	98.4	50.0	100.0	-	98.3	-	100.0	88.9	100.0	-	96.6	-	100.0	98.4	81.8	-	98.3	-	-	99.2	100.0	-	99.2	98.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	4	0	-	4	0	0	3	0	-	3	7
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.5	0.0	-	0.5	-	-	0.2	0.0	-	0.2	0.3
Single-Unit Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	7	0	-	7	0	0	6	0	-	6	14
% Single-Unit Trucks	-	1.6	0.0	0.0	-	0.8	-	0.0	0.0	0.0	-	0.0	-	0.0	0.9	0.0	-	0.9	-	-	0.4	0.0	-	0.4	0.6
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	1	2	-	3	0	0	2	0	-	2	6
% Articulated Trucks	-	0.0	50.0	0.0	-	0.8	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	18.2	-	0.4	-	-	0.1	0.0	-	0.1	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	11.1	0.0	-	3.4	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Count Name: 45th Street with Western
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Start Date: 06/01/2021
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Turning Movement Peak Hour Data (7:30 AM)

Start Time	45th Street Eastbound						45th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	19	2	8	0	29	0	0	1	0	4	1	0	5	277	2	0	284	0	1	116	4	1	121	435
7:45 AM	0	21	0	8	0	29	0	0	2	3	1	5	0	8	265	2	0	275	0	3	105	3	0	111	420
8:00 AM	0	14	4	7	0	25	0	0	0	0	0	0	0	0	231	0	1	231	0	3	103	1	0	107	363
8:15 AM	0	28	2	12	0	42	0	0	1	0	2	1	0	6	201	0	1	207	0	0	109	4	0	113	363
Total	0	82	8	35	0	125	0	0	4	3	7	7	0	19	974	4	2	997	0	7	433	12	1	452	1581
Approach %	0.0	65.6	6.4	28.0	-	-	0.0	0.0	57.1	42.9	-	-	0.0	1.9	97.7	0.4	-	-	0.0	1.5	95.8	2.7	-	-	-
Total %	0.0	5.2	0.5	2.2	-	7.9	0.0	0.0	0.3	0.2	-	0.4	0.0	1.2	61.6	0.3	-	63.1	0.0	0.4	27.4	0.8	-	28.6	-
PHF	0.000	0.732	0.500	0.729	-	0.744	0.000	0.000	0.500	0.250	-	0.350	0.000	0.594	0.879	0.500	-	0.878	0.000	0.583	0.933	0.750	-	0.934	0.909
Lights	0	81	5	33	-	119	0	0	1	3	-	4	0	19	953	3	-	975	0	7	417	12	-	436	1534
% Lights	-	98.8	62.5	94.3	-	95.2	-	-	25.0	100.0	-	57.1	-	100.0	97.8	75.0	-	97.8	-	100.0	96.3	100.0	-	96.5	97.0
Buses	0	1	0	1	-	2	0	0	0	0	-	0	0	0	5	0	-	5	0	0	5	0	-	5	12
% Buses	-	1.2	0.0	2.9	-	1.6	-	-	0.0	0.0	-	0.0	-	0.0	0.5	0.0	-	0.5	-	0.0	1.2	0.0	-	1.1	0.8
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	13	0	-	13	0	0	10	0	-	10	24
% Single-Unit Trucks	-	0.0	12.5	0.0	-	0.8	-	-	0.0	0.0	-	0.0	-	0.0	1.3	0.0	-	1.3	-	0.0	2.3	0.0	-	2.2	1.5
Articulated Trucks	0	0	2	1	-	3	0	0	3	0	-	3	0	0	3	1	-	4	0	0	1	0	-	1	11
% Articulated Trucks	-	0.0	25.0	2.9	-	2.4	-	-	75.0	0.0	-	42.9	-	0.0	0.3	25.0	-	0.4	-	0.0	0.2	0.0	-	0.2	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990

Count Name: 47th Street with Western Avenue
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 Start Date: 06/01/2021
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Turning Movement Data

Start Time	47th Street Eastbound						47th Street Westbound						Western Avenue Northbound						Western Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	8	61	14	17	83	0	13	85	22	2	120	0	14	164	6	5	184	0	25	192	28	11	245	632
3:15 PM	0	7	61	11	17	79	0	13	92	3	0	108	0	21	176	14	9	211	0	22	215	24	7	261	659
3:30 PM	0	7	67	11	24	85	0	15	96	21	1	132	0	16	152	18	12	186	0	24	193	22	11	239	642
3:45 PM	0	9	78	11	14	98	0	22	98	19	0	139	0	22	119	5	9	146	0	20	220	28	2	268	651
Hourly Total	0	31	267	47	72	345	0	63	371	65	3	499	0	73	611	43	35	727	0	91	820	102	31	1013	2584
4:00 PM	0	13	76	12	18	101	0	23	80	22	2	125	0	27	148	9	9	184	0	19	225	22	6	266	676
4:15 PM	0	7	75	8	15	90	0	25	84	11	4	120	0	32	155	20	10	207	0	21	207	26	13	254	671
4:30 PM	0	5	74	14	17	93	0	24	109	16	4	149	0	31	154	9	4	194	0	30	203	27	8	260	696
4:45 PM	0	8	84	8	30	100	0	22	103	11	3	136	0	21	153	11	6	185	0	22	224	26	5	272	693
Hourly Total	0	33	309	42	80	384	0	94	376	60	13	530	0	111	610	49	29	770	0	92	859	101	32	1052	2736
5:00 PM	0	9	78	6	24	93	0	19	93	15	3	127	0	18	142	11	7	171	0	25	239	21	9	285	676
5:15 PM	0	9	82	14	16	105	0	24	103	21	0	148	0	28	142	16	10	186	0	20	240	27	14	287	726
5:30 PM	0	11	76	14	20	101	0	26	100	13	3	139	0	18	150	9	8	177	0	16	258	22	15	296	713
5:45 PM	0	11	62	8	8	81	0	20	77	13	1	110	0	27	132	13	6	172	0	21	211	33	10	265	628
Hourly Total	0	40	298	42	68	380	0	89	373	62	7	524	0	91	566	49	31	706	0	82	948	103	48	1133	2743
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	0	12	43	14	3	69	0	6	41	19	0	66	0	12	198	4	0	214	0	10	69	14	1	93	442
6:15 AM	0	10	58	10	6	78	0	14	56	17	2	87	0	10	190	6	6	206	0	8	57	3	5	68	439
6:30 AM	0	16	52	9	7	77	0	6	36	14	3	56	0	10	232	7	5	249	0	14	73	13	12	100	482
6:45 AM	0	10	64	12	3	86	0	8	52	18	1	78	0	19	200	5	9	224	0	8	68	6	5	82	470
Hourly Total	0	48	217	45	19	310	0	34	185	68	6	287	0	51	820	22	20	893	0	40	267	36	23	343	1833
7:00 AM	0	9	48	14	15	71	0	8	35	20	0	63	0	13	221	10	4	244	0	10	73	4	2	87	465
7:15 AM	0	4	51	7	6	62	0	12	45	14	0	71	0	15	228	7	5	250	0	18	78	7	4	103	486
7:30 AM	0	13	66	11	5	90	0	12	50	14	2	76	0	14	220	12	2	246	0	11	102	14	8	127	539
7:45 AM	0	5	54	19	0	78	0	13	51	14	0	78	0	17	214	7	2	238	0	12	103	11	5	126	520
Hourly Total	0	31	219	51	26	301	0	45	181	62	2	288	0	59	883	36	13	978	0	51	356	36	19	443	2010
8:00 AM	0	9	68	10	3	87	0	8	66	20	1	94	0	16	182	13	3	211	0	19	86	13	2	118	510
8:15 AM	0	11	53	8	6	72	0	18	65	24	1	107	0	10	221	16	6	247	0	6	87	18	3	111	537
8:30 AM	0	6	59	8	10	73	0	14	57	18	2	89	0	12	198	11	11	221	0	14	90	14	7	118	501
8:45 AM	0	16	68	7	11	91	0	7	43	18	1	68	0	17	165	6	0	188	0	10	132	16	7	158	505
Hourly Total	0	42	248	33	30	323	0	47	231	80	5	358	0	55	766	46	20	867	0	49	395	61	19	505	2053
Grand Total	0	225	1558	260	295	2043	0	372	1717	397	36	2486	0	440	4256	245	148	4941	0	405	3645	439	172	4489	13959
Approach %	0.0	11.0	76.3	12.7	-	-	0.0	15.0	69.1	16.0	-	-	0.0	8.9	86.1	5.0	-	-	0.0	9.0	81.2	9.8	-	-	-
Total %	0.0	1.6	11.2	1.9	-	14.6	0.0	2.7	12.3	2.8	-	17.8	0.0	3.2	30.5	1.8	-	35.4	0.0	2.9	26.1	3.1	-	32.2	-
Lights	0	198	1420	152	-	1770	0	329	1545	356	-	2230	0	338	3892	197	-	4427	0	388	3319	414	-	4121	12548

% Lights	-	88.0	91.1	58.5	-	86.6	-	88.4	90.0	89.7	-	89.7	-	76.8	91.4	80.4	-	89.6	-	95.8	91.1	94.3	-	91.8	89.9
Buses	0	0	28	30	-	58	0	18	33	4	-	55	0	27	88	19	-	134	0	1	82	2	-	85	332
% Buses	-	0.0	1.8	11.5	-	2.8	-	4.8	1.9	1.0	-	2.2	-	6.1	2.1	7.8	-	2.7	-	0.2	2.2	0.5	-	1.9	2.4
Single-Unit Trucks	0	19	70	38	-	127	0	9	81	11	-	101	0	21	118	17	-	156	0	12	112	14	-	138	522
% Single-Unit Trucks	-	8.4	4.5	14.6	-	6.2	-	2.4	4.7	2.8	-	4.1	-	4.8	2.8	6.9	-	3.2	-	3.0	3.1	3.2	-	3.1	3.7
Articulated Trucks	0	8	38	40	-	86	0	15	53	25	-	93	0	54	153	11	-	218	0	4	131	9	-	144	541
% Articulated Trucks	-	3.6	2.4	15.4	-	4.2	-	4.0	3.1	6.3	-	3.7	-	12.3	3.6	4.5	-	4.4	-	1.0	3.6	2.1	-	3.2	3.9
Bicycles on Road	0	0	2	0	-	2	0	1	5	1	-	7	0	0	5	1	-	6	0	0	1	0	-	1	16
% Bicycles on Road	-	0.0	0.1	0.0	-	0.1	-	0.3	0.3	0.3	-	0.3	-	0.0	0.1	0.4	-	0.1	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	295	-	-	-	-	36	-	-	-	-	-	-	148	-	-	-	-	-	172	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data (4:30 PM)

Start Time	47th Street Eastbound						47th Street Westbound						Western Avenue Northbound						Western Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	5	74	14	17	93	0	24	109	16	4	149	0	31	154	9	4	194	0	30	203	27	8	260	696
4:45 PM	0	8	84	8	30	100	0	22	103	11	3	136	0	21	153	11	6	185	0	22	224	26	5	272	693
5:00 PM	0	9	78	6	24	93	0	19	93	15	3	127	0	18	142	11	7	171	0	25	239	21	9	285	676
5:15 PM	0	9	82	14	16	105	0	24	103	21	0	148	0	28	142	16	10	186	0	20	240	27	14	287	726
Total	0	31	318	42	87	391	0	89	408	63	10	560	0	98	591	47	27	736	0	97	906	101	36	1104	2791
Approach %	0.0	7.9	81.3	10.7	-	-	0.0	15.9	72.9	11.3	-	-	0.0	13.3	80.3	6.4	-	-	0.0	8.8	82.1	9.1	-	-	-
Total %	0.0	1.1	11.4	1.5	-	14.0	0.0	3.2	14.6	2.3	-	20.1	0.0	3.5	21.2	1.7	-	26.4	0.0	3.5	32.5	3.6	-	39.6	-
PHF	0.000	0.861	0.946	0.750	-	0.931	0.000	0.927	0.936	0.750	-	0.940	0.000	0.790	0.959	0.734	-	0.948	0.000	0.808	0.944	0.935	-	0.962	0.961
Lights	0	30	303	31	-	364	0	84	377	61	-	522	0	76	526	41	-	643	0	95	870	100	-	1065	2594
% Lights	-	96.8	95.3	73.8	-	93.1	-	94.4	92.4	96.8	-	93.2	-	77.6	89.0	87.2	-	87.4	-	97.9	96.0	99.0	-	96.5	92.9
Buses	0	0	4	4	-	8	0	3	4	0	-	7	0	5	18	3	-	26	0	0	13	0	-	13	54
% Buses	-	0.0	1.3	9.5	-	2.0	-	3.4	1.0	0.0	-	1.3	-	5.1	3.0	6.4	-	3.5	-	0.0	1.4	0.0	-	1.2	1.9
Single-Unit Trucks	0	1	6	3	-	10	0	0	21	0	-	21	0	5	16	1	-	22	0	2	8	0	-	10	63
% Single-Unit Trucks	-	3.2	1.9	7.1	-	2.6	-	0.0	5.1	0.0	-	3.8	-	5.1	2.7	2.1	-	3.0	-	2.1	0.9	0.0	-	0.9	2.3
Articulated Trucks	0	0	4	4	-	8	0	2	5	2	-	9	0	12	31	2	-	45	0	0	15	1	-	16	78
% Articulated Trucks	-	0.0	1.3	9.5	-	2.0	-	2.2	1.2	3.2	-	1.6	-	12.2	5.2	4.3	-	6.1	-	0.0	1.7	1.0	-	1.4	2.8
Bicycles on Road	0	0	1	0	-	1	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	-	0.0	0.3	0.0	-	0.3	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	87	-	-	-	-	-	10	-	-	-	-	-	27	-	-	-	-	-	36	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 47th Street with Western Avenue
Site Code:
Start Date: 06/01/2021
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

Start Time	47th Street Eastbound						47th Street Westbound						Western Avenue Northbound						Western Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	13	66	11	5	90	0	12	50	14	2	76	0	14	220	12	2	246	0	11	102	14	8	127	539
7:45 AM	0	5	54	19	0	78	0	13	51	14	0	78	0	17	214	7	2	238	0	12	103	11	5	126	520
8:00 AM	0	9	68	10	3	87	0	8	66	20	1	94	0	16	182	13	3	211	0	19	86	13	2	118	510
8:15 AM	0	11	53	8	6	72	0	18	65	24	1	107	0	10	221	16	6	247	0	6	87	18	3	111	537
Total	0	38	241	48	14	327	0	51	232	72	4	355	0	57	837	48	13	942	0	48	378	56	18	482	2106
Approach %	0.0	11.6	73.7	14.7	-	-	0.0	14.4	65.4	20.3	-	-	0.0	6.1	88.9	5.1	-	-	0.0	10.0	78.4	11.6	-	-	-
Total %	0.0	1.8	11.4	2.3	-	15.5	0.0	2.4	11.0	3.4	-	16.9	0.0	2.7	39.7	2.3	-	44.7	0.0	2.3	17.9	2.7	-	22.9	-
PHF	0.000	0.731	0.886	0.632	-	0.908	0.000	0.708	0.879	0.750	-	0.829	0.000	0.838	0.947	0.750	-	0.953	0.000	0.632	0.917	0.778	-	0.949	0.977
Lights	0	31	207	21	-	259	0	39	205	61	-	305	0	44	769	36	-	849	0	45	318	47	-	410	1823
% Lights	-	81.6	85.9	43.8	-	79.2	-	76.5	88.4	84.7	-	85.9	-	77.2	91.9	75.0	-	90.1	-	93.8	84.1	83.9	-	85.1	86.6
Buses	0	0	6	7	-	13	0	4	6	3	-	13	0	4	12	3	-	19	0	1	15	1	-	17	62
% Buses	-	0.0	2.5	14.6	-	4.0	-	7.8	2.6	4.2	-	3.7	-	7.0	1.4	6.3	-	2.0	-	2.1	4.0	1.8	-	3.5	2.9
Single-Unit Trucks	0	7	19	10	-	36	0	3	12	3	-	18	0	0	31	8	-	39	0	1	21	7	-	29	122
% Single-Unit Trucks	-	18.4	7.9	20.8	-	11.0	-	5.9	5.2	4.2	-	5.1	-	0.0	3.7	16.7	-	4.1	-	2.1	5.6	12.5	-	6.0	5.8
Articulated Trucks	0	0	9	10	-	19	0	5	7	5	-	17	0	9	24	1	-	34	0	1	24	1	-	26	96
% Articulated Trucks	-	0.0	3.7	20.8	-	5.8	-	9.8	3.0	6.9	-	4.8	-	15.8	2.9	2.1	-	3.6	-	2.1	6.3	1.8	-	5.4	4.6
Bicycles on Road	0	0	0	0	-	0	0	0	2	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.9	0.0	-	0.6	-	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	14	-	-	-	-	-	4	-	-	-	-	-	13	-	-	-	-	-	18	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 47th Street with Western
Boulevard
Site Code:
Start Date: 06/01/2021
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Turning Movement Data

Start Time	47th Street Eastbound						47th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	16	73	4	0	93	0	13	87	18	2	118	0	17	156	14	8	187	0	54	269	13	3	336	734
3:15 PM	0	19	83	4	0	106	0	14	88	24	1	126	0	13	138	15	8	166	0	50	272	9	13	331	729
3:30 PM	0	17	86	4	1	107	0	15	115	14	5	144	0	6	168	14	11	188	0	68	286	14	5	368	807
3:45 PM	0	6	94	3	0	103	0	12	109	21	8	142	0	10	171	28	6	209	0	57	303	13	3	373	827
Hourly Total	0	58	336	15	1	409	0	54	399	77	16	530	0	46	633	71	33	750	0	229	1130	49	24	1408	3097
4:00 PM	0	10	80	6	0	96	0	7	105	28	2	140	0	10	161	17	5	188	0	47	270	10	5	327	751
4:15 PM	0	18	101	4	1	123	0	7	96	22	1	125	0	11	122	18	7	151	0	56	290	12	8	358	757
4:30 PM	0	17	91	4	0	112	0	10	121	10	2	141	0	15	160	12	4	187	0	64	282	11	5	357	797
4:45 PM	0	26	92	0	1	118	0	8	111	16	5	135	0	13	134	20	4	167	0	62	270	17	2	349	769
Hourly Total	0	71	364	14	2	449	0	32	433	76	10	541	0	49	577	67	20	693	0	229	1112	50	20	1391	3074
5:00 PM	0	14	106	1	1	121	0	13	91	19	5	123	0	12	147	14	2	173	0	66	281	19	12	366	783
5:15 PM	0	13	92	6	0	111	0	10	109	20	2	139	0	13	146	20	1	179	0	46	287	17	11	350	779
5:30 PM	0	7	87	6	1	100	0	11	109	16	2	136	0	15	129	20	4	164	0	55	273	7	10	335	735
5:45 PM	0	16	77	5	0	98	0	12	86	24	0	122	0	8	139	22	6	169	0	64	263	16	10	343	732
Hourly Total	0	50	362	18	2	430	0	46	395	79	9	520	0	48	561	76	13	685	0	231	1104	59	43	1394	3029
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	0	11	42	3	0	56	0	0	63	25	7	88	0	1	139	6	5	146	0	24	45	4	2	73	363
6:15 AM	0	10	59	0	2	69	0	4	69	28	3	101	0	7	184	6	8	197	0	15	44	1	5	60	427
6:30 AM	0	12	58	3	1	73	0	1	59	31	1	91	0	1	243	26	8	270	0	17	55	0	4	72	506
6:45 AM	0	25	44	3	0	72	0	4	63	19	4	86	0	4	230	6	5	240	0	13	48	2	6	63	461
Hourly Total	0	58	203	9	3	270	0	9	254	103	15	366	0	13	796	44	26	853	0	69	192	7	17	268	1757
7:00 AM	0	20	44	3	0	67	0	2	64	31	1	97	0	4	187	13	6	204	0	25	47	2	3	74	442
7:15 AM	0	15	62	6	0	83	0	1	58	28	0	87	0	3	215	7	3	225	0	27	86	3	5	116	511
7:30 AM	0	20	68	3	1	91	0	7	69	32	4	108	0	5	216	15	3	236	0	26	79	5	6	110	545
7:45 AM	0	9	58	0	0	67	0	4	74	26	3	104	0	5	220	12	2	237	0	26	69	9	5	104	512
Hourly Total	0	64	232	12	1	308	0	14	265	117	8	396	0	17	838	47	12	902	0	104	281	19	19	404	2010
8:00 AM	0	15	79	2	0	96	0	3	72	21	3	96	0	7	197	17	4	221	0	27	88	6	7	121	534
8:15 AM	0	13	63	1	1	77	0	2	85	21	5	108	0	6	178	15	4	199	0	29	79	3	7	111	495
8:30 AM	0	9	75	5	0	89	0	7	69	17	0	93	0	8	175	16	2	199	0	21	71	6	7	98	479
8:45 AM	0	17	73	2	0	92	0	1	62	25	2	88	0	6	150	17	1	173	0	32	77	3	8	112	465
Hourly Total	0	54	290	10	1	354	0	13	288	84	10	385	0	27	700	65	11	792	0	109	315	18	29	442	1973
Grand Total	0	355	1787	78	10	2220	0	168	2034	536	68	2738	0	200	4105	370	115	4675	0	971	4134	202	152	5307	14940
Approach %	0.0	16.0	80.5	3.5	-	-	0.0	6.1	74.3	19.6	-	-	0.0	4.3	87.8	7.9	-	-	0.0	18.3	77.9	3.8	-	-	-
Total %	0.0	2.4	12.0	0.5	-	14.9	0.0	1.1	13.6	3.6	-	18.3	0.0	1.3	27.5	2.5	-	31.3	0.0	6.5	27.7	1.4	-	35.5	-
Lights	0	338	1604	78	-	2020	0	163	1785	514	-	2462	0	197	4053	358	-	4608	0	955	4069	196	-	5220	14310

% Lights	-	95.2	89.8	100.0	-	91.0	-	97.0	87.8	95.9	-	89.9	-	98.5	98.7	96.8	-	98.6	-	98.4	98.4	97.0	-	98.4	95.8
Buses	0	1	47	0	-	48	0	4	52	5	-	61	0	0	19	1	-	20	0	3	22	0	-	25	154
% Buses	-	0.3	2.6	0.0	-	2.2	-	2.4	2.6	0.9	-	2.2	-	0.0	0.5	0.3	-	0.4	-	0.3	0.5	0.0	-	0.5	1.0
Single-Unit Trucks	0	7	89	0	-	96	0	0	105	8	-	113	0	3	28	8	-	39	0	6	33	2	-	41	289
% Single-Unit Trucks	-	2.0	5.0	0.0	-	4.3	-	0.0	5.2	1.5	-	4.1	-	1.5	0.7	2.2	-	0.8	-	0.6	0.8	1.0	-	0.8	1.9
Articulated Trucks	0	9	43	0	-	52	0	1	90	7	-	98	0	0	4	3	-	7	0	7	9	4	-	20	177
% Articulated Trucks	-	2.5	2.4	0.0	-	2.3	-	0.6	4.4	1.3	-	3.6	-	0.0	0.1	0.8	-	0.1	-	0.7	0.2	2.0	-	0.4	1.2
Bicycles on Road	0	0	4	0	-	4	0	0	2	2	-	4	0	0	1	0	-	1	0	0	1	0	-	1	10
% Bicycles on Road	-	0.0	0.2	0.0	-	0.2	-	0.0	0.1	0.4	-	0.1	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	10	-	-	-	-	68	-	-	-	-	-	-	115	-	-	-	-	-	152	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 47th Street with Western
Boulevard
Site Code:
Start Date: 06/01/2021
Page No: 3

Turning Movement Peak Hour Data (4:30 PM)

Start Time	47th Street Eastbound						47th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	17	91	4	0	112	0	10	121	10	2	141	0	15	160	12	4	187	0	64	282	11	5	357	797
4:45 PM	0	26	92	0	1	118	0	8	111	16	5	135	0	13	134	20	4	167	0	62	270	17	2	349	769
5:00 PM	0	14	106	1	1	121	0	13	91	19	5	123	0	12	147	14	2	173	0	66	281	19	12	366	783
5:15 PM	0	13	92	6	0	111	0	10	109	20	2	139	0	13	146	20	1	179	0	46	287	17	11	350	779
Total	0	70	381	11	2	462	0	41	432	65	14	538	0	53	587	66	11	706	0	238	1120	64	30	1422	3128
Approach %	0.0	15.2	82.5	2.4	-	-	0.0	7.6	80.3	12.1	-	-	0.0	7.5	83.1	9.3	-	-	0.0	16.7	78.8	4.5	-	-	-
Total %	0.0	2.2	12.2	0.4	-	14.8	0.0	1.3	13.8	2.1	-	17.2	0.0	1.7	18.8	2.1	-	22.6	0.0	7.6	35.8	2.0	-	45.5	-
PHF	0.000	0.673	0.899	0.458	-	0.955	0.000	0.788	0.893	0.813	-	0.954	0.000	0.883	0.917	0.825	-	0.944	0.000	0.902	0.976	0.842	-	0.971	0.981
Lights	0	66	362	11	-	439	0	40	395	65	-	500	0	53	576	65	-	694	0	237	1109	63	-	1409	3042
% Lights	-	94.3	95.0	100.0	-	95.0	-	97.6	91.4	100.0	-	92.9	-	100.0	98.1	98.5	-	98.3	-	99.6	99.0	98.4	-	99.1	97.3
Buses	0	0	6	0	-	6	0	1	7	0	-	8	0	0	4	0	-	4	0	0	3	0	-	3	21
% Buses	-	0.0	1.6	0.0	-	1.3	-	2.4	1.6	0.0	-	1.5	-	0.0	0.7	0.0	-	0.6	-	0.0	0.3	0.0	-	0.2	0.7
Single-Unit Trucks	0	1	8	0	-	9	0	0	20	0	-	20	0	0	7	1	-	8	0	1	5	1	-	7	44
% Single-Unit Trucks	-	1.4	2.1	0.0	-	1.9	-	0.0	4.6	0.0	-	3.7	-	0.0	1.2	1.5	-	1.1	-	0.4	0.4	1.6	-	0.5	1.4
Articulated Trucks	0	3	3	0	-	6	0	0	10	0	-	10	0	0	0	0	-	0	0	0	3	0	-	3	19
% Articulated Trucks	-	4.3	0.8	0.0	-	1.3	-	0.0	2.3	0.0	-	1.9	-	0.0	0.0	0.0	-	0.0	-	0.0	0.3	0.0	-	0.2	0.6
Bicycles on Road	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	-	0.0	0.5	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	2	-	-	-	-	-	14	-	-	-	-	-	11	-	-	-	-	-	30	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

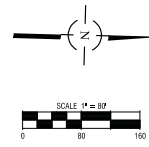
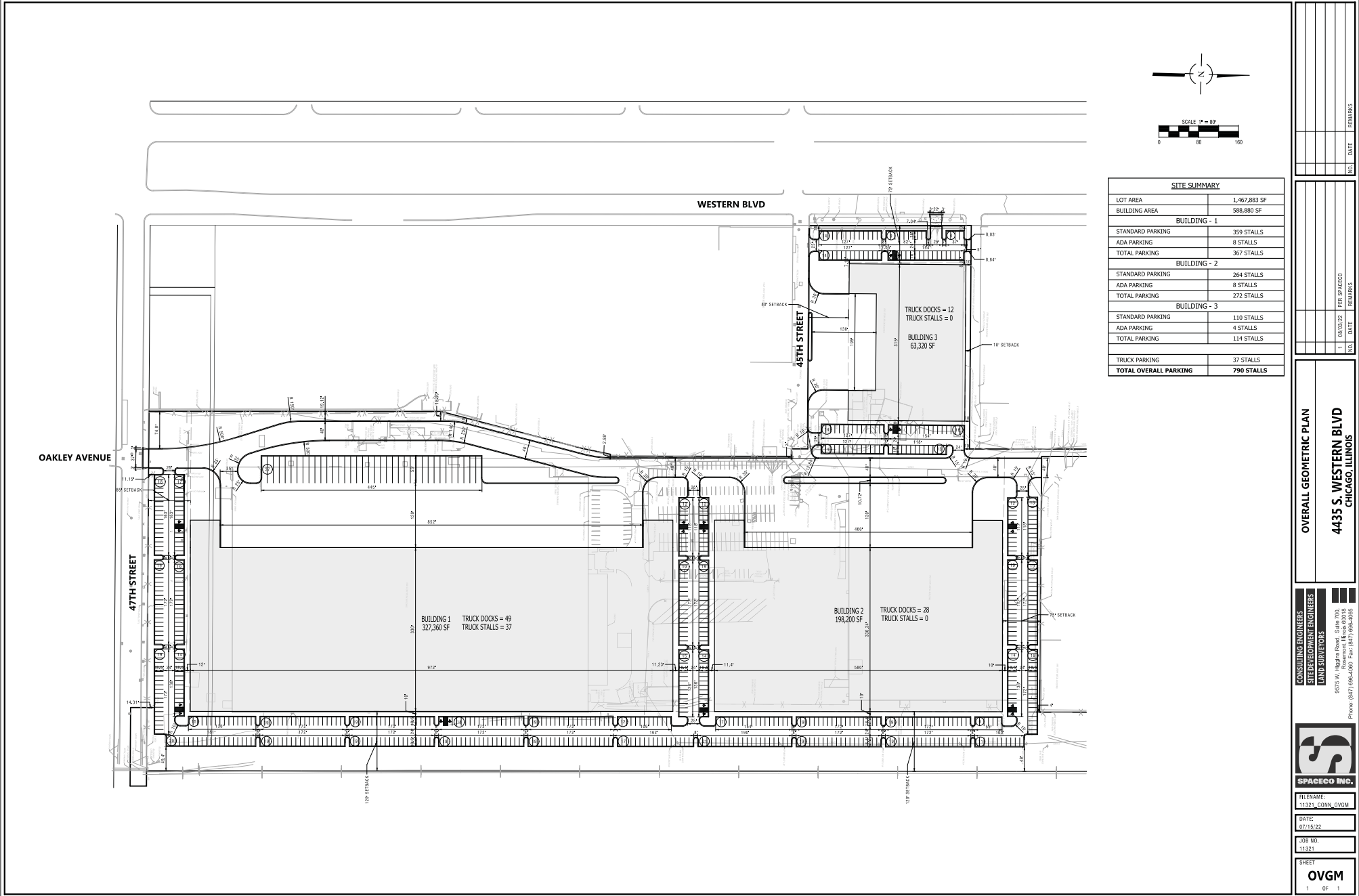
Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: 47th Street with Western
Boulevard
Site Code:
Start Date: 06/01/2021
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

Start Time	47th Street Eastbound						47th Street Westbound						Western Boulevard Northbound						Western Boulevard Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	20	68	3	1	91	0	7	69	32	4	108	0	5	216	15	1	236	0	26	79	5	6	110	545
7:45 AM	0	9	58	0	0	67	0	4	74	26	3	104	0	5	220	12	2	237	0	26	69	9	5	104	512
8:00 AM	0	15	79	2	0	96	0	3	72	21	3	96	0	7	197	17	4	221	0	27	88	6	7	121	534
8:15 AM	0	13	63	1	1	77	0	2	85	21	5	108	0	6	178	15	4	199	0	29	79	3	7	111	495
Total	0	57	268	6	2	331	0	16	300	100	15	416	0	23	811	59	11	893	0	108	315	23	25	446	2086
Approach %	0.0	17.2	81.0	1.8	-	-	0.0	3.8	72.1	24.0	-	-	0.0	2.6	90.8	6.6	-	-	0.0	24.2	70.6	5.2	-	-	-
Total %	0.0	2.7	12.8	0.3	-	15.9	0.0	0.8	14.4	4.8	-	19.9	0.0	1.1	38.9	2.8	-	42.8	0.0	5.2	15.1	1.1	-	21.4	-
PHF	0.000	0.713	0.848	0.500	-	0.862	0.000	0.571	0.882	0.781	-	0.963	0.000	0.821	0.922	0.868	-	0.942	0.000	0.931	0.895	0.639	-	0.921	0.957
Lights	0	55	224	6	-	285	0	16	253	89	-	358	0	22	802	56	-	880	0	105	304	22	-	431	1954
% Lights	-	96.5	83.6	100.0	-	86.1	-	100.0	84.3	89.0	-	86.1	-	95.7	98.9	94.9	-	98.5	-	97.2	96.5	95.7	-	96.6	93.7
Buses	0	0	10	0	-	10	0	0	11	2	-	13	0	0	1	0	-	1	0	2	4	0	-	6	30
% Buses	-	0.0	3.7	0.0	-	3.0	-	0.0	3.7	2.0	-	3.1	-	0.0	0.1	0.0	-	0.1	-	1.9	1.3	0.0	-	1.3	1.4
Single-Unit Trucks	0	1	25	0	-	26	0	0	20	4	-	24	0	1	6	3	-	10	0	1	7	0	-	8	68
% Single-Unit Trucks	-	1.8	9.3	0.0	-	7.9	-	0.0	6.7	4.0	-	5.8	-	4.3	0.7	5.1	-	1.1	-	0.9	2.2	0.0	-	1.8	3.3
Articulated Trucks	0	1	9	0	-	10	0	0	15	3	-	18	0	0	2	0	-	2	0	0	0	1	-	1	31
% Articulated Trucks	-	1.8	3.4	0.0	-	3.0	-	0.0	5.0	3.0	-	4.3	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	4.3	-	0.2	1.5
Bicycles on Road	0	0	0	0	-	0	0	0	1	2	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.3	2.0	-	0.7	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	2	-	-	-	-	-	15	-	-	-	-	-	11	-	-	-	-	-	25	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Preliminary Site Plan



SITE SUMMARY	
LOT AREA	1,467,883 SF
BUILDING AREA	588,880 SF
BUILDING - 1	
STANDARD PARKING	359 STALLS
ADA PARKING	8 STALLS
TOTAL PARKING	367 STALLS
BUILDING - 2	
STANDARD PARKING	264 STALLS
ADA PARKING	8 STALLS
TOTAL PARKING	272 STALLS
BUILDING - 3	
STANDARD PARKING	110 STALLS
ADA PARKING	4 STALLS
TOTAL PARKING	114 STALLS
TRUCK PARKING	37 STALLS
TOTAL OVERALL PARKING	790 STALLS

NO.	DATE	REMARKS

NO.	DATE	REMARKS
1	03/01/22	REV SPACECO

OVERALL GEOMETRIC PLAN
4435 S. WESTERN BLVD
CHICAGO, ILLINOIS

CONSULTING ENGINEERS
STEADSTATE ENGINEERS
LAND SURVEYORS
8575 W. Higgins Road, Suite 700
Rosemont, Illinois 60018
Phone: (630) 684-4499 Fax: (630) 684-4499



FILENAME:
11321_OVG.M_OVG.M

DATE:
07/15/22

JOB NO.
11321

SHEET

OVGM
1 OF 1

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Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	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. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	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.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Sheets
2021 Base Weekday Morning Peak Hour Conditions

Lanes, Volumes, Timings
1: Western Avenue & 45th Street

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	43	91	31	20	0	24	0	1145	38	28	577	0
Future Volume (vph)	43	91	31	20	0	24	0	1145	38	28	577	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			0.99			1.00				
Frt		0.974			0.927			0.995				
Flt Protected		0.987			0.978						0.998	
Satd. Flow (prot)	0	1639	0	0	1405	0	0	3323	0	0	2829	0
Flt Permitted		0.921			0.892						0.852	
Satd. Flow (perm)	0	1528	0	0	1281	0	0	3323	0	0	2415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			25			5				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		966			172			1339			1013	
Travel Time (s)		22.0			3.9			30.4			23.0	
Confl. Peds. (#/hr)	4		1	1		4			3	3		
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	0%	8%	8%	11%	13%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0					0	0
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	0	0	46	0	0	1245	0	0	636	0
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		3	8			2		6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		8.0	20.0			20.0		20.0	20.0	
Minimum Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (%)	25.5%	25.5%		10.9%	36.4%			63.6%		63.6%	63.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		3.0			4.0			4.0			4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max			C-Max		C-Max	C-Max	
Act Effect Green (s)		25.0			36.0			66.0			66.0	
Actuated g/C Ratio		0.23			0.33			0.60			0.60	

Lanes, Volumes, Timings
 1: Western Avenue & 45th Street

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.49			0.10			0.62				0.44
Control Delay		40.2			27.0			4.4				13.1
Queue Delay		0.1			2.6			0.0				0.0
Total Delay		40.4			29.7			4.5				13.2
LOS		D			C			A				B
Approach Delay		40.4			29.7			4.5				13.2
Approach LOS		D			C			A				B
Queue Length 50th (ft)		101			20			50				120
Queue Length 95th (ft)		171			m43			59				162
Internal Link Dist (ft)		886			92			1259				933
Turn Bay Length (ft)												
Base Capacity (vph)		355			445			1995				1449
Starvation Cap Reductn		0			325			0				0
Spillback Cap Reductn		11			0			49				35
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.51			0.38			0.64				0.45

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 29 (26%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.6
 Intersection LOS: B
 Intersection Capacity Utilization 61.6%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Western Avenue & 45th Street



Lanes, Volumes, Timings

2: Western Boulevard & 45th Street/Site Access

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	103	10	44	0	5	4	24	1218	5	9	541	15
Future Volume (vph)	103	10	44	0	5	4	24	1218	5	9	541	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	10	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			0.99			1.00				
Frt		0.962			0.940			0.999			0.996	
Flt Protected		0.968						0.999			0.999	
Satd. Flow (prot)	0	1698	0	0	1393	0	0	3298	0	0	3259	0
Flt Permitted		0.804						0.934			0.927	
Satd. Flow (perm)	0	1408	0	0	1393	0	0	3083	0	0	3024	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			4			1			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		172			1568			1346			1025	
Travel Time (s)		3.9			35.6			30.6			23.3	
Confl. Peds. (#/hr)	1		2	2		1			7	7		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	40%	2%	0%	80%	0%	0%	2%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	9	0	0	1369	0	0	621	0
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Minimum Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (%)	8.2%	33.6%		25.5%	25.5%		66.4%	66.4%		66.4%	66.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			3.0			4.0			4.0	
Lead/Lag	Lag			Lead	Lead							
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		33.0			25.0			69.0			69.0	
Actuated g/C Ratio		0.30			0.23			0.63			0.63	

Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.38			0.03			0.71				0.33
Control Delay		20.0			26.6			5.7				10.1
Queue Delay		2.9			0.0			0.0				0.0
Total Delay		23.0			26.6			5.7				10.1
LOS		C			C			A				B
Approach Delay		23.0			26.6			5.7				10.1
Approach LOS		C			C			A				B
Queue Length 50th (ft)		50			3			68				99
Queue Length 95th (ft)		81			16			m82				131
Internal Link Dist (ft)		92			1488			1266				945
Turn Bay Length (ft)												
Base Capacity (vph)		448			319			1934				1898
Starvation Cap Reductn		183			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.65			0.03			0.71				0.33

Intersection Summary




















Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 27 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 8.4
 Intersection Capacity Utilization 73.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Western Boulevard & 45th Street/Site Access



Lanes, Volumes, Timings
3: Western Avenue & 47th Street

06/18/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	301	60	64	288	90	71	1045	60	60	498	70
Future Volume (vph)	48	301	60	64	288	90	71	1045	60	60	498	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	10	12	12	10	11	12	10	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		160	0		0	100		0	100		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			95			95		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		0.99	0.99		0.98	1.00			0.99	
Frt		0.978			0.964			0.992			0.981	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	2491	0	1381	1635	0	1327	3171	0	1604	3019	0
Flt Permitted		0.797		0.404			0.359			0.113		
Satd. Flow (perm)	0	1995	0	582	1635	0	494	3171	0	191	3019	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			18			7			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2698			179			1284			1339	
Travel Time (s)		61.3			4.1			29.2			30.4	
Confl. Peds. (#/hr)	18		13	13		18	14		4	4		14
Confl. Bikes (#/hr)						2			1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	19%	16%	52%	22%	11%	11%	27%	7%	25%	5%	11%	14%
Bus Blockages (#/hr)	0	11	11	0	0	0	0	5	5	0	5	5
Parking (#/hr)	0	0	0									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	417	0	65	386	0	72	1127	0	61	574	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	21.0	21.0		10.0	21.0		5.0	17.0		5.0	17.0	
Minimum Split (s)	37.0	37.0		14.0	51.0		8.0	51.0		8.0	51.0	
Total Split (s)	37.0	37.0		14.0	51.0		8.0	51.0		8.0	51.0	
Total Split (%)	33.6%	33.6%		12.7%	46.4%		7.3%	46.4%		7.3%	46.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		3.0		4.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)		34.0		47.0	47.0		53.6	48.6		53.6	48.6	
Actuated g/C Ratio		0.31		0.43	0.43		0.49	0.44		0.49	0.44	

Lanes, Volumes, Timings
 3: Western Avenue & 47th Street

06/18/2021

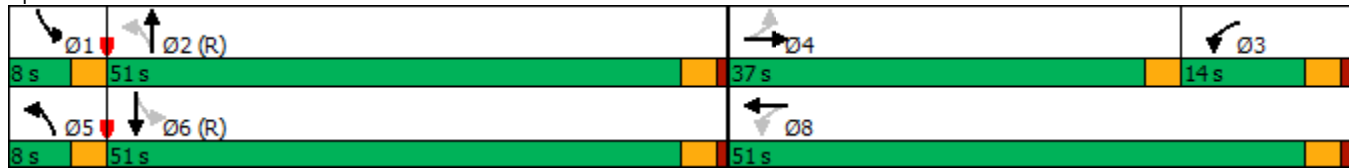


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.66		0.20	0.55		0.26	0.80		0.39	0.43	
Control Delay		37.6		7.0	7.5		16.8	32.3		35.4	40.7	
Queue Delay		0.6		1.9	0.8		0.0	13.6		0.8	0.0	
Total Delay		38.2		8.9	8.2		16.8	45.9		36.2	40.7	
LOS		D		A	A		B	D		D	D	
Approach Delay		38.2			8.3			44.1			40.3	
Approach LOS		D			A			D			D	
Queue Length 50th (ft)		128		8	40		25	362		36	214	
Queue Length 95th (ft)		186		m12	53		51	455		73	275	
Internal Link Dist (ft)		2618			99			1204			1259	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)		629		321	708		278	1404		157	1344	
Starvation Cap Reductn		0		162	114		0	0		0	0	
Spillback Cap Reductn		47		0	0		0	279		17	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.72		0.41	0.65		0.26	1.00		0.44	0.43	

Intersection Summary






















Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 7 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 36.3 Intersection LOS: D
 Intersection Capacity Utilization 88.5% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Western Avenue & 47th Street



Lanes, Volumes, Timings
4: Western Boulevard & 47th Street

06/18/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	342	8	20	384	123	29	1053	74	135	421	29
Future Volume (vph)	71	342	8	20	384	123	29	1053	74	135	421	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	12	10	12	9	9	12	9	9	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		320	50		0	70		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	20			25			145			160		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00			0.99		1.00	1.00			1.00	
Frt		0.997			0.965			0.990			0.990	
Flt Protected	0.950				0.998		0.950			0.950		
Satd. Flow (prot)	1620	1500	0	0	2666	0	1577	3163	0	1608	3120	0
Flt Permitted	0.313				0.933		0.456			0.087		
Satd. Flow (perm)	526	1500	0	0	2491	0	756	3163	0	147	3120	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			38			8			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		179			500			1309			1346	
Travel Time (s)		4.1			11.4			29.8			30.6	
Confl. Peds. (#/hr)	25		11	11		25	2		15	15		2
Confl. Bikes (#/hr)						3						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	18%	0%	0%	14%	7%	3%	1%	5%	1%	3%	3%
Bus Blockages (#/hr)	0	9	9	0	10	10	0	0	0	0	0	0
Parking (#/hr)				0	0	0						
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	364	0	0	549	0	30	1174	0	141	469	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	17.0		17.0	17.0		5.0	19.0		5.0	19.0	
Minimum Split (s)	14.0	52.0		38.0	38.0		8.0	47.0		8.0	47.0	
Total Split (s)	14.0	52.0		38.0	38.0		11.0	47.0		11.0	47.0	
Total Split (%)	12.7%	47.3%		34.5%	34.5%		10.0%	42.7%		10.0%	42.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0			3.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lag			Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)	48.0	48.0			35.0		50.6	43.0		53.7	47.9	
Actuated g/C Ratio	0.44	0.44			0.32		0.46	0.39		0.49	0.44	

Lanes, Volumes, Timings

4: Western Boulevard & 47th Street

06/18/2021

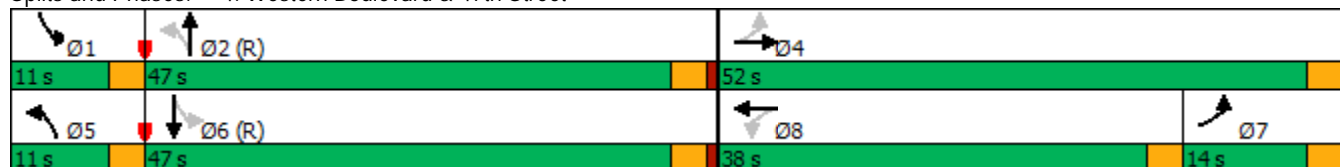


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.23	0.56			0.67		0.08	0.95		0.80	0.34	
Control Delay	14.9	19.2			34.9		14.6	48.3		67.0	42.9	
Queue Delay	4.0	5.6			0.0		0.0	0.0		0.0	0.0	
Total Delay	18.8	24.8			34.9		14.6	48.3		67.0	42.9	
LOS	B	C			C		B	D		E	D	
Approach Delay		23.8			34.9			47.5			48.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	17	93			164		10	413		88	173	
Queue Length 95th (ft)	m26	m226			227		26	#562		#163	230	
Internal Link Dist (ft)		99			420			1229			1266	
Turn Bay Length (ft)							50			70		
Base Capacity (vph)	328	655			818		417	1241		177	1362	
Starvation Cap Reductn	190	228			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.54	0.85			0.67		0.07	0.95		0.80	0.34	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 41.5 Intersection LOS: D
 Intersection Capacity Utilization 86.7% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Western Boulevard & 47th Street



HCM 6th TWSC
5: Oakley Avenue/Site Access & 47th Street

06/18/2021

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	540	11	14	522	0	5	0	11	3	0	0
Future Vol, veh/h	0	540	11	14	522	0	5	0	11	3	0	0
Conflicting Peds, #/hr	13	0	16	16	0	13	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	12	36	0	2	0	20	0	36	100	0	0
Mvmt Flow	0	587	12	15	567	0	5	0	12	3	0	0

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	580	0	0	615	0	0	1206	1219	612	1212	1225	580
Stage 1	-	-	-	-	-	-	609	609	-	610	610	-
Stage 2	-	-	-	-	-	-	597	610	-	602	615	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.56	8.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	7.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.624	4.4	4	3.3
Pot Cap-1 Maneuver	1004	-	-	974	-	-	148	182	436	103	180	518
Stage 1	-	-	-	-	-	-	453	488	-	349	488	-
Stage 2	-	-	-	-	-	-	460	488	-	353	485	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	987	-	-	964	-	-	144	173	430	96	171	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	173	-	96	171	-
Stage 1	-	-	-	-	-	-	448	483	-	343	468	-
Stage 2	-	-	-	-	-	-	449	468	-	342	480	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.2		19.5		43.8	
HCM LOS					C		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	265	987	-	-	964	-	-	96
HCM Lane V/C Ratio	0.066	-	-	-	0.016	-	-	0.034
HCM Control Delay (s)	19.5	0	-	-	8.8	0	-	43.8
HCM Lane LOS	C	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

HCM 6th TWSC
6: Oakley Avenue & 43rd Street

06/18/2021

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	284	25	10	275	8	0
Future Vol, veh/h	284	25	10	275	8	0
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	16	50	16	13	0
Mvmt Flow	309	27	11	299	9	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	339	0	648 326
Stage 1	-	-	-	-	326 -
Stage 2	-	-	-	-	322 -
Critical Hdwy	-	-	4.6	-	6.53 6.2
Critical Hdwy Stg 1	-	-	-	-	5.53 -
Critical Hdwy Stg 2	-	-	-	-	5.53 -
Follow-up Hdwy	-	-	2.65	-	3.617 3.3
Pot Cap-1 Maneuver	-	-	995	-	418 720
Stage 1	-	-	-	-	707 -
Stage 2	-	-	-	-	710 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	993	-	411 718
Mov Cap-2 Maneuver	-	-	-	-	411 -
Stage 1	-	-	-	-	706 -
Stage 2	-	-	-	-	700 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	411	-	-	993	-
HCM Lane V/C Ratio	0.021	-	-	0.011	-
HCM Control Delay (s)	13.9	-	-	8.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Capacity Analysis Summary Sheets
2021 Base Weekday Evening Peak Hour Conditions

Lanes, Volumes, Timings
1: Western Avenue & 45th Street

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	19	76	38	59	0	32	0	664	21	26	1064	0
Future Volume (vph)	19	76	38	59	0	32	0	664	21	26	1064	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			0.99			1.00			1.00	
Frt		0.961			0.952			0.995				
Flt Protected		0.993			0.969						0.999	
Satd. Flow (prot)	0	1616	0	0	1545	0	0	3331	0	0	3101	0
Flt Permitted		0.961			0.807						0.924	
Satd. Flow (perm)	0	1563	0	0	1286	0	0	3331	0	0	2868	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			27			5				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		966			172			1339			1013	
Travel Time (s)		22.0			3.9			30.4			23.0	
Confl. Peds. (#/hr)	6		1	1		6			1	1		
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	2%	0%	0%	0%	8%	0%	8%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0					0	0
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	93	0	0	699	0	0	1113	0
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		3	8			2		6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		8.0	20.0			20.0		20.0	20.0	
Minimum Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (%)	25.5%	25.5%		10.9%	36.4%			63.6%		63.6%	63.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		3.0			4.0			4.0			4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max			C-Max		C-Max	C-Max	
Act Effect Green (s)		25.0			36.0			66.0			66.0	
Actuated g/C Ratio		0.23			0.33			0.60			0.60	

Lanes, Volumes, Timings
 1: Western Avenue & 45th Street

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.37			0.20			0.35				0.65
Control Delay		34.6			32.6			3.0				16.6
Queue Delay		0.1			10.4			0.0				0.0
Total Delay		34.8			43.0			3.0				16.6
LOS		C			D			A				B
Approach Delay		34.8			43.0			3.0				16.6
Approach LOS		C			D			A				B
Queue Length 50th (ft)		71			52			21				252
Queue Length 95th (ft)		130			m91			31				323
Internal Link Dist (ft)		886			92			1259				933
Turn Bay Length (ft)												
Base Capacity (vph)		368			457			2000				1720
Starvation Cap Reductn		0			330			0				0
Spillback Cap Reductn		19			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.39			0.73			0.35				0.65

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 62 (56%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 14.4
 Intersection Capacity Utilization 73.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Western Avenue & 45th Street



Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	66	2	55	5	8	15	42	752	11	0	1408	41
Future Volume (vph)	66	2	55	5	8	15	42	752	11	0	1408	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	10	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			0.99			1.00				
Frt		0.940			0.926			0.998			0.996	
Flt Protected		0.974			0.991			0.997				
Satd. Flow (prot)	0	1688	0	0	1962	0	0	3312	0	0	3322	0
Flt Permitted		0.844			0.968			0.744				
Satd. Flow (perm)	0	1463	0	0	1916	0	0	2471	0	0	3322	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			16			2			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		172			1568			1346			1025	
Travel Time (s)		3.9			35.6			30.6			23.3	
Confl. Peds. (#/hr)			1	1					7	7		
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	50%	0%	0%	0%	0%	0%	1%	18%	0%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	128	0	0	29	0	0	838	0	0	1510	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Minimum Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (%)	8.2%	33.6%		25.5%	25.5%		66.4%	66.4%		66.4%	66.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			3.0			4.0			4.0	
Lead/Lag	Lag			Lead	Lead							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		33.0			25.0			69.0			69.0	
Actuated g/C Ratio		0.30			0.23			0.63			0.63	

Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

06/18/2021

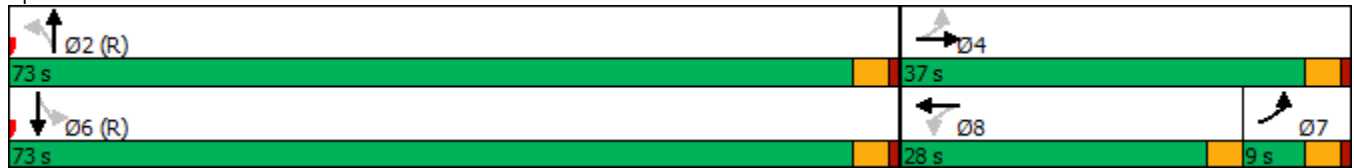


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.27			0.06			0.54				0.72
Control Delay		17.0			20.6			4.1				16.5
Queue Delay		3.1			0.0			0.1				0.3
Total Delay		20.1			20.6			4.2				16.8
LOS		C			C			A				B
Approach Delay		20.1			20.6			4.2				16.8
Approach LOS		C			C			A				B
Queue Length 50th (ft)		24			7			31				353
Queue Length 95th (ft)		m48			32			26				438
Internal Link Dist (ft)		92			1488			1266				945
Turn Bay Length (ft)												
Base Capacity (vph)		475			447			1550				2085
Starvation Cap Reductn		258			0			0				0
Spillback Cap Reductn		0			1			96				130
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.59			0.07			0.58				0.77

Intersection Summary




















Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 65 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 12.8
 Intersection LOS: B
 Intersection Capacity Utilization 75.0%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Western Boulevard & 45th Street/Site Access



Lanes, Volumes, Timings
 3: Western Avenue & 47th Street

06/18/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	317	42	89	407	63	98	591	47	97	963	101
Future Volume (vph)	31	317	42	89	407	63	98	591	47	97	963	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	10	12	12	10	11	12	10	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		160	0		0	100		0	100		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			95			95		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		0.98	0.99			1.00		0.99	0.97	
Frt		0.984			0.980			0.989			0.986	
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	2781	0	1574	1693	0	1381	3144	0	1652	3249	0
Flt Permitted		0.753		0.398			0.119			0.308		
Satd. Flow (perm)	0	2100	0	647	1693	0	173	3144	0	533	3249	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			9			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2698			179			1284			1339	
Travel Time (s)		61.3			4.1			29.2			30.4	
Confl. Peds. (#/hr)	36		27	27		36	87		10	10		87
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	7%	33%	7%	10%	3%	22%	8%	15%	2%	2%	1%
Bus Blockages (#/hr)	0	12	12	0	0	0	0	5	5	0	5	5
Parking (#/hr)	0	0	0									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	406	0	93	490	0	102	665	0	101	1108	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	21.0	21.0		11.0	21.0		6.0	17.0		6.0	17.0	
Minimum Split (s)	34.0	34.0		15.0	49.0		9.0	52.0		9.0	52.0	
Total Split (s)	34.0	34.0		15.0	49.0		9.0	52.0		9.0	52.0	
Total Split (%)	30.9%	30.9%		13.6%	44.5%		8.2%	47.3%		8.2%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		3.0		4.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)		31.0		45.0	45.0		55.0	48.0		55.0	48.0	
Actuated g/C Ratio		0.28		0.41	0.41		0.50	0.44		0.50	0.44	

Lanes, Volumes, Timings
 3: Western Avenue & 47th Street

06/18/2021

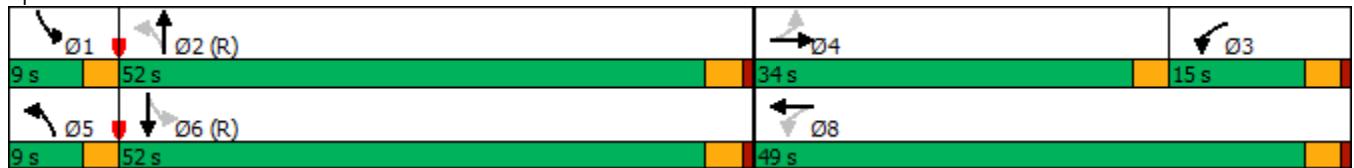


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.68		0.26	0.70		0.67	0.48		0.31	0.78	
Control Delay		40.6		10.8	18.2		37.3	23.3		21.9	43.3	
Queue Delay		0.0		4.6	8.1		0.0	1.8		1.0	0.0	
Total Delay		40.6		15.4	26.2		37.3	25.1		22.9	43.3	
LOS		D		B	C		D	C		C	D	
Approach Delay		40.6			24.5			26.7			41.6	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)		130		16	335		35	170		54	440	
Queue Length 95th (ft)		187		m23	m461		#84	223		m88	508	
Internal Link Dist (ft)		2618			99			1204			1259	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)		600		357	697		152	1377		327	1425	
Starvation Cap Reductn		0		202	168		0	0		0	0	
Spillback Cap Reductn		2		0	0		0	523		91	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.68		0.60	0.93		0.67	0.78		0.43	0.78	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 33 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 34.3
 Intersection LOS: C
 Intersection Capacity Utilization 94.0%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Western Avenue & 47th Street



Lanes, Volumes, Timings
4: Western Boulevard & 47th Street

06/18/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	380	11	41	442	65	53	670	66	238	1166	64
Future Volume (vph)	70	380	11	41	442	65	53	670	66	238	1166	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	12	10	12	9	9	12	9	9	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		320	50		0	70		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	20			25			145			160		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00			0.99			0.99			1.00	
Frt		0.996			0.982			0.987			0.992	
Flt Protected	0.950				0.996		0.950			0.950		
Satd. Flow (prot)	1589	1650	0	0	2797	0	1624	3155	0	1624	3187	0
Flt Permitted	0.312				0.843		0.106			0.194		
Satd. Flow (perm)	513	1650	0	0	2366	0	181	3155	0	332	3187	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			14			10				6
Link Speed (mph)		30			30			30				30
Link Distance (ft)		179			500			1309				1346
Travel Time (s)		4.1			11.4			29.8				30.6
Confl. Peds. (#/hr)	30		11	11		30	2		14	14		2
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	7%	0%	0%	11%	0%	0%	1%	2%	0%	1%	2%
Bus Blockages (#/hr)	0	9	9	0	10	10	0	0	0	0	0	0
Parking (#/hr)				0	0	0						
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	399	0	0	559	0	54	751	0	243	1255	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	17.0		17.0	17.0		5.0	19.0		7.0	19.0	
Minimum Split (s)	12.0	51.0		39.0	39.0		8.0	40.0		10.0	51.0	
Total Split (s)	12.0	51.0		39.0	39.0		8.0	40.0		19.0	51.0	
Total Split (%)	10.9%	46.4%		35.5%	35.5%		7.3%	36.4%		17.3%	46.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0			3.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lag			Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)	47.0	47.0			36.0		43.9	37.9		56.0	48.6	
Actuated g/C Ratio	0.43	0.43			0.33		0.40	0.34		0.51	0.44	

Lanes, Volumes, Timings

4: Western Boulevard & 47th Street

06/18/2021

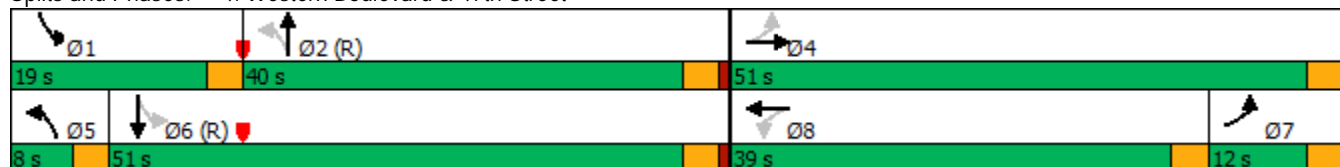


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.57			0.71		0.39	0.69		0.73	0.89	
Control Delay	14.9	16.7			37.7		23.8	34.8		27.1	40.6	
Queue Delay	2.8	3.1			1.2		0.5	0.0		0.0	9.7	
Total Delay	17.7	19.8			38.8		24.3	34.8		27.1	50.4	
LOS	B	B			D		C	C		C	D	
Approach Delay		19.5			38.8			34.1			46.6	
Approach LOS		B			D			C			D	
Queue Length 50th (ft)	17	97			177		19	238		135	502	
Queue Length 95th (ft)	m27	129			243		40	313		m195	#598	
Internal Link Dist (ft)		99			420			1229			1266	
Turn Bay Length (ft)							50			70		
Base Capacity (vph)	297	706			783		137	1094		356	1411	
Starvation Cap Reductn	150	206			0		0	0		0	0	
Spillback Cap Reductn	0	0			79		9	0		0	149	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.48	0.80			0.79		0.42	0.69		0.68	0.99	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 40 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 38.5 Intersection LOS: D
 Intersection Capacity Utilization 88.3% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Western Boulevard & 47th Street



HCM 6th TWSC
5: Oakley Avenue/Site Access & 47th Street

06/18/2021

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	671	13	23	543	0	4	0	11	2	0	1
Future Vol, veh/h	0	671	13	23	543	0	4	0	11	2	0	1
Conflicting Peds, #/hr	24	0	11	11	0	24	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	9	2	0	25	0	9	0	0	0
Mvmt Flow	0	729	14	25	590	0	4	0	12	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	614	0	0	754	0	0	1388	1411	748	1407	1418	614
Stage 1	-	-	-	-	-	-	747	747	-	664	664	-
Stage 2	-	-	-	-	-	-	641	664	-	743	754	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.35	6.5	6.29	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.725	4	3.381	3.5	4	3.3
Pot Cap-1 Maneuver	975	-	-	825	-	-	107	140	401	118	138	496
Stage 1	-	-	-	-	-	-	372	423	-	453	461	-
Stage 2	-	-	-	-	-	-	427	461	-	410	420	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	945	-	-	819	-	-	102	129	398	107	127	481
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	129	-	107	127	-
Stage 1	-	-	-	-	-	-	369	420	-	439	427	-
Stage 2	-	-	-	-	-	-	407	427	-	397	417	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.4			22.3			30.6		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	224	945	-	-	819	-	-	144
HCM Lane V/C Ratio	0.073	-	-	-	0.031	-	-	0.023
HCM Control Delay (s)	22.3	0	-	-	9.5	0	-	30.6
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

HCM 6th TWSC
6: Oakley Avenue & 43rd Street

06/18/2021

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	302	7	12	545	18	13
Future Vol, veh/h	302	7	12	545	18	13
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	8	2	6	0
Mvmt Flow	318	7	13	574	19	14

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	328	0	926
Stage 1	-	-	-	-	325
Stage 2	-	-	-	-	601
Critical Hdwy	-	-	4.18	-	6.46
Critical Hdwy Stg 1	-	-	-	-	5.46
Critical Hdwy Stg 2	-	-	-	-	5.46
Follow-up Hdwy	-	-	2.272	-	3.554
Pot Cap-1 Maneuver	-	-	1199	-	293
Stage 1	-	-	-	-	723
Stage 2	-	-	-	-	540
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1196	-	287
Mov Cap-2 Maneuver	-	-	-	-	287
Stage 1	-	-	-	-	722
Stage 2	-	-	-	-	531

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	384	-	-	1196	-
HCM Lane V/C Ratio	0.085	-	-	0.011	-
HCM Control Delay (s)	15.2	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Capacity Analysis Summary Sheets
2027 Projected Weekday Morning Peak Hour Conditions

Lanes, Volumes, Timings
1: Western Avenue & 45th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	44	94	32	23	0	29	0	1181	45	40	596	0
Future Volume (vph)	44	94	32	23	0	29	0	1181	45	40	596	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			0.99			1.00				
Frt		0.974			0.924			0.995				
Flt Protected		0.987			0.979						0.997	
Satd. Flow (prot)	0	1639	0	0	1303	0	0	3354	0	0	2848	0
Flt Permitted		0.918			0.886						0.779	
Satd. Flow (perm)	0	1523	0	0	1179	0	0	3354	0	0	2225	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			31			6				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		966			172			1339				1013
Travel Time (s)		22.0			3.9			30.4				23.0
Confl. Peds. (#/hr)	4		1	1		4			3	3		
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	4%	0%	28%	0%	7%	7%	13%	12%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0					0	0
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	55	0	0	1290	0	0	669	0
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		3	8			2		6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		8.0	20.0			20.0		20.0	20.0	
Minimum Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (%)	25.5%	25.5%		10.9%	36.4%			63.6%		63.6%	63.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		3.0			4.0			4.0			4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max			C-Max		C-Max	C-Max	
Act Effect Green (s)		25.0			36.0			66.0			66.0	
Actuated g/C Ratio		0.23			0.33			0.60			0.60	

Lanes, Volumes, Timings
 1: Western Avenue & 45th Street

08/03/2022

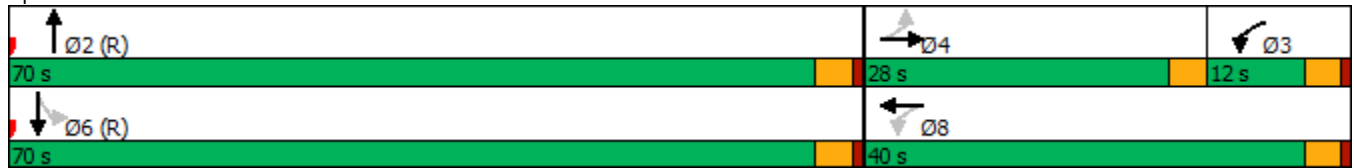


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.51			0.13			0.64			0.50	
Control Delay		40.8			22.0			4.5			14.2	
Queue Delay		0.7			2.5			0.1			0.1	
Total Delay		41.5			24.4			4.6			14.3	
LOS		D			C			A			B	
Approach Delay		41.5			24.4			4.6			14.3	
Approach LOS		D			C			A			B	
Queue Length 50th (ft)		105			18			52			133	
Queue Length 95th (ft)		177			m40			62			181	
Internal Link Dist (ft)		886			92			1259			933	
Turn Bay Length (ft)												
Base Capacity (vph)		353			415			2014			1335	
Starvation Cap Reductn		0			279			0			0	
Spillback Cap Reductn		41			0			124			82	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.57			0.40			0.68			0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 29 (26%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 11.1 Intersection LOS: B
 Intersection Capacity Utilization 71.6% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Western Avenue & 45th Street



Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	117	17	45	0	12	5	25	1258	12	14	559	15
Future Volume (vph)	117	17	45	0	12	5	25	1258	12	14	559	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	10	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			1.00				
Frt		0.966			0.962			0.999			0.996	
Flt Protected		0.968						0.999			0.999	
Satd. Flow (prot)	0	1697	0	0	1339	0	0	3295	0	0	3259	0
Flt Permitted		0.794						0.933			0.905	
Satd. Flow (perm)	0	1391	0	0	1339	0	0	3077	0	0	2953	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			5			2			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		172			1568			1346			309	
Travel Time (s)		3.9			35.6			30.6			7.0	
Confl. Peds. (#/hr)	1		2	2		1			7	7		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	12%	2%	0%	75%	0%	0%	2%	8%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	197	0	0	18	0	0	1422	0	0	645	0
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Minimum Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (%)	8.2%	33.6%		25.5%	25.5%		66.4%	66.4%		66.4%	66.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			3.0			4.0			4.0	
Lead/Lag	Lag			Lead	Lead							
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		33.0			25.0			69.0			69.0	
Actuated g/C Ratio		0.30			0.23			0.63			0.63	

Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.45			0.06			0.74				0.35
Control Delay		24.6			27.5			6.2				10.3
Queue Delay		4.7			0.0			0.0				0.0
Total Delay		29.3			27.5			6.2				10.3
LOS		C			C			A				B
Approach Delay		29.3			27.5			6.2				10.3
Approach LOS		C			C			A				B
Queue Length 50th (ft)		68			7			74				104
Queue Length 95th (ft)		105			27			m85				138
Internal Link Dist (ft)		92			1488			1266				229
Turn Bay Length (ft)												
Base Capacity (vph)		441			308			1930				1853
Starvation Cap Reductn		177			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.75			0.06			0.74				0.35

Intersection Summary





















Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 27 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 76.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Western Boulevard & 45th Street/Site Access



Lanes, Volumes, Timings
3: Western Avenue & 47th Street

08/03/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	317	62	67	301	95	73	1081	68	64	515	72
Future Volume (vph)	50	317	62	67	301	95	73	1081	68	64	515	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	10	12	12	10	11	12	10	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		160	0		0	100		0	100		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			95			95		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		0.99	0.99		0.99	1.00			0.99	
Frt		0.978			0.964			0.991			0.982	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	2541	0	1452	1643	0	1465	3178	0	1589	3022	0
Flt Permitted		0.777		0.389			0.348			0.099		
Satd. Flow (perm)	0	1984	0	590	1643	0	529	3178	0	166	3022	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			18			7			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2698			179			1284			1339	
Travel Time (s)		61.3			4.1			29.2			30.4	
Confl. Peds. (#/hr)	18		13	13		18	14		4	4		14
Confl. Bikes (#/hr)						2			1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	18%	15%	42%	16%	10%	12%	15%	7%	18%	6%	11%	14%
Bus Blockages (#/hr)	0	11	11	0	0	0	0	5	5	0	5	5
Parking (#/hr)	0	0	0									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	0	68	404	0	74	1172	0	65	593	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	21.0	21.0		10.0	21.0		5.0	17.0		5.0	17.0	
Minimum Split (s)	37.0	37.0		14.0	51.0		8.0	51.0		8.0	51.0	
Total Split (s)	37.0	37.0		14.0	51.0		8.0	51.0		8.0	51.0	
Total Split (%)	33.6%	33.6%		12.7%	46.4%		7.3%	46.4%		7.3%	46.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		3.0		4.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)		34.0		47.0	47.0		53.6	48.6		53.6	48.6	
Actuated g/C Ratio		0.31		0.43	0.43		0.49	0.44		0.49	0.44	

Lanes, Volumes, Timings
 3: Western Avenue & 47th Street

08/03/2022

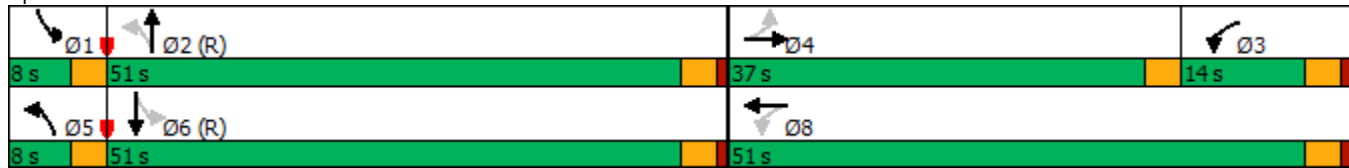


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.70		0.21	0.57		0.25	0.83		0.45	0.44	
Control Delay		39.1		6.9	7.5		16.3	33.9		37.6	40.4	
Queue Delay		0.8		2.1	0.9		0.0	39.6		1.3	0.0	
Total Delay		39.9		8.9	8.4		16.3	73.5		38.9	40.4	
LOS		D		A	A		B	E		D	D	
Approach Delay		39.9			8.5			70.1			40.2	
Approach LOS		D			A			E			D	
Queue Length 50th (ft)		136		8	41		26	384		38	223	
Queue Length 95th (ft)		198		m12	54		52	483		76	283	
Internal Link Dist (ft)		2618			99			1204			1259	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)		625		330	712		300	1407		145	1344	
Starvation Cap Reductn		0		171	114		0	0		0	0	
Spillback Cap Reductn		47		0	0		0	321		17	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.76		0.43	0.68		0.25	1.08		0.51	0.44	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 7 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 48.1
 Intersection LOS: D
 Intersection Capacity Utilization 90.8%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Western Avenue & 47th Street



Lanes, Volumes, Timings

4: Western Boulevard & 47th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	367	8	22	403	131	30	1090	81	140	434	30
Future Volume (vph)	74	367	8	22	403	131	30	1090	81	140	434	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	12	10	12	9	9	12	9	9	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		320	50		0	70		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	20			25			145			160		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00			0.99		1.00	1.00			1.00	
Frt		0.997			0.965			0.990			0.990	
Flt Protected	0.950				0.998		0.950			0.950		
Satd. Flow (prot)	1620	1525	0	0	2701	0	1577	3162	0	1608	3120	0
Flt Permitted	0.294				0.930		0.445			0.087		
Satd. Flow (perm)	495	1525	0	0	2517	0	738	3162	0	147	3120	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			39			8			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		179			500			1309			1346	
Travel Time (s)		4.1			11.4			29.8			30.6	
Confl. Peds. (#/hr)	25		11	11		25	2		15	15		2
Confl. Bikes (#/hr)						3						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	16%	0%	0%	12%	7%	3%	1%	5%	1%	3%	3%
Bus Blockages (#/hr)	0	9	9	0	10	10	0	0	0	0	0	0
Parking (#/hr)				0	0	0						
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	390	0	0	579	0	31	1219	0	146	483	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	17.0		17.0	17.0		5.0	19.0		5.0	19.0	
Minimum Split (s)	14.0	52.0		38.0	38.0		8.0	47.0		8.0	47.0	
Total Split (s)	14.0	52.0		38.0	38.0		11.0	47.0		11.0	47.0	
Total Split (%)	12.7%	47.3%		34.5%	34.5%		10.0%	42.7%		10.0%	42.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0			3.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lag			Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)	48.0	48.0			35.0		50.6	43.0		53.6	47.8	
Actuated g/C Ratio	0.44	0.44			0.32		0.46	0.39		0.49	0.43	

Lanes, Volumes, Timings
 4: Western Boulevard & 47th Street

08/03/2022

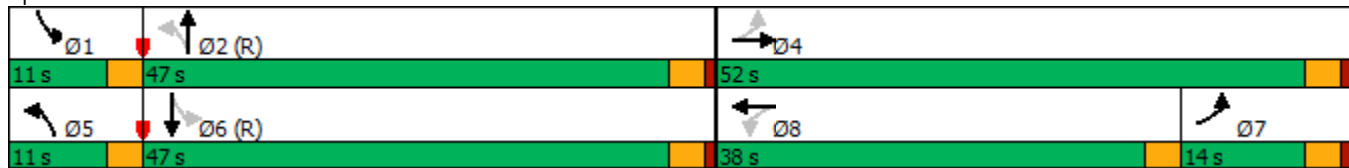


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.59			0.70		0.08	0.98		0.82	0.36	
Control Delay	15.3	19.7			35.9		14.7	55.3		70.5	43.0	
Queue Delay	4.8	9.2			0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	28.9			35.9		14.7	55.3		70.5	43.0	
LOS	C	C			D		B	E		E	D	
Approach Delay		27.4			35.9			54.3			49.4	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	18	132			175		11	439		92	179	
Queue Length 95th (ft)	m26	m254			242		27	#598		#172	235	
Internal Link Dist (ft)		99			420			1229			1266	
Turn Bay Length (ft)							50			70		
Base Capacity (vph)	318	666			827		409	1240		177	1360	
Starvation Cap Reductn	184	238			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.57	0.91			0.70		0.08	0.98		0.82	0.36	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 45.3 Intersection LOS: D
 Intersection Capacity Utilization 90.2% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Western Boulevard & 47th Street



HCM 6th TWSC
5: Oakley Avenue/Site Access & 47th Street

08/03/2022

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	557	11	14	542	12	5	0	11	4	0	9
Future Vol, veh/h	20	557	11	14	542	12	5	0	11	4	0	9
Conflicting Peds, #/hr	13	0	16	16	0	13	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	10	36	0	10	17	20	0	36	50	0	56
Mvmt Flow	22	605	12	15	589	13	5	0	12	4	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	615	0	0	633	0	0	1302	1316	630	1303	1316	609
Stage 1	-	-	-	-	-	-	671	671	-	639	639	-
Stage 2	-	-	-	-	-	-	631	645	-	664	677	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.3	6.5	6.56	7.6	6.5	6.76
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.68	4	3.624	3.95	4	3.804
Pot Cap-1 Maneuver	883	-	-	960	-	-	126	159	426	109	159	409
Stage 1	-	-	-	-	-	-	418	458	-	393	474	-
Stage 2	-	-	-	-	-	-	440	471	-	380	455	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	868	-	-	950	-	-	116	145	420	99	145	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	145	-	99	145	-
Stage 1	-	-	-	-	-	-	398	436	-	371	455	-
Stage 2	-	-	-	-	-	-	419	452	-	354	433	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			21.8			23.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	231	868	-	-	950	-	-	207
HCM Lane V/C Ratio	0.075	0.025	-	-	0.016	-	-	0.068
HCM Control Delay (s)	21.8	9.3	0	-	8.9	0	-	23.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

HCM 6th TWSC
6: Oakley Avenue & 43rd Street

08/03/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	293	30	12	283	8	1
Future Vol, veh/h	293	30	12	283	8	1
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	13	42	16	0	0
Mvmt Flow	318	33	13	308	9	1

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	354	0	673 338
Stage 1	-	-	-	-	338 -
Stage 2	-	-	-	-	335 -
Critical Hdwy	-	-	4.52	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.578	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1014	-	424 709
Stage 1	-	-	-	-	727 -
Stage 2	-	-	-	-	729 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1012	-	416 707
Mov Cap-2 Maneuver	-	-	-	-	416 -
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	717 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	436	-	-	1012	-
HCM Lane V/C Ratio	0.022	-	-	0.013	-
HCM Control Delay (s)	13.4	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
7: Western Boulevard & Site Access

08/03/2022

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Vol, veh/h	0	0	1378	2	2	588
Future Vol, veh/h	0	0	1378	2	2	588
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	1451	2	2	619

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1766	727	0	0	1453	0
Stage 1	1452	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	77	371	-	-	472	-
Stage 1	185	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	77	371	-	-	472	-
Mov Cap-2 Maneuver	77	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	716	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	472
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	0	12.7
HCM Lane LOS	-	-	A	B
HCM 95th %tile Q(veh)	-	-	-	0

Capacity Analysis Summary Sheets
2027 Projected Weekday Evening Peak Hour Conditions

Lanes, Volumes, Timings
1: Western Avenue & 45th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	78	39	68	0	43	0	687	24	33	1097	0
Future Volume (vph)	20	78	39	68	0	43	0	687	24	33	1097	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		1.00			0.99			1.00			1.00	
Frt		0.961			0.947			0.995				
Flt Protected		0.993			0.970						0.999	
Satd. Flow (prot)	0	1616	0	0	1490	0	0	3328	0	0	3091	0
Flt Permitted		0.957			0.783						0.912	
Satd. Flow (perm)	0	1556	0	0	1202	0	0	3328	0	0	2822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			31			5				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		966			172			1339			1013	
Travel Time (s)		22.0			3.9			30.4			23.0	
Confl. Peds. (#/hr)	6		1	1		6			1	1		
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	3%	0%	7%	0%	8%	4%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0					0	0
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	113	0	0	725	0	0	1153	0
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		3	8			2		6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		8.0	20.0			20.0		20.0	20.0	
Minimum Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (s)	28.0	28.0		12.0	40.0			70.0		70.0	70.0	
Total Split (%)	25.5%	25.5%		10.9%	36.4%			63.6%		63.6%	63.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		3.0			4.0			4.0			4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max			C-Max		C-Max	C-Max	
Act Effect Green (s)		25.0			36.0			66.0			66.0	
Actuated g/C Ratio		0.23			0.33			0.60			0.60	

Lanes, Volumes, Timings
 1: Western Avenue & 45th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.38			0.26			0.36			0.68	
Control Delay		35.0			27.8			3.2			17.5	
Queue Delay		0.2			6.4			0.0			0.0	
Total Delay		35.2			34.1			3.2			17.5	
LOS		D			C			A			B	
Approach Delay		35.2			34.1			3.2			17.5	
Approach LOS		D			C			A			B	
Queue Length 50th (ft)		73			54			23			270	
Queue Length 95th (ft)		133			m90			33			348	
Internal Link Dist (ft)		886			92			1259			933	
Turn Bay Length (ft)												
Base Capacity (vph)		366			435			1998			1693	
Starvation Cap Reductn		0			270			0			0	
Spillback Cap Reductn		21			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.41			0.68			0.36			0.68	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 62 (56%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 79.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Western Avenue & 45th Street



Lanes, Volumes, Timings

2: Western Boulevard & 45th Street/Site Access

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	8	57	11	26	20	43	775	13	1	1453	42
Future Volume (vph)	70	8	57	11	26	20	43	775	13	1	1453	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	10	12	12	10	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00			1.00			1.00	
Frt		0.943			0.952			0.998			0.996	
Flt Protected		0.975			0.991			0.997				
Satd. Flow (prot)	0	1643	0	0	1892	0	0	3311	0	0	3322	0
Flt Permitted		0.832			0.953			0.729			0.955	
Satd. Flow (perm)	0	1402	0	0	1819	0	0	2421	0	0	3172	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			21			3			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		172			1568			1346			309	
Travel Time (s)		3.9			35.6			30.6			7.0	
Confl. Peds. (#/hr)			1	1					7	7		
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	63%	0%	0%	15%	0%	0%	1%	15%	0%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	59	0	0	866	0	0	1559	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Minimum Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (s)	9.0	37.0		28.0	28.0		73.0	73.0		73.0	73.0	
Total Split (%)	8.2%	33.6%		25.5%	25.5%		66.4%	66.4%		66.4%	66.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			3.0			4.0			4.0	
Lead/Lag	Lag			Lead	Lead							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		33.0			25.0			69.0			69.0	
Actuated g/C Ratio		0.30			0.23			0.63			0.63	

Lanes, Volumes, Timings
 2: Western Boulevard & 45th Street/Site Access

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.31			0.14			0.57				0.78
Control Delay		20.9			24.7			4.7				18.6
Queue Delay		4.0			0.0			0.1				0.4
Total Delay		24.9			24.7			4.8				19.0
LOS		C			C			A				B
Approach Delay		24.9			24.7			4.8				19.0
Approach LOS		C			C			A				B
Queue Length 50th (ft)		34			21			38				391
Queue Length 95th (ft)		m60			56			35				490
Internal Link Dist (ft)		92			1488			1266				229
Turn Bay Length (ft)												
Base Capacity (vph)		455			429			1519				1991
Starvation Cap Reductn		240			0			0				0
Spillback Cap Reductn		0			1			85				111
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.65			0.14			0.60				0.83

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 65 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 76.4%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Western Boulevard & 45th Street/Site Access



Lanes, Volumes, Timings
3: Western Avenue & 47th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗		↖	↕↕		↖	↕↕	
Traffic Volume (vph)	32	331	43	97	426	68	101	611	50	101	998	105
Future Volume (vph)	32	331	43	97	426	68	101	611	50	101	998	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	10	12	12	10	11	12	10	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		160	0		0	100		0	100		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			25			95			95		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		0.98	0.99			1.00		1.00	0.97	
Frt		0.984			0.979			0.989			0.986	
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	2851	0	1636	1702	0	1428	3159	0	1636	3220	0
Flt Permitted		0.725		0.384			0.106			0.296		
Satd. Flow (perm)	0	2073	0	649	1702	0	159	3159	0	507	3220	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			10			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2698			179			1284			1339	
Travel Time (s)		61.3			4.1			29.2			30.4	
Confl. Peds. (#/hr)	36		27	27		36	87		10	10		87
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	6%	16%	3%	9%	4%	18%	8%	8%	3%	3%	1%
Bus Blockages (#/hr)	0	12	12	0	0	0	0	5	5	0	5	5
Parking (#/hr)	0	0	0									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	423	0	101	515	0	105	688	0	105	1149	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	21.0	21.0		11.0	21.0		6.0	17.0		6.0	17.0	
Minimum Split (s)	34.0	34.0		15.0	49.0		9.0	52.0		9.0	52.0	
Total Split (s)	34.0	34.0		15.0	49.0		9.0	52.0		9.0	52.0	
Total Split (%)	30.9%	30.9%		13.6%	44.5%		8.2%	47.3%		8.2%	47.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		3.0		4.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)		31.0		45.0	45.0		55.0	48.0		55.0	48.0	
Actuated g/C Ratio		0.28		0.41	0.41		0.50	0.44		0.50	0.44	

Lanes, Volumes, Timings
 3: Western Avenue & 47th Street

08/03/2022

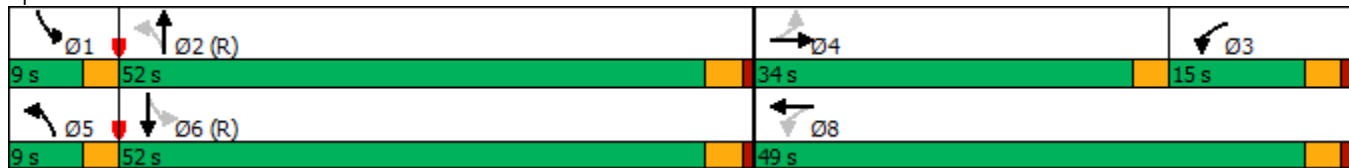


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.71		0.28	0.73		0.71	0.50		0.33	0.81	
Control Delay		42.3		10.6	18.0		41.5	23.5		21.9	44.1	
Queue Delay		0.0		5.7	20.6		0.0	2.3		1.2	0.0	
Total Delay		42.3		16.3	38.6		41.5	25.8		23.1	44.1	
LOS		D		B	D		D	C		C	D	
Approach Delay		42.3			35.0			27.8			42.3	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)		137		17	346		36	177		56	455	
Queue Length 95th (ft)		197		m22	m488		#104	232		m87	525	
Internal Link Dist (ft)		2618			99			1204			1259	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)		592		364	701		148	1384		315	1412	
Starvation Cap Reductn		0		209	188		0	0		0	0	
Spillback Cap Reductn		2		0	0		0	536		88	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.72		0.65	1.00		0.71	0.81		0.46	0.81	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 33 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 37.1 Intersection LOS: D
 Intersection Capacity Utilization 96.5% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Western Avenue & 47th Street



Lanes, Volumes, Timings
4: Western Boulevard & 47th Street

08/03/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	399	11	46	469	68	55	691	69	248	1206	67
Future Volume (vph)	72	399	11	46	469	68	55	691	69	248	1206	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	12	10	12	9	9	12	9	9	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		320	50		0	70		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	20			25			145			160		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00			0.99			0.99			1.00	
Frt		0.996			0.983			0.986			0.992	
Flt Protected	0.950				0.996		0.950			0.950		
Satd. Flow (prot)	1589	1665	0	0	2822	0	1624	3155	0	1624	3189	0
Flt Permitted	0.289				0.809		0.107			0.179		
Satd. Flow (perm)	476	1665	0	0	2291	0	183	3155	0	306	3189	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			14			10			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		179			500			1309			1346	
Travel Time (s)		4.1			11.4			29.8			30.6	
Confl. Peds. (#/hr)	30		11	11		30	2		14	14		2
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	0%	0%	10%	0%	0%	1%	1%	0%	1%	1%
Bus Blockages (#/hr)	0	9	9	0	10	10	0	0	0	0	0	0
Parking (#/hr)				0	0	0						
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	418	0	0	595	0	56	775	0	253	1299	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	17.0		17.0	17.0		5.0	19.0		7.0	19.0	
Minimum Split (s)	12.0	51.0		39.0	39.0		8.0	40.0		10.0	51.0	
Total Split (s)	12.0	51.0		39.0	39.0		8.0	40.0		19.0	51.0	
Total Split (%)	10.9%	46.4%		35.5%	35.5%		7.3%	36.4%		17.3%	46.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0	0.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0			3.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lag			Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Act Effect Green (s)	47.0	47.0			36.0		43.5	37.5		56.0	48.6	
Actuated g/C Ratio	0.43	0.43			0.33		0.40	0.34		0.51	0.44	

Lanes, Volumes, Timings

4: Western Boulevard & 47th Street

08/03/2022

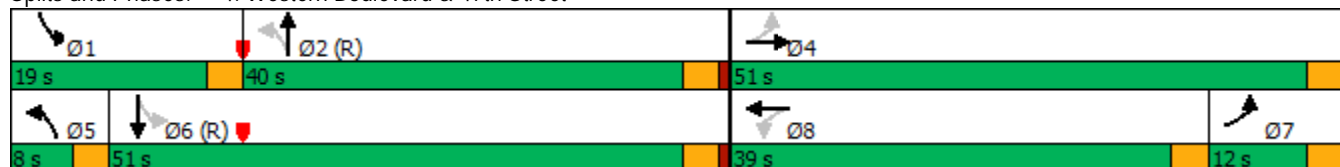


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.26	0.59			0.78		0.41	0.72		0.77	0.92	
Control Delay	15.1	16.8			41.3		24.3	36.1		27.7	41.5	
Queue Delay	3.4	4.3			2.4		0.5	0.0		0.0	21.6	
Total Delay	18.4	21.0			43.6		24.9	36.1		27.7	63.1	
LOS	B	C			D		C	D		C	E	
Approach Delay		20.6			43.6			35.3			57.3	
Approach LOS		C			D			D			E	
Queue Length 50th (ft)	17	102			194		19	251		141	520	
Queue Length 95th (ft)	m27	134			267		41	325		m166	#632	
Internal Link Dist (ft)		99			420			1229			1266	
Turn Bay Length (ft)							50			70		
Base Capacity (vph)	284	712			759		137	1081		347	1412	
Starvation Cap Reductn	143	215			0		0	0		0	0	
Spillback Cap Reductn	0	0			75		9	0		0	162	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.52	0.84			0.87		0.44	0.72		0.73	1.04	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 40 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 44.5 Intersection LOS: D
 Intersection Capacity Utilization 91.5% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Western Boulevard & 47th Street



HCM 6th TWSC
5: Oakley Avenue/Site Access & 47th Street

08/03/2022

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	694	13	24	560	5	4	0	11	12	0	19
Future Vol, veh/h	9	694	13	24	560	5	4	0	11	12	0	19
Conflicting Peds, #/hr	24	0	11	11	0	24	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	56	3	0	8	7	60	25	0	9	33	0	32
Mvmt Flow	10	754	14	26	609	5	4	0	12	13	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	779	0	0	1466	1482	773	1476	1487	636
Stage 1	-	-	-	-	-	-	792	792	-	688	688	-
Stage 2	-	-	-	-	-	-	674	690	-	788	799	-
Critical Hdwy	4.66	-	-	4.18	-	-	7.35	6.5	6.29	7.43	6.5	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.5	-	6.43	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.5	-	6.43	5.5	-
Follow-up Hdwy	2.704	-	-	2.272	-	-	3.725	4	3.381	3.797	4	3.588
Pot Cap-1 Maneuver	734	-	-	812	-	-	94	126	388	89	126	428
Stage 1	-	-	-	-	-	-	350	404	-	390	450	-
Stage 2	-	-	-	-	-	-	409	449	-	342	401	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	712	-	-	806	-	-	84	113	385	79	113	415
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	113	-	79	113	-
Stage 1	-	-	-	-	-	-	339	391	-	369	415	-
Stage 2	-	-	-	-	-	-	370	414	-	323	388	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.4			24.9			34.1		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	712	-	-	806	-	-	157
HCM Lane V/C Ratio	0.083	0.014	-	-	0.032	-	-	0.215
HCM Control Delay (s)	24.9	10.1	0	-	9.6	0	-	34.1
HCM Lane LOS	C	B	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.8

HCM 6th TWSC
6: Oakley Avenue & 43rd Street

08/03/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	311	8	13	561	22	15
Future Vol, veh/h	311	8	13	561	22	15
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	8	2	5	0
Mvmt Flow	327	8	14	591	23	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	338	0	954 334
Stage 1	-	-	-	-	334 -
Stage 2	-	-	-	-	620 -
Critical Hdwy	-	-	4.18	-	6.45 6.2
Critical Hdwy Stg 1	-	-	-	-	5.45 -
Critical Hdwy Stg 2	-	-	-	-	5.45 -
Follow-up Hdwy	-	-	2.272	-	3.545 3.3
Pot Cap-1 Maneuver	-	-	1188	-	283 712
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	531 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1185	-	277 710
Mov Cap-2 Maneuver	-	-	-	-	277 -
Stage 1	-	-	-	-	718 -
Stage 2	-	-	-	-	521 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	368	-	-	1185	-
HCM Lane V/C Ratio	0.106	-	-	0.012	-
HCM Control Delay (s)	15.9	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

HCM 6th TWSC
7: Western Boulevard & Site Access

08/03/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	2	2	865	0	0	1494
Future Vol, veh/h	2	2	865	0	0	1494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	2	2	911	0	0	1573

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1698	456	0	0	911
Stage 1	911	-	-	-	-
Stage 2	787	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	85	557	-	-	756
Stage 1	357	-	-	-	-
Stage 2	414	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	85	557	-	-	756
Mov Cap-2 Maneuver	85	-	-	-	-
Stage 1	357	-	-	-	-
Stage 2	414	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	147	756
HCM Lane V/C Ratio	-	-	0.029	-
HCM Control Delay (s)	-	-	30.2	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.1	0