

DEPARTMENT OF TRANSPORTATION Milwaukee County

Donna Brown-Martin

- Director
- Highway Commissioner

October 26, 2022

Don Lee, P.E. Traffic Analysis and Design, Inc. N36 W7505 Buchanan Street Cedarburg, WI 53012

Subject: Bayside Cobalt Development – Bayside, WI TIA Dated August 8, 2022

Dear Mr. Lee,

We have reviewed the traffic impact analysis dated August 8, 2022 for the subject development and have the following conditions for inclusion into the TIA. Please note our conditions only pertain to intersections and driveways on N. Port Washington Rd. (CTH W).

#### General Comments:

- 1. On page 6 of the TIA there are some node titles that state Brown Deer Rd. that are actually Port Washington Rd. we believe.
- There have been requests made to the county for sidewalk in this area and to the south on Port Washington Rd. The county does not have the ability to install sidewalk outside a project. Milwaukee County asks that the Village of Bayside take this into consideration within this project.

#### N. Port Washington Rd. & W. Glencoe Pl.:

- 1. The signal may not meet warrants. There is an issue with the growth rates used. Review and resubmit.
- 2. The percent of right turn inclusion in the warrants should follow WisDOT guidance.
- 3. There is not enough room for a lane drop of the northbound right turn lane. If the traffic signal is still proposed, this lane should be reviewed as a right turn only lane unless the development will extend the right lane further north. The project will have to change the right lane into a right turn only lane. The project would be required to change the lane to a right turn only lane.
- 4. This intersection is to be analyzed as a roundabout. Submit this analysis and recommendation with any revisions to the report.
- 5. A signal agreement with the Village of Bayside would be required if this intersection is to be signalized.

6. Milwaukee County agrees with the Village of Bayside review comments that left turn lanes shall be positively offset.

Sincerely,

Dan Allburghy

Daniel Murphy Managing Engineer – Traffic

CC: Andy Pederson, Village of Bayside Art Bauman, WisDOT William Ohm, Cobalt Partners Vernon Singleton, Milwaukee County Andrea Weddle – Henning, Milwaukee County Alex Thornburg, Milwaukee County



# Memo

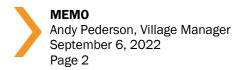
To:	Andy Pederson, Village Manager
From:	Kevin Risch, P.E.
Date:	September 6, 2022
Subject:	TIA Review - Cobalt Partners Redevelopment, Village of Bayside
Copies:	MZE

Per your request, Clark Dietz has reviewed the Traffic Impact Analysis (TIA) for the Mixed-Use Development bound by Brown Deer Road to the south, I-43 to the west, Port Washington Road to the east and White Oak Lane to the north in the Village of Bayside. This new development will replace the existing commercial businesses located within the current development and all traffic generated was analyzed with the proposed WisDOT Diverging Diamond Interchange (DDI) being constructed to the west of this development.

The TIA was initiated by WisDOT to determine if the traffic generated by this new development will require any further roadway modifications to the surrounding intersection geometrics within the development area as well as with the proposed DDI Ramps being constructed on Brown Deer Road west of the development. Our review was conducted on behalf of the Village of Bayside to ensure that your best interests were being met as it relates to the existing public infrastructure in the Village limits.

As a result of our review, we have the following comments/requests:

- 1. Chapter 1B.1 (pg. 1)
  - a. Describe/show the locations of Nodes 101, 120 & 140 for SB I-43 Ramps and Nodes 201, 210, & 250 for NB I-43 Ramps.
- 2. Chapter 1B.6 (pg. 4) & Chapter VI Part A (pg. 23)
  - a. Bullet number 2 should refer to "initial build <u>Phase 1</u> Development" and not "initial build – <u>west parcel</u> Development".
- 3. Chapter 1B.6 (pg. 5) & Chapter VI Part A (pg. 23)
  - a. General Section/2024 Background Traffic: Confirm that the Interconnection from Port Washington Road/Brown Deer Road extends to both NB & SB Diverging Diamond Interchange ramps to the west.
- 4. Chapter 1B.6 (pg. 6) & Chapter VI Part A (pg. 24 & 25)



- a. General Section Nodes 600, 700, 800 & 900: These seem to indicate they are intersections on Brown Deer Road; Should it be Port Washington Rd.? if so, correct.
- 5. Chapter 1B.6 (pg. 6) & Chapter VI Part A (pg. 25)
  - a. Under the General Section Node 600, under the 2024 initial build bullet states:
    - i. "Provide traffic signal control with protected/permitted NB Left Turn Phasing",
    - ii. "Provide a shared through/left-turn lane and a dedicated right turn lane on the west approach"

The existing geometrics at Glencoe Place/Port Washington Road intersection have a negative offset for the NB/SB left turn lanes.

With the proposed traffic signals and the turn lanes on the west approach, design a negative offset in the NB/SB left turn lanes to improve long term safety at this intersection due to the increase traffic in the area.

- 6. Chapter III C.2 (pg. 14) & Chapter V B.1 (pg. 19)
  - a. The second bullet indicates SB left turns on I-43 SB ramps, but should state NB left turns on I-43 NB ramps.



P.O. Box 128 Cedarburg, WI 53012 800.605.3091 www.tadi-us.com

# **Mixed-Use Development**

# **Traffic Analysis**

(WisDOT Log #249407)

Village of Bayside Milwaukee County, Wisconsin

November 2, 2022

TRAFFIC IMPACT STUDY FOR:

# **MIXED USE DEVELOPMENT**

VILLAGE OF BAYSIDE, MILWAUKEE COUNTY, WISCONSIN (WisDOT Log #249407)

> DATE SUBMITTED: August 8, 2022 DATE RESUBMITTED: November 2, 2022

#### **PREPARED FOR:**

Cobalt Partners 400 North Broadway, Suite 100 Milwaukee, WI 53202 Phone: (414) 271-5000 Contact Persons: William Ohm, P.E.

PREPARED BY: TADI PO Box 128 Cedarburg, WI 53012 Phone: (800) 605-3091 Contact Persons: Don Lee, P.E. John Bieberitz, P.E., PTOE

(WisDOT TIA Certification # SE05-804-046) (WisDOT TIA Certification # SE05-804-044)

"I certify that this Traffic Impact Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."

Donald J. Lee, P.E. Wisconsin Registration #35214-006 Traffic Analysis & Design, Inc.

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# **CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY**

# PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

A mixed-use development is being proposed to replace the existing commercial businesses on the northwest quadrant of WIS 100/Brown Deer Road at County Trunk Highway (CTH) W/Port Washington Road in the Village of Bayside, Milwaukee County, Wisconsin. The proposed development is expected to displace the existing commercial uses bound by Brown Deer Road to the south, I-43 to the west, Port Washington Road to the east and White Oak Lane to the north (with the exception of two buildings located within the site that are expected to remain). As part of the development, WisDOT has requested a traffic impact analysis be conducted to determine the additional traffic expected to be generated by the proposed development under the initial and full build out phases and to identify roadway modifications, if any, attributed to the new development for the initial build and full build traffic scenarios.

The WisDOT plans to reconstruct the I-43 & WIS 100 interchange under project I.D. 1229-04-73 during the year 2023/24 construction seasons. Plans include converting the existing I-43 ramps into a diverging diamond interchange (DDI) configuration which was used as the base condition for this study.

This report documents the procedures, findings, and conclusions of the traffic impact analysis. The analysis identifies recommended modifications based on existing intersection geometrics, existing traffic volumes, and additional traffic expected to be generated by the proposed development.

# PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, description of the proposed development and conclusions based on the findings of the TIA.

# B1. Location of Study Site with Respect to Area Roadway Network

The mixed-use development is proposed to be located within the northwest quadrant of WIS 100/Brown Deer Road at CTH W/Port Washington Road in the Village of Bayside, as shown in Exhibit 1-1. The study area for the proposed development includes the following existing intersections:

- Node 100: I-43 Southbound Ramps with Brown Deer Road (existing free flow movements)
- Node 200: I-43 Northbound Ramps with Brown Deer Road (existing free flow movements)
- Node 400: Brown Deer Road with Port Washington Road (traffic signal control)
- Node 500: Port Washington Road with the office north access roadway (one-way stop control)
- Node 600: Port Washington Road with Glencoe Place (two-way stop control)
- Node 700: Port Washington Road with the Bayside Apartments/Baskin Robins driveway (two-way stop control)
- Node 800: Port Washington Road with the US Bank/Sendik's driveway (two-way stop control)
- Node 900: Port Washington Road with the Fox Point Mall main access roadway (traffic signal control)

In addition, the following intersection is anticipated to be included in the study:

• Node 300: Brown Deer Road with the proposed development access driveway (proposed right-in/right-out with one-way stop control)

For modeling purposes with the new diverging diamond interchange configuration, each of the northbound and southbound ramps are modeled utilizing three nodes. Specifically, the I-43 southbound ramps with Brown Deer Road are modeled using nodes 101, 120 and 140. The I-43 northbound ramps with Brown Deer Road are modeled using nodes 201, 210 and 250. Therefore, the following additional nodes were included under the future year conditions:

Node 100: I-43 Southbound Ramps with Brown Deer Road (existing free flow movements)

- Node 101: Main signalized DDI crossover intersection at southbound ramps
- Node 120: Southbound exit ramp from I-43 to westbound lanes/park-n-ride lot
- Node 140: Southbound exit ramp from I-43 to eastbound lanes

Node 200: I-43 Northbound Ramps with Brown Deer Road (existing free flow movements)

- Node 201: Main signalized DDI crossover intersection at northbound ramps
- Node 210: Northbound exit ramp from I-43 to westbound lanes
- Node 250: Northbound exit ramp from I-43 to eastbound lanes

# **B2. On-Site Development Description**

A conceptual site plan for the proposed development is shown on Exhibit 1-2. The site is currently made up of a mix of existing commercial properties. The mixed-use development is being proposed to replace the existing commercial businesses with the exception of two buildings located within the northern section of the site that are expected to remain. The development site is bordered by I-43 to the west, residential uses to the north, commercial and residential uses to the east and commercial uses to the southeast and south, on the south side of Brown Deer Road. The following land uses are proposed for the development site:

Phase I Initial Build South Parcel (Year 2024)

- B: Retail (1<sup>st</sup> floor) 37,000 SF (ITE LU822 Strip Retail Plaza < 40K)
- B: Mid-Rise Apartments (floors 2 to 4) 106 units (ITE LU221 Multifamily Housing/Mid Rise)
- C: Retail (1<sup>st</sup> floor) 30,900 SF (ITE LU822 Strip Retail Plaza < 40K)
- C: Mid-Rise Apartments (floors 2 to 4) 108 units (ITE LU221 Multifamily Housing/Mid Rise)
- D: Mid-Rise Apartments (floors 1 to 4) 104 units (ITE LU221 Multifamily Housing/Mid Rise)

# Phase II Full Build South Parcel (Year 2029)

- A: Retail (1<sup>st</sup> floor) 16,900 SF (ITE LU822 Strip Retail Plaza < 40K)
- A: Mid-Rise Apartments (floors 2 to 4) 72 units (ITE LU221 Multifamily Housing/Mid Rise)
- L: High-Turnover Sit-Down Restaurant 6,000 SF (ITE LU932 High-Turnover Sit-Down Restaurant)

# Phase II Full Build North Parcel (Year 2029)

- E: Mid-Rise Apartments (floors 1 to 4) 76 units (ITE LU221 Multifamily Housing/Mid Rise)
- F: Mid-Rise Apartments (floors 1 to 4) 71 units (ITE LU221 Multifamily Housing/Mid Rise)
- G: Low-Rise Condominiums/Townhouses 28 units (ITE LU220 Multifamily Housing/Low Rise)
- H: Low-Rise Condominiums/Townhouses 16 units (ITE LU220 Multifamily Housing/Low Rise)
- I: Low-Rise Condominiums/Townhouses 40 units (ITE LU220 Multifamily Housing/Low Rise)
- J: Low-Rise Condominiums/Townhouses 40 units (ITE LU220 Multifamily Housing/Low Rise)
- K: Low-Rise Condominiums/Townhouses 18 units (ITE LU220 Multifamily Housing/Low Rise)

The following is a summary of the build out scenarios as listed above:

# <u>Phase I Initial Build</u>

- ITE LU221 Multifamily Housing/Mid Rise: 318 units
- ITE LU822 Strip Retail Plaza < 40K: 67,900 SF

# <u>Phase II Full Build</u>

- ITE LU220 Multifamily Housing/Low Rise: 142 units
- ITE LU221 Multifamily Housing/Mid Rise: 219 units
- ITE LU822 Strip Retail Plaza < 40K: 16,900 SF
- ITE LU932 High-Turnover Sit-Down Restaurant: 6,000 SF

Two existing buildings are expected to remain within the site consisting of two office buildings within the northern portion of the site.

It is anticipated that the initial build will occur in 2024. Full build-out of all buildings is expected to occur by year 2029. However, for traffic study purposes, all uses are expected to be completed and occupied by year 2029, therefore a future analysis year of 2034 was utilized for this TIA. All land uses for these sites are assumed based on anticipated market conditions.

# **B3. Off-Site Development Description**

According to the Village of Bayside, no additional off-site development is expected within the limits of the study area.

# **B4. Site Generated Traffic**

The traffic volumes expected to be generated by the proposed developments are based on the size and type of the proposed uses, and on trip rates as published in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition.* A combination of trip rates and fitted curve equations were utilized to determine the expected new trips based on current ITE practices. The site is split into the north and south sites to account for turning

movements into the three access points; specifically, the north access roadway, the south access (Glencoe Place) and the proposed right-in/right-out driveway along STH 100; and to take into account the phasing of the development. The mixed-use development site is expected to include both linked trips and pass-by trips.

After linked trip and pass-by trip reductions under initial buildout, the proposed development is expected to generate 205 new trips (95 in/110 out) during a typical weekday morning peak hour. During the typical weekday evening peak hour, the development site is expected to generate 380 new trips (210 in/170 out). During the typical Saturday midday peak hour, the development site is expected to generate 430 new trips (220 in/210 out). On a typical weekday, the proposed development site is expected to generate 3,960 new trips (1,980 in/1,980 out) under initial build conditions.

After linked trip and pass-by trip reductions under full buildout, the proposed development is expected to generate 410 new trips (170 in/240 out) during a typical weekday morning peak hour. During the typical weekday evening peak hour, full build of the development site is expected to generate 670 new trips (385 in/285 out). During the typical Saturday midday peak hour, the development site is expected to generate 700 new trips (360 in/340 out). On a typical weekday, the proposed development site is expected to generate 7,030 new trips (3,515 in/3,515 out) under full build conditions.

# **B5.** Proposed Access to the Development

Two access points are proposed to accommodate the southern portion of the new development. The existing intersection of Port Washington Road at Glencoe Place is expected to provide the main full access to the southern site. An additional right-in/right-out access along Brown Deer Road, approximately 360-feet west of Port Washington Road, is also proposed to provide access to the southern site. In addition, access for the northern buildings is expected at the existing intersection of Port Washington Road at the north access roadway as well as the Glencoe Place intersection. Cross access within the site between the southern and northern sites is also expected as shown.

It is noted that five driveways along the north side of Brown Deer Road are proposed to be removed during Phase I of the project, replaced by the previously mentioned right-in/right-out driveway to the site. In addition, two driveways along the west side of Port Washington Road, between Glencoe Place and Brown Deer Road, are proposed to be removed as part of the project.

# **B6. Recommended Modifications**

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> *Edition*. Intersection operation is defined by "level of service." Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS 'A,' to very poor, represented by LOS 'F.' For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in Exhibit 1-3 for the Year 2024 and Year 2034 traffic volume conditions and have been shown for the following two scenarios:

• "2024 Background Traffic" – These modifications are expected to be necessary to accommodate Year 2024 Background traffic volumes, which includes DOT provided background growth only, without the proposed mixed-use development.

- "2024 Initial Build Traffic" These modifications are expected to be necessary to accommodate the Year 2024 initial build traffic volumes, which includes the proposed on-site (initial build Phase I) development.
- "2034 Background Traffic" These modifications are expected to be necessary to accommodate Year 2034 Background traffic volumes, which includes DOT provided background growth only, without the proposed mixed-use development.
- "2034 Full Build Traffic" These modifications are expected to be necessary to accommodate the Year 2034 full build traffic volumes, which includes the proposed on-site (initial build and future phase) development.

The analysis was conducted using existing intersection geometrics, traffic control and traffic signal timings. The following modifications, as shown in Exhibit 1-3, are recommended to accommodate the Year 2024 and Year 2034 traffic volume conditions, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT and the Village of Bayside reserve the right to determine alternative solutions.* 

# <u>General</u>

- 2024 Background traffic:
  - Per the planned DOT reconstruction project, interconnect the signals along Brown Deer Road between the existing Brown Deer Road intersection with Port Washington Road and the new traffic signals at the Brown Deer Road intersections with the I-43 DDI ramps
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

## Node 101/120/140: I-43 Southbound DDI Ramps with Brown Deer Road

- 2024 Background traffic:
  - Modify the planned signal phasing at the I-43 southbound ramp to allow the southbound left-turn phasing to operate concurrently with the westbound through phasing.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

## Node 201/210/250: I-43 Northbound DDI Ramps with Brown Deer Road

- 2024 Background traffic:
  - Modify the planned signal phasing at the I-43 northbound ramp to allow the northbound left-turn phasing to operate concurrently with the eastbound through phasing.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

Node 300: Brown Deer Road with Proposed Right-in/Right-out Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic:
  - Provide a right-in/right-out driveway onto Brown Deer Road directly north of the existing Fox Pointe Mall driveway.
- 2034 Full Build Traffic: No additional modifications.

# Node 400: Brown Deer Road with Port Washington Road

- 2024 Background traffic:
  - Adjust cycle length, signal timings and offsets to provide optimized coordination with the adjacent traffic signals at the planned I-43 DDI ramps.
  - Allow for lagging left-turn operation for the westbound left-turn movements.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

# Node 500: Port Washington Road with North Access Drive

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

# Node 600: Port Washington Road with Glencoe Place

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic:
  - Provide traffic signal control with protected/permitted northbound leftturn phasing.
  - Provide a shared through/left-turn lane and a dedicated right-turn lane on the west approach.
- 2034 Full Build Traffic: No additional modifications.

# Node 700: Port Washington Road with Baskin Robbins Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.

• 2034 Full Build Traffic: No modifications.

# Node 800: Port Washington Road with Sendik's Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

## Node 900: Port Washington Road with Fox Pointe Mall Driveway

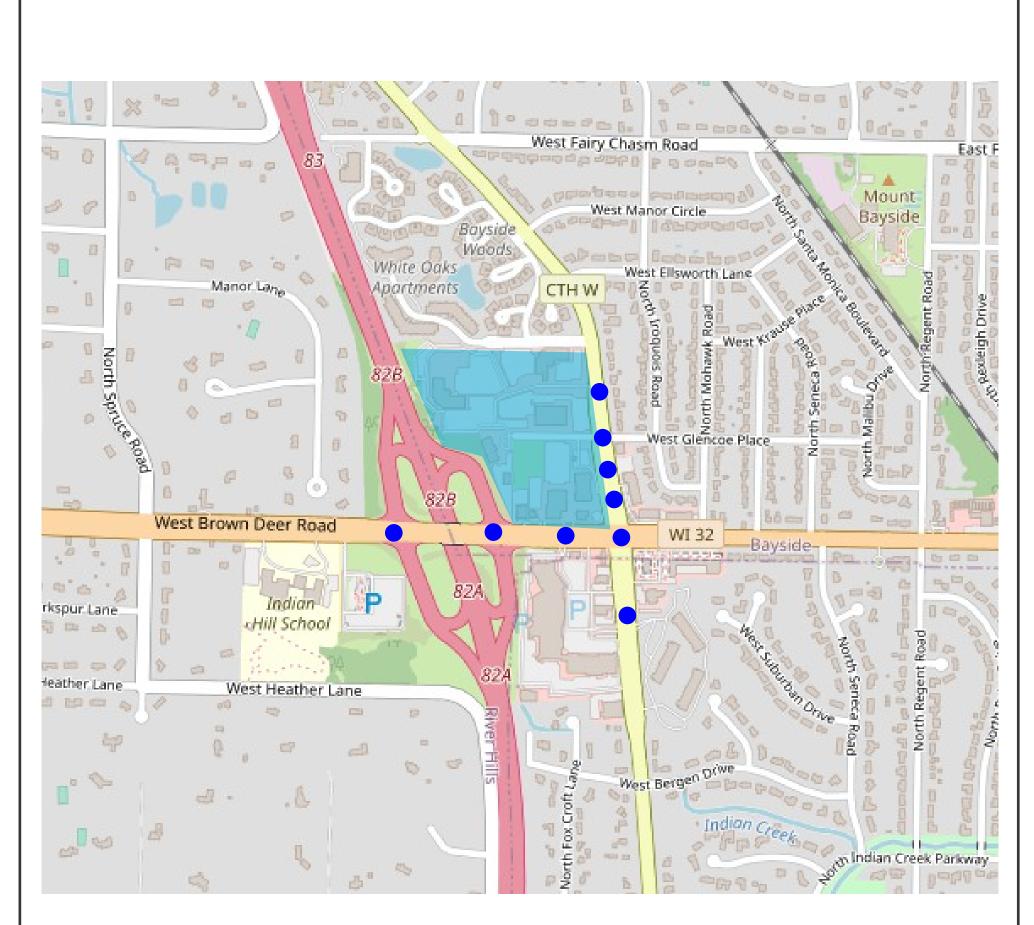
- 2024 Background traffic:
  - Adjust cycle length, signal timings and offsets to provide optimized coordination with the adjacent traffic signals at the Port Washington Road intersection.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

Under the currently proposed traffic signal phasing at the planned northbound and southbound exit ramps from I-43 onto Brown Deer Road, the northbound and southbound left-turn movements are expected to operate unacceptably. The recommended phasing will allow the southbound left-turn movements to operate concurrently with the westbound through movements and allow the northbound left-turn movement to operate concurrently with the eastbound through movements to allow both intersections to operate more efficiently.

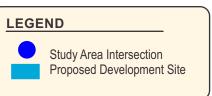
The westbound movements at the Port Washington Road intersection with Baskin Robbins Driveway are expected to operate with higher delay than desirable during the typical weekday evening peak hour under the full build traffic volume scenario. However, with a V/C ratio of 0.44 and only about 45 left-turning vehicles expected to utilize this movement during this weekday evening peak period, with queue lengths of about 2 vehicles, and with traffic signals located to the north and south creating gaps in the Port Washington Road mainline traffic stream, this intersection is expected to operate better than reported under the full build traffic condition. In addition, if delays become excessive, vehicles could make a right-turn out of the driveway and then make a U-turn movement at the new traffic signal immediately to the north.

# **B7.** Conclusion

Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the development assumptions outlined in this TIA and with the identified recommended modifications if properly designed and implemented through the design year of the development.







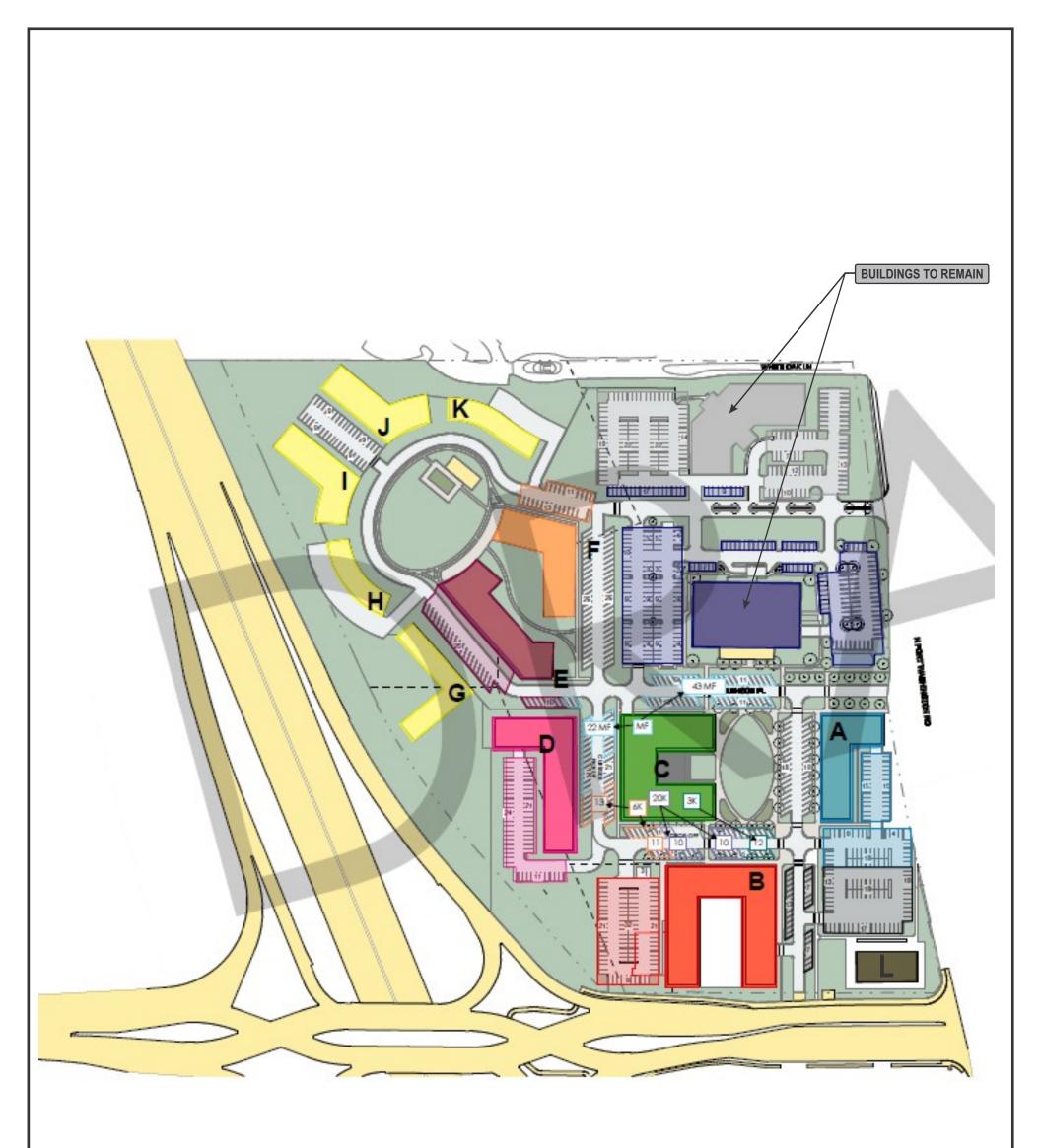




2803: 08-08-2022

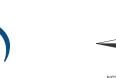
**EXHIBIT 1-1** SITE LOCATION MAP

**MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN** 





MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



2803: 08-08-2022

D

A

#### LEGEND

	Traffic Signal Control
STOP	Stop Sign Control
	Lane Configuration
	Divided Roadway Median
RED	2024 Background Modifications
BLUE	2024 Initial Build Modifications
GREEN	2034 Background Modifications
ORANGE	2034 Full Build Modifications

2024 Background:

- Per planned WisDOT project, provide traffic signal control at DDI ramps
- Per planned WisDOT project, interconnect traffic signals along Brown Deer Road between DDI ramps and Port Washington Road
- Modify the planned signal phasing at I-43 northbound and southbound ramps to allow left-turn phasing during opposing through movement phasing (see report write-up)
- Adjust cycle length, timings and offsets at traffic signals at Brown Deer Road intersection with Port Washington Road and Port Washington Road intersection with Fox Pointe Mall

#### 2024 Initial Build:

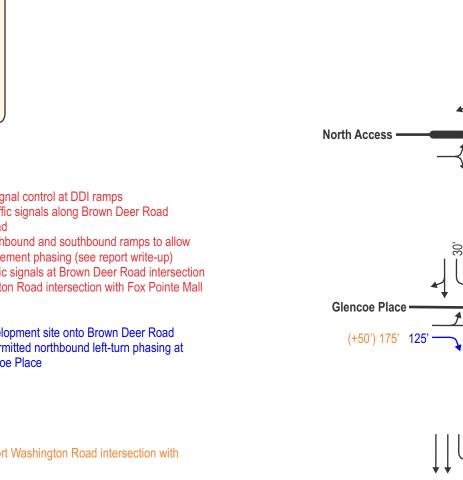
- Provide a right-in/right-out driveway from development site onto Brown Deer Road
   Provide traffic signal control with protected/permitted northbound left-turn phasing at Port Washington Road intersection with Glencoe Place

#### 2034 Background:

- No additional modifications

#### 2034 Full Build:

- Extend the eastbound right-turn lane at the Port Washington Road intersection with **Glencoe** Place



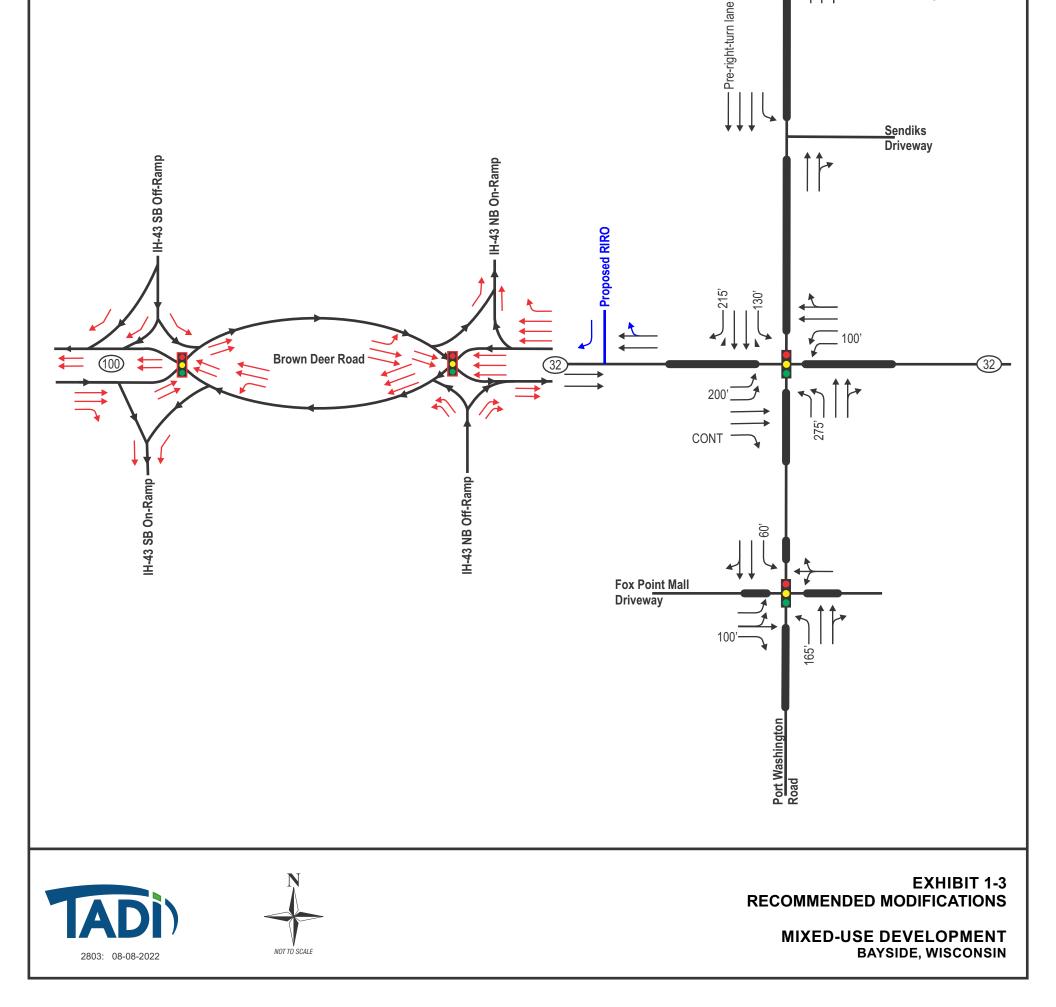
W

85;

115

Ottos/ Baskin

Robbins Driveway



# **CHAPTER II – PROPOSED DEVELOPMENT**

# PART A – ON-SITE DEVELOPMENT

# A1. Development Description and Site Location

A mixed-use development is being proposed to replace the existing commercial businesses on the northwest quadrant of WIS 100/Brown Deer Road at County Trunk Highway (CTH) W/Port Washington Road in the Village of Bayside, Milwaukee County, Wisconsin. The proposed development is expected to displace the existing commercial uses bound by Brown Deer Road to the south, I-43 to the west, Port Washington Road to the east and White Oak Lane to the north (with the exception of two buildings located within the site that are expected to remain). A project overview map illustrating the location of the proposed development site is shown in Exhibit 2-1.

# A2. Land Use and Intensity

The site is currently made up of a mix of existing commercial properties. The mixed-use development is being proposed to replace the existing commercial businesses with the exception of two buildings located within the northern section of the site that are expected to remain. The development site is bordered by I-43 to the west, residential uses to the north, commercial and residential uses to the east and commercial uses to the southeast and south, on the south side of Brown Deer Road.

# A3. Site Plan

A copy of the conceptual site plan for the mixed-use development is illustrated in Exhibit 2-2. Two access points are proposed to accommodate the southern portion of the new development. The existing intersection of Port Washington Road at Glencoe Place is expected to provide the main full access to the southern site. An additional right-in/right-out access along Brown Deer Road, approximately 360-feet west of Port Washington Road, is also proposed to provide access to the southern site. In addition, access for the northern buildings is expected at the existing intersection of Port Washington Road at the north access roadway as well as the Glencoe Place intersection. Cross access within the site between the southern and northern sites is also expected as shown.

## A4. Development Phasing

The following land uses are proposed for the development site:

Phase I Initial Build South Parcel (Year 2024)

- B: Retail (1<sup>st</sup> floor) 37,000 SF (ITE LU822 Strip Retail Plaza < 40K)
- B: Mid-Rise Apartments (floors 2 to 4) 106 units (ITE LU221 Multifamily Housing/Mid Rise)
- C: Retail (1<sup>st</sup> floor) 30,900 SF (ITE LU822 Strip Retail Plaza < 40K)
- C: Mid-Rise Apartments (floors 2 to 4) 108 units (ITE LU221 Multifamily Housing/Mid Rise)
- D: Mid-Rise Apartments (floors 1 to 4) 104 units (ITE LU221 Multifamily Housing/Mid Rise)

# Phase II Full Build South Parcel (Year 2029)

- A: Retail (1<sup>st</sup> floor) 16,900 SF (ITE LU822 Strip Retail Plaza < 40K)
- A: Mid-Rise Apartments (floors 2 to 4) 72 units (ITE LU221 Multifamily Housing/Mid Rise)
- L: High-Turnover Sit-Down Restaurant 6,000 SF (ITE LU932 High-Turnover Sit-Down Restaurant)

## Phase II Full Build North Parcel (Year 2029)

- E: Mid-Rise Apartments (floors 1 to 4) 76 units (ITE LU221 Multifamily Housing/Mid Rise)
- F: Mid-Rise Apartments (floors 1 to 4) 71 units (ITE LU221 Multifamily Housing/Mid Rise)
- G: Low-Rise Condominiums/Townhouses 28 units (ITE LU220 Multifamily Housing/Low Rise)
- H: Low-Rise Condominiums/Townhouses 16 units (ITE LU220 Multifamily Housing/Low Rise)
- I: Low-Rise Condominiums/Townhouses 40 units (ITE LU220 Multifamily Housing/Low Rise)
- J: Low-Rise Condominiums/Townhouses 40 units (ITE LU220 Multifamily Housing/Low Rise)
- K: Low-Rise Condominiums/Townhouses 18 units (ITE LU220 Multifamily Housing/Low Rise)

The following is a summary of the build out scenarios as listed above:

## Phase I Initial Build

- ITE LU221 Multifamily Housing/Mid Rise: 318 units
- ITE LU822 Strip Retail Plaza < 40K: 67,900 SF

# Phase II Full Build

- ITE LU220 Multifamily Housing/Low Rise: 142 units
- ITE LU221 Multifamily Housing/Mid Rise: 219 units
- ITE LU822 Strip Retail Plaza < 40K: 16,900 SF
- ITE LU932 High-Turnover Sit-Down Restaurant: 6,000 SF

Two existing buildings are expected to remain within the site consisting of two office buildings within the northern portion of the site. The staging detail is shown in Exhibit 2-3 and the Village of Bayside comprehensive land use map is shown in Exhibit 2-4.

It is anticipated that the initial build will occur in 2024. Full build-out of all buildings is expected to occur by year 2029. However, for traffic study purposes, all uses are expected to be completed and occupied by 2029, therefore a future analysis year of 2034 was utilized for this TIA. All land uses for these sites are assumed based on anticipated market conditions.

# PART B – STUDY AREA

## **B1. Influence Area**

Based on the type of proposed land uses and the location of the site in relation to I-43, the proposed development is expected to draw from a local and regional customer base. Therefore, the areas of significant influence include Bayside, Brown Deer, Glendale, Whitefish Bay, the City of Milwaukee and other surrounding cities, villages, and towns in southeast Wisconsin.

## **B2.** Area of Significant Traffic Impact

The study area for the proposed development includes the following intersections:

- Node 100: I-43 Southbound Ramps with Brown Deer Road (existing free flow movements)
- Node 200: I-43 Northbound Ramps with Brown Deer Road (existing free flow movements)
- Node 400: Brown Deer Road with Port Washington Road (traffic signal control)
- Node 500: Port Washington Road with the office north access roadway (one-way stop control)
- Node 600: Port Washington Road with Glencoe Place (two-way stop control)
- Node 700: Port Washington Road with the Bayside Apartments/Baskin Robins driveway (two-way stop control)
- Node 800: Port Washington Road with the US Bank/Sendik's driveway (two-way stop control)
- Node 900: Port Washington Road with the Fox Point Mall main access roadway (traffic signal control)

In addition, the following intersection is anticipated to be included in the study:

• Node 300: Brown Deer Road with the proposed development access driveway (proposed right-in/right-out with one-way stop control)

For modeling purposes with the new diverging diamond interchange configuration, each of the northbound and southbound ramps are modeled utilizing three nodes. Specifically, the I-43 southbound ramps with Brown Deer Road are modeled using nodes 101, 120 and 140. The I-43 northbound ramps with Brown Deer Road are modeled using nodes 201, 210 and 250. Therefore, the following additional nodes were included under the future year conditions:

Node 100: I-43 Southbound Ramps with Brown Deer Road (existing free flow movements)

- Node 101: Main signalized DDI crossover intersection at southbound ramps
- Node 120: Southbound exit ramp from I-43 to westbound lanes/park-n-ride lot
- Node 140: Southbound exit ramp from I-43 to eastbound lanes

Node 200: I-43 Northbound Ramps with Brown Deer Road (existing free flow movements)

- Node 201: Main signalized DDI crossover intersection at northbound ramps
- Node 210: Northbound exit ramp from I-43 to westbound lanes
- Node 250: Northbound exit ramp from I-43 to eastbound lanes

# PART C – OFF-SITE LAND USE AND DEVELOPMENT

According to the Village of Bayside, no additional off-site development is expected within the limits of the study area.

# PART D - SITE ACCESSIBILITY

# **D1. Study Area Roadways**

The study area corridors include:

*WIS 100/WIS 32* (also known as Brown Deer Road) is a four-lane divided east/west main arterial highway that widens to include dedicated left- and right-turn lanes at the signalized intersection with Port Washington Road. Approximately 500 feet east of Port Washington Road, Brown Deer Road transitions to a two-lane undivided highway to the east. Brown Deer Road is designated as WIS 100 from I-43 to the west and designated as WIS 32 from I-43 to the east outside the project limits. The posted speed limit along Brown Deer Road is 35 miles per hour (mph) within the limits of the study area. According to WisDOT, the year 2019 annual average daily traffic (AADT) volumes along Brown Deer Road were approximately 24,500 vehicles per day (vpd) west of I-43; 17,000-vpd immediately east of I-43; and 9,900-vpd east of Port Washington Road. Sidewalks are present along both sides of Brown Deer Road from I-43 to the east, through the limits of the study area

**CTH W** (also known as Port Washington Road) is a four-lane divided north/south highway from the south project limits up through Glencoe Place where the roadway transitions to a two-lane divided (with painted median) highway north through the project limits. Port Washington Road widens to include dedicated left- and right-turn lanes at the signalized intersection with Brown Deer Road. The posted speed limit along Port Washington Road is 35 mph within the limits of the study area. According to WisDOT, the year 2019 AADT volumes along Port Washington Road were approximately 8,800 vpd south of Dean Road and 7,100 vpd north of Manor Circle. Sidewalks currently exist along the west side of Port Washington Road, north of Brown Deer Road, through the project limits. On-street bicycle lanes are provided along the east side of Port Washington Road, starting at Glencoe Place, and continuing north through the project limits.

*Glencoe Place* is a two-lane undivided east/west local roadway with a posted speed limit of 25 mph within the limits of the study area. Stop sign control is provided on the east and west approaches of its intersection with Port Washington Road. There are currently no AADT volumes available along Glencoe Place within the limits of the study area.

*Fox Point Mall Access* is the main signalized access roadway to the Fox Point mall to the west and an apartment complex to the east. There is no posted speed limit along the east and west approaches and there are currently no AADT volumes available along this roadway.

*North Access Roadway/Office Access* is a two-lane divided east/west local roadway that intersects Port Washington Road as the west approach of a conventional three legged, stop sign controlled "T" intersection immediately north of Glencoe Place. There is no posted speed limit and there are currently no AADT volumes available along this roadway.

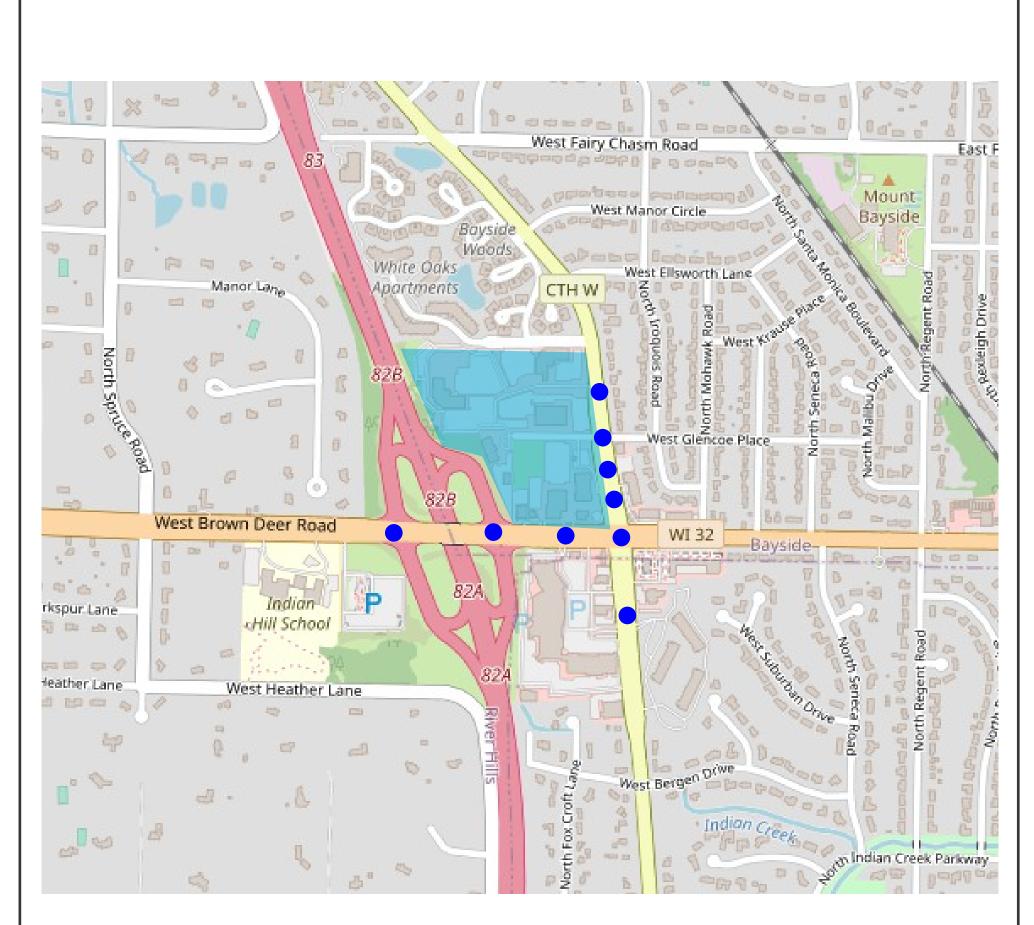
*I-43 Ramps* are free flow right-turn only ramps making up a full cloverleaf interchange to/from I-43. The year 2019 WisDOT historic AADT volumes along the I-43 ramps were northbound to eastbound (3,600 vpd), northbound to westbound (6,600 vpd), southbound to eastbound (2,000 vpd), southbound to westbound (3,100 vpd), eastbound to northbound (2,600 vpd), eastbound to southbound (6,300 vpd), westbound to northbound (2,400 vpd) and westbound to southbound (3,200 vpd). As noted above, the WisDOT plans to reconstruct this interchange into a diverging diamond interchange during the year 2023/24 construction seasons.

# **D2.** Alternative Modes of Transportation

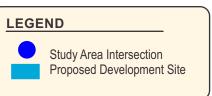
Pedestrian sidewalks are present along both sides of Brown Deer Road from I-43 to the east, through the limits of the study area as well as along the west side of Port Washington Road,

north of Brown Deer Road, through the project limits. On-street bicycle lanes are provided along the east side of Port Washington Road, starting at Glencoe Place, and continuing north through the project limits.

There are several Milwaukee County Transit System (MCTS) routes that operate within the limits of the study area. Route 68 "Port Washington Road" provides service to the study area, traveling from the south along Port Washington Road and continuing to the west along Brown Deer Road to the Brown Deer East Park-Ride lot with approximately 30-minute headways. In addition, MCTS provides additional service to the Park-Ride lot via routes 49 and 49U which provide service along I-43 from the south to the Park-Ride lot with 30- to 60-minute headways.











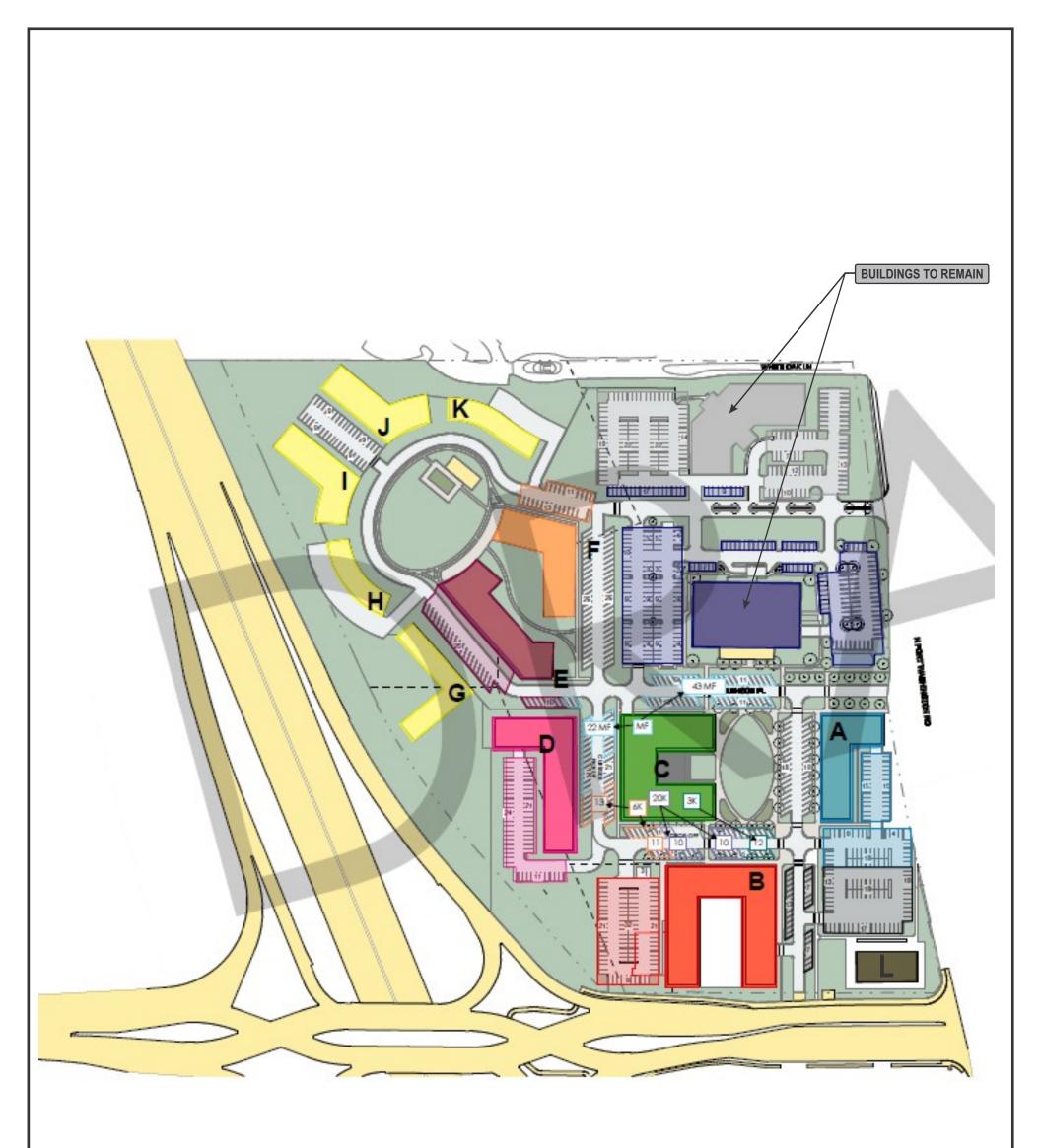


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**EXHIBIT 2-1** SITE LOCATION MAP

**MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN** 





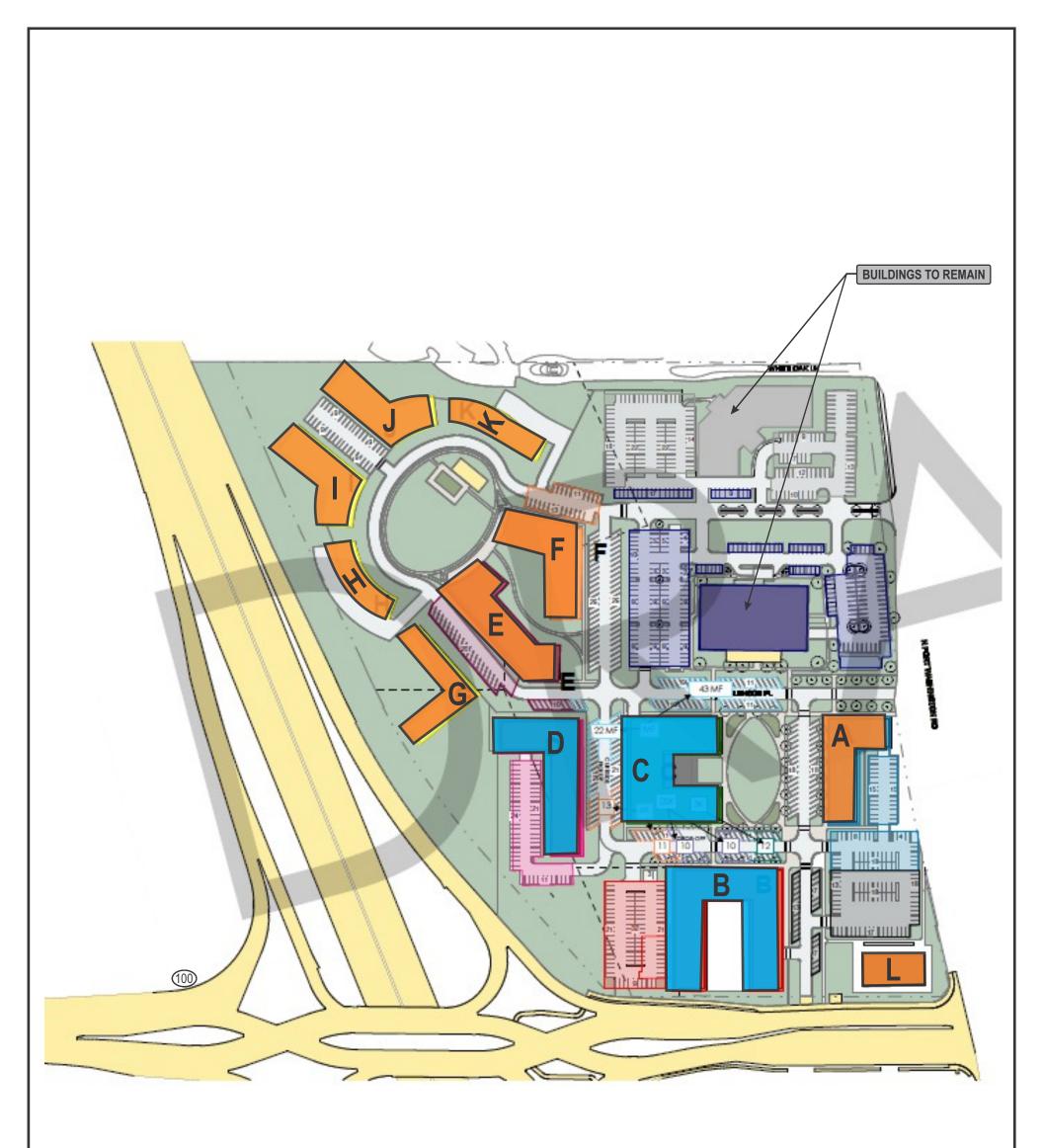


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EXHIBIT 2-2 CONCEPTUAL SITE PLAN

MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



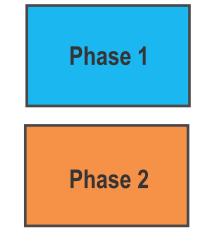


EXHIBIT 2-3 DEVELOPMENT STAGING DETAIL

> MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



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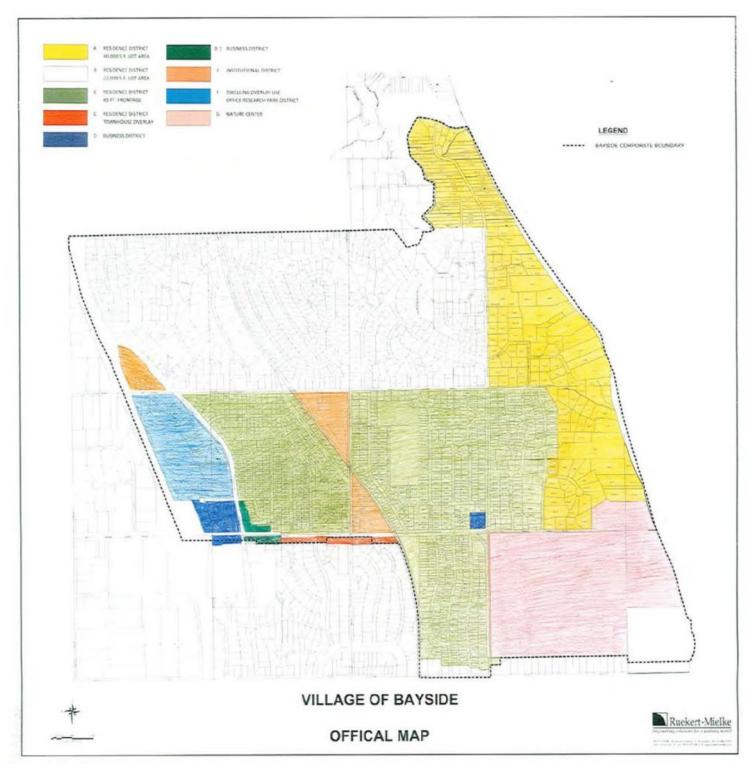


Figure 5.1 – Village Zoning Map

EXHIBIT 2-4 VILLAGE OF BAYSIDE COMPREHENSIVE LAND USE PLAN

> MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN





2803: 08-08-2022

# **CHAPTER III – ANALYSIS OF EXISTING CONDITIONS**

# PART A – PHYSICAL CHARACTERISTICS

Exhibit 3-1A shows the existing transportation detail for the study area intersections. More specifically, the exhibit illustrates intersection lane configurations, intersection traffic controls, distances between intersections, and posted speed limits. Exhibit 3-1B shows the planned transportation detail at the I-43 & WIS 100 interchange. As shown, plans include converting the existing I-43 ramps into a diverging diamond interchange configuration which was used as the base condition for this study.

# PART B – TRAFFIC VOLUMES

The weekday morning, weekday evening and Saturday midday peak hours are expected to drive the improvements needed to adequately accommodate the mixed-use development, as they represent the highest trip generation for the site and the highest volumes along Brown Deer Road and the adjacent roadways. WisDOT provided 13-hour weekday turning movement counts conducted at the Brown Deer Road intersections with Port Washington Road (2018 count) and AADT counts (with 15-minute breakdowns) at the I-43 ramps (2019 counts). In addition, WisDOT provided counts from 2019 at the continuous AADT count station located immediately east of the I-43 ramps to determine through volumes along Brown Deer Road. To supplement these counts, TADI conducted weekday morning and evening (6:00 - 9:00 am, 3:00 - 6:00 pm) and Saturday midday (11:00 am- - 2:00 pm) peak hour turning movement traffic counts at the following study area intersections in June of 2018:

- Port Washington Road with the Fox Point Mall main access roadway;
- Port Washington Road with the US Bank/Sendik's driveway;
- Port Washington Road with the Bayside Apartments/Baskin Robins driveway;
- Port Washington Road with Glencoe Place (13-hour weekday count); and
- Port Washington Road with the office north access roadway (13-hour weekday count).

In addition, Saturday midday (11:00am- - 2:00pm) peak hour turning movement traffic counts were also conducted by TADI at the following study area intersections in June of 2018:

- Brown Deer Road with Port Washington Road;
- I-43 Southbound Ramps with Brown Deer Road; and
- I-43 Northbound Ramps with Brown Deer Road.

Based on the turning movement counts and utilizing the year 2019 Brown Deer Road intersection with Port Washington Road turning movement count as the controlling intersection count; the weekday morning, weekday evening and Saturday midday peak hours were identified as being from 7:30 to 8:30am, 4:30 to 5:30pm, and 11:15am to 12:15pm, respectively. The existing traffic volumes, balanced along the highway corridors, are shown in Exhibit 3-2A. The traffic counts used to determine peak hour factors and truck percentages have been included in the Appendix of this study.

In addition, weekday morning and evening (6:00 - 9:00am, 3:00 - 6:00pm) and Saturday midday (11:00am- - 2:00pm) peak hour turning movement traffic counts were also conducted at the following study area driveways to determine the existing entering/exiting volumes to be utilized to calculate the *existing uses* driveway trip reductions. The following existing driveway intersections, with corresponding node numbers as depicted in the exhibit and on the backup traffic counts included in the appendix, are shown on Exhibit 3-1C.

- Node 11: Brown Deer Road with Katz Properties, Inc. driveway
- Node 10A: Brown Deer Road with Los Paisa Restaurant driveway
- Node 10B: Brown Deer Road with Milwaukee Eye Care Associates west driveway
- Node 9A: Brown Deer Road with Milwaukee Eye Care Associates east driveway
- Node 9B: Brown Deer Road with the US Bank driveway
- Node 7: Port Washington Road with the US Bank driveway
- Node 6: Port Washington Road with Bayside Village Apartments driveway
- Node 4B: Glencoe Place with the Bayside Village Apartments driveway
- Node 4A: Glencoe Place with the Milwaukee Eye Care Associates driveway
- Node 5: Glencoe Place with the office building access at the west end of Glencoe Place
- Node 1: Office development north driveway access driveway to the parking area for the western office building

The year 2024 projected traffic volumes provided by WisDOT are shown in Exhibit 3-2D. As previously noted, five driveways along the north side of Brown Deer Road and two driveways along the west side of Port Washington Road, between Glencoe Place and Brown Deer Road, are proposed to be removed as part of the project and are planned to be replaced by the previously mentioned right-in/right-out driveway to the site. Therefore, the existing driveway trips for these access points were removed from the roadway system. The existing peak hour driveway trips, along with a summary of the entering and exiting trips at the driveways, are shown in Exhibits 3-2B&C. Exhibit 3-2E shows the year 2024 background traffic volumes, which take into account a reduction of these driveway trip from the system. In addition, with the planned DDI ramp configurations at the I-43 ramps, the turning movements at the ramps, were reconfigured as shown in Exhibit 3-2F.

The traffic counts used to determine peak hour turning volumes at these driveways have been included in the Appendix of this study.

# PART C – CAPACITY LEVEL OF SERVICE

# **C1.** Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> *Edition*. Intersection operation is defined by "level of service." Level of service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS 'A,' to very poor, represented by LOS 'F.' For the purpose of this study, LOS D was used to define acceptable peak hour operating conditions. Descriptions of the various levels of service are as follows:

*LOS A* is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized intersections, average delays are less than 10 seconds. At unsignalized intersections, average delays are less than 10 seconds.

*LOS B* represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds. *LOS C* still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.

*LOS D* represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.

*LOS E* represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.

*LOS F* represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

# C2. Year 2024 Background Traffic Operations – No Modifications

Exhibit 3-3 shows the Year 2024 Background (no development) traffic peak hour operating conditions at the study area intersections. The Year 2024 Background traffic analysis was conducted using the existing and planned lane configurations shown in Exhibits 3-1A&B, the Year 2024 Background traffic volumes shown in Exhibit 3-2E&F and the existing traffic signal timings provided in the appendix. Signal timings at the DDI interchange ramps were optimized to provide assumed timings at these ramp intersections. In addition, since the existing traffic signal at the Brown Deer Road intersection with Port Washington Road is located in close proximity to the ramps and the system is expected to operate as a coordinated system, the cycle length and signal timings at the Port Washington Road intersection were also optimized under the background scenario to provide the expected operation under the base condition.

As shown in Exhibit 3-3, all movements are expected to operate acceptably at LOS D or better at the study area intersections during the typical weekday morning, weekday evening and Saturday midday peak periods under the Year 2024 Background (no development) traffic volume conditions except:

- the eastbound through movements and some of the southbound movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS E during the typical weekday morning and evening peak periods with the current phasing.
- the northbound left-turn movements at the at the Brown Deer Road intersection with the I-43 northbound ramps which are expected to operate at LOS F during the typical weekday evening peak period with the current phasing.

# PART D – SOURCES OF DATA

The following sources of data were obtained for use in conducting this traffic study:

- Turning movement traffic counts TADI and WisDOT
- Existing traffic signal timings and plans WisDOT and Waukesha County
- Existing transportation details TADI along with Google Earth
- Planned transportation details WisDOT
- On-site development information Cobalt Partners

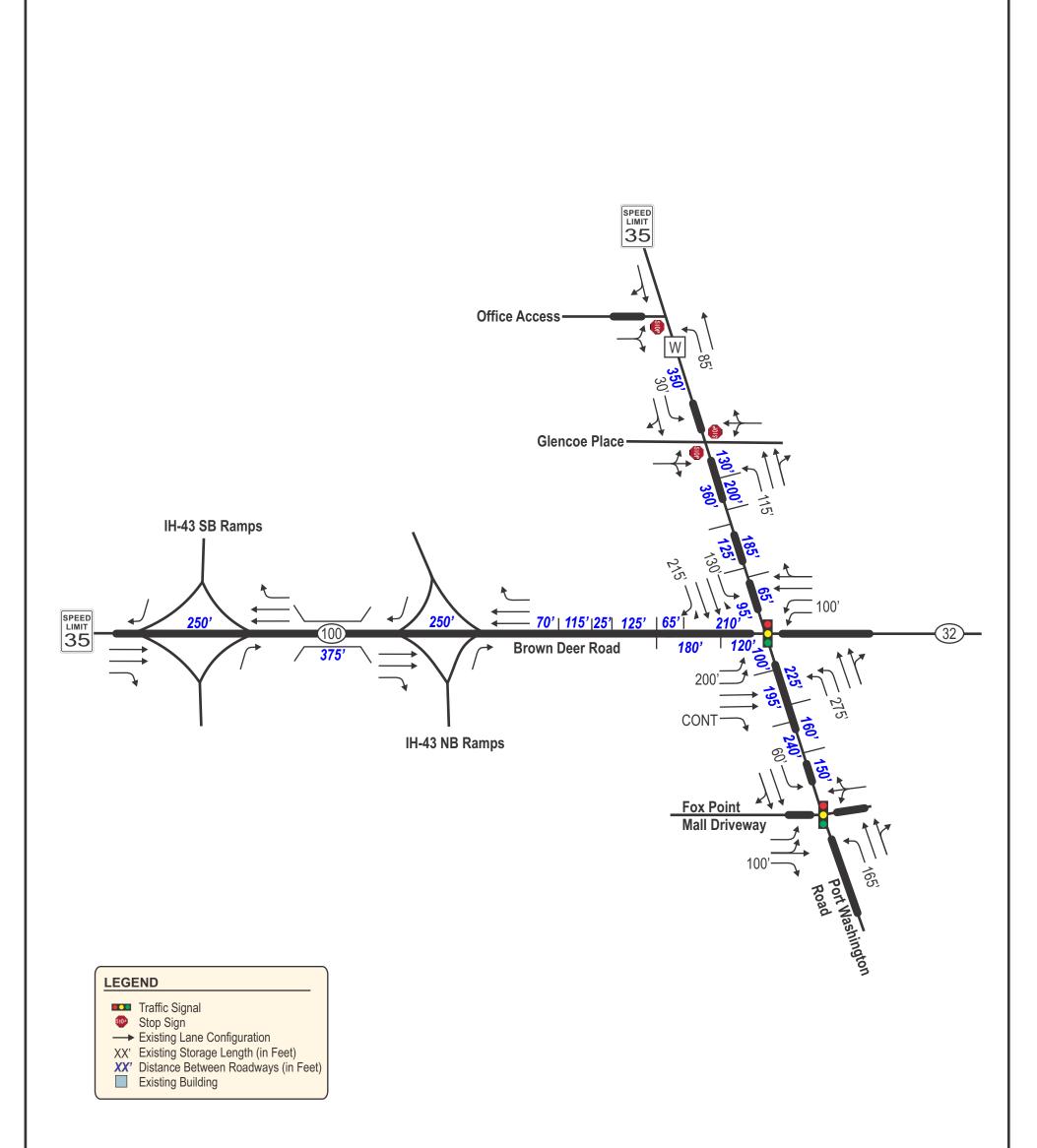


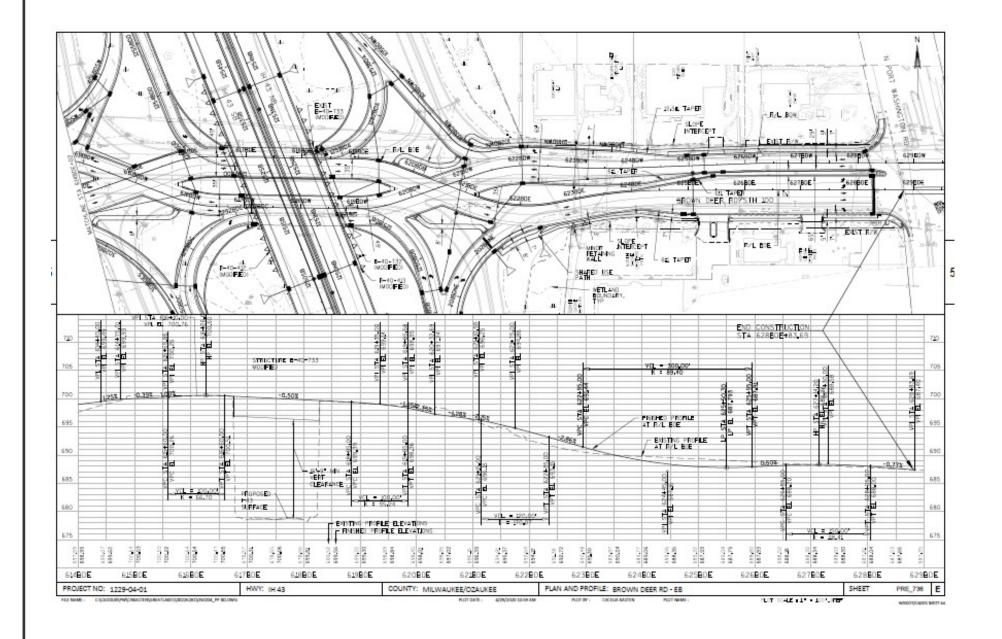
EXHIBIT 3-1A EXISTING TRANSPORTATION DETAIL

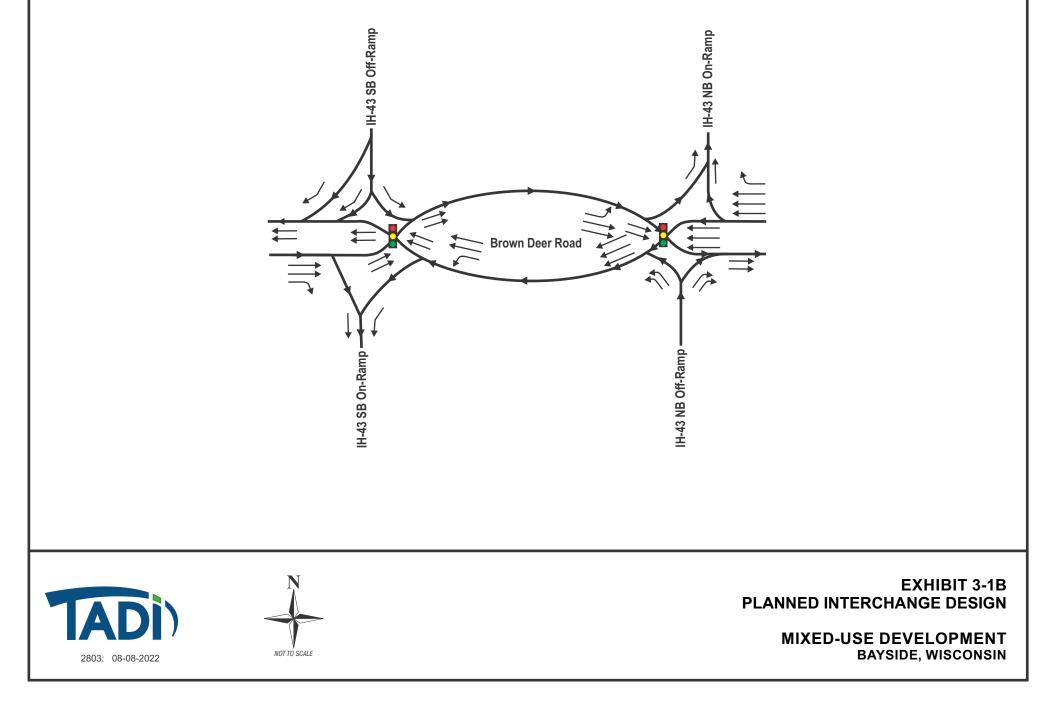
> MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



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A







#### LEGEND

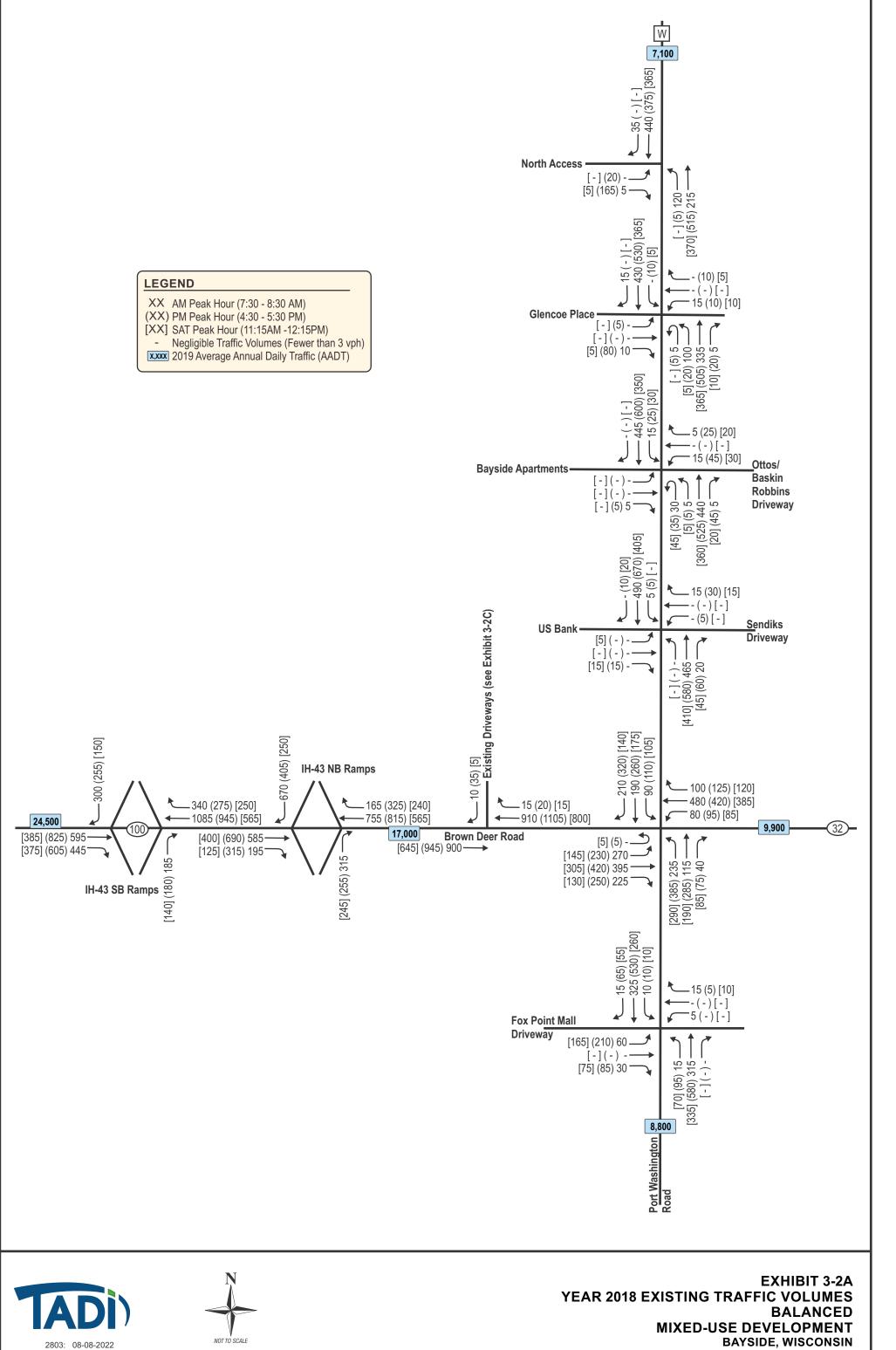
Study Intersection Turning Movement Count Location
 Existing Driveway Turning Movement Count Location

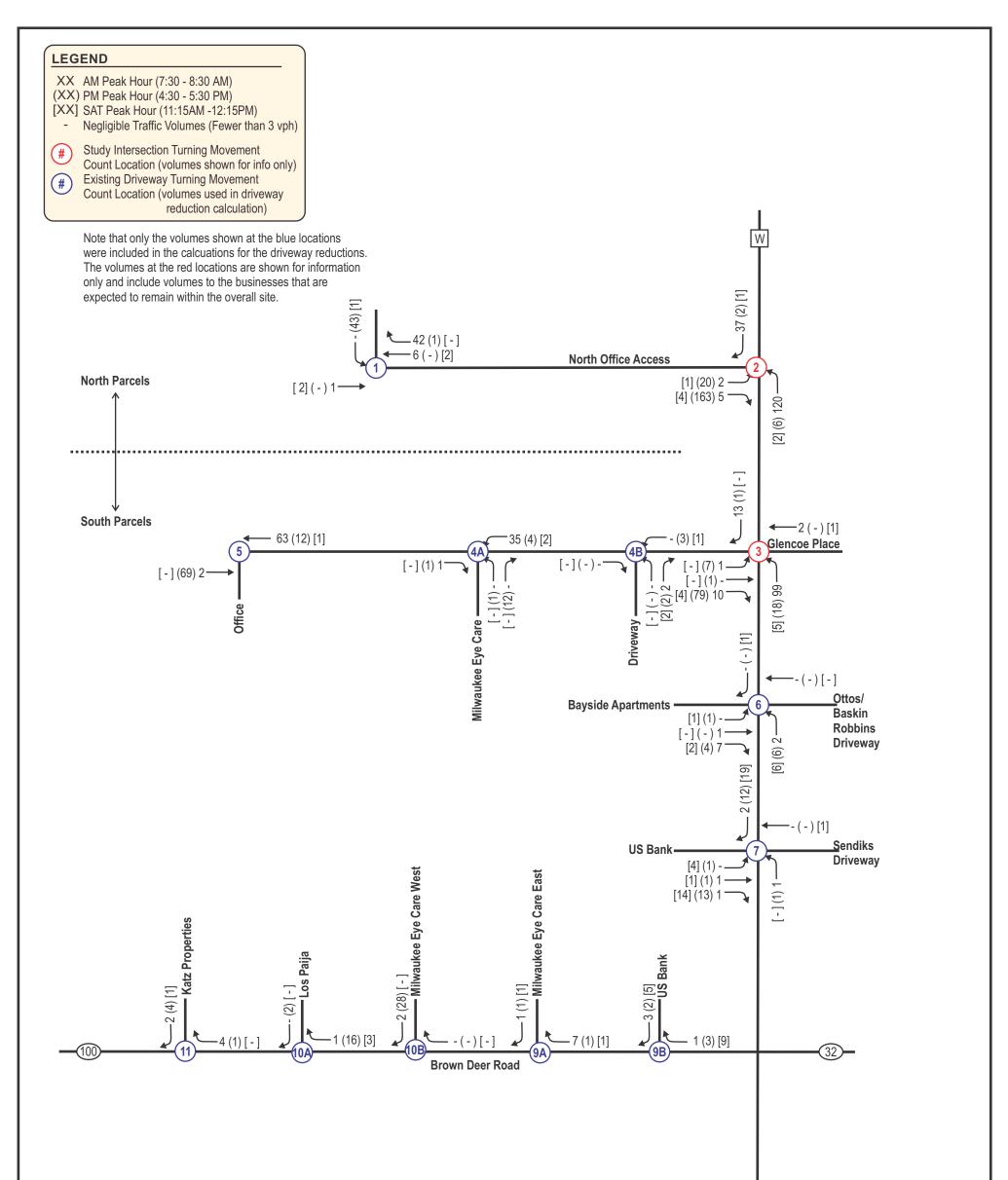
Note that number in circle correlates with location as listed on processed count provided in appendix, for I-43 ramps, volumes included in pivot tables

**EXHIBIT 3-1C** SITE AERIAL WITH INTERNAL DRIVEWAY COUNT LOCATIONS

> MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN**







Port <u>Washington</u> Road

EXHIBIT 3-2B YEAR 2018 EXISTING DRIVEWAY TRIPS (USED TO CALCULATION TRIP REDUCTION FOR TRIP GENERATION) MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



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#### LEGEND

XX AM Peak Hour (7:30 - 8:30 AM) (XX) PM Peak Hour (4:30 - 5:30 PM) [XX] SAT Peak Hour (11:15AM -12:15PM)

# Existing Driveway Trips (North Access Businesses)

	IN	OUT
AM	48	1
PM	(1)	(43)
SAT	[2]	[3]

### Existing Driveway Trips (Glencoe Place Access Businesses)

	IN	OUT
AM	99	4
PM	(20)	(83)
SAT	[4]	[2]

# Existing Driveway Trips (CTH W Access Businesses - 2 D/W's)

	IN	OUT
AM	5	10
PM	(19)	(20)
SAT	[27]	[22]

# Existing Driveway Trips (South Businesses off Brown Deer)

	IN	OUT
AM	13	8
PM	(21)	(37)
SAT	[13]	[7]

# Calcualtions For Trip Generation Table ReductionsExisting Driveway Trips (South Businesses)Ex(three bottom tables combined)(to

	IN	OUT
AM	117	22
PM	(60)	(140)
SAT	[44]	[31]

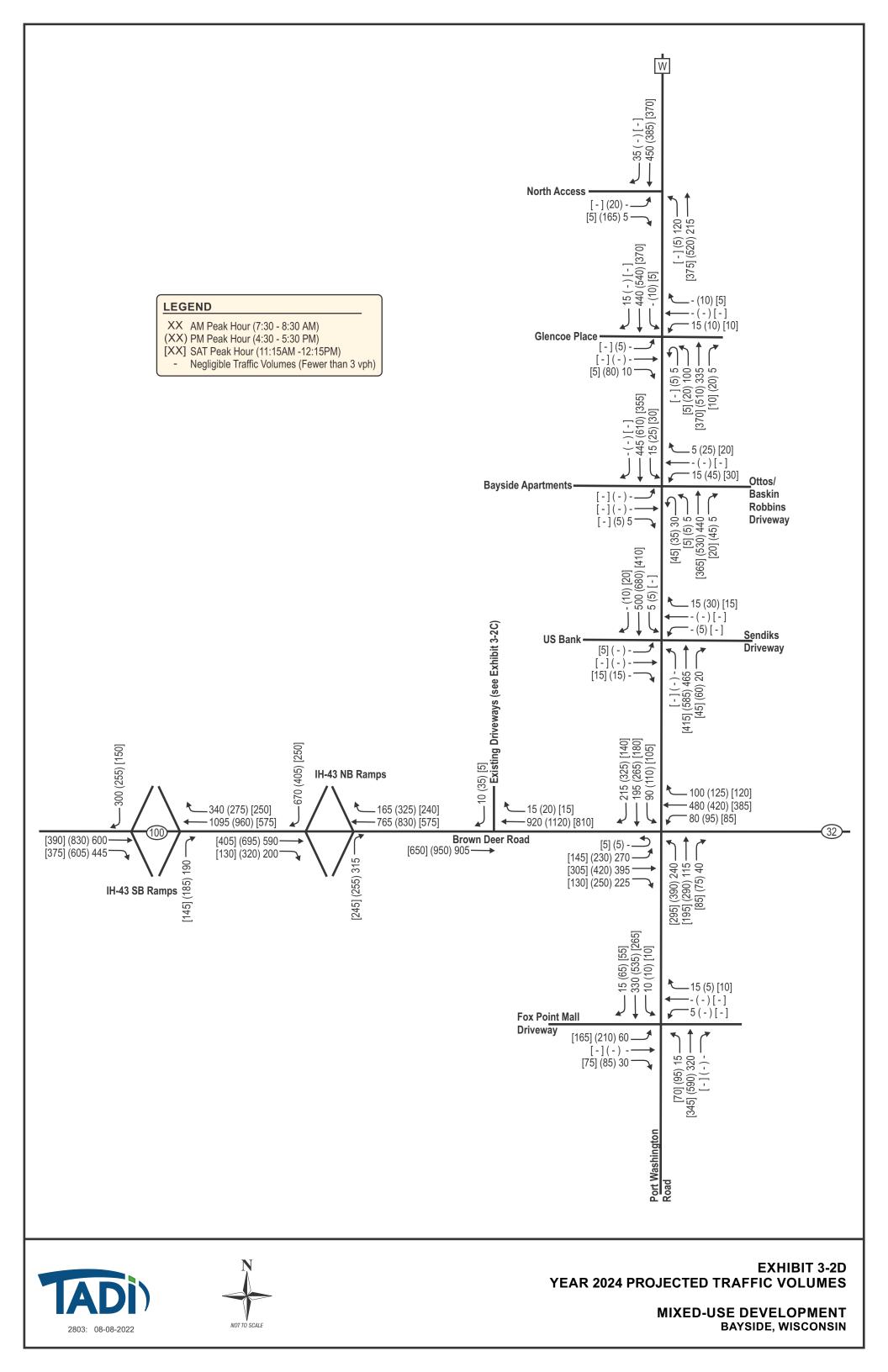
Existing Driveway Trips (North Businesses) (top table only)

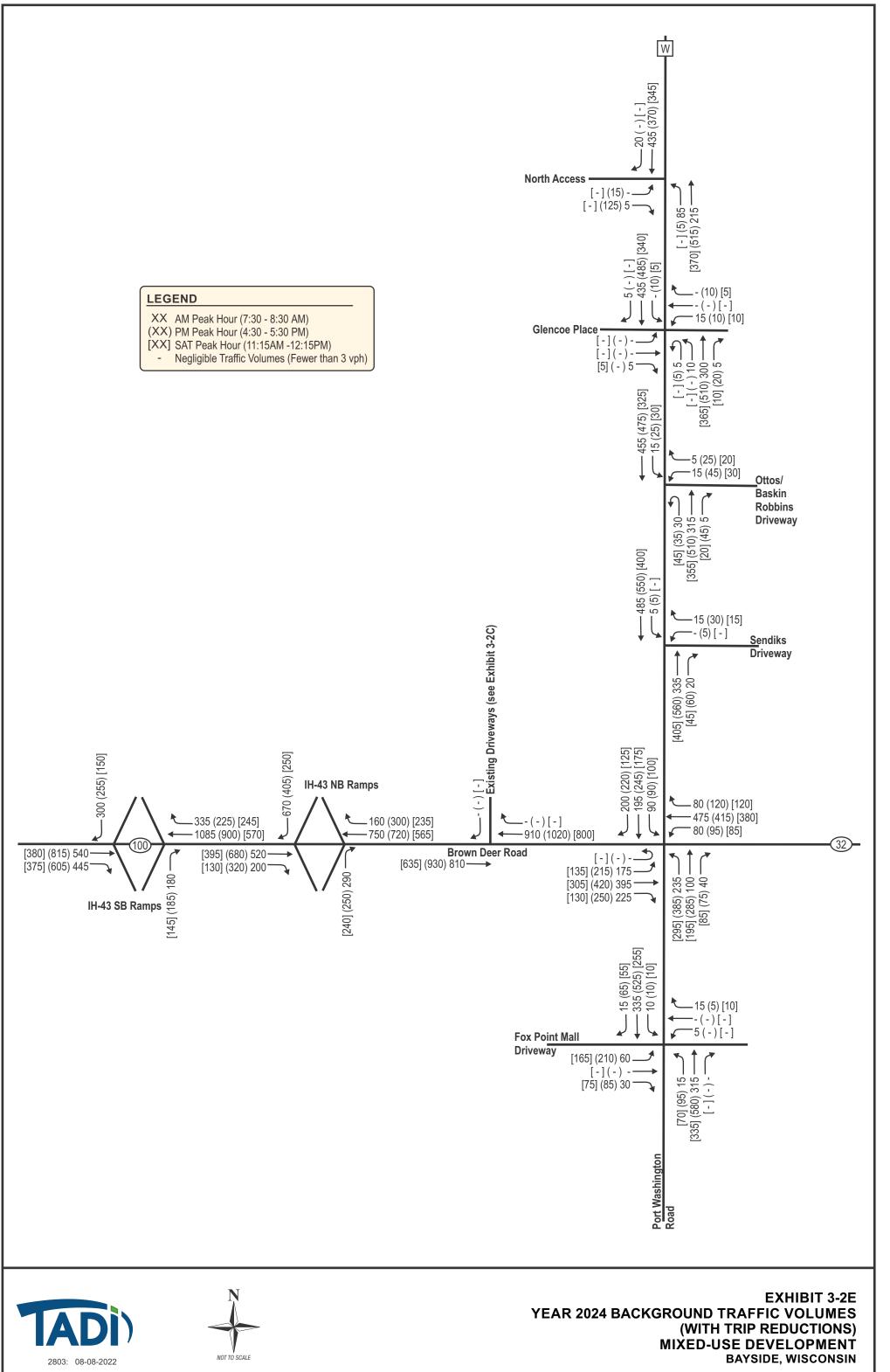
	IN	OUT
AM	48	1
PM	(1)	(43)
SAT	[2]	[3]

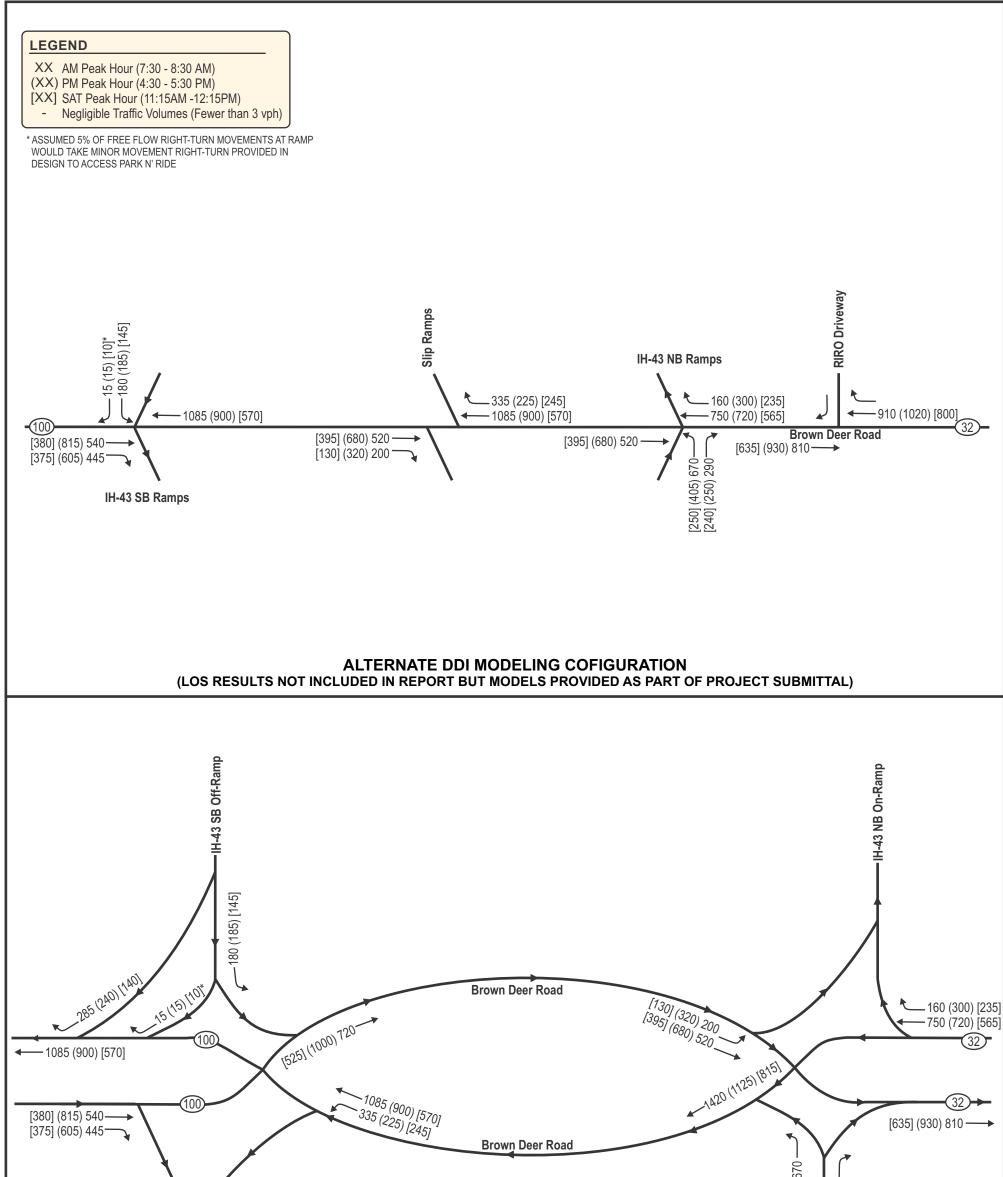


MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN









	IH-43 SB On-Ramp	[250] (405) 670 [250] (405) 670 [240] (250) 290
		DDI MODELING COFIGURATION
2803: 08-08-2022	NOT TO SCALE	EXHIBIT 3-2F YEAR 2024 BACKGROUND TRAFFIC VOLUMES (DDI MODELING COFIGURATION) MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN

		h WisDO		Le	evel of	Servi	ce (LC	DS) pe	r Move						I/S
Intersection	Peak Hour	Metric	Ea 7	astbou I →	nd ע	We	estboι ∣ ←	und	No No	rthbo 个	und 7	Soı لا	uthbo ↓	und ∠	LOS & Delay
		Lanes->	-	3	-	-	2	-		-		1	-	1	
Nodes 101/120/140: Brown Deer		LOS	-	D	-	-	<b>C</b>	-		-		E	-	<b>C</b>	C
Road & I-43 SB Ramps Traffic Signal Control	AM	Delay Queue	-	44 335'	-	-	29 225'	-		-		66 240'	-	27 25'	34
		LOS	-	E	-	-	D	-		-		C	-	E	D
	PM	Delay	-	60	-	-	42	-		-		23	-	70	50
		Queue	-	500'	-	-	245'	-		-		25'	-	245'	
	SAT	LOS	-	<b>C</b> 32	-	-	<b>B</b> 16	-		-		D 48	-	<b>C</b> 26	<b>C</b> 22
	SAI	Delay Queue	-	165'	-	-	150'	-		-		40 145'	-	25'	22
		Lanes->	-	2	-	-	3	-	2	-	2	140	-	20	
Node 201/210/250: Brown Deer Road		LOS	-	С	-	-	D	-	D	-	С		-		С
& I-43 NB Ramp	AM	Delay	-	22	-	-	38	-	54	-	25		-		32
Traffic Signal Control		Queue LOS	-	190'	-	-	405'	-	345'	-	95' C		-		С
	РМ	Delay	-	29	-	-	31	-	359	_	22		-		30
		Queue	-	260'	-	-	240'	-	310'	-	75'		-		
		LOS	-	С	-	-	В	-	D	-	В		-		В
	SAT	Delay	-	26 75'	-	-	15 195'	-	47 120'	-	18 65'		-		19
		Queue Lanes->	-	2	-	-		2	120	-	60			1	
Node 300: Brown Deer Road &		LOS	-	*	-	-		*		-			-	В	Α
Development RIRO Driveway	AM	Delay	-	*	-	-		*		-			-	12	1
One-Way Stop Control		Queue	-	*	-	-		*	<u> </u>	-		<u> </u>	-	25'	-
	РМ	LOS Delay	-	*	-	-		*	<u> </u>	-		· ·	-	<b>B</b> 12	<b>A</b> 1
	1 171	Queue	-	*	-	-		*	1	-			-	25'	
		LOS	-	*	-	-		*		-			-	В	Α
	SAT	Delay	-	*	-	-		*		-			-	11	1
		Queue	-	*	-	-		*		-	2		- 2	25'	
Node 400: Brown Deer Road &		Lanes->	2 D	2 C	1 A	2 D		2 B	2 D		2	1 D	2 D	1 D	С
Port Washington Road (CTH W)	AM	Delay	46	22	5	40		19	47		10	49	44	37	31
Traffic Signal Control		Queue		120'		50'	2'	15'	120'	8	0'	110'	105'		
		LOS	D	С	Α	D		C	D		D	D	D	D	С
	PM	Delay	46	25	5	41		<u>23</u> 15'	50		2 70'	48	46	37	27
		Queue LOS	90'	50' C	30'	60' D		B	180'		D	110'	125' D	120'	С
	SAT	Delay	45	24	5	37		19	46		4	49	42	35	33
		Queue	75'	55'	25'	50'	18	85'	135'	1	30'	115'	90'	70'	
		Lanes->		1			-		1	1	-	-		1	
Node 500: Port Washington Road & North Access Road	AM	LOS		<b>B</b> 13			-		<b>A</b> 9	*	-	-		*	<b>A</b> 1
One-Way Stop Control	Alvi	Delay Queue		25'			-		9 25'	*	-	-		*	I
		LOS		C			-		A	*	-	-		*	Α
	PM	Delay		16			-		8	*	-	-		*	2
		Queue		40'			-		25'	*	-	-		*	
	SAT	LOS Delay		<b>B</b> 13			-		<b>A</b> 8	*	-	-		*	<b>A</b> 1
	5AI	Queue		25'			-		25'	*	-	-		*	
		Lanes->		1			1		1	1	1	1		1	
Node 600: Port Washington Road &		LOS		В			С		Α	*	-	Α		*	Α
Glencoe Place	AM	Delay		14 25'			20		9	*	-	8		*	1
Two-Way Stop Control		Queue LOS		25 C			25' C		25' A	*	-	25'		*	Α
	РМ	Delay		23			22		9	*	-	9		*	1
		Queue		25'			25'		25'	*	-	25'		*	
		LOS		В			С		Α	*	-	Α		*	Α
	SAT	Delay		12 55'			15 25'		8	*	-	8		*	1
		Queue Lanes->		- 55			<u>25</u> 1		25' -		2	25' 1		2	
Node 700: Port Washington Road &		LOS		-			В		-		*	A		*	Α
Baskin Robins Driveway	AM	Delay		-			14		-		*	8		*	1
One-Way Stop Control		Queue		-			25'		-		*	25'		*	
	РМ	LOS Delay		-			<b>C</b> 20		-		*	<b>A</b> 9		*	<b>A</b> 2
		Queue		-			25'		-		*	9 25'		*	
		LOS		-			В		-		*	Α		*	Α
	SAT	Delay		-			13		-		*	8		*	1
		Queue		-			25' 1		-		*2	25' 1	2	*	
Node 800: Port Washington Road &		Lanes->		-			A		-		<u> </u>	7 A	<u></u> *	-	Α
Sendiks Driveway	AM	Delay		-			9		-		*	8	*	-	1
One-Way Stop Control		Queue		-			25'		-		*	25'	*	-	
	PM	LOS		-			<b>B</b> 13		-		*	<b>A</b> 9	*	-	<b>A</b> 1
	IT IVI	Delay Queue		-			13 25'		-		*	9 25'	*	-	
		LOS		-			B		-		*	A	*	-	Α
	SAT	Delay		-			10		-		*	8	*	-	1
	<b> </b>	Queue		-	4		25'		-		*	25'	*	-	
Node 900: Port Washington Road &		Lanes->	2 D		1 D		1 D		1		2	1		2 A	В
Fox Pointe Mall Driveway	AM	Delay	38		8		43		<b>A</b> 6		6	<b>A</b> 8		9	в 11
Traffic Signal Control		Queue	35'		0'		35'		25'		5'	25'		0' 90'	
		LOS	С		3		С		В		4	В		В	В
	PM	Delay	20		9		29		11		9	12		17	14
		Queue LOS	95' B		5' 3		25' C		50' B		35' 4	25' B		05' B	В
	SAT	Delay	18		<b>5</b> 7		25		10		9	13		<b>1</b> 5	13
	1	Queue	65'		5'	1	25'		35'		'0'	25'		00'	

(-) indicates a movement that is prohibited or does not exist; (\*) indicates a freeflow movement. Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.



**EXHIBIT 3-3** YEAR 2024 BACKGROUND TRAFFIC OPERATIONS WITHOUT MODIFICATIONS **MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN** 

# **CHAPTER IV – FORECASTED TRAFFIC**

## PART A – EXISTING TRAFFIC FORECASTING

The turning movement counts were submitted to WisDOT for its use in developing forecasts for the Year 2024 and Year 2034. The Year 2024 projected traffic volumes and the Year 2034 projected traffic volumes, previously reviewed and approved by WisDOT, are shown in Exhibits 3-2D and 4-2A, respectively. As previously stated, the year 2024 projected traffic volumes provided by WisDOT are shown in Exhibit 3-2D. As previously noted in *Chapter III, Part B* - *Traffic Volumes*, the driveway trips from the five driveways along the north side of Brown Deer Road and two driveways along the west side of Port Washington Road which are being removed as part of the project were removed from the roadway system. Exhibit 4-2B shows the year 2034 background traffic volumes, which take into account a reduction of these driveway trips from the system. In addition, with the planned DDI ramp configurations at the I-43 ramps, the turning movements at the ramps under the year 2034 background traffic volume condition, were reconfigured as shown in Exhibit 4-2C.

#### PART B – SITE TRAFFIC FORECASTING

To address any potential future traffic impacts along the study area roadways and at the intersections adjacent to the development site, it is necessary to identify the hourly and daily volume of traffic generated by the mixed-use developments. The traffic volumes expected to be generated by the proposed developments are based on the size and type of the proposed uses, and on trip rates as published in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition.* A combination of trip rates and fitted curve equations were utilized to determine the expected new trips based on current ITE practices. The trip generation tables for the various land uses proposed as part of this development are shown in Exhibits 4-3A thru 4-3C. Exhibit 4-3D includes a summary of the full build, including phases I and II. All trip generation calculations have been previously reviewed and approved by WisDOT.

#### **B1.** Trip Generation

#### Phase I Initial Build South Parcel (Year 2024)

As shown in Exhibit 4-3A, the phase I south parcel initial build of the mixed-use development site is expected to generate 265 new trips (125 entering/140 exiting) during a typical weekday morning peak hour. Of the 265 new trips, approximately 30 are expected to be linked trips and another 30 are expected to be pass-by trips resulting in 205 new trips (95 entering/110 exiting) during a typical weekday morning peak hour.

During a typical weekday evening peak hour, the phase I south parcel initial build is expected to generate 490 new trips (265 entering/225 exiting). Of the 490 new trips, approximately 50 are expected to be linked trips and another 60 are expected to be pass-by trips resulting in 380 new trips (210 entering/170 exiting) during a typical weekday evening peak hour.

During a typical Saturday midday peak hour, the phase I south parcel initial build of the mixeduse development site is expected to generate 570 new trips (290 entering/280 exiting). Of the 570 new trips, approximately 60 are expected to be linked trips and another 80 are expected to be pass-by trips resulting in 430 new trips (220 entering/210 exiting) during a typical Saturday midday peak hour.

On a typical weekday, the phase I south parcel initial build is expected to generate approximately 5,130 new trips of which 510 are expected to be linked trips and another 660 are expected to be pass-by trips resulting in approximately 3,960 new trips (1,980 entering/1,980 exiting) under phase I south parcel initial build conditions.

#### Phase II Full Build South Parcel (Year 2029)

As shown in Exhibit 4-3B, the phase II south parcel full build of the mixed-use development site is expected to generate 115 new trips (60 entering/55 exiting) during a typical weekday morning peak hour. Of the 115 new trips, approximately 10 are expected to be linked trips and another 20 are expected to be pass-by trips resulting in 85 new trips (45 entering/40 exiting) during a typical weekday morning peak hour.

During a typical weekday evening peak hour, the phase II south parcel full build is expected to generate 200 new trips (115 entering/85 exiting). Of the 200 new trips, approximately 20 are expected to be linked trips and another 30 are expected to be pass-by trips resulting in 150 new trips (90 entering/60 exiting) during a typical weekday evening peak hour.

During a typical Saturday midday peak hour, the phase II south parcel full build of the mixed-use development site is expected to generate 205 new trips (105 entering/100 exiting). Of the 205 new trips, approximately 20 are expected to be linked trips and another 30 are expected to be pass-by trips resulting in 155 new trips (80 entering/75 exiting) during a typical Saturday midday peak hour.

On a typical weekday, the phase II south parcel full build is expected to generate approximately 1,890 new trips of which 190 are expected to be linked trips and another 290 are expected to be pass-by trips resulting in approximately 1,410 new trips (705 entering/705 exiting) under phase II south parcel full build conditions.

#### Phase II Full Build North Parcel (Year 2029)

As shown in Exhibit 4-3C, the phase II north parcel full build of the mixed-use development site is expected to generate 120 new trips (30 entering/90 exiting) during a typical weekday morning peak hour. During a typical weekday evening peak hour, the phase II north parcel full build is expected to generate 140 new trips (85 entering/55 exiting). During a typical Saturday midday peak hour, the phase II north parcel full build of the mixed-use development site is expected to generate 115 new trips (60 entering/55 exiting). On a typical weekday, the phase II north parcel full build is expected to generate approximately 1,660 new trips (830 entering/830 exiting) under phase II north parcel full build conditions.

#### Full Build - All Parcels

As shown in Exhibit 4-3D, under full build after linked trip and pass-by trip reductions, the proposed development is expected to generate 410 new trips (170 in/240 out) during a typical weekday morning peak hour. During the typical weekday evening peak hour, the full build of the development site is expected to generate 670 new trips (385 in/285 out). During the typical Saturday midday peak hour, the development site is expected to generate 700 new trips (360 in/340 out). On a typical weekday, the proposed development site is expected to generate 7,030 new trips (3,515 in/3,515 out) under full build conditions.

#### **B2.** Mode Split

Pedestrians, bicyclists, and bus users may use their respective modes to access the proposed development, though these alternate modes are expected to make up a very small portion of the overall trips to/from the study area. Therefore, for the purpose of this TIA, all trips to/from the proposed development were assumed to occur via motor vehicle.

#### **B3.** Determination of Linked and Pass-by Trip Traffic

The mixed-use development site is expected to include both linked trips and pass-by trips. A linked trip occurs when a patron of one tenant visits another tenant prior to exiting the site (e.g.

an office patron visits a restaurant prior to entering the highway system). It is estimated that approximately 10-percent of the south parcel new trips will be linked trips. Pass-by trips occur when motorists already on the highway system stop at a development site prior to continuing on their intended route (e.g. an existing motorist westbound on Brown Deer Road stops at the bank prior to continuing westbound on Brown Deer Road). Approximately 20-percent of the proposed retail and restaurant driveway trips are expected to be pass-by trips. Because the remaining development sites are comprised primarily of residential uses, no pass-by trip reductions are expected for these developments.

#### **B4.** Trip Distribution

The trip distribution for the mixed-use development, which is listed below and shown in table format in Exhibits 4-3A thru 4-3C and graphically in Exhibit 4-4, was determined based on the existing traffic counts, the type of proposed land uses and the location of existing populations.

- 11 percent to/from the north on I-43
- 24 percent to/from the south on I-43
- 12 percent to/from the east on Brown Deer Road
- 29 percent to/from the west on Brown Deer Road
- 12 percent to/from the north on Port Washington Road
- 11 percent to/from the south on Port Washington Road
- 1 percent to/from the east on Glencoe Place

#### **B5.** Trip Assignment

Traffic was distributed to the study area intersections based on the above trip distribution. The new trips, pass-by trips, and driveway trips for the proposed mixed-use development under the three build out scenarios are shown as follows:

- Phase I South, Initial Build New Trips Exhibit 4-5A
- Phase I South, Initial Build Pass-by Trips Exhibit 4-5B
- Phase I South, Initial Build Driveway Trips Exhibit 4-5C
- Removed Driveway Trips Exhibit 4-5D
- Phase II South, Full Build New Trips Exhibit 4-7A
- Phase II South, Full Build Pass-by Trips Exhibit 4-7B
- Phase II South, Full Build Driveway Trips Exhibit 4-7C
- Phase II North, Full Build New Trips Exhibit 4-7D
- Phase II Total New Trips Exhibit 4-7E
- Total New Trips (Phase I and Phase II) Exhibit 4-7F

#### PART C – INITIAL BUILD AND FULL BUILD TRAFFIC

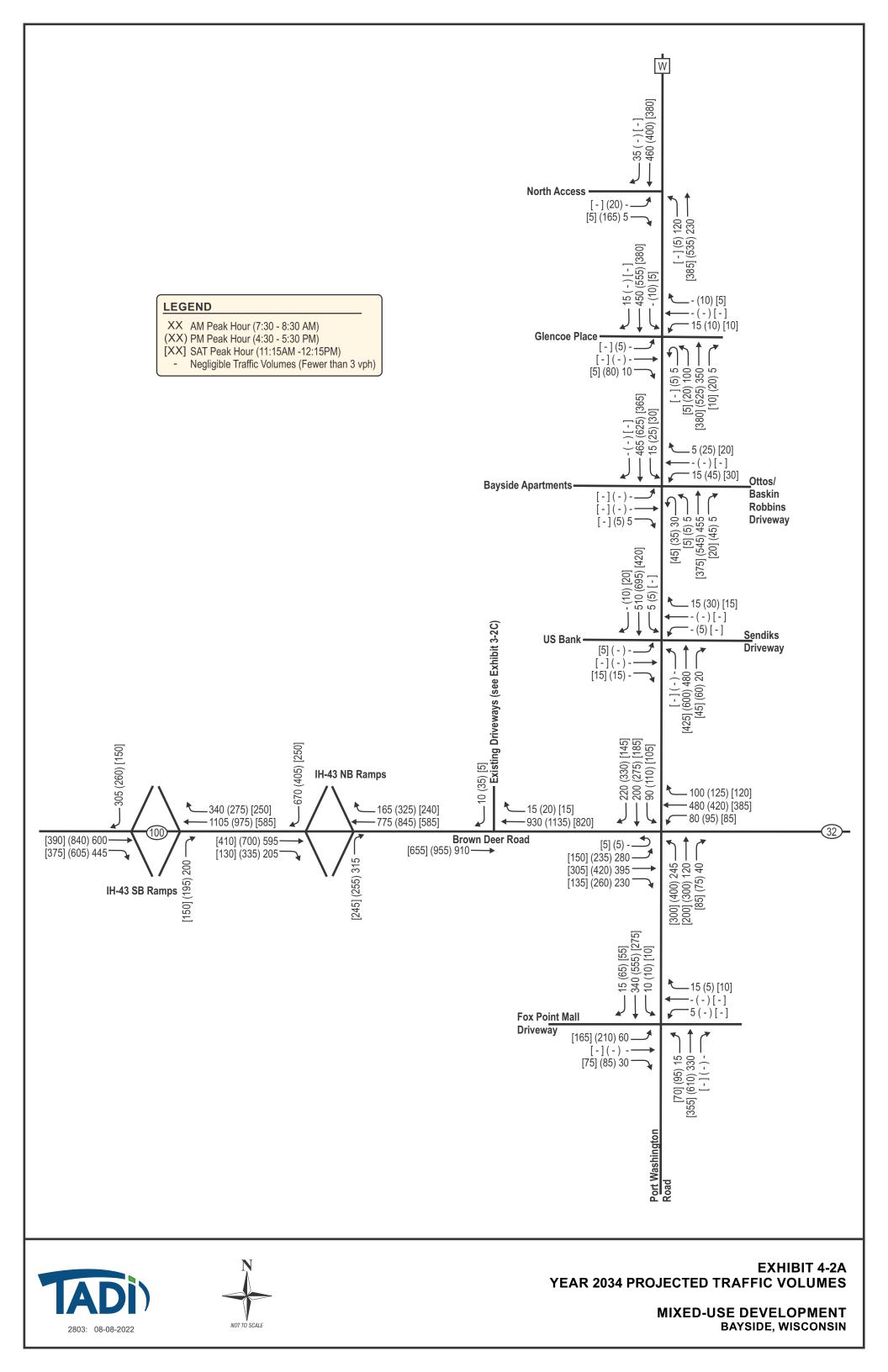
#### C1. Year 2024 Initial Build Traffic

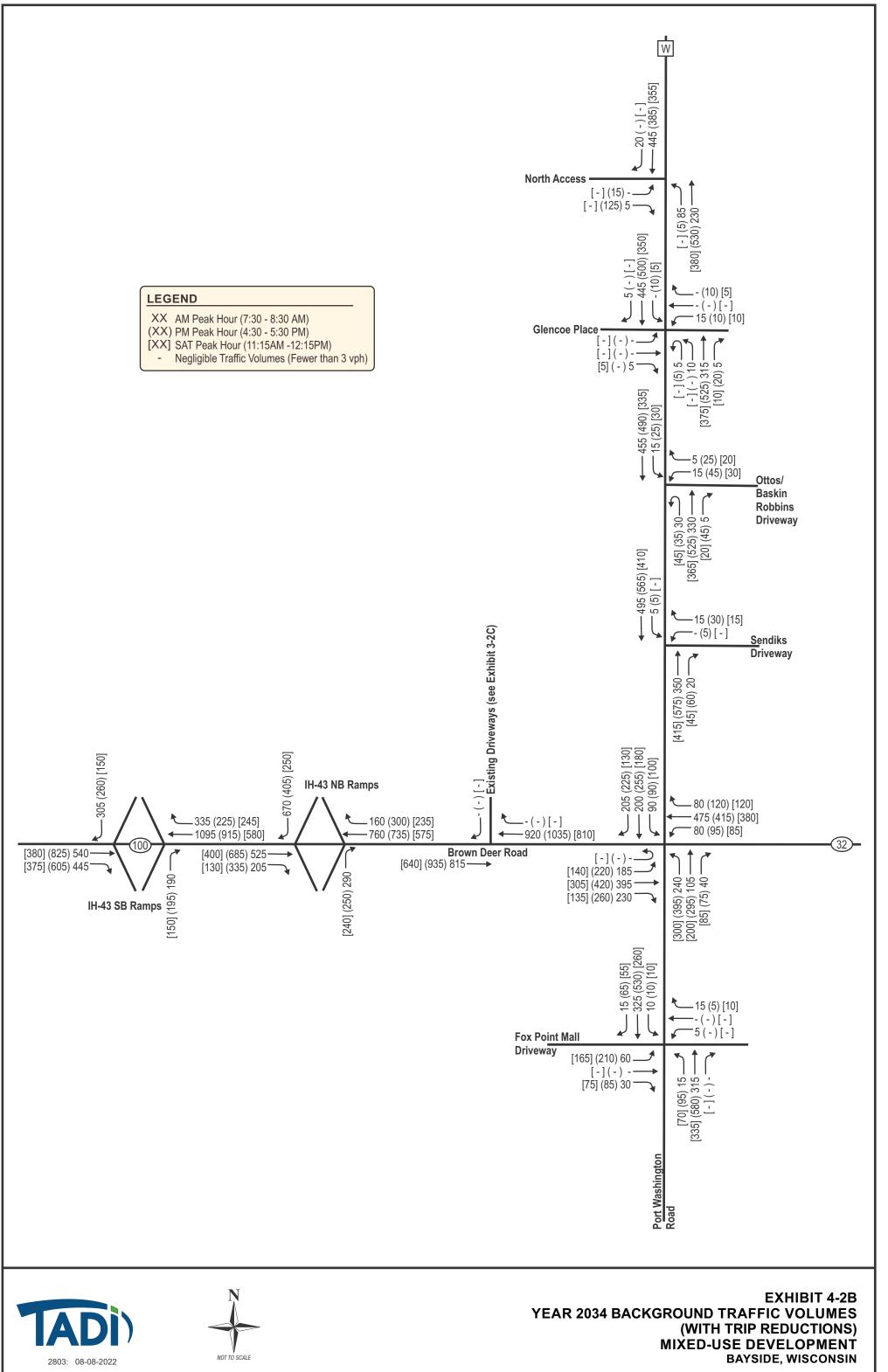
The Year 2024 Background traffic volumes, Exhibit 3-2E, were added to the initial build (Phase I South) driveway trips, Exhibit 4-5C, to determine the Year 2024 initial build traffic volumes

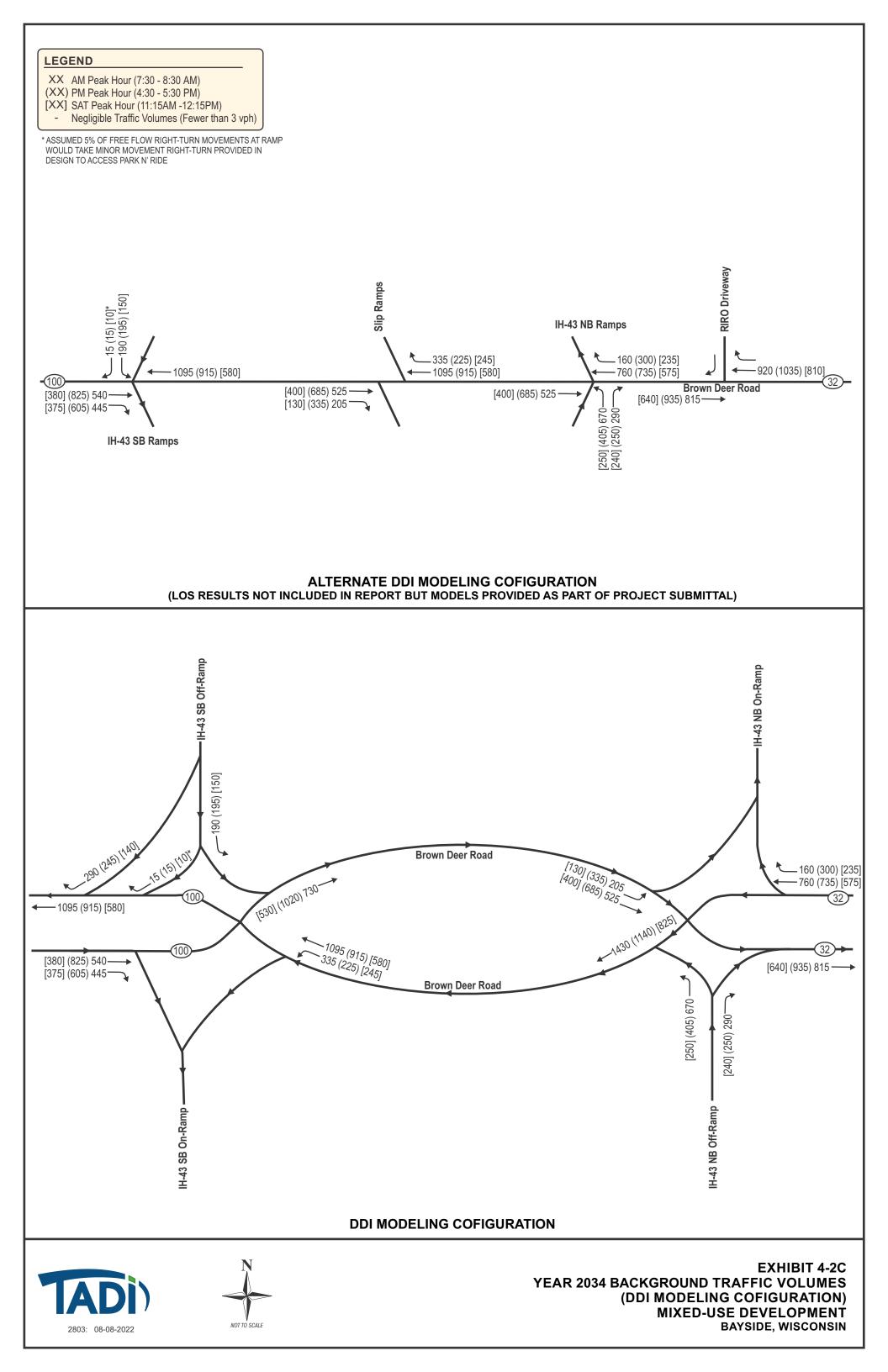
(Exhibit 4-11A). The Year 2024 initial build traffic volumes under the DDI configuration are shown in Exhibit 4-11B.

#### C2. Year 2034 Full Build Traffic

The Year 2034 Background traffic volumes, Exhibit 4-2B, were added to the initial build (Phase I South) driveway trips (Exhibit 4-5C), the full build (Phase II South) driveway trips (Exhibit 4-7C), and the full build (Phase II North) new trips (Exhibit 4-7D) to determine the Year 2034 full build traffic volumes (Exhibit 4-13A). The Year 2034 full build traffic volumes under the DDI configuration are shown in Exhibit 4-13B.







	ITE		Weekday		AM Pea	k		PM Peal	<	5	SAT Pea	k
Land Use	Code	Proposed Size	Daily	In	Out	Total	In	Out	Total	In	Out	Total
Strip Retail Plaza (<40k)	822	37.000 x 1,000 SF	2,010	50	35	85	100	95	195	125	120	245
(lower level - B)	022	37.000 X 1,000 SF	(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57
Multifamily Housing (Mid-Rise)	221	106 Units	480	10	25	35	25	15	40	20	20	40
(upper levels - B)	221	TOO OTINS	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39
Strip Retail Plaza (<40k)	822	30.900 x 1,000 SF	1,680	45	30	75	90	85	175	105	100	205
(lower level - C)	022	30.900 X 1,000 SF	(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57
Multifamily Housing (Mid-Rise)	221	108 Units	490	10	25	35	25	15	40	20	20	40
(upper levels - C)	221	TU8 Units	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39
Multifamily Housing (Mid-Rise)	221	104 Units	470	10	25	35	25	15	40	20	20	40
(upper levels - D)	221	TO4 OTHIS	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Total Trips			5,130	125	140	265	265	225	490	290	280	570
Minus Linked Trips		10%	-510	-15	-15	-30	-25	-25	-50	-30	-30	-60
Total Driveway Trips			4,620	110	125	235	240	200	440	260	250	510
Minus Pass-by Trips	(822)	20%	-660	-15	-15	-30	-30	-30	-60	-40	-40	-80
Total Pass-by Trips (Minus)			(660)	(15)	(15)	(30)	(30)	(30)	(60)	(40)	(40)	(80)
Total New Trips			3,960	95	110	205	210	170	380	220	210	430

Exhibit 4-3A							
On-Site (Phase I - South, Initial Build) Trip Generation Table							

#### TRIP DISTRIBUTION

7       7       3960         7       7       7         0%       -260       0         0%       0       0         0%       -200       -200         0%       -200       -200         0%       -660       -660	<b>95</b> -5 0 -5 -5 -5 <b>-15</b>	-5 0 -5 -5 -5 -5	210 -10 0 -10 -10	-10 0 -10 -10 -30	-15 0 -15 -10	-15 0 -15 -10 -40
<b>7 Trips)</b> 0% -260 0% 0	-5 0	-5 0	-10 0	-10 0	-15 0	-15 0
<b>7 Trips)</b> 0% -260	-5	-5	-10	-10	-15	-15
<u>· Trips)</u>						
	95	110	210	170	220	210
0% 3960	95	110	210	170	220	210
1% 40	0	0	0	0	0	0
<b>440</b>	10	10	25	20	25	25
2% 480	10	15	25	20	25	25
9% 1140	30	30	60	50	65	60
2% 480	10	15	25	20	25	25
<b>1%</b> 940	25	30	50	40	55	50
<b>440</b>	10	10	25	20	25	25
	4%     940       2%     480       9%     1140       2%     480       1%     440	4%     940     25       2%     480     10       9%     1140     30       2%     480     10       1%     440     10	4%       940       25       30         2%       480       10       15         9%       1140       30       30         2%       480       10       15         9%       140       30       30         2%       480       10       15         1%       440       10       10	4%9402530502%4801015259%11403030602%4801015251%440101025	4%940253050402%480101525209%1140303060502%480101525201%44010102520	4%94025305040552%48010152520259%114030306050652%48010152520251%4401010252025

EXHIBIT 4-3A ON-SITE (PHASE I - SOUTH, INITIAL BUILD) TRIP GENERATION & DISTRIBUTION TABLES MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN** 



Exhibit 4	-3B
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On-Site (Phase II - South, Full Build) Trip Generation Table

									-			
	ITE	-	Weekday AM Peak			PM Peal		SAT Peak				
Land Use	Code	Proposed Size	Daily	ln `	Out	Total	ln `	Out	Total	ln `	Out	Total
Strip Retail Plaza (<40k)	822	16.900 x 1,000 SF	920	25	15	40	60	55	115	55	55	110
(lower level - A)			(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57)
Multifamily Housing (Mid-Rise)	221	72 Units	330	5	15	20	20	10	30	15	15	30
(upper levels - A)		12 01110	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
High-Turnover (Sit-Down)	932	6.000 x 1,000 SF	640	30	25	55	35	20	55	35	30	65
Restaurant (L)	002	0.000 x 1,000 01	(107.20)	(55%)	(45%)	(9.57)	(61%)	(39%)	(9.05)	(51%)	(49%)	(11.19)
Total Trips			1,890	60	55	115	115	85	200	105	100	205
Minus Linked Trips		10%	-190	-5	-5	-10	-10	-10	-20	-10	-10	-20
Total Driveway Trips			1,700	55	50	105	105	75	180	95	90	185
Minus Pass-by Trips	(822)	20%	-170	-5	-5	-10	-10	-10	-20	-10	-10	-20
Minus Pass-by Trips	(932)	20%	-120	-5	-5	-10	-5	-5	-10	-5	-5	-10
Total Pass-by Trips (Minus)		(290)	(10)	(10)	(20)	(15)	(15)	(30)	(15)	(15)	(30)	
Total New Trips			1,410	45	40	85	90	60	150	80	75	155
TRIP DISTRIBUTION	1			I _	_		1	_		1		
North on I-43	11%		160	5	5		10	5		10	10	
South on I-43	24%		340	10	10		25	20		20	20	
East on Brown Deer Road	12%		170	5	5		10	5		10	10	
West on Brown Deer Road	29%		400	15	10		25	20		20	15	
North on Port Washington	12%		170	5	5		10	5		10	10	
South on Port Washington	11%		160	5	5		10	5		10	10	
East on Glencoe Place	1%		10	0	0		0	0		0	0	
	100%		1410	45	40		90	60		80	75	
			-	_	-						-	
TRIP DISTRIBUTION (Pas		rips)										1
East on Brown Deer Road	40%		-110	-5	-5		-5	-5		-5	-5	
West on Brown Deer Road	0%		0	0	0		0	0		0	0	
North on Port Washington	30%		-90	0	0		-5	-5		-5	-5	
South on Port Washington	30%		-90	-5	-5		-5	-5		-5	-5	
	100%		-290	-10	-10		-15	-15		-15	-15	

EXHIBIT 4-3B ON-SITE (PHASE II - SOUTH, FULL BUILD) TRIP GENERATION & DISTRIBUTION TABLES MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN



	ITE		Weekday	kday AM Peak		PM Peak			SAT Peak			
Land Use	Code	Proposed Size	Daily	In	Out	Total	In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	221	147 Units	670	15	40	55	35	25	60	30	25	55
(E & F)	221	147 Units	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Multifamily Housing (Low-Rise)	220	142 Units	990	15	50	65	50	30	80	30	30	60
Condo/Townhouse (G, H, I, J, K)	220	142 011115	FCE	(24%)	(76%)	FCE	(63%)	(37%)	FCE	(54%)	(46%)	(0.41)
Total Trips			1,660	30	90	120	85	55	140	60	55	115
Minus Linked Trips	(220)	0%	0	0	0	0	0	0	0	0	0	0
Total Driveway Trips			1,660	30	90	120	85	55	140	60	55	115
Minus Pass-by Trips	(220)	0%	0	0	0	0	0	0	0	0	0	0
Total New Trips			1,660	30	90	120	85	55	140	60	55	115
TRIP DISTRIBUTION	_			_			_			_		
North on I-43	11%		180	0	10		10	5		5	5	
South on I-43	24%		400	5	25		20	20		20	15	
East on Brown Deer Road	12%		200	5	10		10	5		5	5	
West on Brown Deer Road	29%		480	10	25		25	15		20	20	
North on Port Washington	12%		200	5	10		10	5		5	5	
South on Port Washington	11%		180	5	10		10	5		5	5	
East on Glencoe Place	1%		20	0	0		0	0		0	0	
	100%		1660	30	90		85	55		60	55	

Exhibit 4-3C On-Site (Phase II - North, Full Build) Trip Generation Table

EXHIBIT 4-3C ON-SITE (PHASE II - NORTH, FULL BUILD) TRIP GENERATION & DISTRIBUTION TABLES MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN

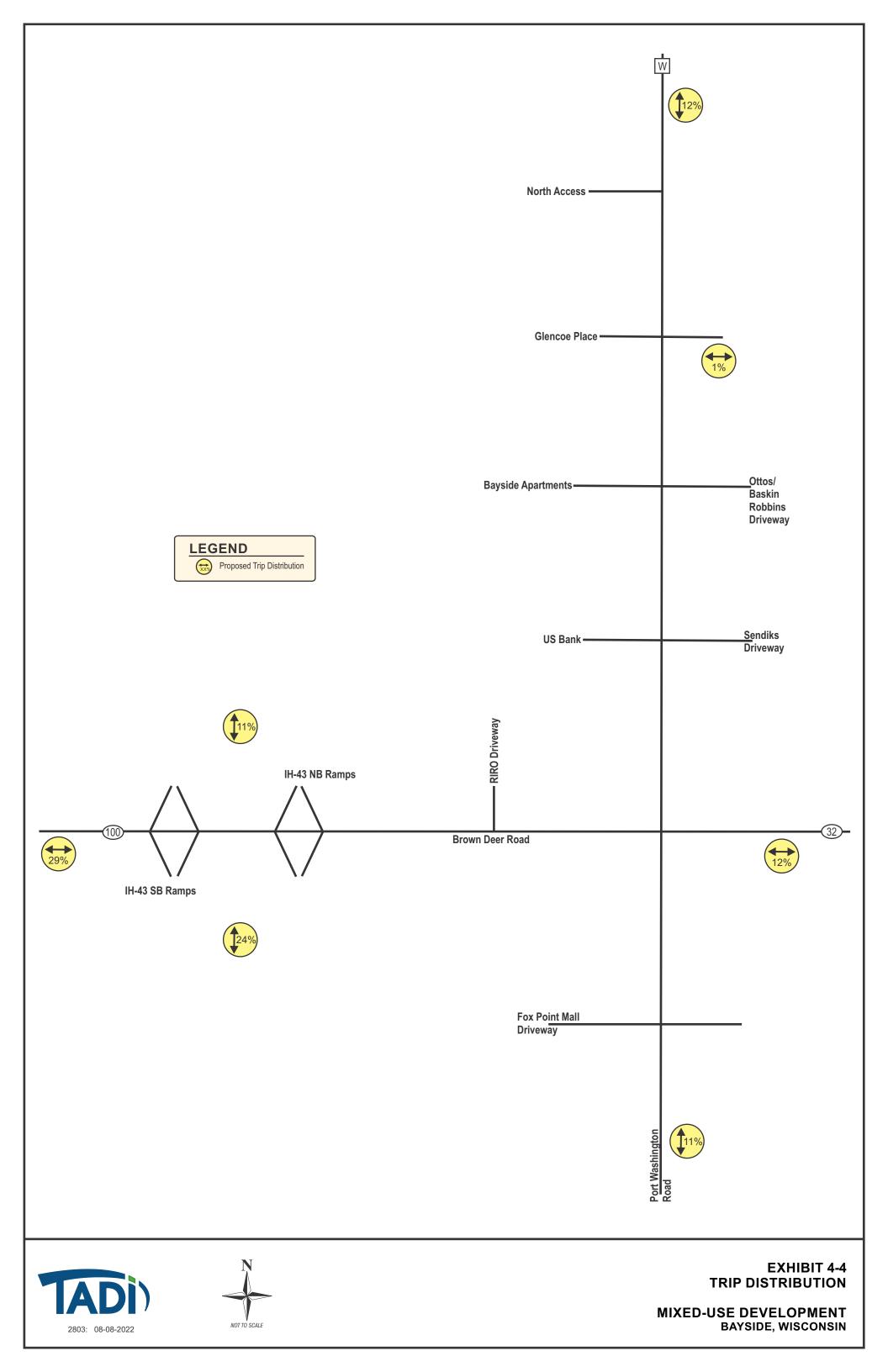


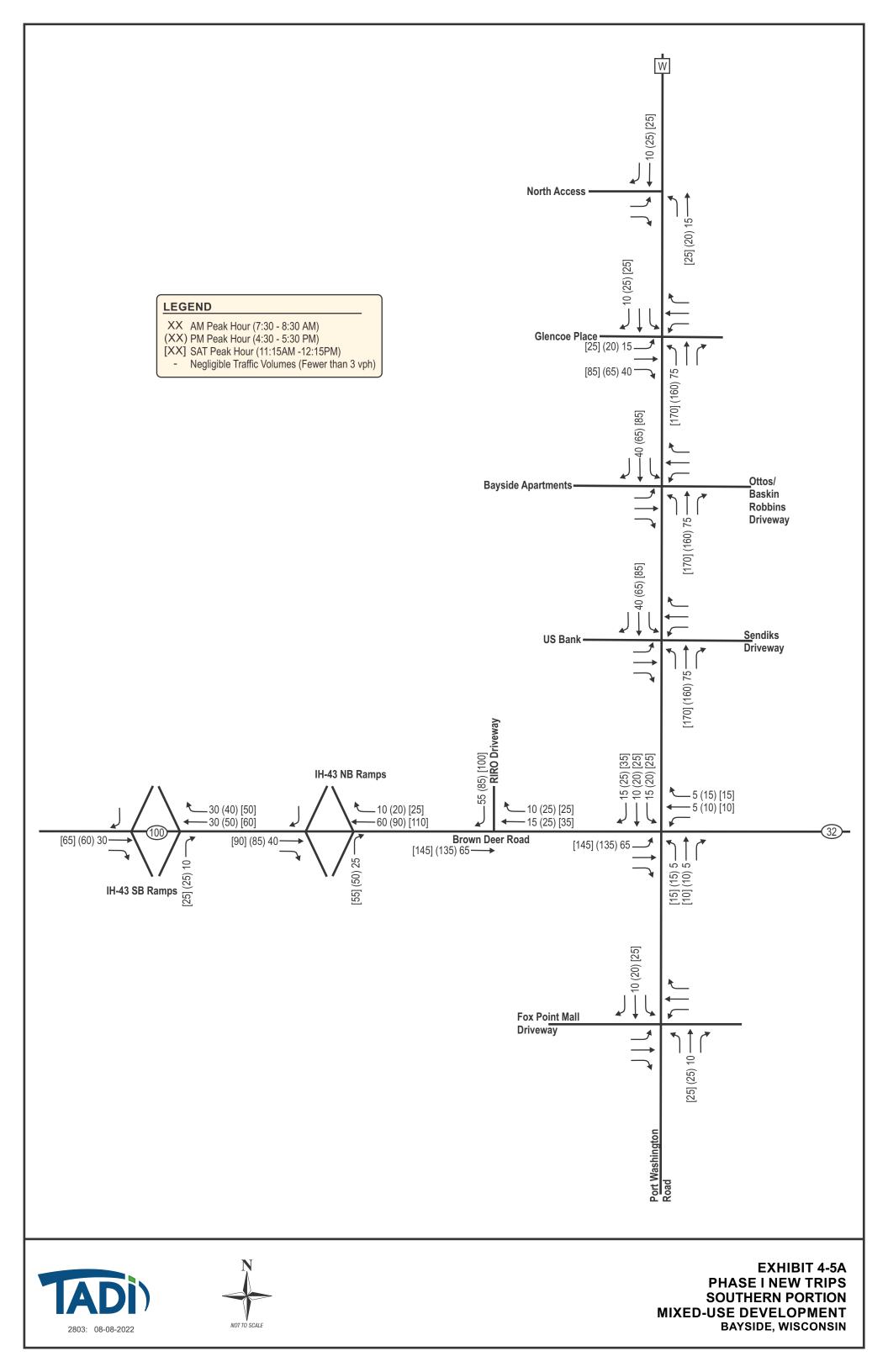
On-Site Trip Generation Table												
	ITE			AM Peak		PM Peak			SAT Peak			
Land Use	Code	Proposed Size	Weekday Daily	In	Out	Total	In	Out	Total	In	Out	Total
Strip Retail Plaza (<40k) (lower	822	16.900 x 1,000 SF	920	25	15	40	60	55	115	55	55	110
level - A)	022	10.900 X 1,000 SI	(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57)
Multifamily Housing (Mid-Rise)	221	72 Units	330	5	15	20	20	10	30	15	15	30
(upper levels - A)	221	72 01113	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Strip Retail Plaza (<40k)	822	37.000 x 1,000 SF	2,010	50	35	85	100	95	195	125	120	245
(lower level - B)	022	07.000 X 1,000 OI	(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57)
Multifamily Housing (Mid-Rise)	221	106 Units	480	10	25	35	25	15	40	20	20	40
(upper levels - B)	221	100 01113	(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Strip Retail Plaza (<40k)	822	30.900 x 1,000 SF	1,680	45	30	75	90	85	175	105	100	205
(lower level - C)	022		(54.45)	(60%)	(40%)	(2.36)	(50%)	(50%)	FCE	(51%)	(49%)	(6.57)
Multifamily Housing (Mid-Rise)	221	108 Units	490	10	25	35	25	15	40	20	20	40
(upper levels - C)			(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Multifamily Housing (Mid-Rise)	221	104 Units	470	10	25	35	25	15	40	20	20	40
(upper levels - D)			(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Multifamily Housing (Mid-Rise)	221	147 Units	670	15	40	55	35	25	60	30	25	55
(E & F)			(4.54)	(23%)	(77%)	FCE	(61%)	(39%)	FCE	(51%)	(49%)	(0.39)
Multifamily Housing (Low-Rise)	220	142 Units	990	15	50	65	50	30	80	30	30	60
Condo/Townhouse (G, H, I, J, K)			FCE	(24%)	(76%)	FCE	(63%)	(37%)	FCE	(54%)	(46%)	(0.41)
High-Turnover (Sit-Down)	932	6.000 x 1,000 SF	640	30	25	55	35	20	55	35	30	65
Restaurant (L)			(107.20)	(55%)	(45%)	(9.57)	(61%)	(39%)	(9.05)	(51%)	(49%)	(11.19)
Total Trips			8,680	215	285	500	465	365	830	455	435	890
Total Linked Trips (Minus)		(700)	(20)	(20)	(40)	(35)	(35)	(70)	(40)	(40)	(80)	
Total Driveway Trips			7,980	195	265	460	430	330	760	415	395	810
Minus Pass-by Trips	(822)	20%	-950	-25	-25	-50	-45	-45	-90	-55	-55	-110
Total New Trips			7,030	170	240	410	385	285	670	360	340	700

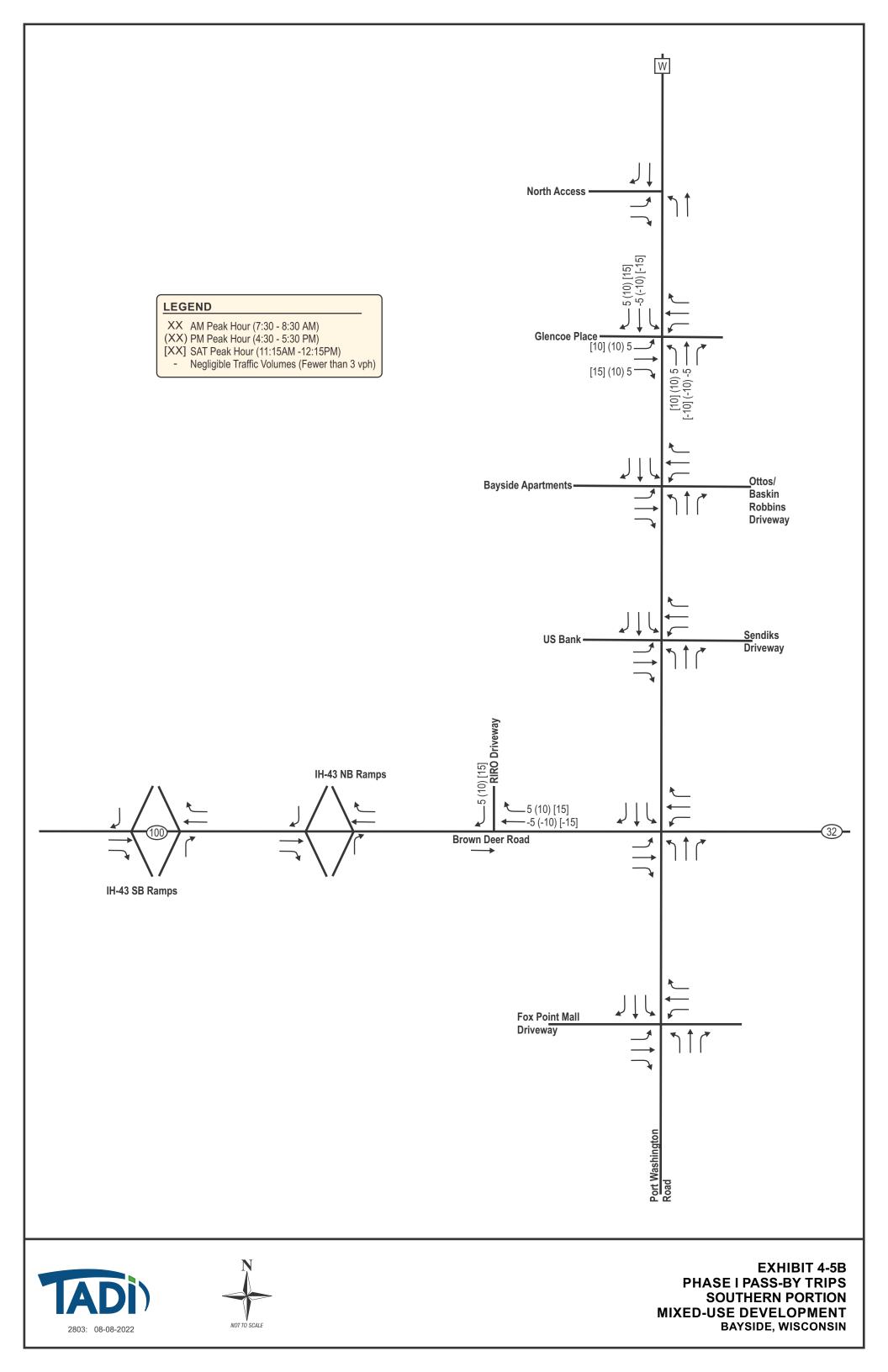
Exhibit 4-3D On-Site Trip Generation Table

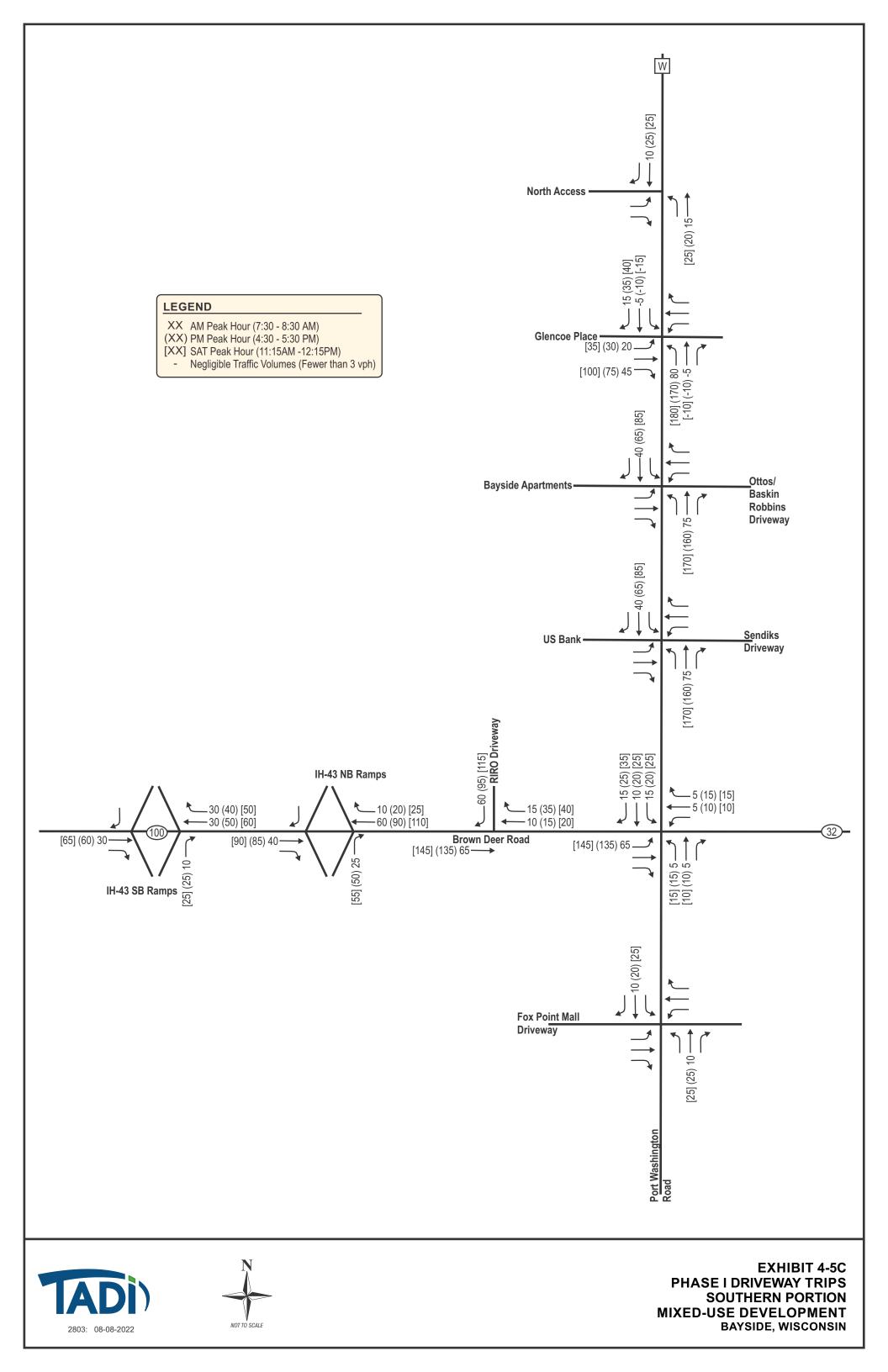


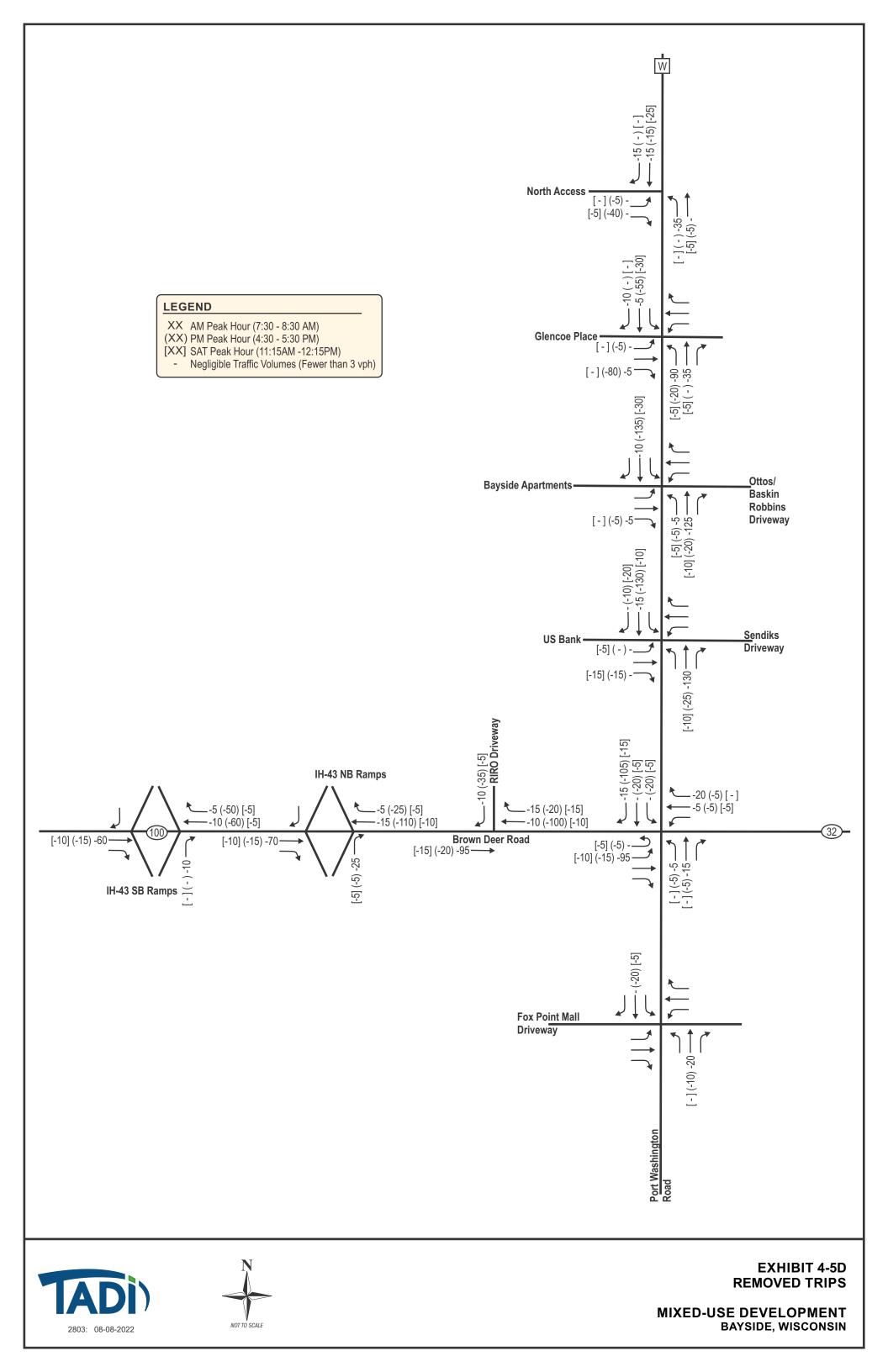
EXHIBIT 4-3D ON-SITE (FULL BUILD) TRIP GENERATION SUMMARY MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN

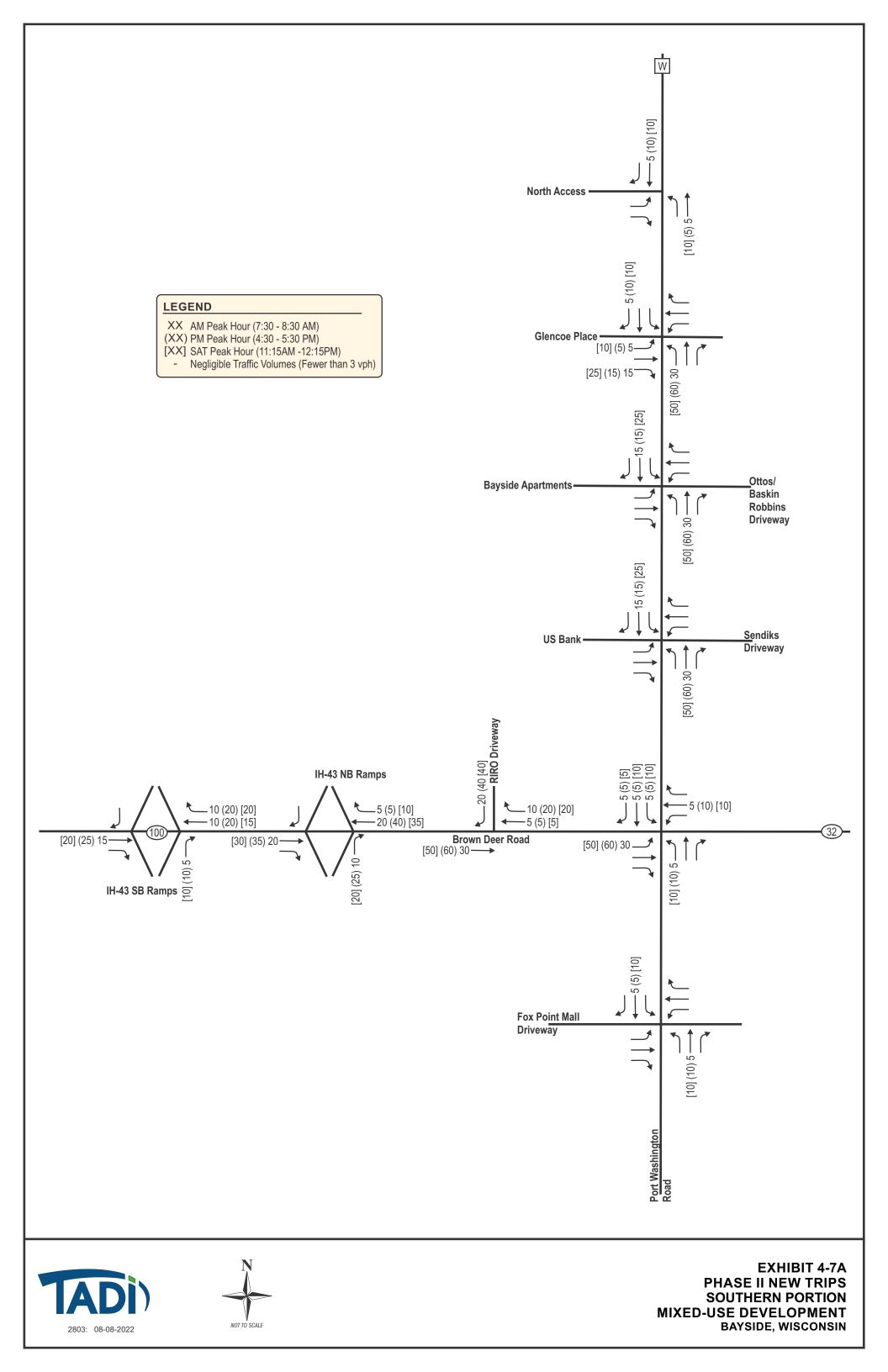


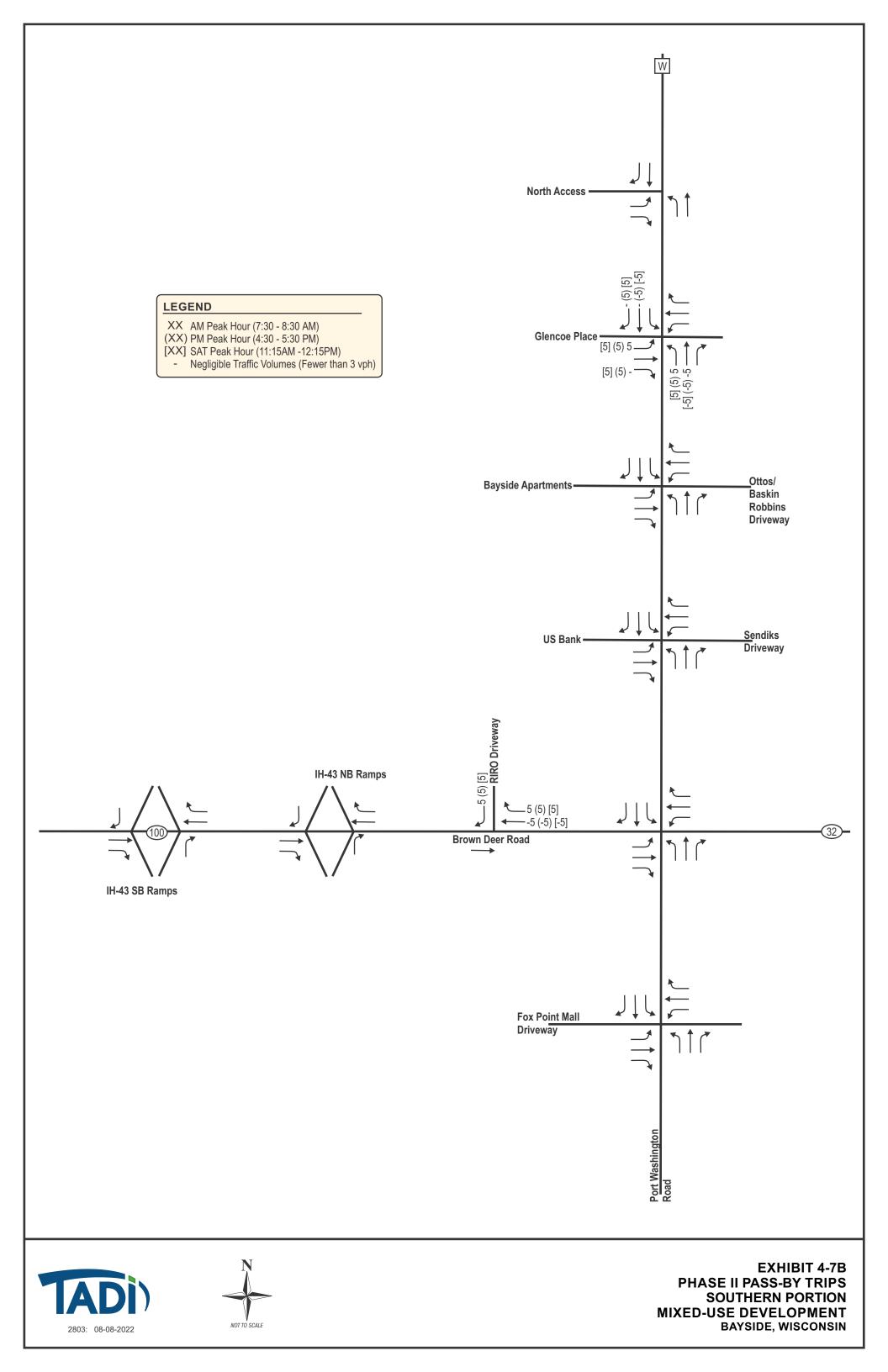


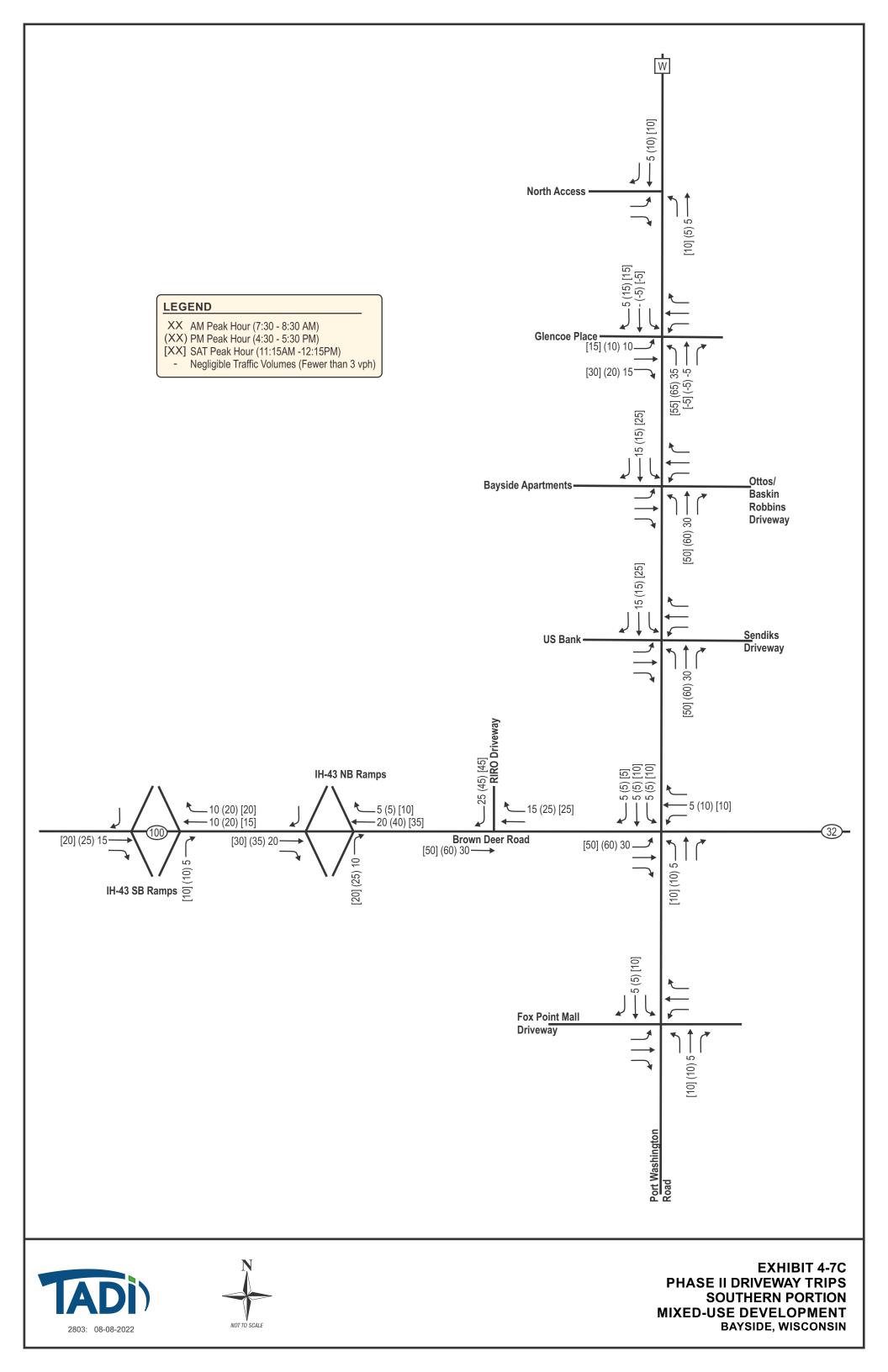


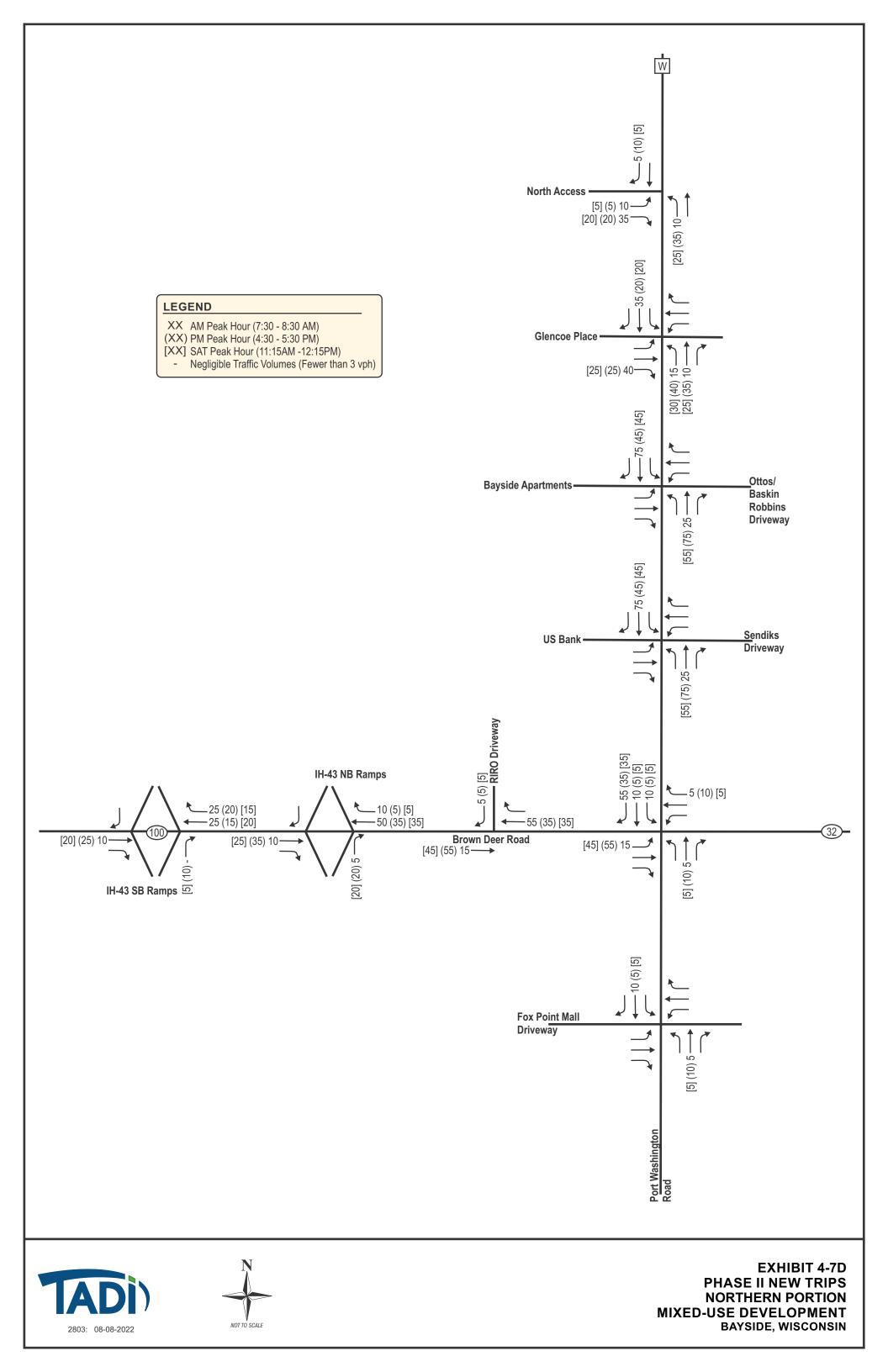


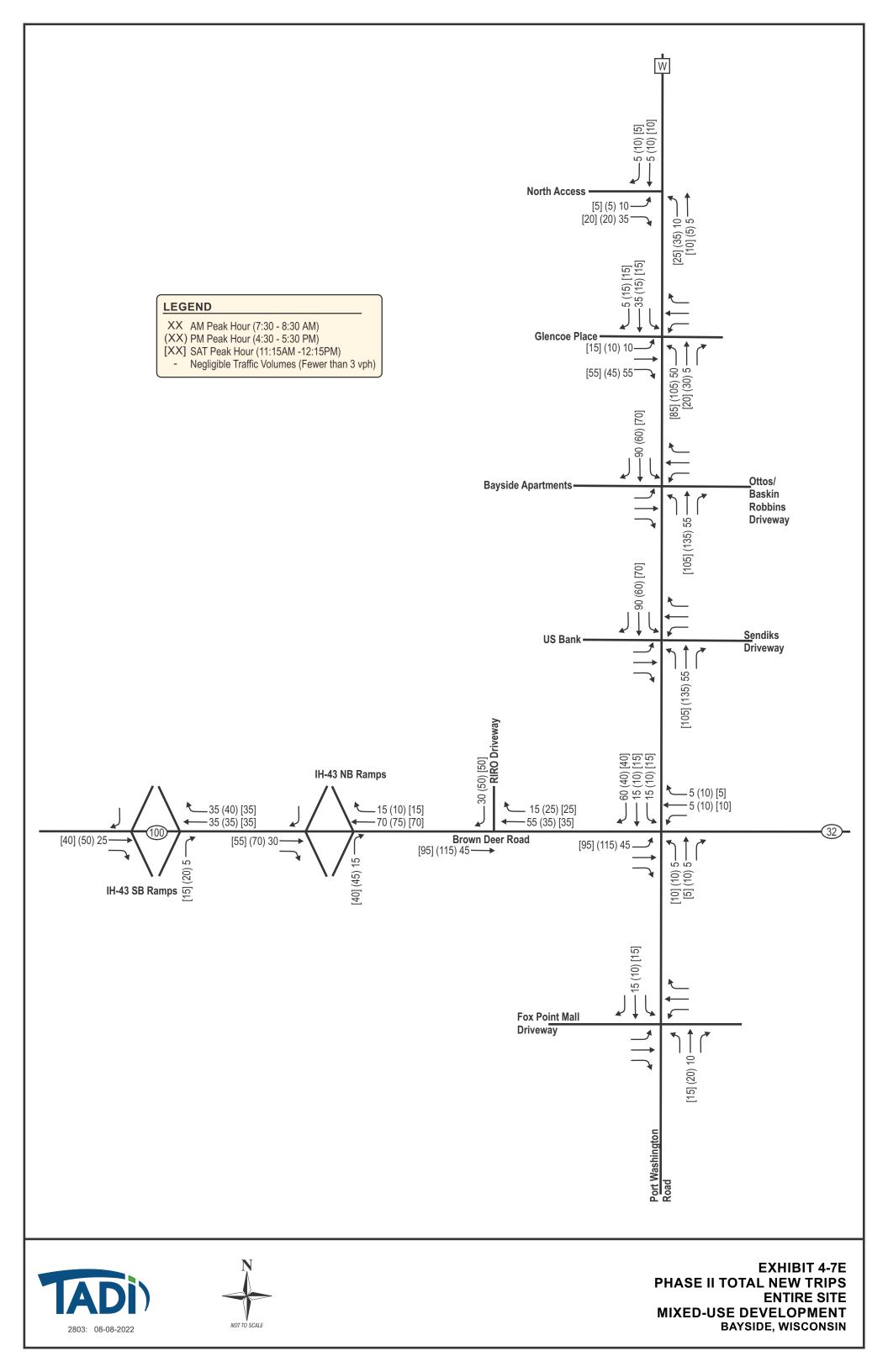


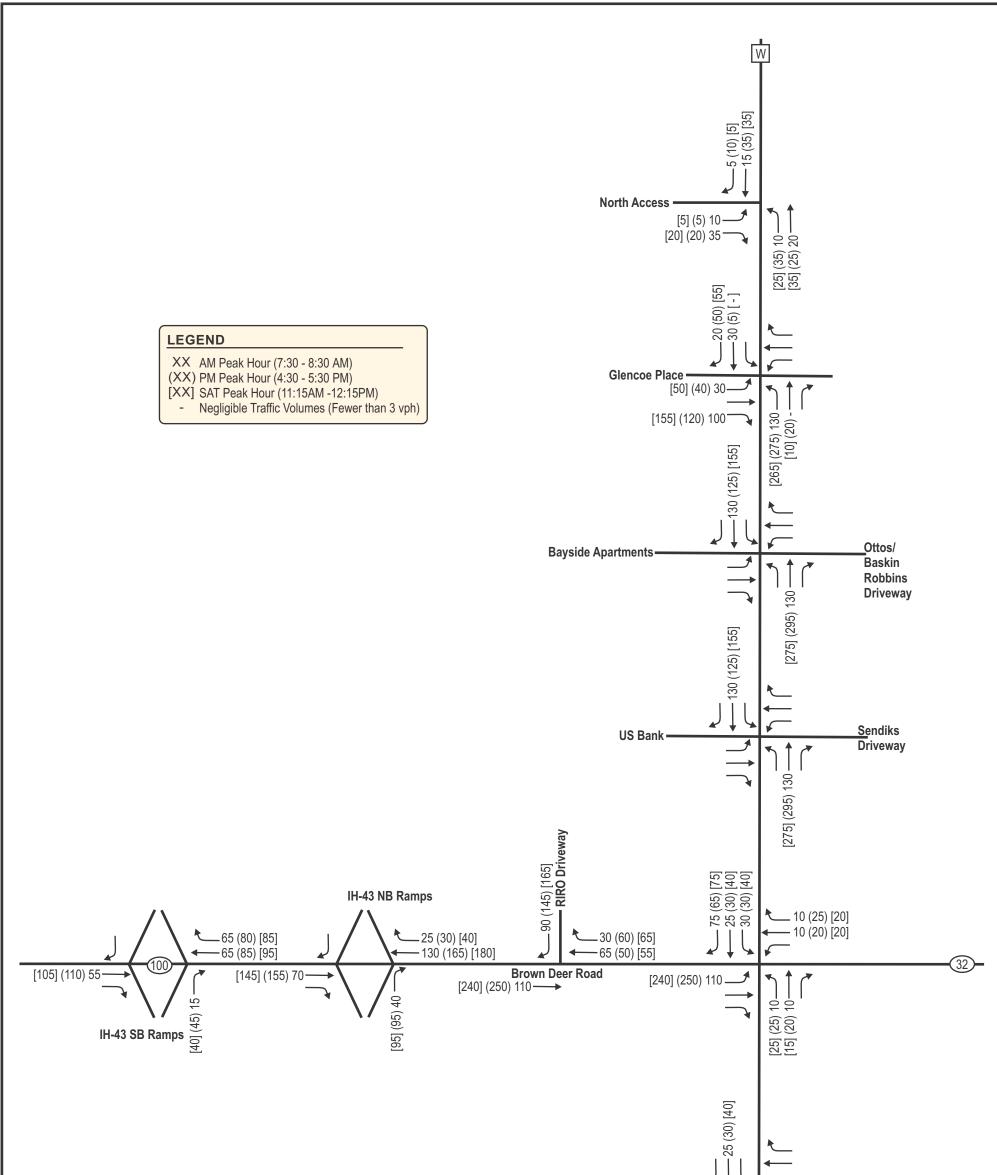




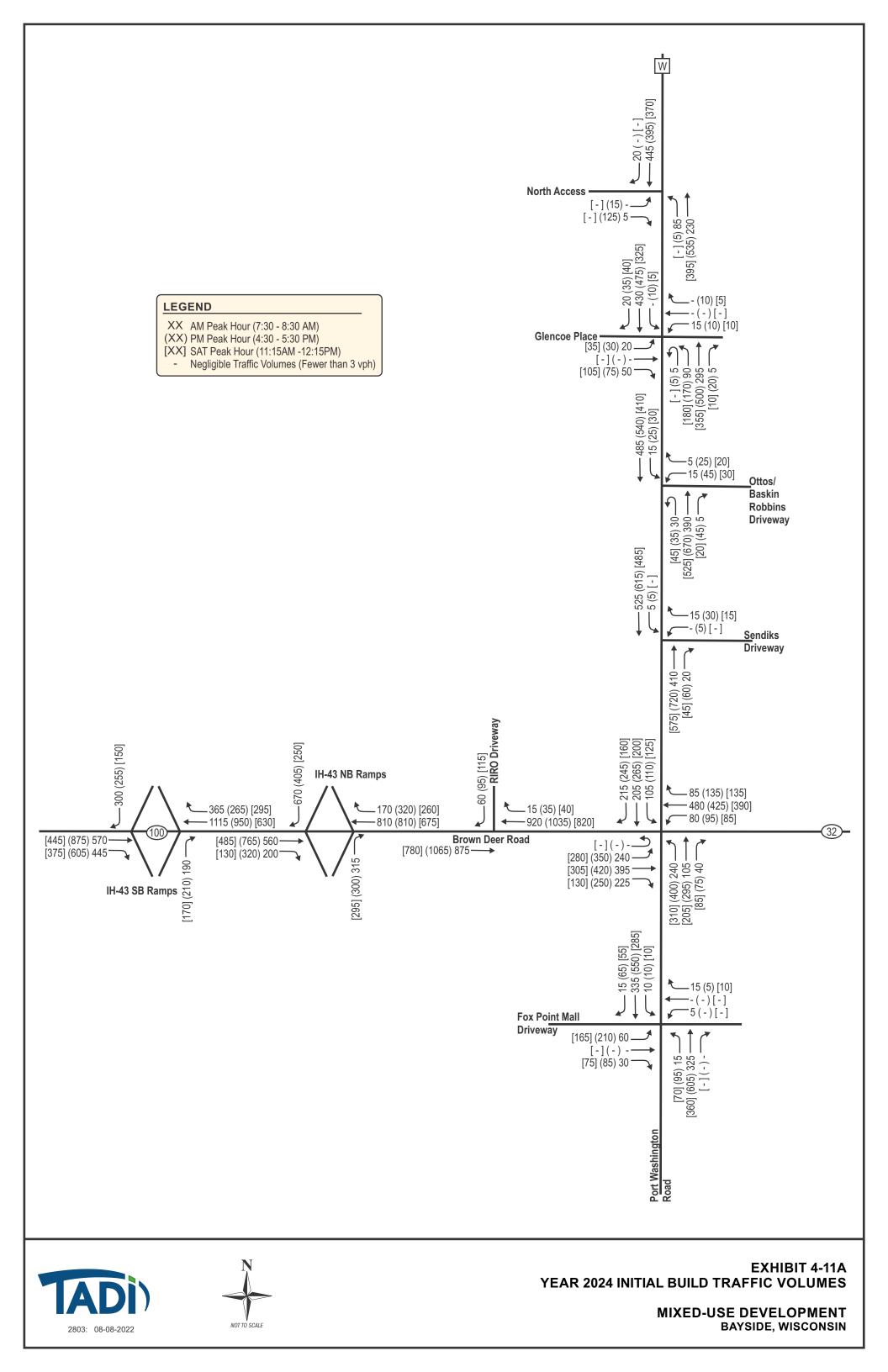


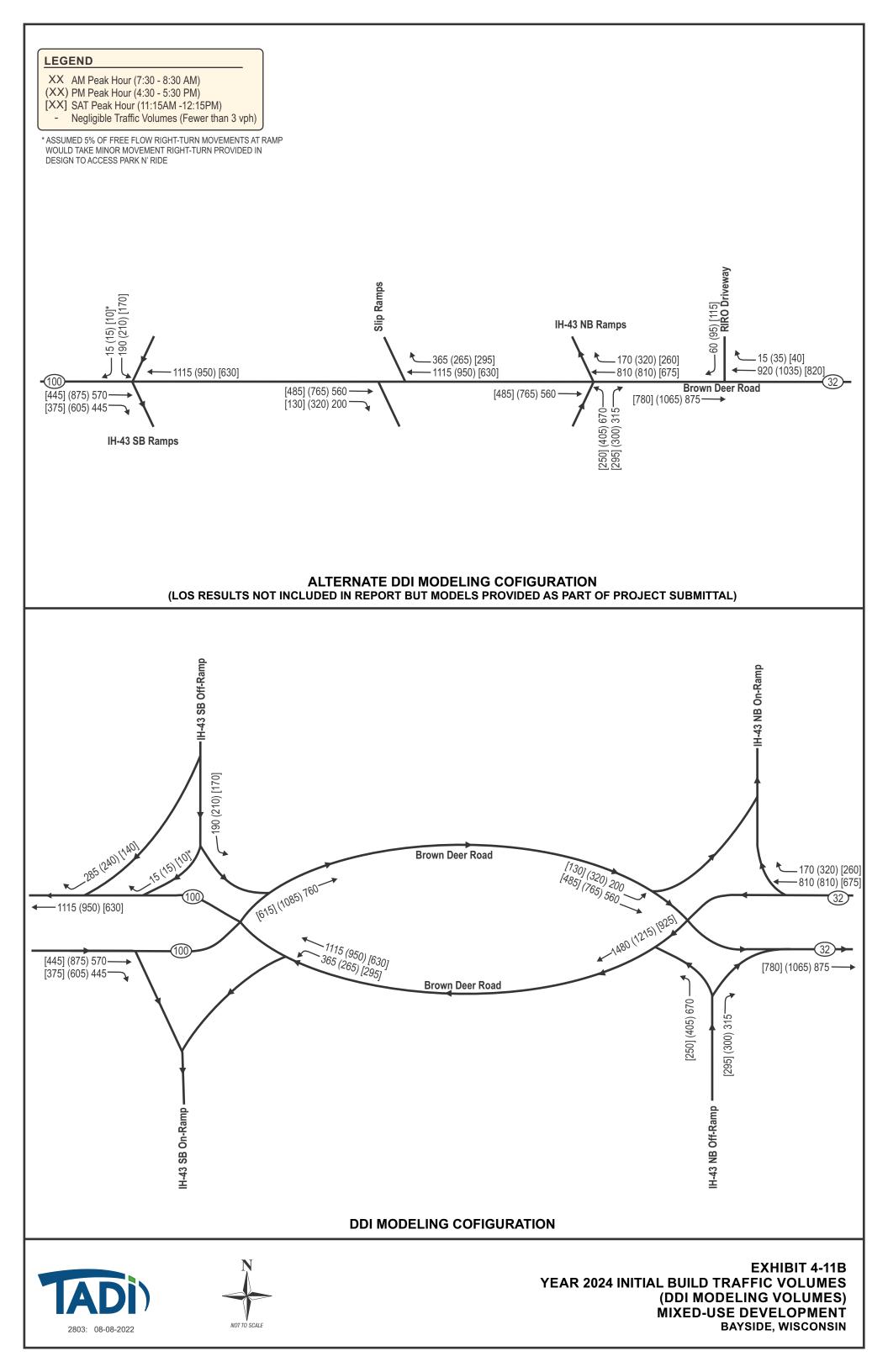


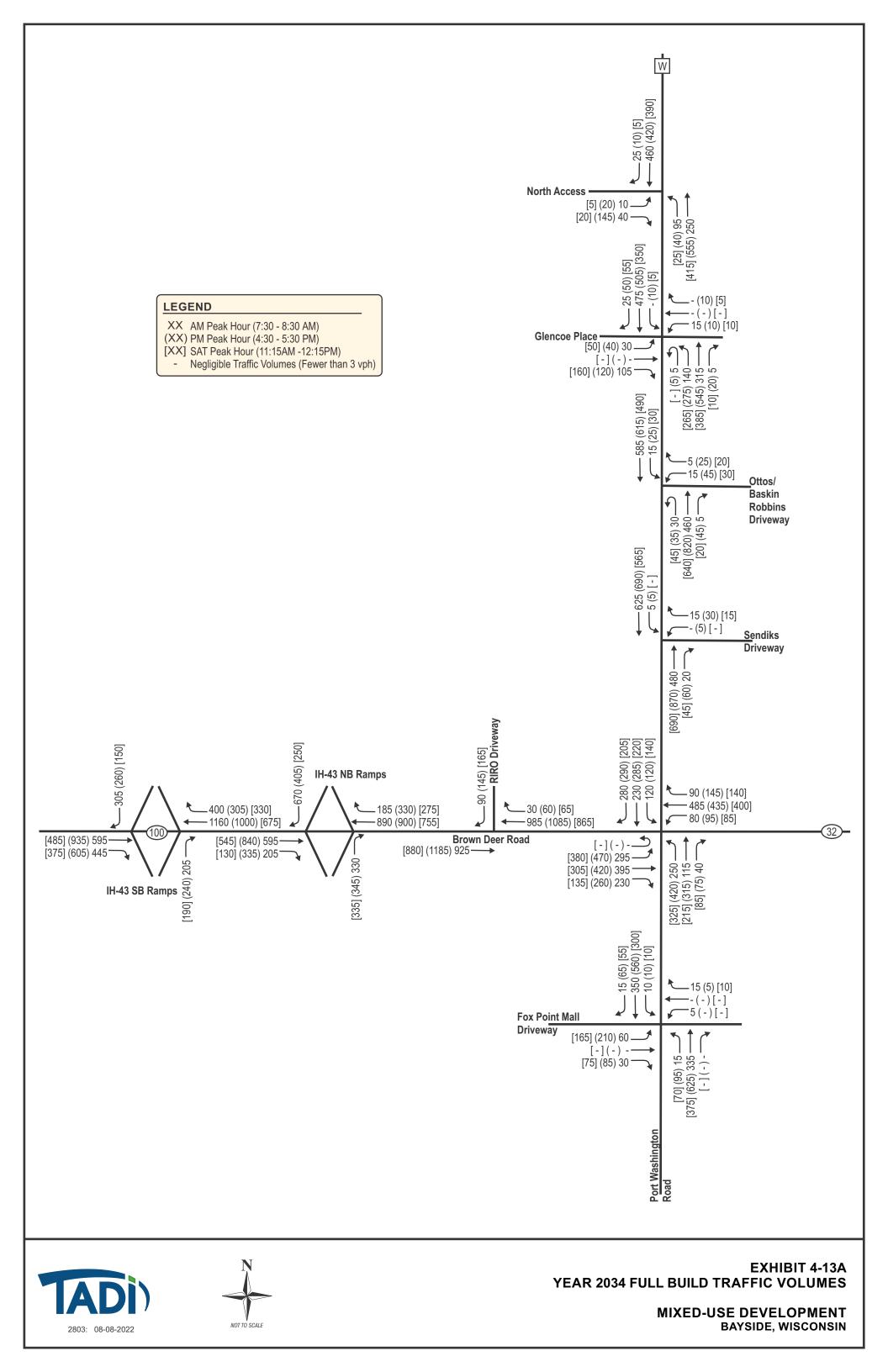


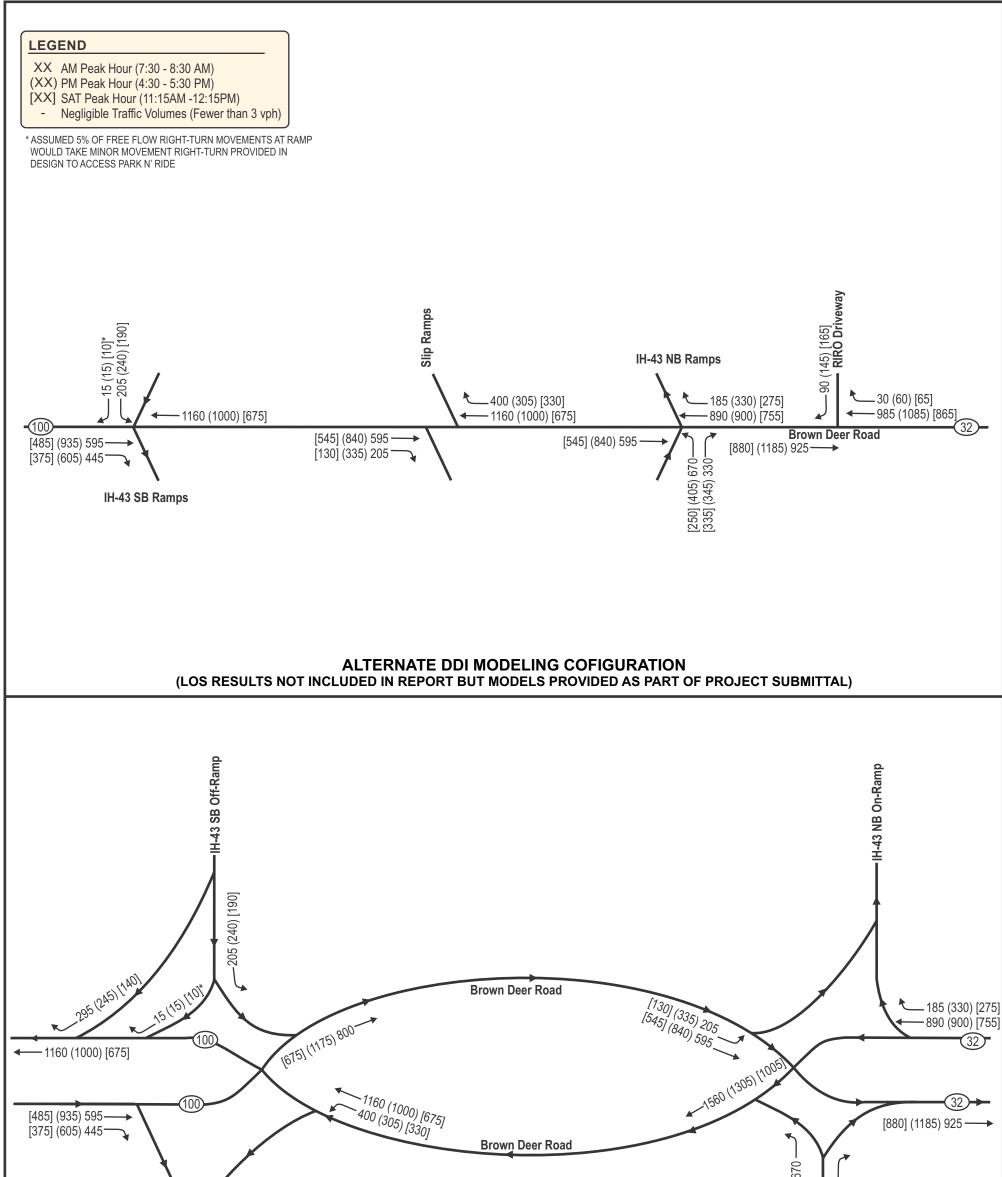


		Fox Po <u>int Mall</u> Driveway	Port Washington Road
2803: 08-08-2022	NOT TO SCALE		EXHIBIT 4-7F TOTAL NEW TRIPS PHASE I & PHASE II MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN









	IH-43 SB On-Ramp	[250] (405) 670 [335] (345) 330 [335] (345) 330
		DDI MODELING COFIGURATION
2803: 08-08-2022	NOT TO SCALE	EXHIBIT 4-13B YEAR 2034 FULL BUILD TRAFFIC VOLUMES (DDI MODELING VOLUMES) MIXED-USE DEVELOPMENT BAYSIDE, WISCONSIN

# **CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS**

#### PART A – SITE ACCESS

Two access points are proposed to accommodate the southern portion of the new development. The existing intersection of Port Washington Road at Glencoe Place is expected to provide the main full access to the southern site. An additional right-in/right-out access along Brown Deer Road, approximately 360-feet west of Port Washington Road, is also proposed to provide access to the southern site. In addition, access for the northern buildings is expected at the existing intersection of Port Washington Road at the north access roadway as well as the Glencoe Place intersection. Cross access within the site between the southern and northern sites is also expected as shown.

#### PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

#### **B1. Year 2034 Background Traffic Operating Conditions – No Modifications**

Exhibit 5-2 shows the Year 2034 background traffic peak hour operating conditions at the study area intersections. The Year 2034 background traffic analysis was conducted using existing intersection configurations and traffic control. However, as previously described *Chapter III – Part C2*, signal timings at the DDI interchange ramps were optimized to provide assumed timings at these ramp intersections. In addition, since the existing traffic signal at the Brown Deer Road intersection with Port Washington Road is located in close proximity to the ramps and the system is expected to operate as a coordinated system, the cycle length and signal timings at the Port Washington Road intersection were also optimized under the background scenario to provide the expected operation under the base condition.

As shown, all movements are expected to continue to operate at LOS D or better conditions during the typical weekday morning, weekday evening and Saturday midday peak periods under the Year 2034 background traffic volume conditions except:

- the eastbound through movements and some of the southbound movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS E/F during the typical weekday morning and evening peak periods with the current phasing.
- the northbound left-turn movements at the at the Brown Deer Road intersection with the I-43 northbound ramps which are expected to operate at LOS F during the typical weekday evening peak period with the current phasing.

#### **B2. Year 2024 Initial Build Traffic Operating Conditions – No Modifications**

Exhibit 5-3 shows the Year 2024 initial build traffic peak hour operating conditions at the study area intersections. The Year 2024 initial build traffic includes the initial build out (Phase I South Parcels) of the proposed development site. The Year 2024 initial build traffic analysis was conducted using existing intersection configurations and traffic control and optimized signal timings and offsets along Brown Deer Road based on the planned DDI configuration.

As shown, all movements are expected to continue to operate at LOS D or better conditions during the typical weekday morning, weekday evening and Saturday midday peak periods under the Year 2024 initial build traffic volume conditions except:

• the eastbound and westbound through movements and some of the southbound movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS E/F during the typical weekday morning and evening peak periods with the current phasing.

- the southbound left-turn movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS F during the typical weekday evening peak period with the current phasing.
- the eastbound and westbound movements at the Port Washington Road intersection with Glencoe Place which are expected to operate at LOS F during the typical weekday evening peak period.

#### **B3.** Year 2034 Full Build Traffic Operating Conditions – No Modifications

Exhibit 5-5 shows the Year 2034 full build traffic peak hour operating conditions at the study area intersections. The Year 2034 full build traffic includes the full build out of the proposed development site. The Year 2034 full build traffic analysis was conducted using existing intersection configurations and traffic control and optimized signal timings and offsets along Brown Deer Road based on the planned DDI configuration.

As shown, all movements are expected to continue to operate at LOS D or better conditions during the typical weekday morning, weekday evening and Saturday midday peak periods under the Year 2034 full build traffic volume conditions except:

- the eastbound and westbound through movements and some of the southbound movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS E/F during the typical weekday morning and evening peak periods with the current phasing.
- the southbound left-turn movements at the at the Brown Deer Road intersection with the I-43 southbound ramps which are expected to operate at LOS F during the typical weekday evening peak period with the current phasing.
- the eastbound and westbound movements at the Port Washington Road intersection with Glencoe Place which are expected to operate at LOS F during the typical weekday morning, weekday evening and Saturday midday peak periods.
- the westbound movements at the Port Washington Road intersection with the Baskin Robins Driveway which are expected to operate at LOS E during the typical weekday evening peak period.

#### **B4. Traffic Operating Conditions – With Modifications**

Modifications to accommodate the background and build traffic volumes are summarized in *Chapter VI – Recommendations and Conclusion*. The following outlines the location of the expected peak hour operating conditions with modifications at the study area intersections. The analysis outputs are included in the Appendix of this report.

- Exhibit 5-9 Year 2024 Background Traffic Operations With Modifications
- Exhibit 5-11 Year 2034 Background Traffic Operations With Modifications
- Exhibit 5-12 Year 2024 Initial Build Traffic Operations With Modifications
- Exhibit 5-14 Year 2034 Full Build Traffic Operations With Modifications

As shown, all movements are expected to operate desirably at LOS D or better conditions except as follows:

• *Year 2034 Full Build Traffic:* the westbound movements at the Port Washington Road intersection with the Baskin Robins Driveway which are expected to operate at LOS E during the typical weekday evening peak period under this future year condition. It is recommended to monitor operations at this driveway in the future.

#### PART C – QUEUEING ANALYSIS

To estimate storage length requirements for turn bays at the study area intersections with modifications, a queuing analysis has been conducted. Note that the 95<sup>th</sup> percentile probable queue lengths were used for the design of turn bay storage at stop sign and traffic signal-controlled intersections. The following is a list of where the results of the queuing analysis can be found.

- Year 2024 Background Traffic Exhibit 3-3
- Year 2024 Background Traffic Exhibit 5-9
- Year 2034 Background Traffic Exhibit 5-11
- Year 2024 Initial Build Traffic Exhibit 5-12
- Year 2034 Full Build Traffic Exhibit 5-14

It is noted that the expected peak hour queue lengths for the eastbound dual left-turn lanes at the Brown Deer Road intersection with Port Washington Road are all expected to fit within the dual left-turn lanes as currently designed. Due to the planned DDI design, providing additional deceleration distance to the turn lanes is not possible as that would take away from the planned westbound lanes, located immediately to the west. Therefore, no extensions to the dual left-turn lanes at this location is recommended.

# PART D – PEDESTRIAN, BICYCLE, BUS SERVICE AND MULTI-USE TRAIL CONSIDERATIONS

Pedestrian sidewalks are present along both sides of Brown Deer Road from I-43 to the east, through the limits of the study area as well as along the west side of Port Washington Road, north of Brown Deer Road, through the project limits. On-street bicycle lanes are provided along the east side of Port Washington Road, starting at Glencoe Place, and continuing north through the project limits.

There are several Milwaukee County Transit System (MCTS) routes that operate within the limits of the study area. Route 68 "Port Washington Road" provides service to the study area, traveling from the south along Port Washington Road and continuing to the west along Brown Deer Road to the Brown Deer East Park-Ride lot with approximately 30-minute headways. In addition, MCTS provides additional service to the Park-Ride lot via routes 49 and 49U which provide service along I-43 from the south to the Park-Ride lot with 30- to 60-minute headways.

Pedestrian/multi-modal accommodations within the site with connectivity to the roadway network are encouraged to promote alternative modes of transportation and relieve motorized vehicle demands on the roadway network.

#### PART E – TRAFFIC CONTROL NEEDS

Modifications to the existing traffic control are recommended at several of the study area intersections as follows.

As previously planned by WisDOT to accommodate Year 2024 background traffic:

- Install traffic signal control at the Brown Deer Road intersections with the I-43 DDI ramps.
- Interconnect the signals between the existing Brown Deer Road intersection with Port Washington Road and the new traffic signals at the Brown Deer Road intersections with the I-43 DDI ramps.

As recommended to accommodate Year 2024 background traffic:

- Modify the planned signal phasing at the I-43 southbound ramp to allow the southbound left-turn phasing to operate concurrently with the westbound through phasing through the intersection.
- Modify the planned signal phasing at the I-43 northbound ramp to allow the northbound left-turn phasing to operate concurrently with the eastbound through phasing through the intersection.

As recommended to accommodate Year 2024 initial build traffic:

• Install traffic signal control at Port Washington Road intersection with Glencoe Place, including northbound protected-permitted left-turn indications.

#### PART F – TRAFFIC SIGNAL WARRANT ANALYSIS

Warrants should be viewed as guidelines to help decide whether traffic signal controls may be installed. Meeting warrants does not translate to a legal requirement for their installation. Completed warrant analysis worksheets are included in the Appendix of this report. Development-related traffic was included based on the WisDOT hourly distributions of traffic for the various land use types for each included development area. Warrants 1 and 2 and a left-turn conflict analysis were evaluated as a part of this study under urban thresholds.

Traffic signal warrants were investigated at the Port Washington Road intersection with Glencoe Place under Year 2024 initial build and 2034 full build traffic volumes in accordance with the 2009 MUTCD. Port Washington Road was analyzed as a major street with one lane on each approach. Glencoe Place was analyzed as a minor street with one lane. With single lanes on the sideroads, all of the minor street right-turn movements were included in the warrant analysis. The posted speed limit is 35-mph along Port Washington Road therefore urban warrant thresholds were utilized.

The warrant analysis was conducted based on the 13-hour turning movement counts collected at Port Washington Road intersection with Glencoe Place in June of year 2018 and forecasted to Year 2024 and year 2034 based on a 0.25% north/south annual linear growth rate, as reflected in the WisDOT forecasts.

Based on the warrant analysis, Warrant 1, Eight-Hour Volume is not expected to be met at the Port Washington Road intersection with Glencoe Place under the year 2024 initial build volume conditions. However, the warrant is expected to be met under the year 2034 full build traffic volume conditions.

However, Warrant 2, Four-Hour Volume is expected to be met at the Port Washington Road intersection with Glencoe Place under both the year 2024 initial build and the year 2034 full build traffic volume conditions.

It is noted that with the addition of a right-turn lane on the west approach, traffic signal warrants would be expected to be met with 50-percent of the right-run volumes included in the analysis.

The left-turn conflict analysis is expected to be met under the year 2034 full build traffic volume condition. Therefore, a northbound left-turn phase should be provided with the recommended traffic signal.

		h WisDO		Le	evel of	i Servi	ce (LC	)S) pe	r Move						I/S
Intersection	Peak	Metric	Ea 7	astbou		We	estbou	1	No R	rthbo		Soı ע	uthbo √	1	LOS 8
Intersection	Hour	Lanes->	-	→ 3	لا -	-	← 2	<u>ہ</u>		<u>↑</u>	7	<b>N</b>	<u>+</u>	<b>⊻</b> 1	Delay
Nodes 101/120/140: Brown Deer		LOS	-	D	-	-	C	-		-		E	-	С	D
Road & I-43 SB Ramps	AM	Delay	-	44	-	-	30	-		-		71	-	27	35
Traffic Signal Control		Queue	-	325'	-	-	235'	-		-		260'	-	25'	
	РМ	LOS Delay	-	<b>E</b> 58	-	-	<b>D</b> 46	-		-		Е 77	-	<b>C</b> 23	<b>D</b> 52
	1 111	Queue	-	495'	-	-	255'	-		_		260'	-	25	52
		LOS	-	C	-	-	B	-		-		D	-	C	С
	SAT	Delay	-	32	-	-	16	-		-		48	-	26	23
		Queue	-	180'	-	-	145'	-		-	1	150'	-	25'	
Jada 201/210/250, Drawn Daar Baar		Lanes->	-	2	-	-	3	-	2	-	2		-		
Node 201/210/250: Brown Deer Road & I-43 NB Ramp	АМ	LOS Delay	-	<b>C</b> 22	-	-	<b>D</b> 40	-	<b>D</b> 54	-	<b>C</b> 25		-		<b>C</b> 33
Traffic Signal Control		Queue	-	185'	-	-	435'	-	345'	-	25 95'		_		- 55
		LOS	-	С	-	-	С	-	F	-	С		-		С
	PM	Delay	-	29	-	-	32	-	359	-	22		-		31
		Queue	-	260'	-	-	255'	-	310'	-	75'		-		
	C AT	LOS	-	C	-	-	B	-	<b>D</b>	-	<b>B</b>		-		B
	SAT	Delay Queue	-	27 80'	-	-	15 205'	-	46 120'	-	18 65'		-		19
		Lanes->	-	2	-	-		2	120	-	05			1	
Node 300: Brown Deer Road &		LOS	-	*	-	-		*		-				В	Α
Development RIRO Driveway	AM	Delay	-	*	-	-		*		-		· ·	-	12	1
One-Way Stop Control		Queue	-	*	-	-		*		-		· ·		25'	
		LOS	-	*	-	-		*	<u> </u>	-		· ·	-	<b>B</b>	A
	PM	Delay	-	*	-	-		*	<u> </u>	-			-	13 25'	1
		Queue LOS		*	-	-		*		-			-	25 <sup>°</sup>	Α
	SAT	Delay	-	*	-	-		*	1	-				11	1
		Queue	-	*	-	-		*		-		·		25'	
		Lanes->	2	2	1	2		2	2		2	1	2	1	
Node 400: Brown Deer Road &		LOS	D	C	Α	D		<u>C</u>	D		0	D	D	D	С
Port Washington Road (CTH W)	AM	Delay	47 70'	22	5 25'	40		20 20'	47		0 0'	49	44 105'	37 115'	31
Traffic Signal Control		Queue LOS	70 <sup>2</sup>	120'	25 <sup>°</sup>	50'		20	120'		D	110'	105 <sup>°</sup>	115 D	D
	PM	Delay	46	25	5	41		23	50		2	48	46	37	35
		Queue	90'	50'	30'	60'		15'	180'		75'	110'	130'	120'	
		LOS	D	С	Α	D		C	D		D	D	D	D	С
	SAT	Delay	45	24	5	37		20	47		4	49	43	35	33
		Queue	75'	55'	25'	50'		35'	135'		35'	115'	90'	75'	
Node 500: Port Washington Road &		Lanes-> LOS		1 B			-		1 A	1	-	-		1 *	Α
North Access Road	AM	Delay		12			_		9	*	-	-		*	1
Dne-Way Stop Control		Queue		25'			-		25'	*	-	-		*	
, ,		LOS		С			-		Α	*	-	-		*	Α
	PM	Delay		17			-		8	*	-	-		*	2
		Queue		45'			-		25'	*	-	-		*	
	SAT	LOS		<b>B</b> 13			-		<b>A</b> 8	*	-	-		*	<b>A</b>
	SAI	Delay Queue		25'			-		o 25'	*	-	-		*	
		Lanes->		1			1		1	1	1	1		1	
Node 600: Port Washington Road &		LOS		С			С		Α	*	-	Α		*	Α
Glencoe Place	AM	Delay		15			20		9	*	-	8		*	1
Two-Way Stop Control		Queue		25'			25'		25'	*	-	25'		*	
	РМ	LOS		<b>C</b> 24			<b>C</b> 23		A	*	-	A		*	A
	PIVI	Delay Queue		24			25		9 25'	*	-	9 25'		*	1
		LOS		B			C		A	*	-	<u> </u>		*	Α
	SAT	Delay		12			16		8	*	-	8		*	1
		Queue		55'			25'		25'	*	-	25'		*	
		Lanes->		-			1		-		2	1		2	
Node 700: Port Washington Road & Baskin Robins Driveway	АМ	LOS		-			<b>C</b> 15		-		*	<b>A</b> 8		*	<b>A</b>
Dine-Way Stop Control		Delay Queue		-			25'		-		*	8 25'		*	
		LOS		-		1	<u>C</u>		-		*	25 A		*	Α
	РМ	Delay		-			24		-		*	9		*	2
		Queue		-			30'		-		*	25'		*	<b> </b>
	0 A T	LOS		-			B		-		*	Α		*	Α
	SAT	Delay Queue		-			14 25'		-		*	8 25'		*	1
		Lanes->		-			1		-		2	1	2	-	
Node 800: Port Washington Road &		LOS		-		<b>i</b>	A		-		*	A	*	-	Α
Sendiks Driveway	AM	Delay		-			9		-		*	8	*	-	1
One-Way Stop Control		Queue		-		<u> </u>	25'		-		*	25'	*	-	
	<b></b>	LOS		-			<b>B</b>		-		*	<b>A</b>	*	-	Α
	PM	Delay		-			13 25'		-		*	9 25'	*	-	1
		Queue LOS		-			25 B		-		*	25 <sup>°</sup>	*	-	Α
	SAT	Delay		-			10				*	8	*	-	1
		Queue		-			25'		-		*	25'	*	-	
		Lanes->	2		1		1		1		2	1		2	
Node 900: Port Washington Road &		LOS	D		D		D		Α		4	Α		Α	В
	AM	Delay	38		88		43		6		6 	8		9	11
Fox Pointe Mall Driveway			35'	1 3	0'	I	35'		25'	6	5'	25'		90'	<u> </u>
		Queue	(				0				Λ				D
Fox Pointe Mall Driveway	РМ	LOS	<b>C</b> 20		<b>B</b> 9		<b>C</b> 29		<b>B</b> 11		<b>4</b> 9	<b>B</b> 12		B 17	<b>B</b> 14
Fox Pointe Mall Driveway	РМ	LOS Delay	20	1	B 9 5'		29		11		<b>4</b> 9 35'	12	1	B  7 05'	<b>B</b> 14
Fox Pointe Mall Driveway	РМ	LOS		1 5	9				-	1:	9		1 2(	17	



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		h WisDO							r Move	ment	by Ap	proacl	<u>1</u>		I/S
	Peak			stbou	nd	W	estbou	Ind	Nor	thbou	und	So	uthbo		LOS 8
Intersection	Hour	Metric Lanes->	7	→ 3	<u>لا</u> -	L -	← 2	⊼ -	R	<u>↑</u>	7	لا 1	→ -	<b>⊻</b> 1	Delay
Nodes 101/120/140: Brown Deer		LOS	-	E	-	-	C	-		_		E	-	C	D
Road & I-43 SB Ramps	AM	Delay	-	57	-	-	33	-		-		71	-	27	41
Traffic Signal Control		Queue	-	405'	-	-	490'	-		-		260'	-	25'	
		LOS	-	<b>F</b>	-	-	E	-		-		F	-	C	F
	PM	Delay Queue	-	103 615'	-	-	60 285'	-		-		87 285'	-	23 25'	80
		LOS	-	D	-	-	203 B	-		-		205 D	-	23 C	С
	SAT	Delay	-	35	-	-	17	-		-		49	-	26	24
		Queue	-	230'	-	-	155'	-		-		165'	-	25'	
		Lanes->	-	2	-	-	3	-	2	-	2		-		
Node 201/210/250: Brown Deer Roac & I-43 NB Ramp	AM	LOS Delay	-	<b>C</b> 28	-	-	<b>D</b> 42	-	<b>D</b> 54	-	<b>C</b> 25		-		<b>D</b> 36
Traffic Signal Control	7 (101	Queue	-	245'	-	-	465'	-	345'	_	100'		-		50
		LOS	-	С	-	-	С	-	F	-	С		-		С
	PM	Delay	-	34	-	-	34	-	359	-	22		-		34
		Queue	-	315'	-	-	295'	-	310'	-	85'		-		
	SAT	LOS	-	<b>C</b> 27	-	-	<b>B</b> 16	-	<b>D</b> 46	-	<b>B</b> 19		-		<b>C</b> 21
	SAI	Delay Queue	-	100'	-	-	215'	-	40 120'	-	75'		-		21
		Lanes->	-	2	-	-	210	2	120	-	10		-	1	
Node 300: Brown Deer Road &		LOS	-	*	-	-		*		-			-	В	Α
Development RIRO Driveway	AM	Delay	-	*	-	-		*		-			-	13	1
One-Way Stop Control		Queue	-	*	-	-		*	┣───	-			-	25'	-
	РМ	LOS	-	*	-	-		*		-				<b>C</b> 15	<b>A</b>
	1-141	Delay Queue	-	*	-	-		*		-			-	15 25'	1 '
		LOS	-	*	-	-		*		-				B	Α
	SAT	Delay	-	*	-	-		*		-			-	13	2
		Queue	-	*	-	-		*	<u> </u>	-			-	25'	ļ
		Lanes->	2	2	1	2		2	2		2	1	2	1	
Node 400: Brown Deer Road & Port Washington Road (CTH W)	AM	LOS Delay	<b>D</b> 46	<b>C</b> 22	<b>A</b> 5	<b>D</b> 40		22	<b>D</b> 47		D  1	<b>D</b> 49	<b>D</b> 44	<b>D</b> 36	<b>C</b> 32
Traffic Signal Control		Queue				40 50'		. <u>~</u> 30'	47		0'	49 125'			
		LOS	D	C	A	D		<u> </u>	D		D	D	D	C	D
	PM	Delay	46	25	5	41	2	27	51	4	3	51	47	34	37
		Queue	120'	55'	30'	60'		40'	185'		75'	130'	135'	120'	
	<b></b>	LOS	D	C	Α	D		<u> </u>	D		<u>D</u>	D	D	C	D
	SAT	Delay	45 110'	24 60'	5 25'	37 50'	2 2	2	47		17 40'	49 135'	43 100'	33 80'	35
		Queue Lanes->	110	1	20	50	-	15	140' <i>1</i>	1	+0 -	-		00 1	
Node 500: Port Washington Road &		LOS		B			-		A	*	-	-		*	Α
North Access Road	AM	Delay		13			-		9	*	-	-		*	1
One-Way Stop Control		Queue		25'			-		25'	*	-	-		*	
		LOS		С			-		Α	*	-	-		*	Α
	PM	Delay		17 45'			-		8 25'	*	-	-		*	2
		Queue LOS		40 B					25 A	*	-	-		*	Α
	SAT	Delay		13			-		8	*	-	-		*	
		Queue		25'			-		25'	*	-	-		*	
		Lanes->		1			1		1	1	1	1		1	
Node 600: Port Washington Road &		LOS		C			D		Α	*	-	Α		*	Α
Glencoe Place	AM	Delay		20 25'			30 25'		9 25'	*	-	8 25'		*	3
Two-Way Stop Control		Queue LOS		<u>F</u>			<u>F</u>		25 A	*	-	<u>25</u>		*	Α
	PM	Delay		70			56		9	*	-	9		*	8
		Queue		120'			25'		25'	*	-	25'		*	
		LOS		С			D		Α	*	-	Α		*	Α
	SAT	Delay		23			31		9	*	-	8		*	5
		Queue		55'			25'		25'		-	25'		2	
Node 700: Port Washington Road &		Lanes-> LOS		-			1 C		-		2 *	1 A		*	Α
Baskin Robins Driveway	AM	Delay		-			15		-		*	8		*	1
One-Way Stop Control		Queue		-			25'		-		*	25'		*	<u> </u>
		LOS		-			D		-		*	Α		*	Α
	PM	Delay		-			27		-		*	9		*	2
		Queue LOS		-			30' C		-		*	25'		*	^
	SAT	Delay					16		-		*	<b>A</b> 8		*	<b>A</b>
	•	Queue		-			25'		-		*	25'		*	
		Lanes->		-			1		-		2	1	2	-	
Node 800: Port Washington Road &		LOS		-			Α		<u> </u>		*	Α	*	-	Α
Sendiks Driveway	AM	Delay		-			9 25'		-		*	8	*	-	1
One-Way Stop Control		Queue LOS		-			25' B		-		*	25'	*	-	Α
	РМ	Delay		-			14				*	9	*	-	1
		Queue	L	-			25'				*	25'	*	-	<u> </u>
		LOS		-			В		-		*	Α	*	-	Α
	SAT	Delay		-			11		-		*	8	*	-	1
		Queue		-	1		25'		-		*	25'	*	<u> </u>	<b> </b>
Node 900: Port Washington Road &		Lanes->	2		1 D		1 D		1		2	1		2	<b>-</b>
Fox Pointe Mall Driveway	AM	LOS Delay	<b>D</b> 38		<b>)</b> 88		43		<b>A</b> 6		<b>4</b> 6	<b>A</b> 8		A 9	<b>B</b> 11
Traffic Signal Control	,	Queue	35'		0'		35'		25'		5 5'	° 25'		9 95'	1 ''
<b>2</b>		LOS	C	(	0		С		B		4	B		В	В
	PM	Delay	21		20		29		11	9	9	12		17	14
		Queue	95'		5'		25'		50'		40'	25'		10'	<u> </u>
	SAT	LOS Delay	<b>B</b> 18		<b>B</b> 7		<b>C</b> 25		<b>B</b> 10		<b>4</b> 9	<b>B</b> 13		<b>B</b> 15	<b>B</b>
		10012V	18	. 1	1		/0				J	13		J	13



2803: 08-08-2022

TADI)

		h WisDO		Le	evel of	Servi	ce (LC	)S) pe	r Move						I/S
Intersection	Peak Hour	Metric	Ea 7	astbou I →	nd ע	We	estboι ←	und ∣ ⊾	Nor	<u>thbo</u> ↑	und 7	Sou لا	uthbo ↓	und ∠⊔	LOS & Delay
		Lanes->	-	3	-	-	2	-		-		1	-	1	
Nodes 101/120/140: Brown Deer Road & I-43 SB Ramps	АМ	LOS	-	<b>E</b> 73	-	-	<b>D</b> 40	-		-		F	-	<b>C</b> 28	D 51
Traffic Signal Control	AIVI	Delay Queue	-	445'	-	-	40 530'	-		-		81 285'	-	28 25'	51
		LOS	-	F	-	-	E	-		-		F	-	C	F
	PM	Delay	-	145	-	-	79	-		-		127	-	23	111
		Queue	-	700'	-	-	325'	-		-		340'	-	25'	
	о <b>л</b> т	LOS	-	D	-	-	B	-		-		D	-	C	C
	SAT	Delay Queue	-	37 260'	-	-	17 160'	-		-		51 180'	-	26 25'	25
		Lanes->	-	200	-	-	3	-	2	_	2	100	-	20	
Node 201/210/250: Brown Deer Road		LOS	-	C	-	-	D	-	D	-	C		-		D
& I-43 NB Ramp	AM	Delay	-	34	-	-	51	-	54	-	25		-		44
Traffic Signal Control		Queue	-	285'	-	-	530'	-	345'	-	105'		-		
	РМ	LOS	-	<b>D</b> 42	-	-	<b>D</b> 37	-	<b>F</b> 359	-	<b>C</b> 23		-		D 39
		Delay Queue	-	4 <u>2</u> 375'	-	-	380'	-	310'	-	100'		-		39
		LOS	-	C	-	-	B	-	D	-	B		-		С
	SAT	Delay	-	29	-	-	17	-	46	-	19		-		22
		Queue	-	120'	-	-	240'	-	120'	-	85'		-		
		Lanes->	-	2	-	-		2		-		-		1	
Node 300: Brown Deer Road & Development RIRO Driveway	AM	LOS Delay	-	*	-	-		*		-		-		<b>C</b> 15	<b>A</b> 1
One-Way Stop Control	<i>r</i> nivî	Delay Queue	-	*	-	-		*		-				15 25'	
		LOS	-	*	-	-		*	1	-		-	-	<u>C</u>	Α
	PM	Delay	-	*	-	-		*		-				18	2
		Queue	-	*	-	-		*		-			-	40'	
		LOS	-	*	-	-		*		-		-		C	A
	SAT	Delay	-	*	-	-		*		-		-	-	15	2
		Queue Lanes->	- 2	* 2	- 1	- 2		2	2	-	2	1	2	35' 1	
Node 400: Brown Deer Road &		LOS	D	C	A	D		_ C	D		D	D	D	D	С
Port Washington Road (CTH W)	AM	Delay	48	22	5	41		24	48		11	53	44	35	34
Traffic Signal Control		Queue	105'	110'	25'	50'	24	40'	125'	8	85'	140'	120'	145'	
		LOS	D	С	Α	D		0	D		D	D	D	С	С
	PM	Delay	51	25	4	42		33	51		4	54	48	31	33
		Queue LOS	165' D	70' C	40'	60' D		50' C	195' D		85' D	140' D	145' D	140' C	D
	SAT	Delay	48	24	5	38		26	48		19	48	44	31	37
	•	Queue	135'	60'	25'	50'		30'	150'		45'	145'	110'	95'	01
		Lanes->		1			-		1	1	-	-		1	
Node 500: Port Washington Road &		LOS		С			-		Α	*	-	-		*	Α
North Access Road	AM	Delay		15			-		9	*	-	-		*	2
One-Way Stop Control		Queue		25' C			-		25'	*	-	-		*	
	РМ	LOS Delay		22			-		<b>A</b> 9	*	-	-		*	<b>A</b> 3
	1 171	Queue		70'					25'	*	-	-		*	3
		LOS		В			-		A	*	-	-		*	Α
	SAT	Delay		13			-		8	*	-	-		*	1
		Queue		25'			-		25'	*	-	-		*	
		Lanes->		1			1		1	1	1	1		1 *	
Node 600: Port Washington Road & Glencoe Place	AM	LOS		D 33			<b>F</b> 55		<b>A</b> 9	*	-	<b>A</b> 8		*	<b>A</b> 6
Two-Way Stop Control		Delay Queue		80'			25'		25'	*	-	25'		*	0
		LOS		F			F		B	*	-	A		*	F
	PM	Delay		492			191		11	*	-	9		*	54
		Queue		395'			60'		40'	*	-	25'		*	
	o 17	LOS		F			F		Α	*	-	Α		*	С
	SAT	Delay		74			59		9	*	-	8		*	15
		Queue Lanes->		195' -			25' 1		25' -		2 -	25' 1		2	
Node 700: Port Washington Road &		LOS		-			С		-		*	A		*	Α
Baskin Robins Driveway	AM	Delay		-			18		-		*	8		*	1
One-Way Stop Control		Queue		-			25'		-		*	25'		*	
	<b>D</b> 14	LOS		-			<b>E</b>		-		*	<b>B</b>		*	Α
	PM	Delay		-			40 55'		-		*	10 25'		*	2
		Queue LOS		-			55 C		-		*	25 <sup>°</sup>		*	Α
	SAT	Delay	1	-		1	19		-		*	9		*	1
		Queue		-			25'		-		*	25'		*	
		Lanes->		-			1		-		2	1	2	-	
Node 800: Port Washington Road &		LOS		-			B		-		*	Α	*	-	Α
Sendiks Driveway	AM	Delay		-			11 25'		-		*	8 25'	*	-	1
One-Way Stop Control		Queue LOS		-			25 <sup>°</sup>		-		*	25' B	*	-	Α
	РМ	Delay		-			17		-		*	□ 11	*	-	1
		Queue	L			L	25'		<u> </u>		*	25'	*	-	Ľ
		LOS		-			В		-		*	Α	*	-	Α
	SAT	Delay		-			12		-		*	9	*	-	1
		Queue	<u> </u>	-	1	<b> </b>	25'		-		*	25'	*	-	
Node 900: Port Washington Bood 9		Lanes->	2		1 D		1 D		1		2 A	1		2	P
Node 900: Port Washington Road & Fox Pointe Mall Driveway	AM	LOS Delay	<b>D</b> 38		<b>)</b> 88		43		<b>A</b> 6		<mark>А</mark> 6	<b>A</b> 8		<b>4</b> 9	<b>B</b> 11
Traffic Signal Control	7 3171	Queue	38		0'		35'		6 25'		5'	8 25'		9 15'	
		LOS	C		0		C		B		A	B		3	В
	PM	Delay	21	2	20		29		11		9	12	1	7	14
		Queue	95'		5'		25'		50'		45'	25'		15'	
		LOS	В		<b>B</b> 7		<b>C</b> 25		В		<b>A</b> 9	<b>B</b> 13		<b>3</b> 5	B
	SAT	Delay	18						10				4	4-	13



**EXHIBIT 5-5** YEAR 2034 FULL BUILD TRAFFIC OPERATIONS WITHOUT MODIFICATIONS MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN** 

		With Moo		Le	evel of	Servi	ce (LO	S) per	r Move						I/S
	Peak		-	astbou	-		estbou			rthbou			uthbo	-	LOS 8
Intersection	Hour	Metric Lanes->	7	→ 3	لا -	<u>لا</u>	← 2	<u>ہ</u>	Γ	<u>↑</u>	7	ע 1	→ -	<b>∠</b> 1	Delay
lodes 101/120/140: Brown Deer		LOS	-	C	-	-	C	-		-		B	-	C	С
Road & I-43 SB Ramps	AM	Delay	-	29	-	-	21	-		-		15	-	21	24
raffic Signal Control		Queue	-	265'	-	-	375'	-		-		115'	-	25'	
	РМ	LOS Delay	-	<b>C</b> 26	-	-	<b>C</b> 23	-		-		<b>C</b> 22	-	<b>B</b> 15	<b>C</b> 24
	1 101	Queue	-	365'	-	-	275'	-		-		140'	-	25'	24
		LOS	-	C	-	-	С	-		-		В	-	В	С
	SAT	Delay	-	21	-	-	20	-		-		17	-	18	20
		Queue	-	145'	-	-	145'	-	0	-	0	95'	-	25'	
lode 201/210/250: Brown Deer Road		Lanes-> LOS	-	2 B	-	-	3 C	-	2 C	-	2 B		-		в
4 I-43 NB Ramp	AM	Delay	-	17	-	-	20	-	29	-	14		-		19
raffic Signal Control		Queue	-	100'	-	-	185'	-	260'	-	65'		-		
		LOS	-	В	-	-	С	-	С	-	В		-		В
	PM	Delay	-	15	-	-	23	-	29	-	15 60'		-		19
		Queue LOS	-	120'	-	-	225' C	-	170' C	-	60 <sup>°</sup>		-		С
	SAT	Delay	-	19	-	-	22	-	24	-	13		-		21
		Queue	-	85'	-	-	150'	-	90'	-	50'		-		
		Lanes->	-	2	-	-	2			-		-	-	1	
lode 300: Brown Deer Road &	A N 4	LOS	-	*	-	-		*		-		· ·	-	<b>B</b>	<b>A</b>
Development RIRO Driveway Dne-Way Stop Control	AM	Delay Queue	-	*	-	-		* *		-		· · ·	-	12 25'	1
no may diop donirol		LOS	-	*	-	-	1	*		-		.		25 B	Α
	PM	Delay	-	*	-	-	t.			-			-	12	1
		Queue	-	*	-	-	i i i i i i i i i i i i i i i i i i i			-		<u> </u>	-	25'	ļ
	C 4 T	LOS	-	*	-	-	t t			-		· ·	-	B	A
	SAT	Delay Queue	-	*	-	-		*		-		· ·		11 25'	1
		Lanes->	- 2	2	- 1	- 2	2		2	-	2	1	2	25 1	1
lode 400: Brown Deer Road &		LOS	D	С	A	D	E	3	D		D	D	D	D	С
Port Washington Road (CTH W)	AM	Delay	46	22	5	40		9	47		0	49	44	37	31
raffic Signal Control		Queue	70'	75'	25'	50'	21	-	85'	-	0'	110'	105'	110'	_
	РМ	LOS Delay	<b>D</b> 46	<b>C</b> 25	<b>A</b> 5	<b>D</b> 41	2		<b>D</b> 54		<b>)</b>  8	D 48	<b>D</b> 46	<b>D</b> 37	<b>D</b> 36
		Queue	40 90'	120'	50'	60'	21		54 195'		35'	40 110'	40 125'	120'	- 30
		LOS	D	C	A	D	E		D		)	D	D	D	С
	SAT	Delay	45	24	5	37		9	50		9	49	42	35	34
		Queue	55'	55'	25'	50'	18	35'	150'		)5'	115'	90'	70'	
lode 500: Port Washington Road &		Lanes-> LOS		1 B			-		1 A	1	-	-		1	Α
North Access Road	AM	Delay		13			-		9	*	-	-		*	1
Dne-Way Stop Control	,	Queue		25'			-		25'	*	-	-		*	· ·
<i>,</i>		LOS		С			-		Α	*	-	-		*	Α
	PM	Delay		16			-		8	*	-	-		*	2
		Queue		40' B			-		25'	*	-	-		*	
	SAT	LOS Delay		13					<b>A</b> 8	*	-	-		*	<b>A</b> 1
		Queue		25'			-		25'	*	-	-		*	
		Lanes->		1			1		1	1	1	1		1	
Node 600: Port Washington Road &		LOS		B			С		Α	*	-	Α		*	Α
Blencoe Place	AM	Delay		14 25'			20 25'		9 25'	*	-	8 25'		*	1
wo-Way Stop Control		Queue LOS		20 C			25 C		25 A	*	-	25 A		*	Α
	PM	Delay		23			22		9	*	-	9		*	1
		Queue		25'			25'		25'	*	-	25'		*	
	<u></u>	LOS		<b>B</b>			C		Α	*	-	Α		*	Α
	SAT	Delay		12 55'			15 25'		8 25'	*	-	8 25'		*	1
		Queue Lanes->		- 55			<u>25</u> 1		- 25		<u>-</u> 2	25'		2	
lode 700: Port Washington Road &		LOS		-			B		-		*	A		*	Α
Baskin Robins Driveway	AM	Delay		-			14		-		*	8		*	1
Dne-Way Stop Control		Queue		-		<u> </u>	25'		-		*	25'		*	<u> </u>
	РМ	LOS Delay		-			<b>C</b> 19		-		*	<b>A</b> 9		*	<b>A</b> 1
	1 111	Queue		-			25'		-		*	9 25'		*	1 '
		LOS		-			В		-	1	*	Α		*	Α
	SAT	Delay		-			13		-		*	8		*	1
		Queue		-			25'		-		*	25'		*	
lode 800: Port Washington Road &		Lanes-> LOS		-			1 A		-		<u>2</u> *	1 A	2	-	Α
Sendiks Driveway	AM	Delay		-			9		-		*	8	*	-	1
Dne-Way Stop Control		Queue		-			25'		-		*	25'	*	-	
	_	LOS		-			В		-		*	Α	*	-	Α
	PM	Delay		-		<b> </b>	13 25'		-		*	9	*	-	1
		Queue LOS		-			25' B		-		*	25'	*	-	Α
	<b></b>	Delay		-			10		-	1	*	8	*	-	1
	SAT			-			25'		-		*	25'	*	-	
	SAI	Queue			1		1		1	2	2	1		2	
	SAI	Lanes->	2									-	-		В
lode 900: Port Washington Road &		Lanes-> LOS	D	I	)		D		<b>A</b>		<b>A</b>	B		B	-
ox Pointe Mall Driveway	AM	<i>Lanes-&gt;</i> LOS Delay	<b>D</b> 42	4	2		47		6	(	6	15	,	19	16
		Lanes-> LOS Delay Queue	<b>D</b> 42 40'	4 3	2 0'				6 25'	6	6 60'	15 25'	6	19 65'	16
ox Pointe Mall Driveway		Lanes-> LOS Delay Queue LOS	<b>D</b> 42	4 3	2		47 40'		6	6	6	15	e	19	-
ox Pointe Mall Driveway	AM	Lanes-> LOS Delay Queue LOS Delay Queue	D 42 40' D	4 3 4 4 6	2 0' 2 2 0'		47 40' <b>D</b> 50 25'		6 25' A	6 6 6 1	6 60' <b>A</b> 6 35'	15 25' <b>A</b> 3 25'	6 	19 65' <b>A</b> 4 10'	16 <b>B</b> 12
ox Pointe Mall Driveway	AM	Lanes-> LOS Delay Queue LOS Delay	D 42 40' D 44	4 3 3 4 6	2 0' 2 2		47 40' <b>D</b> 50		6 25' <b>A</b> 6	6 6 6 13	6 60' <b>A</b> 6	15 25' <b>A</b> 3	6 1 1	19 65' <b>A</b> 4	16 B



2803: 08-08-2022

TADI)

		With Mo		Le	evel of	f Servi	ce (LO	S) pei	Move			1			I/S
Intersection	Peak Hour	Metric	Ea 7	astbou I →	nd ע	We	estbou ←	nd 下	No	rthboı ↑	und 7	So צע	uthbo ↓↓	und ∠	LOS 8 Delay
	nour	Lanes->	-	3	-	-	2	-		-		1	-	1	Delay
lodes 101/120/140: Brown Deer		LOS	-	С	-	-	С	-		-		В	-	С	С
Road & I-43 SB Ramps	AM	Delay	-	29	-	-	23	-		-		15	-	21	25
raffic Signal Control		Queue LOS	-	260'	-	-	390' C	-		-		205' C	-	25' B	С
	РМ	Delay	-	26	-	-	23	-		-		22	-	15	24
		Queue	-	360'	-	-	280'	-		-		150'	-	25'	
		LOS	-	С	-	-	В	-		-		В	-	В	В
	SAT	Delay	-	21	-	-	19	-		-		18 100'	-	18 25'	19
		Queue Lanes->	-	145' 2	-	-	140' 3	-	2	-	2	100	-	20	
lode 201/210/250: Brown Deer Road		LOS	-	B	-	-	C	-	C	-	B		-		В
I-43 NB Ramp	AM	Delay	-	18	-	-	21	-	29	-	14		-		19
raffic Signal Control		Queue	-	105'	-	-	195'	-	260'	-	65'		-		
	РМ	LOS Delay	-	<b>B</b> 16	-	-	<b>C</b> 23	-	<b>C</b> 29	-	<b>B</b> 15		-		<b>B</b> 19
	1 101	Queue	-	125'	-	-	240'	-	170'	-	60'		-		13
		LOS	-	В	-	-	С	-	С	-	В		-		С
	SAT	Delay	-	19	-	-	22	-	24	-	13		-		21
		Queue	-	85'	-	-	155'	-	90'	-	50'		-		
lode 300: Brown Deer Road &		Lanes->	-	2	-	-	2			-			-	1 B	•
Development RIRO Driveway	AM	LOS Delay	-	*	-	-	ł	٢		-			-	12	<b>A</b>
Dne-Way Stop Control		Queue	-	*		-	ŀ	*		-				25'	Ľ
- ·		LOS	-	*	-	-	ŕ			-			-	В	Α
	PM	Delay	-	*	-	-	*			-			-	13	1
		Queue	-	*	-	-	t. t			-				25'	•
	SAT	LOS Delay	-	*	-	-	*			-			-	<b>B</b> 11	<b>A</b>
	571	Queue	-	*	-	-	ł			-				25'	
		Lanes->	2	2	- 1	2	2	2	2		2	1	2	1	
lode 400: Brown Deer Road &		LOS	D	С	Α	D	0		D		D	D	D	D	С
Port Washington Road (CTH W)	AM	Delay	47	22	5	40	2		47		0	49	44	37	31
raffic Signal Control		Queue	75'	75'	25'	50'	22	-	90'	-	5'	110'	105'	115'	
	РМ	LOS Delay	<b>D</b> 46	<b>C</b> 25	<b>A</b> 5	<b>D</b> 41	2		<b>D</b> 54		D 18	<b>D</b> 48	<b>D</b> 46	<b>D</b> 37	<b>D</b> 37
	1 101	Queue	40 90'	115'	50'	60'	21		200'		45'	40 110'	130'	120'	- 57
		LOS	D	C	A	D	(		D		D	D	D	D	D
	SAT	Delay	45	24	5	37	2	0	50	4	9	49	43	35	35
		Queue	55'	55'	25'	50'	18	35'	150'		25'	115'	90'	75'	
Lada 500, Dart Washington Daad 8		Lanes->		1			-		1	1	-	-		1	
lode 500: Port Washington Road & lorth Access Road	AM	LOS		<b>B</b> 13			-		<b>A</b> 9	*	-	-		*	<b>A</b>
Dne-Way Stop Control	Alvi	Delay Queue		25'			-		9 25'	*	-	-		*	
the way stop control		LOS		C			-		A	*	-	-		*	Α
	PM	Delay		17			-		8	*	-	-		*	2
		Queue		45'			-		25'	*	-	-		*	
	о <b>л</b> т	LOS		<b>B</b>			-		<b>A</b>	*	-	-		*	Α
	SAT	Delay Queue		13 25'			-		8 25'	*	-	-		*	1
		Lanes->		1			1		1	1	1	1		1	
lode 600: Port Washington Road &		LOS		C			С		Α	*	-	Α		*	Α
Glencoe Place	AM	Delay		15			20		9	*	-	8		*	1
wo-Way Stop Control		Queue		25'			25'		25'	*	-	25'		*	
	РМ	LOS		<b>C</b> 24			<b>C</b> 23		<b>A</b>	*	-	A		*	A
	FIVI	Delay Queue		24			25		9 25'	*	-	9 25'		*	1
		LOS		B			<u>C</u>		<u>2</u> 5	*	-	<u> </u>		*	Α
	SAT	Delay		12			16		8	*	-	8		*	1
		Queue		55'			25'		25'	*	-	25'		*	
		Lanes->		-		<b> </b>	1		-		2	1		2	<u> </u>
lode 700: Port Washington Road & Baskin Robins Driveway	AM	LOS Delay		-			<b>B</b> 14		-		*	<b>A</b> 8		*	<b>A</b>
Dne-Way Stop Control	7 1191	Queue		-		1	25'		-		*	° 25'		*	
		LOS		-		L	C		-		*	A		*	Α
	PM	Delay		-			20		-		*	9		*	1
		Queue		-		<u> </u>	30'		-		*	25'		*	-
	SAT	LOS		-			<b>B</b> 13		-		*	<b>A</b> 8		*	<b>A</b>
	SAI	Delay Queue					25'		-		*	° 25'		*	
		Lanes->		-		L	1		-		2	1	2	-	
lode 800: Port Washington Road &		LOS		-			В		-		*	Α	*	-	Α
Sendiks Driveway	AM	Delay		-			10		-		*	8	*	-	1
Dne-Way Stop Control				-		<b> </b>	25' B		-		*	25'	*	-	•
	РМ	LOS Delay		-			13		-		*	<b>A</b> 9	*	-	<b>A</b>
	1 111	Queue		-		1	25'		-		*	9 25'	*	-	1
		LOS		-	_	Ĺ	В	_	-		*	A	*	-	Α
	SAT	Delay		-			10		-		*	8	*	-	1
		Queue		-		<u> </u>	25'		-		*	25'	*	<u> </u>	<b> </b>
		Lanes->	2	1		<b> </b>	1		1		2	1		2	<u> </u>
lode 900: Port Washington Road & ox Pointe Mall Driveway	AM	LOS	<b>D</b> 42		2		<b>D</b> 47		A 6		<b>4</b> 6	<b>B</b> 15		B 19	<b>B</b> 16
raffic Signal Control		Delay Queue	42		2 0'		47		6 25'		6 65'	25'		5'	10
		LOS	40 D			1	D		<u>2</u> 3		A	B		C	В
	PM	Delay	44		2		50		7		6	16	2	22	19
I			44.01	1	0'	1	25'		50'	1:	35'	25'	1 1/	05'	I
		Queue	110'	_											
	SAT	Queue LOS Delay	110 <sup>-</sup> D 43	[			23 D 49		A 6		<b>A</b> 5	<b>B</b> 16	I	B 19	<b>B</b> 19

**EXHIBIT 5-11** YEAR 2034 BACKGROUND TRAFFIC OPERATIONS WITH MODIFICATIONS MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN** 



		With Mo		Le	evel of	i Servi	ce (LO	S) pei	Move						I/S
Internetien	Peak	Matula		astbou			estbou	-	-	rthbou		So ג	uthbo		LOS 8
Intersection	Hour	Metric Lanes->	7	→ 3	لا -	L -	← 2	<u>ہ</u>	R	1	7	ע 1	→ -	<b>∠</b> 1	Delay
lodes 101/120/140: Brown Deer		LOS	-	Č	-	-	C	-		-		В	-	C	С
Road & I-43 SB Ramps	AM	Delay	-	31	-	-	22	-		-		15	-	21	25
raffic Signal Control		Queue	-	305'	-	-	385'	-		-		120'	-	25'	
	РМ	LOS Delay	-	<b>C</b> 30	-	-	<b>C</b> 26	-		-		<b>C</b> 22	-	<b>B</b> 15	<b>C</b> 28
	1 101	Queue	-	445'	-	-	325'	-		-		160'	-	25'	20
		LOS	-	С	-	-	В	-		-		В	-	В	В
	SAT	Delay	-	22	-	-	18	-		-		18	-	18	19
		Queue	-	185'	-	-	140'	-	2	-	<u> </u>	110'	-	25'	
lode 201/210/250: Brown Deer Road		Lanes-> LOS	-	2 B	-	-	3 C	-	2 C	-	2 B		-		В
-43 NB Ramp	AM	Delay	-	17	-	-	21	-	29	-	14		-		19
raffic Signal Control		Queue	-	105'	-	-	205'	-	260'	-	70'		-		
		LOS	-	В	-	-	С	-	С	-	В		-		С
	PM	Delay	-	16	-	-	24	-	29	-	16 70'		-		20
		Queue LOS	-	185' B	-	-	260' C	-	170' C	-	70 B		-		С
	SAT	Delay	-	19	-	-	22	-	24	-	13		-		21
		Queue	-	100'	-	-	185'	-	90'	-	60'		-		
		Lanes->	-	2	-	-	2			-			-	1	
lode 300: Brown Deer Road &	A N 4	LOS	-	*	-	-	t t			-				<b>B</b>	<b>A</b>
Development RIRO Driveway Dne-Way Stop Control	AM	Delay Queue	-	*	-	-		*		-				13 25'	1
no-way slop control		LOS	-	*	-	-	÷			-			-	25 <sup>°</sup>	Α
	PM	Delay	-	*	-	-	i i	*		-			-	15	1
		Queue	-	*	-	-		*		-			-	40'	
	o	LOS	-	*	-	-	r F			-			-	B	Α
	SAT	Delay	-	*	-	-	i i			-				13	2
		Queue Lanes->	- 2	2	- 1	- 2			2		2	1	2	25' 1	
lode 400: Brown Deer Road &		LOS	D	C	A	D		<u> </u>	D		<u> </u>	D	D	D	С
Port Washington Road (CTH W)	AM	Delay	46	22	5	40	2	2	47	4	1	52	48	39	33
raffic Signal Control		Queue	90'	75'	25'	50'	23	-	90'	-	5'	105'	110'	125'	
	514	LOS	D	C	Α	D			D		)	D	D	D	D
	PM	Delay Queue	46 125'	25 110'	4 40'	41 60'	2 24		54 205'		9 30'	53 130'	51 135'	37 165'	39
		LOS	125 D	<b>C</b>	40 A	D	24		205 D		) )	130 D	135 D	165 D	D
	SAT	Delay	45	24	5	38	2		51		51	51	47	36	37
		Queue	115'	55'	25'	50'	21	15'	155'	1(	)5'	140'	90'	95'	
		Lanes->		1			-		1	1	-	-		1	
lode 500: Port Washington Road &	A N A	LOS		<b>B</b>			-		A	*	-	-		*	A
lorth Access Road Dne-Way Stop Control	AM	Delay Queue		13 25'			-		9 25'	*	-	-		*	1
She-way Stop Control		LOS		C			-		<u>2</u> 3	*	-	-		*	Α
	PM	Delay		17			-		8	*	-	-		*	2
		Queue		45'			-		25'	*	-	-		*	
	0 A T	LOS		<b>B</b>			-		Α	*	-	-		*	Α
	SAT	Delay Queue		13 25'			-		8 25'	*	-	-		*	1
		Lanes->		1	1		1		25	1	-	-		1	
lode 600: Port Washington Road &		LOS		D	D		D		Α	A	Α	Α		A	Α
Glencoe Place	AM	Delay	۷	12	44		43		4	3	2	5		7	9
raffic Signal Control		Queue		35'	70'		30'		40'	185'	25'	25'		05'	
	РМ	LOS		D 12	D		<b>D</b> 41		A	<u>A</u>	A	A		A 8	A
	PIVI	Delay Queue		+2  5'	44 95'		35'		5 25'	4 25'	2 25'	5 25'		o 85'	9
		LOS		D	D		D		<u>A</u>	<u>A</u>	A	A		A	В
	SAT	Delay	2	12	46		41		4	3	2	5		7	11
		Queue	5	50'	120'		30'		25'	25'	25'	25'		85'	
lodo 700: Dort Markin stars D		Lanes->		-			1		-		2	1		2	<u> </u>
lode 700: Port Washington Road & Baskin Robins Driveway	АМ	LOS Delay		-			<b>C</b> 15		-		*	<b>A</b> 8		*	<b>A</b>
Dne-Way Stop Control	7 1111	Queue		-			25'		-		*	o 25'		*	1
		LOS		-			D		-		*	A		*	Α
	PM	Delay		-			27		-		*	9		*	2
		Queue		-			35' C		-		*	25'		*	-
	SAT	LOS Delay		-			16		-		*	<b>A</b> 9		*	<b>A</b>
	071	Queue		-			25'		-		*	9 25'		*	1
		Lanes->		-			1		-		2	1	2	-	
lode 800: Port Washington Road &		LOS		-		L	В		-		*	Α	*	-	Α
Sendiks Driveway	AM	Delay		-			10 25'		-		*	8	*	-	1
Dne-Way Stop Control		Queue LOS		-			25' B		-		*	25'	*	-	Α
	PM	Delay		-			14		-		*	<u>А</u> 9	*	-	<b>A</b>
		Queue		-			25'		-		*	25'	*	<u> </u>	
		LOS		-			В		-		*	Α	*	-	Α
	SAT	Delay		-			11		-		*	9	*	-	1
		Queue		-	1		25' 1		-		*	25'	*	<u>-</u> 2	
lode 900: Port Washington Road &		Lanes-> LOS	2 D		1 D		1 D		1 A		4	1 B		2 B	В
ox Pointe Mall Driveway	AM	Delay	42		2		47		6		<b>.</b> 6	<b>1</b> 9		<b>9</b>	∎ 16
Traffic Signal Control		Queue	40'	3	0'		40'		25'		5'	25'		65'	
		LOS	D		D		D		Α		4	Α		Α	Α
	PM	Delay	44		2		50		5		6	1		1	9
		Queue	110'		0' D		25' D		50'		40'	25'		15' B	
	SAT	LOS Delay	<b>D</b> 43		2		49		<b>A</b> 6		<b>4</b> 6	<b>B</b> 16		B 19	<b>B</b> 19
			T-U		-		10		5		-	10		. 🗸	10

EXHIBIT 5-12 YEAR 2024 INITIAL BUILD TRAFFIC OPERATIONS WITH MODIFICATIONS MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN** 



	D-							_	r Move						I/S
Intersection	Peak Hour	Metric	Ea 7	astbou I →	nd ע	We	estbou ⊢ ←	nd ⊼	Noi R	<u>rthboι</u> ↑	und ⊿	Soı لا	uthboι ↓	und ⊻	LOS a
	Hear	Lanes->	-	3	-	-	2	-	- •	-		1	-	1	Dola
lodes 101/120/140: Brown Deer		LOS	-	С	-	-	С	-		-		В	-	С	С
Road & I-43 SB Ramps	AM	Delay	-	33	-	-	22	-		-		16	-	21	26
raffic Signal Control		Queue	-	335'	-	-	405'	-		-		135'	-	25'	-
	РМ	LOS Delay	-	<b>D</b> 36	-	-	<b>C</b> 28	-		-		<b>C</b> 23	-	<b>B</b> 15	C 32
	1 101	Queue	-	515'	-	-	330'	-		-		185'	-	25'	52
		LOS	-	С	-	-	В	-		-		В	-	В	В
	SAT	Delay	-	23	-	-	17	-		-		18	-	18	19
		Queue	-	210'	-	-	140'	-		-		125'	-	25'	
lode 201/210/250: Brown Deer Road		Lanes->	-	2	-	-	3	-	2	-	2		-		-
lode 201/210/250: Brown Deer Road	AM	LOS Delay	-	<b>B</b> 19	-	-	<b>C</b> 22	-	<b>C</b> 29	-	<b>B</b> 14		-		<b>C</b> 20
raffic Signal Control		Queue	-	125'	-	-	235'	-	265'	-	75'		_		20
		LOS	-	B	-	-	C	-	C	-	B		-		С
	PM	Delay	-	18	-	-	24	-	29	-	16		-		21
		Queue	-	205'	-	-	290'	-	170'	-	80'		-		
	0 A T	LOS	-	B	-	-	C	-	C	-	B		-		C
	SAT	Delay	-	19 115'	-	-	22 205'	-	24 90'	-	14 70'		-		21
			-	2	-	-	205	-	90	-	70		-	1	
lode 300: Brown Deer Road &		Lanes-> LOS	-	∠ *	-	-	*			-				C	Α
Development RIRO Driveway	AM	Delay	-	*	-	-	*	*		-			-	15	1
Dne-Way Stop Control		Queue	-	*	-	-	*			-		· ·	-	25'	
ſ		LOS	-	*	-	-	*			-			-	С	Α
	PM	Delay	-	*	-	-	*			-			-	18	2
ļ		Queue	-	*	-	-	*			-			-	40'	
	C ^ <del>-</del>	LOS	-	*	-	-	*			-		-	-	C	<b>A</b>
	SAT	Delay	-	*	-	-	*			-			-	15	2
		Queue Lanes->	- 2	2	- 1	- 2	2		2	-	2	1	- 2	35' 1	
lode 400: Brown Deer Road &		Lanes->	 D	2 C	7 A	 D			D		2	T D	D	7 C	С
Port Washington Road (CTH W)	AM	Delay	48	22	5	41	2		51		6	50	40	32	34
raffic Signal Control		Queue	110'	75'	25'	50'	24	0'	90'	9	0'	150'	105'	95'	
		LOS	D	С	Α	D	C	)	D		)	D	D	С	D
	PM	Delay	51	25	5	41	3		54	4		48	44	28	40
		Queue	175'	110'	35'	60'	25		210'	13		125'	135'	75'	
	o 1 <del>-</del>	LOS	D	C	Α	D	0		D		)	D	D	C	D
	SAT	Delay	48 155'	24	5 25'	38 50'	2 23		51		3 0'	45 145'	40 90'	29 55'	38
		Queue Lanes->	100	55' 1	25	50	- 20	0	160' 1	1	-	- 145	90		
lode 500: Port Washington Road &		LOS		C			-		A	*	-	-		*	Α
lorth Access Road	AM	Delay		15			-		9	*	-	-		*	2
Dne-Way Stop Control		Queue		25'			-		25'	*	-	-	÷	*	_
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	PM	Delay		22			-		9	*	-	-		*	3
		Queue		70'			-		25'	*	-	-		*	
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		Lanes->		1	1		1		25	1	-	-	1	1	
lode 600: Port Washington Road &		LOS		D	D		D		B	A	A	B	(		В
Glencoe Place	AM	Delay	4	10	48		37		17	4	3	16	2	2	19
raffic Signal Control		Queue	4	5'	120'		30'		35'	95'	25'	25'	32	<u>20'</u>	
ſ		LOS		D	D		D		С	Α	Α	С	C	-	С
	PM	Delay		11	47		40		24	5	2	23		2	22
		Queue		55'	130'		35'		50'	110'	25'	25'	40		
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lode 800: Port Washington Road &		LOS		-			В		-	1		Α	*	-	Α
Sendiks Driveway	AM	Delay		-			11		-		*	8	*	-	1
Dne-Way Stop Control		Queue		-			25'		-		*	25'	*	-	
	<b>D1</b> /	LOS		-			C		-		*	B	*	-	Α
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		Lanes->	2		1		1		- 1		2	1	2	2	
lode 900: Port Washington Road &		LOS	D		D		D		A		4	A	4		Α
ox Pointe Mall Driveway	AM	Delay	42	4	2		47		6	6	6	1		1	8
raffic Signal Control		Queue	40'		0'		40'		25'		5'	25'	6		
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EXHIBIT 5-14 YEAR 2034 FULL BUILD TRAFFIC OPERATIONS WITH MODIFICATIONS MIXED-USE DEVELOPMENT **BAYSIDE, WISCONSIN** 

# **CHAPTER VI – RECOMMENDATIONS AND CONCLUSION**

# PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> *Edition*. Intersection operation is defined by "level of service." Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS 'A,' to very poor, represented by LOS 'F.' For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in Exhibit 1-3 for the Year 2024 and Year 2034 traffic volume conditions and have been shown for the following two scenarios:

- "2024 Background Traffic" These modifications are expected to be necessary to accommodate Year 2024 Background traffic volumes, which includes DOT provided background growth only, without the proposed mixed-use development.
- "2024 Initial Build Traffic" These modifications are expected to be necessary to accommodate the Year 2024 initial build traffic volumes, which includes the proposed on-site (initial build Phase I) development.
- "2034 Background Traffic" These modifications are expected to be necessary to accommodate Year 2034 Background traffic volumes, which includes DOT provided background growth only, without the proposed mixed-use development.
- "2034 Full Build Traffic" These modifications are expected to be necessary to accommodate the Year 2034 full build traffic volumes, which includes the proposed onsite (initial build and future phase) development.

The analysis was conducted using existing intersection geometrics, traffic control and traffic signal timings. The following modifications, as shown in Exhibit 1-3, are recommended to accommodate the Year 2024 and Year 2034 traffic volume conditions, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT and the Village of Bayside reserve the right to determine alternative solutions.* 

# <u>General</u>

- 2024 Background traffic:
  - Per the planned DOT reconstruction project, interconnect the signals along Brown Deer Road between the existing Brown Deer Road intersection with Port Washington Road and the new traffic signals at the Brown Deer Road intersections with the I-43 DDI ramps
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

# Node 101/120/140: I-43 Southbound DDI Ramps with Brown Deer Road

- 2024 Background traffic:
  - Modify the planned signal phasing at the I-43 southbound ramp to allow the southbound left-turn phasing to operate concurrently with the westbound through phasing.

- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

Node 201/210/250: I-43 Northbound DDI Ramps with Brown Deer Road

- 2024 Background traffic:
  - Modify the planned signal phasing at the I-43 northbound ramp to allow the northbound left-turn phasing to operate concurrently with the eastbound through phasing.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build Traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

# Node 300: Brown Deer Road with Proposed Right-in/Right-out Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic:
  - Provide a right-in/right-out driveway onto Brown Deer Road directly north of the existing Fox Pointe Mall driveway.
- 2034 Full Build Traffic: No additional modifications.

# Node 400: Brown Deer Road with Port Washington Road

- 2024 Background traffic:
  - Adjust cycle length, signal timings and offsets to provide optimized coordination with the adjacent traffic signals at the planned I-43 DDI ramps.
  - Allow for lagging left-turn operation for the westbound left-turn movements.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

# Node 500: Port Washington Road with North Access Drive

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

# Node 600: Port Washington Road with Glencoe Place

• 2024 Background traffic: No modifications.

- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic:
  - Provide traffic signal control with protected/permitted northbound leftturn phasing.
  - Provide a shared through/left-turn lane and a dedicated right-turn lane on the west approach.
- 2034 Full Build Traffic: No additional modifications.

## Node 700: Port Washington Road with Baskin Robbins Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

#### Node 800: Port Washington Road with Sendik's Driveway

- 2024 Background traffic: No modifications.
- 2034 Background traffic: No modifications.
- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

## Node 900: Port Washington Road with Fox Pointe Mall Driveway

- 2024 Background traffic:
  - Adjust cycle length, signal timings and offsets to provide optimized coordination with the adjacent traffic signals at the Port Washington Road intersection.
- 2034 Background traffic: No additional modifications.
- 2024 Initial Build traffic: No additional modifications.
- 2034 Full Build Traffic: No additional modifications.

Under the currently proposed traffic signal phasing at the planned northbound and southbound exit ramps from I-43 onto Brown Deer Road, the northbound and southbound left-turn movements are expected to operate unacceptably. The recommended phasing will allow the southbound left-turn movements to operate concurrently with the westbound through movements and allow the northbound left-turn movement to operate concurrently with the eastbound through movements to allow both intersections to operate more efficiently.

The westbound movements at the Port Washington Road intersection with Baskin Robbins Driveway are expected to operate with higher delay than desirable during the typical weekday evening peak hour under the full build traffic volume scenario. However, with a V/C ratio of 0.44 and only about 45 left-turning vehicles expected to utilize this movement during this weekday evening peak period, with queue lengths of about 2 vehicles, and with traffic signals located to the north and south creating gaps in the Port Washington Road mainline traffic stream, this intersection is expected to operate better than reported under the full build traffic condition. In addition, if delays become excessive, vehicles could make a right-turn out of the driveway and then make a U-turn movement at the new traffic signal immediately to the north.

# PART B – CONCLUSION

Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the development assumptions outlined in this TIA and with the identified recommended modifications if properly designed and implemented through the design year of the development.

PROVIDING TRAFFIC ENGINEERING SOLUTIONS



Date: November 4, 2022

# **Technical Memorandum**

То:	William Ohm, P.E. Bayside Development Partners II, LLC
From:	Don Lee, P.E. John Bieberitz, P.E., PTOE
Subject:	Mixed-Use Development Traffic Study Supplemental WisDOT Log #249407 Village of Bayside, Milwaukee County, Wisconsin

# PART A – INTRODUCTION

A mixed-use development is being proposed to replace the existing commercial businesses on the northwest quadrant of WIS 100/Brown Deer Road at County Trunk Highway (CTH) W/Port Washington Road in the Village of Bayside, Milwaukee County, Wisconsin. An overview map in Exhibit 1-1A shows the location of the proposed development. A Traffic Impact Analysis (TIA) dated August 8, 2022, was completed and submitted to WisDOT, Milwaukee County and the Village of Bayside. WisDOT approved the TIA on October 22, 2022; however, the Village of Bayside and Milwaukee County have requested additional information as part of their approval processes. This technical memorandum, which is a supplemental to the previously submitted TIA, has been prepared to provide the following additional analysis.

- An updated traffic signal warrant analysis at the Port Washington Road intersection with Glencoe Place using the WisDOT approved 0.25-percent background growth rate and utilizing WisDOT right-turn inclusion percentages.
- A roundabout analysis at the Port Washington Road intersection with Glencoe Place under the full build out traffic conditions.
- Consider providing positive offsets for northbound and southbound left-turn movements at the Port Washington Road intersection with Glencoe Place.

This technical memorandum has been prepared to document the procedures, findings, and conclusions of the additional analysis. The study builds off the previously submitted August 8<sup>th</sup> TIA completed for the proposed development. The analysis identifies recommended modifications based on the existing intersection geometrics, background traffic volumes and additional traffic expected to be generated by the proposed mixed-use development within the limits of the study area.

Mixed-Use Redevelopment - Village of Bayside, Wisconsin Page 2 of 8 November 4, 2022

# PART B - UPDATED TRAFFIC SIGNAL WARRANT ANALYSIS

Warrants should be viewed as guidelines to help decide whether traffic signal controls may be installed. Meeting warrants does not translate to a legal requirement for their installation.

Updated warrant analysis worksheets are included in the Appendix of this report. The background growth rate has been updated to reflect the WisDOT approved 0.25-percent background growth rate (0.5-percent was incorrectly utilized in the TIA). Development-related traffic was included based on the WisDOT hourly distributions of traffic for the various land use types for each included development area. Warrants 1 and 2 and a left-turn conflict analysis were evaluated as a part of this study under urban thresholds.

Traffic signal warrants were investigated at the Port Washington Road intersection with Glencoe Place under Year 2024 initial build and 2034 full build traffic volumes in accordance with the 2009 MUTCD. Port Washington Road was analyzed as a major street with one lane on each approach. Glencoe Place was analyzed as a minor street with one lane. With single lanes on the east approach, the minor street right-turn movements on the east approach were included in the warrant analysis; however, since a right-turn lane is being proposed on the west approach of the intersection, the right-turn volumes were not included in the warrant analysis for the west approach. The posted speed limit is 35-mph along Port Washington Road therefore urban warrant thresholds were utilized.

The warrant analysis was conducted based on the 13-hour turning movement counts collected at Port Washington Road intersection with Glencoe Place in June of year 2018 and forecasted to Year 2024 and year 2034 based on a 0.25-percent north/south annual linear growth rate, as reflected in the WisDOT forecasts.

Based on the warrant analysis as shown in the Appendix, Warrant 1, Eight-Hour Volume is not expected to be met at the Port Washington Road intersection with Glencoe Place under neither the year 2024 initial build volume conditions nor the year 2034 full build traffic volume conditions.

However, Warrant 2, Four-Hour Volume is not expected to be met at the Port Washington Road intersection with Glencoe Place under neither the year 2024 initial build volume conditions nor the year 2034 full build traffic volume conditions.

It is noted that with the addition of a right-turn lane on the west approach, the Eight-Hour Volume and the Four-Hour Warrant would be expected to be met with 50-percent of the right-run volumes included in the analysis under the year 2034 full build traffic volume conditions. Under the year 2024 initial build traffic volume conditions neither warrant is expected to be met; however, both are very close to being met with an additional 12 vehicles during one additional hour; assuming 50-percent right-turn volume inclusion.

Finally, the left-turn conflict analysis is expected to be met under the year 2034 full build traffic volume condition. Therefore, a northbound left-turn phase should be provided if traffic signal control is implemented.

Table 1 shows the year 2034 full build traffic peak hour LOS at the study area intersections. The capacity analysis table shows the peak hour LOS, delays (in seconds per vehicle), and queues (in

Mixed-Use Redevelopment - Village of Bayside, Wisconsin Page 3 of 8 November 4, 2022

feet) for the full build traffic condition. The year 2034 full build traffic volumes, taken from the previously approved TIA, were used for the analysis. The Synchro capacity analysis worksheets are located in the appendix of this report.

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North Access Road	AM	Delay	1			-		9	*	-	-	*		2
One-Way Stop Control		Queue	2	5'		-		25'	*	-	-	*		
		LOS	(	;		-		Α	*	-	-	*	r	Α
	PM	Delay	2	2		-		9	*	-	-	*	r	3
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		Lanes->	-	1		1		1	1	1	1	1		
Node 600: Port Washington Road &		LOS	D	D		D		В	Α	Α	В	C		В
Glencoe Place	AM	Delay	40	48		37		17	4	3	16	2	2	19
Traffic Signal Control		Queue	45'	120'		30'		35'	95'	25'	25'	32	20'	
		LOS	D	D		D		С	Α	Α	С	C	)	С
	PM	Delay	41	47		40		24	5	2	23	3	2	22
		Queue	55'	130'		35'		50'	110'	25'	25'	40	0'	
		LOS	D	D		D		В	Α	Α	С	C	)	С
	SAT	Delay	39	46	1	38		17	4	3	22	2	7	21
		Queue	65'	165'		25'		60'	85'	25'	25'	29	0'	

Table 1

(-) indicates a movement that is prohibited or does not exist; (\*) indicates a freeflow movement. Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

As shown in Table 1, all movements at the study area intersections are expected to operate at LOS D or better conditions during the study peak hours under the year 2034 full build traffic conditions with traffic signal control at the Port Washington Road intersection with Glencoe Place.

# PART C – ROUNDABOUT ANALYSIS

Milwaukee County has requested that a modern roundabout also be evaluated for consideration at the Port Washington Road intersection with Glencoe Place. The roundabout analysis utilized HCS Version 8.1 software under the year 2034 full build traffic volumes. Based on the analysis, a single lane roundabout is expected to operate acceptably at LOS C or better for all movements under the design year analysis. Table 2 shows the year 2034 full build traffic peak hour LOS at the study area intersections. The capacity analysis table shows the peak hour LOS, delays (in seconds per vehicle), and queues (in feet) for the full build traffic condition. The year 2034 full build traffic volumes, taken from the previously approved TIA, were used for the analysis. The roundabout analysis output worksheets are included in the appendix of this report.

				L	evelo	f Serv	ice (L	OS) pe	er Mov	emen	t by A	pproa	ch		I/S
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Intersection	Hour	Metric	7	$\rightarrow$	R	Ľ	÷	R	R	↑	7	R	→	Ľ	Delay
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North Access Road	AM	Delay		15			-		9	*	-	-		*	2
One-Way Stop Control		Queue		25'			-		25'	*	-	-		*	
		LOS		С			-		Α	*	-	-		*	Α
	PM	Delay		22			-		9	*	-	-		*	3
		Queue		70'			-		25'	*	-	-		*	
		LOS		В			-		Α	*	-	-		*	Α
	SAT	Delay		13			-		8	*	-	-		*	1
		Queue		25'			-		25'	*	-	-		*	
		Lanes->		1			1			1			1		
Node 600: Port Washington Road &		LOS		Α			Α			Α			Α		Α
Glencoe Place	AM	Delay		9			6			7			9		8
Roundabout Control		Queue		30'			25'			55'			80'		
		LOS		Α			Α			С			С		С
	PM	Delay		8			8			17			16		16
		Queue		30'			25'			235'			150'		1
		LOS		Α			Α			Α			Α		Α
	SAT	Delay		7			6			9			9		9
		Queue		30'			25'			100'			60'		1

Table 2 Year 2034 Full Build Traffic Peak Hour Operating Conditions h Modified Geometrics and Traffic Control - Roundabout at Glancos Pla

As shown in Table 2, all movements at the study area intersections are expected to operate at LOS C or better conditions during the study peak hours under the year 2034 full build traffic conditions with roundabout control at the Port Washington Road intersection with Glencoe Place. Longer northbound queues (about 235-feet) are expected on the south approach of the intersection due to the single lane approach.

Exhibit 2A shows the footprint of a conventional single lane (130-foot diameter). As shown in the conceptual layout, a roundabout at this location would require right-of-way acquisition and would impact the access driveways of the two properties on the northeast and southeast quadrants of the intersection. Exhibit 2B shows the footprint of a conventional single lane (130-foot diameter) shifted to the west, away from the residential properties on the east side of Port Washington Road. As shown in the conceptual layout, the design would not allow for a deflection for northbound vehicles to allow for an effective "fastest path" through the intersection. In addition, a roundabout at this location would also require right-of-way acquisition on the west side of the road to an existing business on the northwest quadrant of the intersection as well as impacting the planned development in the southwest quadrant.

Since there are two northbound lanes south of the intersection, tapering from two lanes to onelane could be accomplished by providing a hybrid roundabout where the south approach (northbound traffic) would enter the roundabout with a left-turn lane for the inside lane and shared thru/right-turn lane on the outside lane. Under this design, the northbound queue length would be less than 100 feet; however, the roundabout footprint and right-of-way impacts would be greater than shown for the single lane roundabout previously discussed. Mixed-Use Redevelopment - Village of Bayside, Wisconsin Page 5 of 8 November 4, 2022

# PART D – LEFT-TURN LANE DESIGN

The Village of Bayside and Milwaukee County have requested that if traffic signal control be installed at the Port Washington Road intersection with Glencoe Place, the northbound and southbound left-turn lanes should be redesigned to provide for a positive offset.

Even though it is good practice to design new turn lanes with positive offsets so that left-turning vehicles can see past the opposing left-turn movements, the current geometry at the intersection has not resulted in any crashes over the last 5 years (2018 thru 2022) resulting from left-turn sight issues. Even eliminating the last 2 years of data (due to the recent pandemic) and looking back further, the current geometry has not resulted in any crashes over the previous 5 years (2015 thru 2019) resulting from left-turn sight issues. As shown on Exhibit 3A, there were 4 crashes during he previous 5 years (2018 thru 2022) and only three crashes over the previous 5 years (2015 thru 2019), as shown in Exhibit 3B, with none attributed to left-turn movements off of Port Washington onto the sideroad.

# PART E – OTHER CONSIDERATIONS

An additional design consideration that was considered at the Port Washington Road intersection with Glencoe Place was access restrictions for some movements at the intersection. Two options were considered including:

- Providing left-in/right-in/right-out access on the west approach. This option would require restricting the left-turn and through movements out of the west approach of the intersection by constructing a channelized right-turn lane on the west approach as shown on Exhibit 4A.
- Providing left-in/right-in/right-out access on both the east and west approaches. This option would require restricting the left-turn and through movements out of the east and west approach s of the intersection by reconstructing the median as shown on Exhibit 4B.

Tables 3 and 4 shows the year 2034 full build traffic peak hour LOS at the study area intersections. The capacity analysis table shows the peak hour LOS, delays (in seconds per vehicle), and queues (in feet) for the full build traffic condition. The year 2034 full build traffic volumes, as shown on Exhibit 5, were used for the analysis. The Synchro capacity analysis worksheets are located in the appendix of this report.

With Modified	Geome	trics and	Tram						er Mov				ch		I/S
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Intersection	Hour	Metric	7	→	L L	Ľ	←	R	R	1	7	L الا	↓	Ľ	Delay
		Lanes->		1			-		1	1	-	-	1	1	
Node 500: Port Washington Road &		LOS		С			-		Α	*	-	-	*	ł	Α
North Access Road	AM	Delay		20			-		9	*	-	-	*	ł	3
One-Way Stop Control		Queue		30'			-		25'	*	-	•		ł	
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		Queue		25'			-		25'	*	-	-	*	k	
		Lanes->		-	1		1		1		1	1	1		
Node 600: Port Washington Road &		LOS		-	С		F		Α		*	Α		k	Α
Glencoe Place	AM	Delay		-	15		54		9		*	8		*	4
Two-Way Stop Control		Queue		-	25'		25'		25'		*	25'	*		
Left-in/Right-in/Right-out on West		LOS		-	С		F		В		*	Α		k	Α
Approach only	PM	Delay		-	16		177		11		*	9		*	6
		Queue		-	30'		55'		40'		*	25'		ł	
		LOS		-	В		F		Α		*	Α	*		Α
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		Queue		-	30'		25'		25'		*	25'		ł	

Table 3 Year 2034 Full Build Traffic Peak Hour Operating Conditions Modified Geometrics and Traffic Control - LIRIRO on west approach at Glencoe Pi

(-) indicates a movement that is prohibited or does not exist; (\*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

As shown in Table 3, higher delays are expected for the left-turn movements on the west approach of the Port Washington Road intersection with the North Access Road during the weekday evening peak hour and for the left-turn movements on the east approach of the Port Washington Road intersection with Glencoe Place during the all three peak hours under the year 2034 full build traffic conditions with left-in/right-in/right-out access on the west approach of the Port Washington Road intersection with Glencoe Place.

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Node 500: Port Washington Road &		LOS		С			-		Α	*	-	-		*	Α
North Access Road	AM	Delay Queue		20			-		9	*	-	-		*	3
One-Way Stop Control		Queue		30'			-		25'	*	-	-		*	
		LOS		E			-		Α	*	-	-		*	Α
	PM	LOS M Delay		49			-		9	*	-	-		*	9
		Queue		145'			-		25'	*	-	-		*	
		LOS		С			-		Α	*	-	-		*	Α
	SAT	Delay		18			-		8	*	-	-		*	2
		Queue		25'			-		25'	*	-	-		*	
		Lanes->		-	1		-	1	1		1	1		1	
Node 600: Port Washington Road &		LOS		-	С		-	В	Α		*	Α		*	Α
Glencoe Place	AM	Delay		-	15		-	11	9		*	8		*	3
Two-Way Stop Control		Queue		-	25'		-	25'	25'		*	25'		*	
Left-in/Right-in/Right-out on East &		LOS		-	С		-	В	В		*	Α		*	Α
West Approaches	PM	Delay		-	15		-	13	11		*	9		*	3
		Queue		-	30'		-	25'	40'		*	25'		*	
		LOS		-	В		-	В	Α		*	Α		*	Α
	SAT	Delay		-	13		-	11	9		*	8		*	4
		Queue		-	30'		-	25'	25'		*	25'		*	1

 Table 4

 Year 2034 Full Build Traffic Peak Hour Operating Conditions

As shown in Table 4, higher delays are still expected for the left-turn movements on the west approach of the Port Washington Road intersection with the North Access Road during the weekday evening peak hour; however, all movements at the Port Washington Road intersection with Glencoe Place are expected to operate acceptably during the all three peak hours under the year 2034 full build traffic conditions with left-in/right-in/right-out access on both the east and west approaches of the Port Washington Road intersection with Glencoe Place. It is noted that under this scenario, about 15 vehicles in the morning peak, 10 vehicles in the evening peak and about 10 vehicles during the Saturday midday peak would be required to either make a right turn out of the east approach and U-turn at the median opening immediately north of the intersection or these vehicles would divert to find another access onto Port Washington Road at any of the other access points to the neighborhood; either to the north or to the south onto Brown Deer Road.

# PART F – RECOMMENDATIONS AND CONCULSION

The following modifications are recommended to accommodate the existing and full build traffic volumes, respectively. *Modifications are for jurisdictional consideration and are not legally binding. Milwaukee County and the Village of Bayside reserve the right to determine alternative solutions.* 

Node 500: Port Washington Road with North Access Drive

- 2024 Initial Build traffic: No modifications.
- 2034 Full Build Traffic: No modifications.

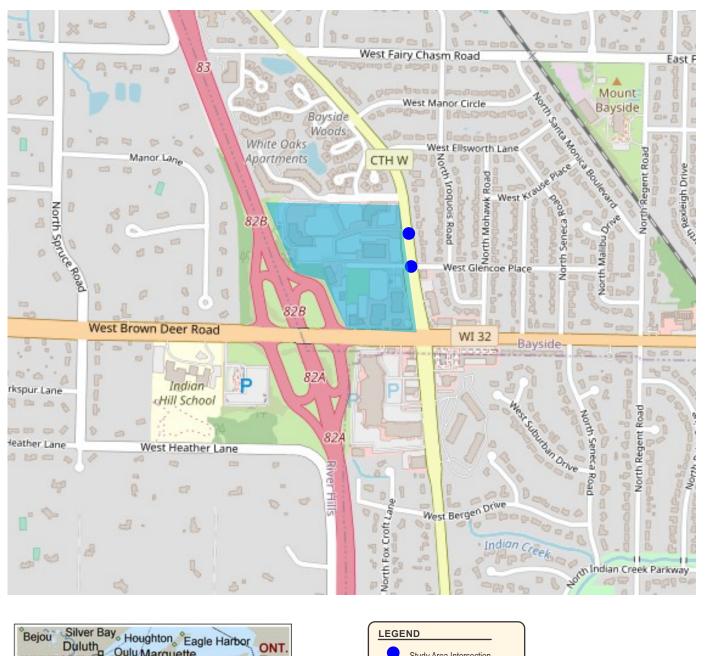
Mixed-Use Redevelopment - Village of Bayside, Wisconsin Page 8 of 8 November 4, 2022

#### Node 600: Brown Deer Road with Glencoe Place

- 2024 Initial Build traffic:
  - Provide traffic signal control with protected/permitted northbound leftturn phasing.
  - Provide a shared through/left-turn lane and a dedicated right-turn lane on the west approach.
  - Provide signage for and mark the outside lane on the south approach as a right-turn only lane.
  - [ALTERNATE DESIGN] Reconstruct the median to provide left-in/rightin/right-out access only for both the east and west approaches. Provide signage on east and west approaches for right-turn only movements.
- 2034 Full Build Traffic: No additional modifications.

Without traffic signals at the Glencoe Place intersection, higher delays are expected for the leftturn movements exiting the proposed development at the Port Washington Road intersection with the North Access Road.

Except where noted, all movements at the study area intersections are expected to operate safely and efficiently with the development assumptions outlined in the previously approved TIA and with the identified recommended modifications if properly designed and implemented through the design year of the development.





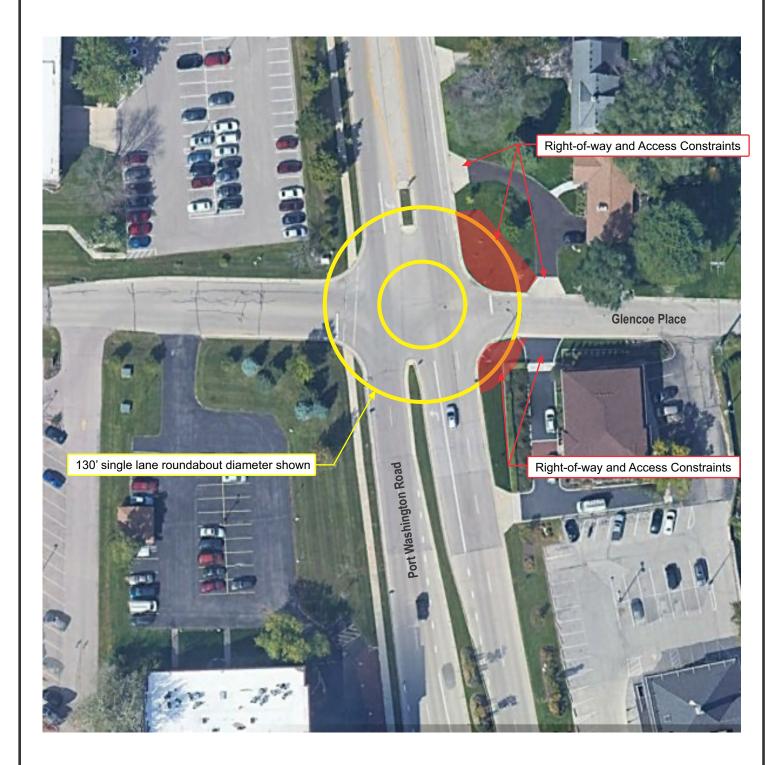
TRAFFIC ANALYSIS & DESIGN, INC.

2803; 11-04-22





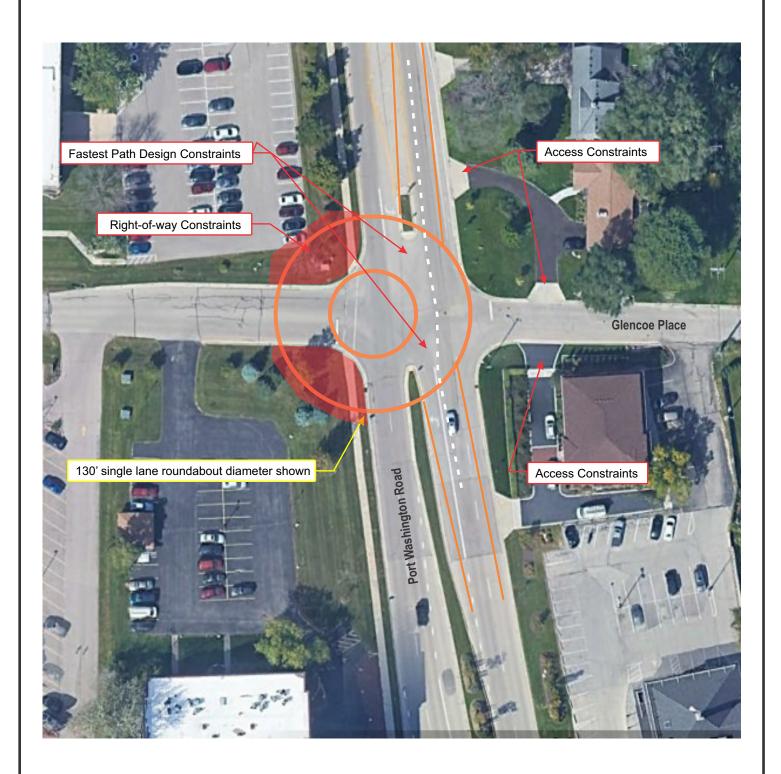
**BAYSIDE, WISCONSIN** 



**EXHIBIT 2A** CONCEPTUAL ROUNDABOUT FOOTPRINT SINGLE-LANE ROUNDABOUT CENTERED ON INTERSECTION **BAYSIDE, WISCONSIN** 



NOT TO SCALE



**EXHIBIT 2B** CONCEPTUAL ROUNDABOUT FOOTPRINT SINGLE-LANE ROUNDABOUT OFFSET TO WEST **BAYSIDE, WISCONSIN** 





	←←← Bac Pec Bic	lestrian 🏌 🕧 /clist 🔬 🕞	Stop Sign Tree Fixed Object Non-Fixed Objec	LEGEND Angle (Right Angle) Angle (Left Turn) Angle (Right Turn) Sideswipe-Same Sideswipe-Opposite Overturn
1	WB car, NB car	9/14/2018	rt angle	WB FTY
2	SB car	5/19/2022	object	SB cell phone, lost control, fled scene
3	SB car, SB car	5/16/2022	sideswipe	
4	WB car, SB car	3/27/2022	rt angle	WB FTY
	FTY = failure to yie	ld the right of	way	





	Bicyclis	g Vehicle          ●   Stop Si rian	gn	Angle (Right Turn) 🔨	<ul> <li>Rear-End</li> <li>Out of Control</li> <li>Overtake</li> </ul>	
			Port Washington Road			
1	WB car, NB car		rt angle		WB FTY	
2	WB car, SB car	12/16/2015	rt angle		WB FTY	
3	EB car, NB car	10/5/2015	rt angle		EB FTY, alcohol	
	FTY = failure to	yield the righ	it of way			
		-			EXI CRASH F	HIBIT 3E

NOT TO SCALE

TRAFFIC ANALYSIS & DESIGN, INC.

2803; 11-04-22

EXHIBIT 3B CRASH HISTORY PRE-PANDEMIC CRASHES (2015 - 2019) BAYSIDE, WISCONSIN

#### LEGEND

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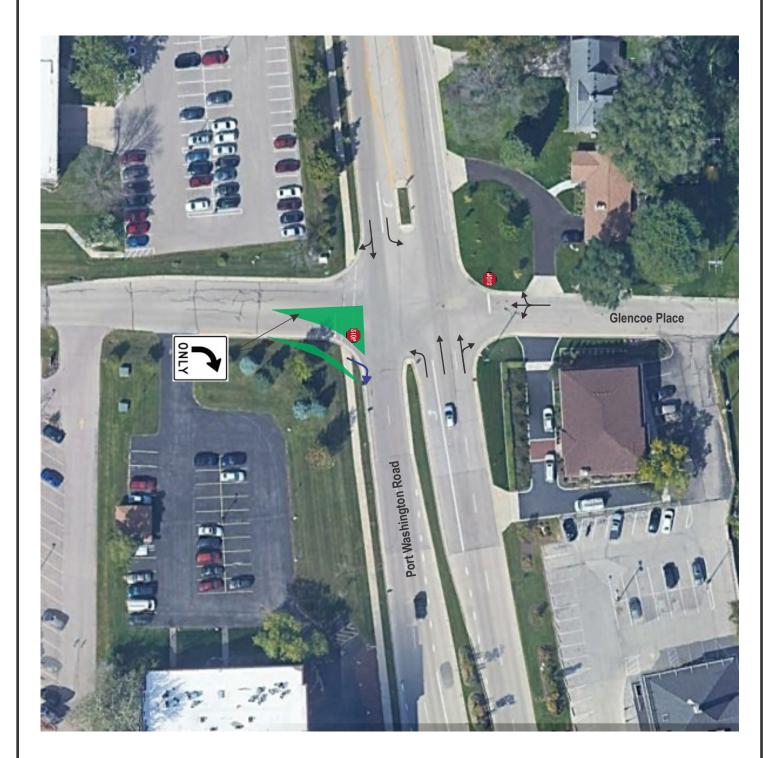




EXHIBIT 4A POTENTIAL RIGHT-OUT ONLY DESIGN WEST APPROACH BAYSIDE, WISCONSIN

#### LEGEND

Stop Sign
 Existing Lane Configuration
 Proposed Lane Configuration

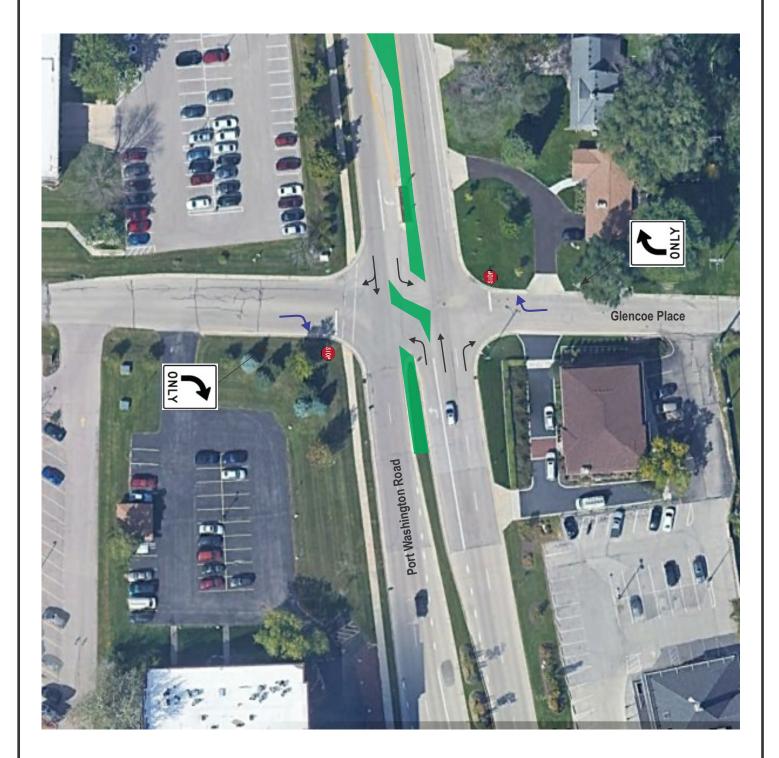
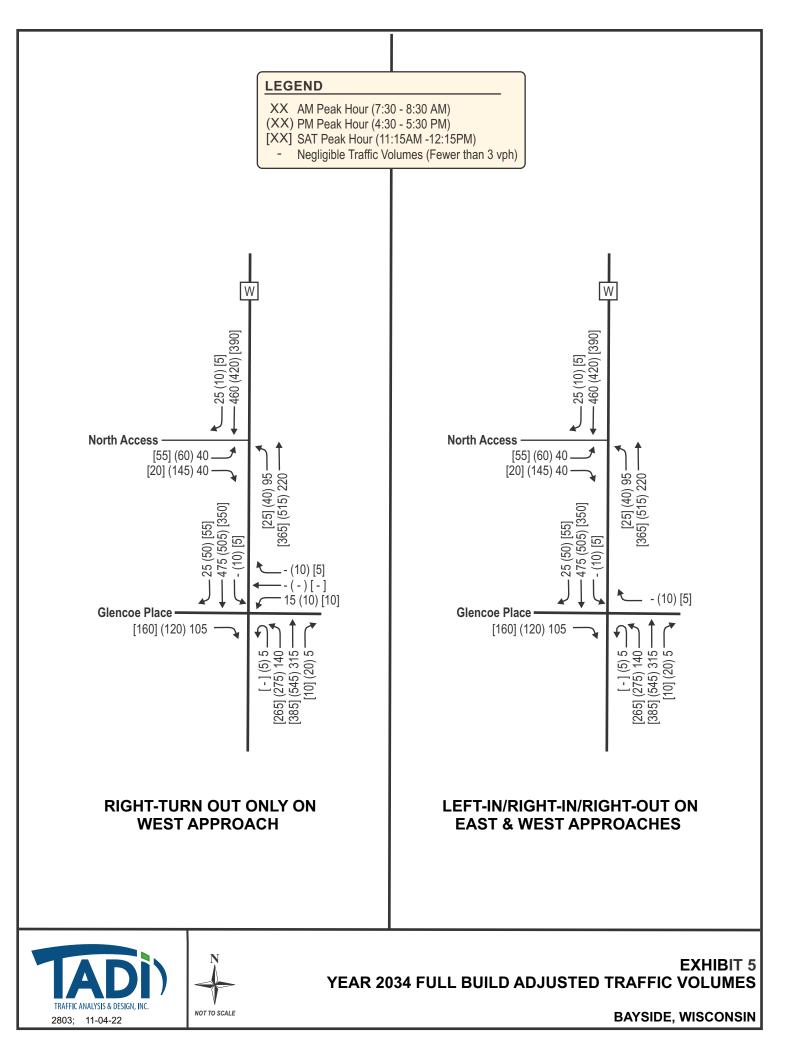


EXHIBIT 4B POTENTIAL LEFT-IN/RIGHT-IN/RIGHT OUT DESIGN EAST AND WEST APPROACHES BAYSIDE, WISCONSIN





# Appendix A Port Washington Road at Glencoe Place Traffic Signal Warrant Outputs

Year 2024 Full Build Traffic with 0% right-turn included Year 2024 Full Build Traffic with 50% right-turn included Year 2034 Full Build Traffic with 0% right-turn included Year 2034 Full Build Traffic with 50% right-turn included

#### TRAFFIC SIGNAL WARRANT VOLUME CALCULATIONS:

#### Port Washington Road at Glencoe Place

					2018	Exist	ing Tr	affic								AADT IN 0	AADT OUT 0	By: DJL Date: 7/15/22
		<b>1</b>			←						→					0% 0	0% 0	<- % Reduction, Sensitivity Test
	Port W	ash Rd froi	n North	Glen	coe Pl from	n East	Port W	ash Rd fro	m South	Glen	coe PI from	West	Intersection			% AADT	-	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals	IN	OUT	IN	OUT	Notes
6-7am	Ő	173	2	Ő	0	12	3	72	30	7	0	0	299	0	0	0.0%	0.0%	
7-8am	12	356	0	2	1	18	1	209	87	9	0	1	696	0	0	0.0%	0.0%	
8-9am	12	365	2	5	1	10	4	345	96	9	0	2	851	0	0	0.0%	0.0%	
9-10am	3	327	5	7	1	11	7	356	60	18	0	4	799	0	0	0.0%	0.0%	
10-11am	3	299	9	6	0	16	7	286	26	11	0	3	666	0	0	0.0%	0.0%	
11am-12pm	3	387	9	11	0	17	11	365	26	32	0	5	866	0	0	0.0%	0.0%	
12-1pm	9	440	5	9	0	11	12	429	58	47	2	10	1032	0	0	0.0%	0.0%	
1-2pm	9	354	7	11	0	15	19	376	38	27	0	7	863	0	0	0.0%	0.0%	
2-3pm	1	454	5	6	1	12	11	405	16	14	0	2	927	0	0	0.0%	0.0%	
3-4pm	6	453	10	13	0	18	15	469	15	37	1	6	1043	0	0	0.0%	0.0%	
4-5pm	3	512	13	14	0	11	13	437	22	80	1	7	1113	0	0	0.0%	0.0%	
5-6pm	3	545	5	10	0	14	24	482	18	66	0	4	1171	0	0	0.0%	0.0%	
6-7pm	1	283	6	8	0	7	7	332	11	24	0	2	681	0	0	0.0%	0.0%	
7:30-8:30 am	13	388	1	2	2	14	3	299	103	10	0	1	836	0	0	0.0%	0.0%	
4:30-5:30 pm	1	598	12	8	0	12	18	467	22	79	1	7	1225	0	0	0.0%	0.0%	
IN or OUT													]			ite (NB/SB)		1.015
PERECENTAGE														0	= Year ra	te (EB/WB)		1.000

		:	2024 E	Backg	round	d Gro	wth (6	year	s @ 0	.25%)						AADT IN	AADT OUT	
		ł			+			♠			→					<mark>0%</mark>	0% 0	<- % Reduction, Sensitivity Test
	Port W	ash Rd fro	n North	Glen	coe Pl fron	n East	Port W	ash Rd fror	n South	Gleno	coe PI from	West	Intersection	-		% AADT	-	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals	IN	OUT	IN	OUT	Notes
6-7am	0	3	0	0	0	0	0	1	0	0	0	0	4	0	0	0.0%	0.0%	
7-8am	0	5	0	0	0	0	0	3	1	0	0	0	9	0	0	0.0%	0.0%	
8-9am	0	6	0	0	0	0	0	5	1	0	0	0	12	0	0	0.0%	0.0%	
9-10am	0	5	0	0	0	0	0	5	1	0	0	0	11	0	0	0.0%	0.0%	
10-11am	0	5	0	0	0	0	0	4	0	0	0	0	9	0	0	0.0%	0.0%	
11am-12pm	0	6	0	0	0	0	0	6	0	0	0	0	12	0	0	0.0%	0.0%	
12-1pm	0	7	0	0	0	0	0	6	1	0	0	0	14	0	0	0.0%	0.0%	
1-2pm	0	5	0	0	0	0	0	6	1	0	0	0	12	0	0	0.0%	0.0%	
2-3pm	0	7	0	0	0	0	0	6	0	0	0	0	13	0	0	0.0%	0.0%	
3-4pm	0	7	0	0	0	0	0	7	0	0	0	0	14	0	0	0.0%	0.0%	
4-5pm	0	8	0	0	0	0	0	7	0	0	0	0	15	0	0	0.0%	0.0%	
5-6pm	0	8	0	0	0	0	0	7	0	0	0	0	15	0	0	0.0%	0.0%	
7:30-8:30 am	0	6	0	0	0	0	0	5	2	0	0	0	13	0	0	0.0%	0.0%	
4:30-5:30 pm	0	9	0	0	0	0	0	7	0	0	0	0	16	0	0	0.0%	0.0%	
IN or OUT													]			0.0%	0.0%	
PERECENTAGE													1					

					Re	move	ed Trij	os								AADT IN	AADT OUT	
		Ţ			4						→					0%	0%	<- % Reduction, Sensitivity Test
								Т			7					0	0	_
	Port W	ash Rd fror	n North	Glen	coe PI fron	n East	Port W	ash Rd fror	n South	Glen	coe PI fron	n West	Intersection			% AADT	% AADT	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals	IN	OUT	IN		Notes
6-7am	0	0	0	0	0	0	0	0	-27	-6	0	0	-33	0	0			
7-8am	-11	0	0	0	-1	0	0	0	-78	-8	0	-1	-99	0	0			
8-9am	-11	0	0	0	-1	0	0	0	-86	-8	0	-2	-108	0	0			
9-10am	-3	0	0	0	-1	0	0	0	-54	-16	0	-4	-78	0	0			
10-11am	-3	0	0	0	0	0	0	0	-23	-10	0	-3	-39	0	0			
11am-12pm	-3	0	0	0	0	0	0	0	-23	-29	0	-5	-60	0	0			
12-1pm	-8	0	0	0	0	0	0	0	-52	-42	-2	-9	-113	0	0			
1-2pm	-8	0	0	0	0	0	0	0	-34	-24	0	-6	-72	0	0			
2-3pm	-1	0	0	0	-1	0	0	0	-14	-13	0	-2	-31	0	0			
3-4pm	-5	0	0	0	0	0	0	0	-14	-33	-1	-5	-58	0	0			
4-5pm	-3	0	0	0	0	0	0	0	-20	-72	-1	-6	-102	0	0			
5-6pm	-3	0	0	0	0	0	0	0	-16	-59	0	-4	-82	0	0			
7:30-8:30 am	-12	0	0	0	-2	0	0	0	-93	-9	0	-1	-117	0	0			
4:30-5:30 pm	-12	0	0	0	0	0	0	0	-20	-71	-1	-6	-99	0	0			
		5			, v	Ŭ			20			, v	50					
IN or OUT																		
PERECENTAGE																		

#### Page 1

																AADT	AADT	1
						_										IN	OUT	
				Str	'ip Pla	iza - F	hase	I Sou	th							1845	1845	
		Ţ				-			-		→					0%		<- % Reduction, Sensitivity Test
		$\bullet$						Т			7					1845	1845	
	Port W	ash Rd froi	m North	Glen	coe PI fron	n East	Port Wa	ash Rd froi	m South	Gleno	coe PI from	n West	Intersection	-	-	% AADT	% AADT	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals	IN	OUT	IN		Notes
6-7am	5	0	0	0	0	0	0	0	20	5	0	0	30	30	20	1.5%	1.0%	< From WisDOT (LU820)
7-8am	5	0	0	0	0	0	0	0	30	15	0	5	55	45	45	2.5%	2.4%	< From WisDOT (LU820)
8-9am	10	0	0	0	0	0	0	0	45	15	0	5	75	70	45	3.9%	2.4%	< From WisDOT (LU820)
9-10am	10	0	0	0	0	0	0	0	65	25	0	10	110	100	70	5.5%	3.7%	< From WisDOT (LU820)
10-11am	15	0	0	0	0	0	0	0	85	25	0	10	135	130	80	7.0%	4.3%	< From WisDOT (LU820)
11am-12pm	20	0	0	0	0	0	0	0	100	35	0	15	170	155	115	8.4%	6.2%	< From WisDOT (LU820)
12-1pm	20	0	0	0	0	0	0	0	110	50	0	20	200	175	155	9.4%	8.3%	< From WisDOT (LU820)
1-2pm	20	0	0	0	0	0	0	0	95	50	0	20	185	150	160	8.2%	8.6%	< From WisDOT (LU820)
2-3pm	15	0	0	0	0	0	0	0	90	55	0	20	180	140	165	7.7%	8.9%	< From WisDOT (LU820)
3-4pm	15	0	0	0	0	0	0	0	95	50	0	20	180	145	160	7.8%	8.8%	< From WisDOT (LU820)
4-5pm	20	0	0	0	0	0	0	0	95	55	0	20	190	150	165	8.0%	8.9%	< From WisDOT (LU820)
5-6pm	20	0	0	0	0	0	0	0	100	55	0	20	195	155	170	8.4%	9.2%	< From WisDOT (LU820)
7:30-8:30 am	5	0	0	0	0	0	0	0	30	15	0	5	55	45	45	2.5%	2.4%	< From WisDOT (LU820)
4:30-5:30 pm	20	0	0	0	0	0	0	0	95	55	0	20	190	150	165	8.0%	8.9%	< From WisDOT (LU820)
IN or OUT	IN		1	r	IN	1	1		IN	OUT	OUT	OUT	1					
PERECENTAGE	12.0%				1.0%				64.0%	32.6%	1.0%	12.0%	1					

																AADT	AADT	
		M	ultifar	nily H	loueir	a (Mi	d-Ris	a) - Pł	haso I	Sout	h					IN	OUT	
			untinai	illiy i	ousii	g (init	u-113		10361	oout						720	720	
					4						→					0%	0%	<- % Reduction, Sensitivity Test
		•						1								720	720	
	Port Wa	ash Rd fror	n North	Glen	coe PI from	i East	Port Wa	ash Rd fror	m South	Glen	coe PI fron	n West	Intersection			% AADT	% AADT	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals	IN	OUT	IN	OUT	Notes
6-7am	5	0	0	0	0	0	0	0	20	40	0	15	80	35	120	1.8%	6.6%	< From WisDOT (LU210)
7-8am	10	0	0	0	0	0	0	0	50	65	0	25	150	75	195	4.1%	10.7%	< From WisDOT (LU210)
8-9am	10	0	0	0	0	0	0	0	55	35	0	15	115	85	105	4.6%	5.7%	< From WisDOT (LU210)
9-10am	10	0	0	0	0	0	0	0	60	35	0	10	115	90	100	4.8%	5.4%	< From WisDOT (LU210)
10-11am	10	0	0	0	0	0	0	0	50	30	0	10	100	75	90	4.0%	5.0%	< From WisDOT (LU210)
11am-12pm	10	0	0	0	0	0	0	0	60	30	0	10	110	95	95	5.2%	5.1%	< From WisDOT (LU210)
12-1pm	15	0	0	0	0	0	0	0	85	35	0	10	145	130	100	7.0%	5.4%	< From WisDOT (LU210)
1-2pm	20	0	0	0	0	0	0	0	105	35	0	15	175	165	115	8.9%	6.3%	< From WisDOT (LU210)
2-3pm	20	0	0	0	0	0	0	0	95	40	0	15	170	150	125	8.1%	6.8%	< From WisDOT (LU210)
3-4pm	20	0	0	0	0	0	0	0	110	40	0	15	185	170	120	9.1%	6.6%	< From WisDOT (LU210)
4-5pm	20	0	0	0	0	0	0	0	115	55	0	20	210	180	175	9.8%	9.5%	< From WisDOT (LU210)
5-6pm	35	0	0	0	5	0	0	0	175	55	0	20	290	275	175	14.8%	9.5%	< From WisDOT (LU210)
7:30-8:30 am	10	0	0	0	0	0	0	0	50	65	0	25	150	75	195	4.1%	10.7%	< From WisDOT (LU210)
4:30-5:30 pm	20	0	0	0	0	0	0	0	115	55	0	20	210	180	175	9.8%	9.5%	< From WisDOT (LU210)
										0.117	0.17	0.117	7					
IN or OUT	IN 10.0%				IN 1.0%				IN	OUT	OUT	OUT	-					
PERECENTAGE	12.0%				1.0%			1	64.0%	32.6%	1.0%	12.0%						

#### TRAFFIC SIGNAL WARRANT VOLUME SUMMARY: Port Washington Road at Glencoe Place

					2024	4 Buil	ld Tra	offic					
	<ul><li>MAJOR</li><li>MINOR</li></ul>	↓			←			↑			→		
	Port Wa	ish Rd fro	m North	Gleno	coe PI from	East	Port Wa	ash Rd fro	m South	Glenc	oe PI from	West	Intersection
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals
6-7am	10	176	2	0	0	12	3	73	43	46	0	15	380
7-8am	16	361	0	2	0	18	1	212	90	81	0	30	811
8-9am	21	371	2	5	0	10	4	350	111	51	0	20	945
9-10am	20	332	5	7	0	11	7	361	132	62	0	20	957
10-11am	25	304	9	6	0	16	7	290	138	56	0	20	871
11am-12pm	30	393	9	11	0	17	11	371	163	68	0	25	1098
12-1pm	36	447	5	9	0	11	12	435	202	90	0	31	1278
1-2pm	41	359	7	11	0	15	19	382	205	88	0	36	1163
2-3pm	35	461	5	6	0	12	11	411	187	96	0	35	1259
3-4pm	36	460	10	13	0	18	15	476	206	94	0	36	1364
4-5pm	40	520	13	14	0	11	13	444	212	118	0	41	1426
5-6pm	55	553	5	10	5	14	24	489	277	117	0	40	1589
7:30-8:30 am	16	394	1	2	0	14	3	304	92	81	0	30	937
4:30-5:30 pm	40	607	12	8	0	12	18	474	212	118	0	41	1542

2024 Build Traffic

# Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Port Washington Road & Glencoe Place County: Milwaukee Village: Bayside

Major Street:	Port Washington Road	Minor Street:	Glencoe Pla	ce
Critical Approa	ach Speed: 35 mph	Critical Approa	ach Speed:	25 mph
Lanes:	2 or more lanes	Lanes:	1 lane	

% Right Turns IncludedIn built-up area of isolated community of < 10,000 population? No</th>From North (SB) 100%Total number of approaches at intersection? 4 or moreFrom East (WB) 100%If it is a "T" intersection, inflate minor threshold to 150%? NoFrom South (NB) 0%Manually set volume level?From West (EB) 0%From West (EB) 0%

#### Analysis based on **PROJECTED** volume data.

Forecast Year	Within 5 Years of		Time (HH	:MM)	
Forecast real	Construction?	From	AM / PM	То	AM / PM
2024	Yes	6:00	AM	19:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	No
Warrant 3: Peak Hour Volume	N/A
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

#### Warrant Analysis Conducted By:

Name: DJL Agency: TADI Date: 10/31/2022

# Warrant 1: Eight - Hour Vehicular Volume

# 100%

# Warrant Evaluated? Yes

••		alaacea.							
Condit	ion A :								
Min. Veh. Volume									
Volume Level	100%	80%							
Major Rd. Req 600 480									
Minor Rd. Req	150	120							
Number of Hours 0 0									
		Cotiofied 2							

Satisfied? No

Condition B:			
Interruption of Continuous Traffic			
Volume Level	100%	80%	
Major Rd. Req	900	720	
Minor Rd. Req	75	60	
Number of Hours	0	0	

Satisfied? No

Condition C:	
Combination of A & B at 80%	

Satisfied? No

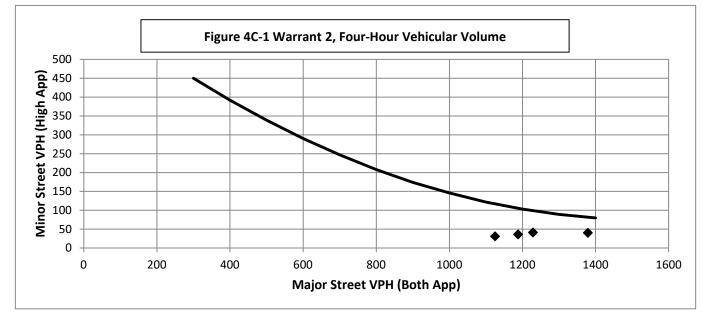
Wa	arrant Sa	tisfied?	No	Manually Set To:	
6:00 AM		Enter	Enter Start Time (Military Time) (HH:MM)		
Time	From	То	Major Road: Both	•	Total
Period			App. (VPH)	App. (VPH)	
1	6:00	7:00	304	15	319
2	7:00	8:00	679	30	709
3	8:00	9:00	855	20	875
4	9:00	10:00	850	20	870
5	10:00	11:00	766	22	788
6	11:00	12:00	966	28	994
7	12:00	13:00	1125	31	1156
8	13:00	14:00	994	36	1030
9	14:00	15:00	1099	35	1134
10	15:00	16:00	1188	36	1224
11	16:00	17:00	1229	41	1270
12	17:00	18:00	1379	40	1419
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

# Warrant 2: Four-Hour Volume

# Hour Start17:0016:0015:0012:00Major Road Vol.1379122911881125Minor Road Vol.40413631

# 100%

Warrant Evaluated? Yes Warrant Satisfied? No Manually Set To:



# Warrant 3: Peak Hour Volume

# 100%

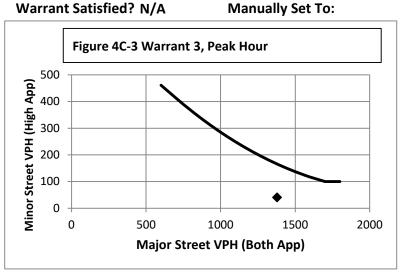
100%

**Warrant Evaluated?** Condition justifying use of warrant:

Criteria	Met?	
Delay on Minor Approach	4	
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

#### Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
17:00	1379	40



# Warrant 4: Pedestrian Volume

#### Warrant Evaluated?

**Criterion A: Four Hour** 

enterion / a rour nou				
Hour	Pedestrian	Major Road		
(Start)	Volume	Vol.		
		0		
		0		
		0		
		0		

Manually Set Major Rd Vol? Avg. walk speed less than 3.5 ft/s?

#### **Criterion A Satisfied?**

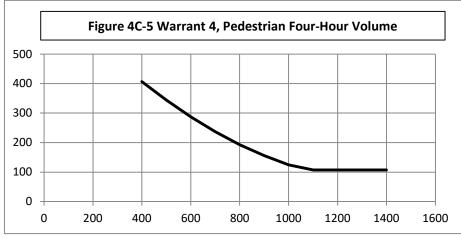
#### **Criterion B: Peak Hour**

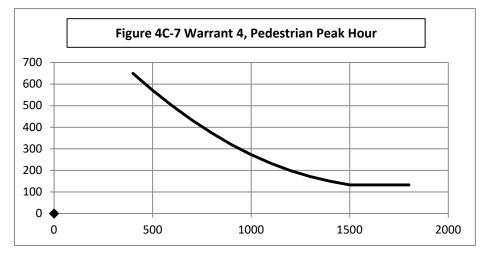
Peak Hour	Pedestrian	Major Road
	Vol.	Vol.
0:00	0	0

#### **Criterion B Satisfied?**

Warrant Satisfied? N/A

#### Manually Set To:





# Warrant 5: School Crossing

#### Manually Set To:

Crite	eria	Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are	
2	using the crossing than the number of minutes in the same period.	
2	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	
3	within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

# Warrant 6: Coordinated Signal System

# 100%

100%

100%

#### Warrant Evaluated?

Warrant Evaluated?

#### Warrant Satisfied? N/A

Warrant Satisfied? N/A

# Manually Set To:

Crite	eria	Fulfilled?
1	Signal spacing > 1000 ft	
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

# Warrant 7: Crash Experience

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Adequate trial of other remedial measures has failed to reduce crash frequency. 1 Measures Tried: Five or more reported crashes, of types susceptible to correction by signal, have # of crashes per 12 months 2 occurred within a 12 month period. Warrant 1, Condition A (80%) No Warrant 1, Condition B (80%) No 3 Yes Warrant 4, Criterion A (80%) No Warrant 4, Criterion B (80%) Yes

# Warrant 8: Roadway Network

# 100%

Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Total entering volume of at least 1,000 veh/h during typical weekday peak hour 1419 Yes 1 No Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3. No Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) 2 Hour Volume Characteristics of Major Routes - Select yes if all intersecting routes have characteristic Fulfilled? 1 Part of the road or highway system that serves as the principal roadway network for through traffic flow 2 Rural or suburban highway outside of, entering, or traversing a city 3 Appears as a major route on an official plan

#### 4

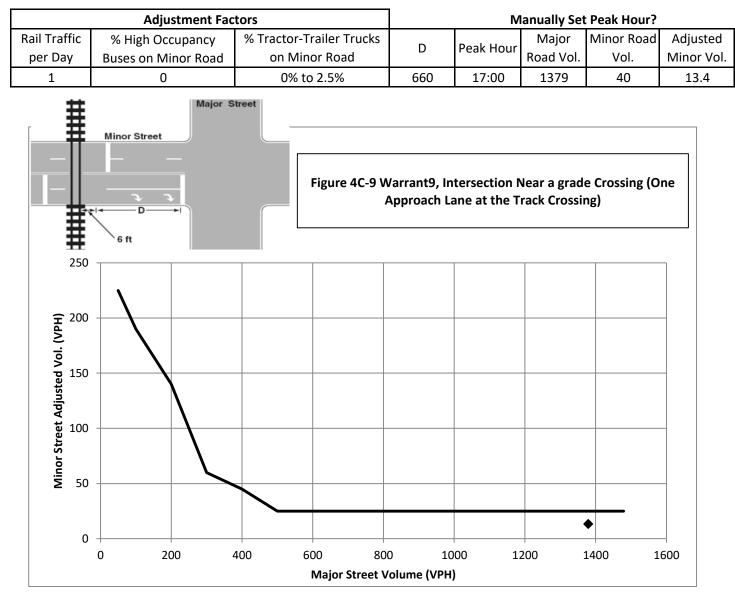
100%

# Warrant 9: Intersection Near a Grade Crossing

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:



**Conclusions/Comments:** 

Updated: 12/6/2017

										Hour	Hourly Volume Data	ne Data										
ō	One Hour			≯					≁					€					↑			Total
Tim	Time Period		Froi	From North (SB)	(SB)	_		From	m East (WB)	WB)			Fron	From South (NB)	(NB)			Fro	From West (EB)	(EB)		Vehicle
Sta	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
	6:00	10	176	2			0	0	12			8	73	43			46	0	15			380
И	7:00	16	361	0			2	0	18			1	212	06			81	0	30			811
IA	8:00	21	371	2			5	0	10			4	350	111			51	0	20			945
	00:6	20	332	ъ			7	0	11			7	361	132			62	0	20			957
	10:00	25	304	6			9	0	16			۲	290	138			26	0	20			871
a	11:00	30	393	6			11	0	17			11	371	163			68	0	25			1098
W	12:00	36	447	S			6	0	11			12	435	202			06	0	31			1278
	13:00	41	359	7			11	0	15			19	382	205			88	0	36			1163
	14:00	35	461	S			9	0	12			11	411	187			96	0	35			1259
	15:00	36	460	10			13	0	18			15	476	206			94	0	36			1364
	16:00	40	520	13			14	0	11			13	744	212			118	0	41			1426
И	17:00	55	553	ъ			10	5	14			24	489	277			117	0	40			1589
ld	18:00																					0
	19:00																					0
	20:00																					0
	21:00																					0
Totals	S	365	4737	72	0	5174	94	5	165	0	264	127	4294	1966	0	6387	967	0	349	0	1316	13141
Note	Note: Copy volume data and paste into cells using paste special -> values	ume data	and past	e into ce	lls using	paste spi	ecial -> v;	alues														
Note	Note: U-Turns are counted as Left Turns in the Volume Totals	are counte	ed as Lefi	t Turns in	the Volu	ume Tota	sle					4	Major Road Volume Totals:	ad Volun	ne Totals			U	Minor Road Highest Volume:	ad Highe:	t Volum	
													Ŋ	North/South	th				_	East/West	t	
												Right	Thru	Left	T+LT	Total		Right	Thru	Left	T+LT	Total
												10	949	45	707	304		C	c	ן ק	ן ר	ן ה נ

Please Select the Major Road: N/S

Major Road Left Turn as Minor Approach? No

% Right Turns Included (Default 0%)

 From North (SB)
 100%

 From East (WB)
 100%

 From South (NB)
 0%

 From West (EB)
 0%

	Total	304	679	855	850	766	996	1125	994	1099	1188	1229	1379	0	0	0	0	11434
÷	T+LT	294	663	834	830	741	986	1089	953	1064	1152	1189	1324	0	0	0	0	11069
North/South	Left	45	90	113	137	147	172	207	212	192	216	225	282	0	0	0	0	2038
ž	Thru	249	573	721	693	594	764	882	741	872	936	964	1042	0	0	0	0	9031
	Right	10	16	21	20	25	30	36	41	35	36	40	55	0	0	0	0	365

Right 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		East/West		
			st	
0 0 0 0 0 0 0 0	Thru	Left	T+L	Total
0 0 11 6 0 0 0	0	15	15	15
0 0 11 6 0	0	30	30	30
0 6 11 0	0	20	20	20
0 0 0	0	20	20	20
11 0	0	16	16	22
00	0	17	17	28
c	0	31	31	31
0	0	36	36	36
0	0	35	35	35
0	0	36	36	36
0	0	41	41	41
0	0	40	40	40
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
17	0	337	337	354

2024 Build Traffic

### Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Port Washington Road & Glencoe Place County: Milwaukee Village: Bayside

Major Street:	Port Washington Road	Minor Street:	Glencoe Pla	ace
Critical Approa	ach Speed: 35 mph	Critical Approa	ach Speed:	25 mph
Lanes:	2 or more lanes	Lanes:	1 lane	
% Rig	ght Turns Included	In built-up area of isolated co	ommunity of <	< 10,000 populatio

In built-up area of isolated community of < 10,000 population? No Total number of approaches at intersection? 4 or more If it is a "T" intersection, inflate minor threshold to 150%? No Manually set volume level?

#### Analysis based on **PROJECTED** volume data.

From North (SB) 100%

From East (WB) 100% From South (NB) 0%

From West (EB) 50%

Forecast Year	Within 5 Years of		Time (HH	:MM)	
Forecast real	Construction?	From	AM / PM	То	AM / PM
2024	Yes	6:00	AM	19:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	No
Warrant 3: Peak Hour Volume	N/A
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

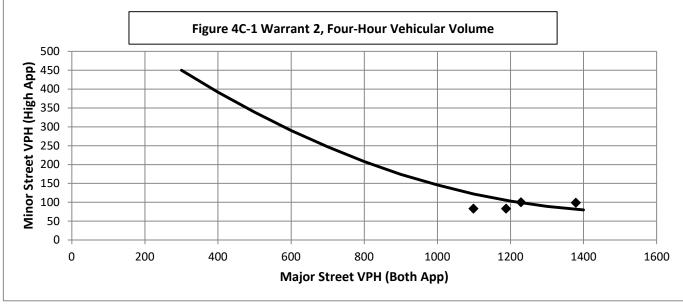
#### Warrant Analysis Conducted By:

Name: DJL Agency: TADI Date: 10/31/2022

VV	arrant Ev	aluated?	Yes	Wa	arrant Sa	tisfied?	No	Manually Set To:	_
Conditi	on A :			6:00	AM	Enter	Start Time (Military	Time) (HH:MM)	
Min. Veh.		1		Time	From	То	Major Road: Both	0	Tota
Volume Level	100%	80%		Period	_		App. (VPH)	App. (VPH)	
Major Rd. Req	600	480		1	6:00	7:00	304	38	342
Minor Rd. Req	150	120		2	7:00	8:00	679	71	749.5
Number of Hours	0	0		3	8:00	9:00	855	46	900.5
	9	Satisfied?	No	4	9:00	10:00	850	51	901
				5	10:00	11:00	766	48	814
Conditi	on B:			6	11:00	12:00	966	59	1025
Interruption of Co	ntinuous	Traffic		7	12:00	13:00	1125	76	1201
Volume Level	100%	80%		8	13:00	14:00	994	80	1074
Major Rd. Req	900	720		9	14:00	15:00	1099	83	1182
Minor Rd. Req	75	60		10	15:00	16:00	1188	83	1271
Number of Hours	6	6		11	16:00	17:00	1229	100	1329
		Satisfied?	No	12	17:00	18:00	1379	99	1477.
			_	13	18:00	19:00	0	0	0
Conditi	on C:			14	19:00	20:00	0	0	0
Combination of	A & B at 8	30%		15	20:00	21:00	0	0	0
	9	Satisfied?	No	16	21:00	22:00	0	0	0
					Sh	nort by	12 vehicles		
	V	Varran	t 2: Fo	our-Ho	our Vo	lume	Short by 1 ve		)0%
	•						Chore by 1 ve		
					1			rrant Evaluated?	
Hour Start	17:00	16:00	15:00	14:00				arrant Satisfied?	
Major Road Vol.	1379	1229	1188	1099				Manually Set To:	
Minor Road Vol.	98.5	100	83	83					
Minor Road Vol.	98.5		1	83		/ahiaulau	Valuma		

# Warrant 1: Eight - Hour Vehicular Volume

### 100%



### Warrant 3: Peak Hour Volume

# 100%

100%

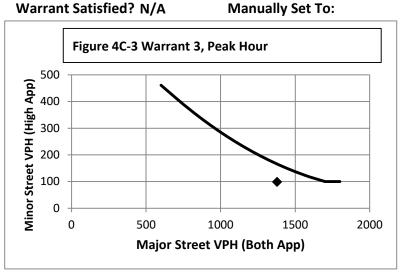
Manually Set To:

**Warrant Evaluated?** Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

### Manually Set Peak Hour?

Peak Hour	Major Road Vol.	Minor Road Vol.
Реак пош	(Both App.)	(High App.)
17:00	1379	98.5



### Warrant 4: Pedestrian Volume

Warrant Satisfied? N/A

### Warrant Evaluated?

**Criterion A: Four Hour** 

Hour	Pedestrian	Major Road
(Start)	Volume	Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol? Avg. walk speed less than 3.5 ft/s?

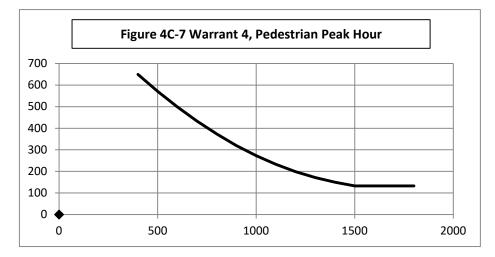
### **Criterion A Satisfied?**

#### **Criterion B: Peak Hour**

Peak Hour	Pedestrian	Major Road
Реак нош	Vol.	Vol.
0:00	0	0

#### **Criterion B Satisfied?**

Figure 4C-5 Warrant 4, Pedestrian Four-Hour Volume 500 400 300 200 100 0 0 200 400 600 800 1000 1200 1400 1600



### Warrant 5: School Crossing

#### Manually Set To:

Crit	eria	Fulfilled?
	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
2	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is	
5	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

### Warrant 6: Coordinated Signal System

### 100%

. . . . . . .

100%

100%

#### Warrant Evaluated?

Warrant Evaluated?

#### Warrant Satisfied? N/A

Warrant Satisfied? N/A

### **Manually Set To:**

(	Crite	eria	Fulfilled?
		Signal spacing > 1000 ft	
	2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
		On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

### Warrant 7: Crash Experience

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Adequate trial of other remedial measures has failed to reduce crash frequency. 1 Measures Tried: Five or more reported crashes, of types susceptible to correction by signal, have # of crashes per 12 months 2 occurred within a 12 month period. Warrant 1, Condition A (80%) No Warrant 1, Condition B (80%) No 3 Yes Warrant 4, Criterion A (80%) No Warrant 4, Criterion B (80%) Yes

# Warrant 8: Roadway Network

### 100%

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Total entering volume of at least 1,000 veh/h during typical weekday peak hour 1477.5 Yes 1 No Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3. No Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) 2 Hour Volume Characteristics of Major Routes - Select yes if all intersecting routes have characteristic Fulfilled? 1 Part of the road or highway system that serves as the principal roadway network for through traffic flow 2 Rural or suburban highway outside of, entering, or traversing a city

#### 3 Appears as a major route on an official plan

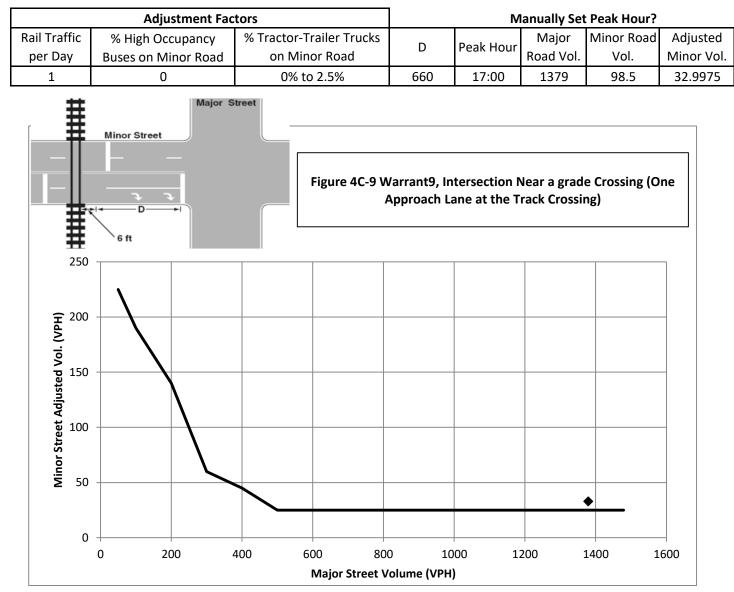
100%

### Warrant 9: Intersection Near a Grade Crossing

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:



**Conclusions/Comments:** 

Updated: 12/6/2017

										Hour	Hourly Volume Data	ne Data										
ō	One Hour			≯					≁					÷					↑			Total
Tin	Time Period		Froi	From North (SB)	(SB)	_		From I	m East (WB)	VB)			Fror	From South (NB)	(NB)			Fro	From West (EB)	(EB)		Vehicle
St	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
	6:00	10	176	2			0	0	12			3	73	43			46	0	15			380
И	7:00	16	361	0			2	0	18			1	212	06			81	0	30			811
IA	8:00	21	371	2			5	0	10			4	350	111			51	0	20			945
	00:6	20	332	ъ			7	0	11			7	361	132			62	0	20			957
	10:00	25	304	6			9	0	16			2	290	138			26	0	20			871
а	11:00	30	393	6			11	0	17			11	371	163			68	0	25			1098
W	12:00	36	447	2			6	0	11			12	435	202			06	0	31			1278
	13:00	41	359	7			11	0	15			19	382	202			88	0	36			1163
	14:00	35	461	S			9	0	12			11	411	187			96	0	35			1259
	15:00	36	460	10			13	0	18			15	476	206			94	0	36			1364
	16:00	40	520	13			14	0	11			13	444	212			118	0	41			1426
И	17:00	55	553	ъ			10	5	14			24	489	277			117	0	40			1589
ld	18:00																					0
	19:00																					0
	20:00																					0
	21:00																					0
Totals	S	365	4737	72	0	5174	94	5	165	0	264	127	4294	1966	0	6387	967	0	349	0	1316	13141
Note	Note: Copy volume data and paste into cells using paste special -> values	ume data	and past	e into ce	lls using	paste spi	ecial -> v;	alues														
Note	Note: U-Turns are counted as Left Turns in the Volume Totals	are counte	ed as Lefi	t Turns in	the Volu	ume Tota	sle						Major Road Volume Totals:	ad Volun	ne Totals			2	Minor Ro	Minor Road Highest Volume:	st Volume	
													Ň	North/South	th				-	East/West	t	
												Right	Thru	Left	T+LT	Total		Right	Thru	Left	T+LT	Total
												10	070	15	101	304		23	c	ר ר	ר ר	38

Please Select the Major Road: N/S

Major Road Left Turn as Minor Approach? No

% Right Turns Included (Defaul

	100%	100%	%0	50%
ded (Default 0%)	From North (SB)	From East (WB)	From South (NB)	From West (EB)

		Total	304	679	855	850	766	996	1125	994	1099	1188	1229	1379	0	0	0	0	11434
Major Koad Volume Lotals:	th	T+L	294	663	834	830	741	986	1089	953	1064	1152	1189	1324	0	0	0	0	11069
ad volun	North/South	Left	45	90	113	137	147	172	207	212	192	216	225	282	0	0	0	0	2038
viajor ko	Ň	Thru	249	573	721	693	594	764	882	741	872	936	964	1042	0	0	0	0	9031
_		Right	10	16	21	20	25	30	36	41	35	36	40	55	0	0	0	0	365

	Ainor Ro	Minor Road Highest Volume: Fast/West	st Volum et	ë
15         15         15           30         30         30           20         20         20           20         20         20           20         20         20           20         20         20           20         20         20           20         20         20           20         20         20           31         31         31           35         35         35           36         36         36           36         36         36           40         40         40           0         0         0           349         349         349	Thru	Left		Total
30         30         30           20         20         20           20         20         20           20         20         20           20         20         20           20         20         20           20         20         20           21         20         20           21         20         20           31         31         31           31         31         31           35         35         35           36         36         36           40         40         40           0         0         0           349         349         349	0	15	15	38
20         20           20         20           20         20           20         20           20         20           20         20           21         20           22         25           31         31           35         35           36         36           37         37           38         36           37         37           38         35           37         37           38         36           37         37           38         36           41         41           40         40           0         0           349         349	0	30	30	71
20         20           20         20           20         20           25         25           31         31           35         35           36         36           37         37           38         36           37         37           38         36           37         37           38         36           37         37           38         36           37         37           38         36           37         41           41         41           40         40           0         0           0         0           349         349	0	20	20	46
20         20           25         25           31         31           31         31           35         35           36         36           37         35           36         36           37         35           36         36           37         35           36         36           37         36           38         36           36         36           41         41           40         40           0         0           0         0           349         349	0	20	20	51
25     25       31     31       36     36       36     36       35     35       36     36       37     35       36     36       37     35       36     36       37     36       36     36       36     36       36     36       41     41       40     40       0     0       0     0       349     349	0	20	20	48
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30-8:30 am           30-8:30 pm           or OUT           cor OUT           RECENTAGE           30-8:30 pm           iar OUT           RECENTAGE           30-8:30 pm           10-11am           12-1pm           12-1pm           12-1pm           30-8:30 pm           30-8:30 pm           30-8:30 pm           30-8:30 pm           101 fam           30-8:30 pm           10-100 fbm           30-8:30 pm           10-100 fbm           30-8:30 pm           10-100 fbm           10-112pm           12-1pm           12-1pm <td>1 0 Port Was Right 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>16 24 24 Mul ↓ th Rd from 15 10 10 15 15 15 15 15 15 15 15 15 15 15 15 15</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0  Glence  Gle</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0  East  Left  0  0  0  0  0  0  0  0  0  0  0  0  0</td> <td>id-Ris Port W Right 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>19           19           19           10           10           15           5           5           5           10           15           15           15           15           15           15           15           15           15           15           15           15           15           15           15           16           17           18           19           19           10           10           10           10           10           10           10           10           10           10           10           15           20</td> <td>1 1 1 Phase Nouth Left 5 5 5 10 0 20 15 15 15 N A3.5% Phase Phase 20 15 15 15 15 15 15 15 15 15 15 15 15 15</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 rth → ree Pl from 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 West Left 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>45 Intersectio n Totals 20 40 40 50 60 60 70 40 60 70 70 40 40 60 70 70 40 40 60 70 70 70 70 70 50 40 40 70 70 50 70 70 70 60 70 70 70 80 70 70 70 70 70 70 70 70 70 70 70 70 70</td> <td>0 IN 5 15 15 15 15 15 15 15 15 15</td> <td></td> <td>0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%</td> <td>0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%</td> <td>Notes           cFram WisDOT (LU210)           c-Fram WisDOT (LU210)           cFram WisDOT (LU210)           c-Fram WisDOT (LU210)     </td>	1 0 Port Was Right 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 24 24 Mul ↓ th Rd from 15 10 10 15 15 15 15 15 15 15 15 15 15 15 15 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0  Glence  Gle	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0  East  Left  0  0  0  0  0  0  0  0  0  0  0  0  0	id-Ris Port W Right 0 0 0 0 0 0 0 0 0 0 0 0 0	19           19           19           10           10           15           5           5           5           10           15           15           15           15           15           15           15           15           15           15           15           15           15           15           15           16           17           18           19           19           10           10           10           10           10           10           10           10           10           10           10           15           20	1 1 1 Phase Nouth Left 5 5 5 10 0 20 15 15 15 N A3.5% Phase Phase 20 15 15 15 15 15 15 15 15 15 15 15 15 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 rth → ree Pl from 0 0 0 0 0 0 0 0 0 0 0 0 0	0 West Left 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	45 Intersectio n Totals 20 40 40 50 60 60 70 40 60 70 70 40 40 60 70 70 40 40 60 70 70 70 70 70 50 40 40 70 70 50 70 70 70 60 70 70 70 80 70 70 70 70 70 70 70 70 70 70 70 70 70	0 IN 5 15 15 15 15 15 15 15 15 15		0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	Notes           cFram WisDOT (LU210)           c-Fram WisDOT (LU210)           cFram WisDOT (LU210)           c-Fram WisDOT (LU210)

													n Road a					Page
				Stri	p Pla	za - F	hase	II So	uth							AADT IN 460	AADT OUT 460	By: D Date: 7/15
		¥			←			↑			→					<mark>0%</mark> 460	0% 460	<- % Reduction, Sensitivity Te
Ī		sh Rd fror			oe PI from			sh Rd fror			oe Pl from		Intersectio	-		% AADT	% AADT	
tart Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	n Totals	IN	OUT	IN	OUT	Notes
6-7am	0	0	0	0	0	0	0	0	5	0	0	0	5	5	5	1.5%	1.0%	< From WisDOT (LU820)
7-8am 8-9am	0	0	0	0	0	0	0	0	5 15	5	0	0	10 20	10 20	10 10	2.5% 3.9%	2.4%	< From WisDOT (LU820) < From WisDOT (LU820)
9-10am	5	0	0	0	0	0	0	0	15	5	0	0	20	25	15	5.5%	3.7%	< From WisDOT (LU820)
10-11am	5	0	0	0	0	0	0	0	20	5	0	0	30	30	20	7.0%	4.3%	< From WisDOT (LU820)
11am-12pm	5	0	0	0	0	0	0	0	25	10	0	5	45	40	30	8.4%	6.2%	< From WisDOT (LU820)
12-1pm 1-2pm	5	0	0	0	0	0	0	0	30 25	15 15	0	5	55 50	45 40	40 40	9.4% 8.2%	8.3% 8.6%	< From WisDOT (LU820) < From WisDOT (LU820)
2-3pm	5	0	0	0	0	0	0	0	20	15	0	5	45	35	40	7.7%	8.9%	< From WisDOT (LU820)
3-4pm	5	0	0	0	0	0	0	0	20	15	0	5	45	35	40	7.8%	8.8%	< From WisDOT (LU820)
4-5pm	5	0	0	0	0	0	0	0	20	15	0	5	45	35	40	8.0%	8.9%	< From WisDOT (LU820)
5-6pm	5	0	0	0	0	0	0	0	25	15	0	5	50	40	40	8.4%	9.2%	< From WisDOT (LU820)
30-8:30 am	0	0	0	0	0	0	0	0	5	5	0	0	10	10	10	2.5%	2.4%	< From WisDOT (LU820)
30-5:30 am	5	0	0	0	0	0	0	0	20	5 15	0	5	45	35	40	8.0%	8.9%	< From WisDOT (LU820)
or OUT	IN 12.0%				IN 1.0%				IN 64.0%	OUT 32.6%	OUT 1.0%	OUT 12.0%						
RECENTAGE	12.0%				1.0%		1		64.0%	32.6%	1.0%	12.0%	1					
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tart Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		Thru	Left	Intersectio n Totals	IN	OUT	% AADT	% AADT OUT	
6-7am	Right 0	0	0	Right 0	0	0	0 Right	0	Len 5	Right 5	0	0	10 n Totais	5	10	1.8%	6.6%	Notes < From WisDOT (LU210)
7-8am	0	0	0	0	0	0	0	0	5	5	0	0	10	5	20	4.1%	10.7%	< From WisDOT (LU210)
8-9am	0	0	0	0	0	0	0	0	5	5	0	0	10	10	10	4.6%	5.7%	< From WisDOT (LU210)
9-10am	0	0	0	0	0	0	0	0	5	5	0	0	10	10	10	4.8%	5.4%	< From WisDOT (LU210)
10-11am	0	0	0	0	0	0	0	0	5	5	0	0	10 10	5 10	10 10	4.0%	5.0%	< From WisDOT (LU210) < From WisDOT (LU210)
11am-12pm 12-1pm	0	0	0	0	0	0	0	0	5	5	0	0	10	10	10	5.2%	5.1% 5.4%	< From WisDOT (LU210)
1-2pm	0	0	0	0	0	0	0	0	10	5	0	0	15	15	10	8.9%	6.3%	< From WisDOT (LU210)
2-3pm	0	0	0	0	0	0	0	0	10	5	0	0	15	15	10	8.1%	6.8%	< From WisDOT (LU210)
3-4pm	0	0	0	0	0	0	0	0	10	5	0	0	15 15	15	10	9.1%	6.6%	< From WisDOT (LU210)
4-5pm 5-6pm	5	0	0	0	0	0	0	0	10 15	5	0	0	25	25	15 15	9.8% 14.8%	9.5% 9.5%	< From WisDOT (LU210) < From WisDOT (LU210)
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30-8:30 am 30-5:30 pm	0	0	0	0	0	0	0	0	5 10	5	0	0	10	5 15	20 15	4.1% 9.8%	10.7% 9.5%	< From WisDOT (LU210) < From WisDOT (LU210)
30-5:30 pm	U	U	U	U	U	U	U	U	10	5	U	U	15	15	15	9.6%	9.5%	< FIOM WISDUT (LUZIU)
or OUT ERECENTAGE	IN 12.0%				IN 1.0%				IN 64.0%	OUT	OUT	OUT 12.0%	]					
RECENTAGE	12.070				1.070				04.070	32.076	1.070	12.070	1					
				_	_											AADT	AADT	
			Sit	Dowr	n Res	taura	int - P	hase	ll So	uth						AADT IN 320	AADT OUT 320	
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	[	¥	Sit	Dowr	n Res ←	taura	int - P	hase	ll So	uth	<b>→</b>					IN 320	OUT 320	<- % Reduction, Sensitivity Te
	Port Was	↓ sh Rd fror									ee PI from	West	Intersectio	-		IN 320 0%	OUT 320 0%	<- % Reduction, Sensitivity Tr
tart Time	Right	sh Rd fror Thru	n North Left	Glenc Right	←	n East Left		sh Rd from Thru			-	Left	Intersectio n Totals	IN	 OUT	IN 320 0% 320 % AADT IN	OUT 320 0% 320 % AADT OUT	Notes
6-7am	Right 0	sh Rd fror Thru 0	n North Left 0	Glenc Right 0	oe PI from Thru 0	n East Left 0	Port Wa Right	sh Rd from Thru 0	n South Left 5	Glenc Right 0	oe PI from Thru 0	Left 0	n Totals 5	5	5	IN 320 0% 320 % AADT IN 1.5%	OUT 320 0% 320 % AADT OUT 0.8%	Notes < From WisDOT (LU932)
6-7am 7-8am	Right 0 0	sh Rd fror Thru 0 0	n North Left 0	Glenc Right 0	oe PI from Thru 0 0	East Left 0 0	Port Wa Right 0	sh Rd from Thru 0 0	n South Left 5 5	Glenc Right 0	oe Pl from Thru 0 0	Left 0 0	n Totals 5 5	5 10	5 5	IN 320 0% 320 % AADT IN 1.5% 3.0%	OUT 320 0% 320 % AADT OUT 0.8% 1.7%	Notes < From WisDOT (LU932) < From WisDOT (LU932)
6-7am 7-8am 8-9am	Right 0 0	sh Rd fror Thru 0	n North Left 0 0	Glenc Right 0 0	oe PI from Thru 0 0	n East Left 0	Port Wa Right 0 0	sh Rd from Thru 0 0 0	n South Left 5 5	Glenc Right 0	oe PI from Thru 0 0 0	Left 0 0	n Totals 5 5 5	5 10 10	5 5 5	IN 320 0% 320 % AADT IN 1.5% 3.0% 3.6%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3%	Notes From WisDOT (LU932) From WisDOT (LU932) From WisDOT (LU932)
6-7am 7-8am	Right 0 0	sh Rd from Thru 0 0 0	n North Left 0	Glenc Right 0	oe PI from Thru 0 0	East Left 0 0	Port Wa Right 0	sh Rd from Thru 0 0	n South Left 5 5	Glenc Right 0 0	oe Pl from Thru 0 0	Left 0 0	n Totals 5 5	5 10	5 5	IN 320 0% 320 % AADT IN 1.5% 3.0%	OUT 320 0% 320 % AADT OUT 0.8% 1.7%	Notes < From WisDOT (LU932) < From WisDOT (LU932)
6-7am 7-8am 8-9am 9-10am 10-11am 11am-12pm	Right 0 0 0 0 0 0 5	sh Rd fror Thru 0 0 0 0 0 0 0	n North Left 0 0 0 0 0	Glenc Right 0 0 0 0 0	Coe Pl from Thru 0 0 0 0 0 0 0	East Left 0 0 0 0 0	Port Wa Right 0 0 0 0 0	sh Rd from Thru 0 0 0 0 0 0	m South Left 5 5 10 5 15	Glenc Right 0 0 5 5 5	0 Pl from Thru 0 0 0 0 0 0 0 0	Left 0 0 0 0 0 0	n Totals 5 5 15 10 25	5 10 10 15 10 25	5 5 10 10 10	IN 320 0% 320 % AADT IN 1.5% 3.0% 3.6% 4.1% 3.3% 7.4%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3% 2.3% 3.2% 3.8%	Notes < From WisDOT (LU932) < From WisDOT (LU932)
6-7am 7-8am 8-9am 9-10am 10-11am 11am-12pm 12-1pm	Right 0 0 0 0 0 5 5 5	sh Rd fror Thru 0 0 0 0 0 0 0 0 0	n North Left 0 0 0 0 0 0 0 0	Glenc Right 0 0 0 0 0 0 0 0 0	Coe Pl from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	East Left 0 0 0 0 0 0 0 0	Port Wa Right 0 0 0 0 0 0 0 0 0	sh Rd from Thru 0 0 0 0 0 0 0 0 0 0	m South Left 5 5 5 10 5 15 20	Glenc Right 0 0 5 5 5 5 5 5	0 PI from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	Left 0 0 0 0 0 0 0 0	n Totals 5 5 15 10 25 30	5 10 10 15 10 25 30	5 5 10 10 10 20	IN 320 0% 320 % AADT IN 1.5% 3.0% 3.6% 4.1% 3.3% 7.4% 8.6%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3% 2.7% 3.2% 3.8% 6.6%	Notes < From WisDOT (LU932) < From WisDOT (LU932)
6-7am 7-8am 8-9am 9-10am 10-11am 11am-12pm 12-1pm 1-2pm	Right 0 0 0 0 5 5 5 0	sh Rd fror Thru 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	n North Left 0 0 0 0 0 0 0 0 0 0	Glenc Right 0 0 0 0 0 0 0 0 0	Oe PI from     Thru     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0	East Left 0 0 0 0 0 0 0 0 0 0	Port Wa Right 0 0 0 0 0 0 0 0 0 0	Thru           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0	n South Left 5 5 10 5 15 20 10	Glenc Right 0 0 5 5 5 5 5 5 5 10	0 Pl from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	Left 0 0 0 0 0 0 0 5	n Totals 5 5 15 10 25 30 25	5 10 10 15 10 25 30 15	5 5 10 10 10 20 30	IN 320 0% 320 % AADT IN 1.5% 3.0% 3.6% 4.1% 3.3% 7.4% 8.6% 4.8%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3% 2.7% 3.8% 6.6% 8.6%	Notes           < From WisDOT (LU932)
6-7am 7-8am 8-9am 9-10am 10-11am 11am-12pm 12-1pm 1-2pm 2-3pm	Right 0 0 0 0 0 5 5 5	sh Rd fror Thru 0 0 0 0 0 0 0 0 0	n North Left 0 0 0 0 0 0 0 0 0	Glenc Right 0 0 0 0 0 0 0 0 0	Coe Pl from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	East Left 0 0 0 0 0 0 0 0	Port Wa Right 0 0 0 0 0 0 0 0 0	sh Rd from Thru 0 0 0 0 0 0 0 0 0 0	m South Left 5 5 10 5 15 20 10 5	Glenc Right 0 0 5 5 5 5 5 5	0 PI from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	Left 0 0 0 0 0 0 0 0 0 0 5 0 0	n Totals 5 5 15 10 25 30 25 10	5 10 10 15 10 25 30	5 5 10 10 10 20 30 20	IN 320 0% 320 % AADT IN 1.5% 3.0% 4.1% 3.3% 7.4% 8.6% 4.8% 3.2%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3% 2.7% 3.2% 3.2% 6.6% 8.6% 5.5%	<ul> <li>From WisDOT (LU932)</li> </ul>
6-7am 7-8am 8-9am 9-10am 10-11am 11am-12pm 12-1pm 1-2pm	Right 0 0 0 0 5 5 0 0 0	sh Rd fror Thru 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	n North Left 0 0 0 0 0 0 0 0 0 0	Glenc Right 0 0 0 0 0 0 0 0 0 0 0		East Left 0 0 0 0 0 0 0 0 0 0	Port Wa Right 0 0 0 0 0 0 0 0 0 0 0 0	Image: height of the second	n South Left 5 5 10 5 15 20 10	Glenc Right 0 0 5 5 5 5 5 5 10 5	oe Pl from Thru 0 0 0 0 0 0 0 0 0 0 0 0 0	Left 0 0 0 0 0 0 0 5	n Totals 5 5 15 10 25 30 25	5 10 15 10 25 30 15 10	5 5 10 10 10 20 30	IN 320 0% 320 % AADT IN 1.5% 3.0% 3.6% 4.1% 3.3% 7.4% 8.6% 4.8%	OUT 320 0% 320 % AADT OUT 0.8% 1.7% 2.3% 2.7% 3.8% 6.6% 8.6%	Notes           < From WisDOT (LU932)

8-9am	0	0	0	0	0	0	0	0	5	0	0	0	5	10	5	3.6%	2.3%	< From WisDOT (LU932)
9-10am	0	0	0	0	0	0	0	0	10	5	0	0	15	15	10	4.1%	2.7%	< From WisDOT (LU932)
10-11am	0	0	0	0	0	0	0	0	5	5	0	0	10	10	10	3.3%	3.2%	< From WisDOT (LU932)
11am-12pm	5	0	0	0	0	0	0	0	15	5	0	0	25	25	10	7.4%	3.8%	< From WisDOT (LU932)
12-1pm	5	0	0	0	0	0	0	0	20	5	0	0	30	30	20	8.6%	6.6%	< From WisDOT (LU932)
1-2pm	0	0	0	0	0	0	0	0	10	10	0	5	25	15	30	4.8%	8.6%	< From WisDOT (LU932)
2-3pm	0	0	0	0	0	0	0	0	5	5	0	0	10	10	20	3.2%	5.5%	< From WisDOT (LU932)
3-4pm	0	0	0	0	0	0	0	0	5	5	0	0	10	10	15	3.0%	4.0%	< From WisDOT (LU932)
4-5pm	0	0	0	0	0	0	0	0	15	5	0	0	20	20	15	5.6%	4.5%	< From WisDOT (LU932)
5-6pm	5	0	0	Ō	0	0	0	0	20	5	0	0	30	30	15	9.7%	4.6%	< From WisDOT (LU932)
7:30-8:30 am	0	0	0	0	0	0	0	0	5	0	0	0	5	10	5	3.0%	1.7%	< From WisDOT (LU932)
4:30-5:30 pm	0	0	0	0	0	0	0	0	15	5	0	0	20	20	15	5.6%	4.5%	< From WisDOT (LU932)
IN or OUT	IN				IN				IN	OUT	OUT	OUT						
PERECENTAGE	12.0%				1.0%				64.0%	32.6%	1.0%	12.0%						

				Stri	ip Pla	za - I	hase	l So	uth							AADT IN 1845	AADT OUT 1845	
		Ļ			4						→					0%	0%	<- % Reduction, Sensitivity Test
		•			T			Т			7					1845	1845	
	Port Wa	ash Rd fror	n North	Gleno	oe PI from	n East	Port Wa	ish Rd froi	m South	Glenc	oe PI from	n West	Intersectio	-	-	% AADT	% AADT	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	n Totals	IN	OUT	IN		Notes
6-7am	5	0	0	0	0	0	0	0	20	5	0	0	30	30	20	1.5%	1.0%	< From WisDOT (LU820)
7-8am	5	0	0	0	0	0	0	0	30	15	0	5	55	45	45	2.5%	2.4%	< From WisDOT (LU820)
8-9am	10	0	0	0	0	0	0	0	45	15	0	5	75	70	45	3.9%	2.4%	< From WisDOT (LU820)
9-10am	10	0	0	0	0	0	0	0	65	25	0	10	110	100	70	5.5%	3.7%	< From WisDOT (LU820)
10-11am	15	0	0	0	0	0	0	0	85	25	0	10	135	130	80	7.0%	4.3%	< From WisDOT (LU820)
11am-12pm	20	0	0	0	0	0	0	0	100	35	0	15	170	155	115	8.4%	6.2%	< From WisDOT (LU820)
12-1pm	20	0	0	0	0	0	0	0	110	50	0	20	200	175	155	9.4%	8.3%	< From WisDOT (LU820)
1-2pm	20	0	0	0	0	0	0	0	95	50	0	20	185	150	160	8.2%	8.6%	< From WisDOT (LU820)
2-3pm	15	0	0	0	0	0	0	0	90	55	0	20	180	140	165	7.7%	8.9%	< From WisDOT (LU820)
3-4pm	15	0	0	0	0	0	0	0	95	50	0	20	180	145	160	7.8%	8.8%	< From WisDOT (LU820)
4-5pm	20	0	0	0	0	0	0	0	95	55	0	20	190	150	165	8.0%	8.9%	< From WisDOT (LU820)
5-6pm	20	0	0	0	0	0	0	0	100	55	0	20	195	155	170	8.4%	9.2%	< From WisDOT (LU820)
7:30-8:30 am	5	0	0	0	0	0	0	0	30	15	0	5	55	45	45	2.5%	2.4%	< From WisDOT (LU820)
4:30-5:30 pm	20	0	0	0	0	0	0	0	95	55	0	20	190	150	165	8.0%	8.9%	< From WisDOT (LU820)
IN or OUT	IN	1			IN		r	1	IN	OUT	OUT	OUT	1					
PERECENTAGE	12.0%				1.0%				64.0%	32.6%	1.0%	12.0%						

		Mu	ltifan	nily H	ousir	na (M	id_Die	so) - F	Dhaec		uth					AADT IN	AADT OUT	]
			itilali			ig (in		<u> </u>	nase	1.00						720 0%	720 0%	<- % Reduction, Sensitivity Test
		•			~			Т			7					720	720	
	Port Wa	ash Rd from	n North	Gleno	oe PI from	n East	Port Wa	ish Rd froi	m South	Glenc	oe PI from	West	Intersectio	-	-	% AADT	% AADT	
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	n Totals	IN	OUT	IN	OUT	Notes
6-7am	5	0	0	0	0	0	0	0	20	40	0	15	80	35	120	1.8%	6.6%	< From WisDOT (LU210)
7-8am	10	0	0	0	0	0	0	0	50	65	0	25	150	75	195	4.1%	10.7%	< From WisDOT (LU210)
8-9am	10	0	0	0	0	0	0	0	55	35	0	15	115	85	105	4.6%	5.7%	< From WisDOT (LU210)
9-10am	10	0	0	0	0	0	0	0	60	35	0	10	115	90	100	4.8%	5.4%	< From WisDOT (LU210)
10-11am	10	0	0	0	0	0	0	0	50	30	0	10	100	75	90	4.0%	5.0%	< From WisDOT (LU210)
11am-12pm	10	0	0	0	0	0	0	0	60	30	0	10	110	95	95	5.2%	5.1%	< From WisDOT (LU210)
12-1pm	15	0	0	0	0	0	0	0	85	35	0	10	145	130	100	7.0%	5.4%	< From WisDOT (LU210)
1-2pm	20	0	0	0	0	0	0	0	105	35	0	15	175	165	115	8.9%	6.3%	< From WisDOT (LU210)
2-3pm	20	0	0	0	0	0	0	0	95	40	0	15	170	150	125	8.1%	6.8%	< From WisDOT (LU210)
3-4pm	20	0	0	0	0	0	0	0	110	40	0	15	185	170	120	9.1%	6.6%	< From WisDOT (LU210)
4-5pm	20	0	0	0	0	0	0	0	115	55	0	20	210	180	175	9.8%	9.5%	< From WisDOT (LU210)
5-6pm	35	0	0	0	5	0	0	0	175	55	0	20	290	275	175	14.8%	9.5%	< From WisDOT (LU210)
7 00 0 00	40	0					0		50	05		05	150	76	105			E WE DOT (LUMA)
7:30-8:30 am	10	U	0	0	0	0	0	0	50	65	0	25	150	75	195	4.1%	10.7%	< From WisDOT (LU210)
4:30-5:30 pm	20	0	0	0	0	0	0	0	115	55	0	20	210	180	175	9.8%	9.5%	< From WisDOT (LU210)
IN or OUT	IN	1			IN		1		IN	OUT	OUT	OUT	1					
PERECENTAGE	12.0%				1.0%				64.0%	32.6%	1.0%	12.0%						

#### TRAFFIC SIGNAL WARRANT VOLUME SUMMARY: Port Washington Road at Glencoe Place

					2034	4 Buil	ld Tra	offic					
	<ul><li>MAJOR</li><li>MINOR</li></ul>	↓			←			↑			→		
	Port Wa	ish Rd fro	m North	Gleno	coe PI from	East	Port Wa	ash Rd fro	m South	Glenc	oe PI from	West	Intersection
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals
6-7am	10	205	2	0	0	12	3	80	91	82	0	15	500
7-8am	27	411	0	2	1	18	1	233	201	139	0	31	1064
8-9am	32	405	2	5	1	10	4	374	240	94	0	22	1189
9-10am	28	360	5	7	1	11	7	386	232	113	0	24	1174
10-11am	33	326	9	6	0	16	7	313	207	96	0	23	1036
11am-12pm	43	418	9	11	0	17	11	395	247	132	0	35	1318
12-1pm	54	478	5	9	0	11	12	471	335	177	2	45	1599
1-2pm	54	393	7	11	0	15	20	426	320	167	0	52	1465
2-3pm	41	498	5	6	1	12	11	447	262	159	0	42	1484
3-4pm	46	496	10	13	0	18	16	523	291	177	1	46	1637
4-5pm	48	568	14	14	0	11	14	490	313	250	1	52	1775
5-6pm	73	602	5	10	5	14	25	557	409	236	0	49	1985
7:30-8:30 am	29	444	1	2	2	14	3	326	217	140	0	31	1209
4:30-5:30 pm	46	657	12	8	0	12	19	521	313	249	1	52	1890

2034 Build Traffic

### Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Port Washington Road & Glencoe Place County: Milwaukee Village: Bayside

Major Street:	Port Washington Road	Minor Street:	Glencoe Pla	ce
Critical Approa	ich Speed: 35 mph	Critical Approa	ich Speed:	25 mph
Lanes:	2 or more lanes	Lanes:	1 lane	

% Right Turns IncludedIn built-up area of isolated community of < 10,000 population? No</th>From North (SB) 100%Total number of approaches at intersection? 4 or moreFrom East (WB) 100%If it is a "T" intersection, inflate minor threshold to 150%? NoFrom South (NB) 0%Manually set volume level?From West (EB) 0%10%

#### Analysis based on **PROJECTED** volume data.

Forecast Year	Within 5 Years of	Time (HH:MM)			
Forecast real	Construction?	From	AM / PM	То	AM / PM
2024	Yes	6:00	AM	19:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	No
Warrant 3: Peak Hour Volume	N/A
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

#### Warrant Analysis Conducted By:

Name: DJL Agency: TADI Date: 10/31/2022

# Warrant 1: Eight - Hour Vehicular Volume

### 100%

### Warrant Evaluated? Yes

••		alaacea.
Condition A :		
Min. Veh	. Volume	
Volume Level	100%	80%
Major Rd. Req	600	480
Minor Rd. Req	150	120
Number of Hours	0	0
		Cotiofied 2

Satisfied? No

Condition B:		
Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	900	720
Minor Rd. Req	75	60
Number of Hours	0	0

Satisfied? No

Condition C:	
Combination of A & B at 80%	

Satisfied? No

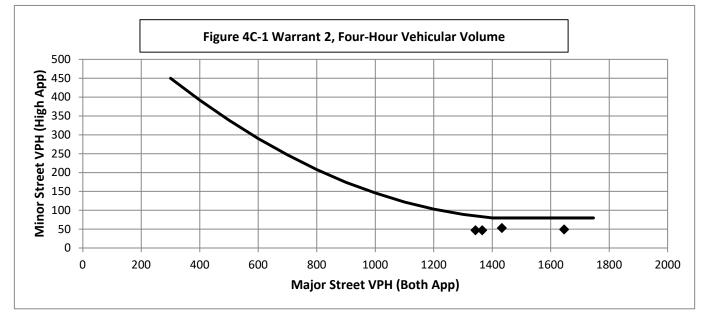
Wa	arrant Sa	tisfied?	No	Manually Set To:	
6:00	AM	Enter	Enter Start Time (Military Time) (HH:MM)		
Time Period	From	То	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	Total
1	6:00	7:00	388	15	403
2	7:00	8:00	872	31	903
3	8:00	9:00	1053	22	1075
4	9:00	10:00	1011	24	1035
5	10:00	11:00	888	23	911
6	11:00	12:00	1112	35	1147
7	12:00	13:00	1343	47	1390
8	13:00	14:00	1200	52	1252
9	14:00	15:00	1253	42	1295
10	15:00	16:00	1366	47	1413
11	16:00	17:00	1433	53	1486
12	17:00	18:00	1646	49	1695
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

### Warrant 2: Four-Hour Volume

# Hour Start16:0017:0015:0012:00Major Road Vol.1433164613661343Minor Road Vol.53494747

### 100%

Warrant Evaluated? Yes Warrant Satisfied? No Manually Set To:



### Warrant 3: Peak Hour Volume

# 100%

100%

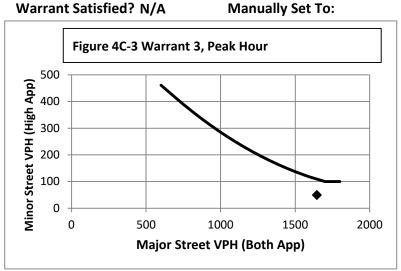
Manually Set To:

**Warrant Evaluated?** Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

#### Manually Set Peak Hour?

Peak Hour	Major Road Vol.	Minor Road Vol.
. can nou	(Both App.)	(High App.)
17:00	1646	49



### Warrant 4: Pedestrian Volume

0

0

200

400

600

### Warrant Evaluated?

**Criterion A: Four Hour** 

Hour	Pedestrian	Major Road	
(Start)	Volume	Vol.	
		0	
		0	
		0	
		0	

Manually Set Major Rd Vol? Avg. walk speed less than 3.5 ft/s?

### Criterion A Satisfied?

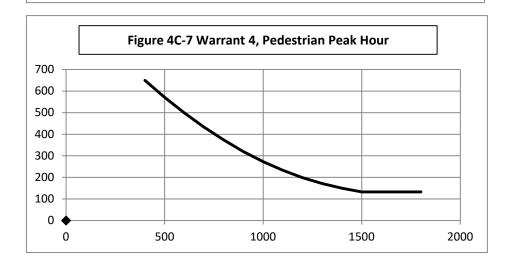
### **Criterion B: Peak Hour**

Peak Hour	Pedestrian	Major Road
Реак нош	Vol.	Vol.
0:00	0	0

#### **Criterion B Satisfied?**

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

Warrant Satisfied? N/A



800

1000

1200

1400

1600

### Warrant 5: School Crossing

#### Warrant Satisfied? N/A

#### Manually Set To:

Crit	Criteria	
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are	
2	using the crossing than the number of minutes in the same period.	
2	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is	
3	within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

### Warrant 6: Coordinated Signal System

### 100%

100%

100%

#### Warrant Evaluated?

Warrant Evaluated?

### Warrant Satisfied? N/A

#### **Manually Set To:** . . . . . . .

C	Criteria		Fulfilled?
	1 Signal spacing > 1000 ft		
	2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
ſ		On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

### Warrant 7: Crash Experience

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Adequate trial of other remedial measures has failed to reduce crash frequency. 1 Measures Tried: Five or more reported crashes, of types susceptible to correction by signal, have # of crashes per 12 months 2 occurred within a 12 month period. Warrant 1, Condition A (80%) No Warrant 1, Condition B (80%) No 3 Yes Warrant 4, Criterion A (80%) No Warrant 4, Criterion B (80%) Yes

### Warrant 8: Roadway Network

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Total entering volume of at least 1,000 veh/h during typical weekday peak hour 1695 Yes 1 No Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3. No Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) 2 Hour Volume Characteristics of Major Routes - Select yes if all intersecting routes have characteristic Fulfilled? 1 Part of the road or highway system that serves as the principal roadway network for through traffic flow 2 Rural or suburban highway outside of, entering, or traversing a city 3

### Appears as a major route on an official plan

100%

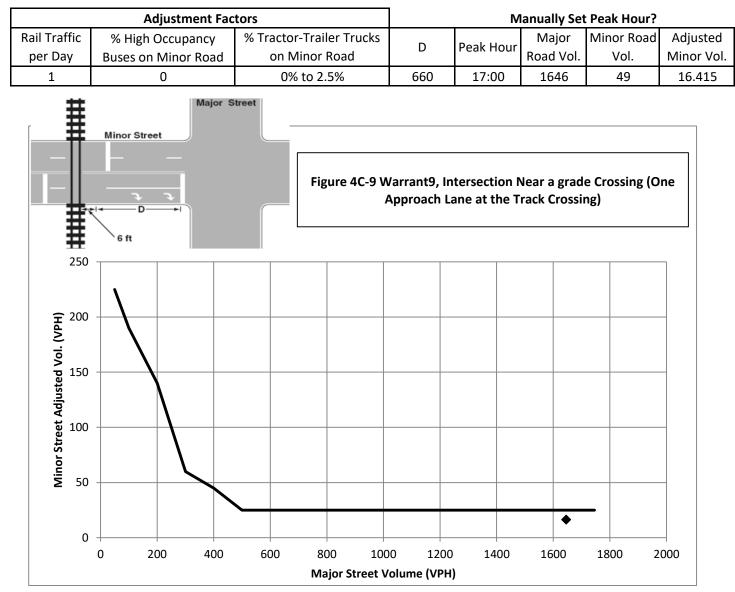
100%

### Warrant 9: Intersection Near a Grade Crossing

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:



**Conclusions/Comments:** 

Updated: 12/6/2017

										Hourl	Hourly Volume Data	ne Data										
Ö	One Hour			≯					≁					÷					↑			Total
Time	Time Period		Fror	From North (SB)	(SB)	_		Fro	From East (WB)	(NB)			Fron	From South (NB)	NB)			Fror	From West (EB)	EB)		Vehicle
Sta	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
	6:00	10	205	2			0	0	12			3	80	91			82	0	15			500
И	00:2	27	411	0			2	1	18			1	233	201			139	0	31			1064
IA	8:00	32	405	2			5	1	10			4	374	240			94	0	22			1189
	00:6	28	360	5			7	1	11			7	386	232			113	0	24			1174
	10:00	33	326	6			9	0	16			2	313	207			96	0	23			1036
а	11:00	43	418	6			11	0	17			11	395	247			132	0	35			1318
W	12:00	54	478	5			6	0	11			12	471	335			177	2	45			1599
	13:00	54	393	7			11	0	15			20	426	320			167	0	52			1465
	14:00	41	498	5			9	1	12			11	447	262			159	0	42			1484
	15:00	46	496	10			13	0	18			16	523	291			177	1	46			1637
	16:00	48	568	14			14	0	11			14	490	313			250	1	52			1775
И	17:00	73	602	5			10	5	14			25	557	409			236	0	49			1985
ld	18:00																					0
	19:00																					0
	20:00																					0
	21:00																					0
Totals		489	5160	73	0	5722	94	6	165	0	268	131	4695	3148	0	7974	1822	4	436	0	2262	16226
Note:	Note: Copy volume data and paste into cells using paste special -> values	ume data	and past	e into ce	lls using	paste sp	ecial -> v¿	alues														
Note:	Note: U-Turns are counted as Left Turns in the Volume Totals	ire count	ed as Left	<b>Turns in</b>	the Vol	ume Tota	sle					2	<b>Aajor Ro</b> a	Major Road Volume Totals:	e Totals:			2	Minor Road Highest Volume:	id Highes	t Volume	
													NG	North/South	ų				E	East/West		
												Right	Thru	Left	T+LT	Total		Right	Thru	Left	T+LT	Total
														ľ		ļ		ļ	ļ	ľ	ľ	T

Please Select the Major Road: N/S

Major Road Left Turn as Minor Approach? No

% Right Turns Included (Default 0%)



Right	Thru	Left	T+LT	Total
10	285	63	378	388
27	644	201	845	872
32	677	242	1021	1053
28	746	237	983	1011
33	629	216	855	888
43	813	256	1069	1112
54	949	340	1289	1343
54	819	327	1146	1200
41	945	267	1212	1253
46	1019	301	1320	1366
48	1058	327	1385	1433
73	1159	414	1573	1646
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
489	9855	3221	13076	13565

Left         T+LT         Total           0         15         15         15           0         31         31         31           0         31         31         31           0         31         31         31           0         22         22         22           0         24         24         24           0         35         35         35           0         35         35         35           0         35         35         35           0         35         35         35           0         47         47         47           1         46         47         47           1         46         47         47           1         52         53         53           1         46         47         47           1         52         53         53           1         52         53         53           1         52         53         53           0         0         0         0         0           1         52         53		linor Ro: I	Minor Road Highest Volume: East/West	st Volum st	ë
15         15           31         31           22         22           23         23           24         24           23         23           35         35           35         35           35         35           47         47           52         52           46         47           46         47           49         49           90         0           10         0           10         0           136         440	Ч	Thru	Left	T+LT	Total
31         31           22         22           24         24           23         23           23         23           35         23           35         23           35         23           35         23           35         35           45         47           52         52           46         47           49         49           90         0           0         0           0         0           436         449		0	15	15	15
22     22       24     24       23     23       35     35       35     35       35     35       45     47       52     52       46     47       47     42       48     47       94     47       92     52       149     49       10     0       10     0       136     440       136     440	0	0	31	31	31
24     24       23     23       35     35       35     35       45     47       52     52       46     47       47     42       46     47       52     53       49     49       0     0       0     0       436     440	0	)	22	22	22
23     23       35     35       35     35       45     47       52     52       46     47       52     53       49     49       0     0       0     0       436     440	0	)	24	24	24
35         35         35           45         47         47           52         52         52           46         47         47           46         47         47           46         47         47           47         47         47           46         47         47           52         53         49           49         49         49           0         0         0           1         0         0           436         440         440	0	(	23	23	23
45     47       52     52       42     42       46     47       52     53       49     49       49     49       0     0       0     0       0     0       436     440	0	(	35	35	35
52     52       42     42       46     47       52     53       49     49       0     0       0     0       0     0       0     0       436     440	2		45	47	47
42     42       46     47       52     53       49     49       0     0       0     0       0     0       10     0       10     0       10     10       10     10       10     10       10     10       10     10       10     10       10     10       10     10       10     10       10     10	0		52	52	52
46     47       52     53       49     49       0     0       0     0       0     0       0     0       10     0       10     0       10     10       10     10       10     10       10     10       10     10       10     10       10     10	0		42	42	42
52     53       49     49       0     0       0     0       0     0       1     0       436     440	1		46	47	47
49     49       0     0       0     0       0     0       1     0       436     440	1		52	53	53
0 0 0 0 1 0 0 0 0 436 440	0		49	49	49
0 0 0 0 436 440	0		0	0	0
0 0 0 0 436 440	0	)	0	0	0
0 0 436 440	0	0	0	0	0
436 440	0	)	0	0	0
	4		436	440	440

2034 Build Traffic

### Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Port Washington Road & Glencoe Place County: Milwaukee Village: Bayside

Major Street:	Port Washington Road	Minor Street:	Glencoe Pla	ace
Critical Approa	ach Speed: 35 mph	Critical Approa	ach Speed:	25 mph
Lanes:	2 or more lanes	Lanes:	1 lane	
% Rig	ght Turns Included	In built-up area of isolated co	ommunity of <	< 10,000 populatio

In built-up area of isolated community of < 10,000 population? No Total number of approaches at intersection? 4 or more If it is a "T" intersection, inflate minor threshold to 150%? No Manually set volume level?

#### Analysis based on **PROJECTED** volume data.

From North (SB) 100%

From East (WB) 100% From South (NB) 0%

From West (EB) 50%

Forecast Year	Within 5 Years of		Time (HH	:MM)	
Forecast real	Construction?	From	AM / PM	То	AM / PM
2024	Yes	6:00	AM	19:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	Yes
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	Yes
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak Hour Volume	N/A
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

#### Warrant Analysis Conducted By:

Name: DJL Agency: TADI Date: 10/31/2022

# Warrant 1: Eight - Hour Vehicular Volume

### 100%

### Warrant Evaluated? Yes

••		andatear
Condit	ion A :	
Min. Veh	. Volume	
Volume Level	100%	80%
Major Rd. Req	600	480
Minor Rd. Req	150	120
Number of Hours	2	6
		Satisfied 2

Satisfied? No

Conditi	on B:	
Interruption of Co	ntinuous <sup>-</sup>	Гraffic
Volume Level	100%	80%
Major Rd. Req	900	720
Minor Rd. Req	75	60
Number of Hours	8	11

Satisfied? Yes

Condition C:	
Combination of A & B at 80%	

Satisfied? No

Wa	arrant Sa	tisfied?	Yes	Manually Set To:	
6:00	AM	Enter	Start Time (Military	Time) (HH:MM)	
Time	From	То	Major Road: Both	Minor Road: High	Total
Period	TTOM	10	App. (VPH)	App. (VPH)	Total
1	6:00	7:00	388	56	444
2	7:00	8:00	872	101	972.5
3	8:00	9:00	1053	69	1122
4	9:00	10:00	1011	81	1091.5
5	10:00	11:00	888	71	959
6	11:00	12:00	1112	101	1213
7	12:00	13:00	1343	136	1478.5
8	13:00	14:00	1200	136	1335.5
9	14:00	15:00	1253	122	1374.5
10	15:00	16:00	1366	136	1501.5
11	16:00	17:00	1433	178	1611
12	17:00	18:00	1646	167	1813
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

### Warrant 2: Four-Hour Volume

Hour Start17:0016:0015:0012:00Major Road Vol.1646143313661343Minor Road Vol.167178135.5135.5

#### Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume 500 ٠ ٠ •• 0 0 200 400 600 800 1000 1200 1400 1600 1800 2000 Major Street VPH (Both App)

### 100%

Warrant Evaluated? Yes Warrant Satisfied? Yes Manually Set To:

### Warrant 3: Peak Hour Volume

#### Warrant Evaluated? Warrant Satisfied? N/A **Manually Set To:** Condition justifying use of warrant: Figure 4C-3 Warrant 3, Peak Hour 500 Criteria Met? Delay on Minor Approach 4 Volume on Minor Approach 100 Total Entering Volume (veh/h) 800 **Manually Set Peak Hour?** Major Road Vol. Minor Road Vol. Peak Hour (Both App.) (High App.) 0 500 1000 1500 2000 17:00 1646 167 Major Street VPH (Both App)

### Warrant 4: Pedestrian Volume

### Warrant Evaluated?

#### **Criterion A: Four Hour**

Hour	Pedestrian	Major Road
(Start)	Volume	Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol? Avg. walk speed less than 3.5 ft/s?

#### **Criterion A Satisfied?**

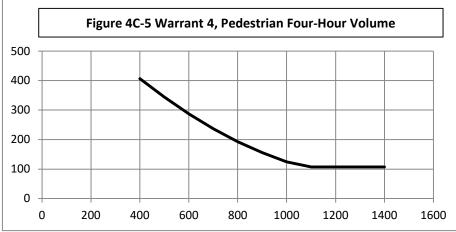
#### **Criterion B: Peak Hour**

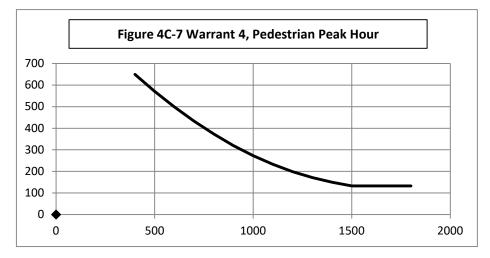
Peak Hour	Pedestrian	Major Road
Реак пош	Vol.	Vol.
0:00	0	0

#### **Criterion B Satisfied?**



#### Manually Set To:





100%

### Warrant 5: School Crossing

### **Manually Set To:**

Crit	eria	Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
_	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

### Warrant 6: Coordinated Signal System

### 100%

Fulfilled?

100%

#### Warrant Evaluated?

Warrant Evaluated?

### Warrant Satisfied? N/A

Warrant Satisfied? N/A

### Manually Set To:

crite	eria
1	Signal spacing > 1000 ft
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.

# Warrant 7: Crash Experience

#### 100%

	Warrant Evaluated?	Warrant Satisfied? N	I/A Manual	ly Set To:	
Crite	eria			Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to re	duce crash frequency.			
1	Measures Tried:				
2	Five or more reported crashes, of types susceptible to corr	ection by signal, have	# of crashes per 12 r	nonths	
2	occurred within a 12 month period.				
	Warrant 1, Condition A (80%)			No	
3	Warrant 1, Condition B (80%)			Yes	Yes
5	Warrant 4, Criterion A (80%)			No	Tes
	Warrant 4, Criterion B (80%)			Yes	

### Warrant 8: Roadway Network

### 100%

#### Warrant Evaluated? Warrant Satisfied? N/A Manually Set To: Criteria Met? Fulfilled? Total entering volume of at least 1,000 veh/h during typical weekday peak hour 1813 Yes 1 No Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3. No Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) 2 Hour Volume Characteristics of Major Routes - Select yes if all intersecting routes have characteristic Fulfilled? 1 Part of the road or highway system that serves as the principal roadway network for through traffic flow 2 Rural or suburban highway outside of, entering, or traversing a city Appears as a major route on an official plan 3

100%

# Warrant 9: Intersection Near a Grade Crossing

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

	Adjustment Fac	ctors		M	lanually Set	t Peak Hour?	
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjus Minor
1	0	0% to 2.5%	660	17:00	1646	167	55.94
250 (H200 150 100 50		Figure 4C-9 W		ntersection M ane at the T	-		ne
0							

**Conclusions/Comments:** 

Updated: 12/6/2017

										Hourl	Hourly Volume Data	າe Data										
One	One Hour			┝					≁					÷					↑			Total
Time	Time Period		Froi	From North (SB)	(SB)			Fro	From East (WB)	NB)			Fron	From South (NB)	NB)			Fron	From West (EB)	:B)		Vehicle
Star	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
	6:00	10	205	2			0	0	12			3	80	91			82	0	15			500
И	7:00	27	411	0			2	1	18			1	233	201			139	0	31			1064
IA	8:00	32	405	2			5	1	10			4	374	240			94	0	22			1189
	9:00	28	360	5			7	1	11			7	386	232			113	0	24			1174
	10:00	33	326	6			9	0	16			2	313	207			96	0	23			1036
а	11:00	43	418	6			11	0	17			11	395	247			132	0	35			1318
W	12:00	54	478	5			6	0	11			12	471	335			177	2	45			1599
	13:00	54	393	7			11	0	15			20	426	320			167	0	52			1465
	14:00	41	498	5			9	1	12			11	447	262			159	0	42			1484
	15:00	46	496	10			13	0	18			16	523	291			177	1	46			1637
	16:00	48	568	14			14	0	11			14	490	313			250	1	52			1775
И	17:00	73	602	2			10	2	14			25	557	409			236	0	49	<u> </u>		1985
ld	18:00																					0
	19:00								_													0
	20:00																					0
	21:00																					0
Totals		489	5160	73	0	5722	94	6	165	0	268	131	4695	3148	0	7974	1822	4	436	0	2262	16226
Note: (	Note: Copy volume data and paste into cells using paste special -> values	ime data	and past	e into ce	lls using	paste spi	ecial -> võ	alues														
Note:	Note: U-Turns are counted as Left Turns in the Volume Totals	re counti	ed as Lefi	t Turns in	the Vol	ume Tota	als					2	Major Road Volume Totals:	MuloV be	e Totals:			Σ	Minor Road Highest Volume:	d Highes	t Volume	
													No	North/South	Ę				ٽ	East/West		
												Right	Thru	Left	T+LT	Total	<u>.</u>	Right	Thru	Left	T+LT	Total

Please Select the Major Road: N/S

Major Road Left Turn as Minor Approach? No



	Total	388	872	1053	1011	888	1112	1343	1200	1253	1366	1433	1646	0	0	0	0	13565
th	T+L	378	845	1021	983	855	1069	1289	1146	1212	1320	1385	1573	0	0	0	0	13076
North/South	Left	93	201	242	237	216	256	340	327	267	301	327	414	0	0	0	0	3221
N	Thru	285	644	779	746	639	813	949	819	945	1019	1058	1159	0	0	0	0	9855
	Right	10	27	32	28	33	43	54	54	41	46	48	73	0	0	0	0	489

2	<b>Ainor Ro</b> a	Minor Road Highest Volume:	st Volum	ë
		East/West	st	
Right	Thru	Left	T+LT	Total
41	0	15	15	95
70	0	31	31	101
47	0	22	22	69
57	0	24	24	81
48	0	23	23	11
99	0	35	35	101
89	2	45	47	136
84	0	52	52	136
80	0	42	42	122
89	1	46	47	136
125	1	52	53	178
118	0	49	49	167
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
911	4	436	440	1351

# Appendix B Port Washington Road at Glencoe Place Peak Hour Analysis Outputs

Year 2034 Full Build Traffic – With Roundabout Year 2034 Full Build Traffic – With Signals Year 2034 Full Build Traffic – With LIRIRO on west approach Year 2034 Full Build Traffic – With LIRIRO on eat/west approaches

				HC	S Ro	unda	abo	uts	Rep	oort							
General Information					_	_	-	_	_	natio	n			_	_		
Analyst	DJL					*		A		Inters	section		T	Port V	Wash F	Road at G	lencoe
Agency or Co.	Milwa	ukee Co	ounty				+			E/W S	Street Na	me		Glenc	oe Pla	ice	
Date Performed	10/28	/2022							+	N/S S	Street Nar	ne		Port V	Wash F	Road	
Analysis Year	2034				<b>∢</b> ↓	W	τ τ s		t ≽	Analy	vsis Time	Period, hr	s	0.25			
Time Analyzed	AM Pe	eak			*					Peak	Hour Fac	tor		0.87			
Project Description	Cobal	t Develo	pment				→ ▼ *	1		Jurisc	liction			Milwa	aukee	County	
Volume Adjustments	and S	Site C	harac	teristic	s												
Approach		E	В			١	VВ				N	В				SB	
Movement	U	L	Т	R	U	L	Т		R	U	L	т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1		0	0	0	1	0	0	0	1	0
Lane Assignment			Ľ	ſR				LTR				LTF	t I				LTR
Volume (V), veh/h	5	30	5	105	5	15	5		5	5	140	315	5	5	5	475	25
Percent Heavy Vehicles, %	27	27	27	27	11	11	11	1	11	3	3	3	3	2	2	2	2
Flow Rate (VPCE), pc/h	7	44	7	153	6	19	6		6	6	166	373	6	6	6	557	29
Right-Turn Bypass		No	one			N	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		:	2				2				2	2				2	
Proportion of CAVs										0							
Critical and Follow-U	Jp Hea	adway	/ Adju	stmen	t												
Approach				EB				W	В			NB		Τ		SB	
Lane			Left	Right	Вура	ss L	eft	Rig	ht	Bypass	Left	Right	Bypas	s L	eft	Right	Bypass
Critical Headway, s				4.7000				4.70	00			4.7000				4.7000	
Follow-Up Headway, s				2.6000				2.60	00			2.6000				2.6000	
Flow Computations,	Capac	ity ar	nd v/c	Ratio	s							<u>.</u>					
Approach				EB		T		W	В			NB		Τ		SB	
Lane			Left	Right	Вура	ss L	eft	Rig	ht	Bypass	Left	Right	Bypas	s L	eft	Right	Bypass
Entry Flow (ve), pc/h				211				3	7			551				598	
Entry Volume, veh/h				166				3	3			535				586	
Circulating Flow (vc), pc/h				600				60	2			76				210	
Exiting Flow (vex), pc/h				25				20	8			429				735	
Capacity (c <sub>pce</sub> ), pc/h				786				78	4			1289				1136	
Capacity (c), veh/h				618				70	6			1251				1113	
v/c Ratio (x)				0.27				0.0	5			0.43				0.53	
Delay and Level of S	ervice																
Approach				EB		Т		W	В			NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Rig	ht	Bypass	Left	Right	Bypas	s L	eft	Right	Bypass
Lane Control Delay (d), s/veh				9.3				5.	6			7.1				9.4	
Lane LOS		Í		A				A				A				А	
95% Queue, veh				1.1				0.	1			2.2				3.2	
Approach Delay, s/veh				9.3				5.	6			7.1				9.4	
Approach LOS				А				A				А				А	
Intersection Delay, s/veh   LO	S					8.4								A			

				HC	S Ro	unda	abo	uts F	Rep	oort							
General Information					_	_		_	_	natio	n			_	_		
Analyst	DJL					*				Inters	ection			Port \	Nash F	Road at G	lencoe
Agency or Co.	Milwa	ukee Co	unty				+			E/W S	Street Na	me		Glend	coe Pla	ce	
Date Performed	10/28	/2022							*	N/S S	itreet Nar	ne		Port \	Nash F	Road	
Analysis Year	2034				<b>\</b>	W	τ τ ε ε	) t	X	Analy	rsis Time	Period, hr	s	0.25			
Time Analyzed	PM Pe	eak			*			1		Peak	Hour Fac	tor		0.84			
Project Description	Cobal	t Develo	pment				→ ▼ *	1		Jurisc	liction			Milwa	aukee	County	
Volume Adjustments	and s	Site C	harac	teristic	s												
Approach		E	B			١	NB				N	В				SB	
Movement	U	L	Т	R	U	L	Т		R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1		0	0	0	1	0	0	0	1	0
Lane Assignment			U	ſR				LTR				LTF	2				LTR
Volume (V), veh/h	5	40	5	120	5	10	5	1	0	5	275	545	20	5	10	505	50
Percent Heavy Vehicles, %	3	3	3	3	1	1	1		1	2	2	2	2	1	1	1	1
Flow Rate (VPCE), pc/h	6	49	6	147	6	12	6	1	2	6	334	662	24	6	12	607	60
Right-Turn Bypass		No	one			N	one				No	ne				None	-
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		i	2				2				2	2				2	
Proportion of CAVs									(	0							
Critical and Follow-U	Jp Hea	adway	/ Adju	stmen	t												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	E	Bypass	Left	Right	Bypas	s L	.eft	Right	Bypass
Critical Headway, s				4.7000				4.700	)			4.7000				4.7000	
Follow-Up Headway, s				2.6000				2.600	)			2.6000				2.6000	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	5	_							1				
Approach	•			EB		T		WB		_		NB		Т		SB	
Lane			Left	Right	Bypa	ss L	eft	Right	E	Bypass	Left	Right	Bypas	s L	.eft	Right	Bypass
Entry Flow (ve), pc/h				208				36	T			1026				685	
Entry Volume, veh/h				202		+		36	$^{+}$			1006				678	
Circulating Flow (v <sub>c</sub> ), pc/h				649				1063				85				370	
Exiting Flow (vex), pc/h				48		+		406				729				772	
Capacity (c <sub>pce</sub> ), pc/h				750				507	Τ			1278				976	
Capacity (c), veh/h				728				502				1252				966	
v/c Ratio (x)				0.28				0.07				0.80				0.70	
Delay and Level of S	ervice											-					
Approach				EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	E	Bypass	Left	Right	Bypas	s L	.eft	Right	Bypass
Lane Control Delay (d), s/veh				8.2				8.1				17.4				15.5	
Lane LOS				A				А				С				С	
95% Queue, veh				1.1				0.2				9.4				6.0	
Approach Delay, s/veh				8.2				8.1				17.4				15.5	
Approach LOS				А				A				С				С	
Intersection Delay, s/veh   LO	S					15.6								С			

				HC	S Ro	und	abo	out	s Rep	oort							
General Information						_	Sit	te l	nforr	natio	n			_	_		
Analyst	DJL					*		L		Inters	section			Port	Wash F	Road at G	ilencoe
Agency or Co.	Milwa	ukee Co	unty				+			E/W S	Street Na	me		Glen	coe Pla	ace	
Date Performed	10/28	/2022			$\square$				+	N/S S	Street Nar	ne		Port	Wash I	Road	
Analysis Year	2034				<b>₹</b> ↓		V + E S		† >	Analy	vsis Time	Period, h	rs	0.25			
Time Analyzed	SAT Pe	eak			*					Peak	Hour Fac	tor		0.92			
Project Description	Cobal	t Develo	pment			$ \searrow $	→ ▼ *	1		Jurisc	liction			Milw	aukee	County	
Volume Adjustments	s and S	Site C	harac	teristic	s												
Approach		E	В				WB				N	В				SB	
Movement	U	L	Т	R	U	L	Т	-	R	U	L	т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1		0	0	0	1	0	0	0	1	0
Lane Assignment			Ľ	ΓR				LT	۲			LT	R				LTR
Volume (V), veh/h	5	50	5	160	5	10	5	;	5	5	265	385	10	5	5	350	55
Percent Heavy Vehicles, %	2	2	2	2	1	1	1		1	2	2	2	2	2	2	2	2
Flow Rate (VPCE), pc/h	6	55	6	177	5	11	5	;	5	6	294	427	11	6	6	388	61
Right-Turn Bypass		Nc	one			1	Vone				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		2	2				2				2	2				2	
Proportion of CAVs										0							
Critical and Follow-U	Jp Hea	adway	/ Adju	stmen	t												
Approach				EB		Т		٧	VB			NB				SB	
Lane			Left	Right	Вура	ss	Left	Ri	ght	Bypass	Left	Right	Вура	s	Left	Right	Bypass
Critical Headway, s				4.7000				4.7	000			4.7000	,			4.7000	
Follow-Up Headway, s				2.6000				2.6	000			2.6000	,			2.6000	
Flow Computations,	Capac	ity ar	nd v/c	Ratio	s												
Approach	_			EB		Т	_	٧	VB			NB			_	SB	
Lane			Left	Right	Вура	ss	Left	Ri	ght	Bypass	Left	Right	Вура	s	Left	Right	Bypass
Entry Flow (ve), pc/h				244				í	26			738				461	
Entry Volume, veh/h				239				Ĩ	26			724				452	
Circulating Flow (v <sub>c</sub> ), pc/h				422				7	94			84				327	
Exiting Flow (vex), pc/h				28				3	66			493				582	
Capacity (c <sub>pce</sub> ), pc/h				929				6	54			1279				1017	
Capacity (c), veh/h				911				6	47			1254				997	
v/c Ratio (x)				0.26				0	04			0.58				0.45	
Delay and Level of S	ervice			-								-					-
Approach				EB		Т		V	VB			NB				SB	
Lane			Left	Right	Вура	ss	Left	Ri	ght	Bypass	Left	Right	Вура	s	Left	Right	Bypass
Lane Control Delay (d), s/veh				6.7				6	.0			9.6				8.8	
Lane LOS				A					A			A				A	
95% Queue, veh				1.1				C	.1			3.9				2.4	
Approach Delay, s/veh				6.7				e	.0			9.6				8.8	
Approach LOS				A					A			A				A	
Intersection Delay, s/veh   LO	s					8.8								A			

				HC	S Ro	und	abo	uts	Rep	oort							
General Information						_	Sit	te In	forn	natio	n			_	_		
Analyst	DJL					*				Inters	section			Port	Wash R	Road at G	lencoe
Agency or Co.	Milwa	ukee Co	unty				+			E/W S	Street Na	me		Glen	coe Pla	ce	
Date Performed	10/28	/2022		_					+	N/S S	Street Nar	ne		Port	Wash R	Road	
Analysis Year	2034				₹+	l (v	+ E S	t	t≯	Analy	sis Time l	Period, hr	s	0.25			
Time Analyzed	PM Pe	eak - Hyl	orid		*					Peak	Hour Fact	tor		0.84			
Project Description	Cobal	t Develo	pment				→ ▼1	1		Jurisc	diction			Milw	aukee (	County	
Volume Adjustments	and S	Site C	harac	teristic	s												
Approach		E	В				WB				N	В				SB	
Movement	U	L	Т	R	U	L	Т		R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1		0	0	1	1	0	0	0	1	0
Lane Assignment			Ľ	ΓR				LTR			L	TR					LTR
Volume (V), veh/h	5	40	5	120	5	10	5		10	5	275	545	20	5	10	505	50
Percent Heavy Vehicles, %	3	3	3	3	1	1	1		1	2	2	2	2	1	1	1	1
Flow Rate (VPCE), pc/h	6	49	6	147	6	12	6		12	6	334	662	24	6	12	607	60
Right-Turn Bypass		No	one			Ν	lone				No	ne			I	None	
Conflicting Lanes			1				2				1					1	
Pedestrians Crossing, p/h		2	2				2				2	1				2	
Proportion of CAVs									(	0			i				
Critical and Follow-U	p Hea	adway	/ Adju	stmen	t												
Approach				EB		Т		W	В			NB		Т		SB	
Lane			Left	Right	Вура	ss I	Left	Rig	ht I	Bypass	Left	Right	Вурая	is l	_eft	Right	Bypass
Critical Headway, s				4.7000				4.70	00		4.6000	4.3000				4.7000	
Follow-Up Headway, s				2.6000				2.60	00		2.6000	2.6000		+		2.6000	
Flow Computations,	Capac	ity ar	nd v/c	Ratio	s												
Approach	-			EB		Т		W	B	_		NB		Т		SB	
Lane			Left	Right	Вура	ss I	Left	Rig	ht I	Bypass	Left	Right	Bypas	is l	eft	Right	Bypass
Entry Flow (v₀), pc/h				208				30			340	Right By 686		+		685	
Entry Volume, veh/h				202	-			30	5		333	673				678	
Circulating Flow (v <sub>c</sub> ), pc/h				649	1			106	53			85	1			370	
Exiting Flow (vex), pc/h				48		+		40	6			729		+		772	
Capacity (c <sub>pce</sub> ), pc/h				750	T			50	7		1281	1290				976	
Capacity (c), veh/h				728				50	2		1253	1262				966	
v/c Ratio (x)				0.28				0.0	7		0.27	0.53				0.70	
Delay and Level of So	ervice																
Approach				EB		Т		W	В			NB		Т		SB	
Lane			Left	Right	Вура	ss I	Left	Rig	ht l	Bypass	Left	Right	Вурая	is L	eft	Right	Bypass
Lane Control Delay (d), s/veh				8.2				8.	1		5.2	8.7				15.5	
Lane LOS				A				А			A	A				С	
95% Queue, veh				1.1				0.	2		1.1	3.3				6.0	
Approach Delay, s/veh				8.2				8.	1			7.6				15.5	
Approach LOS				A				A				A				С	
Intersection Delay, s/veh   LO	c					10.4								В			

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		۲	1	f,	
Traffic Volume (vph)	10	40	95	250	460	25
Future Volume (vph)	10	40	95	250	460	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.891				0.993	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1659	0	1752	1845	1850	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1659	0	1752	1845	1850	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Adj. Flow (vph)	11	46	109	287	529	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	109	287	558	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: C	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 44.7%			IC	CU Level o	of Service
Analysis Period (min) 15						
J						

#### Intersection

Int Delay, s/veh	1.8						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		ľ	•	et		
Traffic Vol, veh/h	10	40	95	250	460	25	
Future Vol, veh/h	10	40	95	250	460	25	1
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	:
RT Channelized	-	None	-	None	-	None	;
Storage Length	0	-	85	-	-	-	
Veh in Median Storage	,# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	87	87	87	87	87	87	
Heavy Vehicles, %	1	1	3	3	2	2	
Mvmt Flow	11	46	109	287	529	29	ļ

Major/Minor	Minor2		Major1	Ma	ijor2	
Conflicting Flow All	1051	546	559	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	252	540	1007	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	608	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	539	1006	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	EB	NB	SB	
HCM Control Delay, s	14.9	2.5	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT EB	3Ln1	SBT	SBR
Capacity (veh/h)	1006	-	421	-	-
HCM Lane V/C Ratio	0.109	- 0.	.137	-	-
HCM Control Delay (s)	9	- '	14.9	-	-
HCM Lane LOS	А	-	В	-	-
HCM 95th %tile Q(veh)	0.4	-	0.5	-	-

### Lanes, Volumes, Timings 600: Port Washington & Glencoe Place

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4	1		\$		٦	1	1	۲	eî 👘		
Traffic Volume (vph)	30	1	105	15	1	1	140	315	5	1	475	25	
Future Volume (vph)	30	1	105	15	1	1	140	315	5	1	475	25	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	50		0	30		0	
Storage Lanes	0		1	0		0	1		1	1		0	
Taper Length (ft)	75			75			75			75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00	0.99		1.00		1.00		0.98	1.00	1.00		
Frt		1.00	0.850		0.993		1.00		0.850	1.00	0.992		
Flt Protected		0.954	0.000		0.957		0.950		0.000	0.950	0.772		
Satd. Flow (prot)	0	1427	1272	0	1625	0	1752	1845	1568	1770	1846	0	
Flt Permitted	0	0.740	1212	0	0.786	Ū	0.347	1010	1000	0.535	1010	U	
Satd. Flow (perm)	0	1105	1254	0	1333	0	640	1845	1535	996	1846	0	
Right Turn on Red	0	1100	No	0	1000	No	040	1045	No	770	1040	No	
Satd. Flow (RTOR)			NO			NO			NO			NO	
Link Speed (mph)		25			25			35			35		
Link Distance (ft)		500			500			283			332		
Travel Time (s)		13.6			13.6			5.5			6.5		
Confl. Peds. (#/hr)	1	13.0	1	1	13.0	1	1	5.5	1	1	0.5	1	
Confl. Bikes (#/hr)	1		1	1		1	1		1	1		1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
	27%	27%	27%	11%	0.87	11%	3%	3%	3%	2%	2%	2%	
Heavy Vehicles (%)	34	27%	121	17%	1170		161	362		2%	546	2%	
Adj. Flow (vph) Shared Lane Traffic (%)	34	I	IZI	17	I	1	101	302	6	I	J40	29	
. ,	0	35	121	0	19	0	161	362	6	1	575	0	
Lane Group Flow (vph) Enter Blocked Intersection	No	No	No	No	No	No	No	302 No	No	No	No	0 No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		0			0			12			12		
Link Offset(ft)		0			0			0			0		
Crosswalk Width(ft)		16			16			16			16		
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1 00	1.00	1.00	1 00	1 00	1 00	1.00	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	2	9	15	2	9	15	2	9	15	2	9	
Number of Detectors	1	2	1 Dialet	1	2		1	2	1 Diaba	1	2		
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru		
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	_	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	_	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel							0.5						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	_	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	_	
Detector 2 Position(ft)		94			94			94			94		
Detector 2 Size(ft)		6			6			6			6		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													

#### TADI 2034 Build AM Peak with modifications (signal)

### Lanes, Volumes, Timings 600: Port Washington & Glencoe Place

AM Peak 11/02/2022

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		D.P+P	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			6		2	6		
Detector Phase	4	4	4	8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		6.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	15.2	15.2	15.2	15.2	15.2		10.5	20.2	20.2	20.2	20.2	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		15.0	70.0	70.0	55.0	55.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		15.0%	70.0%	70.0%	55.0%	55.0%	
Maximum Green (s)	24.8	24.8	24.8	24.8	24.8		10.5	64.8	64.8	49.8	49.8	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.5	3.2	3.2	3.2	3.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.2	5.2		5.2		4.5	5.2	5.2	5.2	5.2	
Lead/Lag							Lag			Lead	Lead	
Lead-Lag Optimize?							Yes	5.0	5.0	Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	5.0	5.0	5.0	5.0	
Minimum Gap (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	2.0	2.0	
Time Before Reduce (s)	15.0	15.0	15.0	15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0		15.0	20.0	20.0	20.0	20.0 C-Max	
Recall Mode	None	None 14.5	None 14.5	None	None 14.5		None 71.3	C-Max 75.1	C-Max 75.1	C-Max	60.1	
Act Effct Green (s) Actuated g/C Ratio		0.14	0.14		0.14		0.71	0.75	0.75	60.1 0.60	0.60	
v/c Ratio		0.14	0.14		0.14		0.71	0.75	0.75	0.00	0.60	
Control Delay		39.1	57.3		35.7		4.6	4.4	3.8	10.00	14.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		39.1	57.3		35.7		4.6	4.4	3.8	10.0	14.5	
LOS		57.1 D	57.5 E		55.7 D		4.0 A	4.4 A	3.0 A	10.0 A	14.3 B	
Approach Delay		53.2	L		35.7		Л	4.5	Л	Л	14.5	
Approach LOS		D			D			A.			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 61 (61%), Reference	ed to phase	e 2:NBT a	nd 6:NBS	SB, Start o	of 1st Gre	en						
Natural Cycle: 60												
Control Type: Actuated-Coc	ordinated											
Maximum v/c Ratio: 0.66				_		100 -						
Intersection Signal Delay: 1					ntersection							
Intersection Capacity Utiliza	ation 56.2%	)			CU Level (	of Service	еB					

Splits and Phases: 600: Port Washington & Glencoe Place

Ø2 (R)		<b>↓</b> Ø4
70 s		30 s
Ø6 (R)	▲ Ø5	₹ø8
55 s	15 s	30 s

### Queues 600: Port Washington & Glencoe Place

	-	$\mathbf{r}$	+	•	Ť	1	$\mathbf{k}$	ţ	
Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	35	121	19	161	362	6	1	575	
v/c Ratio	0.22	0.66	0.10	0.28	0.26	0.01	0.00	0.52	
Control Delay	39.1	57.3	35.7	4.6	4.4	3.8	10.0	14.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.1	57.3	35.7	4.6	4.4	3.8	10.0	14.5	
Queue Length 50th (ft)	20	74	11	15	41	1	0	194	
Queue Length 95th (ft)	44	121	29	37	96	m2	3	318	
Internal Link Dist (ft)	420		420		203			252	
Turn Bay Length (ft)				50			30		
Base Capacity (vph)	274	310	330	572	1384	1152	598	1108	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.39	0.06	0.28	0.26	0.01	0.00	0.52	
Intersection Summary									

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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्च	1		<b></b>			<b>↑</b>	1	- ሽ	ef 👘	
Traffic Volume (veh/h)	30	1	105	15	1	1	140	315	5	1	475	25
Future Volume (veh/h)	30	1	105	15	1	1	140	315	5	1	475	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1 0 0	0.98	1.00	1.00	0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1500	No	1500	1707	No	1707	105/	No	105/	1070	No	1070
Adj Sat Flow, veh/h/ln	1500	1500	1500	1737	1737	1737	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	34	1	121	17	1	1	161	362	6	1	546	29
Peak Hour Factor	0.87 27	0.87	0.87 27	0.87 11	0.87 11	0.87	0.87 3	0.87 3	0.87 3	0.87 2	0.87 2	0.87
Percent Heavy Veh, % Cap, veh/h	202	27 5	146	211	12	11 9		3 1446	3 1200	523	875	2 46
Arrive On Green	0.12	0.12	0.12	0.12	0.12	9 0.12	0.23	0.78	0.78	0.50	0.50	0.50
Sat Flow, veh/h	1123	41	1250	1228	105	74	1767	1856	1539	1013	1758	93
Grp Volume(v), veh/h	35	0	1230	1220	0	0	161	362	6	1013	0	575
Grp Sat Flow(s), veh/h/ln	1163	0	1250	1407	0	0	1767	1856	1539	1013	0	1851
Q Serve(q_s), s	1.5	0.0	9.5	0.0	0.0	0.0	0.0	5.3	0.1	0.1	0.0	22.6
Cycle Q Clear(g_c), s	2.5	0.0	9.5	1.0	0.0	0.0	0.0	5.3	0.1	5.4	0.0	22.6
Prop In Lane	0.97	0.0	1.00	0.89	0.0	0.05	1.00	0.0	1.00	1.00	0.0	0.05
Lane Grp Cap(c), veh/h	206	0	146	232	0	0.00	704	1446	1200	523	0	922
V/C Ratio(X)	0.17	0.00	0.83	0.08	0.00	0.00	0.23	0.25	0.01	0.00	0.00	0.62
Avail Cap(c_a), veh/h	356	0	310	408	0	0	704	1446	1200	523	0	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	43.2	39.5	0.0	0.0	15.4	3.0	2.4	15.4	0.0	18.3
Incr Delay (d2), s/veh	0.1	0.0	4.6	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/In	1.4	0.0	5.6	0.8	0.0	0.0	3.9	2.7	0.0	0.0	0.0	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	47.8	39.5	0.0	0.0	15.5	3.4	2.4	15.4	0.0	21.5
LnGrp LOS	D	А	D	D	Α	А	В	А	А	В	А	С
Approach Vol, veh/h		156			19			529			576	
Approach Delay, s/veh		46.1			39.5			7.1			21.4	
Approach LOS		D			D			А			С	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		83.2		16.8	28.2	55.0		16.8				
Change Period (Y+Rc), s		* 5.2		* 5.2	* 5.2	* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 65		* 25	* 11	* 50		* 25				
Max Q Clear Time (g_c+I1), s		7.3		11.5	2.0	24.6		3.0				
Green Ext Time (p_c), s		5.0		0.3	0.1	7.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			В									

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		5	<b>†</b>	f)	
Traffic Volume (vph)	20	145	40	555	420	10
Future Volume (vph)	20	145	40	555	420	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.882				0.997	
Flt Protected	0.994		0.950			
Satd. Flow (prot)	1649	0	1787	1881	1876	0
Flt Permitted	0.994		0.950			
Satd. Flow (perm)	1649	0	1787	1881	1876	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	26	186	51	712	538	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	212	0	51	712	551	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
51	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 46.3%			10	CU Level o	of Service /
Analysis Period (min) 15						

Int Delay, s/veh	3.4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		ľ	•	et		
Traffic Vol, veh/h	20	145	40	555	420	10	)
Future Vol, veh/h	20	145	40	555	420	10	)
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	;
RT Channelized	-	None	-	None	-	None	ļ
Storage Length	0	-	85	-	-	-	
Veh in Median Storage,	# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	78	78	78	78	78	78	)
Heavy Vehicles, %	1	1	1	1	1	1	
Mvmt Flow	26	186	51	712	538	13	

Major/Minor	Minor2		Major1	Ма	jor2	
Conflicting Flow All	1361	547	552	0	-	0
Stage 1	546	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	164	539	1023	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver		538	1022	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	437	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.4	0.6	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1022	- 414	-	-
HCM Lane V/C Ratio	0.05	- 0.511	-	-
HCM Control Delay (s)	8.7	- 22.4	-	-
HCM Lane LOS	А	- C	-	-
HCM 95th %tile Q(veh)	0.2	- 2.8	-	-

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	1		\$		ኘ	<b>†</b>	1	۲	4Î	
Traffic Volume (vph)	40	1	120	10	1	10	275	545	20	10	505	50
Future Volume (vph)	40	1	120	10	1	10	275	545	20	10	505	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		0	1		1	1		0
Taper Length (ft)	75		-	75		-	75		-	75		-
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.99		0.99		1.00		0.98	1.00	1.00	
Frt		1.00	0.850		0.935		1.00		0.850	1.00	0.986	
Flt Protected		0.953	0.000		0.977		0.950		0.000	0.950	0.700	
Satd. Flow (prot)	0	1758	1568	0	1699	0	1770	1863	1583	1787	1851	0
Flt Permitted	0	0.712	1000	U	0.872	U	0.260	1000	1000	0.353	1001	U
Satd. Flow (perm)	0	1311	1546	0	1516	0	484	1863	1550	664	1851	0
Right Turn on Red	0	1311	No	0	1510	No	707	1005	No	004	1051	No
Satd. Flow (RTOR)			NO			NO			NO			NO
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			203 5.5			552 6.5	
.,	1	13.0	1	1	13.0	1	1	5.5	1	1	C.0	1
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)	0.04	0.04		0.04	0.04	1	0.04	0.04	1	0.04	0.04	0.04
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	48	1	143	12	1	12	327	649	24	12	601	60
Shared Lane Traffic (%)	0	40	140	0	25	0	207	( 10	24	10	111	0
Lane Group Flow (vph)	0	49	143	0	25	0	327	649	24	12	661	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	_
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	_
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												

TADI 2034 Build PM Peak with modifications (signal)

PM Peak 11/02/2022

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		D.P+P	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			6		2	6		
Detector Phase	4	4	4	8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		6.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	15.2	15.2	15.2	15.2	15.2		10.5	20.2	20.2	20.2	20.2	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		20.0	70.0	70.0	50.0	50.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		20.0%	70.0%	70.0%	50.0%	50.0%	
Maximum Green (s)	24.8	24.8	24.8	24.8	24.8		15.5	64.8	64.8	44.8	44.8	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.5	3.2	3.2	3.2	3.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	0.0	0.0	2.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.2	5.2		5.2		4.5	5.2	5.2	5.2	5.2	
Lead/Lag		0.2	0.2		0.2		Lag	J.Z	J.Z	Lead	Lead	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	5.0	5.0	5.0	5.0	
Minimum Gap (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	2.0	2.0	
Time Before Reduce (s)	15.0	15.0	15.0	15.0	1.5		15.0	15.0	15.0	15.0	15.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0		15.0	20.0	20.0	20.0	20.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	NUTE	14.1	14.1	NULLE	14.1		71.7	75.5	75.5	55.5	55.5	
		0.14	0.14		0.14		0.72	0.76	0.76	0.56	0.56	
Actuated g/C Ratio v/c Ratio		0.14	0.14		0.14		0.72	0.76	0.70	0.03	0.50	
		40.5								12.2		
Control Delay			54.6 0.0		36.7		9.6	4.1	2.5		19.9	
Queue Delay		0.0			0.0		0.0	0.1	0.0	0.0	0.0	
Total Delay		40.5	54.6		36.7		9.6	4.3	2.5	12.2	19.9	
LOS		D	D		D		А	A	А	В	B	
Approach Delay		51.0			36.7			6.0			19.8	
Approach LOS		D			D			А			В	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100	)											
Offset: 67 (67%), Reference		e 2:NBT a	nd 6:NBS	SB, Start o	of 1st Gree	en						
Natural Cycle: 60				,								
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 1	5.9			lr	ntersectior	LOS: B						
Intersection Capacity Utiliza					CU Level o							
							~ ~					

Splits and Phases: 600: Port Washington & Glencoe Place



### Queues 600: Port Washington & Glencoe Place

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Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	49	143	25	327	649	24	12	661	
v/c Ratio	0.27	0.66	0.12	0.60	0.46	0.02	0.03	0.64	
Control Delay	40.5	54.6	36.7	9.6	4.1	2.5	12.2	19.9	
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	40.5	54.6	36.7	9.6	4.3	2.5	12.2	19.9	
Queue Length 50th (ft)	28	88	14	33	74	2	3	272	
Queue Length 95th (ft)	55	132	33	51	110	m5	13	401	
Internal Link Dist (ft)	420		420		203			252	
Turn Bay Length (ft)				50			30		
Base Capacity (vph)	325	383	375	546	1406	1170	368	1027	
Starvation Cap Reductn	0	0	0	0	125	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.37	0.07	0.60	0.51	0.02	0.03	0.64	
Intersection Summary									

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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्भ	1		4		ሻ	<b>↑</b>	1	ሻ	4	
Traffic Volume (veh/h)	40	1	120	10	1	10	275	545	20	10	505	50
Future Volume (veh/h)	40	1	120	10	1	10	275	545	20	10	505	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	48	1	143	12	1	12	327	649	24	12	601	60
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	1	1	1	2	2	2	1	1	1
Cap, veh/h	230	4	175	121	24	85	685	1464	1214	328	754	75
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.28	0.78	0.78	0.45	0.45	0.45
Sat Flow, veh/h	1399	36	1546	596	215	749	1781	1870	1552	771	1683	168
Grp Volume(v), veh/h	49	0	143	25	0	0	327	649	24	12	0	661
Grp Sat Flow(s),veh/h/ln	1435	0	1546	1561	0	0	1781	1870	1552	771	0	1851
Q Serve(g_s), s	1.6	0.0	9.0	0.0	0.0	0.0	3.7	11.6	0.3	1.1	0.0	30.7
Cycle Q Clear(g_c), s	2.9	0.0	9.0	1.3	0.0	0.0	3.7	11.6	0.3	12.6	0.0	30.7
Prop In Lane	0.98		1.00	0.48		0.48	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	234	0	175	230	0	0	685	1464	1214	328	0	829
V/C Ratio(X)	0.21	0.00	0.81	0.11	0.00	0.00	0.48	0.44	0.02	0.04	0.00	0.80
Avail Cap(c_a), veh/h	421	0	384	432	0	0	685	1464	1214	328	0	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	43.3	39.9	0.0	0.0	23.7	3.6	2.4	22.6	0.0	23.7
Incr Delay (d2), s/veh	0.2	0.0	3.5	0.1	0.0	0.0	0.2	1.0	0.0	0.2	0.0	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/In	2.0	0.0	6.5	1.0	0.0	0.0	9.5	6.0	0.1	0.4	0.0	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	46.8	40.0	0.0	0.0	23.9	4.6	2.4	22.8	0.0	31.6
LnGrp LOS	D	A	D	D	A	A	С	A	A	С	A	С
Approach Vol, veh/h		192			25			1000			673	
Approach Delay, s/veh		45.2			40.0			10.8			31.4	
Approach LOS		D			D			В			С	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		83.5		16.5	33.5	50.0		16.5				
Change Period (Y+Rc), s		* 5.2		* 5.2	* 5.2	* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 65		* 25	* 16	* 45		* 25				
Max Q Clear Time (g_c+I1), s		13.6		11.0	5.7	32.7		3.3				
Green Ext Time (p_c), s		11.1		0.3	0.4	5.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			С									

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		۲.		f,	
Traffic Volume (vph)	5	20	25	415	390	5
Future Volume (vph)	5	20	25	415	390	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.890				0.998	
Flt Protected	0.991		0.950			
Satd. Flow (prot)	1659	0	1787	1881	1859	0
Flt Permitted	0.991		0.950			
Satd. Flow (perm)	1659	0	1787	1881	1859	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	5	22	27	456	429	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	27	456	434	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
71	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 32.2%			IC	CU Level of	of Service A
Analysis Period (min) 15						

	<u> </u>		
Int	Delay.	s/veh	

Int Delay, s/veh	0.6						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٦	1	et		
Traffic Vol, veh/h	5	20	25	415	390	5	
Future Vol, veh/h	5	20	25	415	390	5	1
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	!
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	85	-	-	-	
Veh in Median Storage	,# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	91	91	91	91	91	91	
Heavy Vehicles, %	1	1	1	1	2	2	
Mvmt Flow	5	22	27	456	429	5	

Major/Minor	Minor2	[	Vajor1	Ma	jor2	
Conflicting Flow All	944	434	435	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	292	624	1130	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	284	623	1129	-	-	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.5	0
HCM LOS	В		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1129	- 503	-	-
HCM Lane V/C Ratio	0.024	- 0.055	-	-
HCM Control Delay (s)	8.3	- 12.6	-	-
HCM Lane LOS	А	- B	-	-
HCM 95th %tile Q(veh)	0.1	- 0.2	-	-

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्च	1		4		٦	<b>†</b>	1	۲	4Î	
Traffic Volume (vph)	50	1	160	10	1	5	265	385	10	5	350	55
Future Volume (vph)	50	1	160	10	1	5	265	385	10	5	350	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		0	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.99		0.99		1.00		0.98	1.00	1.00	
Frt			0.850		0.960				0.850		0.980	
Flt Protected		0.953			0.969		0.950			0.950		
Satd. Flow (prot)	0	1775	1583	0	1738	0	1770	1863	1583	1770	1820	0
Flt Permitted		0.718			0.848		0.406			0.491		
Satd. Flow (perm)	0	1335	1561	0	1520	0	756	1863	1549	914	1820	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			5.5			6.5	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)	•		1			1	•		1	•		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	54	1	174	11	1	5	288	418	11	5	380	60
Shared Lane Traffic (%)	0.	•			•	Ū	200			Ū	000	
Lane Group Flow (vph)	0	55	174	0	17	0	288	418	11	5	440	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.0	0	g	2011	0	g	2011	12		2011	12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10						10				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	
Detector 1 Channel	OTTEX	OHEX	OTTEX	OTTEX	OTTEX		OTTEX	OTTEX	OTTEX	OTTEX	OTTEX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	0.0	94	0.0	0.0	94		0.0	94	0.0	0.0	94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												

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2034 Build SAT Midday Peak with modifications (signal)

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		D.P+P	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			6		2	6		
Detector Phase	4	4	4	8	8		5	2	2	6	6	
Switch Phase												
Vinimum Initial (s)	10.0	10.0	10.0	10.0	10.0		6.0	15.0	15.0	15.0	15.0	
Vinimum Split (s)	15.2	15.2	15.2	15.2	15.2		10.5	20.2	20.2	20.2	20.2	
Fotal Split (s)	32.0	32.0	32.0	32.0	32.0		22.0	68.0	68.0	46.0	46.0	
Fotal Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%		22.0%	68.0%	68.0%	46.0%	46.0%	
Maximum Green (s)	26.8	26.8	26.8	26.8	26.8		17.5	62.8	62.8	40.8	40.8	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.5	3.2	3.2	3.2	3.2	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0	2.0	2.0	
_ost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Fotal Lost Time (s)		5.2	5.2		5.2		4.5	5.2	5.2	5.2	5.2	
_ead/Lag							Lag			Lead	Lead	
ead-Lag Optimize?							Yes			Yes	Yes	
/ehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	5.0	5.0	5.0	5.0	
Minimum Gap (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	2.0	2.0	
Time Before Reduce (s)	15.0	15.0	15.0	15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0		15.0	20.0	20.0	20.0	20.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		15.7	15.7		15.7		70.1	73.9	73.9	51.9	51.9	
Actuated g/C Ratio		0.16	0.16		0.16		0.70	0.74	0.74	0.52	0.52	
//c Ratio		0.26	0.71		0.07		0.41	0.30 3.5	0.01	0.01	0.47	
Control Delay		38.3	55.1 0.0		33.8 0.0		5.4 0.0	3.5 0.0	3.2	14.0 0.0	18.3 0.0	
Queue Delay		0.0 38.3	55.1		33.8		5.4	3.5	0.0 3.2	14.0	18.3	
Fotal Delay ₋OS		30.3 D	55.T		55.0 C		0.4 A	3.5 A	3.2 A	14.0 B	10.3 B	
Approach Delay		51.1	E		33.8		A	4.3	A	D	ы 18.3	
Approach LOS		51.1 D			55.0 C			4.3 A			10.3 B	
ntersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 67 (67%), Reference Natural Cycle: 55	ed to phase	e 2:NBT a	nd 6:NBS	SB, Start o	of 1st Gre	en						
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.71												
ntersection Signal Delay: 1	6.7			lr	ntersectior	n LOS: B						
ntersection Capacity Utiliza		)			CU Level							
Analysis Period (min) 15												

Splits and Phases: 600: Port Washington & Glencoe Place

1 Ø2 (R)		<b>↓</b> <sub>04</sub>
68 s		32 s
Ø6 (R)	<b>▲</b> Ø5	₩ Ø8
46 s	22 s	32 s

TADI 2034 Build SAT Midday Peak with modifications (signal)

### Queues 600: Port Washington & Glencoe Place

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Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	55	174	17	288	418	11	5	440	
v/c Ratio	0.26	0.71	0.07	0.41	0.30	0.01	0.01	0.47	
Control Delay	38.3	55.1	33.8	5.4	3.5	3.2	14.0	18.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	38.3	55.1	33.8	5.4	3.5	3.2	14.0	18.3	
Queue Length 50th (ft)	31	107	9	35	52	1	2	169	
Queue Length 95th (ft)	63	166	27	61	87	m3	8	288	
Internal Link Dist (ft)	420		420		203			252	
Turn Bay Length (ft)				50			30		
Base Capacity (vph)	357	418	407	707	1375	1144	473	943	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.42	0.04	0.41	0.30	0.01	0.01	0.47	
Intersection Summary									

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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्भ	1		\$		٦	•	1	٦	ef 👘	
Traffic Volume (veh/h)	50	1	160	10	1	5	265	385	10	5	350	55
Future Volume (veh/h)	50	1	160	10	1	5	265	385	10	5	350	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	1	174	11	1	5	288	418	11	5	380	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	2	2	2
Cap, veh/h	258	4	207	181	25	61	820	1427	1184	398	641	101
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.30	0.76	0.76	0.41	0.41	0.41
Sat Flow, veh/h	1403	31	1560	917	186	460	1781	1870	1552	958	1571	248
Grp Volume(v), veh/h	55	0	174	17	0	0	288	418	11	5	0	440
Grp Sat Flow(s),veh/h/ln	1434	0	1560	1563	0	0	1781	1870	1552	958	0	1819
Q Serve(g_s), s	2.4	0.0	10.9	0.0	0.0	0.0	0.0	6.8	0.2	0.3	0.0	18.9
Cycle Q Clear(g_c), s	3.3	0.0	10.9	0.8	0.0	0.0	0.0	6.8	0.2	7.2	0.0	18.9
Prop In Lane	0.98	0	1.00	0.65	0	0.29	1.00	1407	1.00	1.00	0	0.14
Lane Grp Cap(c), veh/h	262	0	207	267	0	0	820	1427	1184	398	0	742
V/C Ratio(X)	0.21 453	0.00	0.84 418	0.06 467	0.00	0.00	0.35 820	0.29	0.01	0.01 398	0.00	0.59
Avail Cap(c_a), veh/h HCM Platoon Ratio	453	0 1.00	1.00	467	0 1.00	0 1.00	1.00	1427 1.00	1184 1.00	398 1.00	0 1.00	742 1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	0.00	42.3	38.0	0.00	0.00	16.4	3.6	2.8	21.9	0.00	23.1
Incr Delay (d2), s/veh	0.1	0.0	3.5	0.0	0.0	0.0	0.1	0.5	0.0	0.1	0.0	3.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/In	2.2	0.0	7.8	0.7	0.0	0.0	7.6	3.7	0.0	0.0	0.0	13.2
Unsig. Movement Delay, s/veh		0.0	7.0	0.7	0.0	0.0	7.0	5.7	0.1	0.1	0.0	10.2
LnGrp Delay(d),s/veh	39.1	0.0	45.8	38.0	0.0	0.0	16.5	4.1	2.8	22.0	0.0	26.6
LnGrp LOS	D	A	D	D	A	A	B	A	A	C	A	C
Approach Vol, veh/h		229			17			717			445	
Approach Delay, s/veh		44.2			38.0			9.1			26.5	
Approach LOS		D			D			A			C	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.5		18.5	35.5	46.0		18.5				
Change Period (Y+Rc), s		* 5.2		* 5.2	* 5.2	* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 63		* 27	* 18	* 41		* 27				
Max Q Clear Time ( $g_c+11$ ), s		8.8		12.9	2.0	20.9		2.8				
Green Ext Time (p_c), s		6.0		0.4	0.4	4.9		0.0				
		0.0		0.7	0.1	т. /		0.0				
Intersection Summary			20 (									
HCM 6th Ctrl Delay			20.6									
HCM 6th LOS			С									

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

	≯	$\mathbf{r}$	1	1	Ļ	~
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		٦	1	¢Î	
Traffic Volume (vph)	40	40	95	220	460	25
Future Volume (vph)	40	40	95	220	460	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.993	
Flt Protected	0.976		0.950			
Satd. Flow (prot)	1711	0	1752	1845	1850	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1711	0	1752	1845	1850	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Adj. Flow (vph)	46	46	109	253	529	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	109	253	558	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12	5		12	12	5
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary	•					
	)ther					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on $16.00/$			10		of Service
	011 40.0%			IC	JU Level (	JI Service
Analysis Period (min) 15						

Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		٦	1	4	
Traffic Vol, veh/h	40	40	95	220	460	25
Future Vol, veh/h	40	40	95	220	460	25
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	85	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	46	46	109	253	529	29

Major/Minor	Minor2	[	Major1	Ма	jor2	
Conflicting Flow All	1017	546	559	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	264	540	1007	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	235	539	1006	-	-	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	2.7	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT EBL	1 SBT	SBR
Capacity (veh/h)	1006	- 32	7 -	-
HCM Lane V/C Ratio	0.109	- 0.28	1 -	-
HCM Control Delay (s)	9	- 20	3 -	-
HCM Lane LOS	А	-	С -	-
HCM 95th %tile Q(veh)	0.4	- 1	1 -	-

600. Port Washingto		encoe	FIACE								11/0	JZIZOZZ
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			1		\$		٦	•	1	۲	eî 👘	
Traffic Volume (vph)	0	0	105	15	1	1	140	315	5	1	475	25
Future Volume (vph)	0	0	105	15	1	1	140	315	5	1	475	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		0	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865		0.993				0.850		0.992	
Flt Protected					0.957		0.950			0.950		
Satd. Flow (prot)	0	0	1294	0	1627	0	1752	1845	1568	1770	1848	0
Flt Permitted					0.957		0.950			0.950		
Satd. Flow (perm)	0	0	1294	0	1627	0	1752	1845	1568	1770	1848	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			5.5			6.5	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	27%	27%	27%	11%	11%	11%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	0	0	121	17	1	1	161	362	6	1	546	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	121	0	19	0	161	362	6	1	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
J1	Other											
Control Type: Unsignalized												
Intersection Capacity Utilizati	on 52.1%			IC	CU Level o	of Service	A					
Analysis Period (min) 15												

#### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			1		4		٦	1	1	٦	eî 👘		
Traffic Vol, veh/h	0	0	105	15	1	1	140	315	5	1	475	25	
Future Vol, veh/h	0	0	105	15	1	1	140	315	5	1	475	25	
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None										
Storage Length	-	-	0	-	-	-	50	-	0	30	-	-	
Veh in Median Storage,	,# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87	
Heavy Vehicles, %	27	27	27	11	11	11	3	3	3	2	2	2	
Mvmt Flow	0	0	121	17	1	1	161	362	6	1	546	29	

Major/Minor	Minor2		I	Minor1			Major1		1	Major2	2	2
Conflicting Flow All	-	-	563	1309	1263	364	576	0	0	369		0
Stage 1	-	-	-	685	685	-	-	-	-	-		-
Stage 2	-	-	-	624	578	-	-	-	-	-		-
Critical Hdwy	-	-	6.47	7.21	6.61	6.31	4.13	-	-	4.12		-
Critical Hdwy Stg 1	-	-	-	6.21	5.61	-	-	-	-	-		-
Critical Hdwy Stg 2	-	-	-	6.21	5.61	-	-	-	-	-		-
Follow-up Hdwy	-	-	3.543	3.599	4.099	3.399	2.227	-	-	2.218		-
Pot Cap-1 Maneuver	0	0	481	130	163	661	992	-	-	1190		-
Stage 1	0	0	-	424	435	-	-	-	-	-		-
Stage 2	0	0	-	458	487	-	-	-	-	-		-
Platoon blocked, %								-	-			-
Mov Cap-1 Maneuver	r -	-	480	85	136	660	991	-	-	1189		-
Mov Cap-2 Maneuver	r -	-	-	85	136	-	-	-	-	-		-
Stage 1	-	-	-	355	364	-	-	-	-	-		-
Stage 2	-	-	-	342	486	-	-	-	-	-		-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	\$ 15			54.4			2.8			0		

HCM Control Delay, s1554.4HCM LOSCF

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	991	-	-	480	92	1189	-	-
HCM Lane V/C Ratio	0.162	-	-	0.251	0.212	0.001	-	-
HCM Control Delay (s)	9.3	-	-	15	54.4	8	-	-
HCM Lane LOS	А	-	-	С	F	А	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1	0.7	0	-	-

	≯	$\mathbf{i}$	1	1	Ļ	∢
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		5	<b>†</b>	f,	
Traffic Volume (vph)	60	145	40	515	420	10
Future Volume (vph)	60	145	40	515	420	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905				0.997	
Flt Protected	0.986		0.950			
Satd. Flow (prot)	1679	0	1787	1881	1876	0
Flt Permitted	0.986		0.950			
Satd. Flow (perm)	1679	0	1787	1881	1876	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	186	51	660	538	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	263	0	51	660	551	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12	0		12	12	Ū
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: O	other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	00 10 10/			10		of Service A
	011 48.4 %				O Level (	JI SEIVILE P

Int Delay, s/veh	8.7						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٦	1	et		
Traffic Vol, veh/h	60	145	40	515	420	10	
Future Vol, veh/h	60	145	40	515	420	10	
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	:
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	85	-	-	-	
Veh in Median Storage	,# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	78	78	78	78	78	78	
Heavy Vehicles, %	1	1	1	1	1	1	
Mvmt Flow	77	186	51	660	538	13	

Major/Minor	Minor2		Major1	Ma	ajor2	
Conflicting Flow All	1309	547	552	0	-	0
Stage 1	546	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	177	539	1023	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	538	1022	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Awayaaab					CD	

Approach	EB	NB	SB	
HCM Control Delay, s	48.9	0.6	0	
HCM LOS	E			

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1022	- 327	-	-
HCM Lane V/C Ratio	0.05	- 0.804	-	-
HCM Control Delay (s)	8.7	- 48.9	-	-
HCM Lane LOS	А	- E	-	-
HCM 95th %tile Q(veh)	0.2	- 6.7	-	-

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			1		\$		٦	<b>†</b>	1	۲.	ef 👘	
Traffic Volume (vph)	0	0	120	10	1	10	275	545	20	10	505	50
Future Volume (vph)	0	0	120	10	1	10	275	545	20	10	505	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		0	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865		0.935				0.850		0.986	
Flt Protected					0.977		0.950			0.950		
Satd. Flow (prot)	0	0	1596	0	1718	0	1770	1863	1583	1787	1855	0
Flt Permitted					0.977		0.950			0.950		
Satd. Flow (perm)	0	0	1596	0	1718	0	1770	1863	1583	1787	1855	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			5.5			6.5	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	0	0	143	12	1	12	327	649	24	12	601	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	143	0	25	0	327	649	24	12	661	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
	)ther											
Control Type: Unsignalized												
Intersection Capacity Utilizati	on 63.0%			IC	CU Level o	of Service	B					
Analysis Period (min) 15												

#### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			1		4		٦	1	1	ኘ	eî 👘	
Traffic Vol, veh/h	0	0	120	10	1	10	275	545	20	10	505	50
Future Vol, veh/h	0	0	120	10	1	10	275	545	20	10	505	50
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	50	-	0	30	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	1	1	1	2	2	2	1	1	1
Mvmt Flow	0	0	143	12	1	12	327	649	24	12	601	60

Major/Minor	Minor2			Minor1			Major1		Ν	/lajor2			
Conflicting Flow All	-	-	633	2032	1990	651	662	0	0	674	0	0	
Stage 1	-	-	-	1304	1304	-	-	-	-	-	-	-	
Stage 2	-	-	-	728	686	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.23	7.11	6.51	6.21	4.12	-	-	4.11	-	-	
Critical Hdwy Stg 1	-	-	-	6.11	5.51	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	6.11	5.51	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.327	3.509	4.009	3.309	2.218	-	-	2.209	-	-	
Pot Cap-1 Maneuver	0	0	478	43	61	470	927	-	-	922	-	-	
Stage 1	0	0	-	198	231	-	-	-	-	-	-	-	
Stage 2	0	0	-	416	449	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	-	-	477	22	39	469	926	-	-	921	-	-	
Mov Cap-2 Maneuver	-	-	-	22	39	-	-	-	-	-	-	-	
Stage 1	-	-	-	128	149	-	-	-	-	-	-	-	
Stage 2	-	-	-	287	443	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	15.7			176.4			3.6			0.2			

HCM LOS C

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	477	42	921	-	-
HCM Lane V/C Ratio	0.354	-	-	0.299	0.595	0.013	-	-
HCM Control Delay (s)	11	-	-	15.7	176.4	9	-	-
HCM Lane LOS	В	-	-	С	F	А	-	-
HCM 95th %tile Q(veh)	1.6	-	-	1.2	2.2	0	-	-

F

	٦	$\mathbf{i}$	1	1	Ļ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		٦	<b>^</b>	f,	
Traffic Volume (vph)	55	20	25	365	390	5
Future Volume (vph)	55	20	25	365	390	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.964				0.998	
Flt Protected	0.965		0.950			
Satd. Flow (prot)	1750	0	1787	1881	1859	0
Flt Permitted	0.965		0.950			
Satd. Flow (perm)	1750	0	1787	1881	1859	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	60	22	27	401	429	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	27	401	434	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 32.1%			IC	CU Level o	of Service A
Analysis Period (min) 15						

Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		٦	1	et	
Traffic Vol, veh/h	55	20	25	365	390	5
Future Vol, veh/h	55	20	25	365	390	5
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	85	-	-	-
Veh in Median Storage	, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	60	22	27	401	429	5

Major/Minor	Minor2	[	Vajor1	Ma	jor2		
Conflicting Flow All	889	434	435	0	-	0	
Stage 1	433	-	-	-	-	-	
Stage 2	456	-	-	-	-	-	
Critical Hdwy	6.41	6.21	4.11	-	-	-	
Critical Hdwy Stg 1	5.41	-	-	-	-	-	
Critical Hdwy Stg 2	5.41	-	-	-	-	-	
Follow-up Hdwy	3.509	3.309	2.209	-	-	-	
Pot Cap-1 Maneuver	315	624	1130	-	-	-	
Stage 1	656	-	-	-	-	-	
Stage 2	640	-	-	-	-	-	
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	307	623	1129	-	-	-	
Mov Cap-2 Maneuver	307	-	-	-	-	-	
Stage 1	640	-	-	-	-	-	
Stage 2	639	-	-	-	-	-	

Approach	EB	NB	SB
HCM Control Delay, s	18.2	0.5	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1129	- 355	-	-
HCM Lane V/C Ratio	0.024	- 0.232	-	-
HCM Control Delay (s)	8.3	- 18.2	-	-
HCM Lane LOS	А	- C	-	-
HCM 95th %tile Q(veh)	0.1	- 0.9	-	-

Lane Configurations         EBL         EBT         EBR         WBL         WBT         WBR         NBL         NBT         NBR         SBL         SBT         SBR           Traffic Volume (vph)         0         0         160         10         1         5         265         385         10         5         350         55           Future Volume (vph)         0         0         160         10         1         5         265         385         10         5         350         55           Gleal How (vphpl)         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         1900         100         1.00         1.00         1.00         1.00         1.00				1 1400			•		•		、	1	
Lane Configurations         Image: Configurations         <		≯	-		1	-	~	•	T	1	*	Ŧ	*
Traffic Volume (vph)       0       0       160       10       1       5       265       385       10       5       350       55         Future Volume (vph)       0       0       160       100       1       5       265       385       10       5       350       55         Gdael Flow (vphpl)       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       100       100       1.00       1.00       1.00       1.00       1.00       1.0	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Volume (vph)       0       0       160       100       190       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900	Lane Configurations			1		÷		٦	•	1	ሻ	eî	
ideal Flow (vphp)       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       1900       19	Traffic Volume (vph)	0	0	160	10		5	265		10	5	350	55
Storage Length (ft)         0         0         0         0         50         0         30         0           Storage Lanes         0         1         0         0         1         1         1         1         0           Taper Length (ft)         75         75         75         75         75         75           Lane Util, Factor         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         <	Future Volume (vph)				10		5	265	385		5		55
Storage Lanes         0         1         0         0         1         1         1         1         1         1         1         1         0           Taper Length (ft)         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75         75	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Taper Length (ft)         75         75         75         75         75           Lane Ulii, Factor         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00 <td>Storage Length (ft)</td> <td>0</td> <td></td> <td>0</td> <td>0</td> <td></td> <td>0</td> <td>50</td> <td></td> <td>0</td> <td>30</td> <td></td> <td>0</td>	Storage Length (ft)	0		0	0		0	50		0	30		0
Lane Utili Factor         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00 <td>Storage Lanes</td> <td>0</td> <td></td> <td>1</td> <td>0</td> <td></td> <td>0</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td></td> <td>0</td>	Storage Lanes	0		1	0		0	1		1	1		0
Lane Util, Factor         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00 <th1.00< th="">         1.00         1.00<td>Taper Length (ft)</td><td>75</td><td></td><td></td><td>75</td><td></td><td></td><td>75</td><td></td><td></td><td>75</td><td></td><td></td></th1.00<>	Taper Length (ft)	75			75			75			75		
Fit       0.865       0.960       0.850       0.980         Fit Protected       0.969       0.950       0.950       0.950         Satd. Flow (prot)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Satd. Flow (perm)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Link Speed (mph)       25       25       35       35       35       1740       1825       0         Confl. Pedix (#/hr)       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <td></td> <td>1.00</td>		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected       0.969       0.950       0.950         Satd. Flow (prot)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Fit Permitted       0.969       0.950       0.950       0.950       0.950       0       1825       0         Satd. Flow (perm)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Link Speed (mph)       25       25       35       35       35       1730       1825       0         Confl. Peds. (#hr)       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Ped Bike Factor												
Satd. Flow (prot)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Flt Permitted       0.969       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.950       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92	Frt			0.865		0.960				0.850		0.980	
Fit Permitted       0.969       0.950       0.950         Satd. Flow (perm)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Link Speed (mph)       25       25       35       35       332       332       17ravel Time (s)       13.6       13.6       5.5       6.5         Confl. Peds. (#/hr)       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Flt Protected					0.969		0.950			0.950		
Fit Permitted       0.969       0.950       0.950         Satd. Flow (perm)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Link Speed (mph)       25       25       35       35       332       332       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Satd. Flow (prot)	0	0	1611	0	1750	0	1770	1863	1583	1770	1825	0
Satal. Flow (perm)       0       0       1611       0       1750       0       1770       1863       1583       1770       1825       0         Link Speed (mph)       25       25       35       35       35       35       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       32       33       32       33       32       33       32       33       32       33       33       33       33       33       33       33       33       33       33       33       33       33       33       33       33       33						0.969		0.950			0.950		
Link Speed (mph)       25       25       35       35         Link Distance (ft)       500       283       332         Travel Time (s)       13.6       13.6       5.5       6.5         Confl. Peds. (#/hr)       1       1       1       1       1       1         Confl. Peds. (#/hr)       1       1       1       1       1       1       1         Peak Hour Factor       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92		0	0	1611	0		0		1863	1583		1825	0
Link Distance (ft)         500         500         283         332           Travel Time (s)         13.6         13.6         5.5         6.5           Confl. Peds. (#/hr)         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>													
Travel Time (s)       13.6       13.6       5.5       6.5         Confl. Peds. (#/hr)       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>													
Confl. Peds. (#/hr)       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1													
Confl. Bikes (#/hr)       1       1       1       1       1       1         Peak Hour Factor       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.92       0.93       0		1		1	1		1	1		1	1		1
Peak Hour Factor         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92				1			1			1			1
Heavy Vehicles (%)       2%       2%       2%       1%       1%       1%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2%       2		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)       0       0       174       11       1       5       288       418       11       5       380       60         Shared Lane Traffic (%)       Lane Group Flow (vph)       0       0       174       0       17       0       288       418       11       5       380       60         Enter Blocked Intersection       No													
Shared Lane Traffic (%)         Lane Group Flow (vph)       0       0       174       0       17       0       288       418       11       5       440       0         Enter Blocked Intersection       No       Sighttighttighttighttighttighttighttight													
Lane Group Flow (vph)         0         0         174         0         17         0         288         418         11         5         440         0           Enter Blocked Intersection         No         No<													
Enter Blocked Intersection         No         No <th< td=""><td></td><td>0</td><td>0</td><td>174</td><td>0</td><td>17</td><td>0</td><td>288</td><td>418</td><td>11</td><td>5</td><td>440</td><td>0</td></th<>		0	0	174	0	17	0	288	418	11	5	440	0
Lane Alignment         Left         Left         Right         Median         Median         Width(ft)         0         0         12         12         12         12           Link Offset(ft)         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         100         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00					No						No		
Median Width(ft)       0       0       12       12         Link Offset(ft)       0       0       0       0       0         Crosswalk Width(ft)       16       16       16       16         Two way Left Turn Lane       100       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00													
Link Offset(ft)         0         0         0         0         0           Crosswalk Width(ft)         16         16         16         16         16           Two way Left Turn Lane				5			5			J -			<u> </u>
Crosswalk Width(ft)       16       16       16       16         Two way Left Turn Lane													
Two way Left Turn Lane         Headway Factor       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00 <td></td>													
Headway Factor       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00<													
Turning Speed (mph)1591591599Sign ControlStopStopFreeFreeIntersection SummaryArea Type:OtherControl Type: UnsignalizedIntersection Capacity Utilization 54.3%ICU Level of Service A		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sign Control     Stop     Stop     Free     Free       Intersection Summary     Area Type:     Other     Control Type: Unsignalized       Intersection Capacity Utilization 54.3%     ICU Level of Service A			1100			1100						1100	
Intersection Summary         Area Type:       Other         Control Type: Unsignalized       ICU Level of Service A			Stop	•		Stop			Free			Free	
Area Type:       Other         Control Type: Unsignalized       Intersection Capacity Utilization 54.3%         ICU Level of Service A													
Control Type: Unsignalized Intersection Capacity Utilization 54.3% ICU Level of Service A		)ther											
Intersection Capacity Utilization 54.3% ICU Level of Service A	J1												
		on 54.3%			10	CU Level (	of Service	e A					
	Analysis Period (min) 15					, _,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							

#### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			1		4		۲.	1	1	۲.	4Î		
Traffic Vol, veh/h	0	0	160	10	1	5	265	385	10	5	350	55	
Future Vol, veh/h	0	0	160	10	1	5	265	385	10	5	350	55	
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None										
Storage Length	-	-	0	-	-	-	50	-	0	30	-	-	
Veh in Median Storage	,# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	1	1	1	2	2	2	2	2	2	
Mvmt Flow	0	0	174	11	1	5	288	418	11	5	380	60	

Major/Minor	Minor2		1	Vinor1		[	Major1		1	Najor2			
Conflicting Flow All	-	-	412	1503	1446	420	441	0	0	430	0	0	
Stage 1	-	-	-	995	995	-	-	-	-	-	-	-	
Stage 2	-	-	-	508	451	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.22	7.11	6.51	6.21	4.12	-	-	4.12	-	-	
Critical Hdwy Stg 1	-	-	-	6.11	5.51	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	6.11	5.51	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.318	3.509	4.009	3.309	2.218	-	-	2.218	-	-	
Pot Cap-1 Maneuver	0	0	640	100	132	635	1119	-	-	1129	-	-	
Stage 1	0	0	-	296	324	-	-	-	-	-	-	-	
Stage 2	0	0	-	549	573	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	-	-	639	58	97	634	1118	-	-	1128	-	-	
Mov Cap-2 Maneuver	-	-	-	58	97	-	-	-	-	-	-	-	
Stage 1	-	-	-	220	240	-	-	-	-	-	-	-	
Stage 2	-	-	-	397	570	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	12.7			58.7			3.7			0.1			

HCM LOS B F

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1118	-	-	639	84	1128	-	-
HCM Lane V/C Ratio	0.258	-	-	0.272	0.207	0.005	-	-
HCM Control Delay (s)	9.3	-	-	12.7	58.7	8.2	-	-
HCM Lane LOS	А	-	-	В	F	А	-	-
HCM 95th %tile Q(veh)	1	-	-	1.1	0.7	0	-	-

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Υ		۲.	1	¢Î	
Traffic Volume (vph)	40	40	95	220	460	25
Future Volume (vph)	40	40	95	220	460	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.993	
Flt Protected	0.976		0.950			
Satd. Flow (prot)	1711	0	1752	1845	1850	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1711	0	1752	1845	1850	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Adj. Flow (vph)	46	46	109	253	529	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	109	253	558	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: C	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 46.0%			IC	CU Level o	of Service /
Analysis Period (min) 15						

Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		٦	1	4	
Traffic Vol, veh/h	40	40	95	220	460	25
Future Vol, veh/h	40	40	95	220	460	25
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	85	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	46	46	109	253	529	29

Major/Minor	Minor2	[	Major1	Ма	jor2	
Conflicting Flow All	1017	546	559	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	264	540	1007	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	235	539	1006	-	-	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	2.7	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT EBL	1 SBT	SBR
Capacity (veh/h)	1006	- 32	7 -	-
HCM Lane V/C Ratio	0.109	- 0.28	1 -	-
HCM Control Delay (s)	9	- 20	3 -	-
HCM Lane LOS	А	-	С -	-
HCM 95th %tile Q(veh)	0.4	- 1	1 -	-

600: Port Washingto		CHOOC	T lace								11/0	JZIZUZZ
	≯	-	$\mathbf{r}$	4	-	*	1	t	۲	1	Ŧ	~
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			1			1	٦	<b>†</b>	1	٦	4Î	
Traffic Volume (vph)	0	0	105	0	0	15	140	315	5	1	475	25
Future Volume (vph)	0	0	105	0	0	15	140	315	5	1	475	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865			0.865			0.850		0.992	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1294	0	0	1481	1752	1845	1568	1770	1848	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1294	0	0	1481	1752	1845	1568	1770	1848	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			5.5			6.5	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	27%	27%	27%	11%	11%	11%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	0	0	121	0	0	17	161	362	6	1	546	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	121	0	0	17	161	362	6	1	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
	)ther											
Control Type: Unsignalized												
Intersection Capacity Utilizati	on 40.9%			IC	U Level o	of Service	eΑ					
Analysis Period (min) 15												

#### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			1			1	۲.	<b>↑</b>	1	۲.	ef 👘		
Traffic Vol, veh/h	0	0	105	0	0	15	140	315	5	1	475	25	
Future Vol, veh/h	0	0	105	0	0	15	140	315	5	1	475	25	
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	50	-	0	30	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87	
Heavy Vehicles, %	27	27	27	11	11	11	3	3	3	2	2	2	
Mvmt Flow	0	0	121	0	0	17	161	362	6	1	546	29	

Major/Minor	Minor2		Ν	/linor1			Major1		Μ	ajor2			
Conflicting Flow All	-	-	563	-	-	364	576	0	0	369	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.47	-	-	6.31	4.13	-	-	4.12	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.543	-	-	3.399	2.227	-	- 2	2.218	-	-	
Pot Cap-1 Maneuver	0	0	481	0	0	661	992	-	-	1190	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	· -	-	480	-	-	660	991	-	-	1189	-	-	
Mov Cap-2 Maneuver	· _	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	15			10.6			2.8			0			
	0			Р									

HCM LOS C B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	991	-	-	480	660	1189	-	-
HCM Lane V/C Ratio	0.162	-	-	0.251	0.026	0.001	-	-
HCM Control Delay (s)	9.3	-	-	15	10.6	8	-	-
HCM Lane LOS	А	-	-	С	В	А	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1	0.1	0	-	-

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	- Y		۲	1	4	
Traffic Volume (vph)	60	145	40	515	420	10
Future Volume (vph)	60	145	40	515	420	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905				0.997	
Flt Protected	0.986		0.950			
Satd. Flow (prot)	1679	0	1787	1881	1876	0
Flt Permitted	0.986		0.950			
Satd. Flow (perm)	1679	0	1787	1881	1876	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	186	51	660	538	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	263	0	51	660	551	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
51	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 48.4%			IC	CU Level o	of Service A
Analysis Period (min) 15						

Int Delay, s/veh	8.7						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٦	1	et		
Traffic Vol, veh/h	60	145	40	515	420	10	
Future Vol, veh/h	60	145	40	515	420	10	
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	:
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	85	-	-	-	
Veh in Median Storage	,# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	78	78	78	78	78	78	
Heavy Vehicles, %	1	1	1	1	1	1	
Mvmt Flow	77	186	51	660	538	13	

Major/Minor	Minor2	1	Major1	Ma	ajor2	
Conflicting Flow All	1309	547	552	0	-	0
Stage 1	546	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	177	539	1023	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	538	1022	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Approach	ГР		ND		CD	

Approach	EB	NB	SB	
HCM Control Delay, s	48.9	0.6	0	
HCM LOS	E			

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1022	- 327	-	-
HCM Lane V/C Ratio	0.05	- 0.804	-	-
HCM Control Delay (s)	8.7	- 48.9	-	-
HCM Lane LOS	А	- E	-	-
HCM 95th %tile Q(veh)	0.2	- 6.7	-	-

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations			1			1	۲	•	1	1	el el			
Traffic Volume (vph)	0	0	120	0	0	20	275	545	20	10	505	50		
Future Volume (vph)	0	0	120	0	0	20	275	545	20	10	505	50		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0		0	0		0	50		0	30		0		
Storage Lanes	0		1	0		1	1		1	1		0		
Taper Length (ft)	75			75			75			75				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor														
Frt			0.865			0.865			0.850		0.986			
Flt Protected							0.950			0.950				
Satd. Flow (prot)	0	0	1596	0	0	1627	1770	1863	1583	1787	1855	0		
Flt Permitted							0.950			0.950				
Satd. Flow (perm)	0	0	1596	0	0	1627	1770	1863	1583	1787	1855	0		
Link Speed (mph)		25			25			35			35			
Link Distance (ft)		500			500			283			332			
Travel Time (s)		13.6			13.6			5.5			6.5			
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1		
Confl. Bikes (#/hr)			1			1			1			1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84		
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	1%	1%	1%		
Adj. Flow (vph)	0	0	143	0	0	24	327	649	24	12	601	60		
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	143	0	0	24	327	649	24	12	661	0		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right		
Median Width(ft)		0			0			12			12			
Link Offset(ft)		0			0			0			0			
Crosswalk Width(ft)		16			16			16			16			
Two way Left Turn Lane														
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Sign Control		Stop			Stop			Free			Free			
Intersection Summary														
	other													
Control Type: Unsignalized														
Intersection Capacity Utilizati	on 51.5%			IC	U Level	of Service	A							
Analysis Period (min) 15														

#### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			1			1	۲.	1	1	۲.	ef 👘		
Traffic Vol, veh/h	0	0	120	0	0	20	275	545	20	10	505	50	
Future Vol, veh/h	0	0	120	0	0	20	275	545	20	10	505	50	
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None										
Storage Length	-	-	0	-	-	0	50	-	0	30	-	-	
Veh in Median Storage	,# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84	
Heavy Vehicles, %	3	3	3	1	1	1	2	2	2	1	1	1	
Mvmt Flow	0	0	143	0	0	24	327	649	24	12	601	60	

Major/Minor	Minor2		Ν	linor1			Major1		Μ	lajor2			
Conflicting Flow All	-	-	633	-	-	651	662	0	0	674	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.23	-	-	6.21	4.12	-	-	4.11	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.327	-	-	3.309	2.218	-	- 2	2.209	-	-	
Pot Cap-1 Maneuver	0	0	478	0	0	470	927	-	-	922	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	-	-	477	-	-	469	926	-	-	921	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	15.7			13.1			3.6			0.2			

HCM Control Delay, s15.713.1HCM LOSCB

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	NBLn1	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	477	469	921	-	-
HCM Lane V/C Ratio	0.354	-	-	0.299	0.051	0.013	-	-
HCM Control Delay (s)	11	-	-	15.7	13.1	9	-	-
HCM Lane LOS	В	-	-	С	В	А	-	-
HCM 95th %tile Q(veh)	1.6	-	-	1.2	0.2	0	-	-

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		٦	<b>†</b>	f,	
Traffic Volume (vph)	55	20	25	365	390	5
Future Volume (vph)	55	20	25	365	390	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	85			0
Storage Lanes	1	0	1			0
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.964				0.998	
Flt Protected	0.965		0.950			
Satd. Flow (prot)	1750	0	1787	1881	1859	0
Flt Permitted	0.965		0.950			
Satd. Flow (perm)	1750	0	1787	1881	1859	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	500			332	612	
Travel Time (s)	13.6			6.5	11.9	
Confl. Peds. (#/hr)	1	1	1			1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Adj. Flow (vph)	60	22	27	401	429	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	27	401	434	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 32.1%			IC	CU Level o	of Service A
Analysis Period (min) 15						

Int Delay, s/veh	1.8						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		ኘ	1	ef 👘		
Traffic Vol, veh/h	55	20	25	365	390	5	
Future Vol, veh/h	55	20	25	365	390	5	,
Conflicting Peds, #/hr	1	1	1	0	0	1	
Sign Control	Stop	Stop	Free	Free	Free	Free	:
RT Channelized	-	None	-	None	-	None	;
Storage Length	0	-	85	-	-	-	
Veh in Median Storage	# 0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	91	91	91	91	91	91	
Heavy Vehicles, %	1	1	1	1	2	2	
Mvmt Flow	60	22	27	401	429	5	

Major/Minor	Minor2	[	Major1	Maj	or2		
Conflicting Flow All	889	434	435	0	-	0	
Stage 1	433	-	-	-	-	-	
Stage 2	456	-	-	-	-	-	
Critical Hdwy	6.41	6.21	4.11	-	-	-	
Critical Hdwy Stg 1	5.41	-	-	-	-	-	
Critical Hdwy Stg 2	5.41	-	-	-	-	-	
Follow-up Hdwy	3.509	3.309	2.209	-	-	-	
Pot Cap-1 Maneuver	315	624	1130	-	-	-	
Stage 1	656	-	-	-	-	-	
Stage 2	640	-	-	-	-	-	
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	307	623	1129	-	-	-	
Mov Cap-2 Maneuver	307	-	-	-	-	-	
Stage 1	640	-	-	-	-	-	
Stage 2	639	-	-	-	-	-	

Approach	EB	NB	SB
HCM Control Delay, s	18.2	0.5	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1129	- 355	-	-
HCM Lane V/C Ratio	0.024	- 0.232	-	-
HCM Control Delay (s)	8.3	- 18.2	-	-
HCM Lane LOS	А	- C	-	-
HCM 95th %tile Q(veh)	0.1	- 0.9	-	-

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			1			1	٦	1	1	5	ef.	
Traffic Volume (vph)	0	0	160	0	0	15	265	385	10	5	350	55
Future Volume (vph)	0	0	160	0	0	15	265	385	10	5	350	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	30		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.865			0.865			0.850		0.980	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1627	1770	1863	1583	1770	1825	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1627	1770	1863	1583	1770	1825	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		500			500			283			332	
Travel Time (s)		13.6			13.6			5.5			6.5	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	174	0	0	16	288	418	11	5	380	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	174	0	0	16	288	418	11	5	440	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	0		0	0		12	Ū		12	0
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
51	other											
Control Type: Unsignalized												
Intersection Capacity Utilizati	on 43.1%			IC	U Level	of Service	e A					
Analysis Period (min) 15												

#### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		201	1			1	5	•	1	500	<b>1</b>	0.0.1	
Traffic Vol, veh/h	0	0	160	0	0	15	265	385	10	5	350	55	
Future Vol, veh/h	0	0	160	0	0	15	265	385	10	5	350	55	
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	50	-	0	30	-	-	
Veh in Median Storage,	,# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	1	1	1	2	2	2	2	2	2	
Mvmt Flow	0	0	174	0	0	16	288	418	11	5	380	60	

Major/Minor	Minor2		Ν	/linor1		ļ	Major1		Ν	/lajor2			
Conflicting Flow All	-	-	412	-	-	420	441	0	0	430	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.22	-	-	6.21	4.12	-	-	4.12	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.318	-	-	3.309	2.218	-	-	2.218	-	-	
Pot Cap-1 Maneuver	0	0	640	0	0	635	1119	-	-	1129	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	· -	-	639	-	-	634	1118	-	-	1128	-	-	
Mov Cap-2 Maneuver		-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			

Approach	EB	WB	NR	SB	
HCM Control Delay, s	12.7	10.8	3.7	0.1	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1118	-	-	639	634	1128	-	-
HCM Lane V/C Ratio	0.258	-	-	0.272	0.026	0.005	-	-
HCM Control Delay (s)	9.3	-	-	12.7	10.8	8.2	-	-
HCM Lane LOS	А	-	-	В	В	А	-	-
HCM 95th %tile Q(veh)	1	-	-	1.1	0.1	0	-	-