Traffic Impact Study
1200 Diehl Road Residential Development

Naperville, Illinois

Prepared for:

Hines

KLOA

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

June 7, 2024

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 the proposed residential development to be located at 1200 Diehl Road in Naperville, Illinois.

The site, which is the former DeVry University Naperville campus, is located on the south side of Diehl Road opposite Freedom Avenue. As proposed, the site will be redeveloped with a five-story apartment building containing 306 units and two approximately 7,500 square-foot restaurants. The existing parking garage structure will remain and be utilized by the proposed development. Access to the development will be provided via the existing access system.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area, determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed development, and evaluate the adequacy of the parking supply in meeting the existing and future parking needs. **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:

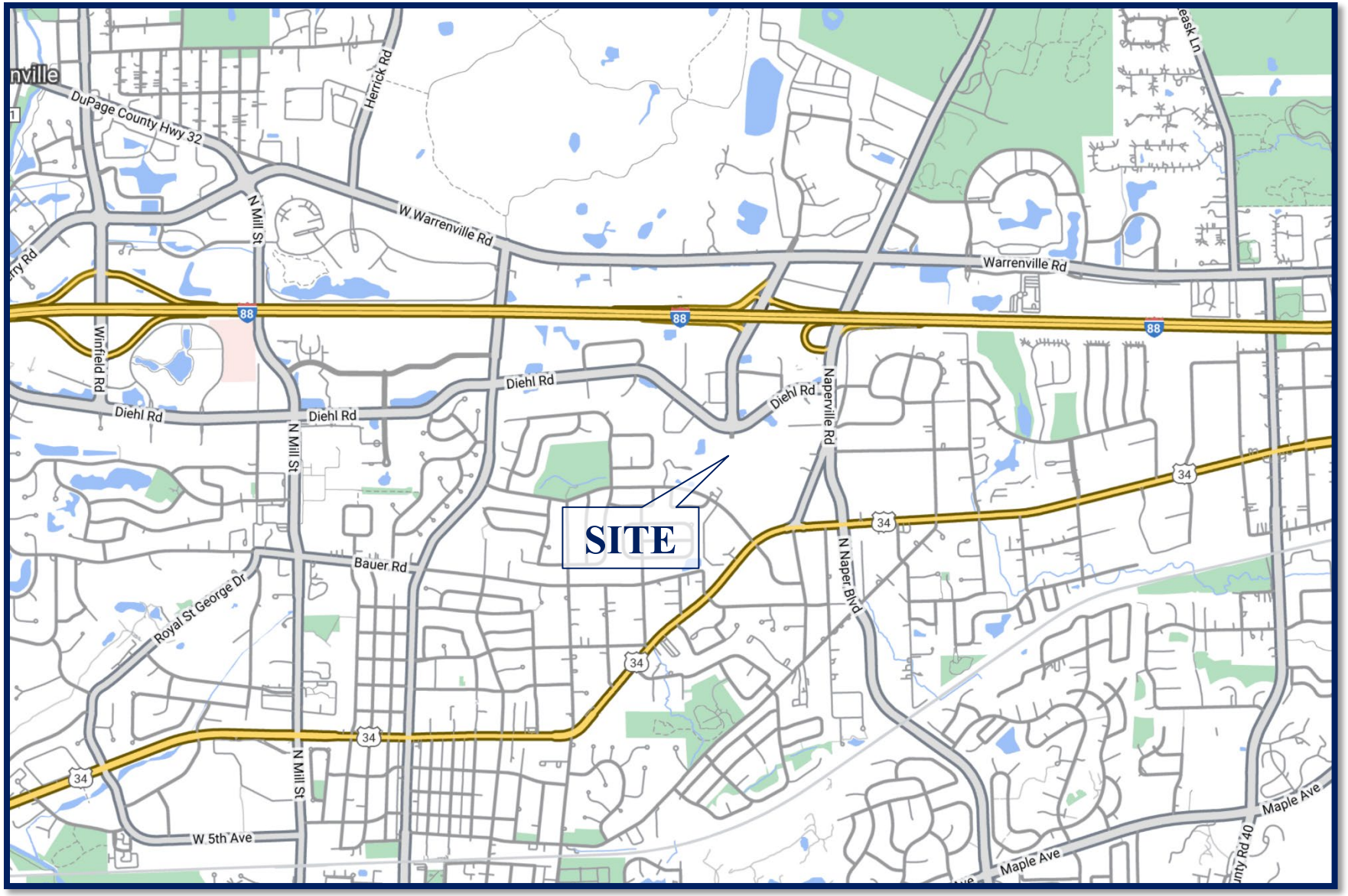
- Existing roadway conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the development
- Traffic analyses for the weekday morning and evening peak hours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

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

1. Existing Conditions - Analyze the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area as determined from traffic counts conducted in 2024.

2. Year 2030 No-Build Conditions – Analyzes the capacity of the existing roadway system using the no-build traffic volumes which include the existing traffic volumes, an ambient traffic growth factor, and traffic generated by other area developments.

3. Year 2030 Total Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the no-build traffic volumes and the traffic estimated to be generated by the full buildout of the proposed development.



Site Location **Figure 1**

Aerial View of Site **Figure 2**

2. Existing Conditions

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

Site Location

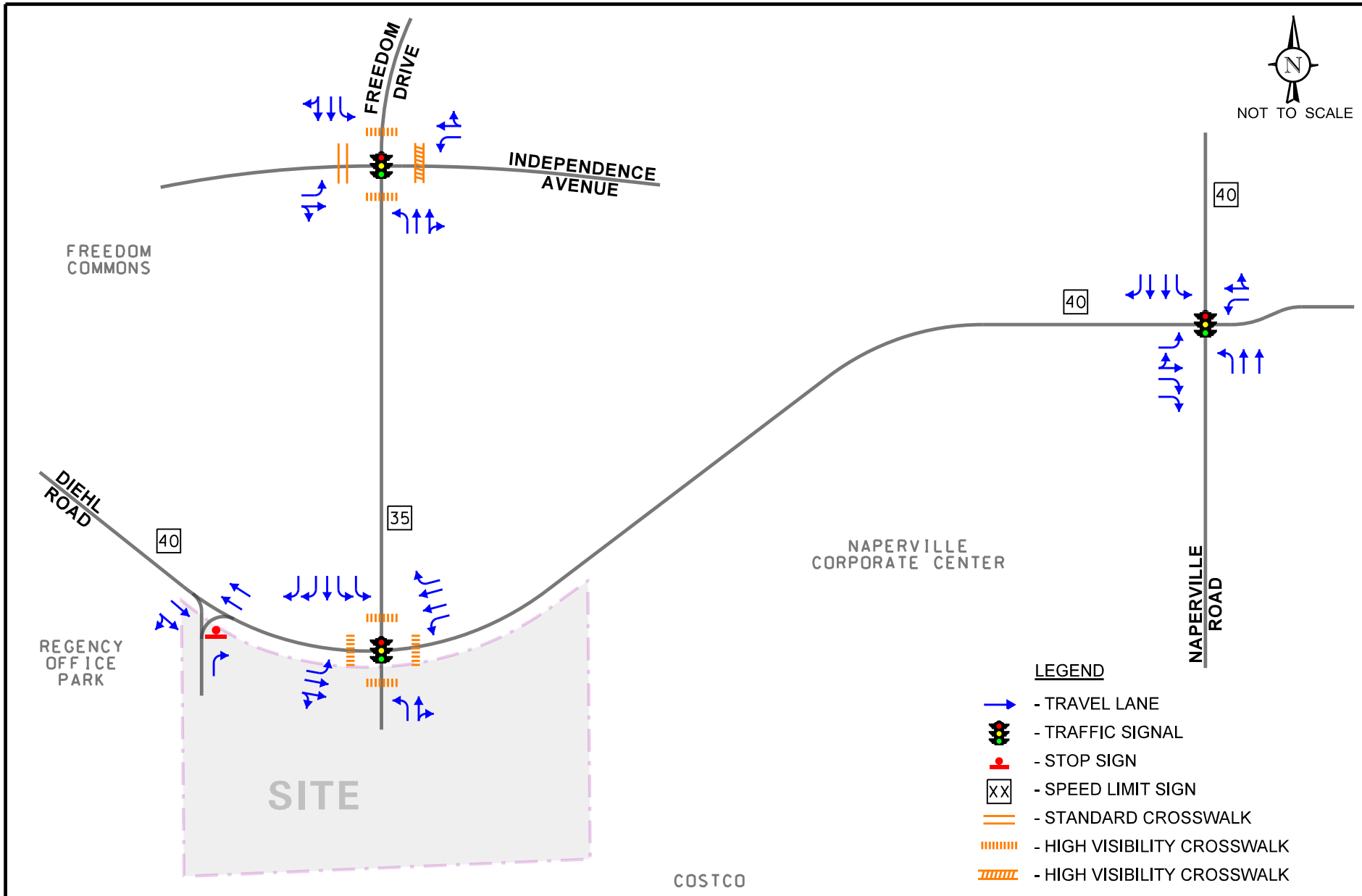
The site is the former DeVry University Naperville campus which includes a two-story building and a parking garage structure. The site is located on the south side of Diehl Road, opposite Freedom Drive. Office complexes are located to the east and west of the site. Retail and dining establishments are located north of the site. South of the site are residential and retail properties. Interstate 88 is located approximately 0.5 miles north of the site. The downtown Naperville commercial area is located southwest of the site.

Existing Roadway System Characteristics

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

Diehl Road is an east-west roadway that provides two lanes in each direction. East of Naperville Road, Diehl Road is classified as a local roadway and west of Naperville Road it is classified as a major collector roadway. At its signalized intersection with Freedom Drive, Diehl Road provides a left-turn lane, a through lane, and a combined through/right-turn lane on the eastbound approach. On the westbound approach, Diehl Road provides a left-turn lane, two through lanes, and a channelized right-turn lane. High-visibility crosswalks are provided on the east and west legs of the intersection. At its signalized intersection with Naperville Road, Diehl Road provides a left-turn lane, a combined left-turn/through lane and dual right-turn lanes on the eastbound approach. On the westbound approach, Diehl Road provides a left-turn lane and a combined through/right-turn lane. At its signalized intersection with the site right-in/right-out access drives, Diehl Road provides two lanes in each direction and no exclusive turn lanes. The access drive is restricted to right-turn only movements and is under stop sign control. A high-visibility crosswalk is provided on the east leg of the intersection and a standard-style crosswalk is provided on the west leg. Diehl Road carries an annual average daily traffic (AADT) volume of 6,550 vehicles (IDOT 2020), is under the jurisdiction of the City of Naperville, and has a posted speed limit of 40 miles per hour.

Naperville Road is a north-south other principal arterial roadway that provides two lanes in each direction in the vicinity of the site. At its signalized intersection with Diehl Road, Naperville Road provides a left-turn lane, a through lane, and a combined through/right-turn lane on the northbound approach. On the southbound approach, a left-turn lane, two through lanes, and a right-turn lane are provided. A high-visibility crosswalk is provided on the south leg of the intersection. Naperville Road carries an AADT volume of 12,700 vehicles (IDOT 2020), is under the jurisdiction of the DuPage County Division of Transportation (DuDOT) and has a posted speed limit of 40 miles per hour.



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Existing Roadway Characteristics

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Figure: 3

Freedom Drive is a north-south major collector roadway that provides two lanes in each direction in the vicinity of the site. At its signalized intersection with Diehl Road, Freedom Drive provides dual left-turn lanes, a through lane, and dual right-turn lanes. The northbound approach is the access drive to the site and currently provides a left-turn lane and a combined through/right-turn lane. High-visibility crosswalks are provided on the north and south legs of the intersection. At its signalized intersection with Independence Avenue, Freedom Drive provides a left-turn lane, a through lane, and a combined through/right-turn lane on the northbound and southbound approaches. High-visibility crosswalks are provided on the north and south legs of the intersection. Freedom Drive carries an AADT volume of 3,600 vehicles (IDOT 2020), is under the jurisdiction of the City of Naperville, and has a posted speed limit of 35 miles per hour.

Independence Avenue is an east-west local roadway that provides one lane in each direction. At its signalized intersection with Freedom Drive, Independence Avenue provides a left-turn lane and a combined through/right-turn lane on the eastbound and westbound approaches. A high-visibility crosswalk is provided on the east leg of the intersection and a standard-style crosswalk is provided on the west leg. Independence Avenue is under the jurisdiction of the City of Naperville.

Public Transportation

Downtown Naperville is served by the Metra commuter rail BNSF line at the Naperville station located approximately 2.5 miles southwest of the site. This line provides service seven days a week between Aurora and downtown Chicago. Additionally, the following Pace Suburban Bus routes serves the immediate area:

- *Route 714 – College of DuPage-Naperville-Wheaton Connector* runs between downtown Naperville and downtown Wheaton, via direct service to the College of DuPage in Glen Ellyn. Service is provided Monday through Friday. The nearest bus stops to the site are located on Diehl Road along the site frontage.

- *Route 722 – Ogden Avenue* runs between the Naperville NSF Metra Station and Yorktown Center in Lombard via Ogden Avenue, Naperville Road, and Warrenville Road. Service is provided Monday through Saturday. The nearest bus stops to the site are located on Naperville Road approximately one quarter mile east of the site.

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts utilizing Miovision Scout Video Collection Units on Thursday, February 15, 2024 during the weekday morning (7:00 to 9:00 A.M.) and weekday evening (4:00 to 6:00 P.M.) peak periods at the following intersections:

- Diehl Road with Freedom Drive
- Diehl Road with Naperville Road
- Freedom Drive with Independence Avenue

The results of the traffic counts indicated that the weekday morning peak hour of traffic occurs from 7:30 A.M. to 8:30 A.M. and the weekday evening peak hour of traffic occurs from 4:45 P.M. to 5:45 P.M. **Figure 4** illustrates the existing peak hour traffic volumes. Copies of the traffic count summary sheets are included in the Appendix.

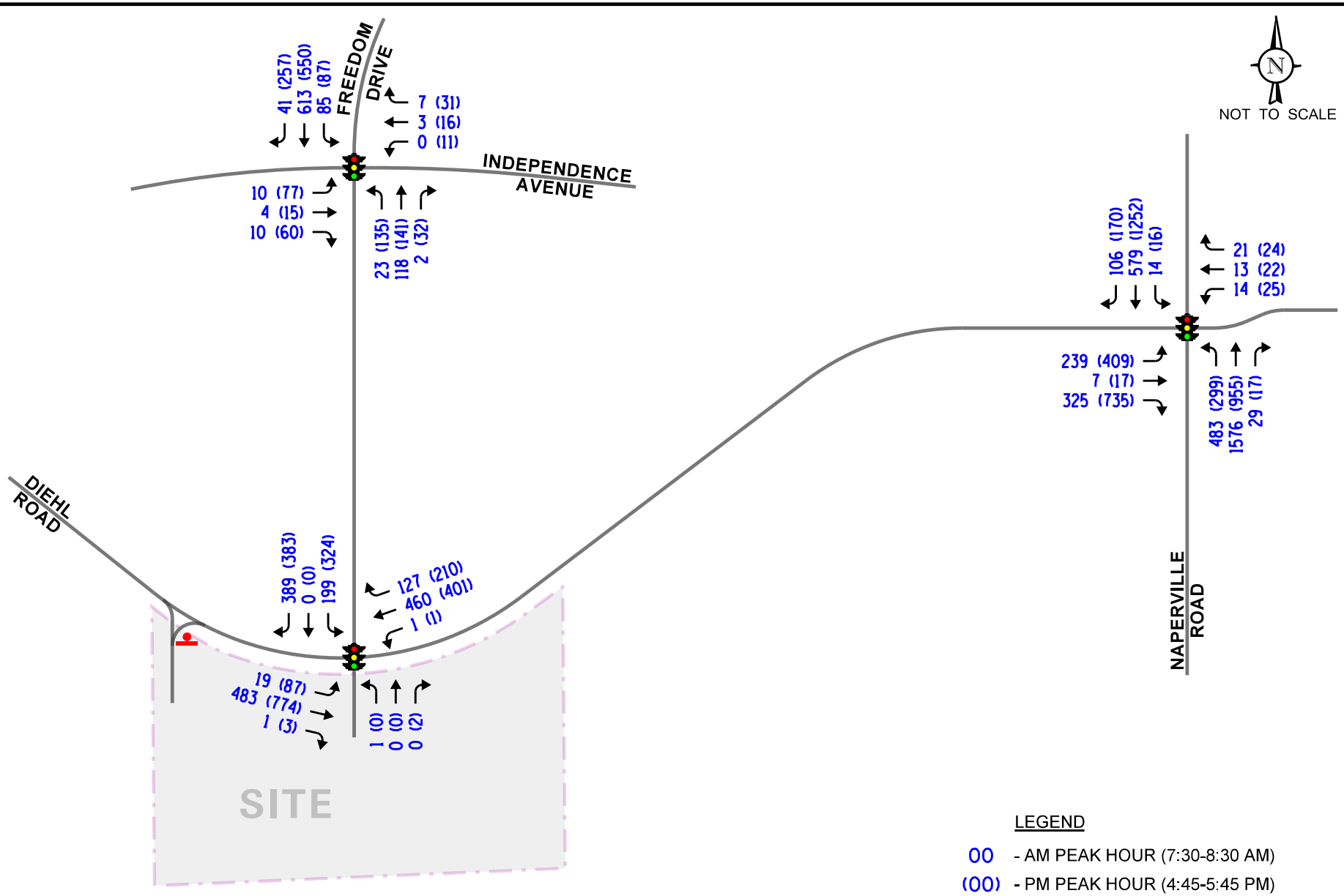
Crash Data Summary

KLOA, Inc. obtained crash data[1] from IDOT for the most recent available five years (2018 to 2022) for the intersections of Diehl Road with Naperville Road, Diehl Road with Freedom Drive, and Freedom Drive with Independence Avenue. The crash data is summarized in **Tables 1** through **3**. It should be noted that no fatalities were reported at any of the intersections during the time period surveyed.

Table 1
NAPERVILLE ROAD WITH DIEHL ROAD – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2018	0	0	0	2	0	1	0	3
2019	0	0	1	5	0	1	0	7
2020	0	0	0	0	0	2	0	2
2021	0	0	0	0	0	1	0	1
2022	0	0	0	0	0	0	0	0
Total	**0**	**0**	**1**	**7**	**0**	**5**	**0**	**13**
Average	**0**	**0**	**<1.0**	**1.4**	**0**	**1.0**	**0**	**2.6**

[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).



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Existing Traffic Volumes

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Figure: 4

Table 2
DIEHL ROAD WITH FREEDOM DRIVE – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2018	0	0	0	3	0	0	0	3
2019	0	1	0	3	0	0	0	4
2020	0	0	1	1	0	0	0	2
2021	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	1	0	1
Total	**0**	**1**	**1**	**7**	**0**	**1**	**0**	**10**
Average	**0**	**<1.0**	**<1.0**	**1.4**	**0**	**<1.0**	**0**	**2.0**

Table 3
FREEDOM DRIVE WITH INDEPENDENCE AVENUE – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2018	0	0	0	0	0	0	0	0
2019	2	0	0	0	0	0	0	2
2020	0	0	0	1	0	0	0	1
2021	1	0	0	0	0	2	0	3
2022	0	0	0	0	0	1	0	0
Total	**3**	**0**	**0**	**1**	**0**	**3**	**0**	**6**
Average	**<1.0**	**0**	**0**	**<1.0**	**0**	**<1.0**	**0**	**1.2**

3. Traffic Characteristics of the Proposed Development

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

Proposed Site and Development Plan

As proposed, the site will be developed with a five-story apartment building containing 306 total units. In addition, the two approximately 7,500 square-foot commercial buildings will be provided on the north side of the site that are anticipated to contain restaurants. The existing parking structure on site is to remain. A copy of the preliminary site plan is included in the Appendix.

Proposed Parking Supply

Parking for the development will be accommodated within the existing 392 space parking garage structure and via 252 surface parking spaces and 12 private garage parking spaces for a total of 656 parking spaces.

- 75 of the surface parking spaces in the northwest corner of the site will be dedicated to the west commercial building.

- 24 surface parking spaces in the northeast corner of the site and 51 spaces within the parking garage will be dedicated to the east commercial building.

- The remaining 153 surface parking spaces, the remaining 341 parking garage spaces, and the 12 private garage parking spaces (506 total spaces) will be dedicated to the residential building.

Development Vehicular Access

Vehicular access to the site will be provided via the existing access system serving the site.

- A full-movement access drive that forms the fourth (south) leg of the signalized intersection of Diehl Road with Freedom Drive. This access drive provides an exclusive left-turn lane and a shared through/right-turn lane. A westbound left-turn is provided on Dihel Road serving this access drive.

- A right-in/right-out access drive on Diehl Road is located approximately 390 feet west of Freedom Drive. This access drive provides one inbound lane and one outbound lane restricted to right-turn only movements via the landscape median on Diehl Road. Outbound movements are under stop sign control.

Development Pedestrian Access

Pedestrian access to the development will be provided via a connection to the existing sidewalk on Diehl Road along the site frontage. The sidewalk on Diehl Road is part of the existing sidewalk system serving the surrounding area with sidewalks present on both sides of a majority of area roadways and crosswalks provided at majority of signalized intersections.

In addition, a connection to the existing sidewalk south of the site will be provided and the developer is working to provides additional sidewalk connectivity to the commercial uses south of the site.

Directional Distribution

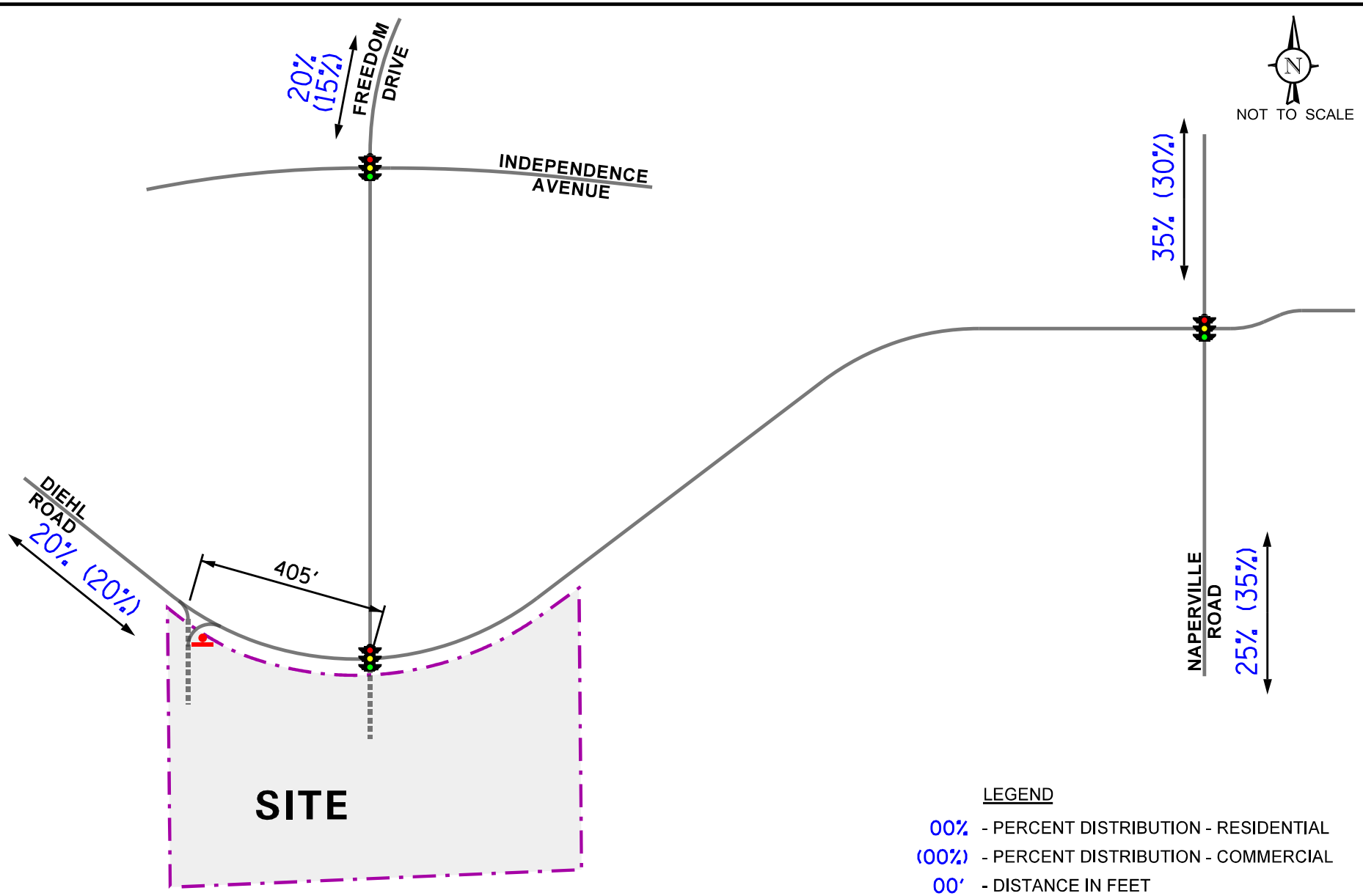
The directions from which residents and guests of the proposed development will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the development-generated traffic.

Peak Hour Traffic Volumes

The number of peak hour trips estimated to be generated by the proposed residential development was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The "Multifamily Housing, Mid-Rise" (Land-Use Code 221) and "High-Turnover Sit-Down Restaurant" (Land-Use Code 932) rates were used to determine the traffic to be generated by the development. It is important to note that the development is located within close proximity to multiple commercial and employment centers. Further, interaction may occur between the proposed residential and restaurant uses and some of the traffic generated by the restaurant uses may be pass-by traffic diverted from nearby roadways. However, to provide a conservative analysis, no reduction was taken. **Table 4** the peak hour traffic to be generated by the proposed development.

Table 4
ESTIMATED PEAK HOUR SITE GENERATED TRAFFIC

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		In	Out	Total	In	Out	Total
221	Multifamily Housing – Mid Rise (306 units)	28	95	123	73	47	120
932	High-Turnover Sit-Down Restaurant (15,000 s.f.)	79	65	144	83	53	136
Development Total		**107**	**160**	**267**	**156**	**100**	**256**



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Directional Distribution

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Figure: 5

4. Projected Traffic Conditions

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

Development Traffic Assignment

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

Background (No-Build) Traffic Conditions

The existing 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). Based on AADT projections provided by the Chicago Metropolitan Agency for Planning (CMAP) an increase of approximately 0.25 percent per year for six years (buildout year plus five years) totaling 1.5 percent was applied to project Year 2030 conditions. A copy of the CMAP 2050 projections letter is included in the Appendix.

In addition, the traffic that is anticipated to be generated by the following area developments was included:

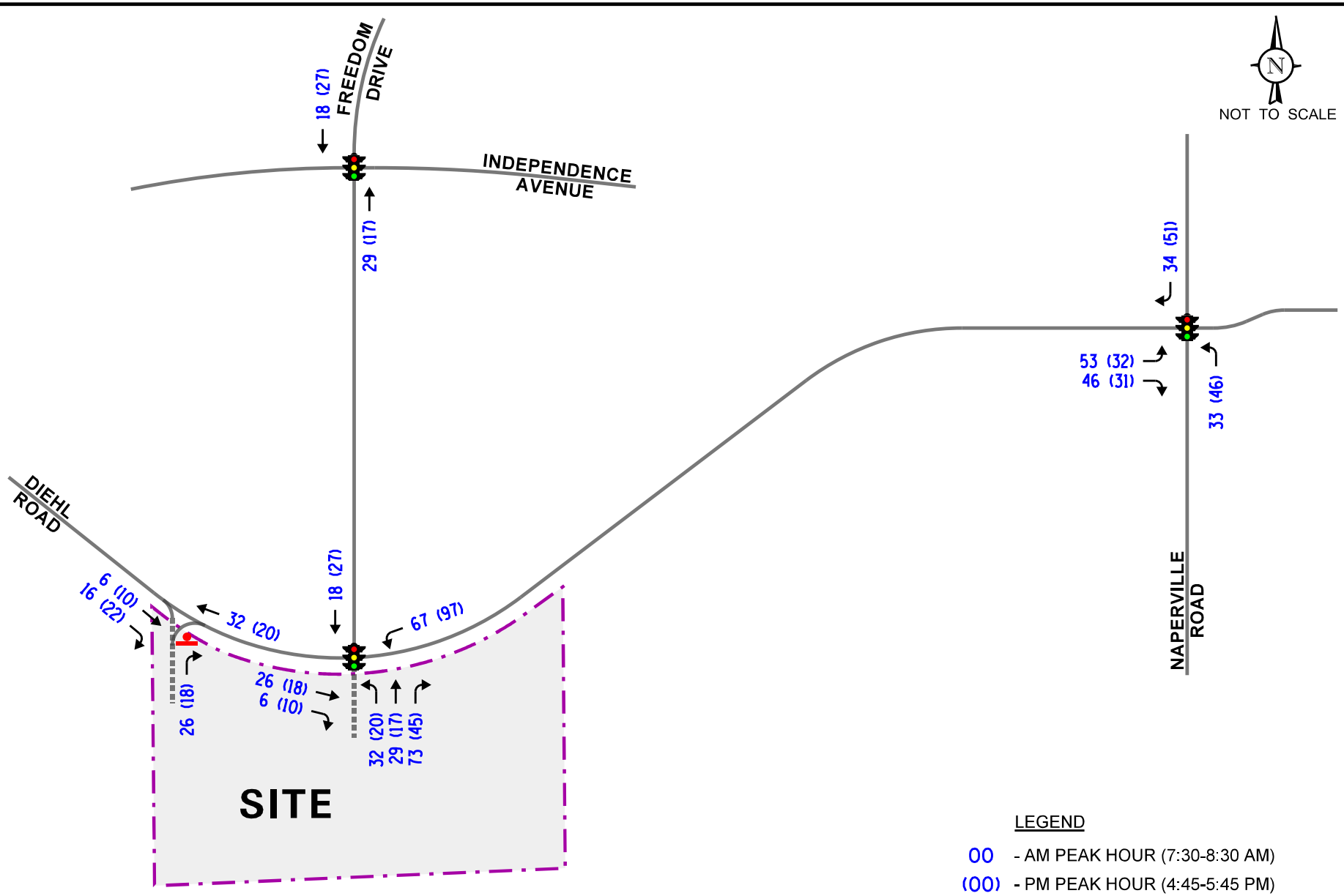
- The currently under construction residential development north of I-88 on Wetherbee Lane. The trip generation was estimated based on ITE rates for a development with 175 single family homes and 66 townhomes.

- The redevelopment of the existing LA Fitness within Freedom Commons to a medical office complex. The trip generation was estimated based on ITE rates for 42,438 square-feet of medical office space.

The Year 2030 no-build traffic volumes are illustrated in **Figure 7**.

Total Projected Traffic Volumes

The development-generated traffic (Figure 6) was added to the existing traffic volumes accounting for background growth (Figure 7) to determine the Year 2030 total projected traffic volumes, as illustrated in **Figure 8**. It should be noted that the total projected traffic volumes include the removal of the limited existing site traffic.



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Site-Generated Traffic Volumes

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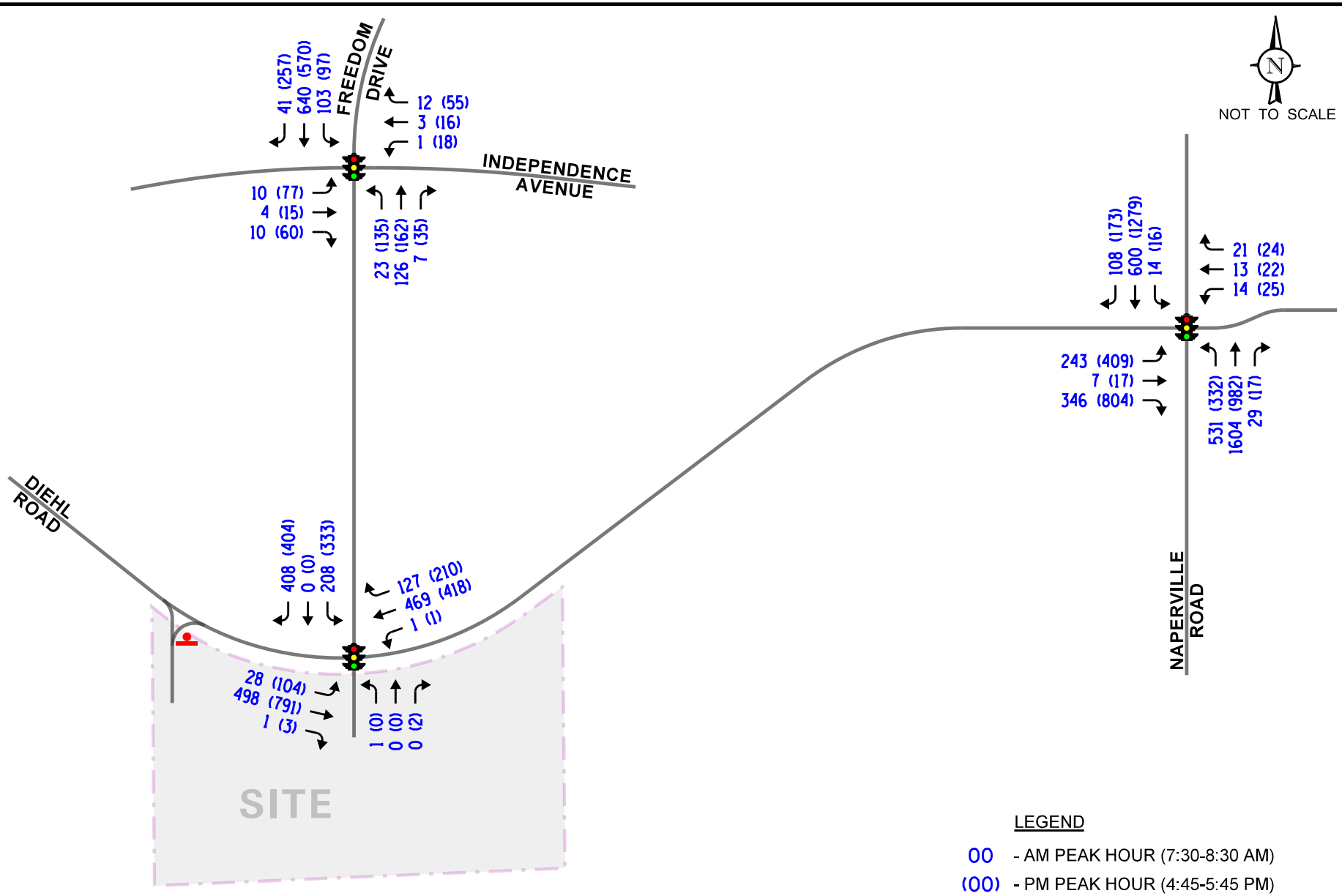
Figure: 6



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Year 2030 No-Build Traffic Volumes

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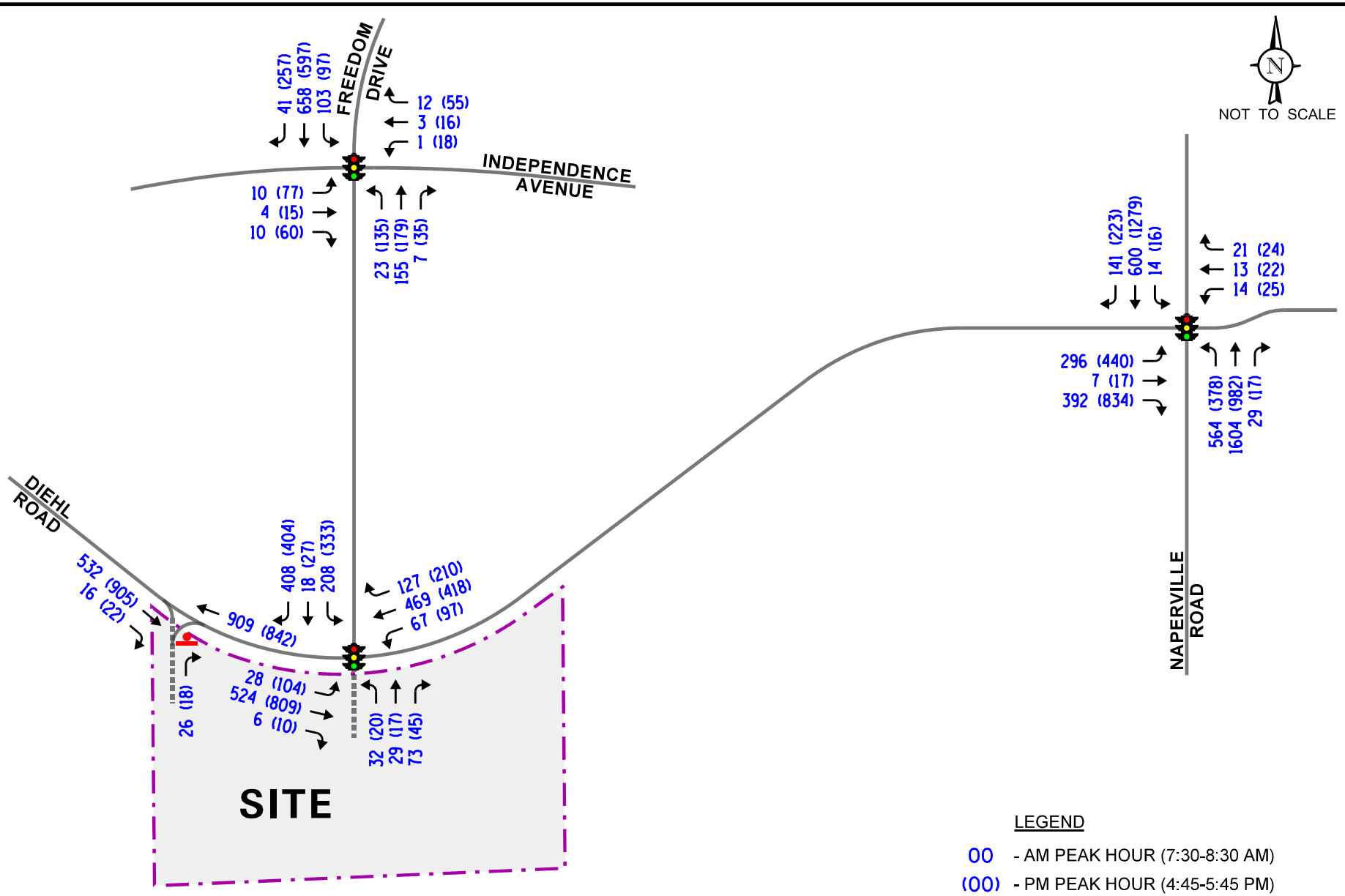
Figure: 7



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Year 2030 Total Traffic Volumes

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Figure: 8

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 drives 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 existing, Year 2030 no-build, and Year 2030 total projected traffic volumes.

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

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 existing, Year 2030 no-build, and Year 2030 total projected conditions are presented in **Tables 5** through **8**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 5
CAPACITY ANALYSIS – NAPERVILLE ROAD WITH DIEHL ROAD – SIGNALIZED

	Peak Hour	Eastbound			Westbound		Northbound		Southbound			Overall
		L	T	R	L	T/R	L	T/R	L	T	R	
Existing Conditions	Weekday Morning	E 72.1	E 72.5	A 6.6	E 75.9	D 46.8	B 17.6	C 20.6	B 17.4	C 34.1	A 2.7	C 24.6
		C – 34.9			E – 55.2		C – 19.6		C – 29.0			
	Weekday Evening	E 76.0	E 75.6	B 19.8	E 80.0	D 54.0	D 52.0	B 18.8	B 14.4	D 48.9	A 1.2	D 37.2
		D – 40.1			E – 63.1		C – 26.6		D – 42.9			
No-Build Conditions	Weekday Morning	E 72.2	E 72.6	A 7.0	E 75.9	D 46.8	C 23.5	C 20.7	B 18.8	D 38.6	A 2.8	C 26.4
		C – 34.5			E – 55.2		C – 21.4		C – 32.9			
	Weekday Evening	E 76.9	E 76.7	C 20.5	E 80.0	D 54.0	D 51.5	B 19.2	B 14.6	E 59.4	A 1.3	D 40.6
		D – 40.0			E – 63.1		C – 27.3		D – 52.0			
Total Projected Conditions	Weekday Morning	E 72.5	E 72.3	A 8.0	E 75.9	D 46.8	C 30.6	C 22.6	C 20.1	D 43.0	A 2.6	C 29.3
		D – 36.1			E – 55.2		C – 24.6		D – 35.1			
	Weekday Evening	E 65.0	E 64.3	C 24.5	E 80.0	D 54.0	E 64.8	C 20.7	B 15.2	E 63.6	A 2.0	D 42.7
		D – 38.7			E – 63.1		C – 32.8		D – 54.1			

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 6
CAPACITY ANALYSIS – DIEHL ROAD WITH FREEDOM DRIVE AND THE SITE ACCESS DRIVE – SIGNALIZED

	Peak Hour	Eastbound		Westbound			Northbound		Southbound			Overall
		L	T/R	L	T	R	L	T/R	L	T	R	
Existing Conditions	Weekday Morning	D 47.5	A 4.8	D 45.0	A 7.7	A 0.4	D 45.0	--	D 40.9	--	A 2.6	A 9.6
		A – 6.5		A – 6.2			D – 45.0		B – 15.5			
	Weekday Evening	E 79.8	A 7.4	F 100.0	A 8.2	A 0.9	--	--	E 66.2	--	A 4.5	B 18.2
		B – 14.8		A – 5.9			--		C – 32.5			
No-Build Conditions	Weekday Morning	D 48.7	A 4.9	D 45.0	A 8.1	A 0.5	D 45.0	--	D 43.8	--	A 2.6	B 10.3
		A – 7.2		A – 6.5			D – 45.0		B – 16.5			
	Weekday Evening	F 80.1	A 7.6	F 104.0	A 8.6	A 1.3	--	--	E 65.3	--	A 5.4	B 18.7
		B – 16.1		A – 6.3			--		C – 32.5			
Total Projected Conditions	Weekday Morning	D 48.7	B 16.2	D 48.8	B 14.8	A 1.6	D 50.8	C 22.4	D 52.4	C 30.2	A 6.1	B 19.2
		B – 17.9		B – 15.7			C – 29.2		C – 22.0			
	Weekday Evening	F 80.1	C 22.7	F 83.4	B 11.2	A 1.7	E 78.2	C 34.6	E 68.0	E 61.2	A 9.9	C 28.9
		C – 29.2		B – 18.1			D – 45.1		D – 37.0			

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 7
CAPACITY ANALYSIS – FREEDOM DRIVE WITH INDEPENDENCE AVENUE – SIGNALIZED

	Peak Hour	Eastbound		Westbound		Northbound		Southbound		Overall
		L	T/R	L	T/R	L	T/R	L	T/R	
Existing Conditions	Weekday Morning	D 38.6	C 23.9	--	C 29.9	A 2.3	A 4.4	A 1.7	A 3.1	A 4.1
		C – 30.0		C – 29.9		A – 4.1		A – 3.0		
	Weekday Evening	C 26.0	B 12.3	C 20.3	B 18.6	A 8.0	A 8.5	A 5.5	B 12.4	B 12.1
		B – 19.3		B – 18.9		A – 8.3		B – 11.8		
No-Build Conditions	Weekday Morning	D 37.2	C 27.4	C 35.0	C 25.9	A 3.0	A 6.2	A 2.2	A 4.1	A 5.1
		C – 31.5		C – 26.5		A – 5.7		A – 3.8		
	Weekday Evening	C 24.1	B 13.3	C 20.5	B 16.3	A 9.2	A 9.2	A 6.0	B 13.9	B 13.0
		B – 18.8		B – 17.2		A – 9.2		B – 13.1		
Total Projected Conditions	Weekday Morning	D 37.4	C 27.4	C 35.0	C 25.9	A 4.3	A 6.3	A 2.2	A 4.1	A 5.2
		C – 31.6		C – 26.5		A – 6.0		A – 3.8		
	Weekday Evening	C 24.1	B 13.3	C 20.5	B 16.3	B 10.7	A 10.0	A 6.0	B 14.3	B 13.5
		B – 18.8		B – 17.2		B – 10.3		B – 13.5		

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 8
CAPACITY ANALYSIS RESULTS – DIEHL ROAD WITH SITE RIGHT-IN/RIGHT-OUT ACCESS DRIVE – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Projected Conditions				
• Northbound Approach	B	10.2	B	11.9

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 development-generated traffic.

Naperville Road with Diehl Road

The results of the capacity analysis indicate that the intersection currently operates overall at level of service (LOS) C during the weekday morning peak hour and LOS D during the weekday evening peak hour. It should be noted that some movements currently operate at LOS E during both peak hours. This is the result of the long cycle length (150 seconds) and the split phase operation of the traffic signal. Under Year 2030 no build conditions, this intersection is projected to continue to operate at the same LOS during both peak hours.

Under Year 2030 total projected conditions, this intersection is projected to continue to operate at the same LOS during both peak hours with increases in delay of two to three seconds over no-build conditions. Further, all movements are projected to operate at LOS E or better. It should be noted that all movements are projected to operate with a volume to capacity (v/c) ratio of less than one indicating that this intersection has sufficient reserve capacity for the projected traffic volumes and, as with existing conditions, the delays are the result of the signal operations. Overall, the traffic traversing the intersection is only projected to increase by less than five percent during the peak hours due to the proposed development. As such, no roadway or traffic signal modifications are required at this intersection as part of the proposed development.

Diehl Road with Freedom Drive and the Site Access Drive

The results of the capacity analysis indicate that the intersection currently operates overall at LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. It should be noted that some left-turn movements currently operate at LOS E or F during the weekday evening peak hour. This is the result of the long cycle length (150 seconds) and the protected only nature of the left-turn movements. Under Year 2030 no build conditions, this intersection is projected to continue to operate at the same LOS during both peak hours.

As proposed, the northbound approach of this intersection will serve the proposed development. Under Year 2030 total projected conditions, this intersection is projected to operate at LOS B during the weekday morning peak hour and C during the weekday evening peak hour. The following should be noted:

- Through movements on Diehl Road and southbound Freedom Drive are projected to operate at LOS C or better during both peak hours.

- Outbound movements from the site are projected to operate at LOS E or better during both peak hours.

- 95th percentile queues on the site access drive (northbound approach) are not projected to reach the first internal intersection within the site and will not impact on site circulation.
- The existing lane configuration of a left-turn lane and a shared through/right-turn lane will adequately accommodate site generated traffic.

- Some left-turn movements are projected to operate at LOS F during the weekday evening peak hour.
  - As with existing conditions, this is the result of the long cycle length and the protected only nature of the left turns.
  - 95th percentile queues for these movements can be accommodated within the existing turn lanes.

- All movements are projected to operate with a volume to capacity (v/c) ratio of less than one indicating that this intersection has sufficient reserve capacity for the projected traffic volumes.

As such, this intersection is projected to accommodate the traffic estimated to be generated by the proposed apartment development and no additional roadway or traffic control improvements are required.

Freedom Drive with Independence Avenue

The results of the capacity analysis indicate that this intersection currently operates at LOS A during the weekday morning peak hour and LOS B during the weekday evening peak hour. Further, all movements on Freedom Drive operate at LOS B or better during both peak hours and all movements are projected to operate at LOS D or better. Under Year 2030 no build conditions, this intersection is projected to continue to operate at the same LOS during both peak hours.

Under Year 2030 total projected conditions, this intersection is projected to continue to operate at the same LOS during both peak hours with increases in delay of less than one second. Further, all movements are projected to continue to operate at the same LOS. It should be noted that the proposed development is not projected to increase the volume of turning movements at this intersection. As such, this intersection will adequately accommodate site-generated traffic and no roadway or traffic control improvements are required.

Diehl Road with Right-In/Right-Out Access Drive

As proposed, the existing right-in/right-out access drive on Diehl Road will serve the proposed development. Under Year 2029 total projected conditions, the northbound approach is projected to operate at LOS B during the weekday morning and weekday evening peak hours. As such, this intersection will adequately accommodate site-generated traffic and no roadway or traffic control improvements are required.

6. Parking Evaluation

The proposed parking supply was evaluated based on City of Naperville requirements, ITE survey data, and a comparison to similar developments in the area. As previously discussed, the proposed development will have the following composition:

- An apartment building with 306 units
  - 83 Studio/Convertible units
  - 111 One-bedroom units
  - 102 Two-bedroom units
  - 10 Three-bedroom units

- Two approximately 7,500 square-foot restaurant buildings

City of Naperville Requirements

The City of Naperville Zoning Code requires parking spaces for multiple-family dwellings as follows:

- Multiple Family Dwelling
  - Two parking spaces per dwelling unit
  - 0.25 guest parking spaces per unit for any development including 5 or more units.

- Eating establishment exclusive of fast food establishments
  - 10 parking spaces per each 1,000 square feet of gross floor area

Based on the above, the total number of required parking spaces will be as follows:

- 304 apartment units × 2.25 = 689 Spaces
- 15,000 square-feet of restaurant space × 10/1,000 = 150 spaces

As such, the proposed development should provide 150 spaces for the proposed restaurants and 689 spaces for the apartment building.

Proposed Parking Supply

The proposed development will provide 252 surface parking spaces, 392 garage parking spaces, and 12 private garage parking spaces (656 total spaces) dedicated as follows:

- 75 surface parking spaces dedicated to the west commercial building. (Meets City Requirements)
- 24 surface parking spaces and 51 garage parking spaces (75 total spaces) dedicated to the east commercial building. (Meets City Requirements)
- 153 surface parking spaces, 341 parking garage spaces, and 12 private garage parking spaces (506 total spaces) will be dedicated to the residential building.

ITE Parking Generation Manual

The proposed parking supply was compared to survey data published in the Institute of Transportation Engineers' (ITE) 6th Edition of the *Parking Generation Manual*. The manual includes surveys from numerous residential and commercial buildings across the United States. It should be noted that ITE provides sperate data for multi-family dwelling units including separation by building heights and by number of bedrooms in each unit. As a result, the data used is from surveys at developments similar to the proposed development and more accurately reflects the actual livability of the development.

Based on ITE the following average peak parking demand rates were determined:

- Multifamily Housing – Mid-Rise (Land-Use Code 218 and 221)
  - Studio and one-bedroom units: 0.68 per unit
  - Two-bedroom units: 1.56 per unit (0.78 per bedroom)
  - Three-bedroom units: 2.34 per unit (0.78 per bedroom)

- High-Turnover Sit-Down Restaurant (Land-Use Code 932)
  - 6.9 parking spaces per each 1,000 square feet of gross floor area

Based on the above, the total number of required parking spaces will be as follows:

Apartment Building
- 83 Studio/Convertible units × 0.68 = 57 Spaces
- 111 One-bedroom units × 0.68 = 76 Spaces
- 102 Two-bedroom units × 1.36 = 139 Spaces
- 10 Three-bedroom units × 2.04 = 21 Spaces
  Total = 293 spaces.

Restaurants
- 15,000 square-feet of restaurant space × 6.9/1,000 = 104 spaces

As can be seen, based on ITE rates, the proposed development provides 150 spaces for the restaurants when 104 are needed and 506 spaces for the apartment building while 293 are needed.

Parking Occupancy Surveys

KLOA, Inc. has previously conducted parking occupancy surveys at similar developments in the area. The results of the surveys are summarized below.

AMLI Museum Gardens – Vernon Hills

A parking occupancy survey was conducted at the existing AMLI Museum Gardens apartment development located at 1175 Museum Boulevard in Vernon Hills, Illinois. The apartment development, which was constructed in 2004, contains 294-units (576 bedrooms) and provides a total of approximately 599 parking spaces (mixture of 189 parking garage spaces, 56 parking

spaces in detached garages throughout the campus, and 354 surface parking spaces around the perimeter). The results of the parking occupancy survey indicated that the apartment development experienced a peak parking occupancy of 397 spaces at 10:00 P.M., which is a parking ratio of 1.45 spaces per occupied unit and 0.74 parking spaces per occupied bedroom. This parking ratio is inclusive of all resident and guest parking. It should be noted that at the time the parking occupancy surveys were conducted that the apartment units were 93 percent occupied (273 occupied units and approximately 536 occupied bedrooms).

Regency Place – Oakbrook Terrace

A parking occupancy survey was conducted at the existing Regency Place apartment development located at 2003 South Myers Road in Oakbrook Terrace, Illinois. The apartment development, which was constructed in 2006, contains 112-units (200 bedrooms) and provides a total of approximately 248 parking spaces (mixture of 182 parking garage spaces, 66 parking surface parking spaces around the perimeter). The results of the parking occupancy survey indicated that the apartment development experienced a peak parking occupancy of 167 spaces on Saturday which is a parking ratio of 1.49 spaces per occupied unit and 0.84 parking spaces per occupied bedroom. This parking ratio is inclusive of all resident and guest parking. It should be noted that at the time the parking occupancy surveys were conducted that the apartment units were all filled.

One Oak Brook Commons – Oak Brook

A tenant parking rental data was provided for the existing One Oak Brook Commons apartment development located at 2150 McDonald Drive in Oak Brook, Illinois. The luxury apartment development, which opened in 2022, contains 250-units and provides a total of approximately 420 parking spaces. The parking spaces are rented independently of the apartment rentals. The provided data indicated that tenants rented spaces at an average ratio of 1.28 spaces per unit.

Comparison of Parking Ratios of Similar Apartment Developments

A comparison of parking ratios of similar apartment developments in the Chicagoland area is summarized in **Table 9,** which shows the number of units, bedrooms and parking spaces as well as the parking space per unit ratio and parking space ratio per bedroom. It should be noted that these apartments do have access to nearby bus routes but are not within walking distance of railway stations. As can be seen, the proposed development will provide a similar number of parking spaces to these developments. In particular, it should be noted that the development will provide parking at a similar ratio to CityGate Centre, which recently opened in Naperville.

U.S. Census Bureau Information

U.S. Census Bureau information indicated that, for the area including the proposed development, 63 percent of renter occupied residencies have zero or one vehicle, 31 percent have two vehicles, and six percent have 3 or more vehicles. This survey data includes rental multi-family developments as well as rental single-family homes.

Table 9
COMPARISON OF PARKING RATIOS AT SIMILAR DEVELOPMENTS

Development Name	Number of Units	Number of Bedrooms	Number of Parking Spaces	Spaces/Unit	Spaces/ Bedroom
CityGate Centre - Naperville	285	371	642	1.63	1.25
IL 62/Plum Grove Road - Schaumburg	372	--	635	1.71	--
Cedarlake – Plainfield	284	--	443	1.56	--
404 Social - Lincolnshire	302	458	534	1.77	1.17
8700 Waukegan - Morton Grove	184	258	276	1.50	1.07
Tapestry – Glenview	290	403	490	1.69	1.22
AMLI – Deerfield	240	329	396	1.65	1.20
Woodview - Deerfield	248	369	412	1.66	1.12
404 Social - Lincolnshire	302	458	534	1.77	1.17
Mellody Farms – Vernon Hills	260	388	485	1.76	1.25
The Elaine – Northbrook	338	--	580	1.72	--
Northshore 770 - Northbrook	347	545	571	1.65	1.05
			Average:	**1.65**	**1.17**
Proposed Apartment Development	306	428	506	1.65	1.18

Evaluation

The proposed parking supply is projected to be adequate to accommodate the proposed development given the following:

- The development provides more parking spaces than the projected peak parking demand as estimated based on ITE survey data.
- Parking surveys at other similar developments indicated peak parking demands with lower parking ratios than the development will provide.
- The development provides a similar ratio of parking spaces to other area developments including CityGate Centre in Naperville.
- The development provides a high number of studio and one-bedroom apartments which typically require less parking than multi-bedroom units.
- US Census data indicated that a majority of rented residencies in the area of the development have no vehicle or one vehicle, and almost all rented residences have two or less vehicles.
- The proximity of the development to employment centers, retail uses, and public transportation may reduce the demand for parking on site.

6. Internal Circulation Evaluation

The site plan was reviewed with respect to internal circulation to ensure efficient operations within the subject development site.

Evaluation

Assuming the implementation of the recommended stop sign plan, the development is anticipated to have adequate on-site circulation given the following:

- Southbound traffic at the first internal intersection south of the signalized site entrance will not stop which will help ensure that entering traffic does not queue back onto Diehl Road.
- A designated drop-off area is provided near the signalized site entrance. This will reduce unnecessary circulation of these vehicles on site as well as reduce pick-up/drop-off activity throughout the remainder of the site.
- The right-in/right-out access drive will provide an alternative access point reducing unnecessary circulation within the site.
- Drive aisles, three of which will accommodate two-way traffic, are provided on all four sides of the proposed apartment building which will provide drivers with multiple options to navigate within the site.
- Stop signs will be provided along the main drive aisles which will help reduce vehicle speed throughout the site.
- The parking designated for the restaurant uses, which will have a higher parking turnover rate, are located on the north side of the site, reducing the need for restaurant traffic to circulate a majority of the site.
- The parking garage has multiple entrances which will help reduce unnecessary circulation of the site and provide drivers with multiple options to navigate within the site.
- Stop signs will be provided at the first internal intersection south of the signalized site entrance, which provides crosswalks, and at the crosswalk south of the building. Requiring vehicles to stop at crosswalks will improve pedestrian safety.
- Direct pedestrian connection is provided between the parking garage and the apartment building which will reduce conflicts between pedestrians and vehicles.

7. Conclusion

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

- The site, which currently contains the vacant DeVry University Naperville campus, will be redeveloped with a five-story apartment building containing 306 units and two approximately 7,500 square-foot restaurants.

- The existing roadway system is projected to accommodate the traffic estimated to be generated by the proposed development.

- Access to the development will be provided via the existing access system serving the sit, including via the signalized intersection of Diehl Road with Freedom Drive.

- The existing access system will be adequate in accommodating the development-generated traffic.

- Parking will be accommodated via 393 spaces within the existing parking garage and via 252 surface parking spaces and 12 private garage parking spaces. The proposed parking supply will be adequate in accommodating the peak parking demand of the proposed development.

- Based on the proposed site layout and recommended stop sign locations, vehicles will be able to circulate the development site efficiently.

Appendix

Traffic Count Summary Sheets
Preliminary Site Plan
ITE Trip Generation Sheets
CMAP Projections Letter
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

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Count Name: Diehl Road with Freedom Drive
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Data

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Freedom Drive Northbound						Freedom Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	3	87	0	0	90	0	0	71	26	0	97	0	0	0	0	0	0	0	29	0	62	0	91	278
7:15 AM	0	2	78	0	0	80	0	0	79	26	0	105	0	0	0	0	0	0	0	43	0	82	0	125	310
7:30 AM	0	6	122	0	0	128	0	0	105	33	0	138	0	0	0	0	0	0	0	47	0	118	0	165	431
7:45 AM	0	5	142	0	0	147	0	0	108	35	0	143	0	0	0	0	0	0	0	45	0	93	0	138	428
Hourly Total	0	16	429	0	0	445	0	0	363	120	0	483	0	0	0	0	0	0	0	164	0	355	0	519	1447
8:00 AM	0	5	120	1	0	126	1	0	117	25	0	143	0	0	0	0	2	0	0	55	0	89	0	144	413
8:15 AM	0	3	99	0	0	102	0	0	130	30	0	160	0	1	0	0	0	1	0	52	0	89	0	141	404
8:30 AM	0	4	96	0	0	100	0	0	102	35	0	137	0	0	0	0	0	0	0	36	0	94	0	130	367
8:45 AM	0	7	76	3	0	86	0	0	99	36	0	135	0	2	0	0	0	2	0	55	0	69	0	124	347
Hourly Total	0	19	391	4	0	414	1	0	448	126	0	575	0	3	0	0	2	3	0	198	0	341	0	539	1531
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	14	228	0	0	243	0	0	87	40	0	127	0	0	0	1	0	1	0	72	1	60	0	133	504
4:15 PM	0	13	171	1	0	185	0	0	85	46	0	131	0	1	0	0	0	1	0	72	0	83	0	155	472
4:30 PM	0	22	205	0	0	227	0	0	96	38	0	134	0	0	0	1	0	1	0	72	0	64	0	136	498
4:45 PM	0	14	207	1	0	222	0	1	91	55	0	147	0	0	0	1	0	1	1	83	0	82	0	166	536
Hourly Total	1	63	811	2	0	877	0	1	359	179	0	539	0	1	0	3	0	4	1	299	1	289	0	590	2010
5:00 PM	0	27	246	0	0	273	0	0	107	50	0	157	0	0	0	0	0	0	0	67	0	84	0	151	581
5:15 PM	0	22	163	0	0	185	0	0	112	50	0	162	0	0	0	1	0	1	0	88	0	115	0	203	551
5:30 PM	1	23	158	2	0	184	0	0	91	46	0	137	0	0	0	0	0	0	0	85	0	102	0	187	508
5:45 PM	0	22	139	1	0	162	0	0	71	47	0	118	0	0	0	0	0	0	0	74	0	85	0	159	439
Hourly Total	1	94	706	3	0	804	0	0	381	193	0	574	0	0	0	1	0	1	0	314	0	386	0	700	2079
Grand Total	2	192	2337	9	0	2540	1	1	1551	618	0	2171	0	4	0	4	2	8	1	975	1	1371	0	2348	7067
Approach %	0.1	7.6	92.0	0.4	-	-	0.0	0.0	71.4	28.5	-	-	0.0	50.0	0.0	50.0	-	-	0.0	41.5	0.0	58.4	-	-	-
Total %	0.0	2.7	33.1	0.1	-	35.9	0.0	0.0	21.9	8.7	-	30.7	0.0	0.1	0.0	0.1	-	0.1	0.0	13.8	0.0	19.4	-	33.2	-
Lights	2	188	2314	9	-	2513	1	1	1533	602	-	2137	0	4	0	4	-	8	1	960	1	1358	-	2320	6978
% Lights	100.0	97.9	99.0	100.0	-	98.9	100.0	100.0	98.8	97.4	-	98.4	-	100.0	-	100.0	-	100.0	100.0	98.5	100.0	99.1	-	98.8	98.7
Buses	0	1	11	0	-	12	0	0	10	1	-	11	0	0	0	0	-	0	0	2	0	6	-	8	31
% Buses	0.0	0.5	0.5	0.0	-	0.5	0.0	0.0	0.6	0.2	-	0.5	-	0.0	-	0.0	-	0.0	0.0	0.2	0.0	0.4	-	0.3	0.4
Single-Unit Trucks	0	3	10	0	-	13	0	0	7	10	-	17	0	0	0	0	-	0	0	8	0	5	-	13	43
% Single-Unit Trucks	0.0	1.6	0.4	0.0	-	0.5	0.0	0.0	0.5	1.6	-	0.8	-	0.0	-	0.0	-	0.0	0.0	0.8	0.0	0.4	-	0.6	0.6
Articulated Trucks	0	0	2	0	-	2	0	0	1	5	-	6	0	0	0	0	-	0	0	5	0	2	-	7	15
% Articulated Trucks	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.1	0.8	-	0.3	-	0.0	-	0.0	-	0.0	0.0	0.5	0.0	0.1	-	0.3	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

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Count Name: Diehl Road with Freedom Drive
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Freedom Drive Northbound						Freedom Drive 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	6	122	0	0	128	0	0	105	33	0	138	0	0	0	0	0	0	0	47	0	118	0	165	431
7:45 AM	0	5	142	0	0	147	0	0	108	35	0	143	0	0	0	0	0	0	0	45	0	93	0	138	428
8:00 AM	0	5	120	1	0	126	1	0	117	25	0	143	0	0	0	0	2	0	0	55	0	89	0	144	413
8:15 AM	0	3	99	0	0	102	0	0	130	30	0	160	0	1	0	0	0	1	0	52	0	89	0	141	404
Total	0	19	483	1	0	503	1	0	460	123	0	584	0	1	0	0	2	1	0	199	0	389	0	588	1676
Approach %	0.0	3.8	96.0	0.2	-	-	0.2	0.0	78.8	21.1	-	-	0.0	100.0	0.0	0.0	-	-	0.0	33.8	0.0	66.2	-	-	-
Total %	0.0	1.1	28.8	0.1	-	30.0	0.1	0.0	27.4	7.3	-	34.8	0.0	0.1	0.0	0.0	-	0.1	0.0	11.9	0.0	23.2	-	35.1	-
PHF	0.000	0.792	0.850	0.250	-	0.855	0.250	0.000	0.885	0.879	-	0.913	0.000	0.250	0.000	0.000	-	0.250	0.000	0.905	0.000	0.824	-	0.891	0.972
Lights	0	15	476	1	-	492	1	0	457	118	-	576	0	1	0	0	-	1	0	197	0	383	-	580	1649
% Lights	-	78.9	98.6	100.0	-	97.8	100.0	-	99.3	95.9	-	98.6	-	100.0	-	-	-	100.0	-	99.0	-	98.5	-	98.6	98.4
Buses	0	1	4	0	-	5	0	0	2	0	-	2	0	0	0	0	-	0	0	1	0	3	-	4	11
% Buses	-	5.3	0.8	0.0	-	1.0	0.0	-	0.4	0.0	-	0.3	-	0.0	-	-	-	0.0	-	0.5	-	0.8	-	0.7	0.7
Single-Unit Trucks	0	3	3	0	-	6	0	0	1	4	-	5	0	0	0	0	-	0	0	1	0	2	-	3	14
% Single-Unit Trucks	-	15.8	0.6	0.0	-	1.2	0.0	-	0.2	3.3	-	0.9	-	0.0	-	-	-	0.0	-	0.5	-	0.5	-	0.5	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	1	-	1	2
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.8	-	0.2	-	0.0	-	-	-	0.0	-	0.0	-	0.3	-	0.2	0.1
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
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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Count Name: Diehl Road with Freedom Drive
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Freedom Drive Northbound						Freedom Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:45 PM	0	14	207	1	0	222	0	1	91	55	0	147	0	0	0	1	0	1	1	83	0	82	0	166	536
5:00 PM	0	27	246	0	0	273	0	0	107	50	0	157	0	0	0	0	0	0	0	67	0	84	0	151	581
5:15 PM	0	22	163	0	0	185	0	0	112	50	0	162	0	0	0	1	0	1	0	88	0	115	0	203	551
5:30 PM	1	23	158	2	0	184	0	0	91	46	0	137	0	0	0	0	0	0	0	85	0	102	0	187	508
Total	1	86	774	3	0	864	0	1	401	201	0	603	0	0	0	2	0	2	1	323	0	383	0	707	2176
Approach %	0.1	10.0	89.6	0.3	-	-	0.0	0.2	66.5	33.3	-	-	0.0	0.0	0.0	100.0	-	-	0.1	45.7	0.0	54.2	-	-	-
Total %	0.0	4.0	35.6	0.1	-	39.7	0.0	0.0	18.4	9.2	-	27.7	0.0	0.0	0.0	0.1	-	0.1	0.0	14.8	0.0	17.6	-	32.5	-
PHF	0.250	0.796	0.787	0.375	-	0.791	0.000	0.250	0.895	0.914	-	0.931	0.000	0.000	0.000	0.500	-	0.500	0.250	0.918	0.000	0.833	-	0.871	0.936
Lights	1	86	769	3	-	859	0	1	399	196	-	596	0	0	0	2	-	2	1	321	0	381	-	703	2160
% Lights	100.0	100.0	99.4	100.0	-	99.4	-	100.0	99.5	97.5	-	98.8	-	-	-	100.0	-	100.0	100.0	99.4	-	99.5	-	99.4	99.3
Buses	0	0	2	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	3
% Buses	0.0	0.0	0.3	0.0	-	0.2	-	0.0	0.2	0.0	-	0.2	-	-	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1
Single-Unit Trucks	0	0	2	0	-	2	0	0	1	4	-	5	0	0	0	0	-	0	0	2	0	1	-	3	10
% Single-Unit Trucks	0.0	0.0	0.3	0.0	-	0.2	-	0.0	0.2	2.0	-	0.8	-	-	-	0.0	-	0.0	0.0	0.6	-	0.3	-	0.4	0.5
Articulated Trucks	0	0	1	0	-	1	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	1	-	1	3
% Articulated Trucks	0.0	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.5	-	0.2	-	-	-	0.0	-	0.0	0.0	0.0	-	0.3	-	0.1	0.1
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 abowen@kloainc.com

Count Name: Diehl Road with Naperville Road
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Data

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Naperville Road Northbound						Naperville Road 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
7:00 AM	0	45	2	50	0	97	0	1	4	2	0	7	0	89	341	4	0	434	0	4	115	22	0	141	679
7:15 AM	0	49	1	68	0	118	0	1	5	7	0	13	0	101	380	6	0	487	0	2	109	23	0	134	752
7:30 AM	0	64	0	85	0	149	0	4	3	6	0	13	0	100	436	12	0	548	0	5	154	24	0	183	893
7:45 AM	0	68	2	89	0	159	0	3	3	5	0	11	0	120	432	7	0	559	0	2	170	35	0	207	936
Hourly Total	0	226	5	292	0	523	0	9	15	20	0	44	0	410	1589	29	0	2028	0	13	548	104	0	665	3260
8:00 AM	0	64	4	74	0	142	0	2	4	5	0	11	0	124	363	3	0	490	0	2	124	26	0	152	795
8:15 AM	0	43	1	77	0	121	0	5	3	5	0	13	0	139	345	7	0	491	0	5	131	21	0	157	782
8:30 AM	0	41	3	65	0	109	0	9	1	10	0	20	0	131	345	6	0	482	0	3	125	24	0	152	763
8:45 AM	0	37	2	77	0	116	0	4	1	2	2	7	0	117	359	5	0	481	0	1	150	26	0	177	781
Hourly Total	0	185	10	293	0	488	0	20	9	22	2	51	0	511	1412	21	0	1944	0	11	530	97	0	638	3121
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	114	4	189	0	307	0	10	3	4	0	17	0	79	224	2	0	305	0	4	302	31	0	337	966
4:15 PM	0	76	2	180	0	258	0	5	2	5	0	12	0	92	231	1	0	324	0	6	305	39	0	350	944
4:30 PM	0	120	3	172	0	295	0	1	3	4	0	8	0	78	204	2	0	284	0	8	333	48	0	389	976
4:45 PM	0	111	1	181	0	293	0	5	6	2	0	13	0	79	200	1	0	280	0	1	335	56	0	392	978
Hourly Total	0	421	10	722	0	1153	0	21	14	15	0	50	0	328	859	6	0	1193	0	19	1275	174	0	1468	3864
5:00 PM	0	115	6	199	0	320	0	12	4	6	0	22	0	74	268	4	0	346	0	3	349	34	0	386	1074
5:15 PM	0	101	2	186	0	289	0	3	10	11	0	24	0	69	247	5	0	321	0	9	300	52	0	361	995
5:30 PM	0	76	8	169	0	253	0	5	2	5	0	12	0	77	240	7	0	324	0	3	268	28	0	299	888
5:45 PM	0	82	4	162	0	248	0	3	2	3	0	8	0	71	224	3	0	298	0	4	278	18	0	300	854
Hourly Total	0	374	20	716	0	1110	0	23	18	25	0	66	0	291	979	19	0	1289	0	19	1195	132	0	1346	3811
Grand Total	0	1206	45	2023	0	3274	0	73	56	82	2	211	0	1540	4839	75	0	6454	0	62	3548	507	0	4117	14056
Approach %	0.0	36.8	1.4	61.8	-	-	0.0	34.6	26.5	38.9	-	-	0.0	23.9	75.0	1.2	-	-	0.0	1.5	86.2	12.3	-	-	-
Total %	0.0	8.6	0.3	14.4	-	23.3	0.0	0.5	0.4	0.6	-	1.5	0.0	11.0	34.4	0.5	-	45.9	0.0	0.4	25.2	3.6	-	29.3	-
Lights	0	1190	45	2000	-	3235	0	71	55	81	-	207	0	1520	4787	71	-	6378	0	60	3508	497	-	4065	13885
% Lights	-	98.7	100.0	98.9	-	98.8	-	97.3	98.2	98.8	-	98.1	-	98.7	98.9	94.7	-	98.8	-	96.8	98.9	98.0	-	98.7	98.8
Buses	0	5	0	4	-	9	0	1	1	0	-	2	0	3	16	3	-	22	0	1	16	4	-	21	54
% Buses	-	0.4	0.0	0.2	-	0.3	-	1.4	1.8	0.0	-	0.9	-	0.2	0.3	4.0	-	0.3	-	1.6	0.5	0.8	-	0.5	0.4
Single-Unit Trucks	0	5	0	16	-	21	0	1	0	1	-	2	0	13	31	1	-	45	0	1	23	3	-	27	95
% Single-Unit Trucks	-	0.4	0.0	0.8	-	0.6	-	1.4	0.0	1.2	-	0.9	-	0.8	0.6	1.3	-	0.7	-	1.6	0.6	0.6	-	0.7	0.7
Articulated Trucks	0	6	0	3	-	9	0	0	0	0	-	0	0	4	5	0	-	9	0	0	1	3	-	4	22
% Articulated Trucks	-	0.5	0.0	0.1	-	0.3	-	0.0	0.0	0.0	-	0.0	-	0.3	0.1	0.0	-	0.1	-	0.0	0.0	0.6	-	0.1	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

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Count Name: Diehl Road with Naperville Road
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Naperville Road Northbound						Naperville Road 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	64	0	85	0	149	0	4	3	6	0	13	0	100	436	12	0	548	0	5	154	24	0	183	893
7:45 AM	0	68	2	89	0	159	0	3	3	5	0	11	0	120	432	7	0	559	0	2	170	35	0	207	936
8:00 AM	0	64	4	74	0	142	0	2	4	5	0	11	0	124	363	3	0	490	0	2	124	26	0	152	795
8:15 AM	0	43	1	77	0	121	0	5	3	5	0	13	0	139	345	7	0	491	0	5	131	21	0	157	782
Total	0	239	7	325	0	571	0	14	13	21	0	48	0	483	1576	29	0	2088	0	14	579	106	0	699	3406
Approach %	0.0	41.9	1.2	56.9	-	-	0.0	29.2	27.1	43.8	-	-	0.0	23.1	75.5	1.4	-	-	0.0	2.0	82.8	15.2	-	-	-
Total %	0.0	7.0	0.2	9.5	-	16.8	0.0	0.4	0.4	0.6	-	1.4	0.0	14.2	46.3	0.9	-	61.3	0.0	0.4	17.0	3.1	-	20.5	-
PHF	0.000	0.879	0.438	0.913	-	0.898	0.000	0.700	0.813	0.875	-	0.923	0.000	0.869	0.904	0.604	-	0.934	0.000	0.700	0.851	0.757	-	0.844	0.910
Lights	0	235	7	319	-	561	0	12	13	20	-	45	0	477	1559	27	-	2063	0	13	566	105	-	684	3353
% Lights	-	98.3	100.0	98.2	-	98.2	-	85.7	100.0	95.2	-	93.8	-	98.8	98.9	93.1	-	98.8	-	92.9	97.8	99.1	-	97.9	98.4
Buses	0	2	0	3	-	5	0	1	0	0	-	1	0	1	7	1	-	9	0	0	4	1	-	5	20
% Buses	-	0.8	0.0	0.9	-	0.9	-	7.1	0.0	0.0	-	2.1	-	0.2	0.4	3.4	-	0.4	-	0.0	0.7	0.9	-	0.7	0.6
Single-Unit Trucks	0	1	0	3	-	4	0	1	0	1	-	2	0	5	8	1	-	14	0	1	9	0	-	10	30
% Single-Unit Trucks	-	0.4	0.0	0.9	-	0.7	-	7.1	0.0	4.8	-	4.2	-	1.0	0.5	3.4	-	0.7	-	7.1	1.6	0.0	-	1.4	0.9
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	2	0	-	2	0	0	0	0	-	0	3
% Articulated Trucks	-	0.4	0.0	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	0.1
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	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Rosemont, Illinois, United States 60018
(847)518-9990 abowen@kloainc.com

Count Name: Diehl Road with Naperville Road
TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Diehl Road Eastbound						Diehl Road Westbound						Naperville Road Northbound						Naperville Road 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
4:45 PM	0	111	1	181	0	293	0	5	6	2	0	13	0	79	200	1	0	280	0	1	335	56	0	392	978
5:00 PM	0	115	6	199	0	320	0	12	4	6	0	22	0	74	268	4	0	346	0	3	349	34	0	386	1074
5:15 PM	0	101	2	186	0	289	0	3	10	11	0	24	0	69	247	5	0	321	0	9	300	52	0	361	995
5:30 PM	0	76	8	169	0	253	0	5	2	5	0	12	0	77	240	7	0	324	0	3	268	28	0	299	888
Total	0	403	17	735	0	1155	0	25	22	24	0	71	0	299	955	17	0	1271	0	16	1252	170	0	1438	3935
Approach %	0.0	34.9	1.5	63.6	-	-	0.0	35.2	31.0	33.8	-	-	0.0	23.5	75.1	1.3	-	-	0.0	1.1	87.1	11.8	-	-	-
Total %	0.0	10.2	0.4	18.7	-	29.4	0.0	0.6	0.6	0.6	-	1.8	0.0	7.6	24.3	0.4	-	32.3	0.0	0.4	31.8	4.3	-	36.5	-
PHF	0.000	0.876	0.531	0.923	-	0.902	0.000	0.521	0.550	0.545	-	0.740	0.000	0.946	0.891	0.607	-	0.918	0.000	0.444	0.897	0.759	-	0.917	0.916
Lights	0	399	17	734	-	1150	0	25	22	24	-	71	0	295	951	17	-	1263	0	16	1249	169	-	1434	3918
% Lights	-	99.0	100.0	99.9	-	99.6	-	100.0	100.0	100.0	-	100.0	-	98.7	99.6	100.0	-	99.4	-	100.0	99.8	99.4	-	99.7	99.6
Buses	0	2	0	0	-	2	0	0	0	0	-	0	0	0	1	0	-	1	0	0	2	0	-	2	5
% Buses	-	0.5	0.0	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	-	0.0	0.2	0.0	-	0.1	0.1
Single-Unit Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	1	2	0	-	3	0	0	1	1	-	2	6
% Single-Unit Trucks	-	0.2	0.0	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	-	0.3	0.2	0.0	-	0.2	-	0.0	0.1	0.6	-	0.1	0.2
Articulated Trucks	0	1	0	1	-	2	0	0	0	0	-	0	0	3	1	0	-	4	0	0	0	0	-	0	6
% Articulated Trucks	-	0.2	0.0	0.1	-	0.2	-	0.0	0.0	0.0	-	0.0	-	1.0	0.1	0.0	-	0.3	-	0.0	0.0	0.0	-	0.0	0.2
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	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Freedom Drive with Independence Avenue TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Data

Start Time	Independence Avenue Eastbound						Independence Avenue Westbound						Freedom Drive Northbound						Freedom Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	1	0	1	0	2	0	0	0	2	0	2	0	2	28	1	0	31	0	14	97	3	0	114	149
7:15 AM	0	3	0	0	0	3	0	0	1	2	0	3	0	2	27	0	0	29	0	11	129	7	0	147	182
7:30 AM	0	2	0	1	0	3	0	0	0	4	0	4	0	6	33	0	0	39	0	21	159	10	0	190	236
7:45 AM	0	3	1	2	0	6	0	0	0	1	0	1	0	3	36	2	0	41	0	26	145	14	0	185	233
Hourly Total	0	9	1	4	0	14	0	0	1	9	0	10	0	13	124	3	0	140	0	72	530	34	0	636	800
8:00 AM	0	4	1	4	0	9	0	0	0	1	0	1	0	7	24	0	0	31	0	22	161	9	0	192	233
8:15 AM	0	1	2	3	0	6	0	0	3	1	0	4	0	7	25	0	0	32	1	15	148	8	0	172	214
8:30 AM	0	2	1	2	0	5	0	0	0	2	1	2	0	8	34	0	0	42	0	17	132	18	0	167	216
8:45 AM	0	4	0	1	0	5	0	1	0	2	0	3	0	7	28	1	0	36	0	25	130	11	0	166	210
Hourly Total	0	11	4	10	0	25	0	1	3	6	1	10	0	29	111	1	0	141	1	79	571	46	0	697	873
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	16	3	10	0	29	0	5	1	10	0	16	1	23	31	2	0	57	0	12	118	45	0	175	277
4:15 PM	0	19	1	11	0	31	0	3	1	3	0	7	0	14	37	5	0	56	0	11	141	32	0	184	278
4:30 PM	0	13	3	7	0	23	0	2	2	9	0	13	0	22	32	6	0	60	0	19	109	37	0	165	261
4:45 PM	0	18	1	14	0	33	0	3	4	6	0	13	0	26	36	7	0	69	0	24	130	64	0	218	333
Hourly Total	0	66	8	42	0	116	0	13	8	28	0	49	1	85	136	20	0	242	0	66	498	178	0	742	1149
5:00 PM	0	16	5	14	0	35	0	1	5	7	0	13	0	31	44	8	0	83	0	19	123	56	0	198	329
5:15 PM	0	25	7	20	0	52	0	4	4	11	0	19	0	46	30	7	0	83	0	26	145	84	0	255	409
5:30 PM	0	18	2	12	0	32	0	3	3	7	0	13	0	32	31	10	0	73	0	18	152	53	0	223	341
5:45 PM	0	17	2	18	0	37	0	5	1	8	0	14	0	43	25	10	0	78	0	24	96	46	0	166	295
Hourly Total	0	76	16	64	0	156	0	13	13	33	0	59	0	152	130	35	0	317	0	87	516	239	0	842	1374
Grand Total	0	162	29	120	0	311	0	27	25	76	1	128	1	279	501	59	0	840	1	304	2115	497	0	2917	4196
Approach %	0.0	52.1	9.3	38.6	-	-	0.0	21.1	19.5	59.4	-	-	0.1	33.2	59.6	7.0	-	-	0.0	10.4	72.5	17.0	-	-	-
Total %	0.0	3.9	0.7	2.9	-	7.4	0.0	0.6	0.6	1.8	-	3.1	0.0	6.6	11.9	1.4	-	20.0	0.0	7.2	50.4	11.8	-	69.5	-
Lights	0	161	28	120	-	309	0	27	24	75	-	126	1	274	486	59	-	820	1	301	2090	494	-	2886	4141
% Lights	-	99.4	96.6	100.0	-	99.4	-	100.0	96.0	98.7	-	98.4	100.0	98.2	97.0	100.0	-	97.6	100.0	99.0	98.8	99.4	-	98.9	98.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	2	0	-	2	4
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.4	0.0	-	0.2	0.0	0.0	0.1	0.0	-	0.1	0.1
Single-Unit Trucks	0	1	1	0	-	2	0	0	1	1	-	2	0	4	8	0	-	12	0	3	17	3	-	23	39
% Single-Unit Trucks	-	0.6	3.4	0.0	-	0.6	-	0.0	4.0	1.3	-	1.6	0.0	1.4	1.6	0.0	-	1.4	0.0	1.0	0.8	0.6	-	0.8	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	5	0	-	6	0	0	6	0	-	6	12
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.4	1.0	0.0	-	0.7	0.0	0.0	0.3	0.0	-	0.2	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

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

Rosemont, Illinois, United States 60018
(847)518-9990 abowen@kloainc.com

Count Name: Freedom Drive with Independence Avenue TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Independence Avenue Eastbound						Independence Avenue Westbound						Freedom Drive Northbound						Freedom Drive 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	2	0	1	0	3	0	0	0	4	0	4	0	6	33	0	0	39	0	21	159	10	0	190	236
7:45 AM	0	3	1	2	0	6	0	0	0	1	0	1	0	3	36	2	0	41	0	26	145	14	0	185	233
8:00 AM	0	4	1	4	0	9	0	0	0	1	0	1	0	7	24	0	0	31	0	22	161	9	0	192	233
8:15 AM	0	1	2	3	0	6	0	0	3	1	0	4	0	7	25	0	0	32	1	15	148	8	0	172	214
Total	0	10	4	10	0	24	0	0	3	7	0	10	0	23	118	2	0	143	1	84	613	41	0	739	916
Approach %	0.0	41.7	16.7	41.7	-	-	0.0	0.0	30.0	70.0	-	-	0.0	16.1	82.5	1.4	-	-	0.1	11.4	82.9	5.5	-	-	-
Total %	0.0	1.1	0.4	1.1	-	2.6	0.0	0.0	0.3	0.8	-	1.1	0.0	2.5	12.9	0.2	-	15.6	0.1	9.2	66.9	4.5	-	80.7	-
PHF	0.000	0.625	0.500	0.625	-	0.667	0.000	0.000	0.250	0.438	-	0.625	0.000	0.821	0.819	0.250	-	0.872	0.250	0.808	0.952	0.732	-	0.962	0.970
Lights	0	10	4	10	-	24	0	0	3	6	-	9	0	21	111	2	-	134	1	84	608	39	-	732	899
% Lights	-	100.0	100.0	100.0	-	100.0	-	-	100.0	85.7	-	90.0	-	91.3	94.1	100.0	-	93.7	100.0	100.0	99.2	95.1	-	99.1	98.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Buses	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.8	0.0	-	0.7	0.0	0.0	0.0	0.0	-	0.0	0.1
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	1	-	1	0	2	5	0	-	7	0	0	5	2	-	7	15
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	-	0.0	14.3	-	10.0	-	8.7	4.2	0.0	-	4.9	0.0	0.0	0.8	4.9	-	0.9	1.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.8	0.0	-	0.7	0.0	0.0	0.0	0.0	-	0.0	0.1
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	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

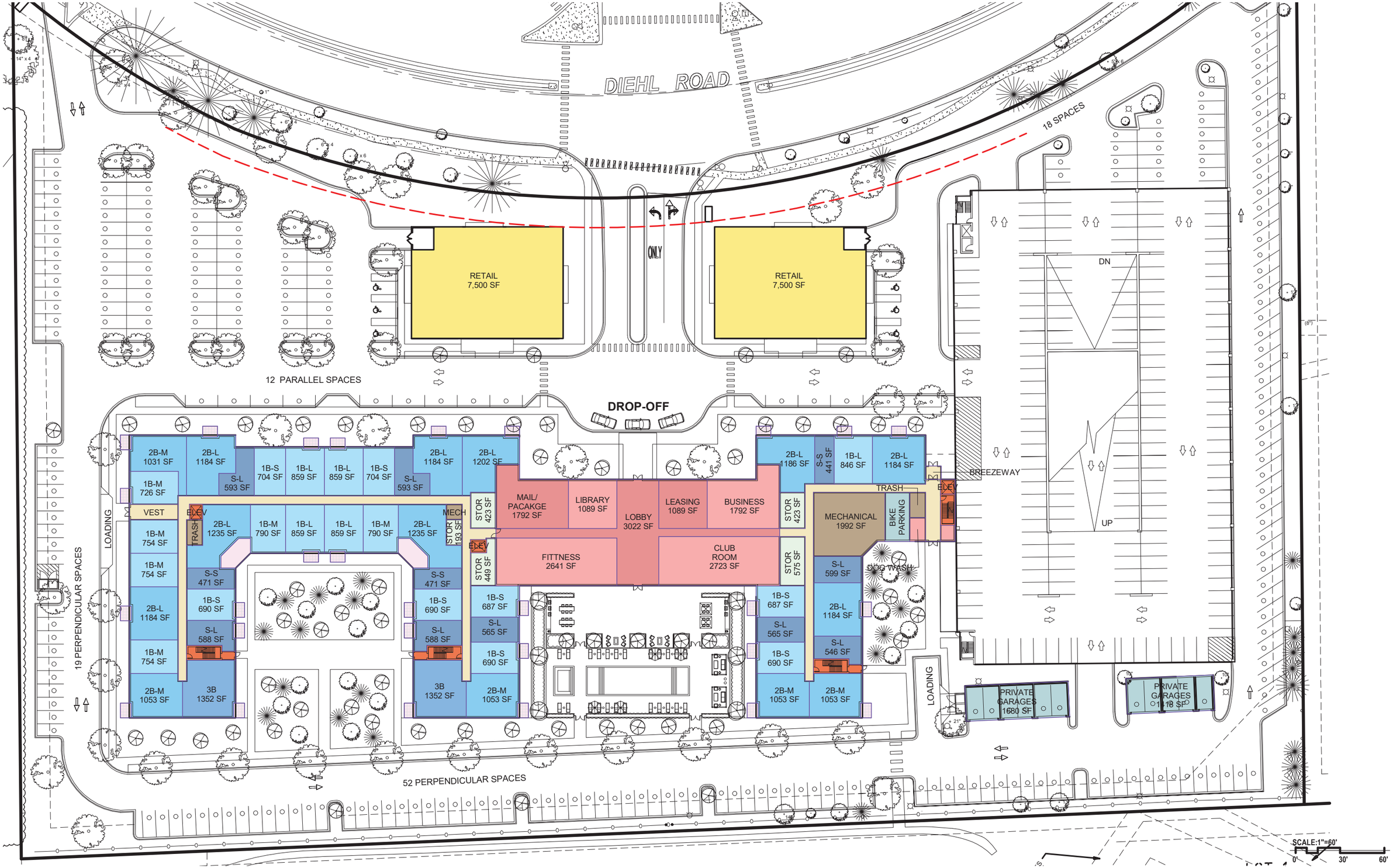
Rosemont, Illinois, United States 60018
(847)518-9990 abowen@kloainc.com

Count Name: Freedom Drive with Independence Avenue TMC
Site Code:
Start Date: 02/15/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Independence Avenue Eastbound						Independence Avenue Westbound						Freedom Drive Northbound						Freedom Drive 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
4:45 PM	0	18	1	14	0	33	0	3	4	6	0	13	0	26	36	7	0	69	0	24	130	64	0	218	333
5:00 PM	0	16	5	14	0	35	0	1	5	7	0	13	0	31	44	8	0	83	0	19	123	56	0	198	329
5:15 PM	0	25	7	20	0	52	0	4	4	11	0	19	0	46	30	7	0	83	0	26	145	84	0	255	409
5:30 PM	0	18	2	12	0	32	0	3	3	7	0	13	0	32	31	10	0	73	0	18	152	53	0	223	341
Total	0	77	15	60	0	152	0	11	16	31	0	58	0	135	141	32	0	308	0	87	550	257	0	894	1412
Approach %	0.0	50.7	9.9	39.5	-	-	0.0	19.0	27.6	53.4	-	-	0.0	43.8	45.8	10.4	-	-	0.0	9.7	61.5	28.7	-	-	-
Total %	0.0	5.5	1.1	4.2	-	10.8	0.0	0.8	1.1	2.2	-	4.1	0.0	9.6	10.0	2.3	-	21.8	0.0	6.2	39.0	18.2	-	63.3	-
PHF	0.000	0.770	0.536	0.750	-	0.731	0.000	0.688	0.800	0.705	-	0.763	0.000	0.734	0.801	0.800	-	0.928	0.000	0.837	0.905	0.765	-	0.876	0.863
Lights	0	77	15	60	-	152	0	11	15	31	-	57	0	134	138	32	-	304	0	87	549	257	-	893	1406
% Lights	-	100.0	100.0	100.0	-	100.0	-	100.0	93.8	100.0	-	98.3	-	99.3	97.9	100.0	-	98.7	-	100.0	99.8	100.0	-	99.9	99.6
Buses	0	0	0	0	-	0	0	0	0	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	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	1	1	0	-	2	0	0	0	0	-	0	3
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	6.3	0.0	-	1.7	-	0.7	0.7	0.0	-	0.6	-	0.0	0.0	0.0	-	0.0	0.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	1	0	-	1	3
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	1.4	0.0	-	0.6	-	0.0	0.2	0.0	-	0.1	0.2
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	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Preliminary Site Plan


DIEHL ROAD
18 SPACES
RETAIL
7,500 SF
RETAIL
7,500 SF
ONLY
DN
12 PARALLEL SPACES
DROP-OFF
2B-M
1031 SF
2B-L
1184 SF
1B-S
704 SF
1B-L
859 SF
1B-L
859 SF
1B-S
704 SF
2B-L
1184 SF
2B-L
1202 SF
1B-M
726 SF
S-L
593 SF
S-L
593 SF
MAIL/
PACAKGE
1792 SF
LIBRARY
1089 SF
LOBBY
3022 SF
LEASING
1089 SF
BUSINESS
1792 SF
2B-L
1186 SF
S-S
441 SF
1B-L
846 SF
2B-L
1184 SF
BREEZEWAY
TRASH
ELEV
STOR
423 SF
STOR
423 SF
MECHANICAL
1992 SF
BIKE
PARKING
VEST
ELEV
MECH
1B-M
754 SF
2B-L
1235 SF
1B-M
790 SF
1B-L
859 SF
1B-L
859 SF
1B-M
790 SF
2B-L
1235 SF
STOR
193 SF
TRASH
ELEV
STOR
449 SF
FITNESS
2641 SF
CLUB
ROOM
2723 SF
STOR
575 SF
S-L
599 SF
DOG WASH
1B-M
754 SF
S-S
471 SF
S-S
471 SF
2B-L
1184 SF
1B-S
690 SF
1B-S
690 SF
1B-S
687 SF
1B-S
687 SF
S-L
565 SF
S-L
565 SF
S-L
588 SF
S-L
588 SF
S-L
546 SF
1B-M
754 SF
1B-S
690 SF
1B-M
754 SF
2B-M
1053 SF
3B
1352 SF
3B
1352 SF
2B-M
1053 SF
2B-M
1053 SF
2B-M
1053 SF
LOADING
LOADING
19 PERPENDICULAR SPACES
52 PERPENDICULAR SPACES
PRIVATE
GARAGES
1680 SF
PRIVATE
GARAGES
1680 SF
UP
SCALE:1"=60'
0'
30'
60'

CMAP Projections Letter

Chicago Metropolitan Agency for Planning

433 West Van Buren Street, Suite 450
Chicago, IL 60607
cmap.illinois.gov | 312-454-0400

February 12, 2024

Ryan May
Project Coordinator
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: Diehl Road - Freedom Drive - Naperville Road
IDOT

Dear Ms. May:

In response to a request made on your behalf and dated February 9, 2024, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	2020 ADT	2014* / 2016 ADT	Year 2050 ADT
Diehl Rd, @ Freedom Rd	6,500	20,500	22,300
Freedom Rd, @ Diehl Rd	3,600	14,300	**15,600**
Naperville Rd, @ Diehl Rd	12,700	30,600*	**33,300**

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2023 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806 or email me at jrodriguez@cmap.illinois.gov

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
S:\AdminGroups\ResearchAnalysis\2024_TrafficForecasts\Naperville\du-06-24\du-06-24.docx

ITE Trip Generation Sheets

Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

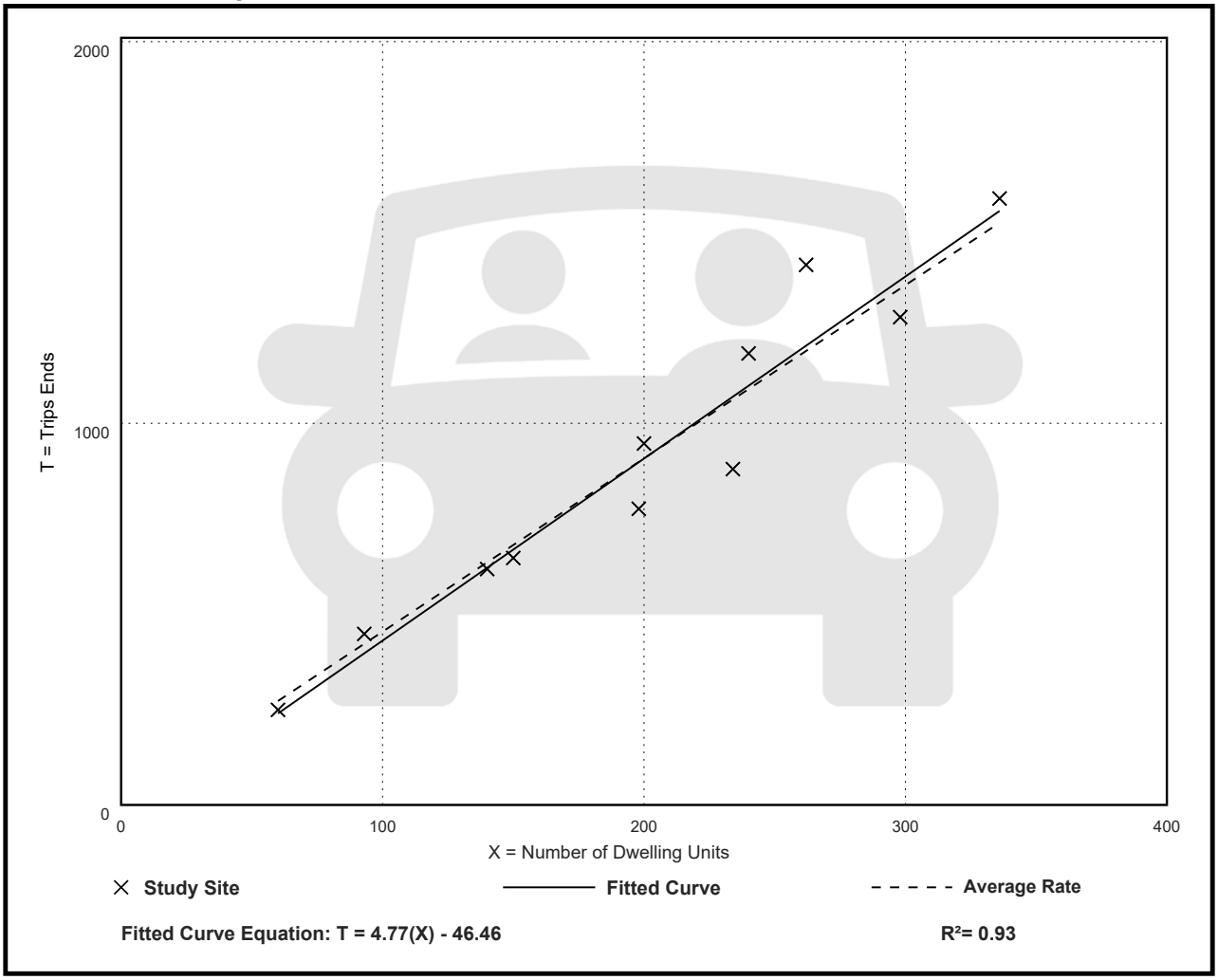
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. Num. of Dwelling Units: 201
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



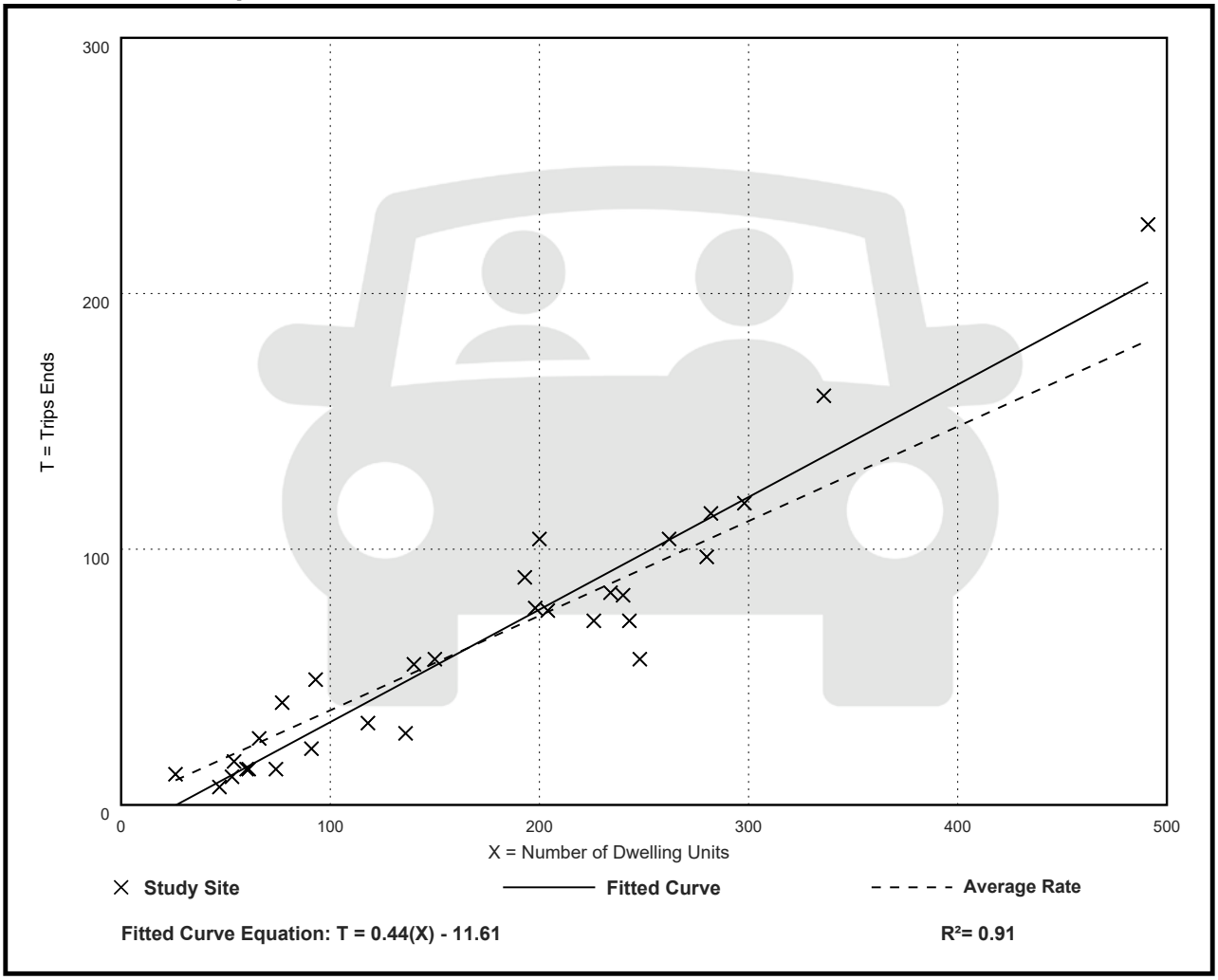
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Fitted Curve Equation: T = 0.44(X) - 11.61

R^2= 0.91

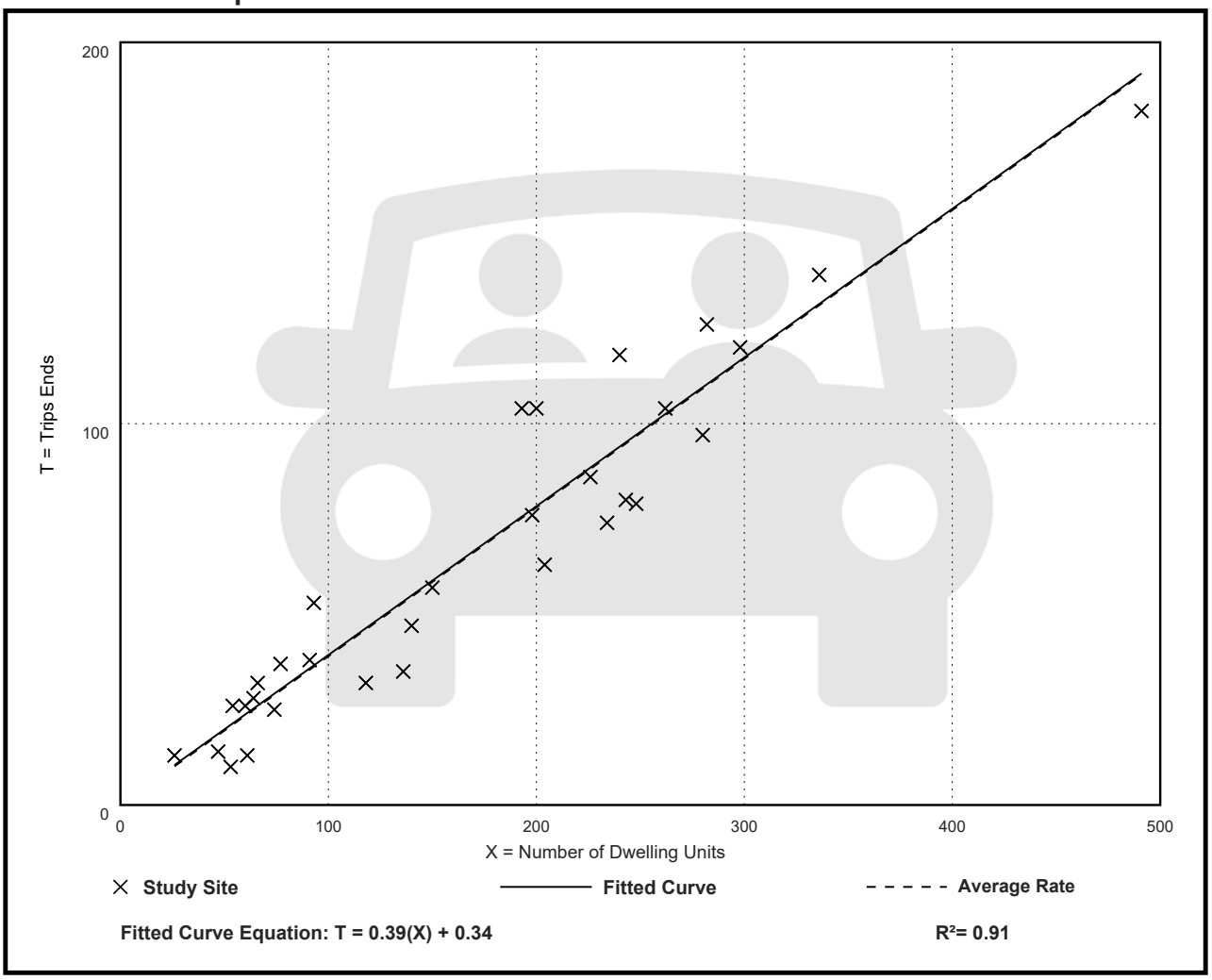
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

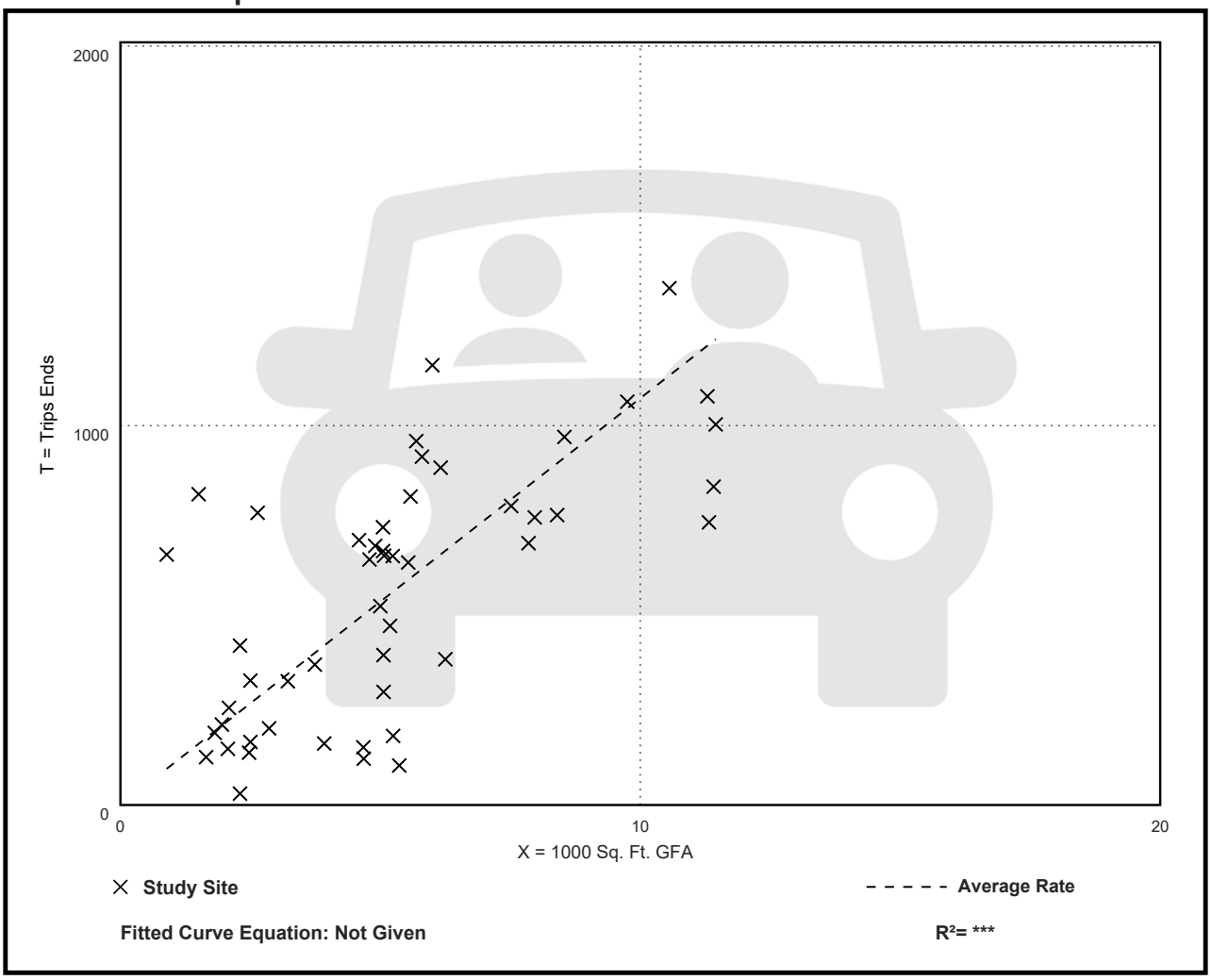
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 50
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
107.20	13.04 - 742.41	66.72

Data Plot and Equation



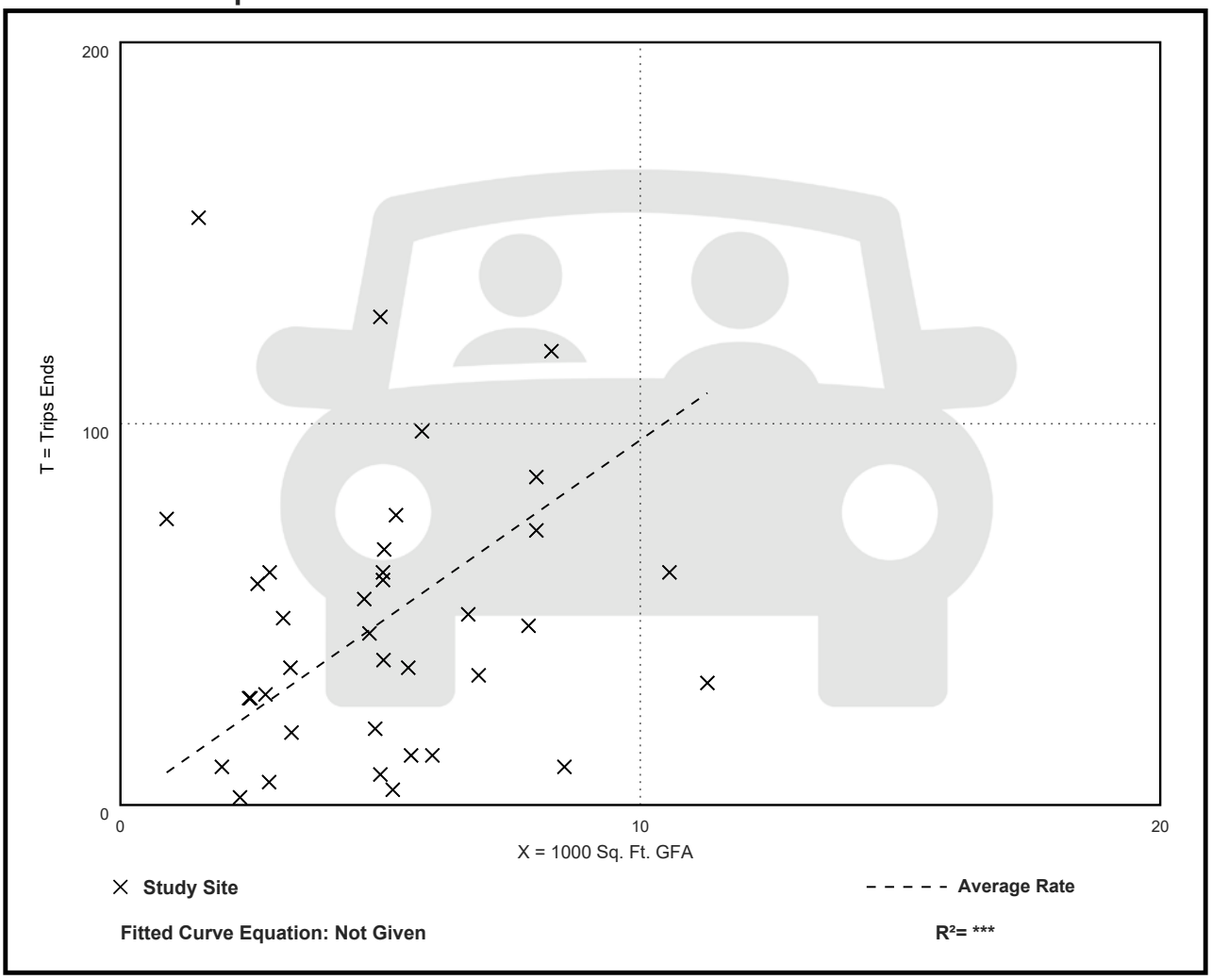
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



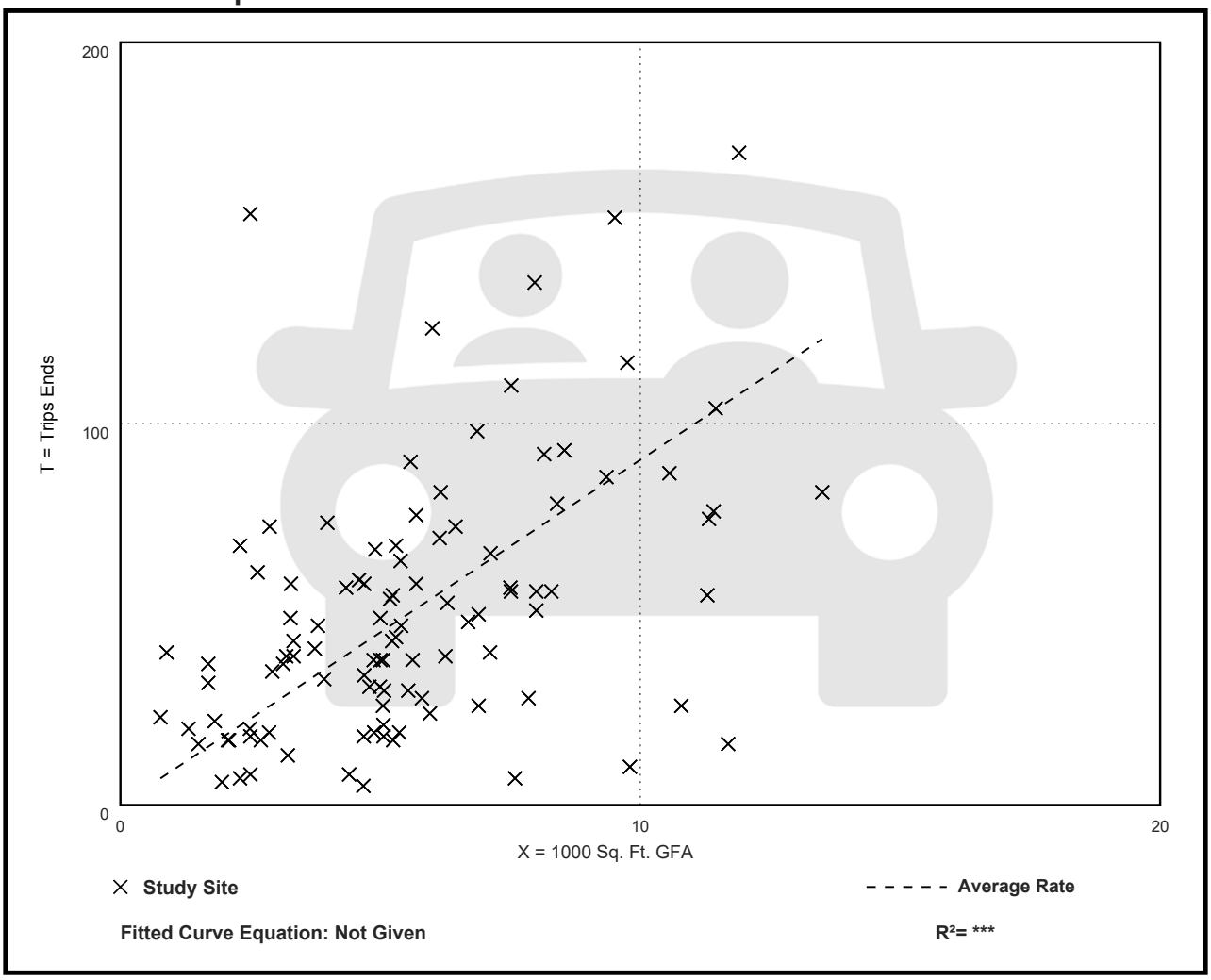
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 104
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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

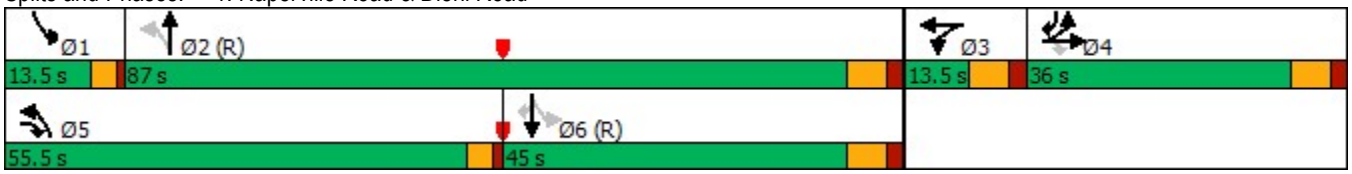
Existing Weekday Morning Peak Hour

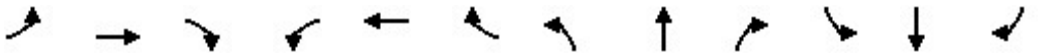
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	7	325	14	13	21	483	1576	29	14	579	106
Future Volume (vph)	239	7	325	14	13	21	483	1576	29	14	579	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.907			0.997				0.850
Flt Protected	0.950	0.955		0.950			0.950			0.950		
Satd. Flow (prot)	1681	1692	2787	1583	1671	0	1787	3560	0	1687	3725	1599
Flt Permitted	0.950	0.955		0.950			0.309			0.103		
Satd. Flow (perm)	1681	1692	2787	1583	1671	0	581	3560	0	183	3725	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			253		23			2				116
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	2%	14%	0%	5%	1%	1%	7%	7%	2%	1%
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 (%)	49%											
Lane Group Flow (vph)	134	137	357	15	37	0	531	1764	0	15	636	116
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	36.0	36.0	55.5	13.5	13.5		55.5	87.0		13.5	45.0	36.0
Total Split (%)	24.0%	24.0%	37.0%	9.0%	9.0%		37.0%	58.0%		9.0%	30.0%	24.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	19.8	19.8	62.8	6.9	6.9		108.9	102.2		74.4	65.9	87.0
Actuated g/C Ratio	0.13	0.13	0.42	0.05	0.05		0.73	0.68		0.50	0.44	0.58

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.61	0.61	0.27	0.21	0.38		0.74	0.73		0.10	0.39	0.12
Control Delay	72.1	72.5	6.6	75.9	46.8		17.6	20.2		17.4	34.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.1	72.5	6.6	75.9	46.8		17.6	20.2		17.4	34.1	2.7
LOS	E	E	A	E	D		B	C		B	C	A
Approach Delay		34.9			55.2			19.6			29.0	
Approach LOS		C			E			B			C	
Queue Length 50th (ft)	132	135	34	14	13		196	508		4	227	0
Queue Length 95th (ft)	197	202	49	40	53		349	863		13	365	28
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	330	332	1574	73	99		839	2427		190	1637	1072
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	0.41	0.41	0.23	0.21	0.37		0.63	0.73		0.08	0.39	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 64.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 24.6		Intersection LOS: C	
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Naperville Road & Diehl Road





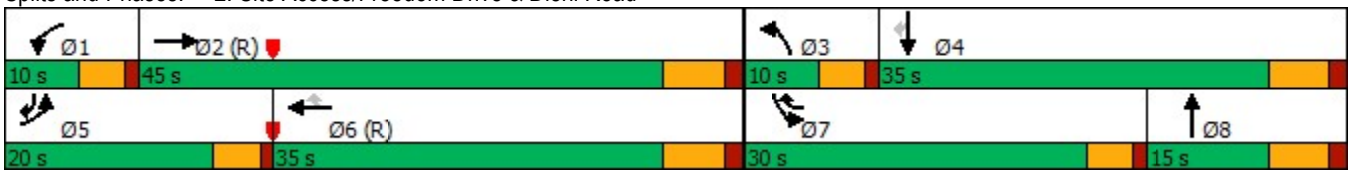
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	483	1	1	460	123	1	0	0	199	0	389
Future Volume (vph)	19	483	1	1	460	123	1	0	0	199	0	389
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor		1.00		0.99								
Frt						0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	3574	0	1805	3762	1553	1805	1900	0	3467	1900	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1492	3574	0	1789	3762	1553	1805	1900	0	3467	1900	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						131						485
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	21%	1%	0%	0%	1%	4%	0%	0%	0%	1%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	499	0	1	474	127	1	0	0	205	0	401
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot			Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	45.0		10.0	35.0	30.0	10.0	15.0		30.0	35.0	20.0
Total Split (%)	20.0%	45.0%		10.0%	35.0%	30.0%	10.0%	15.0%		30.0%	35.0%	20.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	Min	None
Act Effct Green (s)	7.0	74.9		5.6	65.5	84.0	5.6			12.6		22.0
Actuated g/C Ratio	0.07	0.75		0.06	0.66	0.84	0.06			0.13		0.22

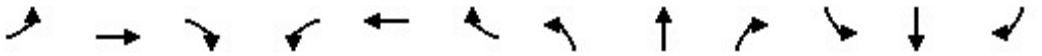
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.19	0.19		0.01	0.19	0.10	0.01			0.47		0.41
Control Delay	47.5	4.8		45.0	7.7	0.4	45.0			40.9		2.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0		0.0
Total Delay	47.5	4.8		45.0	7.7	0.4	45.0			40.9		2.6
LOS	D	A		D	A	A	D			D		A
Approach Delay		6.5			6.2			45.0			15.5	
Approach LOS		A			A			D			B	
Queue Length 50th (ft)	12	33		1	53	0	1			64		0
Queue Length 95th (ft)	36	100		6	102	7	6			53		5
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	231	2675		101	2463	1503	100			884		1187
Starvation Cap Reductn	0	0		0	0	0	0			0		0
Spillback Cap Reductn	0	0		0	0	0	0			0		0
Storage Cap Reductn	0	0		0	0	0	0			0		0
Reduced v/c Ratio	0.09	0.19		0.01	0.19	0.08	0.01			0.23		0.34

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 41.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road



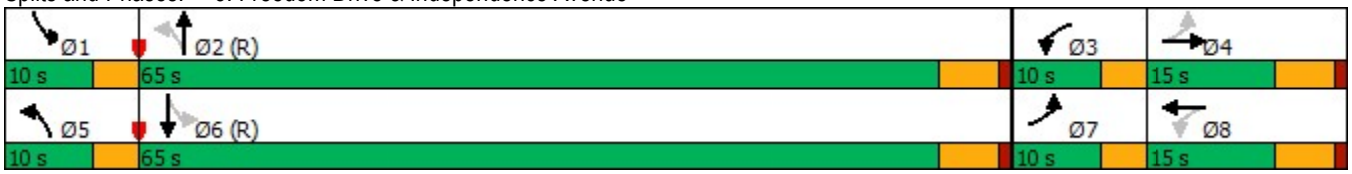


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	10	0	3	7	23	118	2	85	613	41
Future Volume (vph)	10	4	10	0	3	7	23	118	2	85	613	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.893			0.895			0.998			0.991	
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1805	1697	0	1900	1549	0	1656	3402	0	1805	3533	0
Flt Permitted	0.784						0.395			0.651		
Satd. Flow (perm)	1490	1697	0	1900	1549	0	689	3402	0	1237	3533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			2			12	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	9%	6%	0%	0%	1%	5%
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)	10	14	0	0	10	0	24	124	0	88	674	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		10.0	65.0		10.0	65.0	
Total Split (%)	10.0%	15.0%		10.0%	15.0%		10.0%	65.0%		10.0%	65.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	8.9	10.2			8.0		88.4	82.9		90.6	89.1	
Actuated g/C Ratio	0.09	0.10			0.08		0.88	0.83		0.91	0.89	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.08			0.08		0.04	0.04		0.08	0.21	
Control Delay	38.6	23.9			29.9		2.3	4.4		1.7	3.1	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	38.6	23.9			29.9		2.3	4.4		1.7	3.1	
LOS	D	C			C		A	A		A	A	
Approach Delay		30.0			29.9			4.1			3.0	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	6	2			2		1	9		0	0	
Queue Length 95th (ft)	19	19			18		11	27		27	133	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55						145			230		
Base Capacity (vph)	160	201			153		676	2828		1161	3150	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.06	0.07			0.07		0.04	0.04		0.08	0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.21			
Intersection Signal Delay: 4.1		Intersection LOS: A	
Intersection Capacity Utilization 35.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Freedom Drive & Independence Avenue



Capacity Analysis Summary Sheets

Existing Weekday Afternoon Peak Hour

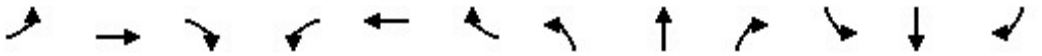
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	17	735	25	22	24	299	955	17	16	1252	170
Future Volume (vph)	403	17	735	25	22	24	299	955	17	16	1252	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.922			0.997				0.850
Flt Protected	0.950	0.956		0.950			0.950			0.950		
Satd. Flow (prot)	1698	1710	2842	1805	1752	0	1787	3564	0	1805	3800	1599
Flt Permitted	0.950	0.956		0.950			0.062			0.271		
Satd. Flow (perm)	1698	1710	2842	1805	1752	0	117	3564	0	515	3800	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112		26			1				182
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	1%
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 (%)	48%											
Lane Group Flow (vph)	228	228	799	27	50	0	325	1056	0	17	1361	185
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	48.0	48.0	25.5	13.5	13.5		25.5	75.0		13.5	63.0	48.0
Total Split (%)	32.0%	32.0%	17.0%	9.0%	9.0%		17.0%	50.0%		9.0%	42.0%	32.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	28.9	28.9	67.0	6.9	6.9		99.8	93.1		70.2	61.7	91.8
Actuated g/C Ratio	0.19	0.19	0.45	0.05	0.05		0.67	0.62		0.47	0.41	0.61

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.70	0.70	0.60	0.33	0.48		0.76	0.48		0.06	0.87	0.18
Control Delay	76.0	75.6	19.8	80.0	54.0		52.0	18.8		14.4	48.9	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	76.0	75.6	19.8	80.0	54.0		52.0	18.8		14.4	48.9	1.2
LOS	E	E	B	E	D		D	B		B	D	A
Approach Delay		40.1			63.1			26.6			42.9	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	216	216	169	26	23		241	271		6	678	1
Queue Length 95th (ft)	314	314	327	61	69		#463	454		18	#828	18
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	469	473	1331	84	106		430	2211		334	1562	1168
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	0.49	0.48	0.60	0.32	0.47		0.76	0.48		0.05	0.87	0.16

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 118.5 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 37.2 Intersection LOS: D
Intersection Capacity Utilization 81.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Naperville Road & Diehl Road



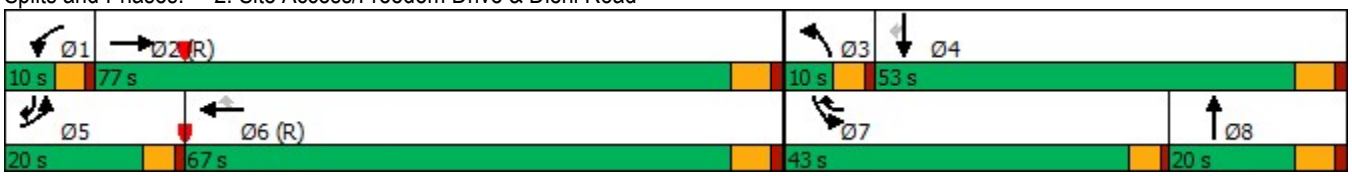
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	774	3	1	401	201	0	0	2	324	0	383
Future Volume (vph)	87	774	3	1	401	201	0	0	2	324	0	383
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor												
Frt		0.999				0.850		0.850				0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1805	3571	0	1805	3762	1583	1900	1615	0	3467	1900	2814
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1805	3571	0	1805	3762	1583	1900	1615	0	3467	1900	2814
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						214		185				608
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%	1%
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)	93	826	0	1	427	214	0	2	0	345	0	407
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	77.0		10.0	67.0	43.0	10.0	20.0		43.0	53.0	20.0
Total Split (%)	13.3%	51.3%		6.7%	44.7%	28.7%	6.7%	13.3%		28.7%	35.3%	13.3%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Act Effct Green (s)	13.2	114.1		5.7	98.5	125.0		8.0		20.5		41.0
Actuated g/C Ratio	0.09	0.76		0.04	0.66	0.83		0.05		0.14		0.27

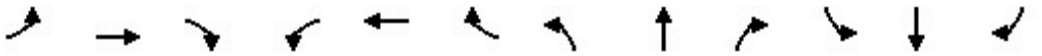
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.58	0.30		0.01	0.17	0.16		0.01		0.73		0.34
Control Delay	79.8	7.4		100.0	8.2	0.9		0.0		66.2		4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	79.8	7.4		100.0	8.2	0.9		0.0		66.2		4.5
LOS	E	A		F	A	A		A		E		A
Approach Delay		14.8			5.9						32.8	
Approach LOS		B			A						C	
Queue Length 50th (ft)	89	97		0	46	0		0		165		27
Queue Length 95th (ft)	146	262		m4	178	m51		0		229		55
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	194	2717		68	2470	1507		318		889		1254
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.48	0.30		0.01	0.17	0.14		0.01		0.39		0.32

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 54.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road



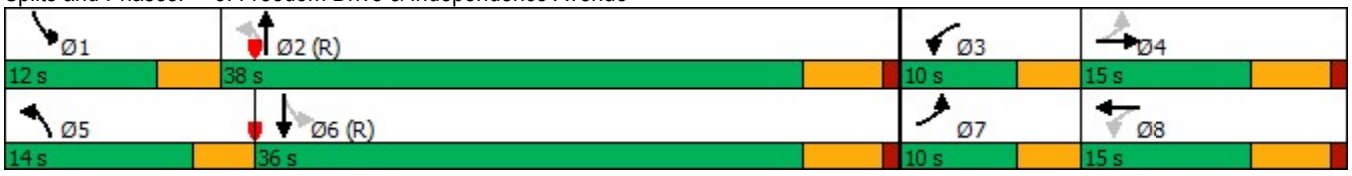


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	15	60	11	16	31	135	141	32	87	550	257
Future Volume (vph)	77	15	60	11	16	31	135	141	32	87	550	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.879			0.902			0.972			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1670	0	1805	1679	0	1787	3453	0	1805	3437	0
Flt Permitted	0.461			0.701			0.220			0.626		
Satd. Flow (perm)	876	1670	0	1332	1679	0	414	3453	0	1189	3437	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70			36			37			124	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	1%	2%	0%	0%	0%	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)	90	87	0	13	55	0	157	201	0	101	939	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		14.0	38.0		12.0	36.0	
Total Split (%)	13.3%	20.0%		13.3%	20.0%		18.7%	50.7%		16.0%	48.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	14.8	12.4		12.3	8.4		52.5	44.7		49.9	40.9	
Actuated g/C Ratio	0.20	0.17		0.16	0.11		0.70	0.60		0.67	0.55	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.35	0.26		0.05	0.25		0.36	0.10		0.12	0.49	
Control Delay	26.0	12.3		20.3	18.6		8.0	8.5		5.5	12.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	12.3		20.3	18.6		8.0	8.5		5.5	12.4	
LOS	C	B		C	B		A	A		A	B	
Approach Delay		19.3			18.9			8.3			11.8	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	32	6		4	8		39	33		16	138	
Queue Length 95th (ft)	62	42		16	37		82	80		32	200	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55			75			145			230		
Base Capacity (vph)	264	346		269	244		489	2074		884	1929	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.25		0.05	0.23		0.32	0.10		0.11	0.49	

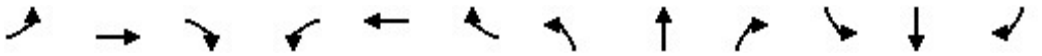
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 16 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Freedom Drive & Independence Avenue



Capacity Analysis Summary Sheets

No Build Weekday Morning Peak Hour



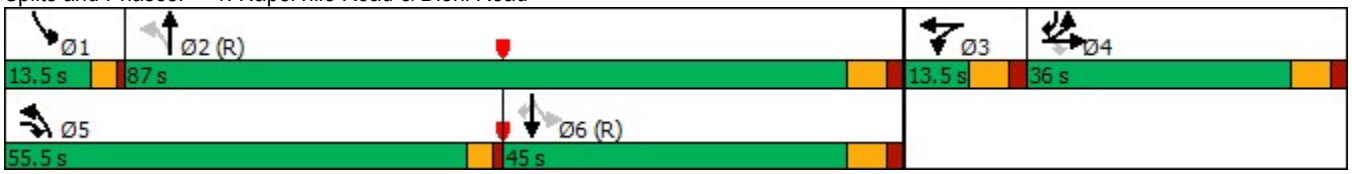
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	7	346	14	13	21	531	1604	29	14	600	108
Future Volume (vph)	243	7	346	14	13	21	531	1604	29	14	600	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.907			0.997				0.850
Flt Protected	0.950	0.955		0.950			0.950			0.950		
Satd. Flow (prot)	1681	1692	2787	1583	1671	0	1787	3560	0	1687	3725	1599
Flt Permitted	0.950	0.955		0.950			0.276			0.105		
Satd. Flow (perm)	1681	1692	2787	1583	1671	0	519	3560	0	186	3725	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		23			2				119
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	2%	14%	0%	5%	1%	1%	7%	7%	2%	1%
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 (%)	49%											
Lane Group Flow (vph)	136	139	380	15	37	0	584	1795	0	15	659	119
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	36.0	36.0	55.5	13.5	13.5		55.5	87.0		13.5	45.0	36.0
Total Split (%)	24.0%	24.0%	37.0%	9.0%	9.0%		37.0%	58.0%		9.0%	30.0%	24.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	19.9	19.9	69.1	6.9	6.9		108.8	102.1		68.1	59.6	80.9
Actuated g/C Ratio	0.13	0.13	0.46	0.05	0.05		0.73	0.68		0.45	0.40	0.54

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.61	0.62	0.27	0.21	0.38		0.79	0.74		0.10	0.45	0.13
Control Delay	72.2	72.6	7.0	75.9	46.8		23.5	20.7		18.8	38.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.2	72.6	7.0	75.9	46.8		23.5	20.7		18.8	38.6	2.8
LOS	E	E	A	E	D		C	C		B	D	A
Approach Delay		34.5			55.2			21.4			32.9	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)	134	137	40	14	13		266	527		4	261	0
Queue Length 95th (ft)	201	205	57	40	53		458	895		13	379	28
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	330	332	1576	73	99		817	2423		183	1480	1011
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	0.41	0.42	0.24	0.21	0.37		0.71	0.74		0.08	0.45	0.12

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 64.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 76.3% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Naperville Road & Diehl Road

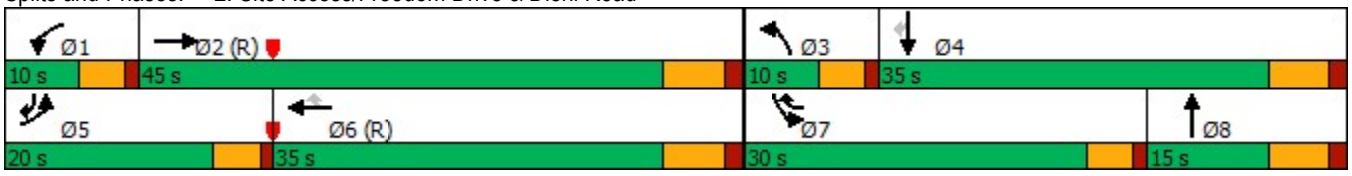


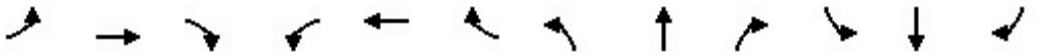
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	498	1	1	469	127	1	0	0	208	0	408
Future Volume (vph)	28	498	1	1	469	127	1	0	0	208	0	408
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor		1.00		0.99								
Frt						0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	3574	0	1805	3762	1553	1805	1900	0	3467	1900	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1492	3574	0	1789	3762	1553	1805	1900	0	3467	1900	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						131						477
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	21%	1%	0%	0%	1%	4%	0%	0%	0%	1%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	514	0	1	484	131	1	0	0	214	0	421
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot			Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	45.0		10.0	35.0	30.0	10.0	15.0		30.0	35.0	20.0
Total Split (%)	20.0%	45.0%		10.0%	35.0%	30.0%	10.0%	15.0%		30.0%	35.0%	20.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	Min	None
Act Effct Green (s)	7.5	74.7		5.6	64.8	83.5	5.5			12.7		22.7
Actuated g/C Ratio	0.08	0.75		0.06	0.65	0.84	0.06			0.13		0.23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.26	0.19		0.01	0.20	0.10	0.01			0.49		0.42
Control Delay	48.7	4.9		45.0	8.1	0.5	45.0			43.8		2.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0		0.0
Total Delay	48.7	4.9		45.0	8.1	0.5	45.0			43.8		2.6
LOS	D	A		D	A	A	D			D		A
Approach Delay		7.2			6.5			45.0			16.5	
Approach LOS		A			A			D			B	
Queue Length 50th (ft)	18	35		1	56	0	1			67		0
Queue Length 95th (ft)	45	102		6	106	9	6			74		9
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	231	2670		101	2438	1496	100			884		1186
Starvation Cap Reductn	0	0		0	0	0	0			0		0
Spillback Cap Reductn	0	0		0	0	0	0			0		0
Storage Cap Reductn	0	0		0	0	0	0			0		0
Reduced v/c Ratio	0.13	0.19		0.01	0.20	0.09	0.01			0.24		0.35

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road



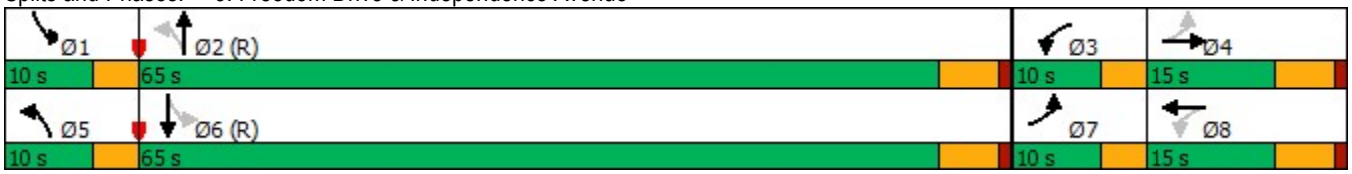


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	10	1	3	12	23	126	7	103	640	41
Future Volume (vph)	10	4	10	1	3	12	23	126	7	103	640	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.893			0.880			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1697	0	1805	1504	0	1656	3388	0	1805	3534	0
Flt Permitted							0.385			0.634		
Satd. Flow (perm)	1900	1697	0	1900	1504	0	671	3388	0	1205	3534	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			12			7			11	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	9%	6%	0%	0%	1%	5%
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)	10	14	0	1	15	0	24	137	0	106	702	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		10.0	65.0		10.0	65.0	
Total Split (%)	10.0%	15.0%		10.0%	15.0%		10.0%	65.0%		10.0%	65.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	9.2	8.4		8.6	8.1		84.7	76.9		88.1	86.3	
Actuated g/C Ratio	0.09	0.08		0.09	0.08		0.85	0.77		0.88	0.86	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.06	0.09		0.01	0.11		0.04	0.05		0.10	0.23	
Control Delay	37.2	27.4		35.0	25.9		3.0	6.2		2.2	4.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.2	27.4		35.0	25.9		3.0	6.2		2.2	4.1	
LOS	D	C		C	C		A	A		A	A	
Approach Delay		31.5			26.5			5.7			3.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	6	2		1	2		1	12		0	0	
Queue Length 95th (ft)	19	22		5	22		11	28		32	141	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55			75			145			230		
Base Capacity (vph)	178	171		172	153		637	2618		1103	3051	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.08		0.01	0.10		0.04	0.05		0.10	0.23	

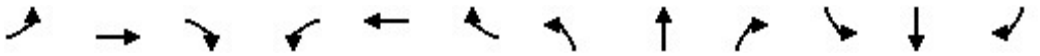
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.23			
Intersection Signal Delay: 5.1		Intersection LOS: A	
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Freedom Drive & Independence Avenue



Capacity Analysis Summary Sheets

No Build Weekday Afternoon Peak Hour



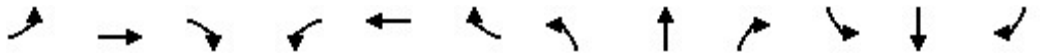
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	409	17	804	25	22	24	332	982	17	16	1279	173
Future Volume (vph)	409	17	804	25	22	24	332	982	17	16	1279	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.922			0.998				0.850
Flt Protected	0.950	0.956		0.950			0.950			0.950		
Satd. Flow (prot)	1698	1710	2842	1805	1752	0	1787	3568	0	1805	3800	1599
Flt Permitted	0.950	0.956		0.950			0.066			0.263		
Satd. Flow (perm)	1698	1710	2842	1805	1752	0	124	3568	0	500	3800	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		26			1				181
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	1%
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 (%)	48%											
Lane Group Flow (vph)	231	232	874	27	50	0	361	1085	0	17	1390	188
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	48.0	48.0	25.5	13.5	13.5		25.5	75.0		13.5	63.0	48.0
Total Split (%)	32.0%	32.0%	17.0%	9.0%	9.0%		17.0%	50.0%		9.0%	42.0%	32.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	29.1	29.1	71.0	6.9	6.9		99.6	92.8		66.3	57.7	88.1
Actuated g/C Ratio	0.19	0.19	0.47	0.05	0.05		0.66	0.62		0.44	0.38	0.59

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.70	0.70	0.62	0.33	0.48		0.76	0.49		0.06	0.95	0.19
Control Delay	76.9	76.7	20.5	80.0	54.0		51.5	19.2		14.6	59.4	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	76.9	76.7	20.5	80.0	54.0		51.5	19.2		14.6	59.4	1.3
LOS	E	E	C	E	D		D	B		B	E	A
Approach Delay		40.0			63.1			27.3			52.0	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	225	225	199	26	23		278	283		6	701	2
Queue Length 95th (ft)	316	317	373	61	69		#542	472		18	#860	18
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	469	473	1403	84	106		474	2208		314	1461	1131
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	0.49	0.49	0.62	0.32	0.47		0.76	0.49		0.05	0.95	0.17

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 118.5 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 40.6 Intersection LOS: D
Intersection Capacity Utilization 84.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Naperville Road & Diehl Road



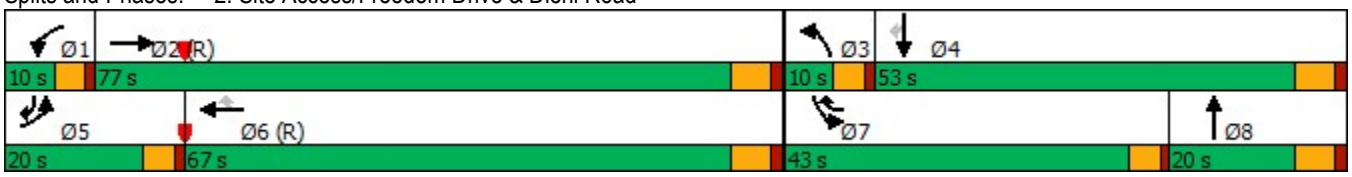
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	791	3	1	418	210	0	0	2	333	0	404
Future Volume (vph)	104	791	3	1	418	210	0	0	2	333	0	404
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor												
Frt		0.999				0.850		0.850				0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1805	3571	0	1805	3762	1583	1900	1615	0	3467	1900	2814
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1805	3571	0	1805	3762	1583	1900	1615	0	3467	1900	2814
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						223		179				582
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%	1%
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	844	0	1	445	223	0	2	0	354	0	430
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	77.0		10.0	67.0	43.0	10.0	20.0		43.0	53.0	20.0
Total Split (%)	13.3%	51.3%		6.7%	44.7%	28.7%	6.7%	13.3%		28.7%	35.3%	13.3%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Act Effct Green (s)	14.7	113.7		5.7	96.7	123.5		8.0		20.9		42.8
Actuated g/C Ratio	0.10	0.76		0.04	0.64	0.82		0.05		0.14		0.29

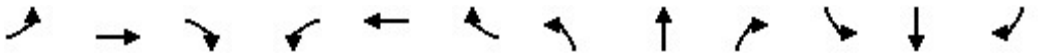
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.63	0.31		0.01	0.18	0.17		0.01		0.74		0.35
Control Delay	80.1	7.6		104.0	8.6	1.3		0.0		65.3		5.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	80.1	7.6		104.0	8.6	1.3		0.0		65.3		5.4
LOS	F	A		F	A	A		A		E		A
Approach Delay		16.1			6.3						32.5	
Approach LOS		B			A						C	
Queue Length 50th (ft)	106	102		1	47	0		0		175		32
Queue Length 95th (ft)	167	270		m4	216	m82		0		234		63
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	201	2707		68	2424	1494		313		889		1250
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.55	0.31		0.01	0.18	0.15		0.01		0.40		0.34

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 55.2% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road





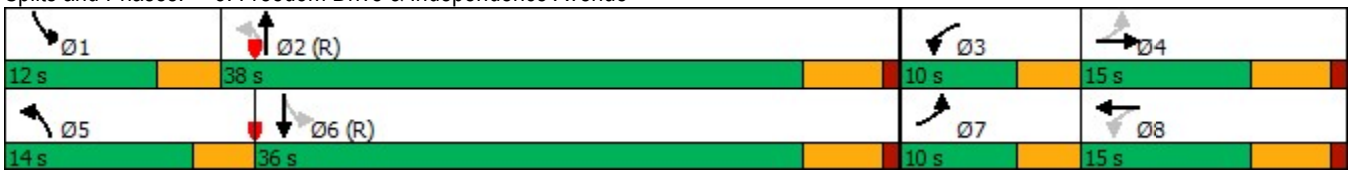
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	15	60	18	16	55	135	162	35	97	570	257
Future Volume (vph)	77	15	60	18	16	55	135	162	35	97	570	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.879			0.884			0.973			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1670	0	1805	1657	0	1787	3456	0	1805	3440	0
Flt Permitted	0.535			0.701			0.202			0.609		
Satd. Flow (perm)	1016	1670	0	1332	1657	0	380	3456	0	1157	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70			64			41			117	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	1%	2%	0%	0%	0%	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)	90	87	0	21	83	0	157	229	0	113	962	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		14.0	38.0		12.0	36.0	
Total Split (%)	13.3%	20.0%		13.3%	20.0%		18.7%	50.7%		16.0%	48.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	16.2	12.5		14.5	8.5		50.3	42.5		47.9	38.7	
Actuated g/C Ratio	0.22	0.17		0.19	0.11		0.67	0.57		0.64	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.31	0.26		0.07	0.34		0.39	0.12		0.14	0.53	
Control Delay	24.1	13.3		20.5	16.3		9.2	9.2		6.0	13.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.1	13.3		20.5	16.3		9.2	9.2		6.0	13.9	
LOS	C	B		C	B		A	A		A	B	
Approach Delay		18.8			17.2			9.2			13.1	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	32	6		7	8		35	37		18	144	
Queue Length 95th (ft)	62	42		22	43		86	85		35	208	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55			75			145			230		
Base Capacity (vph)	290	345		306	265		458	1974		831	1830	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.25		0.07	0.31		0.34	0.12		0.14	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 54.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Freedom Drive & Independence Avenue



Capacity Analysis Summary Sheets

Total Projected Weekday Morning Peak Hour

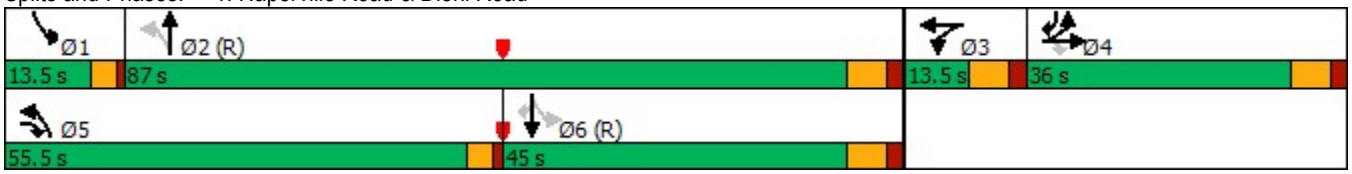
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	7	392	14	13	21	564	1604	29	14	600	141
Future Volume (vph)	296	7	392	14	13	21	564	1604	29	14	600	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.907			0.997				0.850
Flt Protected	0.950	0.955		0.950			0.950			0.950		
Satd. Flow (prot)	1681	1692	2787	1583	1671	0	1787	3560	0	1687	3725	1599
Flt Permitted	0.950	0.955		0.950			0.253			0.105		
Satd. Flow (perm)	1681	1692	2787	1583	1671	0	476	3560	0	186	3725	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		23			2				155
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	2%	14%	0%	5%	1%	1%	7%	7%	2%	1%
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 (%)	49%											
Lane Group Flow (vph)	166	167	431	15	37	0	620	1795	0	15	659	155
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	36.0	36.0	55.5	13.5	13.5		55.5	87.0		13.5	45.0	36.0
Total Split (%)	24.0%	24.0%	37.0%	9.0%	9.0%		37.0%	58.0%		9.0%	30.0%	24.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	22.4	22.4	75.1	6.9	6.9		106.4	99.7		62.1	53.6	77.3
Actuated g/C Ratio	0.15	0.15	0.50	0.05	0.05		0.71	0.66		0.41	0.36	0.52

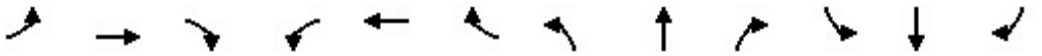
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.66	0.66	0.28	0.21	0.38		0.84	0.76		0.11	0.50	0.17
Control Delay	72.5	72.3	8.0	75.9	46.8		30.6	22.6		20.1	43.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.5	72.3	8.0	75.9	46.8		30.6	22.6		20.1	43.0	2.6
LOS	E	E	A	E	D		C	C		C	D	A
Approach Delay		36.1			55.2			24.6			35.1	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	163	164	49	14	13		348	572		5	288	0
Queue Length 95th (ft)	237	238	73	40	53		556	925		14	379	31
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	330	332	1620	73	99		794	2366		176	1331	967
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	0.50	0.27	0.21	0.37		0.78	0.76		0.09	0.50	0.16

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 64.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 29.3 Intersection LOS: C
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Naperville Road & Diehl Road



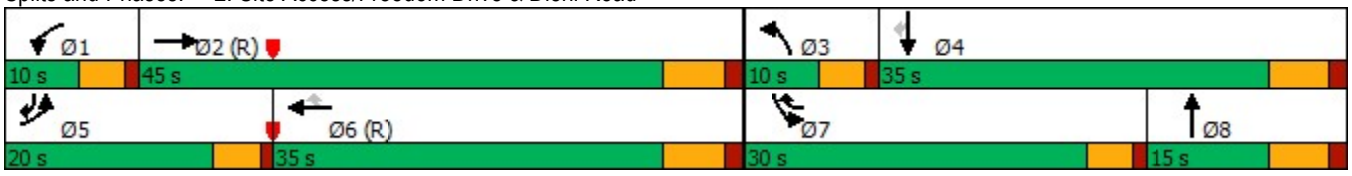


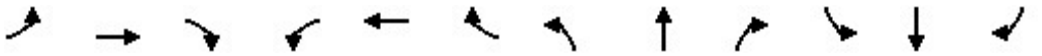
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	524	6	67	469	127	32	29	73	208	18	408
Future Volume (vph)	28	524	6	67	469	127	32	29	73	208	18	408
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor		1.00		0.99								
Frt		0.998				0.850		0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	3567	0	1805	3762	1553	1805	1697	0	3467	1900	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1492	3567	0	1790	3762	1553	1805	1697	0	3467	1900	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				131		75				319
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	21%	1%	0%	0%	1%	4%	0%	0%	0%	1%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	546	0	69	484	131	33	105	0	214	19	421
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	45.0		10.0	35.0	30.0	10.0	15.0		30.0	35.0	20.0
Total Split (%)	20.0%	45.0%		10.0%	35.0%	30.0%	10.0%	15.0%		30.0%	35.0%	20.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	Min	None
Act Effct Green (s)	7.5	53.2		9.5	53.1	70.9	6.6	9.4		11.7	16.0	29.5
Actuated g/C Ratio	0.08	0.53		0.10	0.53	0.71	0.07	0.09		0.12	0.16	0.30

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.26	0.29		0.40	0.24	0.12	0.28	0.46		0.53	0.06	0.40
Control Delay	48.7	16.2		48.8	14.8	1.6	50.8	22.4		52.4	30.2	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.7	16.2		48.8	14.8	1.6	50.8	22.4		52.4	30.2	6.1
LOS	D	B		D	B	A	D	C		D	C	A
Approach Delay		17.9			15.7			29.2			22.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	18	104		42	85	0	20	18		67	11	28
Queue Length 95th (ft)	45	174		83	145	21	52	66		109	17	19
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	231	1899		172	1999	1330	118	236		884	551	1244
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	0.13	0.29		0.40	0.24	0.10	0.28	0.44		0.24	0.03	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 19.2		Intersection LOS: B	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road





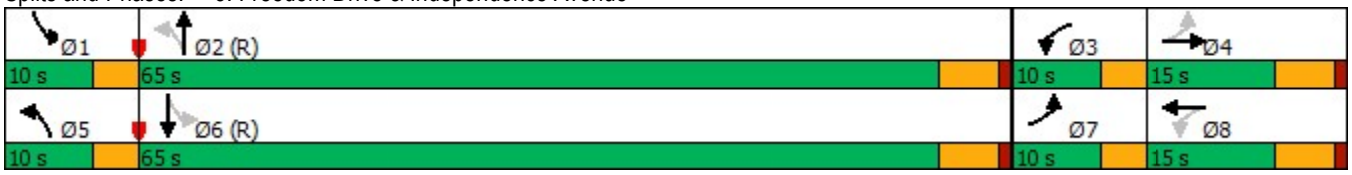
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	10	1	3	12	23	155	7	103	658	41
Future Volume (vph)	10	4	10	1	3	12	23	155	7	103	658	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.893			0.880			0.994			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1697	0	1805	1504	0	1656	3393	0	1805	3534	0
Flt Permitted							0.378			0.616		
Satd. Flow (perm)	1900	1697	0	1900	1504	0	659	3393	0	1170	3534	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			12			7			11	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	9%	6%	0%	0%	1%	5%
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)	10	14	0	1	15	0	24	167	0	106	720	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		10.0	65.0		10.0	65.0	
Total Split (%)	10.0%	15.0%		10.0%	15.0%		10.0%	65.0%		10.0%	65.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	9.1	8.3		8.6	8.1		85.0	77.2		87.9	86.3	
Actuated g/C Ratio	0.09	0.08		0.09	0.08		0.85	0.77		0.88	0.86	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.06	0.09		0.01	0.11		0.04	0.06		0.10	0.24	
Control Delay	37.4	27.4		35.0	25.9		4.3	6.3		2.2	4.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.4	27.4		35.0	25.9		4.3	6.3		2.2	4.1	
LOS	D	C		C	C		A	A		A	A	
Approach Delay		31.6			26.5			6.0			3.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	6	2		1	2		0	6		0	0	
Queue Length 95th (ft)	19	22		5	22		m17	47		32	144	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55			75			145			230		
Base Capacity (vph)	177	170		172	153		629	2623		1071	3053	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.08		0.01	0.10		0.04	0.06		0.10	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 30 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 5.2 Intersection LOS: A
Intersection Capacity Utilization 42.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Freedom Drive & Independence Avenue



Capacity Analysis Summary Sheets

Total Projected Weekday Afternoon Peak Hour

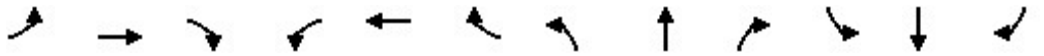
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	17	834	25	22	24	378	982	17	16	1279	223
Future Volume (vph)	440	17	834	25	22	24	378	982	17	16	1279	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	145		145	50		0	350		0	195		230
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	110			110			145			260		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850		0.922			0.998				0.850
Flt Protected	0.950	0.956		0.950			0.950			0.950		
Satd. Flow (prot)	1698	1710	2842	1805	1752	0	1787	3568	0	1805	3800	1599
Flt Permitted	0.950	0.956		0.950			0.068			0.263		
Satd. Flow (perm)	1698	1710	2842	1805	1752	0	128	3568	0	500	3800	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		26			1				192
Link Speed (mph)		40			25			40			40	
Link Distance (ft)		606			365			1289			726	
Travel Time (s)		10.3			10.0			22.0			12.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	1%
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 (%)	48%											
Lane Group Flow (vph)	249	247	907	27	50	0	411	1085	0	17	1390	242
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2		1	6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		1	6	4
Switch Phase												
Minimum Initial (s)	12.0	12.0	3.0	6.0	6.0		3.0	15.0		3.0	15.0	12.0
Minimum Split (s)	18.5	18.5	7.0	12.5	12.5		7.0	21.5		7.0	21.5	18.5
Total Split (s)	48.0	48.0	25.5	13.5	13.5		25.5	75.0		13.5	63.0	48.0
Total Split (%)	32.0%	32.0%	17.0%	9.0%	9.0%		17.0%	50.0%		9.0%	42.0%	32.0%
Yellow Time (s)	4.5	4.5	3.0	4.5	4.5		3.0	4.5		3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0		1.0	2.0	2.0
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)	6.5	6.5	4.0	6.5	6.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lag		Lead	Lag	Lag
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)	31.3	31.3	72.2	6.9	6.9		97.4	90.6		65.1	56.5	89.1
Actuated g/C Ratio	0.21	0.21	0.48	0.05	0.05		0.65	0.60		0.43	0.38	0.59

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.70	0.69	0.64	0.33	0.48		0.89	0.50		0.06	0.97	0.24
Control Delay	65.0	64.3	24.5	80.0	54.0		64.8	20.7		15.2	63.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	65.0	64.3	24.5	80.0	54.0		64.8	20.7		15.2	63.6	2.0
LOS	E	E	C	E	D		E	C		B	E	A
Approach Delay		38.7			63.1			32.8			54.1	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	249	247	315	26	23		345	296		6	701	13
Queue Length 95th (ft)	334	333	398	61	69		#684	491		19	#860	27
Internal Link Dist (ft)		526			285			1209			646	
Turn Bay Length (ft)	145		145	50			350			195		230
Base Capacity (vph)	469	473	1425	84	106		462	2155		310	1431	1123
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	0.53	0.52	0.64	0.32	0.47		0.89	0.50		0.05	0.97	0.22

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 118.5 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 42.7 Intersection LOS: D
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Naperville Road & Diehl Road



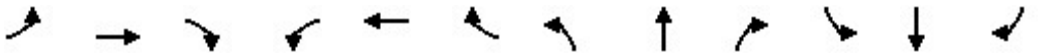
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	809	10	97	418	210	20	17	45	333	27	404
Future Volume (vph)	104	809	10	97	418	210	20	17	45	333	27	404
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	260		0	205		265	0		0	390		410
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	150			60			25			300		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88
Ped Bike Factor												
Frt		0.998				0.850		0.891				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3568	0	1805	3762	1583	1805	1693	0	3467	1900	2814
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	3568	0	1805	3762	1583	1805	1693	0	3467	1900	2814
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				223		48				430
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		423			483			164			994	
Travel Time (s)		7.2			8.2			3.7			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%	1%
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	872	0	103	445	223	21	66	0	354	29	430
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	8.0		3.0	8.0	3.0
Minimum Split (s)	7.5	21.0		7.5	21.0	7.5	7.5	14.0		7.5	14.0	7.5
Total Split (s)	20.0	77.0		10.0	67.0	43.0	10.0	20.0		43.0	53.0	20.0
Total Split (%)	13.3%	51.3%		6.7%	44.7%	28.7%	6.7%	13.3%		28.7%	35.3%	13.3%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		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
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Act Effct Green (s)	14.7	81.4		20.3	87.0	113.8	6.5	9.3		20.9	25.0	45.6
Actuated g/C Ratio	0.10	0.54		0.14	0.58	0.76	0.04	0.06		0.14	0.17	0.30

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.63	0.45		0.42	0.20	0.18	0.27	0.44		0.74	0.09	0.37
Control Delay	80.1	22.7		83.4	11.2	1.7	78.2	34.6		68.0	61.2	9.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	80.1	22.7		83.4	11.2	1.7	78.2	34.6		68.0	61.2	9.9
LOS	F	C		F	B	A	E	C		E	E	A
Approach Delay		29.2			18.1			45.1			37.0	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	106	261		103	53	0	20	17		178	28	44
Queue Length 95th (ft)	167	370		m112	m204	m103	52	67		234	m55	81
Internal Link Dist (ft)		343			403			84			914	
Turn Bay Length (ft)	260			205		265				390		410
Base Capacity (vph)	201	1936		243	2181	1406	78	201		889	595	1188
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	0.55	0.45		0.42	0.20	0.16	0.27	0.33		0.40	0.05	0.36

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Site Access/Freedom Drive & Diehl Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	15	60	18	16	55	135	179	35	97	597	257
Future Volume (vph)	77	15	60	18	16	55	135	179	35	97	597	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	55		0	75		0	145		0	230		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	40			60			195			190		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.879			0.884			0.975			0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1670	0	1805	1657	0	1787	3462	0	1805	3448	0
Flt Permitted	0.535			0.701			0.191			0.597		
Satd. Flow (perm)	1016	1670	0	1332	1657	0	359	3462	0	1134	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70			64			39			108	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		431			672			994			469	
Travel Time (s)		9.8			15.3			19.4			9.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	1%	2%	0%	0%	0%	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)	90	87	0	21	83	0	157	249	0	113	993	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	13.5		6.5	13.5		6.5	20.5		6.5	20.5	
Total Split (s)	10.0	15.0		10.0	15.0		14.0	38.0		12.0	36.0	
Total Split (%)	13.3%	20.0%		13.3%	20.0%		18.7%	50.7%		16.0%	48.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.0		0.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5		3.5	5.5		3.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	16.2	12.5		14.5	8.5		50.3	42.5		47.9	38.7	
Actuated g/C Ratio	0.22	0.17		0.19	0.11		0.67	0.57		0.64	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.31	0.26		0.07	0.34		0.40	0.13		0.14	0.54	
Control Delay	24.1	13.3		20.5	16.3		10.7	10.0		6.0	14.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.1	13.3		20.5	16.3		10.7	10.0		6.0	14.3	
LOS	C	B		C	B		B	A		A	B	
Approach Delay		18.8			17.2			10.3			13.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	32	6		7	8		46	34		18	154	
Queue Length 95th (ft)	62	42		22	43		81	73		35	220	
Internal Link Dist (ft)		351			592			914			389	
Turn Bay Length (ft)	55			75			145			230		
Base Capacity (vph)	290	345		306	265		447	1977		819	1830	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.25		0.07	0.31		0.35	0.13		0.14	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 55.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Freedom Drive & Independence Avenue