



# Village of Winnetka

## Village Council Study Session

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March 11, 2025 at 7:00 PM

Village Hall  
510 Green Bay Road

### **AGENDA**

1. **Call to Order**
2. **Public Comments**
3. **Discussion**
  - a. Hubbard Woods Streetscape Phase I
4. **Closed Session**
5. **Adjournment**

### **NOTICE**

Village Council meetings are video recorded. All agenda materials are available at [villageofwinnetka.org](https://villageofwinnetka.org) (Governance > Agendas & Minutes); the Reference Desk at the Winnetka Library; or in the Manager's Office at Village Hall (2<sup>nd</sup> floor). The Village of Winnetka, in compliance with the Americans with Disabilities Act, requests that all persons with disabilities who require certain accommodations to allow them to observe and/or participate in this meeting or have questions about the accessibility of the meeting or facilities, contact the Village ADA Coordinator, 510 Green Bay Road, Winnetka, Illinois 60093, 847-716-3543; T.D.D. 847-501-6041.



## Agenda Item Executive Summary

**TITLE:** Hubbard Woods Streetscape Concept Plan and Traffic & Parking Study

**PRESENTER:** David Schoon

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**AGENDA DATE:** March 11, 2025

**CONSENT:** No

**ITEM TYPE:** Presentation

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### ITEM HISTORY:

- 9-19-2023 Village Council approved R-90-2023, Approving an Agreement with Teska Associates, Inc. for Professional Services to Prepare a Concept Streetscape Design Plan for the Hubbard Woods Business District.
- 6-11-2024 Village Council was presented with two streetscape design concepts for Hubbard Woods Business District streetscape improvement and community input regarding the design approaches.
- 10-15-2024 Village Council approved R-76-2024, Approving an Agreement with Gewalt Hamilton Associates, Inc. For Hubbard Woods Streetscape – Phase 1

### EXECUTIVE SUMMARY:

#### INTRODUCTION

At the March 11, 2024, Village Council Study Session, Jodi Mariano, with Teska Associates, Dan Brinkman, with Gewalt Associates, and Village staff will present the following to the Village Council:

1. A summary of the two streetscape design concepts for the Hubbard Woods Business District and community input regarding these design approaches, which was material that was previously reviewed with the Council at the June 2024 Council Study Session. **Attachment 1** includes a copy of the display board materials from the January community open house, and **Attachment 2** includes a summary of community feedback from the January open house and the February-March online survey.
2. A summary of the findings of potential impacts on vehicular traffic, pedestrian movement, and parking due to the proposed improvements. **Attachments 4-8** includes five draft sections from the Phase 1 Report focused on the traffic and parking study conducted by Gewalt Hamilton.

We sent an email to the nearly 225 community members that signed up to be kept informed regarding the Hubbard Woods Streetscape project as well as to businesses and property owners within the business district informing them of the March 11 study session.

#### BACKGROUND

At the June 11, 2024, Village Council Study Session, Jodi Mariano, with Teska Associates, and Village



staff presented to the Village Council two streetscape design concepts for the Hubbard Woods Business District and shared what we have heard from community members regarding these design approaches. After hearing from members of the public and discussing the two concepts, Council members indicated a preference for the concept design adding pedestrian bump outs on Green Bay Road at the intersections. The Council directed staff to move forward with the following before identifying its preferred concept design for the streetscape improvements:

- Conduct a traffic and parking study of the proposed concept designs to better understand the impacts of the addition of a four-way stop at Merrill and Green Bay Road as well as the potential impacts of the three different vehicular travel options for the “horseshoe” around Hubbard Woods Park.
- Prepare a plan to make improvements to the Hubbard Woods parking deck.
- Meet with IDOT to discuss the proposed concept designs.

**Traffic & Parking Study.** In September of 2024, the Village Council authorized the Village to enter into a contract with Gewalt Hamilton Associates to complete a Phase 1 Engineering Report, which is necessary for any improvements along Green Bay Road, whether under the States’ jurisdiction or as part of a jurisdictional transfer of the roadway to the Village. Work on the Phase 1 Engineering Report started with a detailed parking and traffic study, which has been completed and is included in Attachment 3. The findings of these studies will be presented at the March 11 Study Session.

**Improvements to Hubbard Woods Parking Deck & Parking Directional Signage.** In the FY2025 Business District Revitalization Fund Budget, the Village Council approved \$900,000 in funding for the necessary major repairs to the parking deck as well as improved lighting and more decorative signage. At the March 4, 2025, Village Council meeting, the Council approved a professional services agreement with a contractor for the design of repairs for the Hubbard Woods Parking Deck.

Also, since the June 2024 study session, Village staff have installed some additional parking directional signs to guide motorists to the Hubbard Woods Parking Deck and have added a temporary sign on the Merrill Street entrance to the parking deck to more clearly note the parking deck is also for public parking (See images on **Attachment 3**)

**Meeting with IDOT.** On August 5, 2024, President Rintz, Village Manager Bahan, Jodi Mariano from Teska Associates and we met with several members from the Illinois Department of Transportation (IDOT) at their office in Schaumburg. During the meeting, we discussed the conceptual options for Hubbard Woods Streetscape, a potential jurisdictional transfer of Green Bay RD from Tower RD north to Scott Avenue, the need for a Phase 1 Engineering Report, and IDOT funding policies and options. Overall, it was productive meeting, and we have some better clarity on how to proceed.

## **NEXT STEPS**

Staff see the next two major steps as follows:

1. **Finalize the Concept Streetscape Plan.** The concept streetscape plan for Hubbard Woods is similar to what the Village created with the Downtown Master Streetscape and Signage Plan for the Elm Street Business District. The design concept creates a general vision for the streetscape improvements. Once that vision is agreed to, the next step is to begin refining that vision, which will involve further study. With the development of the Hubbard Woods Streetscape Concept Plan, the Council asked for some additional information regarding traffic impacts before identifying the preferred concept plan. At the conclusion of the March 11 presentation, we are looking for direction from the Village Council regarding the preferred concept plan. The direction could be in the form of directing staff to finalize the concept plan with the preferred option being

– Option B, Village Controlled Roadway Option, with (a) leaving the vehicular travel of the “horseshoe” around Hubbard Woods Park as is, that is counterclockwise, (b) installation of a four-way stop sign at Merrill and Green Bay Road, and (c) continue further study regarding improvements to the Tower Road/Green Bay Road intersection to improve pedestrian and vehicular safety.

With direction from the Council regarding the preferred option, the Village consultants and staff will return to the Village Council with the final preferred streetscape concept plan, which will include preliminary construction cost estimates for the preferred concept plan.

2. **Continue Work on the Phase 1 Engineering Report.** With direction from the Village Council on the acceptance of the preferred plan the Phase 1 study can continue and be developed specifically for that preferred plan. Staff recommend that a preferred option be chosen now so Gewalt Hamilton can continue finalizing the Phase 1 report focused on a preferred option. Should the Village continue to move forward with the Phase 1 study without a specific design option the village would be required to go back and modify the report, adding costs and additional time for a modified approval.

#### **RECOMMENDATION:**

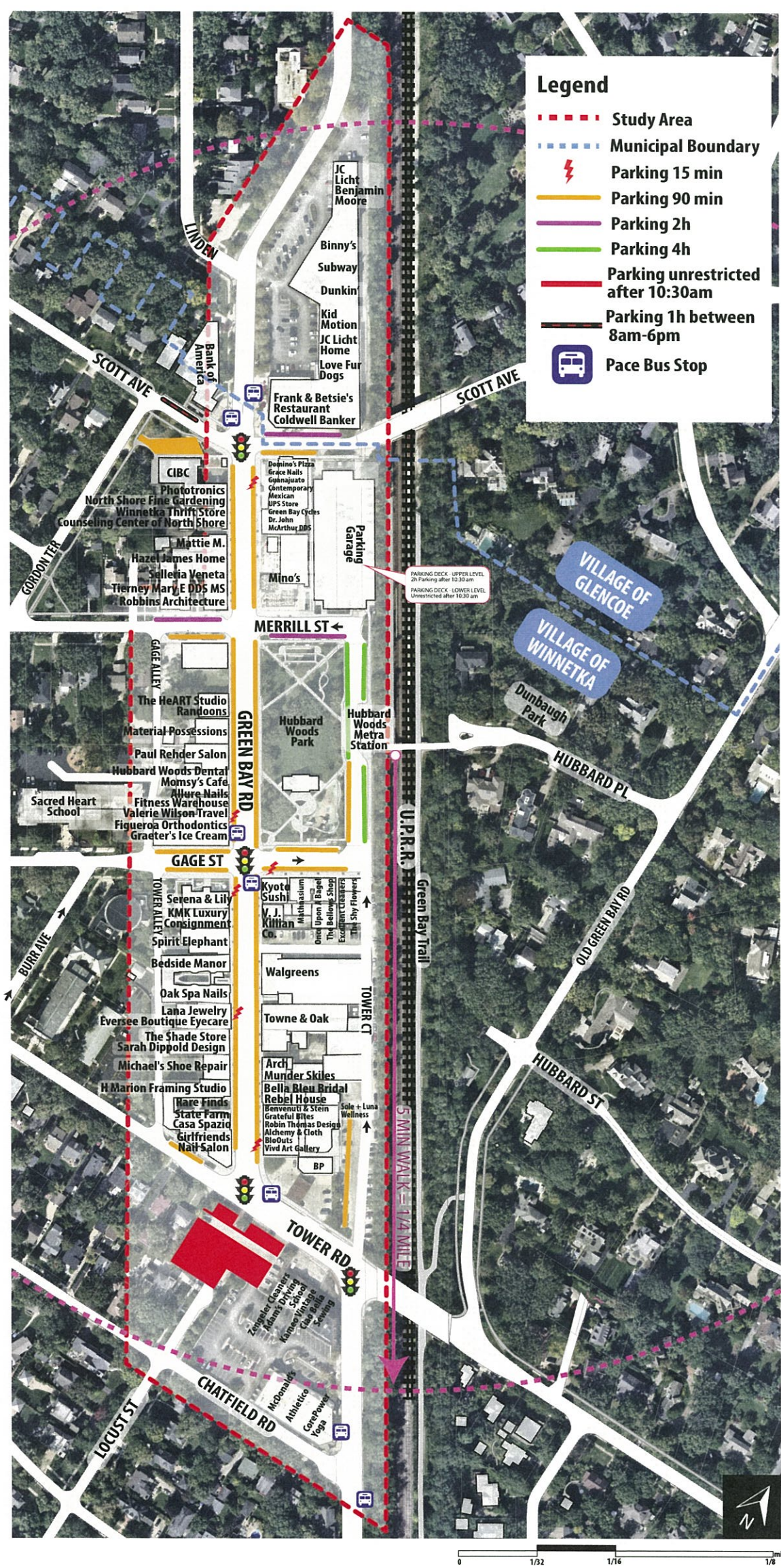
Staff request comments and directions from the Council regarding the preferred streetscape design concept for the Hubbard Woods business district and with direction to continue with the remainder of the Phase 1 Engineering Report.

#### **ATTACHMENTS:**

1. January 30, 2024, Public Open House Display Board Materials
2. January 2024 Public Open House & February-March 2024 On-Line Survey – Public Input Summary
3. Existing Traffic Volume Report – Draft
4. Merrill Signal Warrant Report – Draft
5. Merrill All-Way Stop Warrant Report – Draft
6. Hubbard Woods Parking Report – Draft
7. Hubbard Woods Horseshoe Circulation Report - Draft
8. Interim Parking Signage in Hubbard Woods Business District



PROJECT INTRODUCTION + EXISTING CONDITIONS MAP



**PROJECT INTRODUCTION:**

This project evaluates the utilization of the public right-of-way in Hubbard Woods, including the roadways, sidewalks, plantings, and green spaces controlled by the Villages and/or Illinois Department of Transportation (IDOT).

The planning process is designed to offer viable enhancement options that improve pedestrian safety, on-street and off-street parking, lighting, pavement, site furnishings, wayfinding signage, trees, plantings, and outdoor seating and dining.

This study will result in a Hubbard Woods Business District Streetscape Concept Design Plan report paired with concept plans to help guide future Village discussions and decision-making about specific streetscape improvements in the district.

| ANTICIPATED TIMELINE                      |           |
|-------------------------------------------|-----------|
| COMMUNITY OUTREACH + PRELIMINARY CONCEPTS | 2023-2024 |
| IDOT COORDINATION                         | 2024-2025 |
| ENGINEERING + FINAL DESIGN*               | TBD       |
| CONSTRUCTION*                             | TBD       |

\* Final design, engineering + construction is dependent on coordination with IDOT and funding availability



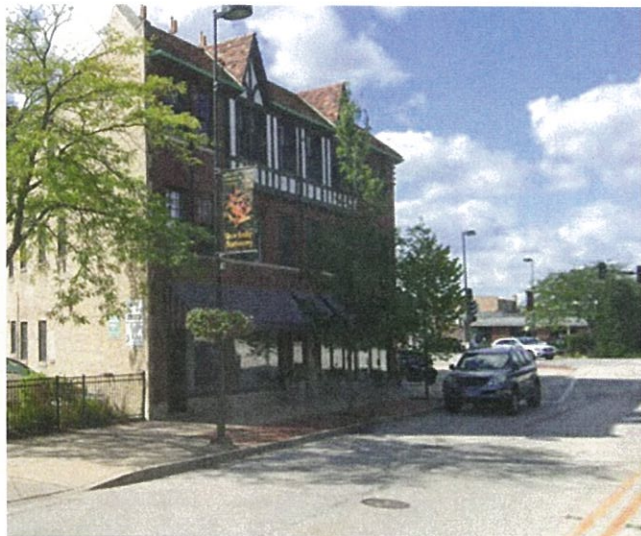
HUBBARD WOODS BUSINESS DISTRICT STREETScape

VILLAGE OF WINNETKA + VILLAGE OF GLENCOE





EXISTING CONDITIONS PHOTOS



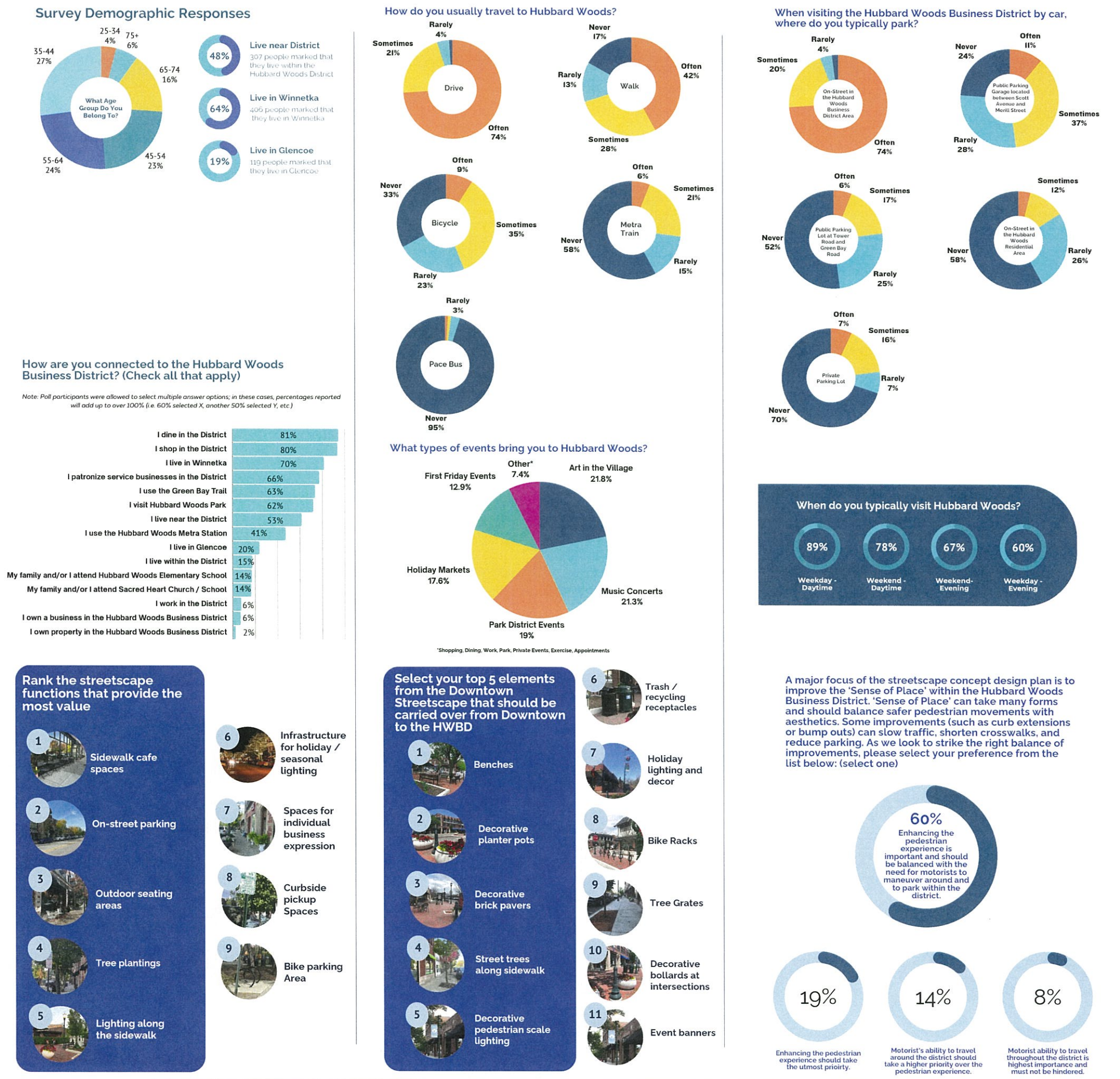
HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA + VILLAGE OF GLENCOE





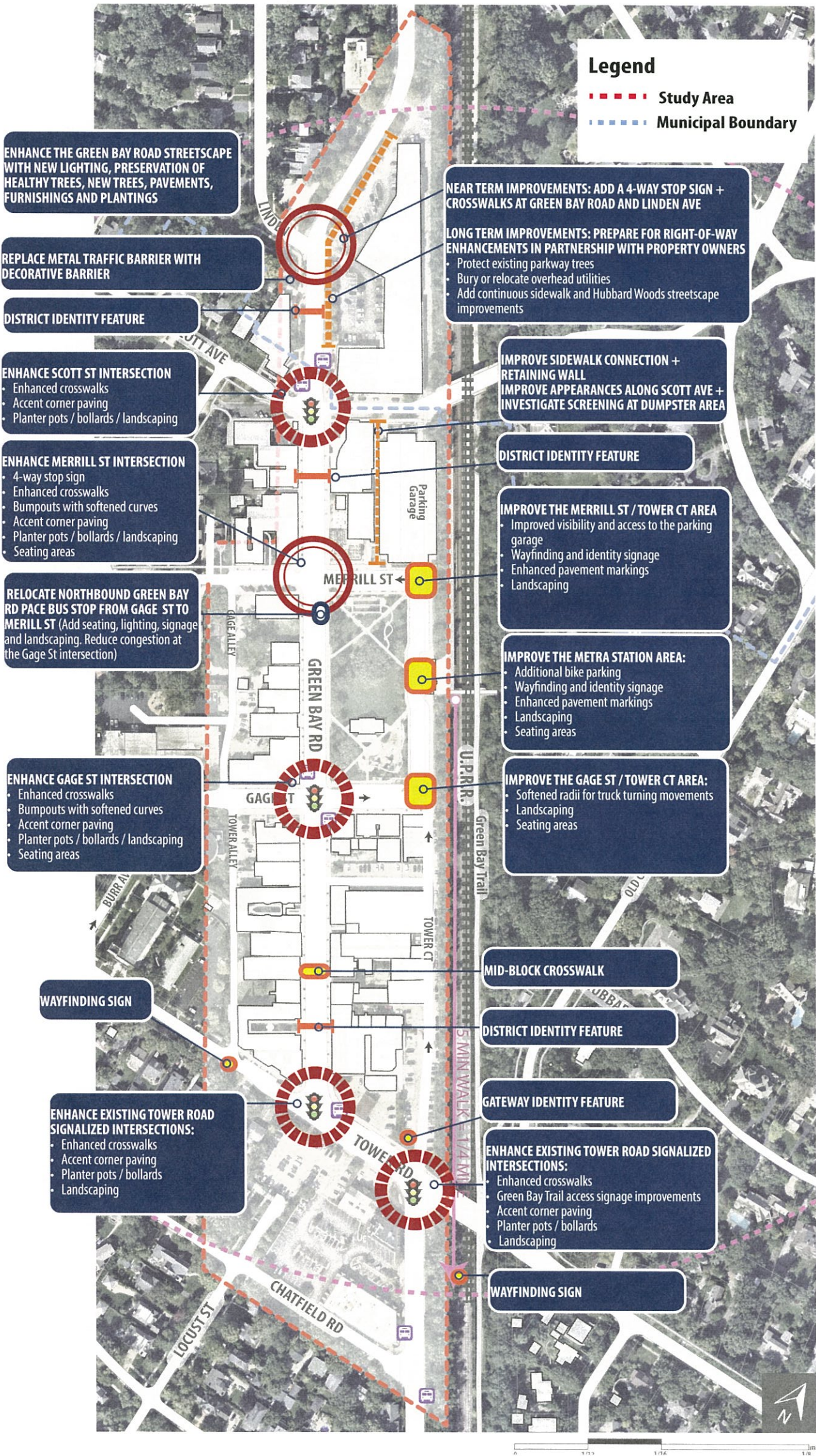
COMMUNITY SURVEY RESPONSE

SURVEY DATES: NOVEMBER 9, 2023 - JANUARY 7, 2024  
PARTICIPANTS: 580





DESIGN STRATEGIES, ISSUES + OPPORTUNITIES



**DESIGN STRATEGIES:**

Balance pedestrian safety and traffic flow with a sense of place that celebrates Hubbard Woods' unique character.

Design concepts consider improvements that are supported by two scenarios for future control of Green Bay Road:

**OPTION A:**

Roadway continues to be controlled by the Illinois Department of Transportation (IDOT)

**OPTION B:**

Village of Winnetka assumes control of Green Bay Road via Jurisdictional Transfer (JT)

**NOTE:** Green Bay Road north of Scott Ave is controlled by the Village of Glencoe.



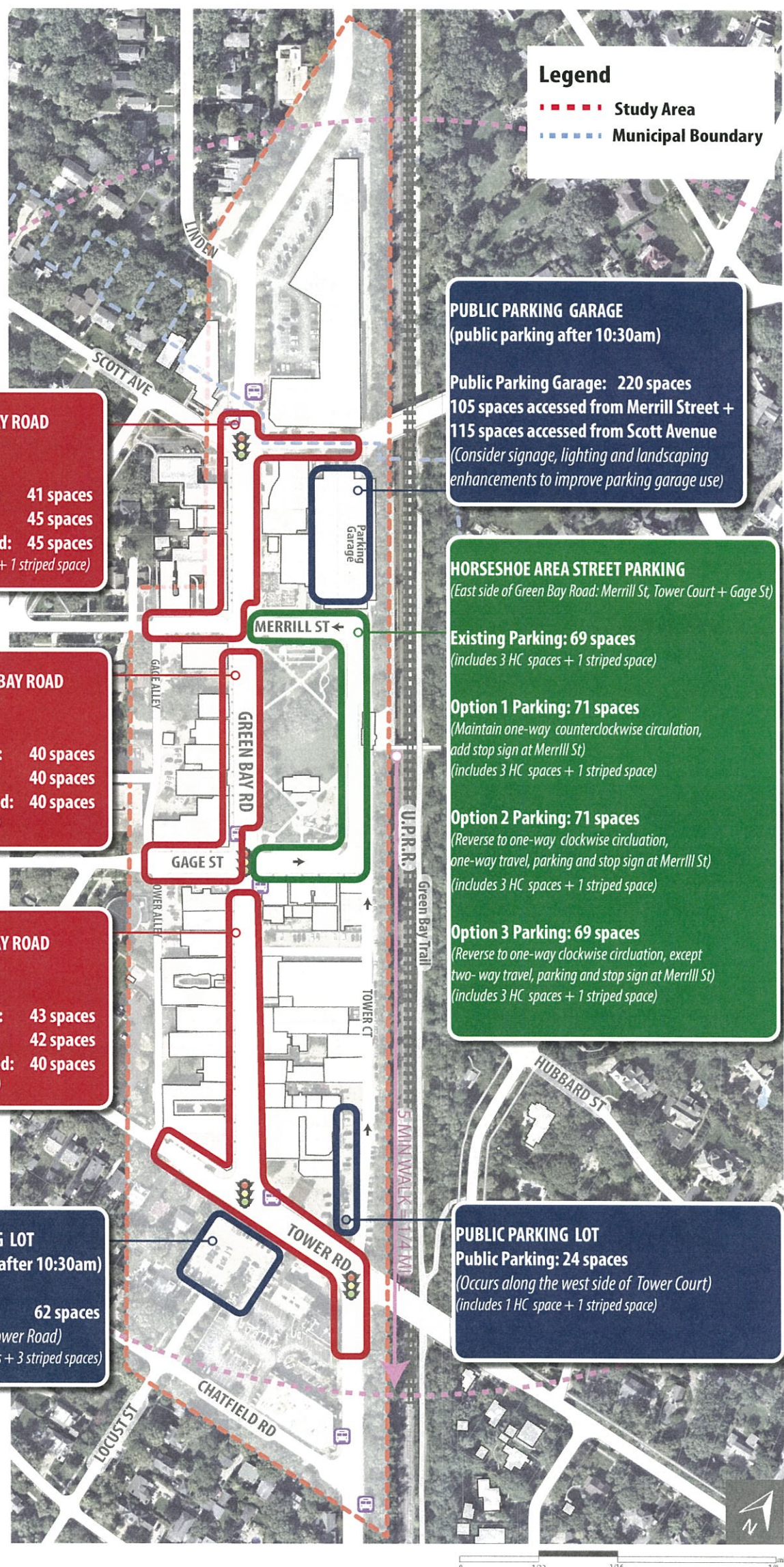
HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE

VILLAGE OF WINNETKA + VILLAGE OF GLENCOE





PUBLIC PARKING



PARKING SUMMARY

| SUBAREAS                                              | EXISTING PARKING | IDOT CONTROLLED CONCEPT | VILLAGE CONTROLLED CONCEPT |
|-------------------------------------------------------|------------------|-------------------------|----------------------------|
| NORTH GREEN BAY RD (SCOTT TO MERRILL)                 | 41               | 45                      | 45                         |
| CENTRAL GREEN BAY RD (MERRILL TO GAGE)                | 40               | 40                      | 40                         |
| SOUTH GREEN BAY RD (GAGE TO CHATFIELD)                | 43               | 42                      | 40                         |
| PUBLIC PARKING LOT (NORTH SIDE OF TOWER)              | 24               | 24                      | 24                         |
| PUBLIC PARKING LOT (SOUTH SIDE OF TOWER)              | 62               | 62                      | 62                         |
| HUBBARD WOODS PARKING GARAGE                          | 220              | 220                     | 220                        |
| Lower Level: 105 spaces, public parking after 10:30am |                  |                         |                            |
| Upper Level: 115 spaces, public parking after 10:30am |                  |                         |                            |
| BASE SUBTOTAL                                         | 430              | 433                     | 431                        |

|                           |     |     |     |
|---------------------------|-----|-----|-----|
| BASE + HORSESHOE EXISTING | 499 | 502 | 500 |
| (69 spaces)               |     |     |     |
| BASE + HORSESHOE OPTION 1 |     | 504 | 502 |
| (71 spaces)               |     |     |     |
| BASE + HORSESHOE OPTION 2 |     | 504 | 502 |
| (71 spaces)               |     |     |     |
| BASE + HORSESHOE OPTION 3 |     | 502 | 500 |
| (69 spaces)               |     |     |     |

Note:  
For the purposes of this streetscape planning study, on-street parking is calculated as below:  
(1) diagonal accessible space plus (1) adjacent striped space equals (2) spaces.



HUBBARD WOODS BUSINESS DISTRICT STREETScape  
VILLAGE OF WINNETKA + VILLAGE OF GLENCOE



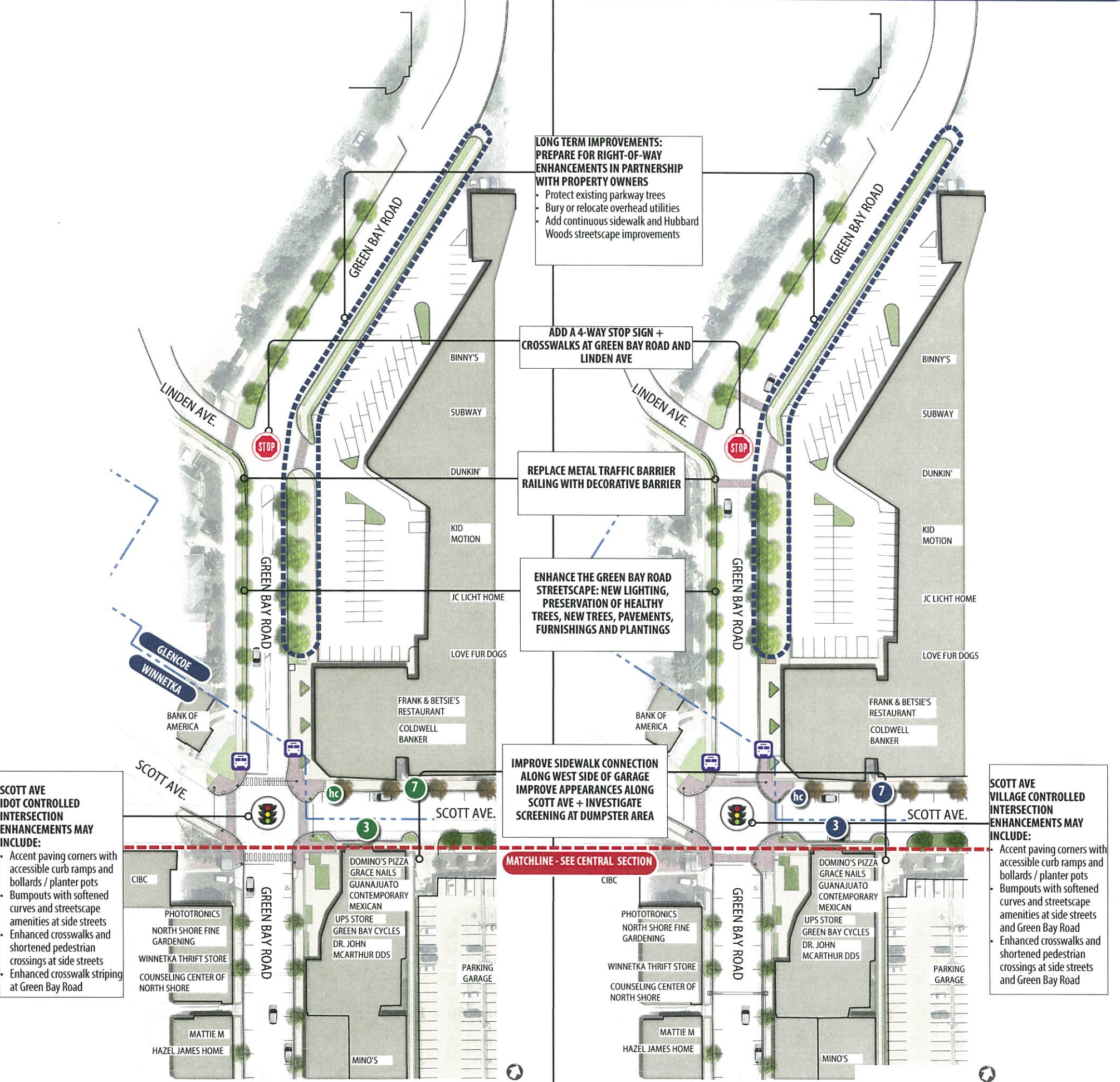


PLAN ENLARGEMENT CONCEPTS | NORTH

INPUT ACTIVITY:  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE CONCEPTS.

OPTION A:  
IDOT CONTROLLED ROADWAY

OPTION B:  
VILLAGE CONTROLLED ROADWAY  
Green Bay Road north of Scott Ave is controlled by the Village of Glencoe.  
Green Bay Road south of Scott Ave is controlled by IDOT.



HUBBARD WOODS BUSINESS DISTRICT STREETScape  
VILLAGE OF WINNETKA + VILLAGE OF GLENCOE



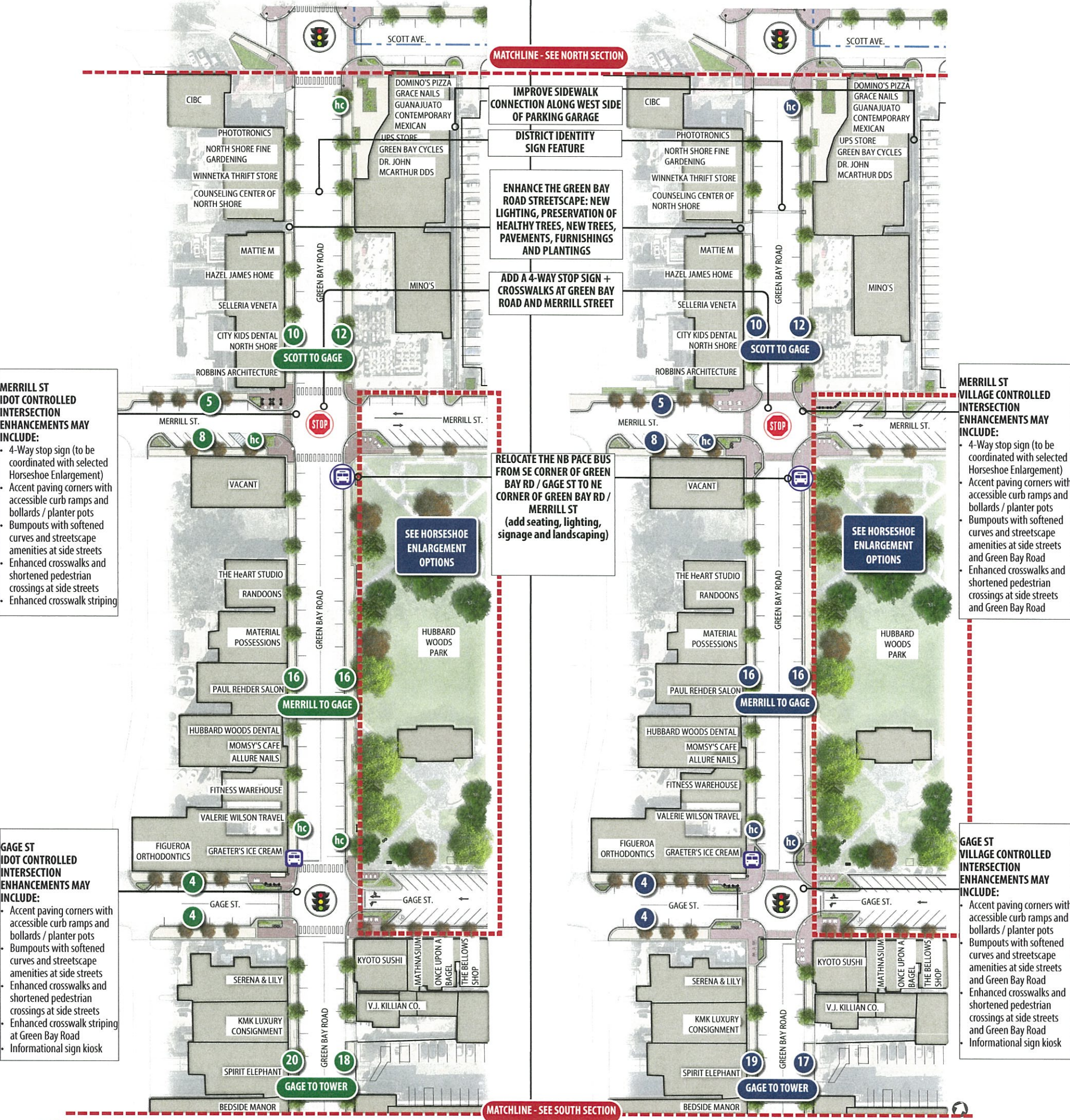


PLAN ENLARGEMENT CONCEPTS | CENTRAL

INPUT ACTIVITY:  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE CONCEPTS.

OPTION A:  
IDOT CONTROLLED ROADWAY

OPTION B:  
VILLAGE CONTROLLED ROADWAY



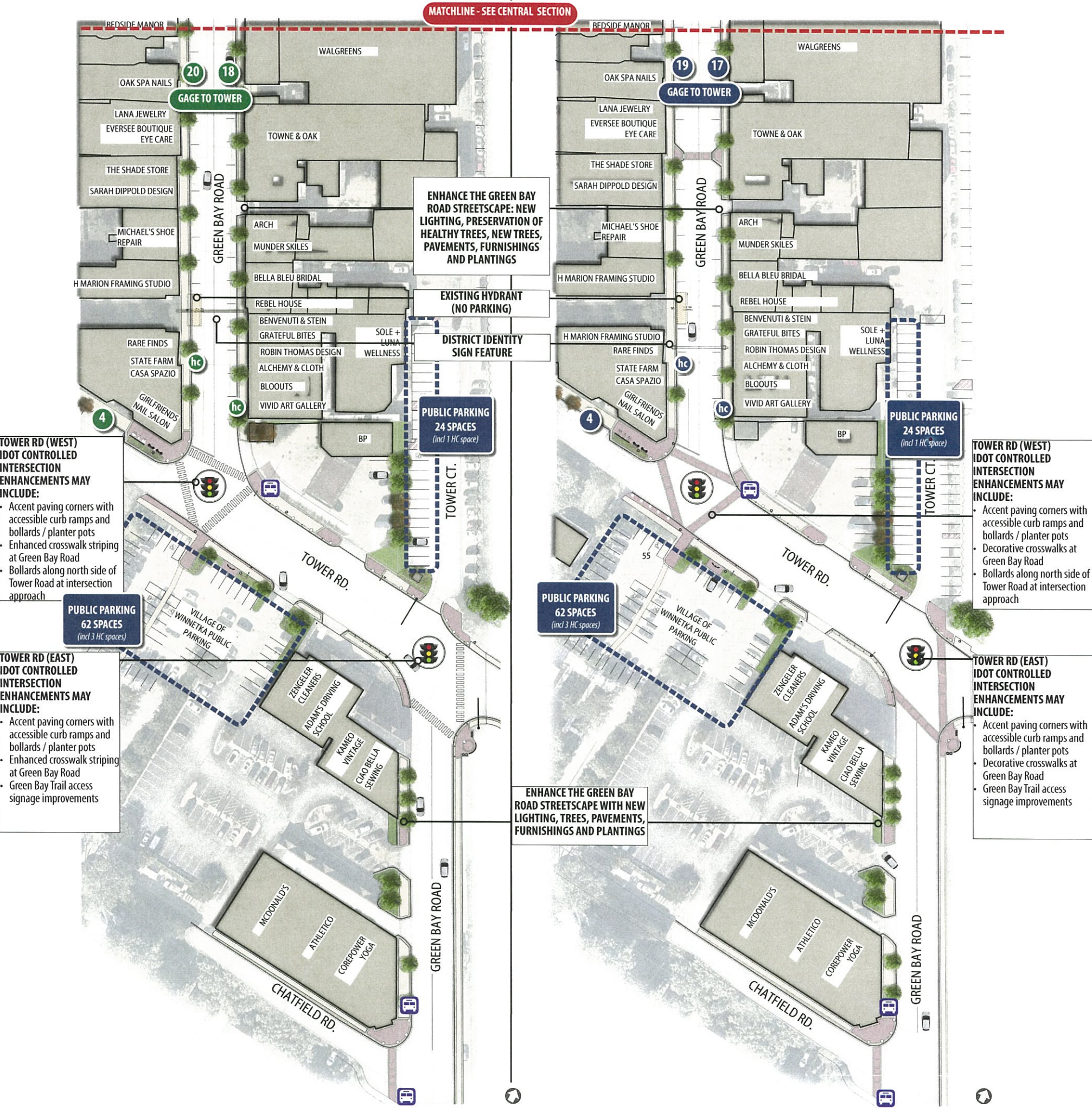


PLAN ENLARGEMENT CONCEPTS | SOUTH

INPUT ACTIVITY:  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE CONCEPTS.

OPTION A:  
IDOT CONTROLLED ROADWAY

OPTION B:  
VILLAGE CONTROLLED ROADWAY



HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA



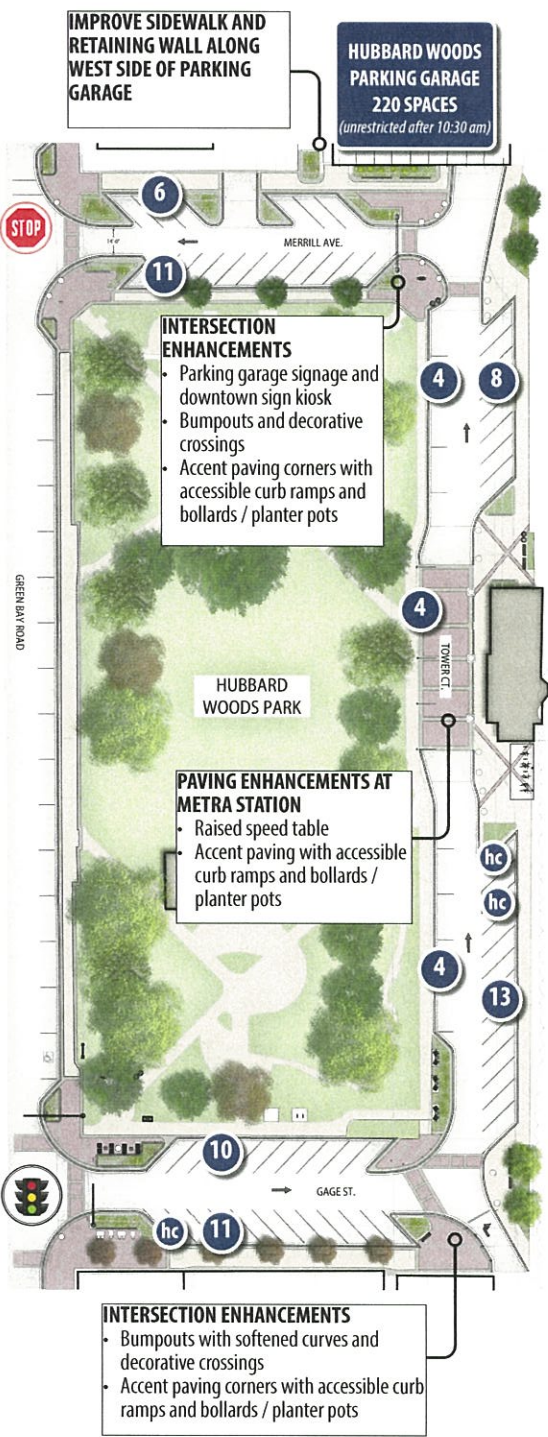


PLAN ENLARGEMENT CONCEPTS | HORSESHOE AREA

INPUT ACTIVITY:  
VOTE FOR YOUR PREFERRED OPTION BY PLACING (1) STICKER ON YOUR PREFERRED PLAN ABOVE.  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE OPTIONS.

OPTION 1

Maintain one-way counterclockwise circulation, add parking and stop sign at Merrill St

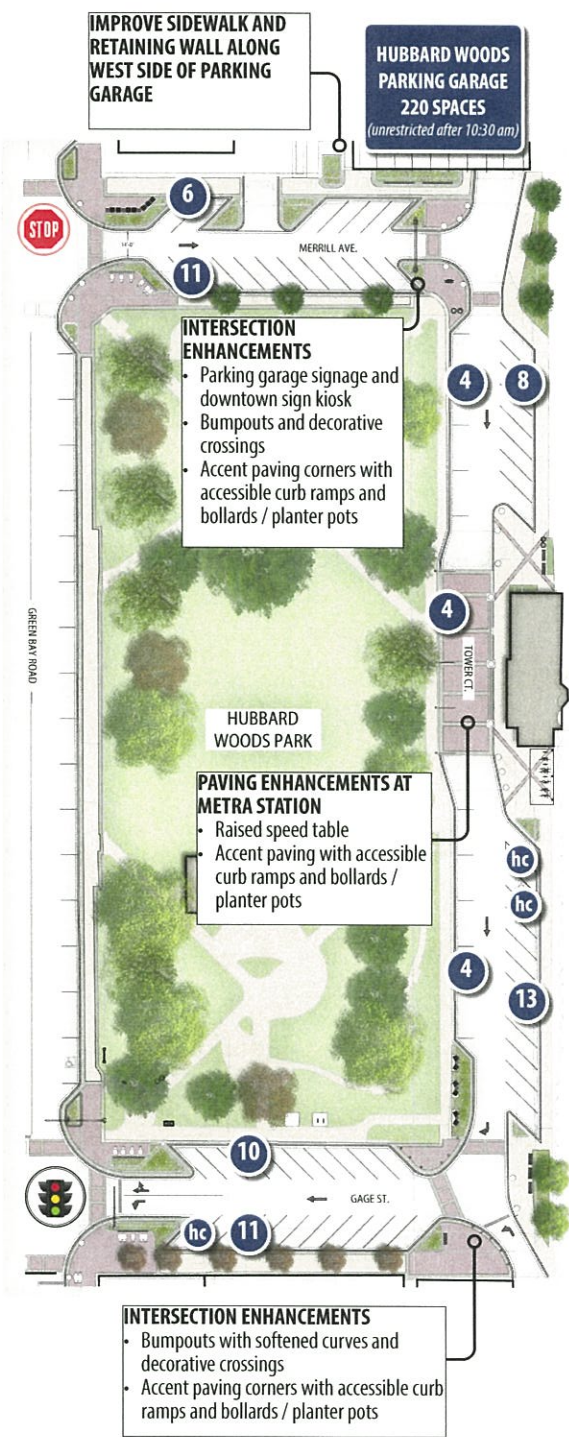


OPTION 1:

VOTE  
HERE!

OPTION 2

Reverse to one-way clockwise circulation, one-way travel, parking and stop sign at Merrill St

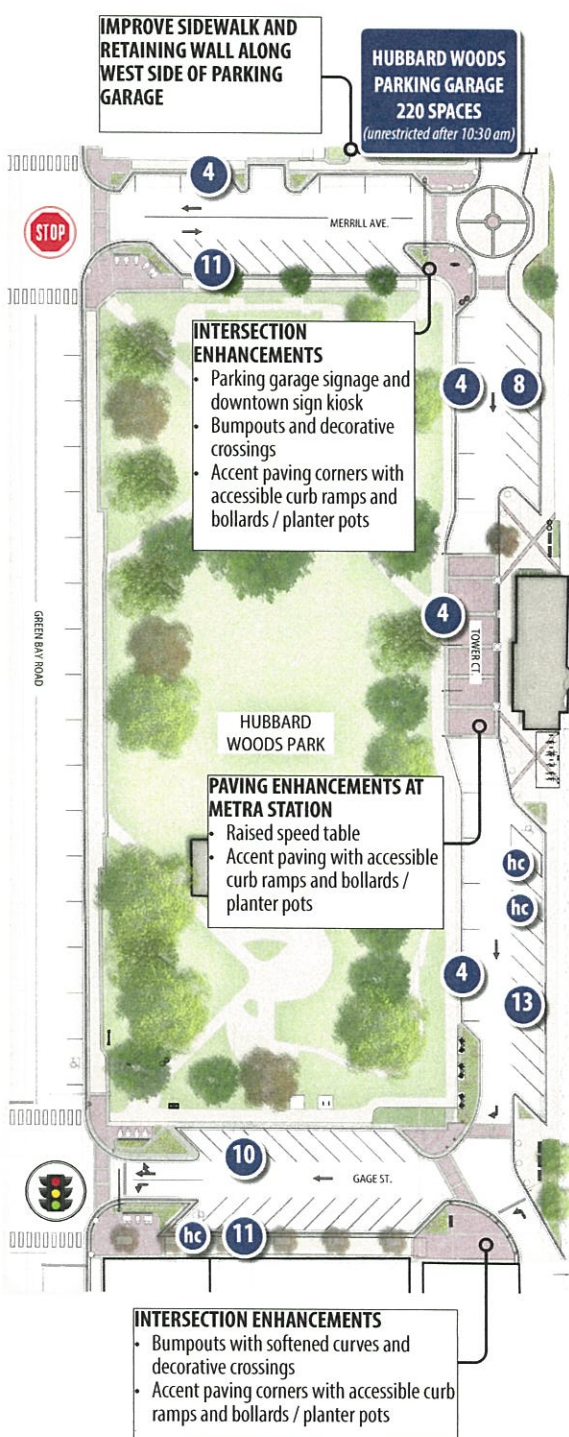


OPTION 2:

VOTE  
HERE!

OPTION 3

Reverse to one-way clockwise circulation, two-way travel, parking and stop sign at Merrill St



OPTION 3:

VOTE  
HERE!



HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA





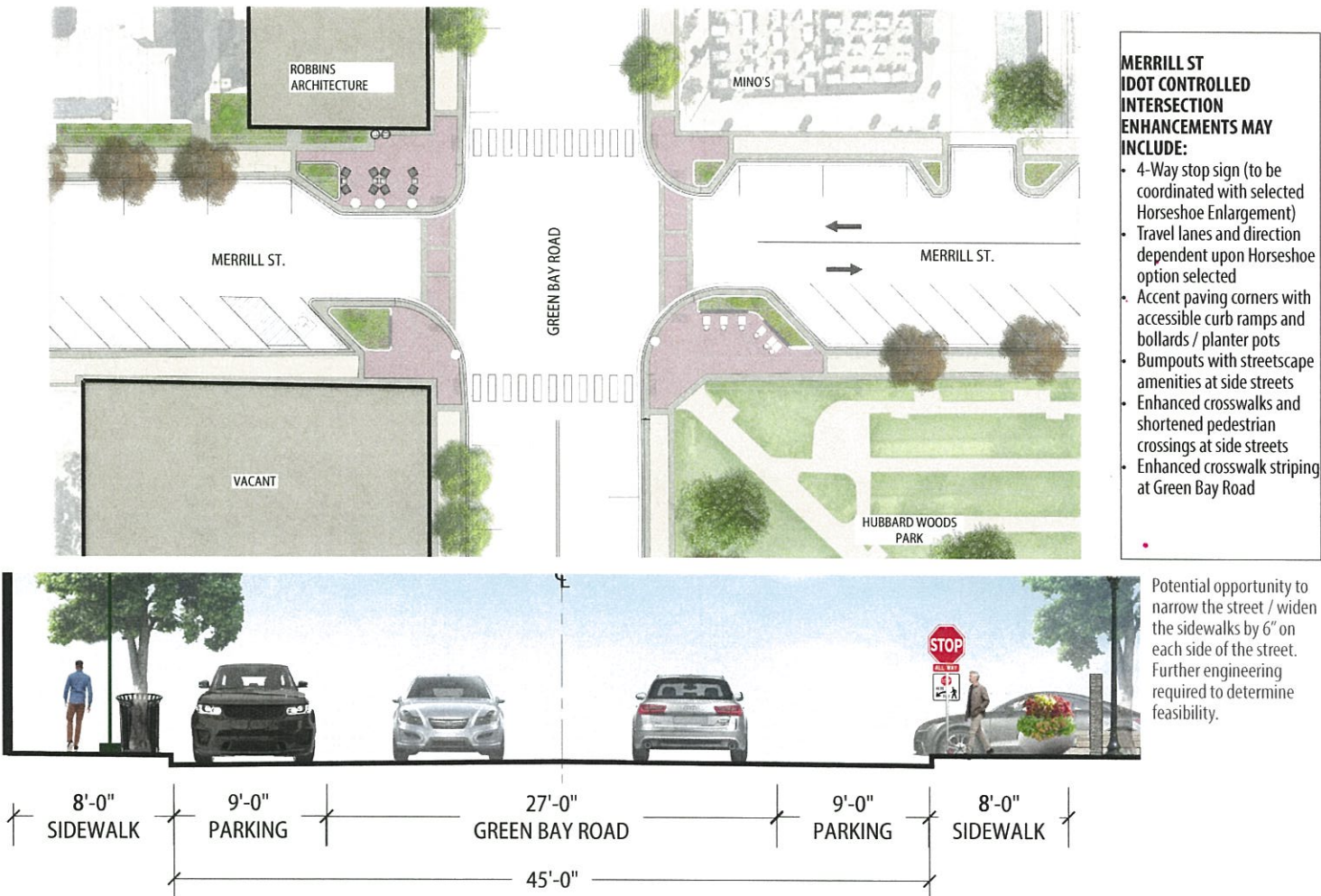
PLAN ENLARGEMENT CONCEPTS | GREEN BAY ROAD + MERRILL STREET

INPUT ACTIVITY:  
VOTE FOR YOUR PREFERRED CONCEPT BY PLACING (1) STICKER ON YOUR PREFERRED PLAN.

USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE OPTIONS.

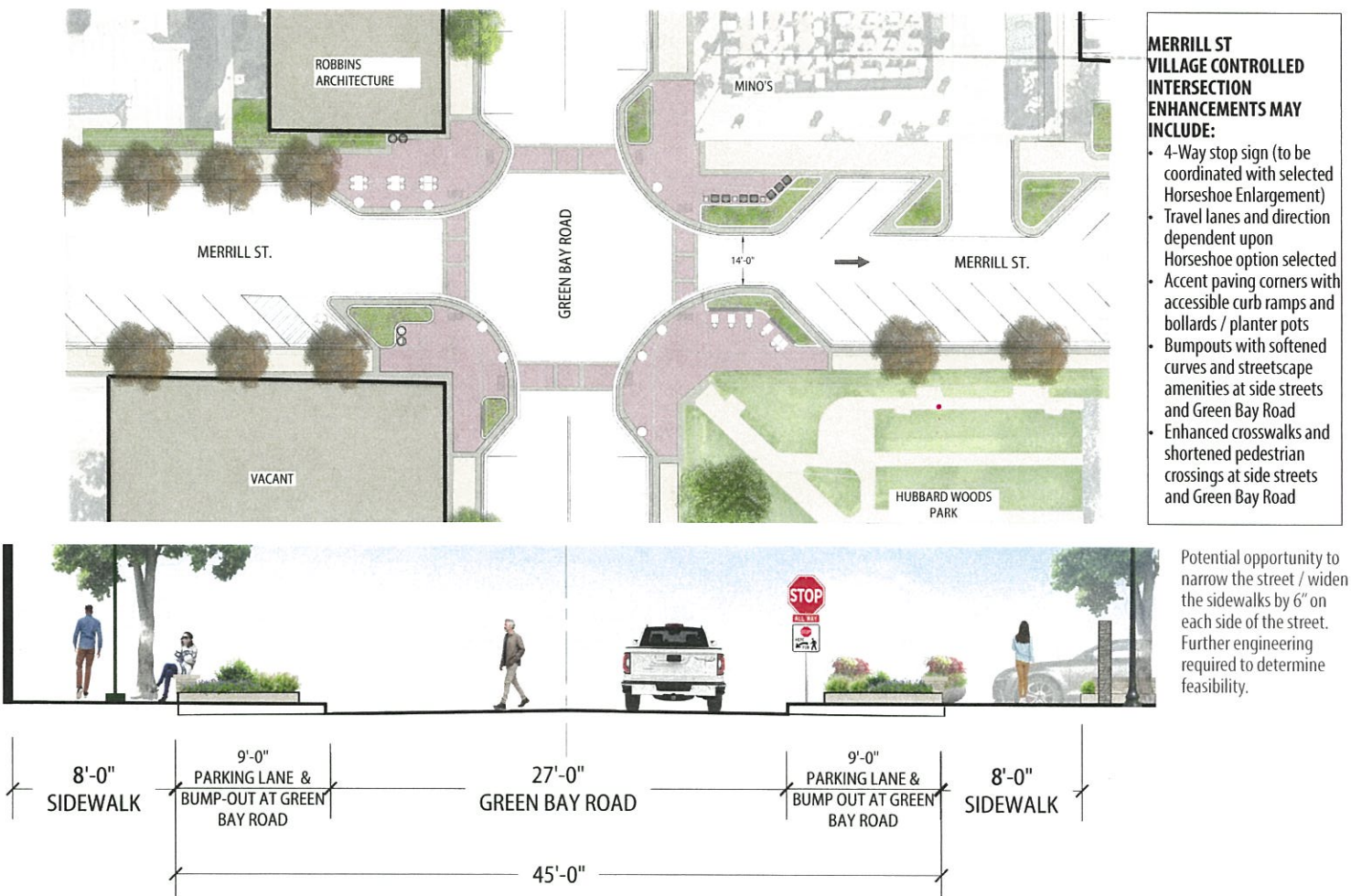
OPTION A:  
IDOT CONTROLLED  
ROADWAY

VOTE  
HERE!



OPTION B:  
VILLAGE CONTROLLED  
ROADWAY

VOTE  
HERE!



HUBBARD WOODS BUSINESS DISTRICT STREETScape  
VILLAGE OF WINNETKA





PLAN ENLARGEMENT CONCEPTS | GREEN BAY ROAD + GAGE STREET

INPUT ACTIVITY:  
VOTE FOR YOUR PREFERRED CONCEPT BY PLACING (1) STICKER ON YOUR PREFERRED PLAN.  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE OPTIONS.

OPTION A:  
IDOT CONTROLLED  
ROADWAY

VOTE  
HERE!



OPTION B:  
VILLAGE CONTROLLED  
ROADWAY

VOTE  
HERE!



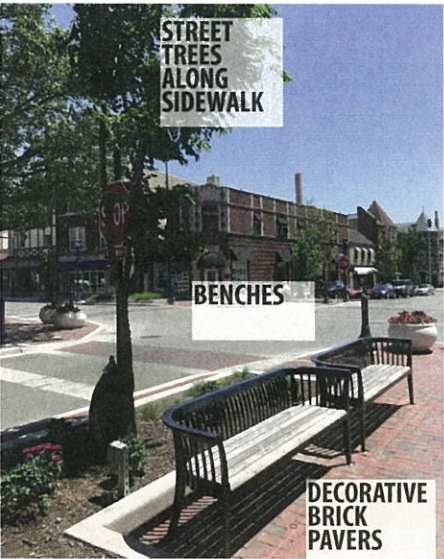
HUBBARD WOODS BUSINESS DISTRICT STREETScape  
VILLAGE OF WINNETKA





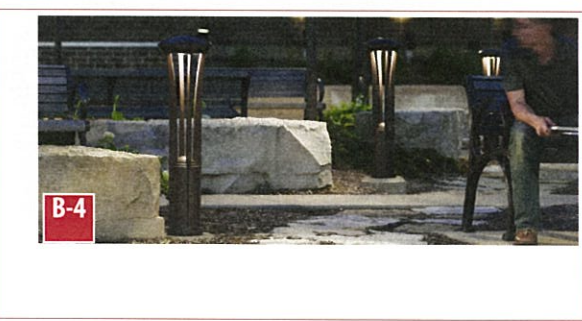
MATERIALS + PRODUCTS (1 OF 2)

STREETSCAPE FEATURES TO BE CARRIED OVER FROM THE ELM STREET DISTRICT TO HUBBARD WOODS



INPUT ACTIVITY:  
BASED ON THE OUTCOMES OF THE COMMUNITY SURVEY, THE STREETSCAPE FEATURES ABOVE WERE SELECTED TO BE CARRIED OVER FROM THE ELM STREET DISTRICT TO THE HUBBARD WOODS DISTRICT.  
VOTE FOR YOUR PREFERRED ADDITIONAL STREETSCAPE FEATURES BY PLACING (1) STICKER PER EACH CATEGORY BELOW.

DECORATIVE BOLLARDS AT INTERSECTIONS



TREE GRATES



BIKE RACKS



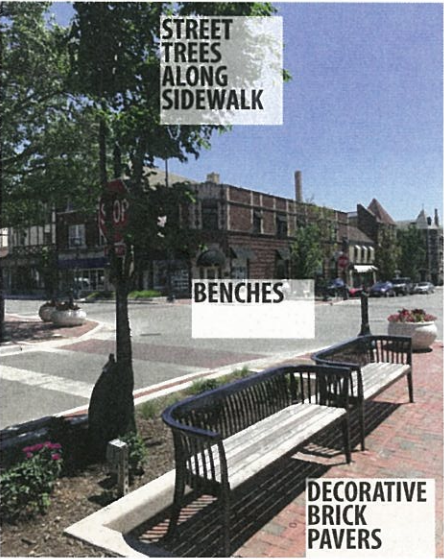
HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA





MATERIALS + PRODUCTS (2 OF 2)

STREETSCAPE FEATURES TO BE CARRIED OVER FROM THE ELM STREET DISTRICT TO HUBBARD WOODS



INPUT ACTIVITY:  
BASED ON THE OUTCOMES OF THE COMMUNITY SURVEY, THE STREETSCAPE FEATURES ABOVE WERE SELECTED TO BE CARRIED OVER FROM THE ELM STREET DISTRICT TO THE HUBBARD WOODS DISTRICT.  
VOTE FOR YOUR PREFERRED ADDITIONAL STREETSCAPE FEATURES BY PLACING (1) STICKER PER EACH CATEGORY BELOW.

TRASH / RECYCLING RECEPTACLES



HOLIDAY LIGHTING AND DECOR



EVENT BANNERS



HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA





COMMUNITY PROVIDED IMAGERY

INPUT ACTIVITY:  
BELOW ARE ADDITIONAL IMAGES PROVIDED DURING THE COMMUNITY SURVEY.  
USE THE POST-IT NOTES TO ADD COMMENTS BELOW.



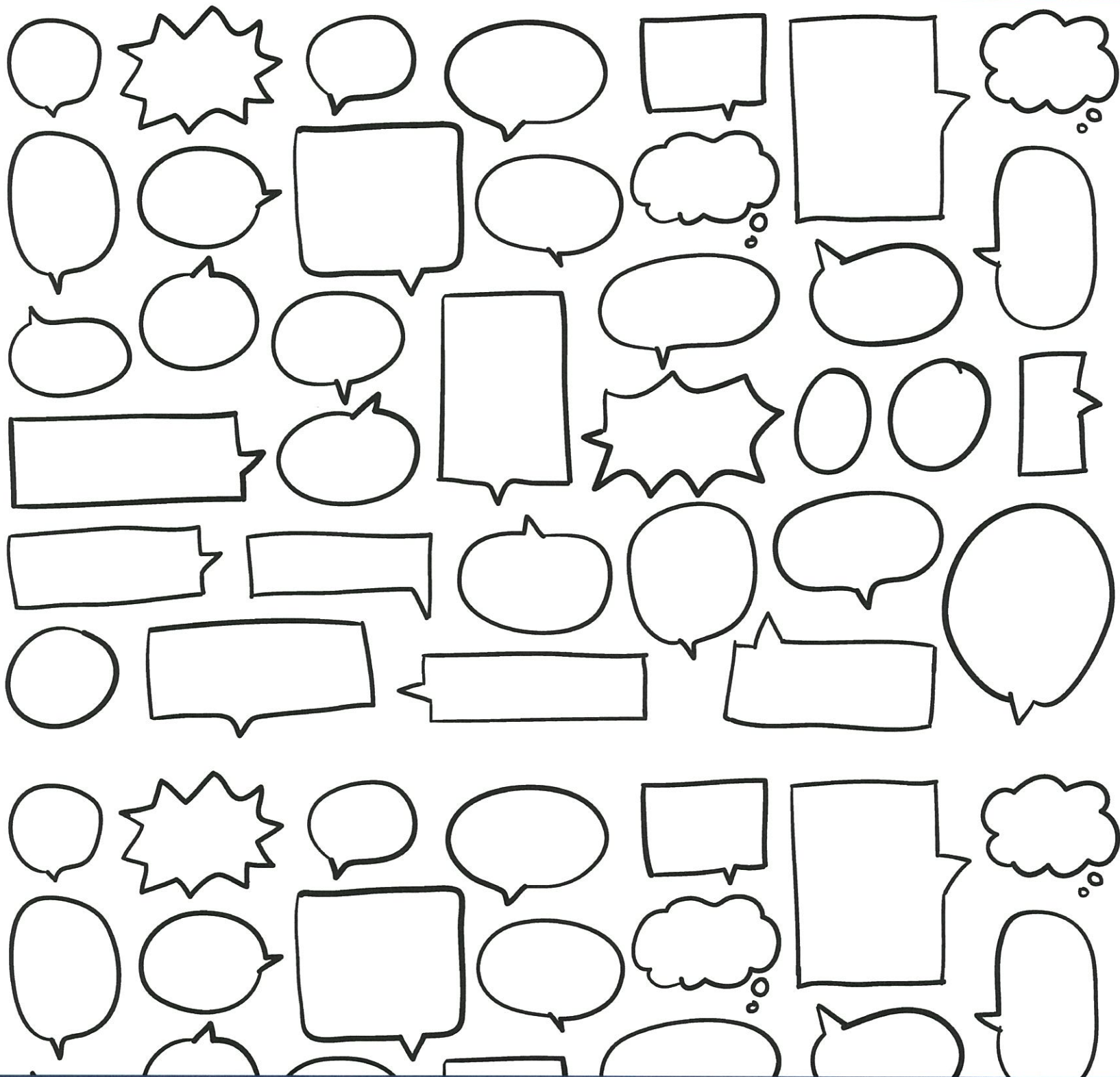
HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA





OPEN COMMENTS

INPUT ACTIVITY:  
USE THE POST-IT NOTES TO PROVIDE ANY ADDITIONAL COMMENTS HERE



NEXT STEPS

Thank you for participating in the Open House!  
Next steps include concept development and coordination with IDOT and Village Council.  
Refined concepts will be presented at upcoming open house meeting, anticipated Spring 2024.  
Stay tuned to the project website for more information:

[www.villageofwinnetka.org](http://www.villageofwinnetka.org)  
Select "Projects", "Hubbard Woods Business District Streetscape"

Scan the code at right with the camera app on your smart phone



HUBBARD WOODS BUSINESS DISTRICT STREETScape  
VILLAGE OF WINNETKA





# Attachment 2



## **HUBBARD WOODS STREETScape**

### **PUBLIC OPEN HOUSE MEETING #1 – SUMMARY DRAFT**

**Public Meeting: January 30, 2024 | Towne & Oak, Winnetka | 5:30pm – 7:30pm**

**Public Meeting Feedback Online Poll | February 16 – March 16, 2024**

The Village of Winnetka, in partnership with the Village of Glencoe, is developing a Hubbard Woods Business District streetscape concept design plan.

The overall design strategy is to balance pedestrian safety and traffic flow with a sense of place that celebrates Hubbard Woods' unique character. Design concepts consider improvements that are supported by two scenarios for future control of Green Bay Road. This study will result in a cohesive Streetscape Design Plan to help guide future discussions with IDOT and decision-making about specific streetscape improvements in the district.

A public open house took place on January 30, 2024, at Towne & Oak located at 921 Green Bay Road in Winnetka, IL. This meeting presented public feedback received during Survey #1 and gathered input from those in attendance regarding presented preliminary streetscape concepts for the Hubbard Woods Business District.

Following the public meeting, an online survey was issued to the community. The survey presented preliminary streetscape concepts and allowed those who were unable to attend the public open house an opportunity to provide input. The survey was open February 16 - March 16, 2024 (Survey #2)

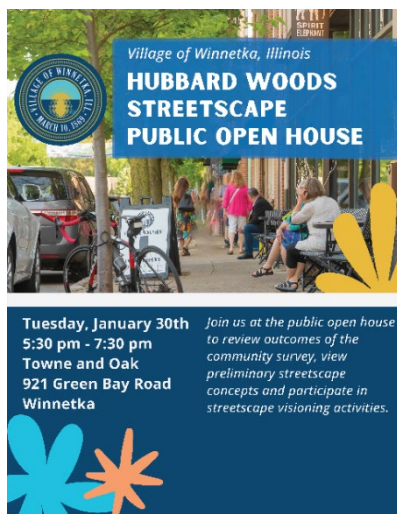
Public Meeting and Online Survey Announcements were distributed by the Villages of Winnetka and Glencoe as follows: announcements in Village newsletters, posts on Village websites, email blasts, social media announcements, printed posters at participating storefronts, posted signage in Winnetka sign kiosks and posters on A-frame signs along the project corridor.

Websites dedicated to this project follow:

- Village of Winnetka: [www.villageofwinnetka.org/410/Hubbard-Woods-Business-District-Street](http://www.villageofwinnetka.org/410/Hubbard-Woods-Business-District-Street)
- Village of Glencoe: [www.villageofglencoe.org/calendar](http://www.villageofglencoe.org/calendar).



Announcement Posters are below:



Public Open House Poster



Online Feedback Survey Poster

|                                                                                          |     |
|------------------------------------------------------------------------------------------|-----|
| The following numbers of participants signed the sign-in sheet at the public open house: | 50  |
| The following number of participants took the public meeting online poll:                | 111 |
| Total Participants:                                                                      | 161 |

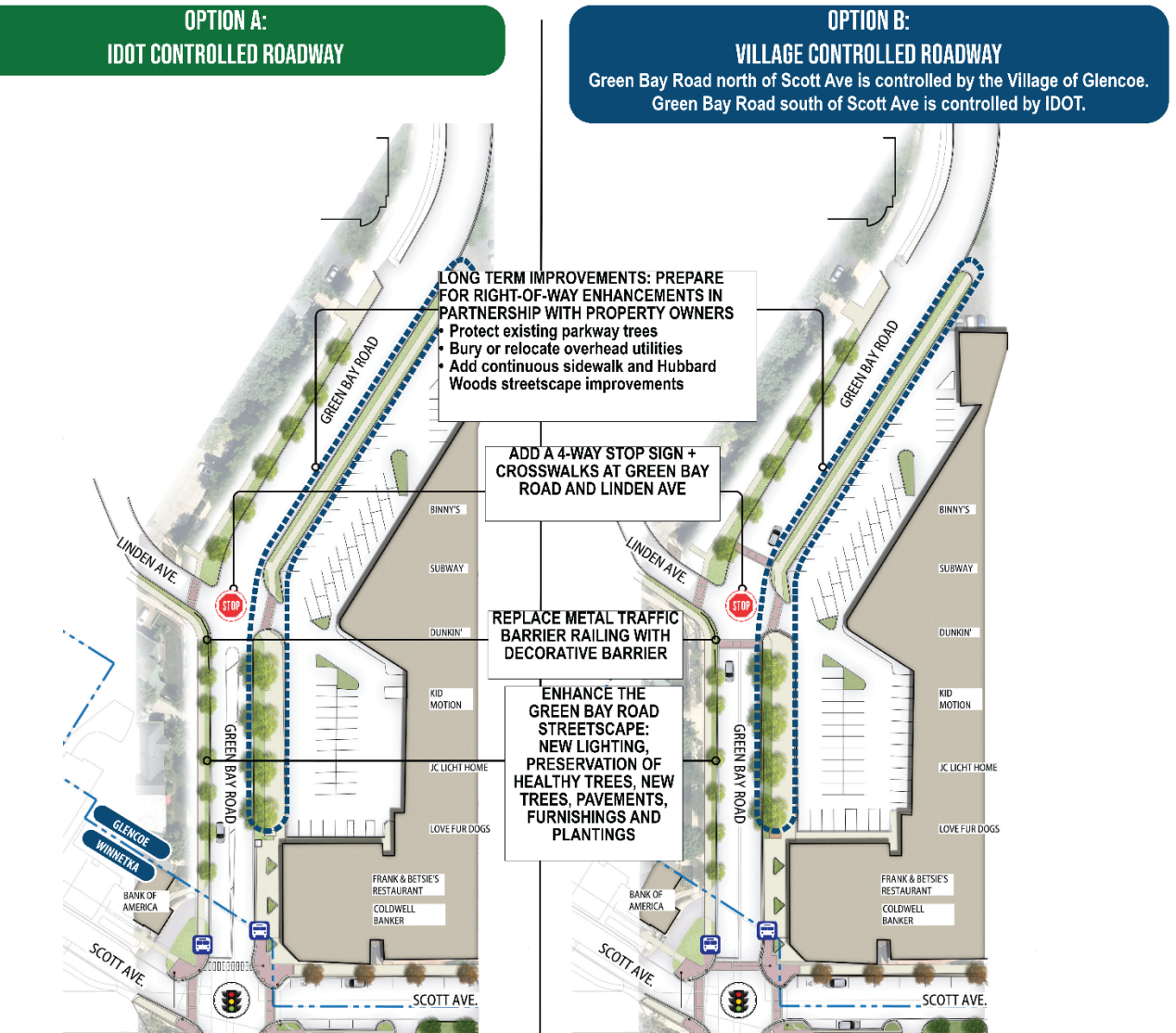
The following list of exhibits were presented to the public for review:

1. Project Introduction and Existing Conditions Map
2. Existing Conditions Photos
3. Community Survey #1 Responses
4. Design Strategies, Issues and Opportunities
5. Public Parking
6. Plan Enlargement Concept: North
7. Plan Enlargement Concept: Central
8. Plan Enlargement Concept: South
9. Plan Enlargement Concept: Horseshoe Area
10. Plan Enlargement Concept: Green Bay Road + Merrill Street
11. Plan Enlargement Concept: Green Bay Road + Gage Street
12. Streetscape Materials + Products
13. Community Provided Imagery

**KEY TAKEAWAYS ORGANIZED BY TOPIC FOLLOW.**



## PLAN ENLARGEMENT CONCEPT: NORTH

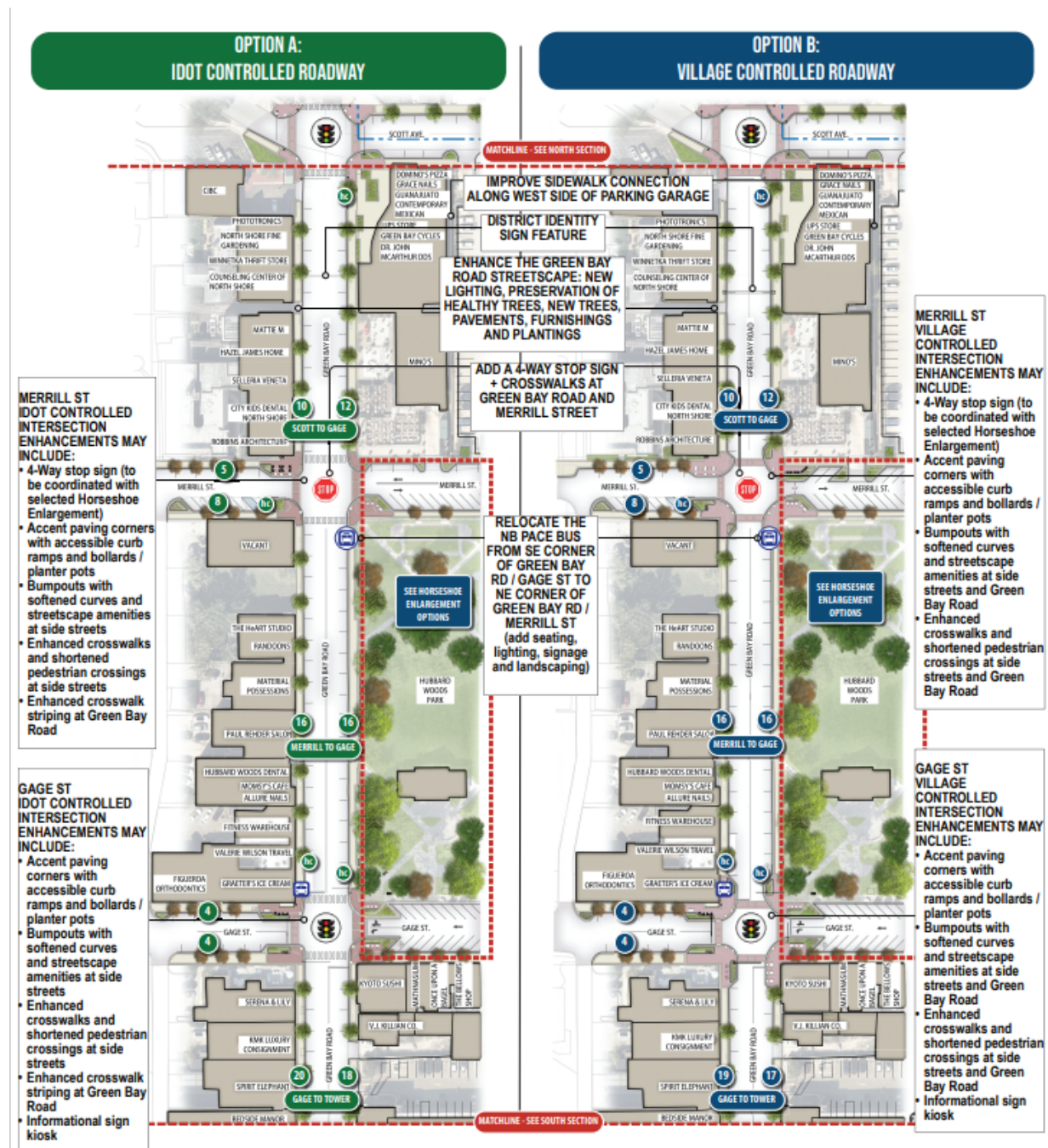


### COMMENT HIGHLIGHTS:

1. **Stop sign at Linden Ave.** There were some negative reactions to adding a stop sign at Linden Avenue and Green Bay Road.
2. **Sidewalk connection along the east side of Green Bay Road.** There were many positive reactions to adding a sidewalk connection on the East side of Green Bay Road.
3. **Existing tree protection and crosswalks.** Tree protection and safer crosswalks were ranked as highest priorities.



## GREEN BAY ROAD IMPROVEMENTS: CENTRAL



### COMMENT HIGHLIGHTS:

- Crosswalks.** Safer crosswalks were noted as a high priority. Decorative crosswalks were preferred where feasible.
- Relocated bus stop.** Positive reaction to the relocation of the northbound Pace bus from the southeast corner of Green Bay Road and Gage Street to the northeast corner of Green Bay Road and Merrill Street.
- Stop sign.** Positive reactions to adding a stop sign at Merrill Street and Green Bay Road.



[illegible]

1. **Bollards.** Positive response to bollards being located at the intersection of Green Bay Road and Tower Road.
2. **Crosswalks.** Decorative crosswalks were preferred where feasible. Diagonal crosswalks at Tower Road were preferred to support natural pedestrian flow.
3. **Mid-block crossing:** Positive responses to adding a mid-block crossing on Green Bay Road with some concern about the loss of parking in the immediate vicinity needed to accommodate this amenity. Note there is an overall increase in parking counts for the entire project area.



## HORSESHOE AREA IMPROVEMENTS:

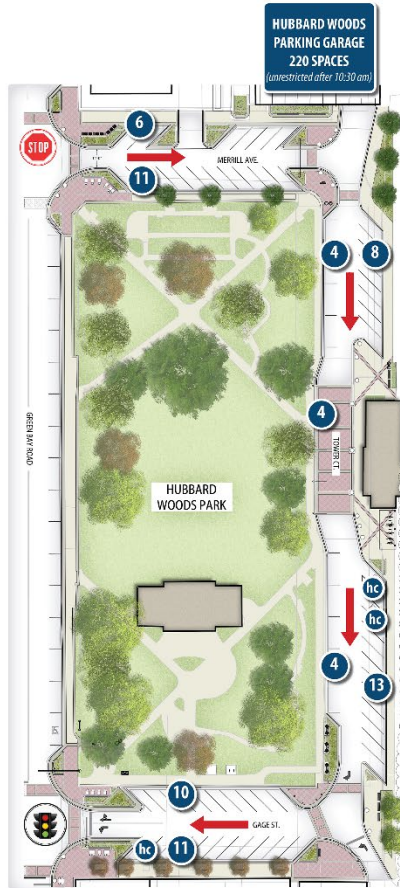
### OPTION 1

Maintain one-way counterclockwise circulation, add parking and stop sign at Merrill St



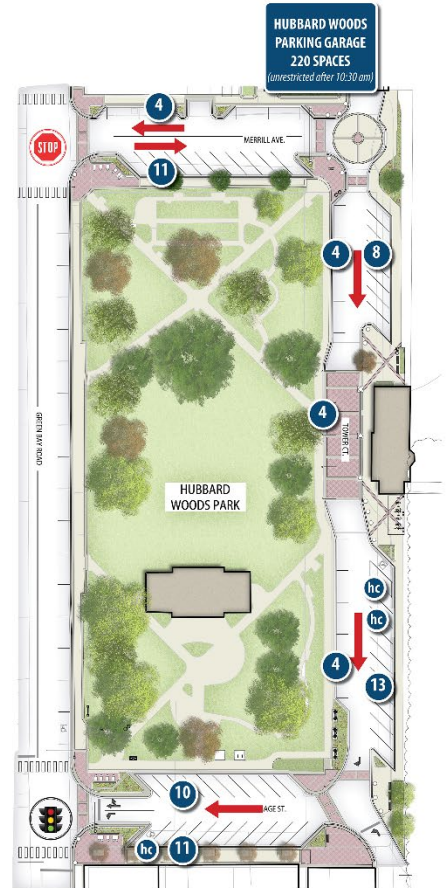
### OPTION 2

Reverse to one-way clockwise circulation, one-way travel, parking and stop sign at Merrill St



### OPTION 3

Reverse to one-way clockwise circulation, two-way travel, parking and stop sign at Merrill St



### COMMENT HIGHLIGHTS:

- Response to three design options for horseshoe area.** There were mixed positive / negative responses to the three options presented. Option 1, which maintains existing traffic flow and adds parking, received the most votes.
- Traffic flow.** Some concerns regarding how delivery truck traffic would navigate a reverse flow system. Further investigations will be made regarding the vehicular movement standards with the proposed enlarged bumpouts near the northeast corner of the park to ensure the radius is appropriate.
- Merrill Avenue and Green Bay Road intersection.** Positive responses to slowing traffic and prioritizing pedestrian crossing safety. The large volume of vehicles in this area makes the intersection feel unsafe.
- Metra station area.** Positive reactions to improvements surrounding the station.
- Pavement markings.** Improve crosswalk and parking pavement markings for clarity and visibility.
- Parking garage.** Improve lighting and signage. Make repairs and clear overgrown plant material.
- Pick-up / drop-off areas for businesses.** Designated pick-up and drop-off areas for businesses are critical.



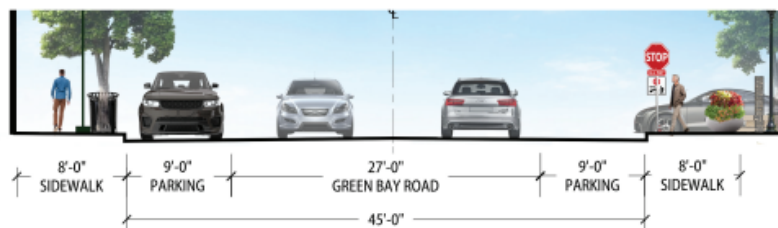
## PLAN ENLARGEMENTS: INTERSECTION TREATMENTS (GREEN BAY ROAD AND MERRILL STREET)

### OPTION A: IDOT CONTROLLED ROADWAY



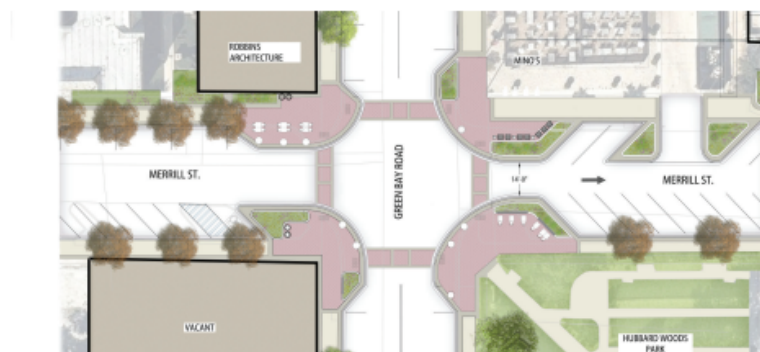
**MERRILL ST  
IDOT CONTROLLED  
INTERSECTION  
ENHANCEMENTS MAY  
INCLUDE:**

- 4-Way stop sign (to be coordinated with selected Horseshoe Enlargement)
- Travel lanes and direction dependent upon Horseshoe option selected
- Accent paving corners with accessible curb ramps and bollards / planter pots
- Bumpouts with streetscape amenities at side streets
- Enhanced crosswalks and shortened pedestrian crossings at side streets
- Enhanced crosswalk striping at Green Bay Road



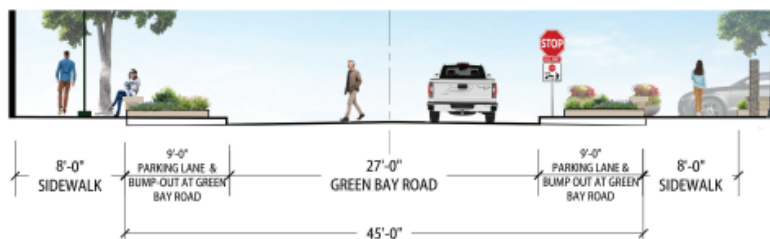
Potential opportunity to narrow the street / widen the sidewalks by 6" on each side of the street. Further engineering required to determine feasibility.

### OPTION B: VILLAGE CONTROLLED ROADWAY



**MERRILL ST  
VILLAGE CONTROLLED  
INTERSECTION  
ENHANCEMENTS MAY  
INCLUDE:**

- 4-Way stop sign (to be coordinated with selected Horseshoe Enlargement)
- Travel lanes and direction dependent upon Horseshoe option selected
- Accent paving corners with accessible curb ramps and bollards / planter pots
- Bumpouts with softened curves and streetscape amenities at side streets and Green Bay Road
- Enhanced crosswalks and shortened pedestrian crossings at side streets and Green Bay Road



Potential opportunity to narrow the street / widen the sidewalks by 6" on each side of the street. Further engineering required to determine feasibility.

### COMMENT HIGHLIGHTS:

1. **Pedestrian safety.** It was noted that this existing intersection configuration feels unsafe for pedestrians due to the high volume of traffic in this area.
2. **Sidewalk bumpouts.** Sidewalk bumpouts located at Green Bay Road and at side streets were generally preferred from the "Village Controlled" design option. It was noted that this feature improves pedestrian visibility, minimizes crosswalk length, and eliminates impatient drivers who use this space to pass other vehicles.
3. **Designated short term parking.** There were requests to provide signed short-term parking in front of businesses as practical.



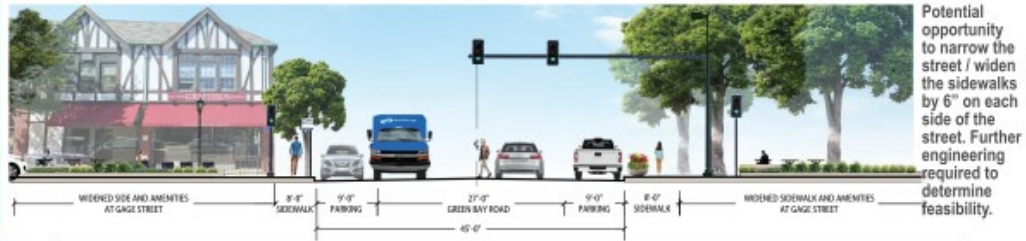
## PLAN ENLARGEMENTS: INTERSECTION TREATMENTS (GREEN BAY ROAD AND GAGE STREET)

### OPTION A: IDOT CONTROLLED ROADWAY



**GAGE ST  
IDOT CONTROLLED  
INTERSECTION ENHANCEMENTS  
MAY INCLUDE:**

- Accent paving corners with accessible curb ramps and bollards / planter pots
- Travel lanes and direction dependent upon Horseshoe option selected
- Bumpouts with streetscape amenities at side streets
- Enhanced crosswalks and shortened pedestrian crossings at side streets
- Enhanced crosswalk striping at Green Bay Road

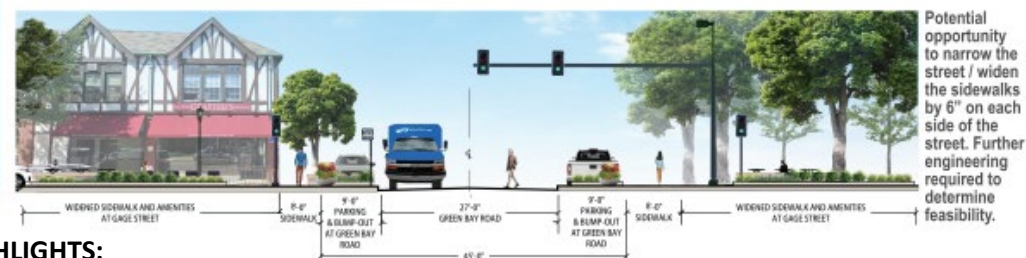


### OPTION B: VILLAGE CONTROLLED ROADWAY



**GAGE ST  
VILLAGE CONTROLLED  
INTERSECTION ENHANCEMENTS  
MAY INCLUDE:**

- Accent paving corners with accessible curb ramps and bollards / planter pots
- Travel lanes and direction dependent upon Horseshoe option selected
- Bumpouts with softened curves and streetscape amenities at side streets and Green Bay Road
- Enhanced crosswalks and shortened pedestrian crossings at side streets and Green Bay Road

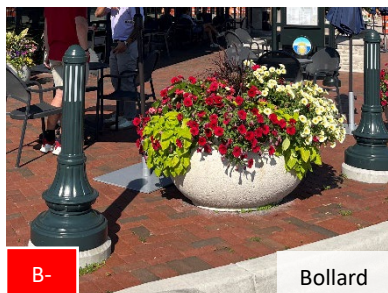


### COMMENT HIGHLIGHTS:

1. **Sidewalk bumpouts.** Sidewalk bumpouts located at Green Bay Road and at side streets were preferred. It was noted that this feature improves pedestrian visibility, minimizes crosswalk length and eliminates impatient drivers who use this space to pass other vehicles.
2. **Streetscape amenities.** Positive reactions to outdoor seating and plantings. Existing large planters block visibility and should be replaced with smaller planter pots.
3. **Parking.** Concerns about bumpouts impacting the number of parking spaces.



## FURNISHINGS



B-

Bollard



T-3

Tree



BR-

Bike rack



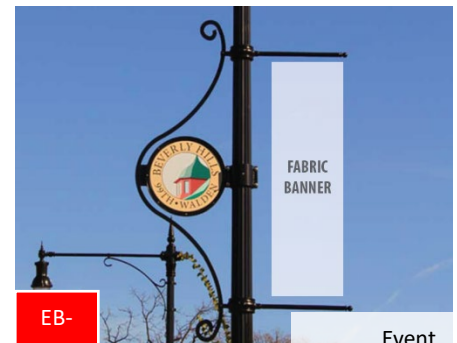
TR-0

Trash / recycling



LD-2

Holiday lighting +



EB-

Event

### COMMENT HIGHLIGHTS:

Based on both events (public meeting and online survey), the following streetscape amenities received the highest number of votes.

1. **Bollards.** The existing Winnetka bollard (B-0) received the highest number of votes.
2. **Tree grates.** Tree grate option 3 (T-3) received the highest number of votes.
3. **Bike racks.** The existing Winnetka bike rack (BR-0) received the highest number of votes.
4. **Trash/recycling.** The existing Winnetka receptacles (TR-0) received the highest number of votes.
5. **Holiday lighting + décor.** Option 2 (LD-2) received the highest number of votes.
6. **Event banners.** Option 3 (EB-3) received the highest number of votes.
7. **Other streetscape amenities.** It should be noted that based upon the first survey of the community members, the preference was to continue to use the following elements from the Elm Street Business streetscape project: *benches, planter pots, brick pavers, street trees, decorative pedestrian scale lighting.*



#### **OTHER COMMENTS AND CONCERNS:**

1. Maintaining on-street parking throughout the district was identified as a high priority. In the immediate vicinity, there are currently 499 public parking spaces available. The IDOT controlled design option increases the parking count to 504 spaces. The Village controlled design option increases the parking count to 502 spaces.
2. The curb space along Merrill Street, east of Green Bay Road is currently used by Mino's for short term parking and carry out.
3. The horseshoe area offers 3 options which have direct impacts to traffic. A formal traffic study should be conducted to determine the impact.
4. The Hubbard Woods Parking Garage requires long-term maintenance, enhancements, and improved visibility.
5. If traffic is calmed along Green Bay Road, will traffic be diverted to neighborhoods?
6. Bike accommodations and connectivity to the Green Bay Trail should be considered.
7. Provide more lighting throughout the district through a variety of lighting options (i.e. café lights, pedestrian, and vehicular fixtures).
8. Positive reaction to potentially widen sidewalks by six inches.
9. Desire for outdoor dining and café seating while still providing adequate space for passersby.



- XX – Weekday AM Peak Hour  
(7:45–8:45 AM)
- (XX) – Weekday PM Peak Hour  
(3:00–4:00 PM)
- XX → – Annual Average Daily Traffic  
(AADT)
-  – Existing Stop Sign
-  – Existing Traffic Signal





## TRAFFIC SIGNAL WARRANT STUDY - DRAFT

To: Mr. Obaid Khalid  
Assistant Village Engineer – Village of Winnetka

From: Dan Brinkman, P.E., PTOE

Date: February 19, 2025

Subject: Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL

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### Part I. Project Context and Summary Statement

Per your request, *Gewalt Hamilton Associates, Inc.* (GHA) has conducted the necessary analysis to determine if the above referenced intersection meets the minimum criteria as published in the FHWA's Manual on Uniform Traffic Control Devices (MUTCD), 11<sup>th</sup> edition, for installation of a traffic signal.

Briefly summarizing, after review of the existing vehicular and pedestrian traffic data, recent crash history, and the IDOT and MUTCD criteria, it is our finding that the Green Bay Road and Merrill Street intersection does not meet the minimum criteria to warrant a traffic signal.

### Part II. Background Information

#### ***Site Location Map and Aerial Photo***

***Exhibit 1*** provides an intersection location map, while ***Exhibit 2*** provides an aerial map for intersection context. Pertinent comments include:

#### Green Bay Road

- Green Bay Road is a north-south Minor Arterial roadway under the jurisdiction of the Illinois Department of Transportation (IDOT).
- Green Bay Road generally provides one wide travel lane in each direction separated by a painted “double yellow” median. Parallel parking is present on both sides of Green Bay Road throughout the Hubbard Woods Business District.
- Green Bay Road has a posted speed limit of 20 miles per hour (mph) throughout the Hubbard Woods Business District.
- The nearest traffic signal along Green Bay Road is located approximately 370 feet northwest of the subject intersection at Scott Street. South of the subject intersection, the nearest traffic signal is located approximately 450 feet away at Gage Street. These signals are not part of a coordinated signal system.
- Street lighting is present at the northeast and southwest corners of the intersection.
- Standard style crosswalks are present on all four approaches to the Green Bay Road at Merrill Street intersection.
- The Annual Average Daily Traffic (AADT) volume along Green Bay Road is 8,100 vehicles per day as of 2023, obtained from IDOT's website: [www.gettingaroundillinois.com](http://www.gettingaroundillinois.com).



#### Merrill Street

- Merrill Street is an east-west Local roadway under the jurisdiction of the Village of Winnetka.
- Merrill Street provides one travel lane in each direction on the west leg of the intersection.
- The east leg of Merrill Street is one-way westbound and provides a single, wide ( $\pm$  26-ft) travel lane marked for left, through, and right turn movements.
- Angle parking is present on the south side of Merrill Street on both sides of Green Bay Road. West of Green Bay Road, parallel parking is also present on Merrill Street.
- No historic AADT volume along Merrill Street is available from IDOT's website: [www.gettingaroundillinois.com](http://www.gettingaroundillinois.com).

### **Traffic Volumes**

GHA conducted a 24-hour turning movement count at the Green Bay Road and Merrill Street intersection on Thursday December 5, 2024.

**Exhibit 3** tabulates the prime 13-hours (6:00 AM to 7:00 PM) of traffic count data. The GHA traffic count summary sheets are included as **Appendix A**.

## **Part III. Evaluation**

### **Right turn on Red (RTOR) adjustments**

Prior to testing the published warrant criteria, the MUTCD directs the engineer conducting a warrant study to consider the effects of future right turns on red (RTOR) and remove those traffic volumes from the observed approach volumes. Various methods exist for this reduction, but the most prevalent in our area and the approach required by the Illinois Department of Transportation (IDOT) is Pagones' Theorem. Pagones' Theorem considers reduction for future right turns based on the lane configuration of the minor street approaches and further adjusts the reduction based on the volume of traffic in the adjacent through lanes to account for available gaps that RTOR movements would be made into.

Pagones' Theorem is attached as **Exhibit 4**.

Because Merrill Street does not provide designated right turn lanes, approach volumes along Merrill Street were initially reduced by 60 percent in accordance with lane configuration #1. Based on through traffic volumes along Green Bay Road, no further adjustments to RTOR volumes were required. Right turn volumes were reduced by 60 percent for both eastbound and westbound Merrill Street. These volumes and adjusted volumes are tabulated in **Exhibit 5**.

### **Warrant Analyses**

For the purpose of this analysis, GHA reviewed all available signal warrants as published in the FHWA's Manual on Uniform Traffic Control Devices (MUTCD), 11<sup>th</sup> Edition. The volume requirements were reduced, when necessary, based on the MUTCD guidelines. Each of the nine available warrants and their results are discussed below.



#### Warrant #1 – Eight Hour Volume

The 8-hour volume requirements are based on the existing lane configuration at the Archer Rd and 65<sup>th</sup> St intersection and posted speed limits. There are two 8-hour conditions that are considered: Condition A – Minimum Vehicular Volume and Condition B – Interruption of Continuous Traffic.

Included as **Exhibit 6** is Table 4C-1 from the MUTCD. As can be seen, based on the lane configuration at the intersection and posted speed limit along Green Bay Road, the minimum major street (Green Bay Road) volumes are 500 and 750 vehicles per hour respectively for Condition A and Condition B. Similarly, the minor street (Merrill Street) volumes are 150 and 75 vehicles per hour, respectively. For either condition the volume minimums must be met simultaneously during the same hour.

Condition A is currently not met for any hour of the day, Condition B is currently not met for any hour of the day. This warrant is not satisfied.

#### Warrant #2 – Four Hour Volume

**Exhibit 7** presents Figure 4C-1 from the MUTCD, which was utilized to determine if the Four-Hour Warrant was met. As can be seen, based on the intersection geometrics, the minimal volume threshold for the minor street is 80 vehicles per hour. Minimum minor street volumes vary depending upon the total of traffic volume on both approaches of the major street. The combination of major and minor street volumes did not meet the threshold requirements during the four busiest hours of the day. Therefore, this warrant is not satisfied.

#### Warrant #3 – Peak Hour Volume

**Exhibit 8** presents Figure 4C-3 from the MUTCD which was utilized to determine if Warrant #3 - Peak Hour Volume was met. As can be seen, based on the intersection geometrics, the minimal volume threshold for the minor street is 100 vehicles in an hour. Minimum minor street volumes vary depending upon the total of traffic volume on both approaches of the major street. The combination of major and minor street volumes did not meet the threshold requirements during the busiest hour of the day. Therefore, this warrant is not satisfied.

#### Warrant #4 – Pedestrian Volume

**Exhibits 9A and 9B** present Figures 4C-5 and 4C-6 from the MUTCD which summarizes Pedestrian Four Hour and Peak Hour warrant criteria, respectively. Four Hour volume starts at 53 pedestrians per hour and Peak Hour at 66 pedestrians per hour. Pedestrian volumes during the four busiest hours of the count ranged from 22 to 38. The peak pedestrian volume occurred at 1:00 PM when a total of 44 pedestrians crossed Green Bay Road. This warrant is not met.

#### Warrant #5 – School Crossing

The MUTCD allows for installation of a traffic signal when the principal reason for installation is to accommodate the crossing of school aged children. The Hubbard Woods Elementary School is located approximately ¼ mile southwest of the subject intersection. However, it is unlikely pedestrians are expected to be crossing Green Bay Road at Merrill Street on the way to school. Accordingly, this warrant was not considered.



### Warrant #6 – Coordinated Signal System

The need for progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals to maintain proper platooning of vehicles. Despite the proximity between existing traffic signals at Scott Avenue, Gage Street and Tower Road, no interconnected signal system exists along the Green Bay Road corridor. For the purpose of this analysis, this warrant was not considered.

### Warrant #7 – Crash Experience

When the frequency and severity of angle and pedestrian crashes are experienced over a One - or Three-Year period, installation of a traffic signal to address these crashes is justified based on this warrant. Note that traffic volume criteria (80% of one of the Warrant #1 8-hour conditions) or Pedestrian volume (80% of the Warrant #4 criteria) must also be met. **Exhibit 10** presents tables 4C-2 and 4C-3 which establish the crash history requirements for the intersection configuration.

Crash data from was obtained from the IDOT Bureau of Safety in Springfield. **Table 1** summarizes the five-year crash history at the intersection.

**Table 1 2019-2023 Crash Data<sup>A</sup>**

| Location                                              | No. of Crashes | PD | Severity <sup>A</sup> |   |   | F | Crash Type <sup>B</sup> |    |     |     |    |   |     |      | Percent Wet / lcy |     |
|-------------------------------------------------------|----------------|----|-----------------------|---|---|---|-------------------------|----|-----|-----|----|---|-----|------|-------------------|-----|
|                                                       |                |    | A                     | B | C |   | A                       | FO | FTF | FTR | SS | T | PED | BIKE |                   | O   |
| Intersections (Crashes within 100 ft of Intersection) |                |    |                       |   |   |   |                         |    |     |     |    |   |     |      |                   |     |
| Green Bay Road at Merrill Street                      | 10             | 6  | 2                     | 1 | 1 | 0 | 1                       | 0  | 0   | 0   | 2  | 0 | 2   | 1    | 4                 | 10% |
| Total =                                               | 10             | 6  | 2                     | 1 | 1 | 0 | 1                       | 0  | 0   | 0   | 2  | 0 | 2   | 1    | 4                 | 10% |

<sup>A</sup>PD=Property Damage Only, A=Type A (incapacitating injury), B=Type B (non-incapacitating injury), C=Type C (possible injury), F= Fatal Injury

<sup>B</sup> A=Angle, FO=Fixed Object, FTF=Front-to-Front, FTR=Front-to-Rear, SSD=Sideswipe Same Direction, T=Turning, PED=Pedestrian, BIKE=Pedacyclist, O=Other

As can be seen, 10 crashes occurred during the five-year analysis period, which is an average of two (2) crashes per year. Only 1 angle type crash was reported over the five-year period. Two Pedestrian and 1 Bicyclist crashes were reported. Two Type A injury, one Type B injury and one Type C injury crashes were reported. No Fatal crashes were reported. Accordingly, this warrant is not currently met.

### Warrant #8 – Roadway Network

This warrant requires the two subject roadways to both be major roadways with similar volume characteristics. This warrant is not applicable.

### Warrant #9 – Intersection Near a Grade Crossing (railroad).

This warrant is only applicable when an intersection is within 150-feet of an at grade railroad crossing. This warrant is not applicable.

## **Warrant Summary**

**Exhibit 11** provides a detailed review of the various MUTCD warrants described and discussed above. Currently, the vehicular and pedestrian volumes as well as the crash history at Green Bay Road and Merrill Street. do not meet any of the published warrants required for installation of a traffic signal.



## Part V. Conclusions & Recommendations

A signal warrant study was conducted for the intersection of Green Bay Road and Merrill Street in Winnetka, Illinois. Based on the MUTCD criteria, a traffic signal is not warranted at the intersection at this time.

## Part VI. Technical Addendum

The following *Exhibits* and *Appendices* were previously referenced. They provide technical support for our observations, findings, and recommendations discussed in the text.

### Exhibits

1. Location Map
2. Intersection Context
3. Existing Traffic Volumes
4. Analysis Parameters – “Pagones’ Theorem”
5. Warrant Volumes
6. Eight Hour Traffic Signal Warrant Requirements
7. Four Hour Signal Warrant Test
8. Peak Hour Signal Warrant Test
9. Pedestrian Signal Warrant Tests
10. Crash History Signal Warrant Test
11. Signal Warrant Review Sheet

### Appendices

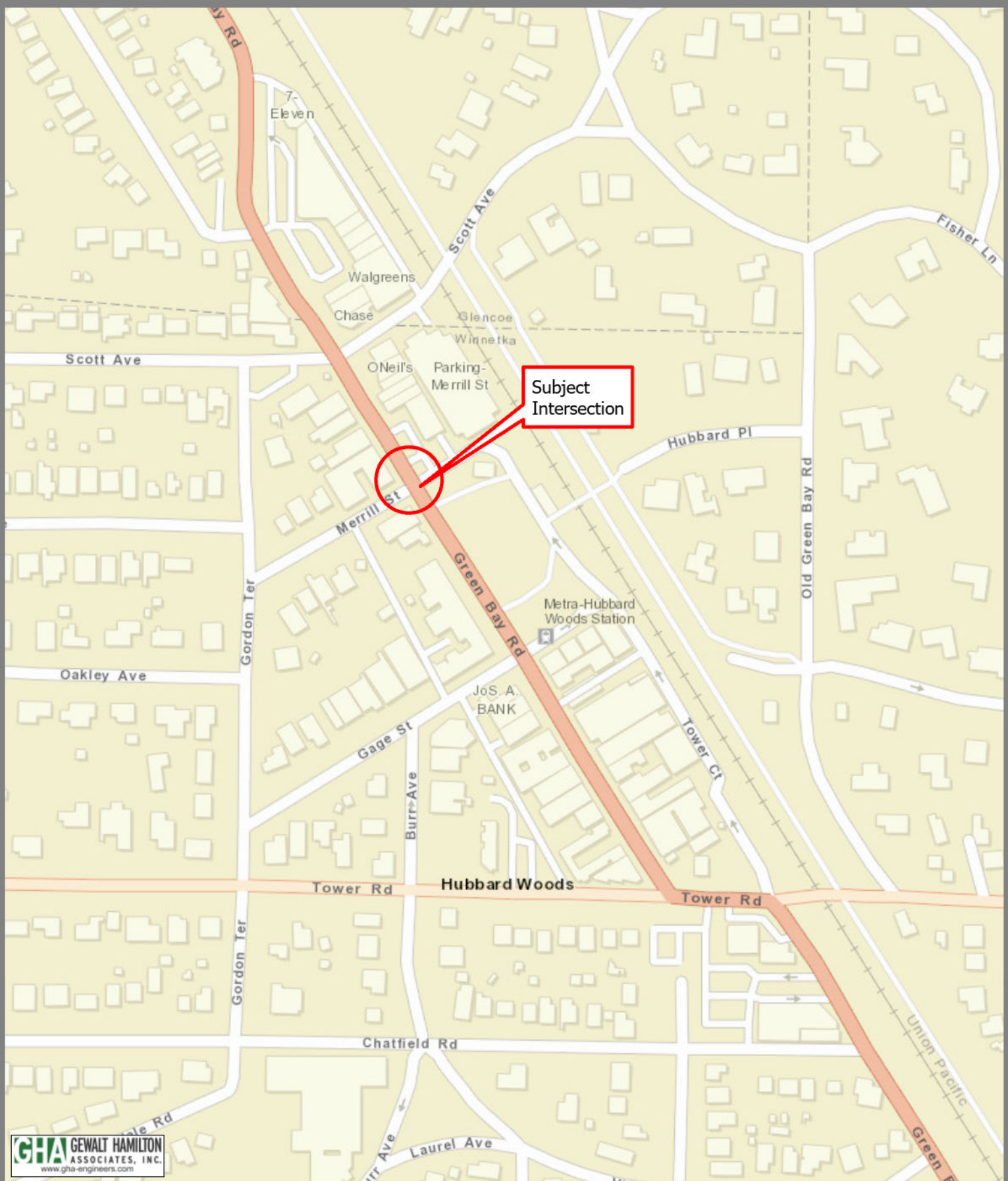
- A. Traffic Count Summary Sheets
- B. 2019-2023 Crash Data

6126.100 Merrill Signal Warrant.docx



## **TECHNICAL ADDENDUM**





**GHA** GEWALT HAMILTON  
ASSOCIATES, INC.  
www.gha-engineers.com



1 inch = 400  
Feet

## **Exhibit 1 - Location Map**

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL





1 inch = 100 Feet

## Exhibit 2 - Site Context

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL



**Exhibit 3**  
**Existing Traffic Volumes**  
Hubbard Woods Business District

Intersection Green Bay Road at Merrill Street Municipality Village of Winnetka County Cook Date 12/5/2024

| Hour<br>Beginning | Major Street = Green Bay Road |      |            |          |            |      |           |          |                          | Minor Street = Merrill Street |      |       |          |            |      |       |          |                          | Intersection<br>Total<br>Volumes |
|-------------------|-------------------------------|------|------------|----------|------------|------|-----------|----------|--------------------------|-------------------------------|------|-------|----------|------------|------|-------|----------|--------------------------|----------------------------------|
|                   | Approach 1                    |      |            |          | Approach 2 |      |           |          | Major<br>Street<br>Total | Approach 1                    |      |       |          | Approach 2 |      |       |          | Minor<br>Street<br>Total |                                  |
|                   | Southbound                    |      | Northbound |          | Eastbound  |      | Westbound |          |                          |                               |      |       |          |            |      |       |          |                          |                                  |
|                   | Left                          | Thru | Right      | Subtotal | Left       | Thru | Right     | Subtotal |                          | Left                          | Thru | Right | Subtotal | Left       | Thru | Right | Subtotal |                          |                                  |
|                   | 1                             | 2    | 3          | 4        | 5          | 6    | 7         | 8        | 9=4+8                    | 10                            | 11   | 12    | 13       | 14         | 15   | 16    | 17       | 18=13+17                 | 19=9+18                          |
| 6:00 AM           | 0                             | 75   | 1          | 76       | 3          | 47   | 0         | 50       | 126                      | 0                             | 0    | 7     | 7        | 9          | 3    | 2     | 14       | 14                       | 140                              |
| 7:00 AM           | 0                             | 244  | 3          | 247      | 8          | 153  | 0         | 161      | 408                      | 3                             | 0    | 13    | 16       | 14         | 9    | 8     | 31       | 38                       | 446                              |
| 8:00 AM           | 0                             | 281  | 12         | 293      | 33         | 235  | 0         | 268      | 561                      | 5                             | 0    | 43    | 48       | 29         | 13   | 27    | 69       | 85                       | 646                              |
| 9:00 AM           | 0                             | 260  | 6          | 266      | 15         | 220  | 0         | 235      | 501                      | 5                             | 0    | 23    | 28       | 47         | 15   | 34    | 96       | 144                      | 645                              |
| 10:00 AM          | 0                             | 268  | 8          | 276      | 22         | 213  | 0         | 235      | 511                      | 5                             | 0    | 26    | 31       | 64         | 20   | 40    | 124      | 152                      | 663                              |
| 11:00 AM          | 0                             | 260  | 15         | 275      | 14         | 241  | 0         | 255      | 530                      | 2                             | 0    | 26    | 28       | 65         | 16   | 50    | 131      | 159                      | 689                              |
| 12:00 PM          | 0                             | 323  | 19         | 342      | 30         | 287  | 0         | 317      | 659                      | 7                             | 0    | 32    | 39       | 78         | 20   | 45    | 143      | 182                      | 841                              |
| 1:00 PM           | 0                             | 280  | 18         | 298      | 26         | 258  | 0         | 284      | 582                      | 12                            | 0    | 43    | 55       | 80         | 25   | 53    | 158      | 213                      | 795                              |
| 2:00 PM           | 0                             | 298  | 17         | 315      | 17         | 261  | 0         | 278      | 593                      | 11                            | 0    | 28    | 39       | 53         | 22   | 41    | 116      | 155                      | 748                              |
| 3:00 PM           | 0                             | 360  | 17         | 377      | 26         | 355  | 0         | 381      | 758                      | 1                             | 0    | 34    | 35       | 55         | 29   | 65    | 149      | 184                      | 942                              |
| 4:00 PM           | 0                             | 350  | 17         | 367      | 19         | 289  | 0         | 308      | 675                      | 8                             | 0    | 24    | 32       | 53         | 18   | 48    | 119      | 151                      | 826                              |
| 5:00 PM           | 0                             | 381  | 10         | 391      | 22         | 316  | 0         | 338      | 729                      | 3                             | 0    | 18    | 21       | 56         | 28   | 46    | 130      | 151                      | 880                              |
| 6:00 PM           | 0                             | 248  | 12         | 260      | 21         | 216  | 0         | 237      | 497                      | 6                             | 0    | 10    | 16       | 27         | 20   | 31    | 78       | 94                       | 591                              |
| 7:00 PM           | 0                             | 139  | 4          | 143      | 8          | 157  | 0         | 165      | 308                      | 0                             | 0    | 4     | 4        | 20         | 14   | 27    | 61       | 65                       | 373                              |
|                   |                               |      |            |          |            |      |           |          |                          |                               |      |       |          |            |      |       |          |                          |                                  |
|                   |                               |      |            |          |            |      |           |          |                          |                               |      |       |          |            |      |       |          |                          |                                  |
|                   |                               |      |            |          |            |      |           |          |                          |                               |      |       |          |            |      |       |          |                          |                                  |

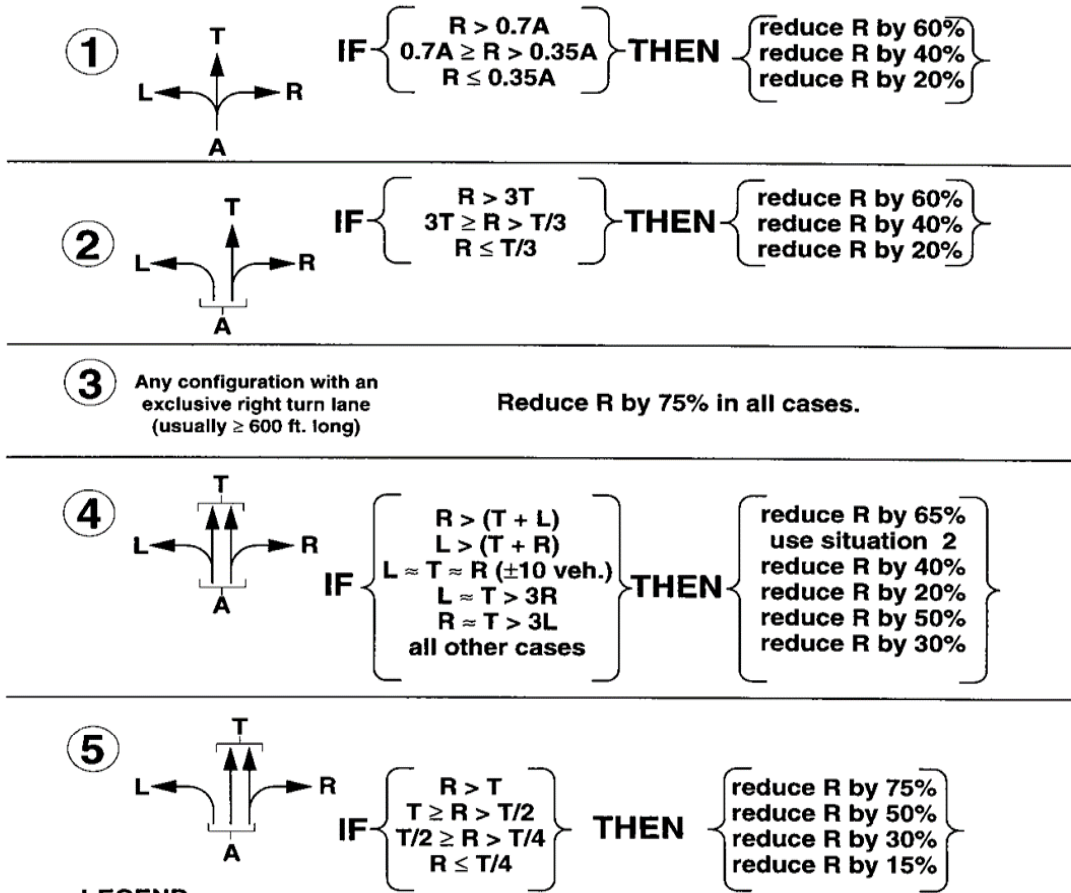


# Exhibit 4

## Pagones' Theorem

### RTOR Reductions

#### 1. Lane Configurations and Right Turn Reductions



#### LEGEND

L = number of left turning vehicles  
T = number of through vehicles  
R = number of right turning vehicles  
A = (L+T+R)

#### 2. Mainline Congestion Factors For Limiting Right Turn Reductions<sup>(1)</sup>

| <u>Volumes</u><br><u>Per Lane</u> | <u>Reduction</u> | <u>Volumes</u><br><u>Per Lane</u> | <u>Reduction</u> |
|-----------------------------------|------------------|-----------------------------------|------------------|
| 0 - 399                           | 0%               | 1000 - 1099                       | 35%              |
| 400 - 499                         | 5%               | 1100 - 1199                       | 40%              |
| 500 - 599                         | 10%              | 1200 - 1299                       | 45%              |
| 600 - 699                         | 15%              | 1300 - 1399                       | 50%              |
| 700 - 799                         | 20%              | 1400 - 1499                       | 55%              |
| 800 - 899                         | 25%              | 1500 - 1599                       | 60%              |
| 900 - 999                         | 30%              | etc.                              | etc.             |

(1) Mainline = Approach which right turns turn into



**Exhibit 5**  
**Warrant Volumes**  
Green Bay Road at Merrill Street

**MINOR APPROACH 1-Eastbound**

| Hour      | Existing Traffic From Exhibit 3 |      |       |      |      |       |          | RTOR      | Warrant Traffic |      |            |       |
|-----------|---------------------------------|------|-------|------|------|-------|----------|-----------|-----------------|------|------------|-------|
| Beginning | Left                            | Thru | Right | Left | Thru | Right | Subtotal | Reduction | Left            | Thru | Adj. Right | Total |
|           | 1                               | 2    | 3     | 4    | 5    | 6     | 7        | 8         | 9               | 10   | 11         | 12    |
| 6:00 AM   | 0                               | 0    | 7     | 0    | 0    | 0     | 0        | 60%       | 0               | 0    | 3          | 3     |
| 7:00 AM   | 3                               | 0    | 13    | 0    | 0    | 0     | 0        | 60%       | 3               | 0    | 5          | 8     |
| 8:00 AM   | 5                               | 0    | 43    | 0    | 0    | 0     | 0        | 60%       | 5               | 0    | 17         | 22    |
| 9:00 AM   | 5                               | 0    | 23    | 0    | 0    | 0     | 0        | 60%       | 5               | 0    | 9          | 14    |
| 10:00 AM  | 5                               | 0    | 26    | 0    | 0    | 0     | 0        | 60%       | 5               | 0    | 10         | 15    |
| 11:00 AM  | 2                               | 0    | 26    | 0    | 0    | 0     | 0        | 60%       | 2               | 0    | 10         | 12    |
| 12:00 PM  | 7                               | 0    | 32    | 0    | 0    | 0     | 0        | 60%       | 7               | 0    | 13         | 20    |
| 1:00 PM   | 12                              | 0    | 43    | 0    | 0    | 0     | 0        | 60%       | 12              | 0    | 17         | 29    |
| 2:00 PM   | 11                              | 0    | 28    | 0    | 0    | 0     | 0        | 60%       | 11              | 0    | 11         | 22    |
| 3:00 PM   | 1                               | 0    | 34    | 0    | 0    | 0     | 0        | 60%       | 1               | 0    | 14         | 15    |
| 4:00 PM   | 8                               | 0    | 24    | 0    | 0    | 0     | 0        | 60%       | 8               | 0    | 10         | 18    |
| 5:00 PM   | 3                               | 0    | 18    | 0    | 0    | 0     | 0        | 60%       | 3               | 0    | 7          | 10    |
| 6:00 PM   | 6                               | 0    | 10    | 0    | 0    | 0     | 0        | 40%       | 6               | 0    | 6          | 12    |
| 7:00 PM   | 0                               | 0    | 4     | 0    | 0    | 0     | 0        | 60%       | 0               | 0    | 2          | 2     |

**MINOR APPROACH #2-Westbound**

| Hour      | Existing Traffic From Exhibit 3 |      |       |      |      |       |          | RTOR      | Warrant Traffic |      |            |       |
|-----------|---------------------------------|------|-------|------|------|-------|----------|-----------|-----------------|------|------------|-------|
| Beginning | Left                            | Thru | Right | Left | Thru | Right | Subtotal | Reduction | Left            | Thru | Adj. Right | Total |
|           | 1                               | 2    | 3     | 4    | 5    | 6     | 7        | 8         | 9               | 10   | 11         | 12    |
| 6:00 AM   | 9                               | 3    | 2     | 0    | 0    | 0     | 0        | 15%       | 9               | 3    | 2          | 14    |
| 7:00 AM   | 14                              | 9    | 8     | 0    | 0    | 0     | 0        | 15%       | 14              | 9    | 7          | 30    |
| 8:00 AM   | 29                              | 13   | 27    | 0    | 0    | 0     | 0        | 25%       | 29              | 13   | 20         | 62    |
| 9:00 AM   | 47                              | 15   | 34    | 0    | 0    | 0     | 0        | 35%       | 47              | 15   | 22         | 84    |
| 10:00 AM  | 64                              | 20   | 40    | 0    | 0    | 0     | 0        | 35%       | 64              | 20   | 26         | 110   |
| 11:00 AM  | 65                              | 16   | 50    | 0    | 0    | 0     | 0        | 75%       | 65              | 16   | 13         | 94    |
| 12:00 PM  | 78                              | 20   | 45    | 0    | 0    | 0     | 0        | 35%       | 78              | 20   | 29         | 127   |
| 1:00 PM   | 80                              | 25   | 53    | 0    | 0    | 0     | 0        | 40%       | 80              | 25   | 32         | 137   |
| 2:00 PM   | 53                              | 22   | 41    | 0    | 0    | 0     | 0        | 35%       | 53              | 22   | 27         | 102   |
| 3:00 PM   | 55                              | 29   | 65    | 0    | 0    | 0     | 0        | 35%       | 55              | 29   | 42         | 126   |
| 4:00 PM   | 53                              | 18   | 48    | 0    | 0    | 0     | 0        | 35%       | 53              | 18   | 31         | 102   |
| 5:00 PM   | 56                              | 28   | 46    | 0    | 0    | 0     | 0        | 35%       | 56              | 28   | 30         | 114   |
| 6:00 PM   | 27                              | 20   | 31    | 0    | 0    | 0     | 0        | 40%       | 27              | 20   | 19         | 66    |
| 7:00 PM   | 20                              | 14   | 27    | 0    | 0    | 0     | 0        | 40%       | 20              | 14   | 16         | 50    |



**Exhibit 6**  
**Eight Hour Traffic Signal Warrant Requirements**  
Proposed DEVELOPMENT

**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 higher-volume minor-street approach (one direction only) |                  |                  |                  |
|-----------------------------------------------------|--------------|--------------------------------------------------------------|------------------|------------------|------------------|-------------------------------------------------------------------------------|------------------|------------------|------------------|
| Major Street                                        | Minor Street | 100% <sup>a</sup>                                            | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> | 100% <sup>a</sup>                                                             | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> |
| 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              |

**Condition B—Interruption of Continuous Traffic**

| Number of lanes for moving traffic on each approach |              | Vehicles per hour on major street (total of both approaches) |                  |                  |                  | Vehicles per hour on higher-volume minor-street approach (one direction only) |                  |                  |                  |
|-----------------------------------------------------|--------------|--------------------------------------------------------------|------------------|------------------|------------------|-------------------------------------------------------------------------------|------------------|------------------|------------------|
| Major Street                                        | Minor Street | 100% <sup>a</sup>                                            | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> | 100% <sup>a</sup>                                                             | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> |
| 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               |

<sup>a</sup> Basic minimum hourly volume

<sup>b</sup> Used for combination of Conditions A and B after adequate trial of other remedial measures

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

<sup>d</sup> 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

Major Street Green Bay Road

Number of Lanes 1

Minor Street Merril Street

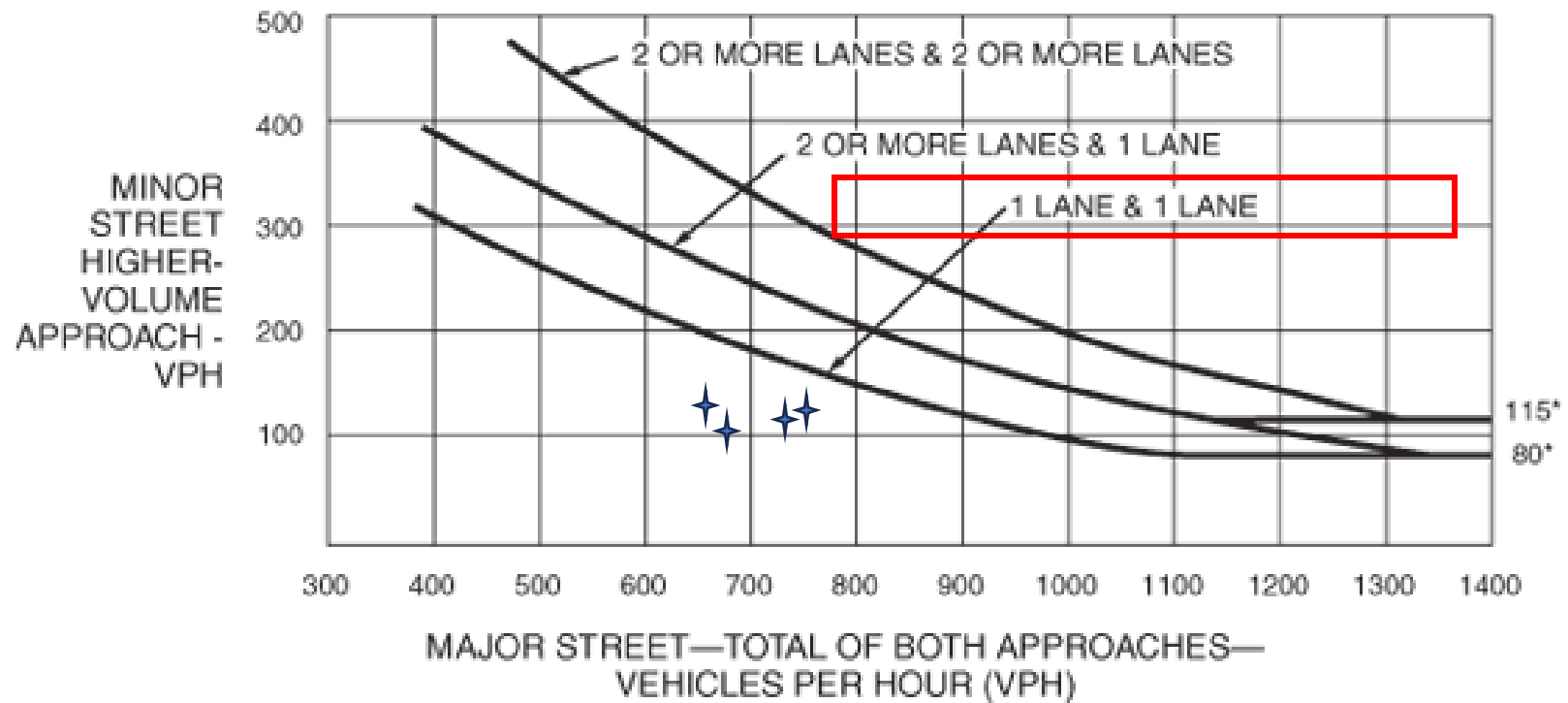
Number of Lanes 1



## Exhibit 7

### Four Hour Traffic Signal Warrant Test

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.

#### Volumes

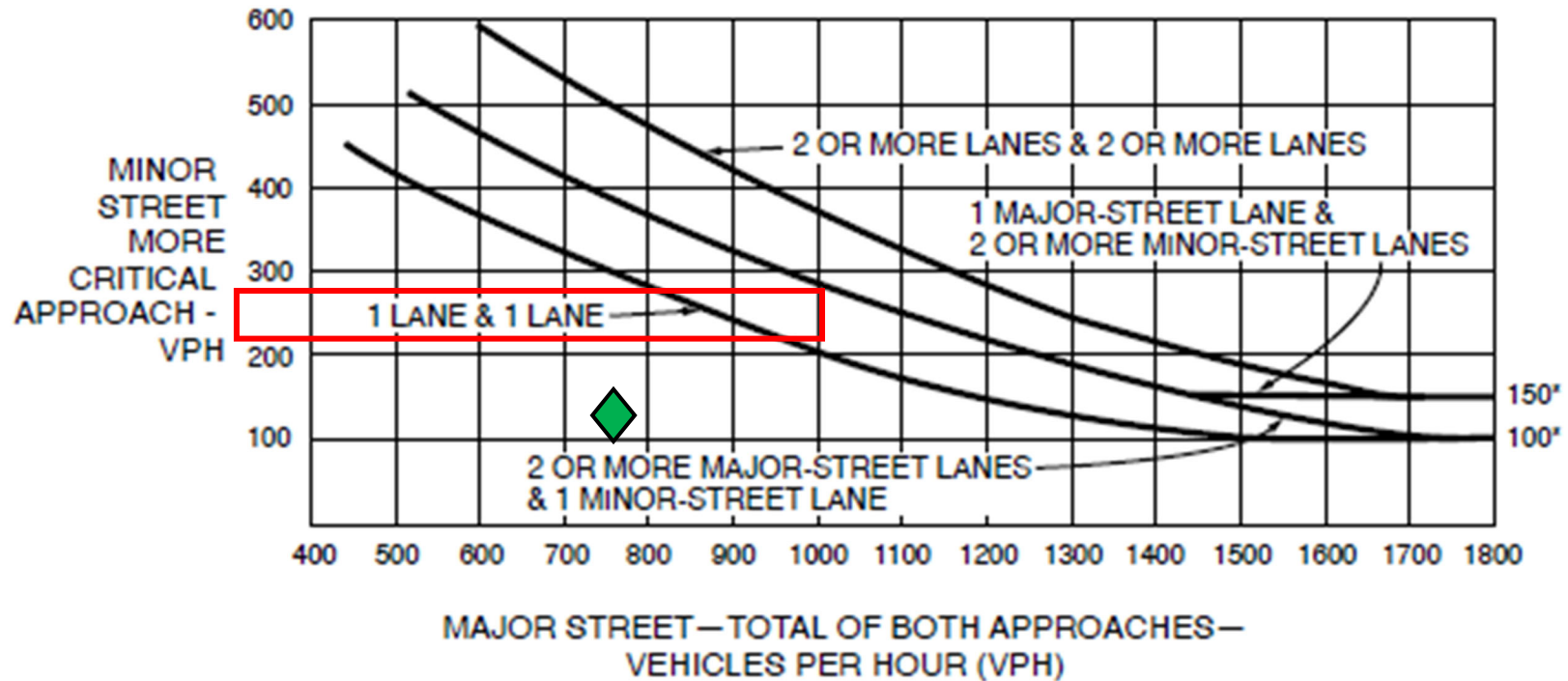
- Major Street – Green Bay Road (659,758,675,729)
- Minor Street – Merrill Street – Westbound (127,126,102,114)
- Intersection Volume requirements met for 0 hours.



## Exhibit 8

### Traffic Signal Warrant Test

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

#### Discussion

- Focus on Weekday Evening Peak Hour, because intersection minor street approach values are highest at that time.

#### Volumes

- Major Street - Green Bay Road = 758 VPH
- Minor Street - Merrill Street = 126 VPH (3:00 PM)

#### Result

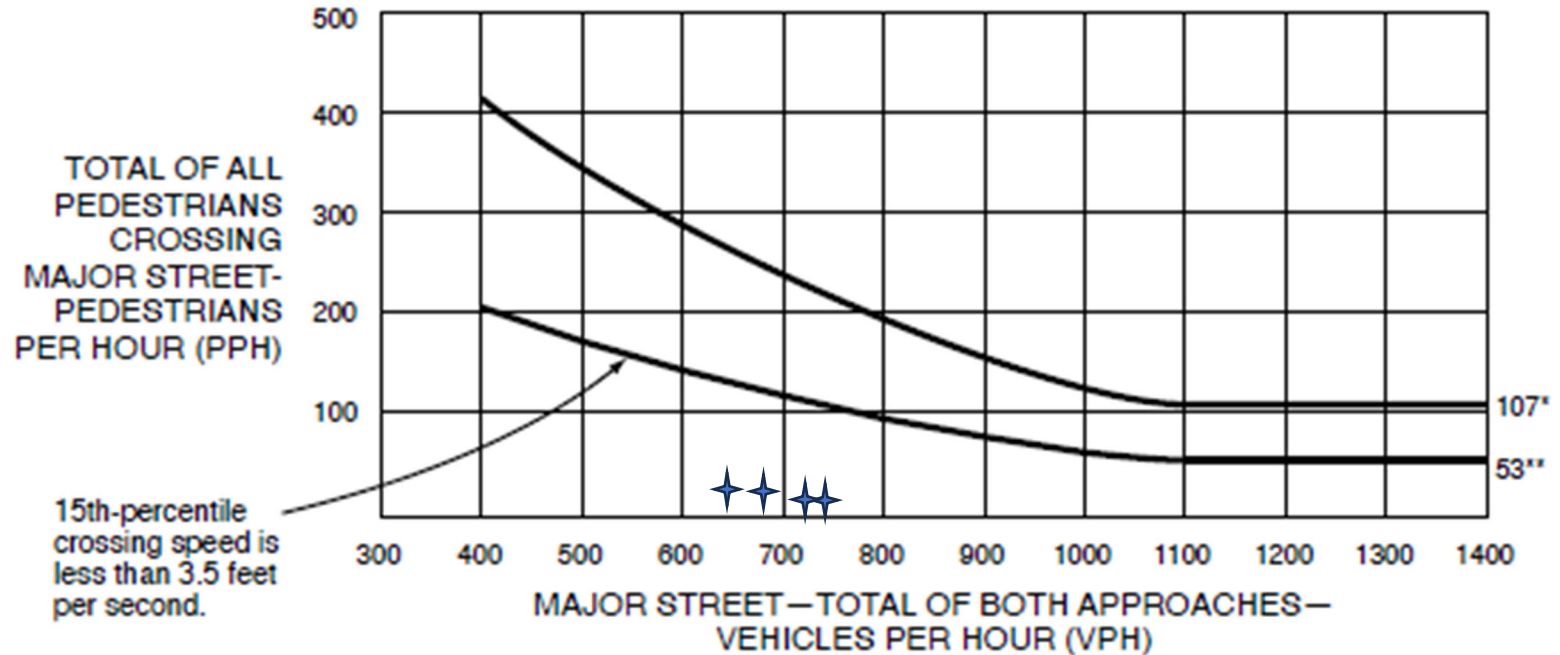
- Intersection volume does not meet Warrant #3 Peak Hour



## Exhibit 9A

### Traffic Signal Warrant Test

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

#### Discussion

- Focus on 4 busiest hours of the day- does not have to be consecutive

#### Volumes

- Major Street – Green Bay Road (659,758,675,729)
- Pedestrian Volumes (38,27,31,22)

#### Result

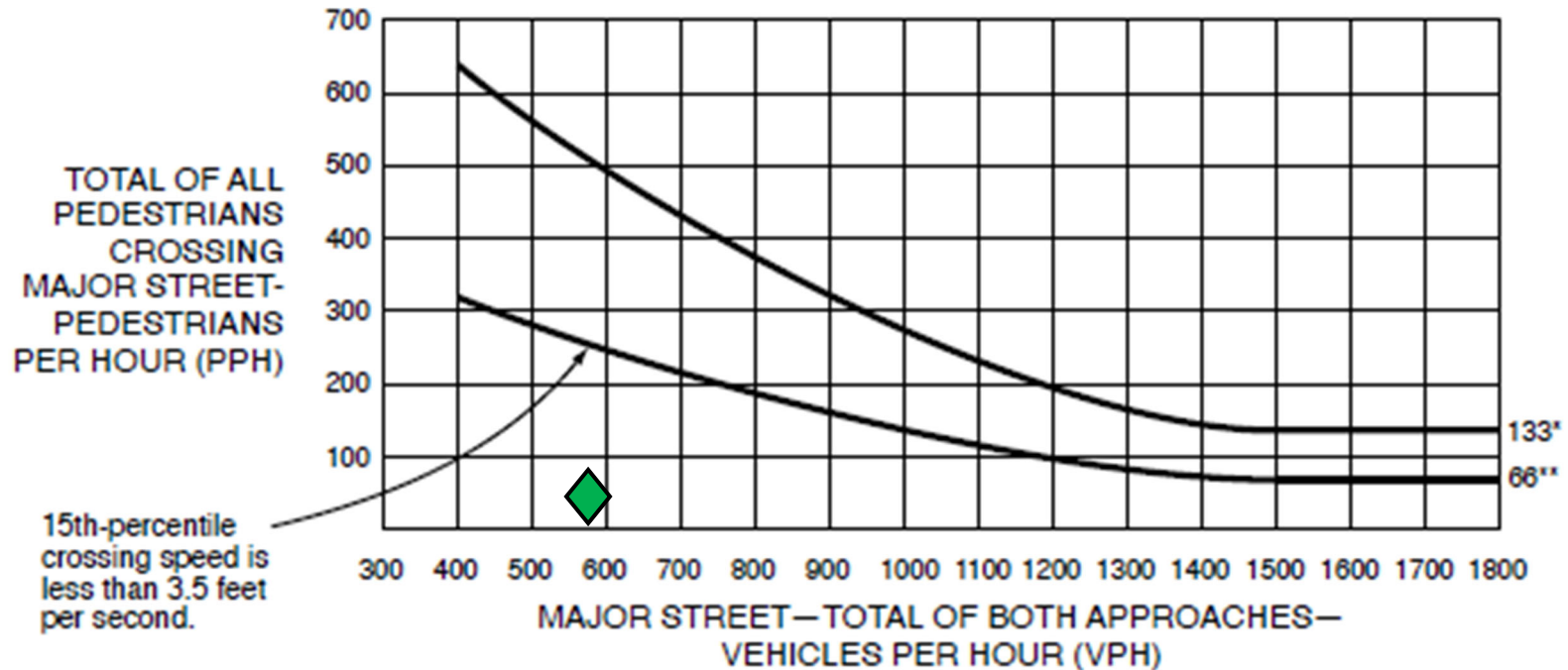
- Intersection volume does **not** meet Warrant #4 Four Hour Pedestrian Volume



## Exhibit 9B

### Traffic Signal Warrant Test

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

#### Discussion

- Focus on Weekday Afternoon Peak Hour, because pedestrian values are highest at that time.

#### Volumes

- Major Street – Green Bay Road = 582 VPH
- Pedestrian Volume 44

#### Result

- Intersection volume does not meet Warrant #4 Peak Hour Pedestrian Volume



## Exhibit 10 Traffic Signal Warrant Test

**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) <sup>a</sup> |            | Total of fatal-and-injury angle and pedestrian crashes <sup>a</sup> |            |
|------------------------------------------|--------------|---------------------------------------------------------------------|------------|---------------------------------------------------------------------|------------|
| 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          |

<sup>a</sup> 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) <sup>a</sup> |            | Total of fatal-and-injury angle and pedestrian crashes <sup>a</sup> |            |
|------------------------------------------|--------------|---------------------------------------------------------------------|------------|---------------------------------------------------------------------|------------|
| 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          |

<sup>a</sup> 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

### Discussion

- Intersection has four legs
- Crash History for the years 2019-2023 was reviewed.

### Crash History

- 2 Angle and Pedestrian Crashes One Year / 0 Fatal, Injury Angle and Pedestrian Crashes One Year
- 2 Angle and Pedestrian Crashes Three Years / 0 Fatal, Injury Angle and Pedestrian Crashes Three Years

### Result

- Intersection volume does not meet Warrant #7 Accident Experience



Exhibit 11  
Signal Warrant Review Sheet  
Source: Manual on Uniform Traffic Control Devices (MUTCD) 2024

Intersection: Green Bay Road at Merrill Street

SRA: NO

Municipality: Village of Winnetka

County: Cook

Speed limit of major route: 20

Number of lanes for major approach: 1

| Hour Begin | Major Street Volume (both approaches) | Adj. Minor Street Volume (higher volume approach) | Check any hours which meet the following warrants |      |                                           |          |                |  |
|------------|---------------------------------------|---------------------------------------------------|---------------------------------------------------|------|-------------------------------------------|----------|----------------|--|
|            |                                       |                                                   | Warrant 1                                         |      | Warrant 7: 8 hrs of one of the following: |          |                |  |
|            |                                       |                                                   | A                                                 | B    | Warrant 1 A/B: 8 hrs of BOTH:             |          |                |  |
|            |                                       |                                                   | 100%                                              | 100% | 80% of A                                  | 80% of B | 80% of Warr #4 |  |
| 6:00       | 126                                   | 14                                                |                                                   |      |                                           |          |                |  |
| 7:00       | 408                                   | 30                                                |                                                   |      |                                           |          |                |  |
| 8:00       | 561                                   | 62                                                |                                                   |      |                                           |          |                |  |
| 9:00       | 501                                   | 84                                                |                                                   |      |                                           |          |                |  |
| 10:00      | 511                                   | 110                                               |                                                   |      |                                           |          |                |  |
| 11:00      | 530                                   | 94                                                |                                                   |      |                                           |          |                |  |
| 12:00      | 659                                   | 127                                               |                                                   |      | X                                         | X        |                |  |
| 1:00       | 582                                   | 137                                               |                                                   |      | X                                         |          |                |  |
| 2:00       | 593                                   | 102                                               |                                                   |      |                                           |          |                |  |
| 3:00       | 758                                   | 126                                               |                                                   | X    | X                                         | X        |                |  |
| 4:00       | 675                                   | 102                                               |                                                   |      |                                           | X        |                |  |
| 5:00       | 729                                   | 114                                               |                                                   |      |                                           | X        |                |  |
| 6:00       | 497                                   | 66                                                |                                                   |      |                                           |          |                |  |
| 7:00       | 308                                   | 50                                                |                                                   |      |                                           |          |                |  |
| 8:00       | 0                                     |                                                   |                                                   |      |                                           |          |                |  |

Hours Met: 1 3 4

Volume Requirements:

|    | Major | Minor |     |    |     |     |
|----|-------|-------|-----|----|-----|-----|
| 1A | 500   | 150   | 150 | 75 | 400 | 120 |
| 1B | 750   | 75    |     |    | 600 | 60  |

Review Information

Counts Used: GHA

Count Date: 12/5/2024

Date Reviewed: 1/3/2025

Reviewed By: DPB

Comments

WARRANT 1 Yes No

Warrant 1 is met if any of the following conditions are met:

Condition A Yes No

Minimum Vehicular Volume

Condition B Yes No

Interruption of Continuous Traffic

Condition A/B Yes No

Combination of Warrants

WARRANT 2 Yes No

Four-Hour Volume

WARRANT 3 Yes No

Peak-Hour Volume

WARRANT 4 Yes No

Pedestrian Volume

WARRANT 5 Yes N/A No

School Crossing

WARRANT 6 Yes N/A No

Coordinated Signal

WARRANT 7 Yes No

Accident Experience

WARRANT 8 Yes N/A No

Roadway Network

WARRANT 9 Yes N/A No

Intersection Near a Grade Crossing

|                                                  | # | % | Adj. Factor |
|--------------------------------------------------|---|---|-------------|
| RAIL TRAFFIC PER DAY =                           |   |   |             |
| HIGH OCCUPANCY BUSES PER HOUR =                  |   |   |             |
| TRUCKS PER HOUR =                                |   |   |             |
| OVERALL ADJUSTMENT FACTOR =                      |   |   |             |
| STOP OR YIELD CONTROLLED LEG WITH GRADE CROSSING |   |   |             |
| D (clear storage distance) =                     |   |   |             |



## **APPENDICES**

- A. 2024 TRAFFIC COUNT SUMMARY REPORTS**
- B. CRASH SUMMARY MAP**



## **APPENDIX A**

### ***2024 Traffic Count Summary Reports***



Green Bay at Merrill  
6126.100 Winnetka Hubbard Woods  
24 hr  
GHA Mio

Gewalt Hamilton Associates Inc.  
625 Forest Edge Drive  
Vernon Hills, Illinois, United States 60061  
(847) 478-9700 poster@gha-engineers.com

Count Name: Green Bay at Merrill  
Site Code:  
Start Date: 12/05/2024  
Page No: 1

### Turning Movement Data

| Start Time   | Green Bay Rd<br>Southbound |      |      |       |      |            | Merril St<br>Westbound |      |      |       |      |            | Green Bay Rd<br>Northbound |      |      |       |      |            | Merril St<br>Eastbound |      |      |       |      |            | Int. Total |
|--------------|----------------------------|------|------|-------|------|------------|------------------------|------|------|-------|------|------------|----------------------------|------|------|-------|------|------------|------------------------|------|------|-------|------|------------|------------|
|              | U-Turn                     | Left | Thru | Right | Peds | App. Total | U-Turn                 | Left | Thru | Right | Peds | App. Total | U-Turn                     | Left | Thru | Right | Peds | App. Total | U-Turn                 | Left | Thru | Right | Peds | App. Total |            |
| 12:00 AM     | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 5          |
| 12:15 AM     | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 12:30 AM     | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 12:45 AM     | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| Hourly Total | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 5    | 0     | 0    | 5          | 0                      | 0    | 0    | 0     | 0    | 0          | 9          |
| 1:00 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 3          |
| 1:15 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 1:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 1:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| Hourly Total | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 5          |
| 2:00 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 2:15 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 2:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 3          |
| 2:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 1    | 0    | 0     | 0    | 1          | 3          |
| Hourly Total | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 7    | 0     | 0    | 7          | 0                      | 1    | 0    | 0     | 0    | 1          | 10         |
| 3:00 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 1          |
| 3:15 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 3:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 3:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 1     | 0    | 1          | 2          |
| Hourly Total | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 1     | 0    | 1          | 3          |
| 4:00 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 1          |
| 4:15 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 1    | 2    | 0     | 0    | 3          | 0                      | 0    | 0    | 1     | 0    | 1          | 4          |
| 4:30 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 1    | 0    | 0     | 0    | 1          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 4          |
| 4:45 AM      | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 4          |
| Hourly Total | 0                          | 0    | 7    | 0     | 0    | 7          | 0                      | 1    | 0    | 0     | 0    | 1          | 0                          | 1    | 3    | 0     | 0    | 4          | 0                      | 0    | 0    | 1     | 0    | 1          | 13         |
| 5:00 AM      | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 1     | 0    | 1          | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 7          |
| 5:15 AM      | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 8          |
| 5:30 AM      | 0                          | 0    | 5    | 1     | 0    | 6          | 0                      | 0    | 0    | 0     | 1    | 0          | 0                          | 0    | 5    | 0     | 1    | 5          | 0                      | 0    | 0    | 0     | 0    | 0          | 11         |
| 5:45 AM      | 0                          | 0    | 12   | 0     | 0    | 12         | 0                      | 2    | 0    | 1     | 0    | 3          | 0                          | 0    | 6    | 0     | 0    | 6          | 0                      | 0    | 0    | 0     | 0    | 0          | 21         |
| Hourly Total | 0                          | 0    | 24   | 1     | 0    | 25         | 0                      | 2    | 0    | 2     | 1    | 4          | 0                          | 0    | 18   | 0     | 1    | 18         | 0                      | 0    | 0    | 0     | 0    | 0          | 47         |
| 6:00 AM      | 0                          | 0    | 9    | 0     | 1    | 9          | 0                      | 2    | 0    | 0     | 1    | 2          | 0                          | 0    | 2    | 0     | 1    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 13         |
| 6:15 AM      | 0                          | 0    | 15   | 0     | 0    | 15         | 0                      | 0    | 0    | 1     | 2    | 1          | 0                          | 0    | 9    | 0     | 0    | 9          | 0                      | 0    | 0    | 1     | 0    | 1          | 26         |
| 6:30 AM      | 0                          | 0    | 17   | 1     | 0    | 18         | 0                      | 4    | 2    | 0     | 0    | 6          | 0                          | 1    | 12   | 0     | 2    | 13         | 0                      | 0    | 0    | 4     | 0    | 4          | 41         |
| 6:45 AM      | 0                          | 0    | 34   | 0     | 0    | 34         | 0                      | 3    | 1    | 1     | 1    | 5          | 0                          | 2    | 24   | 0     | 0    | 26         | 0                      | 0    | 0    | 2     | 0    | 2          | 67         |
| Hourly Total | 0                          | 0    | 75   | 1     | 1    | 76         | 0                      | 9    | 3    | 2     | 4    | 14         | 0                          | 3    | 47   | 0     | 3    | 50         | 0                      | 0    | 0    | 7     | 0    | 7          | 147        |
| 7:00 AM      | 0                          | 0    | 39   | 0     | 2    | 39         | 0                      | 2    | 4    | 0     | 0    | 6          | 1                          | 1    | 21   | 0     | 3    | 23         | 0                      | 0    | 1    | 3     | 0    | 4          | 72         |
| 7:15 AM      | 0                          | 0    | 37   | 0     | 0    | 37         | 0                      | 4    | 1    | 1     | 0    | 6          | 0                          | 2    | 46   | 0     | 3    | 48         | 0                      | 1    | 0    | 3     | 0    | 4          | 95         |
| 7:30 AM      | 0                          | 0    | 60   | 1     | 0    | 61         | 0                      | 3    | 3    | 3     | 2    | 9          | 0                          | 1    | 44   | 0     | 3    | 45         | 0                      | 0    | 0    | 3     | 1    | 3          | 118        |



|              |   |   |     |    |    |     |   |    |    |    |    |     |   |    |     |   |    |     |   |    |   |    |    |    |     |
|--------------|---|---|-----|----|----|-----|---|----|----|----|----|-----|---|----|-----|---|----|-----|---|----|---|----|----|----|-----|
| 7:45 AM      | 0 | 0 | 108 | 2  | 2  | 110 | 0 | 5  | 1  | 4  | 0  | 10  | 0 | 4  | 42  | 0 | 3  | 46  | 0 | 2  | 0 | 4  | 0  | 6  | 172 |
| Hourly Total | 0 | 0 | 244 | 3  | 4  | 247 | 0 | 14 | 9  | 8  | 2  | 31  | 1 | 8  | 153 | 0 | 12 | 162 | 0 | 3  | 1 | 13 | 1  | 17 | 457 |
| 8:00 AM      | 0 | 0 | 83  | 6  | 2  | 89  | 0 | 9  | 4  | 5  | 3  | 18  | 0 | 15 | 58  | 0 | 2  | 73  | 0 | 0  | 0 | 15 | 0  | 15 | 195 |
| 8:15 AM      | 0 | 0 | 65  | 2  | 0  | 67  | 0 | 4  | 0  | 6  | 2  | 10  | 0 | 11 | 68  | 0 | 0  | 79  | 0 | 1  | 0 | 12 | 0  | 13 | 169 |
| 8:30 AM      | 0 | 0 | 58  | 2  | 4  | 60  | 0 | 8  | 8  | 8  | 1  | 24  | 0 | 5  | 52  | 0 | 2  | 57  | 0 | 1  | 0 | 11 | 5  | 12 | 153 |
| 8:45 AM      | 0 | 0 | 75  | 2  | 4  | 77  | 0 | 8  | 1  | 8  | 1  | 17  | 1 | 2  | 57  | 0 | 2  | 60  | 0 | 3  | 0 | 5  | 3  | 8  | 162 |
| Hourly Total | 0 | 0 | 281 | 12 | 10 | 293 | 0 | 29 | 13 | 27 | 7  | 69  | 1 | 33 | 235 | 0 | 6  | 269 | 0 | 5  | 0 | 43 | 8  | 48 | 679 |
| 9:00 AM      | 0 | 0 | 71  | 1  | 4  | 72  | 0 | 13 | 1  | 6  | 1  | 20  | 2 | 3  | 56  | 0 | 4  | 61  | 0 | 1  | 0 | 6  | 3  | 7  | 160 |
| 9:15 AM      | 0 | 0 | 65  | 4  | 2  | 69  | 0 | 11 | 3  | 8  | 1  | 22  | 2 | 1  | 56  | 0 | 3  | 59  | 0 | 1  | 0 | 6  | 0  | 7  | 157 |
| 9:30 AM      | 0 | 0 | 55  | 1  | 1  | 56  | 0 | 17 | 6  | 8  | 1  | 31  | 0 | 5  | 54  | 0 | 4  | 59  | 0 | 2  | 0 | 7  | 0  | 9  | 155 |
| 9:45 AM      | 0 | 0 | 69  | 0  | 3  | 69  | 0 | 6  | 5  | 12 | 0  | 23  | 1 | 6  | 54  | 0 | 3  | 61  | 0 | 1  | 0 | 4  | 4  | 5  | 158 |
| Hourly Total | 0 | 0 | 260 | 6  | 10 | 266 | 0 | 47 | 15 | 34 | 3  | 96  | 5 | 15 | 220 | 0 | 14 | 240 | 0 | 5  | 0 | 23 | 7  | 28 | 630 |
| 10:00 AM     | 1 | 0 | 65  | 5  | 2  | 71  | 0 | 11 | 7  | 8  | 0  | 26  | 1 | 5  | 59  | 0 | 3  | 65  | 0 | 2  | 0 | 12 | 3  | 14 | 176 |
| 10:15 AM     | 0 | 0 | 64  | 0  | 0  | 64  | 0 | 16 | 6  | 12 | 0  | 34  | 0 | 5  | 46  | 0 | 3  | 51  | 0 | 0  | 0 | 2  | 2  | 2  | 151 |
| 10:30 AM     | 0 | 0 | 62  | 2  | 1  | 64  | 0 | 18 | 4  | 11 | 1  | 33  | 0 | 7  | 50  | 0 | 3  | 57  | 0 | 2  | 0 | 6  | 1  | 8  | 162 |
| 10:45 AM     | 0 | 0 | 77  | 1  | 2  | 78  | 0 | 19 | 3  | 9  | 6  | 31  | 0 | 5  | 58  | 0 | 3  | 63  | 0 | 1  | 0 | 6  | 4  | 7  | 179 |
| Hourly Total | 1 | 0 | 268 | 8  | 5  | 277 | 0 | 64 | 20 | 40 | 7  | 124 | 1 | 22 | 213 | 0 | 12 | 236 | 0 | 5  | 0 | 26 | 10 | 31 | 668 |
| 11:00 AM     | 0 | 0 | 72  | 2  | 3  | 74  | 0 | 14 | 3  | 14 | 4  | 31  | 0 | 5  | 66  | 0 | 3  | 71  | 0 | 0  | 0 | 5  | 7  | 5  | 181 |
| 11:15 AM     | 0 | 0 | 78  | 5  | 3  | 83  | 0 | 11 | 2  | 10 | 3  | 23  | 0 | 0  | 60  | 0 | 6  | 60  | 0 | 0  | 0 | 10 | 1  | 10 | 176 |
| 11:30 AM     | 0 | 0 | 74  | 5  | 4  | 79  | 0 | 23 | 3  | 15 | 5  | 41  | 0 | 5  | 63  | 0 | 2  | 68  | 0 | 2  | 0 | 3  | 4  | 5  | 193 |
| 11:45 AM     | 0 | 0 | 67  | 3  | 4  | 70  | 0 | 17 | 8  | 11 | 5  | 36  | 2 | 4  | 52  | 0 | 2  | 58  | 0 | 0  | 0 | 8  | 9  | 8  | 172 |
| Hourly Total | 0 | 0 | 291 | 15 | 14 | 306 | 0 | 65 | 16 | 50 | 17 | 131 | 2 | 14 | 241 | 0 | 13 | 257 | 0 | 2  | 0 | 26 | 21 | 28 | 722 |
| 12:00 PM     | 0 | 1 | 83  | 4  | 6  | 88  | 0 | 18 | 8  | 10 | 4  | 36  | 0 | 6  | 68  | 0 | 3  | 74  | 0 | 0  | 0 | 7  | 8  | 7  | 205 |
| 12:15 PM     | 0 | 0 | 70  | 4  | 1  | 74  | 0 | 17 | 4  | 13 | 0  | 34  | 0 | 5  | 72  | 0 | 5  | 77  | 0 | 0  | 0 | 9  | 6  | 9  | 194 |
| 12:30 PM     | 0 | 0 | 79  | 5  | 8  | 84  | 0 | 17 | 4  | 11 | 9  | 32  | 1 | 10 | 82  | 0 | 10 | 93  | 0 | 2  | 0 | 10 | 11 | 12 | 221 |
| 12:45 PM     | 0 | 0 | 91  | 6  | 3  | 97  | 0 | 26 | 4  | 11 | 8  | 41  | 1 | 9  | 65  | 0 | 2  | 75  | 0 | 5  | 0 | 6  | 6  | 11 | 224 |
| Hourly Total | 0 | 1 | 323 | 19 | 18 | 343 | 0 | 78 | 20 | 45 | 21 | 143 | 2 | 30 | 287 | 0 | 20 | 319 | 0 | 7  | 0 | 32 | 31 | 39 | 844 |
| 1:00 PM      | 0 | 0 | 69  | 8  | 4  | 77  | 0 | 23 | 8  | 13 | 4  | 44  | 0 | 7  | 66  | 0 | 5  | 73  | 0 | 3  | 0 | 11 | 8  | 14 | 208 |
| 1:15 PM      | 0 | 0 | 73  | 3  | 2  | 76  | 0 | 17 | 8  | 8  | 4  | 33  | 0 | 4  | 55  | 0 | 8  | 59  | 0 | 1  | 0 | 11 | 8  | 12 | 180 |
| 1:30 PM      | 0 | 0 | 72  | 3  | 8  | 75  | 0 | 17 | 3  | 19 | 6  | 39  | 0 | 11 | 76  | 0 | 7  | 87  | 0 | 3  | 0 | 13 | 9  | 16 | 217 |
| 1:45 PM      | 0 | 0 | 66  | 4  | 4  | 70  | 0 | 23 | 6  | 13 | 7  | 42  | 0 | 4  | 61  | 0 | 6  | 65  | 0 | 5  | 0 | 8  | 2  | 13 | 190 |
| Hourly Total | 0 | 0 | 280 | 18 | 18 | 298 | 0 | 80 | 25 | 53 | 21 | 158 | 0 | 26 | 258 | 0 | 26 | 284 | 0 | 12 | 0 | 43 | 27 | 55 | 795 |
| 2:00 PM      | 0 | 0 | 64  | 5  | 0  | 69  | 0 | 10 | 6  | 12 | 0  | 28  | 0 | 4  | 63  | 0 | 0  | 67  | 0 | 3  | 0 | 2  | 7  | 5  | 169 |
| 2:15 PM      | 0 | 0 | 74  | 3  | 0  | 77  | 0 | 14 | 4  | 8  | 6  | 26  | 0 | 8  | 63  | 0 | 3  | 71  | 0 | 1  | 0 | 17 | 6  | 18 | 192 |
| 2:30 PM      | 0 | 0 | 87  | 3  | 3  | 90  | 0 | 17 | 5  | 8  | 2  | 30  | 0 | 3  | 53  | 0 | 0  | 56  | 0 | 3  | 0 | 4  | 6  | 7  | 183 |
| 2:45 PM      | 0 | 0 | 73  | 6  | 5  | 79  | 0 | 12 | 7  | 13 | 3  | 32  | 0 | 2  | 82  | 0 | 2  | 84  | 0 | 4  | 0 | 5  | 3  | 9  | 204 |
| Hourly Total | 0 | 0 | 298 | 17 | 8  | 315 | 0 | 53 | 22 | 41 | 11 | 116 | 0 | 17 | 261 | 0 | 5  | 278 | 0 | 11 | 0 | 28 | 22 | 39 | 748 |
| 3:00 PM      | 0 | 0 | 98  | 8  | 1  | 106 | 0 | 14 | 10 | 15 | 2  | 39  | 0 | 5  | 69  | 0 | 3  | 74  | 0 | 0  | 0 | 10 | 1  | 10 | 229 |
| 3:15 PM      | 0 | 0 | 76  | 4  | 5  | 80  | 0 | 15 | 9  | 16 | 1  | 40  | 0 | 12 | 88  | 0 | 3  | 100 | 0 | 0  | 0 | 11 | 6  | 11 | 231 |
| 3:30 PM      | 0 | 0 | 88  | 4  | 1  | 92  | 0 | 15 | 6  | 15 | 4  | 36  | 1 | 3  | 95  | 0 | 4  | 99  | 0 | 0  | 0 | 6  | 0  | 6  | 233 |
| 3:45 PM      | 0 | 0 | 98  | 1  | 8  | 99  | 0 | 11 | 4  | 19 | 5  | 34  | 0 | 6  | 103 | 0 | 2  | 109 | 0 | 1  | 0 | 7  | 2  | 8  | 250 |
| Hourly Total | 0 | 0 | 360 | 17 | 15 | 377 | 0 | 55 | 29 | 65 | 12 | 149 | 1 | 26 | 355 | 0 | 12 | 382 | 0 | 1  | 0 | 34 | 9  | 35 | 943 |
| 4:00 PM      | 1 | 0 | 69  | 5  | 3  | 75  | 0 | 10 | 6  | 14 | 6  | 30  | 0 | 9  | 84  | 0 | 4  | 93  | 0 | 3  | 0 | 7  | 3  | 10 | 208 |
| 4:15 PM      | 0 | 0 | 85  | 5  | 4  | 90  | 0 | 17 | 3  | 10 | 3  | 30  | 0 | 6  | 70  | 0 | 1  | 76  | 0 | 3  | 0 | 5  | 0  | 8  | 204 |
| 4:30 PM      | 0 | 0 | 86  | 2  | 3  | 88  | 0 | 12 | 3  | 6  | 7  | 21  | 0 | 3  | 65  | 0 | 7  | 68  | 0 | 0  | 0 | 5  | 7  | 5  | 182 |
| 4:45 PM      | 0 | 0 | 110 | 5  | 7  | 115 | 0 | 14 | 6  | 18 | 1  | 38  | 0 | 1  | 70  | 0 | 2  | 71  | 0 | 2  | 0 | 7  | 10 | 9  | 233 |
| Hourly Total | 1 | 0 | 350 | 17 | 17 | 368 | 0 | 53 | 18 | 48 | 17 | 119 | 0 | 19 | 289 | 0 | 14 | 308 | 0 | 8  | 0 | 24 | 20 | 32 | 827 |
| 5:00 PM      | 0 | 0 | 96  | 3  | 6  | 99  | 0 | 21 | 15 | 20 | 3  | 56  | 1 | 7  | 81  | 0 | 3  | 89  | 0 | 0  | 0 | 7  | 1  | 7  | 251 |
| 5:15 PM      | 0 | 0 | 116 | 3  | 5  | 119 | 0 | 14 | 3  | 11 | 0  | 28  | 0 | 5  | 84  | 0 | 3  | 89  | 0 | 2  | 0 | 2  | 1  | 4  | 240 |
| 5:30 PM      | 0 | 0 | 87  | 1  | 1  | 88  | 0 | 11 | 7  | 6  | 4  | 24  | 0 | 6  | 82  | 0 | 0  | 88  | 0 | 0  | 0 | 6  | 0  | 6  | 206 |
| 5:45 PM      | 1 | 0 | 82  | 3  | 3  | 86  | 0 | 10 | 3  | 9  | 3  | 22  | 0 | 4  | 69  | 0 | 1  | 73  | 0 | 1  | 0 | 3  | 3  | 4  | 185 |
| Hourly Total | 1 | 0 | 381 | 10 | 15 | 392 | 0 | 56 | 28 | 46 | 10 | 130 | 1 | 22 | 316 | 0 | 7  | 339 | 0 | 3  | 0 | 18 | 5  | 21 | 882 |



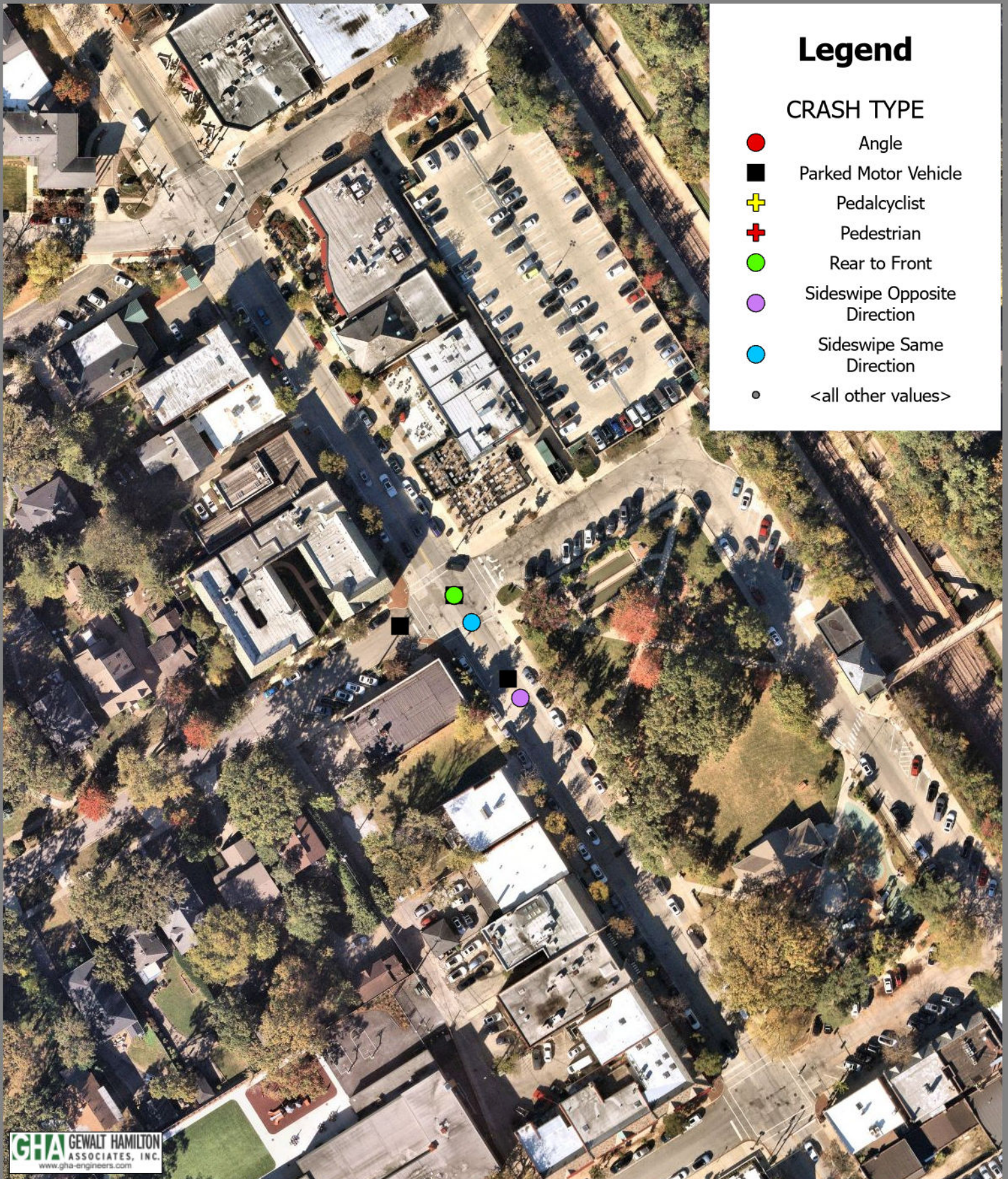
|                         |       |       |      |      |       |      |     |      |      |      |      |      |       |      |      |       |      |      |     |      |       |      |      |      |       |
|-------------------------|-------|-------|------|------|-------|------|-----|------|------|------|------|------|-------|------|------|-------|------|------|-----|------|-------|------|------|------|-------|
| 6:00 PM                 | 0     | 1     | 71   | 2    | 1     | 74   | 0   | 9    | 7    | 9    | 3    | 25   | 0     | 7    | 54   | 0     | 1    | 61   | 0   | 2    | 0     | 3    | 1    | 5    | 165   |
| 6:15 PM                 | 0     | 0     | 49   | 2    | 3     | 51   | 0   | 3    | 6    | 11   | 9    | 20   | 0     | 4    | 56   | 0     | 5    | 60   | 0   | 2    | 0     | 2    | 2    | 4    | 135   |
| 6:30 PM                 | 0     | 0     | 64   | 5    | 5     | 69   | 0   | 10   | 5    | 3    | 4    | 18   | 0     | 5    | 49   | 1     | 3    | 55   | 0   | 2    | 0     | 4    | 2    | 6    | 148   |
| 6:45 PM                 | 0     | 0     | 64   | 3    | 3     | 67   | 0   | 5    | 2    | 8    | 6    | 15   | 0     | 5    | 57   | 0     | 1    | 62   | 0   | 0    | 0     | 1    | 3    | 1    | 145   |
| Hourly Total            | 0     | 1     | 248  | 12   | 12    | 261  | 0   | 27   | 20   | 31   | 22   | 78   | 0     | 21   | 216  | 1     | 10   | 238  | 0   | 6    | 0     | 10   | 8    | 16   | 593   |
| 7:00 PM                 | 0     | 0     | 40   | 2    | 2     | 42   | 0   | 3    | 5    | 4    | 0    | 12   | 0     | 0    | 41   | 0     | 0    | 41   | 0   | 0    | 0     | 0    | 0    | 0    | 95    |
| 7:15 PM                 | 0     | 0     | 35   | 0    | 2     | 35   | 0   | 7    | 4    | 6    | 1    | 17   | 0     | 3    | 40   | 0     | 1    | 43   | 0   | 0    | 0     | 1    | 2    | 1    | 96    |
| 7:30 PM                 | 0     | 0     | 32   | 2    | 1     | 34   | 0   | 8    | 3    | 9    | 7    | 20   | 0     | 4    | 40   | 0     | 2    | 44   | 0   | 0    | 0     | 2    | 3    | 2    | 100   |
| 7:45 PM                 | 0     | 0     | 32   | 0    | 0     | 32   | 0   | 2    | 2    | 8    | 4    | 12   | 1     | 1    | 36   | 0     | 1    | 38   | 0   | 0    | 0     | 1    | 1    | 1    | 83    |
| Hourly Total            | 0     | 0     | 139  | 4    | 5     | 143  | 0   | 20   | 14   | 27   | 12   | 61   | 1     | 8    | 157  | 0     | 4    | 166  | 0   | 0    | 0     | 4    | 6    | 4    | 374   |
| 8:00 PM                 | 0     | 0     | 23   | 0    | 2     | 23   | 0   | 5    | 3    | 4    | 2    | 12   | 0     | 1    | 24   | 0     | 1    | 25   | 0   | 0    | 0     | 1    | 0    | 1    | 61    |
| 8:15 PM                 | 0     | 0     | 43   | 1    | 3     | 44   | 0   | 5    | 0    | 10   | 2    | 15   | 0     | 0    | 34   | 0     | 1    | 34   | 0   | 1    | 0     | 0    | 0    | 1    | 94    |
| 8:30 PM                 | 0     | 0     | 28   | 2    | 3     | 30   | 0   | 6    | 1    | 7    | 2    | 14   | 0     | 1    | 32   | 0     | 0    | 33   | 0   | 0    | 0     | 0    | 2    | 0    | 77    |
| 8:45 PM                 | 0     | 0     | 35   | 3    | 0     | 38   | 0   | 8    | 1    | 4    | 3    | 13   | 1     | 0    | 28   | 0     | 0    | 29   | 0   | 1    | 0     | 1    | 0    | 2    | 82    |
| Hourly Total            | 0     | 0     | 129  | 6    | 8     | 135  | 0   | 24   | 5    | 25   | 9    | 54   | 1     | 2    | 118  | 0     | 2    | 121  | 0   | 2    | 0     | 2    | 2    | 4    | 314   |
| 9:00 PM                 | 0     | 0     | 21   | 0    | 0     | 21   | 0   | 3    | 2    | 6    | 0    | 11   | 0     | 1    | 25   | 0     | 0    | 26   | 0   | 0    | 0     | 1    | 2    | 1    | 59    |
| 9:15 PM                 | 0     | 0     | 31   | 0    | 4     | 31   | 0   | 6    | 4    | 7    | 2    | 17   | 0     | 1    | 37   | 0     | 0    | 38   | 0   | 0    | 0     | 0    | 0    | 0    | 86    |
| 9:30 PM                 | 0     | 0     | 28   | 1    | 2     | 29   | 0   | 3    | 0    | 5    | 6    | 8    | 0     | 2    | 17   | 0     | 0    | 19   | 0   | 1    | 0     | 1    | 1    | 2    | 58    |
| 9:45 PM                 | 0     | 0     | 12   | 1    | 0     | 13   | 0   | 4    | 1    | 4    | 0    | 9    | 0     | 1    | 17   | 0     | 0    | 18   | 0   | 0    | 0     | 0    | 0    | 0    | 40    |
| Hourly Total            | 0     | 0     | 92   | 2    | 6     | 94   | 0   | 16   | 7    | 22   | 8    | 45   | 0     | 5    | 96   | 0     | 0    | 101  | 0   | 1    | 0     | 2    | 3    | 3    | 243   |
| 10:00 PM                | 0     | 0     | 10   | 1    | 0     | 11   | 0   | 2    | 1    | 2    | 1    | 5    | 0     | 0    | 10   | 0     | 0    | 10   | 0   | 0    | 0     | 0    | 0    | 0    | 26    |
| 10:15 PM                | 0     | 0     | 8    | 0    | 1     | 8    | 0   | 1    | 2    | 0    | 0    | 3    | 0     | 0    | 14   | 0     | 1    | 14   | 0   | 0    | 0     | 0    | 0    | 0    | 25    |
| 10:30 PM                | 0     | 0     | 8    | 0    | 0     | 8    | 0   | 1    | 0    | 0    | 0    | 1    | 0     | 0    | 8    | 0     | 1    | 8    | 0   | 1    | 0     | 1    | 0    | 2    | 19    |
| 10:45 PM                | 0     | 0     | 1    | 0    | 0     | 1    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 6    | 0     | 0    | 6    | 0   | 0    | 0     | 0    | 0    | 0    | 7     |
| Hourly Total            | 0     | 0     | 27   | 1    | 1     | 28   | 0   | 4    | 3    | 2    | 1    | 9    | 0     | 0    | 38   | 0     | 2    | 38   | 0   | 1    | 0     | 1    | 0    | 2    | 77    |
| 11:00 PM                | 0     | 0     | 7    | 0    | 0     | 7    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 1    | 0     | 0    | 1    | 0   | 0    | 0     | 0    | 0    | 0    | 8     |
| 11:15 PM                | 0     | 0     | 5    | 0    | 0     | 5    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 4    | 0     | 0    | 4    | 0   | 0    | 0     | 0    | 0    | 0    | 9     |
| 11:30 PM                | 0     | 0     | 5    | 0    | 0     | 5    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 4    | 0     | 0    | 4    | 0   | 0    | 0     | 0    | 0    | 0    | 9     |
| 11:45 PM                | 0     | 0     | 2    | 0    | 0     | 2    | 0   | 0    | 1    | 0    | 0    | 1    | 0     | 0    | 2    | 0     | 0    | 2    | 0   | 0    | 0     | 0    | 0    | 0    | 5     |
| Hourly Total            | 0     | 0     | 19   | 0    | 0     | 19   | 0   | 0    | 1    | 0    | 0    | 1    | 0     | 0    | 11   | 0     | 0    | 11   | 0   | 0    | 0     | 0    | 0    | 0    | 31    |
| Grand Total             | 3     | 2     | 4106 | 169  | 167   | 4280 | 0   | 697  | 268  | 568  | 185  | 1533 | 16    | 272  | 3547 | 1     | 163  | 3836 | 0   | 73   | 1     | 338  | 180  | 412  | 10061 |
| Approach %              | 0.1   | 0.0   | 95.9 | 3.9  | -     | -    | 0.0 | 45.5 | 17.5 | 37.1 | -    | -    | 0.4   | 7.1  | 92.5 | 0.0   | -    | -    | 0.0 | 17.7 | 0.2   | 82.0 | -    | -    | -     |
| Total %                 | 0.0   | 0.0   | 40.8 | 1.7  | -     | 42.5 | 0.0 | 6.9  | 2.7  | 5.6  | -    | 15.2 | 0.2   | 2.7  | 35.3 | 0.0   | -    | 38.1 | 0.0 | 0.7  | 0.0   | 3.4  | -    | 4.1  | -     |
| Lights                  | 3     | 2     | 4014 | 167  | -     | 4186 | 0   | 680  | 262  | 559  | -    | 1501 | 16    | 268  | 3460 | 1     | -    | 3745 | 0   | 72   | 0     | 331  | -    | 403  | 9835  |
| % Lights                | 100.0 | 100.0 | 97.8 | 98.8 | -     | 97.8 | -   | 97.6 | 97.8 | 98.4 | -    | 97.9 | 100.0 | 98.5 | 97.5 | 100.0 | -    | 97.6 | -   | 98.6 | 0.0   | 97.9 | -    | 97.8 | 97.8  |
| Mediums                 | 0     | 0     | 88   | 2    | -     | 90   | 0   | 16   | 4    | 9    | -    | 29   | 0     | 4    | 79   | 0     | -    | 83   | 0   | 1    | 0     | 6    | -    | 7    | 209   |
| % Mediums               | 0.0   | 0.0   | 2.1  | 1.2  | -     | 2.1  | -   | 2.3  | 1.5  | 1.6  | -    | 1.9  | 0.0   | 1.5  | 2.2  | 0.0   | -    | 2.2  | -   | 1.4  | 0.0   | 1.8  | -    | 1.7  | 2.1   |
| Articulated Trucks      | 0     | 0     | 4    | 0    | -     | 4    | 0   | 1    | 0    | 0    | -    | 1    | 0     | 0    | 8    | 0     | -    | 8    | 0   | 0    | 0     | 1    | -    | 1    | 14    |
| % Articulated Trucks    | 0.0   | 0.0   | 0.1  | 0.0  | -     | 0.1  | -   | 0.1  | 0.0  | 0.0  | -    | 0.1  | 0.0   | 0.0  | 0.2  | 0.0   | -    | 0.2  | -   | 0.0  | 0.0   | 0.3  | -    | 0.2  | 0.1   |
| Bicycles on Road        | 0     | 0     | 0    | 0    | -     | 0    | 0   | 0    | 2    | 0    | -    | 2    | 0     | 0    | 0    | 0     | -    | 0    | 0   | 0    | 1     | 0    | -    | 1    | 3     |
| % Bicycles on Road      | 0.0   | 0.0   | 0.0  | 0.0  | -     | 0.0  | -   | 0.0  | 0.7  | 0.0  | -    | 0.1  | 0.0   | 0.0  | 0.0  | 0.0   | -    | 0.0  | -   | 0.0  | 100.0 | 0.0  | -    | 0.2  | 0.0   |
| Bicycles on Crosswalk   | -     | -     | -    | -    | 0     | -    | -   | -    | -    | -    | 3    | -    | -     | -    | -    | -     | 1    | -    | -   | -    | -     | -    | 4    | -    | -     |
| % Bicycles on Crosswalk | -     | -     | -    | -    | 0.0   | -    | -   | -    | -    | -    | 1.6  | -    | -     | -    | -    | -     | 0.6  | -    | -   | -    | -     | -    | 2.2  | -    | -     |
| Pedestrians             | -     | -     | -    | -    | 167   | -    | -   | -    | -    | -    | 182  | -    | -     | -    | -    | -     | 162  | -    | -   | -    | -     | -    | 176  | -    | -     |
| % Pedestrians           | -     | -     | -    | -    | 100.0 | -    | -   | -    | -    | -    | 98.4 | -    | -     | -    | -    | -     | 99.4 | -    | -   | -    | -     | -    | 97.8 | -    | -     |



## **APPENDIX B**

### ***Crash Summary Map***





## Legend

### CRASH TYPE

- Angle
- Parked Motor Vehicle
- + Pedalcyclist
- + Pedestrian
- Rear to Front
- Sideswipe Opposite Direction
- Sideswipe Same Direction
- <all other values>

## Appendix B - IDOT Crash Data 2019-23

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL



1 inch = 100 Feet



## All-Way Stop Control Warrant Study - DRAFT

To: Mr. Obaid Khalid  
Assistant Village Engineer – Village of Winnetka

From: Dan Brinkman, P.E., PTOE  
David Westergreen, E.I.

Date: February 19, 2025

Subject: Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL

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### Part I. Project Context and Summary Statement

At the request of the Village of Winnetka, Gewalt Hamilton Associates, Inc. (GHA) has conducted a review of the Green Bay Road intersection with Merrill Street to determine if All-Way Stop Control is warranted.

The current condition of the intersection is two-way stop control.

Briefly summarizing, the technical requirements to install an All-Way stop at the Green Bay Road and Merrill Street intersection are not met. Pedestrian volume crossing Green Bay Road is moderate and an argument could be made to pursue installation of an All –Way Stop with the Illinois Department of Transportation (IDOT) should the Village desire.

### Part II. Background Information

#### Intersection Study Area

*Exhibit 1* provides a location map of the intersection and surrounding roadways.

Within the study area, Green Bay Road runs from the northwest to the southeast. Green Bay Road functions, and is classified by IDOT, as a Minor Arterial roadway. Merrill Street is a northeast-southwest local roadway that serves as an exit point for vehicles accessing the Hubbard Woods Metra Station to the east. The intersection is currently posted with stop signs at the approaches along Merrill Street. Standard style crosswalks are marked at all four corners of the intersection. PACE Route 213 passes through the intersection along Green Bay Road in both directions, but no bus stops are present in the vicinity of the intersection.

Green Bay Road generally provides a single travel lane in each direction and provides on-street parallel parking in the vicinity of the intersection in both directions. Merrill Street provides one through lane in both directions on the west leg, but provides a single, wide ( $\pm$  26-ft) travel lane marked for left, through, and right turn movements on the east leg. Merrill Street provides angled street parking to the south on both legs and provides parallel street parking to the north of the west leg. Green Bay Road has a posted speed limit of 20-miles per hour, while Merrill Street does not have a posted speed limit. Green Bay Road is under IDOT jurisdiction, while Merrill Street is under the jurisdiction of the Village of Winnetka.



## Observations

*Exhibit 2* provides an aerial photo for context of the subject intersection. Key observations include:

- The intersection is generally flat, with no vertical curves exist that would compromise sight distance.
- The surrounding area is mostly urban and commercial.
- No vegetation or roadside signs are present in the intersection vicinity to compromise sight distance.
- Parked vehicles along Green Bay Road limit sight lines of stopped vehicles on the Merrill Street approaches.
- Existing Stop signs are located in accordance with the MUTCD guidelines.

## Traffic Data Collection

GHA conducted a 24-hour turning movement count at the Green Bay Road intersection with Merrill Street on December 5<sup>th</sup>, 2024.

Complete data collection results in 15-minute intervals are provided in *Appendix A*.

## Crash Data Collection

The most recent five (5) years of crash data (2019-2023) for the subject intersection was obtained from the Illinois Department of Transportation Bureau of Safety crash database system. There were ten (10) reported crashes during the study, for an average of two (2) crashes per year within the intersection vicinity during the five-year study period. Of the ten (10) crashes, three (3) were parked motor vehicle crashes, two (2) were sideswipe crashes and pedestrian crashes, and then there were one (1) crash each being front to rear, pedalcyclist, and angle. Four of the ten (10) reported crashes involved injuries, with two Type-A injury crashes, one type-B injury crash, and one Type-C injury crash.

See *Appendix B* for a map of the reported crashes.

## Part III. Evaluation Criteria

The Illinois Vehicle Code incorporates by reference the federal Manual on Uniform Traffic Control Devices (MUTCD) which standardizes and governs the posting of traffic control devices (e.g. traffic signals, stop signs, roadway information signs, etc.). MUTCD Sections 2B.12-17 discuss the installation of Stop Signs and All-Way Stop applications respectively. (See *Appendix C*)



## All-Way Stop Applications

The following is an excerpt from Section 2B.12 of the MUTCD,

The decision to establish all-way stop control at an unsignalized intersection should be based on an engineering study. The engineering study for all-way stop control should include an analysis of factors related to the existing operation and safety at the intersection, the potential to improve these conditions, and the applicable factors contained in the following all-way stop control warrants:

- A. Crash Experience: A crash problem, as indicated by 5 or more reported crashes in a 12-month period or 6 or more crashes in a 36-month period that are susceptible to correction by an All-way stop installation at a 4-leg intersection. Such crashes include right- and left-turn collisions as well as right-angle collisions.
- B. Sight Distance: A sight distance problem, as indicated by an engineering study where vehicles having stopped at the minor-road approach are not able to negotiate the intersection unless conflicting cross-traffic is required to stop.
- C. Transition to Signal Control or Transition to Yield Control at a Circular Intersection: Installed as an interim measure in advance of the installation of a traffic signal or in advance of yield control at a circular intersection (e.g. traffic circle or roundabout)
- D. 8- Hour Volumes:
  - 1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day, and
  - 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours,
  - 3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the above values.
- E. Other Factors:

Other Criteria that may be considered in an engineering study include:

  - A. The need to control left-turn conflicts.
  - B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection.
  - C. Where pedestrian and/or bicycle movements support the installation of the All-Way Stop Control.

### AWSC Warrant A – Crash Experience

All-Way Stop Control may be installed at an intersection where an engineering study indicates that for a three-leg intersection, there are four or more reported crashes in a 12-month period, or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

Only one angle crash and zero turning crashes were reported in the 5-year study period. Crash experience does not meet the warrant for All-Way stop control.



### **AWSC Warrant B – Sight Distance**

All-Way Stop Control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road. At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

The American Association of State Highway and Transportation Officials (AASHTO) publishes guidance for design components of roadways and intersections in the *Policy on Geometric Design of Highways and Streets* (aka the “Green Book”). Intersection Sight Distance provided should be equal to the distance traveled along the major road in a given time period to help ensure movements from the minor street can be made safely. For vehicles making a left turn onto a two-lane road with a posted speed limit of 20-mph (design speed is assumed to be posted speed plus 5, or 25 mph) the Intersection Sight Distance is calculated at 275.1-ft.

GHA conducted a field measurement of available sight distance by measuring back 14.5-feet from the edge of Green Bay Road and looking north and south from the 3.5-foot drivers eye height.

At the intersection, no stationary obstacles exist that would impede driver sight. This warrant is not met for all-way stop control.

### **AWSC Warrant C – Transition to Signal Control/Yield Control**

All-Way Stop Control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal at the intersection or for the installation of yield control at a circular intersection.

There are no plans for modifications to the operations of the Green Bay Road at Merrill Street intersection. This warrant is not applicable.

### **AWSC Warrant D – 8-Hour Volume**

All-Way Stop Control may be installed at an intersection where an engineering study indicates:

- A. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches is at least 300 units per hour for each of any 8 hours of a typical day; and
- B. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches is at least 200 units per hour for each of any of the same 8 hours.

If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants may be reduced to 70 percent of the values given in Items A and B above.



**Table 1** summarizes the observed traffic volumes by hour and direction along Green Bay Road at Merrill Street for the peak 12-hours (7 AM to 7 PM) of data.

**Table 1 – December 5, 2024, Combined Traffic Volumes (Green Bay Road at Merrill Street)**

| Time Period       | Green Bay Road |            |       | Merrill Street |           |       |
|-------------------|----------------|------------|-------|----------------|-----------|-------|
|                   | Southbound     | Northbound | Total | Eastbound      | Westbound | Total |
| 7:00-8:00 AM      | 251            | 174        | 425   | 19             | 33        | 52    |
| 8:00-9:00 AM      | 303            | 275        | 578   | 56             | 76        | 132   |
| 9:00-10:00 AM     | 276            | 254        | 530   | 35             | 99        | 134   |
| 10:00-11:00 AM    | 282            | 248        | 530   | 41             | 131       | 172   |
| 11:00 AM-12:00 PM | 320            | 270        | 590   | 49             | 148       | 197   |
| 12:00-1:00 PM     | 361            | 339        | 700   | 70             | 164       | 234   |
| 1:00-2:00 PM      | 316            | 310        | 626   | 82             | 179       | 261   |
| 2:00-3:00 PM      | 323            | 283        | 606   | 61             | 127       | 188   |
| 3:00-4:00 PM      | 392            | 394        | 786   | 44             | 161       | 205   |
| 4:00-5:00 PM      | 385            | 322        | 707   | 52             | 136       | 188   |
| 5:00-6:00 PM      | 407            | 346        | 753   | 26             | 140       | 166   |
| 6:00-7:00 PM      | 273            | 248        | 521   | 24             | 102       | 126   |

As noted above, to warrant the installation of all-way stop control, minimum volume criteria should be met, including a minimum of 300 vehicles, bicycles, and pedestrians per hour on the main street (Green Bay Road) and a corresponding minimum of 200 vehicles, bicycles, and pedestrians per hour on the minor approaches (Merrill Street). As can be seen in *Table 1*, the warrant is met between 12:00 and 2:00 PM, and between 3:00 and 4:00 PM where the Merrill Street total rises above 200 vehicles, bicycles, and pedestrians per hour.

#### **AWSC Warrant E – Other Factors**

The following is justification for each of the other factors from Warrant E:

- The majority of northbound and southbound traffic along Green Bay Road goes through the intersection and proceeds both northbound and southbound. The need to control left-turn conflicts is not a sufficient justification for the need to maintain all-way stop control.
- Green Bay Road is a Minor Arterial roadway, while Merrill Street is a local roadway. This warrant was not considered.
- Pedestrian counts observed at the intersection were moderate at approximately 25 people crossing each street per hour. The need to control vehicle/pedestrian conflicts is a sufficient justification for adding All-Way Stop control to this intersection, given that two pedestrian crashes and one pedalcyclist crash occurred during the five-year study period.



## Part IV. Findings and Recommendations

Based on our review, GHA finds that an All-Way Stop is not currently warranted at the Green Bay Road intersection with Merrill Street in accordance with the MUTCD requirements. However, pedestrian activity is moderate at this intersection and pedestrian and pedalcyclist crashes were observed within the study period. An argument could be made for the Village to pursue installation of an All-Way Stop condition with IDOT should they desire.

Given the traffic signals located north and south of the Merrill Street intersection, the Village should carefully consider a decision to pursue an All-Way stop. As noted in the MUTCD, intersections with substantially differing approach volumes can reduce the effectiveness of All-Way Stop devices for all users.

## Part V. Technical Addendum

The following *Exhibits* and *Appendices* were previously referenced. They provide technical support for our observations, findings and recommendations discussed in the text.

### Exhibits

1. Location Map
2. Intersection Context

### Appendices

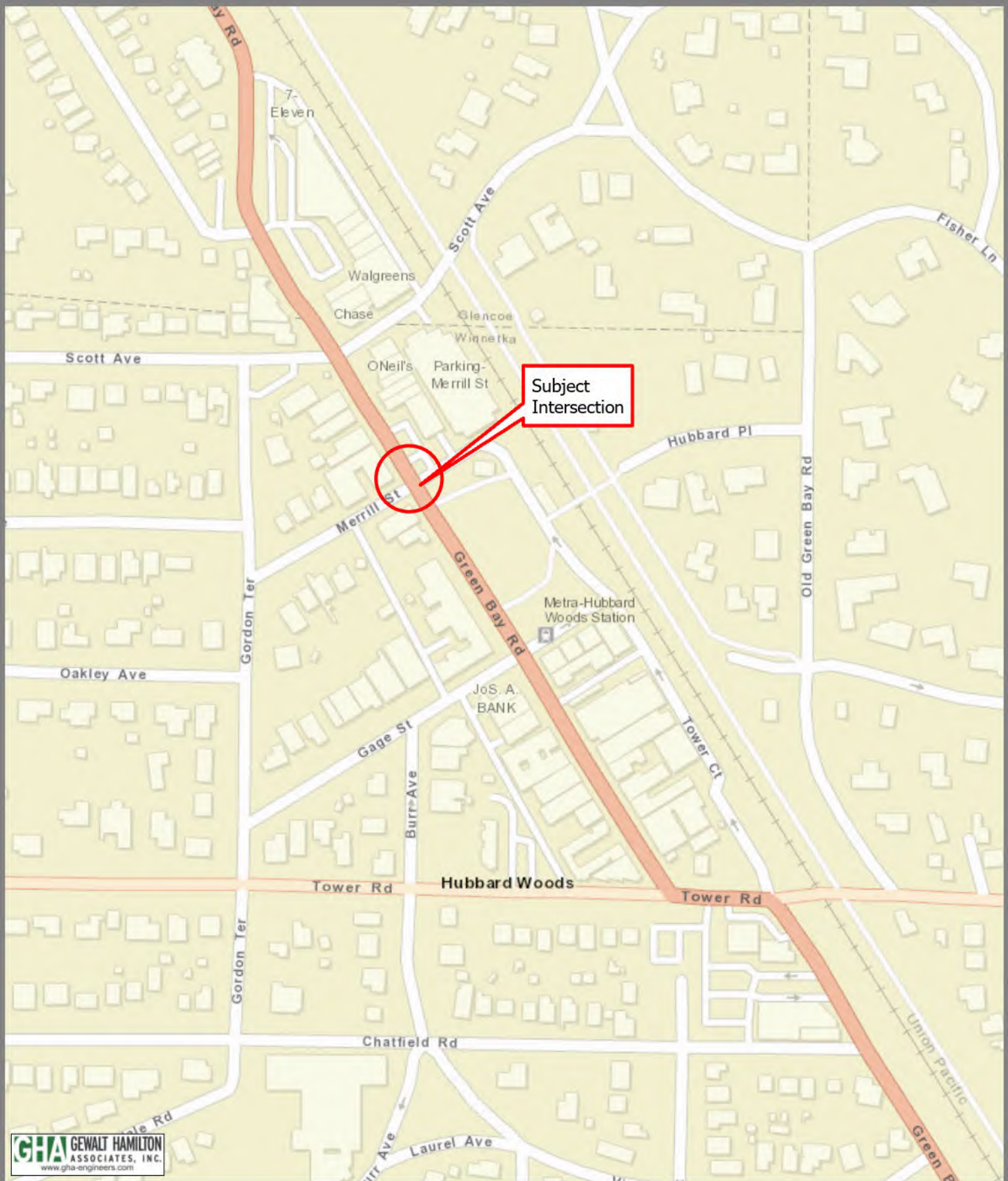
- A. Traffic Count Summary
- B. Crash Data
- C. MUTCD Excerpt – Stop Sign Warrants

6126.100 - Green Bay Road at Merrill Street AWSC Memo -draft.docx



## **TECHNICAL ADDENDUM**





1 inch = 400 Feet

## Exhibit 1 - Location Map

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL





1 inch = 100 Feet

## Exhibit 2 - Site Context

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL



## **APPENDICES**

- A. 2024 TRAFFIC COUNT SUMMARY REPORTS**
- B. CRASH SUMMARY MAP**
- C. MUTCD EXCERPT**



## **APPENDIX A**

### ***2024 Traffic Count Summary Reports***



Green Bay at Merrill  
6126.100 Winnetka Hubbard Woods  
24 hr  
GHA Mio

Gewalt Hamilton Associates Inc.  
625 Forest Edge Drive  
Vernon Hills, Illinois, United States 60061  
(847) 478-9700 poster@gha-engineers.com

Count Name: Green Bay at Merrill  
Site Code:  
Start Date: 12/05/2024  
Page No: 1

### Turning Movement Data

| Start Time   | Green Bay Rd<br>Southbound |      |      |       |      |            | Merril St<br>Westbound |      |      |       |      |            | Green Bay Rd<br>Northbound |      |      |       |      |            | Merril St<br>Eastbound |      |      |       |      |            | Int. Total |
|--------------|----------------------------|------|------|-------|------|------------|------------------------|------|------|-------|------|------------|----------------------------|------|------|-------|------|------------|------------------------|------|------|-------|------|------------|------------|
|              | U-Turn                     | Left | Thru | Right | Peds | App. Total | U-Turn                 | Left | Thru | Right | Peds | App. Total | U-Turn                     | Left | Thru | Right | Peds | App. Total | U-Turn                 | Left | Thru | Right | Peds | App. Total |            |
| 12:00 AM     | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 5          |
| 12:15 AM     | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 12:30 AM     | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 12:45 AM     | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| Hourly Total | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 5    | 0     | 0    | 5          | 0                      | 0    | 0    | 0     | 0    | 0          | 9          |
| 1:00 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 3          |
| 1:15 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 1:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 1:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| Hourly Total | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 5          |
| 2:00 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 2:15 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 2          |
| 2:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 3          |
| 2:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 1    | 0    | 0     | 0    | 1          | 3          |
| Hourly Total | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 7    | 0     | 0    | 7          | 0                      | 1    | 0    | 0     | 0    | 1          | 10         |
| 3:00 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 1          |
| 3:15 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 3:30 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0          |
| 3:45 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 1     | 0    | 1          | 2          |
| Hourly Total | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 0    | 0    | 1     | 0    | 1          | 3          |
| 4:00 AM      | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 1          |
| 4:15 AM      | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 1    | 2    | 0     | 0    | 3          | 0                      | 0    | 0    | 1     | 0    | 1          | 4          |
| 4:30 AM      | 0                          | 0    | 2    | 0     | 0    | 2          | 0                      | 1    | 0    | 0     | 0    | 1          | 0                          | 0    | 1    | 0     | 0    | 1          | 0                      | 0    | 0    | 0     | 0    | 0          | 4          |
| 4:45 AM      | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 0    | 0     | 0    | 0          | 0                      | 0    | 0    | 0     | 0    | 0          | 4          |
| Hourly Total | 0                          | 0    | 7    | 0     | 0    | 7          | 0                      | 1    | 0    | 0     | 0    | 1          | 0                          | 1    | 3    | 0     | 0    | 4          | 0                      | 0    | 0    | 1     | 0    | 1          | 13         |
| 5:00 AM      | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 1     | 0    | 1          | 0                          | 0    | 3    | 0     | 0    | 3          | 0                      | 0    | 0    | 0     | 0    | 0          | 7          |
| 5:15 AM      | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 0                          | 0    | 4    | 0     | 0    | 4          | 0                      | 0    | 0    | 0     | 0    | 0          | 8          |
| 5:30 AM      | 0                          | 0    | 5    | 1     | 0    | 6          | 0                      | 0    | 0    | 0     | 1    | 0          | 0                          | 0    | 5    | 0     | 1    | 5          | 0                      | 0    | 0    | 0     | 0    | 0          | 11         |
| 5:45 AM      | 0                          | 0    | 12   | 0     | 0    | 12         | 0                      | 2    | 0    | 1     | 0    | 3          | 0                          | 0    | 6    | 0     | 0    | 6          | 0                      | 0    | 0    | 0     | 0    | 0          | 21         |
| Hourly Total | 0                          | 0    | 24   | 1     | 0    | 25         | 0                      | 2    | 0    | 2     | 1    | 4          | 0                          | 0    | 18   | 0     | 1    | 18         | 0                      | 0    | 0    | 0     | 0    | 0          | 47         |
| 6:00 AM      | 0                          | 0    | 9    | 0     | 1    | 9          | 0                      | 2    | 0    | 0     | 1    | 2          | 0                          | 0    | 2    | 0     | 1    | 2          | 0                      | 0    | 0    | 0     | 0    | 0          | 13         |
| 6:15 AM      | 0                          | 0    | 15   | 0     | 0    | 15         | 0                      | 0    | 0    | 1     | 2    | 1          | 0                          | 0    | 9    | 0     | 0    | 9          | 0                      | 0    | 0    | 1     | 0    | 1          | 26         |
| 6:30 AM      | 0                          | 0    | 17   | 1     | 0    | 18         | 0                      | 4    | 2    | 0     | 0    | 6          | 0                          | 1    | 12   | 0     | 2    | 13         | 0                      | 0    | 0    | 4     | 0    | 4          | 41         |
| 6:45 AM      | 0                          | 0    | 34   | 0     | 0    | 34         | 0                      | 3    | 1    | 1     | 1    | 5          | 0                          | 2    | 24   | 0     | 0    | 26         | 0                      | 0    | 0    | 2     | 0    | 2          | 67         |
| Hourly Total | 0                          | 0    | 75   | 1     | 1    | 76         | 0                      | 9    | 3    | 2     | 4    | 14         | 0                          | 3    | 47   | 0     | 3    | 50         | 0                      | 0    | 0    | 7     | 0    | 7          | 147        |
| 7:00 AM      | 0                          | 0    | 39   | 0     | 2    | 39         | 0                      | 2    | 4    | 0     | 0    | 6          | 1                          | 1    | 21   | 0     | 3    | 23         | 0                      | 0    | 1    | 3     | 0    | 4          | 72         |
| 7:15 AM      | 0                          | 0    | 37   | 0     | 0    | 37         | 0                      | 4    | 1    | 1     | 0    | 6          | 0                          | 2    | 46   | 0     | 3    | 48         | 0                      | 1    | 0    | 3     | 0    | 4          | 95         |
| 7:30 AM      | 0                          | 0    | 60   | 1     | 0    | 61         | 0                      | 3    | 3    | 3     | 2    | 9          | 0                          | 1    | 44   | 0     | 3    | 45         | 0                      | 0    | 0    | 3     | 1    | 3          | 118        |



|              |   |   |     |    |    |     |   |    |    |    |    |     |   |    |     |   |    |     |   |    |   |    |    |    |     |
|--------------|---|---|-----|----|----|-----|---|----|----|----|----|-----|---|----|-----|---|----|-----|---|----|---|----|----|----|-----|
| 7:45 AM      | 0 | 0 | 108 | 2  | 2  | 110 | 0 | 5  | 1  | 4  | 0  | 10  | 0 | 4  | 42  | 0 | 3  | 46  | 0 | 2  | 0 | 4  | 0  | 6  | 172 |
| Hourly Total | 0 | 0 | 244 | 3  | 4  | 247 | 0 | 14 | 9  | 8  | 2  | 31  | 1 | 8  | 153 | 0 | 12 | 162 | 0 | 3  | 1 | 13 | 1  | 17 | 457 |
| 8:00 AM      | 0 | 0 | 83  | 6  | 2  | 89  | 0 | 9  | 4  | 5  | 3  | 18  | 0 | 15 | 58  | 0 | 2  | 73  | 0 | 0  | 0 | 15 | 0  | 15 | 195 |
| 8:15 AM      | 0 | 0 | 65  | 2  | 0  | 67  | 0 | 4  | 0  | 6  | 2  | 10  | 0 | 11 | 68  | 0 | 0  | 79  | 0 | 1  | 0 | 12 | 0  | 13 | 169 |
| 8:30 AM      | 0 | 0 | 58  | 2  | 4  | 60  | 0 | 8  | 8  | 8  | 1  | 24  | 0 | 5  | 52  | 0 | 2  | 57  | 0 | 1  | 0 | 11 | 5  | 12 | 153 |
| 8:45 AM      | 0 | 0 | 75  | 2  | 4  | 77  | 0 | 8  | 1  | 8  | 1  | 17  | 1 | 2  | 57  | 0 | 2  | 60  | 0 | 3  | 0 | 5  | 3  | 8  | 162 |
| Hourly Total | 0 | 0 | 281 | 12 | 10 | 293 | 0 | 29 | 13 | 27 | 7  | 69  | 1 | 33 | 235 | 0 | 6  | 269 | 0 | 5  | 0 | 43 | 8  | 48 | 679 |
| 9:00 AM      | 0 | 0 | 71  | 1  | 4  | 72  | 0 | 13 | 1  | 6  | 1  | 20  | 2 | 3  | 56  | 0 | 4  | 61  | 0 | 1  | 0 | 6  | 3  | 7  | 160 |
| 9:15 AM      | 0 | 0 | 65  | 4  | 2  | 69  | 0 | 11 | 3  | 8  | 1  | 22  | 2 | 1  | 56  | 0 | 3  | 59  | 0 | 1  | 0 | 6  | 0  | 7  | 157 |
| 9:30 AM      | 0 | 0 | 55  | 1  | 1  | 56  | 0 | 17 | 6  | 8  | 1  | 31  | 0 | 5  | 54  | 0 | 4  | 59  | 0 | 2  | 0 | 7  | 0  | 9  | 155 |
| 9:45 AM      | 0 | 0 | 69  | 0  | 3  | 69  | 0 | 6  | 5  | 12 | 0  | 23  | 1 | 6  | 54  | 0 | 3  | 61  | 0 | 1  | 0 | 4  | 4  | 5  | 158 |
| Hourly Total | 0 | 0 | 260 | 6  | 10 | 266 | 0 | 47 | 15 | 34 | 3  | 96  | 5 | 15 | 220 | 0 | 14 | 240 | 0 | 5  | 0 | 23 | 7  | 28 | 630 |
| 10:00 AM     | 1 | 0 | 65  | 5  | 2  | 71  | 0 | 11 | 7  | 8  | 0  | 26  | 1 | 5  | 59  | 0 | 3  | 65  | 0 | 2  | 0 | 12 | 3  | 14 | 176 |
| 10:15 AM     | 0 | 0 | 64  | 0  | 0  | 64  | 0 | 16 | 6  | 12 | 0  | 34  | 0 | 5  | 46  | 0 | 3  | 51  | 0 | 0  | 0 | 2  | 2  | 2  | 151 |
| 10:30 AM     | 0 | 0 | 62  | 2  | 1  | 64  | 0 | 18 | 4  | 11 | 1  | 33  | 0 | 7  | 50  | 0 | 3  | 57  | 0 | 2  | 0 | 6  | 1  | 8  | 162 |
| 10:45 AM     | 0 | 0 | 77  | 1  | 2  | 78  | 0 | 19 | 3  | 9  | 6  | 31  | 0 | 5  | 58  | 0 | 3  | 63  | 0 | 1  | 0 | 6  | 4  | 7  | 179 |
| Hourly Total | 1 | 0 | 268 | 8  | 5  | 277 | 0 | 64 | 20 | 40 | 7  | 124 | 1 | 22 | 213 | 0 | 12 | 236 | 0 | 5  | 0 | 26 | 10 | 31 | 668 |
| 11:00 AM     | 0 | 0 | 72  | 2  | 3  | 74  | 0 | 14 | 3  | 14 | 4  | 31  | 0 | 5  | 66  | 0 | 3  | 71  | 0 | 0  | 0 | 5  | 7  | 5  | 181 |
| 11:15 AM     | 0 | 0 | 78  | 5  | 3  | 83  | 0 | 11 | 2  | 10 | 3  | 23  | 0 | 0  | 60  | 0 | 6  | 60  | 0 | 0  | 0 | 10 | 1  | 10 | 176 |
| 11:30 AM     | 0 | 0 | 74  | 5  | 4  | 79  | 0 | 23 | 3  | 15 | 5  | 41  | 0 | 5  | 63  | 0 | 2  | 68  | 0 | 2  | 0 | 3  | 4  | 5  | 193 |
| 11:45 AM     | 0 | 0 | 67  | 3  | 4  | 70  | 0 | 17 | 8  | 11 | 5  | 36  | 2 | 4  | 52  | 0 | 2  | 58  | 0 | 0  | 0 | 8  | 9  | 8  | 172 |
| Hourly Total | 0 | 0 | 291 | 15 | 14 | 306 | 0 | 65 | 16 | 50 | 17 | 131 | 2 | 14 | 241 | 0 | 13 | 257 | 0 | 2  | 0 | 26 | 21 | 28 | 722 |
| 12:00 PM     | 0 | 1 | 83  | 4  | 6  | 88  | 0 | 18 | 8  | 10 | 4  | 36  | 0 | 6  | 68  | 0 | 3  | 74  | 0 | 0  | 0 | 7  | 8  | 7  | 205 |
| 12:15 PM     | 0 | 0 | 70  | 4  | 1  | 74  | 0 | 17 | 4  | 13 | 0  | 34  | 0 | 5  | 72  | 0 | 5  | 77  | 0 | 0  | 0 | 9  | 6  | 9  | 194 |
| 12:30 PM     | 0 | 0 | 79  | 5  | 8  | 84  | 0 | 17 | 4  | 11 | 9  | 32  | 1 | 10 | 82  | 0 | 10 | 93  | 0 | 2  | 0 | 10 | 11 | 12 | 221 |
| 12:45 PM     | 0 | 0 | 91  | 6  | 3  | 97  | 0 | 26 | 4  | 11 | 8  | 41  | 1 | 9  | 65  | 0 | 2  | 75  | 0 | 5  | 0 | 6  | 6  | 11 | 224 |
| Hourly Total | 0 | 1 | 323 | 19 | 18 | 343 | 0 | 78 | 20 | 45 | 21 | 143 | 2 | 30 | 287 | 0 | 20 | 319 | 0 | 7  | 0 | 32 | 31 | 39 | 844 |
| 1:00 PM      | 0 | 0 | 69  | 8  | 4  | 77  | 0 | 23 | 8  | 13 | 4  | 44  | 0 | 7  | 66  | 0 | 5  | 73  | 0 | 3  | 0 | 11 | 8  | 14 | 208 |
| 1:15 PM      | 0 | 0 | 73  | 3  | 2  | 76  | 0 | 17 | 8  | 8  | 4  | 33  | 0 | 4  | 55  | 0 | 8  | 59  | 0 | 1  | 0 | 11 | 8  | 12 | 180 |
| 1:30 PM      | 0 | 0 | 72  | 3  | 8  | 75  | 0 | 17 | 3  | 19 | 6  | 39  | 0 | 11 | 76  | 0 | 7  | 87  | 0 | 3  | 0 | 13 | 9  | 16 | 217 |
| 1:45 PM      | 0 | 0 | 66  | 4  | 4  | 70  | 0 | 23 | 6  | 13 | 7  | 42  | 0 | 4  | 61  | 0 | 6  | 65  | 0 | 5  | 0 | 8  | 2  | 13 | 190 |
| Hourly Total | 0 | 0 | 280 | 18 | 18 | 298 | 0 | 80 | 25 | 53 | 21 | 158 | 0 | 26 | 258 | 0 | 26 | 284 | 0 | 12 | 0 | 43 | 27 | 55 | 795 |
| 2:00 PM      | 0 | 0 | 64  | 5  | 0  | 69  | 0 | 10 | 6  | 12 | 0  | 28  | 0 | 4  | 63  | 0 | 0  | 67  | 0 | 3  | 0 | 2  | 7  | 5  | 169 |
| 2:15 PM      | 0 | 0 | 74  | 3  | 0  | 77  | 0 | 14 | 4  | 8  | 6  | 26  | 0 | 8  | 63  | 0 | 3  | 71  | 0 | 1  | 0 | 17 | 6  | 18 | 192 |
| 2:30 PM      | 0 | 0 | 87  | 3  | 3  | 90  | 0 | 17 | 5  | 8  | 2  | 30  | 0 | 3  | 53  | 0 | 0  | 56  | 0 | 3  | 0 | 4  | 6  | 7  | 183 |
| 2:45 PM      | 0 | 0 | 73  | 6  | 5  | 79  | 0 | 12 | 7  | 13 | 3  | 32  | 0 | 2  | 82  | 0 | 2  | 84  | 0 | 4  | 0 | 5  | 3  | 9  | 204 |
| Hourly Total | 0 | 0 | 298 | 17 | 8  | 315 | 0 | 53 | 22 | 41 | 11 | 116 | 0 | 17 | 261 | 0 | 5  | 278 | 0 | 11 | 0 | 28 | 22 | 39 | 748 |
| 3:00 PM      | 0 | 0 | 98  | 8  | 1  | 106 | 0 | 14 | 10 | 15 | 2  | 39  | 0 | 5  | 69  | 0 | 3  | 74  | 0 | 0  | 0 | 10 | 1  | 10 | 229 |
| 3:15 PM      | 0 | 0 | 76  | 4  | 5  | 80  | 0 | 15 | 9  | 16 | 1  | 40  | 0 | 12 | 88  | 0 | 3  | 100 | 0 | 0  | 0 | 11 | 6  | 11 | 231 |
| 3:30 PM      | 0 | 0 | 88  | 4  | 1  | 92  | 0 | 15 | 6  | 15 | 4  | 36  | 1 | 3  | 95  | 0 | 4  | 99  | 0 | 0  | 0 | 6  | 0  | 6  | 233 |
| 3:45 PM      | 0 | 0 | 98  | 1  | 8  | 99  | 0 | 11 | 4  | 19 | 5  | 34  | 0 | 6  | 103 | 0 | 2  | 109 | 0 | 1  | 0 | 7  | 2  | 8  | 250 |
| Hourly Total | 0 | 0 | 360 | 17 | 15 | 377 | 0 | 55 | 29 | 65 | 12 | 149 | 1 | 26 | 355 | 0 | 12 | 382 | 0 | 1  | 0 | 34 | 9  | 35 | 943 |
| 4:00 PM      | 1 | 0 | 69  | 5  | 3  | 75  | 0 | 10 | 6  | 14 | 6  | 30  | 0 | 9  | 84  | 0 | 4  | 93  | 0 | 3  | 0 | 7  | 3  | 10 | 208 |
| 4:15 PM      | 0 | 0 | 85  | 5  | 4  | 90  | 0 | 17 | 3  | 10 | 3  | 30  | 0 | 6  | 70  | 0 | 1  | 76  | 0 | 3  | 0 | 5  | 0  | 8  | 204 |
| 4:30 PM      | 0 | 0 | 86  | 2  | 3  | 88  | 0 | 12 | 3  | 6  | 7  | 21  | 0 | 3  | 65  | 0 | 7  | 68  | 0 | 0  | 0 | 5  | 7  | 5  | 182 |
| 4:45 PM      | 0 | 0 | 110 | 5  | 7  | 115 | 0 | 14 | 6  | 18 | 1  | 38  | 0 | 1  | 70  | 0 | 2  | 71  | 0 | 2  | 0 | 7  | 10 | 9  | 233 |
| Hourly Total | 1 | 0 | 350 | 17 | 17 | 368 | 0 | 53 | 18 | 48 | 17 | 119 | 0 | 19 | 289 | 0 | 14 | 308 | 0 | 8  | 0 | 24 | 20 | 32 | 827 |
| 5:00 PM      | 0 | 0 | 96  | 3  | 6  | 99  | 0 | 21 | 15 | 20 | 3  | 56  | 1 | 7  | 81  | 0 | 3  | 89  | 0 | 0  | 0 | 7  | 1  | 7  | 251 |
| 5:15 PM      | 0 | 0 | 116 | 3  | 5  | 119 | 0 | 14 | 3  | 11 | 0  | 28  | 0 | 5  | 84  | 0 | 3  | 89  | 0 | 2  | 0 | 2  | 1  | 4  | 240 |
| 5:30 PM      | 0 | 0 | 87  | 1  | 1  | 88  | 0 | 11 | 7  | 6  | 4  | 24  | 0 | 6  | 82  | 0 | 0  | 88  | 0 | 0  | 0 | 6  | 0  | 6  | 206 |
| 5:45 PM      | 1 | 0 | 82  | 3  | 3  | 86  | 0 | 10 | 3  | 9  | 3  | 22  | 0 | 4  | 69  | 0 | 1  | 73  | 0 | 1  | 0 | 3  | 3  | 4  | 185 |
| Hourly Total | 1 | 0 | 381 | 10 | 15 | 392 | 0 | 56 | 28 | 46 | 10 | 130 | 1 | 22 | 316 | 0 | 7  | 339 | 0 | 3  | 0 | 18 | 5  | 21 | 882 |



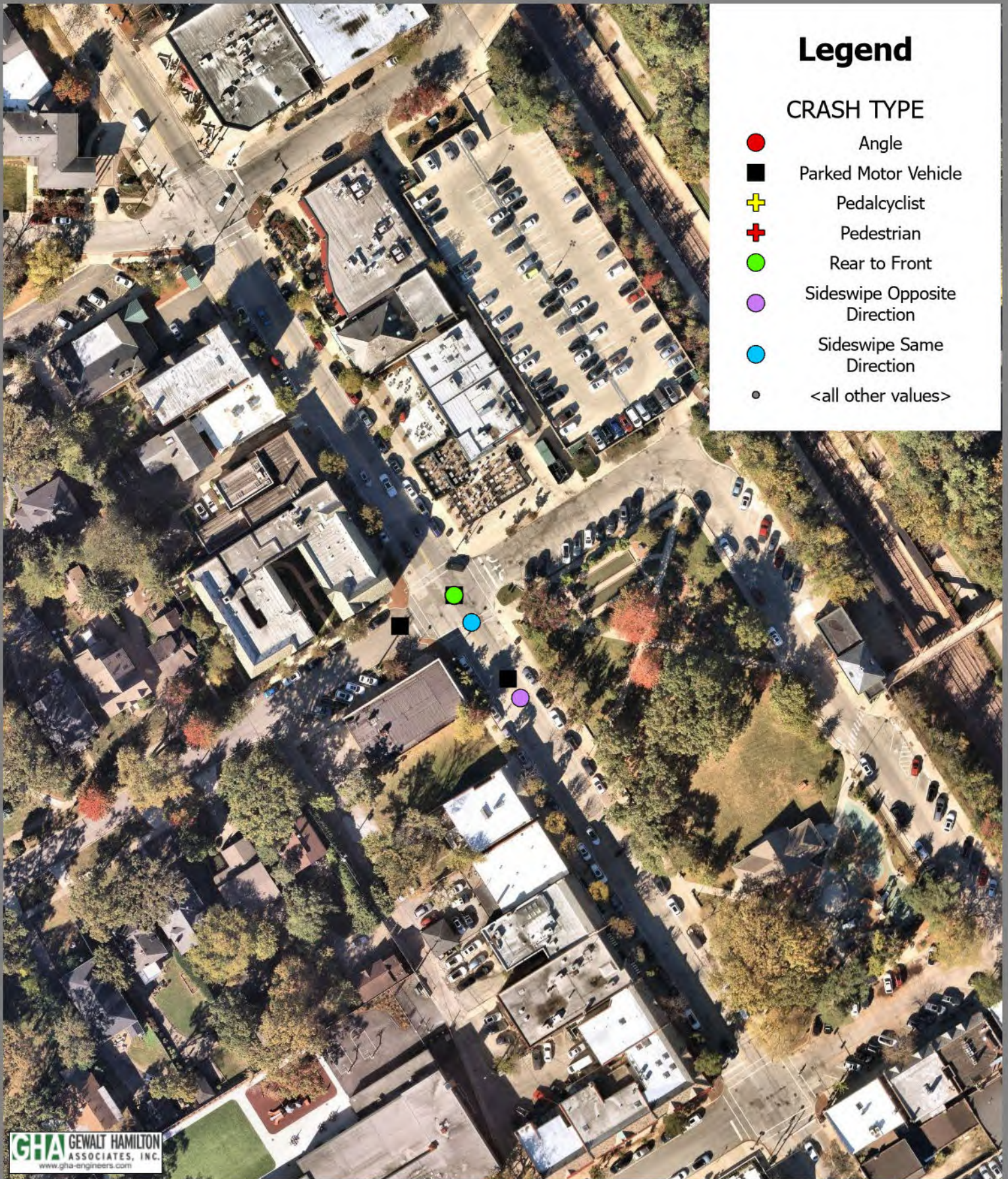
|                         |       |       |      |      |       |      |     |      |      |      |      |      |       |      |      |       |      |      |     |      |       |      |      |      |       |
|-------------------------|-------|-------|------|------|-------|------|-----|------|------|------|------|------|-------|------|------|-------|------|------|-----|------|-------|------|------|------|-------|
| 6:00 PM                 | 0     | 1     | 71   | 2    | 1     | 74   | 0   | 9    | 7    | 9    | 3    | 25   | 0     | 7    | 54   | 0     | 1    | 61   | 0   | 2    | 0     | 3    | 1    | 5    | 165   |
| 6:15 PM                 | 0     | 0     | 49   | 2    | 3     | 51   | 0   | 3    | 6    | 11   | 9    | 20   | 0     | 4    | 56   | 0     | 5    | 60   | 0   | 2    | 0     | 2    | 2    | 4    | 135   |
| 6:30 PM                 | 0     | 0     | 64   | 5    | 5     | 69   | 0   | 10   | 5    | 3    | 4    | 18   | 0     | 5    | 49   | 1     | 3    | 55   | 0   | 2    | 0     | 4    | 2    | 6    | 148   |
| 6:45 PM                 | 0     | 0     | 64   | 3    | 3     | 67   | 0   | 5    | 2    | 8    | 6    | 15   | 0     | 5    | 57   | 0     | 1    | 62   | 0   | 0    | 0     | 1    | 3    | 1    | 145   |
| Hourly Total            | 0     | 1     | 248  | 12   | 12    | 261  | 0   | 27   | 20   | 31   | 22   | 78   | 0     | 21   | 216  | 1     | 10   | 238  | 0   | 6    | 0     | 10   | 8    | 16   | 593   |
| 7:00 PM                 | 0     | 0     | 40   | 2    | 2     | 42   | 0   | 3    | 5    | 4    | 0    | 12   | 0     | 0    | 41   | 0     | 0    | 41   | 0   | 0    | 0     | 0    | 0    | 0    | 95    |
| 7:15 PM                 | 0     | 0     | 35   | 0    | 2     | 35   | 0   | 7    | 4    | 6    | 1    | 17   | 0     | 3    | 40   | 0     | 1    | 43   | 0   | 0    | 0     | 1    | 2    | 1    | 96    |
| 7:30 PM                 | 0     | 0     | 32   | 2    | 1     | 34   | 0   | 8    | 3    | 9    | 7    | 20   | 0     | 4    | 40   | 0     | 2    | 44   | 0   | 0    | 0     | 2    | 3    | 2    | 100   |
| 7:45 PM                 | 0     | 0     | 32   | 0    | 0     | 32   | 0   | 2    | 2    | 8    | 4    | 12   | 1     | 1    | 36   | 0     | 1    | 38   | 0   | 0    | 0     | 1    | 1    | 1    | 83    |
| Hourly Total            | 0     | 0     | 139  | 4    | 5     | 143  | 0   | 20   | 14   | 27   | 12   | 61   | 1     | 8    | 157  | 0     | 4    | 166  | 0   | 0    | 0     | 4    | 6    | 4    | 374   |
| 8:00 PM                 | 0     | 0     | 23   | 0    | 2     | 23   | 0   | 5    | 3    | 4    | 2    | 12   | 0     | 1    | 24   | 0     | 1    | 25   | 0   | 0    | 0     | 1    | 0    | 1    | 61    |
| 8:15 PM                 | 0     | 0     | 43   | 1    | 3     | 44   | 0   | 5    | 0    | 10   | 2    | 15   | 0     | 0    | 34   | 0     | 1    | 34   | 0   | 1    | 0     | 0    | 0    | 1    | 94    |
| 8:30 PM                 | 0     | 0     | 28   | 2    | 3     | 30   | 0   | 6    | 1    | 7    | 2    | 14   | 0     | 1    | 32   | 0     | 0    | 33   | 0   | 0    | 0     | 0    | 2    | 0    | 77    |
| 8:45 PM                 | 0     | 0     | 35   | 3    | 0     | 38   | 0   | 8    | 1    | 4    | 3    | 13   | 1     | 0    | 28   | 0     | 0    | 29   | 0   | 1    | 0     | 1    | 0    | 2    | 82    |
| Hourly Total            | 0     | 0     | 129  | 6    | 8     | 135  | 0   | 24   | 5    | 25   | 9    | 54   | 1     | 2    | 118  | 0     | 2    | 121  | 0   | 2    | 0     | 2    | 2    | 4    | 314   |
| 9:00 PM                 | 0     | 0     | 21   | 0    | 0     | 21   | 0   | 3    | 2    | 6    | 0    | 11   | 0     | 1    | 25   | 0     | 0    | 26   | 0   | 0    | 0     | 1    | 2    | 1    | 59    |
| 9:15 PM                 | 0     | 0     | 31   | 0    | 4     | 31   | 0   | 6    | 4    | 7    | 2    | 17   | 0     | 1    | 37   | 0     | 0    | 38   | 0   | 0    | 0     | 0    | 0    | 0    | 86    |
| 9:30 PM                 | 0     | 0     | 28   | 1    | 2     | 29   | 0   | 3    | 0    | 5    | 6    | 8    | 0     | 2    | 17   | 0     | 0    | 19   | 0   | 1    | 0     | 1    | 1    | 2    | 58    |
| 9:45 PM                 | 0     | 0     | 12   | 1    | 0     | 13   | 0   | 4    | 1    | 4    | 0    | 9    | 0     | 1    | 17   | 0     | 0    | 18   | 0   | 0    | 0     | 0    | 0    | 0    | 40    |
| Hourly Total            | 0     | 0     | 92   | 2    | 6     | 94   | 0   | 16   | 7    | 22   | 8    | 45   | 0     | 5    | 96   | 0     | 0    | 101  | 0   | 1    | 0     | 2    | 3    | 3    | 243   |
| 10:00 PM                | 0     | 0     | 10   | 1    | 0     | 11   | 0   | 2    | 1    | 2    | 1    | 5    | 0     | 0    | 10   | 0     | 0    | 10   | 0   | 0    | 0     | 0    | 0    | 0    | 26    |
| 10:15 PM                | 0     | 0     | 8    | 0    | 1     | 8    | 0   | 1    | 2    | 0    | 0    | 3    | 0     | 0    | 14   | 0     | 1    | 14   | 0   | 0    | 0     | 0    | 0    | 0    | 25    |
| 10:30 PM                | 0     | 0     | 8    | 0    | 0     | 8    | 0   | 1    | 0    | 0    | 0    | 1    | 0     | 0    | 8    | 0     | 1    | 8    | 0   | 1    | 0     | 1    | 0    | 2    | 19    |
| 10:45 PM                | 0     | 0     | 1    | 0    | 0     | 1    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 6    | 0     | 0    | 6    | 0   | 0    | 0     | 0    | 0    | 0    | 7     |
| Hourly Total            | 0     | 0     | 27   | 1    | 1     | 28   | 0   | 4    | 3    | 2    | 1    | 9    | 0     | 0    | 38   | 0     | 2    | 38   | 0   | 1    | 0     | 1    | 0    | 2    | 77    |
| 11:00 PM                | 0     | 0     | 7    | 0    | 0     | 7    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 1    | 0     | 0    | 1    | 0   | 0    | 0     | 0    | 0    | 0    | 8     |
| 11:15 PM                | 0     | 0     | 5    | 0    | 0     | 5    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 4    | 0     | 0    | 4    | 0   | 0    | 0     | 0    | 0    | 0    | 9     |
| 11:30 PM                | 0     | 0     | 5    | 0    | 0     | 5    | 0   | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 4    | 0     | 0    | 4    | 0   | 0    | 0     | 0    | 0    | 0    | 9     |
| 11:45 PM                | 0     | 0     | 2    | 0    | 0     | 2    | 0   | 0    | 1    | 0    | 0    | 1    | 0     | 0    | 2    | 0     | 0    | 2    | 0   | 0    | 0     | 0    | 0    | 0    | 5     |
| Hourly Total            | 0     | 0     | 19   | 0    | 0     | 19   | 0   | 0    | 1    | 0    | 0    | 1    | 0     | 0    | 11   | 0     | 0    | 11   | 0   | 0    | 0     | 0    | 0    | 0    | 31    |
| Grand Total             | 3     | 2     | 4106 | 169  | 167   | 4280 | 0   | 697  | 268  | 568  | 185  | 1533 | 16    | 272  | 3547 | 1     | 163  | 3836 | 0   | 73   | 1     | 338  | 180  | 412  | 10061 |
| Approach %              | 0.1   | 0.0   | 95.9 | 3.9  | -     | -    | 0.0 | 45.5 | 17.5 | 37.1 | -    | -    | 0.4   | 7.1  | 92.5 | 0.0   | -    | -    | 0.0 | 17.7 | 0.2   | 82.0 | -    | -    | -     |
| Total %                 | 0.0   | 0.0   | 40.8 | 1.7  | -     | 42.5 | 0.0 | 6.9  | 2.7  | 5.6  | -    | 15.2 | 0.2   | 2.7  | 35.3 | 0.0   | -    | 38.1 | 0.0 | 0.7  | 0.0   | 3.4  | -    | 4.1  | -     |
| Lights                  | 3     | 2     | 4014 | 167  | -     | 4186 | 0   | 680  | 262  | 559  | -    | 1501 | 16    | 268  | 3460 | 1     | -    | 3745 | 0   | 72   | 0     | 331  | -    | 403  | 9835  |
| % Lights                | 100.0 | 100.0 | 97.8 | 98.8 | -     | 97.8 | -   | 97.6 | 97.8 | 98.4 | -    | 97.9 | 100.0 | 98.5 | 97.5 | 100.0 | -    | 97.6 | -   | 98.6 | 0.0   | 97.9 | -    | 97.8 | 97.8  |
| Mediums                 | 0     | 0     | 88   | 2    | -     | 90   | 0   | 16   | 4    | 9    | -    | 29   | 0     | 4    | 79   | 0     | -    | 83   | 0   | 1    | 0     | 6    | -    | 7    | 209   |
| % Mediums               | 0.0   | 0.0   | 2.1  | 1.2  | -     | 2.1  | -   | 2.3  | 1.5  | 1.6  | -    | 1.9  | 0.0   | 1.5  | 2.2  | 0.0   | -    | 2.2  | -   | 1.4  | 0.0   | 1.8  | -    | 1.7  | 2.1   |
| Articulated Trucks      | 0     | 0     | 4    | 0    | -     | 4    | 0   | 1    | 0    | 0    | -    | 1    | 0     | 0    | 8    | 0     | -    | 8    | 0   | 0    | 0     | 1    | -    | 1    | 14    |
| % Articulated Trucks    | 0.0   | 0.0   | 0.1  | 0.0  | -     | 0.1  | -   | 0.1  | 0.0  | 0.0  | -    | 0.1  | 0.0   | 0.0  | 0.2  | 0.0   | -    | 0.2  | -   | 0.0  | 0.0   | 0.3  | -    | 0.2  | 0.1   |
| Bicycles on Road        | 0     | 0     | 0    | 0    | -     | 0    | 0   | 0    | 2    | 0    | -    | 2    | 0     | 0    | 0    | 0     | -    | 0    | 0   | 0    | 1     | 0    | -    | 1    | 3     |
| % Bicycles on Road      | 0.0   | 0.0   | 0.0  | 0.0  | -     | 0.0  | -   | 0.0  | 0.7  | 0.0  | -    | 0.1  | 0.0   | 0.0  | 0.0  | 0.0   | -    | 0.0  | -   | 0.0  | 100.0 | 0.0  | -    | 0.2  | 0.0   |
| Bicycles on Crosswalk   | -     | -     | -    | -    | 0     | -    | -   | -    | -    | -    | 3    | -    | -     | -    | -    | -     | 1    | -    | -   | -    | -     | -    | 4    | -    | -     |
| % Bicycles on Crosswalk | -     | -     | -    | -    | 0.0   | -    | -   | -    | -    | -    | 1.6  | -    | -     | -    | -    | -     | 0.6  | -    | -   | -    | -     | -    | 2.2  | -    | -     |
| Pedestrians             | -     | -     | -    | -    | 167   | -    | -   | -    | -    | -    | 182  | -    | -     | -    | -    | -     | 162  | -    | -   | -    | -     | -    | 176  | -    | -     |
| % Pedestrians           | -     | -     | -    | -    | 100.0 | -    | -   | -    | -    | -    | 98.4 | -    | -     | -    | -    | -     | 99.4 | -    | -   | -    | -     | -    | 97.8 | -    | -     |



## **APPENDIX B**

### ***Crash Summary Map***





## Legend

### CRASH TYPE

- Angle
- Parked Motor Vehicle
- + Pedalcyclist
- + Pedestrian
- Rear to Front
- Sideswipe Opposite Direction
- Sideswipe Same Direction
- <all other values>

## Appendix B - IDOT Crash Data 2019-23

Green Bay Road at Merrill Street  
Hubbard Woods Business District  
Winnetka, IL



1 inch = 100 Feet



## **APPENDIX C**

### ***MUTCD Excerpt***



*Guidance:*

- 04 *The YIELD signs should be installed on opposing minor-street approaches (for a four-leg intersection) or on the minor-street approach (for a three-leg intersection). When two intersecting roadways have relatively equal volumes, speeds, and other characteristics, yield control should be installed on the approach that conflicts the most with established pedestrian crossing activity, school walking routes, or bicycle crossing activity.*

**Standard:**

- 05 **A YIELD sign shall be used to require road users to yield the right-of-way to other traffic at the entrance to a roundabout. YIELD signs at roundabouts shall be used to control the approach roadways and shall not be used to control the circulatory roadway.**
- 06 **YIELD signs shall not be placed on all of the approaches to an intersection, except at roundabouts.**

**Section 2B.11 Minor Road Stop Control***Guidance:*

- 01 *Stop control on the minor-road approach or approaches to an intersection should be considered when engineering judgment indicates that one or more of the following conditions exist:*
- A. *A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway.*
  - B. *Crash records indicate that:*
    - 1. *For a four-leg intersection, there are three or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period. The crashes should be susceptible to correction by installation of minor-road stop control.*
    - 2. *For a three-leg intersection, there are three or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period. The crashes should be susceptible to correction by installation of minor-road stop control.*
  - C. *The intersection is of a lower functional classification road with a higher functional classification road.*
  - D. *Conditions that previously supported the installation of all-way stop control no longer exist.*
- 02 *On low-volume rural roads, a STOP sign should be considered at an intersection where engineering judgment indicates that Item C in Paragraph 1 of this Section is applicable or where the intersection has inadequate sight distance for the operating vehicle speeds.*

**Section 2B.12 All-Way Stop Control****Support:**

- 01 *The provisions in the following sections describe warrants for the recommended engineering study to determine all-way stop control. Warrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification to install or not install all-way stop control. Because each intersection will have unique characteristics that affect its operational performance or safety, it is the engineering study for a given intersection that is ultimately the basis for a decision to install or not install all-way stop control.*
- 02 *All-way stop controls at intersections with substantially differing approach volumes can reduce the effectiveness of these devices for all roadway users.*

*Guidance:*

- 03 *The decision to establish all-way stop control at an unsignalized intersection should be based on an engineering study. The engineering study for all-way stop control should include an analysis of factors related to the existing operation and safety at the intersection, the potential to improve these conditions, and the applicable factors contained in the following all-way stop control warrants:*
- A. *All-Way Stop Control Warrant A: Crash Experience (see Section 2B.13)*
  - B. *All-Way Stop Control Warrant B: Sight Distance (see Section 2B.14)*
  - C. *All-Way Stop Control Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection (see Section 2B.15)*
  - D. *All-Way Stop Control Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles) (see Section 2B.16)*
  - E. *All-Way Stop Control Warrant E: Other Factors (see Section 2B.17)*

**Option:**

- 04 *The decision to install all-way stop control on site roadways open to public travel may be based on engineering judgment.*

**Standard:**

- 05 **The satisfaction of an all-way stop control warrant or warrants shall not in itself require the installation of all-way stop control at an unsignalized intersection.**



**Section 2B.13 All-Way Stop Control Warrant A: Crash Experience**

Option:

- 01 All-way stop control may be installed at an intersection where an engineering study indicates that:
- A. For a four-leg intersection, there are five or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.
  - B. For a three-leg intersection, there are four or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

**Section 2B.14 All-Way Stop Control Warrant B: Sight Distance**

Option:

- 01 All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road.

Support:

- 02 At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

**Section 2B.15 All-Way Stop Control Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection**

Option:

- 01 All-way stop control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal (see Chapter 4C) at the intersection or for the installation of yield control at a circular intersection.

**Section 2B.16 All-Way Stop Control Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles)**

Option:

- 01 All-way stop control may be installed at an intersection where an engineering study indicates:
- A. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches is at least 300 units per hour for each of any 8 hours of a typical day; and
  - B. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches is at least 200 units per hour for each of any of the same 8 hours.
- 02 If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants may be reduced to 70 percent of the values given in Items A and B in Paragraph 1 of this Section.

**Section 2B.17 All-Way Stop Control Warrant E: Other Factors**

Option:

- 01 All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:
- A. The need to control left-turn conflicts,
  - B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, or
  - C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

**Section 2B.18 STOP Sign or YIELD Sign Placement**

Standard:

- 01 The STOP or YIELD sign shall be installed on the near side of the intersection on the right-hand side of the approach to which it applies. When the STOP or YIELD sign is installed at this required location and the sign visibility is restricted, a Stop Ahead sign (see Section 2C.35) shall be installed in advance of the STOP sign or a Yield Ahead sign (see Section 2C.35) shall be installed in advance of the YIELD sign.
- 02 The STOP or YIELD sign shall be located as close as practicable to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate.
- 03 STOP signs and YIELD signs shall not be mounted on the same post.



**MEMORANDUM - DRAFT**

To: Mr. Obaid Kahlid, PE  
Assistant Village Engineer

Copy: Mr. James Bernahl  
Director of Engineering / Village Engineer

From: Daniel P. Brinkman, P.E., PTOE

Date: February 19, 2025

Subject: Parking Observations  
Hubbard Woods Business District  
Winnetka, IL

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GEWALT HAMILTON ASSOCIATES, INC. (GHA) has completed parking observations for all of the public parking within the Hubbard Woods Business District. As the Village continues to review the potential for streetscape improvements to Green Bay Road it was desirable to understand the current utilization of parking throughout the Business District.

In summary, on-street parking is at a premium suggesting that any space reductions to accommodate streetscape elements or pedestrian crossings must be carefully considered. Overall parking is generally available throughout the day within the parking structure which is underutilized. There were some observances of people “creating” on-street spaces, particularly along Green Bay Road in the afternoon and early evening hours. The 15-minute spaces along Green Bay Road are well utilized.

*Exhibits and Appendices* referenced in the following text are conveniently located in the Technical Addendum at the end of this document.

**Exhibit 1** provides a map of the Hubbard Woods Business District, oriented along Green Bay Road generally between Scott Avenue and Tower Road on the north and south and bordered by the Union Pacific – North line railroad on the east and the public alley parallel to Green Bay Road on the west.

**Exhibit 2** illustrates the 25 separate parking zones within the Business District that were observed on Saturday November 9, 2024, between 8:00 AM and 8:00 PM and on Tuesday November 12, 2024, between 7:00 AM and 6:00 PM.

**Appendix A** provides the Public Parking map and Parking Permit zone map. As can be seen parking restrictions and regulations vary throughout the District. The majority of the on-street parking along Green Bay Road is limited to 90 minutes, while there are some 2-hour and 4-hour parking zones along Merrill Street, Scott Avenue and along Tower Court in the vicinity of the Metra Station. Two different types of Parking Permit are present within the District; Zone A, which includes the upper level of the parking structure and Tower Court south of Gage Street and Zone C which includes the lower level of the parking structure. Combined Zone A and Zone C permit parking is allowed in the first block of Tower Court south of Gage Street and within part of the off-street parking lot located south of Tower Road between the Green Bay Road intersections.

**Exhibits 3A and 3B** tabulate the hourly observations made by GHA during November 2024. Hourly occupancy of the various parking zones is identified by color for each of the various lots and block faces. As noted, Green indicates less than 60% occupancy, yellow indicates occupancy in the 60-85% range, and red is for areas with 85% or greater occupancy. Dark red was utilized in a few observations where more vehicles were observed parked than marked spaces exist. In total, 542 parking spaces were surveyed hourly including 15 handicapped accessible spaces.

Key observations include:

#### **Weekday**

- Parking demand peaked at 12:00 PM when 50% of the total parking supply was occupied.
- On-Street Parking along Green Bay Road is nearly 100% occupied after 10:00AM.
- The 15-minute spaces are well utilized, flasher compliance is inconsistent.
- Considerable capacity is available in the parking structure throughout the day.
- Only a few instances of parking demand exceeding the number of marked spaces.

#### **Saturday**

- Parking demand peaked at 12:00 PM when 48% of the total parking supply was occupied.
- On-Street Parking along Green Bay Road is nearly 100% occupied after 10:00AM.
- The 15-minute spaces are well utilized, flasher compliance is inconsistent.
- Considerable capacity is available in the parking structure throughout the day.
- There were multiple time periods when parking exceeded the number of marked spaces, particularly along Gage Street between Tower Ct and Green Bay Road as well as on Green Bay Road between Gage Street and Tower.

**Table 1 and Table 2** provide additional insight as to the utilization of parking within the District. As can be seen, 90-minute parking is in the greatest demand while Zone A and Zone C parking is under-utilized. The four-hour parking near the METRA station is well used.



Table 1 – Weekday (Tuesday) Utilization

| Parking Restriction | Spaces | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM |
|---------------------|--------|---------|---------|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|
| 90 Minute Parking   | 147    | 21%     | 43%     | 77%     | 93%      | 96%      | 90%      | 91%     | 89%     | 78%     | 61%     | 63%     | 69%     |
| 2 Hour Parking      | 22     | 18%     | 36%     | 41%     | 73%      | 82%      | 86%      | 91%     | 55%     | 73%     | 64%     | 55%     | 82%     |
| 4 Hour Parking      | 34     | 18%     | 24%     | 56%     | 88%      | 97%      | 103%     | 94%     | 76%     | 71%     | 47%     | 29%     | 21%     |
| Zone A Parking      | 121    | 7%      | 17%     | 37%     | 52%      | 59%      | 62%      | 59%     | 56%     | 56%     | 50%     | 34%     | 30%     |
| Zone C Parking      | 104    | 31%     | 30%     | 27%     | 27%      | 32%      | 36%      | 38%     | 36%     | 34%     | 46%     | 47%     | 42%     |
| Zone A&C Parking    | 98     | 51%     | 54%     | 79%     | 95%      | 96%      | 88%      | 88%     | 91%     | 80%     | 73%     | 61%     | 43%     |

Table 2 – Saturday Utilization

| Parking Restriction | Spaces | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM |
|---------------------|--------|---------|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| 90 Minute Parking   | 147    | 33%     | 56%     | 88%      | 93%      | 98%      | 95%     | 90%     | 89%     | 76%     | 67%     | 84%     | 85%     | 84%     |
| 2 Hour Parking      | 22     | 23%     | 23%     | 32%      | 82%      | 100%     | 100%    | 77%     | 59%     | 50%     | 55%     | 100%    | 105%    | 91%     |
| 4 Hour Parking      | 34     | 24%     | 35%     | 50%      | 97%      | 109%     | 100%    | 76%     | 65%     | 38%     | 26%     | 35%     | 76%     | 94%     |
| Zone A Parking      | 121    | 20%     | 25%     | 31%      | 34%      | 50%      | 48%     | 43%     | 37%     | 47%     | 50%     | 45%     | 50%     | 54%     |
| Zone C Parking      | 104    | 13%     | 19%     | 25%      | 26%      | 30%      | 34%     | 34%     | 27%     | 26%     | 24%     | 27%     | 43%     | 37%     |
| Zone A&C Parking    | 98     | 56%     | 68%     | 72%      | 82%      | 86%      | 85%     | 82%     | 69%     | 64%     | 53%     | 36%     | 47%     | 45%     |

## **PART VI TECHNICAL ADDENDUM**

The following *Exhibits* were previously referenced. They provide technical support for our observations, findings, and recommendations discussed in the text.

### *Exhibits*

1. Location Map
2. Parking Zones
- 3A. Weekday Parking Survey Results
- 3B. Saturday Parking Survey Results

### Appendix

- A. Village Parking Maps

6126.100 Hubbard Woods Parking - draft.doc



## **TECHNICAL ADDENDUM**



**GHA** GEWALT HAMILTON  
ASSOCIATES, INC.  
www.gha-engineers.com

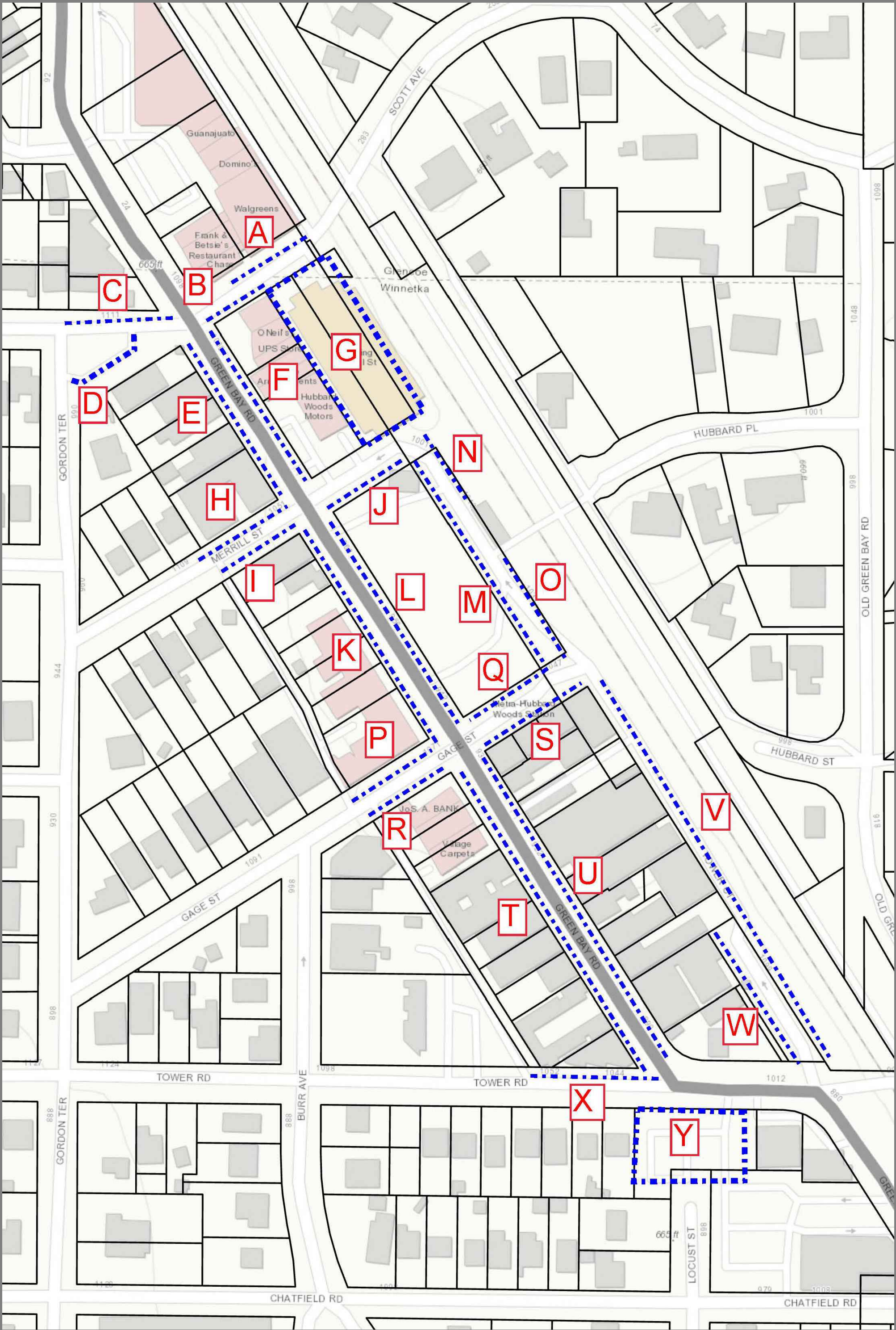


1 inch = 400  
Feet

## Exhibit 1 - Location Map

Hubbard Woods Business District  
Winnetka, IL







| <div>Exhibit 3A - Parking Occupancy Survey</div> <div>Hubbard Woods Business District</div> <div>7:00 AM - 6:00 PM Tuesday November 12, 2024</div> |                                                         |                                                                                                       |                |            |         |         |         |          |          |          |         |         |         |         |         |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------|------------|---------|---------|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|
| Parking Zone<br>See Map                                                                                                                            | Parking Description                                     | Parking Restrictions                                                                                  | Parking Supply | ADA Supply | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM |
| A                                                                                                                                                  | Scott Ave - From Metra Rail to Green Bay Rd - North     | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 4              | -          | 0       | 0       | 2       | 3        | 3        | 1        | 2       | 2       | 2       | 2       | 1       | 4       |
| A                                                                                                                                                  | Scott Ave - From Metra Rail to Green Bay Rd - North     | 15 Min Spaces                                                                                         | 4              | -          | 0       | 0       | 1       | 0        | 2        | 1        | 0       | 1       | 1       | 0       | 1       | 3       |
| B                                                                                                                                                  | Scott Ave - From Parking Garage to Green Bay Rd - South | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | -          | 0       | 0       | 1       | 2        | 3        | 3        | 3       | 3       | 0       | 1       | 2       | 3       |
| C                                                                                                                                                  | Scott Ave - From Green Bay Rd to Gordon Terrace - North | 1 hour parking - 8:00 AM - 6:00 PM                                                                    | 4              | -          | 1       | 2       | 1       | 1        | 2        | 2        | 2       | 2       | 1       | 2       | 1       | 0       |
| D                                                                                                                                                  | Public Lot South of Scott Ave                           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 7              | 1          | 1       | 1       | 1       | 5        | 4        | 4        | 4       | 5       | 5       | 3       | 2       | 4       |
| E                                                                                                                                                  | Green Bay Rd - Scott Ave to Merrill St - West           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 8              | -          | 1       | 1       | 4       | 8        | 7        | 8        | 8       | 6       | 7       | 7       | 4       | 8       |
| E                                                                                                                                                  | Green Bay Rd - Scott Ave to Merrill St - West           | 15 Min Spaces                                                                                         | 1              |            | 0       | 0       | 0       | 1        | 1        | 1        | 1       | 1       | 1       | 1       | 1       | 1       |
| F                                                                                                                                                  | Green Bay Rd - Scott Ave to Merrill St - East           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 7              | -          | 1       | 0       | 5       | 7        | 7        | 7        | 7       | 8       | 7       | 7       | 4       | 7       |
| F                                                                                                                                                  | Green Bay Rd - Scott Ave to Merrill St - East           | 15 Min Spaces                                                                                         | 1              | -          | 0       | 0       | 1       | 0        | 1        | 1        | 1       | 1       | 0       | 1       | 0       | 1       |
| G                                                                                                                                                  | Parking Garage - Level 1                                | Zone C 8:00 AM - 10:30 AM M-F                                                                         | 104            | 4          | 32      | 31      | 28      | 28       | 33       | 37       | 39      | 37      | 35      | 48      | 49      | 44      |
| G                                                                                                                                                  | Parking Garage - Level 2                                | Zone A 8:00 - 10:30 AM M-F, 2 hour parking - 10:30 AM - 6:00 PM without decal                         | 115            | -          | 8       | 18      | 41      | 59       | 66       | 70       | 67      | 64      | 64      | 56      | 39      | 35      |
| H                                                                                                                                                  | Merrill St - Alley to Green Bay Rd - North              | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 6              | -          | 4       | 6       | 5       | 6        | 6        | 6        | 6       | 3       | 6       | 5       | 5       | 6       |
| I                                                                                                                                                  | Merrill St - Alley to Green Bay Rd - South              | 90 minute parking - 8:00 AM - 6:00 PM (Except Sundays and Holidays)                                   | 5              | 1          | 4       | 5       | 5       | 6        | 6        | 5        | 5       | 5       | 5       | 5       | 2       | 4       |
| J                                                                                                                                                  | N Merrill St - Green Bay to E Merrill St - South        | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 12             | -          | 0       | 2       | 2       | 7        | 9        | 12       | 12      | 7       | 8       | 7       | 6       | 8       |
| K                                                                                                                                                  | Green Bay Rd - N Merrill St to Gage St - West           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 15             | -          | 3       | 8       | 15      | 15       | 15       | 14       | 14      | 14      | 14      | 10      | 10      | 13      |
| K                                                                                                                                                  | Green Bay Rd - N Merrill St to Gage St - West           | 15 Min Spaces                                                                                         | 1              | -          | 0       | 0       | 1       | 0        | 1        | 0        | 0       | 1       | 0       | 1       | 1       | 1       |
| L                                                                                                                                                  | Green Bay Rd - N Merrill St to Gage St - East           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 13             | 1          | 0       | 3       | 12      | 12       | 12       | 13       | 14      | 8       | 11      | 6       | 6       | 3       |
| M                                                                                                                                                  | E Merrill St - N Merrill St to Gage St - West           | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 17             | -          | 1       | 1       | 6       | 13       | 16       | 17       | 15      | 10      | 8       | 8       | 3       | 2       |
| N                                                                                                                                                  | E Merrill St - N Merrill St to Station - East           | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 8              | -          | 1       | 1       | 5       | 8        | 8        | 8        | 7       | 7       | 8       | 4       | 3       | 2       |
| O                                                                                                                                                  | E Merrill St - Station To Gage - East                   | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 9              | 2          | 4       | 6       | 8       | 9        | 9        | 10       | 10      | 9       | 8       | 4       | 4       | 3       |
| P                                                                                                                                                  | Gage St - Alley to Green Bay Rd - North                 | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 6              | -          | 0       | 1       | 6       | 6        | 6        | 5        | 5       | 5       | 4       | 4       | 6       | 6       |
| Q                                                                                                                                                  | Gage St - Green Bay to Tower Ct - North                 | 90 minute parking - 8:00 AM - 6:00 PM (Except Sundays and Holidays)                                   | 11             | -          | 2       | 3       | 6       | 11       | 11       | 11       | 10      | 10      | 7       | 4       | 4       | 4       |
| R                                                                                                                                                  | Gage St - Alley to Green Bay Rd - South                 | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | -          | 1       | 4       | 4       | 4        | 4        | 4        | 4       | 3       | 4       | 4       | 3       | 4       |
| S                                                                                                                                                  | Gage St - Green Bay to Tower Ct - South                 | 90 minute parking - 8:00 AM - 6:00 PM, No Parking 5:00 AM - 8:00 AM Weekdays                          | 13             | -          | 4       | 6       | 9       | 13       | 12       | 13       | 12      | 12      | 7       | 8       | 8       | 8       |
| S                                                                                                                                                  | Gage St - Green Bay to Tower Ct - South                 | 15 Min Spaces                                                                                         | 1              | -          | 0       | 0       | 1       | 0        | 1        | 1        | 2       | 1       | 0       | 1       | 0       | 0       |
| T                                                                                                                                                  | Green Bay Rd - Gage to Tower Rd -West                   | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 18             | 1          | 5       | 12      | 17      | 18       | 18       | 19       | 16      | 17      | 14      | 11      | 15      | 14      |
| T                                                                                                                                                  | Green Bay Rd - Gage to Tower Rd -West                   | 15 Min Spaces                                                                                         | 2              | -          | 0       | 0       | 1       | 2        | 2        | 2        | 2       | 1       | 1       | 0       | 0       | 0       |
| U                                                                                                                                                  | Green Bay Rd - Gage to Tower Rd -East                   | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 17             | -          | 4       | 9       | 16      | 16       | 17       | 15       | 17      | 18      | 14      | 9       | 14      | 16      |
| U                                                                                                                                                  | Green Bay Rd - Gage to Tower Rd -East                   | 15 Min Spaces                                                                                         | 2              | -          | 0       | 0       | 0       | 2        | 2        | 2        | 0       | 0       | 0       | 1       | 1       | 1       |
| V                                                                                                                                                  | E Alley - Gage to Tower - East                          | Permit Parking Only 8:00 AM to 4/5:00 PM Mon-Fri. Zone A-C, Village permit required.                  | 43             | -          | 24      | 27      | 36      | 40       | 41       | 38       | 41      | 42      | 35      | 34      | 27      | 19      |
| W                                                                                                                                                  | E Alley - Gage to Tower Rd - West - Permit Only         | Permit Parking Only 8:00 AM to 5:00 PM Mon-Fri. Zone A, Village permit required.                      | 6              | -          | 1       | 3       | 4       | 4        | 5        | 5        | 4       | 4       | 4       | 4       | 2       | 1       |
| W                                                                                                                                                  | E Alley - Gage to Tower Rd - West - Public Parking      | 90 Min Parking Only                                                                                   | 15             | 2          | 1       | 6       | 8       | 10       | 15       | 8        | 12      | 15      | 13      | 8       | 9       | 5       |
| X                                                                                                                                                  | Tower Rd from Alley to Green Bay Rd - North             | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | -          | 4       | 4       | 4       | 3        | 4        | 3        | 3       | 2       | 2       | 2       | 3       | 2       |
| Y                                                                                                                                                  | Public Lot South of Tower Rd                            | Permit Parking Only 8:00-10:30 AM Mon-Fri. Zone A-C Village permit required. Unrestricted after 10:30 | 55             | 3          | 26      | 26      | 41      | 53       | 53       | 48       | 45      | 47      | 43      | 38      | 33      | 23      |
| Totals =                                                                                                                                           |                                                         |                                                                                                       | 542            | 15         | 75      | 117     | 198     | 249      | 268      | 279      | 274     | 248     | 233     | 211     | 187     | 190     |
| Overall Percent Occupied =                                                                                                                         |                                                         |                                                                                                       |                |            | 13%     | 21%     | 36%     | 45%      | 48%      | 50%      | 49%     | 45%     | 42%     | 38%     | 34%     | 34%     |



| Exhibit 3B - Parking Occupancy Survey<br>Hubbard Woods Business District<br>8:00 AM - 8:00 PM Saturday November 9, 2024 |                                                         |                                                                                                       |                |            |         |         |          |          |          |         |         |         |         |         |         |         |         |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------|------------|---------|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Parking Zone<br>See Map                                                                                                 | Parking Description                                     | Parking Restrictions                                                                                  | Parking Supply | ADA Supply | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM |
| A                                                                                                                       | Scott Ave - From Metra Rail to Green Bay Rd - North     | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 4              | 0          | 0       | 0       | 0        | 4        | 4        | 4       | 5       | 3       | 4       | 5       | 5       | 6       | 4       |
| A                                                                                                                       | Scott Ave - From Metra Rail to Green Bay Rd - North     | 15 Min Spaces                                                                                         | 4              | 0          | 0       | 0       | 0        | 1        | 0        | 0       | 1       | 0       | 0       | 0       | 1       | 1       | 0       |
| B                                                                                                                       | Scott Ave - From Parking Garage to Green Bay Rd - South | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | 0          | 0       | 0       | 1        | 3        | 2        | 4       | 4       | 2       | 2       | 2       | 3       | 3       | 3       |
| C                                                                                                                       | Scott Ave - From Green Bay Rd to Gordon Terrace - North | 1 hour parking - 8:00 AM - 6:00 PM                                                                    | 4              | 0          | 0       | 0       | 0        | 3        | 3        | 1       | 0       | 1       | 0       | 0       | 0       | 1       | 1       |
| D                                                                                                                       | Public Lot South of Scott Ave                           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 7              | 1          | 3       | 2       | 5        | 5        | 7        | 7       | 4       | 3       | 3       | 3       | 3       | 3       | 3       |
| E                                                                                                                       | Green Bay Rd - Scott Ave to Merrill St - West           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 8              | 0          | 2       | 2       | 7        | 8        | 8        | 7       | 7       | 7       | 6       | 5       | 8       | 8       | 8       |
| E                                                                                                                       | Green Bay Rd - Scott Ave to Merrill St - West           | 15 Min Spaces                                                                                         | 1              | 0          | 0       | 0       | 1        | 1        | 1        | 1       | 1       | 1       | 1       | 0       | 1       | 1       | 1       |
| F                                                                                                                       | Green Bay Rd - Scott Ave to Merrill St - East           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 7              | 0          | 0       | 1       | 3        | 8        | 7        | 6       | 6       | 6       | 7       | 6       | 8       | 7       | 6       |
| F                                                                                                                       | Green Bay Rd - Scott Ave to Merrill St - East           | 15 Min Spaces                                                                                         | 1              | 0          | 0       | 0       | 1        | 1        | 1        | 0       | 1       | 0       | 1       | 1       | 1       | 1       | 1       |
| G                                                                                                                       | Parking Garage - Level 1                                | Zone C 8:00 AM - 10:30 AM M-F                                                                         | 104            | 4          | 13      | 20      | 26       | 27       | 31       | 35      | 35      | 28      | 27      | 25      | 28      | 45      | 38      |
| G                                                                                                                       | Parking Garage - Level 2                                | Zone A 8:00 - 10:30 AM M-F, 2 hour parking - 10:30 AM - 6:00 PM without decal                         | 115            | 0          | 23      | 27      | 35       | 38       | 57       | 54      | 47      | 42      | 53      | 56      | 54      | 56      | 61      |
| H                                                                                                                       | Merril St - Alley to Green Bay Rd - North               | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 6              | 0          | 5       | 5       | 6        | 6        | 6        | 6       | 6       | 6       | 4       | 3       | 5       | 6       | 6       |
| I                                                                                                                       | Merril St - Alley to Green Bay Rd - South               | 90 minute parking - 8:00 AM - 6:00 PM (Except Sundays and Holidays)                                   | 5              | 1          | 4       | 4       | 5        | 4        | 5        | 6       | 4       | 5       | 5       | 4       | 4       | 5       | 6       |
| J                                                                                                                       | N Merrill St - Green Bay to E Merrill St - South        | 2 hour parking - 8:00 AM - 6:00 PM                                                                    | 12             | 0          | 0       | 0       | 1        | 8        | 12       | 12      | 6       | 4       | 3       | 4       | 12      | 11      | 10      |
| K                                                                                                                       | Green Bay Rd - N Merrill St to Gage St - West           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 15             | 0          | 4       | 13      | 15       | 14       | 15       | 15      | 12      | 14      | 12      | 6       | 10      | 15      | 16      |
| K                                                                                                                       | Green Bay Rd - N Merrill St to Gage St - West           | 15 Min Spaces                                                                                         | 1              | 0          | 0       | 0       | 1        | 1        | 1        | 1       | 1       | 1       | 0       | 0       | 0       | 0       | 0       |
| L                                                                                                                       | Green Bay Rd - N Merrill St to Gage St - East           | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 13             | 1          | 2       | 6       | 13       | 15       | 14       | 14      | 12      | 11      | 11      | 6       | 11      | 13      | 12      |
| M                                                                                                                       | E Merrill St - N Merrill St to Gage St - West           | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 17             | 0          | 1       | 2       | 7        | 15       | 17       | 17      | 12      | 10      | 4       | 2       | 4       | 10      | 15      |
| N                                                                                                                       | E Merrill St - N Merrill St to Station - East           | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 8              | 0          | 3       | 2       | 1        | 9        | 9        | 9       | 6       | 3       | 1       | 2       | 2       | 6       | 7       |
| O                                                                                                                       | E Merrill St - Station To Gage - East                   | 4 hour parking - 8:00 AM - 6:00 PM                                                                    | 9              | 2          | 4       | 8       | 9        | 9        | 11       | 8       | 8       | 9       | 8       | 5       | 6       | 10      | 10      |
| P                                                                                                                       | Gage St - Alley to Green Bay Rd - North                 | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 6              | 0          | 0       | 4       | 5        | 6        | 6        | 6       | 6       | 6       | 5       | 5       | 6       | 6       | 5       |
| Q                                                                                                                       | Gage St - Green Bay to Tower Ct - North                 | 90 minute parking - 8:00 AM - 6:00 PM (Except Sundays and Holidays)                                   | 11             | 0          | 3       | 3       | 10       | 11       | 11       | 10      | 11      | 10      | 8       | 6       | 10      | 10      | 11      |
| R                                                                                                                       | Gage St - Alley to Green Bay Rd - South                 | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | 0          | 1       | 3       | 5        | 4        | 5        | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       |
| S                                                                                                                       | Gage St - Green Bay to Tower Ct - South                 | 90 minute parking - 8:00 AM - 6:00 PM, No Parking 5:00 AM - 8:00 AM Weekdays                          | 13             | 0          | 4       | 6       | 12       | 11       | 12       | 12      | 12      | 12      | 7       | 8       | 11      | 11      | 12      |
| S                                                                                                                       | Gage St - Green Bay to Tower Ct - South                 | 15 Min Spaces                                                                                         | 1              | 0          | 0       | 0       | 2        | 1        | 1        | 2       | 2       | 0       | 0       | 0       | 0       | 1       | 1       |
| T                                                                                                                       | Green Bay Rd - Gage to Tower Rd -West                   | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 18             | 1          | 9       | 15      | 17       | 18       | 20       | 19      | 19      | 17      | 16      | 18      | 19      | 20      | 17      |
| T                                                                                                                       | Green Bay Rd - Gage to Tower Rd -West                   | 15 Min Spaces                                                                                         | 2              | 0          | 1       | 2       | 2        | 2        | 1        | 2       | 1       | 1       | 2       | 0       | 2       | 2       | 2       |
| U                                                                                                                       | Green Bay Rd - Gage to Tower Rd -East                   | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 17             | 0          | 7       | 12      | 16       | 17       | 17       | 17      | 17      | 16      | 13      | 18      | 18      | 17      | 17      |
| U                                                                                                                       | Green Bay Rd - Gage to Tower Rd -East                   | 15 Min Spaces                                                                                         | 2              | 0          | 2       | 1       | 2        | 2        | 1        | 1       | 0       | 1       | 1       | 1       | 1       | 1       | 1       |
| V                                                                                                                       | E Alley - Gage to Tower - East                          | Permit Parking Only 8:00 AM to 4/5:00 PM Mon-Fri. Zone A-C, Village permit required.                  | 43             | 0          | 28      | 35      | 33       | 37       | 36       | 38      | 39      | 33      | 29      | 25      | 13      | 21      | 20      |
| W                                                                                                                       | E Alley - Gage to Tower Rd - West - Permit Only         | Permit Parking Only 8:00 AM to 5:00 PM Mon-Fri. Zone A, Village permit required.                      | 6              | 0          | 1       | 3       | 3        | 3        | 4        | 4       | 5       | 3       | 4       | 4       | 1       | 5       | 4       |
| W                                                                                                                       | E Alley - Gage to Tower Rd - West - Public Parking      | 90 Min Parking Only                                                                                   | 15             | 2          | 6       | 10      | 13       | 11       | 11       | 10      | 11      | 15      | 11      | 5       | 5       | 1       | 0       |
| X                                                                                                                       | Tower Rd from Alley to Green Bay Rd - North             | 90 minute parking - 8:00 AM - 6:00 PM                                                                 | 4              | 0          | 4       | 2       | 3        | 2        | 4        | 3       | 4       | 3       | 2       | 2       | 4       | 2       | 4       |
| Y                                                                                                                       | Public Lot South of Tower Rd                            | Permit Parking Only 8:00-10:30 AM Mon-Fri. Zone A-C Village permit required. Unrestricted after 10:30 | 55             | 3          | 27      | 32      | 38       | 43       | 48       | 45      | 41      | 35      | 34      | 27      | 22      | 25      | 24      |
| Totals =                                                                                                                |                                                         |                                                                                                       | 542            | 15         | 86      | 135     | 200      | 234      | 268      | 263     | 236     | 213     | 198     | 184     | 224     | 265     | 266     |
| Overall Percent Occupied =                                                                                              |                                                         |                                                                                                       |                |            | 15%     | 24%     | 36%      | 42%      | 48%      | 47%     | 42%     | 38%     | 36%     | 33%     | 40%     | 48%     | 48%     |

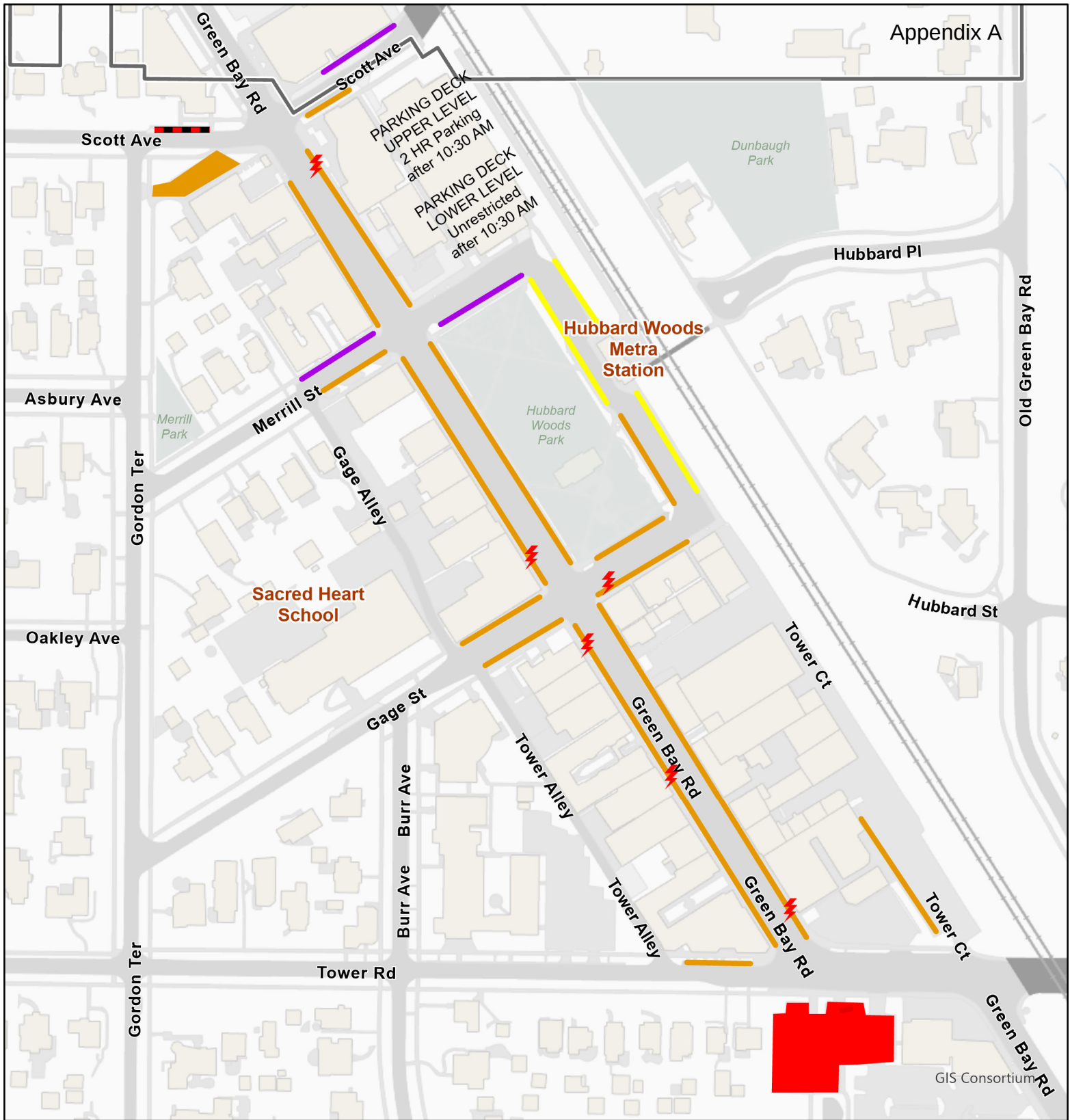
## **APPENDIX**

### **A. VILLAGE PARKING MAPS**



## **APPENDIX A**

### ***Village Parking Maps***

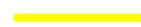


# HUBBARD WOODS DISTRICT PUBLIC PARKING

PLEASE READ AND OBEY ALL POSTED PARKING REGULATIONS



15 Min



4 Hour



1 hour parking between the hours of 8AM-6PM



90 Min



2 Hour



Unrestricted after 10:30 AM







# HUBBARD WOODS DISTRICT

PLEASE READ AND OBEY ALL POSTED PARKING REGULATIONS

— ZONE A

— ZONE A & C

— ZONE C



**MEMORANDUM - DRAFT**

To: Mr. Obaid Kahlid, PE  
Assistant Village Engineer

Copy: Mr. James Bernahl  
Director of Engineering / Village Engineer

From: Daniel P. Brinkman, P.E., PTOE

Date: February 19, 2025

Subject: "Horseshoe" Traffic Circulation Review  
Hubbard Woods Business District  
Winnetka, IL

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**Part I. Project Context and Summary Statement**

GEWALT HAMILTON ASSOCIATES, INC. (GHA) has completed a review of the three circulation options for the "horseshoe" roadways surrounding Hubbard Woods Park that came from the initial streetscape study. Recall the three options presented at the public input events were:

1. Maintain existing counter-clockwise circulation pattern.
2. Reverse the one-way circulation to flow clockwise around the park.
3. Reverse the one-way circulation pattern to flow clockwise around the park, Merrill operates two-way.

Each of the options also included installing an All-Way Stop at the Merrill Street and Green Bay Road intersection, minor revisions to the parking supply, and an improved pedestrian crossing with a speed table at the METRA station. Warranting an All-Way Stop at Merrill Street was the subject of a separate memorandum. For the purposes of this analysis, we will assume that the All-Way Stop condition is in place.

In summary, it is our recommendation that the traffic circulation in the "Horseshoe" remain a counter-clockwise flow. The potential for queued vehicles at the Gage Street signal in Options 2 and 3 to impact access to the parking spaces along Gage for nearly half the distance to Tower Court and placing METRA passengers on the "wrong" side of the car were two of the key factors leading to our recommendation.

*Exhibits and Appendices* referenced in the following text are conveniently located in the Technical Addendum at the end of this document.

**Part II. Background Information**

**Exhibit 1** provides an aerial photo of the Hubbard Woods Park and "Horseshoe" roadway network made up of Merrill Street, Tower Court, and Gage Street. Currently circulation around the park occurs in a counter-clockwise direction with a traffic signal at the Gage Street intersection with Green Bay Road. There is no additional traffic control (i.e., Stop signs) at any of the intersections save for the alley that enters Tower Court at the southeast corner of the park and for traffic exiting the parking garage in the northeast corner of the park. Adequate directional signage and "do not enter" signage is posted. The majority of the parking along the "Horseshoe" roadways is angle parking which helps enforce the one-way circulation.



**Exhibit 2** is an excerpt from the public input materials that were presented during the streetscape open house public involvement activities, illustrating the three circulation options.

GHA conducted 24-hour traffic counts within the Hubbard Woods Business District on Thursday December 5, 2024. The observed Morning and Evening Peak Hours occurred from 7:45-8:45 AM and from 3:00-4:00 PM. 2024 Peak Hour turning movement and pedestrian counts surrounding the park are illustrated in **Exhibit 3A and 3B**, respectively. **Exhibit 3A** also provides the AADT (24-hour volume) in the vicinity as published by IDOT on their website: [www.gettingaroundillinois.com](http://www.gettingaroundillinois.com). **Exhibit 3A** also represents the traffic volumes for Option 1.

No unusual activities (e.g., roadway construction, or inclement weather) were observed during our counts that would be expected to impact traffic volumes or travel patterns in the vicinity.

### Part III. Evaluation

**Exhibits 4 and 5** illustrate the anticipated redistributed traffic throughout the Horseshoe under Options 2 and 3 respectively. The existing traffic volumes were re-assigned based on the proposed operational changes to flow around the “Horseshoe” as well as estimated destinations within the Business District.

As part of our review, GHA conducted capacity analyses at the key Green Bay Road intersections with Merrill Street and Gage Street for each traffic / circulation option. Capacity analyses are a standard measurement that identifies how an intersection operates. They are measured in terms of Level of Service (LOS). The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels of Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS C is often considered acceptable for design purposes and LOS D is usually considered as providing the lower threshold of acceptable operations. Since the level of service is a function of the traffic flows placed upon it, the facility may operate at a wide range of levels of service, depending on the time of day, day of week or period of year. A description of the operating condition under each level of service, based on the analysis parameters as published in the Transportation Research Board’s (TRB) Highway Capacity Manual (HCM), Seventh Edition, is provided in **Table 1**.

**Table 1: Level of Service (LOS) Summary**

| LOS | Description                                                                                                                                                                                                 | Delay (sec/veh) |              |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|
|     |                                                                                                                                                                                                             | Traffic Signal  | Stop Sign    |
| A   | Describes conditions with little to no delay to motorists.                                                                                                                                                  | <10             | < 10         |
| B   | Represents a desirable level with relatively low delay to motorists.                                                                                                                                        | >10 and < 20    | >10 and < 15 |
| C   | Describes conditions with average delays to motorists.                                                                                                                                                      | >20 and < 35    | >15 and < 25 |
| D   | Describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.                                                                                | >35 and < 55    | >25 and < 35 |
| E   | Represents operating conditions with high delay values. This level is often considered within urban settings or for minor streets intersecting major arterial roadways to be the limit of acceptable delay. | >55 and < 80    | >35 and < 50 |
| F   | Is unacceptable to most drivers with high delay values that often occur when arrival flow rates exceed the capacity of the intersection.                                                                    | >80             | >50          |

**Table 2** summarizes the Capacity Analysis results based on the Existing and Re-assigned traffic flow for each of the three Options, and can be observed below:

## Table 2: Capacity Analysis Results

| Intersection / Timeframe         | Roadway Conditions                           | Movement Group By Approach                               |      |    |    |           |      |    |     |            |    |     |     | Overall Intersection |         |
|----------------------------------|----------------------------------------------|----------------------------------------------------------|------|----|----|-----------|------|----|-----|------------|----|-----|-----|----------------------|---------|
|                                  |                                              | > = Shared Lane - = Non Critical or Not Allowed Movement |      |    |    |           |      |    |     |            |    |     |     |                      |         |
|                                  |                                              | Eastbound                                                |      |    |    | Westbound |      |    |     | Northbound |    |     |     |                      |         |
|                                  |                                              | LT                                                       | TH   | RT | LT | TH        | RT   | LT | TH  | RT         | LT | TH  | RT  |                      |         |
| 1. Green Bay Road at Gage Street | Traffic Signal                               | >                                                        | D    | <  | -  | -         | -    | >  | A   | <          | >  | A   | <   |                      |         |
| AM Peak                          | A. Existing/Option 1 Traffic (See Exhibit 3) | -                                                        | 44.4 | -  | -  | -         | -    | -  | 3.2 | -          | -  | 3.6 | -   | 7.7                  |         |
|                                  |                                              | -                                                        | 91   | -  | -  | -         | -    | -  | 52  | -          | -  | 77  | -   | -                    |         |
|                                  |                                              | D (44.4)                                                 |      |    |    |           |      |    |     | A (3.2)    |    |     |     |                      | A (3.6) |
|                                  |                                              | >                                                        | C    | <  |    | >         | C    | <  | >   | A          | <  | >   | A   | <                    | B       |
|                                  | B. Option 2 Traffic (See Exhibit 4)          | -                                                        | 29.8 | -  | -  | -         | 28.9 | -  | -   | 5.7        | -  | -   | 6.1 | 10.5                 |         |
|                                  |                                              | -                                                        | 70   | -  | -  | -         | 70   | -  | -   | 87         | -  | -   | 103 | -                    |         |
|                                  |                                              | C (29.8)                                                 |      |    |    | C (28.9)  |      |    |     | A (5.7)    |    |     |     |                      | A (6.1) |
|                                  |                                              | >                                                        | C    | <  |    | >         | C    | <  | >   | A          | <  | >   | A   | <                    | B       |
|                                  | C. Option 3 Traffic(See Exhibit 5)           | -                                                        | 29.8 | -  | -  | -         | 28.7 | -  | -   | 5.7        | -  | -   | 6.1 | 10.3                 |         |
|                                  |                                              | -                                                        | 70   | -  | -  | -         | 62   | -  | -   | 87         | -  | -   | 104 | -                    |         |
|                                  |                                              | C (29.8)                                                 |      |    |    | C (28.7)  |      |    |     | A (5.7)    |    |     |     |                      | A (6.1) |
|                                  |                                              | >                                                        | D    | <  |    | -         | -    | -  | >   | A          | <  | >   | A   | <                    | A       |
|                                  | A. Existing/Option 1 Traffic (See Exhibit 3) | -                                                        | 38.6 | -  | -  | -         | -    | -  | -   | 3.6        | -  | -   | 3.2 | 6.2                  |         |
|                                  |                                              | -                                                        | 71   | -  | -  | -         | -    | -  | -   | 76         | -  | -   | 79  | -                    |         |
|                                  |                                              | D (38.6)                                                 |      |    |    |           |      |    |     | A (3.6)    |    |     |     |                      | A (3.6) |
|                                  |                                              | >                                                        | C    | <  |    | >         | C    | <  | >   | A          | <  | >   | A   | <                    | B       |
| PM Peak                          | B. Option 2 Traffic (See Exhibit 4)          | -                                                        | 33.1 | -  | -  | -         | 34.7 | -  | -   | 4.8        | -  | -   | 4.4 | 10.9                 |         |
|                                  |                                              | -                                                        | 61   | -  | -  | -         | 122  | -  | -   | 99         | -  | -   | 81  | -                    |         |
|                                  |                                              | C (33.1)                                                 |      |    |    | C (34.7)  |      |    |     | A (4.8)    |    |     |     |                      | A (4.4) |
|                                  |                                              | >                                                        | C    | <  |    | >         | D    | <  | >   | A          | <  | >   | A   | <                    | B       |
|                                  | C. Option 3 Traffic(See Exhibit 5)           | -                                                        | 34   | -  | -  | -         | 35.1 | -  | -   | 4.5        | -  | -   | 4.1 | 10.4                 |         |
|                                  |                                              | -                                                        | 62   | -  | -  | -         | 112  | -  | -   | 76         | -  | -   | 78  | -                    |         |
|                                  |                                              | C (34.0)                                                 |      |    |    | D (35.1)  |      |    |     | A (4.5)    |    |     |     |                      | A (4.1) |
|                                  |                                              | >                                                        | C    | <  |    | >         | D    | <  | >   | A          | <  | >   | A   | <                    | B       |



Table 2: Capacity Analysis Results

| Intersection / Timeframe            | Roadway Conditions                  | Movement Group By Approach                               |     |    |          |           |     |          |      |            |          |      |    | Overall Intersection |  |
|-------------------------------------|-------------------------------------|----------------------------------------------------------|-----|----|----------|-----------|-----|----------|------|------------|----------|------|----|----------------------|--|
|                                     |                                     | > = Shared Lane - = Non Critical or Not Allowed Movement |     |    |          |           |     |          |      |            |          |      |    |                      |  |
|                                     |                                     | Eastbound                                                |     |    |          | Westbound |     |          |      | Northbound |          |      |    |                      |  |
|                                     |                                     | LT                                                       | TH  | RT | LT       | TH        | RT  | LT       | TH   | RT         | LT       | TH   | RT |                      |  |
| 2. Green Bay Road at Merrill Street | All Way Stop Control                | >                                                        | A   | <  | >        | A         | A   | >        | B    | <          | >        | B    | <  |                      |  |
| AM Peak                             | A. Existing Traffic (See Exhibit 3) | -                                                        | 8.6 | -  | -        | 9.9       | 8.4 | -        | 10.7 | -          | -        | 11.8 | -  | 10.9                 |  |
|                                     | • Delay                             |                                                          |     |    |          |           |     |          |      |            |          |      |    |                      |  |
|                                     | • 95th Queue Length (ft)            |                                                          | 5   | -  | -        | 10        | 3   |          | 45   | -          |          | 65   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (8.6)                                                  |     |    | A (9.4)  |           |     | B (10.7) |      |            | B (11.8) |      |    | -                    |  |
| AM Peak                             | B. Option 1 Traffic                 | >                                                        | A   | <  | >        | A         | <   | >        | B    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 8.5 | -  | -        | 9.2       | -   | -        | 10.7 | -          | -        | 11.7 | -  | 10.8                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 5   | -  | -        | 13        | -   | -        | 45   | -          | -        | 65   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (8.5)                                                  |     |    | A (9.2)  |           |     | B (10.7) |      |            | B (11.7) |      |    | -                    |  |
| AM Peak                             | C. Option 2 Traffic (See Exhibit 4) | >                                                        | A   | <  | -        | -         | -   | >        | B    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 8.4 | -  | -        | -         | -   | -        | 10.8 | -          | -        | 11.0 | -  | 10.7                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 8   | -  | -        | -         | -   | -        | 55   | -          | -        | 60   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (8.4)                                                  |     |    | -        |           |     | B (10.8) |      |            | B (11.0) |      |    | -                    |  |
| AM Peak                             | D. Option 3 Traffic (See Exhibit 5) | >                                                        | A   | <  | >        | A         | <   | >        | B    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 8.4 | -  | -        | 8.5       | -   | -        | 10.8 | -          | -        | 11.1 | -  | 10.8                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 8   | -  | -        | 0         | -   | -        | 55   | -          | -        | 60   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (8.4)                                                  |     |    | A (8.5)  |           |     | B (10.8) |      |            | B (11.1) |      |    | -                    |  |
| PM Peak                             | A. Existing Traffic (See Exhibit 3) | >                                                        | A   | <  | >        | B         | A   | >        | C    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 9.4 | -  | -        | 11.3      | 9.5 | -        | 17.2 | -          | -        | 14.8 | -  | 15.0                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 5   | -  | -        | 15        | 10  | -        | 123  | -          | -        | 93   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (9.4)                                                  |     |    | B (10.5) |           |     | C (17.2) |      |            | B (14.8) |      |    | -                    |  |
| PM Peak                             | B. Option 1 Traffic                 | >                                                        | A   | <  | >        | B         | <   | >        | C    | <          | >        | B    | <  | C                    |  |
|                                     | • Delay                             | -                                                        | 9.3 | -  | -        | 11.0      | -   | -        | 17.1 | -          | -        | 14.4 | -  | 15.0                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 5   | -  | -        | 25        | -   | -        | 123  | -          | -        | 90   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (9.3)                                                  |     |    | B (11.0) |           |     | C (17.1) |      |            | B (14.7) |      |    | -                    |  |
| PM Peak                             | C. Option 2 Traffic (See Exhibit 4) | >                                                        | A   | <  | -        | -         | -   | >        | C    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 8.7 | -  | -        | -         | -   | -        | 15.0 | -          | -        | 12.2 | -  | 13.6                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 5   | -  | -        | -         | -   | -        | 120  | -          | -        | 73   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (8.7)                                                  |     |    | -        |           |     | C (15.0) |      |            | B (12.2) |      |    | -                    |  |
| PM Peak                             | D. Option 3 Traffic (See Exhibit 5) | >                                                        | A   | <  | >        | A         | <   | >        | C    | <          | >        | B    | <  | B                    |  |
|                                     | • Delay                             | -                                                        | 8.8 | -  | -        | 9.0       | -   | -        | 15.2 | -          | -        | 12.4 | -  | 13.7                 |  |
|                                     | • 95th Queue Length (ft)            | -                                                        | 5   | -  | -        | 3         | -   | -        | 120  | -          | -        | 75   | -  | -                    |  |
|                                     | • Approach LOS (Delay)              | A (9.4)                                                  |     |    | A (9.0)  |           |     | C (15.2) |      |            | B (12.4) |      |    | -                    |  |

The following summarizes the findings of the Capacity Analysis:

Green Bay Road at Gage Street:

Overall intersection operations for the existing counter-clockwise circulation pattern function at LOS "A" in both peak hours, but deteriorate to LOS "B" in both peak hours for Options 2 and 3 due to adding the westbound traffic. The eastbound approach expects an improvement from LOS D in the existing operations to LOS C (typically considered "Design LOS") for Options 2 and 3. Additionally, the calculated eastbound queues are expected to be reduced during both Options 2 and 3. However, westbound queues are estimated to be over 100 feet (approximately 4 vehicles) on Gage Street in front of the businesses.

Green Bay Road at Merrill Street:

In the All-Way Stop condition, the Green Bay Road at Merrill Street intersection operates at LOS "B" in the morning peak hour and LOS "C" in the PM peak once the parking is shifted and the right-turn lane is removed in Option 1. The operations of the all-way stop are improved to LOS "B" in both peak hours when traffic is shifted and exiting vehicles utilize Gage Street instead of Merrill. Option 2 provides the lowest delay in both peak hours, but all three options provide low delay.

From an intersection capacity perspective there is not one traffic circulation Option that is superior to the others.

#### **Part IV. Other Considerations**

Some additional considerations for weighing the potential options:

- METRA drop off occurs on the "wrong" side of the car in Options 2 and 3, but pedestrians exit the car on the "right" side for access to the Park.
- Traffic is directed past the parking garage upon entering the "Horseshoe" in Options 2 and 3.
- Reduction in *Walgreens'* traffic circulating the park to return to Green Bay Road in Options 2 and 3.
- Options 2 and 3 circulation change would require traffic signal modifications at Gage Street.
- A strong traffic and pedestrian education program and updated signage would be required should circulation be changed.
- Options 2 and 3 would result in signal queues (stacked vehicles) in front of businesses on Gage Street
- Options 2 and 3 would result in signal queues (stacked vehicles) impacting parking accessibility on Gage Street
- Per the TESKA summary data, Options 1 and 2 provide 2 additional parking spaces over Option 3.

#### **Part V. Recommendations**

After reviewing the various Options previously developed and the traffic impacts and considerations associated with each Option, it is our recommendation that the traffic circulation in the "Horseshoe" remain a counter-clockwise flow. The potential for queued vehicles at the Gage Street signal in Options 2 and 3 to impact access to the parking spaces along Gage for nearly half the distance to Tower Court and placing METRA passengers on the "wrong" side of the car were two of the key factors leading to our recommendation. As development of the improvement drawings proceed, attention should be given to ensuring that delivery and emergency response vehicles can be accommodated with the addition of curb islands.



## Technical Addendum

The following *Exhibits* were previously referenced. They provide technical support for our observations, findings, and recommendations discussed in the text.

### Exhibits

1. Context Aerial
2. Circulation Options
- 3A. Existing 2024 Traffic Volumes
- 3B. Existing 2024 Pedestrian Volumes
4. Option 2 Traffic Volumes
5. Option 3 Traffic Volumes

### Appendix

- A. Traffic Count Summaries
- B. Highway Capacity Software Summary Reports

6126.100 Hubbard Woods Circulation - draft.doc

## **TECHNICAL ADDENDUM**





**GHA** GEWALT HAMILTON  
ASSOCIATES, INC.  
www.gha-engineers.com



1 inch = 100  
Feet

## **Exhibit 1 - Site Context**

Hubbard Woods Park  
Winnetka, IL

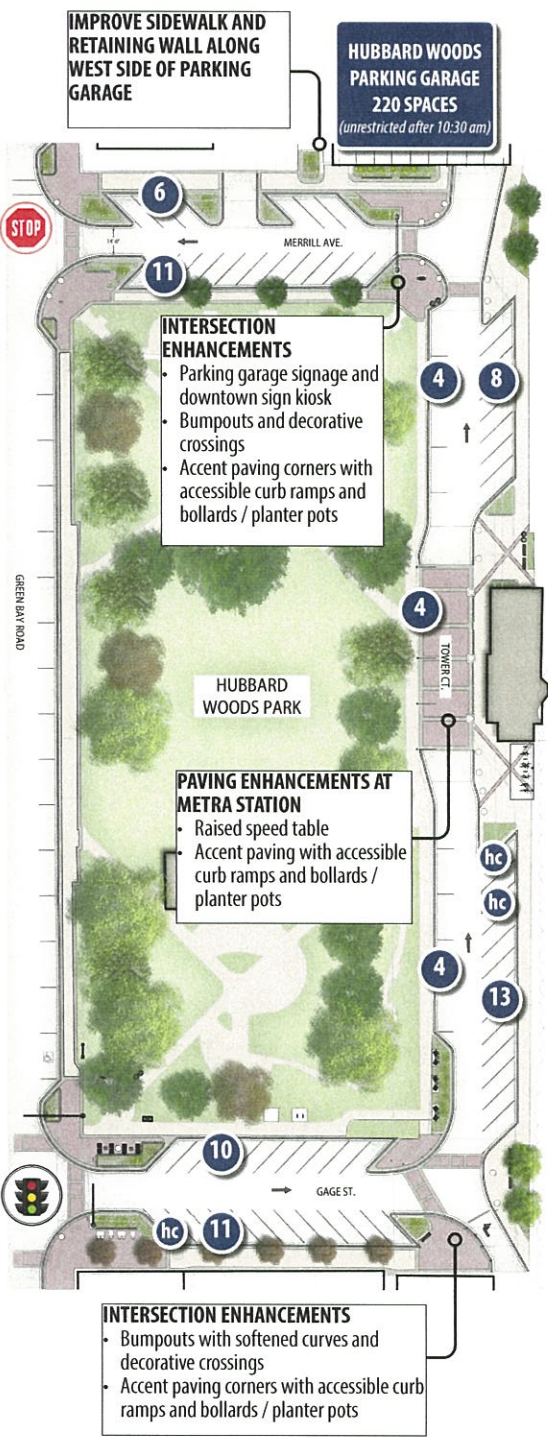


PLAN ENLARGEMENT CONCEPTS | HORSESHOE AREA

INPUT ACTIVITY:  
VOTE FOR YOUR PREFERRED OPTION BY PLACING (1) STICKER ON YOUR PREFERRED PLAN ABOVE.  
USE THE POST IT NOTES TO TELL US WHAT YOU LIKE OR WHAT YOU DON'T LIKE ABOUT THESE OPTIONS.

OPTION 1

Maintain one-way counterclockwise circulation, add parking and stop sign at Merrill St

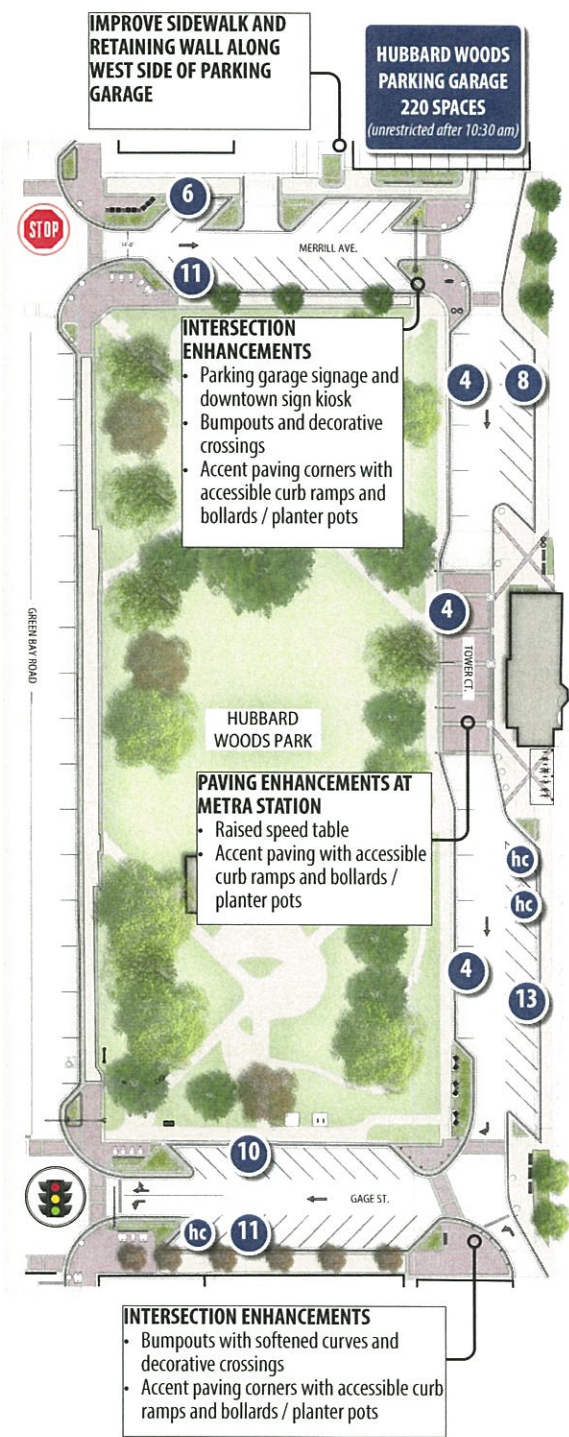


OPTION 1:

VOTE  
HERE!

OPTION 2

Reverse to one-way clockwise circulation, one-way travel, parking and stop sign at Merrill St

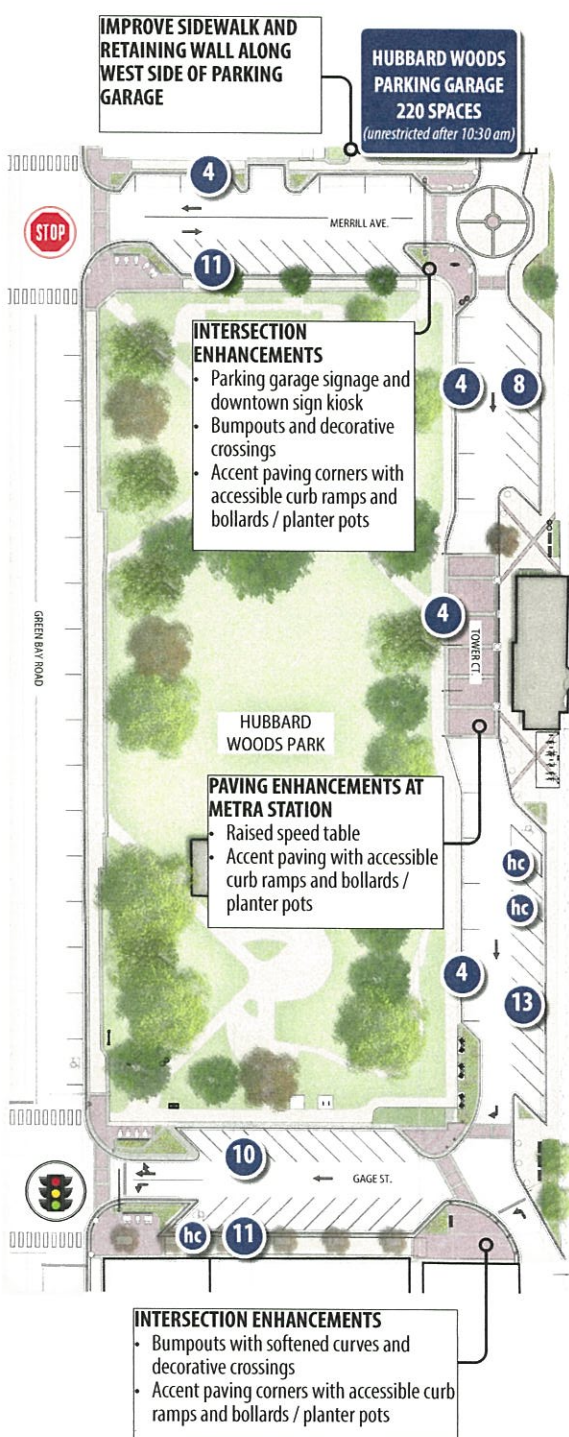


OPTION 2:

VOTE  
HERE!

OPTION 3

Reverse to one-way clockwise circulation, two-way travel, parking and stop sign at Merrill St



OPTION 3:

VOTE  
HERE!



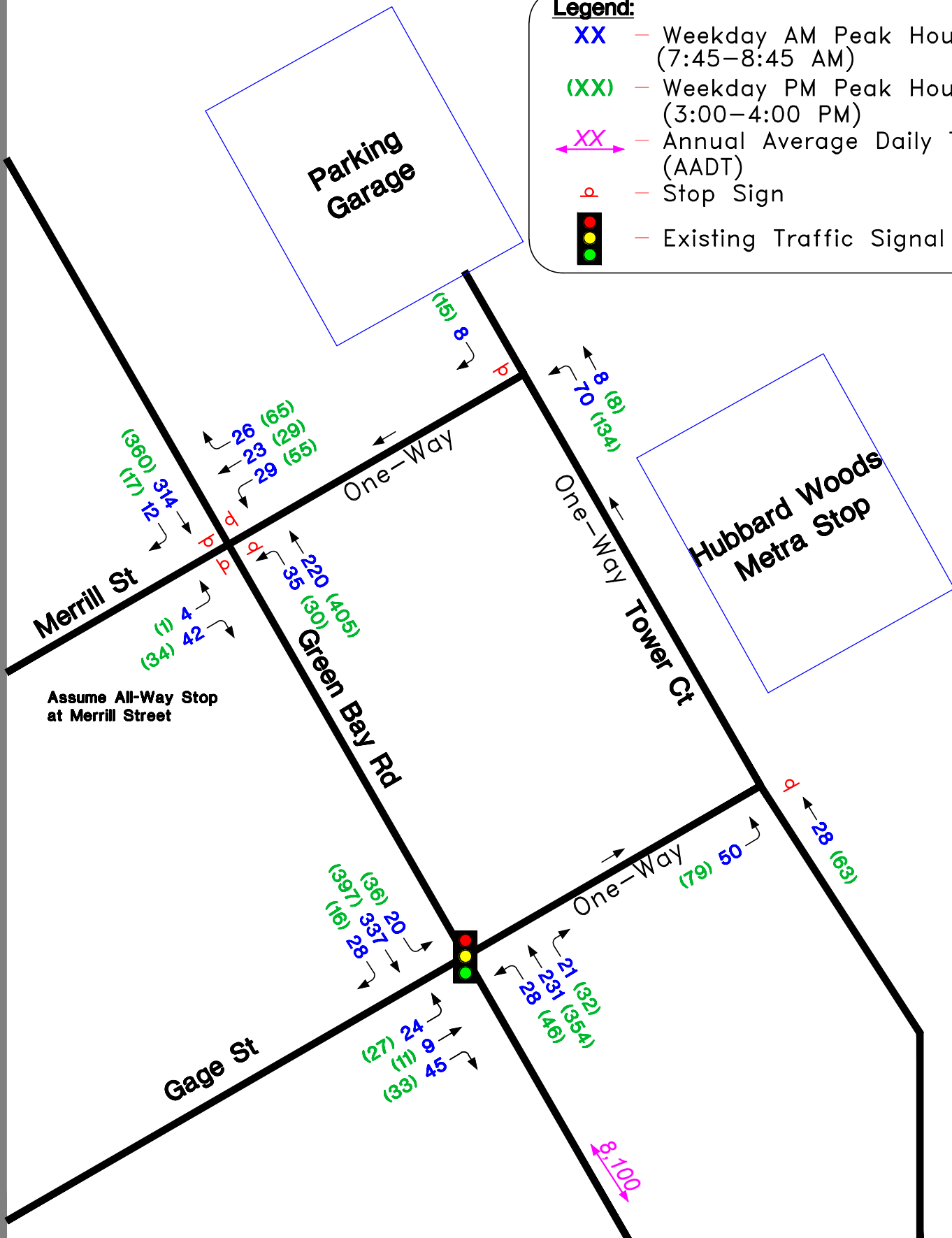
HUBBARD WOODS BUSINESS DISTRICT STREETSCAPE  
VILLAGE OF WINNETKA





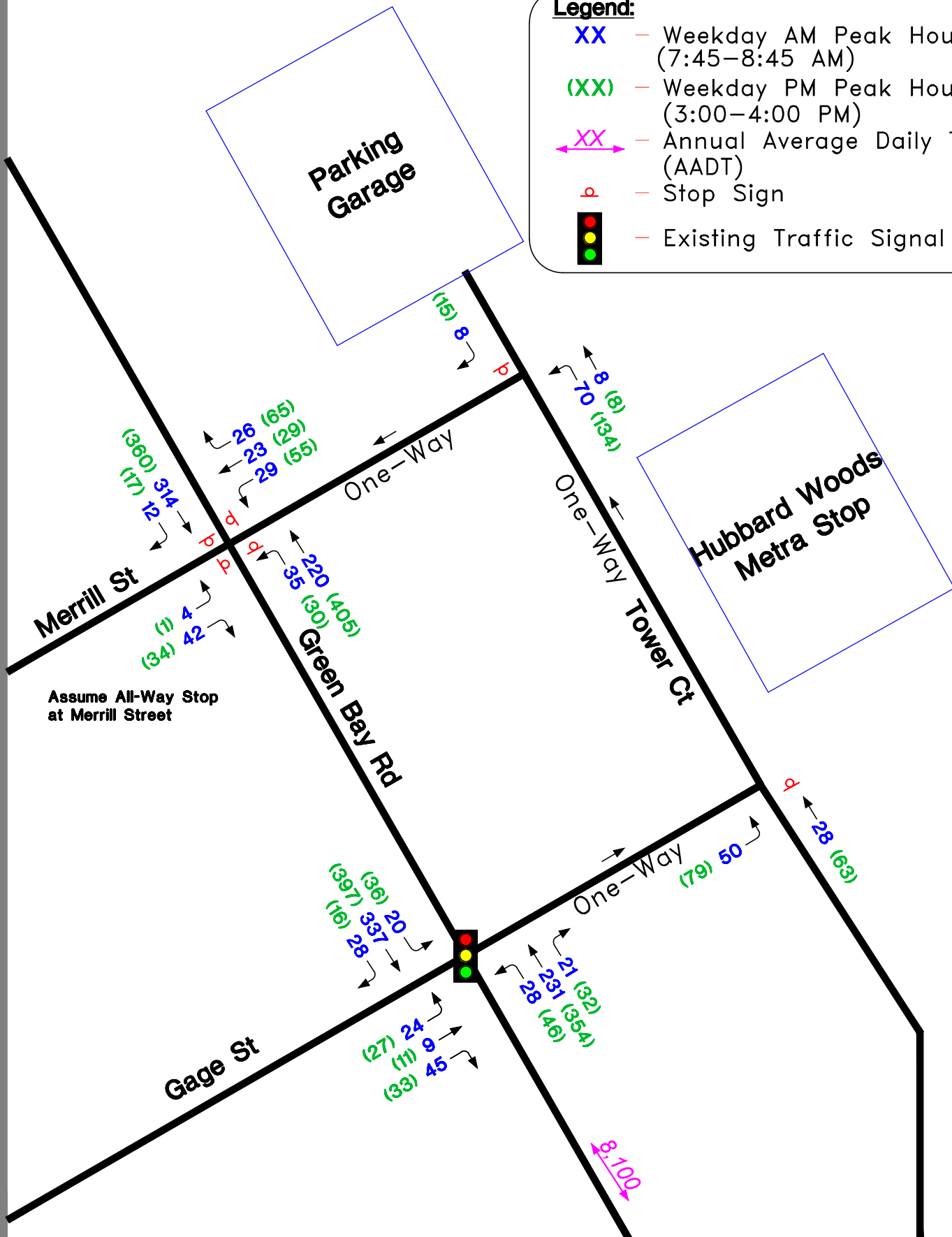
**Legend:**

- XX** — Weekday AM Peak Hour (7:45–8:45 AM)
- (XX)** — Weekday PM Peak Hour (3:00–4:00 PM)
- XX** — Annual Average Daily Traffic (AADT)
-  — Stop Sign
-  — Existing Traffic Signal



**Legend:**

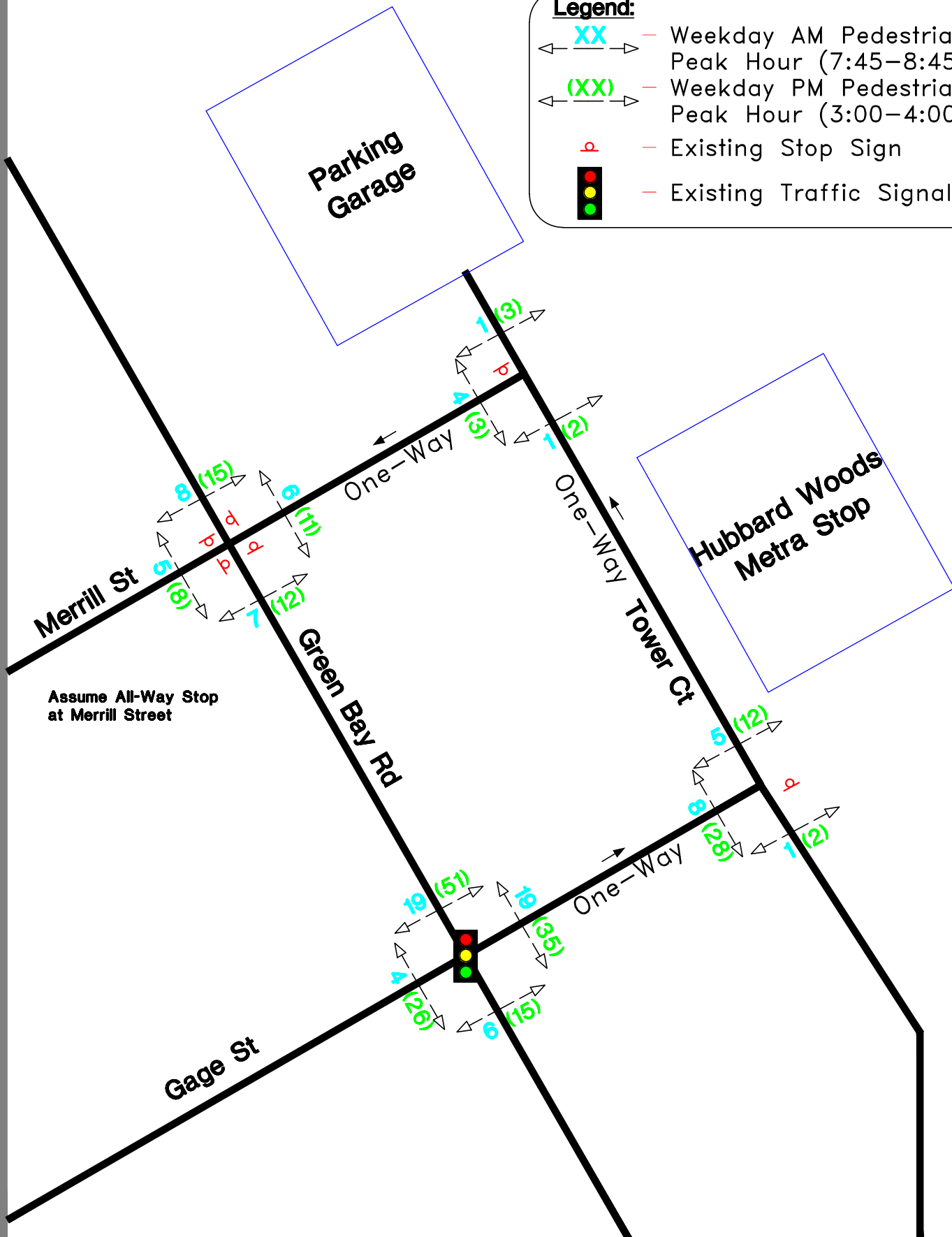
- XX** — Weekday AM Peak Hour (7:45–8:45 AM)
- (XX)** — Weekday PM Peak Hour (3:00–4:00 PM)
- XX** — Annual Average Daily Traffic (AADT)
-  — Stop Sign
-  — Existing Traffic Signal





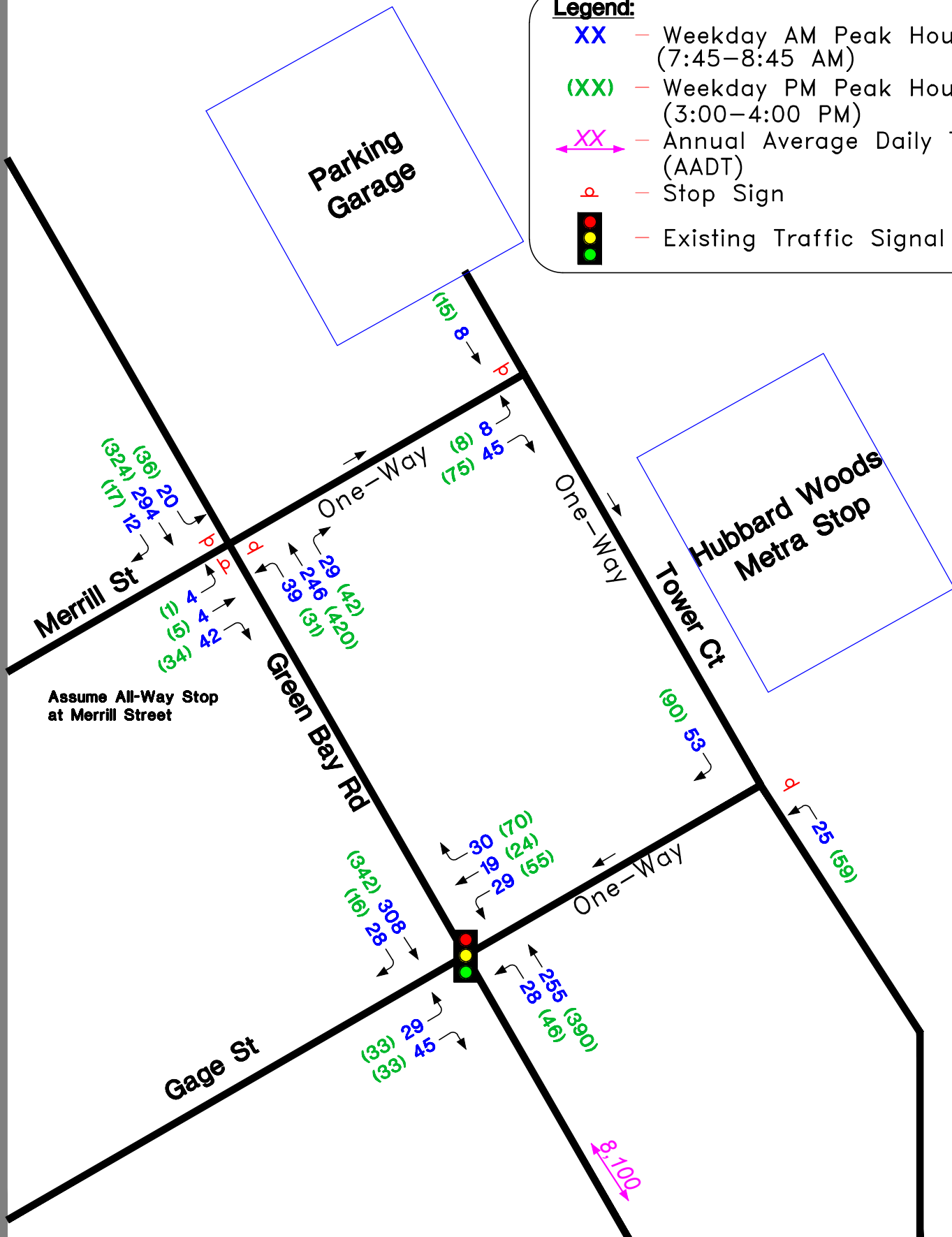
**Legend:**

-  — Weekday AM Pedestrian Peak Hour (7:45–8:45 AM)
-  — Weekday PM Pedestrian Peak Hour (3:00–4:00 PM)
-  — Existing Stop Sign
-  — Existing Traffic Signal



**Legend:**

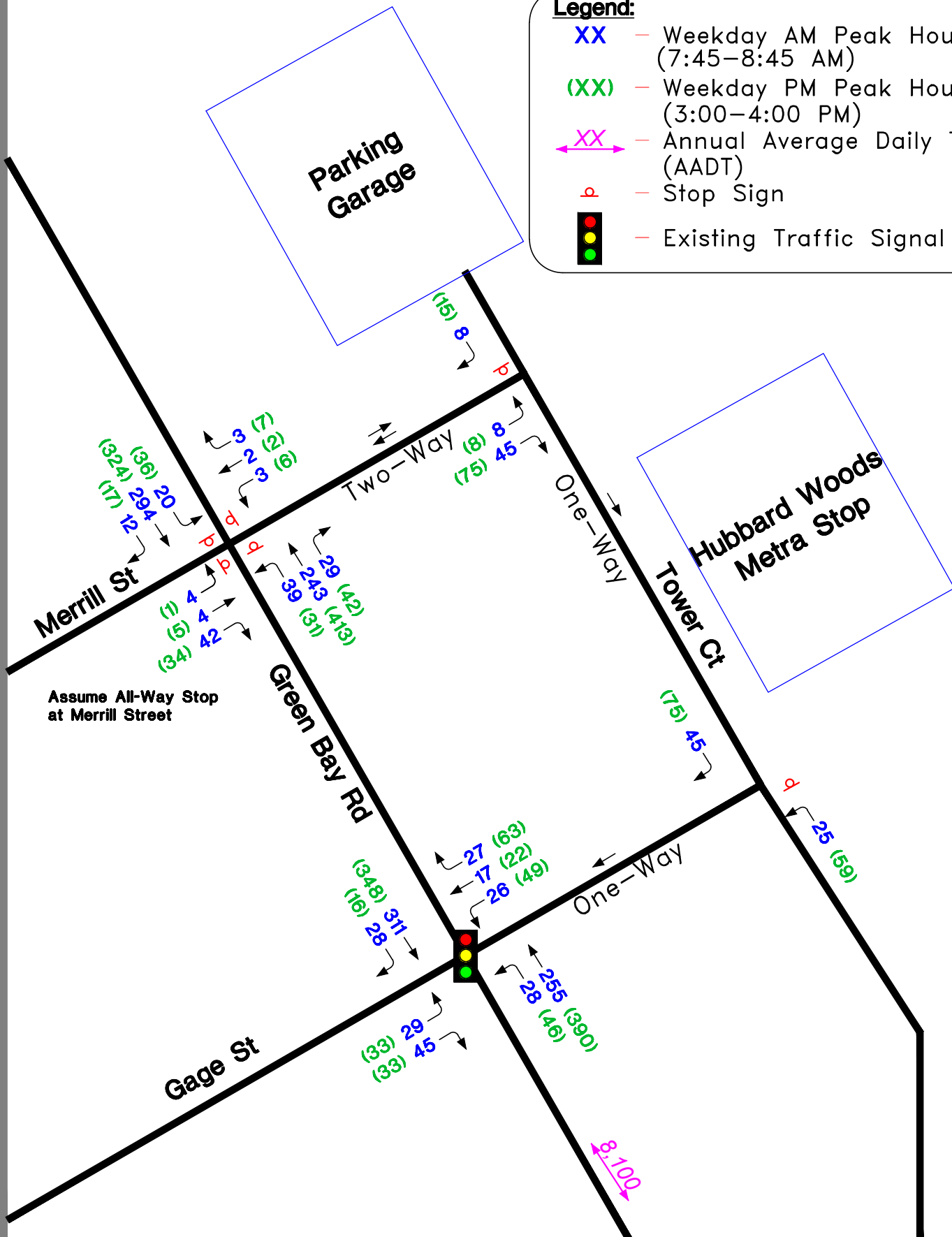
- XX** — Weekday AM Peak Hour (7:45–8:45 AM)
- (XX)** — Weekday PM Peak Hour (3:00–4:00 PM)
- XX** — Annual Average Daily Traffic (AADT)
-  — Stop Sign
-  — Existing Traffic Signal



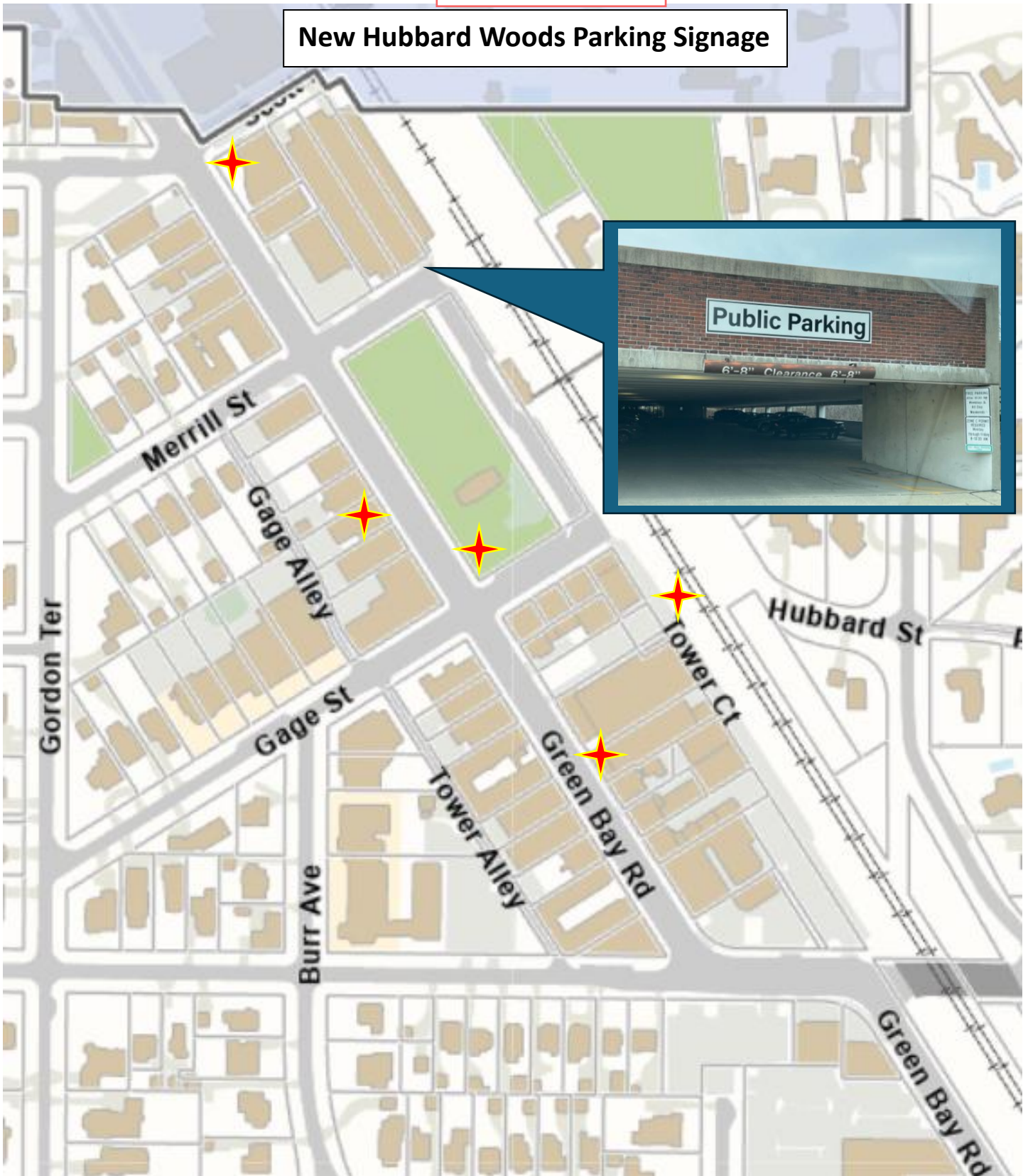


**Legend:**

- XX** — Weekday AM Peak Hour (7:45–8:45 AM)
- (XX)** — Weekday PM Peak Hour (3:00–4:00 PM)
- XX** — Annual Average Daily Traffic (AADT)
-  — Stop Sign
-  — Existing Traffic Signal



New Hubbard Woods Parking Signage



 New Parking Directional Signs to Parking Garage

