VILLAGE OF DOWNERS GROVE
Report for the Village
1/21/2025

SUBJECT:	SUBMITTED BY:
Neighborhood Traffic Study 10	Scott Vasko Director of Engineering

SYNOPSIS

An ordinance has been prepared concerning traffic controls, parking, speed limits and pedestrian/bicycle safety improvements per Neighborhood Traffic Study Area 10, which is bounded by Highland Avenue on the east, Ogden Avenue on the south, and I-88 on the north and west.

STRATEGIC PLAN ALIGNMENT

The goals for 2024-2026 include *Top Quality Infrastructure* and *Exceptional Municipal Services*.

FISCAL IMPACT

The FY25 Budget has sufficient funding to pay for the recommended improvements.

RECOMMENDATION

Approval on the February 4, 2025 Active Agenda.

BACKGROUND

Neighborhood Traffic Study Area 10

In 2010, the Village began a process of studying traffic on a neighborhood by neighborhood basis. The most recent study (see attached) focused on Area 10, which is bounded by Highland Avenue on the east, Ogden Avenue on the south, and I-88 on the north and west. KLOA, Inc. was selected as the consultant to perform this study and began work in May 2024.

In January 2025, the Transportation and Parking Commission (TaP) reviewed the Neighborhood Traffic Study Area 10 report. The purpose of the study is to address traffic issues on a neighborhood basis to improve safety. The area was selected based on resident concerns arising from having a mix of uses including residential, commercial, schools, and public parks.

The scope of the study included an inventory of existing conditions and significant data collection, which occurred during the spring of 2024 and included:

- Existing land uses
- Physical operating characteristics of the roadways (e.g. lanes, speed limits, etc.)
- Existing traffic control devices
- Existing pedestrian and bicycle facilities

- Existing daily traffic volumes and vehicles speeds
- Existing peak hour vehicle, pedestrian and bicycle counts for certain intersections
- Traffic Signal warrant analyses of 5 intersections along Ogden (Signal warrants were not met at any of the 5 locations)

The study includes recommendations that are categorized depending upon their relative ease of implementation and cost. The Transportation and Parking Commission voted 4 to 0 to approve the study's recommendations. The recommended actions are summarized in the table below:

Action	**Intersection**
Convert Two-Way Stop Control to All-Way Stop Control	Saratoga Avenue with 35th Street
Replace Yield Signs with Stop Sign Control	Downers Drive with Coral Berry Lane 35th Street with Venard Road
Replace No Control with One-Way Stop Sign Control	Forty-four locations including cul-de-sacs
Reduce speed limit from 25 MPH to 20 MPH	Venard Road from Ogden Avenue to Drove Avenue
Remove School Crossing Assemblies (no longer needed, intersection changes to all-way stop)	Saratoga Avenue with 35th Street
Replace standard style crosswalks with high visibility, ladder style crosswalks	41st Street at Forest Avenue
Add high visibility, ladder style crosswalks	41st Street at Forest Avenue Downers Drive at Herbert Street Saratoga Avenue at 35th Street Venard Road at Drove Avenue
Realign the high visibility, ladder style crosswalk	Belle Aire Lane at Drove Avenue

Implementation
Installation of signage can be performed by Public Works forces during the spring of 2025 after Village Council approval. Striping improvements will be performed as part of future projects, or under the Village's striping maintenance contract as budget allows.

ATTACHMENTS

Ordinance
Neighborhood Traffic Study 10
Draft Meeting Minutes – TAP Commission January 8, 2025

ORDINANCE NO. _____

AN ORDINANCE AMENDING CERTAIN TRAFFIC CONTROL, PARKING AND SPEED PROVISIONS AND PEDESTRIAN/BIKE SAFETY IMPROVEMENTS

BE IT ORDAINED by the Village Council of the Village of Downers Grove in DuPage County, Illinois, as follows: (Additions are indicated by **redline/underline**; deletions by ~~strikeout~~):

Section 1. That Section 14.36 is hereby amended to read as follows:

Sec 14.36 Speed Limits on Certain Streets; Twenty Miles Per Hour
It is hereby determined and declared that twenty miles per hour (20 mph) is a reasonable and safe absolute maximum speed limit for vehicles on the following street(s):

……

Venard Road, between Ogden Avenue and Drove Avenue

……

Section 2. That Section 14.63 is hereby amended to read as follows:

Sec 14.63 Isolated Yield Right-Of-Way Signs
On the basis of traffic investigations at the below named intersections, it is found that traffic conditions warrant preference to traffic as indicated and that the enumerated streets should be designated as "yield right of way entrances".

……

~~Coral Berry Lane. At the northeast corner of the intersection of Coral Berry Lane and Downers Drive, regulating westbound traffic on Coral Berry Lane~~

……

Section 3. That Section 14.80 is hereby amended to read as follows:

Sec 14.80 Isolated Stop Signs
There shall be erected in conspicuous places as hereinafter designated, signs lettered with the word "Stop", which signs shall be so located as to direct vehicular traffic on the specified streets to come to a full stop before proceeding into or across the intersecting streets:

……

Acorn Avenue. At the northeast corner of the intersection of Acorn Avenue and Pomeroy Road, regulating westbound traffic on Acorn Avenue.

……

Acorn Avenue. At the southwest corner of the intersection of Acorn Avenue and Venard Road, regulating eastbound traffic on Acorn Avenue.

……

Acorn Drive. At the southeast corner of the intersection of Acorn Drive and Oak Hill Road, regulating northbound traffic on Acorn Drive.

……

Acorn Drive. At the northwest corner of the intersection of Acorn Drive and Hickory Trail, regulating southbound traffic on Acorn Drive.

……

Almond Court. At the northeast corner of the intersection of Almond Court and Downers Drive, regulating westbound traffic on Almond Court.

……

Arrow Wood Lane. At the northeast corner of the intersection of Arrow Wood Lane and Downers Drive, regulating westbound traffic on Arrow Wood Lane.

……

Barberry Court. At the northeast corner of the intersection of Barberry Court and Saratoga Avenue, regulating westbound traffic on Barberry Court.

……

Braemoor Drive. At the northeast corner of the intersection of Braemoor Drive and Mistwood Lane, regulating westbound traffic on Braemoor Drive.

……

Bryce Place. At the southwest corner of the intersection of Bryce Place and Saratoga Avenue, regulating eastbound traffic on Bryce Place.

……

Buckthorn Lane. At the northwest corner of the intersection of Buckthorn Lane and Coralberry Lane, regulating southbound traffic on Buckthorn Lane.

……

Candlewood Drive. At the southeast corner of the intersection of Candlewood Drive and Black Oak Drive, regulating northbound traffic on Candlewood Drive.

……

Carol Street. At the northeast corner of the intersection of Carol Street and Lacy Road, regulating westbound traffic on Carol Street.

……

Carol Street. At the southwest corner of the intersection of Carol Street and Northcott Avenue, regulating eastbound traffic on Carol Street.

……

Coralberry Lane. At the northeast corner of the intersection of Coralberry Lane and Downers Drive, regulating westbound traffic on Coralberry Lane.

……

Creekwood Court. At the southeast corner of the intersection of Creekwood Court and Barneswood Drive, regulating northbound traffic on Creekwood Court.

……

Drew Street. At the northeast corner of the intersection of Drew Street and Venard Road, regulating westbound traffic on Drew Street.

……

Drew Street. At the southeast corner of the intersection of Drew Street and Venard Road, regulating northbound traffic on Drew Street.

……

Golden Bell Court. At the southwest corner of the intersection of Golden Bell Court and Venard Road, regulating eastbound traffic on Golden Bell Court.

……

Gregory Place. At the southwest corner of the intersection of Gregory Place and Saratoga Avenue, regulating eastbound traffic on Gregory Place.

……

Herbert Street. At the northeast corner of the intersection of Herbert Street and Forest Avenue, regulating westbound traffic on Herbert Street.

……

Hickory Court. At the northeast corner of the intersection of Hickory Court and Venard Road, regulating westbound traffic on Hickory Lane.

……

Holland Place. At the southwest corner of the intersection of Holland Place and Venard Road, regulating eastbound traffic on Holland Place.

……

Holly Court. At the southeast corner of the intersection of Holly Court and Barneswood Drive, regulating northbound traffic on Holly Court.

……

Janet Street. At the northeast corner of the intersection of Janet Street and Lacy Road, regulating westbound traffic on Janet Street.

……

Janet Street. At the southwest corner of the intersection of Janet Street and Bell Aire Lane, regulating eastbound traffic on Janet Street.

……

Mistwood Lane. At the southwest corner of the intersection of Mistwood Lane and Mistwood Lane, regulating eastbound traffic on Mistwood Lane.

……

Morton Avenue. At the northwest corner of the intersection of Morton Avenue and 40th Street, regulating southbound traffic on Morton Avenue.

……

Morton Avenue. At the southeast corner of the intersection of Morton Avenue and Herbert Street, regulating northbound traffic on Morton Avenue.

……

Northcott Avenue. At the northwest corner of the intersection of Janet Street and Northcott Avenue, regulating southbound traffic on Northcott Avenue.

……

Northcott Avenue. At the southeast corner of the intersection of 40th Street and Northcott Avenue, regulating northbound traffic on Northcott Avenue.

……

Oak Hill Road. At the southwest corner of the intersection of Oak Hill Road and Hickory Trail, regulating eastbound traffic on Oak Hill Road.

……

Oak Hill Road. At the southwest corner of the intersection of Oak Hill Road and Saratoga Avenue, regulating eastbound traffic on Oak Hill Road.

……

Parrish Court. At the southwest corner of the intersection of Parrish Court and Venard Road, regulating eastbound traffic on Parrish Court.

……

Plum Court. At the southwest corner of the intersection of Plum Court and Downers Drive, regulating eastbound traffic on Plum Court.

……

Quince Court. At the southeast corner of the intersection of Quince Court and Barneswood Drive, regulating northbound traffic on Quince Court.

……

Red Bud Court. At the northeast corner of the intersection of Red Bud Court and Venard Road, regulating westbound traffic on Red Bud Court.

……

Red Silver Court. At the southwest corner of the intersection of Red Silver Court and Saratoga Avenue, regulating eastbound traffic on Red Silver Court.

……

~~Saratoga Avenue. At the southeast corner and the northwest corner of the intersection of Saratoga Avenue and 35th Street, to direct traffic proceeding northerly or southerly on Saratoga Avenue to come to a full stop before proceeding across or into 35th Street.~~

……

Seeley Avenue. At the southeast corner of the intersection of Seeley Avenue and Virginia Street, regulating northbound traffic on Seeley Avenue.

……

Seeley Avenue. At the northwest corner of the intersection of Seeley Avenue and Janet Street, regulating southbound traffic on Seeley Avenue.

……

Seeley Avenue. At the northwest corner of the intersection of Seeley Avenue and 40th Street, regulating southbound traffic on Seeley Avenue.

……

Seeley Avenue. At the southeast corner of the intersection of Seeley Avenue and Herbert Street, regulating northbound traffic on Seeley Avenue.

……

Snowberry Court. At the northeast corner of the intersection of Snowberry Court and Downers Drive, regulating westbound traffic on Snowberry Court.

……

Venard Road. At the northwest corner of the intersection of Venard Road and 35th Street, regulating southbound traffic on Venard Road.

……

Virginia Street. At the southwest corner of the intersection of Virginia Street and Bell Aire Lane, regulating eastbound traffic on Virginia Street.

……

Virginia Street. At the southwest corner of the intersection of Virginia Street and Northcott Avenue, regulating eastbound traffic on Virginia Street.

……

Wood Avenue. At the southwest corner of the intersection of Wood Avenue and Venard Road, regulating eastbound traffic on Wood Avenue.

……

Section 4. That Section 14.80.1 is hereby amended to read as follows:

Sec 14.80.1 All-Way Stop Signs

There shall be erected in conspicuous places at the following intersections signs lettered with the words "All-Way Stop", which signs shall be so located as to direct all traffic to come to a full stop before proceeding into the intersection:

……

Saratoga Avenue at 35th Street.

……

Section 5. That Section 14.71 is hereby amended to read as follows:

Sec 14.71 School Crosswalks Designated
The crosswalks within the Village designated hereby as "school crossings" are as follows:

……

Downers Drive. Across Downers Drive on the north side of Herbert Street.

……

Saratoga Avenue. Across Saratoga Avenue on the south side of 35th Street.

……

Venard Road. Across Venard Road on the south side of Drove Avenue.

……

35th Street. Across 35th Street on the west side of Saratoga Avenue.

……

41st Street. Across 41st Street on the east and west sides of Forest Avenue.

……

Section 5. That all ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 6. That this ordinance shall be in full force and effect from and after its passage and publication in the manner provided by law.

_____
Mayor

Passed:
Published:
Attest:_____
Village Clerk

1\ord.25\TAP-NTS#10

Neighborhood Traffic Study
Area Number 10

Downers Grove, Illinois

Prepared For:

Village of DOWNERS GROVE FOUNDED IN 1832

KLOA

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

January 3, 2025

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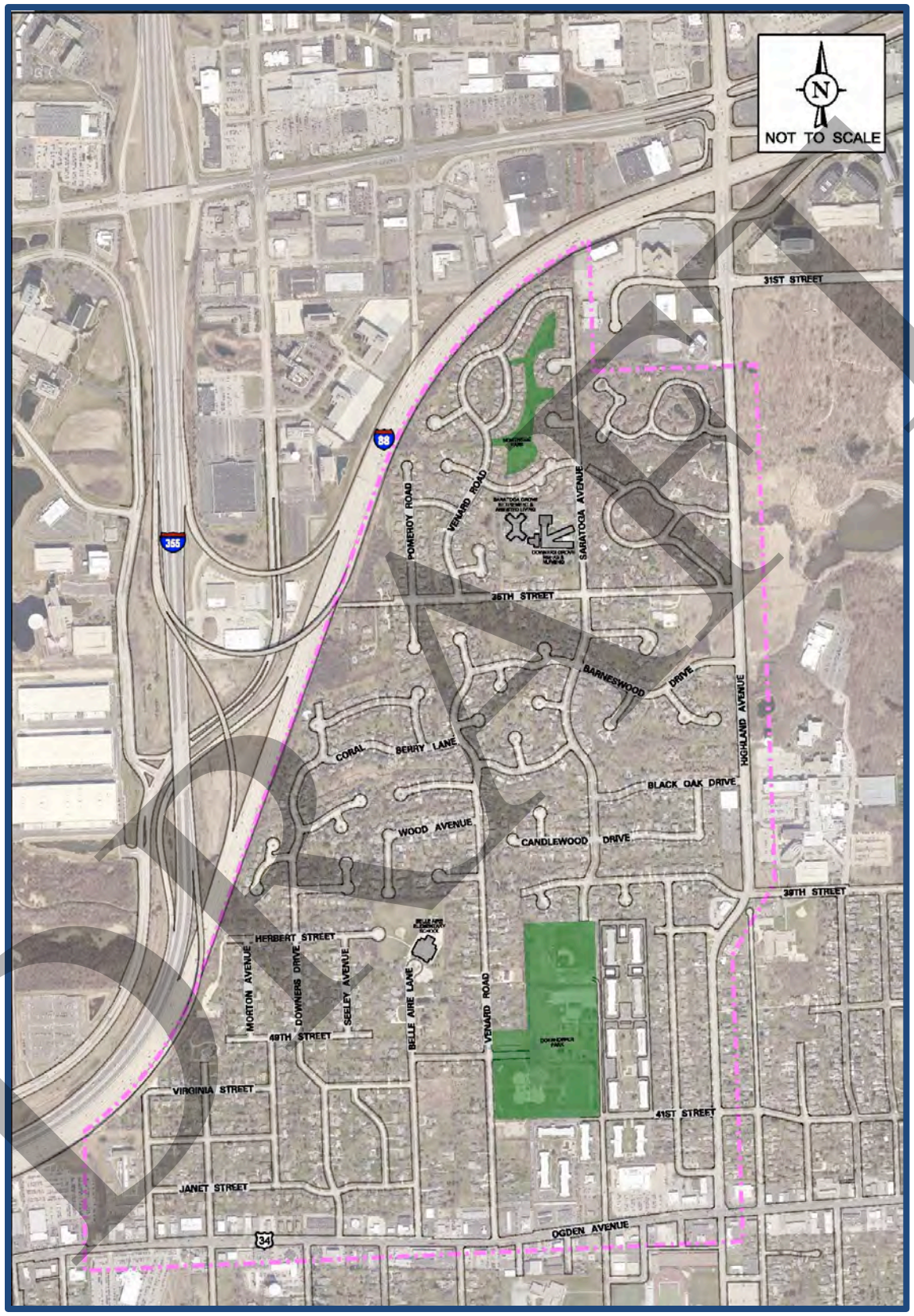
1. Introduction

The Village of Downers Grove has retained Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) to conduct the neighborhood traffic study for Area Number 10. Located within the northern portion of the Village of Downers Grove, the neighborhood is primarily bounded by Highland Avenue on the east, Ogden Avenue (U.S. Route 34) on the south, and I-88 on the north and west. Primarily consisting of single-family homes, the neighborhood also includes two multi-family developments, Belle Aire Elementary School, Saratoga Grove Retirement & Assisted Living facility, Downers Grove Rehab & Nursing Home, Northside Park, and Doerhoefer Park. Office and commercial uses are located in the southern section of the neighborhood along Ogden Avenue. In addition, Advocate Good Samaritan Hospital is located directly east of the neighborhood on the east side of Highland Avenue. **Figure 1** and the following page show the location of the neighborhood (all of the figures for this study are provided in the Appendix).

The purpose of the neighborhood study was to (1) thoroughly examine the existing vehicular, pedestrian, and bicycle operations within the neighborhood, (2) identify operational issues and safety concerns, (3) analyze potential mitigation measures, and (4) develop recommendations to address operational issues, calm traffic conditions, and increase vehicular and pedestrian safety.



Neighborhood 10 Study Area

2. Existing Neighborhood Conditions

Transportation conditions were inventoried to obtain a database for evaluating the existing operations within the neighborhood and along the roadways bordering the neighborhood. The components of existing conditions that were inventoried within the neighborhood included the following:

- Existing land uses
- Physical and operating characteristics of the roadways (i.e., number of lanes, speed limits, traffic control, etc.)
- Existing traffic control devices
- Existing pedestrian and bicycle facilities
- Existing daily traffic volumes and vehicle speeds
- Existing morning and evening peak hour volumes

Study Area and Existing Land Uses

The neighborhood is primarily bounded by Highland Avenue on the east, Ogden Avenue (U.S. Route 34) on the south, and I-88 on the north and west. Located in the northern portion of the Village, single-family homes are the predominant land uses within the neighborhood with two multifamily developments located in the southeast section of the neighborhood. Office and commercial uses are located in the southern section of the neighborhood along Ogden Avenue and the Saratoga Grove Retirement & Assisted Living facility and Downers Grove Rehab & Nursing Home are located in the northern section of the neighborhood. Advocate Good Samaritan Hospital is located directly east of the neighborhood on the east side of Highland Avenue. In addition, the neighborhood contains one school and two parks (see insert).

Neighborhood Schools and Parks

- *Belle Aire Elementary School* is located in the middle of the neighborhood at the terminus of Bell Aire Lane and the terminus of Herbert Street.
- *Doerhoefer Park* is located in the southeast section of the neighborhood generally on the east side of Venard Road and north of 41st Street extended.
- *Northside Park* is located in the northern section of the neighborhood generally bounded by Saratoga Avenue on the east and Oak Hill Road/Drew Street on the south and west

Existing Roadway System

The two external roadways that border the neighborhood are described below.

Ogden Avenue (U.S. Route 30) is generally an east-west major arterial road that has two lanes in each direction divided by a two-way, left-turn lane. Separate left-turn lanes are provided on Ogden Avenue at its signalized intersections with Highland Avenue/Main Street and Saratoga Avenue. Ogden Avenue is under the jurisdiction of the Illinois Department of Transportation (IDOT), has a posted speed limit of 35 mph, and has an Annual Average Daily Traffic (AADT) volume of 30,000 vehicles (IDOT 2023).

Highland Avenue (DuPage County Highway 9) is a north-south, minor arterial road that has two lanes in each direction with a striped median generally provided north of 39th Street. Separate left-turn lanes are provided on Highland Avenue at all of ITS intersections with the neighborhood roads except Black Oak Drive, Herbert Street, and 41st Street. Separate right-turn lanes are provided on Highland Avenue at its signalized intersections with 39th Street (both approaches), Advocate Good Samaritan Hospital access drive (northbound approach), and Ogden Avenue (southbound approach). Highland Avenue is under the jurisdiction of the DuPage Country Division of Transportation (DuDOT) north of Ogden Avenue, has a posted speed limit that varies between 30 and 40 mph, and has an AADT volume of 10,400 vehicles (IDOT 2020).

Internal Neighborhood Roadways

Excluding the arterial roadways that border the neighborhood, the following summarizes the physical and operating characteristics of the neighborhood roadways:

- All the roadways within the neighborhood are classified as local roads (see **Figure 2).**
- All the neighborhood roads provide one lane in each direction except Forest Avenue which is a one-way northbound road between 41st Street and 39th Street.
- Exclusive left-turn lanes are provided along the following roads in the neighborhoods (see **Figure 3**):
    - 35th Street at Highland Avenue
    - 39th Street at Highland Avenue
    - Saratoga Avenue at Ogden Avenue
    - Venard Road at Ogden Avenue
    - Downers Drive at Ogden Avenue
    - Forest Avenue at 39th Street

- Centerlines, parking lines/boxes, and striped shoulders are provided on the following roads:
    - 35th Street (double yellow center line, parking lines, and striped shoulders)
    - Forest Avenue between 39th Street and 41st Street (striped shoulders)
    - Saratoga Avenue between Ogden Avenue and Parrish Court (double yellow center line)
    - Venard Road between Ogden Avenue and Parrish Court (double yellow center line)
    - Downers Drive between Ogden Avenue and 40th Street (double yellow and skip dash center lines)

- The posted speed limit on most of the neighborhood roads is 25 miles per hour except for the following locations:
    - Mistwood Lane and Braemoor Drive have a posted speed limit of 20 mph.
    - 35th Street in the vicinity of Saratoga Avenue, Venard Road in the vicinity of Parrish Court, and Belle Aire Lane in the vicinity of Belle Aire Elementary School all have 20-mph school zone speed limits.
    - Venard Road along Doerhoefer Park has a 20-mph park zone speed limit.

  In addition, several horizontal curves have 20-mph advisory speed limits and temporary radar feedback signs are located on Belle Aire Lane just north of Drove Avenue. **Figure 4** illustrates the speed limits in the neighborhood.

- Parking is provided on one or both sides of many of the neighborhood roadways although parking is restricted or regulated on several roads.

Existing Intersection Traffic Control

Figure 5 shows the existing intersection traffic control within the neighborhood and the following provides a summary of the existing traffic control at intersections within the neighborhood:

- Two intersections are under traffic signal control
- Seven intersections are under all-way stop sign control
- Fifteen intersections are under two-way or one-way stop sign control
- Two intersections are under two-way or one-way yield sign control
- 50 intersections have no intersection traffic control

At many of the two-way or one-way stop sign-controlled intersections, a “Cross Traffic Does Not Stop” plaque is located below the stop signs.

Pedestrian and Bicycle Facilities and Traffic Control Devices

Sidewalk System

Sidewalks are generally located on one side of most roads in the neighborhood and in many cases on both sides of the road. In addition, high visibility and standard crosswalks are provided at several intersections within the neighborhood, particularly in proximity to Belle Aire Elementary School and the two parks.

Bike Routes

The 2000 Village of Downers Grove bikeway designates the following roads as bike routes that extend through the neighborhood (see **Figure 6**):

- Saratoga Avenue through the neighborhood
- 39th Street between Highland Avenue and Saratoga Avenue

Pedestrian and Bicycle Traffic Control Devices, Signage, and Pavement Markings

The following summarizes and **Figure 7** illustrates the pedestrian and bicycle traffic control devices, signage, and pavement markings located within the neighborhood:

- Dedicated school crossing signs which include School Advance Crossing Assemblies (S1-1, W16-9P) and/or School Crossing Assemblies (S1-1, W16-7P) are provided at the following intersections or locations:
  - On 35th Street at Saratoga Avenue
  - On Venard Road just south of Parrish Court (midblock crossing)
  - On Belle Aire Lane at Drove Avenue
  - On Downers Drive at Herbert Street
  - On Ogden Avenue at Saratoga Avenue
  - On Highland Avenue at 39th Street
- Dedicated pedestrian crossing signs which include Pedestrian Advance Crossing Assemblies (W11-2, W16-9P) and/or Pedestrian Crossing Assemblies (W11-2, W16-7P) are provided at the following intersections or locations:
  - On 41st Street at Forest Avenue
  - On Highland Avenue at 41st Street
- Countdown pedestrian traffic signals are provided at the intersections of Highland Avenue with 39th Street and Ogden Avenue with Saratoga Avenue.
- High visibility and standard crosswalks are provided at several intersections within the neighborhood, particularly in proximity to the school and the two parks.
- Bike Route signs are located on Saratoga Avenue and 39th Street.

- A crossing guard is located at the midblock crosswalk on Venard Road south of Parrish Court before and after the school day at Belle Aire Elementary School.

Existing Daily Traffic Volumes and Speed Surveys

In order to determine the existing traffic volumes and speeds along the neighborhood roadways, KLOA, Inc. conducted daily machine traffic counts and speed surveys at 26 locations within the neighborhood. Of the total 26 locations, approximately 13 were conducted along the north-south roadways and 13 were conducted along the east-west roadways. The traffic counts and speed surveys were generally conducted in April and May 2024 for a minimum of two days and were broken down by direction and by hour.

Figure 8 shows the two-way, daily traffic volumes and **Figure 9** shows the average and 85th percentile speeds observed on the roadways. The average speed is the sum of the observed speeds of all the vehicles divided by the total vehicles on that segment of the road. Average speeds are used to determine the speeds at which motorists are typically traversing a roadway section, whereas the 85th percentile speed represents the speed at or below which 85 percent of vehicles on a roadway section travel under free flow conditions.

Existing Morning and Afternoon/Evening Peak Period Traffic Volumes

In addition to the daily traffic counts and speed surveys, KLOA, Inc. conducted manual peak period vehicle, pedestrian, and bicycle counts at the following three intersections within the study area:

1. Belle Aire Lane with Drove Avenue
2. Venard Road with Drove Avenue
3. Saratoga Avenue with 41st Street

The counts were conducted for one day at each intersection in April and May during the morning (7:00 A.M. to 9:00 A.M.) and afternoon/evening (4:00 P.M. to 6:00 P.M.) peak periods. **Figure 10** illustrates the existing weekday morning and evening peak hour vehicle volumes and **Figure 11** illustrates the pedestrian and bicycle peak hour volumes. It should be noted that the bike volumes at all the intersections were very low.

3. Evaluation of Existing Conditions

To determine how the roadway system is currently functioning, KLOA, Inc. examined the existing operating characteristics within the neighborhood. The purpose of this evaluation was to identify and quantify the current operations and ascertain how the neighborhood's infrastructure and land uses contribute to the existing conditions. This was accomplished by reviewing and analyzing the existing traffic volumes, the speed surveys, and the crash data as well as the physical characteristics of the neighborhood and its transportation system. The evaluation provides the basis to thoroughly analyze and develop recommendations pertaining to the operation and design of the internal roadways.

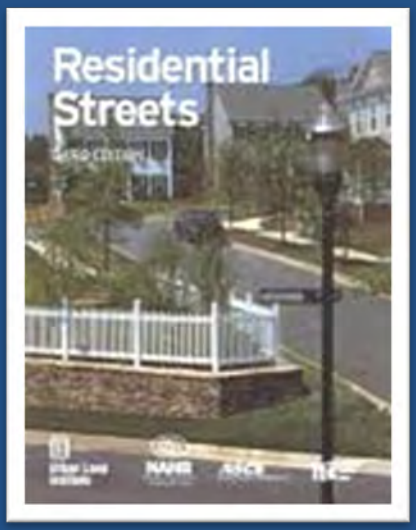
Neighborhood Factors that Contribute to Traffic Volume and Travel Speed

It is important to note that traffic volumes and speeds on neighborhood roads are influenced by several factors, including:

- Roadway functional classification
- Location and directional orientation of roadway with respect to adjacent arterial roadways
- Roadway width
- Number of travel lanes
- Roadway surface
- Posted speed limits
- Spacing between traffic control devices
- Vertical grade (i.e., hills)
- Horizontal alignment (i.e., curves)
- Driver behavior

Many of these attributes are fixed within the neighborhood's infrastructure and are generally difficult and/or costly to modify. While communities strive to keep traffic volumes within typical ranges for the respective road classifications and operating speeds at or below the posted speed limit, it is often difficult to achieve given the above factors.

Review of the Daily Traffic Volumes



Daily Volumes

According to *Residential Streets,* local residential roads typically have a daily volume between 400 and 1,500 vehicles while residential collector roads typically have a daily volume exceeding 1,500

Figure 8 summarizes the average weekday traffic volumes by direction. **Table 1** summarizes the average weekday traffic volumes within the neighborhood, categorized by functional classification, and compares the volumes with the national residential road volume ranges as published in *Residential Streets,* Third Edition (see insert).

As indicated previously all the roads in the neighborhood are classified as local roads. As can be seen from Table 1 and Figure 8, all the roads generally carry volumes that are within the typical range of traffic volumes found on local roads (see insert) except for the following four roads:

- 35th Street between Highland Avenue and Saratoga Avenue
- 41st Street between Saratoga Avenue and Forest Avenue
- Saratoga Avenue between 41st Street and Ogden Avenue
- Venard Road between Ogden Avenue and Brookside Lane

The higher traffic volumes on these roads are expected given that the roads extend the longer distances in the neighborhood, intersect arterial roads, and/or serve the commercial, multifamily and/or recreational uses within the neighborhood. In addition, several of the higher volume roads function more like minor collector roads than local roads. It is important to note that many of the roads carry minor volumes that are at the lower end of the typical range of traffic volumes found on local roads.

Table 1
AVERAGE WEEKDAY (24-HOUR) TRAFFIC VOLUMES BY ROADWAY CLASSIFICATION

Roadway	Section	Existing Traffic Volumes		Within Typical Range
		NB/EB	SB/WB	
35th Street	Venard Road to Saratoga Avenue	533	549	Yes
	Saratoga Avenue to Highland Avenue	1,034	1,004	No
39th Street	Saratoga Avenue to Forest Avenue	556	700	Yes
41st Street	Saratoga Avenue to Forest Avenue	981	1,099	No
Barneswood Drive	Saratoga Avenue to Highland Avenue	748	705	Yes
Belle Aire Lane	Janet Street to Virginia Street	243	249	Yes
Black Oak Drive	Saratoga Avenue to Candlewood Drive	152	124	Yes
Brookside Lane	Venard Road to Saratoga Avenue	404	405	Yes
Candlewood Drive	Saratoga Avenue to Black Oak Drive	57	62	Yes
Downers Drive	Snowberry Court to Coral Berry Lane	339	324	Yes
	Janet Street to Virginia Street	497	579	Yes
Drove Avenue	Belle Aire Lane to Venard Road	188	209	Yes
Forest Avenue	41st Street to Herbert Street	638	--	Yes
Janet Street	Lee Avenue to Northcott Avenue	69	72	Yes
Lacey Road	Janet Street to Virginia Street	113	68	Yes
Lee Avenue	Janet Street to Virginia Street	85	90	Yes
Oak Hill Road	Venard Road to Saratoga Avenue	56	42	Yes
Saratoga Avenue	Oak Hill Road to Venard Road	145	151	Yes
	Brookside Lane to Barneswood Drive	356	295	Yes
	Ogden Avenue to 41st Street	1,524	1,226	No
Venard Road	Oak Hill Road to Drew Street	123	146	Yes
	Coral Berry Lane to Barneswood Drive	638	644	Yes
	Drove Avenue to Wood Avenue	847	856	No
	Ogden Avenue to Drove Avenue	856	865	No
Virginia Street	Lee Avenue to Northcott Avenue	60	39	Yes
	Downers Drive to Belle Aire Lane	74	69	Yes

Review of the Travel Speed Surveys

Most of the roads within the neighborhood are regulated by a 25-mph neighborhood speed limit. It should be noted that several roads within the vicinity of Belle Aire Elementary School and Doerhoefer Park have a 20-mph school speed zone that is in effect on school days when children are present or 20-mph park speed zone. Figure 9 summarizes the average and 85th percentile speeds by direction. **Table 2** summarizes the 85th percentile speeds within the neighborhood, categorized by functional classification, and indicates if the speeds were within normal ranges (five mph or less of the posted speed limit).

Travel Speeds

- Travel speeds are primarily influenced by the road's characteristics which are generally costly to modify.
- The Village's roadway system adds to higher speeds with long free-flow conditions.
- Courts typically only uphold tickets when they are 8 to 10 mph over the speed limit.

As such, 85th percentile speeds within five (5) mph of the posted speed limit are typically considered reasonable.

The results of the speed surveys show that the observed average speeds at many of the surveyed locations within the neighborhood exceeded the posted speed limit. Likewise, the observed 85th percentile speeds exceeded the posted speed limit by five mph or greater. The increased speeds within the neighborhood are likely due in part to the long stretches of free flow conditions along many of the roadways, the hilly terrain in the neighborhood, and the traffic traveling to and from the commercial developments and parks within the neighborhood. Many of the recommendations outlined in the next section were developed to address the higher travel speeds observed within the neighborhood.

Table 2
85TH PERCENTILE SPEEDS BY ROADWAY CLASSIFICATION

Roadway	Section	Existing 85th Percentile Speeds		Within Typical Range
		NB/EB	SB/WB	
35th Street	Venard Road to Saratoga Avenue	37	34	No
	Saratoga Avenue to Highland Avenue	40	37	No
39th Street	Saratoga Avenue to Forest Avenue	33	32	No
41st Street	Saratoga Avenue to Forest Avenue	29	32	No
Barneswood Drive	Saratoga Avenue to Highland Avenue	27	26	Yes
Belle Aire Lane	Janet Street to Virginia Street	36	37	No
Black Oak Drive	Saratoga Avenue to Candlewood Drive	24	23	Yes
Brookside Lane	Venard Road to Saratoga Avenue	32	30	No
Candlewood Drive	Saratoga Avenue to Black Oak Drive	26	27	Yes
Downers Drive	Snowberry Court to Coral Berry Lane	24	24	Yes
	Janet Street to Virginia Street	34	34	No
Drove Avenue	Belle Aire Lane to Venard Road	23	24	Yes
Forest Avenue	41st Street to Herbert Street	28	--	Yes
Janet Street	Lee Avenue to Northcott Avenue	32	28	No
Lacey Road	Janet Street to Virginia Street	33	34	No
Lee Avenue	Janet Street to Virginia Street	24	23	Yes
Oak Hill Road	Venard Road to Saratoga Avenue	24	24	Yes
Saratoga Avenue	Oak Hill Road to Venard Road	34	37	No
	Brookside Lane to Barneswood Drive	33	32	No
	Ogden Avenue to 41st Street	32	31	No
Venard Road	Oak Hill Road to Drew Street	29	30	No
	Coral Berry Lane to Barneswood Drive	28	27	Yes
	Drove Avenue to Wood Avenue	36	33	No
	Ogden Avenue to Drove Avenue	40	38	No
Virginia Street	Lee Avenue to Northcott Avenue	28	27	Yes
	Downers Drive to Belle Aire Lane	22	19	Yes

Traffic Crash History

GIS traffic crash data for the neighborhood roads was obtained by the Village of Downers Grove for review and consideration when developing recommended traffic volume and/or speed mitigation measures in this study. The crash data is summarized in **Figures A** through **E** (located in the Appendix), which show the locations of the crashes for each year from January 2017 through December 2021. Based on the data, the following observations were made on the intersections internal to the neighborhood:

- The overall number of crashes along the internal neighborhood roads was limited. Excluding the crashes that occurred along the arterial roadways bordering the neighborhood (Highland Avenue and Ogden Avenue), the neighborhood internal roads had a total of 27 crashes over the five-year period, which averages to just over five crashes per year.

- Excluding the crashes that occurred along the arterial roadways bordering the neighborhood, none of the intersections or specific locations within the neighborhood had more than two crashes in the five-year period.

- The following five unsignalized intersections along Ogden Avenue had a maximum of three crashes in any one-year period:

    - Ogden Avenue with Venard Road
    - Ogden Avenue with Belle Aire Lane
    - Ogden Avenue with Downers Drive
    - Ogden Avenue with Lee Avenue
    - Ogden Avenue with Lacey Road

As such, the crash data shows that the neighborhood internal roadways have experienced a very low incidence of crashes.

Preliminary On-Street Parking Review

As part of the study, KLOA, Inc. preliminarily observed the on-street parking conditions within the neighborhood. Other than the additional on-street parking that occurs within proximity to or associated with Belle Aire Elementary School and the parks, the neighborhood experiences limited on-street parking, similar to most neighborhoods. While the school and parks may have higher on-street parking demands, this is expected and typical of these types of uses.

Review of Belle Aire Elementary School

Belle Aire Elementary School is located on the north side of the terminus of Belle Aire Lane and the east side of the Herbert Street cul-de-sac. Currently, the school has an enrollment of approximately 237 students in kindergarten through sixth grade with the school day generally extending from 8:15 A.M. to 3:00 P.M. The following briefly summarizes the transportation operations of the elementary school:

- Primary staff and visitor parking is provided via a parking lot and one-way, counterclockwise drop-off/pick-up lane located on the south side of the school campus with access provided via three access drives on Belle Aire Lane. A few additional parking spaces are provided along the west side of the school building with access provided via one access drive on Belle Aire Lane.

- Bus loading occurs within the staff/visitor parking lot with the buses entering the parking lot via the south access drive and exiting the parking lot via the north access drive.

- Student drop-off and pick-up activity occurs along the south side of the campus via the drop-off/pick-up lane located along the south side of the building. Parents/caregivers enter the drop-off/pick-up lane via the middle access drive and exit via the north access drive. To expedite the drop-off/pick-up activity, staff members assist with the loading/unloading of students and the management of the operations. The queue of vehicles can extend along Belle Aire Lane, particularly during the afternoon pick-up period.

- Parents/caregivers were observed dropping off and picking up students in the Herbert Street cul-de-sac.

- Many parents/caregivers were observed walking their student to and from school.

Field observations and the results of the traffic counts show that the overall school operations function well with limited impact on the area roadway system. Some limited congestion occurs along the north end of Belle Aire Lane. However, the impact is limited given the lower enrollment of the school and the fact that the congestion occurs at the north end of Belle Aire Lane, which only serves the school and several homes. Further, any additional congestion only occurs for approximately 10 to 15 minutes before and after school. This is inherent with most schools given the fixed start and end times of the school day. In addition, the after-school peak period occurs in the afternoon and does not overlap with the evening commuter peak period (4:00 P.M. to 6:00 P.M.), further minimizing the impact of the school operations on the area roadway conditions.

Traffic Signal Warrant Analyses

As part of the study and per the request of the Village of Downers Grove, traffic signal warrant analyses were performed at the following intersections along Ogden Avenue serving the neighborhood:

- Ogden Avenue with Venard Road
- Ogden Avenue with Belle Aire Lane
- Ogden Avenue with Downers Drive
- Ogden Avenue with Lee Avenue
- Ogden Avenue with Lacey Road

All five intersections are T-intersections with the north-south residential roads under stop sign control at their respective intersections with Ogden Avenue. In addition, all five intersections are under the jurisdiction of IDOT. The purpose of the traffic signal warrant analyses is to determine if the existing intersection traffic and pedestrian volumes and/or crash experience warrant the need for a traffic signal at any of the intersections.

Traffic Signal Warrants Requirements

The installation of a traffic signal typically requires the satisfaction of one or more of the following nine warrants from the Federal Highway Administration's *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), 11th Edition. The satisfaction of one or more of the warrants does not in itself justify the installation of a traffic signal. A review of the intersection's physical characteristics and traffic conditions is also necessary to determine whether a traffic control signal installation is justified.

Warrant 1 Eight-Hour Vehicular Volume (A and B):
Warrant 2: Four-Hour Vehicular Volume
Warrant 3: Peak Hour
Warrant 4: Pedestrian Volume
Warrant 5: School Crossing
Warrant 6: Coordinated Signal System
Warrant 7: Crash Experience
Warrant 8: Roadway Network
Warrant 9: Intersection Near a Railroad Grade Crossing

A description of each of the nine warrants is provided in the Appendix of the traffic study.

Traffic Signal Warrant Analyses

Of the nine warrants that can be applied in establishing the justification for a traffic signal, only four traffic and pedestrian volume warrants (Warrants 1 through 4) and the crash experience warrant (Warrant 7) were considered for this analysis. The other four warrants were not considered as the intersections are not a primary school crossing (Warrant 5) or part of a coordinated traffic signal system (Warrant 6), do not consist of two major through routes (Warrant 8), and are not located near a railroad crossing (Warrant 9). Furthermore, IDOT typically only accepts the volume warrants and the crash experience warrant.

Further, it should be noted that IDOT requires that the right-turn volume along the minor road approach be reduced to account for right turn on red movements. The precent reduction of the right-turn movement is dependent on the lane geometrics along the minor road approach (north-south residential roads) as well as the traffic volume along the major road (Ogden Avenue).

Evaluation of Warrants 1, 2, and 3 - Intersection Traffic Volumes

In order to determine the volume of traffic traversing each of the intersections, KLOA, Inc. conducted 12-hour traffic counts (6:00 A.M. to 6:00 P.M.) on Thursday, April 11, 2024. **Tables A** through **E** located in the Appendix summarize the hourly and peak hour traffic volumes traversing each intersection and is shown by the total traffic volume along the major road (Ogden Avenue) and the volume along the minor road approach (north-south residential roads). In addition, the tables also highlight which hours of the day satisfy the minimum volume threshold for Warrant 1A, Warrant 1B, combination of Warrant 1A/1B, Warrant 2, and Warrant 3. It should be noted that the tables provide the total traffic volumes along the minor road and the volumes were not reduced to account for IDOT's right turn on red reductions.

A review of the tables shows that none of the intersections meet any of the traffic volume warrants. This is due in part to the fact that (1) the subject neighborhood, including the commercial and office land uses along Ogden Avenue, do not generate a significant volume of traffic and (2) the volume of traffic is distributed over six north-south roads that serve the neighborhood and intersect Ogden Avenue. Therefore, the existing traffic volumes do not satisfy Warrant 1, Warrant 2, or Warrant 3.

Evaluation of Warrant 4 - Intersection Pedestrian Volumes

All five intersections had a low volume of pedestrians crossing Ogden Avenue and, as such, none of the intersections satisfy Warrant 4.

Evaluation of Warrant 7 – Crash Experience

Per the MUTCD, the following highlights one of the main criteria for meeting Warrant 7 - Crash Experience Warrant:

Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash.

A review of the crash data provided by the Village and included in the Appendix shows that none of the five intersections had more than five crashes in a 12-month period that satisfied the above criteria. As such, Warrant 7 is not satisfied at any of the five intersections.

Traffic Signal Warrant Findings

The results of the traffic signal warrant study have shown that the five intersections do not currently satisfy any of the traffic volume warrants (Warrants 1, 2, and 3), the pedestrian volume warrant (Warrant 4), or the crash experience warrant (Warrant 7).

4. Detailed Evaluation and Recommendations

This section of the study provides the detailed evaluation of the internal roadways, pedestrian and bicycle facilities, and traffic control devices within the neighborhood and includes a thorough analysis of traffic operations, vehicular and pedestrian/bicycle circulation, and overall safety along the internal neighborhood roadways. Recommendations were developed for the following components of the neighborhood transportation system:

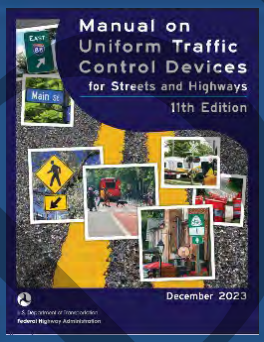
- Intersection traffic control devices
- Pedestrian and bicycle facilities
- Travel speeds and traffic volumes on the neighborhood roads

Basis of Recommendation

The recommendations developed in this section were based primarily on accepted engineering practices, conformity with the *Manual on Uniform Traffic Control Devices* (MUTCD), 11th Edition, existing Village criteria, and input from Village staff. Further, many recommendations include the use of traffic calming measures and devices. The following provides a summary of the MUTCD and the purposes and types of traffic calming measures/devices.

MUTCD

The MUTCD defines the standards used to install and maintain traffic control devices including all signs, signals, markings, and other devices used to regulate, warn, or guide traffic on all public streets, highways, bikeways, and private roads open to public traffic. While the MUTCD provides guidelines with specific benchmarks, many of the criteria are subjective and are left to engineering judgment and practices.



The MUTCD defines the standards used to install and maintain traffic control devices including all signs, signals, markings and other devices used to regulate, warn, or guide traffic on all public streets, highways, bikeways, and private roads open to public traffic.

Purposes and Types of Traffic Calming Measures/Devices

Traffic calming is defined as the installation of measures designed to reduce traffic speeds and/or traffic volumes in the interest of street safety, livability, and other public purposes. The primary purposes of traffic calming measures/devices are as follows:

- To reduce speed/volume of traffic by increasing motorists' awareness and/or restricting traffic flow.
- To enhance overall safety by better organizing the access and circulation of all modes of transportation.

Traffic calming measures/devices have many different forms and can be implemented incrementally from measures/devices with lower costs and reduced design, coordination, and implementation efforts to measures/devices with higher costs and greater design, coordination, and implementation efforts. **Tables 3** to **6** and the following summarize the two general traffic calming categories:

- *Non-Physical Measures/Devices* generally provide a non-invasive form of traffic calming that are inexpensive and easy to implement, and that can also be easily removed if the measure/device is unsuccessful. As such, these measures/devices are typically implemented before physical measures. Non-physical traffic calming measures include education, community involvement, and enforcement (Level 1 measures/devices) and signage and pavement markings (Level 2 measures/devices).
- *Physical Measures/Devices* consist of physical modifications to the roadway design and are more costly to implement and require more design, coordination, and implementation efforts (Level 3 measures/devices). As such, physical measures/devices are often only considered after non-physical measures/devices have been determined to be unsuccessful. Physical measures/devices include horizontal deflections and vertical deflections.

Table 3
TRAFFIC CALMING MEASURES/DEVICES

Options	Examples
Non-Physical Measures/Devices – Level 1 and 2 Measures/Devices	
Education and Enforcement	Education, Community Involvement Efforts, Targeted Police Enforcement, Radar Speed Trailers, Patrol Decoy
Advisory Signing	Enhanced Speed Limit Signs, Neighborhood Signs, Speed Radar Signs, School/Park Zones
Pavement Markings	Parking Lines/Boxes, Bike Lanes/Sharrows, Edge/Centerlines, Speed Limit Markings
Physical Measures/Devices - Level 3 Measures/Devices	
Horizontal Deflections	Curb Extensions, Median Islands, Traffic Circles, Chokers/Neck-Downs
Vertical Deflections	Speed Humps/Lumps, Speed Tables, Raised Crosswalks, Raised Intersections

Table 4
NON-PHYSICAL MEASURES/DEVICES

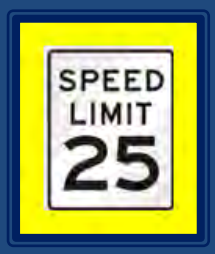
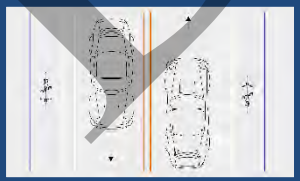
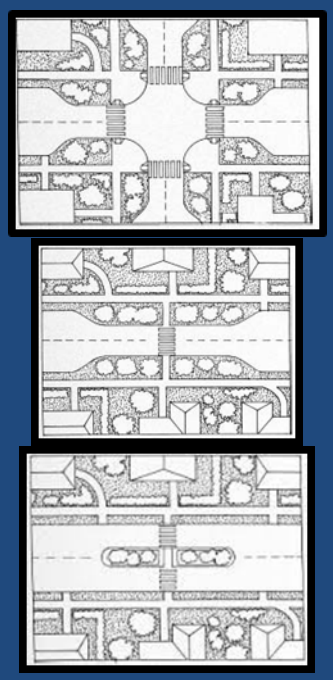
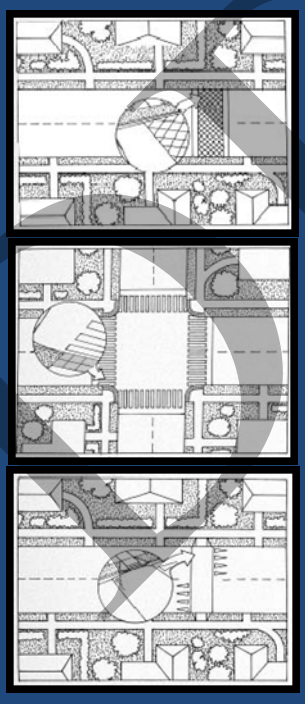
	***Education and Community Involvement Efforts*** include yard sign campaigns, radar gun loan programs, and self-policing that further educates/informs both residents and motorists.
	***Speed Limit Signage/Markings*** include oversized speed limit signs, yellow-framed speed limit signs, and/or speed limit pavement markings that further reinforce speed limits.
	***Speed Monitors and Enforcement*** includes portable/permanent speed monitors, targeted police enforcement, and patrol decoys that further reinforce/enforce speed limits.
	***Pavement Markings*** include edge lines, parking boxes, and centerlines that delineate the travel lanes and provide the perception of a narrower roadway.
	***Sharrow Markings*** reinforces the shared-lane environment of posted bicycle routes and provides the perception of a narrower roadway.
	***Buffered Bike Lanes*** provide a dedicated lane for bicyclists that make the movements of both motorists and bicyclists more predictable, leading to safer roads. They also provide the perception of a narrower roadway.

Table 5
PHYSICAL MEASURES/DEVICES – HORIZONTAL DEFLECTIONS



- **Includes curb extensions, median islands, and chokers**
- **Advantages:**
  - **Effective at reducing speeds, particularly in proximity to measure**
  - **Enhance pedestrian circulation and safety by reducing the crossing distance, improving the visibility of pedestrians, and enhancing pedestrian sight lines**
- **Disadvantages:**
  - **More expensive**
  - **May hinder bike circulation**
  - **May reduce on-street parking**

Table 6
PHYSICAL MEASURES/DEVICES – VERTICAL DEFLECTIONS



- **Includes speed humps/lumps, raised crosswalks, and raised intersections**
- **Advantages:**
  - **Effective at reducing speeds, particularly in proximity to measure**
  - **Raised crosswalks/intersections enhance pedestrian safety/circulation as they provide more defined pedestrian crossings**
- **Disadvantages:**
  - **More expensive**
  - **Increase emergency response times**
  - **Require additional signage/striping**
  - **Noise and aesthetic issues/concerns**
  - **May hinder bike circulation**
  - **May reduce on-street parking**
  - **Difficulty for snow operations**

Intersection Traffic Control

Development of the intersection traffic control plan involved a comprehensive evaluation of each intersection along with the existing overall operating conditions of the neighborhood (see Chapter 3). Any intersection traffic control plan must consider typical issues, such as the functional classification of the roadways, through trips, speeding, traffic calming, circulation, and land-use impacts. As such, a systematic approach was employed that examined the neighborhood from the inside (each individual intersection) and outside (the overall neighborhood). The intersection traffic control plan was generally based on the warrants and/or requirements in the MUTCD and the physical and operating characteristics of the roadway system, including the following:

- The functional classification of the roadway system
- The existing intersection traffic control
- The existing traffic volumes
- The pedestrian activity
- The existing crash data
- The land uses in the area
- Intersection sight distance

Figure 12 illustrates the recommended traffic control plan and **Table 7** summarizes the recommended modifications.

Based on the evaluation, it has been determined that the following intersections should be under all-way stop sign control.

- The following intersections should continue to operate under all-way stop sign control to maintain these established locations and due to the intersections' proximities to Belle Aire Elementary School, Northside Park, and Doerhoefer Park:
    - Venard Road with Drove Avenue
    - Saratoga Avenue with 41st Street
- The following intersections should continue to operate under all-way stop sign control to maintain these established locations, due to sight distance constraints, and/or to reduce the uninterrupted flow of traffic along Saratoga Avenue and Downers Drive:
    - Saratoga Avenue with Barneswood Drive
    - Saratoga Avenue with Black Oak Drive
    - Saratoga Avenue with Candlewood Drive
    - Downers Drive with Herbert Street
    - Downers Drive with 40th Street
- *Saratoga Avenue with 35th Street*. This intersection should be converted from two-way stop sign control to all-way stop sign control due to the school crossing at this intersection and the high volume of traffic on both roads.

Table 7
RECOMMENDED INTERSECTION TRAFFIC CONTROL MODIFICATIONS

Modifications	Intersections
Convert two-way stop sign control to all-way stop sign control	• Saratoga Avenue with 35th Street
Replace yield sign control with stop sign control	• Downers Drive with Coral Berry Lane • 35th Street with Venard Road
Add one-way stop sign control at intersections with no intersection traffic control	• Saratoga Avenue with Gregory Place • Saratoga Avenue with Bryce Place • Saratoga Avenue with Oak Hill Road • Saratoga Avenue with Barberry Court • Saratoga Avenue with Red Silver Court • Forest Avenue with Herbert Street • Venard Road with Drew Street (north leg) • Venard Road with Holland Place • Venard Road with Drew Street (south leg) • Venard Road with Acorn Avenue • Venard Road with Hickory Court • Venard Road with Red Bud Court • Venard Road with Golden Bell Court • Venard Road with Wood Avenue • Venard Road with Parish Court • Pomeroy Road with Acorn Avenue • Downers Drive with Arrow Wood Road • Downers Drive with Snowberry Court • Downers Drive with Plum Court • Downers Drive with Almond Court • Morton Avenue with Herbert Street • Morton Avenue with 40th Street • Seeley Avenue with Herbert Street • Seeley Avenue with 40th Street • Belle Aire Lane with Virginia Street • Belle Aire Lane with Janet Street • Seeley Avenue with Virginia Street • Seeley Avenue with Janet Street • Northcott Avenue with 40th Street • Northcott Avenue with Virginia Street • Northcott Avenue with Carol Street • Northcott Avenue with Janet Street • Lacey Road with Carol Street • Lacey Road with Janet Street • Buckthorn Lane with Coral Berry Lane

Table 7, Continued
RECOMMENDED INTERSECTION TRAFFIC CONTROL MODIFICATIONS

Modifications	Intersections
Add one-way stop sign control at intersections with no intersection traffic control	• Barneswood Drive with Holly Court • Barneswood Drive with Creekwood Court • Barneswood Drive with Quince Court • Braemoor Drive with Mistwood Lane (east) • Braemoor Drive with Mistwood Ln (west) • Oak Hill Road with Acorn Drive • Hickory Trail with Acorn Drive • Oak Hill Road with Hickory Trail • Black Oak Drive with Candlewood Drive

The following intersections currently have yield sign control and should be converted so that the approaches under yield sign control are under stop sign control:

- Downers Drive with Coral Berry Lane
- 35th Street with Venard Road

The following T-intersections have no traffic control and should be converted to one-way stop sign control so that the road with only one intersection leg is under stop sign control:

- Saratoga Avenue with Gregory Place
- Saratoga Avenue with Bryce Place
- Saratoga Avenue with Oak Hill Road
- Saratoga Avenue with Barberry Court
- Saratoga Avenue with Red Silver Court
- Forest Avenue with Herbert Street
- Venard Road with Drew Street (north leg)
- Venard Road with Holland Place
- Venard Road with Drew Street (south leg)
- Venard Road with Acorn Avenue
- Venard Road with Hickory Court
- Venard Road with Red Bud Court
- Venard Road with Golden Bell Court
- Venard Road with Wood Avenue
- Venard Road with Parish Court
- Pomeroy Road with Acorn Avenue
- Downers Drive with Arrow Wood Lane
- Downers Drive with Snowberry Court
- Downers Drive with Plum Court
- Downers Drive with Almond Court
- Morton Avenue with Herbert Street

- Morton Avenue with 40th Street
- Seeley Avenue with Herbert Street
- Seeley Avenue with 40th Street
- Belle Aire Lane with Virginia Street
- Belle Aire Lane with Janet Street
- Seeley Avenue with Virginia Street
- Seeley Avenue with Janet Street
- Northcott Avenue with 40th Street
- Northcott Avenue with Virginia Street
- Northcott Avenue with Carol Street
- Northcott Avenue with Janet Street
- Lacey Road with Carol Street
- Lacey Road with Janet Street
- Buckthorn Lane with Coral Berry Lane
- Barneswood Drive with Holly Court
- Barneswood Drive with Creekwood Court
- Barneswood Drive with Quince Court
- Braemoor Drive with Mistwood Lane (east intersection)
- Braemoor Drive with Mistwood Lane (west intersection)
- Oak Hill Road with Acorn Drive
- Hickory Trail with Acorn Drive
- Oak Hill Road with Hickory Trail
- Black Oak Drive with Candlewood Drive

Speed Limits and Posted Speed Limit Signs

The posted speed limit on most of the neighborhood roads is 25 miles per hour except for the following locations:

- Mistwood Lane and Braemoor Drive have a posted speed limit of 20 mph.
- 35th Street in the vicinity of Saratoga Avenue, Venard Road in the vicinity of Parrish Court, and Belle Aire Lane in the vicinity of Belle Aire Elementary School all have 20-mph school zone speed limits.
- Venard Road along Doerhoefer Park has a 20-mph park zone speed limit.

KLOA, Inc. examined both the type and locations of the existing speed limit signs within the neighborhood as a means to help mitigate travel speeds through the neighborhood. If these measures are not effective in reducing the travel speeds, consideration should be given to installing temporary radar feedback signs within the neighborhood, including along 35th Street, Venard Road, Belle Aire Lane, Downers Drive, and Lacey Road. **Figure 13** illustrates the proposed modifications to the posted speed limit signs in the neighborhood, which consist of installing new signs with yellow borders and adding yellow borders to existing speed limit signs as well as potential locations for temporary radar feedback signs.

In addition, it is recommended that a 20 mph speed limit be provided along both directions of Venard Road between Ogden Avenue and just north of Drove Avenue. Both Doerhoefer Park and Community High School District 99's Transition 99 are located along this section of Venard Road. With the proposed 20 mph speed limit, the existing 25 mph speed limit signs and the 20 mph park zone speed limit signs along this section of Venard Road will need to be replaced with 20 mph speed limit signs or removed and additional 20 mph speed limit signs will need to be installed.

Bicycle Facilities

It should be noted that Baxter & Woodman Consulting Engineers is currently performing a bicycle and pedestrian plan for the Village. To date, Baxter & Woodman have prepared an interim report titled "*What's Possible" Assessment Memorandum, Village of Downers Grove* (WPA) and dated December 12, 2024. The purpose of the WPA is to "identify potential active transportation facility improvements within the rights-of-way of Village, DuPage County (DuDOT), and State of Illinois (IDOT) transportation corridors." As further stated in the WPA, "the outcome of the WPA is a series of maps which depict the potential to construct alternative facilities typologies along principal north-south and east-west corridors; and accompanying table which further notes physical constraints, consequences, and/or modifications required to construct each proposed facility type."

Since the Village is preparing a separate *Bicycle and Pedestrian Plan* and the fact that the plan is not completed, KLOA, Inc. did not provide any bicycle recommendations as part of this study. Instead, a copy of the *Existing Network Transformation* summary and the *"What's Possible," Existing Network Transformation* exhibit from the WPA is included in the Appendix of this study. The summary/exhibit "describes the different existing alignments possible for transformation by type" for the entire Village, including Neighborhood 10.

Pedestrian Facilities and Traffic Control Devices

The neighborhood contains Belle Aire Elementary School, Northside Park, and Doerhoefer Park. To safely accommodate pedestrians, numerous pedestrian facilities and warning devices are provided within the neighborhood, which are highlighted in the existing conditions section of the report and illustrated in Figure 6.

In addition, KLOA, Inc. reviewed and evaluated the pedestrian crossings in the neighborhood to enhance pedestrian safety and circulation, compliance with the MUTCD, and overall consistency throughout the neighborhood. The recommended modifications to the pedestrian facilities and warning devices are shown in **Figure 14** and are summarized below and in **Table 8:**

- Remove the School Crossing Assemblies (S1-1, W16-7P) on the eastbound and westbound legs of 35th Street at Saratoga Avenue as all-way stop sign control is recommended at this intersection.

- Replace standard style crosswalks with high visibility, ladder style crosswalks at the following intersections:
    - On the west leg of 41st Street at its intersection with Forest Avenue
    - On the north leg of Saratoga Avenue at its intersection with 41st Street
- Add high visibility, ladder style crosswalks at the following intersections:
    - On the east leg of 41st Street at its intersection with Forest Avenue
    - On the south leg of Saratoga Avenue at its intersection with 35th Street
    - On the north leg of Downers Drive at Herbert Street
- Realign the high viability, ladder style crosswalk on the south leg of Belle Aire Lane at its intersection with Drove Avenue so that it is aligned parallel to Drove Avenue.

It should be noted that the WPA includes "several facility improvements that are possible at standard facility type locations, such as at signalized intersections, crosswalks, and trail crossings throughout Downers Grove, irrespective of thoroughfare authority." Many of the WPA improvements are similar to those recommended above. A copy of the *Intersections and Crossings* summary and the *"What's Possible", Intersections and Crossings* exhibit from the WPA is included in the Appendix of this study.

Table 8
PEDESTRIAN FACILITIES AND TRAFFIC CONTROL DEVICES RECOMMENDATIONS

Location	Recommendation Description
Eastbound and Westbound 35th Street at Saratoga Avenue	Remove the School Crossing Assemblies (S1-1, W16-7P)
• On 41st Street at Forest Avenue • On Saratoga Avenue at 35th Street	Replace standard style crosswalks with high visibility, ladder style crosswalks
• On 41st Street at Forest Avenue • On Saratoga Avenue at 35th Street • On Downers Drive at Herbert Street	Add high visibility, ladder style crosswalks
On Belle Aire Lane at Drove Avenue	Realign the high viability, ladder style crosswalk

Pavement Markings and Signage

Based on field observations, the following summarizes additional recommendations concerning the neighborhood signage and pavement markings:

- Install double yellow centerlines, parking lanes/boxes, and/or edge lines on the following roads:
    - Saratoga Avenue between Venard Road and 39th Street (centerline and parking lanes/boxes)
    - 39th Street between Saratoga Avenue and Highland Avenue (centerline)
    - 41st Street between Saratoga Avenue and Highland Avenue (centerline)
    - Brookside Lane between Venard Road and Saratoga Avenue (centerline)
    - Venard Road between Barneswood Drive and Parish Court (centerline)
    - Belle Aire Lane between Belle Aire Elementary School and Janet Street (centerline and edge lines)
    - Downers Drive between Janet Street and Herbert Street (centerline and edge lines)
- Refresh all pavement markings that have become faded, including centerlines, parking lanes/boxes, and edge lines.
- Stop lines are supplemental pavement markings that enhance the visibility of the stop sign control, which can improve compliance and reduce crash potential. When used in combination with crosswalks, they indicate the point at which vehicles should stop to provide adequate separation from pedestrians in the crosswalk. The following stop bar modifications are recommended:
    - Refresh existing stop bars that have become faded
    - Relocate the stop bars on the stop sign approaches where high visibility, ladder style crosswalks are recommended to be installed
- Several of the regulatory and warning signs in the neighborhood were partially obstructed from view by overgrown trees and bushes. Village staff should inspect all sign locations within the neighborhood during late Spring/early Summer to identify trees located within the right-of-way in need of trimming.

Education

Based on field observations and discussions with Village staff, educational materials are recommended to be developed that explain the following topics:

- Village policies regarding vehicular speeds and volumes on neighborhood streets
- State of Illinois "Stop for Pedestrians in the Crosswalk" law
- Laws related to traffic movements and cell phone use within school zones/bus loading areas
- Navigating the Village's website for neighborhood transportation data, studies, and information

Enforcement

Police enforcement of the posted traffic regulations is a critical component of the neighborhood traffic improvement plan, particularly considering the high travel speeds in the neighborhood. Recommendations include to continue and/or expand the speed enforcement efforts to target some of the local roads that experience higher travel speeds.

Traffic Calming Measures

Speeding and cut-through traffic are generally two of the major concerns expressed by residents in any neighborhood. As discussed previously, the traffic volumes within the neighborhood are generally within an acceptable range for residential roads and consistent with traffic patterns on other neighborhood roads within the Village. However, the results of the speed surveys show that the observed average speeds at several of the surveyed locations within the neighborhood exceeded the posted speed limit and the observed 85th percentile speeds exceeded the posted speed limit by five mph or greater. As discussed previously, the increased speeds within the neighborhood are likely due in part to the long stretches of free flow conditions along some of the roadways, the hilly terrain in the neighborhood, and the traffic traveling to and from the commercial developments and parks within the neighborhood.

As such, several of the roads are experiencing some higher travel speeds. The various recommendations made as part of the study, which include many traffic calming measures/devices, will help to mitigate the speeds in the neighborhood. In addition, KLOA, Inc. examined locations that would be appropriate for additional traffic calming measures/devices and developed additional traffic calming recommendations for the Village to consider. The review was based on the existing traffic volumes, speed surveys, and roadway characteristics. Before any physical measures/devices are implemented, a thorough evaluation will need to be conducted to examine the impact of the measures/devices including emergency vehicle access and response times, diversion of traffic to other neighborhood roads, drainage impacts, costs, and long-term maintenance. **Table 9** outlines the traffic calming recommendations for the various roads in the neighborhood and includes recommendations already summarized in the study.

Consideration should be given to installing horizontal deflection measures (curb extensions, median islands, chokers/neck-downs, chicanes, etc.) and/or permanent or temporary radar feedback signs, if the recommended measures are not effective in reducing the travel speeds. Roadways or sections of roadways that may need additional measures include:

- 35th Street
- Brookside Lane
- 39th Street
- Saratoga Avenue
- Venard Road
- Belle Aire Lane
- Downers Drive

Table 9
POTENTIAL TRAFFIC CALMING MEASURES

Traffic Calming Measure	Locations
Speed Monitors and Police Enforcement. Continue use of portable electronic speed monitors, install permanent speed monitors, and/or enhance targeted police enforcement to increase awareness and enforce speed limits.	• Neighborhood-wide
Speed Limit Signage. Install additional speed limit signs and/or yellow-framed speed limit signs to further reinforce the speed limits.	• Neighborhood-wide
Centerline Pavement Markings. Install or refresh existing centerlines to give motorists the perception of a narrower roadway.	• Saratoga Avenue • 39th Street • 41st Street • Brookside Lane • Venard Road • Belle Aire Lane • Downers Drive
Edge Lines or Parking Lines/Boxes. Install or refresh edge lines or parking boxes/lines to provide the perception of a narrower roadway.	• 35th Street • Venard Road • Saratoga Avenue • Belle Aire Lane • Downers Drive

5. Conclusion

This study summarizes the results and findings of the neighborhood traffic study for Area Number 10. The neighborhood is primarily bounded by Highland Avenue on the east, Ogden Avenue (U.S. Route 34) on the south, and I-88 on the north and west. Overall, the objective of the study was to thoroughly examine the existing traffic operations within the neighborhood, identify operational deficiencies, and recommend modifications and/or improvements to enhance both vehicular and pedestrian operations. The study addressed the primary traffic concerns within any neighborhood: vehicular volume, vehicular speed, and overall vehicular and pedestrian safety. The recommendations developed in the study were based primarily on accepted engineering practices, conformity with the MUTCD, 11th Edition, existing Village criteria, and input from Village staff.

The matrix in **Table 10** summarizes the recommendations of the Neighborhood 10 Traffic Study and includes the level of difficulty and general cost range to implement each project.

Table 10
DOWNERS GROVE NEIGHBORHOOD 10 - RECOMMENDATION MATRIX

Transportation Component	Location	Recommendation Description	Ease of Implementation Effort	Cost
Traffic Control	Saratoga Avenue with 35th Street	• Convert two-way or one-way stop sign control to all-way stop sign control	Low	Low
Traffic Control	Downers Drive with Coral Berry Lane 35th Street with Venard Road	• Replace yield sign control with one-way stop sign control	Low	Low
Traffic Control	Saratoga Avenue with Gregory Place Saratoga Avenue with Bryce Place Saratoga Avenue with Oak Hill Road Saratoga Avenue with Barberry Court Saratoga Avenue with Red Silver Court Forest Avenue with Herbert Street Venard Road with Drew Street (north leg) Venard Road with Holland Place Venard Road with Drew Street (south leg) Venard Road with Acorn Avenue Venard Road with Hickory Court Venard Road with Red Bud Court Venard Road with Golden Bell Court Venard Road with Wood Avenue Venard Road with Parish Court Pomeroy Road with Acorn Avenue Downers Drive with Arrow Wood Lane Downers Drive with Snowberry Court Downers Drive with Plum Court Downers Drive with Almond Court Morton Avenue with Herbert Street Morton Avenue with 40th Street Seeley Avenue with Herbert Street Seeley Avenue with 40th Street Belle Aire Lane with Virginia Street Belle Aire Lane with Janet Street Seeley Avenue with Virginia Street Seeley Avenue with Janet Street Northcott Avenue with 40th Street Northcott Avenue with Virginia Street	• Add one-way stop sign control on the road with only one intersection leg at these T-intersections that have no traffic control	Low	Low

Table 10 (Continued)
DOWNERS GROVE NEIGHBORHOOD 10 - RECOMMENDATION MATRIX

Transportation Component	Location	Recommendation Description	Ease of Implementation Effort	Cost
Traffic Control	Northcott Avenue with Carol Street Northcott Avenue with Janet Street Lacey Road with Carol Street Lacey Road with Janet Street Buckthorn Lane with Coral Berry Lane Barneswood Drive with Holly Court Barneswood Drive with Creekwood Court Barneswood Drive with Quince Court Braemoor Drive with Mistwood Ln (east) Braemoor Drive with Mistwood Ln (west) Oak Hill Road with Acorn Drive Hickory Trail with Acorn Drive Oak Hill Road with Hickory Trail Black Oak Drive with Candlewood	• Add one-way stop sign control on the road with only one intersection leg at these T-intersections that have no traffic control	Low	Low
Pedestrian Facilities	Eastbound and Westbound 35th Street at Saratoga Avenue	• Remove the School Crossing Assemblies (S1-1, W16-7P)	Low	Low
Pedestrian Facilities	On 41st Street at Forest Avenue On Saratoga Avenue at 35th Street	• Replace standard style crosswalks with high visibility, ladder style crosswalks	Low	Low
Pedestrian Facilities	On 41st Street at Forest Avenue On Saratoga Avenue at 35th Street On Downers Drive at Herbert Street	• Add high visibility, ladder style crosswalks	Low	Low
Pedestrian Facilities	On Belle Aire Lane at Drove Avenue	• Realign the high viability, ladder style crosswalk	Low	Low
Striping & Signage	Neighborhood-wide	• Inspect all traffic sign locations and trim trees within Village right-of-way to improve visibility of signs	Low	Low
Striping & Signage	Neighborhood-wide	• Refresh all pavement markings including parking boxes/edge lines, centerlines, bike lanes, stop bars, etc.	Low	Low
Striping & Signage	Neighborhood-wide	• Install stop lines at new stop sign-controlled locations and existing stop sign control approaches that do not have stop bars	Low	Low

Table 10 (Continued)
DOWNERS GROVE NEIGHBORHOOD 10 - RECOMMENDATION MATRIX

Transportation Component	Location	Recommendation Description	Ease of Implementation Effort	Cost
Striping & Signage	Saratoga - Venard to 39th 39th - Saratoga to Main 41st - Saratoga to Main Brookside - Venard to Saratoga Venard - Barneswood - Parrish Belle Aire - Belle Aire School to Janet Downers - Janet to Herbert	• Install double yellow centerlines, parking lanes/boxes, and/or edge lines on the following roads: •	Low	Low
Traffic Speeds	Neighborhood-wide (see Figure 12)	• Install new neighborhood speed limit signs • Install new speed limit signs with yellow borders	Low	Low
Traffic Speeds	35th Street Venard Road Belle Aire Lane Downers Drive	• Install temporary radar feedback signs	Low	Low
Traffic Speeds	Neighborhood-wide	• Targeted speed enforcement and use of speed radar trailer	Low	Low
Education		• Develop materials to explain Village policies regarding vehicular speeds and volumes on neighborhood roads • Develop materials to explain State of Illinois "Stop for Pedestrians in the Crosswalk" law • Develop materials to assist with navigating the Village's website for neighborhood transportation data, studies, and information	Low	Low

KEY:

Ease of Implementation

High – Recommendation is anticipated to require an extensive level of any or all the following: outside agency and/or stakeholder involvement, outside engineering assistance, and/or construction assistance. The timeframe to implement the recommendation is anticipated to require more than one year.

Medium - Recommendation is anticipated to require a moderate level of any or all the following: outside agency and/or stakeholder involvement, outside engineering assistance, and/or construction assistance. The timeframe to implement the recommendation is anticipated to require less than one year.

Low – Completed by internal Village staff.

Cost

High – Greater than $10,000

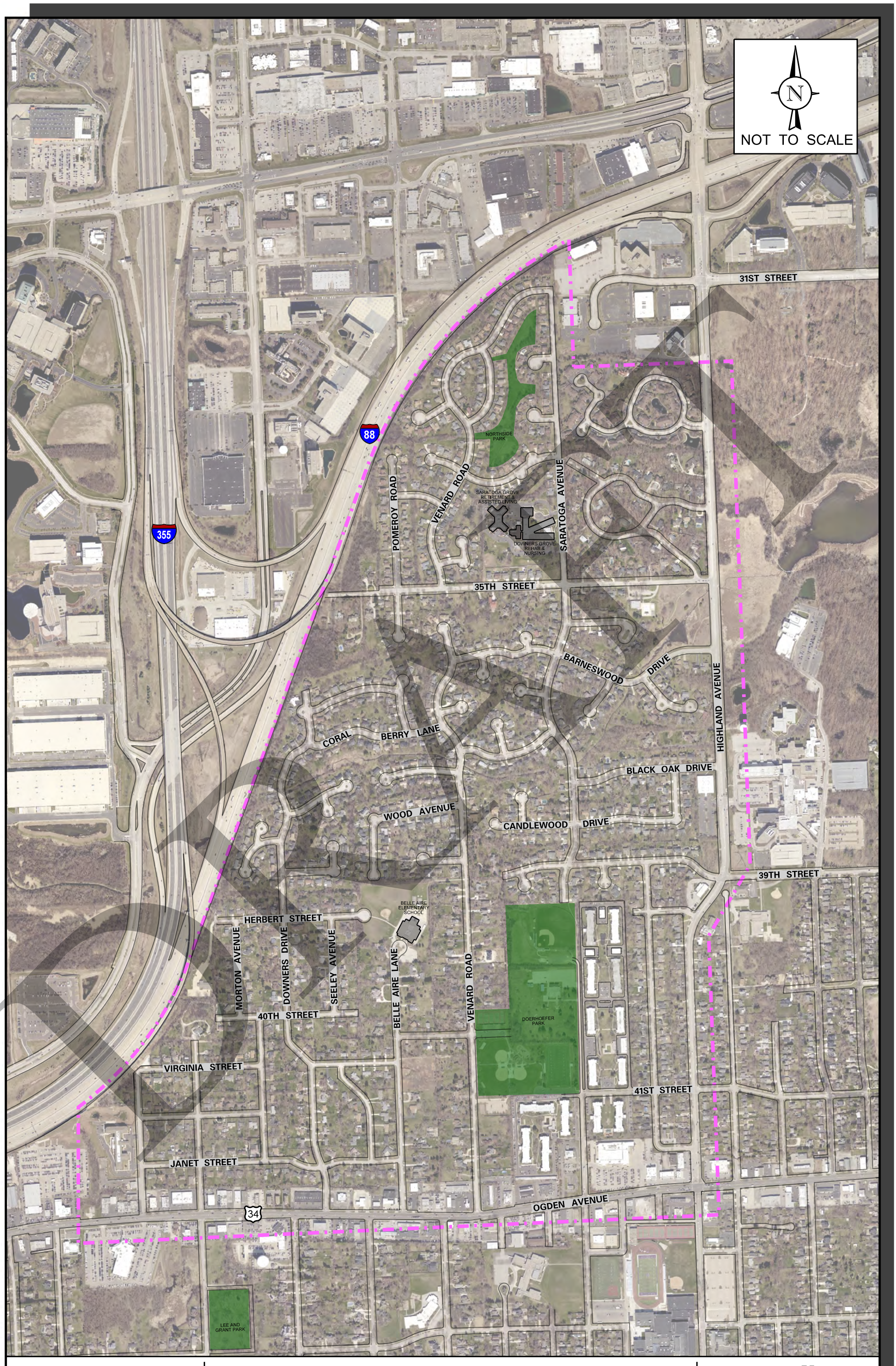
Medium – Less than $10,000

Low – Can be implemented with normal Department operations.

Appendix

Figures
Traffic Signal Warrants
Traffic Signal Warrant Tables
Crash Data
WPA Summaries and Exhibits

Figures

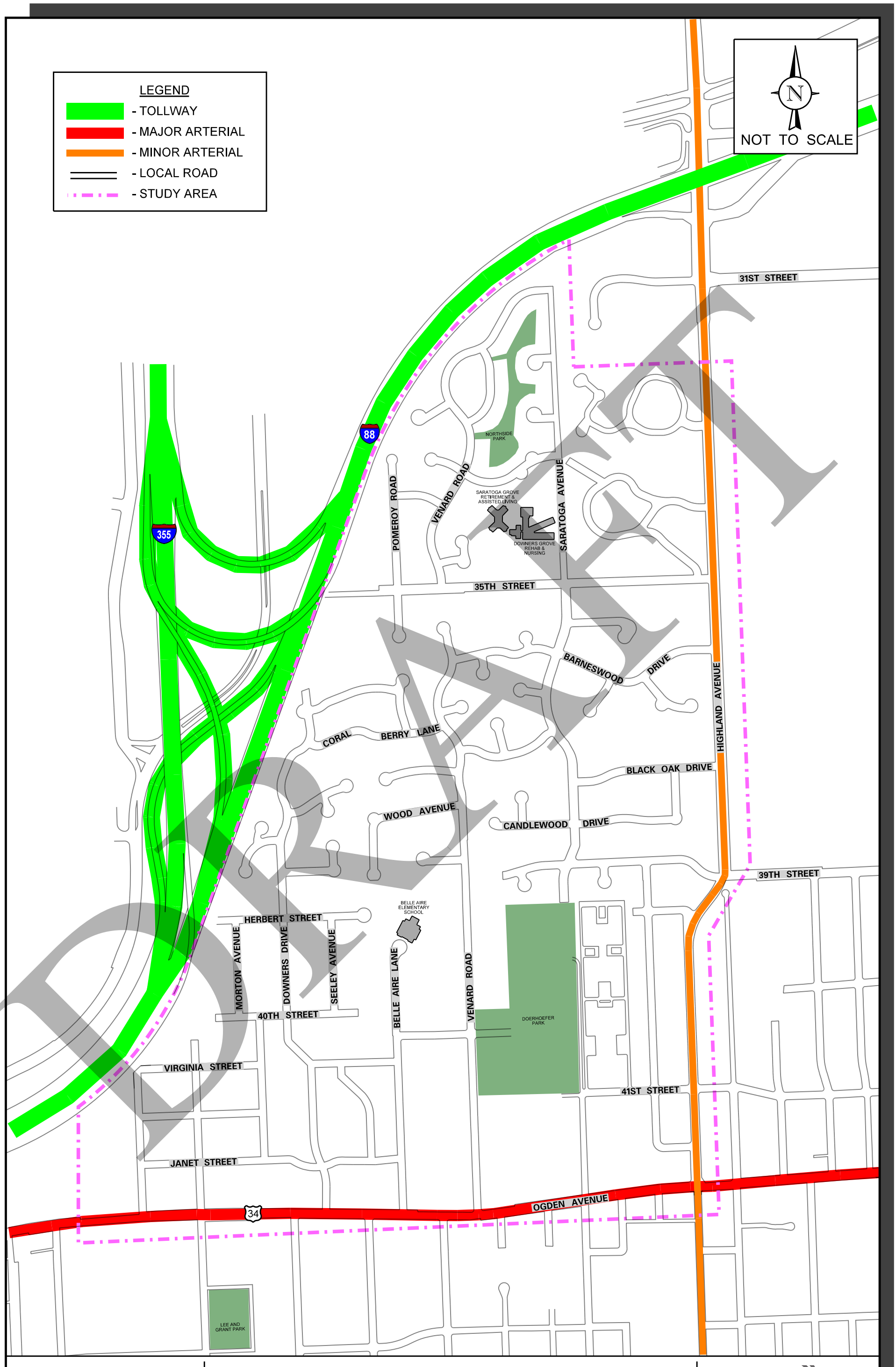


NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

NEIGHBORHOOD 10 TRAFFIC STUDY AREA

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

Job No: 24-084 Figure: 1



NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING ROADWAY FUNCTIONAL CLASSIFICATION

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

Job No: 24-084 Figure: 2

LEGEND
- TRAFFIC SIGNAL
- TRAVEL LANE
- TWO-WAY LEFT TURN
- STUDY AREA

N
NOT TO SCALE

88
355
34
31ST STREET
35TH STREET
39TH STREET
40TH STREET
41ST STREET
HERBERT STREET
VIRGINIA STREET
JANET STREET
OGDEN AVENUE
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
ONE-WAY
NORTHSIDE PARK
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
BELLE AIRE ELEMENTARY SCHOOL
DOERHOEFER PARK
LEE AND GRANT PARK

NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

NEIGHBORHOOD ROADWAY GEOMETRICS AND RESTRICTIONS

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

Job No: 24-084 Figure: 3

LEGEND

XX - SPEED LIMIT SIGN

SCHOOL 20 - SCHOOL SPEED LIMIT SIGN

PARK 20 - PARK SPEED LIMIT SIGN

25 - SPEED LIMIT SIGN W/YELLOW BORDER

XX - ADVISORY SPEED SIGN

YOUR SPEED XX - TEMPORARY RADAR SPEED MONITORS

N

NOT TO SCALE

31ST STREET

NORTHSIDE PARK

SARATOGA GROVE RETIREMENT & ASSISTED LIVING

DOWNERS GROVE REHAB & NURSING

POMEROY ROAD

VENARD ROAD

SARATOGA AVENUE

35TH STREET

BARNESWOOD DRIVE

HIGHLAND AVENUE

CORAL BERRY LANE

BLACK OAK DRIVE

WOOD AVENUE

CANDLEWOOD DRIVE

39TH STREET

BELLE AIRE ELEMENTARY SCHOOL

HERBERT STREET

MORTON AVENUE

DOWNERS DRIVE

SEELEY AVENUE

BELLE AIRE LANE

40TH STREET

DOERHOEFER PARK

VIRGINIA STREET

41ST STREET

JANET STREET

OGDEN AVENUE

LEE AND GRANT PARK

88

355

34

NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

EXISTING POSTED SPEED REGULATIONS

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

Job No: 24-084 Figure: 4

LEGEND

- TRAFFIC SIGNAL
- ALL-WAY STOP SIGN CONTROL
- ONE-WAY/TWO-WAY STOP SIGN CONTROL
- YEILD SIGN CONTROL
- CROSS TRAFFIC DOES NOT STOP SIGN
- STUDY AREA

N

NOT TO SCALE

31ST STREET
88
355
NORTHSIDE PARK
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
35TH STREET
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
39TH STREET
BELLE AIRE ELEMENTARY SCHOOL
HERBERT STREET
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
VENARD ROAD
DOERHOEFER PARK
40TH STREET
41ST STREET
VIRGINIA STREET
JANET STREET
34
OGDEN AVENUE
LEE AND GRANT PARK

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING INTERSECTION TRAFFIC CONTROL

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

Job No: 24-084 Figure: 5

LEGEND
- BIKE ROUTE
- BIKE PATH
- STUDY AREA

EXISTING SIGNS
BIKE ROUTE = 1
OR
BIKE ROUTE = 2

N
NOT TO SCALE

31ST STREET
NORTHSIDE PARK
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
SARATOGA AVENUE
POMEROY ROAD
VENARD ROAD
35TH STREET
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
39TH STREET
BELLE AIRE ELEMENTARY SCHOOL
HERBERT STREET
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
40TH STREET
DOERHOEFER PARK
VIRGINIA STREET
41ST STREET
JANET STREET
OGDEN AVENUE
LEE AND GRANT PARK
88
355
34

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING BICYCLE SIGNAGE AND BIKE ROUTES

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

Job No: 24-084 Figure: 6

LEGEND

- STANDARD CROSSWALK
- HIGH VISIBILITY CROSSWALK
- HIGH VISIBILITY CROSSWALK
- CROSSING GUARD
- STUDY AREA

EXISTING SIGNS

= 1 = 3 = 5

= 2 = 4

N

NOT TO SCALE

88 355 34

31ST STREET
35TH STREET
39TH STREET
40TH STREET
41ST STREET
HERBERT STREET
VIRGINIA STREET
JANET STREET
OGDEN AVENUE
BARNESWOOD DRIVE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
HIGHLAND AVENUE
SARATOGA AVENUE
POMEROY ROAD
VENARD ROAD
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE

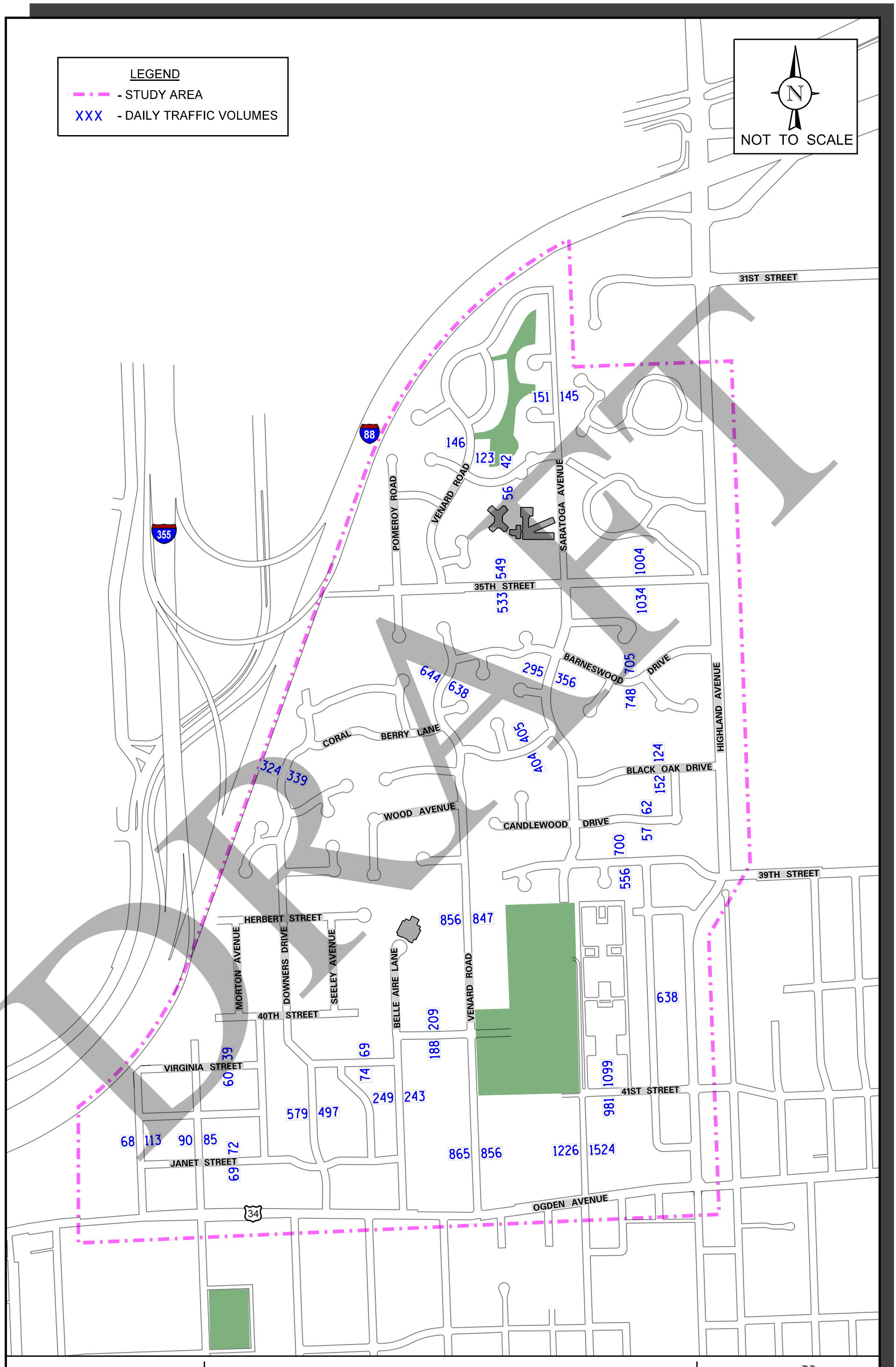
NORTHSIDE PARK
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
BELLE AIRE ELEMENTARY SCHOOL
DOERHOEFER PARK
LEE AND GRANT PARK

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING PEDESTRIAN SIGNAGE AND PAVEMENT MARKINGS

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

Job No: 24-084 Figure: 7



NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING DAILY TRAFFIC VOLUMES

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

Job No: 24-084 Figure: 8

LEGEND
- STUDY AREA
00 - AVERAGE SPEEDS (MPH)
(00) - 85TH PERCENTILE SPEEDS (MPH)

N
NOT TO SCALE

31ST STREET
88
355
NORTHSIDE PARK
30 (37)
28 (34)
26 (30)
24 (29)
19 (24)
16 (24)
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
30 (34)
31 (37)
35TH STREET
32 (37)
34 (40)
23 (27)
24 (28)
26 (32)
28 (33)
BARNESWOOD DRIVE
22 (26)
23 (27)
HIGHLAND AVENUE
CORAL BERRY LANE
26 (30)
21 (24)
21 (24)
21 (32)
19 (23)
BLACK OAK DRIVE
18 (24)
20 (27)
WOOD AVENUE
CANDLEWOOD DRIVE
21 (26)
27 (32)
28 (33)
39TH STREET
HERBERT STREET
BELLE AIRE ELEMENTARY SCHOOL
28 (33)
31 (36)
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
VENARD ROAD
40TH STREET
20 (24)
DOERHOEFER PARK
23 (28)
21 (27)
16 (19)
19 (23)
VIRGINIA STREET
23 (28)
17 (22)
26 (32)
41ST STREET
29 (34)
30 (34)
32 (37)
31 (36)
26 (29)
28 (34)
27 (33)
18 (23)
19 (24)
20 (28)
31 (38)
33 (40)
26 (31)
26 (32)
JANET STREET
23 (32)
34
OGDEN AVENUE

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING AVERAGE AND 85TH PERCENTILE SPEEDS

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

Job No: 24-084 Figure: 9

LEGEND
- STUDY AREA
00 - MORNING PEAK HOUR
(00) - EVENING PEAK HOUR

N
NOT TO SCALE

31ST STREET
88
NORTHSIDE PARK
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
355
35TH STREET
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
39TH STREET
BELLE AIRE ELEMENTARY SCHOOL
HERBERT STREET
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
DOERHOEFER PARK
40TH STREET
VIRGINIA STREET
41ST STREET
JANET STREET
34
OGDEN AVENUE

40 (33)
43 (26)
62 (32)
4 (8)
60 (11)
78 (59)
0 (3)
1 (3)
0 (2)
3 (2)
46 (34)
1 (2)
7 (7)
39 (24)
9 (10)
6 (5)
40 (57)
3 (4)
0 (1)
1 (2)
0 (2)
1 (12)
9 (20)
38 (82)
0 (0)
13 (11)
5 (41)
7 (42)
1 (22)
38 (95)

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING PEAK HOUR TRAFFIC VOLUMES

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

Job No: 24-084 Figure: 10

LEGEND
- STUDY AREA
00 - MORNING PEAK HOUR
(00) - EVENING PEAK HOUR
00 (00) - PEDESTRIAN VOLUME
00 (00) - BICYCLE VOLUME

NOT TO SCALE

31ST STREET
NORTHSIDE PARK
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
35TH STREET
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
39TH STREET
BELLE AIRE ELEMENTARY SCHOOL
HERBERT STREET
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
40TH STREET
DOERHOEFER PARK
VIRGINIA STREET
BELLE AIRE LANE
41ST STREET
JANET STREET
OGDEN AVENUE
88
355
34

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

EXISTING PEAK HOUR PEDESTRIAN AND BICYCLE VOLUMES

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

Job No: 24-084 Figure: 11

LEGEND

- TRAFFIC SIGNAL
- ALL-WAY STOP SIGN CONTROL
- ONE-WAY/TWO-WAY STOP SIGN CONTROL
- YIELD SIGN CONTROL
- CROSS TRAFFIC DOES NOT STOP SIGN
- STUDY AREA
- PROPOSED STOP SIGN CONTROL WITH "CROSS TRAFFIC DOES NOT STOP" SIGN
- PROPOSED ALL-WAY STOP SIGN CONTROL
- REMOVE YIELD SIGN
- REMOVE STOP SIGN

N

NOT TO SCALE

88

355

34

31ST STREET

35TH STREET

39TH STREET

40TH STREET

41ST STREET

HERBERT STREET

VIRGINIA STREET

JANET STREET

OGDEN AVENUE

POMEROY ROAD

VENARD ROAD

SARATOGA AVENUE

BARNESWOOD DRIVE

HIGHLAND AVENUE

BLACK OAK DRIVE

CANDLEWOOD DRIVE

WOOD AVENUE

CORAL BERRY LANE

MORTON AVENUE

DOWNERS DRIVE

SEELEY AVENUE

BELLE AIRE LANE

NORTHSIDE PARK

SARATOGA GROVE RETIREMENT & ASSISTED LIVING

DOWNERS GROVE REHAB & NURSING

BELLE AIRE ELEMENTARY SCHOOL

DOERHOEFER PARK

LEE AND GRANT PARK

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

RECOMMENDED INTERSECTION TRAFFIC CONTROL

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

Job No: 24-084 Figure: 12

LEGEND

- XX - SPEED LIMIT SIGN
- SCHOOL 20 - SCHOOL SPEED LIMIT SIGN
- PARK 20 - PARK SPEED LIMIT SIGN
- 25 - SPEED LIMIT SIGN W/YELLOW BORDER
- XX - ADVISORY SPEED SIGN
- YOUR SPEED XX - TEMPORARY RADAR SPEED MONITORS
- 25 - ADD YELLOW BORDER TO SPEED LIMIT SIGN
- XX - NEW SPEED LIMIT SIGN WITH YELLOW BORDER
- YOUR SPEED XX - POTENTIAL LOCATIONS FOR TEMPORARY SPEED MONITORS

N

NOT TO SCALE

31ST STREET
35TH STREET
39TH STREET
40TH STREET
41ST STREET
HERBERT STREET
VIRGINIA STREET
JANET STREET
OGDEN AVENUE
BARNESWOOD DRIVE
CANDLEWOOD DRIVE
BLACK OAK DRIVE
WOOD AVENUE
CORAL BERRY LANE
HIGHLAND AVENUE
SARATOGA AVENUE
VENARD ROAD
POMEROY ROAD
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE LANE
NORTHSIDE PARK
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
BELLE AIRE ELEMENTARY SCHOOL
DOERHOEFER PARK
LEE AND GRANT PARK
88
355
34

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

RECOMMENDED MODIFICATIONS TO POSTED SPEED REGULATIONS

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

Job No: 24-084 Figure: 13

LEGEND

- REMOVE SIGN
- REMOVE CROSSWALK
- STANDARD CROSSWALK
- HIGH VISIBILITY CROSSWALK
- HIGH VISIBILITY CROSSWALK
- CROSSING GUARD
- NEW HIGH VISIBILITY CROSSWALK
- REALIGN CROSSWALK
- STUDY AREA

EXISTING SIGNS

= 1 = 3 = 5

= 2 = 4

31ST STREET
NORTHSIDE PARK
POMEROY ROAD
VENARD ROAD
SARATOGA AVENUE
SARATOGA GROVE RETIREMENT & ASSISTED LIVING
DOWNERS GROVE REHAB & NURSING
35TH STREET
BARNESWOOD DRIVE
HIGHLAND AVENUE
CORAL BERRY LANE
BLACK OAK DRIVE
WOOD AVENUE
CANDLEWOOD DRIVE
39TH STREET
HERBERT STREET
MORTON AVENUE
DOWNERS DRIVE
SEELEY AVENUE
BELLE AIRE ELEMENTARY SCHOOL
BELLE AIRE LANE
40TH STREET
DOERHOEFER PARK
VIRGINIA STREET
41ST STREET
JANET STREET
OGDEN AVENUE
LEE AND GRANT PARK
88
355
34

NEIGHBORHOOD 10 TRAFFIC STUDY DOWNERS GROVE, ILLINOIS

RECOMMENDED PEDESTRIAN SIGNAGE AND PAVEMENT MARKINGS

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

Job No: 24-084 Figure: 14

Traffic Signal Warrants

CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

Standard:

01 **Except for a temporary traffic control signal (see Section 4D.11) installed in a temporary traffic control zone, before a traffic control signal is installed at a particular location, an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at that location.**

02 **The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:**

Warrant 1, Eight-Hour Vehicular Volume
Warrant 2, Four-Hour Vehicular Volume
Warrant 3, Peak Hour
Warrant 4, Pedestrian Volume
Warrant 5, School Crossing
Warrant 6, Coordinated Signal System
Warrant 7, Crash Experience
Warrant 8, Roadway Network
Warrant 9, Intersection Near a Grade Crossing

03 **The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.**

Support:

04 Sections 8D.08 and 8D.14 contain information regarding the use of traffic control signals instead of gates and/or flashing-light signals at grade crossings.

Guidance:

05 *When considering the installation of a traffic control signal, alternatives to traffic control signals, including those listed in Section 4B.03, should also be considered.*

06 *A traffic control signal should not be installed unless one or more of the factors described in this Chapter are met.*

07 *A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.*

08 *The study should consider the effects of the right-turning vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turning traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants listed in Paragraph 2 of this Section.*

09 *Engineering judgment should also be used in applying various traffic signal warrants to cases where major-street approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether a major-street approach is considered as one lane or two lanes. For example, for a major-street approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The major-street approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turning vehicles.*

10 *Similar engineering judgment and rationale should be applied to a minor-street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turning traffic with traffic on the major street should be considered. Thus, right-turning traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The minor-street approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.*

11 *If a minor-street approach has one combined through/right-turn lane plus a left-turn lane, the approach should either be analyzed as a two-lane approach based on the sum of the traffic volumes using both lanes or as a one-lane approach based on only the traffic volume in the approach lane with the higher volume.*

12 *At a location that is under development or construction or at a location where it is not possible to obtain a traffic count that would represent future traffic conditions, hourly volumes should be estimated as part of an engineering study for comparison with traffic signal warrants. Except for locations where the engineering study uses the satisfaction of Warrant 8 to justify a signal, a traffic control signal installed under projected conditions should have an engineering study done within 1 year of putting the signal into steady (stop-and-go) operation to determine if the signal is justified. If not justified, the signal should be taken out of steady (stop-and-go) operation or removed.*

Option:

13 For signal warrant analysis, a location with a wide median may be analyzed as one intersection or as two intersections (see Section 2A.23) based on engineering judgment.

14 At an intersection with a high volume of left-turning traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher of the major-street left-turn volumes as the "minor-street" volume and the corresponding single direction of opposing traffic on the major street as the "major-street" volume.

15 For signal warrants requiring conditions to be present for a certain number of hours in order to be satisfied, any four consecutive 15-minute periods may be considered as 1 hour if the separate 1-hour periods used in the warrant analysis do not overlap each other and both the major-street volume and the minor-street volume are for the same specific 1-hour periods.

16 For signal warrant analysis, bicyclists may be counted as either vehicles or pedestrians.

Support:

17 When performing a signal warrant analysis, bicyclists riding in the street with other vehicular traffic are usually counted as vehicles and bicyclists who are clearly using pedestrian facilities are usually counted as pedestrians.

Option:

18 Engineering study data may include the following:

A. The number of vehicles entering the intersection in each hour from each approach during 12 hours of an average day. It is desirable that the hours selected contain the greatest percentage of the 24-hour traffic volume.
B. Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles), during each 15-minute period of the 2 hours in the morning and 2 hours in the afternoon during which the total traffic entering the intersection is the greatest.
C. Pedestrian volume counts on each crosswalk during the same periods as the vehicular counts in Item B and during the hours of highest pedestrian volume. Where young, elderly, and/or persons with physical or vision disabilities need special consideration, the pedestrians and their crossing times may be classified by general observation.
D. Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements at the location under study. These persons might not be adequately reflected in the pedestrian volume count if the absence of a signal restrains their mobility.
E. The posted or statutory speed limit or the 85th-percentile speed on the uncontrolled approaches to the location.
F. A condition diagram showing details of the physical layout, including such features as intersection geometrics, channelization, grades, sight-distance restrictions, transit stops and routes, parking conditions, pavement markings, roadway lighting, driveways, nearby railroad crossings, distance to the nearest traffic control signals, utility poles and fixtures, and adjacent land use.
G. A collision diagram showing crash experience by type, location, direction of movement, severity, weather, time of day, date, and day of week for at least 1 year.

19 The following data, which are desirable for a more precise understanding of the operation of the intersection, may be obtained during the periods described in Item B of Paragraph 18 of this Section:

A. Vehicle-hours of stopped-time delay determined separately for each approach.
B. The number and distribution of acceptable gaps in vehicular traffic on the major street for entrance from the minor street.
C. The posted or statutory speed limit or the 85th-percentile speed on controlled approaches at a point near to the intersection but unaffected by the control.
D. Pedestrian delay time for at least two 30-minute peak pedestrian delay periods of an average weekday or like periods of a Saturday or Sunday.
E. Queue length on stop-controlled approaches.

Support:

20 The safe and efficient movement of all road users is the primary consideration in the engineering study to determine whether to install a traffic control signal or to install some other type of control or roadway configuration. Installation of a traffic control signal does not necessarily result in improved safety in every case. In some cases, the installation of a traffic control signal at an inappropriate location could adversely impact safety for one or more types of road users. The purpose of the engineering study is to evaluate all of the factors that are relevant to a specific location. The satisfaction of a warrant (or warrants) is one of the relevant factors in the

engineering study, but it is not intended to be the only factor or even the overriding consideration. Agencies can install a traffic control signal at a location where no warrants are met, but only after conducting an engineering study that documents the rationale for deciding that the installation of a traffic control signal is the best solution for improving the overall safety and/or operation at the location.

Section 4C.02 Warrant 1, Eight-Hour Vehicular Volume

Support:

01 The Minimum Vehicular Volume, Condition A (see Table 4C-1), is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

02 The Interruption of Continuous Traffic, Condition B (see Table 4C-1), is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

03 It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.

Guidance:

04 *The need for a traffic control signal should be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:*

A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection; or

B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection.

Standard:

05 **These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours that are selected for the Condition A analysis shall not be required to be the same 8 hours that are selected for the Condition B analysis.**

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Support:

06 On the minor street, the more critical volume is not required to be on the same approach during each of these 8 hours. The more critical minor-street volume is the one that meets the warranting criteria for that approach, and in the case of a one-lane minor-street approach that is opposite from a multi-lane minor-street approach might not have the higher volume.

Option:

07 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

Guidance:

08 *The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.*

09 *The need for a traffic control signal should be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:*

A. The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection; and

B. The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major street and the more critical minor-street approach, respectively, to the intersection.

Standard:

10 **These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B.**

Support:

11 On the minor street, the more critical volume is not required to be on the same approach during each of the 8 hours. The more critical minor-street volume is the one that meets the warranting criteria for that approach, and in the case of a one-lane minor-street approach that is opposite from a multi-lane minor-street approach might not have the higher volume.

Option:

12 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

Support:

01 The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the more critical minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes.*

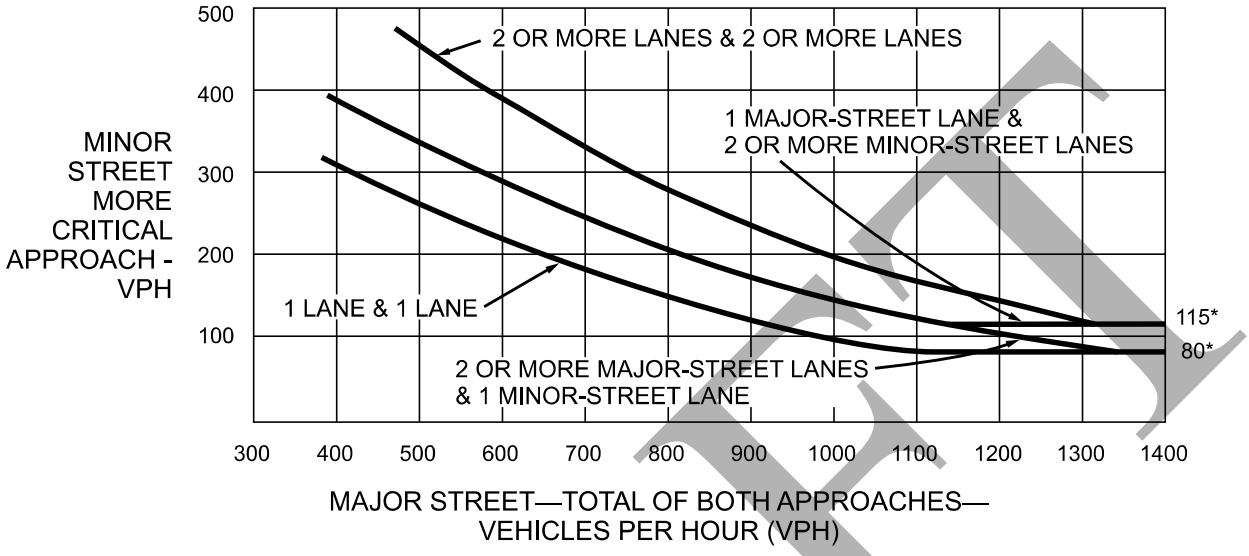
Support:

03 On the minor street, the more critical volume is not required to be on the same approach during each of these 4 hours. The more critical minor-street volume is the one that meets the warranting criteria for that approach, and in the case of a one-lane minor-street approach that is opposite from a multi-lane minor-street approach might not have the higher volume.

Option:

04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

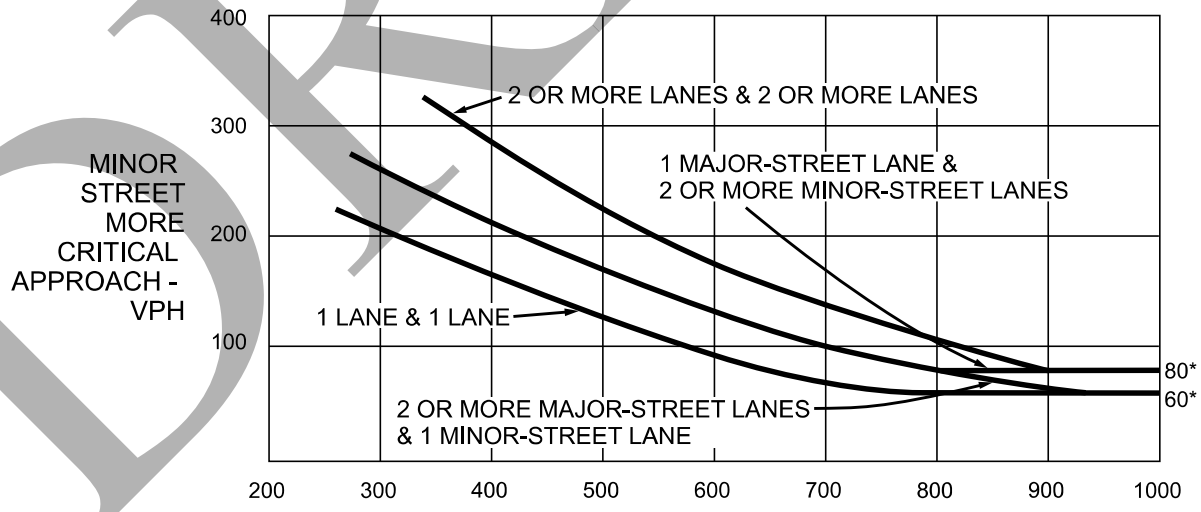
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane

Section 4C.04 Warrant 3, Peak Hour

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Guidance:

02 *This signal warrant should be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

03 *The need for a traffic control signal should be considered if an engineering study finds that the criteria in either of the following two categories are met:*

- *A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:*
  - *1. The total stopped-time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach, and*
  - *2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and*
  - *3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.*
- *B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the more critical minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.*

Option:

04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in Item B of Paragraph 3 in this Section.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

Guidance:

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

Section 4C.05 Warrant 4, Pedestrian Volume

Support:

01 The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Guidance:

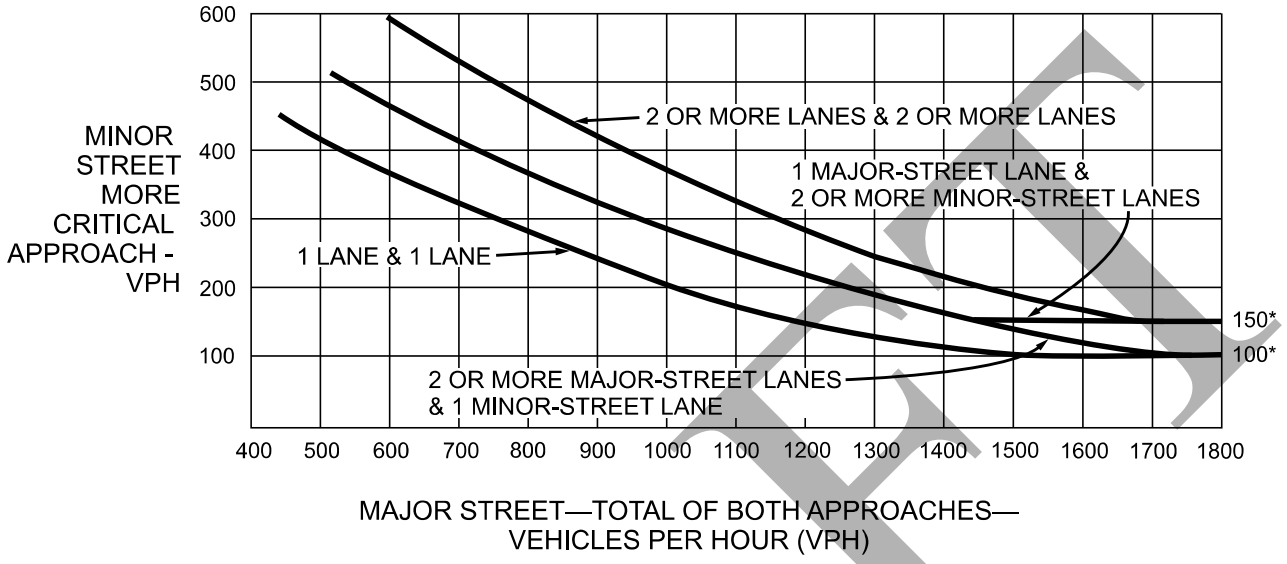
02 *The need for a traffic control signal at an intersection or midblock crossing should be considered if an engineering study finds that one of the following criteria is met:*

- *A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or*
- *B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-6.*

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 35 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-7 may be used in place of Figure 4C-5 to evaluate Item A in Paragraph 2 of this Section, and Figure 4C-8 may be used in place of Figure 4C-6 to evaluate Item B in Paragraph 2 of this Section.

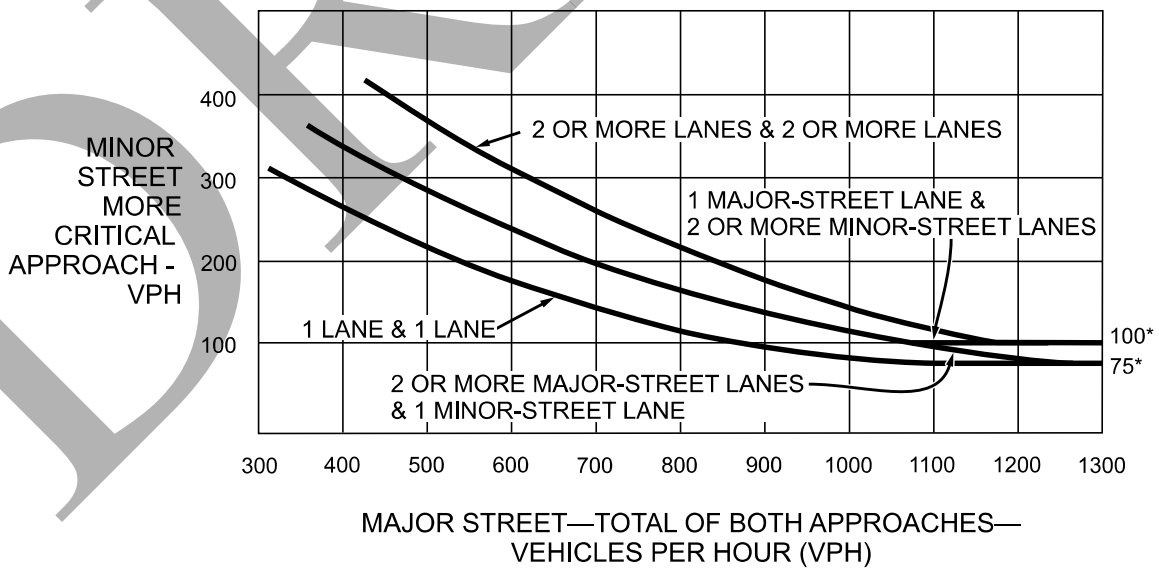
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane

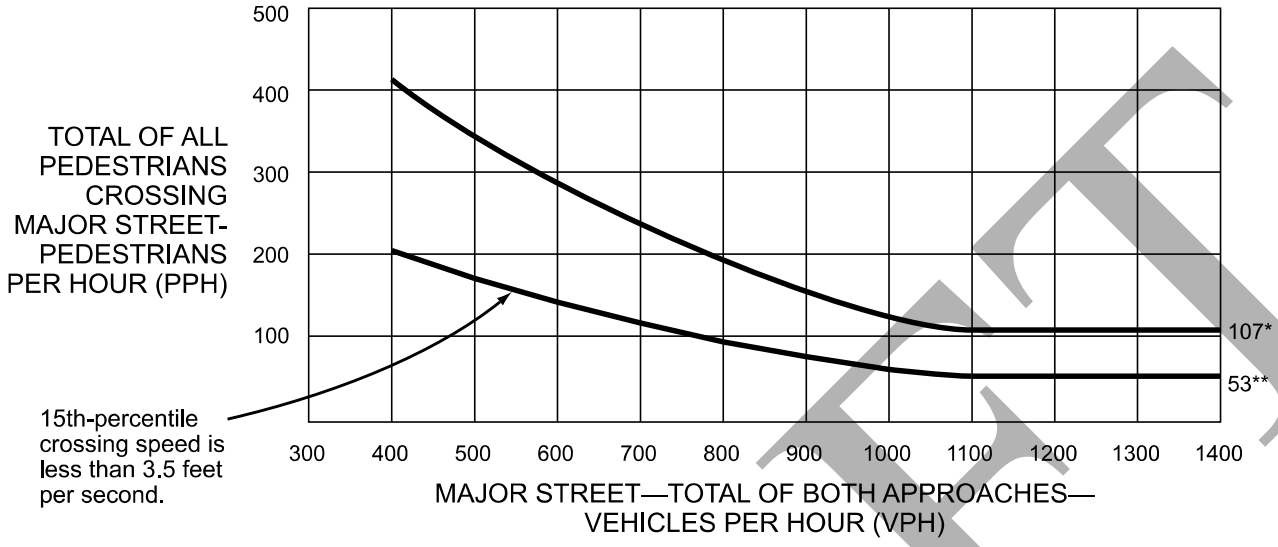
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane

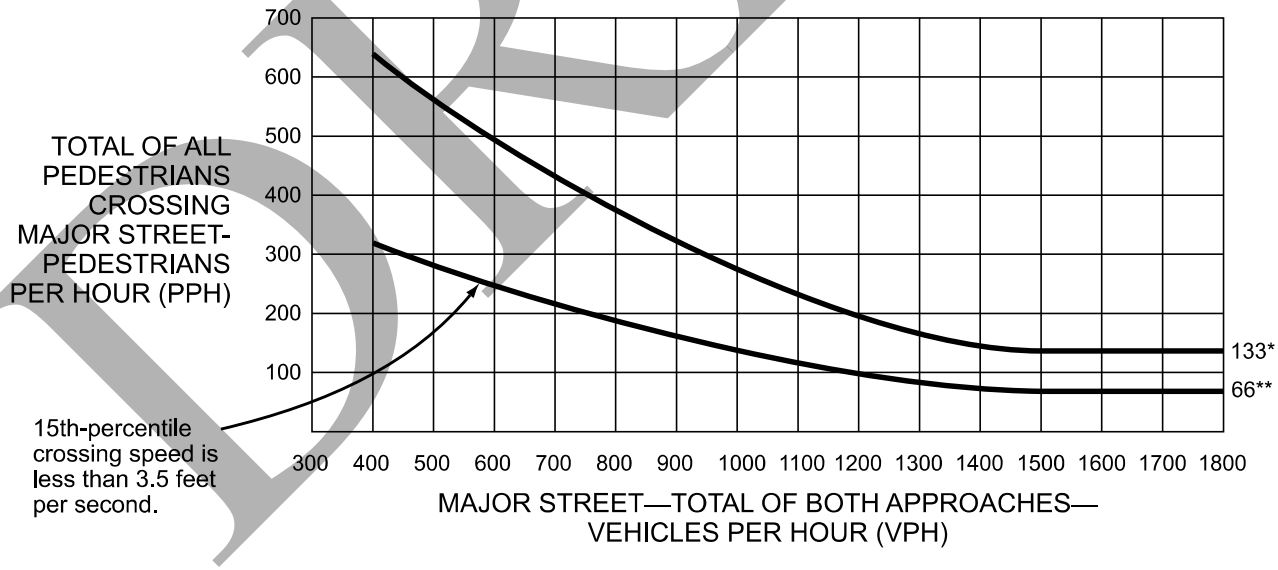
Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume



* 107 pph applies as the lower threshold volume

** 53 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

Figure 4C-6. Warrant 4, Pedestrian Peak Hour

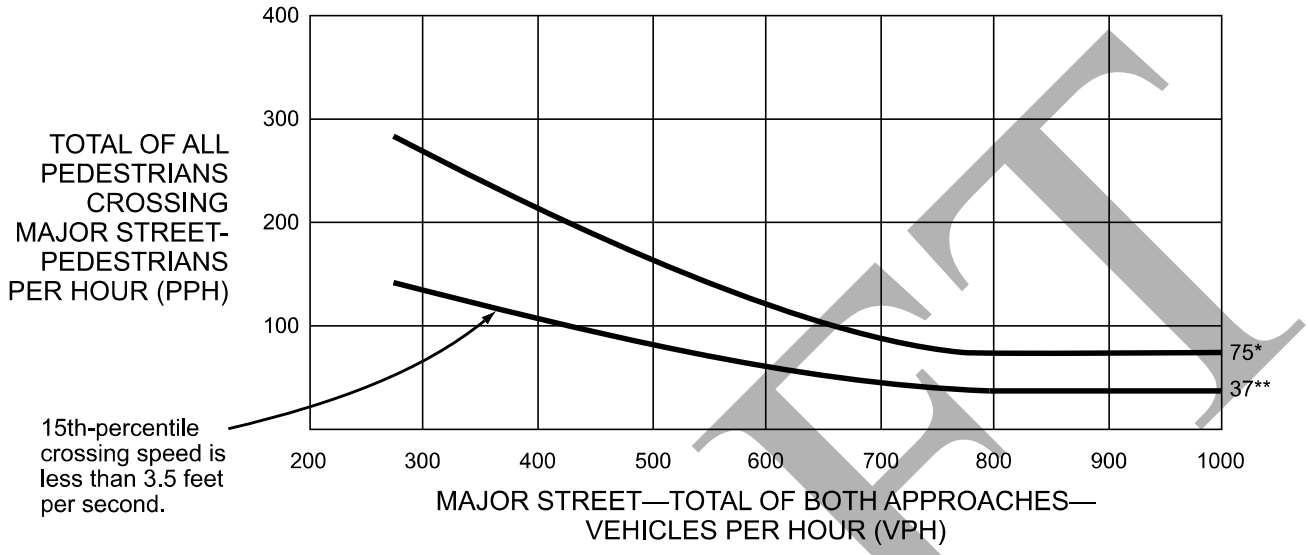


* 133 pph applies as the lower threshold volume

** 66 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

Figure 4C-7. Warrant 4, Pedestrian Four-Hour Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

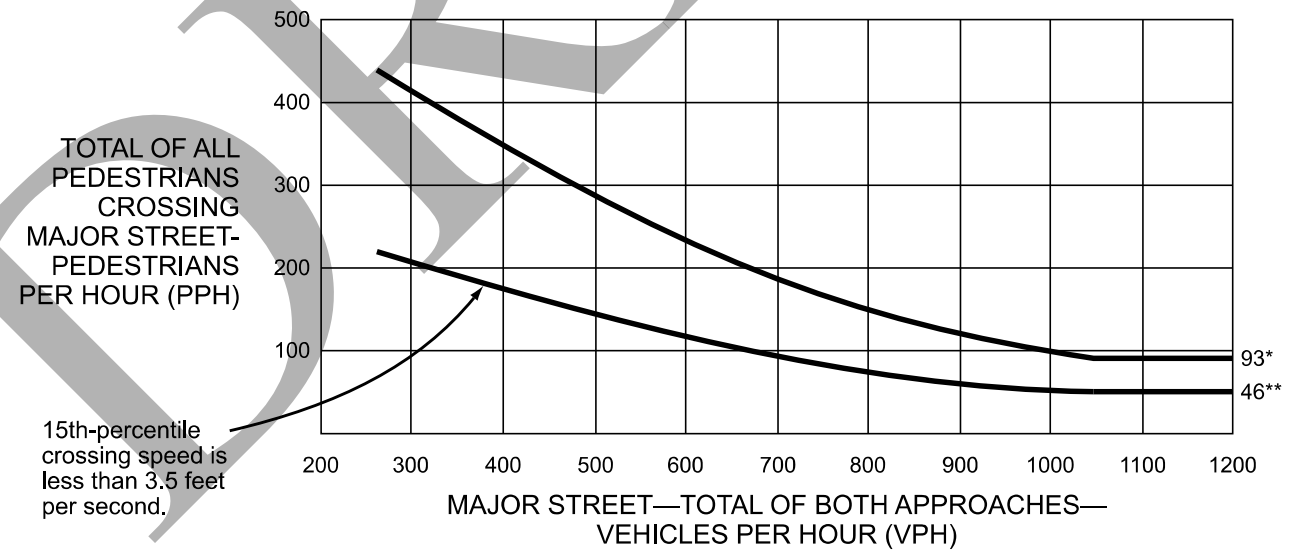


* 75 pph applies as the lower threshold volume

** 37 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

Figure 4C-8. Warrant 4, Pedestrian Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



* 93 pph applies as the lower threshold volume

** 46 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

04 Where there is a divided street having a median of sufficient width for pedestrians to wait, the criteria in Items A and B of Paragraph 2 of this Section may be applied separately to each direction of vehicular traffic.

Guidance:

05 *The Pedestrian Volume signal warrant should not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

Standard:

06 **If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4I.**

Guidance:

07 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.

B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.

C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.

Option:

08 The criterion for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 feet per second (see Figures 4C-5 through 4C-8).

09 A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street.

Section 4C.06 Warrant 5, School Crossing

Support:

01 The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word “schoolchildren” includes elementary through high school students.

Guidance:

02 *The need for a traffic control signal should be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing is less than the number of minutes in the same period and there are a minimum of 20 schoolchildren during the highest crossing hour.*

03 *Before a decision is made to install a traffic control signal, consideration should be given to the implementation of other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.*

04 *The School Crossing signal warrant should not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

Standard:

05 **If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4I.**

Guidance:

06 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.

B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.

C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.

Section 4C.07 Warrant 6, Coordinated Signal System

Support:

01 Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that one of the following criteria is met:*

- *A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.*
- *B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.*

03 *The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.*

Section 4C.08 Warrant 7, Crash Experience

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that all of the following criteria are met:*

- *A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
- *B. At least one of the following conditions applies to the reported crash history (where each reported crash considered is related to the intersection and apparently exceeds the applicable requirements for a reportable crash):*
  1. *The number of reported angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total angle crashes and pedestrian crashes (all severities); or*
  2. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 1-year period equals or exceeds the threshold number in Table 4C-2 for total fatal-and-injury angle crashes and pedestrian crashes; or*
  3. *The number of reported angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total angle crashes and pedestrian crashes (all severities); or*
  4. *The number of reported fatal-and-injury angle crashes and pedestrian crashes within a 3-year period equals or exceeds the threshold number in Table 4C-3 for total fatal-and-injury angle crashes and pedestrian crashes; and*
- *C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and the more critical minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant (see Section 4C.05).*

Table 4C-2. Minimum Number of Reported Crashes in a One-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	5	4	3	3
2 or more	1	5	4	3	3
2 or more	2 or more	5	4	3	3
1	2 or more	5	4	3	3

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-3. Minimum Number of Reported Crashes in a Three-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	6	5	4	4
2 or more	2 or more	6	5	4	4
1	2 or more	6	5	4	4

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Standard:

03 **These major-street and minor-street volumes shall be for the same 8 hours.**

Support:

04 On the minor street, the more critical volume is not required to be on the same approach during each of these 8 hours. The more critical minor-street volume is the one that meets the warranting criteria for that approach, and in the case of a one-lane minor-street approach that is opposite from a multi-lane minor-street approach might not have the higher volume.

Option:

05 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000:

A. The traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.
B. Tables 4C-4 and 4C-5 may be used in place of Tables 4C-2 and 4C-3, respectively.

Table 4C-4. Minimum Number of Reported Crashes in a One-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	4	3	3	3
2 or more	1	10	9	6	6
2 or more	2 or more	10	9	6	6
1	2 or more	4	3	3	3

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-5. Minimum Number of Reported Crashes in a Three-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities)[a]		Total of fatal-and-injury angle and pedestrian crashes[a]	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	16	13	9	9
2 or more	2 or more	16	13	9	9
1	2 or more	6	5	4	4

[a] Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Option:

06 Agencies may calibrate Highway Safety Manual (HSM) (AASHTO, 2010) safety performance functions (SPFs) to their own crash data or develop their own SPFs to produce agency specific average crash frequency values. When documented as part of the engineering study, these agency specific crash frequency values may be used instead of the values shown in Tables 4C-2 through 4C-5 when applying the Crash Experience signal warrant.

Support:

07 The values in Tables 4C-2 through 4C-5 for Minimum Number of Reported Crashes that correspond to the Crash Experience signal warrant were derived using the safety performance functions (SPFs) in the Highway Safety Manual (HSM) (AASHTO, 2010) for stop-controlled and signalized intersections with characteristics that are considered typical. The values in Tables 4C-2 through 4C-5 are representative of average crash frequency for the given intersection condition. The values correspond to the threshold at which the signalized intersection safety performance outperforms the stop-controlled intersection, for otherwise identical conditions and equivalent traffic.

Section 4C.09 Warrant 8, Roadway Network

Support:

01 Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

Guidance:

02 *The need for a traffic control signal should be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:*

- *A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or*
- *B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).*

03 *A major route as used in this signal warrant should have at least one of the following characteristics:*

- *A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow;*
- *B. It includes rural or suburban highways outside, entering, or traversing a city; or*
- *C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.*

Section 4C.10 Warrant 9, Intersection Near a Grade Crossing

Support:

01 The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity of a grade crossing on an approach controlled by a STOP or YIELD sign at a highway-highway intersection is the principal reason to consider installing a traffic control signal.

Guidance:

02 *This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing. Among the alternatives that should be considered or tried are:*

- *A. Providing additional pavement that would enable vehicles to clear the track or that would provide space for an evasive maneuver, or*
- *B. Reassigning the stop controls at the highway-highway intersection to make the approach across the track a non-stopping approach.*

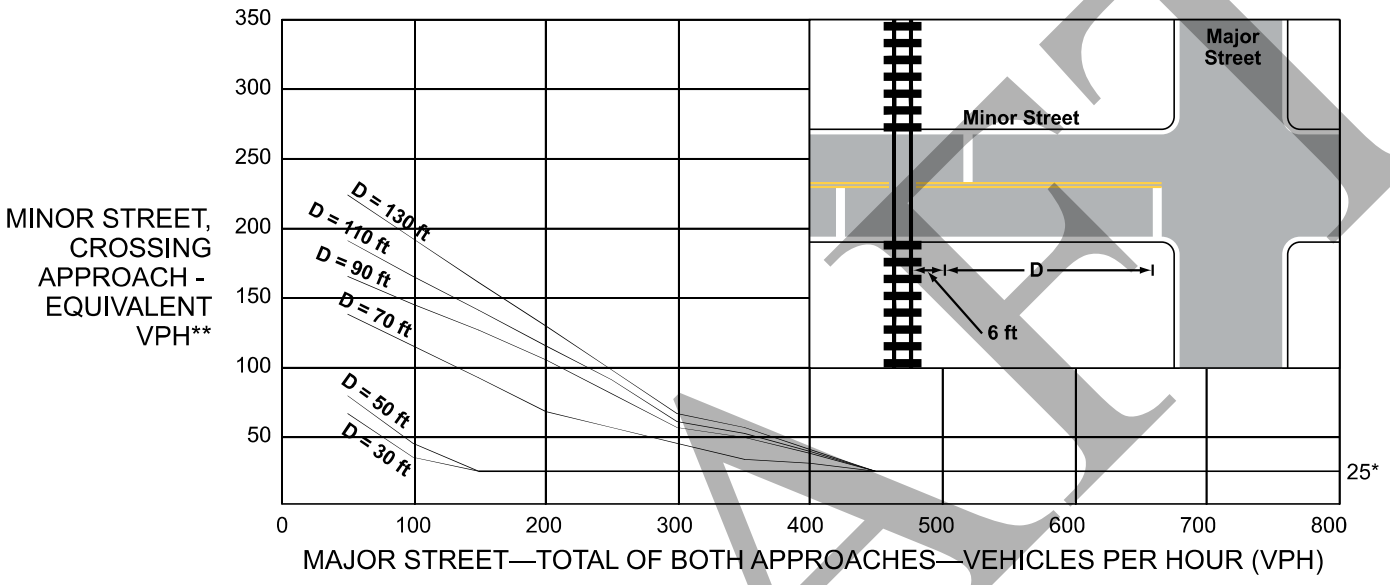
03 *The need for a traffic control signal should be considered if an engineering study finds that both of the following criteria are met:*

- *A. A grade crossing exists on an approach controlled by a STOP or YIELD sign at a highway-highway intersection and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and*
- *B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) of the highway-highway intersection and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1C.02.*

04 *The following considerations apply when plotting the traffic volume data on Figure 4C-9 or 4C-10:*

A. Figure 4C-9 should be used if there is only one lane approaching the highway-highway intersection at the track crossing location and Figure 4C-10 should be used if there are two or more lanes approaching the highway-highway intersection at the track crossing location.

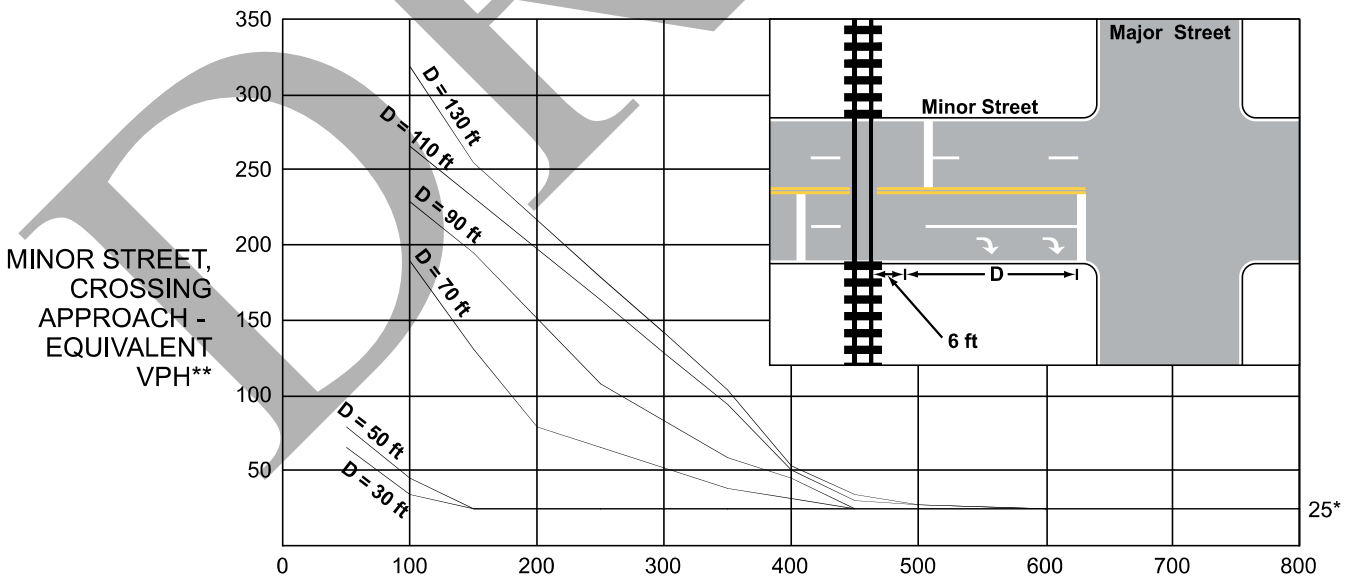
Figure 4C-9. Warrant 9, Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing)



* 25 vph applies as the lower threshold volume

** VPH after applying the adjustment factors in Tables 4C-6, 4C-7, and/or 4C-8, if appropriate

Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing (Two or More Approach Lanes at the Track Crossing)



* 25 vph applies as the lower threshold volume

** VPH after applying the adjustment factors in Tables 4C-6, 4C-7, and/or 4C-8, if appropriate

B. After determining the actual distance D, the curve for the distance D that is nearest to the actual distance D should be used. For example, if the actual distance D is 95 feet, the plotted point should be compared to the curve for D=90 feet.

C. If the rail traffic arrival times are unknown, the highest traffic volume hour of the day should be used.

Option:

05 The traffic volume on the minor-street approach to the highway-highway intersection may be multiplied by up to three adjustment factors as provided in Paragraphs 6 through 8 of this Section.

06 Because the curves are based on an average of four occurrences of rail traffic per day, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-6 for the appropriate number of occurrences of rail traffic per day.

07 Because the curves are based on typical vehicle occupancy, if at least 2% of the vehicles crossing the track are buses carrying at least 20 people, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-7 for the appropriate percentage of high-occupancy buses.

08 Because the curves are based on tractor-trailer trucks comprising 10% of the vehicles crossing the track, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-8 for the appropriate distance and percentage of tractor-trailer trucks.

Standard:

09 **If this warrant is met and a traffic control signal at the highway-highway intersection is justified by an engineering study, then:**

A. The traffic control signal shall have actuation on the minor street,

B. Preemption control shall be provided in accordance with Sections 4F.19 and 8D.09, and

C. The grade crossing shall have flashing-light signals (see Section 8D.02).

Guidance:

10 *If this warrant is met and a traffic control signal at the highway-highway intersection is justified by an engineering study, the grade crossing should have automatic gates (see Section 8D.03).*

Table 4C-6. Warrant 9, Adjustment Factor for Daily Frequency of Rail Traffic

Rail traffic per day	Adjustment factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-7. Warrant 9, Adjustment Factor for Percentage of High-Occupancy Buses

% of high-occupancy buses* on minor-street approach	Adjustment factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people.

Table 4C-8. Warrant 9, Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of tractor-trailer trucks on minor-street approach	Adjustment factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

Traffic Signal Warrant Tables

OGDEN AVENUE WITH VENARD ROAD
TRAFFIC SIGNAL WARRANT ANALYSIS

Time	Major Street Total Volumes	Minor Street Total Volumes	8 Hour Warrant			4 Hour Warrant	Peak Hour Warrant
			Condition A	Condition B	Combination		
6:00 AM	1189	34	No	No	No	No	No
7:00 AM	2345	95	No	No	No	No	No
8:00 AM	2187	60	No	No	No	No	No
9:00 AM	1850	32	No	No	No	No	No
10:00 AM	1897	40	No	No	No	No	No
11:00 AM	2197	49	No	No	No	No	No
12:00 PM	2581	56	No	No	No	No	No
1:00 PM	2278	80	No	No	Yes	No	No
2:00 PM	2388	68	No	No	No	No	No
3:00 PM	2859	79	No	No	No	No	No
4:00 PM	2912	73	No	No	No	No	No
5:00 PM	2852	63	No	No	No	No	No
Hours Met			**0**	**0**	**3**	**0**	**0**

OGDEN AVENUE WITH BELLE AIRE LANE
TRAFFIC SIGNAL WARRANT ANALYSIS

Time	Major Street Total Volumes	Minor Street Total Volumes	8 Hour Warrant			4 Hour Warrant	Peak Hour Warrant
			Condition A	Condition B	Combination		
6:00 AM	1245	7	No	No	No	No	No
7:00 AM	2391	24	No	No	No	No	No
8:00 AM	2248	53	No	No	No	No	No
9:00 AM	1793	11	No	No	No	No	No
10:00 AM	1799	21	No	No	No	No	No
11:00 AM	2176	16	No	No	No	No	No
12:00 PM	2403	19	No	No	No	No	No
1:00 PM	2219	13	No	No	No	No	No
2:00 PM	2434	23	No	No	No	No	No
3:00 PM	2857	45	No	No	No	No	No
4:00 PM	2855	25	No	No	No	No	No
5:00 PM	2826	37	No	No	No	No	No
Hours Met			**0**	**0**	**0**	**0**	**0**

OGDEN AVENUE WITH DOWNERS DRIVE
TRAFFIC SIGNAL WARRANT ANALYSIS

Time	Major Street Total Volumes	Minor Street Total Volumes	8 Hour Warrant			4 Hour Warrant	Peak Hour Warrant
			Condition A	Condition B	Combination		
6:00 AM	1195	41	No	No	No	No	No
7:00 AM	2290	64	No	No	No	No	No
8:00 AM	2202	43	No	No	No	No	No
9:00 AM	1840	33	No	No	No	No	No
10:00 AM	1847	39	No	No	No	No	No
11:00 AM	2169	42	No	No	No	No	No
12:00 PM	2379	66	No	No	No	No	No
1:00 PM	2273	49	No	No	No	No	No
2:00 PM	2375	61	No	No	No	No	No
3:00 PM	2640	71	No	No	No	No	No
4:00 PM	2947	61	No	No	No	No	No
5:00 PM	2753	55	No	No	No	No	No
Hours Met			**0**	**0**	**0**	**0**	**0**

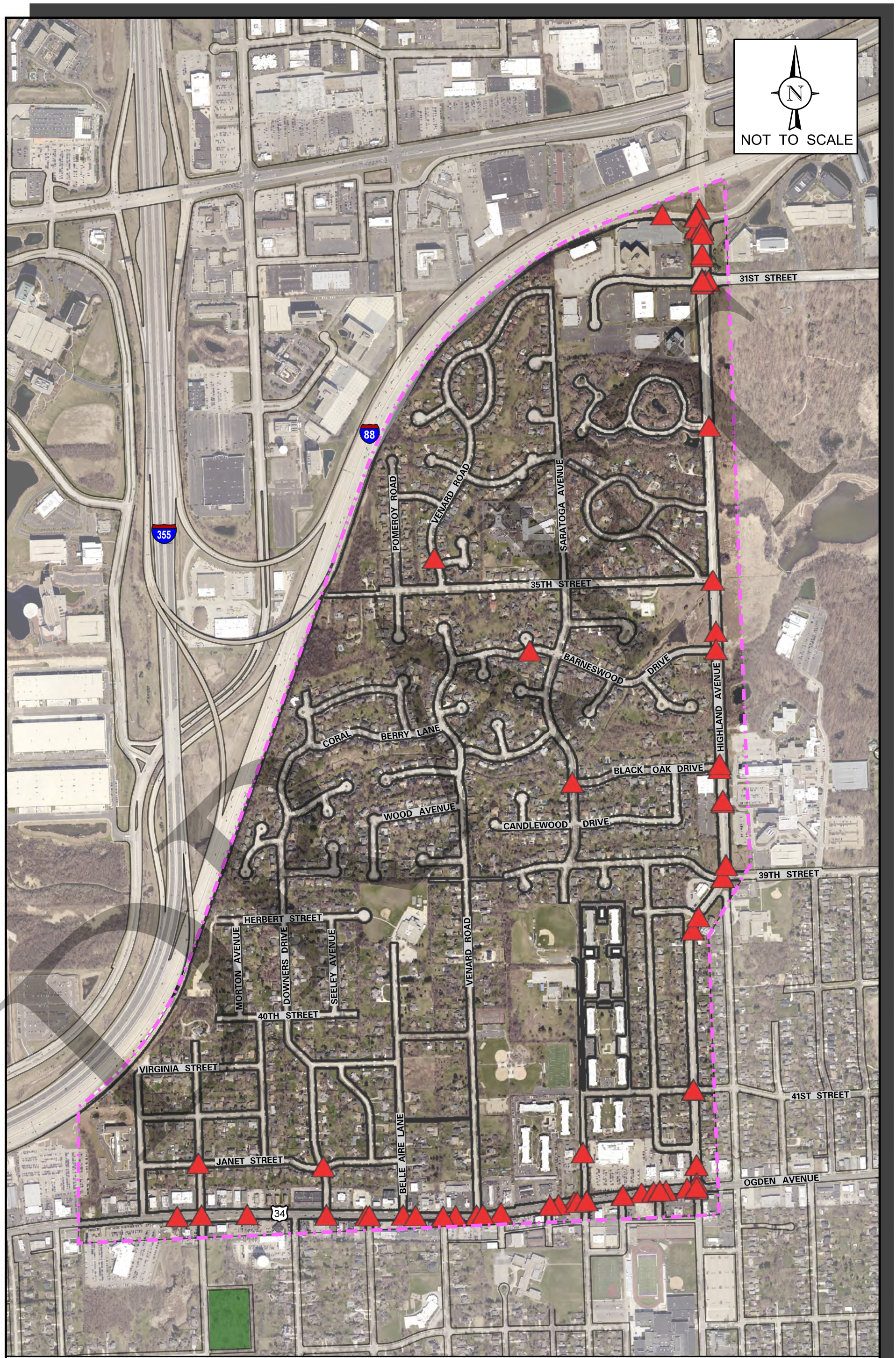
OGDEN AVENUE WITH LEE AVENUE
TRAFFIC SIGNAL WARRANT ANALYSIS

Time	Major Street Total Volumes	Minor Street Total Volumes	8 Hour Warrant			4 Hour Warrant	Peak Hour Warrant
			Condition A	Condition B	Combination		
6:00 AM	1198	11	No	No	No	No	No
7:00 AM	2434	42	No	No	No	No	No
8:00 AM	2206	44	No	No	No	No	No
9:00 AM	1830	23	No	No	No	No	No
10:00 AM	1878	25	No	No	No	No	No
11:00 AM	2198	18	No	No	No	No	No
12:00 PM	2332	22	No	No	No	No	No
1:00 PM	2289	37	No	No	No	No	No
2:00 PM	2367	29	No	No	No	No	No
3:00 PM	2767	41	No	No	No	No	No
4:00 PM	2899	25	No	No	No	No	No
5:00 PM	2635	32	No	No	No	No	No
Hours Met			**0**	**0**	**0**	**0**	**0**

OGDEN AVENUE WITH LACEY ROAD
TRAFFIC SIGNAL WARRANT ANALYSIS

Time	Major Street Total Volumes	Minor Street Total Volumes	8 Hour Warrant			4 Hour Warrant	Peak Hour Warrant
			Condition A	Condition B	Combination		
6:00 AM	1205	6	No	No	No	No	No
7:00 AM	2348	10	No	No	No	No	No
8:00 AM	2317	18	No	No	No	No	No
9:00 AM	1761	20	No	No	No	No	No
10:00 AM	1872	18	No	No	No	No	No
11:00 AM	2161	35	No	No	No	No	No
12:00 PM	2333	21	No	No	No	No	No
1:00 PM	2132	22	No	No	No	No	No
2:00 PM	2344	21	No	No	No	No	No
3:00 PM	2784	36	No	No	No	No	No
4:00 PM	2973	40	No	No	No	No	No
5:00 PM	2824	23	No	No	No	No	No
Hours Met			**0**	**0**	**0**	**0**	**0**

Crash Data

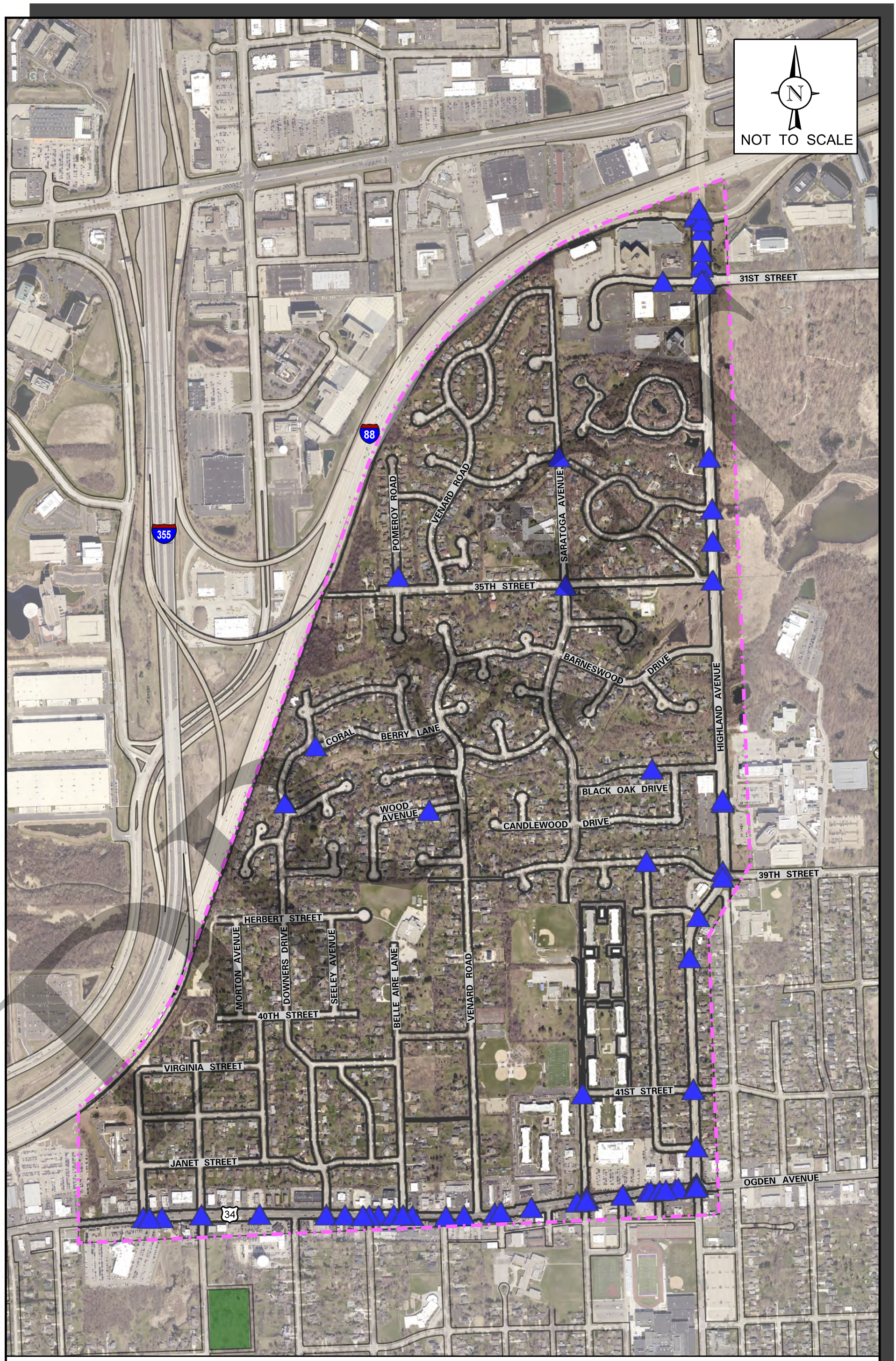


NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

CRASH DATA 2017

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

Job No: 24-084 Figure: A

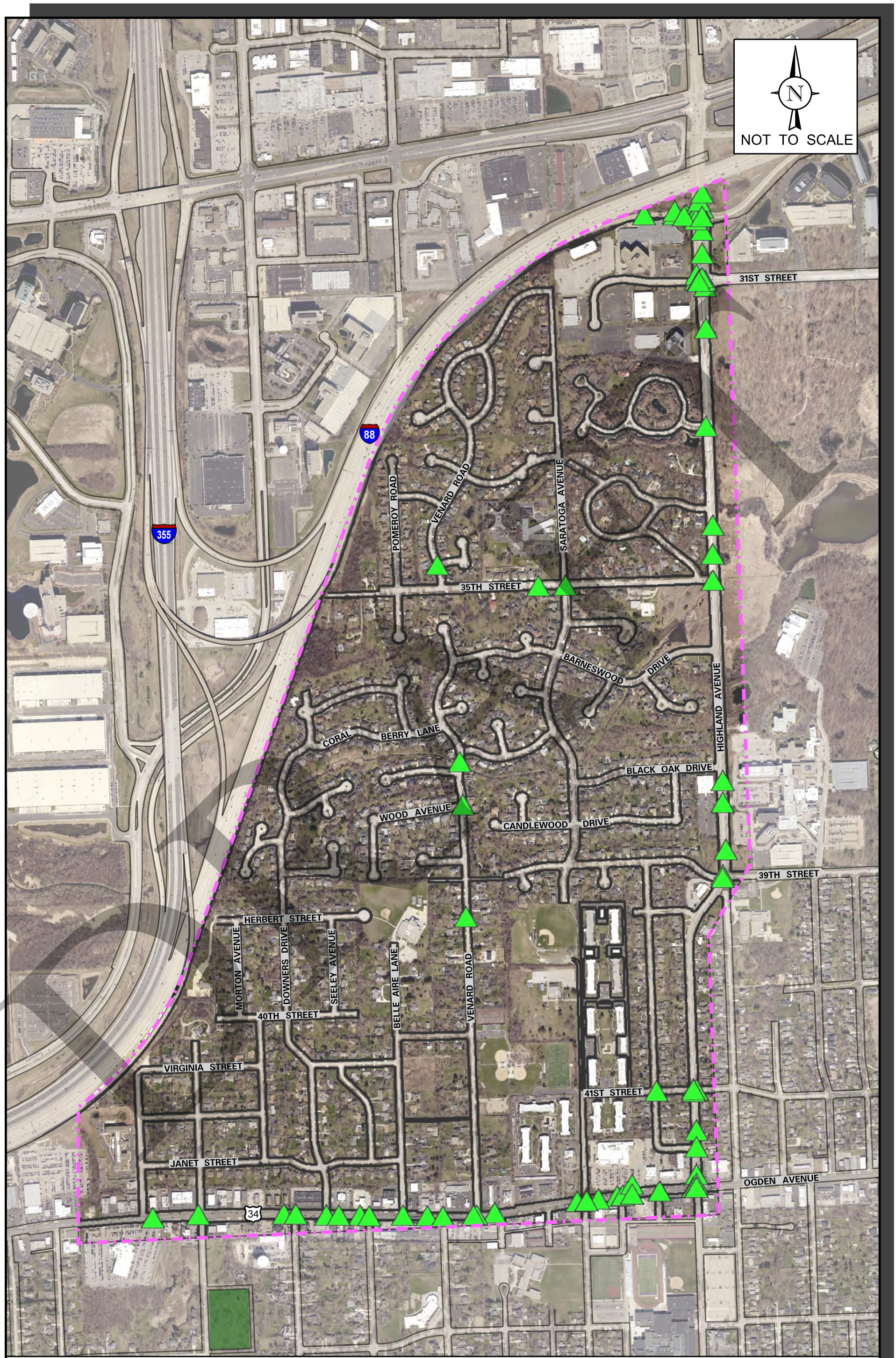


NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

CRASH DATA 2018

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

Job No: 24-084 Figure: B

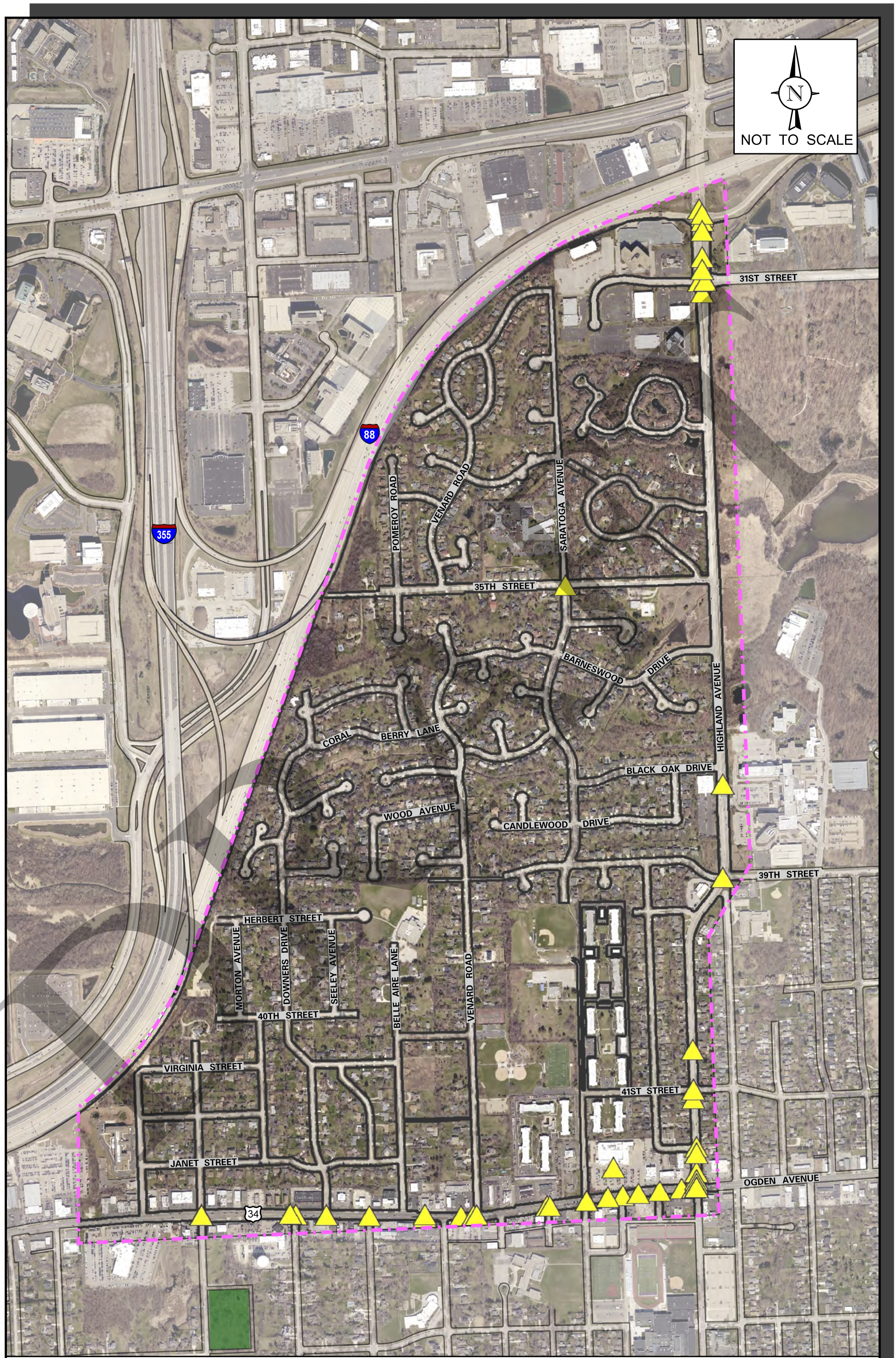


NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

CRASH DATA 2019

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

Job No: 24-084 Figure: C

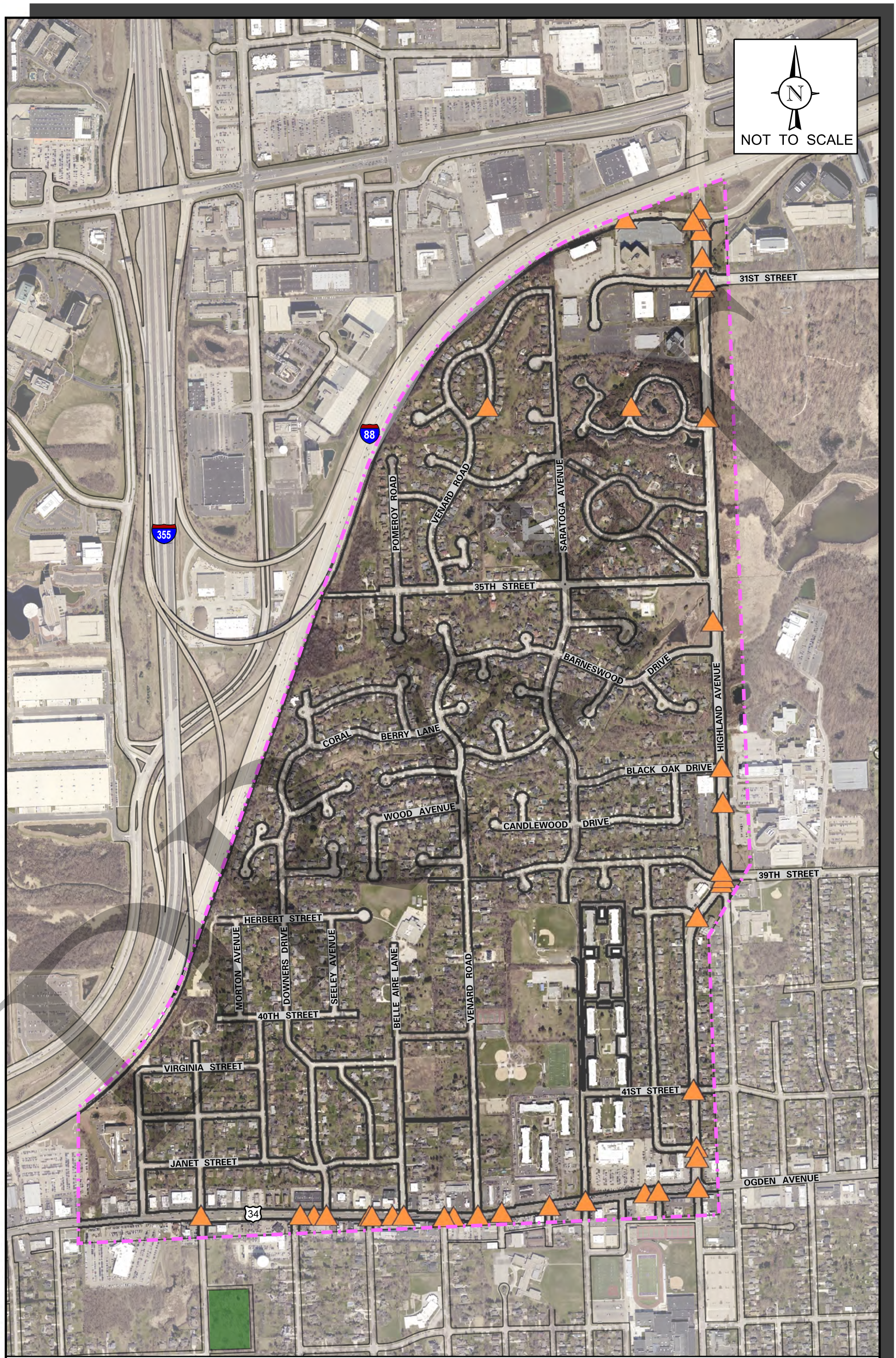


NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

CRASH DATA 2020

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

Job No: 24-084 Figure: D



NEIGHBORHOOD 10
TRAFFIC STUDY
DOWNERS GROVE,
ILLINOIS

CRASH DATA 2021

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

Job No: 24-084 Figure: E

WPA Summaries and Exhibits

Existing Network Transformation

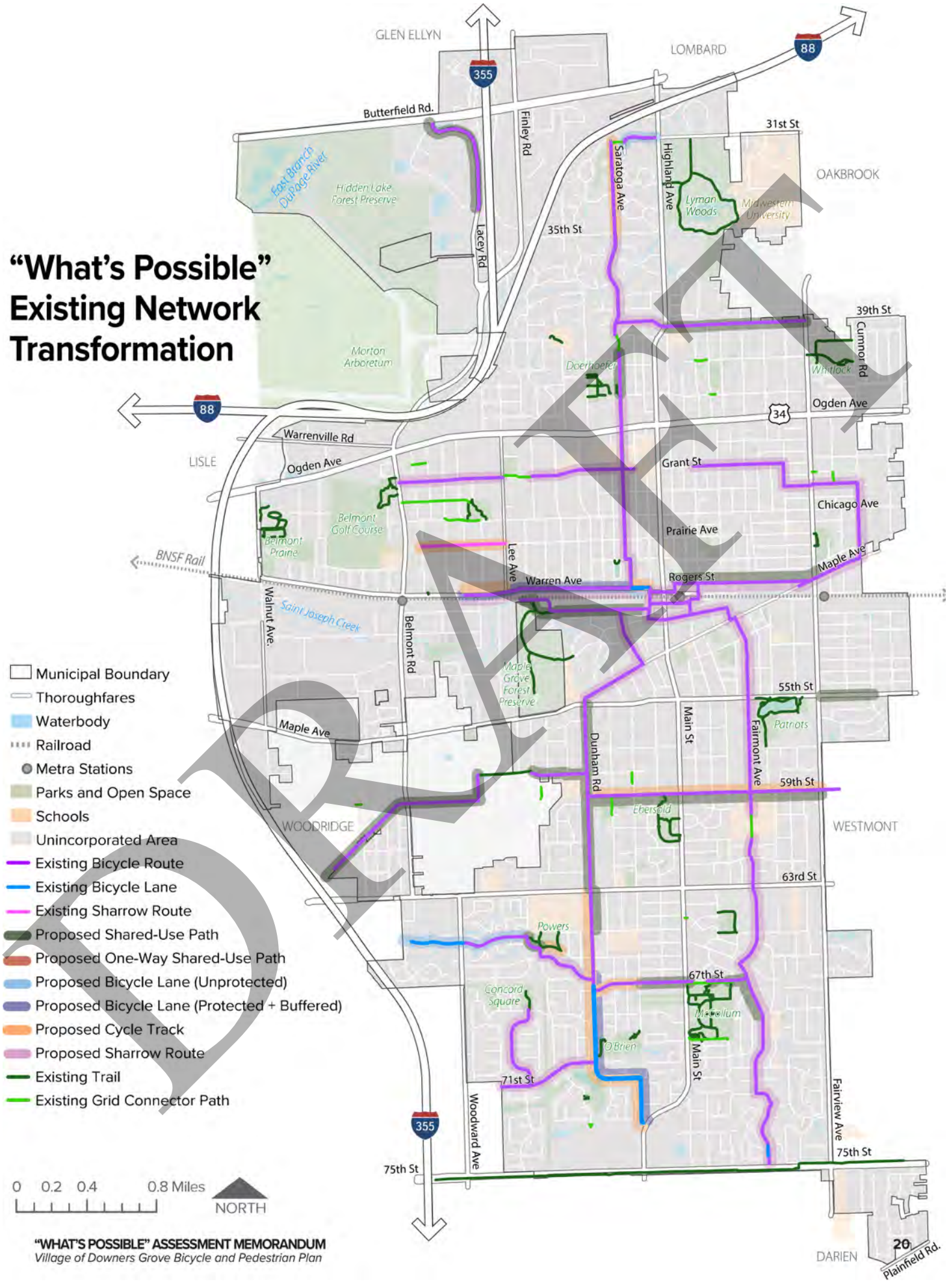
As previously described, many of the existing alignments that comprise the Village's bicycle network have both limitations and possibilities to improve existing routes. Many of the existing alignments are only possible to remain as sharrow routes (bicycle routes), while others can be be "upgraded" to protected bicycle lanes, cycle tracks, or shared-use paths. The facing map and section below describes the different existing alignments possible transformation by type.

Alignments depicted with the symbol to the left are current Village bicycle routes that can only be improved with additional signage and sharrow markings.

Alignments depicted with the symbol to the left are current Village bicycle routes that can only be "upgraded" to off-street shared-use paths. Many of these alignments, as previously described, will require the removal of open ditch drainage and some street trees / vegetation to provide an at least an eight-foot-wide shared use facility.

Alignments depicted with the two symbols to the left are existing Village bicycle routes and bicycle lanes that can be transformed into cycle-tracks on one side of the thoroughfares, while retaining on-street parking on one side of the thoroughfare, if already allowed.

Alignments depicted with the two symbols to the left are existing Village bicycle routes and bicycle lanes that can remain or can be transformed into bicycle lanes. The majority of possible bicycle lane alignments (with the exception of Dunham Road from 67th Street to 71st Street) cannot include a buffer strip or protective barriers due to right-of-way limitations, unless curbs are adjusted (pushed-back) or on-street parking is removed.



"WHAT'S POSSIBLE" ASSESSMENT MEMORANDUM
Village of Downers Grove Bicycle and Pedestrian Plan

Intersections and Crossings

As previously mentioned, there are several facility improvements that are possible at standard facility type locations, such as at signalized intersections, crosswalks, and trail crossings throughout Downers Grove, irrespective of thoroughfare authority.

Signalized intersections are generally the same throughout Downers Grove and have similar or the same facility accommodations and considerations. The bulleted list below summarizes recommended improvements that are possible at all signalized intersections in Downers Grove.

Safety measures possible at all signalized intersections:

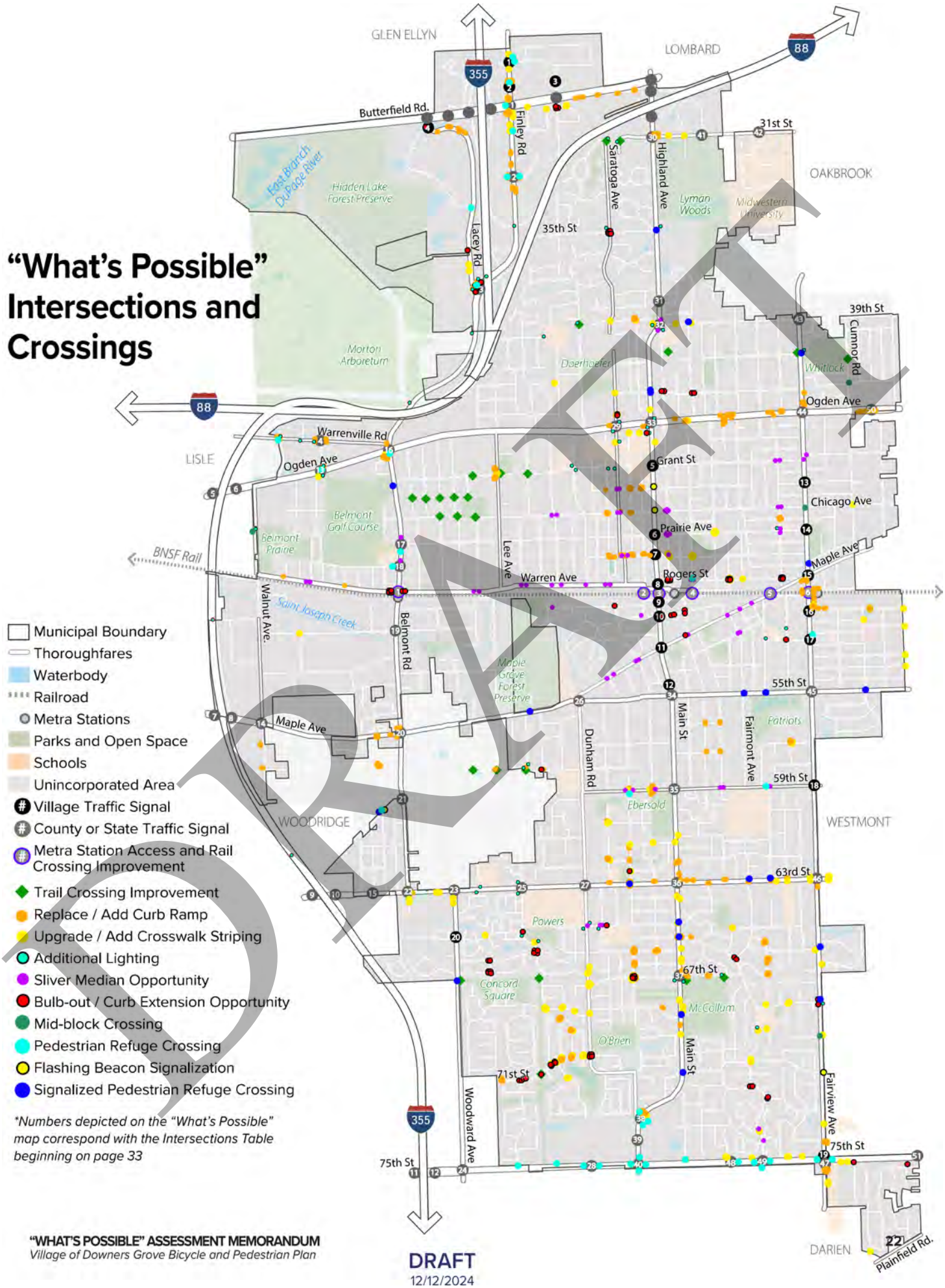
- Leading Pedestrian Interval Signalization
- Turning radius reduction, where feasible and where truck traffic allows
- Upgrading crosswalk markings to wider diagonal bar crossings where a bicycle route, shared-use path, or trail crosses an intersection
- Consider adding painted curbs around curb ramps adjacent to schools, parks, and all signalized intersections
- Restriping crosswalks and vehicle stop-bars, along with curb ramp reconstruction-relocation, to eliminate angled crosswalks and keep with the preferred 90-degree crosswalk perpendicularity with the thoroughfare
- Ensuring adequate street lighting is provided at all signalized intersection street corners with a designated crossing
- Where possible, eliminate or reduce the width of right turning slip lanes

In addition, similar to signalized intersections, there are standard methods to improve the safety and character of trail and grid connector path crossings within Downers Grove. The bulleted list below details improvements that are possible at all trail intersections/crossings in Downers Grove.

Improvements possible at Trail and Grid Connector Paths:

- Consider widening existing paths, where possible
- Consider including pedestrian and cyclist dedicated lane delineation (striping)
- Add pedestrian-scale lighting to all trail crossings
- Ensure that there is crossing signage facing both directions
- Ensure that vegetation is not overgrown and allows for crossing visibility
- Ensure that all crossings have rumble strips and signage for path/trail users
- Consider reflector strips or bollards at trail and grid connector crossings, on pavement center for trail/path users

"What's Possible" Intersections and Crossings



- Municipal Boundary
- Thoroughfares
- Waterbody
- Railroad
- Metra Stations
- Parks and Open Space
- Schools
- Unincorporated Area
- Village Traffic Signal
- County or State Traffic Signal
- Metra Station Access and Rail Crossing Improvement
- Trail Crossing Improvement
- Replace / Add Curb Ramp
- Upgrade / Add Crosswalk Striping
- Additional Lighting
- Sliver Median Opportunity
- Bulb-out / Curb Extension Opportunity
- Mid-block Crossing
- Pedestrian Refuge Crossing
- Flashing Beacon Signalization
- Signalized Pedestrian Refuge Crossing

**Numbers depicted on the "What's Possible" map correspond with the Intersections Table beginning on page 33*

DRAFT

TRANSPORTATION AND PARKING COMMISSION
Minutes – January 8, 2025
Council Chambers – Village Hall
850 Curtiss St., Downers Grove

Chairperson Novak called the January 8, 2025 meeting of the Transportation and Parking Commission to order at 7:00 P.M.and led the recitation of the Pledge of Allegiance.

ROLL CALL

Present: Chairperson Novak, Commissioners: Gasiel, O'Malley, Shiliga

Absent: Commissioners: McKenzie, McDonough

Staff: Engineering Director Scott Vasko, Transportation Manager Emily Ericson, Michael Werthmann of KLOA , and CSO Supervisor Jim Hartleb

Visitor Roster:

A quorum was established.

Chairperson Novak reviewed the procedures to be followed for the meeting, explaining that the Commission will forward a recommendation to the Village Council for approval.

APPROVAL OF DECEMBER 11, 2024 MINUTES
COMMISSIONER SHILIGA MOVED TO ACCEPT MEETING MINUTES AS IS. COMMISSIONER GASIEL SECONDED THE MOTION.

IN FAVOR: CHAIRPERSON NOVAK, COMMISSIONERS: GASIEL, O'MALLEY, SHILIGA

THE MOTION PASSED BY VOICE VOTE 4:0

PUBLIC COMMENT ON NON-AGENDA ITEMS
No public comments on non-agenda items.

File # 1-25 Neighborhood Traffic Study #10
Engineering Director Scott Vasko introduced Michael Werthmann of KLOA to present the report for Neighborhood Traffic Study #10.

Michael Werthmann from KLOA presented summary information from the draft report.

Purpose of Study:

DRAFT

Analyze existing transportation operations including roadway traffic, volumes of speeds, intersection traffic control, pedestrian and bicycle safety. The purpose of neighborhood studies is for a comprehensive view to establish consistency within the Village, specifically regarding traffic control and warning signs, as well as to mitigate transportation issues in the neighborhood.

Study Area:

The study for neighborhood #10 is bounded by I-88 on the north and west, Highland Ave on the east and Ogden Ave on the south. Consists primarily of single family homes with several multi-family developments in the southeast corner of the neighborhood. There are a number of office and commercial uses in the southern portion along Ogden Ave, a retirement facility on Saratoga, and the Downers Grove rehab and nursing facility in the northern section of the neighborhood north of 35th and west of Saratoga. Belle Aire Elementary school and two parks are in the neighborhood.

Extensive field investigations and observation of the neighborhood transportation system were performed. The school was observed in both the morning and afternoon. Collected daily traffic counts and speed surveys in 26 locations within the neighborhood in spring 2024 conducted on 2 consecutive weekdays. Vehicle, pedestrian and bicycle counts conducted at 3 intersections within the neighborhood. Reviewed various transportation related data including 5 years of crash data within the neighborhood and along the primary roads on the border of the neighborhood. Looked at intersection control, pedestrian safety, and volume of speeds on roadways.

Out of 67 intersections within the neighborhood, only 15 intersections currently have some form of traffic control. 52 intersections have either no control or yield sign control. Village directive on these studies is to provide some form of traffic control at every intersection.

Preliminary Recommendations:

- No new traffic signals within or on the border of the neighborhood.
- Currently have 7 all-way stop sign controls. Add 1 additional at 35th & Saratoga.
- Convert the 2 yield signs to stop sign control intersections.
- The 49 intersections without traffic control will change to be under some form of one-way stop sign control or two-way stop sign control.

The purpose for significantly enhancing traffic control in the neighborhood is to provide consistency and uniformity throughout the neighborhood and Village. Uniformity increases the likelihood of people following the traffic control.

Looked at all of the intersections along Ogden Ave where 6 of the neighborhood roads intersect. Only Saratoga is under traffic signal control. An objective of the study was to see if one of the other intersections warrant traffic signal control. All of the intersections are under the control of IDOT and they all T into Ogden Ave with offset intersections: Venard, Belle Aire, Downers Dr, Lee Ave, Lacey.

Performed 12 hour counts at all of the intersections and looked at crash data. Found that none of the intersections currently meet the warrants for traffic signals. The neighborhood does experience higher speeds throughout. Traffic volume indicates there is not a lot of cut through traffic in the neighborhood and most of the volumes are within acceptable limits.

DRAFT

Recommended Speed Limit and Signage Modifications:

- Reduce the speed limit from 25 mph to 20 mph on Venard Rd between Ogden Ave and Drove Ave because of Doerhoffer park and D99 transition school.
- Add more speed limit signs to roads experiencing higher speeds.
- Add yellow borders to existing speed limit signs.
- Utilize temporary speed monitors at 6-7 locations

Bike Recommendations:
Deferring to the large bike study being done at this time throughout the Village.

Recommended Traffic Calming Measures:

- Center line, parking boxes or edge lines on 7 sections of road in the neighborhood.
- Speed monitors throughout the neighborhood.
- Greater enforcement and providing education to residents.

Next Step:
Compile and evaluate comments received at the TaP meeting. Produce a revised study and present to the Village Council, then implement recommendations as approved by the Village Council.

CHAIRPERSON NOVAK OPENED UP THE PUBLIC COMMENT PERIOD
No public comments.

CHAIRPERSON NOVAK CLOSED THE PUBLIC COMMENT

CHAIRPERSON NOVAK OPENED DISCUSSION AMONGST THE COMMISSION
Commissioner Shiliga: In favor of the suggestions.

Commissioner O'Malley: Agrees with everything in the recommendations.

Commissioner Gasiel: Interesting that a lot of the streets are wider and was going to recommend bike lanes.

Mr. Werthmann: They want to put a cycle track on the north side of Saratoga which will greatly reduce the width of the road there.

Commissioner Shiliga: The recommendations fit in with Village uniformity and take into account the bicycle plan without crossing paths with the other study. Agrees with everything presented.

Chairperson Novak: Wholeheartedly agrees with the recommendations.

Scott Vasko: The signal at Saratoga & Ogden will be receiving some improvements from IDOT this summer and will be upgraded with LED signals and ADA compliance. The signal at the intersection of Ogden & Main will receive improvements sometime this summer as well.

DRAFT

CHAIRPERSON NOVAK CALLED FOR A MOTION

WITH RESPECT TO FILE #1-25, COMMISSIONER SHILIGA MOVED TO ACCEPT ALL UPGRADE RECOMMENDATIONS AND PRESENT FILE #1-25 NEIGHBORHOOD TRAFFIC STUDY #10 TO VILLAGE COUNCIL AS IS. SECONDED BY COMMISSIONER O'MALLEY.

IN FAVOR: CHAIRPERSON NOVAK, COMMISSIONERS: GASIEL, O'MALLEY, SHILIGA

THE MOTION PASSED 4:0

DISCUSSION OF OLD BUSINESS

No discussion of old business at this time.

COMMUNICATIONS

No communications at this time.

COMMISSIONER SHILIGA MOVED TO ADJOURN THE MEETING. COMMISSIONER GASIEL SECONDED THE MOTION. ALL IN FAVOR.

Chairperson Novak adjourned the meeting at 7:25 P.M.

Respectfully submitted,

/s/ Andrea Banke
Recording Secretary