

# Traffic Impact Study Proposed Warehouse/Distribution Building

Chicago, Illinois



Prepared For:

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# I. Executive Summary

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

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

Vehicle, pedestrian, and bicycle counts were conducted during the weekday morning and weekday evening peak periods at the intersections of Pulaski Road with Cermak Road, Ogden Avenue, and 24<sup>th</sup> Street and Ogden Avenue with Cermak Road, Keeler Avenue, and Kedvale Avenue in order to determine the general peak hour of traffic activity during these time periods.

As proposed, the site will be developed with an approximately 246,200 square-foot warehouse/distribution building with 24 truck docks and parking for 271 passenger vehicles. As part of the development, Kedvale Avenue will be vacated south of Ogden Avenue. Access to the development is proposed to be provided via Ogden Avenue and Keeler Avenue.

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

- The proposed development will replace existing industrial buildings which currently generate traffic, including truck traffic. As such, the volume of new traffic to be generated by the proposed development will not be all new traffic to the area.
- As part of the development, Kedvale Avenue will be vacated south of Ogden Avenue.
- Access to the development is proposed to be provided as follows:
  - A proposed full-movement access drive on Ogden Avenue that will be aligned opposite Kedvale Avenue and will serve passenger vehicles only. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
  - A proposed full-movement access drive on Ogden Avenue located approximately 440 feet west of Pulaski Road that will serve passenger vehicles and inbound truck traffic. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.

- A proposed restricted outbound right-turn access drive on Keeler Avenue located approximately 170 feet south of Ogden Avenue that will serve outbound trucks only. This access drive will provide one outbound lane that will be channelized and signed to restrict inbound and outbound left-turn movements. The outbound movements will be under stop sign control.
- All truck traffic will enter the development via the eastern Ogden Avenue access drive and exit the development via the Keeler Avenue access drive and will access Ogden Avenue via its signalized intersection with Keeler Avenue. Further, it is important to note that the development will not have any access on Pulaski Road.
- The proposed access system will be adequate in accommodating the traffic estimated to be generated by the development.
- To minimize the semi-trailer truck traffic on the area streets, the developer will direct semi-trailer traffic traveling between the development and the freeway system to use Ogden Avenue and Cicero Avenue. Cicero Avenue is a north-south, arterial roadway that is a designated Class II truck route and has interchanges with both I-294 to the north and I-55 to the south. Further, Ogden Avenue has a grade-separated interchange with Cicero Avenue which is located only approximately one mile southwest of the development.
- The proposed development will reduce the number of curb cuts on Ogden Avenue and Pulaski Road, as the existing land uses have a total of six access drives on Ogden Avenue and one access drive on Pulaski Road.
- The area street system has sufficient reserve capacity to accommodate development-generated traffic. As such, no street improvements or traffic control modifications are required to accommodate the traffic generated by the development.

# 1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed warehouse/distribution building to be located in Chicago, Illinois. The site, which currently contains multiple industrial buildings, is located on the south side of Ogden Avenue (US Route 66) generally between Keeler Avenue and Pulaski Road. As proposed, the site will be redeveloped with an approximately 246,200 square-foot warehouse/distribution building. Access to the development will be provided via Ogden Avenue and Keeler Avenue. As part of the development, Kedvale Avenue is proposed to be vacated south of Ogden Avenue.

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

The sections of this report present the following:

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

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

1. Year 2022 Base Conditions – Analyzes the capacity of the existing street system using peak hour traffic volumes conducted in 2022.
2. Year 2028 Total Projected Conditions – Analyzes the capacity of the future street system using the projected traffic volumes that include the Year 2022 base traffic volumes, ambient area growth not attributable to any particular development, and the additional traffic estimated to be generated by the proposed development.



Site Location

Figure 1

*Warehouse/Distribution Building  
Chicago, Illinois*





**Aerial View of Site**  
*Warehouse/Distribution Building*  
*Chicago, Illinois*

**Figure 2**



## 2. Existing Conditions

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

### Site Location

The site, which currently contains multiple industrial buildings, is generally bounded by Ogden Avenue to the north, Pulaski Road to the east, a BNSF railroad to the south, and Keeler Avenue to the west. Land uses within the vicinity of the site are generally residential with industrial uses located between Ogden Avenue and the BNSF Railroad.

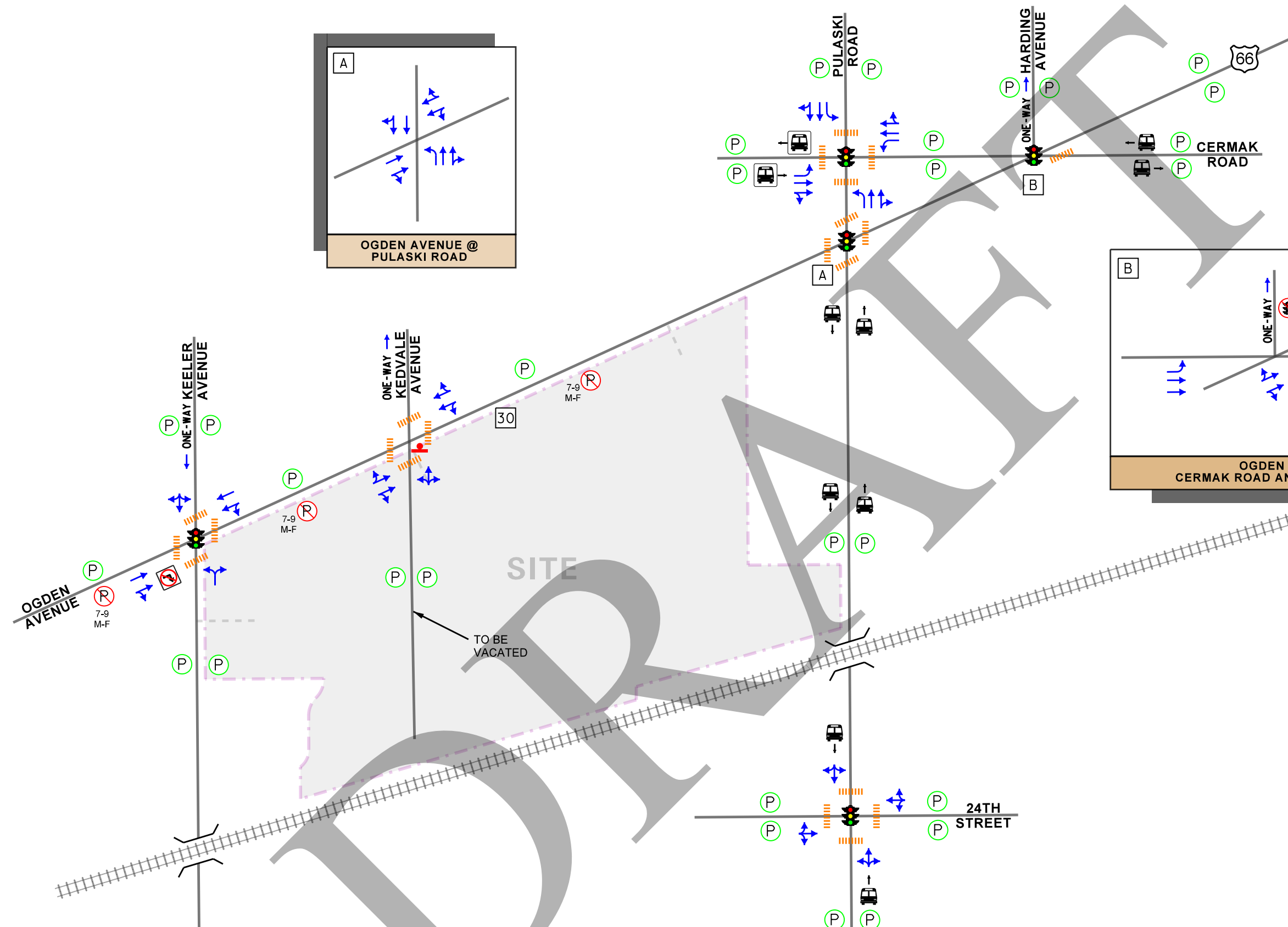
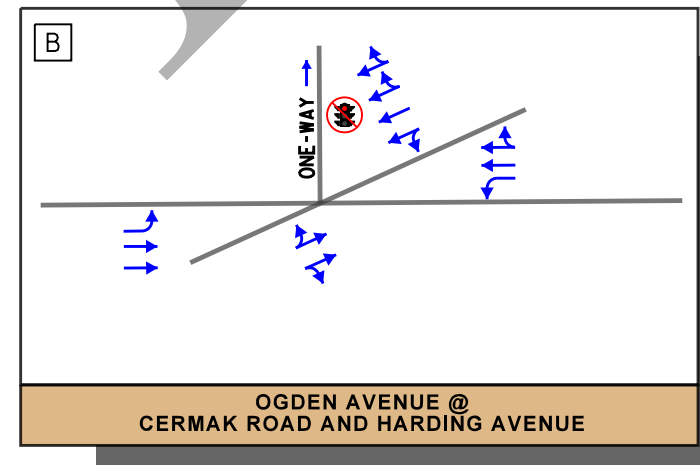
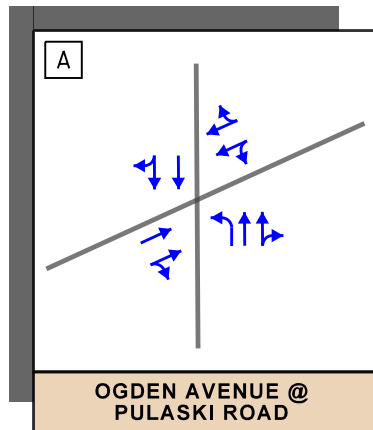
### Existing Street System Characteristics

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

*Pulaski Road* is a north-south, minor arterial street that provides one lane in each direction widening to two lanes through its intersections with Cermak Road and Ogden Avenue. At its signalized intersection with Cermak Road, Pulaski Road provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with Ogden Avenue, Pulaski Road provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on the northbound approach and a through lane and a shared through/right-turn lane on the southbound approach. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with 24<sup>th</sup> Street, Pulaski Road provides a shared left-turn/through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on both sides of the street. Pulaski Road is under the jurisdiction of the Illinois Department of Transportation (IDOT) north of Ogden Avenue and the Cook County Department of Transportation and Highways (CCDOH) south of Ogden Avenue and carries an Annual Average Daily Traffic (AADT) of 14,800 vehicles north of Cermak Road and 16,000 vehicles south of Ogden Avenue (IDOT 2021).



NOT TO SCALE



**LEGEND**

- TRAVEL LANE
- TRAFFIC SIGNAL
- STOP SIGN
- SPEED LIMIT
- NO PARKING
- NO TURN ON RED
- BUS STOP
- BUS STOP WITH SHELTER
- HIGH VISIBILITY CROSSWALK

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

EXISTING STREET CHARACTERISTICS



Job No: 22-148

Figure: 3

*Cermak Road* is an east-west, minor arterial street that provides two lanes in each direction and is divided by a landscape median west of Pulaski Road. At its signalized intersection with Pulaski Road, Cermak Road provides an exclusive left-turn lane, a through lane, and shared through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with Ogden Avenue and Harding Avenue, Cermak Road provides an exclusive left-turn lane and two through lanes on the eastbound approach and an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on the westbound approach. The east leg of this intersection provides a high-visibility crosswalk. Parking is generally permitted on both sides of the street. Cermak Road is under the jurisdiction of IDOT and carries an AADT volume of 21,400 vehicles west of Pulaski Road and 16,600 vehicles east of Ogden Avenue (IDOT 2021).

*Ogden Avenue* is a northeast-to-southwest, major collector street that provides two lanes in each direction. Northeast of Cermak Road, Ogden Avenue provides one-way, separated frontage roads on both sides of the street. At its signalized intersection with Pulaski Road, Ogden Avenue provides a through lane and a shared through/right-turn lane on the northeast-bound approach and a shared through/left-turn lane and a shared through/right-turn lane on the southwest-bound approach. All legs of this intersection provide high visibility crosswalks. At its signalized intersection with Cermak Road and Harding Avenue, Ogden Avenue provides a shared through/left-turn lane and a shared through/right-turn lane on the northeast-bound approach and a shared left-turn/through lane, a through lane, and a shared through/right-turn lane on the southwest-bound approach. However, given the high volume of southwest right-turn movements and the fact that the southwest leg of this intersection provides only two receiving lanes, the shared through/right-turn lane functions as a de facto separate right-turn lane. Further, the southwest-bound frontage road terminates at this intersection and operates as its own approach, providing one southwest-bound lane that is under traffic signal control. At its signalized intersection with Keeler Avenue, Ogden Avenue provides a through lane and a shared through/right-turn lane on the northeast-bound approach and a shared through/left-turn lane and a through lane on the southwest-bound approach. All legs of this intersection provide high visibility crosswalks. At its unsignalized intersection with Kedvale Avenue, Ogden Avenue provides a shared through/left-lane and a shared through/right-turn lane on both approaches. Parking is generally permitted on the north side of the street and on the south side of the street except for Monday through Friday 7:00 A.M to 9:00 A.M. Ogden Avenue is under the jurisdiction of IDOT and carries an AADT volume of 10,750 vehicles southwest of Pulaski Road and 17,400 vehicles northeast of Cermak Road (IDOT 2021).

*Keeler Avenue* is a north-south, local street that provides one lane in each direction south of Ogden Avenue and one southbound lane (one-way southbound street) north of Ogden Avenue. At its signalized intersection with Ogden Avenue, Keeler Avenue provides a shared left-turn/through/right-turn lane on the southbound approach and a shared left-turn/right-turn lane on the northbound approach. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on both sides of the street.

*Kedvale Avenue* is a north-south, local street that provides one northbound lane (one-way northbound street) north of Ogden Avenue and provides one lane in each direction south of Ogden Avenue. However, approximately 80 feet south of Ogden Avenue, Kedvale Avenue is gated and becomes a private street. At its unsignalized intersection with Ogden Avenue, Kedvale Avenue provides a shared left-turn/through/right-turn lane on the northbound approach and is under stop sign control. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on both sides of the street.

*24<sup>th</sup> Street* is an east-west, local street that provides one lane in each direction. At its signalized intersection with Pulaski Road, 24<sup>th</sup> Street provides a shared left-turn/through/right-turn lane on both approaches. All legs of this intersection provide high visibility crosswalks. Parking is generally permitted on both sides of the street.

*Harding Avenue* is a one-way northbound, local street that extends from Cermak Road and provides one northbound-only lane. At its signalized intersection with Cermak Road and Ogden Avenue, Harding Avenue provides one northbound lane. A high-visibility crosswalk is provided on the north leg of this intersection. Parking is generally permitted on both sides of the street.

## Alternative Modes of Transportation

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

**Public Transportation.** The area is served by the Chicago Transit Authority (CTA) rapid transit via the Pulaski Pink Line station located approximately one-quarter mile north of the site. The CTA Pink Line provides rapid transit rail service between the Loop and 54<sup>th</sup> Avenue. Service is provided seven days a week and on holidays.

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

- *Route 21 (Cermak)* generally runs along Cermak Road from the North Riverside Park Mall to King Drive near the McCormick Place Convention Center. It operates daily from approximately 4:00 A.M. to 11:30 P.M. Later eastbound service from North Riverside Mall to Cermak Road and Pulaski Road also operates until after midnight Monday through Saturday.
- *Route 48 (South Damen)* provides service along South Damen Avenue from the Western Avenue Orange Line station to 87<sup>th</sup> Street. Service is provided Monday through Friday from approximately 6:30 A.M. to 9:30 A.M. and 2:00 P.M. to 6:30 P.M.
- *Route 53 (Pulaski)* generally runs along Pulaski Road between Peterson Avenue and 31<sup>st</sup> Street serving destinations including the Irving Park Blue Line station and Pulaski Blue Line station. Service is provided seven days a week and on holidays twenty-four hours a day between Irving Park Road and Harrison Street. Service between Peterson Avenue and 31<sup>st</sup> Street is from approximately 4:00 A.M. to 1:00 A.M. seven days a week.

- *Route 157 (Streeterville/Taylor)* provides service to Streeterville, Northwestern Memorial Hospital, Millennium Park Metra station, Ogilvie Station, Union Station, the Illinois Medical District, and Mount Sinai Hospital. Service is Monday through Friday from approximately 5:30 A.M. to 8:00 P.M.

***Pedestrian Accommodations.*** Sidewalks are provided on both sides of all streets within the vicinity of the site. High-visibility crosswalks are provided at all signalized intersection within the study area except for the intersection of Cermak Road with Ogden Avenue and Harding Avenue.

***Bike Facilities.*** According to the City of Chicago’s *Streets for Cycling Plan 2020*, Cermak Road and Ogden Avenue northeast of Cermak Road are designated as crosstown Bike Routes and Keeler Avenue is designated as a neighborhood bike route.

## Year 2022 Base Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts using Miovision Scout Video Collection Units on Tuesday, May 31, 2022 during the weekday morning (7:00 A.M. to 9:00 A.M.) and weekday evening (4:00 P.M. to 6:00 P.M.) peak periods at the following intersections:

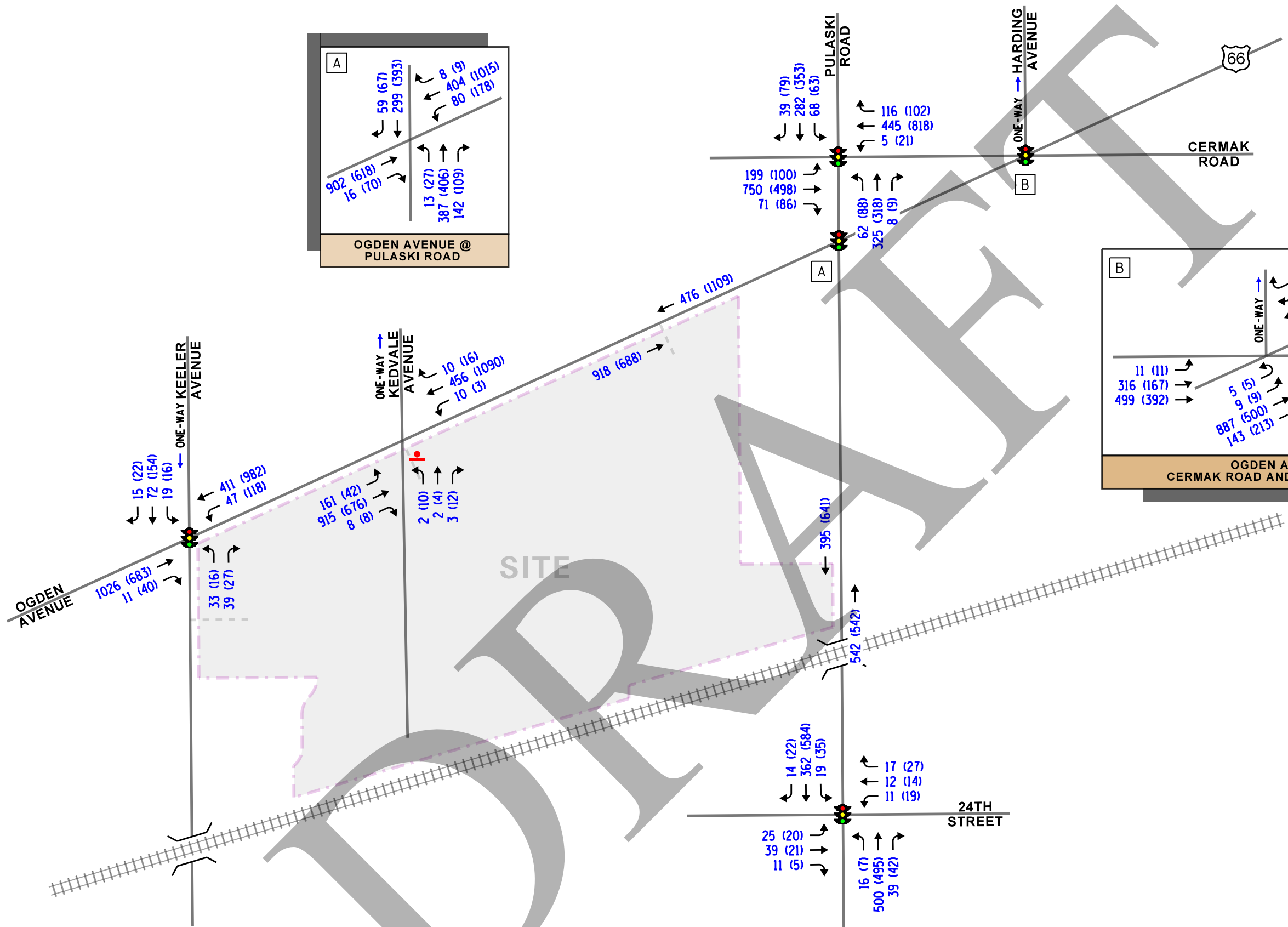
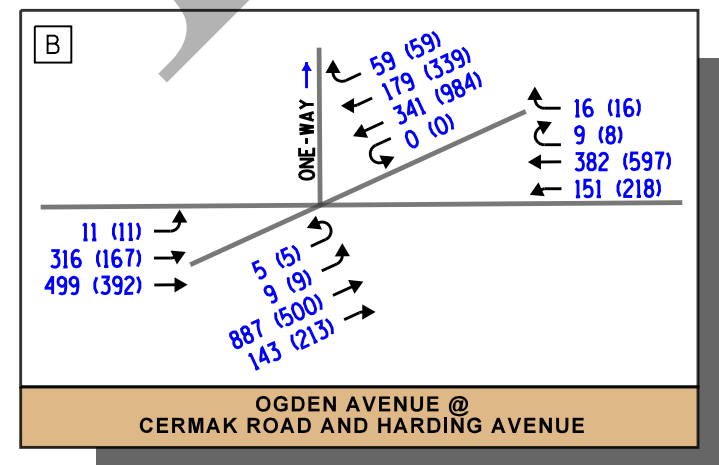
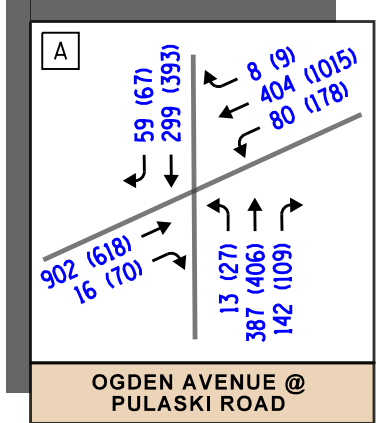
- Pulaski Road with Cermak Road
- Pulaski Road with Ogden Avenue
- Pulaski Road with 24<sup>th</sup> Street
- Cermak Road with Ogden Avenue and Harding Avenue
- Ogden Avenue with Keeler Avenue
- Ogden Avenue with Kedvale Avenue

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 4:15 P.M. to 5:15 P.M. Copies of the traffic count summary sheets are included in the Appendix. It should be noted that on the day the counts were conducted, Harding Avenue and the Ogden Avenue frontage road were closed during the weekday morning peak hour. The weekday evening peak hour traffic volumes were used for both peak hours on these streets. In order to ensure the traffic counts reflect typical conditions, the 2022 traffic counts were compared to hourly traffic counts on Cermak Road and Pulaski Road conducted in 2018 by IDOT. The 2022 counts were found to be comparable and were not increased.

**Figure 4** illustrates the Year 2022 base peak hour vehicle traffic volumes, inclusive of heavy vehicles. **Figure 5** illustrates the Year 2022 base heavy vehicle peak hour traffic volumes.



NOT TO SCALE



**LEGEND**

00 - AM PEAK HOUR (7:30-8:30 AM)

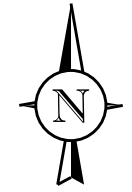
(00) - PM PEAK HOUR (4:15-5:15 PM)

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

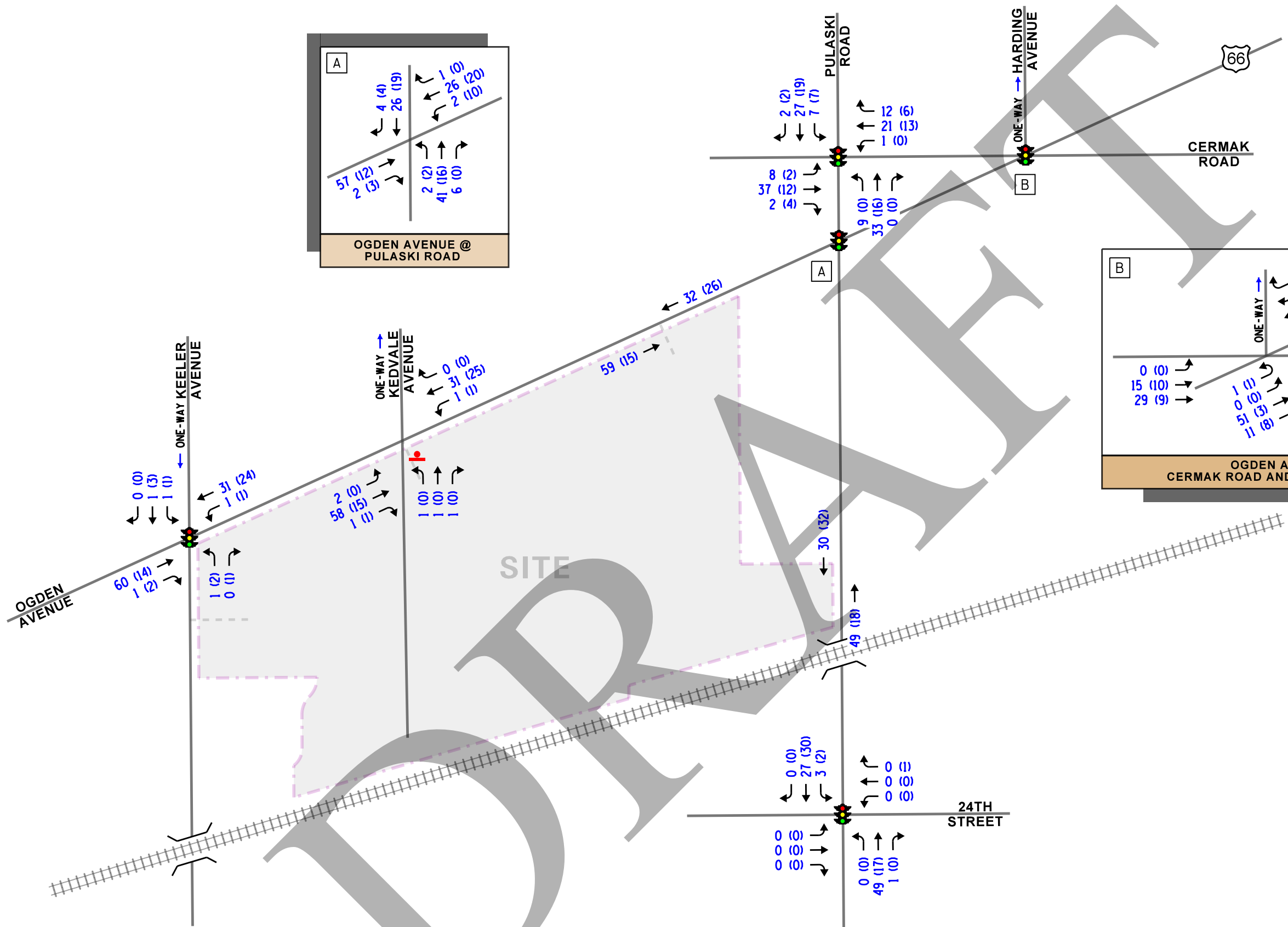
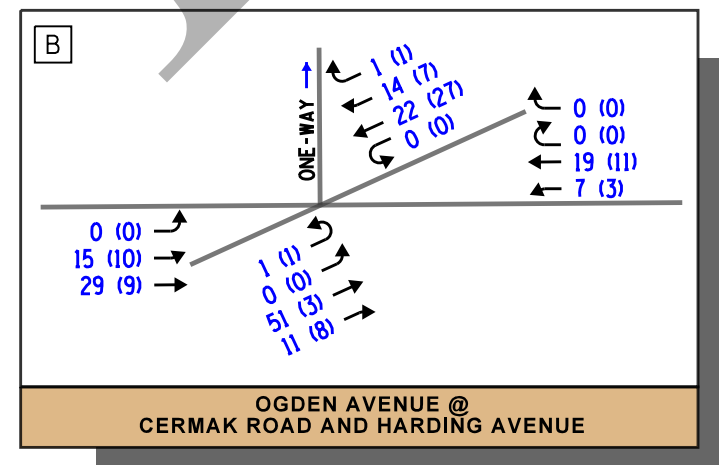
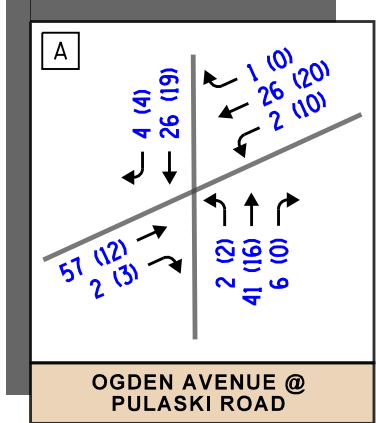
YEAR 2022 BASE TRAFFIC VOLUMES - PASSENGER VEHICLES



Job No: 22-148 Figure: 4



NOT TO SCALE



**LEGEND**

00 - AM PEAK HOUR (7:30-8:30 AM)

(00) - PM PEAK HOUR (4:15-5:15 PM)

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

YEAR 2022 BASE TRAFFIC VOLUMES - HEAVY VEHICLES

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

Job No: 22-148      Figure: 5

### 3. Traffic Characteristics of the Proposed Development

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

#### Proposed Development Plan

As proposed, the site will be developed with an approximately 246,200 square-foot warehouse/distribution building with 24 truck docks and parking for 271 passenger vehicles. As part of the development, Kedvale Avenue is proposed to be vacated south of Ogden Avenue. Access to the development is proposed to be provided as follows:

- A proposed full-movement access drive on Ogden Avenue that will be aligned opposite Kedvale Avenue and will serve passenger vehicles only. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
- A proposed full-movement access drive on Ogden Avenue located approximately 440 feet west of Pulaski Road that will serve passenger vehicles and inbound truck traffic. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
- A proposed restricted outbound right-turn access drive on Keeler Avenue located approximately 170 feet south of Ogden Avenue that will serve outbound truck traffic only. This access drive will provide one outbound lane that will be channelized and signed to restrict inbound and outbound left-turn movements. The outbound movements will be under stop sign control.

All truck traffic will enter the development via the eastern Ogden Avenue access drive and exit the development via the Keeler Avenue access drive and will access Ogden Avenue via its signalized intersection with Keeler Avenue. Further, it is important to note that the development will not have any access on Pulaski Road.

It is important to note that the development access system will replace six existing curb cuts on Ogden Avenue, one curb cut on Keeler Avenue, and one curb cut on Pulaski Road along the site frontages. The reduction in the number of access drives along Ogden Avenue and Pulaski Road will reduce the number of turning conflict points, which will improve the flow of all modes of transportation and will increase the availability of on-street parking along Ogden Avenue and Pulaski Road. A copy of the preliminary site plan is included in the Appendix.



## Directional Distribution

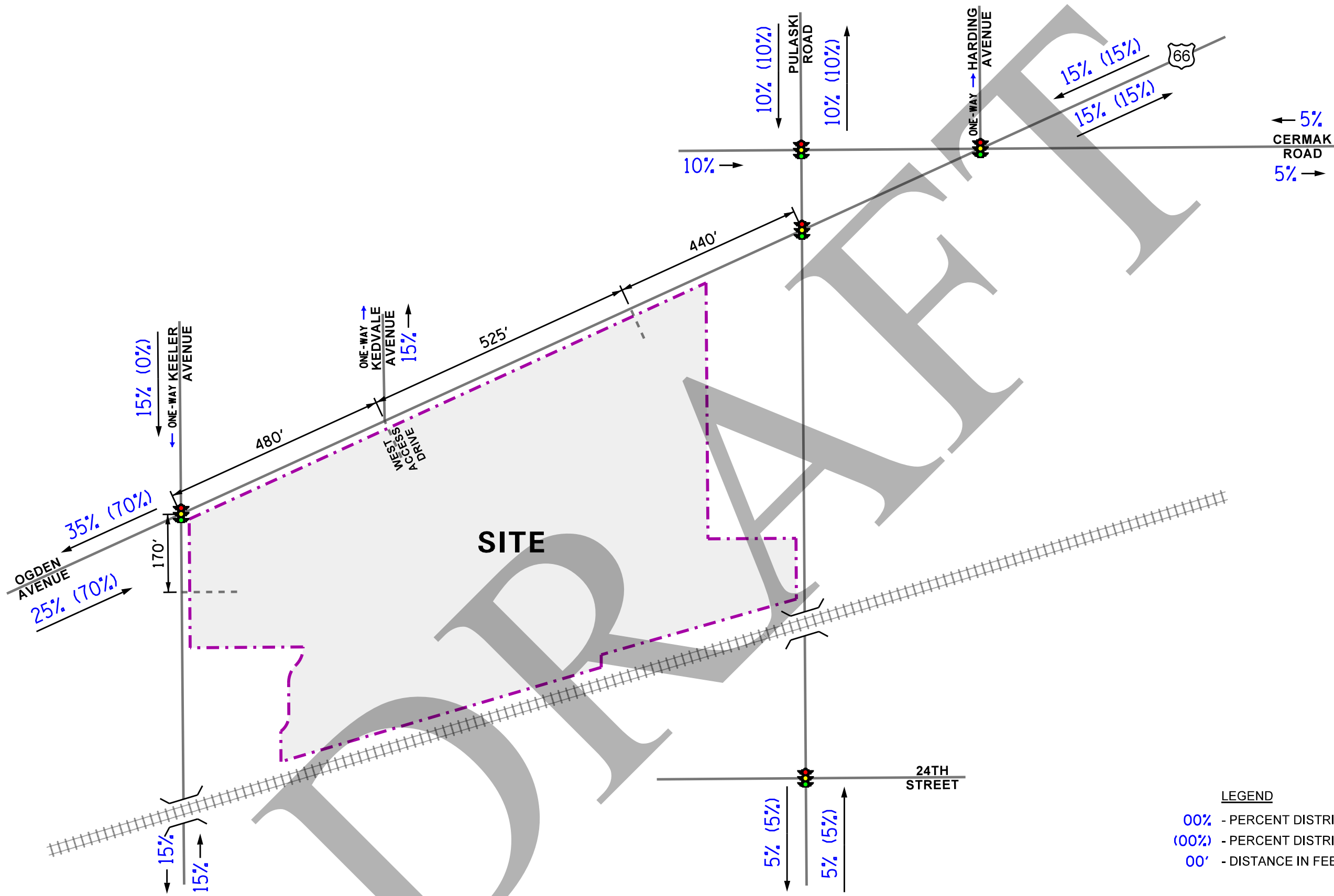
The directions from which employee and truck traffic will approach and depart the site was estimated based on existing travel patterns, as determined from the traffic counts and the proposed access system of the development. To minimize the semi-trailer truck traffic on the area streets, the developer will direct semi-trailer traffic traveling between the development and the freeway system to use Ogden Avenue and Cicero Avenue. Cicero Avenue is a north-south, arterial roadway that is a designated Class II truck route and has interchanges with both I-294 to the north and I-55 to the south. Further, Ogden Avenue has a grade-separated interchange with Cicero Avenue which is located only approximately one mile southwest of the development. **Figure 6** illustrates the directional distribution of traffic.

## Development-Generated Traffic Volumes

The total number of peak hour vehicle trips estimated to be generated by the proposed development was based on Warehouse (Land-Use Code 150) vehicle trip generation rates contained in *Trip Generation Manual*, 11<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE). **Table 1** summarizes the trips projected to be generated by the development during the peak hours and on a daily basis. **Table 2** summarizes the trips projected to be generated by the development throughout the day. Copies of the ITE trip generation rates are included in the Appendix. It should be noted that given the location of the site within an urban area and the proximity of the site to public transportation and alternative modes of transportation, the number of passenger vehicle trips will be reduced. However, to provide a conservative analysis, no reduction was taken.



NOT TO SCALE



**LEGEND**

00% - PERCENT DISTRIBUTION - PASSENGER VEHICLE

(00%) - PERCENT DISTRIBUTION - TRUCKS

00' - DISTANCE IN FEET

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

DIRECTIONAL DISTRIBUTION



Job No: 22-148 Figure: 6

Table 1  
ESTIMATED PEAK HOUR AND DAILY TRIP GENERATION

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips		
		In	Out	Total	In	Out	Total	In	Out	Total
150	Warehousing (246,200 s.f.)	41	12	53	16	40	56	214	214	428
	Trucks	3	5	8	6	5	11	74	74	148
	Passenger Vehicles	38	7	45	10	35	45	140	140	280

1 - Based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition  
2 - Daily rate based on ITE. Peak hour rate based on Table 2.  
3 - Equal to total trips less truck trips.

Table 2  
ESTIMATED 24-HOUR TRIP GENERATION

Hour	Warehousing (ITE Land-Use Code 150) – 246,200 s.f.								
	Trucks			Passenger Vehicles			Total		
	In	Out	Total	In	Out	Total	In	Out	Total
0:00	0	0	0	0	1	1	0	1	1
1:00	0	0	0	0	2	2	0	2	2
2:00	1	1	2	0	0	0	1	1	2
3:00	1	1	2	0	0	0	1	1	2
4:00	1	2	3	0	0	0	1	2	3
5:00	3	3	6	4	1	5	7	4	11
6:00	4	3	7	12	2	14	16	5	21
7:00	2	6	8	14	3	17	16	9	25
8:00	3	5	8	38	7	45	41	12	53
9:00	9	5	14	7	6	13	16	11	27
10:00	6	8	14	5	3	8	11	11	22
11:00	8	8	16	5	6	11	13	14	27
12:00	6	4	10	12	11	23	18	15	33
13:00	6	6	12	6	5	11	12	11	23
14:00	5	4	9	9	8	17	14	12	26
15:00	8	6	14	4	15	19	12	21	33
16:00	6	5	11	10	35	45	16	40	56
17:00	3	3	6	6	13	19	9	16	25
18:00	1	1	2	2	10	12	3	11	14
19:00	0	1	1	2	2	4	2	3	5
20:00	1	1	2	0	1	1	1	2	3
21:00	0	1	1	1	6	7	1	7	8
22:00	0	0	0	2	1	3	2	1	3
23:00	0	0	0	1	2	3	1	2	3
<b>Total</b>	74	74	148	140	140	280	214	214	428

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

## Trip Generation Comparison

The proposed development is to be located on several sites that currently contain approximately 600,000 gross square feet of industrial and manufacturing uses. With a total of 246,000 square feet, the proposed development will have approximately 60 percent less square footage than the current uses located on the subject sites. **Table 3** provides a comparison of the peak hour traffic currently generated by the uses on the existing sites and the traffic projected to be generated by the development assuming a warehouse/distribution use. It should be noted that the traffic generated by the existing uses were based on traffic counts conducted at the various access drives serving the sites. From the table it can be seen that a 246,000 square-foot warehouse/distribution development on the subject sites is estimated to generate less traffic than the existing uses during the critical commuter morning and evening peak hours.

Table 3  
TRIP GENERATION COMPARISON

	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	In	Out	Total	In	Out	Total
Existing Uses	43	38	81	45	45	90
Proposed Development	41	12	53	16	40	56

## 4. Projected Traffic Conditions

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

### Development Traffic Assignment

The estimated weekday morning and weekday evening peak hour traffic volumes that will be generated by the proposed development were assigned to the street system in accordance with the previously described directional distribution (Figure 6). **Figure 7** illustrates the traffic assignment of the new passenger vehicle trips for the development. **Figure 8** illustrates the traffic assignment of the new truck trips for the development.

### Ambient Traffic Growth

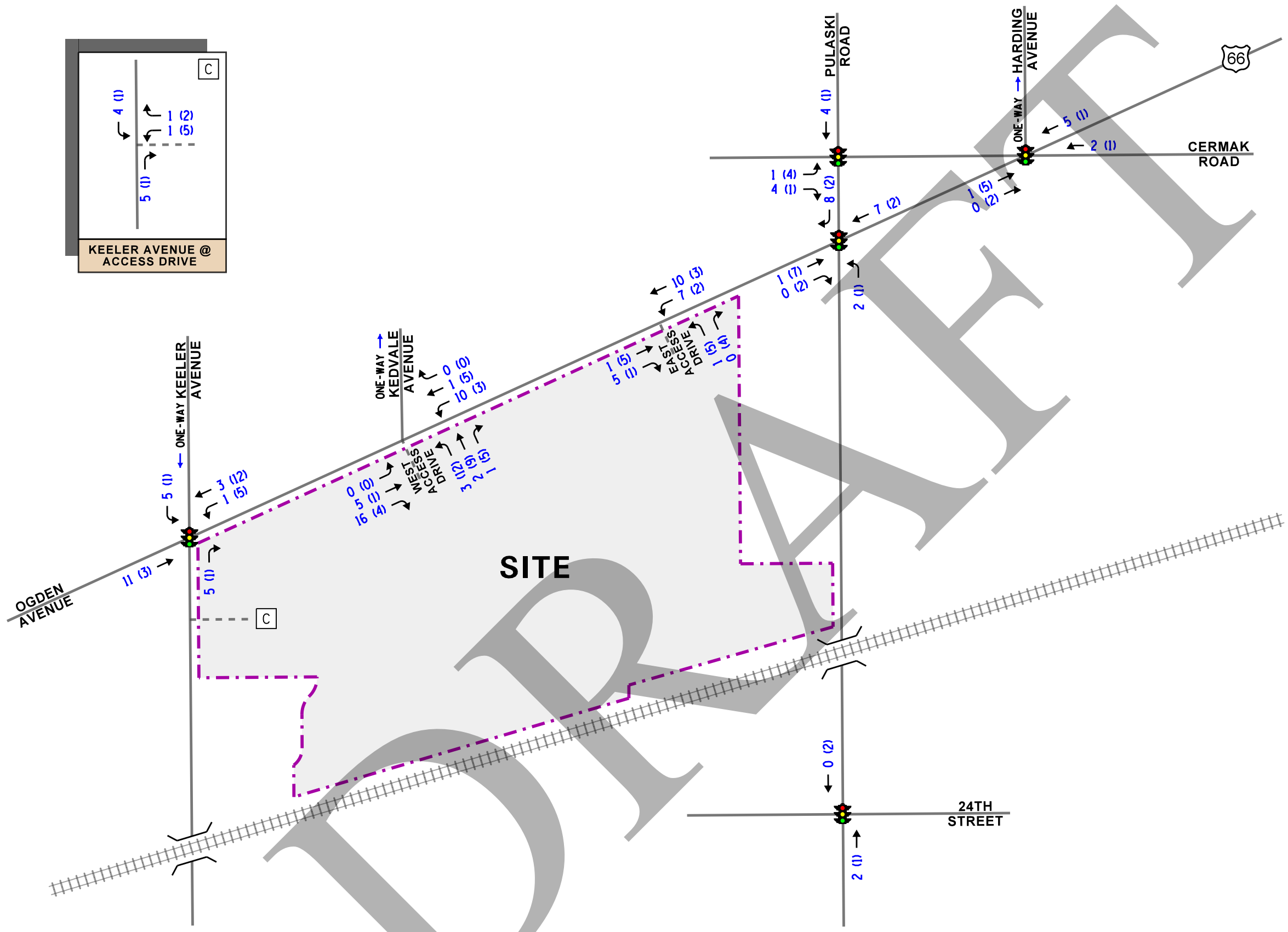
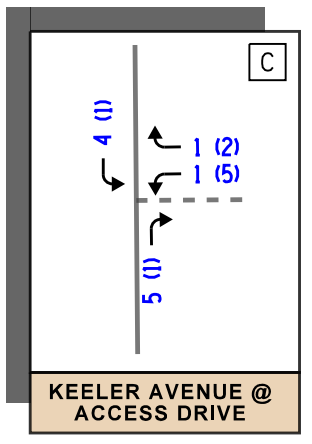
To account for any additional increase in traffic due to other factors or developments not previously discussed, an ambient growth factor of 0.5 percent per year was also applied to the study area over a six-year period to represent Year 2028 no-build conditions. Furthermore, in order to account for the increase in population in the study area, bicycle, and pedestrian volumes were increased by 10 percent at each intersection. **Figure 9** illustrates the Year 2028 no-build volumes.

### Total Projected Traffic Volumes

The Year 2022 base traffic volumes increased by the ambient growth in the area were combined with the new peak hour traffic volumes generated by the subject development to determine the Year 2028 total traffic volumes, shown in **Figure 10**. It should be noted that the existing traffic turning to and from the south leg of Kedvale Avenue was removed from the area street system.



NOT TO SCALE



**LEGEND**

00 - AM PEAK HOUR (7:30-8:30 AM)

(00) - PM PEAK HOUR (4:15-5:15 PM)

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

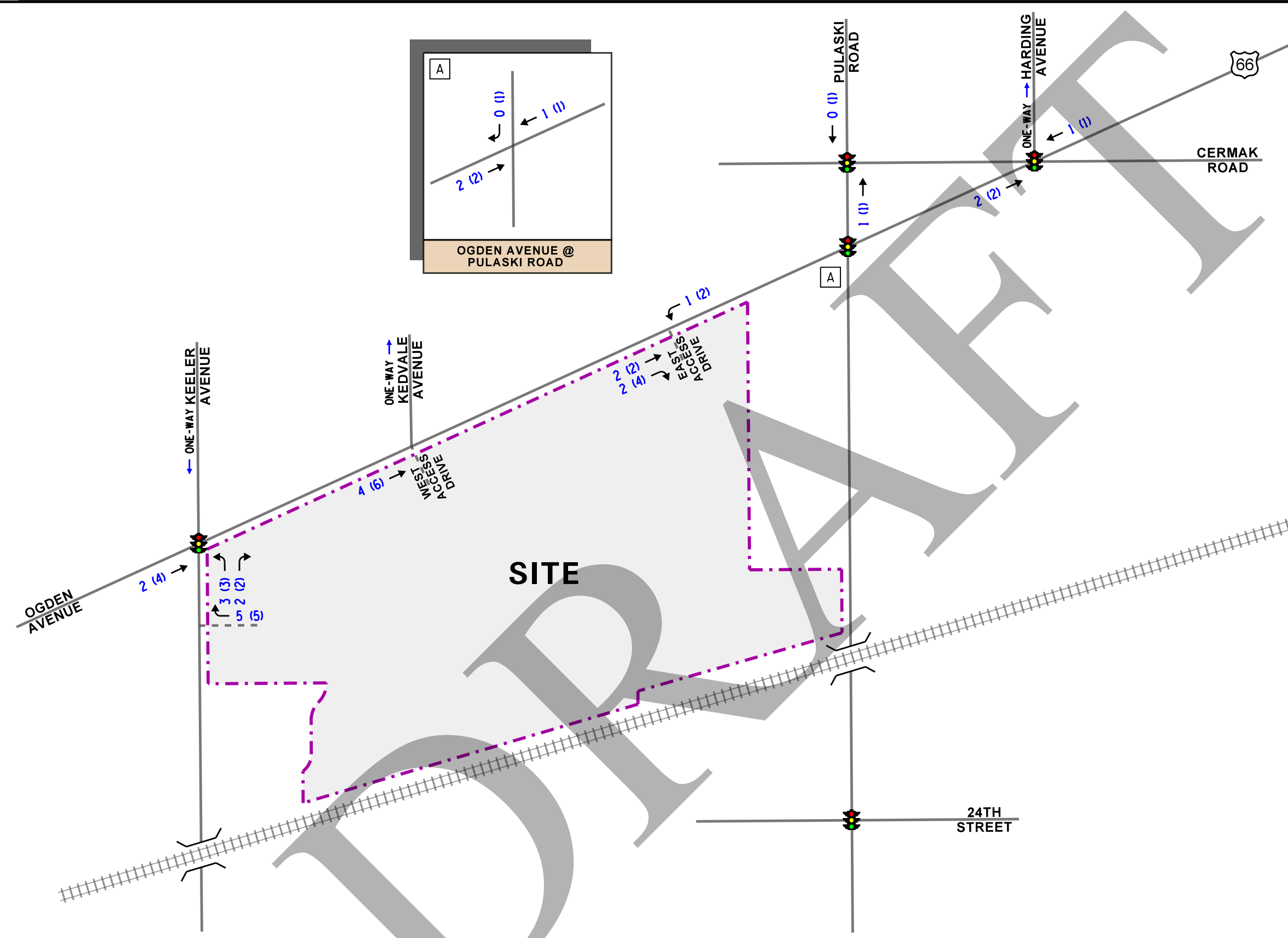
SITE-GENERATED TRAFFIC VOLUMES - PASSENGER VEHICLES



Job No: 22-148 Figure: 7



NOT TO SCALE

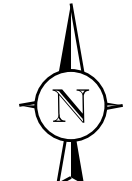


- LEGEND**
- 00 - AM PEAK HOUR (7:30-8:30 AM)
  - (00) - PM PEAK HOUR (4:15-5:15 PM)

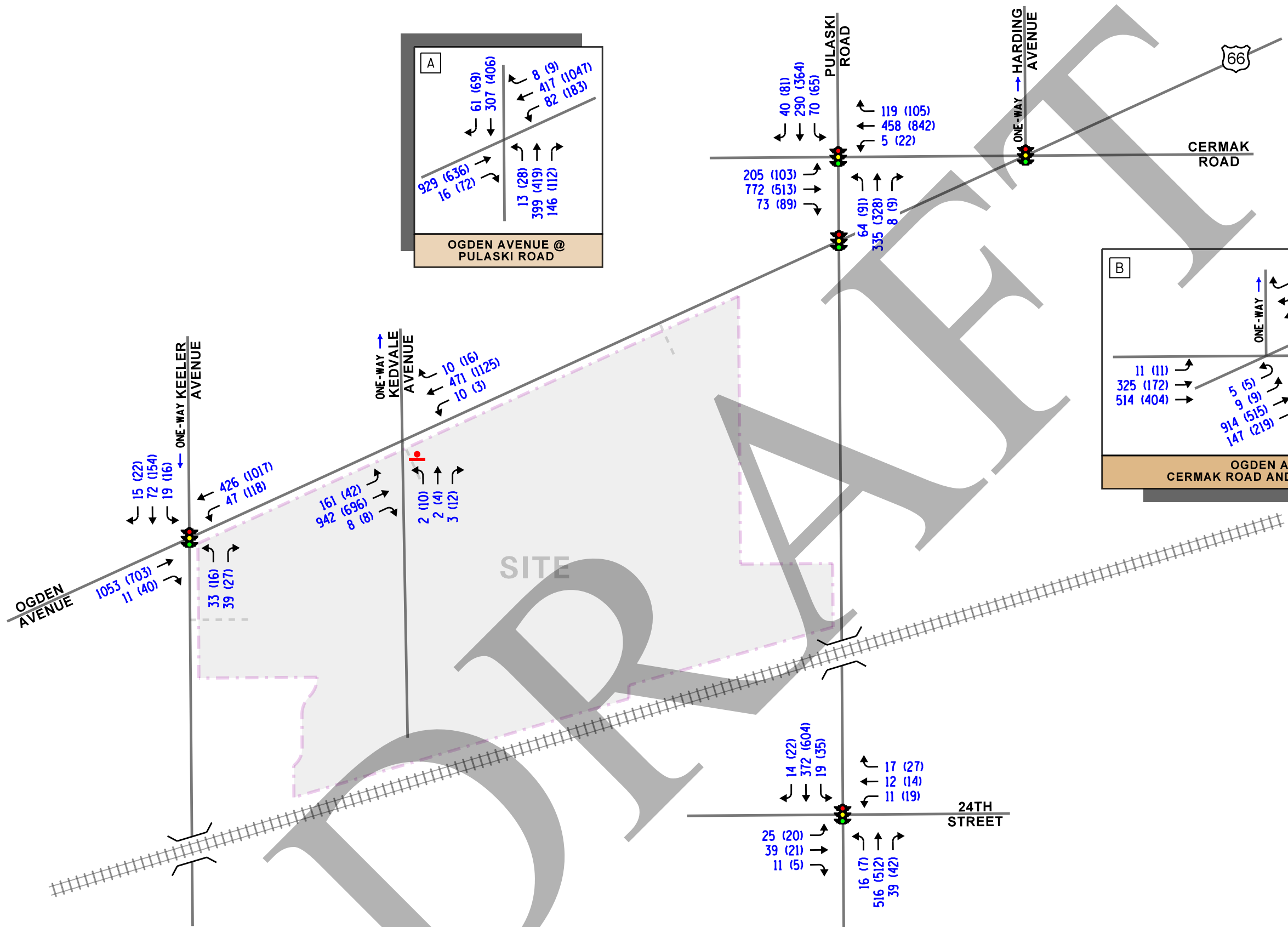
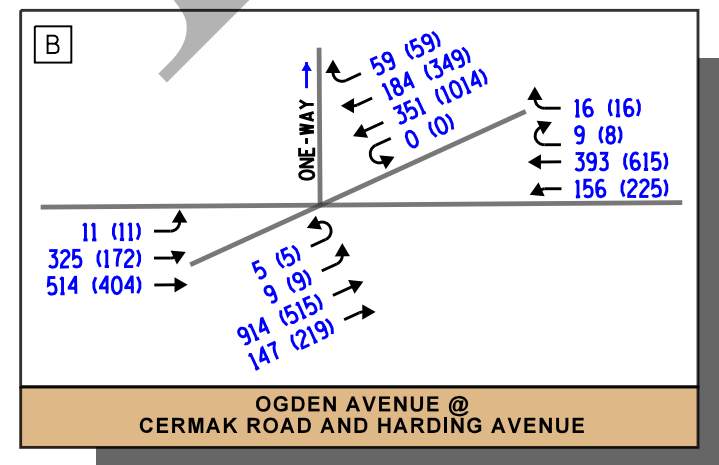
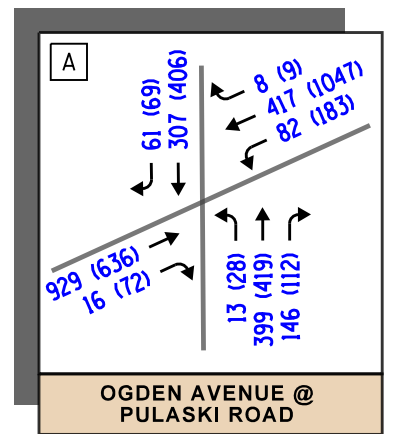
OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

SITE-GENERATED TRAFFIC VOLUMES - TRUCKS

**KLOA**  
Kenig, Lindgren, O'Hara, Aboona, Inc.  
Job No: 22-148 Figure: 8



NOT TO SCALE



**LEGEND**

- 00 - AM PEAK HOUR (7:30-8:30 AM)
- (00) - PM PEAK HOUR (4:15-5:15 PM)

OGDEN WAREHOUSE  
CHICAGO, ILLINOIS

YEAR 2028 NO-BUILD TRAFFIC VOLUMES

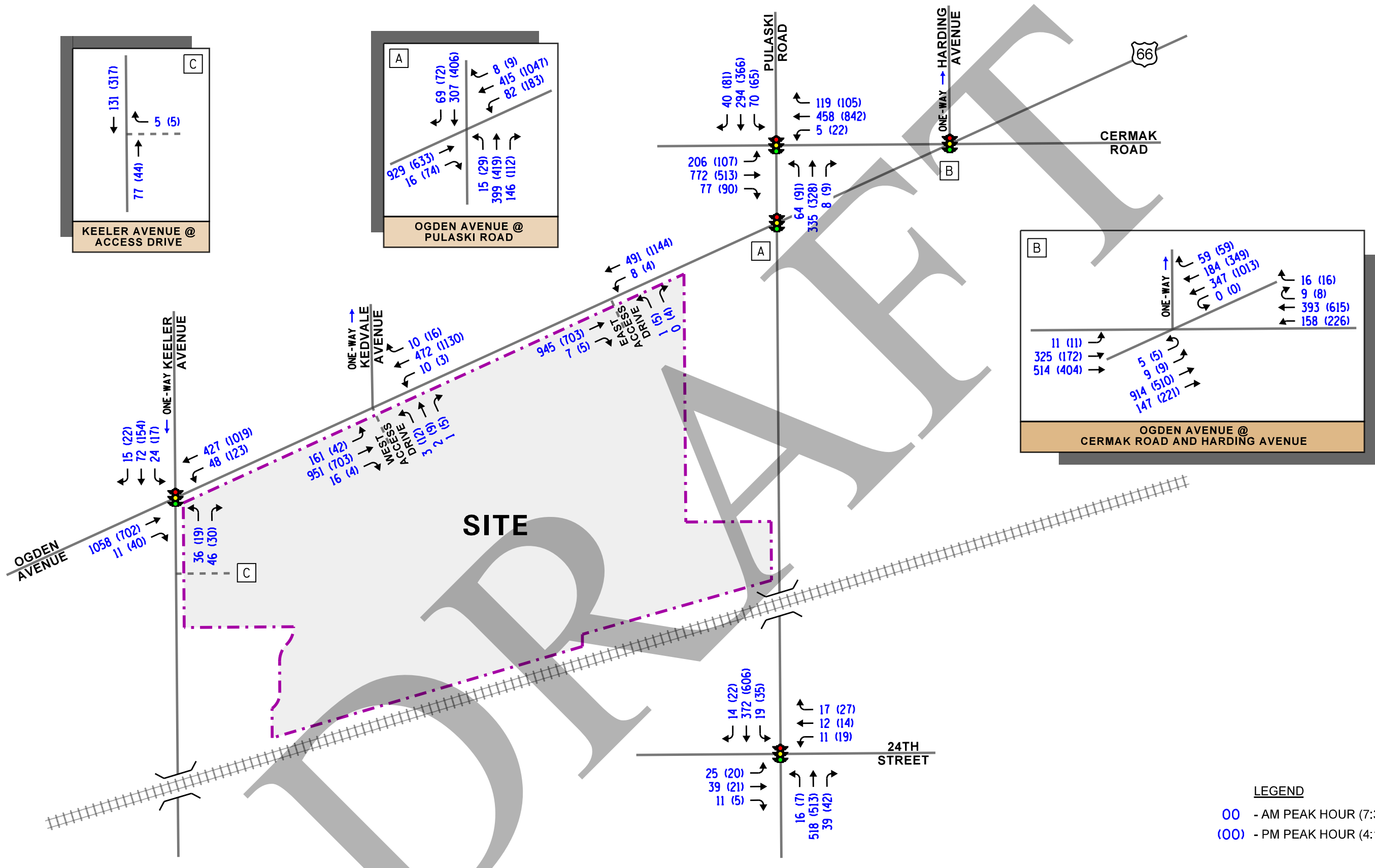


Job No: 22-148 Figure: 9





NOT TO SCALE



OGDEN WAREHOUSE CHICAGO, ILLINOIS

YEAR 2028 TOTAL TRAFFIC VOLUMES



Job No: 22-148 Figure: 10

## 5. Traffic Analysis and Recommendations

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

### Traffic Analyses

Intersection analyses were performed for the weekday morning and weekday evening peak hours for the Year 2022 base and Year 2028 total projected traffic volumes.

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

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

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

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the Year 2022 base and Year 2028 total projected conditions are presented in **Tables 4** through **10**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4

CAPACITY ANALYSIS RESULTS – CERMAK ROAD WITH OGDEN AVENUE AND HARDING AVENUE

	Peak Hour	Eastbound (Cermak Road)		Westbound (Cermak Road)		Northeast-bound (Ogden Avenue)	Southwest-bound (Ogden Avenue)	Southwest-bound (Frontage Road)	Overall
		L	T	L	T/R	L/T/R	L/T/R	L/R	
Year 2022 Base Conditions	Weekday Morning	F 99+	D 35.8	D 37.6	C 26.5	D 37.0	C 25.4	A 2.7	D 43.2
		E – 72.7		C – 29.5					
	Weekday Evening	E 54.8	D 41.3	D 50.4	C 34.2	B 17.3	C 34.4	A 3.4	C 33.3
		D – 45.5		D – 38.4					
Year 2028 Total Projected Conditions	Weekday Morning	F 99+	D 45.8	D 39.2	C 26.6	D 41.5	C 25.5	A 0.3	D 44.9
		E – 72.8		C – 30.1					
	Weekday Evening	E 56.0	D 41.3	D 54.8	D 37.5	B 17.9	D 37.1	A 1.0	D 35.4
		D – 45.9		D – 42.0					
Letter denotes Level of Service Delay is measured in seconds.									
			L – Left Turns			R – Right Turns			
			T – Through						

Table 5

CAPACITY ANALYSIS RESULTS – PULASKI ROAD WITH CERMAK ROAD

	Peak Hour	Eastbound (Cermak Road)		Westbound (Cermak Road)		Northbound (Pulaski Road)		Southbound (Pulaski Road)		Overall
		L	T/R	L	T/R	L	T/R	L	T/R	
Year 2022 Base Conditions	Weekday Morning	F 99+	D 45.6	B 18.8	C 23.0	A 7.5	A 5.0	C 32.7	C 27.0	D 36.8
		E – 60.0		C – 23.0		A – 5.4		C – 28.0		
Year 2022 Base Conditions	Weekday Evening	E 73.6	D 40.6	B 17.8	E 65.4	A 6.3	A 2.8	C 32.2	C 28.8	D 42.4
		D – 45.4		E – 64.4		A 3.6		C – 29.2		
Year 2028 Total Projected Conditions	Weekday Morning	F 99+	D 49.0	B 18.8	C 23.2	A 7.4	A 4.9	C 33.7	C 27.2	D 39.8
		E – 66.5		C – 23.2		A – 5.3		C – 28.3		
Year 2028 Total Projected Conditions	Weekday Evening	F 83.8	D 41.5	B 18.0	E 77.6	A 6.6	A 2.8	C 32.8	C 29.2	D 47.6
		D – 47.9		E – 76.3		A 3.6		C – 29.7		
Letter denotes Level of Service		L – Left Turns				R – Right Turns				
Delay is measured in seconds.		T – Through								

Table 6  
CAPACITY ANALYSIS RESULTS – PULASKI ROAD WITH OGDEN AVENUE

	Peak Hour	Northeast-bound (Ogden Avenue)	Southwest-bound (Ogden Avenue)	Northbound (Pulaski Road)		Southbound (Pulaski Road)	Overall
		T/R	L/T/R	L	T/R	T/R	
Year 2022 Base Conditions	Weekday Morning	B 17.7	A 6.4	C 21.3	C 23.8	B 11.7	B 15.8
				C – 23.8			
	Weekday Evening	B 12.6	C 24.9	C 26.3	C 27.8	B 14.7	C 20.9
				C – 27.8			
Year 2028 Total Projected Conditions	Weekday Morning	B 18.1	A 6.6	C 21.5	C 24.2	B 11.8	B 16.1
				C – 24.1			
	Weekday Evening	B 12.8	C 34.4	C 26.9	C 28.2	B 14.7	C 25.0
				C – 28.2			
Letter denotes Level of Service Delay is measured in seconds.				L – Left Turns T – Through		R – Right Turns	

Table 7

CAPACITY ANALYSIS RESULTS – OGDEN AVENUE WITH KEELER AVENUE

	Peak Hour	Northeast-bound (Ogden Avenue)	Southwest-bound (Ogden Avenue)	Northbound (Keeler Avenue)	Southbound (Keeler Avenue)	Overall
		T/R	L/T	L/R	L/T/R	
Year 2022 Base Conditions	Weekday Morning	B 14.4	B 11.1	A 9.4	B 14.8	B 13.3
	Weekday Evening	B 11.3	C 31.3	A 7.8	B 17.5	C 22.5
Year 2028 Total Projected Conditions	Weekday Morning	B 14.8	B 11.3	A 9.3	B 14.9	B 13.6
	Weekday Evening	B 11.5	D 42.7	A 8.3	B 17.6	C 28.8

Letter denotes Level of Service  
Delay is measured in seconds.

L – Left Turns  
T – Through  
R – Right Turns

Table 8

CAPACITY ANALYSIS RESULTS – PULASKI AVENUE WITH 24<sup>TH</sup> STREET

	Peak Hour	Eastbound (24 <sup>th</sup> Street)	Westbound (24 <sup>th</sup> Street)	Northbound (Pulaski Road)	Southbound (Pulaski Road)	Overall
		L/T/R	L/T/R	L/T/R	L/T/R	
Year 2022 Base Conditions	Weekday Morning	C 23.9	B 17.0	A 6.0	A 4.6	A 7.2
	Weekday Evening	C 23.9	B 18.4	A 4.0	A 5.1	A 5.9
Year 2028 Total Projected Conditions	Weekday Morning	C 23.9	B 17.0	A 6.2	A 4.7	A 7.3
	Weekday Evening	C 23.9	B 18.4	A 4.2	A 5.3	A 6.1

Letter denotes Level of Service  
Delay is measured in seconds.

L – Left Turns  
T – Through  
R – Right Turns

Table 9

## CAPACITY ANALYSIS RESULTS – UNSIGNALIZED - BASE CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Ogden Avenue with Kedvale Avenue</b>				
• Eastbound Left Turn	A	9.1	B	11.4
• Westbound Left Turn	B	10.7	B	10.2
• Northbound Approach	F	56.1	C	24.3
LOS = Level of Service Delay is measured in seconds.				

Table 10

## CAPACITY ANALYSIS RESULTS – UNSIGNALIZED – PROJECTED CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Ogden Avenue with Kedvale Avenue and the West Site Access Drive</b>				
• Eastbound Left Turn	A	9.1	B	11.7
• Westbound Left Turn	B	10.5	A	9.1
• Northbound Approach	F	65.4	E	35.5
<b>Ogden Avenue with the East Site Access Drive</b>				
• Westbound Left Turn	B	10.2	A	9.1
• Northbound Approach	D	27.8	C	22.3
<b>Keeler Avenue with the Site Access Drive</b>				
• Westbound Right Turn	A	9.8	A	9.6
LOS = Level of Service Delay is measured in seconds.				



## Discussion and Recommendations

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

### *Cermak Road with Ogden Avenue and Harding Avenue, Pulaski Road with Cermak Road, and Pulaski Road with Ogden Avenue*

The three signalized intersections of Cermak Road, Pulaski Road, Ogden Avenue, and Harding Avenue are located in close proximity to one another and, as such, the operation of each is highly dependent on one another. Observations at the intersections and the results of the capacity analysis indicate the following:

- Overall, these intersections operate acceptably under existing conditions with all intersections operating at Level of Service (LOS) D or better during the weekday morning and weekday evening peak hours. Under total projected conditions, all intersections are projected to continue to operate at LOS D or better during both peak hours.
- All movements are projected to operate at LOS E or better during both peak hours under existing and projected conditions except for the following:
  - The eastbound left-turn movement at the intersection of Cermak Road with Ogden Avenue and Harding Avenue that currently operates at LOS F during the weekday morning peak hour and is projected to continue to operate at LOS F during the weekday morning peak hour. This delay is the result of the limited protected green time given to this movement (seven seconds) and higher volume of existing traffic. However, this movement is projected to operate with a volume to capacity (v/c) ratio of less than one and observations of the intersection's operation showed that the left-turn queues cleared with most green cycles. The proposed development is not projected to increase the volume of traffic to this movement during the peak hours.
  - The eastbound left-turn movement at the intersection of Pulaski Road with Cermak Road currently operates at LOS E or F during the peak hours and is projected to operate at LOS F during both peak hours. This delay is the result of the limited protected green time given to this movement (seven seconds) due to the greater green time given to the westbound approach to ensure that it does not queue into the intersection of Cermak Road with Ogden Avenue. Observations of the intersection's operations showed that left-turn queues cleared with most green cycles. The lower level of service for the eastbound left-turn movement can be mitigated by reallocating some additional green time to the eastbound left-turn movement phase. The proposed development is also only projected to add a limited volume of traffic to this movement during the peak hours.

- Northeast-bound queues on Ogden Avenue from its intersection with Pulaski Road are projected to extend up to 535 feet during the weekday morning peak hour and up to 100 feet during the weekday evening peak hour. These queues may block the location of the proposed east site access drive during the weekday morning peak hour but will not block the location of the west site access drive during either peak hour. During the weekday morning when the development generates primarily inbound passenger vehicle traffic, inbound vehicles will have the options of (1) entering the development from the west access drive (passenger vehicles only) or (2) waiting until the queue clears the access drive with the next traffic signal green phase. During the weekday evening when the development generates primarily outbound traffic, queues are not projected to block either access drive. This is consistent with observations at this intersection.

As such, these intersections have sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

#### *Ogden Avenue with Keeler Avenue*

The results of the capacity analysis indicate that this intersection currently operates at an overall LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Under total projected conditions, the intersection is projected to continue operating at the same overall levels of service during the weekday morning and weekday evening peak hours. Southwest-bound queues on Ogden Avenue at this intersection are projected to extend up to 370 feet during the peak hours and are not projected to block the location of either proposed site access drive on Ogden Avenue. Further, northbound queues on Keeler Avenue at this intersection are not projected to exceed 50 feet during the peak hours and are not projected to block the location of the proposed site access drive on Keeler Avenue. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

#### *Pulaski Road with 24<sup>th</sup> Street*

The results of the capacity analysis indicate that this intersection currently operates at an overall LOS A during the weekday morning and weekday evening peak hours. Under total projected conditions, the intersection is projected to continue operating at the same overall level of service during the weekday morning and weekday evening peak hours. Further, through movements on Pulaski Road are projected to operate at LOS A during both peak hours. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no street improvements or traffic signal modifications will be required.

### *Ogden Avenue with Kedvale Avenue and the Proposed West Site Access Drive*

The results of the capacity analysis indicate that the northbound approach currently operates at LOS F during the weekday morning peak hour and LOS C during the weekday evening peak hour. This delay during the weekday morning is due to a majority of northbound traffic at this intersection being truck traffic and the reduced number of gaps in the Ogden Avenue traffic stream. This traffic is able to exit onto Ogden Avenue. However, during the peak periods, the Kedvale Avenue traffic experiences some additional delay. This is common for stop sign controlled approaches along higher volume roads such as Ogden Avenue.

The south leg of Kedvale Avenue is proposed to be vacated and will be converted to a full-movement access drive aligned opposite the north leg of Kedvale Avenue that will serve the development. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control. This access drive will serve passenger vehicles only.

Under total projected conditions, the northbound approach is projected to operate at LOS E during the weekday morning peak hour and LOS D during the weekday evening peak hour. This reduction in delay during the weekday morning is primarily due to the restriction of this access drive to passenger vehicles only. As proposed, the development truck traffic will enter the development via the Ogden Avenue east access drive and exit the development via the Keeler Avenue access drive. Eastbound and westbound left-turn movements at this intersection are projected to operate at LOS B or better during both peak hours with queues of one to two vehicles. As such, this access drive will be adequate in accommodating the traffic generated by the development.

### *Ogden Avenue with Proposed East Site Access Drive*

A full-movement access drive is proposed to be provided on Ogden Avenue located approximately 440 feet west of Pulaski Road and will serve passenger vehicles and inbound truck traffic. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.

Under total projected conditions, the northbound approach is projected to operate at LOS D during the weekday morning peak hour and LOS C during the weekday evening peak hour. As previously discussed, while queues on Ogden Avenue from its intersection with Pulaski Road may extend to this location during the weekday morning peak hour, inbound traffic will be able to enter the development once the queues clear the access drive with the next traffic signal green phase or passenger vehicles can enter the development via the west access drive. During the weekday evening peak hour when the development generates a majority of its outbound passenger vehicle traffic, queues are not projected to block this intersection. Westbound left-turn movements at this intersection are projected to operate at LOS B or better during both peak hours with queues of one to two vehicles. As such, this access drive will be adequate in accommodating the traffic generated by the development.

*Keeler Avenue with the Proposed Site Access Drive*

A restricted outbound right-turn only access drive is proposed to be provided on Keeler Avenue located approximately 170 feet south of Ogden Avenue and will serve outbound trucks only. This access drive will provide one outbound lane that will be channelized and signed to restrict inbound and outbound left-turn movements. The outbound movements will be under stop sign control.

Under total projected conditions, the westbound right-turn movement is projected to operate at LOS A during both peak hours. As such, this access drive will be adequate in accommodating the traffic generated by the development.

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## 6. Conclusion

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

- The proposed development will replace existing industrial buildings which currently generate traffic, including truck traffic. As such, the volume of new traffic to be generated by the proposed development will not be all new traffic to the area.
- As part of the development, Kedvale Avenue will be vacated south of Ogden Avenue.
- Access to the development is proposed to be provided as follows:
  - A proposed full-movement access drive on Ogden Avenue that will be aligned opposite Kedvale Avenue and will serve passenger vehicles only. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
  - A proposed full-movement access drive on Ogden Avenue located approximately 440 feet west of Pulaski Road that will serve passenger vehicles and inbound truck traffic. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop sign control.
  - A proposed restricted outbound right-turn access drive on Keeler Avenue located approximately 170 feet south of Ogden Avenue that will serve outbound trucks only. This access drive will provide one outbound lane that will be channelized and signed to restrict inbound and outbound left-turn movements. The outbound movements will be under stop sign control.
- All truck traffic will enter the development via the eastern Ogden Avenue access drive and exit the development via the Keeler Avenue access drive and will access Ogden Avenue via its signalized intersection with Keeler Avenue. Further, it is important to note that the development will not have any access on Pulaski Road.
- The proposed access system will be adequate in accommodating the traffic estimated to be generated by the development.
- The proposed development will reduce the number of curb cuts on Ogden Avenue and Pulaski Road, as the existing land uses have a total of six access drive on Ogden Avenue and one access drive on Pulaski Road.

- To minimize the semi-trailer truck traffic on the area streets, the developer will direct semi-trailer traffic traveling between the development and the freeway system to use Ogden Avenue and Cicero Avenue. Cicero Avenue is a north-south, arterial roadway that is a designated Class II truck route and has interchanges with both I-294 to the north and I-55 to the south. Further, Ogden Avenue has a grade-separated interchange with Cicero Avenue which is located only approximately one mile southwest of the development.
- The area street system has sufficient reserve capacity to accommodate development-generated traffic. As such, no street improvements or traffic control modifications are required to accommodate the traffic generated by the development.

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Appendix