Traffic Impact Study
Riverwoods Reserve

Riverwoods, Illinois

Prepared For:

Lexington Homes

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

September 12, 2022

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 Riverwoods Reserve, a proposed townhome development to be located in Riverwoods, Illinois. The site, which contains the Federal Life Companies office building, is located on the north side of Deerfield Road (Lake County Highway A47) approximately 450 feet east of its intersection with Milwaukee Avenue (Illinois Route 21/ U.S. Route 45). As proposed, the site will be redeveloped with a townhome development with 69 units in 12 buildings. Access to the development will be provided via two proposed access roads on Deerfield Road that will replace the two existing access drives that serve the site.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed townhome development will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed development. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site. The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed townhome development
- Directional distribution of the townhome development traffic
- Vehicle trip generation for the townhome development
- Future traffic conditions including the proposed Thorntons fuel center, the interim roadway improvements, the planned LCDOT Deerfield Road improvements, and access to the proposed townhome development
- Traffic analyses for the weekday morning and weekday evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

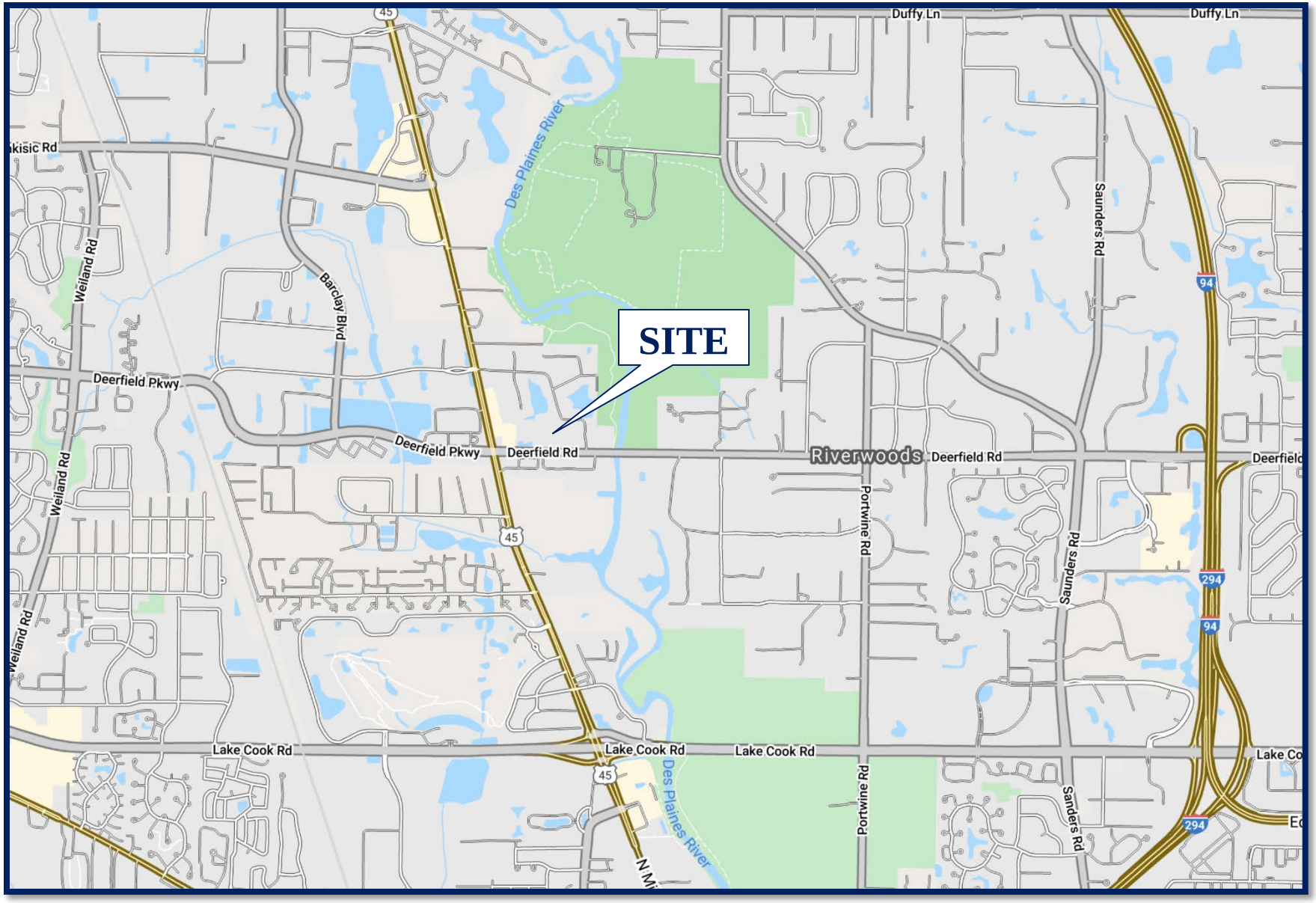
Traffic capacity analyses were conducted for the weekday morning and weekday evening for the following conditions:

1. Year 2021 - Base Conditions – Analyzes the capacity of the existing roadway system using peak hour traffic volumes adjusted to represent pre-pandemic Year 2021 traffic conditions.

2. Year 2024 – No-Build Conditions – Analyzes the capacity of the existing roadway system using Year 2021 base traffic volumes increased by an ambient area growth factor not attributable to any particular development as well as the traffic expected to be generated by the proposed Thorntons fuel center.

3. Year 2024 - Total Projected Conditions – Analyzes the capacity of the future roadway system assuming the projected traffic volumes that include Year 2024 no build traffic volumes and the traffic estimated to be generated by the proposed townhome development.

4. Year 2024 - Total Projected Conditions with Deerfield Road Improvements – Analyzes the capacity of the future roadway system assuming the 2024 total projected traffic volumes accounting for Lake County's planned roadway improvements to Deerfield Road.



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 roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

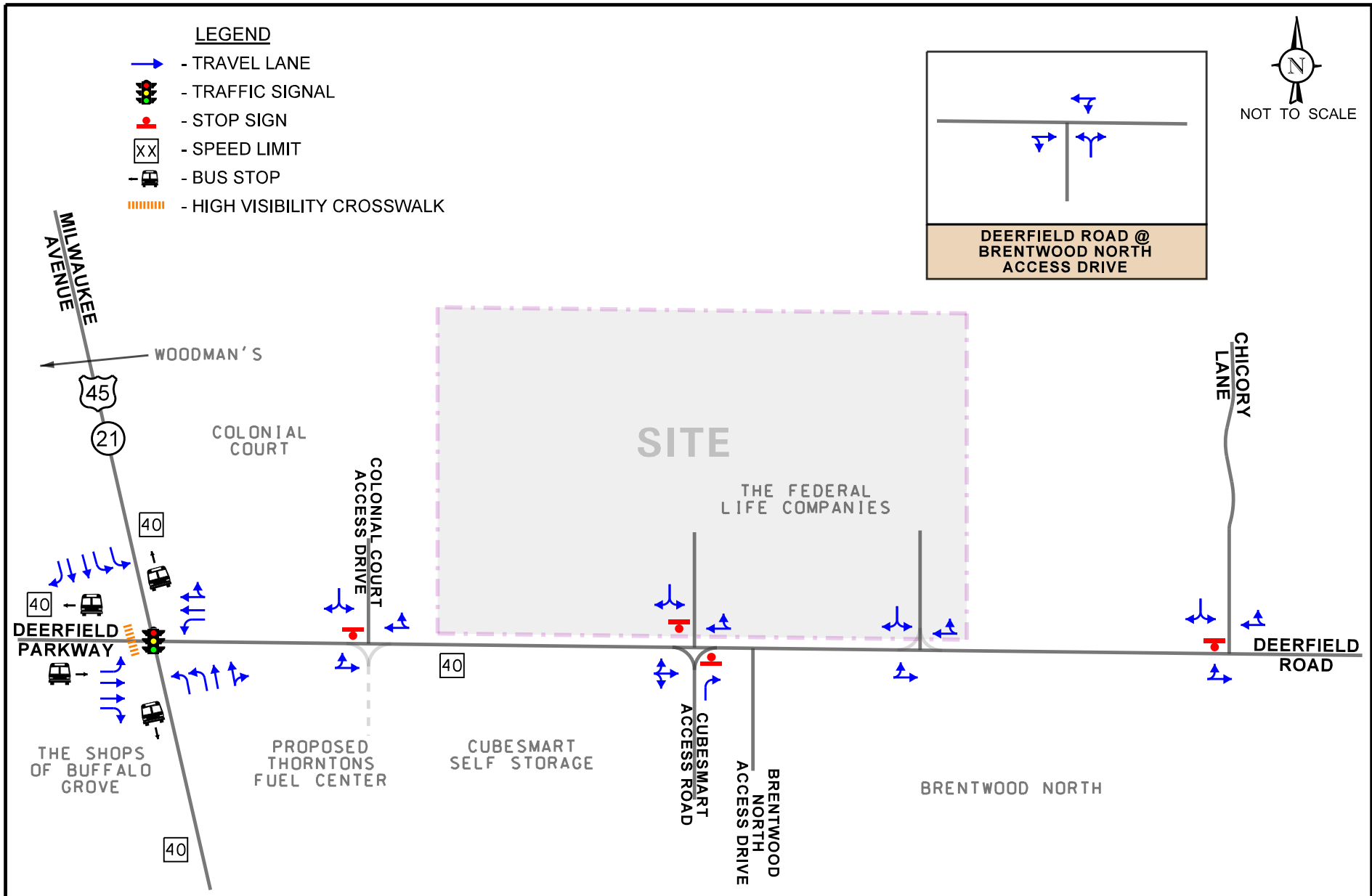
The site, which contains the Federal Life Companies office building, is bounded by the Meadowlake residential subdivision to the north, a single-family home to the east, Deerfield Road to the south, and Colonial Court to the west. Existing land uses in the vicinity of the site are primarily commercial and residential and include CubeSmart self-storage and Brentwood North health care center to the south and Woodman's Food Market and the Shops of Buffalo Grove to the west.

Existing Roadway System Characteristics

The characteristics of the existing roadways near the proposed townhome development are described below and illustrated in **Figure 3**.

Milwaukee Avenue (Illinois Route 21, U.S. Route 45) is a north-south, principal arterial roadway that provides two through lanes in each direction. At its signalized intersection with Deerfield Road, Milwaukee Avenue provides dual left turn lanes, a through lane, and a shared through/right-turn lane on the northbound approach and dual left-turn lanes, two through lanes, and an exclusive right-turn lane on the southbound approach. Milwaukee Avenue is under the jurisdiction of the Illinois Department of Transportation (IDOT), is classified as a Strategic Regional Arterial (SRA) route, carries an annual average daily traffic (AADT) volume of 35,600 vehicles north of Deerfield Road and 36,200 vehicles south of Deerfield Road (IDOT 2019), and has a posted speed limit of 40 miles per hour (mph).

Deerfield Road/Deerfield Parkway (Lake County Highway A47) is an east-west, minor arterial roadway that provides one through lane in each direction east of Milwaukee Avenue and two eastbound lanes and three westbound lanes west of Milwaukee Avenue. At its signalized intersection with Milwaukee Avenue, Deerfield Road provides an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane on the eastbound approach and exclusive left-turn lane, a through lane, and a shared through/right-turn lane on the westbound approach. At its unsignalized intersections with the Colonial Court access drive, Federal Life Companies access drives, CubeSmart access road, and Brentwood North access drives, Deerfield Road provides no exclusive turn lanes. Deerfield Road is under the jurisdiction of the Lake County Division of Transportation (LCDOT) and carries an AADT volume of 15,600 vehicles west of Milwaukee Avenue and 17,400 vehicles east of Milwaukee Avenue (IDOT 2019).



Riverwoods Reserve
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Existing Roadway Characteristics

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Figure: 3

Chicory Lane is a local roadway that extends north from Deerfield Road where it turns west and terminates at Milwaukee Avenue. Chicory Lane provides one lane in each direction and serves as the access road for the Meadowlake residential subdivision. At its unsignalized intersection with Deerfield Road, Chicory Lane provides a shared left-turn/right-turn lane and is under stop sign control. Chicory Lane is under the jurisdiction of the Village of Riverwoods.

Existing Traffic Volumes

In order to determine current traffic conditions within the study area, KLOA, Inc. conducted peak period traffic counts utilizing Miovision Scout Collection Units at the following intersections:

Tuesday, May 11, 2021:

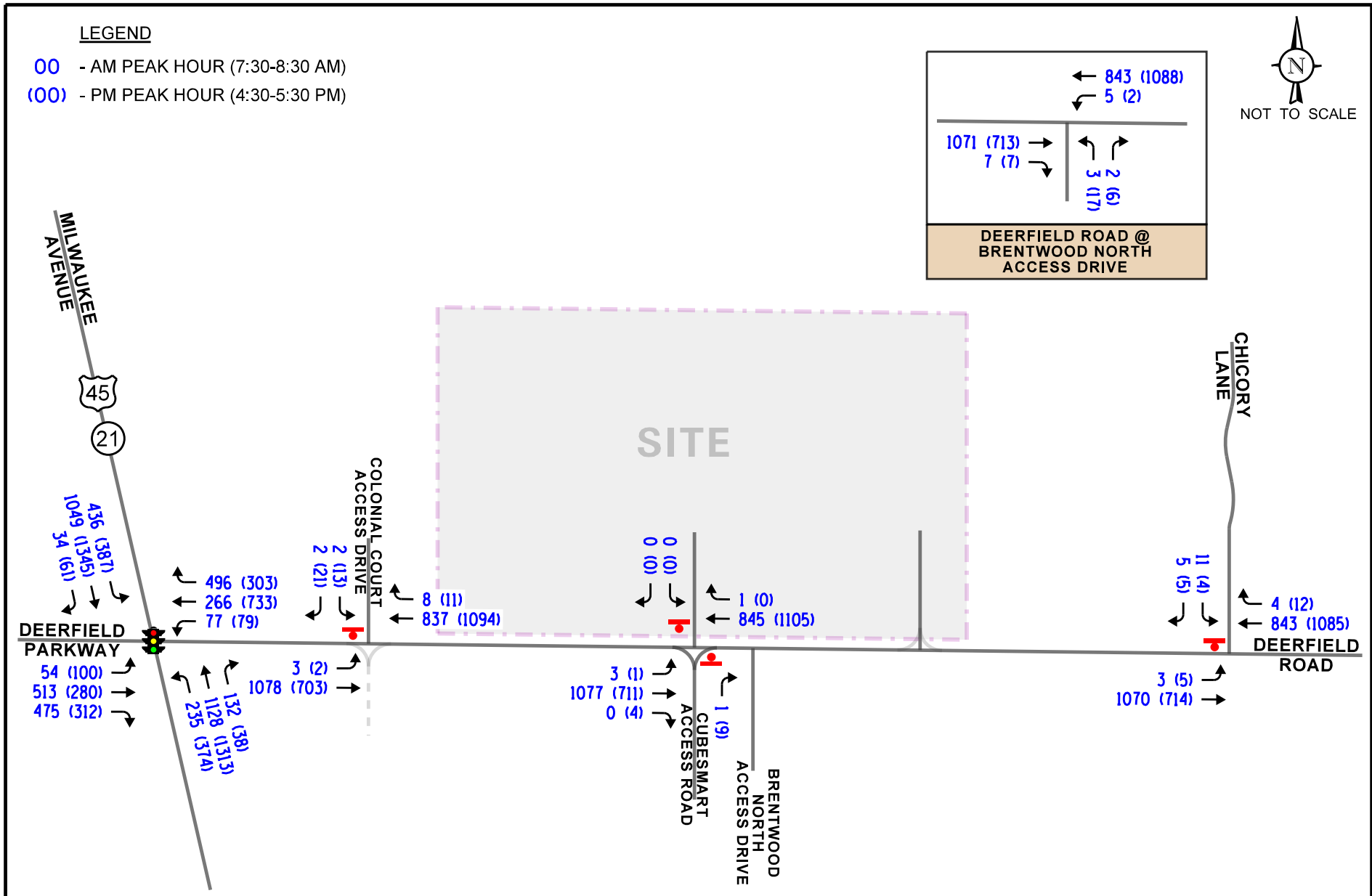
- Milwaukee Avenue with Deerfield Road
- Deerfield Road with the Colonial Court access drive
- Deerfield Road with the CubeSmart access road and the Federal Life Companies west access road
- Deerfield Road with the west Brentwood North access drive

Tuesday, November 30, 2021:

- Deerfield Road with Chicory Lane

The traffic counts were conducted during the weekday morning (7:00 A.M. to 9:00 A.M.) and weekday evening (4:00 P.M. to 6:00 P.M.) peak periods. The results of the traffic counts show that the peak hours of traffic generally occur between 7:30 A.M. and 8:30 A.M. during the weekday morning peak period and between 4:30 P.M. and 5:30 P.M. during the weekday evening peak period. Copies of the traffic count summary sheets are included in the Appendix.

Given the ongoing pandemic, the 2021 traffic volumes were compared to hourly counts conducted by IDOT on Milwaukee Avenue and Deerfield Road in 2019 and to the 2016 traffic volumes included in the IDS for the planned improvements at this intersection. The counts from the 2016 counts from the IDS were used, accounting for five years of growth, to provide for conservative and accurate analysis. The growth for the individual movements at the intersection were based on the growth rates included in the 2016 IDS. A copy of the IDS in included in the appendix. The Year 2021 base traffic volumes are illustrated in **Figure 4**.



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Year 2021 Base Traffic Volumes

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Figure: 4

Crash Analysis

KLOA, Inc. obtained crash data[1] from IDOT for the most recent available five years (2016 to 2020) for the intersections of Milwaukee Avenue with Deerfield Road, Deerfield Road with the access drives east of Milwaukee Avenue, and Deerfield Road with Chicory Lane. A review of the crash data indicated that no fatalities were reported at any of the intersections during the review period. Further, only five crashes were reported at the intersection of Deerfield Road with the access drives and only one crash was reported at the intersection of Deerfield Road with Chicory Lane. **Table 1** summarizes the crash data for the intersection of Milwaukee Avenue with Deerfield Road.

Table 1
MILWAUKEE AVENUE WITH DEERFIELD ROAD – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2016	1	0	0	9	3	1	0	14
2017	1	1	1	9	2	12	0	26
2018	1	1	2	9	3	7	0	23
2019	2	0	1	11	1	4	0	19
2020	2	0	1	8	1	1	0	13
Total	**7**	**2**	**5**	**46**	**10**	**25**	**0**	**95**
Average	**1.4**	**<1.0**	**1.0**	**9.2**	**2.0**	**5.0**	**--**	**19**

[1] IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in previous years since data prior to 2015 was physically located by bureau personnel.

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 townhome development, including the directional distribution and volumes of traffic that it will generate.

Interim Roadway Improvements

As part of the proposed Thorntons fuel center that will be located in the southeast quadrant of the intersection of Deerfield Road with Milwaukee Avenue, Deerfield Road will be improved as follows:

- The existing right-in/right-out access drive on Deerfield Avenue serving the CubeSmart access road, which will serve the proposed fuel center in addition to CubeSmart, will be modified to allow for inbound and outbound left-turn movements. Further, the access road will be widened to provide two outbound lanes striped for an exclusive left-turn lane and a shared through/right-turn lane.

- The west Brentwood North access drive will be eliminated and a connection from the Brentwood North parking lot to the CubeSmart Access Road will be provided.

- Deerfield Road will be widened at its intersection with the CubeSmart access road and the west site access road to provide exclusive westbound and eastbound left turn lanes. Further, a westbound right-turn lane serving the CubeSmart access road will be provided.

- A right-in/right-out access serving the fuel center will be provided on the south side of Deerfield Road approximately 380 feet east of Milwaukee Avenue aligned opposite the Colonial Court access drive. An exclusive right-turn lane will be provided on Deerfield Road serving this access drive.

Proposed Development Plan

As proposed, the site will be developed with Riverwoods Reserve, a townhome development with 69 townhome units in 12 buildings. Access to the development will be provided via the following:

- A proposed full movement access road on the north side of Deerfield Road approximately 820 feet east of Milwaukee Avenue. This access road will replace the existing Federal Life Companies access road at this location and will also be aligned opposite the CubeSmart access road. This access road should provide one inbound lane and two outbounds striped to provide an exclusive left-turn lane and a shared through/right-turn lane. Outbound movements will be under stop sign control. As previously mentioned, as part of the Thorntons fuel center roadway improvements, an exclusive eastbound left-turn lane will be provided on Deerfield Road serving this access road. The left-turn lane will continue to be provided as part of the planned LCDOT Deerfield Road improvements. This turn lane will provide 117 feet of storage and a 270-foot taper.

- A proposed full movement access road on the north side of Deerfield Road approximately 1,160 feet east of Milwaukee Avenue. This access road will replace the existing Federal Life Companies access drive at this location. This access road will provide one inbound lane and one outbound lane with outbound movements under stop sign control. With the completion of the planned LCDOT Deerfield Road improvements, this access road will be restricted to right-turn only movements via striping, signage, and a raised triangular median.

It is important to note that a future connection will be provided between the proposed development and the Colonial Court development that borders the site to the west. However, since the timing of this connection is not known at this time, it was not included in the study. A site plan depicting the proposed townhome development layout is included in the Appendix.

Directional Distribution

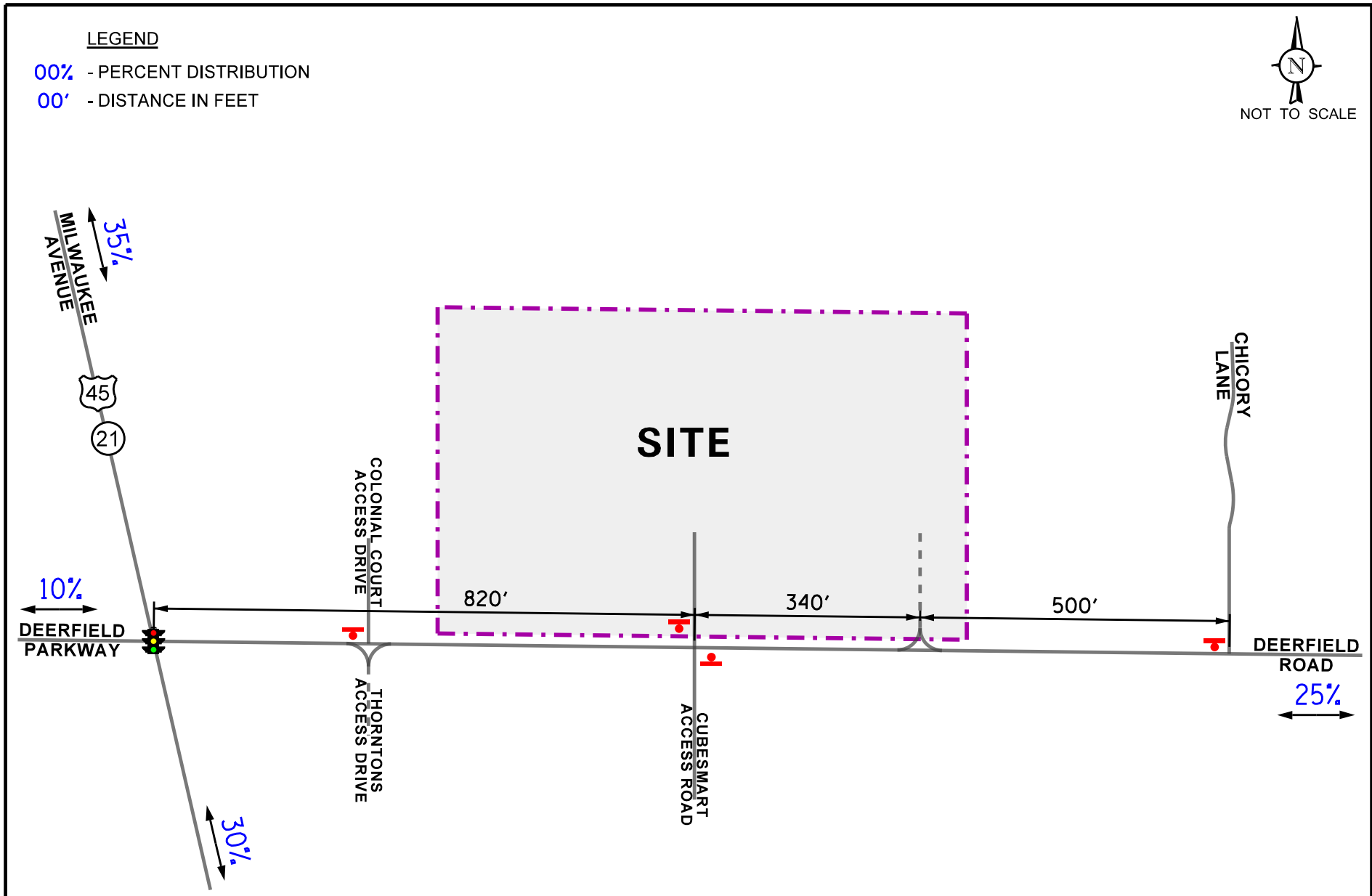
The directions from which residents of the proposed townhome development will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the townhome development-generated traffic.

Peak Hour Traffic Volumes

The number of peak hour trips estimated to be generated by the proposed townhome development was based on vehicle trip generation rates contained in Trip Generation Manual, 11th Edition, published by the Institute of Transportation Engineers (ITE). The "Single Family Attached Housing" (Land-Use Code 215) rates were used for the proposed development. **Table 2** summarizes the trips projected to be generated by the proposed townhome development.

Table 2
PROJECTED SITE-GENERATED TRAFFIC VOLUMES

ITE Land-Use Code	Land Use/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Traffic	
		In	Out	Total	In	Out	Total	In	Out
215	Single Family Attached Housing (69 Units)	9	21	30	21	16	37	238	238



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Estimated Directional Distribution

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Figure: 5

Trip Generation Comparison

The site is currently occupied by the approximately 48,896 square-foot Federal Life Companies office building. **Table 3** provides a comparison of the traffic estimated to be generated by the proposed development compared to the traffic that would have been generated by the office building based on ITE trip generation rates. As can be seen, the proposed development will generate significantly less traffic than the office building would generate at full occupancy.

Table 3
TRIP GENERATION COMPARISON

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips	
		In	Out	Total	In	Out	Total	In	Out
215	Proposed Development	9	21	30	21	16	37	238	238
710	General Office (48,896 s.f.)	79	11	90	16	76	92	312	312
	Difference	**-70**	**+10**	**-60**	**+5**	**-60**	**-55**	**-74**	**-74**

4. Projected Traffic Conditions

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

Townhome Development Traffic Assignment

The estimated weekday morning and evening peak hour traffic volumes that will be generated by the proposed townhome development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). **Figure 6** illustrates the traffic assignment of the new development trips.

Background (No-Build) Traffic Volumes

In addition to the traffic to be generated by the proposed development, the study also considered the following additional regional growth and other developments proposed in the area:

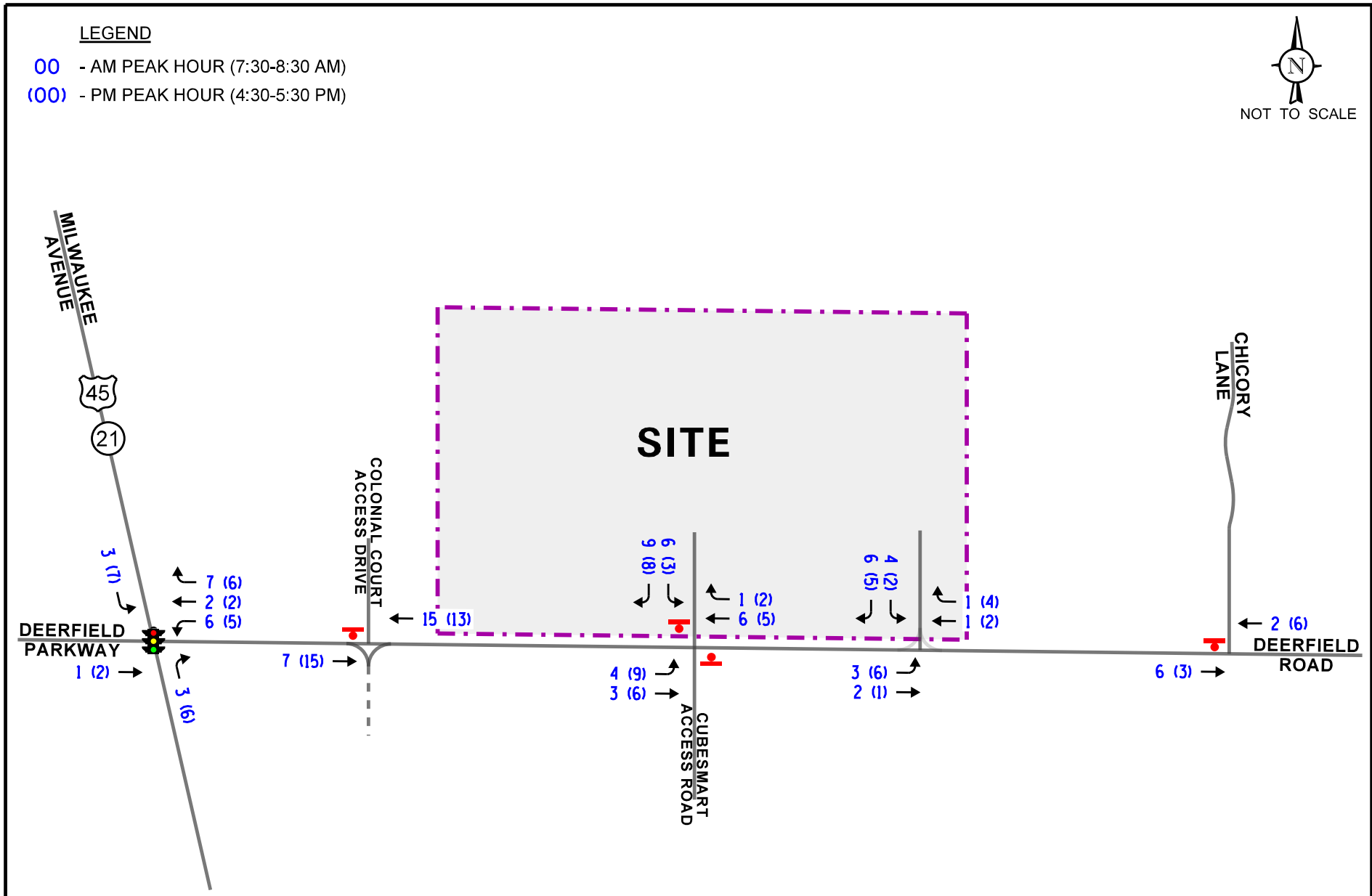
- The base traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Per Lake County's Highway Access and Use Ordinance, the existing volumes should be increased by three percent for two years. However, as the planned LCDOT Deerfield Road improvements are not expected to be completed until 2024, the background traffic volumes were increased for three years for a total of nine percent.

- The proposed Thorntons fuel center to be built in the southeast quadrant of the intersection of Milwaukee Avenue with Deerfield Road. As proposed, the fuel center will provide 20 passenger vehicle fueling positions and a convenience store. As previously mentioned, interim roadway improvements will be provided on Deerfield Road as part of this development. Access to the proposed fuel center will be provided via the CubeSmart access road and via the proposed right-in/right-out access drive on Deerfield Road. The volume of traffic estimated to be generated by this development was based on the KLOA, Inc. traffic impact study dated July 16, 2021.

The Year 2024 no-build traffic volumes, which include the Year 2021 base traffic volumes increased by the ambient growth factor as well as the traffic estimated to be generated by the proposed Thorntons fuel center, are illustrated in **Figure 7**.

Total Projected Traffic Volumes

The development-generated traffic (Figure 6) was added to the projected Year 2024 no-build traffic volumes (Figure 7) to determine the projected Year 2024 total traffic volumes as illustrated in **Figure 8**.



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Estimated Site-Generated Traffic Volumes
Interim Conditions

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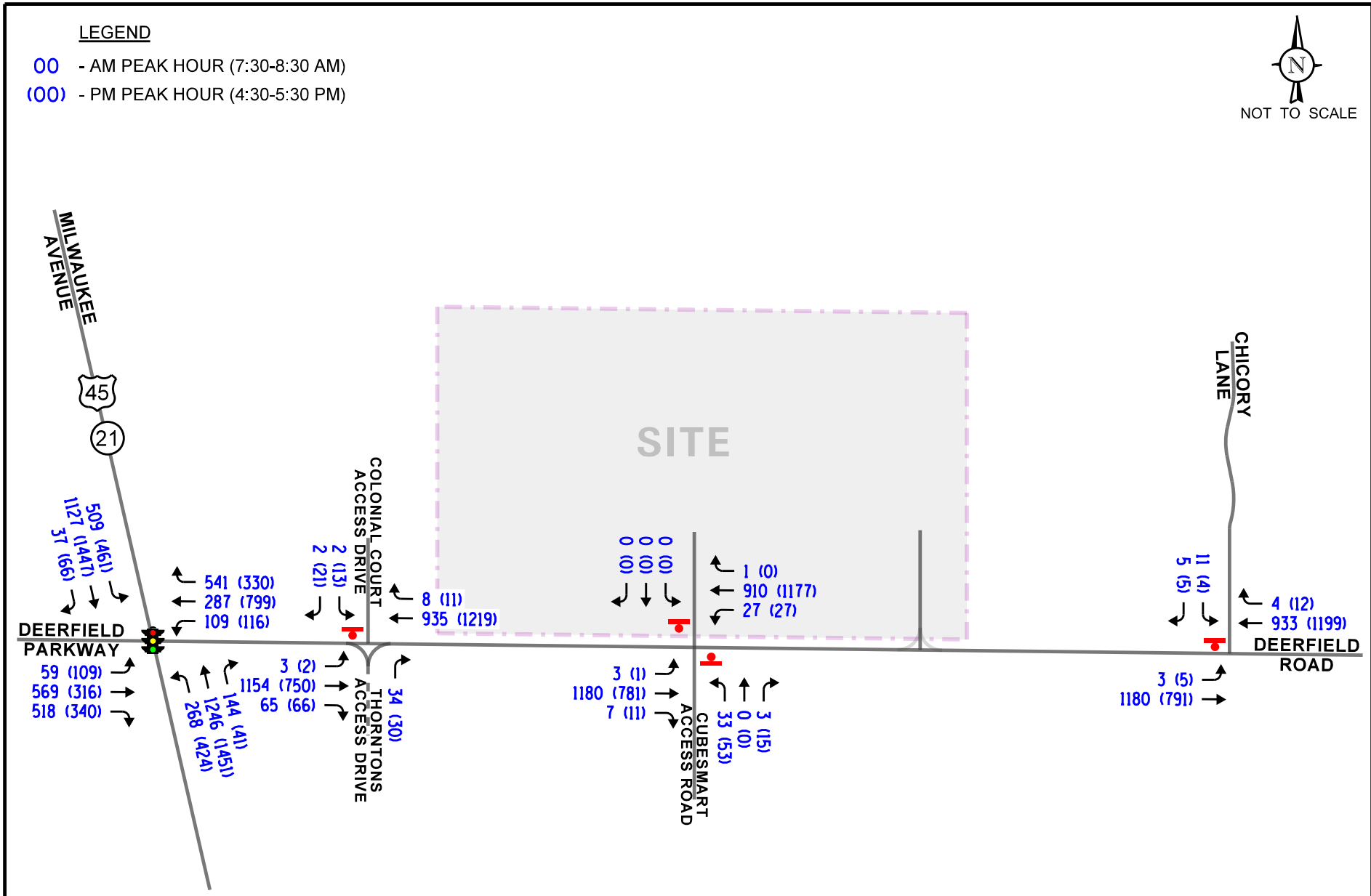

Proposed Townhome Development
Riverwoods, Illinois

Year 2024 No-Build Traffic Volumes
Interim Conditions

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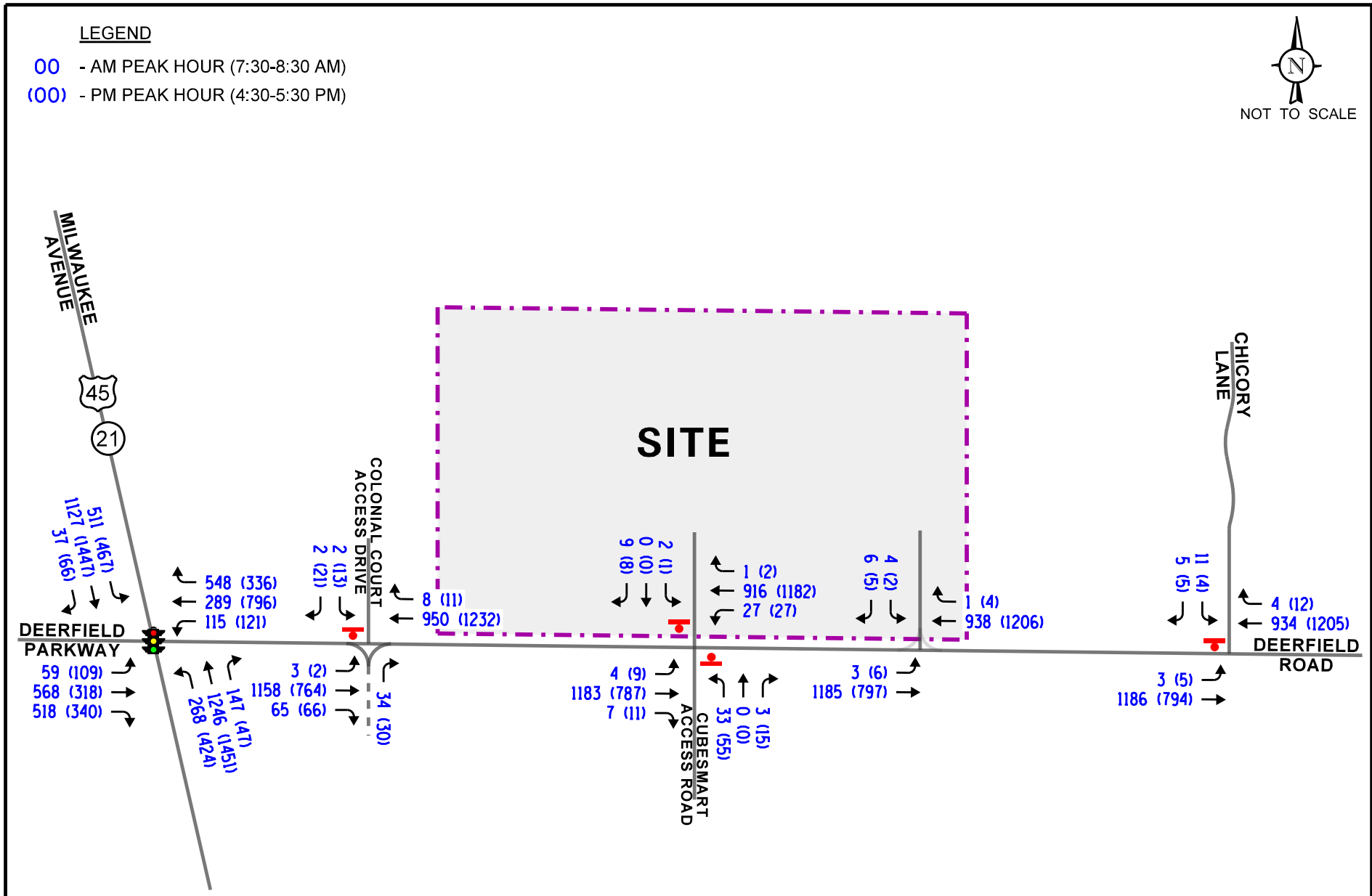

Riverwoods Reserve
Riverwoods, Illinois

Year 2024 Total Projected Traffic Volumes
Interim Conditions

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Figure: 8

Deerfield Road Planned Improvements

LCDOT is planning to improve Deerfield Road for two miles between Milwaukee Avenue and Saunders Road and is currently in Phase II planning for the project. The following improvements are planned for the study area:

- The intersection of Milwaukee Avenue with Deerfield Road will be improved and will provide dual left-turn lanes, two through lanes, and an exclusive right-turn lane on the eastbound approach, dual left-turn lanes, three through lanes, and an exclusive right-turn lane on the westbound approach, and dual left-turn lanes, two through lanes, and an exclusive right-turn lane on the northbound and southbound approaches. In addition, high-visibility crosswalks and pedestrian signals will be provided on all legs.

- Deerfield Road will be widened to provide two eastbound lanes and three westbound lanes between Milwaukee Avenue and the east site access road (approximately 1,200 feet east of Milwaukee Avenue).

- East of the east site access road, Deerfield Road will be widened to provide two westbound lanes and one eastbound lane divided by a two-way left-turn lane.

- The east site access road will be restricted to right-turn movements only.

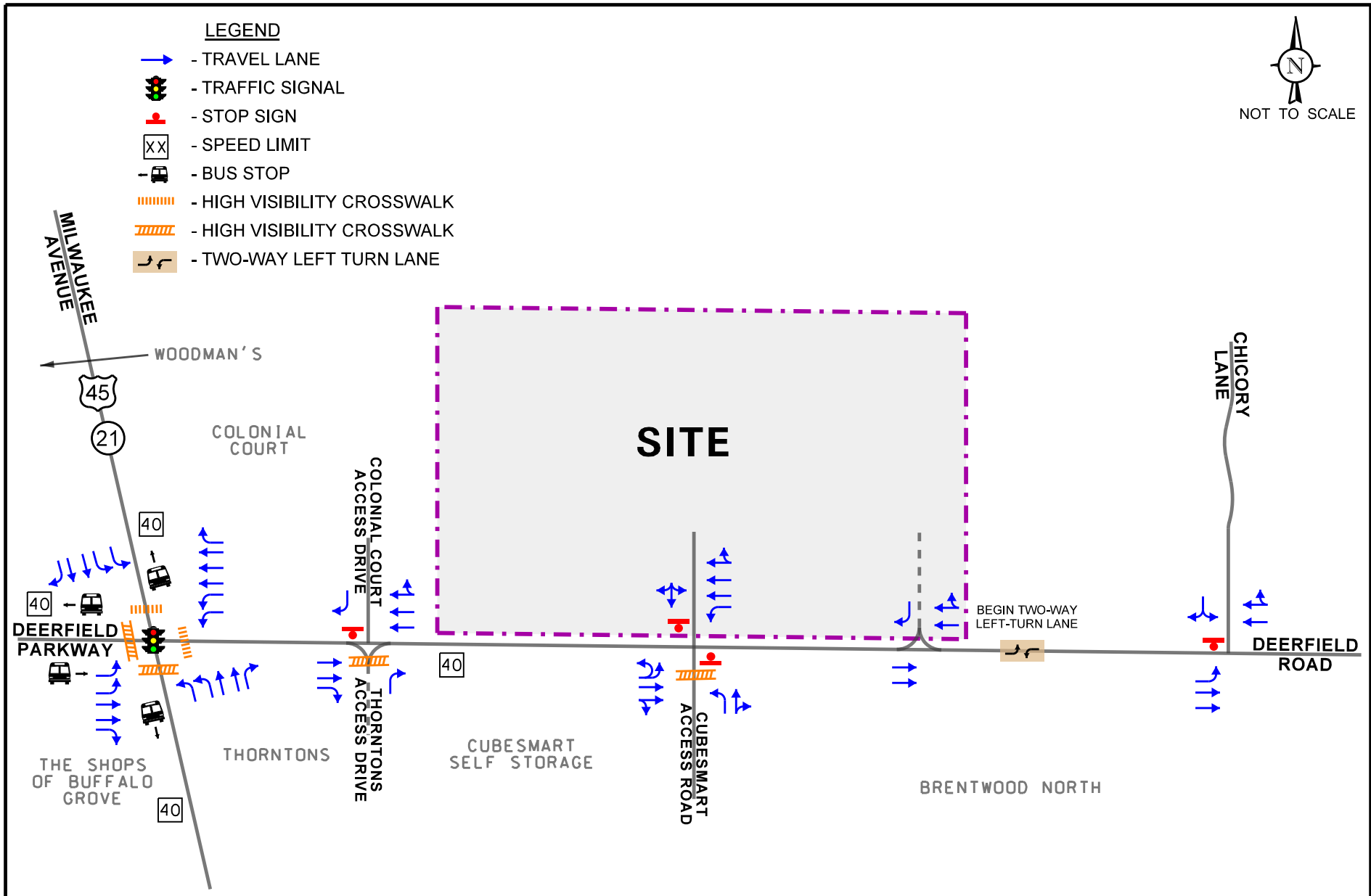
- The Colonial Court access drive on Deerfield Road will be restricted to right-turn only movements via the barrier median on Deerfield Road.

- A multi-use path will be provided on the south side of Deerfield Road.

The improvements are expected to be completed by 2024. It should be noted that, as part of the road improvement project, the left-turn lanes serving the combined CubeSmart access road and the west site access road will be maintained.

Figure 9 illustrates the future roadway characteristics with the completion of the planned LCDOT improvements as well as the completion of the proposed Thorntons fuel center development.

With the provision of these improvements and the restriction of the east site access road to right-turn only, the estimated development generated traffic assignment will be modified as illustrated in **Figure 10. Figure 11** illustrates the projected Year 2024 total traffic volumes with the completion of the roadway improvements.



Riverwoods Reserve
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Projected Roadway Characteristics

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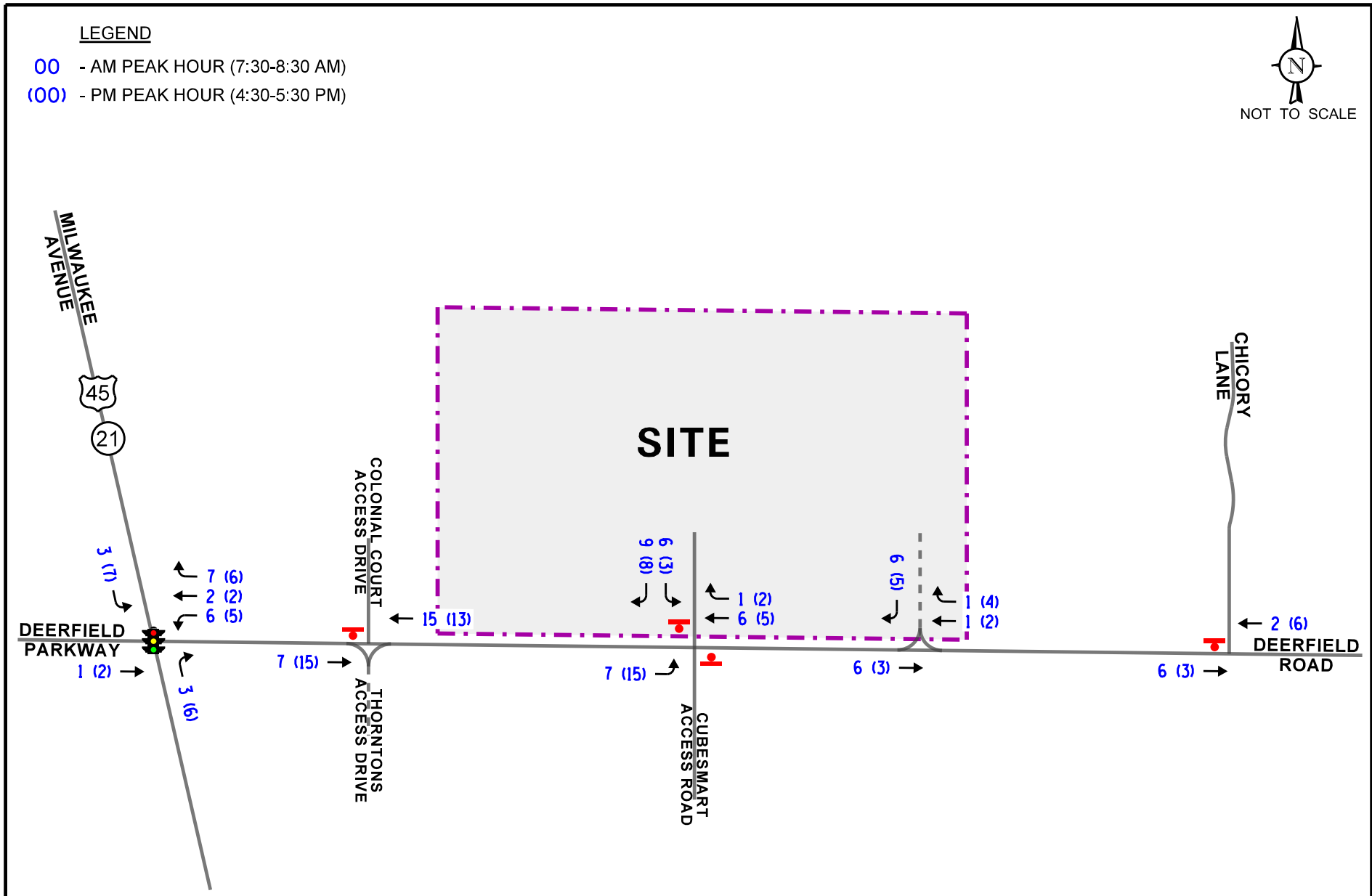
Figure: 9



Riverwoods Reserve
Riverwoods, Illinois

Estimated Site-Generated Traffic Volumes
With LCDOT Roadway Improvements

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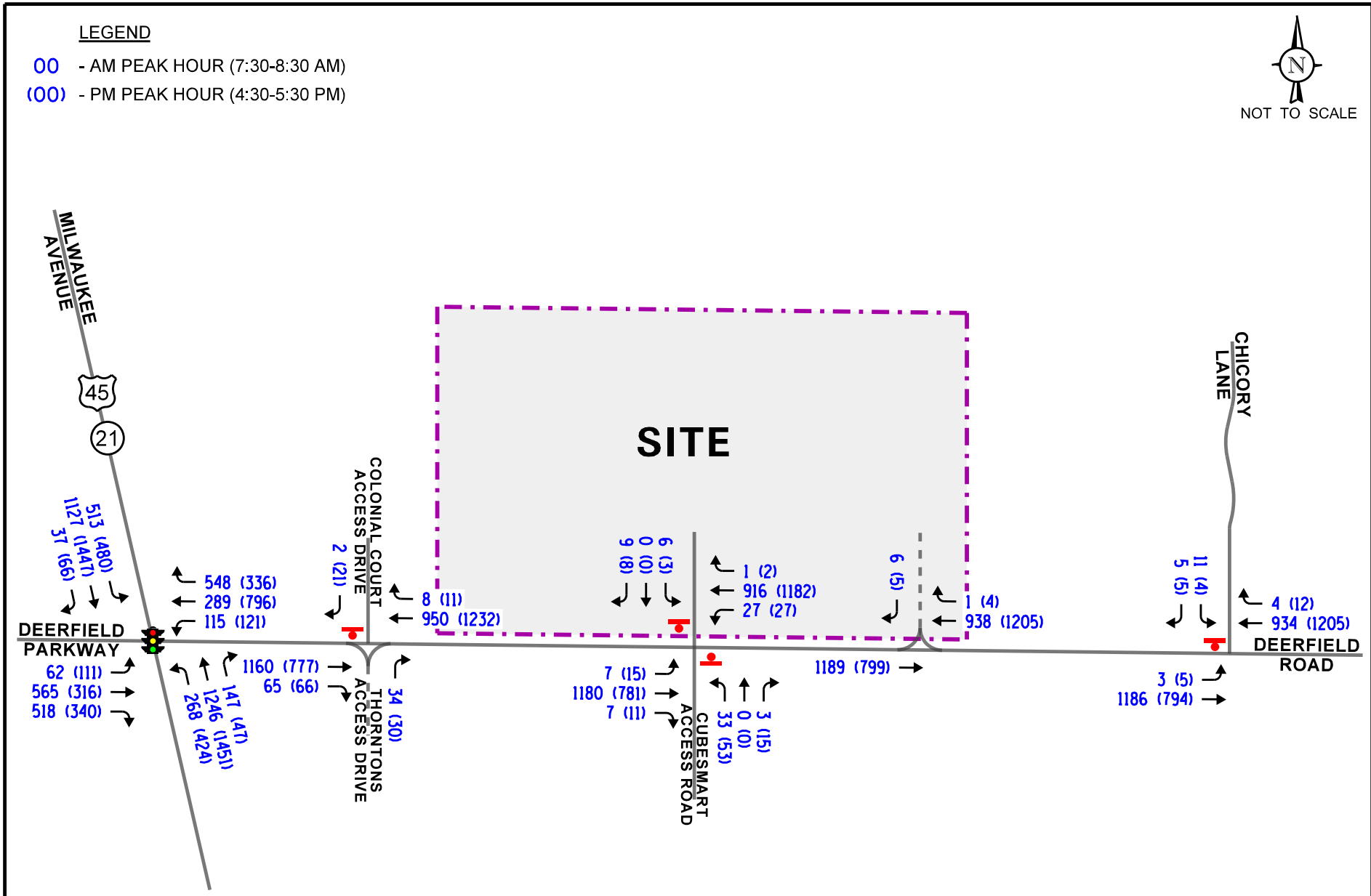

Riverwoods Reserve
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Year 2024 Total Projected Traffic Volumes
With LCDOT Roadway Improvements

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Job No: 21-335 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 roadway system and access roads are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and weekday evening peak hours for the projected Year 2021 base, Year 2024 no-build, and Year 2024 total projected, and Year 2024 total projected with LCDOT roadway improvements 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 traffic signal-controlled intersections were performed using actual cycle lengths, phasings and offsets to determine the average overall vehicle delay and levels of service.

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, Year 2024 no-build, Year 2024 total projected, and Year 2024 total projected with LCDOT roadway improvements conditions are presented in **Tables 4** through **8**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4
CAPACITY ANALYSIS RESULTS – MILWAUKEE AVENUE WITH DEERFIELD ROAD– SIGNALIZED

	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	C 34.2	D 53.3	D 35.6	D 35.5	D 38.0		E 61.9	D 53.4		E 63.1	C 30.3	A 0.8	D 44.7
	Peak Hour	D – 44.2			D – 37.8			D – 54.8			D – 39.1			
	Weekday Evening	D 37.4	D 40.1	B 15.7	C 28.4	F 99+		E 69.0	E 69.7		E 78.8	E 69.9	A 4.2	E 77.9
	Peak Hour	C – 28.7			F – 99+			E – 69.5			E – 69.6			
Year 2024 No-Build Conditions[1]	Weekday Morning	C 34.5	E 58.6	D 44.8	D 41.9	D 40.7		E 63.8	F 99+		E 69.9	C 34.5	A 1.2	E 62.8
	Peak Hour	D – 51.1			D – 40.8			F – 99+			D – 44.6			
	Weekday Evening	D 39.0	D 41.2	B 19.6	C 29.9	F 99+		E 76.3	F 99+		F 99+	F 99+	A 4.8	F 99+
	Peak Hour	C – 31.3			F – 99+			F – 99+			F – 99.9			
Year 2024 Total Projected Conditions[1]	Weekday Morning	C 34.5	E 58.7	D 45.0	D 43.3	D 41.9		E 63.8	F 99+		E 70.3	C 34.6	A 1.2	E 63.5
	Peak Hour	D – 51.3			D – 42.0			F – 99+			D – 44.7			
	Weekday Evening	D 39.0	D 41.3	B 19.9	C 30.0	F 99+		E 76.3	F 99+		F 99+	F 99+	A 4.8	F 99+
	Peak Hour	C – 31.5			F – 99+			F – 99+			F – 99+			
Year 2024 Total Projected Conditions with Improvements[2]	Weekday Morning	C 27.0	D 53.5	D 42.0	C 29.5	D 38.1	C 24.2	E 62.3	E 80.6	A 6.5	E 65.7	C 35.3	A 1.1	D 50.2
	Peak Hour	D – 46.8			C – 29.1			E – 71.1			D – 43.9			
	Weekday Evening	E 59.9	D 42.5	C 24.3	E 60.8	D 48.2	C 24.6	E 74.5	E 66.8	A 1.8	F 95.4	E 76.4	A 3.7	E 61.9
	Peak Hour	D – 36.9			D – 43.1			E – 66.9			E – 78.6			

1 – Includes Interim Roadway Improvements
2 – Includes LCDOT Roadway Improvements
Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns

Table 5
CAPACITY ANALYSIS RESULTS – EXISTING CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Deerfield Road with the Colonial Court Access Drive				
• Eastbound Left Turn	B	11.1	B	11.0
• Southbound Approach	C	23.2	D	26.1
Deerfield Road with the CubeSmart Access Drive and the West Federal Life Companies Access Drive				
• Eastbound Left Turn	A	9.9	B	11.1
• Northbound Approach	C	20.8	B	14.9
• Southbound Approach	--	--	--	--
Deerfield Road with the West Brentwood North Access Drive				
• Westbound Left Turn	B	11.2	A	9.2
• Northbound Approach	F	55.4	F	59.5
Deerfield Road with Chicory Lane				
• Eastbound Left Turn	A	9.7	B	12.0
• Southbound Approach	F	56.8	F	55.6

LOS = Level of Service Delay is measured in seconds.

Table 6
CAPACITY ANALYSIS RESULTS – NO BUILD CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Deerfield Road with the Colonial Court Access Drive and the Thorntons Access Drive				
• Eastbound Left Turn	B	11.7	B	11.7
• Northbound Approach	B	13.7	B	11.2
• Southbound Approach	D	36.3	E	45.4
Deerfield Road with the CubeSmart Access Drive and the West Federal Life Companies Access Drive				
• Eastbound Left Turn	B	10.2	B	11.5
• Westbound Left Turn	B	12.2	A	9.7
• Northbound Left Turn	F	53.3	F	55.9
• Northbound Right Turn	C	23.7	C	16.2
• Southbound Approach	--	--	--	--
Deerfield Road with Chicory Lane				
• Eastbound Left Turn	A	10.1	B	12.9
• Southbound Approach	F	80.3	F	78.0

Includes interim roadway improvements LOS = Level of Service Delay is measured in seconds

Table 7
CAPACITY ANALYSIS RESULTS – TOTAL PROJECTED CONDITIONS
UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Deerfield Road with the Colonial Court Access Drive and the Thorntons Access Drive				
• Eastbound Left Turn	B	11.8	B	11.8
• Northbound Approach	B	13.8	B	11.3
• Southbound Approach	E	37.2	E	46.3
Deerfield Road with the CubeSmart Access Drive and the West Site Access Road				
• Eastbound Left Turn	B	10.3	B	11.6
• Westbound Left Turn	B	12.2	A	9.7
• Northbound Left Turn	F	55.3	F	64.6
• Northbound Right Turn	C	23.8	C	16.3
• Southbound Left Turn	E	41.8	E	35.8
• Southbound Right Turn	C	17.9	C	23.1
Deerfield Road with the East Site Access Road				
• Eastbound Left Turn	B	10.0	B	11.6
• Southbound Approach	E	48.1	E	38.1
Deerfield Road with Chicory Lane				
• Eastbound Left Turn	B	10.1	B	12.9
• Southbound Approach	F	81.8	F	79.5

Includes interim roadway improvements LOS = Level of Service Delay is measured in seconds.

Table 8
CAPACITY ANALYSIS RESULTS – TOTAL PROJECTED CONDITIONS WITH THE PLANNED LCDOT DEERFIELD ROAD IMPROVEMENTS - UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Deerfield Road with the Colonial Court Access Drive and the Thorntons Access Drive				
• Northbound Approach	B	13.8	B	11.4
• Southbound Approach	B	13.1	C	15.8
Deerfield Road with the CubeSmart Access Drive and the West Site Access Road				
• Eastbound Left Turn	B	14.1	C	18.0
• Westbound Left Turn	B	12.2	A	9.7
• Northbound Left Turn	E	43.6	D	29.8
• Northbound Right Turn	B	13.9	B	12.1
• Southbound Left Turn	D	33.0	E	43.0
• Southbound Right Turn	B	13.4	C	15.1
Deerfield Road with the East Site Access Road				
• Southbound Approach	B	11.9	B	13.6
Deerfield Road with Chicory Lane				
• Eastbound Left Turn	B	10.1	B	12.9
• Southbound Approach	C	24.9	C	24.9

Includes LCDOT roadway improvements | 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 roadway and traffic control improvements necessary to accommodate the townhome development-generated traffic.

Milwaukee Avenue with Deerfield Road

The results of the capacity analysis indicate that overall, this intersection currently operates at Level of Service (LOS) D during the weekday morning peak hour and at LOS E during the weekday evening peak hour. This level of service during the weekday evening peak hour is primarily due to the westbound approach which operates at LOS F. This delay is the result of the lack of a westbound right-turn lane and the fact that Milwaukee Avenue is an SRA route, and, as such, receives a majority of the green time. It should be noted that the northbound and southbound left turn movements operate at LOS E during the peak hours. This delay is due to the fact that these movements are restricted to protected turning movements only and receive a limited amount of green time.

Under Year 2024 no-build conditions, this intersection is projected to operate at LOS E during the weekday morning peak hour and LOS F during the weekday evening peak hour with increases in delay of approximately 18 and 28 seconds, respectively. This increase in delay is the result of increases to movements that operate at or over capacity under existing conditions. Under Year 2024 total projected conditions, this intersection is projected to continue to operate at LOS E during the weekday morning peak hour and LOS F during the weekday evening peak hour with increases in delay of approximately one to two seconds.

As previously mentioned, this intersection will be improved as part of LCDOT's planned improvements of Deerfield Road. With the completion of these improvements, this intersection will provide dual left turn lanes, two through lanes, and an exclusive right-turn lane on the eastbound approach, dual left turn lanes, three through lanes, and an exclusive right-turn lane on the westbound approach and dual left turn lanes, two through lanes, and an exclusive right-turn lane on the northbound and southbound approaches.

Under Year 2024 total projected conditions, assuming the completion of the planned LCDOT roadway improvements, this intersection is projected to operate at LOS D during the weekday morning peak hours and LOS E during the weekday evening peak hour with an increase in delay of approximately six seconds during the weekday morning peak hour and a decrease in delay during the weekday evening peak hour when compared to existing conditions. Further, all approaches are projected to operate at LOS E or better during both peak hours. In addition, westbound queues from this intersection are only projected to extend up to 265 feet and will not block the location of the site access roads.

Overall, the proposed development is projected to increase traffic at this intersection by less than one half of one percent and will have a minimal impact on this intersection. The planned improvements will significantly improve signal operations and alleviate existing capacity constraints.

Deerfield Road with the Colonial Court Access Drive and the Thorntons Access Drive

The results of the capacity analysis indicate that all critical movements at this intersection operate at LOS D or better during the weekday morning and weekday evening peak hours. As part of the proposed Thorntons fuel center development, a right-in/right-out access drive serving the fuel center will be provided opposite this access drive. Under Year 2024 no build and Year 2024 total projected traffic conditions all critical movements are projected to operate at LOS E or better.

With the completion of the planned LCDOT Deerfield Road improvements, the Colonial Court access drive will be restricted to right-turn only movements by a barrier median on Deerfield Road. Under Year 2024 total projected conditions, assuming the completion of the planned roadway improvements, outbound movements from both access drives are projected to operate at LOS C or better. Overall, the proposed development will have a limited impact on the operations of this intersection and no geometric improvements or traffic control modifications will be required as a result of the construction of the proposed townhome development.

Deerfield Road with the CubeSmart Access Drive and the Federal Life Companies West Access Drive/West Site Access Road

The results of the capacity analysis indicate that the northbound and southbound approaches at this intersection currently operates at LOS C or better during the weekday morning and weekday evening peak hours and eastbound left-turn movements operate at LOS B or better.

As part of the proposed Thorntons fuel center development, the CubeSmart access road will be modified to allow left-turn movements and improved to provide two outbound lanes. Further, an eastbound left-turn lane, an eastbound right-turn lane, and a westbound left-turn lane will be provided at this intersection. Under Year 2024 no-build traffic conditions, all critical movements are projected to operate at LOS C or better with the exception of the northbound left-turn movement which is projected to operate at LOS F during the peak hours. This delay is typical and expected at the unsignalized intersection of an access road with an arterial roadway. Further, this movement is projected to operate with a volume to capacity (v/c) ratio of less than one and 95th percentile queues of approximately two vehicles indicating that vehicles will be able to exit.

As proposed, a full movement access road will be provided on the north side of Deerfield Road that will replace the existing Federal Life Companies west access road at this location. This access road should provide one inbound lane and two outbound lanes striped to provide an exclusive left-turn lane and a shared through/right-turn lane. Outbound movements will be under stop sign control. Under Year 2024 total projected conditions, outbound left-turn movements from the proposed access road are projected to operate at LOS E during the weekday morning and weekday evening peak hours. All other critical movements are projected to operate at LOS C or better with the exception of the northbound left turn movement which is projected to operate at LOS F during both peak hours.

With the completion of the planned LCDOT Deerfield Road improvements, this intersection will be widened to provide two eastbound through lanes and three westbound through lanes. Further, the eastbound right-turn lane will be removed. The eastbound and westbound left-turn lanes will be maintained. Under Year 2024 total projected conditions, assuming the completion of the planned roadway improvements, outbound left-turn movements from the proposed access road are projected to operate at LOS D during the weekday morning peak hour and LOS E during the weekday evening peak hour. Further, northbound left turn movements are projected to operate at LOS E or better during both peak hours and all other critical movements are projected to operate at LOS C or better during both peak hours.

When the projected traffic volumes at this access road are compared to the right-turn lane guidelines in Table 5.4 of Lake County's *Highway Access and Use Ordinance Technical Reference Manual*, a westbound right-turn lane on Deerfield Road will not be warranted serving this access road under any condition. It should be noted that based on Signal Warrant 3 (Peak Hour) included in the Federal Highway Administration's *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), 2009, a traffic signal will not be warranted at this intersection under any condition. As such, the intersection can adequately accommodate the development-generated traffic, and overall intersection operations will improve with the completion of the planned LCDOT Deerfield Road improvements.

Deerfield Road with the Brentwood North Access Drive

The results of the capacity analysis indicate that the northbound approach at this intersection currently operates at LOS F during the weekday morning and weekday evening peak hours and is projected to continue to do so under Year 2024 no-build and total projected conditions. With the completion of the interim roadway improvements, this access drive will be combined with the CubeSmart access road which is projected to operate at an acceptable LOS.

Deerfield Road with the Proposed East Site Access Road

As proposed, a full movement access road will be provided on the north side of Deerfield Road approximately 1,160 feet east of Milwaukee Avenue. This access road will replace the existing Federal Life Companies east access road at this location. This access road will provide one inbound lane and one outbound lane with outbound movements under stop sign control. The results of the capacity analysis indicate that under Year 2024 total projected conditions outbound movements from this access road will operate at LOS E during the weekday morning peak hour and weekday evening peak hours. Further, inbound left turn movements are projected to operate at LOS B or better during both peak hours.

With the completion of the planned LCDOT Deerfield Road improvements, this access road will be restricted to right-turn only movements via striping, signage, and a raised triangular median. Under Year 2024 total projected conditions, assuming the completion of the planned roadway improvements, outbound movements from the proposed access road are projected to operate at LOS B during both peak hours. When the projected traffic volumes at this access road are compared to the right-turn lane guidelines in Table 5.4 of Lake County's *Highway Access and Use Ordinance Technical Reference Manual*, a westbound right-turn lane on Deerfield Road will not be warranted serving this access road under any condition. As such, the proposed access road will adequately accommodate development-generated traffic.

Deerfield Road with Chicory Lane

The results of the capacity analysis indicate that the southbound approach at this intersection currently operates at LOS F during the weekday morning and weekday evening peak hours and is projected to continue to do so under Year 2024 no-build and total projected conditions. With the completion of the planned LCDOT Deerfield Road improvements, Deerfield Road at this intersection will be improved to provide two westbound lanes, one eastbound lane, and a two-way left-turn lane. Under Year 2024 total projected conditions, assuming the completion of the planned LCDOT Deerfield Road improvements, outbound movements from Chicory Lane are projected to operate at LOS C during both peak hours. This decrease in delay is primarily the result of the provision of the two way-left-turn lane which will allow outbound left-turn vehicles to perform a two-part left turn. As such, the intersection can adequately accommodate the development-generated traffic, and intersection operations will improve with the completion of the Deerfield Road improvements.

6. Conclusions

Based on the preceding analyses and recommendations, KLOA, Inc. has concluded as follows:

- The intersection of Milwaukee Avenue with Deerfield Road can adequately accommodate development generated traffic, especially with the construction of the planned LCDOT Deerfield Road improvements.

- Overall, the unsignalized intersections within the study area will be able to adequately accommodate the development-generated traffic, and operations at these intersections will improve with the completion of the planned LCDOT Deerfield Road improvements.

- The proposed access system will replace the existing access system on Deerfield Road and will not increase the total number of access points.

- The proposed access system will be able to accommodate the traffic projected to be generated by the proposed development regardless of the planned LCDOT Deerfield Road improvements. With the completion of the improvements, the access system will work at an improved LOS with reduced delay.

- An exclusive westbound right-turn lane will not be warranted on Deerfield Road serving either proposed access road.

Appendix

Traffic Count Summary Sheets
Milwaukee Avenue with Deerfield Road IDS
Preliminary Site Plan
ITE Trip Generation Worksheets
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: Deerfield Road with Milwaukee Avenue
Site Code:
Start Date: 05/08/2021

Turning Movement Data

Start Time	Deerfield Road Eastbound						Deerfield Road Westbound						Milwaukee Avenue Northbound						Milwaukee Avenue Southbound						
	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	Int. Total
11:30 AM	0	46	92	68	0	206	0	32	81	38	0	151	0	68	209	10	0	287	1	48	214	0	0	263	907
11:45 AM	0	38	59	55	0	152	0	17	70	46	0	133	0	68	228	17	0	313	0	41	198	0	0	239	837
Hourly Total	0	84	151	123	0	358	0	49	151	84	0	284	0	136	437	27	0	600	1	89	412	0	0	502	1744
12:00 PM	0	32	97	89	0	218	0	32	75	57	0	164	0	81	219	20	0	320	2	56	200	0	0	258	960
12:15 PM	0	31	74	71	0	176	0	11	76	37	0	124	0	91	243	12	0	346	0	44	222	0	0	266	912
12:30 PM	0	43	94	82	0	219	0	23	74	32	0	129	1	67	193	12	0	273	0	57	208	0	0	265	886
12:45 PM	0	44	68	77	0	189	0	16	64	48	0	128	0	71	252	13	0	336	0	52	242	0	0	294	947
Hourly Total	0	150	333	319	0	802	0	82	289	174	0	545	1	310	907	57	0	1275	2	209	872	0	0	1083	3705
1:00 PM	0	44	81	83	0	208	0	40	87	53	0	180	0	60	222	10	0	292	1	46	206	0	0	253	933
1:15 PM	0	36	63	63	0	162	0	19	71	39	0	129	0	67	219	22	0	308	0	58	234	0	0	292	891
1:30 PM	0	41	94	80	0	215	0	15	77	68	0	160	1	79	185	20	2	285	0	47	184	0	0	231	891
1:45 PM	0	34	56	61	0	151	0	28	63	38	0	129	0	74	220	11	0	305	0	56	231	0	0	287	872
Hourly Total	0	155	294	287	0	736	0	102	298	198	0	598	1	280	846	63	2	1190	1	207	855	0	0	1063	3587
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	17	93	42	0	152	0	4	32	38	0	74	0	36	159	14	0	209	0	33	121	0	0	154	589
7:15 AM	0	16	107	44	0	167	0	4	50	67	0	121	0	38	179	25	0	242	0	38	177	0	0	215	745
7:30 AM	0	24	102	64	0	190	0	13	45	51	0	109	0	41	222	15	0	278	0	49	170	0	0	219	796
7:45 AM	0	27	120	65	0	212	0	5	45	70	0	120	0	60	233	19	0	312	0	52	173	0	0	225	869
Hourly Total	0	84	422	215	0	721	0	26	172	226	0	424	0	175	793	73	0	1041	0	172	641	0	0	813	2999
8:00 AM	0	33	111	97	0	241	0	5	72	45	0	122	0	48	169	9	0	226	0	48	179	0	0	227	816
8:15 AM	0	34	109	76	0	219	0	10	63	59	0	132	0	52	184	12	0	248	0	54	184	0	0	238	837
8:30 AM	0	18	91	57	0	166	0	10	58	60	0	128	0	37	184	13	0	234	1	43	169	0	0	213	741
8:45 AM	0	26	94	70	0	190	0	16	88	63	0	167	0	50	161	23	0	234	0	50	201	0	0	251	842
Hourly Total	0	111	405	300	0	816	0	41	281	227	0	549	0	187	698	57	0	942	1	195	733	0	0	929	3236
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	23	74	79	0	176	0	25	135	62	0	222	0	86	219	12	0	317	1	62	233	2	0	298	1013
4:15 PM	0	35	78	74	0	187	0	29	107	74	0	210	0	80	228	13	0	321	0	57	233	0	0	290	1008
4:30 PM	0	26	76	85	0	187	0	27	127	54	0	208	0	92	230	11	0	333	0	56	279	1	0	336	1064
4:45 PM	0	39	68	92	0	199	0	22	121	66	0	209	0	82	228	9	0	319	0	54	252	0	0	306	1033
Hourly Total	0	123	296	330	0	749	0	103	490	256	0	849	0	340	905	45	0	1290	1	229	997	3	0	1230	4118
5:00 PM	0	28	86	73	0	187	0	22	81	49	0	152	0	81	286	14	0	381	1	60	218	0	0	279	999
5:15 PM	0	33	81	70	0	184	0	19	115	69	0	203	0	94	247	11	0	352	1	64	250	0	0	315	1054
5:30 PM	0	38	61	70	0	169	0	26	101	54	0	181	0	69	218	15	0	302	0	49	228	0	0	277	929
5:45 PM	0	28	54	68	0	150	0	35	78	46	0	159	1	87	214	12	0	314	0	62	165	0	0	227	850
Hourly Total	0	127	282	281	0	690	0	102	375	218	0	695	1	331	965	52	0	1349	2	235	861	0	0	1098	3832

Grand Total	0	834	2183	1855	0	4872	0	505	2056	1383	0	3944	3	1759	5551	374	2	7687	8	1336	5371	3	0	6718	23221
Approach %	0.0	17.1	44.8	38.1	-	-	0.0	12.8	52.1	35.1	-	-	0.0	22.9	72.2	4.9	-	-	0.1	19.9	79.9	0.0	-	-	-
Total %	0.0	3.6	9.4	8.0	-	21.0	0.0	2.2	8.9	6.0	-	17.0	0.0	7.6	23.9	1.6	-	33.1	0.0	5.8	23.1	0.0	-	28.9	-
Lights	0	817	2137	1801	-	4755	0	496	2033	1315	-	3844	3	1710	5351	363	-	7427	8	1286	5181	3	-	6478	22504
% Lights	-	98.0	97.9	97.1	-	97.6	-	98.2	98.9	95.1	-	97.5	100.0	97.2	96.4	97.1	-	96.6	100.0	96.3	96.5	100.0	-	96.4	96.9
Buses	0	3	4	13	-	20	0	1	2	3	-	6	0	22	23	0	-	45	0	6	26	0	-	32	103
% Buses	-	0.4	0.2	0.7	-	0.4	-	0.2	0.1	0.2	-	0.2	0.0	1.3	0.4	0.0	-	0.6	0.0	0.4	0.5	0.0	-	0.5	0.4
Single-Unit Trucks	0	9	15	32	-	56	0	6	10	49	-	65	0	17	95	10	-	122	0	29	96	0	-	125	368
% Single-Unit Trucks	-	1.1	0.7	1.7	-	1.1	-	1.2	0.5	3.5	-	1.6	0.0	1.0	1.7	2.7	-	1.6	0.0	2.2	1.8	0.0	-	1.9	1.6
Articulated Trucks	0	3	17	9	-	29	0	2	7	16	-	25	0	8	82	1	-	91	0	15	68	0	-	83	228
% Articulated Trucks	-	0.4	0.8	0.5	-	0.6	-	0.4	0.3	1.2	-	0.6	0.0	0.5	1.5	0.3	-	1.2	0.0	1.1	1.3	0.0	-	1.2	1.0
Bicycles on Road	0	2	10	0	-	12	0	0	4	0	-	4	0	2	0	0	-	2	0	0	0	0	-	0	18
% Bicycles on Road	-	0.2	0.5	0.0	-	0.2	-	0.0	0.2	0.0	-	0.1	0.0	0.1	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with Milwaukee Avenue
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Deerfield Road Eastbound						Deerfield Road Westbound						Milwaukee Avenue Northbound						Milwaukee Avenue Southbound						
	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	Int. Total
12:00 PM	0	32	97	89	0	218	0	32	75	57	0	164	0	81	219	20	0	320	2	56	200	0	0	258	960
12:15 PM	0	31	74	71	0	176	0	11	76	37	0	124	0	91	243	12	0	346	0	44	222	0	0	266	912
12:30 PM	0	43	94	82	0	219	0	23	74	32	0	129	1	67	193	12	0	273	0	57	208	0	0	265	886
12:45 PM	0	44	68	77	0	189	0	16	64	48	0	128	0	71	252	13	0	336	0	52	242	0	0	294	947
Total	0	150	333	319	0	802	0	82	289	174	0	545	1	310	907	57	0	1275	2	209	872	0	0	1083	3705
Approach %	0.0	18.7	41.5	39.8	-	-	0.0	15.0	53.0	31.9	-	-	0.1	24.3	71.1	4.5	-	-	0.2	19.3	80.5	0.0	-	-	-
Total %	0.0	4.0	9.0	8.6	-	21.6	0.0	2.2	7.8	4.7	-	14.7	0.0	8.4	24.5	1.5	-	34.4	0.1	5.6	23.5	0.0	-	29.2	-
PHF	0.000	0.852	0.858	0.896	-	0.916	0.000	0.641	0.951	0.763	-	0.831	0.250	0.852	0.900	0.713	-	0.921	0.250	0.917	0.901	0.000	-	0.921	0.965
Lights	0	150	322	315	-	787	0	80	288	164	-	532	1	306	887	57	-	1251	2	200	861	0	-	1063	3633
% Lights	-	100.0	96.7	98.7	-	98.1	-	97.6	99.7	94.3	-	97.6	100.0	98.7	97.8	100.0	-	98.1	100.0	95.7	98.7	-	-	98.2	98.1
Buses	0	0	0	1	-	1	0	0	0	0	-	0	0	0	2	0	-	2	0	0	0	0	-	0	3
% Buses	-	0.0	0.0	0.3	-	0.1	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	0	3	2	-	5	0	2	1	10	-	13	0	3	13	0	-	16	0	7	9	0	-	16	50
% Single-Unit Trucks	-	0.0	0.9	0.6	-	0.6	-	2.4	0.3	5.7	-	2.4	0.0	1.0	1.4	0.0	-	1.3	0.0	3.3	1.0	-	-	1.5	1.3
Articulated Trucks	0	0	0	1	-	1	0	0	0	0	-	0	0	1	5	0	-	6	0	2	2	0	-	4	11
% Articulated Trucks	-	0.0	0.0	0.3	-	0.1	-	0.0	0.0	0.0	-	0.0	0.0	0.3	0.6	0.0	-	0.5	0.0	1.0	0.2	-	-	0.4	0.3
Bicycles on Road	0	0	8	0	-	8	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	8
% Bicycles on Road	-	0.0	2.4	0.0	-	1.0	-	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	0.2
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with Milwaukee Avenue
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Deerfield Road Eastbound						Deerfield Road Westbound						Milwaukee Avenue Northbound						Milwaukee Avenue Southbound						
	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	Int. Total
7:30 AM	0	24	102	64	0	190	0	13	45	51	0	109	0	41	222	15	0	278	0	49	170	0	0	219	796
7:45 AM	0	27	120	65	0	212	0	5	45	70	0	120	0	60	233	19	0	312	0	52	173	0	0	225	869
8:00 AM	0	33	111	97	0	241	0	5	72	45	0	122	0	48	169	9	0	226	0	48	179	0	0	227	816
8:15 AM	0	34	109	76	0	219	0	10	63	59	0	132	0	52	184	12	0	248	0	54	184	0	0	238	837
Total	0	118	442	302	0	862	0	33	225	225	0	483	0	201	808	55	0	1064	0	203	706	0	0	909	3318
Approach %	0.0	13.7	51.3	35.0	-	-	0.0	6.8	46.6	46.6	-	-	0.0	18.9	75.9	5.2	-	-	0.0	22.3	77.7	0.0	-	-	-
Total %	0.0	3.6	13.3	9.1	-	26.0	0.0	1.0	6.8	6.8	-	14.6	0.0	6.1	24.4	1.7	-	32.1	0.0	6.1	21.3	0.0	-	27.4	-
PHF	0.000	0.868	0.921	0.778	-	0.894	0.000	0.635	0.781	0.804	-	0.915	0.000	0.838	0.867	0.724	-	0.853	0.000	0.940	0.959	0.000	-	0.955	0.955
Lights	0	114	424	288	-	826	0	31	224	214	-	469	0	187	751	51	-	989	0	191	656	0	-	847	3131
% Lights	-	96.6	95.9	95.4	-	95.8	-	93.9	99.6	95.1	-	97.1	-	93.0	92.9	92.7	-	93.0	-	94.1	92.9	-	-	93.2	94.4
Buses	0	0	3	1	-	4	0	0	0	0	-	0	0	9	6	0	-	15	0	1	10	0	-	11	30
% Buses	-	0.0	0.7	0.3	-	0.5	-	0.0	0.0	0.0	-	0.0	-	4.5	0.7	0.0	-	1.4	-	0.5	1.4	-	-	1.2	0.9
Single-Unit Trucks	0	3	4	12	-	19	0	2	0	8	-	10	0	3	28	3	-	34	0	8	26	0	-	34	97
% Single-Unit Trucks	-	2.5	0.9	4.0	-	2.2	-	6.1	0.0	3.6	-	2.1	-	1.5	3.5	5.5	-	3.2	-	3.9	3.7	-	-	3.7	2.9
Articulated Trucks	0	1	11	1	-	13	0	0	1	3	-	4	0	2	23	1	-	26	0	3	14	0	-	17	60
% Articulated Trucks	-	0.8	2.5	0.3	-	1.5	-	0.0	0.4	1.3	-	0.8	-	1.0	2.8	1.8	-	2.4	-	1.5	2.0	-	-	1.9	1.8
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	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with Milwaukee Avenue
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Deerfield Road Eastbound						Deerfield Road Westbound						Milwaukee Avenue Northbound						Milwaukee Avenue Southbound						
	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	Int. Total
4:30 PM	0	26	76	85	0	187	0	27	127	54	0	208	0	92	230	11	0	333	0	56	279	1	0	336	1064
4:45 PM	0	39	68	92	0	199	0	22	121	66	0	209	0	82	228	9	0	319	0	54	252	0	0	306	1033
5:00 PM	0	28	86	73	0	187	0	22	81	49	0	152	0	81	286	14	0	381	1	60	218	0	0	279	999
5:15 PM	0	33	81	70	0	184	0	19	115	69	0	203	0	94	247	11	0	352	1	64	250	0	0	315	1054
Total	0	126	311	320	0	757	0	90	444	238	0	772	0	349	991	45	0	1385	2	234	999	1	0	1236	4150
Approach %	0.0	16.6	41.1	42.3	-	-	0.0	11.7	57.5	30.8	-	-	0.0	25.2	71.6	3.2	-	-	0.2	18.9	80.8	0.1	-	-	-
Total %	0.0	3.0	7.5	7.7	-	18.2	0.0	2.2	10.7	5.7	-	18.6	0.0	8.4	23.9	1.1	-	33.4	0.0	5.6	24.1	0.0	-	29.8	-
PHF	0.000	0.808	0.904	0.870	-	0.951	0.000	0.833	0.874	0.862	-	0.923	0.000	0.928	0.866	0.804	-	0.909	0.500	0.914	0.895	0.250	-	0.920	0.975
Lights	0	123	309	309	-	741	0	88	436	225	-	749	0	340	960	44	-	1344	2	230	969	1	-	1202	4036
% Lights	-	97.6	99.4	96.6	-	97.9	-	97.8	98.2	94.5	-	97.0	-	97.4	96.9	97.8	-	97.0	100.0	98.3	97.0	100.0	-	97.2	97.3
Buses	0	2	1	4	-	7	0	1	1	1	-	3	0	1	1	0	-	2	0	1	4	0	-	5	17
% Buses	-	1.6	0.3	1.3	-	0.9	-	1.1	0.2	0.4	-	0.4	-	0.3	0.1	0.0	-	0.1	0.0	0.4	0.4	0.0	-	0.4	0.4
Single-Unit Trucks	0	1	0	4	-	5	0	0	3	9	-	12	0	2	8	1	-	11	0	2	12	0	-	14	42
% Single-Unit Trucks	-	0.8	0.0	1.3	-	0.7	-	0.0	0.7	3.8	-	1.6	-	0.6	0.8	2.2	-	0.8	0.0	0.9	1.2	0.0	-	1.1	1.0
Articulated Trucks	0	0	1	3	-	4	0	1	3	3	-	7	0	4	22	0	-	26	0	1	14	0	-	15	52
% Articulated Trucks	-	0.0	0.3	0.9	-	0.5	-	1.1	0.7	1.3	-	0.9	-	1.1	2.2	0.0	-	1.9	0.0	0.4	1.4	0.0	-	1.2	1.3
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	3
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.2	0.0	-	0.1	-	0.6	0.0	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with West Drive
Site Code:
Start Date: 05/08/2021

Turning Movement Data

Start Time	Deerfield Road Eastbound					Deerfield Road Westbound					Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
11:30 AM	0	3	144	0	147	0	144	1	0	145	0	1	4	0	5	297
11:45 AM	1	4	118	0	123	0	147	7	0	154	0	6	7	0	13	290
Hourly Total	1	7	262	0	270	0	291	8	0	299	0	7	11	0	18	587
12:00 PM	0	1	168	0	169	0	156	4	0	160	0	2	10	0	12	341
12:15 PM	0	1	135	0	136	0	132	3	0	135	0	3	2	0	5	276
12:30 PM	0	6	156	0	162	0	128	6	0	134	0	6	6	0	12	308
12:45 PM	0	4	135	0	139	0	139	2	0	141	0	4	3	0	7	287
Hourly Total	0	12	594	0	606	0	555	15	0	570	0	15	21	0	36	1212
1:00 PM	0	0	136	0	136	0	149	1	0	150	0	2	5	0	7	293
1:15 PM	0	6	155	0	161	0	131	4	0	135	0	2	7	0	9	305
1:30 PM	0	0	161	0	161	0	149	1	0	150	0	1	5	0	6	317
1:45 PM	1	0	129	0	130	0	125	5	0	130	0	6	10	0	16	276
Hourly Total	1	6	581	0	588	0	554	11	0	565	0	11	27	0	38	1191
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	0	0	154	0	154	0	106	2	0	108	0	1	2	0	3	265
9:15 AM	0	1	127	0	128	0	101	2	0	103	0	5	6	0	11	242
9:30 AM	0	4	104	0	108	0	110	3	0	113	0	3	4	0	7	228
9:45 AM	0	2	111	0	113	0	96	6	0	102	0	3	4	0	7	222
Hourly Total	0	7	496	0	503	0	413	13	0	426	0	12	16	0	28	957
10:00 AM	0	0	121	0	121	0	96	2	0	98	0	2	1	0	3	222
10:15 AM	0	3	106	0	109	0	83	3	0	86	0	1	1	0	2	197
10:30 AM	0	2	103	0	105	0	118	4	0	122	0	2	6	0	8	235
10:45 AM	1	0	96	0	97	0	117	4	0	121	0	2	3	0	5	223
Hourly Total	1	5	426	0	432	0	414	13	0	427	0	7	11	0	18	877
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	156	0	156	0	202	4	0	206	0	3	3	0	6	368
4:15 PM	0	0	161	0	161	0	185	5	0	190	0	6	11	0	17	368
4:30 PM	0	1	145	0	146	0	196	3	0	199	0	3	6	0	9	354
4:45 PM	0	1	136	0	137	0	195	2	0	197	0	5	4	0	9	343
Hourly Total	0	2	598	0	600	0	778	14	0	792	0	17	24	0	41	1433
5:00 PM	0	0	150	0	150	0	154	5	0	159	0	3	7	0	10	319
5:15 PM	0	0	147	0	147	0	211	1	0	212	0	2	4	0	6	365
5:30 PM	0	0	120	0	120	0	179	1	0	180	0	6	8	0	14	314
5:45 PM	0	2	123	0	125	0	168	1	0	169	0	1	10	0	11	305
Hourly Total	0	2	540	0	542	0	712	8	0	720	0	12	29	0	41	1303
Grand Total	3	41	3497	0	3541	0	3717	82	0	3799	0	81	139	0	220	7560

Approach %	0.1	1.2	98.8	-	-	0.0	97.8	2.2	-	-	0.0	36.8	63.2	-	-	-
Total %	0.0	0.5	46.3	-	46.8	0.0	49.2	1.1	-	50.3	0.0	1.1	1.8	-	2.9	-
Lights	3	39	3399	-	3441	0	3606	82	-	3688	0	81	138	-	219	7348
% Lights	100.0	95.1	97.2	-	97.2	-	97.0	100.0	-	97.1	-	100.0	99.3	-	99.5	97.2
Buses	0	0	6	-	6	0	7	0	-	7	0	0	0	-	0	13
% Buses	0.0	0.0	0.2	-	0.2	-	0.2	0.0	-	0.2	-	0.0	0.0	-	0.0	0.2
Single-Unit Trucks	0	2	52	-	54	0	69	0	-	69	0	0	1	-	1	124
% Single-Unit Trucks	0.0	4.9	1.5	-	1.5	-	1.9	0.0	-	1.8	-	0.0	0.7	-	0.5	1.6
Articulated Trucks	0	0	32	-	32	0	33	0	-	33	0	0	0	-	0	65
% Articulated Trucks	0.0	0.0	0.9	-	0.9	-	0.9	0.0	-	0.9	-	0.0	0.0	-	0.0	0.9
Bicycles on Road	0	0	8	-	8	0	2	0	-	2	0	0	0	-	0	10
% Bicycles on Road	0.0	0.0	0.2	-	0.2	-	0.1	0.0	-	0.1	-	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with West Drive
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Deerfield Road Eastbound					Deerfield Road Westbound					Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
12:00 PM	0	1	168	0	169	0	156	4	0	160	0	2	10	0	12	341
12:15 PM	0	1	135	0	136	0	132	3	0	135	0	3	2	0	5	276
12:30 PM	0	6	156	0	162	0	128	6	0	134	0	6	6	0	12	308
12:45 PM	0	4	135	0	139	0	139	2	0	141	0	4	3	0	7	287
Total	0	12	594	0	606	0	555	15	0	570	0	15	21	0	36	1212
Approach %	0.0	2.0	98.0	-	-	0.0	97.4	2.6	-	-	0.0	41.7	58.3	-	-	-
Total %	0.0	1.0	49.0	-	50.0	0.0	45.8	1.2	-	47.0	0.0	1.2	1.7	-	3.0	-
PHF	0.000	0.500	0.884	-	0.896	0.000	0.889	0.625	-	0.891	0.000	0.625	0.525	-	0.750	0.889
Lights	0	12	576	-	588	0	541	15	-	556	0	15	21	-	36	1180
% Lights	-	100.0	97.0	-	97.0	-	97.5	100.0	-	97.5	-	100.0	100.0	-	100.0	97.4
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	11	-	11	0	13	0	-	13	0	0	0	-	0	24
% Single-Unit Trucks	-	0.0	1.9	-	1.8	-	2.3	0.0	-	2.3	-	0.0	0.0	-	0.0	2.0
Articulated Trucks	0	0	2	-	2	0	1	0	-	1	0	0	0	-	0	3
% Articulated Trucks	-	0.0	0.3	-	0.3	-	0.2	0.0	-	0.2	-	0.0	0.0	-	0.0	0.2
Bicycles on Road	0	0	5	-	5	0	0	0	-	0	0	0	0	-	0	5
% Bicycles on Road	-	0.0	0.8	-	0.8	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.4
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Count Name: Deerfield Road with West Drive
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (12:00 AM)

Start Time	Deerfield Road Eastbound					Deerfield Road Westbound					Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000
Lights	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Lights	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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9575 W. Higgins Rd., Suite 400

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

Count Name: Deerfield Road with West Drive
Site Code:
Start Date: 05/08/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Deerfield Road Eastbound					Deerfield Road Westbound					Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:30 PM	0	1	145	0	146	0	196	3	0	199	0	3	6	0	9	354
4:45 PM	0	1	136	0	137	0	195	2	0	197	0	5	4	0	9	343
5:00 PM	0	0	150	0	150	0	154	5	0	159	0	3	7	0	10	319
5:15 PM	0	0	147	0	147	0	211	1	0	212	0	2	4	0	6	365
Total	0	2	578	0	580	0	756	11	0	767	0	13	21	0	34	1381
Approach %	0.0	0.3	99.7	-	-	0.0	98.6	1.4	-	-	0.0	38.2	61.8	-	-	-
Total %	0.0	0.1	41.9	-	42.0	0.0	54.7	0.8	-	55.5	0.0	0.9	1.5	-	2.5	-
PHF	0.000	0.500	0.963	-	0.967	0.000	0.896	0.550	-	0.904	0.000	0.650	0.750	-	0.850	0.946
Lights	0	2	570	-	572	0	733	11	-	744	0	13	21	-	34	1350
% Lights	-	100.0	98.6	-	98.6	-	97.0	100.0	-	97.0	-	100.0	100.0	-	100.0	97.8
Buses	0	0	1	-	1	0	3	0	-	3	0	0	0	-	0	4
% Buses	-	0.0	0.2	-	0.2	-	0.4	0.0	-	0.4	-	0.0	0.0	-	0.0	0.3
Single-Unit Trucks	0	0	4	-	4	0	11	0	-	11	0	0	0	-	0	15
% Single-Unit Trucks	-	0.0	0.7	-	0.7	-	1.5	0.0	-	1.4	-	0.0	0.0	-	0.0	1.1
Articulated Trucks	0	0	3	-	3	0	9	0	-	9	0	0	0	-	0	12
% Articulated Trucks	-	0.0	0.5	-	0.5	-	1.2	0.0	-	1.2	-	0.0	0.0	-	0.0	0.9
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	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Study Name Deerfield Road with East Access Drives
Start Date Saturday, May 08, 2021 11:30 AM
End Date Tuesday, May 11, 2021 6:00 PM
Site Code

Report Summary

		Eastbound							Westbound							Northbound							Southbound							Northwestbound								Crosswalk	
Time Period	Class.	U	L	T	BR	R	I	O	U	HL	L	T	R	I	O	U	L	T	R	HR	I	O	U	L	BL	T	R	I	O	U	HL	BL	BR	HR	I	O	Total		destria	Total
Peak 1	Lights	0	3	666	7	0	676	451	0	5	0	448	1	454	669	0	0	0	1	0	1	0	0	0	0	0	0	0	4	0	0	3	0	2	5	12	1136	W	0	0
Specified Period	%	0%	100%	95%	100%	0%	95%	97%	0%	100%	0%	97%	100%	97%	95%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	100%	100%	100%	96%		0%	
7:30 AM - 8:30 AM	Buses	0	0	3	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	E	0	0
One Hour Peak	%	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%	0%	0%	0%	0%		0%	
7:30 AM - 8:30 AM	ngle-Unit Truc	0	0	18	0	0	18	11	0	0	0	11	0	11	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	S	0	0
	%	0%	0%	3%	0%	0%	3%	2%	0%	0%	0%	2%	0%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%		0%	
	ticulated Truc	0	0	15	0	0	15	3	0	0	0	3	0	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	N	0	0
	%	0%	0%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%		0%	
	icycles on Roa	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	0	0	0	0	SE	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%	0%	0%	0%	0%	0%	0%		0%	
	Total	**0**	**3**	**702**	**7**	**0**	**712**	**465**	**0**	**5**	**0**	**462**	**1**	**468**	**705**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**3**	**0**	**2**	**5**	**12**	**1186**		**0**	**0**
	PHF	0	0.38	0.88	0.58	0	0.88	0.94	0	0.62	0	0.95	0.25	0.94	0.88	0	0	0	0.25	0	0.25	0	0	0	0	0	0	0	0.33	0	0	0.25	0	0.5	0.31	0.75	0.9			
	Approach %						60%	39%						39%	59%						0%	0%						0%	0%						0%	1%				
Peak 2	Lights	0	1	600	6	4	611	749	0	2	1	729	0	732	610	0	3	0	4	0	7	5	0	0	0	0	0	0	1	0	0	17	0	6	23	8	1373	W	0	0
Specified Period	%	0%	100%	98%	86%	100%	98%	97%	0%	100%	100%	97%	0%	97%	98%	0%	100%	0%	67%	0%	78%	100%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	100%	100%	89%	97%		0%	
4:30 PM - 5:30 PM	Buses	0	0	1	1	0	2	3	0	0	0	3	0	3	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	E	0	0
One Hour Peak	%	0%	0%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%		0%	
4:30 PM - 5:30 PM	ngle-Unit Truc	0	0	6	0	0	6	15	0	0	0	15	0	15	7	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	S	0	0
	%	0%	0%	1%	0%	0%	1%	2%	0%	0%	0%	2%	0%	2%	1%	0%	0%	0%	17%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%		0%	
	ticulated Truc	0	0	3	0	0	3	7	0	0	0	7	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	N	0	0
	%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%		0%	
	icycles on Roa	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	0	0	0	0	SE	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%	0%	0%	0%	0%	0%	0%		0%	
	Total	**0**	**1**	**610**	**7**	**4**	**622**	**774**	**0**	**2**	**1**	**754**	**0**	**757**	**622**	**0**	**3**	**0**	**6**	**0**	**9**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**17**	**0**	**6**	**23**	**9**	**1411**		**0**	**0**
	PHF	0	0.25	0.92	0.58	0.5	0.92	0.91	0	0.5	0.25	0.92	0	0.91	0.92	0	0.75	0	0.75	0	0.75	0.62	0	0	0	0	0	0	0.25	0	0	0.61	0	0.5	0.64	0.56	0.93			
	Approach %						44%	55%						54%	44%						1%	0%						0%	0%						2%	1%				

Study Name Deerfield Road with East Access Drives
Start Date Saturday, May 08, 2021 11:30 AM
End Date Tuesday, May 11, 2021 6:00 PM
Site Code

Report Summary

		Eastbound							Westbound							Northbound							Southbound							Northwestbound								Crosswalk	
Time Period	Class.	U	L	T	BR	R	I	O	U	HL	L	T	R	I	O	U	L	T	R	HR	I	O	U	L	BL	T	R	I	O	U	HL	BL	BR	HR	I	O	Total		destria	Total
Peak 1	Lights	1	0	590	3	0	594	559	0	0	0	553	1	554	595	0	0	0	2	0	2	0	0	0	0	0	0	0	1	0	0	5	0	3	8	3	1158	W	0	0
Specified Period	%	100%	0%	96%	75%	0%	96%	98%	0%	0%	0%	98%	100%	98%	96%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	100%	100%	75%	97%		0%	
12:00 PM - 1:00 PM	Buses	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	0	0	0	0	E	0	0
One Hour Peak	%	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%	0%	0%	0%	0%		0%	
12:00 PM - 1:00 PM	ngle-Unit Truc	0	0	16	0	0	16	11	0	0	0	11	0	11	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	S	0	0
	%	0%	0%	3%	0%	0%	3%	2%	0%	0%	0%	2%	0%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%		0%	
	ticulated Truc	0	0	2	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	N	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%	0%	0%	0%	0%	0%	0%		0%	
	icycles on Roa	0	0	7	1	0	8	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	SE	0	0
	%	0%	0%	1%	25%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	1%		0%	
	Total	**1**	**0**	**615**	**4**	**0**	**620**	**570**	**0**	**0**	**0**	**564**	**1**	**565**	**620**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**3**	**8**	**4**	**1195**		**0**	**0**
	PHF	0.25	0	0.9	0.5	0	0.9	0.9	0	0	0	0.9	0.25	0.91	0.9	0	0	0	0.25	0	0.25	0	0	0	0	0	0	0	0.25	0	0	0.62	0	0.75	0.67	0.5	0.9			
	Approach %						52%	48%						47%	52%						0%	0%						0%	0%						1%	0%				

Riverwoods, IL Weather: Cool and Dry 12/07/21
Deerfield Rd and Chicory Lane 09:27:50
Tuesday November 30, 2021

TURNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - by Mvmt

Intersection # 5 deerfield/chicory

Begin	N-Approach			E-Approach			S-Approach			W-Approach			Int
Time	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
630	1	0	3	0	66	0	0	0	0	0	108	0	178
645	1	0	0	2	104	0	0	0	0	0	156	1	264
700	1	0	2	0	102	0	0	0	0	0	137	1	243
715	1	0	2	0	110	0	0	0	0	0	171	0	284
730	0	0	4	1	136	0	0	0	0	0	188	0	329
745	0	0	3	0	122	0	0	0	0	0	157	0	282
800	0	0	3	1	150	0	0	0	0	0	201	1	356
815	2	0	4	3	140	0	0	0	0	0	165	0	314
830	2	0	2	0	152	0	0	0	0	0	200	1	357
845	1	0	2	0	136	0	0	0	0	0	189	1	329
1600	0	0	0	3	182	0	0	0	0	0	145	0	330
1615	0	0	2	2	192	0	0	0	0	0	145	0	341
1630	0	0	1	3	208	0	0	0	0	0	147	1	360
1645	0	0	0	0	215	0	0	0	0	0	135	0	350
1700	1	0	3	1	195	0	0	0	0	0	172	1	373
1715	1	0	1	3	200	0	0	0	0	0	156	2	363
1730	0	0	1	1	230	0	0	0	0	0	150	0	382
1745	1	0	0	4	177	0	0	0	0	0	128	1	311
1800	1	0	0	4	145	0	0	0	0	0	117	3	270
1815	3	0	3	3	143	0	0	0	0	0	135	1	288
Total	16	0	36	31	3105	0	0	0	0	0	3102	14	6304

Milwaukee Avenue with Deerfield Road IDS

SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: SYNCHRO , VERSION: 9 , SIGNAL TYPE: ACTUATED , AREA TYPE: NON-CBD
NUMBER OF PHASES: (A.M.) 5 (P.M.) 5 CYCLE LENGTH (A.M.) 120 SEC. (P.M.) 120 SEC. PEAK HOUR FACTOR: 0.95
INTERSECTION DELAY/LEVEL-OF-SERVICE (A.M.) 45.3 SECONDS LOS D (P.M.) 79.3 SECONDS LOS E

APPROACH		EASTBOUND (C)			WESTBOUND (D)			NORTHBOUND (B)			SOUTHBOUND (A)		
LANE GROUP		L	T	R	L	T	R	L	T	R	L	T	R
NUMBER OF LANES		2	2	1	2	3	1	2	2	1	2	2	1
2040 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	125	605	605	65	420	520	310	1115	140	515	1080	85
	P.M.	290	415	435	95	1010	370	540	1320	30	435	1445	120
BASE SATURATION FLOW RATE (veh/h)		1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
LANE WIDTH (FT)		11	11	11	11	11	11	11	12	11	11	11	11
VOLUME OF RIGHT TURN ON RED (veh/h)		A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0
PEDESTRIANS/HOUR (ped/h)		A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0
ARRIVAL TYPE		4			4			4			4		
LANE UTILIZATION ADJ. FACTOR		0.97	0.98	1.00	0.97	0.79	1.00	0.97	0.95	1.00	0.97	0.95	1.00
GREEN TIME (SECONDS)	A.M.	9.50	25.00	40.50	9.50	25.00	47.50	15.50	42.00	51.50	22.50	49.00	58.50
	P.M.	9.50	26.00	43.50	9.50	26.00	42.50	17.50	47.00	56.50	16.50	46.00	55.50
GREEN RATIO (g/C)	A.M.	0.08	0.21	0.34	0.08	0.21	0.40	0.13	0.35	0.43	0.19	0.41	0.49
	P.M.	0.08	0.22	0.36	0.08	0.22	0.35	0.15	0.39	0.47	0.14	0.38	0.46
CAPACITY (C)	A.M.	262	2454	833	161	2100	712	281	1008	500	215	1301	559
	P.M.	262	819	684	265	983	659	484	1458	822	460	1366	817
v/c RATIO (X)	A.M.	0.540	0.800	0.940	0.310	0.470	0.760	0.750	0.880	0.190	0.880	0.780	0.100
	P.M.	1.160	0.530	0.670	0.420	1.080	0.590	1.170	0.950	0.040	1.000	1.110	0.150
STORAGE QUEUE (RED TIME), FT	A.M.	98	403	681	50	187	534	229	616	137	352	548	74
	P.M.	227	274	471	74	444	406	392	683	27	316	765	110
LANE GROUP DELAY (SECONDS)	A.M.	61.7	53	51.7	57	43.5	32.6	61.7	45.7	6.3	64.4	35.4	5
	P.M.	155.4	44	29.6	58.8	97.7	27.1	142.9	50.5	0.4	92.8	97.1	8
LANE GROUP LEVEL-OF-SERVICE	A.M.	E	D	D	E	D	C	E	D	A	E	D	A
	P.M.	F	D	C	E	F	C	F	D	A	F	F	A
APPROACH DELAY (SECONDS/VEHICLE)	A.M.	53.2			38.7			45.3			42.8		
	P.M.	66.8			77.5			76.1			90.8		
APPROACH LEVEL-OF-SERVICE	A.M.	D			D			D			D		
	P.M.	D			E			E			F		

PHASE	1			2			3			4			5			
		YELLOW	RED		YELLOW	RED		YELLOW	RED		YELLOW	RED		YELLOW	RED	CYCLE LENGTH
GREEN TIME IN SECONDS A.M.	16.5	3.5	1.0	2.5	3.5	1.0	12.0	4.5	1.5	9.5	3.5	1.0	26.0	4.5	1.5	120
GREEN TIME IN SECONDS P.M.	16.5	3.5	1.0	1.0	0.0	0.0	46.0	4.5	1.5	9.5	3.5	1.0	26.0	4.5	1.5	120

ELEMENTS CONTROLLING DESIGN

PREFFERED ROUTE :

F.A. ROUTE NUMBER: FAP 330 MARKED ROUTE NUMBER: US ROUTE 45/ IL ROUTE 21
STREET NAME: MILWAUKEE AVENUE SRA ROUTE: SRA ROUTE 105
FUNCTIONAL CLASSIFICATION: PRINCIPAL ARTERIAL OSOW DESIGN: YES
EXISTING ADT (2016): NORTH 39,800 VPD SOUTH 38,200 VPD. DESIGN YEAR ADT (2040): NORTH 40,200 VPD SOUTH 38,700 VPD.
PROPOSED DESIGN SPEED: 45 MPH. PROPOSED POSTED SPEED: 40 MPH.

SECONDARY ROUTES:

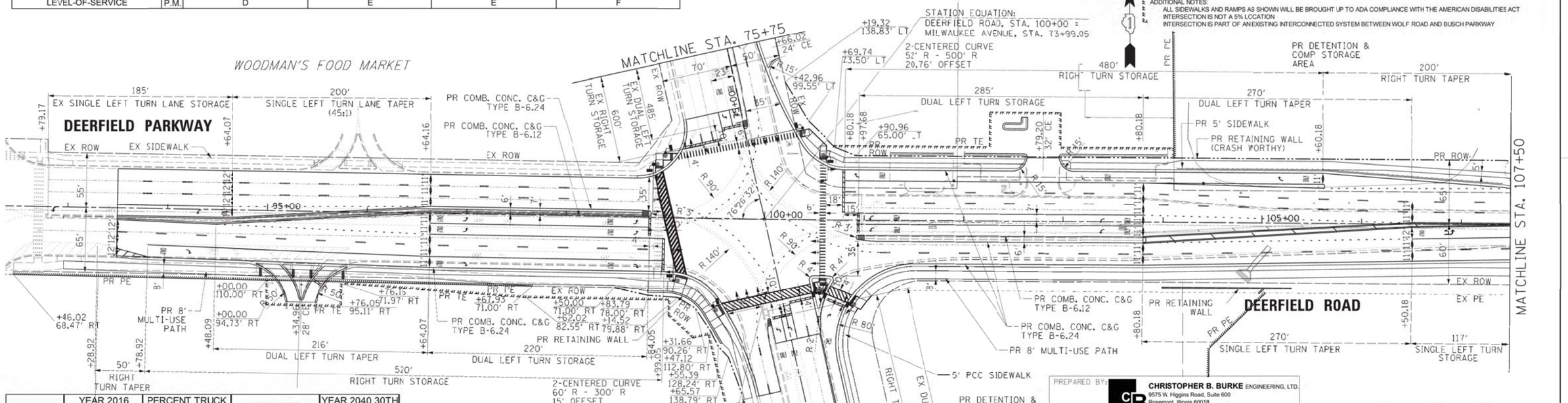
F.A. ROUTE NUMBER: FAU 1257 MARKED ROUTE NUMBER: N/A
STREET NAME: DEERFIELD ROAD. SRA ROUTE: NO
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL. OSOW DESIGN: NO
EXISTING ADT (2016): EAST 19,550 VPD WEST 15,700 VPD. DESIGN YEAR ADT (2040): EAST 20,600 VPD WEST 16,300 VPD.
PROPOSED DESIGN SPEED: 45 MPH. PROPOSED POSTED SPEED: 40 MPH

IMPROVEMENT TYPE: RECONSTRUCTION, INTERSECTION IMPROVEMENT. ANTICIPATED YEAR OF CONSTRUCTION: FY 2022.
EXISTING METHOD OF TRAFFIC CONTROL: TRAFFIC SIGNALS. PROPOSED METHOD: TRAFFIC SIGNALS.
SIGNAL WARRANT: EXISTING SIGNALS.
DESIGN VEHICLE: WB-65
DESIGN YEAR: 2040.
TRUCK ROUTE DESIGNATION: CLASS II (US ROUTE 45/ IL ROUTE 21) PREFERRED ROADWAY: US ROUTE 45/ IL ROUTE 21
SECONDARY ROADWAY: DEERFIELD ROAD
DESIGN CRITERIA: BDE MANUAL CHAPTER 46, BLRS MANUAL CHAPTERS 32

GENERAL NOTES

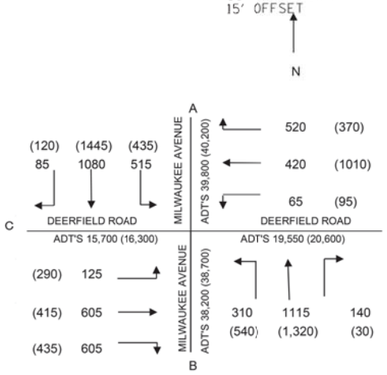
ARE PROFILES PROVIDED: YES IF NOT, STATE REASON WHY: N/A
TYPE B-6.24 CURB AND GUTTER ON THE OUTSIDE OF THE ROADWAY / SHOULDERS.
TYPE B-6.12/ B-6.24 (DEERFIELD ROAD) CURB AND GUTTER ON THE APPROACH MEDIAN.
TYPE B-6.24 CURB AND GUTTER ON THE CORNER ISLAND.
ALL DIMENSIONS ARE E-E OF PAVEMENT, UNLESS OTHERWISE NOTED.
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATED PER AUTOTURN SOFTWARE. VERSION 10.0.2.36
THE SCOPE OF WORK: ROADWAY RECON. TO ADD ADDITIONAL THROUGH LANES & AUX. TURN LANES, EB/WB DUAL LT LANES WITH CURB AND GUTTER AND BARRIER MEDIAN. THE TRAFFIC SIGNAL WILL ALSO BE MODERNIZED.
INTERSECTION DESIGN EXCEPTIONS: NB TH (AM & PM), SB TH (AM) LOS D VS. LOS C. SB TH (PM) LOS F VS. LOS C. NB LT (AM), SB LT (AM), WB LT (AM & PM), EB LT (AM) LOS E VS. LOS D. NB LT (PM), SB LT (PM), WB TH (PM), EB LT (PM) LOS F VS. LOS D. INT. LOS E VS. D (PM)
EB RT STORAGE: 685 FT REQUIRED (AM) VS. 520 FT PROVIDED. EB LT STORAGE: 230 FT REQUIRED (PM) VS. 220 FT PROVIDED.
WB RT STORAGE 535 FT REQUIRED (AM) VS. 480 FT PROVIDED. WB LT TAPER:300 FT REQUIRED VS. 270 FT PROVIDED.
EB LT TAPER:300 FT REQUIRED VS. 216' PROVIDED. EB RT TAPER: 200 FT REQUIRED VS. 50 FT.
216' VS 990' APPROACH TAPER LENGTH UNSHADOWED EASTBOUND LEFT TURN DEERFIELD ROAD AT MILWAUKEE AVENUE
270' VS 990' APPROACH TAPER LENGTH UNSHADOWED WESTBOUND LEFT TURN DEERFIELD ROAD AT MILWAUKEE AVENUE

ADDITIONAL NOTES:
ALL SIDEWALKS AND RAMPS AS SHOWN WILL BE BROUGHT UP TO ADA COMPLIANCE WITH THE AMERICAN DISABILITIES ACT
INTERSECTION IS NOT A 5% LOCATION
INTERSECTION IS PART OF AN EXISTING INTERCONNECTED SYSTEM BETWEEN WOLF ROAD AND BUSCH PARKWAY



MOVEMENT	YEAR 2016 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR		ESTIMATED PERCENT INCREASE BY 2040		YEAR 2040 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.			A.M.	P.M.
AD (L)	415	375	1%	1%	24%	16%	515	435
AB (T)	1040	1320	3%	3%	4%	9%	1080	1445
AC (R)	20	45	2%	2%	325%	167%	85	120
BC (L)	215	330	2%	2%	44%	64%	310	540
BA (T)	1130	1310	2%	2%	-1%	1%	1115	1320
BD (R)	130	40	3%	3%	8%	-25%	140	30
CA (L)	35	50	2%	2%	257%	480%	125	290
CD (T)	490	245	1%	1%	23%	69%	605	415
CB (R)	440	280	2%	2%	38%	55%	605	435
DB (L)	80	75	1%	1%	-19%	27%	65	95
DC (T)	225	660	1%	1%	87%	53%	420	1010
DA (R)	490	285	2%	2%	6%	30%	520	370
TOTAL A	3130	3385	2%	2%	10%	18%	3440	3980
TOTAL B	3035	3355	2%	2%	9%	15%	3315	3865
TOTAL C	1425	1610	1%	1%	51%	75%	2150	2810
TOTAL D	1830	1680	1%	1%	24%	40%	2265	2355

T = THROUGH, L = LEFT, R = RIGHT

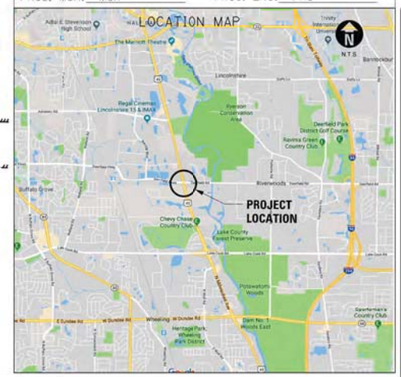


2040 D.H.V.'S AM (PM)
ADT 2016 (2040)

PREPARED BY:
CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500
PROJ. MGR. MJH PROJ. ENG. PRS

GRAPHIC SCALE 0 50 100

LOCATION MAP



INTERSECTION DESIGN STUDY

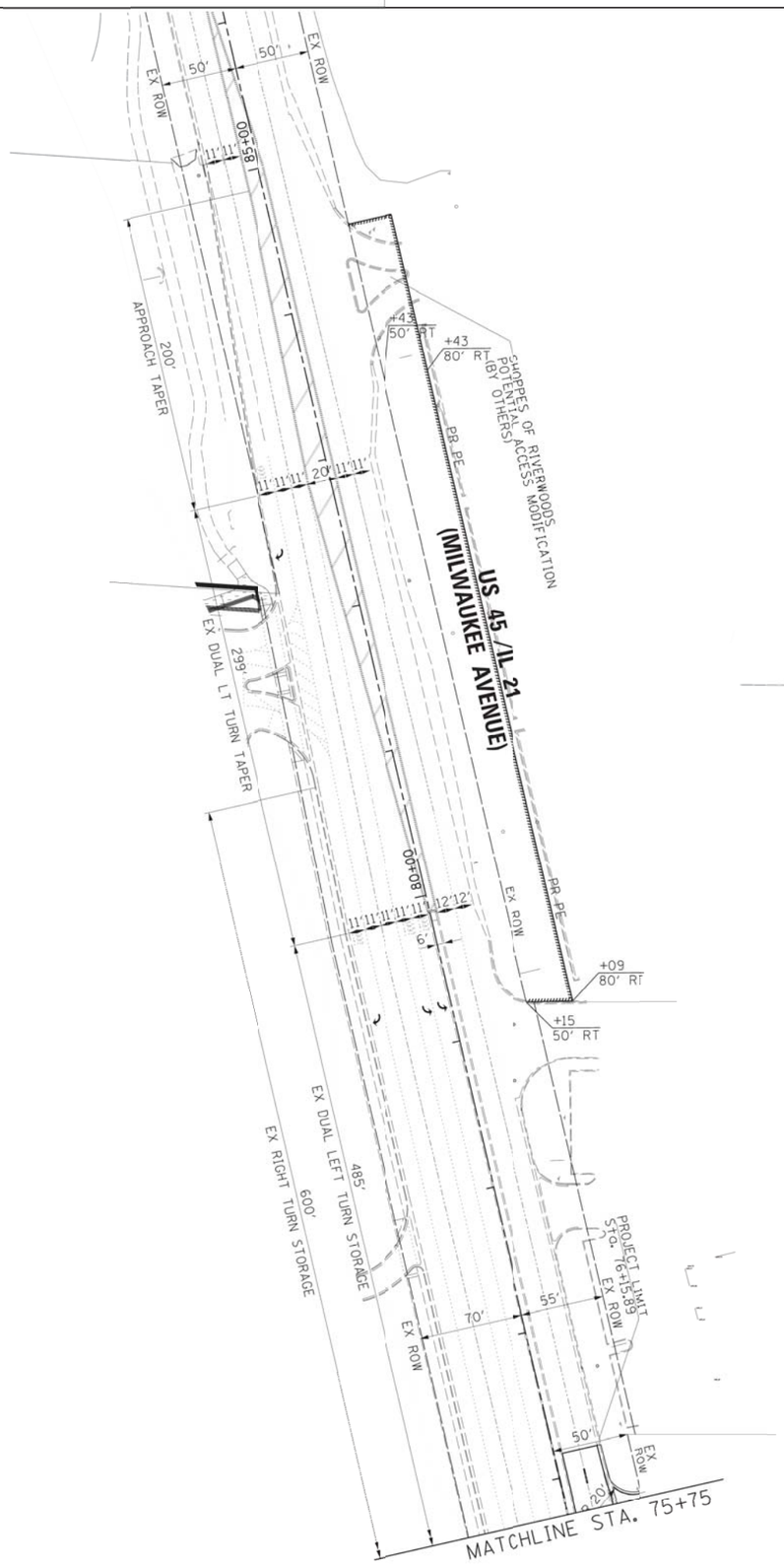
FAU ROUTE 1257 DEERFIELD ROAD
NORTH LEG: FAP 330 WITH US 45 / IL 21 (MILWAUKEE AVENUE)
SOUTH LEG: FAP 330 US 45 / IL 21 (MILWAUKEE AVENUE)
SEC. NO. 15-00038-07-WR PROJ. NO.
SCALE: 1" = 50' COUNTY LAKE
SJN : REV. NO. 6
DESIGNED BY MJH / FPB DATE 11/2020

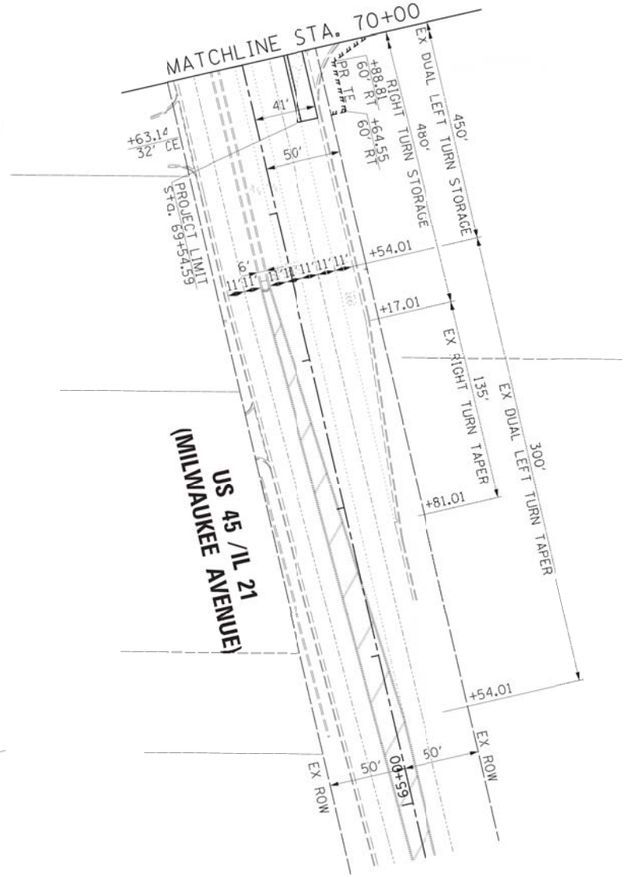
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE
APPROVED _____ DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER DATE

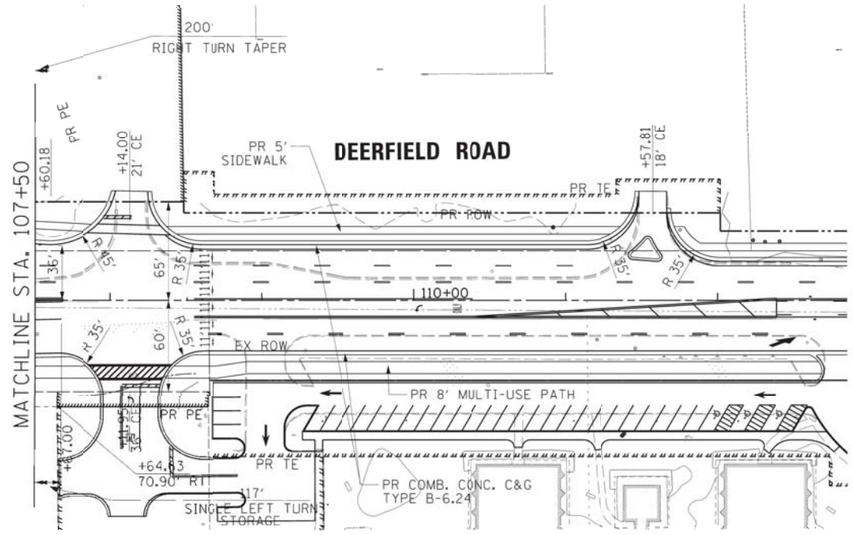
CADD FILE NAME : ( ) I.D.S. SHEET 1 OF 7

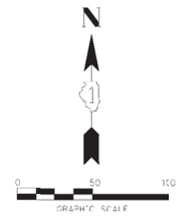
BDE-9308

PLOT DATE = 11/4/2020
FILE NAME = $FILE$
PLOT SCALE = 50.000 '/ in.
USER NAME = mhuffman









INTERSECTION DESIGN STUDY

FAU ROUTE 1257		WITH	DEERFIELD ROAD
NORTH LEG: FAP 330			US 45 / IL 21 (MILWAUKEE AVENUE)
SOUTH LEG: FAP 330			US 45 / IL 21 (MILWAUKEE AVENUE)
SEC. NO. 15-00038-07-WR			PROJ. NO.
SCALE: 1" = 50'			COUNTY LAKE
SJN :			REV. NO. 6

I.D.S. SHEET 2 OF 7

PREPARED BY:
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Rosemont, Illinois 60018
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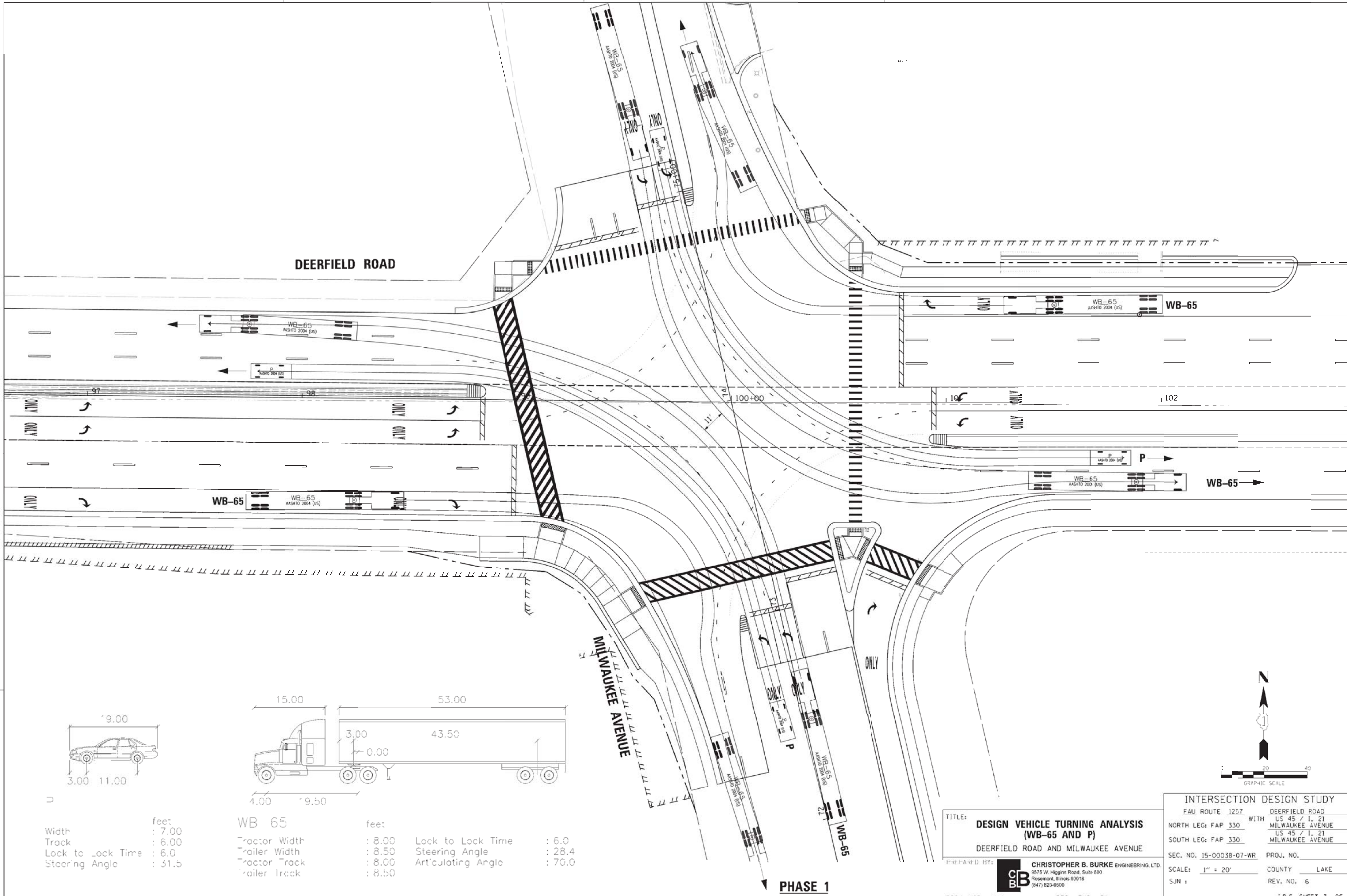
PROJ. MGR. MJH PROJ. ENG. EA

PLOT DATE = 11/4/2020
FILE NAME = $FILE$
PLOT SCALE = 50.000 '/ in.
USER NAME = mhuffman

10k-9908



TITLE: **DESIGN VEHICLE TURNING ANALYSIS (WB–65 AND P)**

DEERFIELD ROAD AND MILWAUKEE AVENUE

PREPARED BY: CHRISTOPHER B. BURKE ENGINEERING, LTD.
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Rosemont, Illinois 60018
(847) 823-0500

PROJ. MGR. MJH PROJ. ENG. EA

INTERSECTION DESIGN STUDY

FAU ROUTE 1257 WITH DEERFIELD ROAD

NORTH LEG: FAP 330 US 45 / IL 21 MILWAUKEE AVENUE

SOUTH LEG: FAP 330 US 45 / IL 21 MILWAUKEE AVENUE

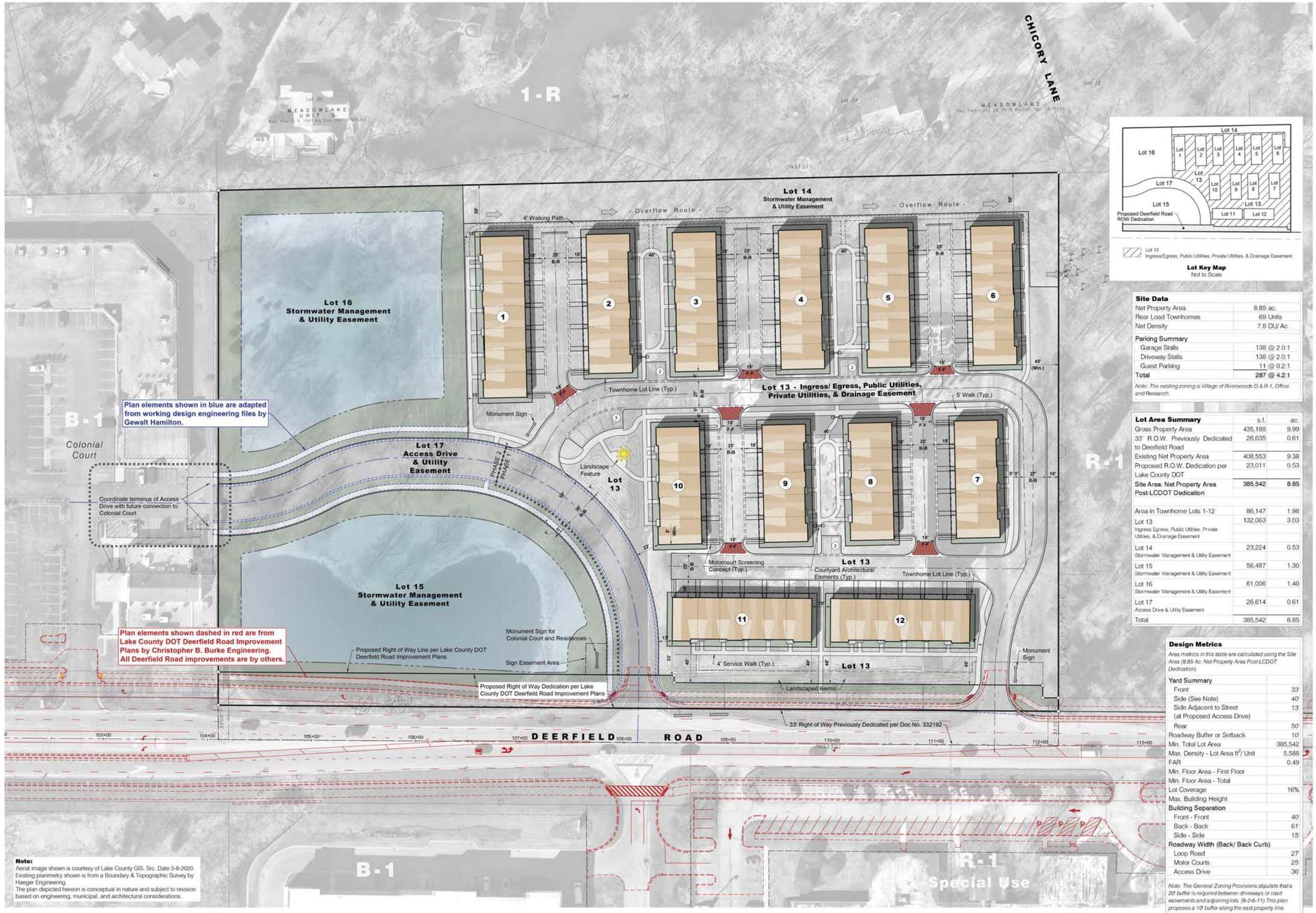
SEC. NO. 15-00038-07-WR PROJ. NO.

SCALE: 1" = 20' COUNTY LAKE

SJN : REV. NO. 6

I.D.S. SHEET 3 OF 7

Preliminary Site Plan



Note:
Aerial image shown is courtesy of Lake County GIS. Src. Date 3-8-2020.
Existing planimetry shown is from a Boundary & Topographic Survey by Haeger Engineering.
The plan depicted hereon is conceptual in nature and subject to revision based on engineering, municipal, and architectural considerations.

Lot Key Map
Not to Scale

Site Data	
Net Property Area	8.85 ac.
Rear Load Townhomes	69 Units
Net Density	7.8 DU/ Ac.
Parking Summary	
Garage Stalls	138 @ 2.0:1
Driveway Stalls	138 @ 2.0:1
Guest Parking	11 @ 0.2:1
Total	**287 @ 4.2:1**

Note: The existing zoning is Village of Riverwoods O & R-1, Office and Research.

Lot Area Summary	s.f.	ac.
Gross Property Area	435,188	9.99
33' R.O.W. Previously Dedicated to Deerfield Road	26,635	0.61
Existing Net Property Area	408,553	9.38
Proposed R.O.W. Dedication per Lake County DOT	23,011	0.53
Site Area: Net Property Area Post-LCDOT Dedication	**385,542**	**8.85**
Area in Townhome Lots 1-12	86,147	1.98
Lot 13 Ingress Egress, Public Utilities, Private Utilities, & Drainage Easement	132,063	3.03
Lot 14 Stormwater Management & Utility Easement	23,224	0.53
Lot 15 Stormwater Management & Utility Easement	56,487	1.30
Lot 16 Stormwater Management & Utility Easement	61,006	1.40
Lot 17 Access Drive & Utility Easement	26,614	0.61
Total	385,542	8.85

Design Metrics	
Area metrics in this table are calculated using the Site Area (8.85 Ac. Net Property Area Post-LCDOT Dedication)	
Yard Summary	
Front	33'
Side (See Note)	40'
Side Adjacent to Street (at Proposed Access Drive)	13'
Rear	50'
Roadway Buffer or Setback	10'
Min. Total Lot Area	385,542
Max. Density - Lot Area ft²/ Unit	5,588
FAR	0.49
Min. Floor Area - First Floor	
Min. Floor Area - Total	
Lot Coverage	16%
Max. Building Height	
Building Separation	
Front - Front	40'
Back - Back	61'
Side - Side	15'
Roadway Width (Back/ Back Curb)	
Loop Road	27'
Motor Courts	25'
Access Drive	36'

Note: The General Zoning Provisions stipulate that a 20' buffer is required between driveways or road easements and adjoining lots. (9-2-6-11) This plan proposes a 10' buffer along the east property line.

NORTH
20 0 40
Scale: 1" = 40'

No.	Date	Revision
1	5-26-2022	Miscellaneous Revisions

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Illinois Professional Design Firm License No. 184.003152
www.haegerengineering.com

CONCEPT SITE PLAN

LEXINGTON RIVERWOODS MEWS

VILLAGE OF RIVERWOODS, LAKE COUNTY, ILLINOIS

Project Manager:	TAS
Engineer:	PAC
Date:	12-3-2021
Project No.	20147
Sheet	1/1

© 2022 Haeger Engineering, LLC

Plot Date: May 26, 2022 - 5:12pm Plotted By: kat-g
File Name: P:\2020\20147\Drawings\Preliminary\20147-SP-Alt W Rev L3.dwg

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

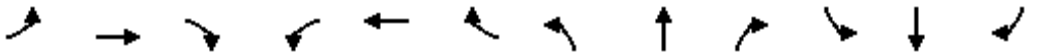
Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of 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

Year 2021 Weekday Morning Peak Hour Conditions



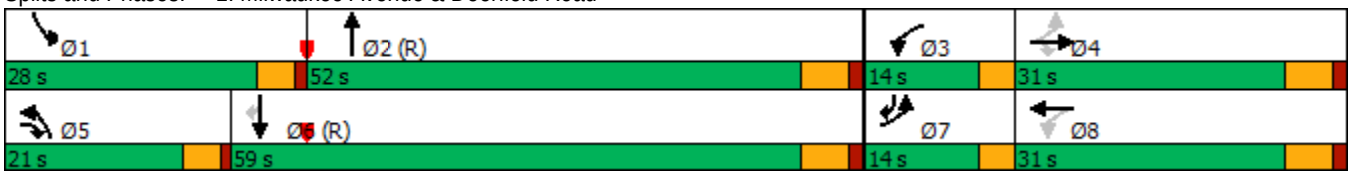
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	513	475	77	266	496	235	1128	132	436	1049	34
Future Volume (vph)	54	513	475	77	266	496	235	1128	132	436	1049	34
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.902			0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3654	1538	1703	3143	0	3164	3320	0	3193	3433	1561
Flt Permitted	0.159			0.221			0.950			0.950		
Satd. Flow (perm)	293	3654	1538	396	3143	0	3164	3320	0	3193	3433	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		338			11				65
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			1660	
Travel Time (s)		14.9			5.3			7.7			28.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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%	4%	5%	6%	1%	5%	7%	7%	7%	6%	7%	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)	56	534	495	80	794	0	245	1313	0	454	1093	35
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	31.0	21.0	14.0	31.0		21.0	52.0		28.0	59.0	14.0
Total Split (%)	11.2%	24.8%	16.8%	11.2%	24.8%		16.8%	41.6%		22.4%	47.2%	11.2%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	34.7	25.1	45.7	36.1	25.8		14.5	51.3		21.5	58.3	72.5
Actuated g/C Ratio	0.28	0.20	0.37	0.29	0.21		0.12	0.41		0.17	0.47	0.58

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.32	0.73	0.78	0.38	0.87		0.67	0.96		0.83	0.68	0.04
Control Delay	34.2	53.3	35.6	35.5	38.0		61.9	53.4		63.1	30.3	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.2	53.3	35.6	35.5	38.0		61.9	53.4		63.1	30.3	0.8
LOS	C	D	D	D	D		E	D		E	C	A
Approach Delay		44.2			37.8			54.8			39.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	31	212	268	45	194		97	~607		182	383	0
Queue Length 95th (ft)	63	278	412	84	#310		142	#757		241	472	5
Internal Link Dist (ft)		793			232			374			1580	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	206	749	658	226	929		417	1368		600	1600	959
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.27	0.71	0.75	0.35	0.85		0.59	0.96		0.76	0.68	0.04

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 72 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 44.7 Intersection LOS: D
Intersection Capacity Utilization 91.6% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1078	837	8	2	2
Future Vol, veh/h	3	1078	837	8	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	33	5	3	0	0	0
Mvmt Flow	3	1123	872	8	2	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	880	0	-	0	1444	440
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	568	-
Critical Hdwy	4.76	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.53	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	596	-	-	-	125	570
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	596	-	-	-	123	570
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	536	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	596	-	-	-	202
HCM Lane V/C Ratio	0.005	-	-	-	0.021
HCM Control Delay (s)	11.1	0.1	-	-	23.2
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1077	0	0	845	1	0	0	1	0	0	0
Future Vol, veh/h	3	1077	0	0	845	1	0	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	3	1197	0	0	939	1	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	940	0	-	-	-	0	-	-	1197	2143	2143	940
Stage 1	-	-	-	-	-	-	-	-	-	940	940	-
Stage 2	-	-	-	-	-	-	-	-	-	1203	1203	-
Critical Hdwy	4.1	-	-	-	-	-	-	-	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	737	-	0	0	-	-	0	0	229	36	49	322
Stage 1	-	-	0	0	-	-	0	0	-	319	345	-
Stage 2	-	-	0	0	-	-	0	0	-	227	260	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	737	-	-	-	-	-	-	-	229	35	48	322
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	35	48	-
Stage 1	-	-	-	-	-	-	-	-	-	315	345	-
Stage 2	-	-	-	-	-	-	-	-	-	223	257	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	20.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	229	737	-	-	-	-
HCM Lane V/C Ratio	0.005	0.005	-	-	-	-
HCM Control Delay (s)	20.8	9.9	0	-	-	0
HCM Lane LOS	C	A	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1071	7	5	843	3	2
Future Vol, veh/h	1071	7	5	843	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	1190	8	6	937	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1198	0	2143	1194
Stage 1	-	-	-	-	1194	-
Stage 2	-	-	-	-	949	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	590	-	54	230
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	379	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	590	-	53	230
Mov Cap-2 Maneuver	-	-	-	-	53	-
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	371	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	55.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	77	-	-	590	-
HCM Lane V/C Ratio	0.072	-	-	0.009	-
HCM Control Delay (s)	55.4	-	-	11.2	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1070	843	4	11	5
Future Vol, veh/h	3	1070	843	4	11	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	3	1126	887	4	12	5

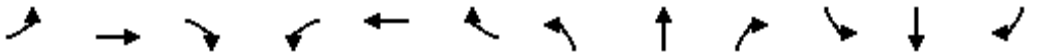
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	891	0	-	0	2021	889
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	1132	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	769	-	-	-	65	345
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	311	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	769	-	-	-	64	345
Mov Cap-2 Maneuver	-	-	-	-	64	-
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	311	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	56.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	769	-	-	-	86
HCM Lane V/C Ratio	0.004	-	-	-	0.196
HCM Control Delay (s)	9.7	0	-	-	56.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Capacity Analysis Summary Sheets

Year 2021 Weekday Evening Peak Hour Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	280	312	79	733	303	374	1313	38	387	1345	61
Future Volume (vph)	100	280	312	79	733	303	374	1313	38	387	1345	61
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3762	1568	1770	3355	0	3286	3492	0	3319	3566	1561
Flt Permitted	0.119			0.541			0.950			0.950		
Satd. Flow (perm)	222	3762	1568	1008	3355	0	3286	3492	0	3319	3566	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		46			3				63
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			1660	
Travel Time (s)		14.9			5.3			7.7			28.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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 (%)	2%	1%	3%	2%	2%	5%	3%	3%	2%	2%	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)	102	286	318	81	1057	0	382	1379	0	395	1372	62
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	38.0	24.0	14.0	38.0		24.0	56.0		22.0	54.0	14.0
Total Split (%)	10.8%	29.2%	18.5%	10.8%	29.2%		18.5%	43.1%		16.9%	41.5%	10.8%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	45.8	33.5	58.0	44.2	32.7		18.5	50.2		17.3	49.0	64.8
Actuated g/C Ratio	0.35	0.26	0.45	0.34	0.25		0.14	0.39		0.13	0.38	0.50

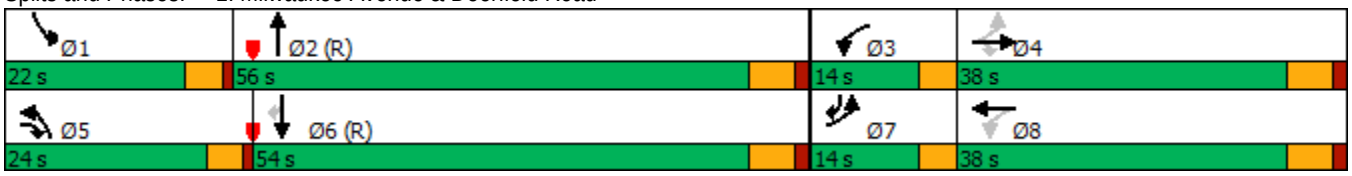
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.53	0.29	0.41	0.21	1.20		0.82	1.02		0.90	1.02	0.08
Control Delay	37.4	40.1	15.7	28.4	142.6		69.0	69.7		78.8	69.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	37.4	40.1	15.7	28.4	142.6		69.0	69.7		78.8	69.9	4.2
LOS	D	D	B	C	F		E	E		E	E	A
Approach Delay		28.7			134.5			69.5			69.6	
Approach LOS		C			F			E			E	
Queue Length 50th (ft)	57	102	100	45	~563		161	~650		171	~657	0
Queue Length 95th (ft)	99	145	180	82	#701		#220	#792		#258	#797	23
Internal Link Dist (ft)		793			232			374			1580	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	203	970	783	416	878		492	1349		446	1345	818
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.29	0.41	0.19	1.20		0.78	1.02		0.89	1.02	0.08

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 33 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 77.9 Intersection LOS: E
Intersection Capacity Utilization 101.1% ICU Level of Service G
Analysis Period (min) 15

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

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	703	1094	11	13	21
Future Vol, veh/h	2	703	1094	11	13	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	2	740	1152	12	14	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1164	0	-	0	1532	582
Stage 1	-	-	-	-	1158	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	607	-	-	-	110	461
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	672	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	607	-	-	-	109	461
Mov Cap-2 Maneuver	-	-	-	-	109	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	672	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	26.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	607	-	-	-	206
HCM Lane V/C Ratio	0.003	-	-	-	0.174
HCM Control Delay (s)	11	0	-	-	26.1
HCM Lane LOS	B	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	711	4	0	1105	0	0	0	9	0	0	0
Future Vol, veh/h	1	711	4	0	1105	0	0	0	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	0	3	0	0	0	22	0	0	0
Mvmt Flow	1	765	4	0	1188	0	0	0	10	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1188	0	-	-	-	0	-	-	765	1955	1955	1188
Stage 1	-	-	-	-	-	-	-	-	-	1188	1188	-
Stage 2	-	-	-	-	-	-	-	-	-	767	767	-
Critical Hdwy	4.1	-	-	-	-	-	-	-	6.42	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	-	-	3.498	3.5	4	3.3
Pot Cap-1 Maneuver	595	-	0	0	-	-	0	0	373	49	65	231
Stage 1	-	-	0	0	-	-	0	0	-	232	264	-
Stage 2	-	-	0	0	-	-	0	0	-	398	414	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	595	-	-	-	-	-	-	-	373	48	65	231
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	48	65	-
Stage 1	-	-	-	-	-	-	-	-	-	231	264	-
Stage 2	-	-	-	-	-	-	-	-	-	387	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	373	595	-	-	-	-
HCM Lane V/C Ratio	0.026	0.002	-	-	-	-
HCM Control Delay (s)	14.9	11.1	0	-	-	0
HCM Lane LOS	B	B	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	713	7	2	1088	17	6
Future Vol, veh/h	713	7	2	1088	17	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	3	0	0
Mvmt Flow	767	8	2	1170	18	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	775	0	1945	771
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	1174	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	850	-	72	403
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	296	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	850	-	71	403
Mov Cap-2 Maneuver	-	-	-	-	71	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	294	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	59.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	90	-	-	850	-
HCM Lane V/C Ratio	0.275	-	-	0.003	-
HCM Control Delay (s)	59.5	-	-	9.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	714	1085	12	4	5
Future Vol, veh/h	5	714	1085	12	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	6	871	1323	15	5	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1338	0	-	0	2214	1331
Stage 1	-	-	-	-	1331	-
Stage 2	-	-	-	-	883	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	522	-	-	-	49	191
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	408	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	522	-	-	-	48	191
Mov Cap-2 Maneuver	-	-	-	-	48	-
Stage 1	-	-	-	-	244	-
Stage 2	-	-	-	-	408	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	55.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	522	-	-	-	82
HCM Lane V/C Ratio	0.012	-	-	-	0.134
HCM Control Delay (s)	12	0	-	-	55.6
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Capacity Analysis Summary Sheets

No-Build Weekday Morning Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	569	518	109	287	541	268	1246	144	509	1127	37
Future Volume (vph)	59	569	518	109	287	541	268	1246	144	509	1127	37
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.902			0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3654	1538	1703	3143	0	3164	3320	0	3193	3433	1561
Flt Permitted	0.157			0.161			0.950			0.950		
Satd. Flow (perm)	290	3654	1538	289	3143	0	3164	3320	0	3193	3433	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			96		344			11				65
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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%	4%	5%	6%	1%	5%	7%	7%	7%	6%	7%	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)	61	593	540	114	863	0	279	1448	0	530	1174	39
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	31.0	21.0	14.0	31.0		21.0	52.0		28.0	59.0	14.0
Total Split (%)	11.2%	24.8%	16.8%	11.2%	24.8%		16.8%	41.6%		22.4%	47.2%	11.2%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	35.5	24.7	46.0	38.7	28.0		15.3	47.6		23.0	55.2	69.6
Actuated g/C Ratio	0.28	0.20	0.37	0.31	0.22		0.12	0.38		0.18	0.44	0.56

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.34	0.82	0.86	0.57	0.92dr		0.72	1.14		0.90	0.77	0.04
Control Delay	34.5	58.6	44.8	41.9	40.7		63.8	109.1		69.9	34.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.5	58.6	44.8	41.9	40.7		63.8	109.1		69.9	34.5	1.2
LOS	C	E	D	D	D		E	F		E	C	A
Approach Delay		51.1			40.8			101.8			44.6	
Approach LOS		D			D			F			D	
Queue Length 50th (ft)	34	243	334	66	230		112	~737		217	430	0
Queue Length 95th (ft)	67	311	#536	113	#369		159	#880		#311	523	7
Internal Link Dist (ft)		793			232			374			773	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	209	734	639	208	969		417	1270		600	1516	923
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.81	0.85	0.55	0.89		0.67	1.14		0.88	0.77	0.04

Intersection Summary

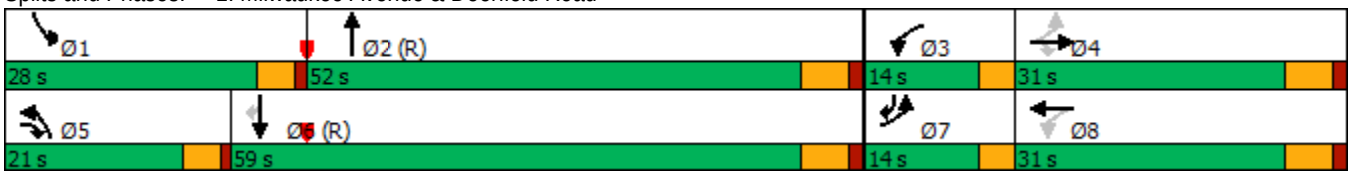
Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 72 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 62.8 Intersection LOS: E
Intersection Capacity Utilization 99.3% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1154	65	0	935	8	0	0	34	2	0	2
Future Vol, veh/h	3	1154	65	0	935	8	0	0	34	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	185	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	95	95	95	96	95	96
Heavy Vehicles, %	33	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	3	1202	68	0	974	8	0	0	36	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	982	0	-	-	-	0	-	-	601	1585	2186	491
Stage 1	-	-	-	-	-	-	-	-	-	978	978	-
Stage 2	-	-	-	-	-	-	-	-	-	607	1208	-
Critical Hdwy	4.76	-	-	-	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.53	-	-	-	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	538	-	0	0	-	-	0	0	448	74	46	529
Stage 1	-	-	0	0	-	-	0	0	-	273	331	-
Stage 2	-	-	0	0	-	-	0	0	-	455	258	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	538	-	-	-	-	-	-	-	448	67	45	529
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	67	45	-
Stage 1	-	-	-	-	-	-	-	-	-	268	331	-
Stage 2	-	-	-	-	-	-	-	-	-	412	254	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	13.7	36.3
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	448	538	-	-	-	119
HCM Lane V/C Ratio	0.08	0.006	-	-	-	0.035
HCM Control Delay (s)	13.7	11.7	0.1	-	-	36.3
HCM Lane LOS	B	B	A	-	-	E
HCM 95th %tile Q(veh)	0.3	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1180	7	27	910	1	33	0	3	0	0	0
Future Vol, veh/h	3	1180	7	27	910	1	33	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	3	1311	8	30	1011	1	37	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1012	0	0	1319	0	0	2389	2389	1311	2395	2397	1012
Stage 1	-	-	-	-	-	-	1317	1317	-	1072	1072	-
Stage 2	-	-	-	-	-	-	1072	1072	-	1323	1325	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	693	-	-	531	-	-	~ 24	34	196	24	34	293
Stage 1	-	-	-	-	-	-	196	229	-	269	299	-
Stage 2	-	-	-	-	-	-	269	299	-	194	227	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	693	-	-	531	-	-	~ 23	32	196	22	32	293
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	129	-	101	120	-
Stage 1	-	-	-	-	-	-	195	228	-	268	282	-
Stage 2	-	-	-	-	-	-	254	282	-	190	226	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	50.8	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	110	196	693	-	-	531	-	-	-
HCM Lane V/C Ratio	0.333	0.017	0.005	-	-	0.056	-	-	-
HCM Control Delay (s)	53.3	23.7	10.2	-	-	12.2	-	-	0
HCM Lane LOS	F	C	B	-	-	B	-	-	A
HCM 95th %tile Q(veh)	1.3	0.1	0	-	-	0.2	-	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1180	933	4	11	5
Future Vol, veh/h	3	1180	933	4	11	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	3	1242	982	4	12	5

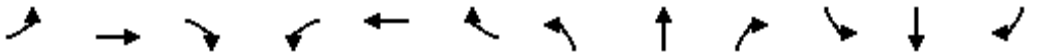
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	986	0	-	0	2232	984
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1248	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	709	-	-	-	48	304
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	273	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	709	-	-	-	47	304
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	273	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	80.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	709	-	-	-	64
HCM Lane V/C Ratio	0.004	-	-	-	0.263
HCM Control Delay (s)	10.1	0	-	-	80.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Capacity Analysis Summary Sheets

No-Build Weekday Evening Peak Hour Conditions



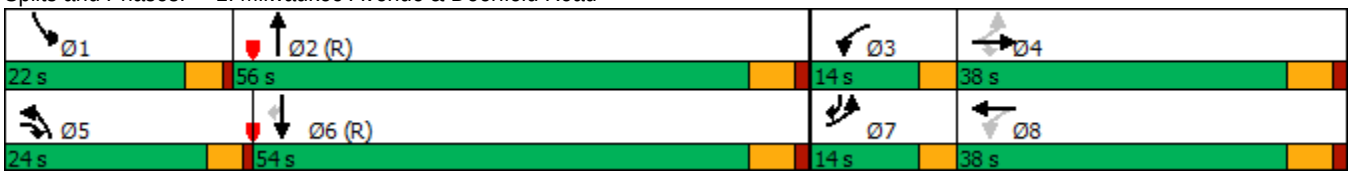
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	316	340	116	794	330	424	1451	41	461	1447	66
Future Volume (vph)	109	316	340	116	794	330	424	1451	41	461	1447	66
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3762	1568	1770	3355	0	3286	3492	0	3319	3566	1561
Flt Permitted	0.122			0.488			0.950			0.950		
Satd. Flow (perm)	227	3762	1568	909	3355	0	3286	3492	0	3319	3566	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101		46			2				63
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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 (%)	2%	1%	3%	2%	2%	5%	3%	3%	2%	2%	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)	111	322	347	118	1147	0	433	1523	0	470	1477	67
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	38.0	24.0	14.0	38.0		24.0	56.0		22.0	54.0	14.0
Total Split (%)	10.8%	29.2%	18.5%	10.8%	29.2%		18.5%	43.1%		16.9%	41.5%	10.8%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	45.2	32.7	57.9	44.8	32.6		19.2	50.0		17.5	48.3	64.3
Actuated g/C Ratio	0.35	0.25	0.45	0.34	0.25		0.15	0.38		0.13	0.37	0.49

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.57	0.34	0.46	0.31	1.31		0.90	1.13		1.05	1.11	0.08
Control Delay	39.0	41.2	19.6	29.9	186.3		76.3	107.0		110.8	100.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	39.0	41.2	19.6	29.9	186.3		76.3	107.0		110.8	100.7	4.8
LOS	D	D	B	C	F		E	F		F	F	A
Approach Delay		31.3			171.7			100.2			99.9	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	62	118	141	66	~647		186	~785		~222	~754	2
Queue Length 95th (ft)	106	162	226	112	#787		#275	#928		#332	#894	26
Internal Link Dist (ft)		793			232			374			773	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	204	947	757	388	874		492	1344		446	1325	810
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.54	0.34	0.46	0.30	1.31		0.88	1.13		1.05	1.11	0.08

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 33 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 106.2 Intersection LOS: F
Intersection Capacity Utilization 110.2% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	750	66	0	1219	11	0	0	30	13	0	21
Future Vol, veh/h	2	750	66	0	1219	11	0	0	30	13	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	185	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	2	789	69	0	1283	12	0	0	32	14	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1295	0	-	-	-	0	-	-	395	1688	2082	648
Stage 1	-	-	-	-	-	-	-	-	-	1289	1289	-
Stage 2	-	-	-	-	-	-	-	-	-	399	793	-
Critical Hdwy	4.1	-	-	-	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	542	-	0	0	-	-	0	0	610	62	54	418
Stage 1	-	-	0	0	-	-	0	0	-	176	236	-
Stage 2	-	-	0	0	-	-	0	0	-	604	403	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	542	-	-	-	-	-	-	-	610	58	54	418
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	58	54	-
Stage 1	-	-	-	-	-	-	-	-	-	175	236	-
Stage 2	-	-	-	-	-	-	-	-	-	569	400	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.2	45.4
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	610	542	-	-	-	124
HCM Lane V/C Ratio	0.052	0.004	-	-	-	0.289
HCM Control Delay (s)	11.2	11.7	0	-	-	45.4
HCM Lane LOS	B	B	A	-	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	-	1.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	781	11	27	1177	0	53	0	15	0	0	0
Future Vol, veh/h	1	781	11	27	1177	0	53	0	15	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	0	3	0	0	0	22	0	0	0
Mvmt Flow	1	840	12	29	1266	0	57	0	16	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1266	0	0	852	0	0	2166	2166	840	2180	2178	1266
Stage 1	-	-	-	-	-	-	842	842	-	1324	1324	-
Stage 2	-	-	-	-	-	-	1324	1324	-	856	854	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.42	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.498	3.5	4	3.3
Pot Cap-1 Maneuver	556	-	-	795	-	-	~ 34	48	337	34	47	208
Stage 1	-	-	-	-	-	-	362	383	-	194	227	-
Stage 2	-	-	-	-	-	-	194	227	-	355	378	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	556	-	-	795	-	-	~ 33	46	337	31	45	208
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	146	-	122	142	-
Stage 1	-	-	-	-	-	-	361	382	-	194	219	-
Stage 2	-	-	-	-	-	-	187	219	-	337	377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	47.1	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	337	556	-	-	795	-	-	-
HCM Lane V/C Ratio	0.456	0.048	0.002	-	-	0.037	-	-	-
HCM Control Delay (s)	55.9	16.2	11.5	-	-	9.7	-	-	0
HCM Lane LOS	F	C	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	2	0.1	0	-	-	0.1	-	-	-

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	791	1199	12	4	5
Future Vol, veh/h	5	791	1199	12	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	6	965	1462	15	5	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1477	0	-	0	2447	1470
Stage 1	-	-	-	-	1470	-
Stage 2	-	-	-	-	977	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	462	-	-	-	35	158
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	462	-	-	-	34	158
Mov Cap-2 Maneuver	-	-	-	-	34	-
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	78
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	462	-	-	-	60
HCM Lane V/C Ratio	0.013	-	-	-	0.183
HCM Control Delay (s)	12.9	0	-	-	78
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Capacity Analysis Summary Sheets

Projected Weekday Morning Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	568	518	115	289	548	268	1246	147	511	1127	37
Future Volume (vph)	59	568	518	115	289	548	268	1246	147	511	1127	37
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.902			0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3654	1538	1703	3142	0	3164	3320	0	3193	3433	1561
Flt Permitted	0.158			0.160			0.950			0.950		
Satd. Flow (perm)	291	3654	1538	287	3142	0	3164	3320	0	3193	3433	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			96		343			11				65
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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%	4%	5%	6%	1%	5%	7%	7%	7%	6%	7%	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)	61	592	540	120	872	0	279	1451	0	532	1174	39
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	31.0	21.0	14.0	31.0		21.0	52.0		28.0	59.0	14.0
Total Split (%)	11.2%	24.8%	16.8%	11.2%	24.8%		16.8%	41.6%		22.4%	47.2%	11.2%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	35.5	24.6	45.9	38.8	28.0		15.3	47.5		23.0	55.2	69.5
Actuated g/C Ratio	0.28	0.20	0.37	0.31	0.22		0.12	0.38		0.18	0.44	0.56

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.34	0.82	0.86	0.60	0.94dr		0.72	1.14		0.91	0.77	0.04
Control Delay	34.5	58.7	45.0	43.3	41.9		63.8	110.6		70.3	34.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.5	58.7	45.0	43.3	41.9		63.8	110.6		70.3	34.6	1.2
LOS	C	E	D	D	D		E	F		E	C	A
Approach Delay		51.3			42.0			103.1			44.7	
Approach LOS		D			D			F			D	
Queue Length 50th (ft)	34	242	334	69	235		112	~740		218	430	0
Queue Length 95th (ft)	67	311	#536	119	#379		159	#881		#313	523	7
Internal Link Dist (ft)		793			232			374			773	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	210	732	639	208	969		417	1268		600	1515	922
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.81	0.85	0.58	0.90		0.67	1.14		0.89	0.77	0.04

Intersection Summary

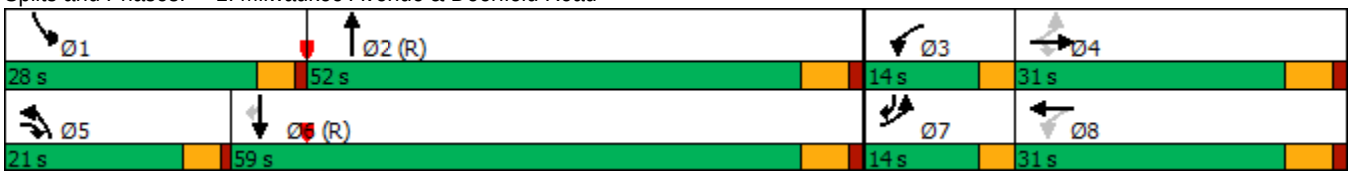
Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 72 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 63.5 Intersection LOS: E
Intersection Capacity Utilization 99.8% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1158	65	0	950	8	0	0	34	2	0	2
Future Vol, veh/h	3	1158	65	0	950	8	0	0	34	2	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	185	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	95	95	95	96	95	96
Heavy Vehicles, %	33	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	3	1206	68	0	990	8	0	0	36	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	998	0	-	-	-	0	-	-	603	1603	2206	499
Stage 1	-	-	-	-	-	-	-	-	-	994	994	-
Stage 2	-	-	-	-	-	-	-	-	-	609	1212	-
Critical Hdwy	4.76	-	-	-	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.53	-	-	-	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	529	-	0	0	-	-	0	0	447	72	45	522
Stage 1	-	-	0	0	-	-	0	0	-	267	326	-
Stage 2	-	-	0	0	-	-	0	0	-	454	257	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	529	-	-	-	-	-	-	-	447	65	44	522
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	65	44	-
Stage 1	-	-	-	-	-	-	-	-	-	262	326	-
Stage 2	-	-	-	-	-	-	-	-	-	411	253	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	13.8	37.2
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	447	529	-	-	-	116
HCM Lane V/C Ratio	0.08	0.006	-	-	-	0.036
HCM Control Delay (s)	13.8	11.8	0.1	-	-	37.2
HCM Lane LOS	B	B	A	-	-	E
HCM 95th %tile Q(veh)	0.3	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1183	7	27	916	1	33	0	3	2	0	9
Future Vol, veh/h	4	1183	7	27	916	1	33	0	3	2	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	4	1314	8	30	1018	1	37	0	3	2	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1019	0	0	1322	0	0	2406	2401	1314	2407	2409	1019
Stage 1	-	-	-	-	-	-	1322	1322	-	1079	1079	-
Stage 2	-	-	-	-	-	-	1084	1079	-	1328	1330	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	689	-	-	529	-	-	~ 23	34	195	23	33	290
Stage 1	-	-	-	-	-	-	195	228	-	267	297	-
Stage 2	-	-	-	-	-	-	265	297	-	193	226	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	689	-	-	529	-	-	~ 21	32	195	22	31	290
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	128	-	100	119	-
Stage 1	-	-	-	-	-	-	194	227	-	265	280	-
Stage 2	-	-	-	-	-	-	241	280	-	189	225	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	52.7	22.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	107	195	689	-	-	529	-	-	100	290
HCM Lane V/C Ratio	0.343	0.017	0.006	-	-	0.057	-	-	0.022	0.034
HCM Control Delay (s)	55.3	23.8	10.3	-	-	12.2	-	-	41.8	17.9
HCM Lane LOS	F	C	B	-	-	B	-	-	E	C
HCM 95th %tile Q(veh)	1.4	0.1	0	-	-	0.2	-	-	0.1	0.1

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

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1185	938	1	4	6
Future Vol, veh/h	3	1185	938	1	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	3	1247	987	1	4	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	988	0	-	0	2241	988
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	1253	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	708	-	-	-	47	303
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	272	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	46	303
Mov Cap-2 Maneuver	-	-	-	-	46	-
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	272	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	48.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	94
HCM Lane V/C Ratio	0.004	-	-	-	0.112
HCM Control Delay (s)	10.1	0	-	-	48.1
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.4

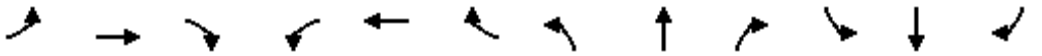
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1186	934	4	11	5
Future Vol, veh/h	3	1186	934	4	11	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	3	1248	983	4	12	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	987	0	-	0	2239	985
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	1254	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	708	-	-	-	47	304
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	271	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	46	304
Mov Cap-2 Maneuver	-	-	-	-	46	-
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	271	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	81.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	63
HCM Lane V/C Ratio	0.004	-	-	-	0.267
HCM Control Delay (s)	10.1	0	-	-	81.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.9



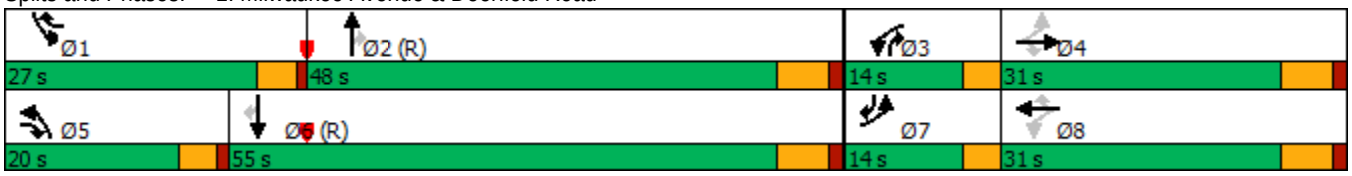
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	565	518	115	289	548	268	1246	147	513	1127	37
Future Volume (vph)	62	565	518	115	289	548	268	1246	147	513	1127	37
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	11	11	11	11	11	11	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	220		520	285		480	450		480	485		600
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	216			270			300			299		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3286	3532	1487	3193	4964	1487	3164	3374	1509	3193	3433	1561
Flt Permitted	0.561			0.187			0.950			0.950		
Satd. Flow (perm)	1941	3532	1487	629	4964	1487	3164	3374	1509	3193	3433	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			156			109			68
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			308			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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%	4%	5%	6%	1%	5%	7%	7%	7%	6%	7%	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)	65	589	540	120	301	571	279	1298	153	534	1174	39
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0	4.0	4.0	15.0	3.0	4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0	8.5	8.5	21.0	6.5	8.5	43.0	6.5
Total Split (s)	14.0	31.0	20.0	14.0	31.0	27.0	20.0	48.0	14.0	27.0	55.0	14.0
Total Split (%)	11.7%	25.8%	16.7%	11.7%	25.8%	22.5%	16.7%	40.0%	11.7%	22.5%	45.8%	11.7%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5	1.0	1.0	1.5	0.0	1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0	4.5	4.5	6.0	3.5	4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effct Green (s)	34.9	25.3	45.9	38.3	28.6	57.2	14.6	43.6	58.1	22.6	51.6	64.6
Actuated g/C Ratio	0.29	0.21	0.38	0.32	0.24	0.48	0.12	0.36	0.48	0.19	0.43	0.54

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.10	0.79	0.86	0.31	0.25	0.72	0.73	1.06	0.19	0.89	0.80	0.04
Control Delay	27.0	53.5	42.0	29.5	38.1	24.2	62.3	80.6	6.5	65.7	35.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	53.5	42.0	29.5	38.1	24.2	62.3	80.6	6.5	65.7	35.3	1.1
LOS	C	D	D	C	D	C	E	F	A	E	D	A
Approach Delay		46.8			29.1			71.1			43.9	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	17	224	308	32	69	256	107	~600	18	209	423	0
Queue Length 95th (ft)	33	297	#523	54	99	414	155	#738	54	#306	518	6
Internal Link Dist (ft)		793			228			374			773	
Turn Bay Length (ft)	220		520	285		480	450		480	485		600
Base Capacity (vph)	736	761	641	430	1183	793	408	1225	810	607	1475	914
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.77	0.84	0.28	0.25	0.72	0.68	1.06	0.19	0.88	0.80	0.04

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 50.2 Intersection LOS: D
Intersection Capacity Utilization 84.3% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑↳				↱			↱
Traffic Vol, veh/h	0	1160	65	0	950	8	0	0	34	0	0	2
Future Vol, veh/h	0	1160	65	0	950	8	0	0	34	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	0	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	33	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	1208	68	0	990	8	0	0	35	0	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	604	-	-	499
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	446	0	0	447
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	446	-	-	447
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.8	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	446	-	-	-	-	447
HCM Lane V/C Ratio	0.079	-	-	-	-	0.005
HCM Control Delay (s)	13.8	-	-	-	-	13.1
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	1180	7	27	916	1	33	0	3	6	0	9
Future Vol, veh/h	7	1180	7	27	916	1	33	0	3	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	8	1311	8	30	1018	1	37	0	3	7	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1019	0	0	1319	0	0	1798	2410	660	1751	2414	510
Stage 1	-	-	-	-	-	-	1331	1331	-	1079	1079	-
Stage 2	-	-	-	-	-	-	467	1079	-	672	1335	-
Critical Hdwy	5.3	-	-	4.1	-	-	6.95	6.5	6.9	6.95	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.5	5.5	-
Follow-up Hdwy	3.1	-	-	2.2	-	-	3.65	4	3.3	3.65	4	3.9
Pot Cap-1 Maneuver	389	-	-	531	-	-	67	33	410	72	33	439
Stage 1	-	-	-	-	-	-	163	226	-	182	297	-
Stage 2	-	-	-	-	-	-	519	297	-	404	225	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	389	-	-	531	-	-	62	30	410	67	30	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	125	-	135	116	-
Stage 1	-	-	-	-	-	-	160	221	-	178	280	-
Stage 2	-	-	-	-	-	-	479	280	-	392	220	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	41.1	21.2
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	129	410	389	-	-	531	-	-	135	439
HCM Lane V/C Ratio	0.284	0.008	0.02	-	-	0.056	-	-	0.049	0.023
HCM Control Delay (s)	43.6	13.9	14.4	-	-	12.2	-	-	33	13.4
HCM Lane LOS	E	B	B	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	1.1	0	0.1	-	-	0.2	-	-	0.2	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1189	938	1	0	6
Future Vol, veh/h	0	1189	938	1	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
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	5	3	0	0	0
Mvmt Flow	0	1252	987	1	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	494
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	0	526
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	526
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	526
HCM Lane V/C Ratio	-	-	0.012
HCM Control Delay (s)	-	-	11.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1186	934	4	11	5
Future Vol, veh/h	3	1186	934	4	11	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	0	0	0
Mvmt Flow	3	1248	983	4	12	5

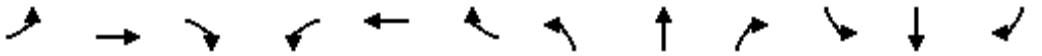
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	987	0	-	0	2239	494
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	1254	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	708	-	-	-	42	526
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	271	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	42	526
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	271	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	198
HCM Lane V/C Ratio	0.004	-	-	-	0.085
HCM Control Delay (s)	10.1	-	-	-	24.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Capacity Analysis Summary Sheets

Projected Weekday Evening Peak Hour Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	318	340	121	796	336	424	1451	47	467	1447	66
Future Volume (vph)	109	318	340	121	796	336	424	1451	47	467	1447	66
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	190		275	300		0	460		0	500		640
Storage Lanes	1		1	1		0	2		0	2		1
Taper Length (ft)	190			125			300			300		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.955			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3762	1568	1770	3351	0	3286	3488	0	3319	3566	1561
Flt Permitted	0.122			0.486			0.950			0.950		
Satd. Flow (perm)	227	3762	1568	905	3351	0	3286	3488	0	3319	3566	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98		48			3				63
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			312			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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 (%)	2%	1%	3%	2%	2%	5%	3%	3%	2%	2%	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)	111	324	347	123	1155	0	433	1529	0	477	1477	67
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8								6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0		4.0	15.0		4.0	15.0	3.0
Minimum Split (s)	6.5	14.0	8.5	6.5	14.0		8.5	21.0		8.5	43.0	6.5
Total Split (s)	14.0	38.0	24.0	14.0	38.0		24.0	56.0		22.0	54.0	14.0
Total Split (%)	10.8%	29.2%	18.5%	10.8%	29.2%		18.5%	43.1%		16.9%	41.5%	10.8%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5	1.0	0.0	1.5		1.0	1.5		1.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0	4.5	3.5	6.0		4.5	6.0		4.5	6.0	3.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	45.1	32.7	57.8	44.9	32.6		19.2	50.0		17.5	48.3	64.3
Actuated g/C Ratio	0.35	0.25	0.44	0.35	0.25		0.15	0.38		0.13	0.37	0.49

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.57	0.34	0.46	0.33	1.32		0.90	1.14		1.07	1.11	0.08
Control Delay	39.0	41.3	19.9	30.2	189.3		76.3	109.0		115.0	100.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	39.0	41.3	19.9	30.2	189.3		76.3	109.0		115.0	100.7	4.8
LOS	D	D	B	C	F		E	F		F	F	A
Approach Delay		31.5			174.0			101.8			100.9	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)	62	118	142	69	~654		186	~791		~228	~754	2
Queue Length 95th (ft)	106	164	228	116	#794		#275	#933		#339	#894	26
Internal Link Dist (ft)		793			232			374			773	
Turn Bay Length (ft)	190		275	300			460			500		640
Base Capacity (vph)	204	946	755	387	875		492	1343		446	1325	810
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.54	0.34	0.46	0.32	1.32		0.88	1.14		1.07	1.11	0.08

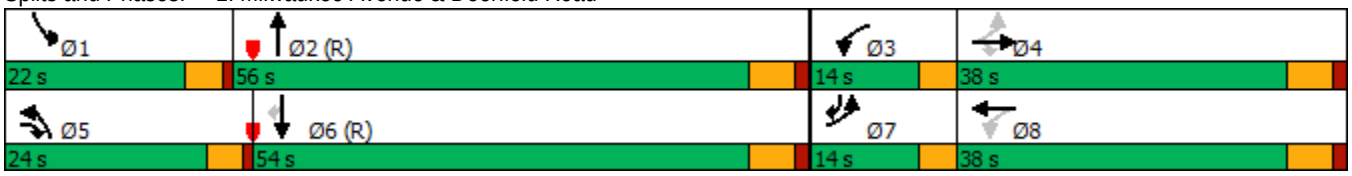
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 33 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 107.7 Intersection LOS: F
Intersection Capacity Utilization 110.8% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	764	66	0	1232	11	0	0	30	13	0	21
Future Vol, veh/h	2	764	66	0	1232	11	0	0	30	13	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	185	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	2	804	69	0	1297	12	0	0	32	14	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1309	0	-	-	-	0	-	-	402	1709	2111	655
Stage 1	-	-	-	-	-	-	-	-	-	1303	1303	-
Stage 2	-	-	-	-	-	-	-	-	-	406	808	-
Critical Hdwy	4.1	-	-	-	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	535	-	0	0	-	-	0	0	604	60	52	413
Stage 1	-	-	0	0	-	-	0	0	-	173	233	-
Stage 2	-	-	0	0	-	-	0	0	-	598	397	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	535	-	-	-	-	-	-	-	604	57	52	413
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	57	52	-
Stage 1	-	-	-	-	-	-	-	-	-	172	233	-
Stage 2	-	-	-	-	-	-	-	-	-	563	394	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.3	46.3
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	604	535	-	-	-	122
HCM Lane V/C Ratio	0.052	0.004	-	-	-	0.293
HCM Control Delay (s)	11.3	11.8	0	-	-	46.3
HCM Lane LOS	B	B	A	-	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	-	1.1

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	787	11	27	1182	2	53	0	15	1	0	8
Future Vol, veh/h	9	787	11	27	1182	2	53	0	15	1	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	0	3	0	0	0	22	0	0	0
Mvmt Flow	10	846	12	29	1271	2	57	0	16	1	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1273	0	0	858	0	0	2201	2197	846	2210	2208	1272
Stage 1	-	-	-	-	-	-	866	866	-	1330	1330	-
Stage 2	-	-	-	-	-	-	1335	1331	-	880	878	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.42	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.498	3.5	4	3.3
Pot Cap-1 Maneuver	552	-	-	791	-	-	~ 32	46	334	32	45	207
Stage 1	-	-	-	-	-	-	351	373	-	193	226	-
Stage 2	-	-	-	-	-	-	191	226	-	345	368	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	552	-	-	791	-	-	~ 29	44	334	29	43	207
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	139	-	118	139	-
Stage 1	-	-	-	-	-	-	345	366	-	190	218	-
Stage 2	-	-	-	-	-	-	176	218	-	322	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	53.9	24.5
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	114	334	552	-	-	791	-	-	118	207
HCM Lane V/C Ratio	0.5	0.048	0.018	-	-	0.037	-	-	0.009	0.042
HCM Control Delay (s)	64.6	16.3	11.6	-	-	9.7	-	-	35.8	23.1
HCM Lane LOS	F	C	B	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	2.3	0.2	0.1	-	-	0.1	-	-	0	0.1

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

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	797	1206	4	2	5
Future Vol, veh/h	6	797	1206	4	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	6	839	1269	4	2	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1273	0	-	0	2122	1271
Stage 1	-	-	-	-	1271	-
Stage 2	-	-	-	-	851	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	552	-	-	-	56	207
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	552	-	-	-	55	207
Mov Cap-2 Maneuver	-	-	-	-	55	-
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	422	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	38.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	552	-	-	-	116
HCM Lane V/C Ratio	0.011	-	-	-	0.064
HCM Control Delay (s)	11.6	0	-	-	38.1
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.2

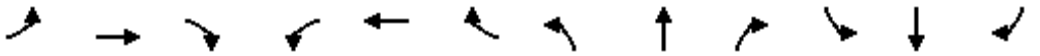
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	794	1205	12	4	5
Future Vol, veh/h	5	794	1205	12	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	6	968	1470	15	5	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1485	0	-	0	2458	1478
Stage 1	-	-	-	-	1478	-
Stage 2	-	-	-	-	980	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	459	-	-	-	34	156
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	367	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	459	-	-	-	33	156
Mov Cap-2 Maneuver	-	-	-	-	33	-
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	79.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	459	-	-	-	59
HCM Lane V/C Ratio	0.013	-	-	-	0.186
HCM Control Delay (s)	12.9	0	-	-	79.5
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	316	340	121	796	336	424	1451	47	480	1447	66
Future Volume (vph)	111	316	340	121	796	336	424	1451	47	480	1447	66
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	11	11	11	11	11	11	11	12	12	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	220		520	285		480	450		480	485		600
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	216			270			300			299		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3319	3637	1516	3319	5175	1487	3286	3689	1583	3319	3566	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3319	3637	1516	3319	5175	1487	3286	3689	1583	3319	3566	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68			68			68			68
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		873			308			454			853	
Travel Time (s)		14.9			5.3			7.7			14.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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 (%)	2%	1%	3%	2%	2%	5%	3%	3%	2%	2%	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)	113	322	347	123	812	343	433	1481	48	490	1477	67
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	3.0	8.0	4.0	3.0	8.0	4.0	4.0	15.0	3.0	4.0	15.0	3.0
Minimum Split (s)	7.5	24.0	8.5	7.5	24.0	8.5	8.5	24.0	7.5	8.5	43.0	7.5
Total Split (s)	14.0	32.0	22.0	14.0	32.0	21.0	22.0	53.0	14.0	21.0	52.0	14.0
Total Split (%)	11.7%	26.7%	18.3%	11.7%	26.7%	17.5%	18.3%	44.2%	11.7%	17.5%	43.3%	11.7%
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5	1.0	1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	4.5	6.0	4.5	4.5	6.0	4.5	4.5	6.0	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effct Green (s)	8.7	25.7	49.1	8.8	25.8	49.3	17.4	47.0	61.8	17.5	47.1	61.8
Actuated g/C Ratio	0.07	0.21	0.41	0.07	0.22	0.41	0.14	0.39	0.52	0.15	0.39	0.52

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47	0.41	0.53	0.50	0.73	0.53	0.91	1.03	0.06	1.01	1.06	0.08
Control Delay	59.9	42.5	24.3	60.8	48.2	24.6	74.5	66.8	1.8	95.4	76.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	42.5	24.3	60.8	48.2	24.6	74.5	66.8	1.8	95.4	76.4	3.7
LOS	E	D	C	E	D	C	E	E	A	F	E	A
Approach Delay		36.9			43.1			66.9			78.6	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	43	113	158	47	215	159	172	~643	0	~217	~673	0
Queue Length 95th (ft)	74	159	252	79	264	253	#264	#782	11	#325	#812	22
Internal Link Dist (ft)		793			228			374			773	
Turn Bay Length (ft)	220		520	285		480	450		480	485		600
Base Capacity (vph)	262	793	661	262	1132	650	479	1444	857	484	1398	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.41	0.52	0.47	0.72	0.53	0.90	1.03	0.06	1.01	1.06	0.08

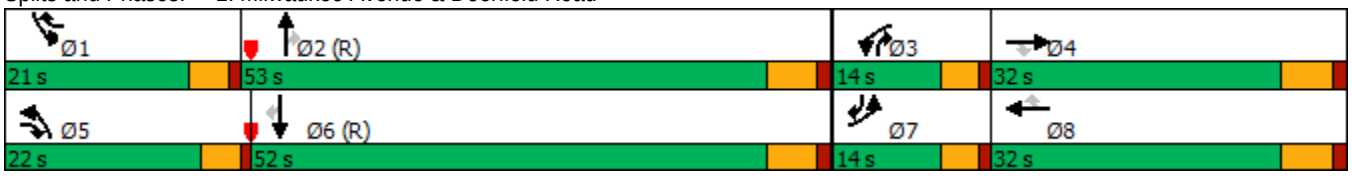
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 61.9 Intersection LOS: E
Intersection Capacity Utilization 87.2% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Milwaukee Avenue & Deerfield Road



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑↳				↱			↱
Traffic Vol, veh/h	0	777	66	0	1232	11	0	0	30	0	0	21
Future Vol, veh/h	0	777	66	0	1232	11	0	0	30	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	0	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	818	69	0	1297	12	0	0	32	0	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	409	-	-	655
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	597	0	0	354
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	597	-	-	354
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.4	15.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	597	-	-	-	-	354
HCM Lane V/C Ratio	0.053	-	-	-	-	0.062
HCM Control Delay (s)	11.4	-	-	-	-	15.8
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	781	11	27	1182	2	53	0	15	3	0	8
Future Vol, veh/h	15	781	11	27	1182	2	53	0	15	3	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	117	-	-	185	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	0	3	0	0	0	22	0	0	0
Mvmt Flow	16	840	12	29	1271	2	57	0	16	3	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1273	0	0	852	0	0	1444	2209	426	1782	2214	637
Stage 1	-	-	-	-	-	-	878	878	-	1330	1330	-
Stage 2	-	-	-	-	-	-	566	1331	-	452	884	-
Critical Hdwy	5.3	-	-	4.1	-	-	6.95	6.5	7.34	6.95	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.5	5.5	-
Follow-up Hdwy	3.1	-	-	2.2	-	-	3.65	4	3.52	3.65	4	3.9
Pot Cap-1 Maneuver	293	-	-	795	-	-	116	45	525	68	44	364
Stage 1	-	-	-	-	-	-	305	368	-	121	226	-
Stage 2	-	-	-	-	-	-	452	226	-	544	366	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	293	-	-	795	-	-	106	41	525	61	40	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	134	-	98	135	-
Stage 1	-	-	-	-	-	-	288	348	-	114	218	-
Stage 2	-	-	-	-	-	-	425	218	-	498	346	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	25.9	22.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	201	525	293	-	-	795	-	-	98	364
HCM Lane V/C Ratio	0.284	0.031	0.055	-	-	0.037	-	-	0.033	0.024
HCM Control Delay (s)	29.8	12.1	18	-	-	9.7	-	-	43	15.1
HCM Lane LOS	D	B	C	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	1.1	0.1	0.2	-	-	0.1	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	799	1206	4	0	5
Future Vol, veh/h	0	799	1206	4	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
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	2	3	0	0	0
Mvmt Flow	0	841	1269	4	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	635
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	0	426
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	426
HCM Lane V/C Ratio	-	-	0.012
HCM Control Delay (s)	-	-	13.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	794	1205	12	4	5
Future Vol, veh/h	5	794	1205	12	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	6	968	1470	15	5	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1485	0	-	0	2458	743
Stage 1	-	-	-	-	1478	-
Stage 2	-	-	-	-	980	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	459	-	-	-	30	362
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	367	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	459	-	-	-	30	362
Mov Cap-2 Maneuver	-	-	-	-	121	-
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	24.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	459	-	-	-	192
HCM Lane V/C Ratio	0.013	-	-	-	0.057
HCM Control Delay (s)	12.9	-	-	-	24.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2