VILLAGE OF DOWNERS GROVE
Report for the Village
7/6/2021

SUBJECT:	SUBMITTED BY:
Special Use – 931 and 935 Ogden Avenue	Stan Popovich, AICP Community Development Director

SYNOPSIS

The petitioner is requesting approval for a Special Use to construct a drive-through for a 6,480 square foot multi-tenant retail building at 931 and 935 Ogden Avenue.

STRATEGIC PLAN ALIGNMENT

The goals for 2019-2021 include *Strong and Diverse Local Economy*.

FISCAL IMPACT

N/A

RECOMMENDATION

Approval on the July 13, 2021 active agenda per the Plan Commission's 9:0 positive recommendation. The Plan Commission found that the proposal is compatible with the Comprehensive Plan and meets the standards for a Special Use found in Section 28.12.050.H.

BACKGROUND

Property Information & Zoning Request

The petitioner is seeking a special use to construct a drive-through facility for a multi-tenant commercial building. The proposed drive-through, is listed as a permitted Special Use pursuant to Section 28.5.010 of the Zoning Ordinance. The property is located at the southeast corner of Ogden Avenue and Highland Avenue and is zoned B3, General Services and Highway Business.

The subject property consists of three lots, which contain an existing vacant building, parking lot on two lots and an off-site 27 space parking lot on the third lot that serves a nearby medical office building at 1001 Ogden Avenue. The petitioner is proposing to demolish the existing building and all parking to construct a new 6,480 square foot multi-tenant retail building. The building facades will be composed of various colored brick, glass, and metal canopies, with a varied roof line. The design is complimentary of other recent redevelopment projects along Ogden Avenue. The new commercial building includes four tenant spaces. The easternmost tenant space includes the drive-through and a building bump out to the east to serve as a pick-up window. The drive-through lane is designed to accommodate eight vehicles, as required by the Zoning Ordinance.

The existing off-site parking spaces for the 1001 Ogden Avenue property will be relocated to the south of the proposed building. Of the 16 parking spaces along the rear property line, 15 will be leased back to the owner

of 1001 Ogden Avenue, to supplement their loss of off-site parking on the east side of the proposed redevelopment.

Compliance with the Comprehensive Plan

The current Comprehensive Plan identifies Ogden Avenue as a Key Focus Area and specifically the site is designated as part of Catalyst Site D10. The key concepts include:

- A blend of neighborhood-oriented commercial retail, offices, smaller regional retail and service uses.
- Pay special attention to pedestrian circulation, reducing the number of curb-cuts, cross-access between lots and overall enhanced appearance.
- The existing medical office uses on 1001 Ogden are an important component that can remain with the implementation of aesthetic and functional improvements (i.e. shared parking) to strengthen these uses
- Consolidate parcels to allow for an improved functional corner at a major intersection.

The proposed development would add to the commercial area by providing neighborhood-oriented services. The site plan indicates attention to pedestrian circulation, reduced curb-cuts and overall enhanced appearance.

Compliance with the Zoning Ordinance

The subject property is zoned B3, General Services and Highway Business. The proposed multi-tenant shopping center business is a permitted use, while a drive-through requires a Special Use in the B-3 zoning district. A table is provided in the Staff Report that summarizes the development regulations for B-3 zoning district, in addition to the applicable calculations for the proposed improvements.

As noted in the parking calculations provided in the Staff Report, the proposed 41 parking spaces will exceed the 26 spaces required by the Zoning Ordinance. Of the 16 parking spaces along the rear property line, 15 will be leased back to the owner of 1001 Ogden Avenue, to supplement their loss of the existing off-site parking on the east side of the proposed redevelopment. The parking for 1001 Ogden will continue to conform to the Village's parking requirements. Section 28.7.070 allows off-site parking areas be located within a one thousand foot (1,000') radius of the use served by such parking. The off-site parking area may be under separate ownership only if an agreement is provided, in a form approved by the Village Attorney, guaranteeing the long-term availability of the parking, commensurate with the use served by the parking.

Public Comment

Prior to the Plan Commission meeting, staff did not receive any inquiries regarding this proposal. During the Plan Commission hearing the immediately adjacent property owner to the south expressed concern about the audio level of the drive through. To address this potential issue, the Plan Commission added a condition to the approvals that the audio levels of the drive through must be reduced after 9PM.

ATTACHMENTS

Ordinance
Aerial Map
Staff Report with attachments dated June 7, 2021
Approved Minutes of the Plan Commission Hearing dated June 7, 2021

ORDINANCE NO. _____

AN ORDINANCE AUTHORIZING A SPECIAL USE FOR 931 AND 935 OGDEN AVENUE TO PERMIT A MULTI-TENANT RETAIL BUILDING WITH DRIVE-THROUGH

WHEREAS, the following described property, to wit:

LOT 1 AND LOT 2 IN KNIPPEN'S SUBDIVISION OF LOT 8 IN LINDLEY'S ADDITION TO DOWNERS GROVE, BEING A SUBDIVISION IN THE NORTHEAST1/4 OF THE SOUTHWEST 1/4 OF SECTION 5, TOWNSHIP 38 NORTH, RANGE 11 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT OF SAID KNIPPEN'S RESUBDIVISION RECORDED APRIL 21, 1922 AS DOCUMENT 155351, IN DUPAGE COUNTY ILLINOIS

Commonly known as: 931 & 935 Ogden Avenue, Downers Grove, IL 60515
PIN(s): 09-05-306-001; -002; -003

(hereinafter referred to as the "Property") is presently zoned in the *"B-3, General Services and Highway Business District"* under the Comprehensive Zoning Ordinance of the Village of Downers Grove; and

WHEREAS, the owner of the Property has filed with the Plan Commission, a written petition conforming to the requirements of the Zoning Ordinance, requesting that a Special Use per Section 28.12.050 of the Zoning Ordinance be granted to permit a multi-tenant retail building with drive-through; and

WHEREAS, such petition was referred to the Plan Commission of the Village of Downers Grove, and said Plan Commission has given the required public notice, has conducted a public hearing for the petition on June 7, 2021 and has made its findings and recommendations, all in accordance with the statutes of the State of Illinois and the ordinances of the Village of Downers Grove; and,

WHEREAS, the Plan Commission has recommended approval of the Special Use, subject to certain conditions; and,

WHEREAS, the Village Council finds that the evidence presented in support of said petition, as stated in the aforesaid findings and recommendations of the Plan Commission, is such as to establish the following:

1. That the proposed use is expressly authorized as a Special Use in the district in which it is to be located;

2. That the proposed use at the proposed location is necessary or desirable to provide a service or a facility that is in the interest of public convenience and will contribute to the general welfare of the neighborhood or community.

3. That the proposed use will not, in the particular case, be detrimental to the health, safety or general welfare of persons residing or working in the vicinity or be injurious to property values or improvements in the vicinity.

NOW, THEREFORE, BE IT ORDAINED by the Council of the Village of Downers Grove, in DuPage County, Illinois, as follows:

SECTION 1. That Special Use of the Property is hereby granted to permit a multi-tenant retail building with drive-through.

SECTION 2. This approval is subject to the following conditions:

1. The proposed Special Use for a drive-through use shall substantially conform to the proposed New Multi-Tenant Building Plans for 935 Ogden drawings prepared by Engineering Resource Associates, Inc. dated April 7, 2021, last revised May 12, 2021, the architectural drawings prepared by CJ Architects dated April 29, 2021, last revised May 18, 2021, except as such plans may be modified to conform to Village codes, ordinances, and policies.

2. An administrative lot consolidation of the three lots shall be recorded at DuPage County prior to the issuance of a building permit. The Plat of Consolidation shall provide for a cross-access easement to the benefit of the 925 Ogden Avenue property.

3. Submit a fully executed off-street parking agreement to provide for the required parking spaces in a form approved by the Village Attorney.

4. The speaker volume on the drive through menu board must be reduced during overnight hours, starting at 9 PM CST.

SECTION 3. The above conditions are hereby made part of the terms under which the Special Use is granted. Violation of any or all of such conditions shall be deemed a violation of the Village of Downers Grove Zoning Ordinance, the penalty for which may include, but is not limited to, a fine and/or revocation of the Special Use granted herein.

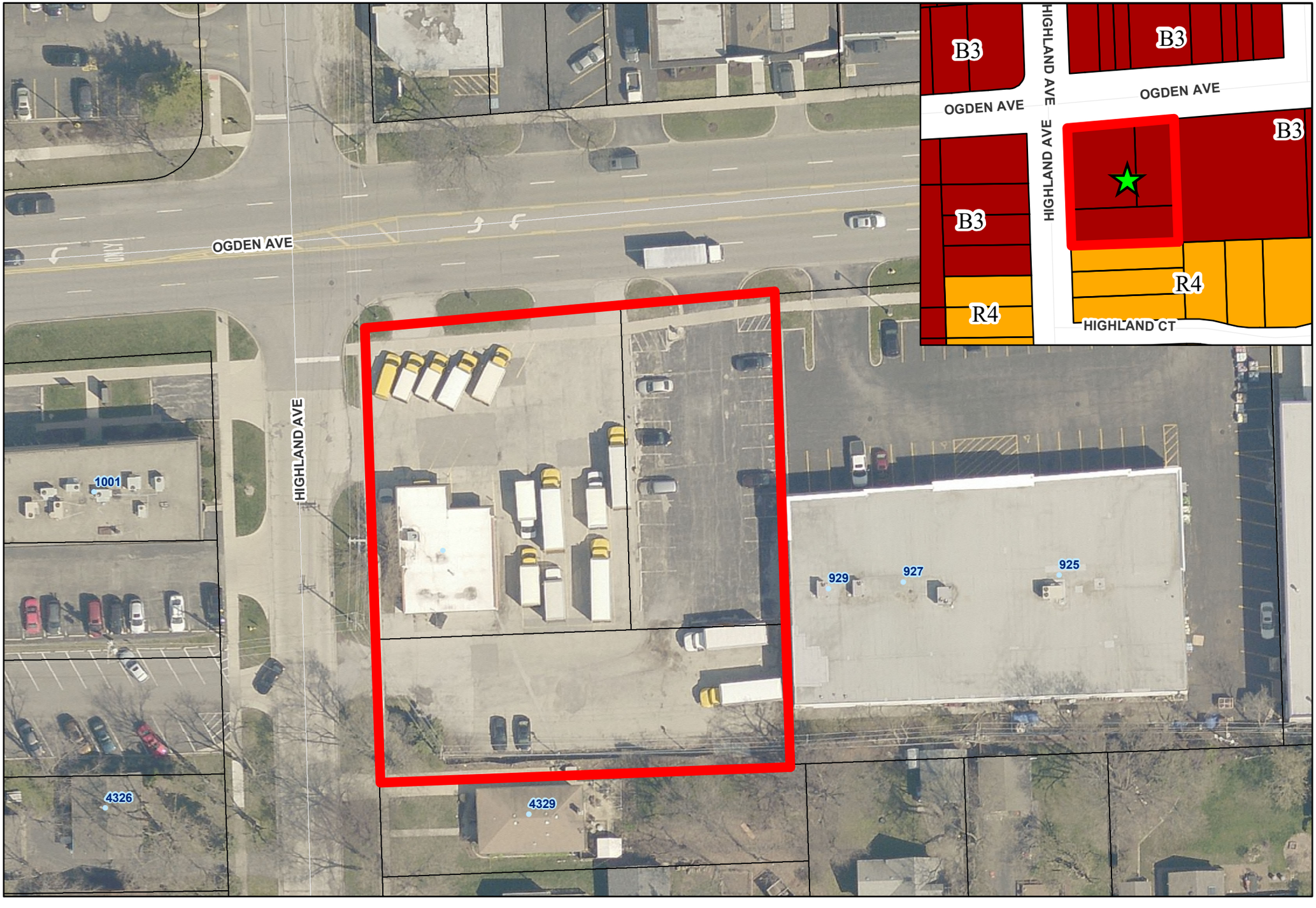
SECTION 4. It is the Petitioner's obligation to maintain compliance with all applicable Federal, State, County and Village laws, ordinances, regulations, and policies.

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

_____
Mayor

Passed:
Published:
Attest: _____
Village Clerk

1\mw\ord.21\SU-931 & 935 Odgen-21-PLC-0012



0 20 40 80 Feet

Location Map: 935 Ogden and 931 Ogden

Project Location

Subject Property

N

VILLAGE OF DOWNERS GROVE
REPORT FOR THE PLAN COMMISSION
JUNE 7, 2021 AGENDA

SUBJECT:	TYPE:	SUBMITTED BY:
21-PLC-0012 931 and 935 Ogden Avenue	Special Use for a drive-through	Jason Zawila, AICP Planning Manager

REQUEST
The petitioner is requesting approval of a Special Use for a drive-through at 931 and 935 Ogden.

NOTICE
The application has been filed in conformance with applicable procedural and public notice requirements.

GENERAL INFORMATION

OWNER: 935 Ogden, LLC
2777 Finley Rd. Suite 12
Downers Grove, IL 60515

The 1001 Ogden Avenue Building, LLC
1001 Ogden Avenue
Downers Grove, IL 60515

PETITIONER: Vick Mehta
2777 Finley Rd. Suite 12
Downers Grove, IL 60515

PROPERTY INFORMATION

EXISTING ZONING: B-3, General Services and Highway Business
EXISTING LAND USE: Vehicle Rental (Vacant) and Parking Lot
PROPERTY SIZE: 34,514 square feet (0.79 acres)
PINS: 09-05-306-001, 09-05-306-002, 09-05-306-003

SURROUNDING ZONING AND LAND USES

	ZONING	FUTURE LAND USE
NORTH:	B-3, General Services and Highway Business	Corridor Commercial
SOUTH:	R-4, Residential Detached House 4	Single Family Detached
EAST:	B-3, General Services and Highway Business	Corridor Commercial
WEST:	B-3, General Services and Highway Business	Corridor Commercial

ANALYSIS

SUBMITTALS

This report is based on the following documents, which are on file with the Department of Community Development:

1. Application/Petition for Public Hearing
2. Project Summary
3. ALTA/ACSM Land Title Survey
4. Architectural Plans
5. Engineering Plans
6. Landscape Plans
7. Traffic Study

PROJECT DESCRIPTION

The petitioner is seeking a special use to construct a drive-through facility for a multi-tenant commercial building. The proposed drive-through, is listed as a permitted Special use pursuant to Section 28.5.010 of the Zoning Ordinance. The property is located at the southeast corner of Ogden Avenue and Highland Avenue and is zoned B3, General Services and Highway Business.

The subject property consists of three lots, which contain an existing vacant building, parking lot on two lots and an off-site 27 space parking lot on the third lot that serves a nearby medical office building at 1001 Ogden Avenue. The petitioner is proposing to demolish the existing building and all parking to construct a new 6,480 square foot multi-tenant retail building. The building facades will be composed of various colored brick, glass, and metal canopies, with a varied roof line. The design is complimentary of other recent redevelopment projects along Ogden Avenue. The new commercial building includes four tenant spaces. The easternmost tenant space includes the drive-through and a building bump out to the east to serve as a pick-up window. The drive-through lane is designed to accommodate eight vehicles, as required by the Zoning Ordinance.

The petitioner is proposing landscaping around the perimeter of the site, in conformance with the Village Ordinance. Landscaping is provided along the north, west, and southern property lines. Immediately southeast of the building, a new screened trash enclosure area is proposed. As required by the Zoning Ordinance, pedestrian connections will be provide to both Ogden Avenue and Highland Avenue. The existing three curb cuts onto Ogden Avenue will be reduced to one access point. The existing two curb cuts on Highland Avenue will also be reduced to one access point.

The existing off-site parking spaces for the 1001 Ogden Avenue property will be relocated to the south of the proposed building. Of the 16 parking spaces along the rear property line, 15 will be leased back to the owner of 1001 Ogden Avenue, to supplement their loss of off-site parking on the east side of the proposed redevelopment.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

The property is designated as Corridor Commercial in the Comprehensive Plan and specifically the site is designated as part of Catalyst Site #D10 of the Ogden Avenue Key Focus Area.

The Ogden Avenue Focus Area key concepts include:

- A blend of neighborhood-oriented commercial retail, offices, smaller regional retail and service uses.
- Special attention to pedestrian circulation, reducing the number of curb-cuts, cross-access between lots and overall enhanced appearance.

The Comprehensive Plan identifies the following key features of Catalyst Site #D10:

- The existing medical office uses on 1001 Ogden are an important component that can remain with the implementation of aesthetic and functional improvements (i.e. shared parking) to strengthen these uses
- Consolidate parcels to allow for an improved functional corner at a major intersection.

The proposed development:

- Reduces the curb-cuts and improves access onto Ogden Avenue and Highland Avenue.
- Improves pedestrian connectivity by installing a new sidewalk along Ogden Avenue and Highland Avenue.
- Consolidates multiple lots to improve onsite operations.
- Provides enhanced landscaping and screening in order to provide a buffer to the residential uses to the south and continues to build on a more attractive image along Ogden Avenue.
- A shared parking agreement for off-site parking for the existing medical office building located at 1001 Ogden Avenue.
- Development would allow for a potential cross-access agreement with the property immediately to the east.

The proposed development meets the goals of the Comprehensive Plan.

COMPLIANCE WITH THE ZONING ORDINANCE

The property is zoned B-3, General Services and Highway Business District. The proposed multi-tenant retail building with a drive-through use is listed as an allowable Special Use in this district. The bulk requirements of the proposed drive-through in the B-3 zoning district are summarized in the following table:

Proposed Commercial Building	**Required**	**Proposed**
Street Setback (North – Ogden)	75' from CL of Ogden	118'
Street Setback (East)	0 feet	11.7
Side Setback (West)	8 feet	25'
Rear Setback (South)	8 feet	28’
FAR	0.75	0.18
Proposed Parking	**Required**	**Proposed**
Street Setback (North – Ogden)	50 ft. from CL of Ogden	57'
Street Setback (West – Highland)	8'	10’
Side Setback (East)	N/A	11.3’
Rear Setback (South)	5'	5’
Total Parking Required	26	41
Total ADA Required	2 (on-site)	2 (on-site)
Proposed Drive-through	**Required**	**Proposed**
Street Setback (North – Ogden)	50' from CL of Ogden	89'
Side Setback (East)	N/A	N/A
Rear Setback (South)	50’	50’
Stacking Spaces	8	8
Drive-Through Lane Width	10’	10’

Site Plan Elements	Required	Proposed
Pedestrian Connections (x2)	Yes	Provided
Trash Enclosure	Yes	Yes
Bike Parking	2	2
Open Space	10% of lot area	11.5%

Parking
As noted in the above table, the proposed 41 parking spaces will exceed the 26 spaces required by the Zoning Ordinance. Of the 16 parking spaces along the rear property line, 15 will be leased back to the owner of 1001 Ogden Avenue, to supplement their loss of off-site parking on the east side of the proposed redevelopment. It should be noted that the medical office building at 1001 Ogden Avenue is approximately 7,400 square feet, which requires 32 parking spaces by Village Code (4.5 spaces per 1,000SF). The site itself is legal nonconforming with the provision of 27 parking spaces. The leasing of these fifteen parking spaces will meet the Village's parking requirements.

Section 28.7.070 allows off-site parking areas be located within a one thousand foot (1,000') radius of the use served by such parking. The off-site parking area may be under separate ownership only if an agreement is provided, in a form approved by the Village Attorney, guaranteeing the long-term availability of the parking, commensurate with the use served by the parking.

Signage
New wall signs are proposed on the northern and western facades. Directional signage to assist with directing vehicles to the drive-through is also proposed. All exterior signage will be required to meet the Sign Ordinance requirements.

ENGINEERING/PUBLIC IMPROVEMENTS
Based on the existing and proposed impervious area and the use of pervious concrete, Post Construction Best Management Practices are not required for this property. The project will meet all provisions of the Stormwater and Floodplain Ordinance. Additional public improvements include the removal of two curb cuts on Ogden Avenue and one will be removed on Highland Avenue. The existing sidewalk on Ogden Avenue will be replaced and shifted north into the right of way, to allow additional open space and parking. The development proposes to connect water and sanitary service to existing mains located in the Highland Avenue right-of-way.

TRAFFIC
A traffic impact study for the proposed development was prepared by Gewalt Hamilton Associates. Ingress and egress to the site will be provided via two access points. The drive-through provides queueing for eight vehicles and access to the site is proposed via one full access drive on Highland Avenue and one full access drive on Ogden Avenue. The study notes that the site currently has three full access drives on Ogden Avenue and two full access drives on Highland Avenue. Per the site plan, two drives on Ogden Avenue and one drive on Highland Avenue will be eliminated.

The study projects that the existing roadway system will have sufficient reserve capacity to accommodate the traffic generated by the new development. Additionally, the signalized intersections on Ogden Avenue at Main Street create enough gaps in the Ogden Avenue traffic stream that allow vehicles to turn to/from the local roadways and access drives onto/off of Ogden Avenue. The eight vehicle drive-through stacking lane is adequate to accommodate drive-through peak demand without blocking the parking lot drive aisles.

PUBLIC SAFETY REQUIREMENTS

The Fire Prevention Division has reviewed the proposed plans and determined that the development provides sufficient access for emergency vehicles. As shown in the truck turning plan, the Village's largest emergency vehicle can maneuver through the site and access the new building. The building will also include a fire alarm system and sprinkler system that meet the Village's code requirements.

NEIGHBORHOOD COMMENT

Notice was provided to all property owners 250 feet or less from the property in addition to posting public hearing notice signs and publishing the legal notice in the *Enterprise Newspaper, Inc.* (*The Bugle*). Staff did not receive any inquiries regarding the proposed development.

STANDARDS OF APPROVAL

The petitioner is requesting a Special Use approval to construct a new drive-through. The review and approval criteria is listed below.

The petitioner has submitted a narrative that attempts to address all the standards of approval. The Plan Commission should consider the petitioner's documentation, the staff report, and the discussion at the Plan Commission meeting in determining whether the standards for approval have been met.

Section 28.12.050.H Standards for Approval of Special Uses

No special use may be recommended for approval or approved unless the respective review or decision-making body determines that the proposed special use is constituent with and in substantial compliance with all Village Council policies and plans and that the petitioner has presented evidence to support each of the following conclusions:

(1) That the proposed use is expressly authorized as a Special Use in the district in which it is to be located.

(2) That the proposed use at the proposed location is necessary or desirable to provide a service or a facility that is in the interest of public convenience and will contribute to the general welfare of the neighborhood or community.

(3) That the proposed use will not, in the particular case, be detrimental to the health, safety or general welfare of persons residing or working in the vicinity or be injurious to property values or improvements in the vicinity.

DRAFT MOTION

Staff will provide a recommendation at the June 7, 2021 meeting. Should the Plan Commission find that the request meets the standards of approval for a Special Use, staff has prepared a draft motion that the Plan Commission may make for the recommended approval of 21-PLC-0012:

Based on the petitioner's submittal, the staff report, and the testimony presented, I find that the petitioner has met the standards of approval for a Special Use as required by the Village of Downers Grove Zoning Ordinance and is in the public interest and therefore, I move that the Plan Commission recommend to the Village Council approval of 21-PLC-0012, subject to the following conditions:

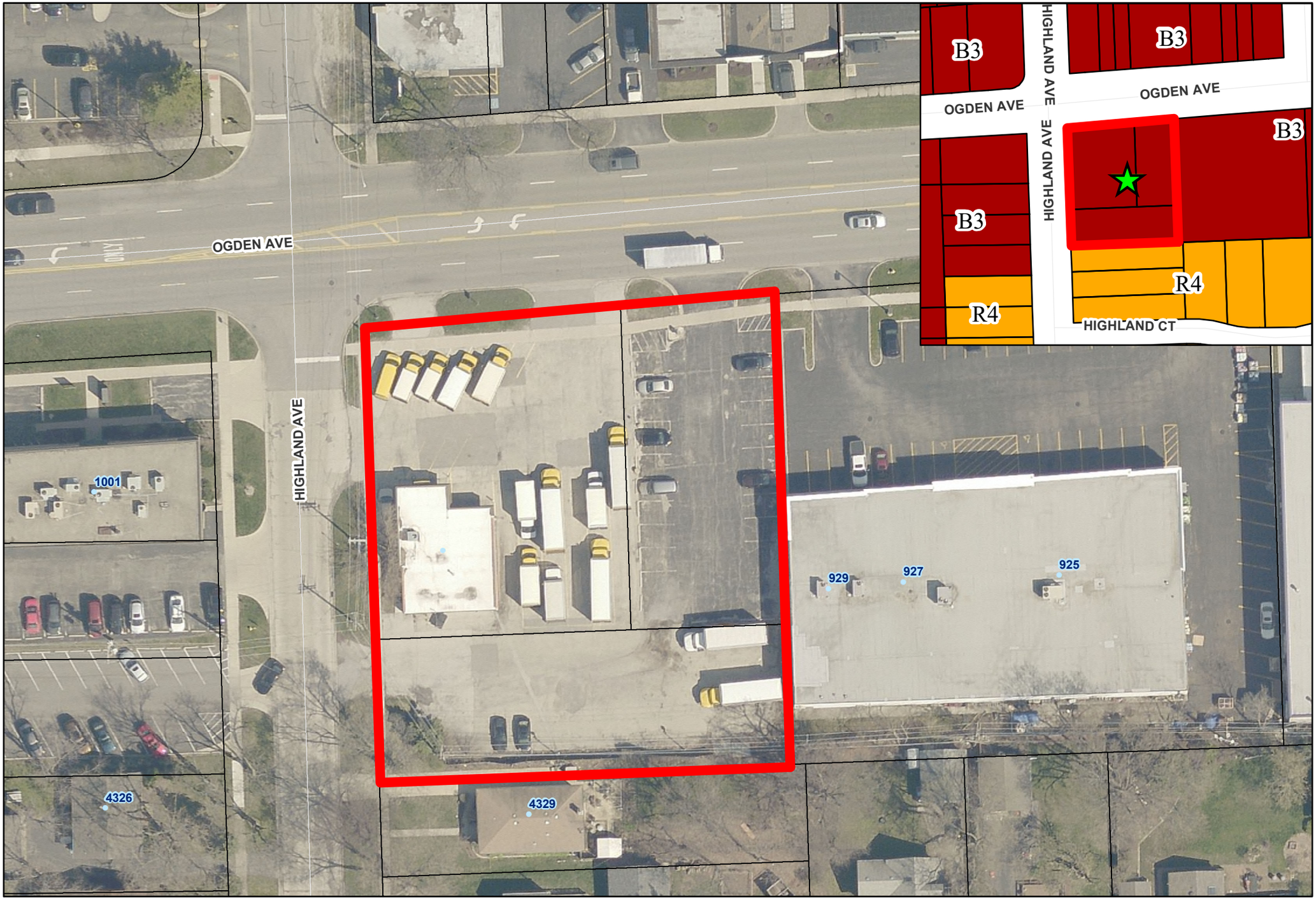
1. The proposed Special Use for a drive-through use shall substantially conform to the attached proposed New Multi-Tenant Building Plans for 935 Ogden drawings prepared by Engineering Resource Associates, Inc. dated April 7, 2021, last revised May 12, 2021, the architectural drawings

prepared by CJ Architects dated April 29, 2021, last revised May 18, 2021, except as such plans may be modified to conform to Village codes, ordinances, and policies.

2. An administrative lot consolidation of the three lots shall be recorded at DuPage County prior to the issuance of a building permit. On the Plat of Consolidation provide a cross-access easement to the benefit of the 925 Ogden Avenue property in the event a cross-access agreement can be worked out between the two property owners.
3. Complete an off-street parking agreement in a form approved by the Village Attorney.
4. Consider with the property owner of 925 Ogden Avenue options for the consolidation of driveways and allow cross-access if both property owners reach an agreement.

Staff Report Approved By:

_____
Stanley J. Popovich, AICP
Director of Community Development



Location Map: 935 Ogden and 931 Ogden

Project Location

Subject Property

N

cj architects
773.383.6556
cj-architects.com

To: Village of Downers Grove, IL
Community Development Dept. – Planning Division
801 Burlington Ave.
Downers Grove, IL 60515
ATTN: Mr. Jason Zawila, Planning Manager

RE: 935 Ogden Ave.
Site Plan and Special Use review petition

DATE: 29 April 2021

Mr. Zawila-

On behalf of the Owner of 935 Ogden, LLC, Mr. Vick Mehta, I am submitting this narrative to staff, to supplement and guide the petition for a plan commission hearing.

The properties in question are commonly known as 935 Ogden Ave and 931 Ogden Ave, and are currently separate parcels. 935 Ogden Ave is currently improved with a roughly 1,800 s.f. 1-story building, which has been vacant for many years. It was presumably used for automobile sales. Furthermore, this property is split into two lots/parcels, with separate Property Identification Numbers (P.I.N.s). 931 Ogden Ave is currently unimproved, with a paved/striped lot used for satellite parking by a nearby medical office at 1001 Ogden Ave.

The proposal is to consolidate all three lots into one and build a new 1-story, 6,480 s.f. mixed use retail/commercial building. The front of the building will mostly front on and face Ogden Ave to the north, and will thus contain 4 storefronts for a varied mix of potential tenants. The east side of the building will provide for a drive-thru window, with queueing space around the rear of the building for 8 vehicles, minimum. 25 automobile parking spaces will be provided in the front grade-lot and 16 in the rear grade-lot. Of the 16 rear, at least 5 will be leased back to the original owner of the lot at 931 Ogden Ave, to supplement their loss in converted parking for their building at 1001 Ogden Ave. This shared parking agreement is pending and will be finalized upon staff review. Two bicycle spaces will be provided for along the front parking island.

Vehicular Access to the site will be provided predominately by an enlarged curb cut on the NE corner along the Ogden Ave side. A secondary entrance will be provided by a slightly widened curb cut on the Highland Ave side, that will largely be for the rear S.P.A. and employee parking, for egress from around the front parking lot, and for patrons familiar with the entrance from the adjacent neighborhood. The drive-thru discharges at the Ogden Ave curb cut. Pedestrian access will be provided from the

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north by a walkway from a reconfigured sidewalk along Ogden Ave, and also from public sidewalks on the Highland Ave side.

The proposed building will be adorned with a mixture of masonry elements and banding, synthetic stucco signage façades, and large storefronts. Storefronts will be highlighted with fabric awnings above, and decorative lighting in between. The drive-thru will also have a metal rain canopy to offset the look and focus this feature. The building will have a low-slope roof with discharge concentrated to the rear, allowing bold, multi-leveled cornice lines along the front, street-facing facades. Additionally, the site will be improved with a 4-slot monument sign and a refuse container storage enclosure, which will match the material and character of the building.

I hope this narrative adequately describes our project proposal and assists staff in review of the details. Should you have any further questions, comments, or concerns, please do not hesitate to contact me directly.

Behind this letter, you will find the following documents enclosed within this submittal:

- Plan Commission Submittal Application (Petition, et al)
- Plan Commission Review and Approval Criteria
- Proof of Ownership for multiple lots
- DuPage County Parcel Report
- Downers Grove Sanitary District concept approval letter
- Traffic Study
- Drawing sets, including: Prelim. Architectural, Plats of Survey and Plat of Consolidation, Civil Engineering, Site Lighting, and Landscaping

Respectfully Submitted-

Christopher A Jackson, Architect – NCARB, LEED AP

Review and Approval Criteria

SPECIAL USES

Plan Commission Number & Title: _____

A DETAILED RESPONSE TO ALL OF THE STANDARDS SHALL BE PROVIDED, SPECIFYING HOW EACH STANDARD IS OR IS NOT MET.

Section 28.12.050.H Approval Criteria (Special Uses)

No special use may be recommended for approval or approved unless the respective review or decision-making body determines that the proposed special use is constituent with and in substantial compliance with all Village Council policies and plans and that the applicant has presented evidence to support each of the following conclusions:

1. ***That the proposed use is expressly authorized as a Special Use in the district in which it is to be located.***

   The subject property(ies) is/are located in the B-3, General Service and Highway Business zoning district. Per Table 5-1 of Chapter 28 of the Zoning Ordinance, a drive-through facility is expressly authorized as a Special Use in the B-3 zoning district.

2. ***That the proposed use at the proposed location is necessary or desirable to provide a service or a facility that is in the interest of public convenience and will contribute to the general welfare of the neighborhood or community.***

   The proposed redevelopment, which includes lot consolidation to construct a larger, multi-tenant commercial building with one drive-through tenant, is desirable within the Ogden Avenue corridor and will contribute to the overall fabric of the thoroughfare. The general welfare of the neighborhood and surrounding community will be well-served with the addition of the drive-through facility, as a matter of convenience. The proposal is consistent with the Comprehensive Plan goals of the Village to encourage reinvestment and auto-centric, quick-service business.

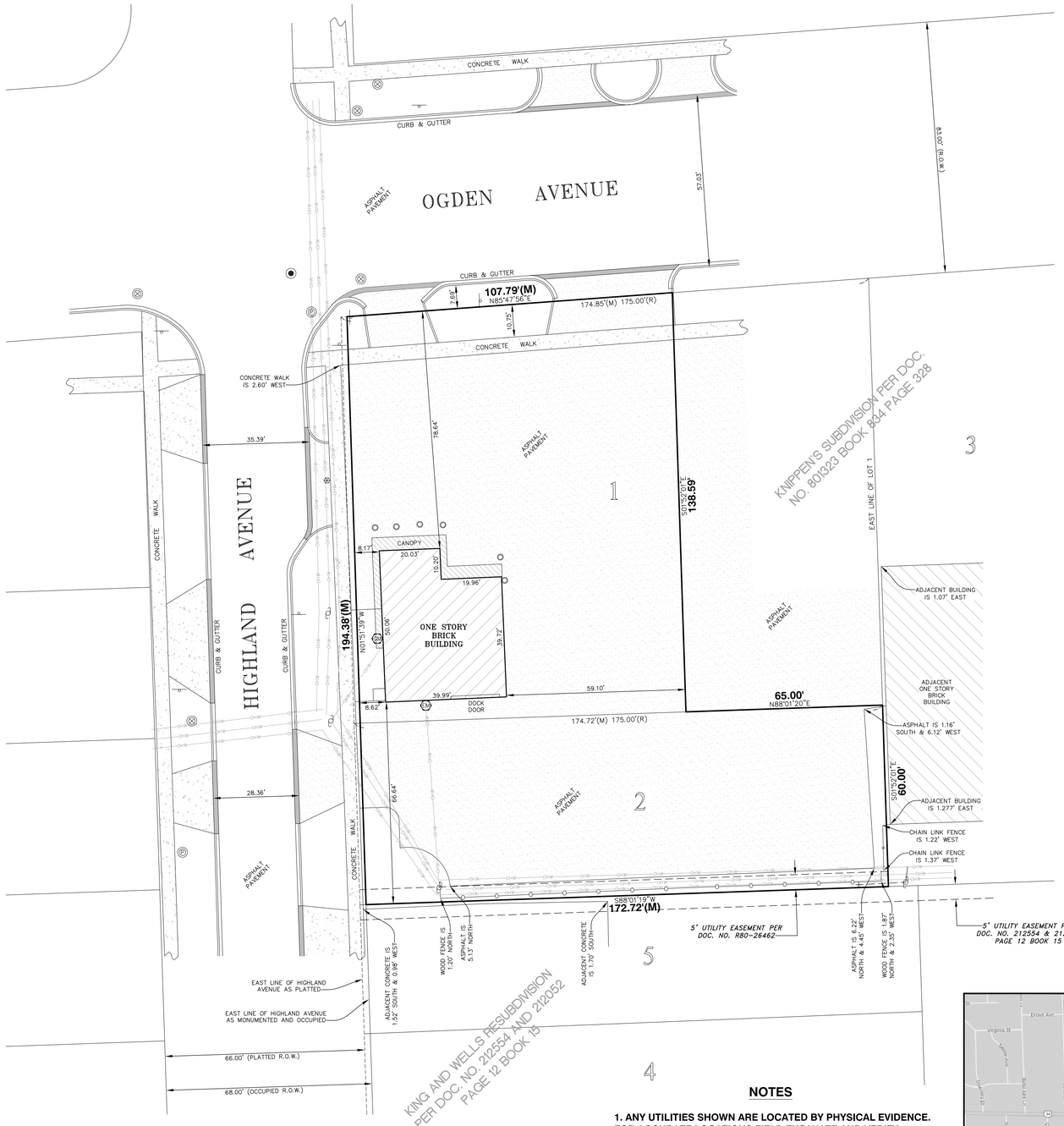
3. ***That the proposed use will not, in the particular case, be detrimental to the health, safety or general welfare of persons residing or working in the vicinity or be injurious to property values or improvements in the vicinity.***

   The proposed development and drive-through facility will not be detrimental to the health, safety, or general welfare of persons residing or working in the vicinity, nor will it be injurious to property values or improvements in the vicinity. The proposed redevelopment replaces a derelict building which has been vacant for some time, and two under-maintained parking lots. Further, the special use drive-through provides convenience for motorists, and has been designed in a safe and efficient manner so as to avoid conflict with pedestrians and other vehicles, and is an asset to the development and prospective tenancy.

SITE INFORMATION
PROPERTY AREA = 25,064 SQ. FT.
BUILDING FOOTPRINT AREA = 1,795 SF/7%

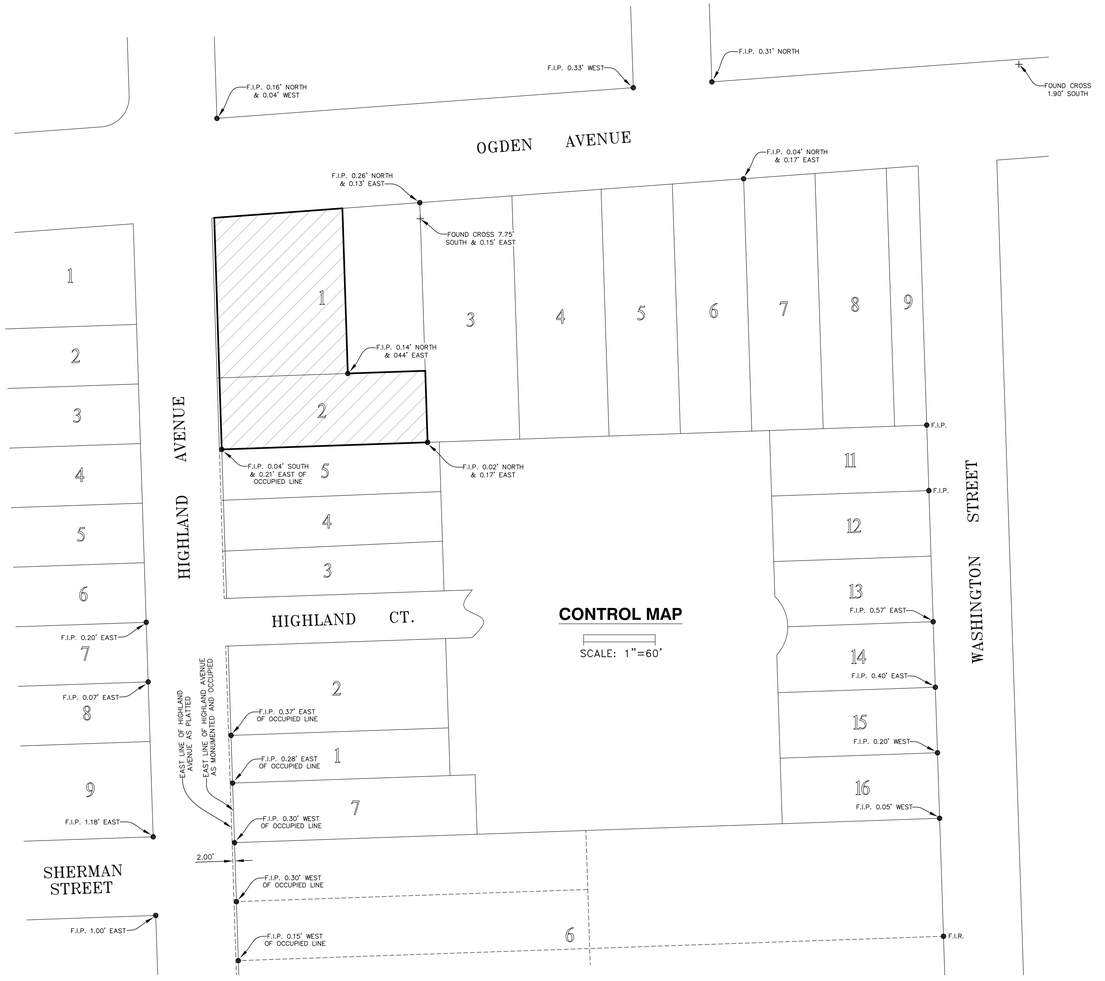
A.L.T.A. / N.S.P.S. LAND TITLE SURVEY

P.I.N. 09-05-306-001
09-05-306-002
09-05-306-003



LEGAL DESCRIPTION

LOT 1 (EXCEPT THE EASTERLY 65.0 FEET THEREOF) AND LOT 2 IN KNIPPEN'S SUBDIVISION OF LOT 8 IN LINDLEY'S ADDITION TO DOWNERS GROVE, BEING A SUBDIVISION IN THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 5, TOWNSHIP 38 NORTH, RANGE 11 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT OF SAID KNIPPEN'S RESUBDIVISION RECORDED APRIL 21, 1922 AS DOCUMENT 155351, IN DUPAGE COUNTY, ILLINOIS.



CONTROL MAP

SCALE: 1"=60'

NOTES

1. ANY UTILITIES SHOWN ARE LOCATED BY PHYSICAL EVIDENCE. FOR ACCURATE LOCATIONS FIELD EXCAVATE AND VERIFY.

2. ANY DISCREPANCIES DISCOVERED UPON THE GROUND SHOULD BE PROMPTLY REPORTED TO THE SURVEYOR FOR EXPLANATION OR CORRECTION.

3. REGARDING MATTERS OF RECORD WE HAVE RELIED UPON CHICAGO TITLE INSURANCE COMPANY'S COMMITMENT NUMBER 17WNW250055WH, DATED JUNE 27, 2017.

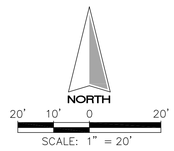
4. BASIS OF BEARINGS: SOUTH LINE OF OGDEN AVENUE AS SHOWN: N85°47'56"E (ASSUMED).

5. FENCE LOCATIONS ARE MADE TO CENTER OF POST.

AREA MAP

SYMBOL LEGEND

- CB – CATCHBASIN
- MH – MANHOLE
- SM – STORM MANHOLE
- TM – TELEPHONE MANHOLE
- EM – ELECTRIC MANHOLE
- VV – VALVE & VAULT
- BB – BUFFALO BOX
- UP – UTILITY POLE
- WV – WATER VALVE
- -OHW- – OVERHEAD WIRES
- DEPRESSED CURB
- BOLLARD
- GM – GAS METER
- EM – ELECTRIC METER
- LIGHT
- STREET SIGN
- FH – FIRE HYDRANT
- T – TRANSFORMER
- F.I.P. – FOUND IRON PIPE
- F.I.R. – FOUND IRON ROD



PREPARED FOR: LAWRENCE LAW FIRM
JOB ADDRESS: OGDEN & HIGHLAND AVE., DOWNERS GROVE, IL.
JOB NO.: 17-07-0041 DRAWN BY: KAB

NEKOLA SURVEY, INC.
PROFESSIONAL LAND SURVEYING SERVICES
WWW.NEKOLASURVEY.COM
400 N. SCHMIDT RD., STE. 203
BOLINGBROOK, ILLINOIS 60440
(630) 226-1530 PHONE (630) 226-1430 FAX
DESIGN FIRM NO. 184.005564

STATE OF ILLINOIS) SS
COUNTY OF WILL)

TO CHICAGO TITLE INSURANCE COMPANY AND LM COMMERCIAL DEVELOPMENT LLC: THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS (NONE) OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON THE 24TH DAY OF JULY, 2017.

DATE OF PLAT OR MAP: 14TH DAY OF AUGUST, 2017.

IPLS No. 2923
LICENSE RENEWAL DATE: 30 NOVEMBER 2018.

PLAT OF SURVEY

THE EASTERLY 65 FEET OF LOT 1 IN KNIPPEN'S SUBDIVISION OF LOT 8 IN LINDLEY'S ADDITION TO DOWNERS GROVE, IN SECTION 5 TOWNSHIP 38 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN DUPAGE COUNTY, ILLINOIS.

P.I.N.: 09-05-306-002

COMMONLY KNOWN AS: 931 OGDEN AVENUE, DOWNERS GROVE, ILLINOIS

GENERAL NOTES

1. THE BEARINGS SHOWN ON THIS PLAT ARE BASED ON THE ILLINOIS STATE PLANE COORDINATE SYSTEM – EAST ZONE (NAD 83).
2. CHECK LEGAL DESCRIPTION WITH DEED OR TITLE POLICY AND REPORT ANY DISCREPANCY IMMEDIATELY. BUILDING LINES AND EASEMENTS, IF ANY, SHOWN HEREON ARE AS SHOWN ON THE RECORDED SUBDIVISION OR AS INDICATED.
3. ALL AREAS LISTED IN THE AREA SUMMARY TABLE ARE MORE OR LESS.
4. ALL DISTANCES ARE SHOWN IN FEET AND DECIMAL PARTS THEREOF.
5. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES WHICH MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.

STATE OF ILLINOIS }
COUNTY OF DUPAGE } SS

I, TIMOTHY B. MARTINEK, AN ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 035-003782, HEREBY CERTIFY THAT I HAVE SURVEYED THE ABOVE PROPERTY AND THAT THE PLAT HEREON DRAWN IS A CORRECT REPRESENTATION OF SAID SURVEY. THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY.

GIVEN UNDER MY HAND AND SEAL THIS 18TH DAY OF MARCH, 2021

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 035-003782
LICENSE EXPIRES NOVEMBER 30, 2022

DESIGN FIRM PROFESSIONAL LICENSE NO. 184.001186
LICENSE EXPIRES APRIL 30, 2021

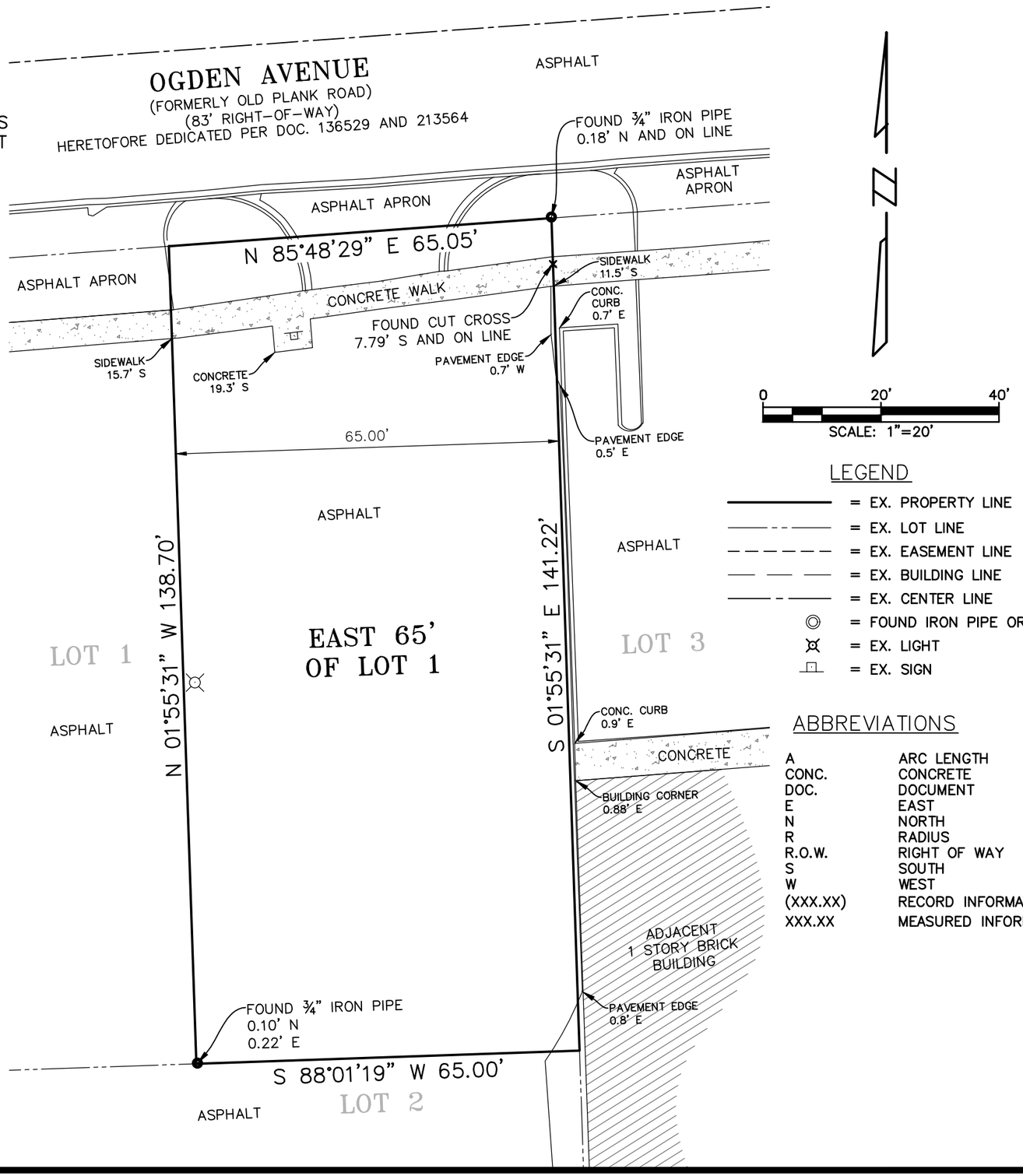
FIELD WORK COMPLETED MARCH 8, 2021

TIMOTHY B. MARTINEK 3782 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS WARRENVILLE, ILLINOIS

ENGINEERING RESOURCE ASSOCIATES, INC.
CONSULTING ENGINEERS, SCIENTISTS & SURVEYORS

3S701 WEST AVENUE, SUITE 150
WARRENVILLE, ILLINOIS 60555
PHONE (630) 393-3060
FAX (630) 393-2152

2416 GALEN DRIVE
CHAMPAIGN, ILLINOIS 61821
PHONE (217) 351-6268
FAX (217) 355-1902



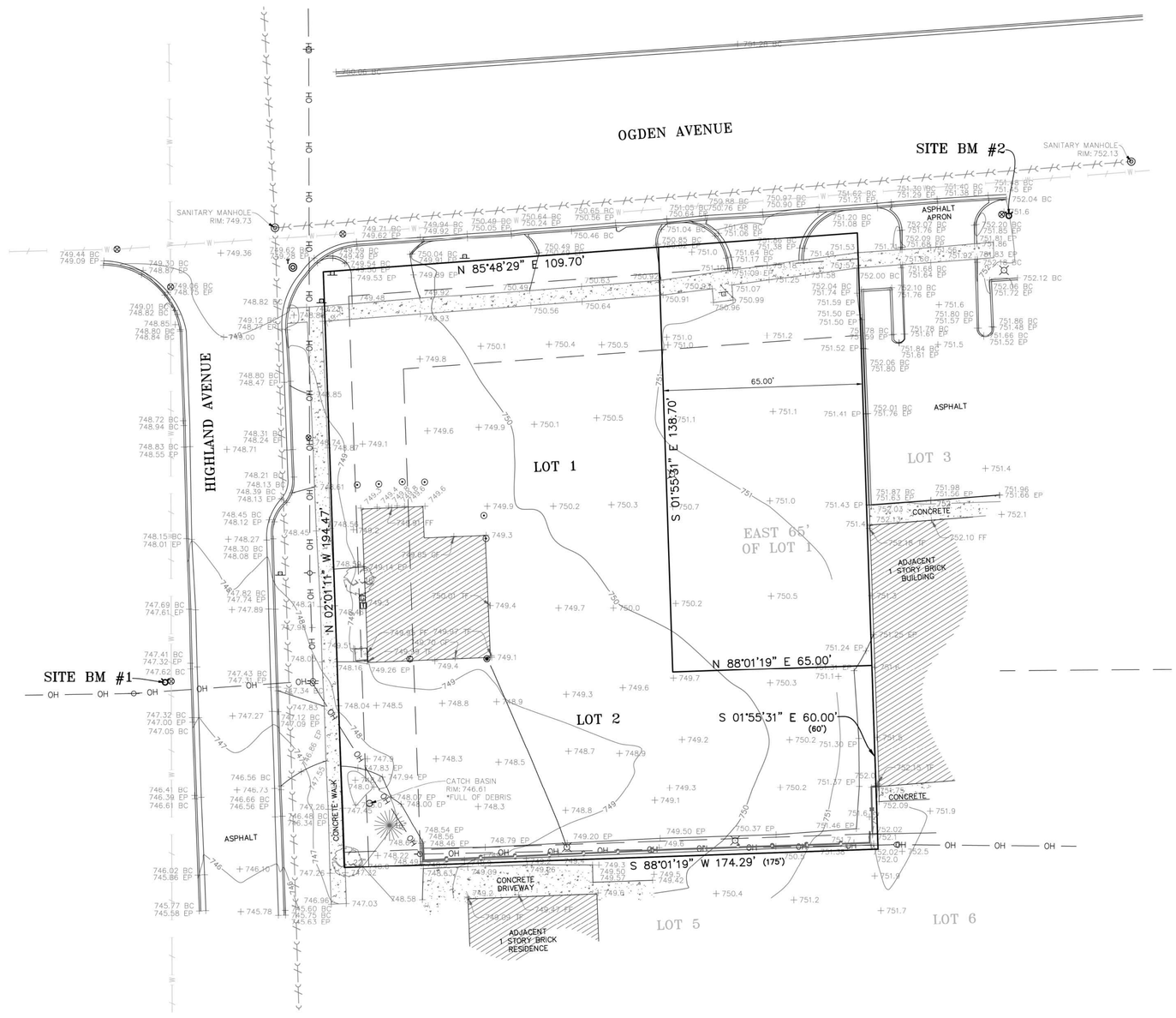
G:\PROJECTS\935 Ogden LLC\W21046.00 Portage Plaza 935 Ogden Ave Downers Grove\CADD\!$URVEY\W20146 EAST 65 PLAT.dwg Updated by: cbacani 3/18/2021

PARCEL 1:
LOT 1 (EXCEPT THE EASTERLY 65.0 FEET THEREOF) IN KNIPPEN'S SUBDIVISION OF LOT 8 OF LINDLEY'S ADDITION TO DOWNERS GROVE, BEING A SUBDIVISION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 38 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT OF SAID KNIPPEN'S SUBDIVISION RECORDED APRIL 21, 1922 AS DOCUMENT 155351 IN DUPAGE COUNTY, ILLINOIS.

PARCEL 2:
LOT 2 IN KNIPPEN'S SUBDIVISION OF LOT 8 OF LINDLEY'S ADDITION TO DOWNERS GROVE, BEING A SUBDIVISION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 38 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT OF SAID KNIPPEN'S SUBDIVISION RECORDED APRIL 21, 1922 AS DOCUMENT 155351 IN DUPAGE COUNTY, ILLINOIS.

P.I.N.: 09-05-306-001 AND 09-05-306-003

COMMONLY KNOWN AS: 935 OGDEN AVENUE, DOWNERS GROVE, ILLINOIS



SITE BENCHMARKS

SITE BENCHMARK (BM) #1
SOUTHWEST BONNET BOLT ON A FIRE HYDRANT LOCATED AT THE WEST SIDE OF HIGHLAND AVENUE APPROXIMATELY 66' WEST OF THE BRICK BUILDING.

ELEV: 748.84 (NAVD 88)

SITE BENCHMARK (BM) #2
SOUTHEAST BONNET BOLT ON A FIRE HYDRANT LOCATED AT THE SOUTH SIDE OF OGDEN AVENUE APPROXIMATELY 250' EAST OF THE INTERSECTION OF OGDEN AVEN AVENUE AND HIGHLAND AVENUE.

ELEV: 753.52 (NAVD 88)

0 20' 40'
SCALE: 1"=20'

LEGEND

- = EX. PROPERTY LINE
- = EX. LOT LINE
- = EX. EASEMENT LINE
- = EX. BUILDING LINE
- = EX. CENTER LINE
- = EX. SANITARY LINE
- = EX. STORM LINE
- = EX. WATER LINE
- OH = EX. OVERHEAD WIRE
- = EX. CHAIN-LINK FENCE
- = EX. WOOD FENCE
- = EX. CONCRETE CURB & GUTTER
- = EX. TREE/BRUSH LINE
- 780 = EX. 1 FOOT CONTOURS
- = FOUND IRON PIPE OR ROD
- = EX. ELECTRICAL METER
- = EX. GAS METER
- = EX. WATER METER
- = EX. AIR CONDITIONING UNIT
- = EX. CATCH BASIN
- = EX. STORM MANHOLE
- = EX. INLET
- = EX. SANITARY MANHOLE
- = EX. FIRE HYDRANT/AUX. VALVE
- = EX. VALVE BOX
- TV = EX. CABLE TV VAULT
- = EX. SIGN
- = EX. ELECTRIC PEDESTAL
- = EX. UTILITY PEDESTAL
- = EX. TELEPHONE MANHOLE
- = EX. TELEPHONE PEDESTAL
- = EX. CABLE TV PEDESTAL
- = EX. UTILITY POLE
- = EX. GUY WIRE
- = EX. SIGN
- = EX. CONIFEROUS TREE
- = EX. DECIDUOUS TREE

ABBREVIATIONS

A	ARC LENGTH
B.S.L.	BUILDING SETBACK LINE
CH	CHORD
CONC.	CONCRETE
DOC.	DOCUMENT
E	EAST
FIP	FOUND IRON PIPE
FIR	FOUND IRON ROD
INV.	INVERT
N	NORTH
R	RADIUS
R.C.P	REINFORCED CONCRETE PIPE
R.O.W.	RIGHT OF WAY
S	SOUTH
T/PIPE	TOP OF PIPE
W	WEST
(XXX.XX)	RECORD INFORMATION
XXX.XX	MEASURED INFORMATION

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

ENGINEERING RESOURCE ASSOCIATES
3570 I WEST AVENUE, SUITE 150
WARRENVILLE, ILLINOIS 60555
PHONE (630) 393-3060
FAX (630) 393-3155
www.engineeringrsc.com

935 OGDEN LLC
2777 FINLEY RD, SUITE 12, DOWNERS GROVE, IL 60515
(630) 850-0500

RETAIL PLAZA
935 OGDEN AVENUE, DOWNERS GROVE, IL 60515
PROJECT

DESCRIPTION:	DATE
05/18/2021 KF PER VILLAGE COMMENTS	04-07-2021

PROJECT #	W21046.00
DESIGNED BY	KF
DRAWN BY	KF
CHECKED BY	NV

EXISTING CONDITIONS PLAN

C-3.0
SHEET

G:\PROJECTS\935 Ogden LLC\W21046.00 Portage Plaza 935 Ogden Ave Downers Grove\CADD\SHEETS\W21046.00 935 Ogden Ave.dwg

IMPERVIOUS DATA TABLE

EXISTING IMPERVIOUS		PROPOSED IMPERVIOUS	
BUILDING:	1,795 S.F.	BUILDING:	6,479 S.F.
SIDEWALK:	897 S.F.	SIDEWALK:	1,146 S.F.
ASPHALT:	28,816 S.F.	ASPHALT:	20,536 S.F.
CONCRETE:	15 S.F.	CONCRETE:	520 S.F.
	TOTAL: 31,523 S.F.		TOTAL: 28,681 S.F.

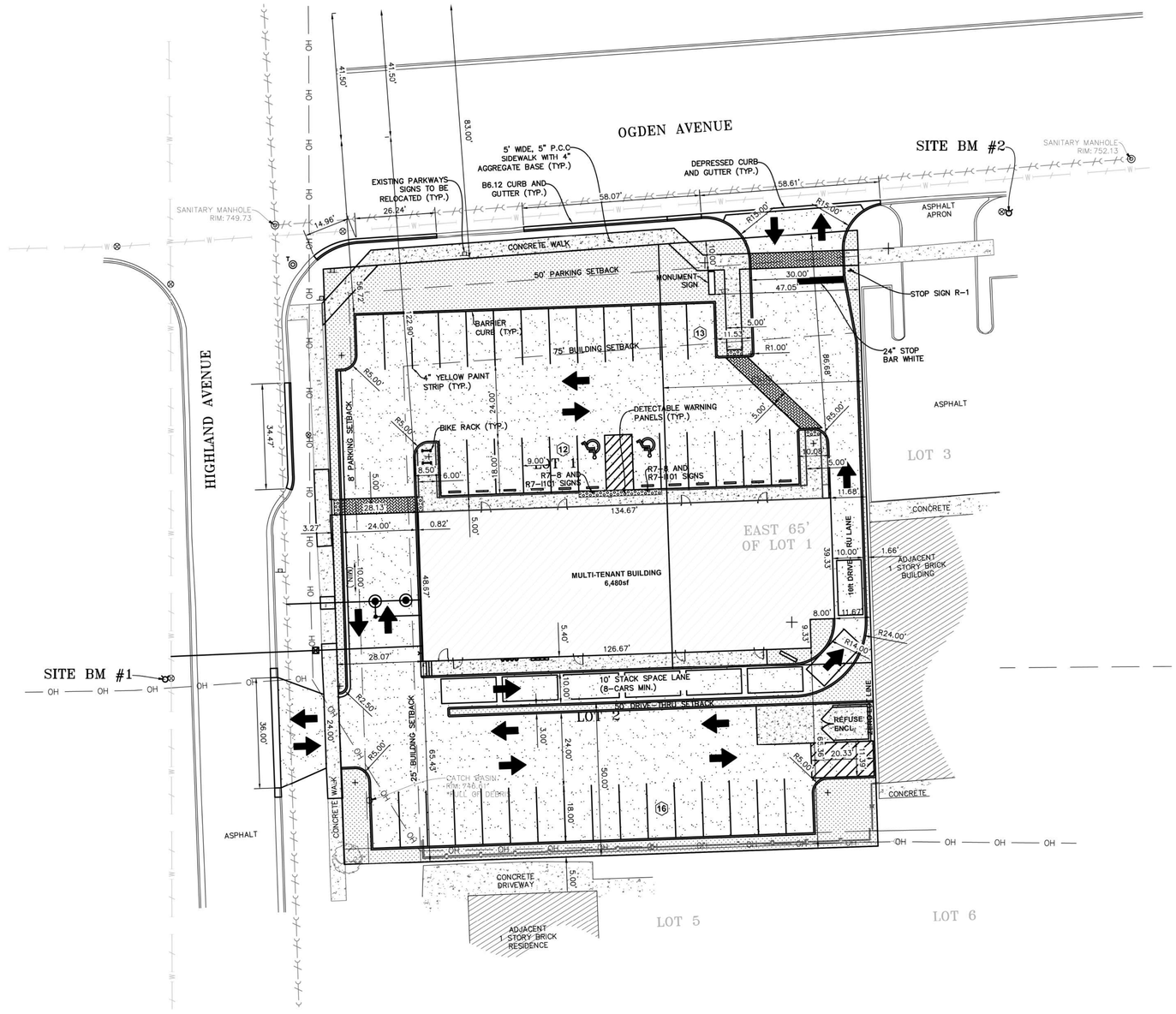
NET NEW IMPERVIOUS AREA = 28,681 S.F. – 31,523 S.F. = –2,842 S.F.

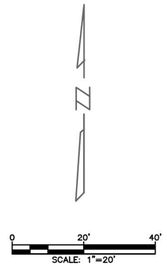
SINCE NET NEW IMPERVIOUS AREA IS LESS THAN 2,500 SQ. FT. IN AGGREGATE SINCE APRIL 23, 2013 PCBMPS ARE NOT REQUIRED.

SINCE NET NEW IMPERVIOUS AREA IS LESS THAN 25,000 SQ. FT. IN AGGREGATE SINCE FEBRUARY 15, 1992 SITE RUNOFF STORAGE IS NOT REQUIRED.

LEGEND:

- P.C.C. PAVEMENT (SEE DETAIL)
- BITUMINOUS PAVEMENT (SEE DETAIL)
- PAVERS (SEE DETAIL)
- OPEN SPACE





NOTES:

1. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD. THE CONTRACTOR WILL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. COORDINATE WITH ARCHITECTURAL PLANS, GRADING PLANS, UTILITY PLANS, & ALL CONSTRUCTION DETAILS.
3. ALL WORK AND OPERATIONS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
4. LAYOUT OF ALL NEW PAVING SHALL BE SMOOTH AND CONTINUOUS, DEFLECTION IN ALIGNMENT OR ABRUPT CHANGES WILL NOT BE ACCEPTED. ENGINEER SHALL REVIEW STAKED LAYOUT AND FRAMEWORK PRIOR TO PAVING OPERATIONS.
5. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES ON WHICH THE WORK IS BEING DONE CLEAR OF RUBBISH AND DEBRIS.
6. THE CONTRACTOR WILL NOT INTERFERE WITH USE OF ADJACENT BUILDINGS, PARKING LOTS, STREETS, OR ALLEYS WITHOUT PRIOR COORDINATION WITH THE OWNER, IDOT, AND THE VILLAGE OF DOWNER'S GROVE.
7. MEET THE LINE AND GRADE OF NEW PAVEMENT AND/OR LAWN AND PLANTING AREAS WITH THE LINE AND GRADE OF THE EXISTING PAVEMENT AND/OR LAWN AND PLANTING AREAS.
8. SEE DETAIL SHEETS FOR MATERIAL TYPE, AND INSTALLATION PROCEDURES.
9. ALL SIGNAGE TO BE PERMITTED SEPARATELY

MINIMUM OF 48 HOURS ADVANCE NOTICE REQUIRED

It's smart It's free It's the law

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JULIE ILLINOIS ONE-CALL SYSTEM

Call before you dig 800.892.0123

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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RETAIL PLAZA
935 OGDEN AVENUE, DOWNERS GROVE, IL 60515
PROJECT

DESCRIPTION:
05/18/2021 KF PER VILLAGE COMMENTS

DATE	: 04-07-2021
PROJECT #	: W21046.00
DESIGNED BY	: KF
DRAWN BY	: KF
CHECKED BY	: NV

GEOMETRY PLAN

C-5.0
SHEET

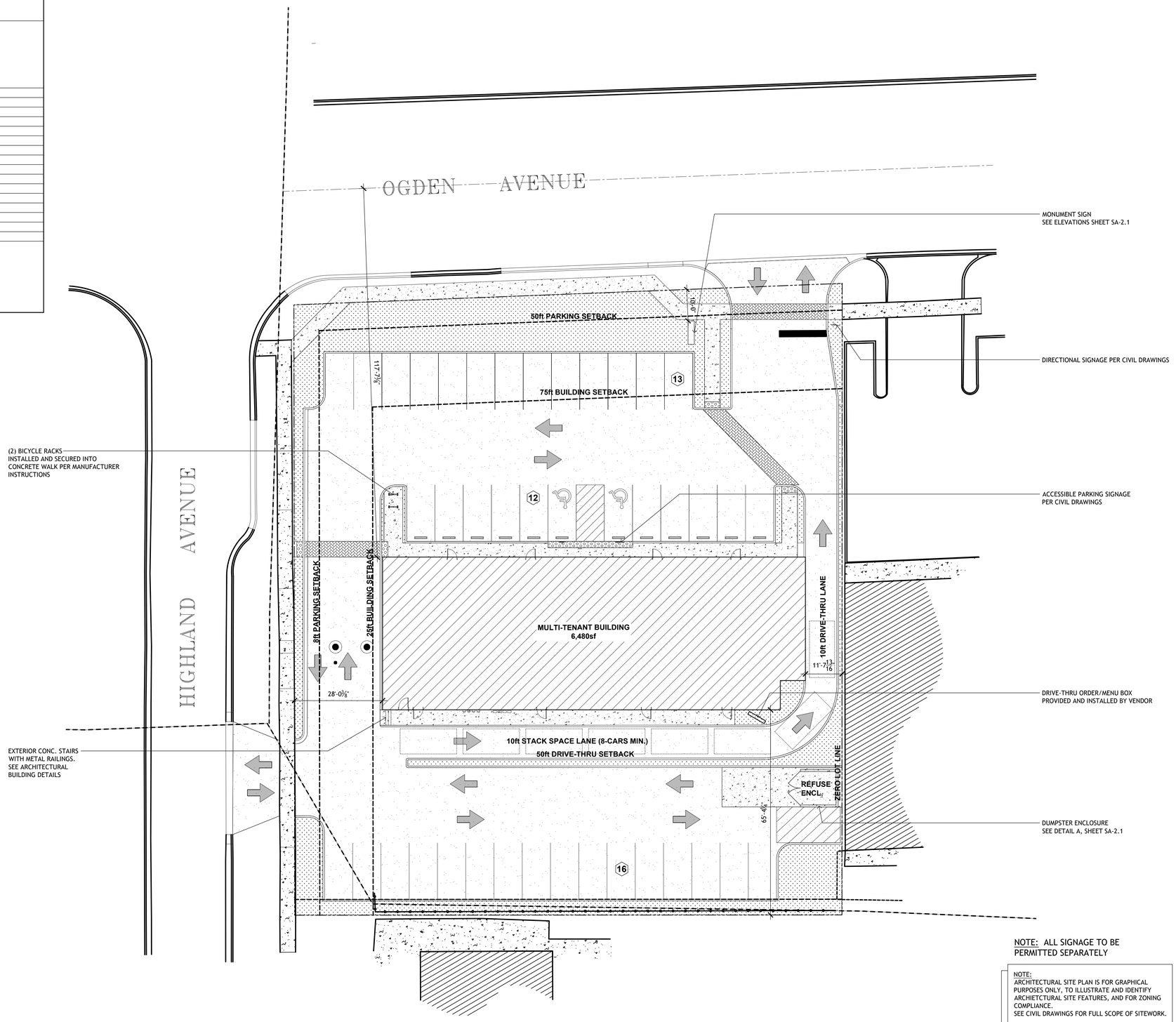
G:\PROJECTS\935 Ogden LLC\W21046.00 Portage Plaza 935 Ogden Ave Downers Grove\CAD0\SHEET\W21046.00 935 Ogden Ave.dwg

ZONING ANALYSIS

Project Name:	**New Retail Development**				
Address:	935 Ogden Ave. 931 Ogden Ave.				
PIN(s):	09-05-306-001, 09-05-306-003 09-05-306-002				
Zoning District:	B3 - General Services and Highway Business District.				
Existing Use:	Retail/Commercial Building and Parking				
Proposed Use:	Retail/Commercial Building and Parking				
Petition Type:	Planned Unit Development - Site Plan Review				
Deviations:	Special Use - Drive through				
Requirement	Factor	Required	Proposed/Existing	Meets Req.?	Difference
District Area	Minimum	4 acres	N/A	N/A	N/A
Lot Area	Minimum	Not Required	34,514 sq. ft.	N/A	N/A
Building Coverage	Maximum	Not Restricted by ordinance	N/A	N/A	N/A
Ogden Ave. (< row)	Minimum	75' buildings, 50' canopies/other	117'-7"	YES	
Highland Ave (yard)	Minimum	25'	28ft	YES	
Rear Yard	Minimum	5' (adjacent to R4) + 1' each >20'H	65'-4"	YES	
Int. Side Yard		Not Required	N/A	N/A	N/A
Height	Maximum	60'	22'-6"	YES	
Open Space	Minimum	10% of lot	4,866 sq ft	YES	
FAR	Maximum	0.75	0.188	YES	
Parking	Minimum	CARS: Mixed use = 4 per 1,000sf	41	YES	
	Minimum	BICYCLE: 2	2	YES	
Donations*		Not Required	N/A	N/A	N/A

Remarks:

N/A



ARCHITECTURAL SITE PLAN
SCALE: 1/16" = 1'-0"

NORTH

GRAPHIC SCALE: 1/16" = 1'-0"
0 6' 12' 24'

PRELIMINARY NOT FOR CONSTRUCTION

SUBMITTAL HISTORY:	REV:
• APR. 29, 2021 P.C. SUBMITTAL	
• MAY 18, 2021 P.C. RE-SUBMITTAL	

cj architects, inc.
Darien, IL
773.383.6556
DESIGN FIRM PROF. REG.#: 184.005807

NEW MULTI-TENANT BUILDING
LANDLORD WORK - SITE/SHELL
935 OGDEN AVE.
DOWNERS GROVE, IL 60561

PROJECT CODE: PPI-20.01

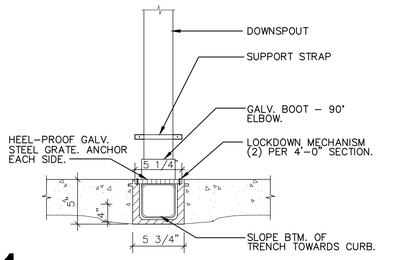
SHEET NAME

ARCHITECTURAL SITE PLAN

PLAN COMMISSION

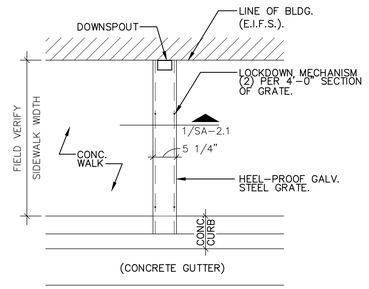
SA-1.1

05.18.2021



1 DOWNSPOUT/TRENCH SYSTEM

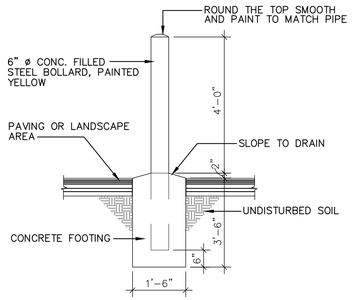
(ALTERNATE – VERIFY WITH CITY FOR APPROVAL)



3 DOWNSPOUT/TRENCH SYSTEM

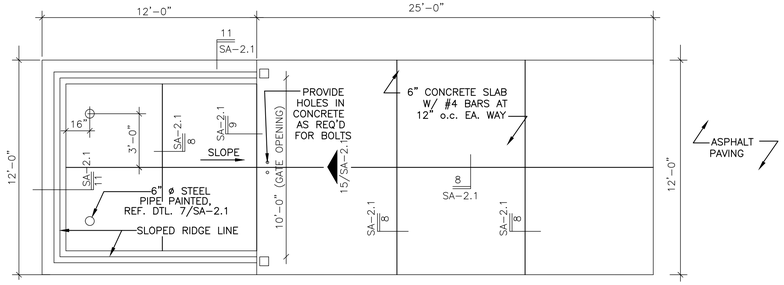
(ALTERNATE – VERIFY WITH CITY FOR APPROVAL)

3/4" = 1'–0"



7 CONC./STEEL PIPE BOLLARD

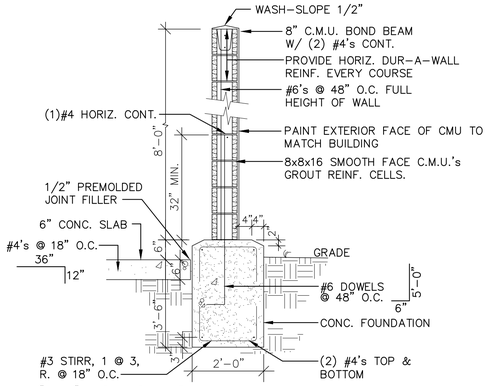
1/2" = 1'–0"



NOTE:
SIZE TRASH ENCLOSURE TO ACCOMMODATE ACTUAL DUMPSTER(S) AND ANY REQUIREMENTS OF LOCAL ORDINANCES AND CODES.

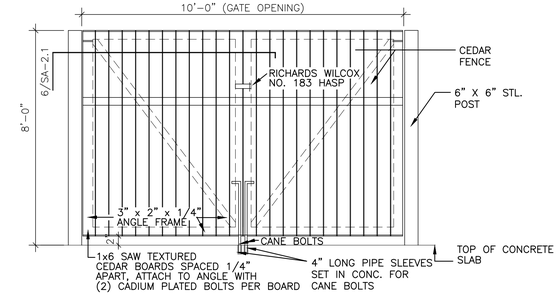
A TRASH ENCLOSURE

1/4" = 1'–0"



11 SECTION THRU WALL AT TRASH ENCLOSURE

1/2" = 1'–0"



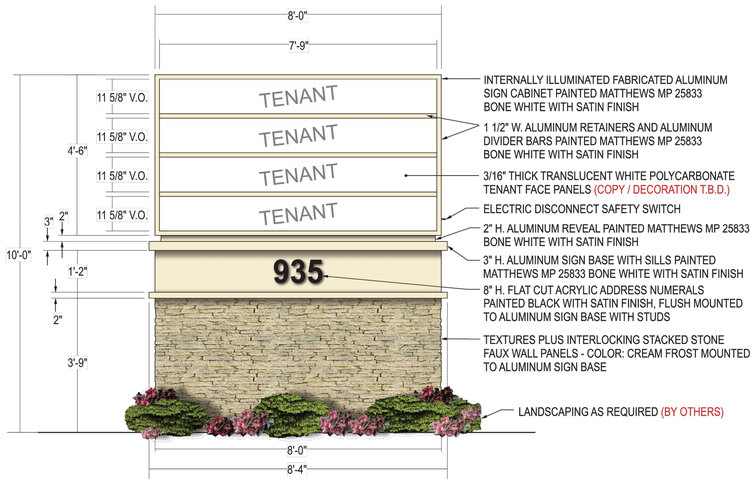
15 GATE ELEVATION AT TRASH ENCLOSURE

SCALE: 3/8" 1'–0"

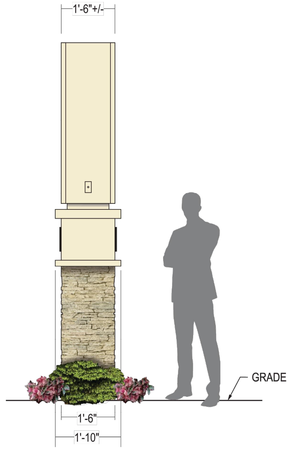
NOTE: ALL SIGNAGE TO BE PERMITTED SEPARATELY

A MULTI-TENANT MONUMENT SIGN

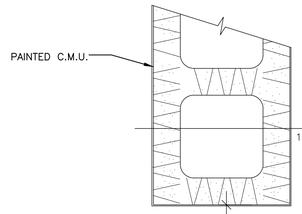
SCALE: 1/2" = 1'-0" SIGN AREA: 36 SQ. FT.

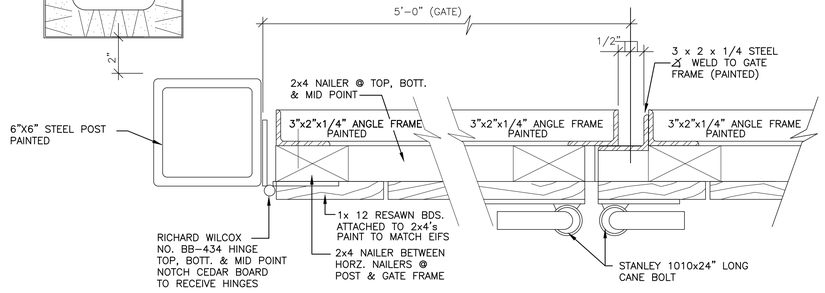


FRONT VIEW



SIDE VIEW

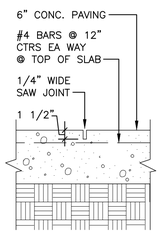




ALL EXPOSED EDGES OF GATE, WOOD AND STEEL IS TO BE PAINTED TOP, BOTTOM AND ALL EDGES.

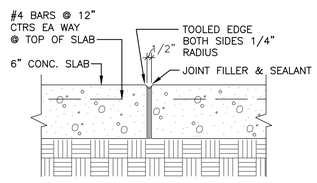
6 PLAN OF GATES AT TRASH CONTAINER ENCLOSURE

SCALE: 3" = 1'–0"



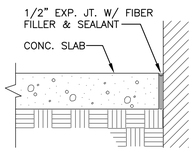
8 CONTROL JOINT AT TRASH ENCLOSURE

1 1/2" = 1'–0"



9 EXPANSION JOINT AT TRASH ENCLOSURE

1 1/2" = 1'–0"



10 ISOLATION JOINT AT BUILDING

1 1/2" = 1'–0"

iBRAND VISUAL
333 Charles Court • Suite 101
West Chicago, IL 60185
(630) 755 5950
info@brandvisual.com

Customer: Realty Clear, Inc.
Job #: 213424
Job Name: Retail Plaza
Address: 935 Ogden Ave. Downers Grove, IL 60515

Scale: As noted above
Sales Rep.: Bo Patel
Drawn By: TV

Original: 4-22-21 TV
Rev. 1: 4-26-21 TV

Drawing File Path: A:\Art Work\R\Realty Clear, Inc\Retail Plaza - Downers Grove, IL\CorelDraw files\Realty Clear, Inc. 213424 R1.cdr

Page 2

PRELIMINARY NOT FOR CONSTRUCTION

SUBMITTAL HISTORY:	REV:
• APR. 29, 2021 P.C. SUBMITTAL	
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NEW MULTI-TENANT BUILDING
LANDLORD WORK - SITE/SHELL
935 OGDEN AVE.
DOWNERS GROVE, IL 60561
PROJECT CODE: PPI-20.01

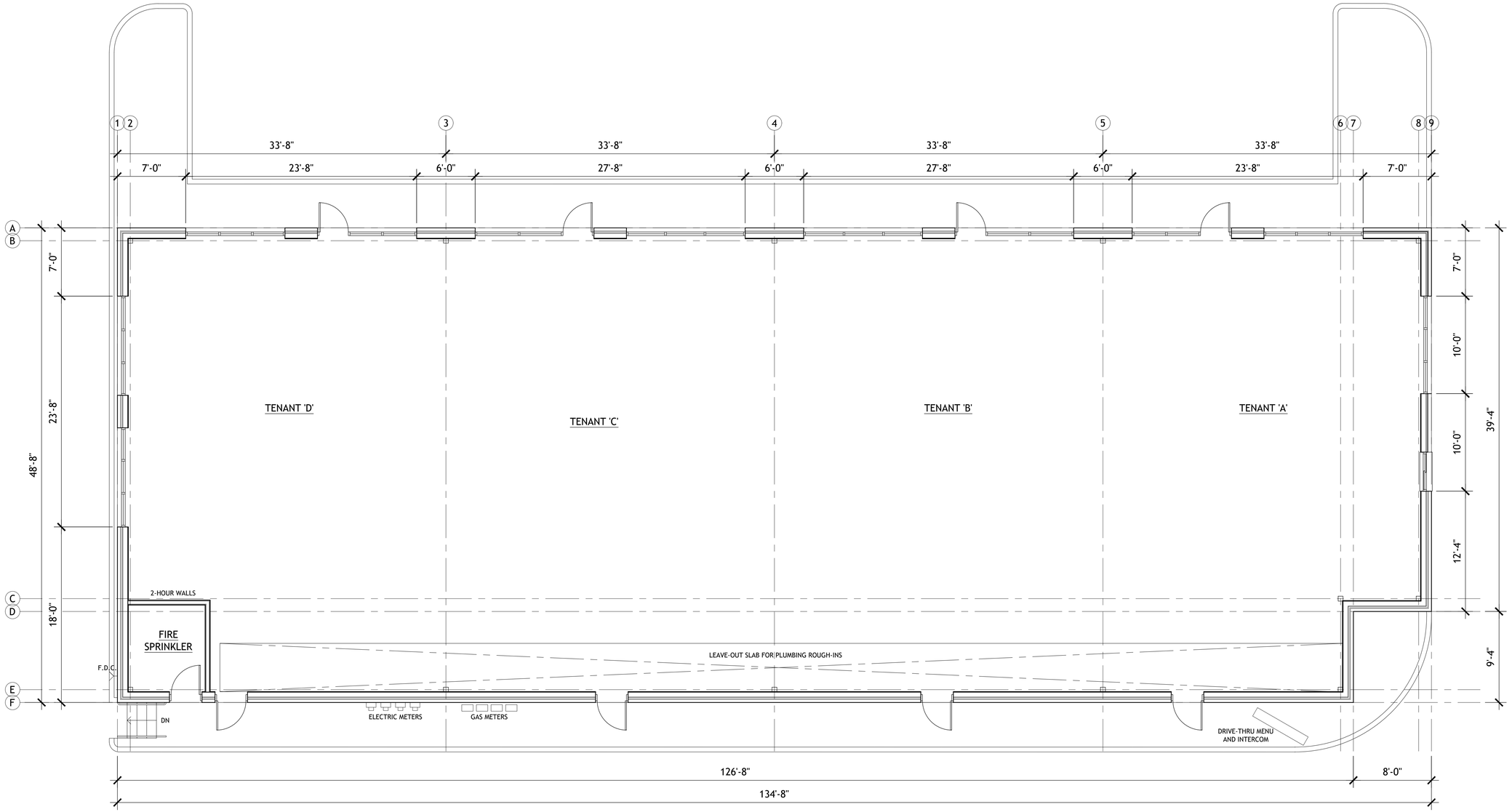
SHEET NAME

ARCHITECTURAL SITE DETAILS

PLAN COMMISSION

SA-2.1

05.18.2021



FLOOR PLAN
SCALE: 3/16" = 1'-0"

NORTH

GRAPHIC SCALE: 3/16" = 1'-0"
0 2' 4' 8'

PRELIMINARY NOT FOR CONSTRUCTION

SUBMITTAL HISTORY:	REV:
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LANDLORD WORK - SITE/SHELL
935 OGDEN AVE.
DOWNERS GROVE, IL 60561

PROJECT CODE: PPI:20.01

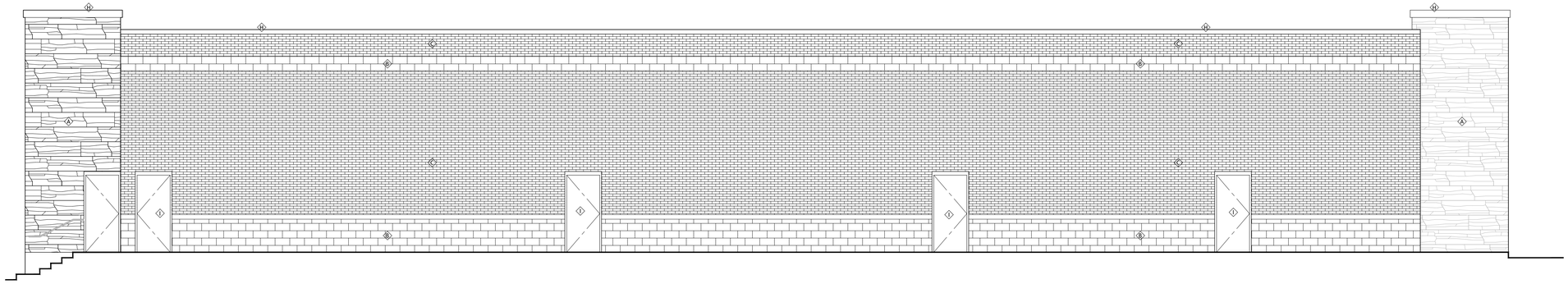
SHEET NAME

FLOOR PLAN

PLAN COMMISSION

A-1.1

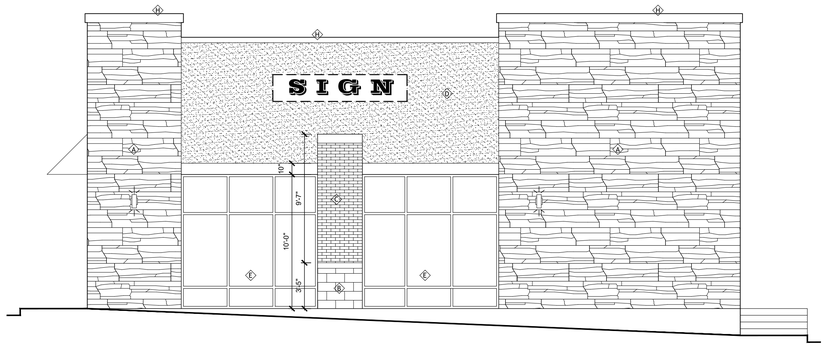
05.18.2021



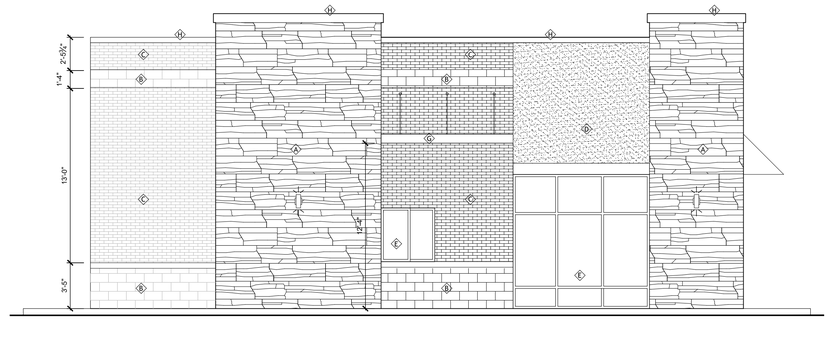
PROPOSED ELEVATION - SOUTH (REAR) 4
SCALE: 3/16" = 1'-0"

EXTERIOR MATERIAL AND FINISH SCHEDULE:		
MARK	MATERIAL	COLOR
A	FIELD STONE	RED
B	SPLIT-FACE CMU W/ STONE SILL	GRAY
C	BRICK VENEER W/ STONE CAP	BEIGE
D	SYNTHETIC STUCCO (E.I.F.S.)	TAN
E	ALUMINUM STOREFRONT	DARK BRONZE
F	FABRIC AWNING	PREFIN.
G	METAL CANOPY	BLACK
H	METAL COPING CAP	COPPER
I	STEEL SERVICE DOOR	BEIGE

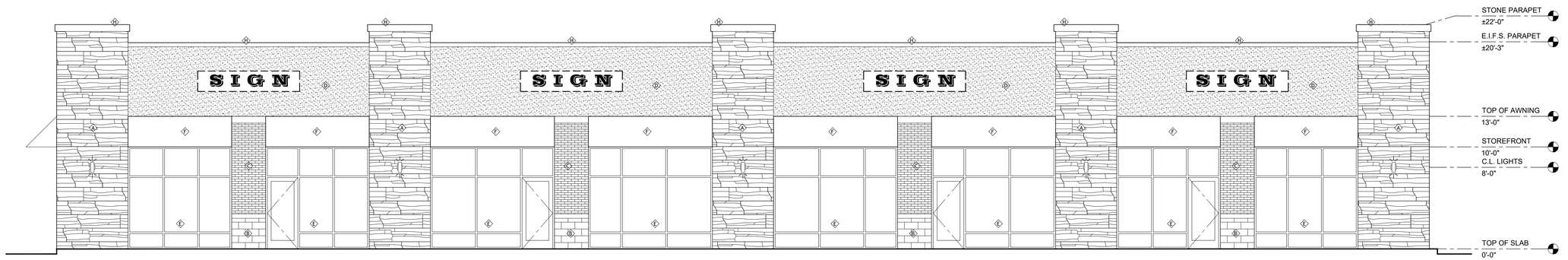
NOTE:
ALL SIGNAGE TO BE PERMITTED SEPARATELY



PROPOSED ELEVATION - WEST SIDE (FACING HIGHLAND AVE.) 3
SCALE: 3/16" = 1'-0"



PROPOSED ELEVATION - EAST SIDE 2
SCALE: 3/16" = 1'-0"



PROPOSED ELEVATION - NORTH (FACING OGDEN) 1
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16" = 1'-0"
0 2' 4' 8'

PRELIMINARY NOT FOR CONSTRUCTION

SUBMITTAL HISTORY:	REV:
• APR. 29, 2021 P.C. SUBMITTAL	
• MAY 18, 2021 P.C. RE-SUBMITTAL	

cj architects, inc.
Darien, IL
773.383.6556
DESIGN FIRM PROF. REG.#: 184.005807

NEW MULTI-TENANT BUILDING
LANDLORD WORK - SITE/SHELL
935 OGDEN AVE.
DOWNERS GROVE, IL 60561
PROJECT CODE: PPI-20.01

SHEET NAME

EXTERIOR ELEVATIONS

PLAN COMMISSION

A-2.1

05.18.2021

PROPOSED FACADE RENDERING - NORTHEAST CORNER LOOKING IN (2)

PROPOSED FACADE RENDERING - NORTHWEST CORNER LOOKING IN (1)

PRELIMINARY
NOT FOR
CONSTRUCTION

SUBMITTAL HISTORY:	REV:
• APR. 29, 2021 P.C. SUBMITTAL	
• MAY 18, 2021 P.C. RE-SUBMITTAL	

cj architects, inc.
Darien, IL
773.383.6556
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NEW MULTI-TENANT BUILDING
LANDLORD WORK - SITE/SHELL
935 OGDEN AVE.
DOWNERS GROVE, IL 60561

PROJECT CODE: PPI-20.01

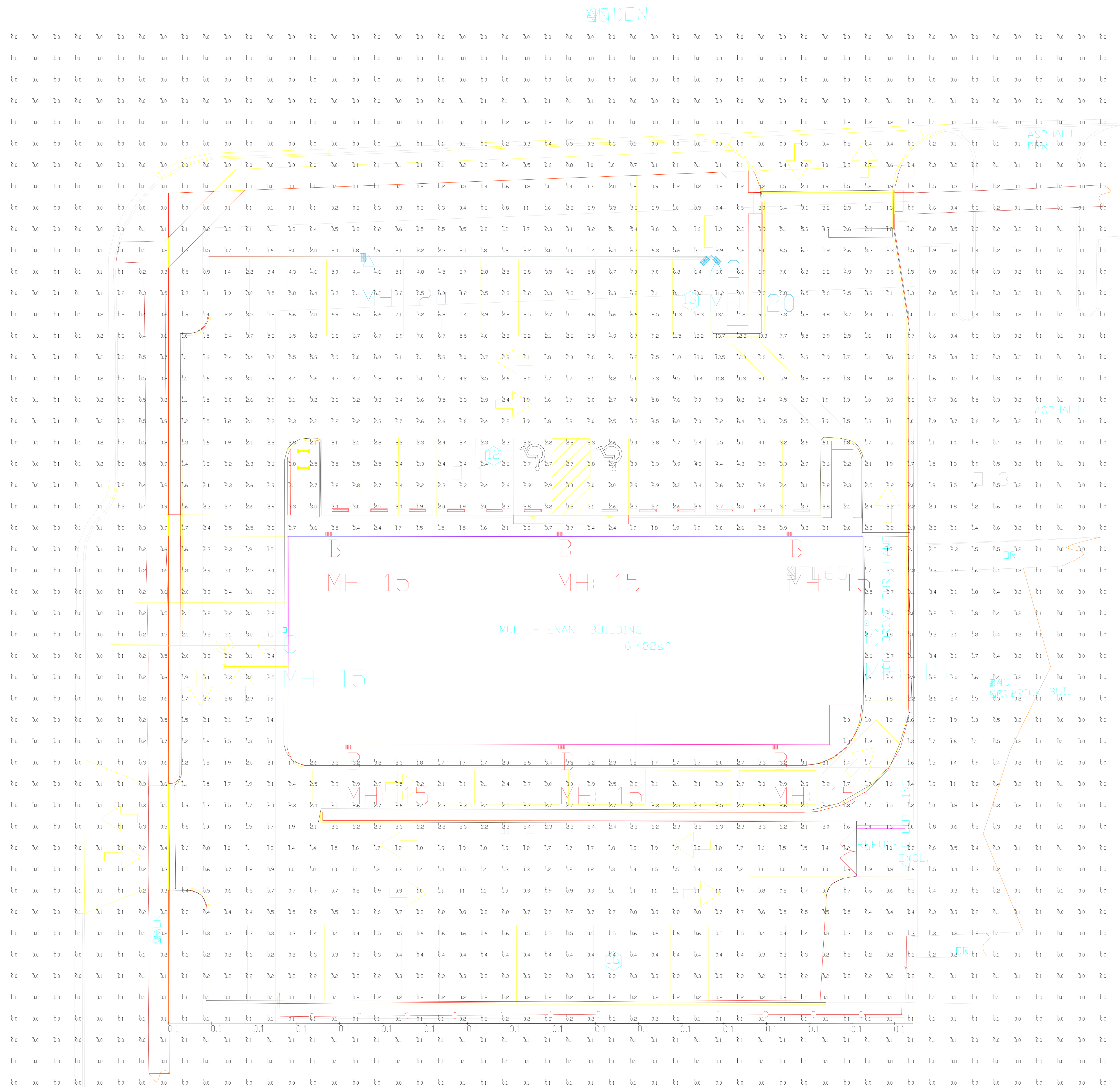
SHEET NAME

EXTERIOR
RENDERINGS

PLAN COMMISSION

A-2.2

05.18.2021



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL POINTS AT GRADE 5X5	Illuminance	Fc	1.21	13.7	0.0	N.A.	N.A.
SOUTHERN PROPERTY LINE AT GRAD	Illuminance	Fc	0.10	0.1	0.1	1.00	1.00
PARKING SUMMARY	Illuminance	Fc	2.58	13.5	0.1	25.80	135.00

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	LLD	UDF	LLF	Arr. Lum. Lumens	Arr. Watts
	1	A	SINGLE	MRS-LED-21L-SIL-FT-40-70CRI-IL-SINGLE-20'MH	1.000	1.000	0.940	13567	165
	1	A2	2 @ 90 DEGREES	MRS-LED-21L-SIL-FT-40-70CRI-IL-D90-20'MH	1.000	1.000	0.940	27134	330
	6	B	SINGLE	XWM-FT-LED-06L-40-15'MH	1.000	1.000	0.980	6057	44.7
	2	C	SINGLE	XWM-3-LED-06L-40-15'MH	1.000	1.000	0.980	6133	44.7

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

Total Project Watts_1
Total Watts = 852.6001

10000 ALLIANCE RD. CINCINNATI, OHIO 45242 USA
(513) 793-3200 * FAX (513) 793-6023

LIGHTING PROPOSAL LO-153412-2

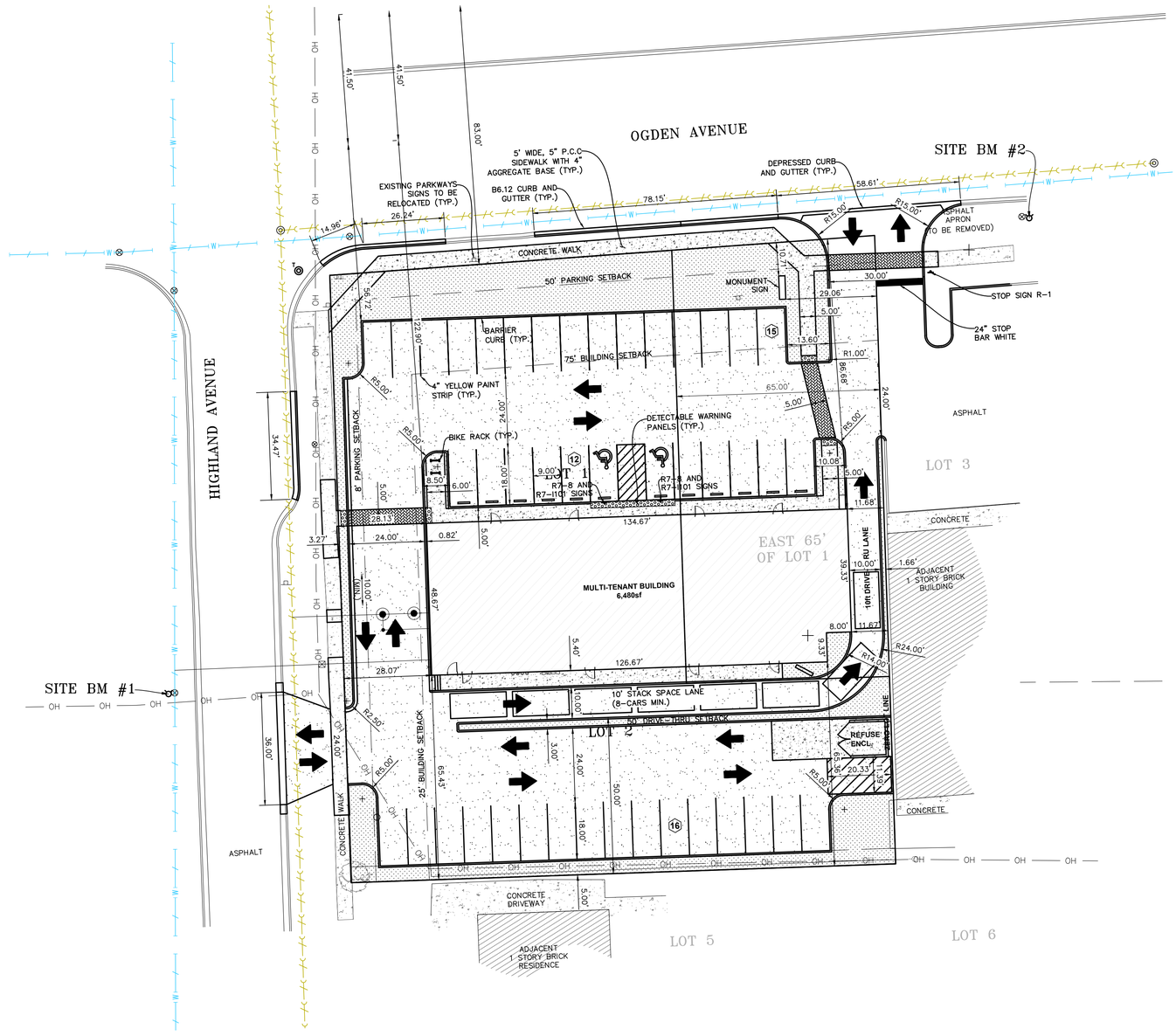
RETAIL PLAZA
935 OGDEN AVE
DOWNERS GROVE, IL

BY:GEF | DATE:3/11/21 | REV:5/12/21 | SHEET 1 OF 1

SCALE: 1"=16' 0 16

LEGEND:

- P.C.C. PAVEMENT (SEE DETAIL)
- BITUMINOUS PAVEMENT (SEE DETAIL)
- PAVERS (SEE DETAIL)
- OPEN SPACE



ENGINEERING RESOURCE ASSOCIATES
35701 WEST AVENUE, SUITE 150
WARRENVILLE, ILLINOIS 60555
PHONE (630) 393-3060
FAX (630) 393-3155
www.engineeringarc.com

935 OGDEN LLC
2777 FINLEY RD, SUITE 12, DOWNERS GROVE, IL 60515
(630) 850-0500

RETAIL PLAZA
935 OGDEN AVENUE, DOWNERS GROVE, IL 60515
PROJECT

DESCRIPTION:
05/12/2021 KF PER VILLAGE COMMENTS

DATE	: 04-07-2021
PROJECT #	: W21046.00
DESIGNED BY	: KF
DRAWN BY	: KF
CHECKED BY	: NV

PRELIMINARY CROSS-ACCESS AGREEMENT LAYOUT

1.0
SHEET

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

G:\PROJECTS\935 Ogden LLC\W21046.00 Portage Plaza 935 Ogden Ave Downers Grove\CADD\Temp\W21046.00 935 Ogden Ave.dwg

Traffic Impact Study

935 Ogden Avenue

Downers Grove, Illinois

April 27, 2021

Prepared for:

Mr. Vick Mehta

Prepared by:
Bill Grieve, P.E., PTOE
Senior Transportation Engineer

GHA

Traffic Impact Study

GHA GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS
625 Forest Edge Drive, Vernon Hills, IL 60061
TEL 847.478.9700 ■ FAX 847.478.9701
www.gha-engineers.com

To: **Mr. Vick Mehta**
935 Ogden LLC

From: Bill Grieve, P.E., PTOE
Senior Transportation Engineer

Justin Opitz, AICP
Transportation Planner

Date: April 27, 2021

Subject: Proposed Retail Center Development
935 Ogden Avenue (US 34)
Downers Grove, Illinois

Part I. Introduction and Project Context

Gewalt Hamilton Associates, Inc. (GHA) has conducted a Traffic Impact Study (TIS) for the proposed retail center development located at 935 Ogden Avenue (US 34) in Downers Grove, Illinois. The site is located on the southeast corner of the Ogden Avenue and Highland Avenue intersection. The site currently contains a commercial building with two full access drives provided on Highland Avenue and three full access drives provided on Ogden Avenue.

As currently proposed, the vacant commercial building will be razed and a 6,482 square-foot multi-tenant retail building with a drive-through wrapping around the south and east sides of the building would be constructed. The drive-through provides queueing for eight vehicles and access to the site is proposed via one full access drive on Highland Avenue and one full access drive on Ogden Avenue. The development will be served by 41 parking spaces, including 2 accessible spaces. New sidewalk and crosswalks will be installed at each access drive and at pertinent crossing locations within the parking lot to facilitate pedestrian connections from the adjacent sidewalk and the parking lot to the entrance of the building.

The following provides a summary of site traffic characteristics and the analysis conducted, which includes an analysis of the development's impact on the surrounding roadway network and assessment of on-site circulation. *Exhibits* and *Appendices* referenced are located in the Technical Addendum at the end of this document.

Briefly summarizing, we believe the proposed retail center development traffic can be successfully accommodated. Reasons include:

- The adjacent intersections experience nominal increases in delay as a result of the expected development traffic.
- The parking supply is anticipated to readily meet patron and employee demands.
- Adequate drive-through stacking will be provided for the business that occupies the eastmost tenant space (drive-through tenant space), so as to not impact on-site or off-site circulation.

Part II. Background Information

Site Location Map and Roadway Inventory

Exhibit 1 provides a location map, ***Exhibit 2*** illustrates the existing traffic operations in the site vicinity, and ***Appendix A*** provides a photo inventory of the site vicinity. Pertinent comments to the adjacent roadways include:

Ogden Avenue (US Route 34)

- Ogden Avenue is an east/west Principal Arterial roadway under the jurisdiction of the Illinois Department of Transportation (IDOT). It is designated as US Route 34 but is not classified as a Strategic Regional Arterial (SRA) route. Thus, property access availability tends to be more lenient.
- Ogden Avenue generally provides a five-lane cross-section with two travel lanes in each direction and a shared center bi-directional turn lane.
- The current site access drives along Ogden Avenue function as a full-access drives. Vehicles are permitted to turn left into and out of the site.

Main Street

- Main Street is a north/south Minor Arterial roadway under the jurisdiction of DuPage County Division of Transportation north of Ogden Avenue and switches jurisdiction to the Village of Downers Grove south of Ogden Avenue.
- Main Street generally provides a four-lane cross-section with two travel lanes in each direction.
- There are no site access drives along Main Street.

Highland Avenue

- Highland Avenue is a north/south local roadway under the jurisdiction of the Village of Downers Grove.
- Highland Avenue supports and urban cross-section with one travel lane in each direction.
- The current site access drives along Highland Avenue function as a full-access drives. Vehicles are permitted to turn left into and out of the site.
- Left turns from Highland Avenue onto Ogden Avenue in both the northbound and southbound direction are restricted via signage. Similarly, left turns from Ogden Avenue onto Highland Avenue in both the eastbound and westbound direction are restricted via signage.

Pedestrian Facilities

- Sidewalks are provided along both sides of all roadways within the site vicinity.
- Pedestrian accommodations (ie. crosswalks and/or pedestrian signals) are provided at the Ogden Avenue and Main Street intersection. Additionally, crosswalks are provided on northbound/southbound approaches at the Ogden Avenue and Highland Avenue intersection.
- Pace operates bus route 834 (Joliet-Downers Grove) along Main Street within the site vicinity. Stops are posted just north and south of Ogden Avenue.
- Pace also operates bus route 722 (Ogden Avenue) along Main Street (north of Ogden Avenue) and Ogden Avenue (west of Main Street) with stops along Main Street just north of Ogden Avenue and along Ogden Avenue just west of Main Street.
- Pre-pandemic, Pace operated bus route 461 (North Downers Grove) along Main Street, however since the pandemic began this route has been placed on hold.

Surrounding Land Uses

- Ogden Avenue predominately consist of commercial uses within the site area. Some stores are vacant such as the previous Sears Hardware store just east of the site.
- Main Street generally contains residential land uses on both sides, with the Downers Grove North High School being located southwest of the intersection at Ogden Avenue and Main Street.
- Highland Avenue predominately consists of residential land uses south of the site area.

Existing Traffic

Exhibit 3 summarizes the existing weekday morning and evening, as well as the weekend midday peak hour traffic volumes. GHA conducted weekday morning (6:00 – 9:00 AM) peak period, weekday evening (3:00 – 6:00 PM) peak period, and weekend midday peak period (11:00 AM – 1:00 PM) traffic counts on Thursday, April 1, 2021 and on Saturday, April 3, 2021. These counts were administered at the study area intersections of Ogden Avenue and Main Street and Ogden Avenue and Highland Avenue. Based on these counts, the weekday morning peak hour occurred from 8:00 to 9:00 AM, the weekday evening peak hour occurred from 4:00 to 5:00 PM, and the weekend midday peak hour occurred from 12:00 to 1:00 PM. As can be seen, there were several illegal left turns made to/from Highland Avenue at its intersection with Ogden Avenue. ***Exhibit 3*** also provides the Annual Average Daily Traffic (AADT) along Ogden Avenue from year 2017/2019 and along Main Street from year 2016 obtained from IDOT's website www.gettingaroundillinois.com.

A summary of the traffic counts can be found in ***Appendix B***. It should be noted that traffic counts conducted during this post-pandemic time period should be compared to historical data to analyze whether the volumes have increased or decreased. If the volumes have decreased, a COVID factor (e.g., increase volumes by 20%) should be applied to ensure that the maximum impact is tested. The traffic counts conducted in 2021 were compared to historical hourly traffic count data from IDOT's database. Along Ogden Avenue for the three peak periods studied, a COVID factor was applied as traffic volumes have decreased between 18 and 25 percent. Similarly, along Main Street for the three peak periods studied, a COVID factor was applied as traffic volumes have decreased between 31 and 42 percent.

Crash Analysis

In order to evaluate and address potential safety issues at the study area intersections, crash data was obtained from the IDOT Division of Transportation Safety for the last five calendar years available, 2015 through 2019. A summary of the crash data is provided in ***Table 1*** on the following page, with the locations of the IDOT data mapped on the exhibit contained in ***Appendix C***.

Table 1: Crash Summary (2015-2019) [A]

Location	No. of Crashes	Severity [B]					Crash Type [D]						Percent During Wet/Icy Conditions
		PD	PI [C]			F	CM	RE	HO	FO	Ped	Bike	
			A	B	C								
Intersections - Crashes within 200' of intersection													
Ogden Ave & Main St	104	71	3	12	18	-	60	40	-	3	1	-	13%
Ogden Ave & Highland Ave	18	12	1	1	4	-	10	8	-	-	-	-	6%
Segments													
Along Ogden Ave between Main St and Highland Ave	3	3	-	-	-	-	-	3	-	-	-	-	0%
Along Ogden Ave east of Highland Ave	2	-	-	-	2	-	-	2	-	-	-	-	50%
Total (2015-19)	**125**	**86**	**4**	**13**	**22**	**0**	**70**	**51**	**0**	**3**	**1**	**0**	**12%**

[A] Source: IDOT Division of Transportation Safety for the 2015-2019 calendar years.
[B] PD = property damage only; PI = personal injury; F = fatality.
[C] Type A (incapacitating injury); Type B (non-incapacitating injury); Type C (possible injury).
[D] CM = cross movement/angle; RE = rear end; HO = head on; FO = fixed object; Ped = pedestrian.

As shown in Table 1, the intersection of Ogden Avenue and Main Street experienced the highest number of crashes within the study area over the five-year analyses period. There was a total of 104 crashes over the analysis period, averaging approximately 21 crashes per year. 68 percent (71 of 104) of the crashes at the Ogden Avenue and Main Street intersection involved property damage only and approximately 38 percent (40 of 104) were rear-end type collision.

The intersection of Ogden Avenue and Highland Avenue experienced the next highest number of crashes, with a total of 18 crashes, averaging between three and four per year. 67 percent (12 of 18) of the crashes at this intersection involved property damage only and 56 percent (10 of 18) of the crashes were cross-movement or angle type collisions. Additionally, there was one crash at the Ogden Avenue and Main Street intersection that involved a pedestrian during the five-year analysis period.

No-Build Traffic

Exhibit 4 summarizes the 2027 No-Build weekday morning, weekday evening, and weekend midday peak hour traffic volumes. Traffic growth in the area is a function of expected land development in the region. Future traffic volume conditions were developed for the year 2027, build-out year of the development (year 2022) plus five years. Based on a review of historical traffic volumes and the Chicago Metropolitan Agency for Planning (CMAP) 2050 projections (see ***Appendix D***), traffic volumes along Ogden Avenue west of Main Street are assumed to experience an overall annual, compounded growth rate of approximately 0.41% per year. Similarly, traffic volumes along Ogden Avenue east of Main Street are assumed to experience an overall annual, compounded growth rate of approximately 0.32% per year. The traffic volumes are Main Street both north and south of Ogden Avenue are assumed to experience an overall annual, compounded growth rate of approximately 0.21% per year.

Part III. Traffic Evaluation

Proposed Plan

Exhibit 5 presents the Site Plan as prepared by Engineering Resource Associates (ERA) dated April 7, 2021. As currently proposed, the vacant commercial building will be razed and a 6,482 square-foot multi-tenant retail building with a drive-through wrapping around the south and east sides of the building would be constructed. The drive-through provides queueing for eight vehicles and access to the site is proposed via one full access drive on Highland Avenue and one full access drive on Ogden Avenue. The development will be served by 41 parking spaces, including 2 accessible spaces. New sidewalk and crosswalks will be installed at each access drive and at pertinent crossing locations within the parking lot to facilitate pedestrian connections from the adjacent sidewalk and the parking lot to the entrance of the building.

Discussion Point. As noted previously, the site currently has three full access drives on Ogden Avenue and two full access drives on Highland Avenue. Per the ERA site plan, two drives on Ogden Avenue and one drive on Highland Avenue will be eliminated. This is an excellent example of access management strategy to promote safety and mobility for both vehicles and pedestrians.

Project Traffic Characteristics

Traffic Generations

Table 2 below tabulates the traffic generation calculations for the proposed development. Trip generation rates published by the Institute of Transportation Engineers (ITE) in the 10th Edition of the Manual Trip Generation were used to calculate the anticipated site traffic (See ***Appendix E***). Shopping Center (ITE land use code #820) was assumed for this retail center development.

Discussion Point. It should be noted that the drive-through (eastmost) tenant space, rather than a coffee shop, is expected to be occupied by a lower volume drive-through business. As such, it is probable that the morning peak hour trip generations are overstated.

Table 2: Projected Trip Generation

Land Use / Size	Size	ITE Land Use Code	AM Peak Hour			PM Peak Hour			SAT Peak Hour			Weekday Daily		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Shopping Center	**6,482 SF**	**820**	96	59	155	34	38	72	37	34	71	467	468	935
Total Trips			**96**	**59**	**155**	**34**	**38**	**72**	**37**	**34**	**71**	**467**	**468**	**935**

Source: Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition).

Discussion Point. Not all vehicle trips expected to be generated by the proposed project represent new trips on the study area roadway system. Studies have shown that for retail, restaurant and gasoline/service station with convenience market developments, a substantial portion of the site-generated vehicle trips are already present in the adjacent passing stream of traffic or are diverted from another route to the proposed site. Based on data presented in the ITE *Trip Generation Handbook, 3rd Edition*, the average pass-by trip percentage for the proposed use is between 26 and 89 percent. However, to provide a conservative analysis, no reduction for pass-by traffic was applied to the development site-generated trips.

Trip Distribution

The anticipated trip distribution of site traffic is summarized in ***Table 3***. This was based on current travel patterns, the operational characteristics of the street system and site access.

Table 3: Trip Distribution

Route & Direction	Percent Route	
	Arrive From	Depart To
Ogden Avenue		
East of Site	25%	35%
West of Main Street	35%	20%
Main Street		
North of Ogden Avenue	10%	25%
South of Ogden Avenue	25%	15%
Highland Avenue		
South of Site	5%	5%
Total	**100%**	

Site and Total Traffic Assignments

Exhibit 6 illustrates the site traffic assignment for the development's trips, which is based on the traffic characteristics summarized in ***Table 2 / 3*** (Trip Generation and Trip Distribution) and assigned to the area roadways. The site traffic assignments were then combined with the 2027 No-Build Traffic (*See* ***Exhibit 4****)* volumes to produce 2027 Total Traffic, which is illustrated on ***Exhibit 7***.

Intersection Capacity Analyses

Capacity analyses are a standard measurement that identifies how an intersection operates. They are measured in terms of Level of Service (LOS). The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels of Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS C is often considered acceptable for design purposes and LOS D is usually considered as providing the lower threshold of acceptable operations. Since the level of service is a function of the traffic flows placed upon it, the facility may operate at a wide range of levels of service, depending on the time of day, day of week or period of year. A description of the operating condition under each level of service, based on the analysis parameters as published in the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), Sixth Edition, is provided in ***Table 4*** on the following page.

Table 4: Level of Service (LOS) Summary

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

Table 5 on the following pages summarizes the intersection capacity and queue analysis results. Capacity analysis summary printouts are provided in ***Appendix F***.

Table 5: Intersection Capacity and Queue Analysis

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersetion / Approach
			Eastbound			Westbound			Northbound			Southbound			
1. Ogden Ave (US 34) & Main St		**Signalized**	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	**Intersection Delay**
AM Peak	**A.Existing (See Exhibit 4)**	• LOS	**C**	**B**	**B**	**B**	**C**	**C**	**D**	**D**	**D**	**D**	**D**	**D**	**C (28.4)**
		• 95th Queue Length (ft)	206	303	311	90	355	358	142	282	267	260	172	297	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**C**	**B**	**B**	**B**	**C**	**C**	**D**	**D**	**E**	**D**	**D**	**D**	**C (29.2)**
		• 95th Queue Length (ft)	217	326	334	94	378	379	146	288	273	269	178	302	
	C. 2027 Total (See Exhibit 7)	• LOS	**C**	**B**	**B**	**C**	**C**	**C**	**D**	**E**	**E**	**D**	**D**	**D**	**C (30.4)**
		• 95th Queue Length (ft)	219	351	358	103	398	400	145	309	290	291	176	301	-
PM Peak	**A.Existing (See Exhibit 4)**	• LOS	**D**	**C**	**C**	**C**	**C**	**D**	**D**	**E**	**E**	**D**	**D**	**E**	**D (40.5)**
		• 95th Queue Length (ft)	229	406	417	126	643	662	214	328	307	334	314	684	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**E**	**C**	**C**	**C**	**D**	**D**	**D**	**E**	**E**	**D**	**D**	**E**	**D (43.0)**
		• 95th Queue Length (ft)	383	434	446	134	727	744	220	336	314	346	321	677	-
	C. 2027 Total (See Exhibit 7)	• LOS	**E**	**C**	**C**	**C**	**D**	**D**	**D**	**E**	**E**	**D**	**D**	**E**	**D (44.1)**
		• 95th Queue Length (ft)	385	446	457	141	764	782	220	344	321	353	321	669	-
SAT Peak	**A.Existing (See Exhibit 4)**	• LOS	**D**	**C**	**C**	**C**	**C**	**C**	**D**	**E**	**E**	**E**	**D**	**D**	**D (36.8)**
		• 95th Queue Length (ft)	216	412	436	123	536	555	224	350	239	217	249	381	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**D**	**C**	**C**	**C**	**C**	**C**	**D**	**E**	**E**	**E**	**D**	**D**	**D (39.1)**
		• 95th Queue Length (ft)	249	445	469	129	583	602	230	359	337	242	254	388	-
	C. 2027 Total (See Exhibit 7)	• LOS	**D**	**C**	**C**	**C**	**C**	**D**	**D**	**E**	**E**	**F**	**D**	**D**	**D (40.3)**
		• 95th Queue Length (ft)	259	455	480	134	608	627	229	368	344	263	254	386	-
2. Ogden Ave (US 34) & Highland Ave		**TWSC - NB/SB Stops**	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	**NB Approach Delay**
AM Peak	**A.Existing (See Exhibit 4)**	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**C**	**<**	**>**	**B**	**<**	**C (15.1)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	5	-	-	3	-	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**C**	**<**	**>**	**B**	**<**	**C (15.6)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	8	-	-	3	-	-
	C. 2027 Total (See Exhibit 7)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**C**	**<**	**>**	**B**	**<**	**C (16.3)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	8	-	-	3	-	-
PM Peak	**A.Existing (See Exhibit 4)**	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**D**	**<**	**>**	**C**	**<**	**D (33.9)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	15	-	-	15	-	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**E**	**<**	**>**	**C**	**<**	**E (37.8)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	15	-	-	15	-	-
	C. 2027 Total (See Exhibit 7)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**E**	**<**	**>**	**C**	**<**	**E (37.8)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	18	-	-	15	-	-
SAT Peak	**A.Existing (See Exhibit 4)**	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**F**	**<**	**>**	**C**	**<**	**F (53.6)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	23	-	-	8	-	-
	B. 2027 No-Build (See Exhibit 5)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**F**	**<**	**>**	**C**	**<**	**F (63.3)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	28	-	-	8	-	-
	C. 2027 Total (See Exhibit 7)	• LOS	**>**	**B**	**-**	**>**	**B**	**-**	**>**	**F**	**<**	**>**	**C**	**<**	**F (66.0)**
		• 95th Queue Length (ft)	-	0	-	-	0	-	-	30	-	-	8	-	-

Proposed Retail Center
935 Ogden Avenue
Downers Grove, IL

Table 5: Intersection Capacity and Queue Analysis

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersetion / Approach
			Eastbound			Westbound			Northbound			Southbound			
3. Ogden Ave (US 34) & Site Access		**TWSC - NB/SB Stops**	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	**NB Approach Delay**
AM Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	B	-	-	>	D	<	-	-	-	D (33.7)
		• 95th Queue Length (ft)	-	-	-	5	-	-	-	33	-	-	-	-	-
PM Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	B	-	-	>	E	<	-	-	-	E (39.3)
		• 95th Queue Length (ft)	-	-	-	3	-	-	-	25	-	-	-	-	-
SAT Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	B	-	-	>	E	<	-	-	-	E (37.7)
		• 95th Queue Length (ft)	-	-	-	3	-	-	-	20	-	-	-	-	-
4. Highland Ave & Site Access		**TWSC - WB Stops**	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	**WB Approach Delay**
AM Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	>	A	<	-	-	-	>	A	-	A (8.8)
		• 95th Queue Length (ft)	-	-	-	-	3	-	-	-	-	-	3	-	-
PM Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	>	A	<	-	-	-	>	A	-	A (8.6)
		• 95th Queue Length (ft)	-	-	-	-	0	-	-	-	-	-	0	-	-
SAT Peak	**C. 2027 Total (See Exhibit 7)**	• LOS	-	-	-	>	A	<	-	-	-	>	A	-	A (8.7)
		• 95th Queue Length (ft)	-	-	-	-	0	-	-	-	-	-	0	-	-

Traffic Impact Discussion

Ogden Avenue @ Main Street
Under both existing and future traffic conditions (No-Build and Total), the signalized intersections of Ogden Avenue and Main Street operates at an overall acceptable LOS "D" or better during the three peak periods studied. It should be noted that development traffic is expected to increase the overall intersection delay by 1.2 second during the weekday AM peak hour, 1.1 seconds during the weekday PM peak hour, and 1.2 seconds during the weekend Midday peak hour. As such, no changes to the existing operations are required to accommodate the development traffic.

Ogden Avenue @ Highland Avenue
Under existing and future (No-Build and Total) traffic conditions during the weekday PM peak hour and weekend Midday peak hour, the northbound approach of the unsignalized intersection of Ogden Avenue and Highland Avenue operates under capacity constraints at LOS "E/F". Left turning and through movements from Highland Avenue onto Ogden Avenue are restricted at this intersection, as well as left turning movements from Ogden Avenue onto Highland Avenue. Several vehicles during the weekday PM peak hour and weekend Midday peak hour made these restricted turning movements and this directly resulted in the capacity constraints. If these vehicles making restricted movements are re-assigned to making a permitted northbound right turn, the northbound approach then operates at LOS "C" during the weekday PM peak hour and weekend Midday peak hour (see **Appendix G**). No changes to the existing operations are required to accommodate the development traffic, however, the restricted movements at this intersection should be enforced.

Ogden Avenue @ Site Access
Under future (Total) traffic conditions during the weekday PM peak hour and weekend Midday peak hour, the northbound approach of the unsignalized intersection of Ogden Avenue and Site Access operates under capacity constraints at LOS "E". The site access drive currently contains one inbound and one outbound turning lane, this exiting lane could be modified to provide separate left and right exiting lanes, which would help to alleviate the capacity constraint.

Highland Avenue @ Site Access
Under future (Total) traffic conditions during the three peak hours studied, the westbound approach of the unsignalized intersection of Highland Avenue and Site Access will operate with no capacity constraints at LOS "A".

Part IV. Site Plan Elements

Parking Analysis

Based on the parking requirements outlined in the Village of Downers Grove Code of Ordinances, 26 parking spaces are required for the proposed site use. The Village's parking requirements are summarized in the ***Table 6***.

Table 6: Village of Downers Grove Parking Requirements

Use	Size	Parking Requirement	Parking Spaces	
			Required	Provided
Shopping Center (multi-tenant)	6,482 SF	4 spaces per 1,000 SF	26 spaces	**41 spaces**

As proposed, the development will provide 41 off-street parking spaces on-site. This also includes two accessible parking spaces nearest the main entrance of the building.

The Institute of Transportation Engineers (ITE) *Parking Generation, 5th Edition* publication provides a compilation of parking demand surveys from across the country for a wide variety of land uses. ITE land use code 820, Shopping Center – Non-December was referenced for the proposed development (see ***Appendix H***). The following timeframe represents the peak period for the proposed use; between 12:00 PM and 6:00 PM on a weekday. Using the ITE data, ***Table 7*** presents a summary of the projected peak parking demand for the proposed development.

Table 7: Projected Peak Parking Demand: ITE – Parking Generation

Land Use	ITE LUC	Size	Peak Parking Demand			
			Average		85th Percentile	
			Rate/Unit	Spaces	Rate/Unit	Spaces
Shopping Center – Non-December	820	6,482 SF	1.95	13	3.68	**24**
TOTAL SPACES PROVIDED			**41 Spaces**			

<u>*Key Finding.*</u> Based on the above, the anticipated peak parking demand should be readily accommodated on site.

Drive-Thru Operations

The drive-thru pick-up window will be located on the east side of the building and the stacking/queuing lane will wrap around the south and east sides of the building. This lane will provide stacking/queueing for eight vehicles prior to reaching the parking lot circulation aisle (see ***Exhibit 5***). This is in line with the Village ordinances as code requires a restaurant use to provide a minimum of eight stacking/queueing spaces. The current site plan denotes an order board that is placed three vehicles away from the pick-up window, which complies with Village code.

Part V. Conclusion

A traffic impact and parking study was conducted for the proposed retail center development to be located at 935 Ogden Avenue in Downers Grove, Illinois. The proposed development is expected to generate 155, 72, and 71 trips (combined inbound and outbound) during the weekday AM, weekday PM, and weekend Midday peak hour, respectively. The overall delay increase at the Ogden Avenue and Main Street intersection as a result of the proposed development is projected to be below two seconds. Modification of the site access drive along Ogden Avenue from one inbound and one outbound lane to one inbound and two separate left and right turning outbound lanes should be considered. Overall, the development is anticipated to have an insignificant effect on the operations of the area roadway network. And, based on the parking analysis, it can be concluded the site provides adequate supply to accommodate the anticipated patron and employee parking demands.

Part V. Technical Addendum

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

Exhibits

1. Location Map
2. Existing Traffic Operations
3. Existing Traffic
4. 2027 No-Build Traffic
5. Site Plan
6. Site Traffic
7. 2027 Total Traffic

Appendices

A. Photo Inventory
B. Traffic Count Summary Sheets
C. IDOT Crash Map
D. CMAP Correspondence
E. ITE 10th Edition Trip Generation Excerpts
F. Capacity Analyses Sheets
G. Ogden & Highland Capacity Test
H. ITE 5th Edition Parking Generation Excerpts

EXHIBITS

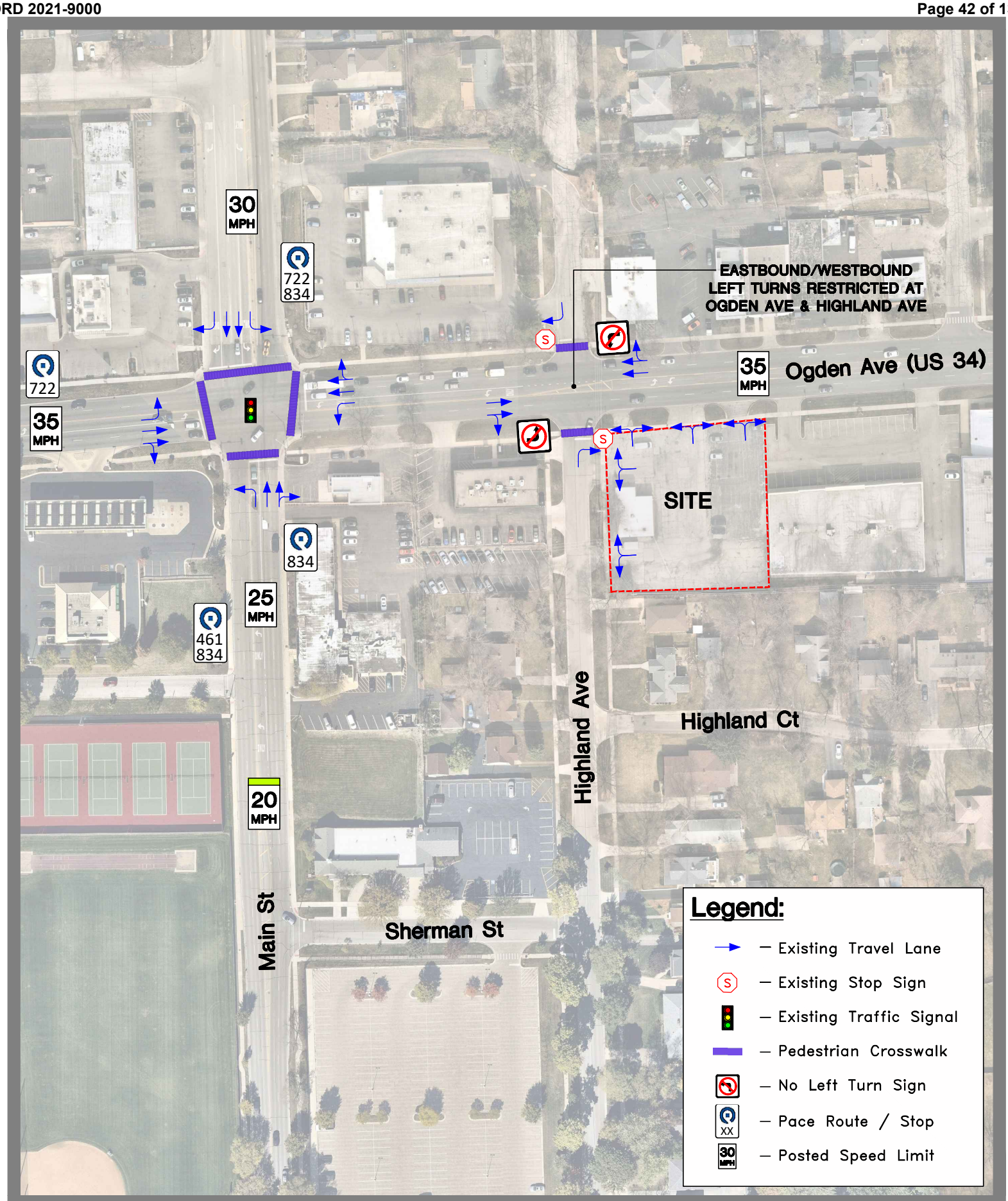
N

1 inch = 530 Feet

Exhibit 1 - Location Map

Proposed Retail Center
Downers Grove, IL

Map Center: 88.00992°W 41.80863°N

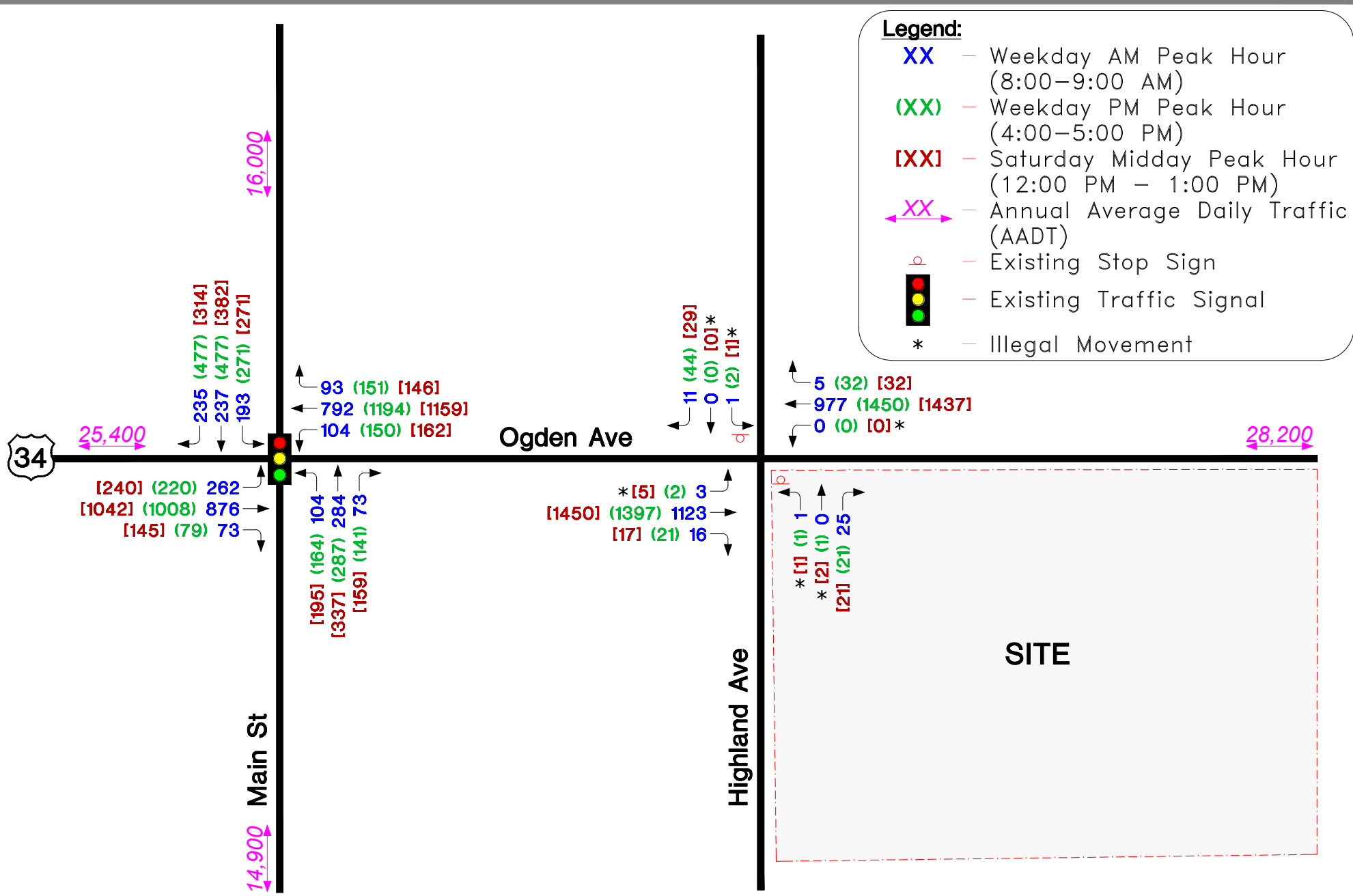


GEWALT HAMILTON ASSOCIATES, INC.

N

Not to Scale

Exhibit 2
Existing Traffic Operations



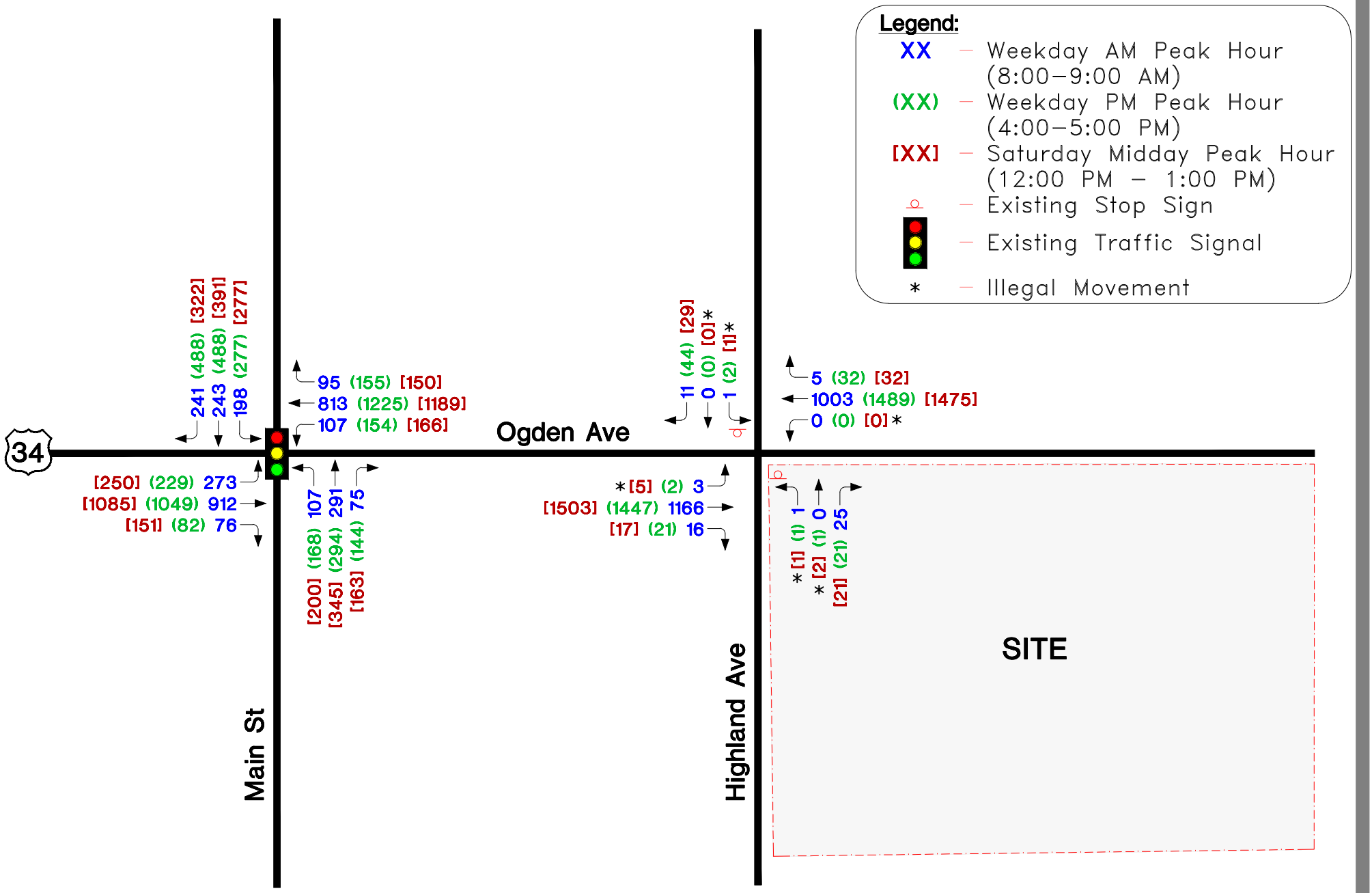
GHA GEWALT HAMILTON ASSOCIATES, INC.

N

Not to Scale

Exhibit 3
Existing Traffic

Sources: 1) GHA April, 2021 2) IDOT 2016, 2017, 2019 AADT



GEWALT HAMILTON ASSOCIATES, INC.

N

Not to Scale

Exhibit 4
2027 No-Build Traffic

Exhibit 5 - Site Plan

IMPERVIOUS DATA TABLE

EXISTING IMPERVIOUS		PROPOSED IMPERVIOUS	
BUILDING:	1,795 S.F.	BUILDING:	6,479 S.F.
SIDEWALK:	897 S.F.	SIDEWALK:	1,146 S.F.
ASPHALT:	28,816 S.F.	ASPHALT:	20,536 S.F.
CONCRETE:	15 S.F.	CONCRETE:	520 S.F.
TOTAL:	31,523 S.F.	TOTAL:	28,681 S.F.

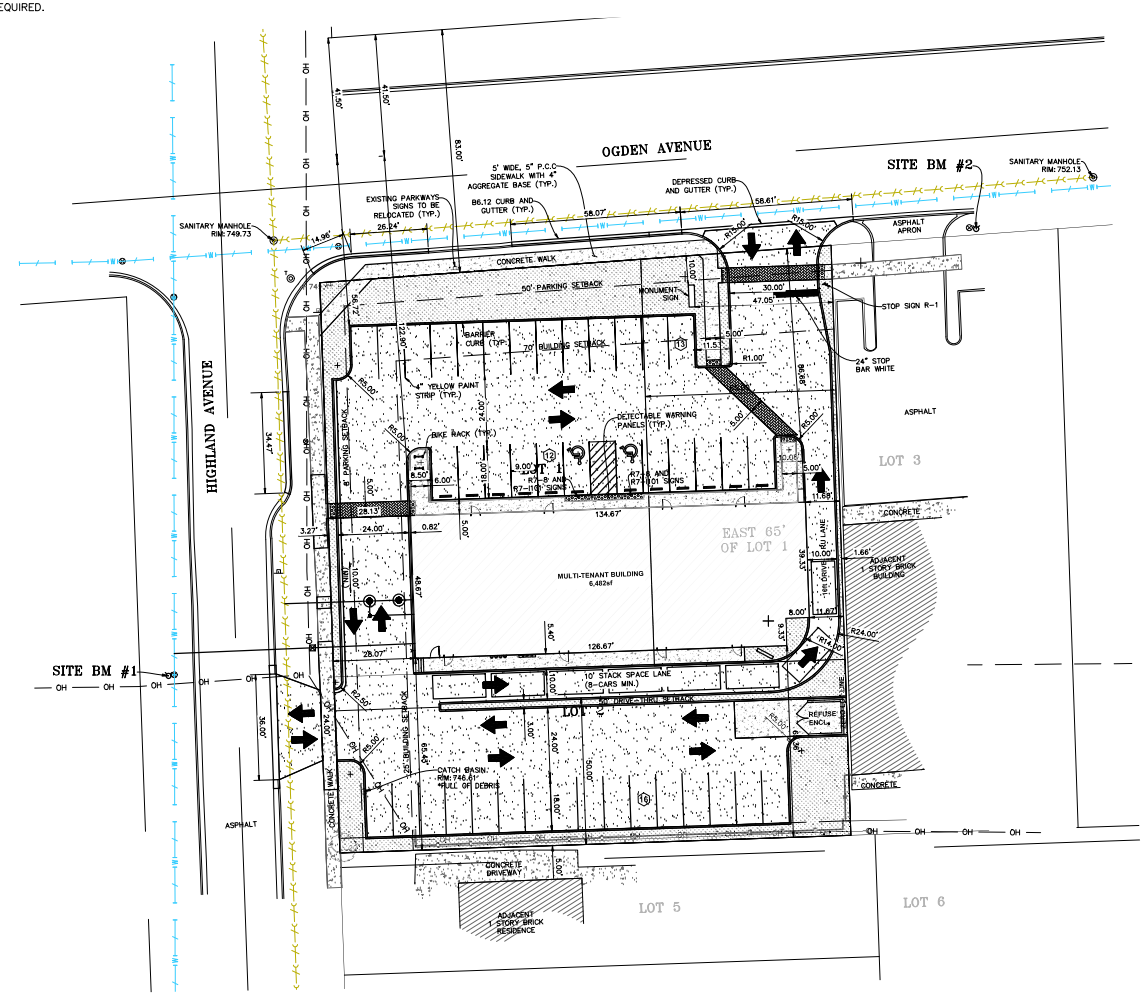
NET NEW IMPERVIOUS AREA = 28,681 S.F. – 31,523 S.F. = –2,842 S.F.

SINCE NET NEW IMPERVIOUS AREA IS LESS THAN 2,500 SQ. FT. IN AGGREGATE SINCE APRIL 23, 2013 PCBMPS ARE NOT REQUIRED.

SINCE NET NEW IMPERVIOUS AREA IS LESS THAN 25,000 SQ. FT. IN AGGREGATE SINCE FEBRUARY 15, 1992 SITE RUNOFF STORAGE IS NOT REQUIRED.

LEGEND:

- P.C.C. PAVEMENT (SEE DETAIL)
- BITUMINOUS PAVEMENT (SEE DETAIL)
- PAVERS (SEE DETAIL)
- OPEN SPACE



NOTES:

1. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD. THE CONTRACTOR WILL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. COORDINATE WITH ARCHITECTURAL PLANS, GRADING PLANS, UTILITY PLANS, & ALL CONSTRUCTION DETAILS.
3. ALL WORK AND OPERATIONS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
4. LAYOUT OF ALL NEW PAVING SHALL BE SMOOTH AND CONTINUOUS. DEFLECTION IN ALIGNMENT OR ABRUPT CHANGES WILL NOT BE ACCEPTED. ENGINEER SHALL REVIEW STAKED LAYOUT AND FRAMEWORK PRIOR TO PAVING OPERATIONS.
5. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES ON WHICH THE WORK IS BEING DONE CLEAR OF RUBBISH AND DEBRIS.
6. THE CONTRACTOR WILL NOT INTERFERE WITH USE OF ADJACENT BUILDINGS, PARKING LOTS, STREETS, OR ALLEYS WITHOUT PRIOR COORDINATION WITH THE OWNER, IDOT, AND THE VILLAGE OF DOWNER'S GROVE.
7. MEET THE LINE AND GRADE OF NEW PAVEMENT AND/OR LAWN AND PLANTING AREAS WITH THE LINE AND GRADE OF THE EXISTING PAVEMENT AND/OR LAWN AND PLANTING AREAS.
8. SEE DETAIL SHEETS FOR MATERIAL TYPE, AND INSTALLATION PROCEDURES.

SCALE: 1"=20'

MINIMUM OF 48 HOURS ADVANCE NOTICE REQUIRED

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Call before you dig 800.892.0123

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

ENGINEERING RESOURCE ASSOCIATES
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WARRENVILLE, ILLINOIS 60555
PHONE: (630) 393-3150
FAX: (630) 393-3155
www.EngineeringResource.com

935 OGDEN LLC
2777 FINLEY RD, SUITE 12, DOWNERS GROVE, IL 60515
(630) 850-0500

RETAIL PLAZA
935 OGDEN AVENUE, DOWNERS GROVE, IL 60515
PROJECT

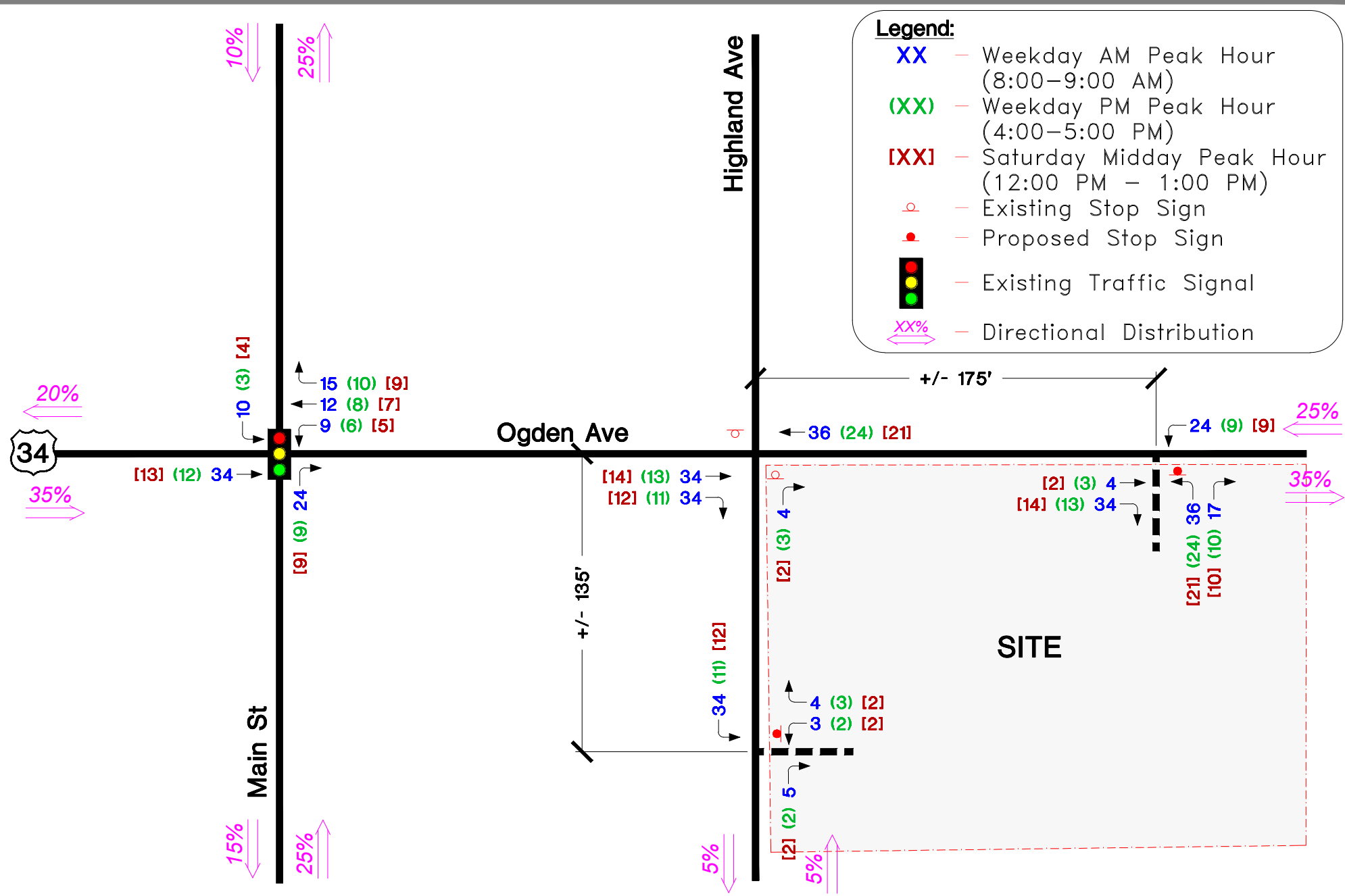
DESCRIPTION:

DATE : 04-07-2021
PROJECT # : W21046.00
DESIGNED BY : KF
DRAWN BY : KF
CHECKED BY : RV

GEOMETRY PLAN

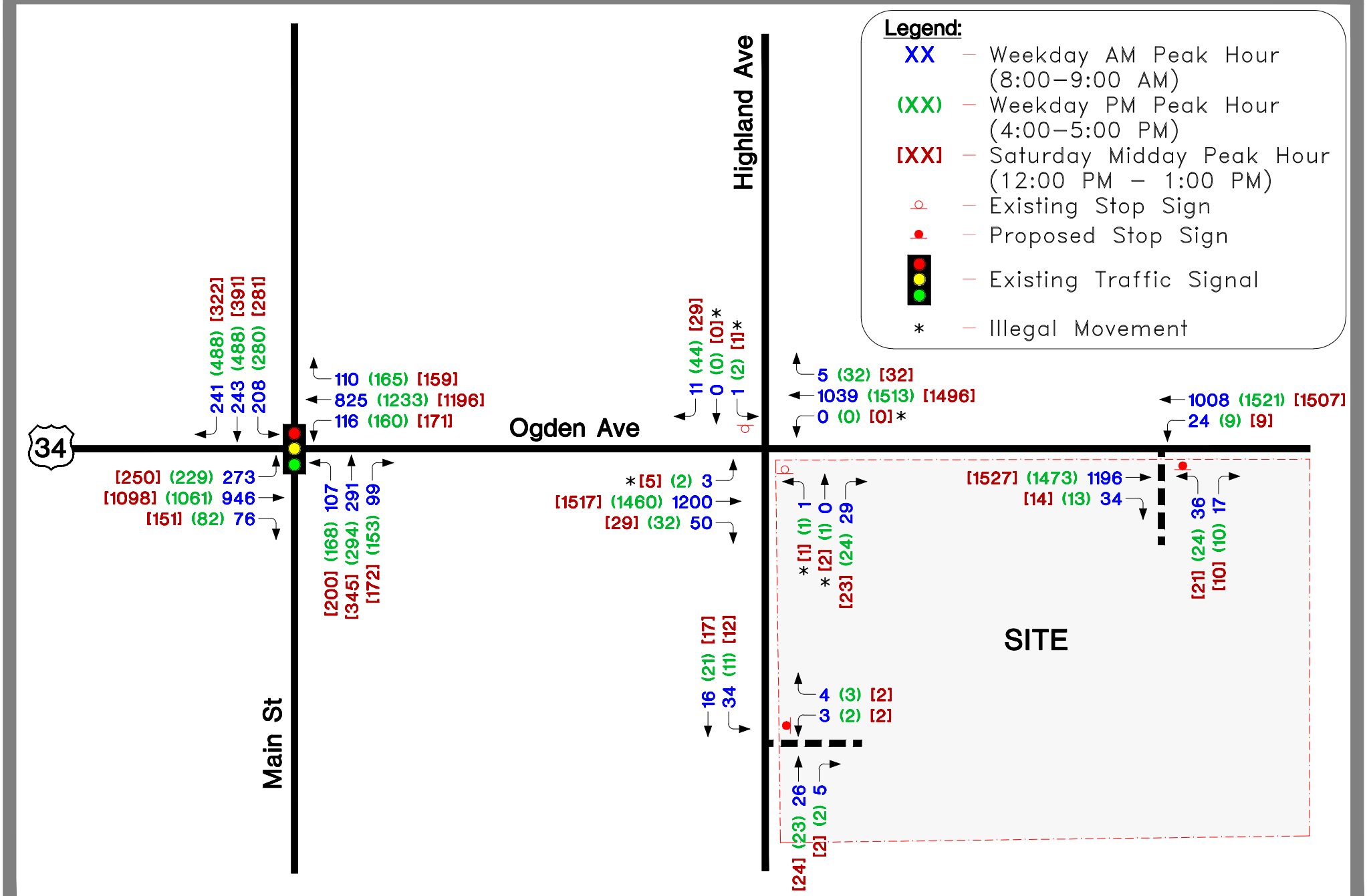
C-5.0
SHEET

G:\PROJECTS\935 Ogden LLC\W21046.00 Portage Plaza 935 Ogden Ave Downers Grove\CADD\SHEET\W21046.00 935 Ogden Ave.dwg



GEWALT HAMILTON ASSOCIATES, INC.

Exhibit 6
Site Traffic



GEWALT HAMILTON ASSOCIATES, INC.

Exhibit 7
2027 Total Traffic

APPENDIX A

Photo Inventory

Looking north along Highland Avenue at South Site Access

Looking north along Highland Avenue at Ogden Avenue

Looking east along Ogden Avenue at Highland Avenue

Looking south along Highland Avenue at Ogden Avenue

Looking across Ogden Ave at Northeast Site Access Drives

Looking east along Ogden Avenue at Main Street

Looking south along Main Street at Ogden Avenue

Looking east along Ogden Avenue at Main Street

APPENDIX B

Traffic Count Summary Sheets

Ogden Ave & Highland Ave - TMC

Thu Apr 1, 2021
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823110, Location: 41.808878, -88.00976

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Highland						Highland						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-01 7:00AM	0	123	2	0	**125**	0	0	123	1	0	**124**	0	0	0	1	0	**1**	0	0	0	1	0	**1**	0	**251**
7:15AM	0	165	1	0	**166**	0	0	146	1	0	**147**	0	0	0	1	0	**1**	0	0	0	3	0	**3**	0	**317**
7:30AM	0	190	3	0	**193**	0	0	163	2	0	**165**	0	0	0	4	0	**4**	0	0	0	3	0	**3**	0	**365**
7:45AM	0	229	4	0	**233**	0	0	165	2	0	**167**	0	0	0	4	0	**4**	0	0	0	0	0	**0**	0	**404**
Hourly Total	0	707	10	0	**717**	0	0	597	6	0	**603**	0	0	0	10	0	**10**	0	0	0	7	0	**7**	0	**1337**
8:00AM	2	208	5	0	**215**	0	0	139	0	0	**139**	0	0	0	6	0	**6**	2	1	0	0	0	**1**	0	**361**
8:15AM	0	175	3	0	**178**	0	0	181	0	0	**181**	0	1	0	4	0	**5**	0	0	0	2	0	**2**	0	**366**
8:30AM	0	202	1	0	**203**	0	0	192	3	0	**195**	0	0	0	3	0	**3**	0	0	0	3	0	**3**	0	**404**
8:45AM	0	235	3	0	**238**	0	0	201	1	0	**202**	0	0	0	5	0	**5**	1	0	0	3	0	**3**	0	**448**
Hourly Total	2	820	12	0	**834**	0	0	713	4	0	**717**	0	1	0	18	0	**19**	3	1	0	8	0	**9**	0	**1579**
4:00PM	0	321	4	0	**325**	0	0	297	7	0	**304**	0	1	0	4	0	**5**	0	0	0	10	0	**10**	0	**644**
4:15PM	1	266	4	0	**271**	0	0	318	6	0	**324**	0	0	1	3	0	**4**	0	1	0	8	0	**9**	0	**608**
4:30PM	0	267	3	0	**270**	0	0	268	6	0	**274**	0	0	0	6	0	**6**	0	0	0	9	0	**9**	0	**559**
4:45PM	1	272	6	0	**279**	0	0	302	7	0	**309**	0	0	0	4	0	**4**	0	1	0	9	0	**10**	0	**602**
Hourly Total	2	1126	17	0	**1145**	0	0	1185	26	0	**1211**	0	1	1	17	0	**19**	0	2	0	36	0	**38**	0	**2413**
5:00PM	0	271	8	0	**279**	0	0	261	9	0	**270**	0	0	0	5	0	**5**	0	1	0	6	0	**7**	0	**561**
5:15PM	0	305	4	0	**309**	0	0	334	6	0	**340**	0	0	0	4	0	**4**	0	0	0	7	0	**7**	0	**660**
5:30PM	1	248	1	0	**250**	0	0	312	11	0	**323**	0	0	0	3	0	**3**	1	3	0	9	0	**12**	1	**588**
5:45PM	0	267	6	0	**273**	0	1	268	6	0	**275**	1	0	0	1	0	**1**	0	2	0	3	0	**5**	0	**554**
Hourly Total	1	1091	19	0	**1111**	0	1	1175	32	0	**1208**	1	0	0	13	0	**13**	1	6	0	25	0	**31**	1	**2363**
Total	5	3744	58	0	**3807**	0	1	3670	68	0	**3739**	1	2	1	58	0	**61**	4	9	0	76	0	**85**	1	**7692**
% Approach	0.1%	98.3%	1.5%	0%	**-**	-	0%	98.2%	1.8%	0%	**-**	-	3.3%	1.6%	95.1%	0%	**-**	-	10.6%	0%	89.4%	0%	**-**	-	**-**
% Total	0.1%	48.7%	0.8%	0%	**49.5%**	-	0%	47.7%	0.9%	0%	**48.6%**	-	0%	0%	0.8%	0%	**0.8%**	-	0.1%	0%	1.0%	0%	**1.1%**	-	**-**
Lights	5	3652	58	0	**3715**	-	1	3589	67	0	**3657**	-	2	1	57	0	**60**	-	9	0	75	0	**84**	-	7516
% Lights	100%	97.5%	100%	0%	**97.6%**	-	100%	97.8%	98.5%	0%	**97.8%**	-	100%	100%	98.3%	0%	**98.4%**	-	100%	0%	98.7%	0%	**98.8%**	-	97.7%
Articulated Trucks	0	33	0	0	**33**	-	0	24	0	0	**24**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	57
% Articulated Trucks	0%	0.9%	0%	0%	**0.9%**	-	0%	0.7%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.7%
Buses and Single-Unit Trucks	0	59	0	0	**59**	-	0	57	1	0	**58**	-	0	0	1	0	**1**	-	0	0	1	0	**1**	-	119
% Buses and Single-Unit Trucks	0%	1.6%	0%	0%	**1.5%**	-	0%	1.6%	1.5%	0%	**1.6%**	-	0%	0%	1.7%	0%	**1.6%**	-	0%	0%	1.3%	0%	**1.2%**	-	1.5%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	75.0%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	25.0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Highland Ave - TMC

Thu Apr 1, 2021
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823110, Location: 41.808878, -88.00976

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg / Direction	US 34 Eastbound						US 34 Westbound						Highland Northbound						Highland Southbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2021-04-01 8:00AM	2	208	5	0	**215**	0	0	139	0	0	**139**	0	0	0	6	0	**6**	2	1	0	0	0	**1**	0	**361**
8:15AM	0	175	3	0	**178**	0	0	181	0	0	**181**	0	1	0	4	0	**5**	0	0	0	2	0	**2**	0	**366**
8:30AM	0	202	1	0	**203**	0	0	192	3	0	**195**	0	0	0	3	0	**3**	0	0	0	3	0	**3**	0	**404**
8:45AM	0	235	3	0	**238**	0	0	201	1	0	**202**	0	0	0	5	0	**5**	1	0	0	3	0	**3**	0	**448**
Total	2	820	12	0	**834**	0	0	713	4	0	**717**	0	1	0	18	0	**19**	3	1	0	8	0	**9**	0	**1579**
% Approach	0.2%	98.3%	1.4%	0%	**-**	-	0%	99.4%	0.6%	0%	**-**	-	5.3%	0%	94.7%	0%	**-**	-	11.1%	0%	88.9%	0%	**-**	-	-
% Total	0.1%	51.9%	0.8%	0%	**52.8%**	-	0%	45.2%	0.3%	0%	**45.4%**	-	0.1%	0%	1.1%	0%	**1.2%**	-	0.1%	0%	0.5%	0%	**0.6%**	-	-
PHF	0.250	0.872	0.600	-	**0.876**	-	-	0.887	0.333	-	**0.887**	-	0.250	-	0.750	-	**0.792**	-	0.250	-	0.667	-	**0.750**	-	0.881
Lights	2	785	12	0	**799**	-	0	674	4	0	**678**	-	1	0	18	0	**19**	-	1	0	8	0	**9**	-	1505
% Lights	100%	95.7%	100%	0%	**95.8%**	-	0%	94.5%	100%	0%	**94.6%**	-	100%	0%	100%	0%	**100%**	-	100%	0%	100%	0%	**100%**	-	95.3%
Articulated Trucks	0	11	0	0	**11**	-	0	8	0	0	**8**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	19
% Articulated Trucks	0%	1.3%	0%	0%	**1.3%**	-	0%	1.1%	0%	0%	**1.1%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	1.2%
Buses and Single-Unit Trucks	0	24	0	0	**24**	-	0	31	0	0	**31**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	55
% Buses and Single-Unit Trucks	0%	2.9%	0%	0%	**2.9%**	-	0%	4.3%	0%	0%	**4.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	3.5%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Highland Ave - TMC

Thu Apr 1, 2021
PM Peak (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823110, Location: 41.808878, -88.00976

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Highland						Highland						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2021-04-01 4:00PM	0	321	4	0	**325**	0	0	297	7	0	**304**	0	1	0	4	0	**5**	0	0	0	10	0	**10**	0	**644**
4:15PM	1	266	4	0	**271**	0	0	318	6	0	**324**	0	0	1	3	0	**4**	0	1	0	8	0	**9**	0	**608**
4:30PM	0	267	3	0	**270**	0	0	268	6	0	**274**	0	0	0	6	0	**6**	0	0	0	9	0	**9**	0	**559**
4:45PM	1	272	6	0	**279**	0	0	302	7	0	**309**	0	0	0	4	0	**4**	0	1	0	9	0	**10**	0	**602**
Total	2	1126	17	0	**1145**	0	0	1185	26	0	**1211**	0	1	1	17	0	**19**	0	2	0	36	0	**38**	0	**2413**
% Approach	0.2%	98.3%	1.5%	0%	**-**	-	0%	97.9%	2.1%	0%	**-**	-	5.3%	5.3%	89.5%	0%	**-**	-	5.3%	0%	94.7%	0%	**-**	-	-
% Total	0.1%	46.7%	0.7%	0%	**47.5%**	-	0%	49.1%	1.1%	0%	**50.2%**	-	0%	0%	0.7%	0%	**0.8%**	-	0.1%	0%	1.5%	0%	**1.6%**	-	-
PHF	0.500	0.877	0.708	-	**0.881**	-	-	0.932	0.929	-	**0.934**	-	0.250	0.250	0.708	-	**0.792**	-	0.500	-	0.900	-	**0.950**	-	0.937
Lights	2	1110	17	0	**1129**	-	0	1176	25	0	**1201**	-	1	1	17	0	**19**	-	2	0	36	0	**38**	-	2387
% Lights	100%	98.6%	100%	0%	**98.6%**	-	0%	99.2%	96.2%	0%	**99.2%**	-	100%	100%	100%	0%	**100%**	-	100%	0%	100%	0%	**100%**	-	98.9%
Articulated Trucks	0	5	0	0	**5**	-	0	3	0	0	**3**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	8
% Articulated Trucks	0%	0.4%	0%	0%	**0.4%**	-	0%	0.3%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.3%
Buses and Single-Unit Trucks	0	11	0	0	**11**	-	0	6	1	0	**7**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	18
% Buses and Single-Unit Trucks	0%	1.0%	0%	0%	**1.0%**	-	0%	0.5%	3.8%	0%	**0.6%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.7%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Highland Ave - TMC

Sat Apr 3, 2021
Full Length (11 AM-1 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823112, Location: 41.808878, -88.00976

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US-34						US-34						Highland						Highland						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2021-04-03 11:00AM	0	289	4	0	**293**	0	0	285	7	1	**293**	0	0	0	5	0	**5**	0	1	0	5	0	**6**	0	**597**
11:15AM	0	271	5	0	**276**	0	1	295	4	0	**300**	0	0	0	2	0	**2**	0	2	0	7	0	**9**	0	**587**
11:30AM	1	261	5	0	**267**	0	0	266	7	0	**273**	0	1	0	5	0	**6**	0	0	0	10	0	**10**	0	**556**
11:45AM	2	294	2	0	**298**	0	1	281	4	0	**286**	0	2	0	10	0	**12**	1	1	0	8	0	**9**	0	**605**
Hourly Total	3	1115	16	0	**1134**	0	2	1127	22	1	**1152**	0	3	0	22	0	**25**	1	4	0	30	0	**34**	0	**2345**
12:00PM	2	287	2	0	**291**	0	0	299	7	0	**306**	0	1	0	4	0	**5**	0	0	0	8	0	**8**	0	**610**
12:15PM	0	298	3	0	**301**	0	0	269	6	0	**275**	0	0	1	1	0	**2**	1	0	0	6	0	**6**	1	**584**
12:30PM	0	276	6	0	**282**	0	0	310	2	0	**312**	0	0	1	4	0	**5**	0	0	0	4	0	**4**	0	**603**
12:45PM	2	302	3	0	**307**	0	0	300	11	0	**311**	0	0	0	8	0	**8**	1	1	0	6	0	**7**	0	**633**
Hourly Total	4	1163	14	0	**1181**	0	0	1178	26	0	**1204**	0	1	2	17	0	**20**	2	1	0	24	0	**25**	1	**2430**
Total	7	2278	30	0	**2315**	0	2	2305	48	1	**2356**	0	4	2	39	0	**45**	3	5	0	54	0	**59**	1	**4775**
% Approach	0.3%	98.4%	1.3%	0%	**-**	-	0.1%	97.8%	2.0%	0%	**-**	-	8.9%	4.4%	86.7%	0%	**-**	-	8.5%	0%	91.5%	0%	**-**	-	**-**
% Total	0.1%	47.7%	0.6%	0%	**48.5%**	-	0%	48.3%	1.0%	0%	**49.3%**	-	0.1%	0%	0.8%	0%	**0.9%**	-	0.1%	0%	1.1%	0%	**1.2%**	-	**-**
Lights	7	2262	30	0	**2299**	-	2	2294	47	1	**2344**	-	4	1	39	0	**44**	-	5	0	54	0	**59**	-	4746
% Lights	100%	99.3%	100%	0%	**99.3%**	-	100%	99.5%	97.9%	100%	**99.5%**	-	100%	50.0%	100%	0%	**97.8%**	-	100%	0%	100%	0%	**100%**	-	99.4%
Articulated Trucks	0	4	0	0	**4**	-	0	4	0	0	**4**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	8
% Articulated Trucks	0%	0.2%	0%	0%	**0.2%**	-	0%	0.2%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Buses and Single-Unit Trucks	0	12	0	0	**12**	-	0	7	1	0	**8**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	20
% Buses and Single-Unit Trucks	0%	0.5%	0%	0%	**0.5%**	-	0%	0.3%	2.1%	0%	**0.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.4%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	50.0%	0%	0%	**2.2%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 66.7%	-	-	-	-	-	- 100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 33.3%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Highland Ave - TMC

Sat Apr 3, 2021
Midday Peak (WKND) (12 PM - 1 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823112, Location: 41.808878, -88.00976

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US-34						US-34						Highland						Highland						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2021-04-03 12:00PM	2	287	2	0	**291**	0	0	299	7	0	**306**	0	1	0	4	0	**5**	0	0	0	8	0	**8**	0	**610**
12:15PM	0	298	3	0	**301**	0	0	269	6	0	**275**	0	0	1	1	0	**2**	1	0	0	6	0	**6**	1	**584**
12:30PM	0	276	6	0	**282**	0	0	310	2	0	**312**	0	0	1	4	0	**5**	0	0	0	4	0	**4**	0	**603**
12:45PM	2	302	3	0	**307**	0	0	300	11	0	**311**	0	0	0	8	0	**8**	1	1	0	6	0	**7**	0	**633**
Total	4	1163	14	0	**1181**	0	0	1178	26	0	**1204**	0	1	2	17	0	**20**	2	1	0	24	0	**25**	1	**2430**
% Approach	0.3%	98.5%	1.2%	0%	**-**	-	0%	97.8%	2.2%	0%	**-**	-	5.0%	10.0%	85.0%	0%	**-**	-	4.0%	0%	96.0%	0%	**-**	-	-
% Total	0.2%	47.9%	0.6%	0%	**48.6%**	-	0%	48.5%	1.1%	0%	**49.5%**	-	0%	0.1%	0.7%	0%	**0.8%**	-	0%	0%	1.0%	0%	**1.0%**	-	-
PHF	0.500	0.963	0.583	-	**0.962**	-	-	0.950	0.591	-	**0.965**	-	0.250	0.250	0.531	-	**0.594**	-	0.250	-	0.750	-	**0.781**	-	0.959
Lights	4	1154	14	0	**1172**	-	0	1170	26	0	**1196**	-	1	1	17	0	**19**	-	1	0	24	0	**25**	-	2412
% Lights	100%	99.2%	100%	0%	**99.2%**	-	0%	99.3%	100%	0%	**99.3%**	-	100%	50.0%	100%	0%	**95.0%**	-	100%	0%	100%	0%	**100%**	-	99.3%
Articulated Trucks	0	3	0	0	**3**	-	0	4	0	0	**4**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	7
% Articulated Trucks	0%	0.3%	0%	0%	**0.3%**	-	0%	0.3%	0%	0%	**0.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.3%
Buses and Single-Unit Trucks	0	6	0	0	**6**	-	0	4	0	0	**4**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	10
% Buses and Single-Unit Trucks	0%	0.5%	0%	0%	**0.5%**	-	0%	0.3%	0%	0%	**0.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.4%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	50.0%	0%	0%	**5.0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Main St - TMC

Thu Apr 1, 2021
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823111, Location: 41.808838, -88.011015

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Main						Main						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-01 7:00AM	61	101	4	0	**166**	0	7	106	14	0	**127**	0	12	37	9	0	**58**	0	13	24	24	0	**61**	0	**412**
7:15AM	53	136	16	0	**205**	0	12	116	18	0	**146**	0	13	52	6	0	**71**	0	22	27	35	0	**84**	0	**506**
7:30AM	40	136	9	0	**185**	0	12	135	17	0	**164**	0	13	55	14	0	**82**	0	28	32	42	0	**102**	0	**533**
7:45AM	59	164	12	0	**235**	0	12	130	18	0	**160**	0	16	55	21	0	**92**	0	35	44	41	0	**120**	0	**607**
Hourly Total	213	537	41	0	**791**	0	43	487	67	0	**597**	0	54	199	50	0	**303**	0	98	127	142	0	**367**	0	**2058**
8:00AM	43	160	18	0	**221**	0	14	110	16	0	**140**	1	18	46	16	0	**80**	0	30	36	43	0	**109**	0	**550**
8:15AM	51	133	15	0	**199**	2	19	153	9	0	**181**	0	18	49	10	0	**77**	0	33	48	33	0	**114**	0	**571**
8:30AM	37	165	10	0	**212**	0	18	156	23	0	**197**	0	17	53	10	0	**80**	0	27	39	41	0	**107**	0	**596**
8:45AM	60	171	10	0	**241**	0	24	153	19	0	**196**	0	20	52	15	0	**87**	0	49	49	53	0	**151**	2	**675**
Hourly Total	191	629	53	0	**873**	2	75	572	67	0	**714**	1	73	200	51	0	**324**	0	139	172	170	0	**481**	2	**2392**
4:00PM	35	251	12	0	**298**	0	34	245	38	0	**317**	0	35	63	25	0	**123**	0	46	78	72	0	**196**	1	**934**
4:15PM	43	186	17	0	**246**	0	30	258	32	0	**320**	0	32	56	22	0	**110**	0	52	93	90	0	**235**	1	**911**
4:30PM	60	195	19	0	**274**	2	29	230	22	0	**281**	0	34	46	40	0	**120**	0	39	77	83	0	**199**	0	**874**
4:45PM	42	194	17	0	**253**	0	30	246	32	0	**308**	0	24	54	21	0	**99**	0	54	88	91	0	**233**	0	**893**
Hourly Total	180	826	65	0	**1071**	2	123	979	124	0	**1226**	0	125	219	108	0	**452**	0	191	336	336	0	**863**	2	**3612**
5:00PM	45	214	23	0	**282**	0	27	225	16	0	**268**	3	44	77	27	0	**148**	0	42	85	87	0	**214**	0	**912**
5:15PM	55	225	14	0	**294**	0	39	277	31	0	**347**	0	31	59	20	0	**110**	0	48	63	65	0	**176**	1	**927**
5:30PM	41	180	25	0	**246**	0	33	242	30	0	**305**	0	31	61	25	0	**117**	0	48	69	80	0	**197**	1	**865**
5:45PM	52	204	28	0	**284**	0	27	239	22	0	**288**	2	29	50	12	0	**91**	0	46	65	79	0	**190**	0	**853**
Hourly Total	193	823	90	0	**1106**	0	126	983	99	0	**1208**	5	135	247	84	0	**466**	0	184	282	311	0	**777**	2	**3557**
Total	777	2815	249	0	**3841**	4	367	3021	357	0	**3745**	6	387	865	293	0	**1545**	0	612	917	959	0	**2488**	6	**11619**
% Approach	20.2%	73.3%	6.5%	0%	**-**	-	9.8%	80.7%	9.5%	0%	**-**	-	25.0%	56.0%	19.0%	0%	**-**	-	24.6%	36.9%	38.5%	0%	**-**	-	-
% Total	6.7%	24.2%	2.1%	0%	**33.1%**	-	3.2%	26.0%	3.1%	0%	**32.2%**	-	3.3%	7.4%	2.5%	0%	**13.3%**	-	5.3%	7.9%	8.3%	0%	**21.4%**	-	-
Lights	761	2740	239	0	**3740**	-	356	2961	344	0	**3661**	-	383	849	287	0	**1519**	-	598	895	942	0	**2435**	-	11355
% Lights	97.9%	97.3%	96.0%	0%	**97.4%**	-	97.0%	98.0%	96.4%	0%	**97.8%**	-	99.0%	98.2%	98.0%	0%	**98.3%**	-	97.7%	97.6%	98.2%	0%	**97.9%**	-	97.7%
Articulated Trucks	0	24	2	0	**26**	-	2	23	1	0	**26**	-	0	2	2	0	**4**	-	2	1	2	0	**5**	-	61
% Articulated Trucks	0%	0.9%	0.8%	0%	**0.7%**	-	0.5%	0.8%	0.3%	0%	**0.7%**	-	0%	0.2%	0.7%	0%	**0.3%**	-	0.3%	0.1%	0.2%	0%	**0.2%**	-	0.5%
Buses and Single-Unit Trucks	16	51	8	0	**75**	-	9	37	12	0	**58**	-	4	14	4	0	**22**	-	12	21	15	0	**48**	-	203
% Buses and Single-Unit Trucks	2.1%	1.8%	3.2%	0%	**2.0%**	-	2.5%	1.2%	3.4%	0%	**1.5%**	-	1.0%	1.6%	1.4%	0%	**1.4%**	-	2.0%	2.3%	1.6%	0%	**1.9%**	-	1.7%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	5	
% Pedestrians	-	-	-	-	-	75.0%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	83.3%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	25.0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	16.7%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Main St - TMC

Thu Apr 1, 2021
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823111, Location: 41.808838, -88.011015

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Main						Main						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-01 8:00AM	43	160	18	0	**221**	0	14	110	16	0	**140**	1	18	46	16	0	**80**	0	30	36	43	0	**109**	0	**550**
8:15AM	51	133	15	0	**199**	2	19	153	9	0	**181**	0	18	49	10	0	**77**	0	33	48	33	0	**114**	0	**571**
8:30AM	37	165	10	0	**212**	0	18	156	23	0	**197**	0	17	53	10	0	**80**	0	27	39	41	0	**107**	0	**596**
8:45AM	60	171	10	0	**241**	0	24	153	19	0	**196**	0	20	52	15	0	**87**	0	49	49	53	0	**151**	2	**675**
Total	191	629	53	0	**873**	2	75	572	67	0	**714**	1	73	200	51	0	**324**	0	139	172	170	0	**481**	2	**2392**
% Approach	21.9%	72.1%	6.1%	0%	**-**	-	10.5%	80.1%	9.4%	0%	**-**	-	22.5%	61.7%	15.7%	0%	**-**	-	28.9%	35.8%	35.3%	0%	**-**	-	-
% Total	8.0%	26.3%	2.2%	0%	**36.5%**	-	3.1%	23.9%	2.8%	0%	**29.8%**	-	3.1%	8.4%	2.1%	0%	**13.5%**	-	5.8%	7.2%	7.1%	0%	**20.1%**	-	-
PHF	0.796	0.920	0.736	-	**0.906**	-	0.781	0.917	0.728	-	**0.906**	-	0.913	0.943	0.797	-	**0.931**	-	0.709	0.878	0.802	-	**0.796**	-	0.886
Lights	186	600	50	0	**836**	-	70	542	62	0	**674**	-	70	194	49	0	**313**	-	133	167	166	0	**466**	-	2289
% Lights	97.4%	95.4%	94.3%	0%	**95.8%**	-	93.3%	94.8%	92.5%	0%	**94.4%**	-	95.9%	97.0%	96.1%	0%	**96.6%**	-	95.7%	97.1%	97.6%	0%	**96.9%**	-	95.7%
Articulated Trucks	0	10	0	0	**10**	-	1	8	0	0	**9**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	19
% Articulated Trucks	0%	1.6%	0%	0%	**1.1%**	-	1.3%	1.4%	0%	0%	**1.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.8%
Buses and Single-Unit Trucks	5	19	3	0	**27**	-	4	22	5	0	**31**	-	3	6	2	0	**11**	-	6	5	4	0	**15**	-	84
% Buses and Single-Unit Trucks	2.6%	3.0%	5.7%	0%	**3.1%**	-	5.3%	3.8%	7.5%	0%	**4.3%**	-	4.1%	3.0%	3.9%	0%	**3.4%**	-	4.3%	2.9%	2.4%	0%	**3.1%**	-	3.5%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	50.0%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	50.0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Main St - TMC

Thu Apr 1, 2021
PM Peak (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823111, Location: 41.808838, -88.011015

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg / Direction	US 34 Eastbound						US 34 Westbound						Main Northbound						Main Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-01 4:00PM	35	251	12	0	**298**	0	34	245	38	0	**317**	0	35	63	25	0	**123**	0	46	78	72	0	**196**	1	**934**
4:15PM	43	186	17	0	**246**	0	30	258	32	0	**320**	0	32	56	22	0	**110**	0	52	93	90	0	**235**	1	**911**
4:30PM	60	195	19	0	**274**	2	29	230	22	0	**281**	0	34	46	40	0	**120**	0	39	77	83	0	**199**	0	**874**
4:45PM	42	194	17	0	**253**	0	30	246	32	0	**308**	0	24	54	21	0	**99**	0	54	88	91	0	**233**	0	**893**
Total	180	826	65	0	**1071**	2	123	979	124	0	**1226**	0	125	219	108	0	**452**	0	191	336	336	0	**863**	2	**3612**
% Approach	16.8%	77.1%	6.1%	0%	**-**	-	10.0%	79.9%	10.1%	0%	**-**	-	27.7%	48.5%	23.9%	0%	**-**	-	22.1%	38.9%	38.9%	0%	**-**	-	-
% Total	5.0%	22.9%	1.8%	0%	**29.7%**	-	3.4%	27.1%	3.4%	0%	**33.9%**	-	3.5%	6.1%	3.0%	0%	**12.5%**	-	5.3%	9.3%	9.3%	0%	**23.9%**	-	-
PHF	0.750	0.823	0.855	-	**0.898**	-	0.904	0.949	0.816	-	**0.958**	-	0.893	0.869	0.675	-	**0.919**	-	0.884	0.903	0.923	-	**0.918**	-	0.967
Lights	176	814	64	0	**1054**	-	123	972	121	0	**1216**	-	124	215	105	0	**444**	-	188	327	332	0	**847**	-	3561
% Lights	97.8%	98.5%	98.5%	0%	**98.4%**	-	100%	99.3%	97.6%	0%	**99.2%**	-	99.2%	98.2%	97.2%	0%	**98.2%**	-	98.4%	97.3%	98.8%	0%	**98.1%**	-	98.6%
Articulated Trucks	0	2	0	0	**2**	-	0	4	0	0	**4**	-	0	2	1	0	**3**	-	2	0	1	0	**3**	-	12
% Articulated Trucks	0%	0.2%	0%	0%	**0.2%**	-	0%	0.4%	0%	0%	**0.3%**	-	0%	0.9%	0.9%	0%	**0.7%**	-	1.0%	0%	0.3%	0%	**0.3%**	-	0.3%
Buses and Single-Unit Trucks	4	10	1	0	**15**	-	0	3	3	0	**6**	-	1	2	2	0	**5**	-	1	9	3	0	**13**	-	39
% Buses and Single-Unit Trucks	2.2%	1.2%	1.5%	0%	**1.4%**	-	0%	0.3%	2.4%	0%	**0.5%**	-	0.8%	0.9%	1.9%	0%	**1.1%**	-	0.5%	2.7%	0.9%	0%	**1.5%**	-	1.1%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	50.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	50.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Main St - TMC

Sat Apr 3, 2021
Full Length (11 AM-1 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823113, Location: 41.808838, -88.011015

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Main						Main						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-03 11:00AM	60	220	24	0	**304**	0	35	226	35	0	**296**	5	34	59	28	0	**121**	5	45	64	68	0	**177**	1	**898**
11:15AM	51	208	18	0	**277**	0	32	229	39	0	**300**	0	32	71	33	0	**136**	0	33	68	41	0	**142**	1	**855**
11:30AM	41	197	33	0	**271**	1	30	227	18	0	**275**	1	37	74	24	0	**135**	0	42	57	62	0	**161**	0	**842**
11:45AM	45	211	33	0	**289**	0	30	223	36	0	**289**	0	37	62	43	0	**142**	0	48	54	69	0	**171**	0	**891**
Hourly Total	197	836	108	0	**1141**	1	127	905	128	0	**1160**	6	140	266	128	0	**534**	5	168	243	240	0	**651**	2	**3486**
12:00PM	36	217	26	0	**279**	1	35	241	33	0	**309**	0	42	63	33	0	**138**	1	43	57	61	0	**161**	0	**887**
12:15PM	52	217	31	0	**300**	1	37	206	32	0	**275**	0	36	73	26	0	**135**	0	49	83	50	0	**182**	1	**892**
12:30PM	50	197	37	0	**284**	0	25	246	24	0	**295**	1	40	65	28	0	**133**	0	55	68	48	0	**171**	0	**883**
12:45PM	59	223	25	0	**307**	1	35	246	30	0	**311**	0	31	56	34	0	**121**	0	44	61	62	1	**168**	0	**907**
Hourly Total	197	854	119	0	**1170**	3	132	939	119	0	**1190**	1	149	257	121	0	**527**	1	191	269	221	1	**682**	1	**3569**
Total	394	1690	227	0	**2311**	4	259	1844	247	0	**2350**	7	289	523	249	0	**1061**	6	359	512	461	1	**1333**	3	**7055**
% Approach	17.0%	73.1%	9.8%	0%	**-**	-	11.0%	78.5%	10.5%	0%	**-**	-	27.2%	49.3%	23.5%	0%	**-**	-	26.9%	38.4%	34.6%	0.1%	**-**	-	**-**
% Total	5.6%	24.0%	3.2%	0%	**32.8%**	-	3.7%	26.1%	3.5%	0%	**33.3%**	-	4.1%	7.4%	3.5%	0%	**15.0%**	-	5.1%	7.3%	6.5%	0%	**18.9%**	-	**-**
Lights	388	1679	227	0	**2294**	-	259	1833	246	0	**2338**	-	288	518	247	0	**1053**	-	354	501	453	1	**1309**	-	6994
% Lights	98.5%	99.3%	100%	0%	**99.3%**	-	100%	99.4%	99.6%	0%	**99.5%**	-	99.7%	99.0%	99.2%	0%	**99.2%**	-	98.6%	97.9%	98.3%	100%	**98.2%**	-	99.1%
Articulated Trucks	0	3	0	0	**3**	-	0	6	0	0	**6**	-	0	1	1	0	**2**	-	1	3	1	0	**5**	-	16
% Articulated Trucks	0%	0.2%	0%	0%	**0.1%**	-	0%	0.3%	0%	0%	**0.3%**	-	0%	0.2%	0.4%	0%	**0.2%**	-	0.3%	0.6%	0.2%	0%	**0.4%**	-	0.2%
Buses and Single-Unit Trucks	6	8	0	0	**14**	-	0	5	1	0	**6**	-	1	4	1	0	**6**	-	4	8	7	0	**19**	-	45
% Buses and Single-Unit Trucks	1.5%	0.5%	0%	0%	**0.6%**	-	0%	0.3%	0.4%	0%	**0.3%**	-	0.3%	0.8%	0.4%	0%	**0.6%**	-	1.1%	1.6%	1.5%	0%	**1.4%**	-	0.6%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	7	-	-	-	-	-	6	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	75.0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	25.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Ogden Ave & Main St - TMC

Sat Apr 3, 2021
Midday Peak (WKND) (12 PM - 1 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 823113, Location: 41.808838, -88.011015

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	US 34						US 34						Main						Main						
Direction	Eastbound						Westbound						Northbound						Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-04-03 12:00PM	36	217	26	0	**279**	1	35	241	33	0	**309**	0	42	63	33	0	**138**	1	43	57	61	0	**161**	0	**887**
12:15PM	52	217	31	0	**300**	1	37	206	32	0	**275**	0	36	73	26	0	**135**	0	49	83	50	0	**182**	1	**892**
12:30PM	50	197	37	0	**284**	0	25	246	24	0	**295**	1	40	65	28	0	**133**	0	55	68	48	0	**171**	0	**883**
12:45PM	59	223	25	0	**307**	1	35	246	30	0	**311**	0	31	56	34	0	**121**	0	44	61	62	1	**168**	0	**907**
Total	197	854	119	0	**1170**	3	132	939	119	0	**1190**	1	149	257	121	0	**527**	1	191	269	221	1	**682**	1	**3569**
% Approach	16.8%	73.0%	10.2%	0%	**-**	-	11.1%	78.9%	10.0%	0%	**-**	-	28.3%	48.8%	23.0%	0%	**-**	-	28.0%	39.4%	32.4%	0.1%	**-**	-	-
% Total	5.5%	23.9%	3.3%	0%	**32.8%**	-	3.7%	26.3%	3.3%	0%	**33.3%**	-	4.2%	7.2%	3.4%	0%	**14.8%**	-	5.4%	7.5%	6.2%	0%	**19.1%**	-	-
PHF	0.835	0.957	0.804	-	**0.953**	-	0.892	0.954	0.902	-	**0.957**	-	0.887	0.880	0.890	-	**0.955**	-	0.868	0.810	0.891	0.250	**0.937**	-	0.984
Lights	194	848	119	0	**1161**	-	132	930	118	0	**1180**	-	149	254	120	0	**523**	-	187	263	219	1	**670**	-	3534
% Lights	98.5%	99.3%	100%	0%	**99.2%**	-	100%	99.0%	99.2%	0%	**99.2%**	-	100%	98.8%	99.2%	0%	**99.2%**	-	97.9%	97.8%	99.1%	100%	**98.2%**	-	99.0%
Articulated Trucks	0	2	0	0	**2**	-	0	6	0	0	**6**	-	0	1	0	0	**1**	-	1	0	0	0	**1**	-	10
% Articulated Trucks	0%	0.2%	0%	0%	**0.2%**	-	0%	0.6%	0%	0%	**0.5%**	-	0%	0.4%	0%	0%	**0.2%**	-	0.5%	0%	0%	0%	**0.1%**	-	0.3%
Buses and Single-Unit Trucks	3	4	0	0	**7**	-	0	3	1	0	**4**	-	0	2	1	0	**3**	-	3	6	2	0	**11**	-	25
% Buses and Single-Unit Trucks	1.5%	0.5%	0%	0%	**0.6%**	-	0%	0.3%	0.8%	0%	**0.3%**	-	0%	0.8%	0.8%	0%	**0.6%**	-	1.6%	2.2%	0.9%	0%	**1.6%**	-	0.7%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	66.7%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	33.3%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

APPENDIX C
IDOT Crash Map

N

1 inch = 530 Feet

IDOT Crash Data (2015-2019)

Proposed Retail Center
Downers Grove, IL

Map Center: 88.00992°W 41.80863°N

APPENDIX D

CMAP Correspondence

Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

March 31, 2021

Justin Opitz, AICP
Transportation Planner
Gewalt Hamilton Associates
625 Forest Edge Drive
Vernon Hills, IL 60061

Subject: Ogden Avenue @ Main Street
IDOT

Dear Mr. Opitz:

In response to a request made on your behalf and dated March 30, 2020, we have developed year 2050 average daily traffic (AADT) projections for the subject location.

ROAD SEGMENT	Current Volume	Year 2050 AADT
Ogden Ave east of Main St	28,200	31,100
Ogden Ave west of Main St	25,400	28,800
Main St north of Ogden Ave	21,400	23,000
Main St south of Ogden Ave	14,900	16,000

Traffic projections are developed using existing ADT data provided in the request letter and the results from the June 2020 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

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

cc: Quigley (IDOT)
2021_CY_TrafficForecast\DownersGrove\du-15-21\du-15-21.docx

APPENDIX E

ITE 10th Edition Trip Generation Excerpts

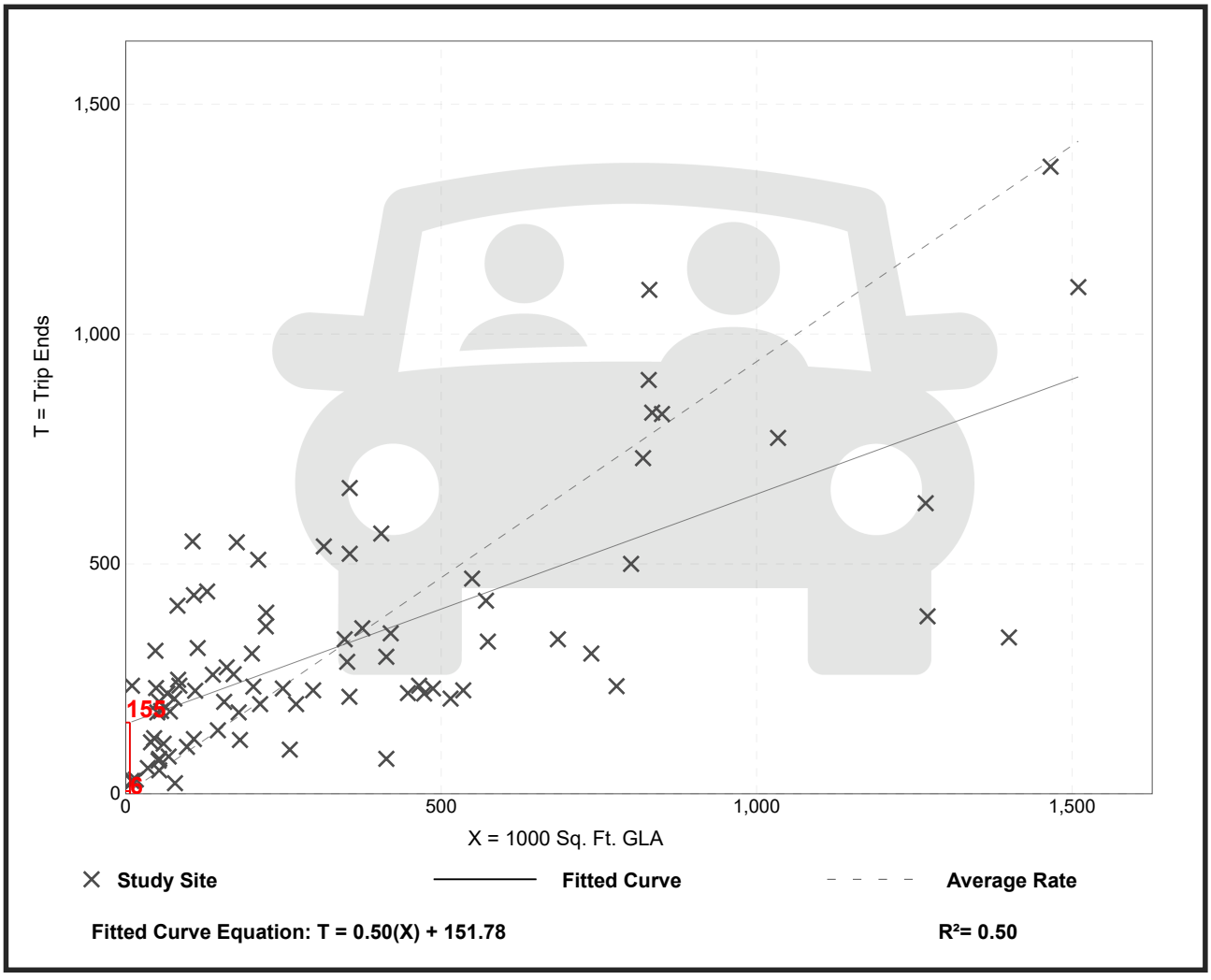
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 84
Avg. 1000 Sq. Ft. GLA: 351
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



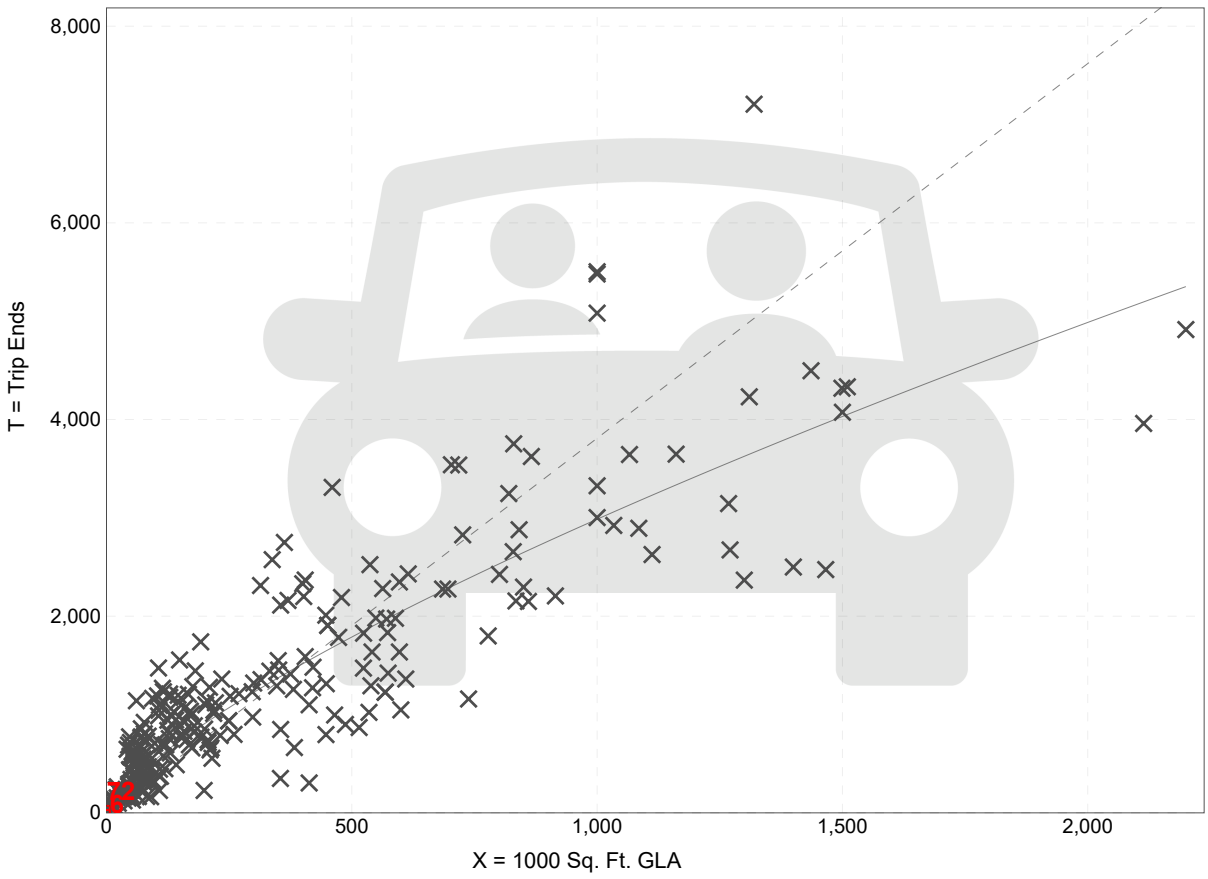
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 261
Avg. 1000 Sq. Ft. GLA: 327
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.74 Ln(X) + 2.89 **R^2= 0.82**

Trip Gen Manual, 10th Ed + Supplement ● Institute of Transportation Engineers

Shopping Center
(820)

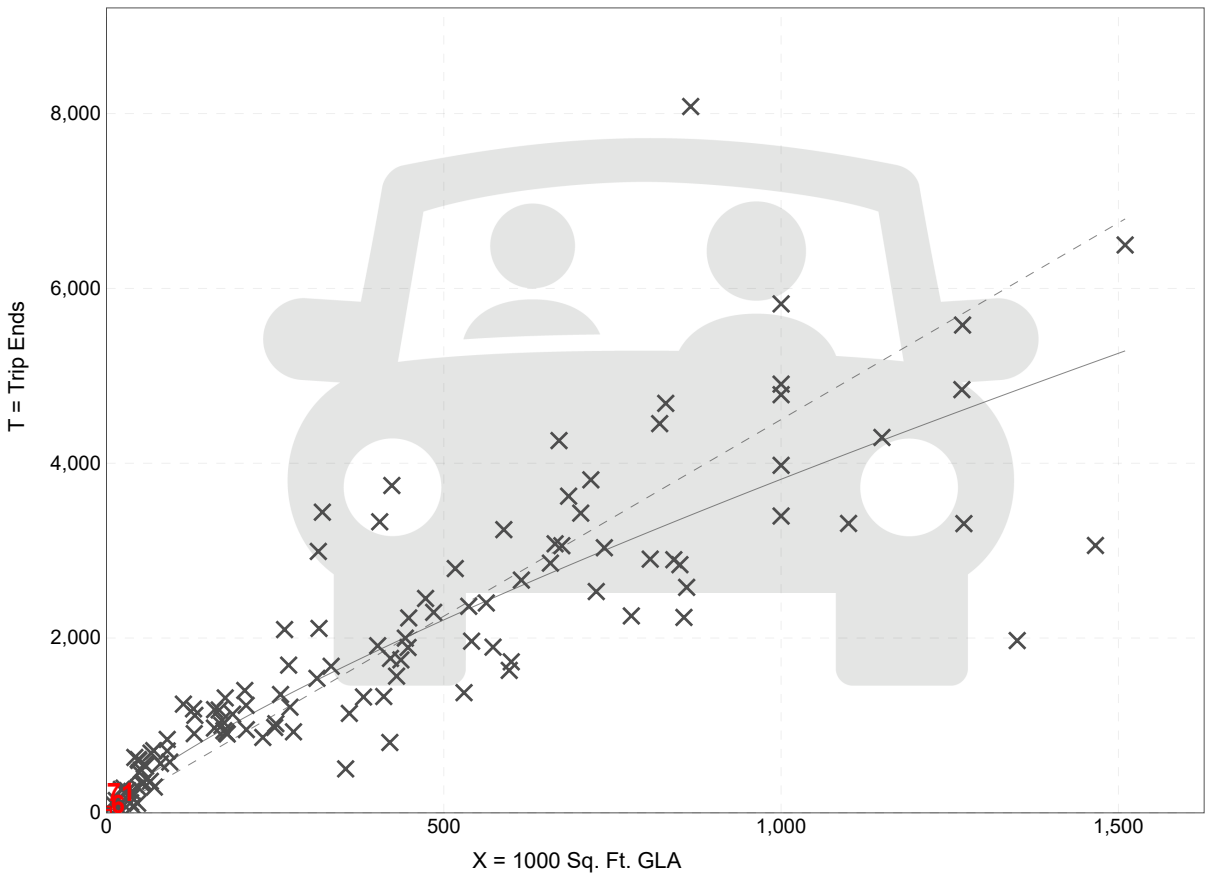
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 119
Avg. 1000 Sq. Ft. GLA: 416
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.50	1.42 - 15.10	1.88

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.79 Ln(X) + 2.79 **R^2= 0.87**

Trip Gen Manual, 10th Ed + Supplement ● Institute of Transportation Engineers

Shopping Center
(820)

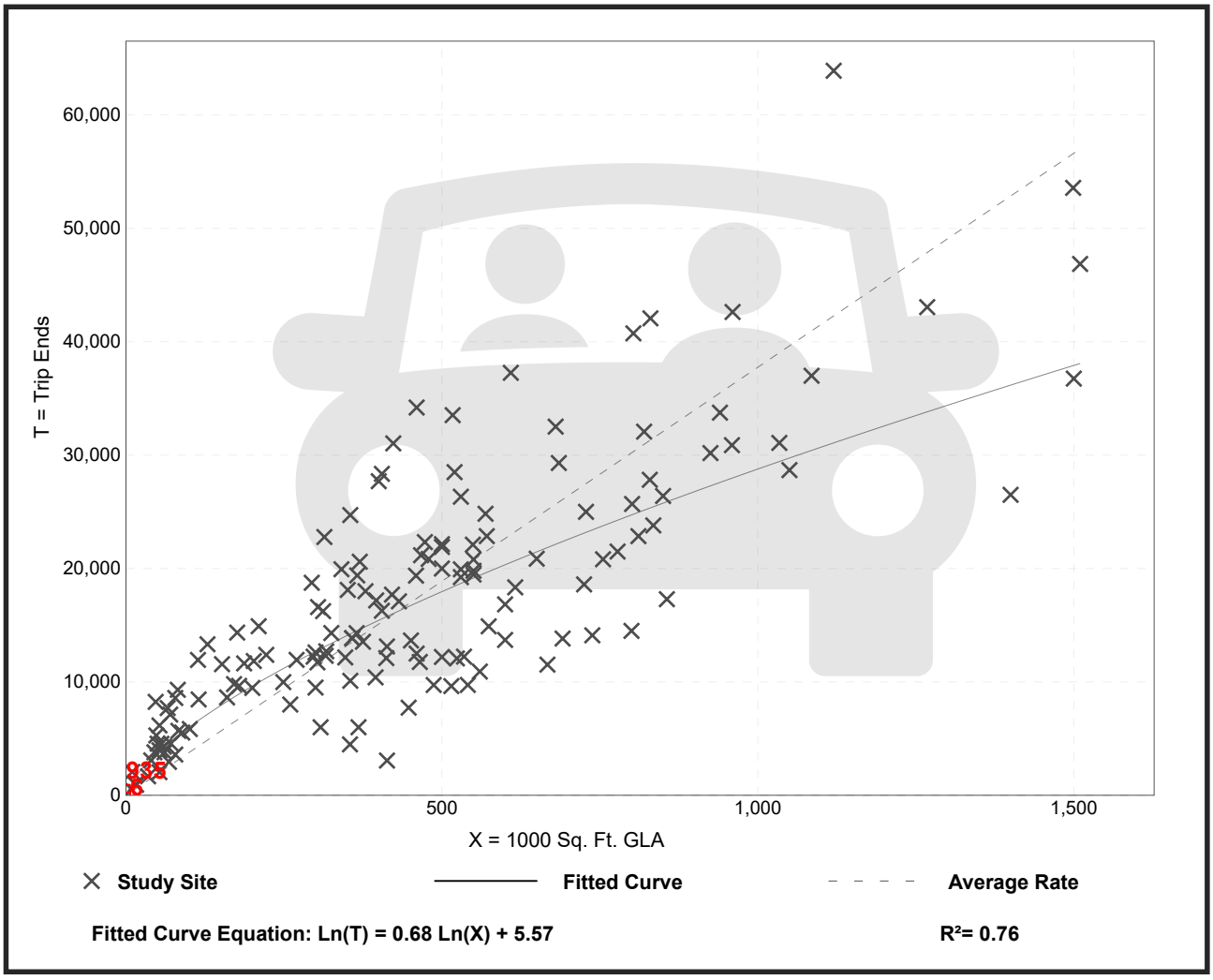
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 147
Avg. 1000 Sq. Ft. GLA: 453
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
37.75	7.42 - 207.98	16.41

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.68 Ln(X) + 5.57 **R^2= 0.76**

APPENDIX F

Capacity Analyses Sheets

HCS7 Two-Way Stop-Control Report

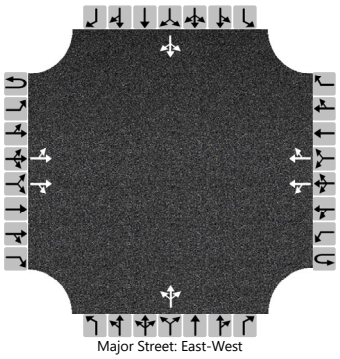
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2021
Time Analyzed	EX AM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		3	1123	16		0	977	5		1	0	25		1	0	11
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				0					30				14	
Capacity, c (veh/h)		633				542					386				406	
v/c Ratio		0.01				0.00					0.08				0.03	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.1	
Control Delay (s/veh)		10.7				11.6					15.1				14.2	
Level of Service (LOS)		B				B					C				B	
Approach Delay (s/veh)	0.1				0.0				15.1				14.2			
Approach LOS									C				B			

HCS7 Two-Way Stop-Control Report

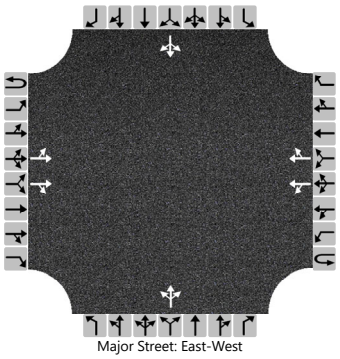
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2021
Time Analyzed	EX PM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	1397	21		0	1450	32		1	1	21		2	0	44
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				0					24				49	
Capacity, c (veh/h)		423				449					149				300	
v/c Ratio		0.01				0.00					0.16				0.16	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.6				0.6	
Control Delay (s/veh)		13.5				13.0					33.9				19.4	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)		0.2				0.0				33.9				19.4		
Approach LOS										D				C		

HCS7 Two-Way Stop-Control Report

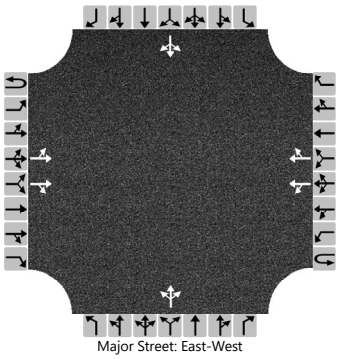
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2021
Time Analyzed	EX SAT
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	1450	17		0	1437	32		1	2	21		1	0	29
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

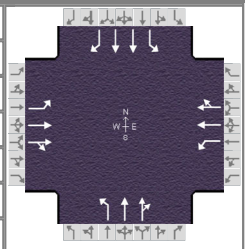
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				0					25				31	
Capacity, c (veh/h)		441				442					98				317	
v/c Ratio		0.01				0.00					0.25				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.9				0.3	
Control Delay (s/veh)		13.3				13.1					53.6				17.6	
Level of Service (LOS)		B				B					F				C	
Approach Delay (s/veh)		0.6				0.0				53.6				17.6		
Approach LOS										F				C		

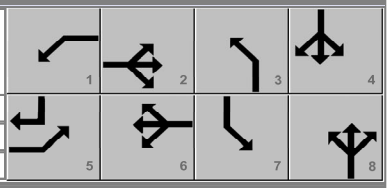
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	262	876	73	104	792	93	104	284	73	193	237	235

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	Begin	Green	6.8	3.6		59.3	8.9	0.1	25.2					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	3.5	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



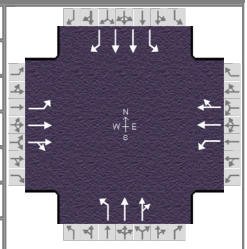
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	262	876	73	104	792	93	104	284	73	193	237	235
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	5		7	5		4	3		4	3	2
Ped / Bike / RTOR, /h	2	0	0	1	0	0	0	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	38.0	67.0	14.0	43.0	16.0	33.0	16.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

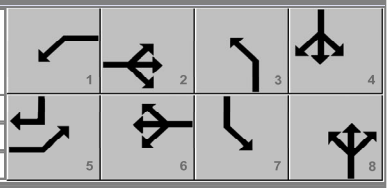
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	262	876	73	104	792	93	104	284	73	193	237	235

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.8	3.6	59.3	8.9	0.1	25.2						
Yellow	3.5	3.5	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



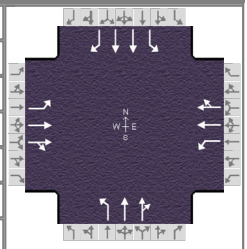
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	17.4	72.4	10.3	65.3	12.4	31.2	16.0	34.8
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.2	4.1	11.2
Queue Clearance Time (*g s*), s	12.9		6.7		8.8	15.4	14.5	19.5
Green Extension Time (*g e*), s	1.0	0.0	0.1	0.0	0.1	9.7	0.0	9.3
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.25		1.00	0.99	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	294	541	526	117	507	488	117	205	196	217	266	264
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1826	1776	1711	1826	1758	1753	1856	1725	1753	1859	1583
Queue Service Time (*g s*), s	10.9	20.3	21.4	4.7	22.4	23.5	6.8	13.0	13.4	12.5	7.8	17.5
Cycle Queue Clearance Time (*g c*), s	10.9	20.3	21.4	4.7	22.4	23.5	6.8	13.0	13.4	12.5	7.8	17.5
Green Ratio (*g/C*)	0.58	0.51	0.51	0.51	0.46	0.46	0.26	0.19	0.19	0.31	0.22	0.33
Capacity (*c*), veh/h	399	933	908	313	833	802	336	360	335	312	824	521
Volume-to-Capacity Ratio (*X*)	0.737	0.579	0.579	0.373	0.608	0.608	0.348	0.570	0.584	0.695	0.323	0.507
Back of Queue (*Q*), ft/ln (95 th percentile)	206	303	311.2	89.9	355	357.9	141.7	281.8	267.4	259.9	172.2	296.9
Back of Queue (*Q*), veh/ln (95 th percentile)	8.0	11.7	12.4	3.4	13.7	14.3	5.5	11.0	10.7	10.1	6.7	11.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.90	0.00	0.00	0.38	0.00	0.00	0.44	0.00	0.00	0.93	0.00	1.06
Uniform Delay (*d 1*), s/veh	19.1	13.3	14.7	18.2	18.2	20.0	38.0	47.5	47.6	37.2	42.4	35.2
Incremental Delay (*d 2*), s/veh	2.7	2.6	2.7	0.7	3.3	3.4	0.6	6.4	7.3	6.5	1.0	3.5
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	21.8	16.0	17.4	18.9	21.5	23.4	38.6	53.9	54.9	43.7	43.5	38.7
Level of Service (LOS)	C	B	B	B	C	C	D	D	D	D	D	D
Approach Delay, s/veh / LOS	17.8	B		22.1	C		50.8	D		41.8	D	
Intersection Delay, s/veh / LOS	28.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.61	B	1.40	A	0.91	A	1.10	A

HCS7 Signalized Intersection Intermediate Values

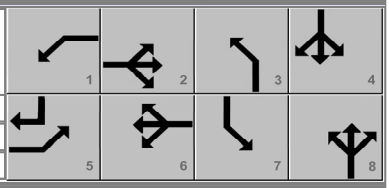
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	262	876	73	104	792	93	104	284	73	193	237	235

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.8	3.6		59.3	8.9	0.1	25.2					
Yellow	3.5	3.5		4.5	3.5	3.5	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



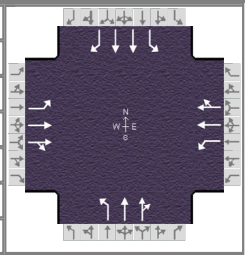
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.961	1.000	0.945	0.961	1.000	0.969	0.977	1.000	0.969	0.977	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.972	0.972		0.963	0.963		0.930	0.930		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			1.000			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3325	277	1711	3207	377	1753	2858	723	1753	3719	1583
Proportion of Vehicles Arriving on Green (P)	0.11	0.68	0.51	0.05	0.61	0.46	0.07	0.19	0.19	0.10	0.22	0.22
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.26	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.58	0.51	0.51	0.46	0.26	0.19	0.31	0.22
Permitted Saturation Flow Rate (s_p), veh/h/ln	562	0	508	0	1095	0	968	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	61.3	0.0	59.3	0.0	25.2	0.0	27.2	0.0
Permitted Service Time (g_u), s	35.8	0.0	43.0	0.0	19.0	0.0	11.8	0.0
Permitted Queue Service Time (g_{ps}), s	28.1		4.9		0.7		4.9	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1585
Protected Right Effective Green Time (g_R), s								13.9

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.110	0.000	0.119	0.000	0.150	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1022.17	15.54	912.69	19.21	388.37	42.21	443.12	39.39
Bicycle F_w / F_v	-3.64	1.12	-3.64	0.92	-3.64	0.43	-3.64	0.62

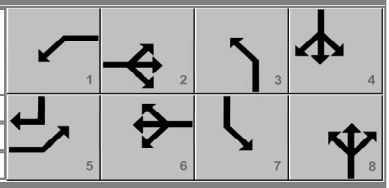
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX AM.xus		
Project Description	5816.900				

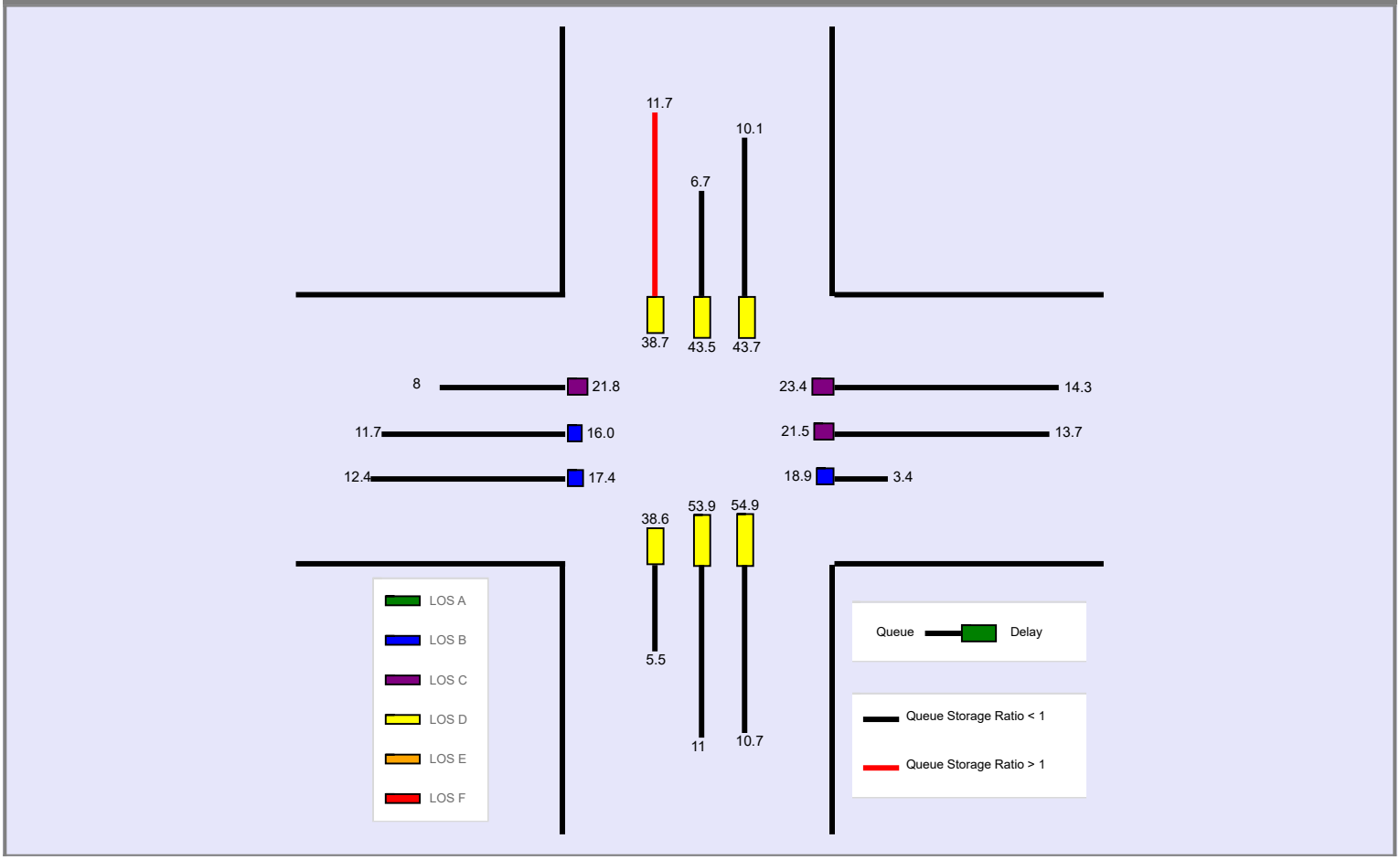


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	262	876	73	104	792	93	104	284	73	193	237	235

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	Begin									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.8	3.6	59.3	8.9	0.1	25.2		
				Yellow	3.5	3.5	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	206	303	311.2	89.9	355	357.9	141.7	281.8	267.4	259.9	172.2	296.9
Back of Queue (*Q*), veh/ln (95 th percentile)	8.0	11.7	12.4	3.4	13.7	14.3	5.5	11.0	10.7	10.1	6.7	11.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.90	0.00	0.00	0.38	0.00	0.00	0.44	0.00	0.00	0.93	0.00	1.06
Control Delay (*d*), s/veh	21.8	16.0	17.4	18.9	21.5	23.4	38.6	53.9	54.9	43.7	43.5	38.7
Level of Service (LOS)	C	B	B	B	C	C	D	D	D	D	D	D
Approach Delay, s/veh / LOS	17.8		B	22.1		C	50.8		D	41.8		D
Intersection Delay, s/veh / LOS	28.4						C					



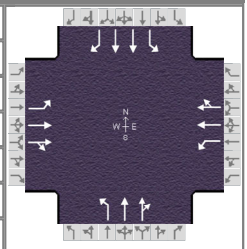
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

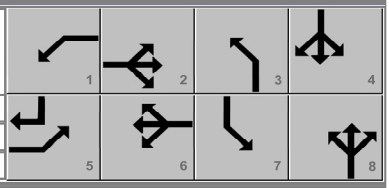
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	1008	79	150	1194	151	164	287	141	271	477	477

Signal Information													
Cycle, s	140.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On	Green	8.7	3.1	62.7	11.5	3.5	28.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5			
				Red	0.0	0.0	1.5	0.0	0.0	1.5			



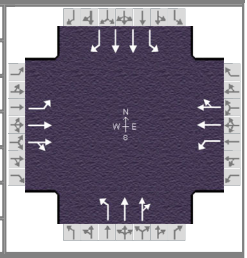
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	1008	79	150	1194	151	164	287	141	271	477	477
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		1	2		2	3	1
Ped / Bike / RTOR, /h	1	0	0	0	0	0	0	0	0	2	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	22.0	62.0	22.0	62.0	15.0	34.0	22.0	41.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

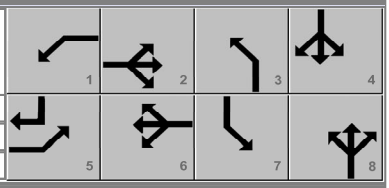
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	1008	79	150	1194	151	164	287	141	271	477	477

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.7	3.1	62.7	11.5	3.5	28.0						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



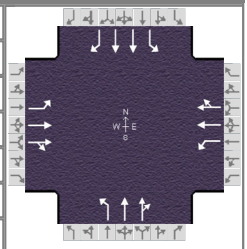
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	15.3	71.8	12.2	68.7	15.0	34.0	22.0	41.0
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	10.9	4.1	10.9
Queue Clearance Time (*g s*), s	11.4		8.4		12.4	18.3	19.0	37.0
Green Extension Time (*g e*), s	0.4	0.0	0.3	0.0	0.0	9.3	0.0	0.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.13		0.01		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	227	568	553	155	705	682	169	230	211	279	492	492
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1836	1810	1885	1811	1795	1870	1664	1781	1859	1594
Queue Service Time (*g s*), s	9.4	26.3	27.3	6.4	42.1	43.8	10.4	15.7	16.3	17.0	16.0	35.0
Cycle Queue Clearance Time (*g c*), s	9.4	26.3	27.3	6.4	42.1	43.8	10.4	15.7	16.3	17.0	16.0	35.0
Green Ratio (*g/C*)	0.54	0.47	0.47	0.51	0.45	0.45	0.28	0.20	0.20	0.35	0.25	0.33
Capacity (*c*), veh/h	254	886	863	297	843	810	310	374	333	366	930	534
Volume-to-Capacity Ratio (*X*)	0.892	0.641	0.641	0.520	0.836	0.842	0.546	0.614	0.635	0.763	0.529	0.921
Back of Queue (*Q*), ft/ln (95 th percentile)	228.6	405.6	416.9	126.2	642.6	662.2	214.2	328	306.8	333.5	314.4	684.3
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	16.1	16.7	5.0	25.5	26.5	8.5	12.9	12.3	13.1	12.3	27.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.99	0.00	0.00	0.54	0.00	0.00	0.66	0.00	0.00	1.19	0.00	2.44
Uniform Delay (*d 1*), s/veh	29.5	18.8	20.1	21.9	24.1	26.5	40.4	51.1	51.3	37.2	45.4	44.8
Incremental Delay (*d 2*), s/veh	19.9	3.5	3.6	1.4	9.6	10.3	2.0	7.4	8.9	9.2	2.2	23.6
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	49.4	22.3	23.8	23.3	33.7	36.8	42.3	58.4	60.2	46.3	47.5	68.4
Level of Service (LOS)	D	C	C	C	C	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	27.5	C		34.0	C		54.6	D		55.4	E	
Intersection Delay, s/veh / LOS	40.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.43	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.60	B	1.76	B	0.99	A	1.53	B

HCS7 Signalized Intersection Intermediate Values

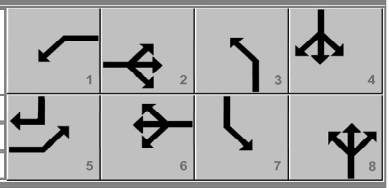
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	1008	79	150	1194	151	164	287	141	271	477	477

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.7	3.1	62.7	11.5	3.5	28.0						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



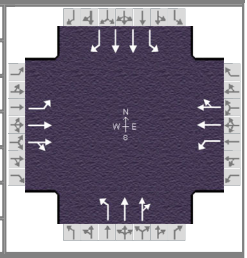
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	0.992	0.984	1.000	0.984	0.977	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.974	0.974		0.961	0.961		0.890	0.890		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			1.000			1.000			0.998
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3451	270	1810	3283	413	1795	2391	1144	1781	3719	1594
Proportion of Vehicles Arriving on Green (P)	0.08	0.63	0.47	0.06	0.60	0.45	0.08	0.20	0.20	0.13	0.25	0.25
Incremental Delay Factor (k)	0.24	0.50	0.50	0.11	0.50	0.50	0.14	0.50	0.50	0.31	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.54	0.47	0.51	0.45	0.28	0.20	0.35	0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	390	0	511	0	912	0	948	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	64.3	0.0	62.6	0.0	28.0	0.0	30.0	0.0
Permitted Service Time (g_u), s	18.7	0.0	36.5	0.0	17.0	0.0	11.7	0.0
Permitted Queue Service Time (g_{ps}), s	18.7		11.4		2.5		7.6	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								11.9

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.119	0.000	0.123	0.000	0.152	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	939.65	19.68	895.30	21.36	400.00	44.80	500.00	39.38
Bicycle F_w / F_v	-3.64	1.11	-3.64	1.27	-3.64	0.50	-3.64	1.04

HCS7 Signalized Intersection Results Graphical Summary

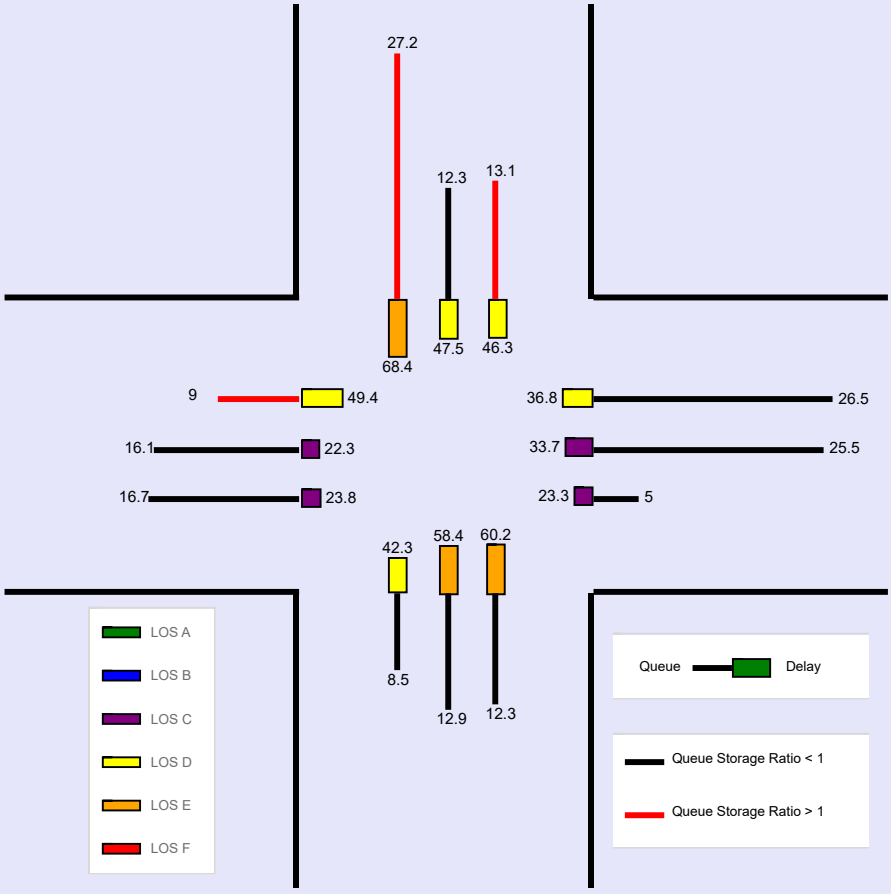
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	1008	79	150	1194	151	164	287	141	271	477	477

Signal Information													
Cycle, s	140.0	Reference Phase	2										
Offset, s	0	Reference Point	Begin										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	8.7	3.1	62.7	11.5	3.5	28.0			
				Yellow	3.5	0.0	4.5	3.5	3.5	4.5			
				Red	0.0	0.0	1.5	0.0	0.0	1.5			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	228.6	405.6	416.9	126.2	642.6	662.2	214.2	328	306.8	333.5	314.4	684.3
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	16.1	16.7	5.0	25.5	26.5	8.5	12.9	12.3	13.1	12.3	27.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.99	0.00	0.00	0.54	0.00	0.00	0.66	0.00	0.00	1.19	0.00	2.44
Control Delay (*d*), s/veh	49.4	22.3	23.8	23.3	33.7	36.8	42.3	58.4	60.2	46.3	47.5	68.4
Level of Service (LOS)	D	C	C	C	C	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	27.5	C		34.0	C		54.6	D		55.4	E	
Intersection Delay, s/veh / LOS	40.5						D					



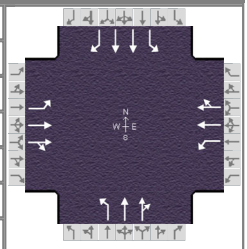
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS7 Signalized Intersection Input Data

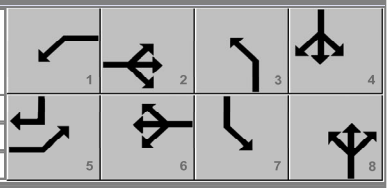
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX SAT.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	240	1042	145	162	1159	146	195	337	159	271	382	314

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.5	3.1		59.0	13.1	0.4	26.9					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



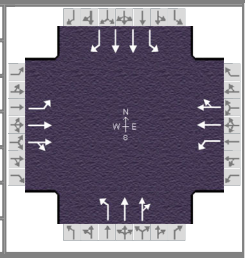
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	240	1042	145	162	1159	146	195	337	159	271	382	314
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		0	1		2	2	1
Ped / Bike / RTOR, /h	2	0	0	1	0	0	1	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.0	62.0	18.0	59.0	17.0	33.0	17.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

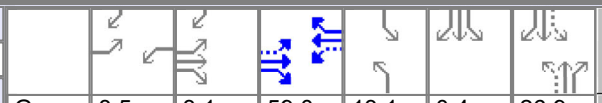
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX SAT.xus		
Project Description	5816.900				

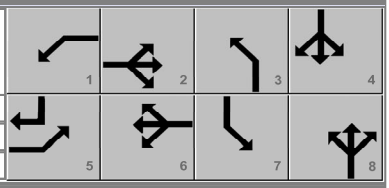


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	240	1042	145	162	1159	146	195	337	159	271	382	314

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.5	3.1	59.0	13.1	0.4	26.9						
Yellow	3.5	0.0	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



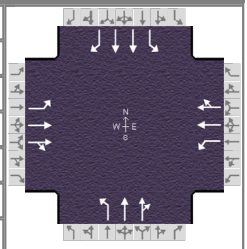
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	15.1	68.1	12.0	65.0	16.6	32.9	17.0	33.3
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.3	4.1	11.3
Queue Clearance Time (*g s*), s	11.2		8.3		13.1	19.3	15.5	24.9
Green Extension Time (*g e*), s	0.4	0.0	0.2	0.0	0.0	7.2	0.0	2.4
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.22		0.17		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	245	618	593	165	677	654	199	264	242	277	390	320
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1804	1810	1885	1811	1810	1885	1680	1781	1874	1595
Queue Service Time (*g s*), s	9.2	27.5	29.2	6.3	35.4	37.0	11.1	16.8	17.3	13.5	11.9	22.9
Cycle Queue Clearance Time (*g c*), s	9.2	27.5	29.2	6.3	35.4	37.0	11.1	16.8	17.3	13.5	11.9	22.9
Green Ratio (*g/C*)	0.56	0.48	0.48	0.52	0.45	0.45	0.31	0.21	0.21	0.31	0.21	0.30
Capacity (*c*), veh/h	284	900	861	285	855	821	342	390	348	306	786	477
Volume-to-Capacity Ratio (*X*)	0.861	0.687	0.689	0.580	0.792	0.796	0.582	0.678	0.695	0.903	0.496	0.671
Back of Queue (*Q*), ft/ln (95 th percentile)	215.5	411.9	436.2	123	535.9	555.2	224	350.2	328.7	217.1	248.5	381.2
Back of Queue (*Q*), veh/ln (95 th percentile)	8.5	16.3	17.4	4.9	21.3	22.2	9.0	13.9	13.1	8.5	9.8	15.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00	0.00	0.52	0.00	0.00	0.69	0.00	0.00	0.78	0.00	1.36
Uniform Delay (*d 1*), s/veh	25.9	17.3	19.6	21.2	21.0	23.2	35.9	47.6	47.8	41.4	45.3	40.0
Incremental Delay (*d 2*), s/veh	15.2	4.3	4.5	1.9	7.4	7.9	2.4	9.1	10.9	28.3	2.2	7.3
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	41.1	21.6	24.1	23.1	28.5	31.1	38.3	56.7	58.7	69.6	47.5	47.3
Level of Service (LOS)	D	C	C	C	C	C	D	E	E	E	D	D
Approach Delay, s/veh / LOS	25.9	C		29.0	C		52.2	D		53.6	D	
Intersection Delay, s/veh / LOS	36.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.31	B
Bicycle LOS Score / LOS	1.69	B	1.72	B	1.07	A	1.30	A

HCS7 Signalized Intersection Intermediate Values

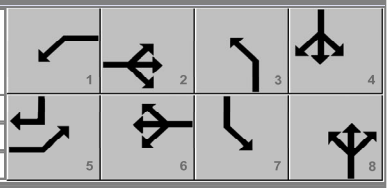
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX SAT.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	240	1042	145	162	1159	146	195	337	159	271	382	314

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.5	3.1	59.0	13.1	0.4	26.9						
Yellow	3.5	0.0	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



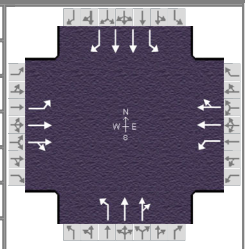
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	1.000	0.992	1.000	0.984	0.984	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.957	0.957		0.960	0.960		0.891	0.891		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			0.999			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3239	450	1810	3283	412	1810	2438	1128	1781	3749	1595
Proportion of Vehicles Arriving on Green (P)	0.09	0.64	0.48	0.07	0.60	0.45	0.10	0.21	0.21	0.10	0.21	0.21
Incremental Delay Factor (k)	0.24	0.50	0.50	0.11	0.50	0.50	0.17	0.50	0.50	0.42	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.56	0.48	0.52	0.45	0.31	0.21	0.31	0.21
Permitted Saturation Flow Rate (s_p), veh/h/ln	411	0	469	0	1010	0	893	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	60.6	0.0	59.0	0.0	26.9	0.0	26.9	0.0
Permitted Service Time (g_u), s	22.0	0.0	30.8	0.0	13.3	0.0	9.6	0.0
Permitted Queue Service Time (g_{ps}), s	22.0		15.3		3.3		9.6	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								11.6

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.115	0.000	0.119	0.000	0.149	0.000	0.149
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	955.04	17.74	907.22	19.41	413.78	40.89	419.29	40.60
Bicycle F_w / F_v	-3.64	1.20	-3.64	1.23	-3.64	0.58	-3.64	0.81

HCS7 Signalized Intersection Results Graphical Summary

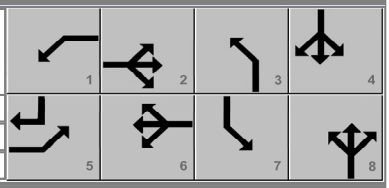
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	EX SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2021	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St EX SAT.xus		
Project Description	5816.900				



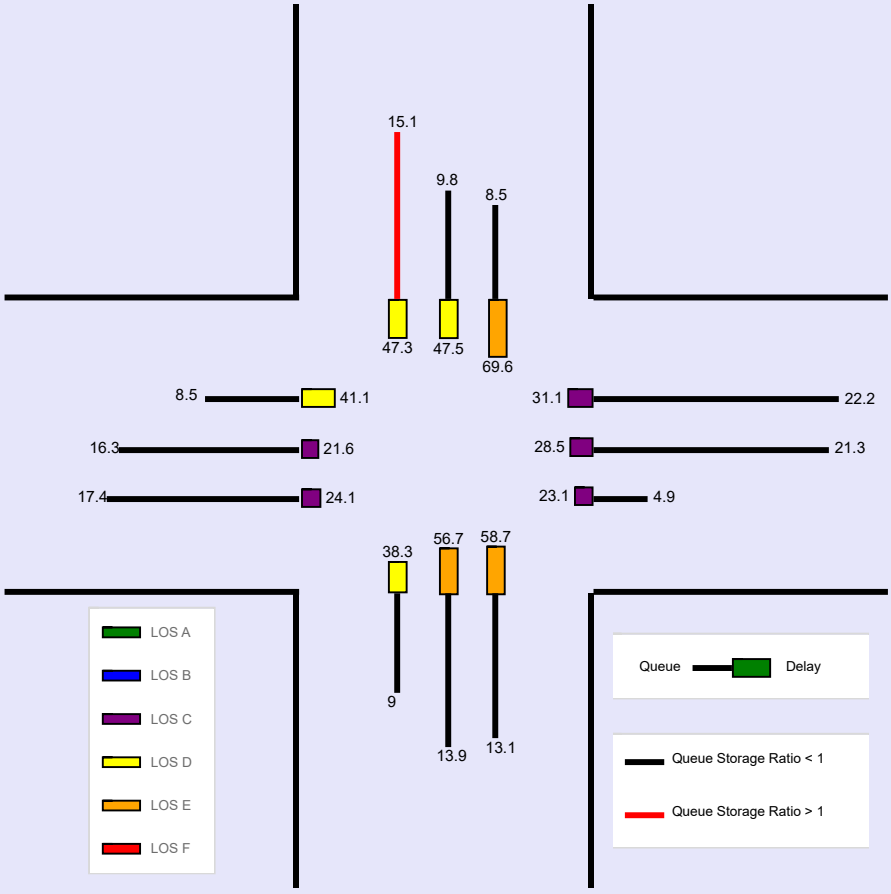
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	240	1042	145	162	1159	146	195	337	159	271	382	314

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.5	3.1		59.0	13.1	0.4	26.9					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	215.5	411.9	436.2	123	535.9	555.2	224	350.2	328.7	217.1	248.5	381.2
Back of Queue (*Q*), veh/ln (95 th percentile)	8.5	16.3	17.4	4.9	21.3	22.2	9.0	13.9	13.1	8.5	9.8	15.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00	0.00	0.52	0.00	0.00	0.69	0.00	0.00	0.78	0.00	1.36
Control Delay (*d*), s/veh	41.1	21.6	24.1	23.1	28.5	31.1	38.3	56.7	58.7	69.6	47.5	47.3
Level of Service (LOS)	D	C	C	C	C	C	D	E	E	E	D	D
Approach Delay, s/veh / LOS	25.9	C		29.0	C		52.2	D		53.6	D	
Intersection Delay, s/veh / LOS	36.8						D					



--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS7 Two-Way Stop-Control Report

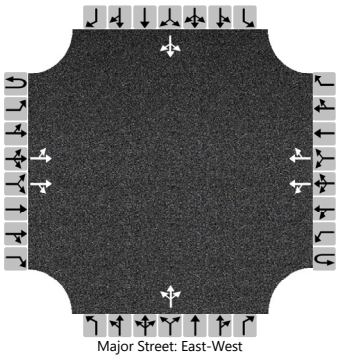
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	NB AM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		3	1166	16		0	1003	5		1	0	25		1	0	11
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				0					30				14	
Capacity, c (veh/h)		617				520					370				395	
v/c Ratio		0.01				0.00					0.08				0.03	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.3				0.1	
Control Delay (s/veh)		10.9				11.9					15.6				14.5	
Level of Service (LOS)		B				B					C				B	
Approach Delay (s/veh)		0.1				0.0				15.6				14.5		
Approach LOS										C				B		

HCS7 Two-Way Stop-Control Report

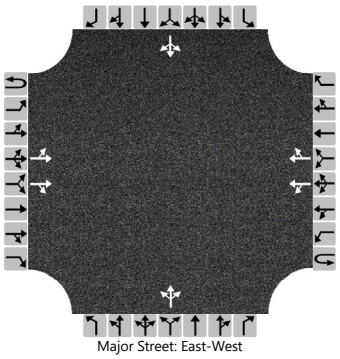
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	NB PM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	1447	21		0	1489	32		1	1	21		2	0	44
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				0					24				49	
Capacity, c (veh/h)		408				429					134				289	
v/c Ratio		0.01				0.00					0.18				0.17	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.6				0.6	
Control Delay (s/veh)		13.9				13.4					37.8				20.0	
Level of Service (LOS)		B				B					E				C	
Approach Delay (s/veh)		0.3				0.0				37.8				20.0		
Approach LOS										E				C		

HCS7 Two-Way Stop-Control Report

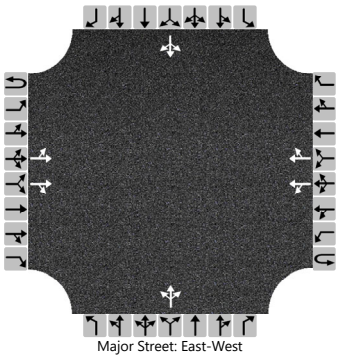
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	NB SAT
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	1503	17		0	1475	32		1	2	21		1	0	29
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

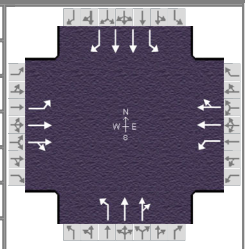
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				0					25				31	
Capacity, c (veh/h)		426				421					86				306	
v/c Ratio		0.01				0.00					0.29				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.0					1.1				0.3	
Control Delay (s/veh)		13.6				13.6					63.3				18.1	
Level of Service (LOS)		B				B					F				C	
Approach Delay (s/veh)	0.7				0.0				63.3				18.1			
Approach LOS									F				C			

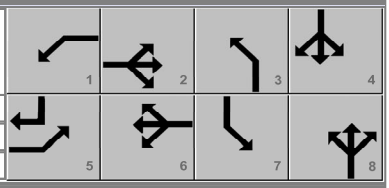
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	912	76	107	813	95	107	291	75	198	243	241

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	Begin	Green	7.0	4.1		58.5	9.1	3.4	25.5					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



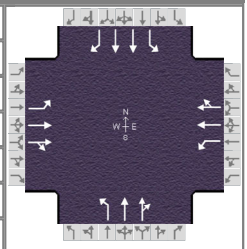
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	912	76	107	813	95	107	291	75	198	243	241
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	5		7	5		4	3		4	3	2
Ped / Bike / RTOR, /h	2	0	0	1	0	0	0	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	38.0	67.0	14.0	43.0	16.0	33.0	16.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

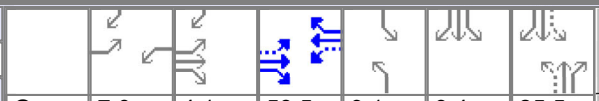
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB AM.xus		
Project Description	5816.900				

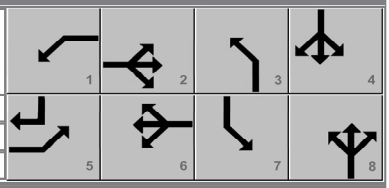


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	912	76	107	813	95	107	291	75	198	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	4.1	58.5	9.1	3.4	25.5						
Yellow	3.5	3.5	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



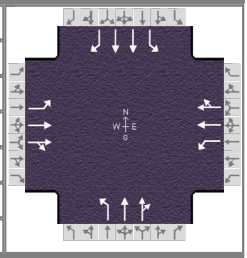
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	18.1	72.0	10.5	64.5	12.6	31.5	16.0	34.8
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.2	4.1	11.2
Queue Clearance Time (g_s), s	13.5		6.9		9.0	15.8	14.5	19.9
Green Extension Time (g_e), s	1.0	0.0	0.1	0.0	0.1	9.6	0.0	9.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.37		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	307	563	547	120	520	500	120	211	201	222	273	271
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1826	1776	1711	1826	1758	1753	1856	1725	1753	1859	1583
Queue Service Time (g_s), s	11.5	22.0	23.1	4.9	23.9	25.0	7.0	13.4	13.8	12.5	8.0	17.9
Cycle Queue Clearance Time (g_c), s	11.5	22.0	23.1	4.9	23.9	25.0	7.0	13.4	13.8	12.5	8.0	17.9
Green Ratio (*g/C*)	0.58	0.51	0.51	0.50	0.45	0.45	0.27	0.20	0.20	0.31	0.22	0.33
Capacity (*c*), veh/h	395	927	902	301	821	791	336	364	338	310	825	529
Volume-to-Capacity Ratio (*X*)	0.777	0.607	0.607	0.399	0.633	0.633	0.358	0.580	0.593	0.717	0.331	0.512
Back of Queue (*Q*), ft/ln (95 th percentile)	217.1	326.1	334	94.2	377.8	379	145.5	288.1	273.1	268.5	176.7	302.2
Back of Queue (*Q*), veh/ln (95 th percentile)	8.5	12.5	13.4	3.6	14.5	15.2	5.6	11.3	10.9	10.4	6.9	11.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00	0.00	0.40	0.00	0.00	0.45	0.00	0.00	0.96	0.00	1.08
Uniform Delay (d_1), s/veh	20.4	13.9	15.2	18.8	19.1	20.9	37.8	47.4	47.6	37.7	42.5	34.8
Incremental Delay (d_2), s/veh	3.3	2.9	3.0	0.9	3.7	3.8	0.6	6.6	7.5	7.7	1.1	3.5
Initial Queue Delay (d_3), 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
Control Delay (*d*), s/veh	23.7	16.8	18.2	19.7	22.8	24.7	38.4	54.0	55.0	45.4	43.5	38.3
Level of Service (LOS)	C	B	B	B	C	C	D	D	E	D	D	D
Approach Delay, s/veh / LOS	18.9	B		23.3	C		50.9	D		42.2	D	
Intersection Delay, s/veh / LOS	29.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.66	B	1.43	A	0.93	A	1.12	A

HCS7 Signalized Intersection Intermediate Values

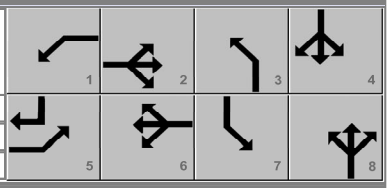
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	912	76	107	813	95	107	291	75	198	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	4.1	58.5	9.1	3.4	25.5						
Yellow	3.5	3.5	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



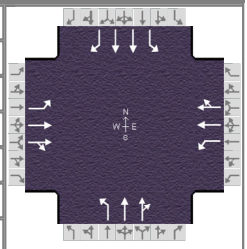
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.961	1.000	0.945	0.961	1.000	0.969	0.977	1.000	0.969	0.977	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.972	0.972		0.963	0.963		0.930	0.930		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			1.000			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3325	277	1711	3209	375	1753	2856	725	1753	3719	1583
Proportion of Vehicles Arriving on Green (P)	0.11	0.68	0.51	0.05	0.60	0.45	0.07	0.20	0.20	0.10	0.22	0.22
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.28	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.58	0.51	0.50	0.45	0.27	0.20	0.31	0.22
Permitted Saturation Flow Rate (s_p), veh/h/ln	548	0	488	0	1089	0	959	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	60.5	0.0	58.5	0.0	25.5	0.0	27.3	0.0
Permitted Service Time (g_u), s	33.5	0.0	40.9	0.0	18.8	0.0	11.7	0.0
Permitted Queue Service Time (g_{ps}), s	33.5		5.8		0.8		6.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1585
Protected Right Effective Green Time (g_R), s								14.6

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.111	0.000	0.119	0.000	0.150	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1015.75	15.74	899.33	19.69	391.82	42.03	443.77	39.36
Bicycle F_w / F_v	-3.64	1.17	-3.64	0.94	-3.64	0.44	-3.64	0.63

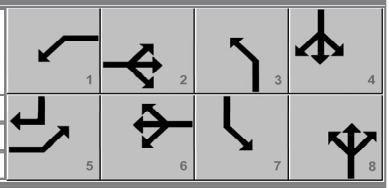
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB AM.xus		
Project Description	5816.900				

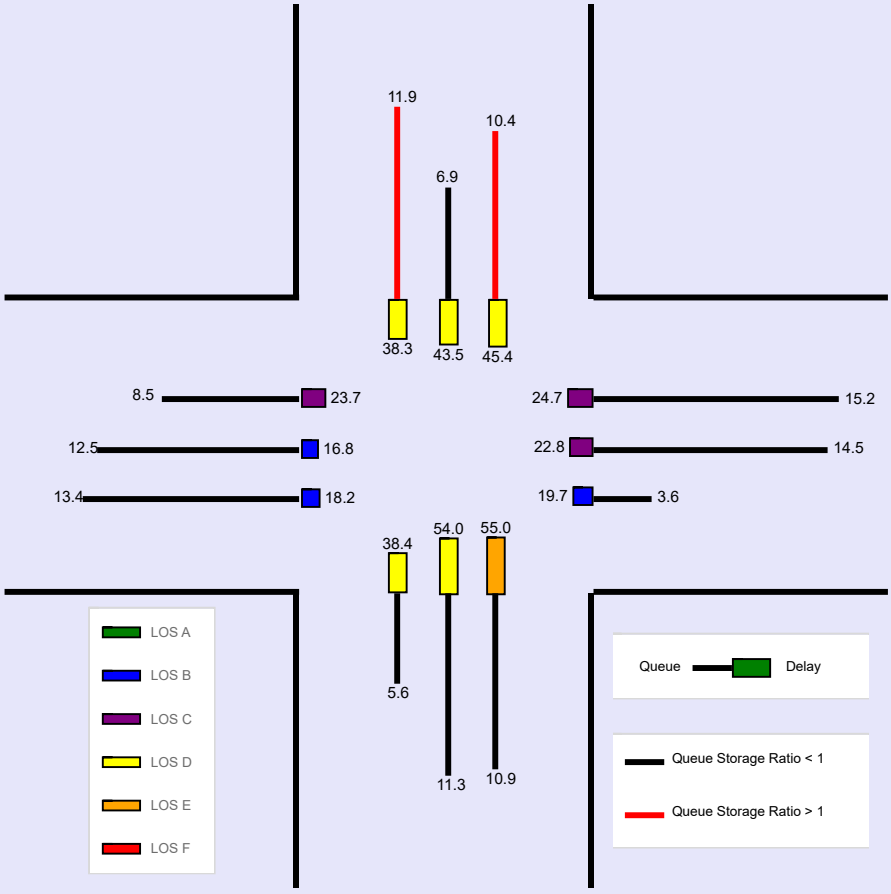


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	912	76	107	813	95	107	291	75	198	243	241

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	Begin	Green	7.0	4.1		58.5	9.1	3.4	25.5					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	217.1	326.1	334	94.2	377.8	379	145.5	288.1	273.1	268.5	176.7	302.2
Back of Queue (*Q*), veh/ln (95 th percentile)	8.5	12.5	13.4	3.6	14.5	15.2	5.6	11.3	10.9	10.4	6.9	11.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00	0.00	0.40	0.00	0.00	0.45	0.00	0.00	0.96	0.00	1.08
Control Delay (*d*), s/veh	23.7	16.8	18.2	19.7	22.8	24.7	38.4	54.0	55.0	45.4	43.5	38.3
Level of Service (LOS)	C	B	B	B	C	C	D	D	E	D	D	D
Approach Delay, s/veh / LOS	18.9	B		23.3	C		50.9	D		42.2	D	
Intersection Delay, s/veh / LOS	29.2						C					



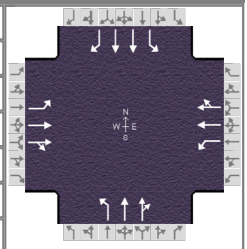
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

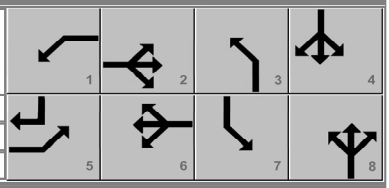
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1049	82	154	1225	155	168	294	144	277	488	488

Signal Information					EB			WB			NB			SB		
Cycle, s	140.0	Reference Phase	2													
Offset, s	0	Reference Point	Begin	Green	9.1	1.4		60.6	11.5	3.5	28.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	3.5	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



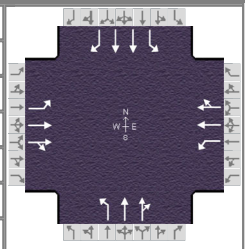
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1049	82	154	1225	155	168	294	144	277	488	488
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		1	2		2	3	1
Ped / Bike / RTOR, /h	1	0	0	0	0	0	0	0	0	2	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	22.0	62.0	22.0	62.0	15.0	34.0	22.0	41.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

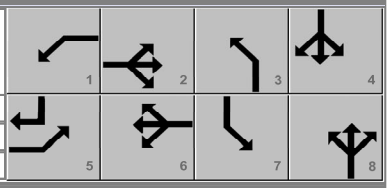
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1049	82	154	1225	155	168	294	144	277	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.1	1.4	60.6	11.5	3.5	28.0	
Yellow	3.5	3.5	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



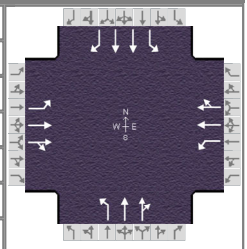
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	17.4	71.4	12.6	66.6	15.0	34.0	22.0	41.0
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	10.9	4.1	10.9
Queue Clearance Time (*g s*), s	13.6		8.8		12.7	18.7	19.5	37.0
Green Extension Time (*g e*), s	0.3	0.0	0.3	0.0	0.0	8.9	0.0	0.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.57		0.01		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	236	590	576	159	723	700	173	235	216	286	503	503
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1836	1810	1885	1811	1795	1870	1665	1781	1859	1594
Queue Service Time (*g s*), s	11.6	28.4	29.4	6.8	46.5	48.0	10.7	16.1	16.7	17.5	16.4	35.0
Cycle Queue Clearance Time (*g c*), s	11.6	28.4	29.4	6.8	46.5	48.0	10.7	16.1	16.7	17.5	16.4	35.0
Green Ratio (*g/C*)	0.55	0.47	0.47	0.50	0.43	0.43	0.28	0.20	0.20	0.35	0.25	0.35
Capacity (*c*), veh/h	262	881	858	288	815	783	306	374	333	362	930	558
Volume-to-Capacity Ratio (*X*)	0.900	0.670	0.671	0.552	0.886	0.894	0.566	0.629	0.650	0.788	0.541	0.902
Back of Queue (*Q*), ft/ln (95 th percentile)	382.8	434.2	445.8	134.3	726.8	743.8	219.7	336.2	314	345.7	321.2	677.1
Back of Queue (*Q*), veh/ln (95 th percentile)	15.1	17.2	17.8	5.4	28.8	29.8	8.7	13.2	12.6	13.6	12.5	26.9
Queue Storage Ratio (*RQ*) (95 th percentile)	1.66	0.00	0.00	0.57	0.00	0.00	0.68	0.00	0.00	1.23	0.00	2.42
Uniform Delay (*d 1*), s/veh	36.2	19.4	20.8	23.1	26.7	29.1	40.5	51.2	51.5	37.4	45.5	43.3
Incremental Delay (*d 2*), s/veh	23.8	4.0	4.2	1.7	13.6	14.8	2.4	7.8	9.5	11.0	2.3	20.3
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	60.0	23.4	24.9	24.8	40.3	43.9	42.9	59.0	60.9	48.4	47.8	63.6
Level of Service (LOS)	E	C	C	C	D	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	30.2	C		40.3	D		55.2	E		54.1	D	
Intersection Delay, s/veh / LOS	43.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.44	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.64	B	1.79	B	1.00	A	1.55	B

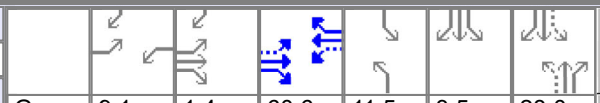
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB PM.xus		
Project Description	5816.900				

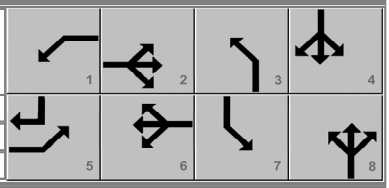


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1049	82	154	1225	155	168	294	144	277	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.1	1.4	60.6	11.5	3.5	28.0
Yellow	3.5	3.5	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	1.5



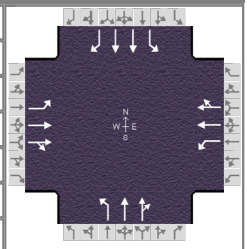
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	0.992	0.984	1.000	0.984	0.977	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.974	0.974		0.961	0.961		0.890	0.890		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			1.000			1.000			0.998
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3452	270	1810	3283	413	1795	2392	1143	1781	3719	1594
Proportion of Vehicles Arriving on Green (P)	0.10	0.62	0.47	0.06	0.58	0.43	0.08	0.20	0.20	0.13	0.25	0.25
Incremental Delay Factor (k)	0.29	0.50	0.50	0.11	0.50	0.50	0.16	0.50	0.50	0.33	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.55	0.47	0.50	0.43	0.28	0.20	0.35	0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	377	0	489	0	903	0	939	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	62.5	0.0	60.5	0.0	28.0	0.0	30.0	0.0
Permitted Service Time (g_u), s	12.4	0.0	34.0	0.0	16.6	0.0	11.3	0.0
Permitted Queue Service Time (g_{ps}), s	12.4		12.7		2.7		8.2	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								14.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.120	0.000	0.125	0.000	0.152	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	934.56	19.87	865.26	22.53	400.00	44.80	500.00	39.38
Bicycle F_w / F_v	-3.64	1.16	-3.64	1.30	-3.64	0.52	-3.64	1.07

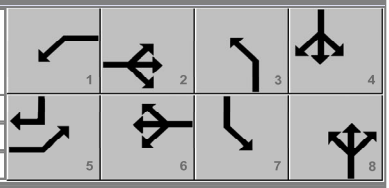
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB PM.xus		
Project Description	5816.900				

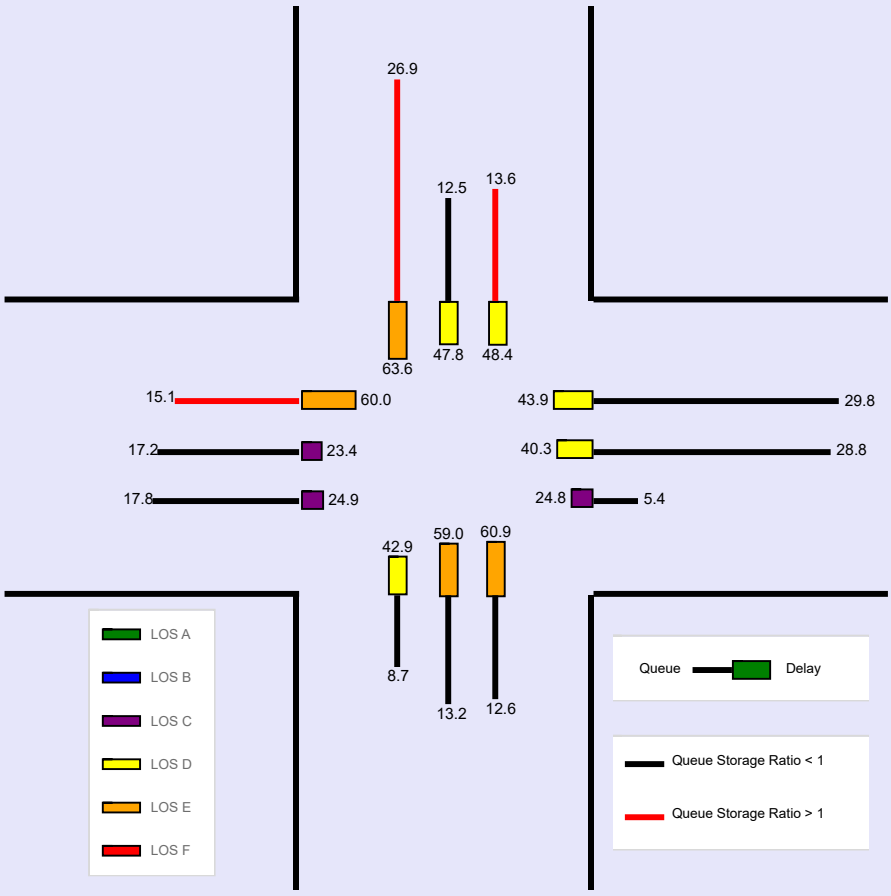


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1049	82	154	1225	155	168	294	144	277	488	488

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	Begin									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	9.1	1.4	60.6	11.5	3.5	28.0		
				Yellow	3.5	3.5	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	382.8	434.2	445.8	134.3	726.8	743.8	219.7	336.2	314	345.7	321.2	677.1
Back of Queue (*Q*), veh/ln (95 th percentile)	15.1	17.2	17.8	5.4	28.8	29.8	8.7	13.2	12.6	13.6	12.5	26.9
Queue Storage Ratio (*RQ*) (95 th percentile)	1.66	0.00	0.00	0.57	0.00	0.00	0.68	0.00	0.00	1.23	0.00	2.42
Control Delay (*d*), s/veh	60.0	23.4	24.9	24.8	40.3	43.9	42.9	59.0	60.9	48.4	47.8	63.6
Level of Service (LOS)	E	C	C	C	D	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	30.2	C		40.3	D		55.2	E		54.1	D	
Intersection Delay, s/veh / LOS	43.0						D					



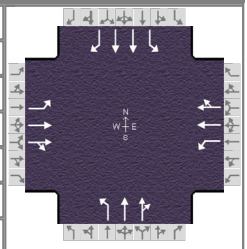
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

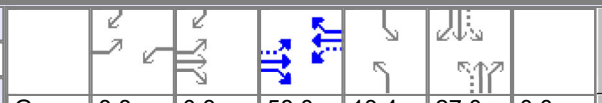
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB SAT.xus		
Project Description	5816.900				

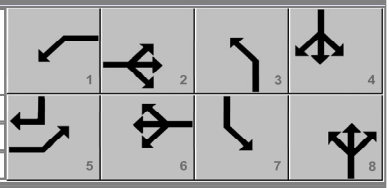


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1085	151	166	1189	150	200	345	163	277	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.8	0.3	58.0	13.4	27.0	0.0
Yellow	3.5	3.5	4.5	3.5	4.5	0.0
Red	0.0	0.0	1.5	0.0	1.5	0.0



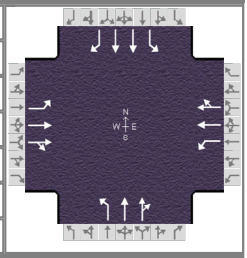
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1085	151	166	1189	150	200	345	163	277	391	322
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		0	1		2	2	1
Ped / Bike / RTOR, /h	2	0	0	1	0	0	1	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.0	62.0	18.0	59.0	17.0	33.0	17.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

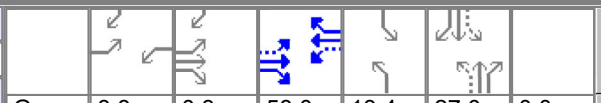
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB SAT.xus		
Project Description	5816.900				

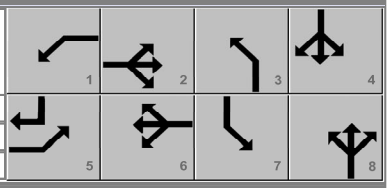


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1085	151	166	1189	150	200	345	163	277	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.8	0.3	58.0	13.4	27.0	0.0						
Yellow	3.5	3.5	4.5	3.5	4.5	0.0						
Red	0.0	0.0	1.5	0.0	1.5	0.0						



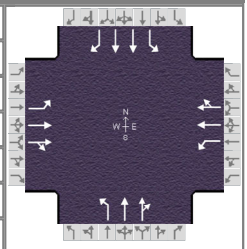
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	16.1	67.8	12.3	64.0	16.9	32.9	17.0	33.0
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.3	4.1	11.3
Queue Clearance Time (*g s*), s	12.2		8.5		13.4	19.8	15.5	25.4
Green Extension Time (*g e*), s	0.4	0.0	0.2	0.0	0.0	6.8	0.0	1.6
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.44		0.21		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	255	643	618	169	695	672	204	271	247	283	399	329
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1804	1810	1885	1811	1810	1885	1680	1781	1874	1595
Queue Service Time (*g s*), s	10.2	29.8	31.6	6.5	38.2	39.7	11.4	17.3	17.8	13.5	12.3	23.4
Cycle Queue Clearance Time (*g c*), s	10.2	29.8	31.6	6.5	38.2	39.7	11.4	17.3	17.8	13.5	12.3	23.4
Green Ratio (*g/C*)	0.56	0.48	0.48	0.51	0.45	0.45	0.31	0.21	0.21	0.31	0.21	0.31
Capacity (*c*), veh/h	284	896	857	274	840	807	340	391	348	302	780	487
Volume-to-Capacity Ratio (*X*)	0.899	0.718	0.721	0.617	0.827	0.832	0.600	0.694	0.711	0.935	0.512	0.675
Back of Queue (*Q*), ft/ln (95 th percentile)	248.5	444.5	469.2	129.1	583.4	601.5	229.4	359.4	337.1	242.4	254.4	388.2
Back of Queue (*Q*), veh/ln (95 th percentile)	9.8	17.6	18.8	5.2	23.1	24.1	9.2	14.3	13.5	9.5	10.0	15.4
Queue Storage Ratio (*RQ*) (95 th percentile)	1.08	0.00	0.00	0.55	0.00	0.00	0.71	0.00	0.00	0.87	0.00	1.39
Uniform Delay (*d 1*), s/veh	28.5	18.0	20.3	22.5	22.4	24.6	35.8	47.7	47.9	41.9	45.6	39.5
Incremental Delay (*d 2*), s/veh	21.8	4.9	5.2	2.3	9.2	9.8	2.9	9.7	11.7	34.9	2.4	7.3
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	50.2	22.9	25.5	24.7	31.5	34.4	38.7	57.5	59.6	76.8	48.0	46.8
Level of Service (LOS)	D	C	C	C	C	C	D	E	E	E	D	D
Approach Delay, s/veh / LOS	28.5	C		32.0	C		52.9	D		55.7	E	
Intersection Delay, s/veh / LOS	39.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.31	B
Bicycle LOS Score / LOS	1.74	B	1.75	B	1.08	A	1.32	A

HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB SAT.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1085	151	166	1189	150	200	345	163	277	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.8	0.3	58.0	13.4	27.0	0.0	1	2	3	4		
Yellow	3.5	3.5	4.5	3.5	4.5	0.0	5	6	7	8		
Red	0.0	0.0	1.5	0.0	1.5	0.0						

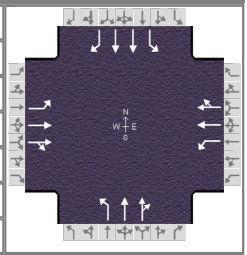
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	1.000	0.992	1.000	0.984	0.984	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.957	0.957		0.960	0.960		0.891	0.891		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			0.999			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3239	450	1810	3283	413	1810	2436	1130	1781	3749	1595
Proportion of Vehicles Arriving on Green (P)	0.10	0.63	0.48	0.07	0.59	0.45	0.10	0.21	0.21	0.10	0.21	0.21
Incremental Delay Factor (k)	0.29	0.50	0.50	0.11	0.50	0.50	0.18	0.50	0.50	0.45	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.56	0.48	0.51	0.45	0.31	0.21	0.31	0.21
Permitted Saturation Flow Rate (s_p), veh/h/ln	398	0	447	0	1001	0	883	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	59.9	0.0	57.9	0.0	26.9	0.0	26.9	0.0
Permitted Service Time (g_u), s	18.1	0.0	28.1	0.0	12.8	0.0	9.1	0.0
Permitted Queue Service Time (g_{ps}), s	18.1		18.2		3.6		9.1	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								12.6

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.116	0.000	0.120	0.000	0.149	0.000	0.149
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	950.46	17.90	891.70	19.96	414.46	40.85	415.92	40.78
Bicycle F_w / F_v	-3.64	1.25	-3.64	1.27	-3.64	0.60	-3.64	0.83

HCS7 Signalized Intersection Results Graphical Summary

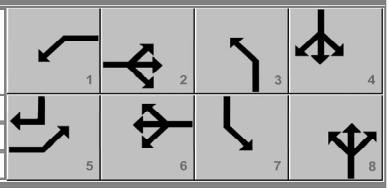
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	NB SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St NB SAT.xus		
Project Description	5816.900				



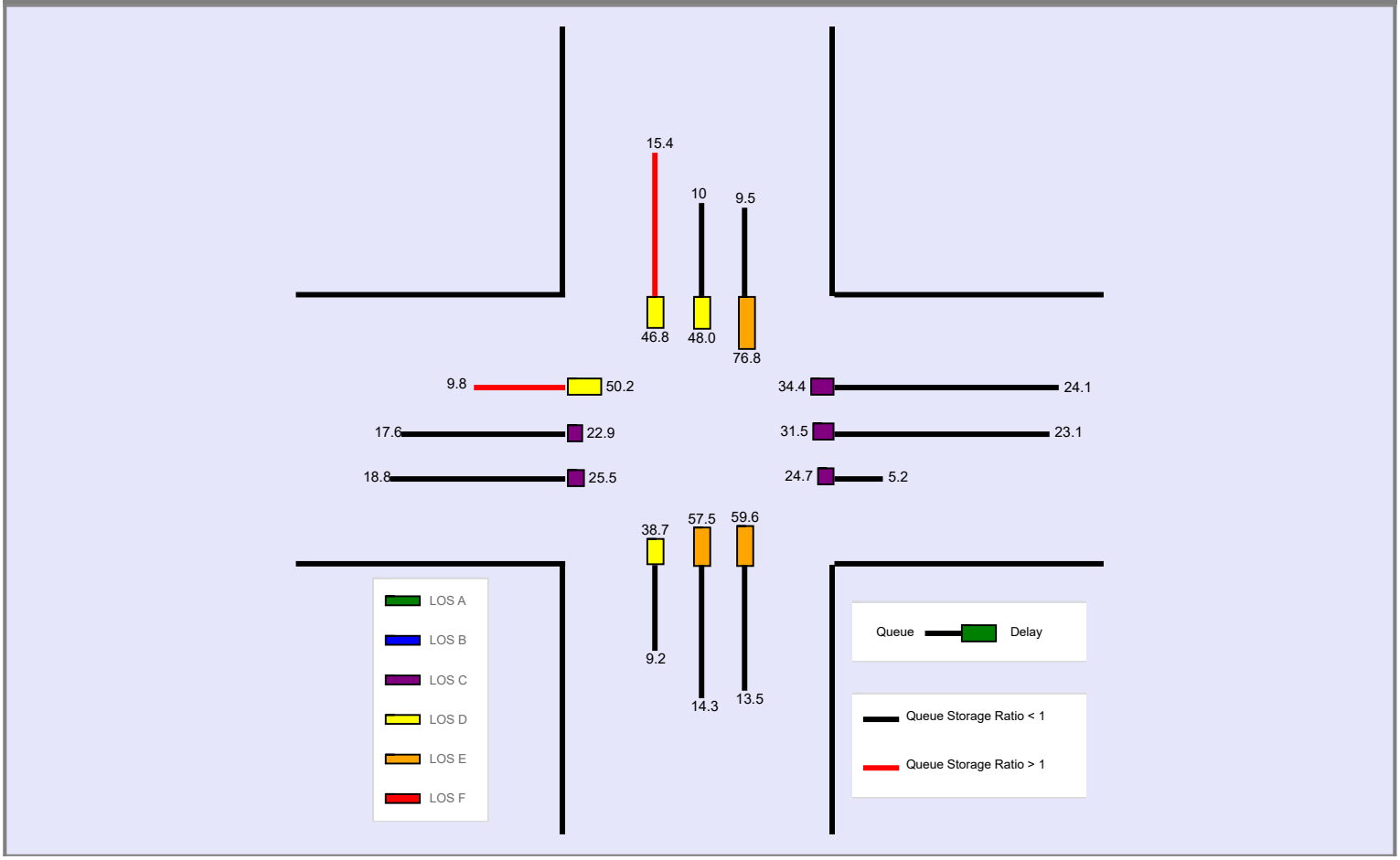
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1085	151	166	1189	150	200	345	163	277	391	322

Signal Information									
Cycle, s	130.0	Reference Phase	2						
Offset, s	0	Reference Point	Begin						
Uncoordinated	No	Simult. Gap E/W	On						
Force Mode	Fixed	Simult. Gap N/S	On						

Green	8.8	0.3	58.0	13.4	27.0	0.0
Yellow	3.5	3.5	4.5	3.5	4.5	0.0
Red	0.0	0.0	1.5	0.0	1.5	0.0



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	248.5	444.5	469.2	129.1	583.4	601.5	229.4	359.4	337.1	242.4	254.4	388.2
Back of Queue (*Q*), veh/ln (95 th percentile)	9.8	17.6	18.8	5.2	23.1	24.1	9.2	14.3	13.5	9.5	10.0	15.4
Queue Storage Ratio (*RQ*) (95 th percentile)	1.08	0.00	0.00	0.55	0.00	0.00	0.71	0.00	0.00	0.87	0.00	1.39
Control Delay (*d*), s/veh	50.2	22.9	25.5	24.7	31.5	34.4	38.7	57.5	59.6	76.8	48.0	46.8
Level of Service (LOS)	D	C	C	C	C	C	D	E	E	E	D	D
Approach Delay, s/veh / LOS	28.5	C		32.0	C		52.9	D		55.7	E	
Intersection Delay, s/veh / LOS	39.1						D					



--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS7 Two-Way Stop-Control Report

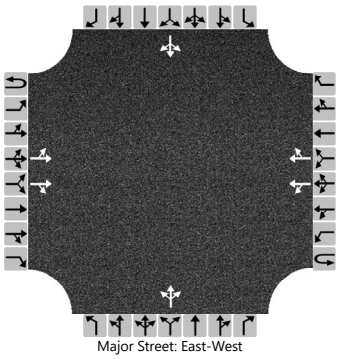
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL AM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		3	1200	50		0	1039	5		1	0	29		1	0	11
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				0					34				14	
Capacity, c (veh/h)		596				486					352				380	
v/c Ratio		0.01				0.00					0.10				0.04	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.3				0.1	
Control Delay (s/veh)		11.1				12.4					16.3				14.8	
Level of Service (LOS)		B				B					C				B	
Approach Delay (s/veh)		0.2				0.0				16.3				14.8		
Approach LOS										C				B		

HCS7 Two-Way Stop-Control Report

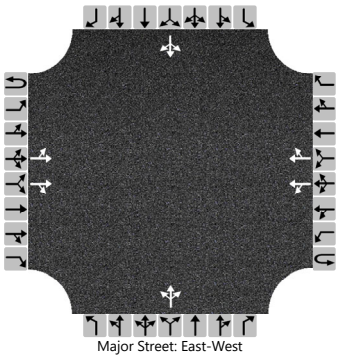
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL PM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	1460	32		0	1513	32		1	1	24		2	0	44
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				0					28				49	
Capacity, c (veh/h)		399				419					137				282	
v/c Ratio		0.01				0.00					0.20				0.17	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.7				0.6	
Control Delay (s/veh)		14.1				13.6					37.8				20.4	
Level of Service (LOS)		B				B					E				C	
Approach Delay (s/veh)	0.3				0.0				37.8				20.4			
Approach LOS									E				C			

HCS7 Two-Way Stop-Control Report

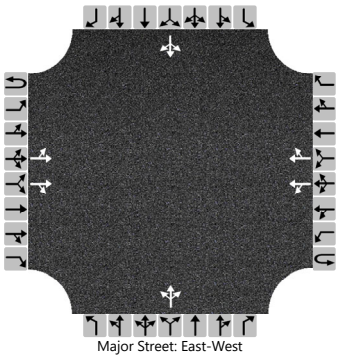
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL SAT
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	1517	29		0	1496	32		1	2	23		1	0	29
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage																
	Left Only									1						

Critical and Follow-up Headways

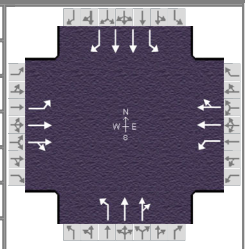
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				0					27				31	
Capacity, c (veh/h)		418				411					85				300	
v/c Ratio		0.01				0.00					0.32				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.0					1.2				0.3	
Control Delay (s/veh)		13.7				13.8					66.0				18.4	
Level of Service (LOS)		B				B					F				C	
Approach Delay (s/veh)	0.9				0.0				66.0				18.4			
Approach LOS									F				C			

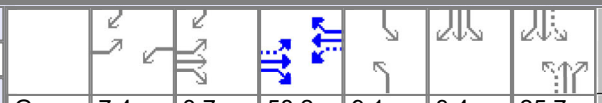
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL AM.xus		
Project Description	5816.900				

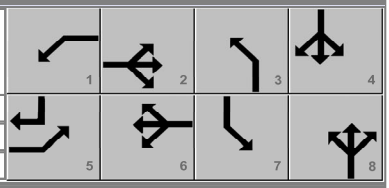


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	946	76	116	825	110	107	291	99	208	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.4	3.7		58.2	9.1	3.4	25.7					
Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



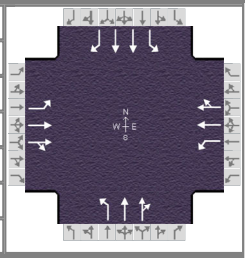
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	946	76	116	825	110	107	291	99	208	243	241
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	5		7	5		4	3		4	3	2
Ped / Bike / RTOR, /h	2	0	0	1	0	0	0	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	38.0	67.0	14.0	43.0	16.0	33.0	16.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

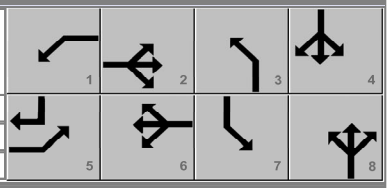
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	946	76	116	825	110	107	291	99	208	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.4	3.7	58.2	9.1	3.4	25.7						
Yellow	3.5	3.5	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



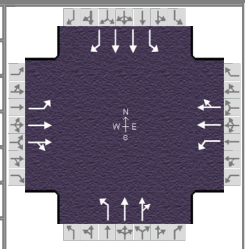
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	18.1	71.4	10.9	64.2	12.6	31.7	16.0	35.1
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.2	4.1	11.2
Queue Clearance Time (*g s*), s	13.6		7.3		9.0	16.9	14.5	19.8
Green Extension Time (*g e*), s	1.0	0.0	0.1	0.0	0.1	8.8	0.0	9.2
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.66		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	307	582	567	130	536	514	120	226	212	234	273	271
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1826	1777	1711	1826	1750	1753	1856	1695	1753	1859	1583
Queue Service Time (*g s*), s	11.6	23.7	24.9	5.3	25.3	26.5	7.0	14.5	14.9	12.5	8.0	17.8
Cycle Queue Clearance Time (*g c*), s	11.6	23.7	24.9	5.3	25.3	26.5	7.0	14.5	14.9	12.5	8.0	17.8
Green Ratio (*g/C*)	0.58	0.50	0.50	0.51	0.45	0.45	0.27	0.20	0.20	0.31	0.22	0.34
Capacity (*c*), veh/h	384	918	894	293	818	784	338	366	335	301	831	532
Volume-to-Capacity Ratio (*X*)	0.799	0.633	0.634	0.445	0.656	0.656	0.356	0.617	0.634	0.776	0.328	0.509
Back of Queue (*Q*), ft/ln (95 th percentile)	219.1	351.2	357.7	102.7	397.7	400.1	145	308.6	290.1	290.8	176.3	301.1
Back of Queue (*Q*), veh/ln (95 th percentile)	8.6	13.5	14.3	3.9	15.3	16.0	5.6	12.1	11.6	11.3	6.9	11.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.95	0.00	0.00	0.44	0.00	0.00	0.45	0.00	0.00	1.04	0.00	1.08
Uniform Delay (*d 1*), s/veh	21.4	14.5	15.9	19.3	19.6	21.6	37.6	47.7	47.9	38.9	42.3	34.6
Incremental Delay (*d 2*), s/veh	3.9	3.3	3.4	1.1	4.1	4.3	0.6	7.6	8.8	12.0	1.1	3.5
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	25.3	17.9	19.3	20.4	23.6	25.8	38.3	55.3	56.7	50.9	43.3	38.0
Level of Service (LOS)	C	B	B	C	C	C	D	E	E	D	D	D
Approach Delay, s/veh / LOS	20.0	B		24.2	C		52.1	D		43.8	D	
Intersection Delay, s/veh / LOS	30.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.69	B	1.46	A	0.95	A	1.13	A

HCS7 Signalized Intersection Intermediate Values

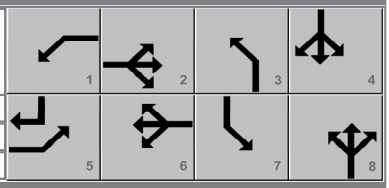
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL AM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	946	76	116	825	110	107	291	99	208	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.4	3.7		58.2	9.1	3.4	25.7					
Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



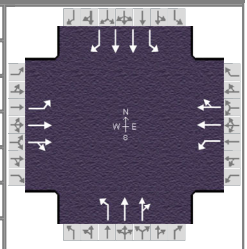
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.961	1.000	0.945	0.961	1.000	0.969	0.977	1.000	0.969	0.977	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.973	0.973		0.958	0.958		0.914	0.914		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			1.000			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3335	268	1711	3155	421	1753	2662	889	1753	3719	1583
Proportion of Vehicles Arriving on Green (P)	0.11	0.67	0.50	0.06	0.60	0.45	0.07	0.20	0.20	0.10	0.22	0.22
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.32	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.58	0.50	0.51	0.45	0.27	0.20	0.31	0.22
Permitted Saturation Flow Rate (s_p), veh/h/ln	533	0	470	0	1089	0	936	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	60.2	0.0	58.2	0.0	25.7	0.0	27.6	0.0
Permitted Service Time (g_u), s	31.7	0.0	38.5	0.0	19.1	0.0	10.8	0.0
Permitted Queue Service Time (g_{ps}), s	31.7		7.6		0.8		8.5	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1585
Protected Right Effective Green Time (g_R), s								14.6

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.111	0.000	0.120	0.000	0.150	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1006.02	16.05	895.60	19.82	394.92	41.86	447.09	39.19
Bicycle F_w / F_v	-3.64	1.20	-3.64	0.97	-3.64	0.46	-3.64	0.64

HCS7 Signalized Intersection Results Graphical Summary

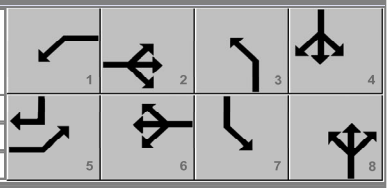
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL AM	PHF	0.89
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL AM.xus		
Project Description	5816.900				



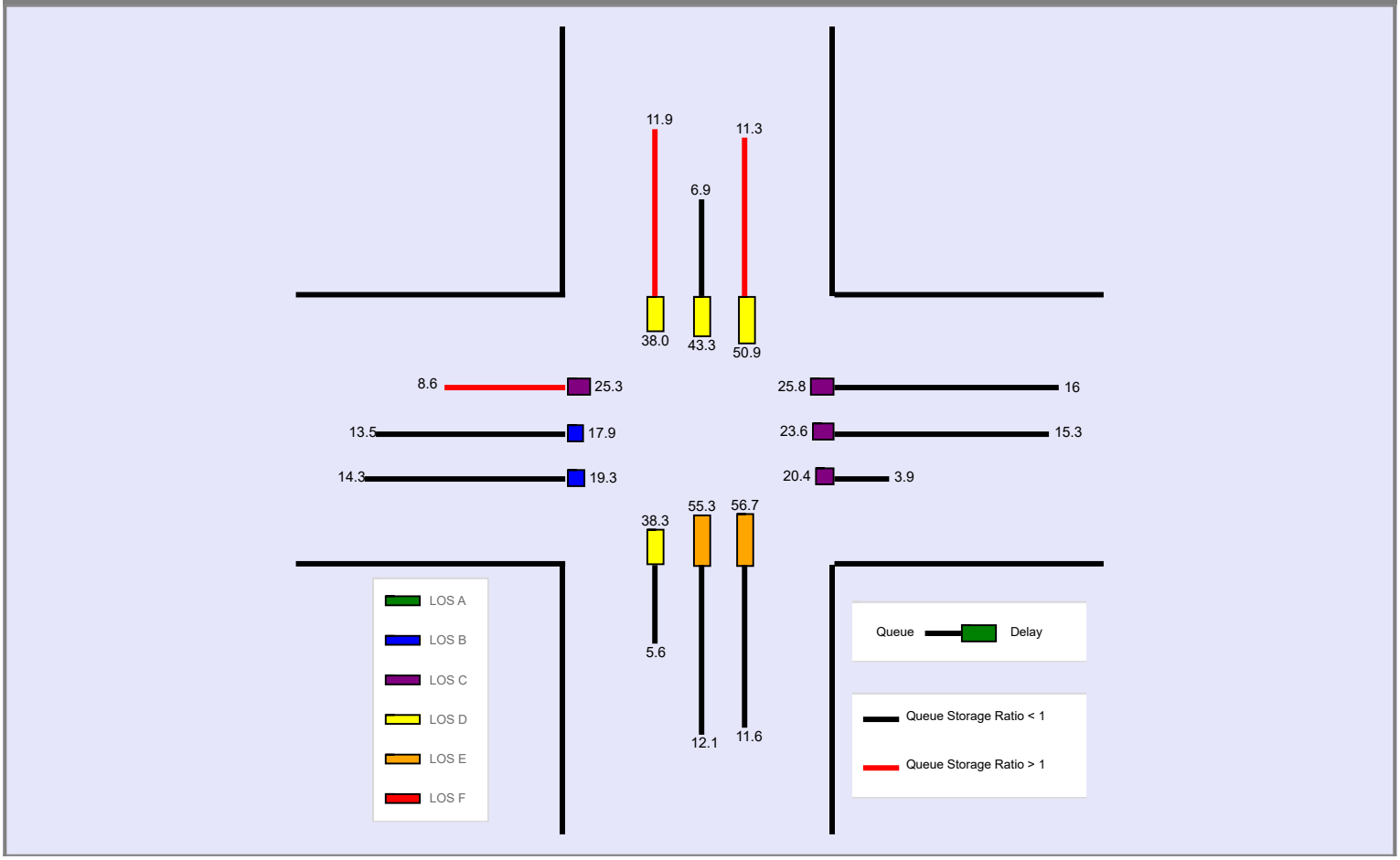
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	273	946	76	116	825	110	107	291	99	208	243	241

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.4	3.7		58.2	9.1	3.4	25.7					
Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Red	0.0	0.0		1.5	0.0	0.0	1.5					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	219.1	351.2	357.7	102.7	397.7	400.1	145	308.6	290.1	290.8	176.3	301.1
Back of Queue (*Q*), veh/ln (95 th percentile)	8.6	13.5	14.3	3.9	15.3	16.0	5.6	12.1	11.6	11.3	6.9	11.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.95	0.00	0.00	0.44	0.00	0.00	0.45	0.00	0.00	1.04	0.00	1.08
Control Delay (*d*), s/veh	25.3	17.9	19.3	20.4	23.6	25.8	38.3	55.3	56.7	50.9	43.3	38.0
Level of Service (LOS)	C	B	B	C	C	C	D	E	E	D	D	D
Approach Delay, s/veh / LOS	20.0	B		24.2	C		52.1	D		43.8	D	
Intersection Delay, s/veh / LOS	30.4						C					



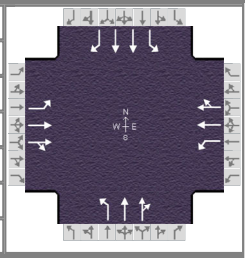
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

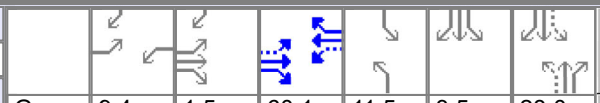
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL PM.xus		
Project Description	5816.900				

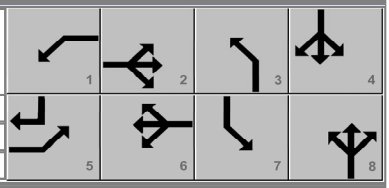


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1061	82	160	1233	165	168	294	153	280	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.4	1.5	60.1	11.5	3.5	28.0						
Yellow	3.5	3.5	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	1.5						



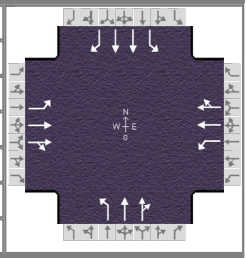
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1061	82	160	1233	165	168	294	153	280	488	488
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		1	2		2	3	1
Ped / Bike / RTOR, /h	1	0	0	0	0	0	0	0	0	2	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	22.0	62.0	22.0	62.0	15.0	34.0	22.0	41.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

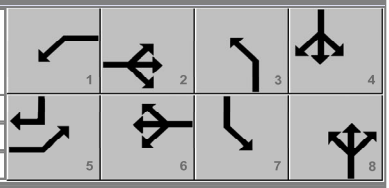
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1061	82	160	1233	165	168	294	153	280	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.4	1.5	60.1	11.5	3.5	28.0	
Yellow	3.5	3.5	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



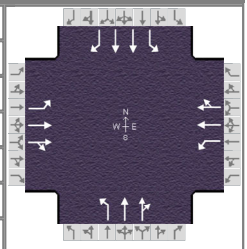
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	17.9	71.1	12.9	66.1	15.0	34.0	22.0	41.0
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	10.9	4.1	10.9
Queue Clearance Time (*g s*), s	14.1		9.1		12.7	19.2	19.7	37.0
Green Extension Time (*g e*), s	0.3	0.0	0.3	0.0	0.0	8.5	0.0	0.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.81		0.01		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	236	596	582	165	732	709	173	241	220	289	503	503
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1837	1810	1885	1807	1795	1870	1657	1781	1859	1594
Queue Service Time (*g s*), s	12.1	29.1	30.1	7.1	48.3	50.0	10.7	16.5	17.2	17.7	16.4	35.0
Cycle Queue Clearance Time (*g c*), s	12.1	29.1	30.1	7.1	48.3	50.0	10.7	16.5	17.2	17.7	16.4	35.0
Green Ratio (*g/C*)	0.55	0.46	0.46	0.50	0.43	0.43	0.28	0.20	0.20	0.35	0.25	0.35
Capacity (*c*), veh/h	262	877	854	287	808	775	306	374	331	359	930	564
Volume-to-Capacity Ratio (*X*)	0.901	0.680	0.681	0.575	0.906	0.915	0.566	0.643	0.664	0.804	0.541	0.893
Back of Queue (*Q*), ft/ln (95 th percentile)	385.3	445.7	457	140.7	763.8	781.7	219.7	344.3	320.6	353.3	321.2	669.1
Back of Queue (*Q*), veh/ln (95 th percentile)	15.2	17.7	18.3	5.6	30.3	31.3	8.7	13.6	12.8	13.9	12.5	26.6
Queue Storage Ratio (*RQ*) (95 th percentile)	1.68	0.00	0.00	0.60	0.00	0.00	0.68	0.00	0.00	1.26	0.00	2.39
Uniform Delay (*d 1*), s/veh	38.2	19.8	21.1	23.5	27.5	30.1	40.5	51.4	51.7	37.6	45.5	42.8
Incremental Delay (*d 2*), s/veh	24.8	4.2	4.4	1.8	15.7	17.2	2.4	8.3	10.1	12.5	2.3	19.1
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	63.0	24.0	25.5	25.4	43.1	47.3	42.9	59.7	61.7	50.1	47.8	61.8
Level of Service (LOS)	E	C	C	C	D	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	31.1	C		43.1	D		55.8	E		53.8	D	
Intersection Delay, s/veh / LOS	44.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.44	B	2.31	B	2.30	B
Bicycle LOS Score / LOS	1.65	B	1.81	B	1.01	A	1.56	B

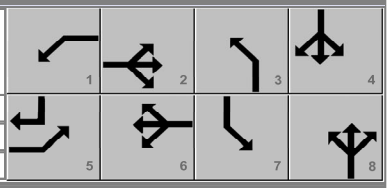
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL PM.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1061	82	160	1233	165	168	294	153	280	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.4	1.5		60.1	11.5		3.5		28.0			
Yellow	3.5	3.5		4.5	3.5		3.5		4.5			
Red	0.0	0.0		1.5	0.0		0.0		1.5			

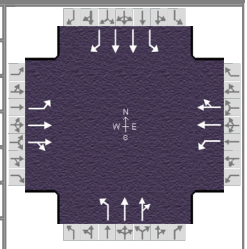
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	0.992	0.984	1.000	0.984	0.977	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.974	0.974		0.959	0.959		0.886	0.886		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			1.000			1.000			0.998
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3455	267	1810	3259	434	1795	2340	1187	1781	3719	1594
Proportion of Vehicles Arriving on Green (P)	0.10	0.62	0.46	0.07	0.57	0.43	0.08	0.20	0.20	0.13	0.25	0.25
Incremental Delay Factor (k)	0.31	0.50	0.50	0.11	0.50	0.50	0.16	0.50	0.50	0.35	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.55	0.46	0.50	0.43	0.28	0.20	0.35	0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	370	0	483	0	903	0	931	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	62.0	0.0	60.0	0.0	28.0	0.0	30.0	0.0
Permitted Service Time (g_u), s	10.0	0.0	33.0	0.0	16.6	0.0	10.8	0.0
Permitted Queue Service Time (g_{ps}), s	10.0		14.0		2.7		8.6	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								14.5

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.120	0.000	0.125	0.000	0.152	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	930.00	20.04	857.87	22.83	400.00	44.80	500.00	39.38
Bicycle F_w / F_v	-3.64	1.17	-3.64	1.33	-3.64	0.52	-3.64	1.07

HCS7 Signalized Intersection Results Graphical Summary

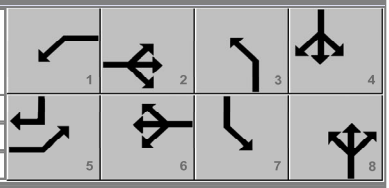
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL PM	PHF	0.97
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 3:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL PM.xus		
Project Description	5816.900				



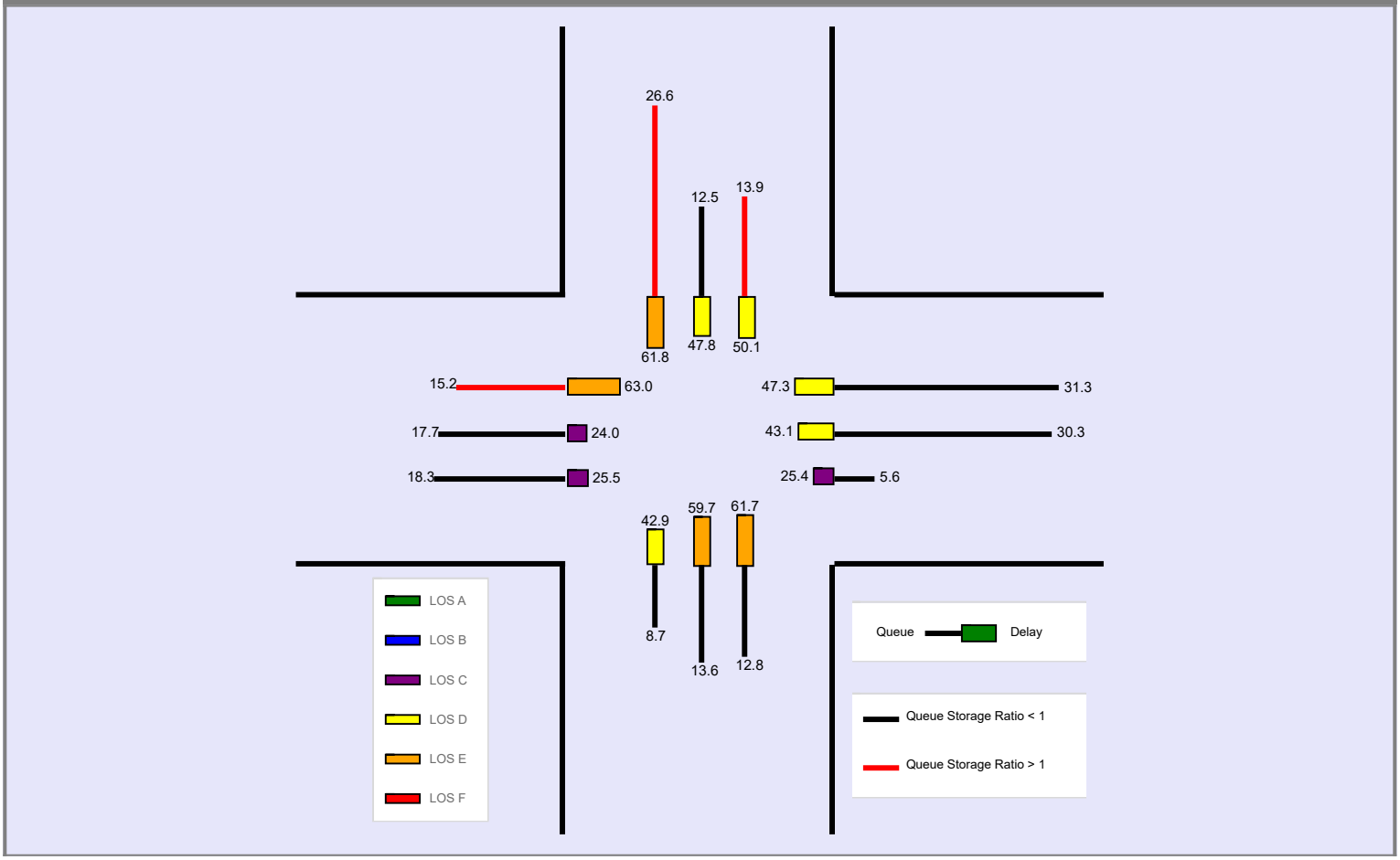
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	229	1061	82	160	1233	165	168	294	153	280	488	488

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.4	1.5	60.1	11.5	3.5	28.0	
Yellow	3.5	3.5	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	385.3	445.7	457	140.7	763.8	781.7	219.7	344.3	320.6	353.3	321.2	669.1
Back of Queue (*Q*), veh/ln (95 th percentile)	15.2	17.7	18.3	5.6	30.3	31.3	8.7	13.6	12.8	13.9	12.5	26.6
Queue Storage Ratio (*RQ*) (95 th percentile)	1.68	0.00	0.00	0.60	0.00	0.00	0.68	0.00	0.00	1.26	0.00	2.39
Control Delay (*d*), s/veh	63.0	24.0	25.5	25.4	43.1	47.3	42.9	59.7	61.7	50.1	47.8	61.8
Level of Service (LOS)	E	C	C	C	D	D	D	E	E	D	D	E
Approach Delay, s/veh / LOS	31.1	C		43.1	D		55.8	E		53.8	D	
Intersection Delay, s/veh / LOS	44.1						D					



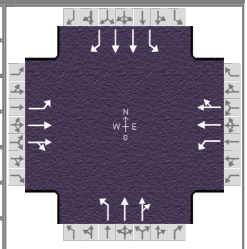
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS7 Signalized Intersection Input Data

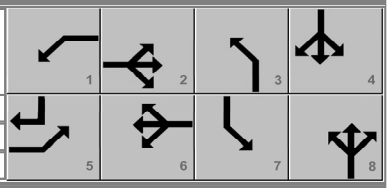
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL SAT.xus		
Project Description	5816.900				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1098	151	171	1196	159	200	345	172	281	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.0	0.5	57.5	13.4	27.0	0.0						
Yellow	3.5	3.5	4.5	3.5	4.5	0.0						
Red	0.0	0.0	1.5	0.0	1.5	0.0						



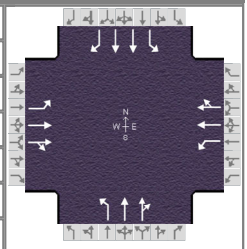
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1098	151	171	1196	159	200	345	172	281	391	322
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	1		0	1		0	1		2	2	1
Ped / Bike / RTOR, /h	2	0	0	1	0	0	1	0	0	1	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Turn Bay Length, ft	230	0		235	0		325	0		280	0	280
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	30	30	30

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.0	62.0	18.0	59.0	17.0	33.0	17.0	33.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	8	3	8
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

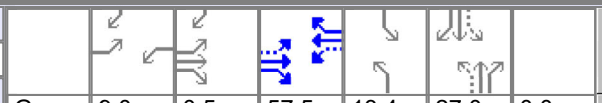
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL SAT.xus		
Project Description	5816.900				

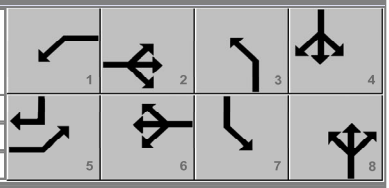


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1098	151	171	1196	159	200	345	172	281	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.0	0.5	57.5	13.4	27.0	0.0
Yellow	3.5	3.5	4.5	3.5	4.5	0.0
Red	0.0	0.0	1.5	0.0	1.5	0.0



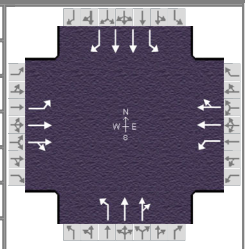
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	16.5	67.5	12.5	63.5	16.9	32.9	17.0	33.0
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.2	11.3	4.1	11.3
Queue Clearance Time (*g s*), s	12.7		8.8		13.4	20.2	15.5	25.3
Green Extension Time (*g e*), s	0.4	0.0	0.2	0.0	0.0	6.4	0.0	1.7
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.59		0.26		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	255	650	625	174	703	679	204	276	251	287	399	329
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1804	1810	1885	1807	1810	1885	1673	1781	1874	1595
Queue Service Time (*g s*), s	10.7	30.6	32.4	6.8	39.6	41.2	11.4	17.7	18.2	13.5	12.3	23.3
Cycle Queue Clearance Time (*g c*), s	10.7	30.6	32.4	6.8	39.6	41.2	11.4	17.7	18.2	13.5	12.3	23.3
Green Ratio (*g/C*)	0.56	0.47	0.47	0.51	0.44	0.44	0.31	0.21	0.21	0.31	0.21	0.31
Capacity (*c*), veh/h	283	892	854	273	834	799	340	391	347	299	779	492
Volume-to-Capacity Ratio (*X*)	0.900	0.728	0.731	0.639	0.844	0.850	0.600	0.708	0.725	0.959	0.512	0.667
Back of Queue (*Q*), ft/ln (95 th percentile)	259	455.1	480.2	134.3	607.8	627.2	229.4	367.7	343.9	262.6	254.4	385.7
Back of Queue (*Q*), veh/ln (95 th percentile)	10.2	18.1	19.2	5.4	24.1	25.1	9.2	14.6	13.8	10.3	10.0	15.3
Queue Storage Ratio (*RQ*) (95 th percentile)	1.13	0.00	0.00	0.57	0.00	0.00	0.71	0.00	0.00	0.94	0.00	1.38
Uniform Delay (*d 1*), s/veh	30.2	18.3	20.6	23.0	23.0	25.3	35.8	47.9	48.1	42.4	45.6	39.1
Incremental Delay (*d 2*), s/veh	22.6	5.2	5.5	2.5	10.2	11.0	2.9	10.3	12.4	40.8	2.4	7.0
Initial Queue Delay (*d 3*), 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
Control Delay (*d*), s/veh	52.7	23.5	26.0	25.5	33.2	36.3	38.7	58.2	60.5	83.2	48.0	46.2
Level of Service (LOS)	D	C	C	C	C	D	D	E	E	F	D	D
Approach Delay, s/veh / LOS	29.4	C		33.7	C		53.6	D		57.4	E	
Intersection Delay, s/veh / LOS	40.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.43	B	2.31	B	2.31	B
Bicycle LOS Score / LOS	1.75	B	1.77	B	1.09	A	1.32	A

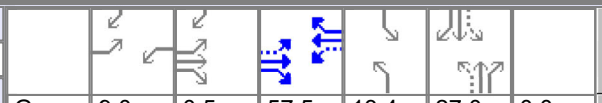
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL SAT.xus		
Project Description	5816.900				

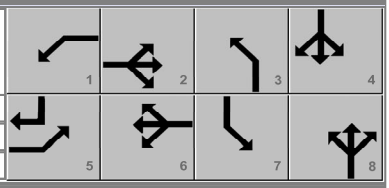


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1098	151	171	1196	159	200	345	172	281	391	322

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.0	0.5	57.5	13.4	27.0	0.0
Yellow	3.5	3.5	4.5	3.5	4.5	0.0
Red	0.0	0.0	1.5	0.0	1.5	0.0



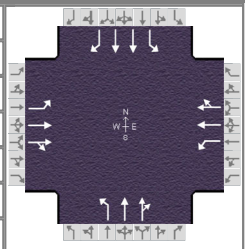
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.992	1.000	1.000	0.992	1.000	1.000	0.992	1.000	0.984	0.984	0.992
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.957	0.957		0.959	0.959		0.887	0.887		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			0.999			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			0.999			0.999			0.999			0.999
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1781	3244	445	1810	3261	432	1810	2389	1169	1781	3749	1595
Proportion of Vehicles Arriving on Green (P)	0.10	0.63	0.47	0.07	0.59	0.44	0.10	0.21	0.21	0.10	0.21	0.21
Incremental Delay Factor (k)	0.30	0.50	0.50	0.11	0.50	0.50	0.18	0.50	0.50	0.47	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.56	0.47	0.51	0.44	0.31	0.21	0.31	0.21
Permitted Saturation Flow Rate (s_p), veh/h/ln	392	0	441	0	1001	0	876	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	59.5	0.0	57.5	0.0	26.9	0.0	26.9	0.0
Permitted Service Time (g_u), s	16.2	0.0	27.2	0.0	12.8	0.0	8.7	0.0
Permitted Queue Service Time (g_{ps}), s	16.2		19.9		3.6		8.7	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								1598
Protected Right Effective Green Time (g_R), s								13.1

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.116	0.000	0.121	0.000	0.149	0.000	0.149
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	946.78	18.03	884.83	20.21	414.41	40.85	415.88	40.78
Bicycle F_w / F_v	-3.64	1.26	-3.64	1.28	-3.64	0.60	-3.64	0.84

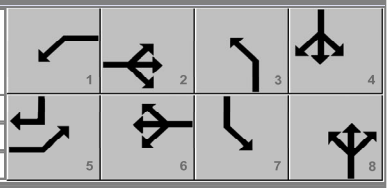
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	GHA	Analysis Date	Apr 12, 2021	Area Type	Other
Jurisdiction	IDOT	Time Period	TOTAL SAT	PHF	0.98
Urban Street	Ogden Ave (US 34) & M…	Analysis Year	2027	Analysis Period	1> 6:00
Intersection	Ogden Ave (US 34) & M…	File Name	Ogden Ave & Main St TOTAL SAT.xus		
Project Description	5816.900				

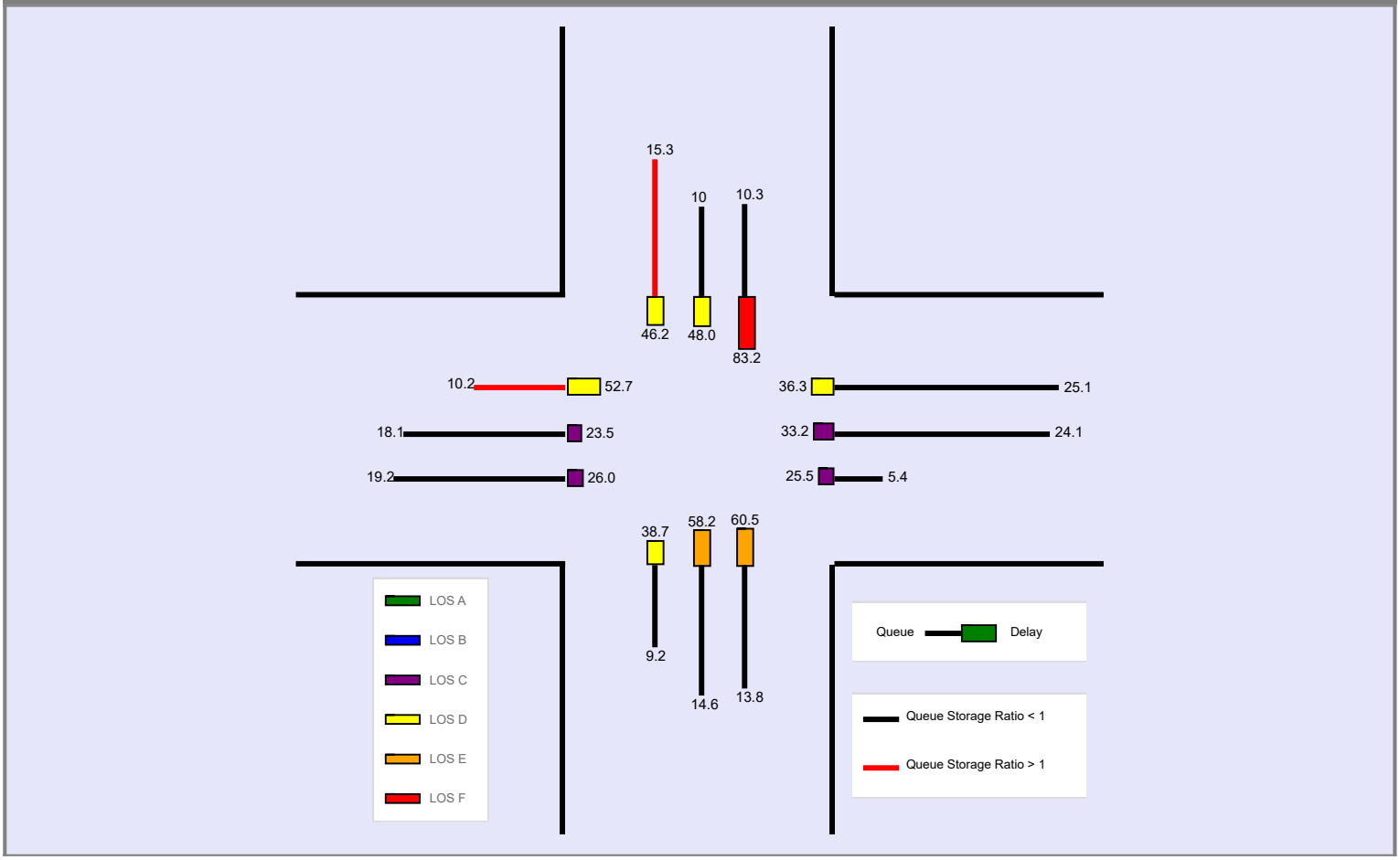


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	1098	151	171	1196	159	200	345	172	281	391	322

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	Begin									
Uncoordinated	No	Simult. Gap E/W	On	Green	9.0	0.5	57.5	13.4	27.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	4.5	3.5	4.5	0.0		
				Red	0.0	0.0	1.5	0.0	1.5	0.0		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	259	455.1	480.2	134.3	607.8	627.2	229.4	367.7	343.9	262.6	254.4	385.7
Back of Queue (*Q*), veh/ln (95 th percentile)	10.2	18.1	19.2	5.4	24.1	25.1	9.2	14.6	13.8	10.3	10.0	15.3
Queue Storage Ratio (*RQ*) (95 th percentile)	1.13	0.00	0.00	0.57	0.00	0.00	0.71	0.00	0.00	0.94	0.00	1.38
Control Delay (*d*), s/veh	52.7	23.5	26.0	25.5	33.2	36.3	38.7	58.2	60.5	83.2	48.0	46.2
Level of Service (LOS)	D	C	C	C	C	D	D	E	E	F	D	D
Approach Delay, s/veh / LOS	29.4	C		33.7	C		53.6	D		57.4	E	
Intersection Delay, s/veh / LOS	40.3						D					



--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS7 Two-Way Stop-Control Report

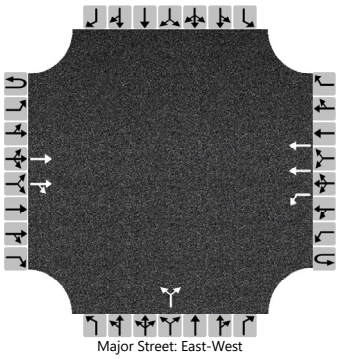
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL AM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Site Access
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Site Access
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			1196	34	0	24	1008			36		17				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						27					60					
Capacity, c (veh/h)						495					185					
v/c Ratio						0.06					0.33					
95% Queue Length, Q_{95} (veh)						0.2					1.3					
Control Delay (s/veh)						12.7					33.7					
Level of Service (LOS)						B					D					
Approach Delay (s/veh)					0.3				33.7							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

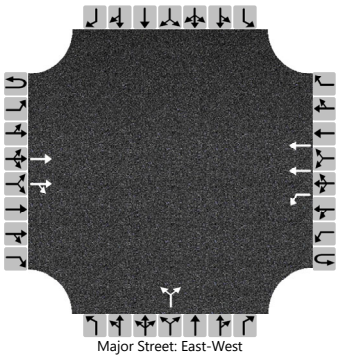
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL PM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Site Access
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Site Access
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			1473	13	0	9	1521			24		10				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage			Left Only							1						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						10					36					
Capacity, c (veh/h)						422					141					
v/c Ratio						0.02					0.26					
95% Queue Length, Q_{95} (veh)						0.1					1.0					
Control Delay (s/veh)						13.7					39.3					
Level of Service (LOS)						B					E					
Approach Delay (s/veh)						0.1				39.3						
Approach LOS										E						

HCS7 Two-Way Stop-Control Report

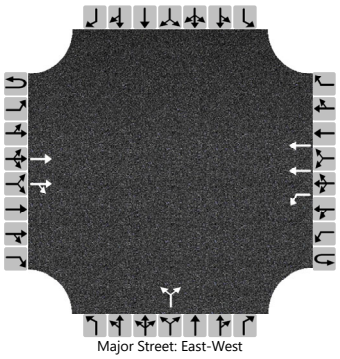
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL SAT
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Site
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Site Access
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			1527	14	0	9	1507			21		10				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage			Left Only							1						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						9					32					
Capacity, c (veh/h)						413					142					
v/c Ratio						0.02					0.23					
95% Queue Length, Q_{95} (veh)						0.1					0.8					
Control Delay (s/veh)						13.9					37.7					
Level of Service (LOS)						B					E					
Approach Delay (s/veh)						0.1				37.7						
Approach LOS										E						

HCS7 Two-Way Stop-Control Report

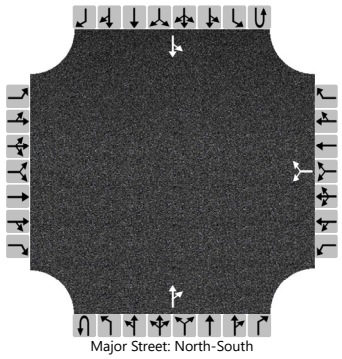
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/13/2021
Analysis Year	2027
Time Analyzed	TOTAL AM
Intersection Orientation	North-South
Project Description	5816.900

Site Information

Intersection	Highland Ave & Site
Jurisdiction	Local
East/West Street	Site Access
North/South Street	Highland Ave
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						3		4			26	5		34	16	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							8							37		
Capacity, c (veh/h)							957							1591		
v/c Ratio							0.01							0.02		
95% Queue Length, Q_{95} (veh)							0.0							0.1		
Control Delay (s/veh)							8.8							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.8								5.0		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

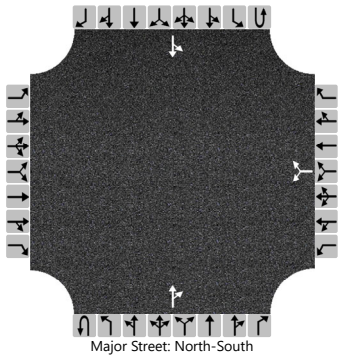
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/13/2021
Analysis Year	2027
Time Analyzed	TOTAL PM
Intersection Orientation	North-South
Project Description	5816.900

Site Information

Intersection	Highland Ave & Site
Jurisdiction	Local
East/West Street	Site Access
North/South Street	Highland Ave
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		3			23	2		11	21	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							5							12		
Capacity, c (veh/h)							1001							1600		
v/c Ratio							0.01							0.01		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.6							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.6								2.5		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

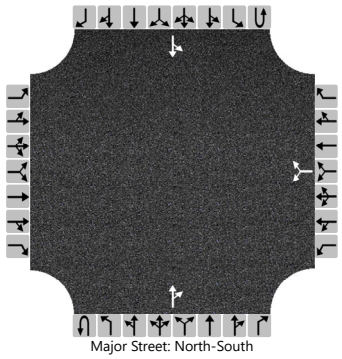
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/13/2021
Analysis Year	2027
Time Analyzed	TOTAL SAT
Intersection Orientation	North-South
Project Description	5816.900

Site Information

Intersection	Highland Ave & Site
Jurisdiction	Local
East/West Street	Site Access
North/South Street	Highland Ave
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		2			24	2		12	17	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							4							13		
Capacity, c (veh/h)							988							1598		
v/c Ratio							0.00							0.01		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.7							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					8.7								3.0			
Approach LOS					A											

APPENDIX G

Ogden & Highland Capacity Test

HCS7 Two-Way Stop-Control Report

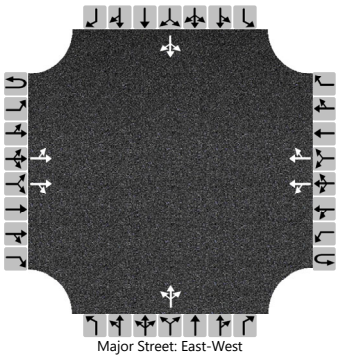
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL PM
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	1460	32		0	1513	32		0	0	26		2	0	44
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				0					28				49	
Capacity, c (veh/h)		399				419					335				284	
v/c Ratio		0.01				0.00					0.08				0.17	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.3				0.6	
Control Delay (s/veh)		14.1				13.6					16.7				20.3	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.3				0.0				16.7				20.3		
Approach LOS										C				C		

HCS7 Two-Way Stop-Control Report

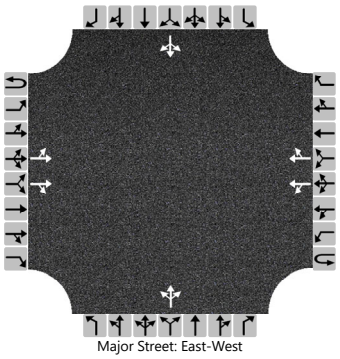
General Information

Analyst	GHA
Agency/Co.	GHA
Date Performed	4/12/2021
Analysis Year	2027
Time Analyzed	TOTAL SAT
Intersection Orientation	East-West
Project Description	5816.900

Site Information

Intersection	Ogden Ave & Highland Ave
Jurisdiction	IDOT
East/West Street	Ogden Ave (US 34)
North/South Street	Highland Ave
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	1517	29		0	1496	32		0	0	26		1	0	29
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				0					27				31	
Capacity, c (veh/h)		418				411					330				303	
v/c Ratio		0.01				0.00					0.08				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.3				0.3	
Control Delay (s/veh)		13.7				13.8					16.9				18.3	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.9				0.0				16.9				18.3			
Approach LOS									C				C			

APPENDIX H

ITE 5th Edition Parking Generation Excerpts

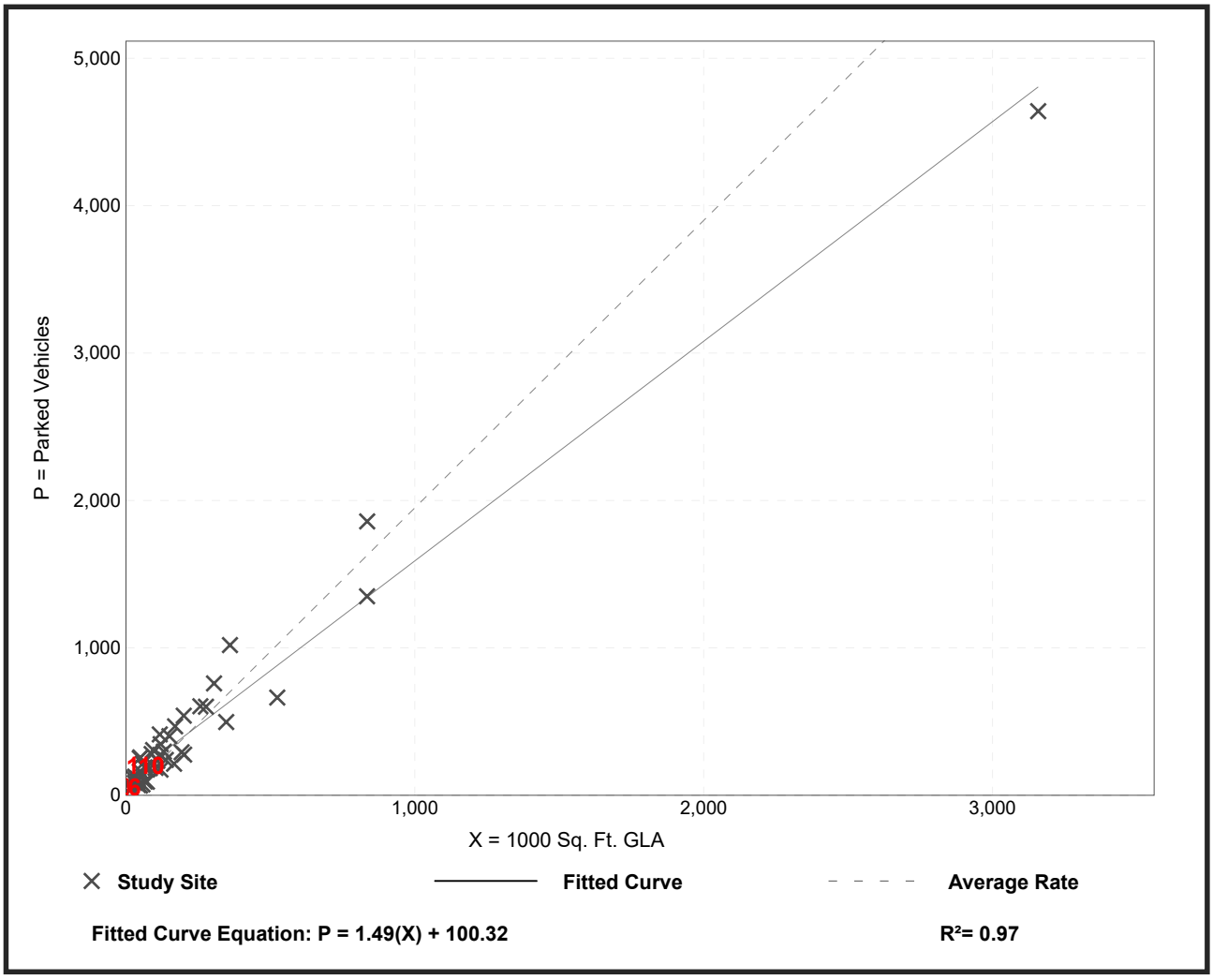
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Weekday (Monday - Thursday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **12:00 - 6:00 p.m.**
Number of Studies: 46
Avg. 1000 Sq. Ft. GLA: 218

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.95	1.27 - 7.98	1.99 / 3.68	1.73 - 2.17	0.75 (38%)

Data Plot and Equation



DRAFT

VILLAGE OF DOWNERS GROVE
PLAN COMMISSION MEETING

June 7, 2021, 7:00 P.M.

FILE 21-PLC-0012: A petition seeking approval of a Special Use to operate a drive through. The property is zoned B-3, General Services and Highway Business. The property is located on the southeast corner of Ogden Avenue and Highland Avenue, commonly known as 931 and 935 Ogden Avenue, Downers Grove, Illinois (PIN 09-05-306-001, 09-05-306-002, 09-05- 306-003). Vick Mehta, Petitioner and 935 Ogden, LLC and The 1001 Ogden Avenue Building, LLC, Owners.

Mr. Vick Mehta, Petitioner/owner of 935 Ogden Avenue, shared that he is a real estate investor and he and his wife have three Pearle Vision franchises. He introduced his team: Chris Jackson, architect, and Kevin Faje from ERA Consulting/Engineering.

Architect, Mr. Chris Jackson, with CJ Architects, 8204 Pine Bluff Court, Darien, Illinois, discussed that 931 (empty parking lot) and 935 Ogden Avenue (one building) will be consolidated. The development is a one-story multi-tenant retail building (6850 sq. feet) and meets the village's bulk standards for zoning and setbacks. Two curb-cuts will be in-filled while another one will be widened to keep traffic further away from the signal/stop sign at Highland and Ogden Avenues. A total of 41 parking spaces will be created; however, 15 of those spaces will be leased back, but the proposal's parking count will be met. The building is proposed to have four storefronts with the east end of the building having a drive-through. Vehicle circulation was noted with eight vehicles allowed for queuing. Mr. Jackson believed the drive-through would be a selling point for the building, good for the community, and the proposal was not a detriment to the community.

Questions followed as to the location of the order board, the residential area to the south, and the measures being taken to not create issues with the nearby residents.

Mr. Jackson explained that the details of the speaker box had not been reviewed yet, the drive-through was only a single lane, and no bypass lane existed, as it was not required. A fence, along with landscaping will be adjacent to the south residential area. Other questions revolved around employee access to/from the building and them not coming into contact with the vehicles.

Chairman Rickard invited public comment and asked to keep comments to five minutes.

Ms. Diana Ayala, 4329 Highland Avenue, a resident for 26 years at that location resided directly adjacent to the proposed building. Ms. Yalla expressed concern about the volume of the sound-box, the drive-thru hours, traffic, lighting, and when she could expect the businesses to open. She voiced concern about privacy, inquired about the height of the new fence, stated her quality of life will be affected, and there be rodents if food is served.

Mr. Scott Richards, 1130 Warren Ave., stated the drive-through facility needed to be better clarified: was it a drive-through bank, a drive-through cleaners, etc. In reviewing the building design, he felt more imagination could be used versus the same cookie-cutter box building. He supported the development over the current eyesore.

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Hearing no further public comment, Chairman Rickard invited Mr. Jackson to return and respond.

Mr. Jackson explained that the parking spaces in the rear that faced the residential area were the lease-back parking spaces which would be the dedicated satellite parking spaces for the medical office located at 1001 Ogden Avenue.

Mr. Mehta explained he was aware of the issues of this development because he was also a resident. However, in addressing the fencing, he would work with the village and install a fence as tall as the village would allow. Significant landscaping would be installed. Regarding the actual type of drive-through, Mr. Mehta said he has been in discussions with three food service users but nothing was final yet. He offered to address the volume of the speaker box in his lease. He emphasized that the lot needed to be developed and by removing some of the curb cuts, it helped the long-term plans for Ogden Avenue and helped with traffic flow.

Chairman Rickard shared that in the past, the commission has discussed that at a certain time of day the volume (decibels) of the sound box is decreased so the sound does not carry into the residential area. Planning Manager Zawila pointed out the commission could place that as a condition in its recommendation. Per another question, Mr. Mehta clarified the drive-through would be located on the east side of the building, while on the west side, would be his Pearl Vision Center. Commissioner Majauskas voiced concern about employees exiting safely at the rear of the building.

Manager Jason Zawila reviewed the staff report, recalling the lot was a former U-Haul rental business and a parking lot currently owned by the owner of the medical building across from Highland Avenue. Notification of the public hearing was placed in the newspaper as well as an on-site sign. Courtesy mailings did go out to adjacent property owners within 250 feet of the property. A site plan followed. Mr. Zawila reminded the commissioners that the request was for a special use to allow for a drive-through lane and the required stacking spaces were met. Additional landscaping, pedestrian connections and a fence (up to 8 feet in height) could be installed. Also, a bypass lane was not required and many did not exist in town. However, Mr. Zawila said the applicant could work with village staff to have design features that allowed vehicles to get out of the drive through area, per the hammerhead located in the rear parking lot. Per staff, the proposal met some of the goals of the comprehensive plan. The applicant has been encouraged to work with the property owner to the east (see conditions) to have cross access in the future. The standards of approval for a special use were referenced on the overhead and staff believed they were met and recommended approval of the special use.

Discussion among the commissioners and staff followed regarding: 1) the signage on Highland Avenue (just south of the subject property) that restricts traffic in the area; the current curb-cut on Ogden Avenue, which was a full access (IDOT jurisdiction); hours of operation; the zero setback line for buildings in the B-3 District; and the on-site turn radius. Commissioners were supportive of the request but wanted to see the volume of the sound box decreased at a certain time. They also agreed the standards were met.

WITH RESPECT TO FILE 21-PLC-0012 AND BASED ON THE PETITIONER'S SUBMITTAL, THE STAFF REPORT, THE TESTIMONY PRESENTED AND THE PETITIONER HAVING MET THE STANDARDS OF APPROVAL FOR A SPECIAL USE AS REQUIRED BY THE VILLAGE OF DOWNERS GROVE ZONING ORDINANCE AND

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IT BEING IN THE PUBLIC'S INTEREST, COMMISSIONER RECTOR MADE A MOTION THAT THE PLAN COMMISSION RECOMMEND TO THE VILLAGE COUNCIL APPROVAL OF THE PROPOSED REQUEST FOR A SPECIAL USE FOR A DRIVE-THROUGH LANE, SUBJECT TO THE FOLLOWING CONDITIONS:

1. **THE PROPOSED SPECIAL USE FOR A DRIVE-THROUGH USE SHALL SUBSTANTIALLY CONFORM TO THE ATTACHED PROPOSED NEW MULTI-TENANT BUILDING PLANS FOR 935 OGDEN DRAWINGS PREPARED BY ENGINEERING RESOURCE ASSOCIATES, INC. DATED APRIL 7, 2021, LAST REVISED MAY 12, 2021, THE ARCHITECTURAL DRAWINGS 21-PLC-0012, (931 AND 935 OGDEN) PAGE 6 JUNE 7, 2021 PREPARED BY CJ ARCHITECTS DATED APRIL 29, 2021, LAST REVISED MAY 18, 2021, EXCEPT AS SUCH PLANS MAY BE MODIFIED TO CONFORM TO VILLAGE CODES, ORDINANCES, AND POLICIES;**
2. **AN ADMINISTRATIVE LOT CONSOLIDATION OF THE THREE LOTS SHALL BE RECORDED AT DUPAGE COUNTY PRIOR TO THE ISSUANCE OF A BUILDING PERMIT. ON THE PLAT OF CONSOLIDATION PROVIDE A CROSS-ACCESS EASEMENT TO THE BENEFIT OF THE 925 OGDEN AVENUE PROPERTY IN THE EVENT A CROSS-ACCESS AGREEMENT CAN BE WORKED OUT BETWEEN THE TWO PROPERTY OWNERS;**
3. **COMPLETE AN OFF-STREET PARKING AGREEMENT IN A FORM APPROVED BY THE VILLAGE ATTORNEY;**
4. **CONSIDER WITH THE PROPERTY OWNER OF 925 OGDEN AVENUE OPTIONS FOR THE CONSOLIDATION OF DRIVEWAYS AND ALLOW CROSS-ACCESS IF BOTH PROPERTY OWNERS REACH AN AGREEMENT; AND**
5. **THE PETITONER SHALL WORK WITH THE VILLAGE STAFF ON REDUCING THE VOLUME LEVEL AT THE SPEAKER BOX AT 9:00 P.M.**

SECOND BY COMISSIONER PATEL. ROLL CALL:

AYE: RECTOR, PATEL, DMYTRYSZYN, BOYLE, JOHNSON, MAJAUSKAS, MAURER, TOTH, RICKARD
NAY: NONE
MOTION PASSED. VOTE: 9-0

/s/ Celeste K. Weilandt
Recording Secretary
(As transcribed by MP-3 audio)