CITY OF DARIEN

PLANNING, ZONING, AND ECONOMIC DEVELOPMENT COMMISSION

Wednesday, March 5, 2025
7:00 PM
Darien Police Department Training Room
1710 Plainfield Road

AGENDA

1) Call to Order

2) Roll Call

3) Regular Meeting – New Business

   a. PZC2024-14
   8226 S. Cass Avenue – True North Energy, LLC
   A petition for an amendment to the Special Use Permit which previously permitted the construction and operation of an automobile service station, drive-through car wash, and mini-mart, to allow for the demolition of the existing car wash and mini-mart, and the relocation/expansion of the mini-mart. The project includes requested variations from the City's landscape requirements. On-site improvements include parking facilities, landscape improvements and drainage/stormwater improvements. The subject property is located in the General Business District B-3 at the northwest corner S. Cass Avenue and N. Frontage Road.

   b. PZC2025-02
   Petition from the City of Darien to amend Title 5A (Zoning Regulations) to add "the offering of a short-term rental" as a prohibited action under the existing short-term rental prohibition contained in Section 5A-5-16 of the City Code**.**

4) Regular Meeting – Old Business

5) Staff Updates & Correspondence

6) Approval of Minutes February 19, 2025

7) Next Meeting March 19, 2025

8) Public Comments [On Any Topic Related to Planning and Zoning]

9) Adjournment

AGENDA MEMO
PLANNING, ZONING AND ECONOMIC DEVELOPMENT COMMISSION
MARCH 5, 2025

CASE
PZC2024-14 Special Use Amendment, Variations – 8226 S. Cass Avenue

ORDINANCE

ISSUE STATEMENT
Petitioner (True North Energy, LLC) requests an amendment to the Special Use Permit which previously permitted the construction and operation of an automobile service station, drive-through car wash, and mini-mart, to allow for the demolition of the existing car wash and mini-mart, and the relocation/expansion of the mini-mart. The project includes requested variations from the City's landscape requirements. On-site improvements include parking facilities, landscape improvements and drainage/stormwater improvements. The subject property is located in the General Business District B-3 at the northwest corner S. Cass Avenue and N. Frontage Road, commonly known as 8226 S. Cass Avenue.

Applicable Regulations:	Ordinance No. O-31-85 Zoning Section 5A-8-4, B-3 District Standards

GENERAL INFORMATION

Petitioner:	True North Energy, LLC
Property Owner:	True North Energy, LLC
Property Location:	8226 S. Cass Avenue
PIN Number:	09-33-205-036-0000
Existing Zoning:	General Business District (B-3)
Existing Land Use:	Gas Station, Drive-Through Carwash, Mini-Mart
Proposed Land Use:	Gas Station, Mini-Mart
Comprehensive Plan:	Commercial (Existing); Commercial (Future)
Surrounding Zoning & Uses	
North:	Multi Family Residence District (R-3); Townhomes
East:	Neighborhood Convenience Shopping District (B-1) and Multi Family Residence District (R-3); Bank and Apartments
South:	Single Family Residence District (R-1); Our Lady of Mt. Carmel Church
West:	General Business District (B-3); Banquet Hall
Size of Property:	1.64 Acres
Floodplain:	N/A
Natural Features:	Site is fully developed and professionally landscaped with trees, shrubs and groundcover.
Transportation:	The petition site gains access from two driveways off of Cass Avenue and one driveway off of North Frontage Road.

ATTACHMENTS

1) **LOCATION MAP & AERIAL IMAGE (BY CITY STAFF)**
2) **ORDINANCE O-31-85**
3) **PLAT OF SURVEY (EXISTING)**
4) **ZONING APPLICATION**
5) **SITE PLAN, UTILITY PLAN AND GRADING PLAN (PROPOSED)**
6) **ARCHITECTURAL PLANS**
7) **ARCHITECTURAL RENDERINGS**
8) **TRAFFIC STUDY**
9) **ENGINEERING REVIEW LETTER**
10) **LANDSCAPE PLANS**
11) **VARIATION JUSTIFICATION LETTER**
12) **SPECIAL USE AND VARIATION CRITERIA**

BACKGROUND/OVERVIEW

The 1.64-acre subject property is located at the northwest corner of Cass Avenue and the North Frontage Road intersection (see Attachment 1), within the General Business District (B-3). On October 7, 1985, the City Council adopted Ordinance No. O-31-85 (see Attachment 2), approving a Special Use Permit for the construction of the existing site, which includes automobile service station with a canopy and 10 fuel pumps, a mini-mart approximately 936 square feet in size, and a drive-through carwash (see Attachment 3).

In 2010, the property was purchased from Shell Oil Products US by True North Energy, LLC (the Petitioner), which owns and operates automobile service stations and convenience stores across the Midwest. In the last several years, the Petitioner has reinvested in its branded convenience stores, and as part of that effort, is now requesting to amend the existing Special Use Permit (see Attachment 4) to perform a full tear down and renovation of the property which includes a fuel island and canopy for six pumps, a new convenience store approximately 5,425 square feet in size, and the removal of the carwash. On-site improvements are proposed including a new trash enclosure, pedestrian access, parking and landscape areas, and drainage/stormwater improvements.

ANALYSIS

A) Zoning and Land Use

Existing Zoning and Land Use: The property is currently zoned General Business District (B-3). The site is bordered by Multi Family Residence District (R-3) and townhomes to the north; Neighborhood Convenience Shopping District (B-1) and Multi Family Residence District (R-3) to the east, consisting of a bank and apartments; General Business District (B-3) and a banquet hall to the west; and lastly, Single Family Residence District (R-1) to the south, which consists of the Our Lady of Mt. Carmel Church.

B) Automobile Service Station and Mini-Mart (Special Use Amendment and Variations)

Special Use Permit Amendment: Automobile service stations and carwash facilities are permitted as special uses, per Section 5A-8-3-4 and 5A-8-4-4 of the City's Zoning Ordinance. As the project

involves a change in the land use and site plan, a Special Use Permit Amendment is required.

Site and Architectural Design: The project site (see Attachment 5 – Site Plan, Utility Plan and Grading Plan) is designed with the new 5,425 square foot convenience store in the same approximate location as the previous drive-through carwash, on the west of the property, behind the renovated fuel island and canopy in the center of the site. To the rear of the convenience store and adjacent to the west property line, the existing detention pond will be further excavated and redesigned. Changes to the pond include the construction of a retaining wall along the western property line that will function as the edge of the pond. The wall varies in height from 2-feet to 7-feet tall, with an approximately 2.5 to 3-foot portion of the wall's height being below grade. A landscaped refuse and recycling enclosure is proposed to the south of the convenience store building.

The floor plan and elevations (see Attachment 6) show that the rectangular building utilizes a contemporary commercial design, with a corniced flat roof and a prominent arched entryway. The exterior materials include stucco and stone veneer, while the arched entryway and awnings incorporate a bronze finish. The prominent front elevation uses large aluminum storefront windows and wall sconce lighting, while the rear employs wall-pack security lighting. In addition to the plans, enhanced 3D renderings were provided (see Attachment 7).

Access, Circulation and Parking: Access to the site is provide by two restricted driveways on Cass Avenue (right-in and right-out), and a shared drive aisle that access from North Frontage Road. The existing raised curb/island barrier between the shared drive aisle and the project site will be demolished and the area will consist of open paving. 19 dedicated parking stalls are proposed, along with 12 stalls available at the fuel pumps, with additional unmarked parking surfaces are provided near the perimeter of the site which meets the minimum requirement of 21 parking stalls.

Traffic Study: Cass Avenue right-of-way is under the jurisdiction of DuPage County – however, the petitioner provided a traffic study (see Attachment 8) prepared by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA), dated February 25, 2025 to evaluate the potential for transportation impacts resulting from the development of the proposed project. The study analyzed existing conditions without the project, existing conditions plus the project, future traffic conditions, and analyzed the specific roadway and site access existing or included as part of the project. Results indicate that peak hour trips will increase by approximately 1%, and due to the existing capacity, the proposed project is forecast to result in no substantial transportation impacts or degradation in level of service.

Site Plan Review: Staff have reviewed the petitioner submitted plans and found that the project complies with all required development standards, except with regard to perimeter landscaping requirements, as outlined below. The preliminary plans were reviewed and accepted by Christopher B. Burke Engineering's Dan Lynch on January 22, 2025, and the applicant will be required to address the comments in the letter during the plan check process and prior to permit issuance (see Attachment 9).

Variation Request: Based on the site layout and submitted documents, the petitioner is requesting variations from the following sections of the City's Zoning Regulations:

Section 5A-8-4-8(B)(2)	To allow for parking areas near the northern property line to be located within the 30-foot parking setback.
Section 5A-10-6	To allow for no landscape islands to be provided in the parking area directly in front of the mini-mart.
Section 5A-10-5	To allow for less perimeter landscaping than would otherwise be required at the eastern, western, and southern property lines, in lieu of the proposed landscaping.

The City's landscape ordinance is based on a point system. Trees provide the most points, while shrubs and groundcover provide fewer points. The table details the required and proposed landscape points.

Table 1: Landscaping Tabulation

	Required Landscaping	**Proposed Landscaping**
North	1680 pts	1780 pts (complies)
South	1192.5 pts	780 pts (*deficient*)
East	1197 pts	405 pts (*deficient*)
West	1192.5 pts	880 pts (*deficient*)

The proposed landscape plan provides planting details and a breakdown of the landscaping calculations – see Attachment 10.

Justification Letter and Findings of Fact: As previously mentioned, a justification letter for the various findings of fact for the special use amendment and variations have been prepared by the petitioner and are attached to the application as Attachment 11. They generally refer to site constraints and as-built conditions that prevent strict compliance with the required landscaping scores. For reference, the criteria the Planning, Zoning and Economic Development Commission and City Council apply in their actions for Special Uses and Variation requests are included in Attachment 12.

Conditions of Approval: All existing conditions of approval established under Ordinance No. O-31-85 will remain in place, except those regarding carwash operations, and landscaping. Should the petition be approved, the new ordinance would supersede those conditions of approval where necessary. Should the Planning, Zoning and Economic Development Commission recommend approval of this petition, staff recommended adding the following conditions of approval:

1. Plans submitted for the project shall include enhanced landscaping along the northern

property line, to consist of additional shade/overstory trees in areas where no trees are provided.

2. Prior to the issuance of a final certificate of occupancy, the petitioner shall include pavement rehabilitation or resurfacing of those portions of the shared access drive that are located on the subject property that are generally in disrepair, to the satisfaction of the Director of Community Development.

3. Comply with the comments and requirements within the letter from Christopher B. Burke Engineering, Ltd. dated January 22, 2025.

DECISION MODE

The Planning, Zoning and Economic Development Commission will consider this item at is meeting on March 5, 2025.

MEETING SCHEDULE

Planning, Zoning and Economic Development Commission	March 5, 2025
Municipal Services Committee	March 24, 2025
City Council	April 7, 2025

CITY OF DARIEN

PLANNING, ZONING AND ECONOMIC DEVELOPMENT COMMISSION

MARCH 5, 2025

LOCATION MAP

Project No.: PZC2024-14 – 8226 S. Cass Avenue

ATTACHMENT 2 - ORDINANCE NO. O-31-85

Zoning Book

CITY OF DARIEN

ORDINANCE NUMBER O-31-85

AN ORDINANCE GRANTING A SPECIAL USE PERMIT FOR CERTAIN PROPERTY WITHIN THE CITY OF DARIEN (KLOSKI/SHELL)

ADOPTED BY THE

MAYOR AND CITY COUNCIL

OF THE

CITY OF DARIEN

THIS 7th DAY OF October, 19 85

Published in pamphlet form by authority of the Mayor and City Council of the City of Darien, DuPage County, Illinois, this 8th day of October, 19 85.

STATE OF ILLINOIS)
) SS
COUNTY OF DU PAGE)

CERTIFICATE

I, Gertrude M. Coit, C.M.C., certify that I am the duly elected and acting municipal clerk of the City of Darien, Du Page County, Illinois.

I further certify that on October 7, 1985, the Corporate Authorities of such municipality passed and approved Ordinance Number 0-31-85, entitled AN ORDINANCE GRANTING A SPECIAL USE PERMIT FOR CERTAIN PROPERTY WITHIN THE CITY OF DARIEN (KLOSKI/SHELL)

which provided by its terms that it should be published in pamphlet form.

The pamphlet form of Ordinance Number 0-31-85, including the Ordinance and a cover sheet thereof was prepared, and a copy of such Ordinance was posted in the municipal building, commencing on October 8, 1985, and continuing for at least ten (10) days thereafter. Copies of such Ordinance were also available for public inspection upon request in the office of the municipal clerk.

DATED at Darien, Illinois, this 8th day of October, 1985.

(SEAL)

Gertrude M. Coit, C.M.C.
Municipal Clerk

JDM/MSP/10/02/85

ORDINANCE NUMBER 0-31-85

AN ORDINANCE GRANTING A SPECIAL USE PERMIT FOR CERTAIN PROPERTY WITHIN THE CITY OF DARIEN (KLOSKI/SHELL)

WHEREAS, the owner and the contract purchaser of the property legally described on Exhibit "A" attached hereto and made a part hereof ("subject property") have filed a petition with the City of Darien for a Special Use Permit to allow the construction and operation of an automobile service station, car wash, and mini-mart facility on the subject property; and,

WHEREAS, pursuant to due and proper legal notice, the Darien Plan Commission conducted a public hearing with respect to said petition on August 28, 1985; and,

WHEREAS, the Plan Commission has forwarded its report and recommendation to the City Council; and,

WHEREAS, following review of the Plan Commission's report and recommendation, the City Council has determined to grant the Special Use Permit, subject to the conditions set forth hereinbelow; and,

WHEREAS, the subject property is currently in the B-3 Zoning District of the City and gas stations and car washes and mini-marts are allowable Special Uses in said zoning district.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DARIEN, DU PAGE COUNTY, ILLINOIS, as follows:

SECTION 1: A Special Use Permit is hereby granted to permit the construction and operation of a gasoline service station, car wash, and mini-mart on the subject property.

SECTION 2: The facility shall be constructed in accordance with the site plan prepared by FGM/C Incorporated and dated July 23, 1984 and shall be constructed in accordance with the representations made by Shell Oil Company during the August 28, 1985 Plan Commission hearing and shall further be subject to the following specific terms and conditions:

- Contd. -

ORDINANCE NUMBER 0-31-85

A. GENERAL CONDITIONS

1. The facility shall at all times be operated in accordance with relevant provisions of the Darien City Code to include relevant noise and odor emission regulations of the Illinois Environmental Protection Agency.

2. The facility shall not perform any automobile service or repair or vehicle or trailer rentals.

3. No alcoholic beverages shall be sold from the facility.

4. The car wash hours of operation shall be from 7:00 A.M. to 9:00 P.M.

B. TRAFFIC REGULATIONS

1. The owner shall post and maintain "NO EXIT" or similar signs in order to prevent vehicles from exiting the facility at the north curb cut on Cass Avenue and a "RIGHT TURN ONLY" sign at the south curb cut on Cass Avenue.

2. The owner shall utilize cones or similar on-site regulatory devices to prevent vehicles awaiting a car wash from stacking onto either Cass Avenue or Frontage Road.

3. Two (2) "NO LEFT HAND TURN" signs shall be installed in the west Cass Avenue right-of-way to face northbound Cass Avenue traffic at both north and south curb cuts on Cass Avenue. The signs shall be supplied and erected by the City of Darien.

4. On-site traffic signs to indicate north bound Cass Avenue traffic to exit via Frontage Road.

ORDINANCE NUMBER 0-31-85

C. ENGINEERING AND UTILITIES

1. No construction shall commence until such time as the City Engineer approves of Shell's drainage and storm water retention plans.

2. Owner agrees to tap onto the City of Darien's water and other utility lines at the owner's property line at such time as an appropriate service connection is available to the subject property from Cass Avenue. Owner further agrees to pay a maximum of five-thousand dollars ($5,000.00) as its share of the cost of the extension of such lines. Construction of the water line to serve Shell shall be coordinated so that Shell can tap onto the system during the course of construction of the facility. If this coordination cannot be achieved, even after good faith negotiation has been conducted to arrive at an equitable solution, Shell shall not be required to tap onto this system.

D. LIGHTING AND SIGNAGE

1. All on-site lighting shall be designed and installed in such a manner as to prevent any spillage onto all adjacent private properties.

2. Without waiving any of its rights to the use of the easement for road purposes along the southern edge of the subject property, permission is granted by the City to allow the owner to erect and maintain its identification sign on said easement in accordance with the facility site plan and in accordance with all applicable City ordinances and other regulations.

3. All signage shall meet and comply with City of Darien Code requirements.

ORDINANCE NUMBER 0-31-85

E. LANDSCAPING AND FENCING

1. The owner shall install an eight foot (8') high stockade-type fence along the north two-hundred twenty-five feet (225') of the western perimeter of the subject property.

2. A fence shall be constructed along the west two-hundred forty feet (240') of the northern property line with the first two-hundred twenty feet (220') being eight feet (8') in height, and the next ten feet (10') being six feet (6') in height, with the next ten feet (10') being four feet (4'), or such other acceptable method of constructing the fence as the City and Shell may agree. The remaining portion of the north property line shall be landscaped with low-line vegetation. However, in the event it is determined that the eastern building line of the residence to the immediate north of the subject property is set back less than sixty feet (60') from the property line along Cass Avenue, the owner shall extend the fence along the northern proeprty line of the subject property so that said fence extends at least ten feet (10') east of said building line.

3. In addition, the owner shall construct a berm and plantings on the church property along the westerly one-hundred feet (100') of the abutting property line.

SECTION 3: This Ordinance shall be in full force and effect upon its passage, approval, and publication in pamphlet form as provided by law.

ORDINANCE NUMBER 0-31-85

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF DARIEN, DU PAGE COUNTY, ILLINOIS, this 7th day of October, 1985.

Gertrude M. Coit, CMC
City Clerk

AYES: 6: Biehl, Gillespie, Nosbisch, Smith, Thompson, VonZuckerstein

NAYS: 2: Colby, Sims

ABSENT: 0: None

APPROVED BY THE MAYOR OF THE CITY OF DARIEN, DU PAGE COUNTY, ILLINOIS, this 7th day of October, 1985.

Mayor

ATTEST:

Gertrude M. Coit, CMC
City Clerk

APPROVED AS TO FORM:

City Attorney

CITY OF DARIEN

ORDINANCE NUMBER 0-31-85

EXHIBIT "A"

The East 280.0 feet of Lot 1 (except the East 15 feet thereof) and also the East 280.0 feet of Lot 2, (except that part thereof lying East of a line drawn from the North East corner of Lot 2 to a point 15 feet West of the South East corner of Lot 2), in Smart Acres, being a Subdivision of the South 1/2 of the North East 1/4 of Section 33, Township 38 North, Range 11, East of the Third Principal Meridian, DuPage County, Illinois.

BOUNDARY & TOPOGRAPHIC SURVEY

LEGAL DESCRIPTION

THE EAST TWO HUNDRED EIGHTY FEET (280.0') OF LOT 1 EXCEPT THE EAST FIFTEEN FEET (15.0') THEREOF AND ALSO THE EAST TWO HUNDRED EIGHTY FEET (280.0') OF LOT 2, EXCEPT THAT PART THEREOF LYING EAST OF A LINE DRAWN FROM THE NORTHEAST CORNER OF LOT 2, TO A POINT FEFTEEN FEET (15.0') WEST OF THE SOUTHEAST CORNER OF LOT 2, IN SMART ACRES, BEING A SUBDIVISION OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 33, TOWNSHIP 38 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF, RECORDED OCTOBER 21, 1947 AS DOCUMENT 532141, IN DUPAGE COUNTY, ILLINOIS.

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

PROPERTY AREA

71,408 SQUARE FEET (1.64 ACRES), MORE OR LESS

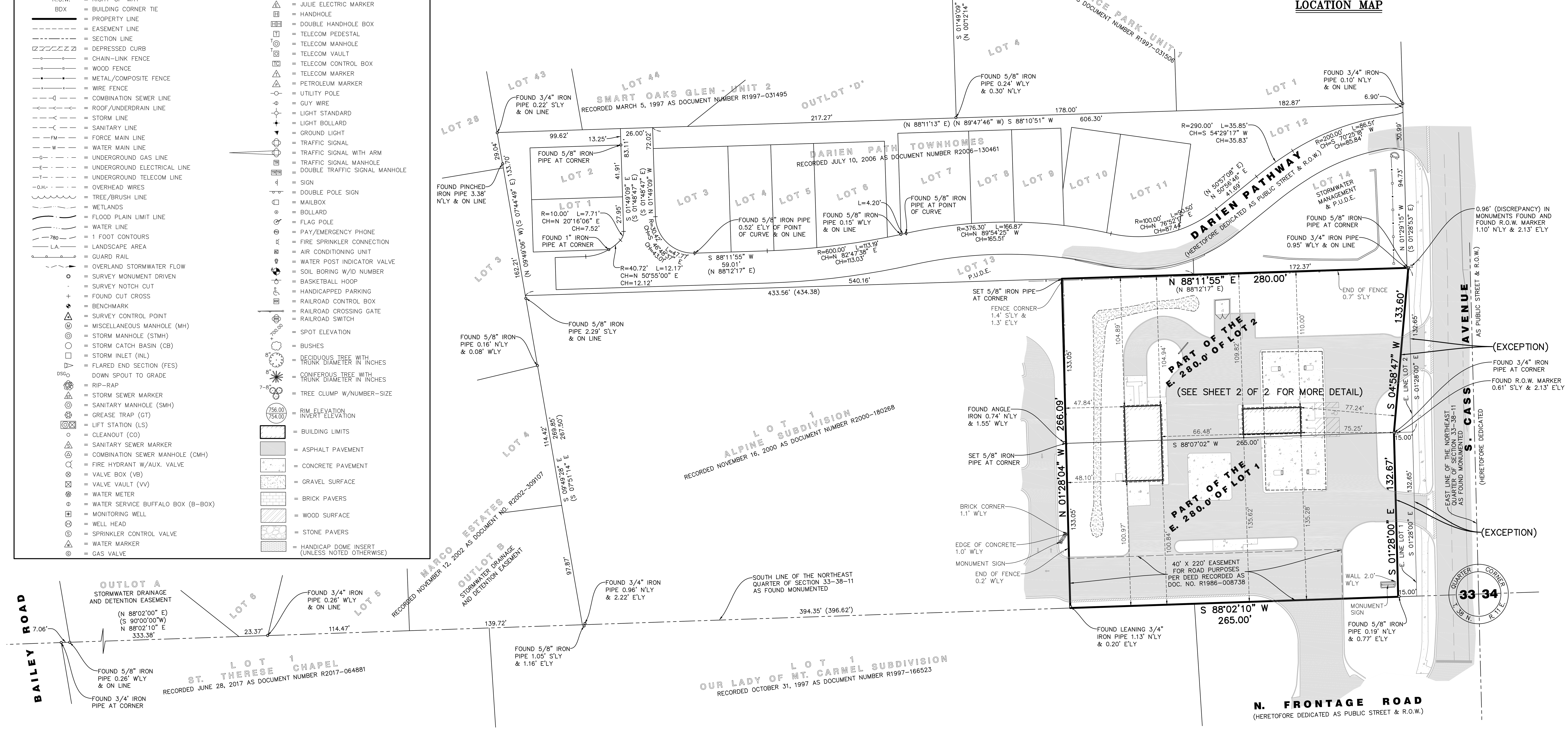
P.I.N. NUMBERS

09-33-205-036

LEGEND

- 50.00' = MEASURED DIMENSION
- (50.0') = RECORD/DEED DIMENSION
- B.S.L. = BUILDING SETBACK LINE
- NLY,WLY = DIRECTION (ie NORTHERLY)
- P.U.E. = PUBLIC UTILITY EASEMENT
- P.U.D.E. = PUBLIC UTILITY & DRAINAGE EASEMENT
- R.O.W. = RIGHT-OF-WAY
- BDX = BUILDING CORNER TIE
- = PROPERTY LINE
- = EASEMENT LINE
- = SECTION LINE
- = DEPRESSED CURB
- = CHAIN-LINK FENCE
- = WOOD FENCE
- = METAL/COMPOSITE FENCE
- = WIRE FENCE
- = COMBINATION SEWER LINE
- = ROOF/UNDERDRAIN LINE
- = STORM LINE
- = SANITARY LINE
- = FORCE MAIN LINE
- = WATER MAIN LINE
- = UNDERGROUND GAS LINE
- = UNDERGROUND ELECTRICAL LINE
- = UNDERGROUND TELECOM LINE
- = OVERHEAD WIRES
- = TREE/BRUSH LINE
- = WETLANDS
- = FLOOD PLAIN LIMIT LINE
- = WATER LINE
- = 1 FOOT CONTOURS
- L.A. = LANDSCAPE AREA
- = GUARD RAIL
- = OVERLAND STORMWATER FLOW
- = SURVEY MONUMENT DRIVEN
- = SURVEY NOTCH CUT
- = FOUND CUT CROSS
- = BENCHMARK
- = SURVEY CONTROL POINT
- = MISCELLANEOUS MANHOLE (MH)
- = STORM MANHOLE (STMH)
- = STORM CATCH BASIN (CB)
- = STORM INLET (INL)
- = FLARED END SECTION (FES)
- DSG = DOWN SPOUT TO GRADE
- = RIP-RAP
- = STORM SEWER MARKER
- = SANITARY MANHOLE (SMH)
- = GREASE TRAP (GT)
- = LIFT STATION (LS)
- = CLEANOUT (CO)
- = SANITARY SEWER MARKER
- = COMBINATION SEWER MANHOLE (CMH)
- = FIRE HYDRANT W/AUX. VALVE
- = VALVE BOX (VB)
- = VALVE VAULT (VV)
- = WATER METER
- = WATER SERVICE BUFFALO BOX (B-BOX)
- = MONITORING WELL
- = WELL HEAD
- = SPRINKLER CONTROL VALVE
- = WATER MARKER
- = GAS VALVE
- = GAS METER
- = GAS MANHOLE
- = JULIE GAS MARKER
- = ELECTRICAL METER
- = ELECTRICAL PEDESTAL
- = ELECTRICAL MANHOLE
- = ELECTRICAL OUTLET/PULL BOX
- = JULIE ELECTRIC MARKER
- = HANDHOLE
- = DOUBLE HANDHOLE BOX
- = TELECOM PEDESTAL
- = TELECOM MANHOLE
- = TELECOM VAULT
- = TELECOM CONTROL BOX
- = TELECOM MARKER
- = PETROLEUM MARKER
- = UTILITY POLE
- = GUY WIRE
- = LIGHT STANDARD
- = LIGHT BOLLARD
- = GROUND LIGHT
- = TRAFFIC SIGNAL
- = TRAFFIC SIGNAL WITH ARM
- = TRAFFIC SIGNAL MANHOLE
- = DOUBLE TRAFFIC SIGNAL MANHOLE
- = SIGN
- = DOUBLE POLE SIGN
- = MAILBOX
- = BOLLARD
- = FLAG POLE
- = PAY/EMERGENCY PHONE
- = FIRE SPRINKLER CONNECTION
- = AIR CONDITIONING UNIT
- = WATER POST INDICATOR VALVE
- = SOIL BORING W/ID NUMBER
- = BASKETBALL HOOP
- = HANDICAPPED PARKING
- = RAILROAD CONTROL BOX
- = RAILROAD CROSSING GATE
- = RAILROAD SWITCH
- 700.00 = SPOT ELEVATION
- = BUSHES
- = DECIDUOUS TREE WITH TRUNK DIAMETER IN INCHES
- = CONIFEROUS TREE WITH TRUNK DIAMETER IN INCHES
- 7-8 = TREE CLUMP W/NUMBER-SIZE
- 756.00 / 754.00 = RIM ELEVATION / INVERT ELEVATION
- = BUILDING LIMITS
- = ASPHALT PAVEMENT
- = CONCRETE PAVEMENT
- = GRAVEL SURFACE
- = BRICK PAVERS
- = WOOD SURFACE
- = STONE PAVERS
- = HANDICAP DOME INSERT (UNLESS NOTED OTHERWISE)

LOCATION MAP



BENCH MARKS: (NAVD88)
SOURCE BENCH MARK:
NGS MONUMENT WITH PID MF1255 BEING AN FLANGE-ENCASED STEEL ROD.
(SEE NGS DATA SHEET FOR A MORE DETAILED DESCRIPTION)
ELEVATION=784.09

SITE BENCH MARK:
NORTH BOLT ON HYDRANT LOCATED 13.3' N'LY & 18.8' E'LY OF THE SOUTHEAST CORNER OF THE SUBJECT PROPERTY.
ELEVATION=725.91

SURVEYOR SIGNATURE AND SEAL

THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY AND TOPOGRAPHIC SURVEY.

DATE SIGNED: NOVEMBER 25, 2024

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 035.003520
LICENSE EXPIRES NOVEMBER 30, 2024
DESIGN FIRM REGISTRATION NO. 184.005510
LICENSE EXPIRES APRIL 30, 2025
DATE OF FIELD WORK: NOVEMBER 11, 2024

MICHAEL S. ULIBARRI 3520 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS LAKE ZURICH, ILLINOIS

"WE GET CORNERS OTHER PEOPLE CUT"
LAND SURVEYING, TOPOGRAPHIC MAPPING, SITE STAKING, SITE PLANS, GRADING PLANS, FEMA CERTIFICATES AND MORE
SIGHT ON SOLUTIONS, INC.
557 CAPITAL DRIVE, LAKE ZURICH, ILLINOIS 60047
PHONE: 847.356.7539 FAX: 815.578.9847 www.sightonsolutions.com

DATE | REVISIONS | DRAWN BY | CHECK BY

SCALE: 1"=40' DATE: 11/25/24 CHECKED BY: M.S.U. DRAWN BY: K.C.
Surveyor's email: mikeu@sightonsolutions.com

BOUNDARY & TOPOGRAPHIC SURVEY
8226 S. CASS AVENUE
DARIEN, ILLINOIS

SHEET 1 OF 2
SOS#: 24174

BOUNDARY & TOPOGRAPHIC SURVEY

LEGAL DESCRIPTION

THE EAST TWO HUNDRED EIGHTY FEET (280.0') OF LOT 1 EXCEPT THE EAST FIFTEEN FEET (15.0') THEREOF AND ALSO THE EAST TWO HUNDRED EIGHTY FEET (280.0)' OF LOT 2, EXCEPT THAT PART THEREOF LYING EAST OF A LINE DRAWN FROM THE NORTHEAST CORNER OF LOT 2, TO A POINT FEFTEEN FEET (15.0') WEST OF THE SOUTHEAST CORNER OF LOT 2, IN SMART ACRES, BEING A SUBDIVISION OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 33, TOWNSHIP 38 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF, RECORDED OCTOBER 21, 1947 AS DOCUMENT 532141, IN DUPAGE COUNTY, ILLINOIS.

N

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND

50.00'	= MEASURED DIMENSION
(50.0')	= RECORD/DEED DIMENSION
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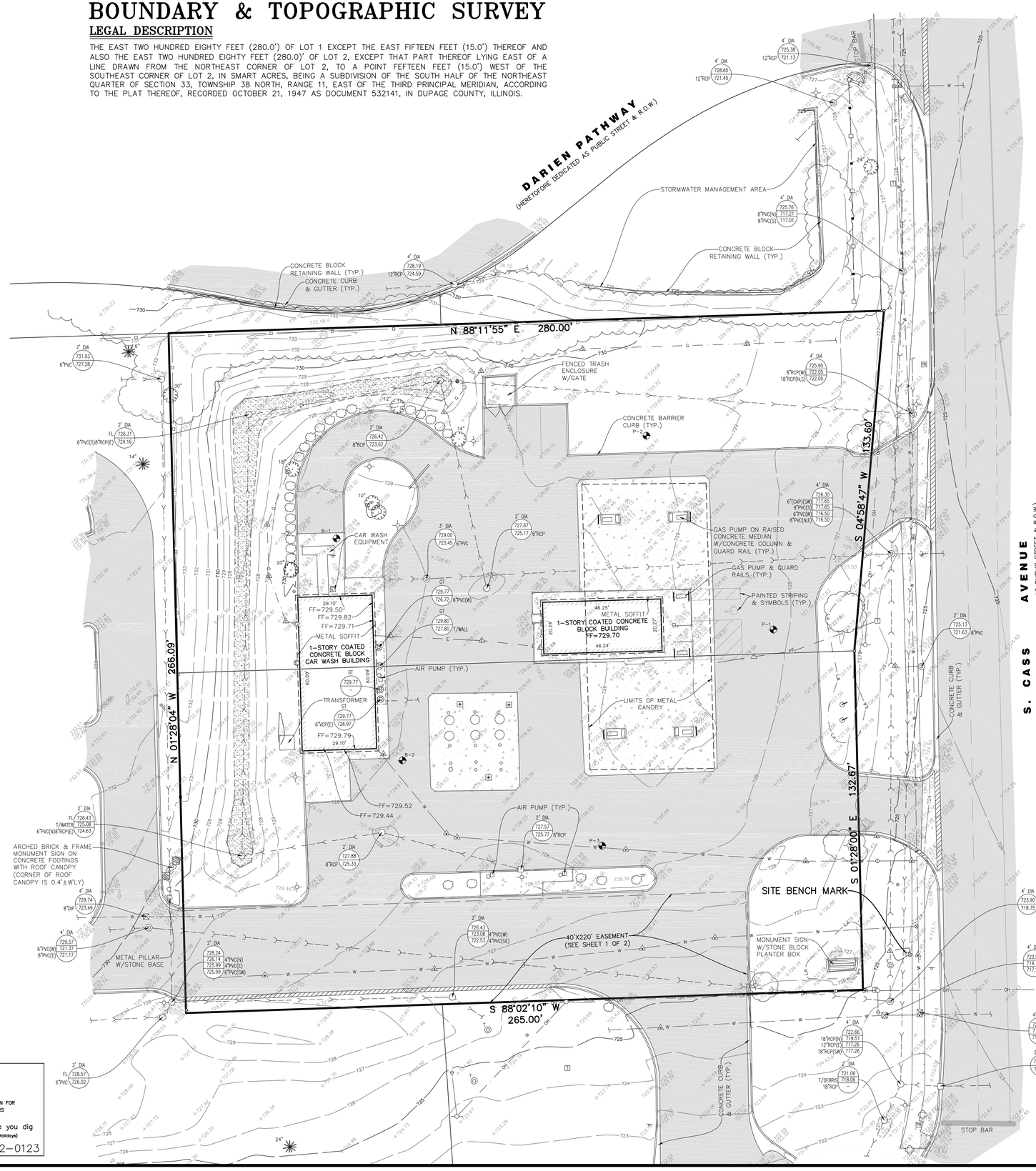
P.U.D.E.	= PUBLIC UTILITY & DRAINAGE EASEMENT
R.O.W.	= RIGHT-OF-WAY
BDX	= BUILDING CORNER TIE
	= PROPERTY LINE
	= EASEMENT LINE
	= SECTION LINE
	= DEPRESSED CURB
	= CHAIN-LINK FENCE
	= WOOD FENCE
	= METAL/COMPOSITE FENCE
	= WIRE FENCE
	= COMBINATION SEWER LINE
	= ROOF/UNDERDRAIN LINE
	= STORM LINE
	= SANITARY LINE
	= FORCE MAIN LINE
	= WATER MAIN LINE
	= UNDERGROUND GAS LINE
	= UNDERGROUND ELECTRICAL LINE
	= UNDERGROUND TELECOM LINE
	= OVERHEAD WIRES
	= TREE/BRUSH LINE
	= WETLANDS
	= FLOOD PLAIN LIMIT LINE
	= WATER LINE
780	= 1 FOOT CONTOURS
L.A.	= LANDSCAPE AREA
	= GUARD RAIL
	= OVERLAND STORMWATER FLOW
	= SURVEY MONUMENT DRIVEN
	= SURVEY NOTCH CUT
	= FOUND CUT CROSS
	= BENCHMARK
	= SURVEY CONTROL POINT
(M)	= MISCELLANEOUS MANHOLE (MH)
(S)	= STORM MANHOLE (STMH)
	= STORM CATCH BASIN (CB)
	= STORM INLET (INL)
	= FLARED END SECTION (FES)
DSG	= DOWN SPOUT TO GRADE
RIP RAP	= RIP-RAP
	= STORM SEWER MARKER
(S)	= SANITARY MANHOLE (SMH)
GT	= GREASE TRAP (GT)
LS	= LIFT STATION (LS)
	= CLEANOUT (CO)
	= SANITARY SEWER MARKER
(CMH)	= COMBINATION SEWER MANHOLE (CMH)
	= FIRE HYDRANT W/AUX. VALVE
	= VALVE BOX (VB)
	= VALVE VAULT (VV)
	= WATER METER
	= WATER SERVICE BUFFALO BOX (B-BOX)
	= MONITORING WELL
	= WELL HEAD
	= SPRINKLER CONTROL VALVE
	= WATER MARKER
	= GAS VALVE
	= GAS METER
	= GAS MANHOLE
	= JULIE GAS MARKER
	= ELECTRICAL METER
E	= ELECTRICAL PEDESTAL
E	= ELECTRICAL MANHOLE
	= ELECTRICAL OUTLET/PULL BOX
	= JULIE ELECTRIC MARKER
H	= HANDHOLE
H H	= DOUBLE HANDHOLE BOX
T	= TELECOM PEDESTAL
T	= TELECOM MANHOLE
T	= TELECOM VAULT
TC	= TELECOM CONTROL BOX
	= TELECOM MARKER
	= PETROLEUM MARKER
	= UTILITY POLE
	= GUY WIRE
	= LIGHT STANDARD
	= LIGHT BOLLARD
	= GROUND LIGHT
	= TRAFFIC SIGNAL
	= TRAFFIC SIGNAL WITH ARM
TS	= TRAFFIC SIGNAL MANHOLE
	= DOUBLE TRAFFIC SIGNAL MANHOLE
	= SIGN
	= DOUBLE POLE SIGN
	= MAILBOX
	= BOLLARD
	= FLAG POLE
	= PAY/EMERGENCY PHONE
	= FIRE SPRINKLER CONNECTION
	= AIR CONDITIONING UNIT
	= WATER POST INDICATOR VALVE
	= SOIL BORING W/ID NUMBER
	= BASKETBALL HOOP
	= HANDICAPPED PARKING
	= RAILROAD CONTROL BOX
	= RAILROAD CROSSING GATE
	= RAILROAD SWITCH
730.00	= SPOT ELEVATION
	= BUSHES
6"	= DECIDUOUS TREE WITH TRUNK DIAMETER IN INCHES
8"	= CONIFEROUS TREE WITH TRUNK DIAMETER IN INCHES
7-8"	= TREE CLUMP W/NUMBER-SIZE
756.00 / 754.00	= RIM ELEVATION / INVERT ELEVATION
	= BUILDING LIMITS
	= ASPHALT PAVEMENT
	= CONCRETE PAVEMENT
	= GRAVEL SURFACE
	= BRICK PAVERS
	= WOOD SURFACE
	= STONE PAVERS
	= HANDICAP DOME INSERT (UNLESS NOTED OTHERWISE)

SURVEYOR'S NOTES

1. THIS SURVEY WAS PREPARED FOR RTM ENGINEERING CONSULTANTS, INC.
3. NO EASEMENTS OR SETBACKS WERE CREATED BY THE FINAL PLAT OF SUBDIVISION, EASEMENT SHOWN HEREON WAS CREATED BY DOCUMENTNUMBER R86-087385. REFER TO CURRENT TITLE COMMITMENT, ZONING REGULATIONS OR OTHER DOCUMENTS FOR SETBACK, EASEMENT OR OTHER REQUIREMENTS NOT SHOWN HEREON, IF ANY.
4. BUILDING TIES ARE SHOWN FROM OUTSIDE LIMITS OF COATED CONCRETE BLOCK CONSTRUCTION.
5. DISTANCES ARE MARKED IN U.S. SURVEY FEET. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (456.67') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED. BEARINGS ARE GEODETIC BASED ON FOUND MONUMENTATION LOCATED AND MEASURED USING TRIMBLE'S VIRTUAL REFERENCE SYSTEM (NAD 83, ILLINOIS STATE PLANE, EAST ZONE), AND THE FINAL PLAT OF SUBDIVISION.
6. MANHOLES, INLETS, OTHER UTILITY RIMS OR GRATES, SHOWN HEREON ARE FROM FIELD LOCATION OF SUCH BASED ON LID MARKINGS, AND ONLY REPRESENT SUCH UTILITY IMPROVEMENTS WHICH ARE VISIBLE FROM ABOVE GROUND AT TIME OF SURVEY, THROUGH A NORMAL SEARCH AND WALK THROUGH OF THE SITE. UNDERGROUND UTILITY LINES EXIST BUT ARE NOT SHOWN HEREON AND OBSERVATIONS HAVE NOT BEEN MADE TO DETERMINE THE EXTENT OF UTILITIES SERVING OR EXISTING ON THE PROPERTY.
7. ONLY THE IMPROVEMENTS WHICH WERE VISIBLE FROM ABOVE GROUND AT TIME OF SURVEY AND THROUGH A NORMAL SEARCH AND WALK THROUGH OF THE SITE ARE SHOWN ON THE FACE OF THIS PLAT. LAWN SPRINKLER SYSTEM HEADS, IF ANY, ARE NOT SHOWN ON THIS SURVEY.
8. THIS SURVEY MAY NOT REFLECT ALL IMPROVEMENTS ON THE PROPERTY IF SUCH ITEMS WERE HIDDEN BY LANDSCAPING, FOLIAGE, EARTH, PAVEMENT, CONCRETE OR WERE COVERED BY SUCH ITEMS AS DUMPSTERS, PALETTES, STOCK MATERIALS, EQUIPMENT, TRAILERS OR OTHER OBJECTS.
9. OTHER THAN VISIBLE OBSERVATIONS NOTED HEREON, THIS SURVEY MAKES NO STATEMENT REGARDING THE ACTUAL PRESENCE OR ABSENCE OF ANY SERVICE OR UTILITY LINE. USE OF UTILITY ATLAS RECORDS, IF ANY, AND/OR CONTROLLED UNDERGROUND EXPLORATORY EFFORTS, TOGETHER WITH UTILITY COMPANY LOCATE MARKINGS IS RECOMMENDED TO DETERMINE THE EXTENT OF UNDERGROUND SERVICE AND UTILITY LINES. CONTACT JURISDICTIONAL AGENCIES, J.U.L.I.E., D.I.G.G.E.R. OR PRIVATE UTILITY LOCATING COMPANY FOR RECORDS OR SCHEDULING A LOCATE.
10. THE LOCATION OF THE PROPERTY LINES SHOWN ON THE FACE OF THIS PLAT ARE BASED ON THE LEGAL DESCRIPTION AND INFORMATION PROVIDED BY THE CLIENT, THE PARCEL WHICH IS DEFINED MAY NOT REFLECT ACTUAL OWNERSHIP, BUT REFLECTS WHAT WAS SURVEYED. FOR OWNERSHIP, CONSULT YOUR TITLE COMPANY.
11. COMPARE THIS PLAT, LEGAL DESCRIPTION AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.

CALL J.U.L.I.E. TOLL FREE 1-800-892-0123
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
Call 48 hours before you dig (Excluding Sat., Sun. & Holidays)
1-800-892-0123



DATE	REVISIONS	DRAWN BY	CHECK BY

SCALE: 1"=20' DATE: 11/25/24 CHECKED BY: M.S.U. DRAWN BY: K.C.
Surveyor's email: mikeu@sightonsolutions.com

"WE GET CORNERS OTHER PEOPLE CUT"
LAND SURVEYING, TOPOGRAPHIC MAPPING, SITE STAKING,
SITE PLANS, GRADING PLANS, FEMA CERTIFICATES AND MORE

SIGHT ON SOLUTIONS, INC.
557 CAPITAL DRIVE, LAKE ZURICH, ILLINOIS 60047
PHONE: 847.356.7539 FAX: 815.578.9647 www.sightonsolutions.com

BOUNDARY & TOPOGRAPHIC SURVEY
8226 S. CASS AVENUE
DARIEN, ILLINOIS

SHEET 2 OF 2

SOS#: 24174

ZONING VARIATIONS

INFORMATION and APPLICATION

REV 12/21

Assistance

All zoning standards and procedures are described in detail in the City Code, Title 5A, which is presented in full on the City website www.darienil.us. This website also has links to this packet and related information. The City Staff is dedicated to help all those involved. Our goal is to make your experience understandable, informative, meaningful, protective of your rights, responsive to your needs, and not unnecessarily long or costly. Contact the City Planner for guidance.

Available Relief

The zoning standards are uniform throughout the City and for each zoning district. However, there may be some unique properties that would be very difficult to develop if strictly conforming to these zoning standards. So, zoning relief may be available. Property owners have the opportunity to apply for variations that would substitute a lesser zoning standard to be used for a particular development but only for properties that have a unique hardship situation. For example, locating a proposed house 35 feet setback from the rear lot line of a property in the R-1 District would not normally be allowed where the uniform zoning standard is 40 feet, however a variation might be justified if the particular lot is extra shallow.

Fair Process

The City has a process to review each zoning variation application on its merits. It starts with the property owner or buyer or builder or their representative submitting an application with all the relevant information needed. The City staff (and consultants if needed) review the application, assist the applicant on technical issues, and schedule a public hearing for the Planning and Zoning Commission. The PZC are nine volunteer residents appointed by the Mayor and City Council to evaluate all variation applications. The PZC approves or denies 'simple' variations, which are front yard or corner side yard reductions of 10% or less or side yard reductions to not less than 7.5 feet for single family houses. For all other types of variations, the PZC recommends to the Municipal Services Committee. The MSC are three aldermen who review the findings of the PZC and make their own recommendation to the full City Council. The City Council then has the final vote to approve or deny. The process usually takes about 2-3 months, but in some cases it may take longer if hearings are continued to get more information.

Transparency

A key step in the process is the public hearing held by the PZC. The application and City staff report are posted on the City website for all to see before the hearing. City staff mails notice of the hearing to neighbors and publishes it in a local newspaper and posts it in City Hall. The applicant places a sign on the property that gives notice of the hearing. Everyone is invited to attend, listen to the applicant's presentation, join in the discussion, and give their comments. Decision criteria in the Code are used to focus all input to determine the unbiased, objective reasons for or against the variation requested.

CITY OF DARIEN

ZONING VARIATIONS

SUBMITTAL CHECKLIST

X 1. APPLICATION. *See attached one-page form.*

X 2. OWNER AUTHORIZATION LETTER. If the applicant is not the owner, include letter from owner describing the relation to applicant and authorizing the applicant to act on behalf of the owner.

N/A 3. PROOF OF OWNERSHIP. If the owner name and address on the Application form is different than on the County Tax Assessor's records, then include proof of ownership such as a deed or title search and list of trust beneficiaries, partners, or corporation owners and officers.

X 4. APPLICATION FEE. Cash or check payable to the City of Darien. This is non-refundable and is used to pay for administrative expenses. *See attached Fee Schedule.*

X 5. REIMBURSEMENT AGREEMENT. Some case reviews may need extra engineering, legal, or other consultants review, publication, recording, or other costs. By signing this form, the applicant agrees to reimburse the City if there are such costs. *See attached form.*

X 6. NEIGHBOR LIST. Provide a stamped envelope with name and address of the owner of each of the neighboring properties within 250 feet of the applicant's property. City staff will put notices of the public hearing in each envelope and then mail them. These names and addresses can be obtained from the Downers Grove Township Assessor's Office 630-719-6630.

___ 7. PUBLIC NOTICE SIGN(S). The applicant must provide and post one or two signs on the property giving notice when the public hearing is scheduled. *See attached Public Hearing Signs and Hearing Schedule.*

X 8. PLAT OF SURVEY. It should show property boundaries, easements, buildings, other structures, legal description, and any other existing conditions relevant to the variation requested.

X 9. PLANS. Usually this includes a site plan, drawn to scale on the plat of survey, showing proposed improvements with appropriate dimensions. One copy is sufficient if 11"x17" or smaller. Ten copies if larger than 11"x17" or in color. Additional plans may be appropriate to show all relevant information depending on the nature of the variation being requested, such as;

- X elevation drawings
- X photos simulations
- ___ traffic studies
- X landscaping plans
- ___ other (*contact the City Planner for guidance*)

X 10. JUSTIFICATION NARRATIVE. The applicant is responsible for providing written evidence (facts) that supports a conclusion (finding) that the variation is necessary and would not cause problems. *See attached form.*

ZONING APPLICATION

CITY OF DARIEN
1702 Plainfield Road, Darien, IL 60561
www.darienil.us 630-852-5000

CONTACT INFORMATION

Lindsay Lyden	True North Energy, LLC
Applicant's Name	Owner's Name
10346 Brecksville, Rd., Brecksville OH 44141	10346 Brecksville, Rd., Brecksville OH 44141
Address, City, State, Zip Code	Address, City, State, Zip Code
(440) 792-4200	(440) 792-4200
Telephone	Telephone
llyden@truenorth.org	llyden@truenorth.org
Email	Email

PROPERTY INFORMATION

8226 Cass Ave.	0933205036
Property address	PIN Number(s)
Special Use O-30-23	Fuel Station with Car Wash
Zoning District	Current Land Use(s)

(Attach additional information per the Submittal Checklist.)

REQUEST

Brief description of the zoning approval requested. (Contact the City Planner for guidance.)

Reconstruct the site for a new fuel station and convenience store.

Lindsay Lyden
Applicant Signature

As Notary Public, in and for ~~DuPage~~ LUCAS County in ~~Illinois~~ OHIO, I do hereby certify that LINDSAY LYDEN is personally known by me to be the same person whose name is subscribed above and has appeared before me this day in person and acknowledged that they have signed this document as their own free and voluntary act, for the purposes therein set forth.
Given under my hand and seal, this 3rd day of December 2024.

Diane M. Long
Notary Public

For office use only
Date Received:
Case Number:
Fee Paid:
Hearing Date:

NOTARIAL SEAL STATE OF OHIO

DIANE M. LONG
Notary Public, State of Ohio
My Commission Expires: March 31, 2025

CITY OF DARIEN
1702 Plainfield Road, Darien, Illinois 60561

DEVELOPMENT APPLICATIONS

REIMBURSEMENT AGREEMENT

The undersigned applicant for development approval acknowledges that the City of Darien may seek advice and council from professional sources outside the employee staff of the City of Darien. The purpose of such consultation would be for traffic impact analysis, engineering, stormwater, legal, or other such reviews related to variation, special use, rezoning, subdivision, site plan, permits, or other proposals submitted to the City of Darien by the applicant. The City of Darien may also incur expenses as part of the development review and approval process, such as copying, mailing, publication, recording, inspecting, or other such activities.

As an express condition in submitting said application and the consideration thereof by the City of Darien, the applicant both personally and on behalf of the property owner(s), agrees to reimburse the City of Darien forthwith for all costs and expenses that may be incurred by the City of Darien for such consultation and activities.

The applicant hereby accepts and acknowledges that if at any time the application fails to pay for such consultation and activity costs in accordance with the direction of the City of Darien, the no further action will be taken by the City of Darien in relation to the application until such time as said payment is paid in full.

Lindsay Lyden

Applicant's Name (print)

Lindsay Lyden

Applicant's Name (signature)

10346 Brecksville, Rd., Brecksville OH 44141

Applicant's Address

December 4, 2024

Date

CITY OF DARIEN

Fee Schedule
Ordinance O-38-92

	Residential		Commercial	
	<5 acres	**> 5 acres**	**< 5 acres**	**> 5 acres**
Rezoning	385.00	435.00	485.00	510.00
Special Use	510.00	535.00	585.00	610.00
Special Use Amendment	460.00	460.00	510.00	560.00
Special Use PUD	600.00	650.00	700.00	750.00
Major PUD Amendment	485.00	510.00	560.00	610.00
Minor PUD Amendment	385.00	410.00	435.00	460.00

	Residential			Commercial
	< 5 lots	**> 5 lots**	**> 10 lots**	
Preliminary Plat	205.00	230.00 + 15.00 per lot	305.00 + 15.00 per lot	305.00 + 30.00 per lot
Final Plat	180.00	205.00 + 10.00 per lot	255.00 + 10.00 per lot	255.00 + 20.00 per lot

	Residential		Commercial
	Single lot	**Multi lot**	
Major Variation	360.00	460.00	485.00
Simple Variation	75.00		

	One lot	**> 1 lot**
Annexation Petition	30.00	50.00
Annexation Agreements	200.00	
Annexation Agreement Amendment	200.00	
Text Amendment	400.00	
Appeal of Administrative Decisions/Interpretation	250.00	

For new development/redevelopment (excluding petitions involving a single-family residence):
$2,000.00 deposit required when the petition is submitted, to be returned once all invoices from professional services are paid (engineering, legal and traffic reviews, etc.)

The bill incurred for publishing the public hearing notice in the newspaper will be billed to the petitioner (excluding petitions involving a single-family residence.)

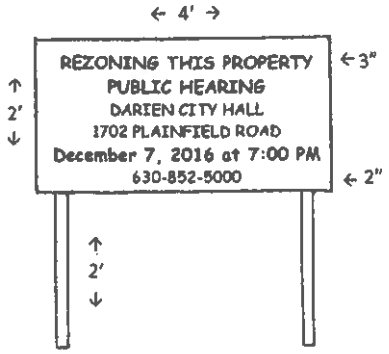
CITY OF DARIEN

ZONING APPLICATIONS

PUBLIC NOTICE SIGNS

Applicants requesting zoning approval of a map amendment, special use, variation or annexation are responsible for obtaining, posting, and maintaining signs on the subject property to inform the public about the application and the public hearing. See City Code Section 5A-2-3 (B).
Contact the City Planner for guidance.

1. Post sign(s) for 15 – 30 days before hearing and remove within 3 days after City Council vote.
2. Place one sign in front yard where most visible to drivers, but not in parkway.
3. Place a second sign for large or usual lots.
4. Signs should be made of durable materials to withstand weather.
5. Signs are to be self-supporting – not attached to buildings, fences, trees.
6. Signs should be legible from street – light background, dark letters – no hand lettering.
7. Minimum sizes 8 – 32 square feet – see samples below.



For lots less than 1 acre

For lots 1 acre or larger

CITY OF DARIEN
PLANNING AND ZONING COMMISSION

2022 Schedule

First and Third Mondays | **Fifteen Days Before Hearing** | **Forty-Five Days Before Hearing**

Meeting Dates	Public Hearing Notice and Sign Posting Deadlines	Submittal Deadlines
January 5	December 21, 2021	November 22, 2021
January 19	January 4	December 6, 2021
February 2	January 18	December 28, 2021**
February 16	February 1	January 3
March 2	February 15	January 17
March 16	March 1	January 31
April 6	March 22	February 22**
April 20	April 5	March 7
May 4	April 19	March 21
May 18	May 3	April 4
June 1	May 17	April 18
June 15	May 31	May 2
July 6	June 21	May 23
July 20	July 5	June 6
August 3	July 19	June 20
August 17	August 2	July 5**
September 7	August 23	July 25
September 21	September 6	August 8
October 5	September 20	August 22
October 19	October 4	September 6**
November 2	October 18	September 19
November 16	November 1	October 3
December 7	November 22	October 24
December 21	December 6	November 7

Meetings are Held in the Council Chambers at Darien City Hall,
1702 Plainfield Road, Beginning at 7:00 PM.

****Due to City Hall Closure for Holiday, Please Note Date Change.**

CITY OF DARIEN

ZONING VARIATIONS

JUSTIFICATION NARRATIVE

Purpose

To be consistent and fair, the City is obligated to make decisions on zoning variation requests based on findings-of-fact. The Applicant should write a justification narrative that contains evidence (facts) that support a conclusion (finding) that the variation is necessary and would not cause problems. It should include: a) explanation of why the variation is being requested, b) describe the 'hardship condition' of the property that makes it difficult to conform, c) estimate the impact on neighbors , and d) respond to each of the decision criteria below.

Decision Criteria (See City Code Section 5A-2-2-3)

2a. The property in question cannot yield a reasonable return if permitted to be used only under the conditions allowed by the regulations in the zone.

2b. The plight of the owner is due to unique circumstances.

2c. The variation if granted will not alter the essential character of the locality.

3a. Essential Need? The owner would suffer substantial difficulty or hardship and not mere inconvenience or a decrease in financial gain if the variation is not granted.

3b. Problem with Property? There is a feature of the property such as slope or shape or change made to the property, which does not exist on neighboring properties, which makes it unreasonable for the owner to make the proposed improvement in compliance with the Zoning Code. Such feature or change was not made by the current owner and was not known to the current buyer at the time of purchase.

3c. Smallest Solution? There is no suitable or reasonable way to redesign the proposed improvements without incurring substantial difficulty or hardship or reduce the amount of variation required to make such improvements.

3d. Create Neighbor Problem? The variation, if granted, will not cause a substantial difficulty, undue hardship, unreasonable burden, or loss of value to the neighboring properties.

3e. Create Community Problem? The variation, if granted, may result in the same or similar requests from other property owners within the community, but will not cause an unreasonable burden or undesirable result within the community.

3f. Net Benefit? The positive impacts to the community outweigh the negative impacts.

3g. Sacrifice Basic Protections? The variation, if granted, will comply with the purposes and intent of the Zoning Code set forth in Section 5A-1-2(A) and summarized as follows; to lessen congestion, to avoid overcrowding, to prevent blight, to facilitate public services, to conserve land values, to protect from incompatible uses, to avoid nuisances, to enhance aesthetic values, to ensure an adequate supply of light and air, and to protect public health, safety, and welfare.

NOTES:

1. ALL DIMENSIONS ALONG CURB LINES ARE TO FACE OF CURB, UNLESS NOTED OTHERWISE.
2. BUILDINGS AND ADJACENT TO BUILDING IMPROVEMENTS SHOWN ON THESE PLANS ARE BASED UPON THE BUILDING PLANS PROVIDED BY OTHERS AT THE DATE OF THESE PLANS BEING PREPARED. BUILDING PLANS NORMALLY CONTINUE TO CHANGE AFTER SITE PLANS HAVE BEEN APPROVED. THEREFORE THE CONTRACTOR SHALL USE THE BUILDING PLANS FOR FINAL BUILDING IMPROVEMENTS, AND VERIFY THAT ALL ADJACENT IMPROVEMENTS ARE CONSISTENT WITH THE DESIGN INTENT AND REQUIREMENTS OF THE SITE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF CLARIFICATION IS NEEDED, OR IF CONFLICTS OR INCONSISTENCIES EXIST.
3. ADA DETECTIBLE WARNING STRIPS SHALL BE CAST IRON TILES, WET SET INTO CONCRETE SURFACE, PER MANUFACTURERS INSTALLATION RECOMMENDATIONS.
4. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY SIGHT ON SOLUTIONS, INC.

⟨X⟩ SIGNING AND STRIPING SCHEDULE

A. 4" YELLOW STRIPING
B. YELLOW HANDICAP PARKING STRIPING (SEE DETAIL)
C. "ACCESSIBLE" PARKING STALL SIGN ASSEMBLY ($250 FINE)
D. "STOP" SIGN R1-1 (30"X30")
E. 24" WHITE THERMOPLASTIC STOP BAR
F. 4" PAINTED CROSS STRIPING 4' C-C
G. DIRECTIONAL ARROW
H. RIGHT TURN ONLY R3-5 (24"X30")
I. THERMOPLASTIC RIGHT TURN ONLY STRIPING
J. 4" YELLOW LINES, 5.5" C-C SKIP-DASH AND SOLID
K. 6" SOLID WHITE THERMOPLASTIC.
L. "NO LEFT TURN" SIGN (30"X30")
M. 6" WHITE THERMOPLASTIC 6' SKIP 2' DASH

STRIPING NOTE: ON-SITE PAVEMENT MARKINGS AND GRAPHICS SHALL CONSIST OF TWO (2) COATS OF TRAFFIC-RATED PAINT APPLIED A MINIMUM OF 30 DAYS APART. STRIPING AND GRAPHICS AT ENTRY DRIVES SHALL BE THERMOPLASTIC AS NOTED. MATERIALS SHALL MEET ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARDS.

(X) PARKING SUMMARY

	PROPOSED
REGULAR STALLS (9'x18')	18
ACCESSIBLE STALLS (16'x18')	1
TOTAL STALL COUNT	**19**

LEGEND:

▦	ADA TRUNCATED DOMES
═	EXISTING BARRIER CURB
≡	EXISTING CURB AND GUTTER
▨	EXISTING CURB AND GUTTER - DEPRESSED
═	B6.12 CURB AND GUTTER UNLESS NOTED OTHERWISE
═	B6.12 CURB AND GUTTER - DEPRESSED
═	B6.12 CURB AND GUTTER - TRANSITION (ZERO TO FULL HEIGHT)
═	BARRIER CURB AND GUTTER UNLESS NOTED OTHERWISE
═	BARRIER CURB AND GUTTER - DEPRESSED
═	B6.12 CURB AND GUTTER - TRANSITION (ZERO TO FULL HEIGHT)
– – –	SAWCUT LINE
▨	<u>CONCRETE PAVEMENT FOR TANK PAD, DUMPSTER ENCLOSURE, AND APRONS</u> 8" P.C. CONCRETE (CLASS PV) W/ 6x6 WWF EACH WAY 6" AGGREGATE BASE COURSE, TYPE B, CA-6
▩	<u>CONCRETE PAVEMENT FOR FUEL AND ISLAND PARKING</u> 6" P.C. CONCRETE (CLASS PV) W/ #4 REBAR @12" O.C. EACH WAY 6" AGGREGATE BASE COURSE, TYPE B, CA-6
░	<u>CONCRETE SIDEWALK</u> 5" P.C. CONCRETE (CLASS SI) 4" AGGREGATE BASE COURSE, TYPE B, CA-6

No.	DATE	DESCRIPTION
0	04/26/19	INTERNAL REVIEW

No.	DATE	DESCRIPTION

rtm engineering consultants

650 E. Algonquin Road
Suite 250
Schaumburg, IL 60173
Telephone: (847) 756 - 4180
www.rtmec.com

IL Design Firm: 184006777-0002

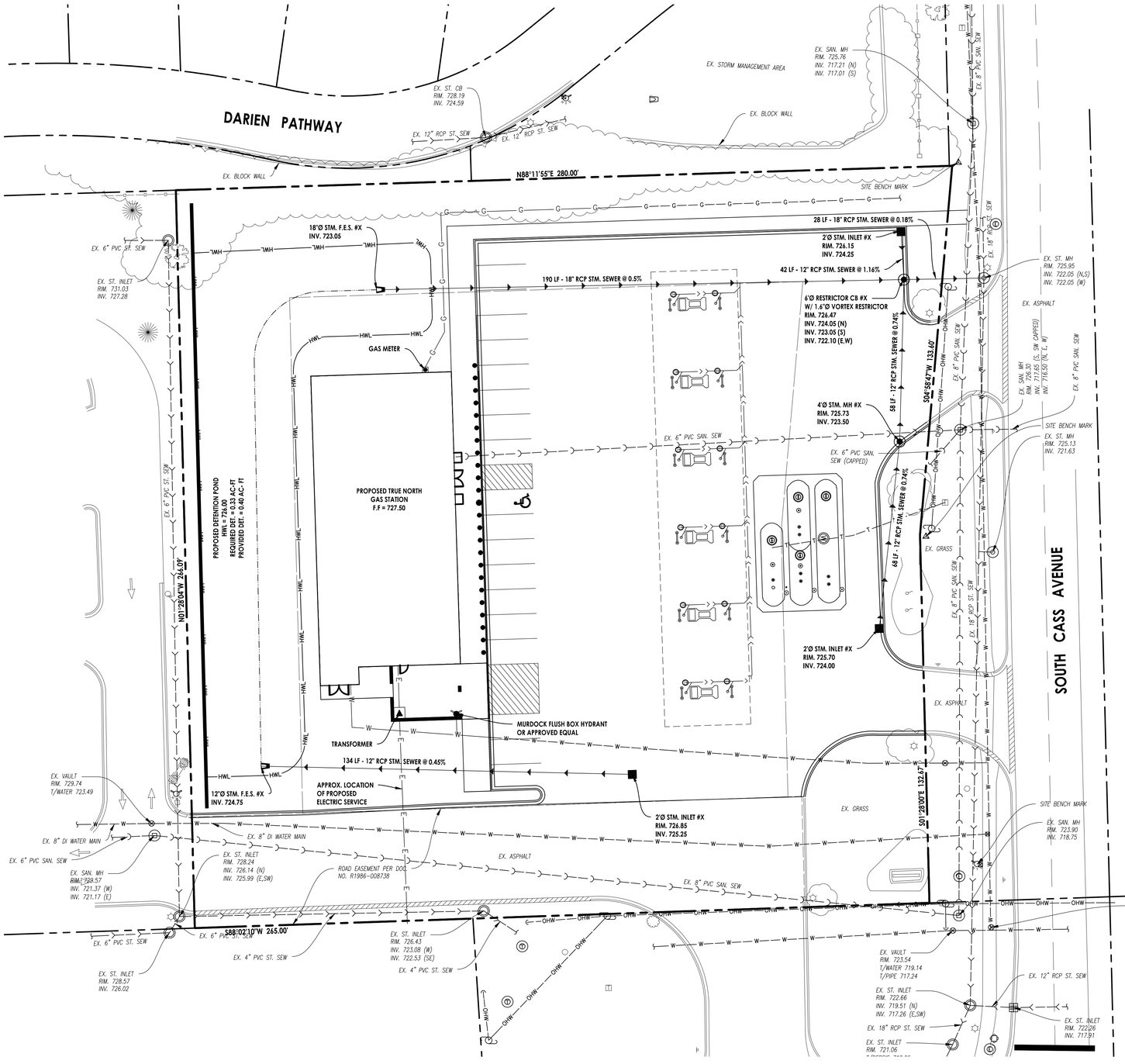
SHEET NAME
SITE GEOMETRIC PLAN

PROJECT NAME
TRUENORTH
8226 CASS AVE.
DARIEN, IL

PROJECT No.
TN 984

SHEET No.
C2.0
OF 13 SHEETS

User: mckenna.mintz File: C:\Users\mckenna.mintz\DC\ACCDocs\RTM Engineering Consultants LLC\0962.5163C-TN Darien\Project Files\03 DESIGN DRAWINGS\02 SHEET SET\TN_Site.dwg Time: Jan 17, 2025 - 9:04am



NOTES:

1. EX. ITEMS SHALL BE FIELD VERIFIED. RELOCATION OR ADJUSTMENT MAY BE NEEDED. CONTRACTOR TO VERIFY.
2. CONTRACTOR SHALL VERIFY ALL WORK, INCLUDING BUT LIMITED TO, SIZES, MATERIALS AND LOCATION, WITH UTILITY COMPANIES PRIOR TO INSTALLATION.
3. VERIFY SERVICE LOCATIONS WITH BUILDING PLANS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
4. RIM GRADES ALONG CURBS ARE FLOW LINE ELEVATIONS.
5. SEE SPECIFICATIONS SHEET FOR ALL STORM, SANITARY, AND WATER PIPE AND STRUCTURE SPECIFICATIONS.
6. ALL UTILITY TIE DIMENSIONS ARE FROM CENTER OF UTILITY AND TO BACK OF CURB WHEN TIED TO CURB LINES, UNLESS OTHERWISE NOTED.
7. CONTRACTOR TO INSPECT EXISTING SEWER AT POINT OF CONNECTION. CONTRACTOR TO VERIFY THAT EXISTING PIPE IS IN GOOD WORKING CONDITION. CONTRACTOR TO REPAIR AS REQUIRED.
8. CONTRACTOR TO NOTIFY OWNER/ENGINEER IF CONFLICTS OCCUR.
9. NEW OPENING/CONNECTIONS TO EXISTING COMBINED AND SANITARY MANHOLE/STRUCTURES SHALL BE CORE-DRILLED AND UTILIZE RUBBER BOOTS CONFORMING TO ASTM C-923.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

NO.	DATE	DESCRIPTION
0	04/26/19	INTERNAL REVIEW

NO.	DATE	DESCRIPTION

rtm engineering consultants
650 E. Algonquin Road
Suite 350
Schaumburg, IL 60173
Telephone: (847) 756 - 4180
www.rtmec.com
IL Design Firm: 184006777-0002

SHEET NAME: UTILITY PLAN

PROJECT NAME: TRUENORTH
DARIEN, IL
8226 CASS AVE.

PROJECT No.
TN 984

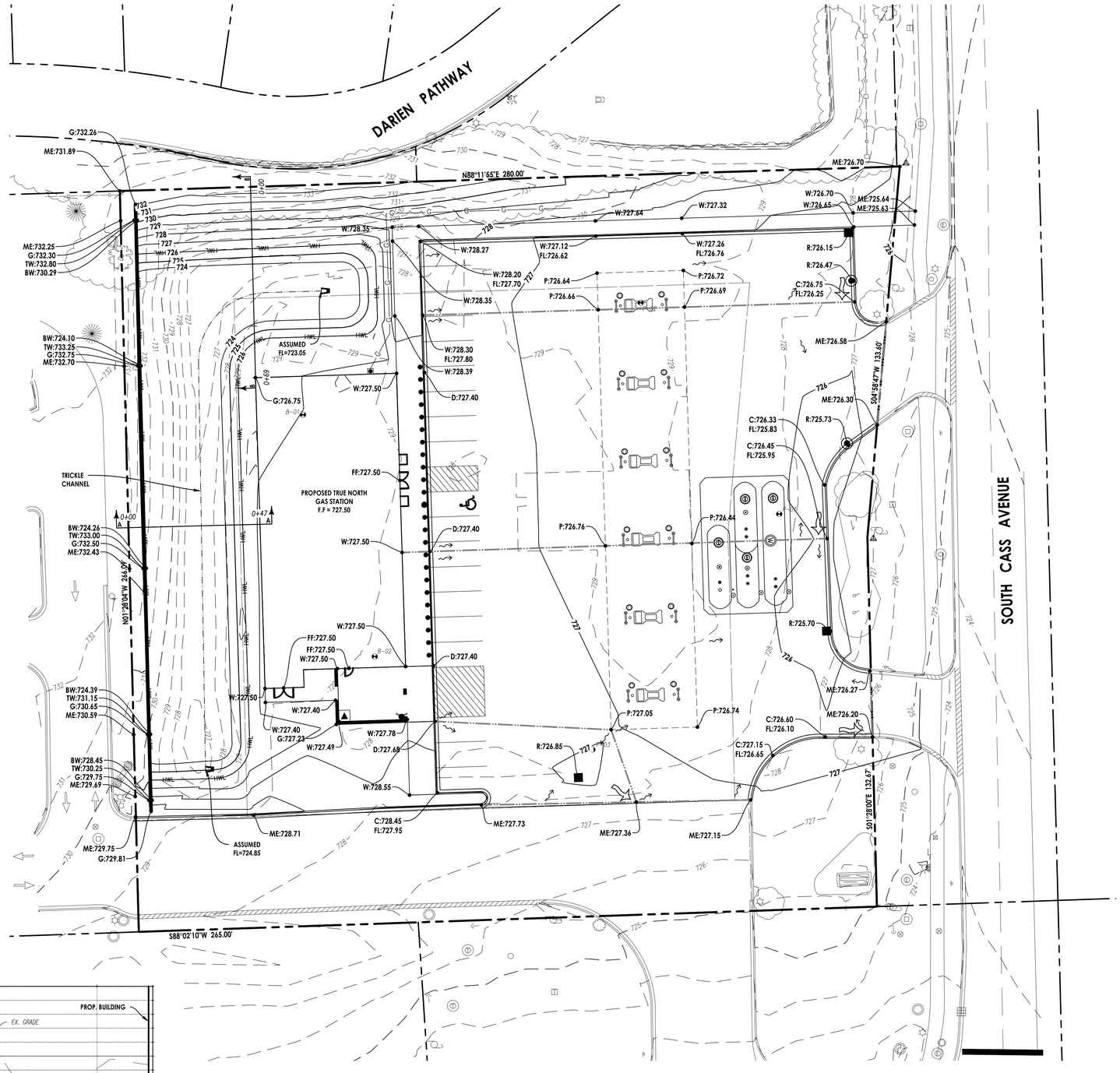
SHEET No.
C3.0
OF 13 SHEETS

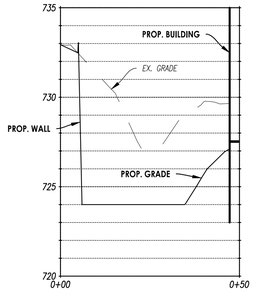
NOTES:

1. PROPOSED ELEVATIONS SHOWN ON PROPOSED CURB LINES ARE FLOW LINE ELEVATIONS UNLESS NOTED OTHERWISE. ADD 0.50' TO OBTAIN TOP OF CURB ELEVATIONS.
2. A CONSTANT SLOPE SHALL BE MAINTAINED BETWEEN SPOT GRADES.
3. 2% MINIMUM SLOPE AND 3:1 MAXIMUM SLOPE IN TURF AREAS AND 1% MINIMUM SLOPE AND 5% MAXIMUM SLOPE IN PAVED AREAS.
4. RIM GRADES ALONG CURBS ARE FLOW LINE ELEVATIONS.
5. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY SIGHT ON SOLUTIONS, INC.

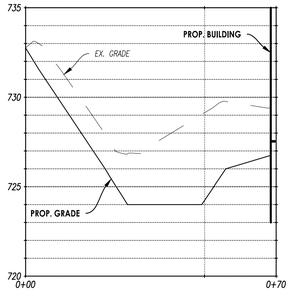
LEGEND:

	EXISTING	PROPOSED
1 FOOT CONTOUR		
5 FOOT CONTOUR		
GRADE	+ 0.00	0.00
RIDGE LINE		
TOP OF CURB		C:XX.XX
TOP OF WALK		W:XX.XX
TOP OF PAVEMENT		P:XX.XX
FLOW LINE @ DEPRESSED CURB		D:XX.XX
FLOW LINE		F:XX.XX
EDGE OF PAVEMENT		E:XX.XX
FINISHED GROUND		G:XX.XX
RIM GRADE		R:XX.XX
MATCH EXISTING		ME:XX.XX
FINISHED FLOOR		FF:XX.XX
FLOW ARROW		
OVERFLOW		

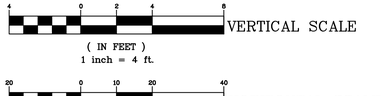


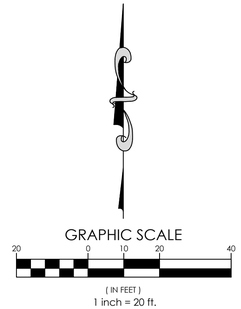


Cross Section A



Cross Section B





NO.	DATE	DESCRIPTION
0	04/26/19	INTERNAL REVIEW

650 E. Algonquin Road
Suite 150
Schaumburg, IL 60173
Telephone: (847) 756 - 4180
www.rtmec.com
IL Design Firm: 184006777-0002

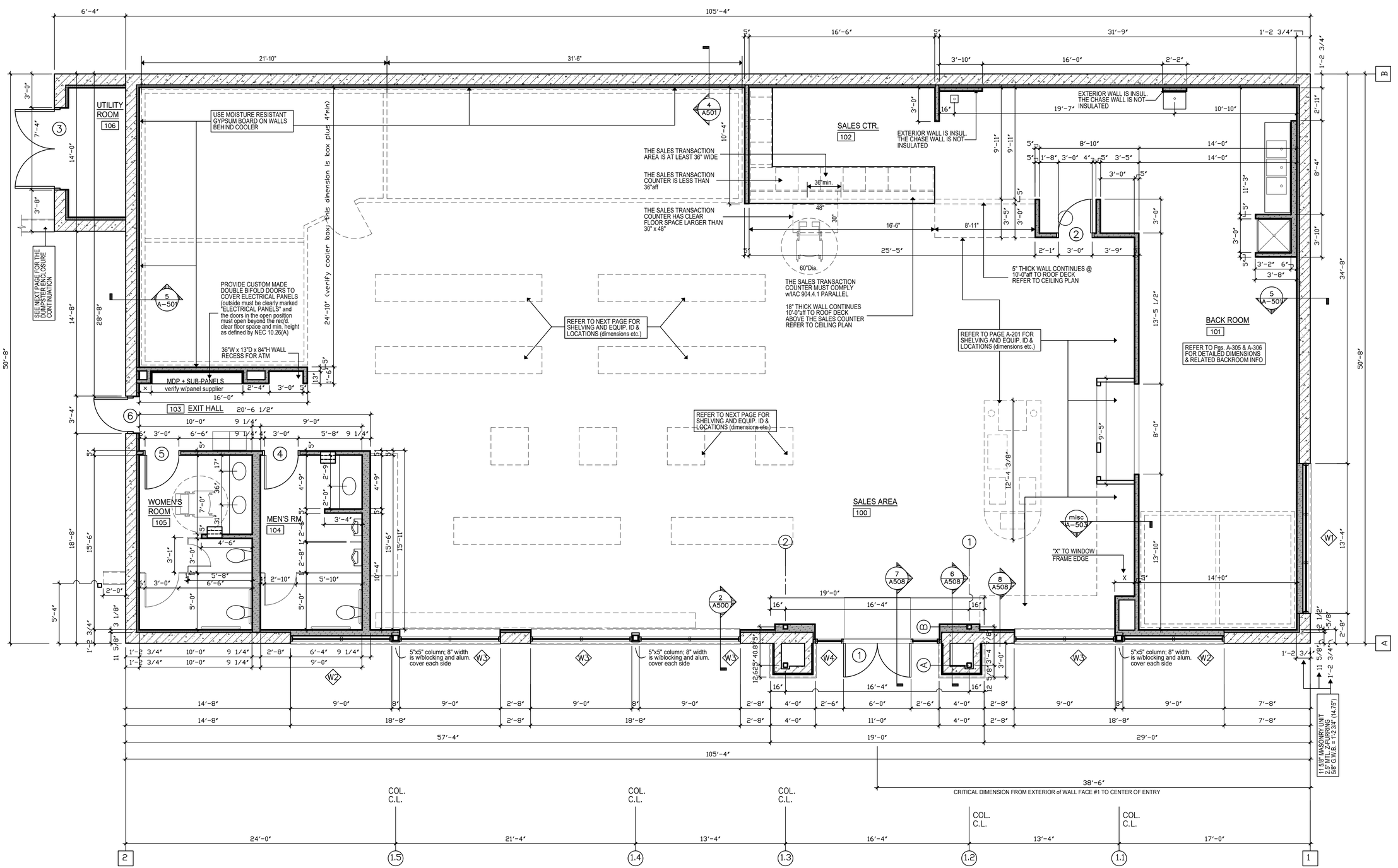
rtm engineering consultants

SHEET NAME: GRADING PLAN

PROJECT NAME: TRUENORTH
8226 CASS AVE.
DARIEN, IL

PROJECT No.
TN 984

SHEET No.
C4.0
OF 13 SHEETS



LICENSED ARCHITECT
FRANK A. ROSS
21587
STATE OF ILLINOIS

expires:* 11-30-2026*
signature:

*subject to renewal in accordance w/ the Illinois Architecture Practice Act of 1989 (225 ICLS 305 16)
expiration date as listed references the current expiration date

F.A. Ross architecture

F. A. Ross - Architects
236 E. Hazelcroft Avenue
NEW CASTLE, PA 16105
PHONE: (724) 658-7886
cell contact: (724) 856-1992

drawing: Floor Plan & notes

project: Truenorth 8226 Cass Ave Darien, Illinois 60561

date 10/10/2024

project number TN 984

sheet A-200

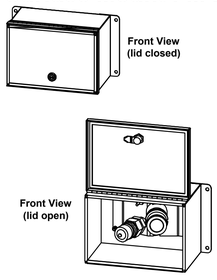
FRONT ELEVATION

SCALE: 1/4" = 1'-0"

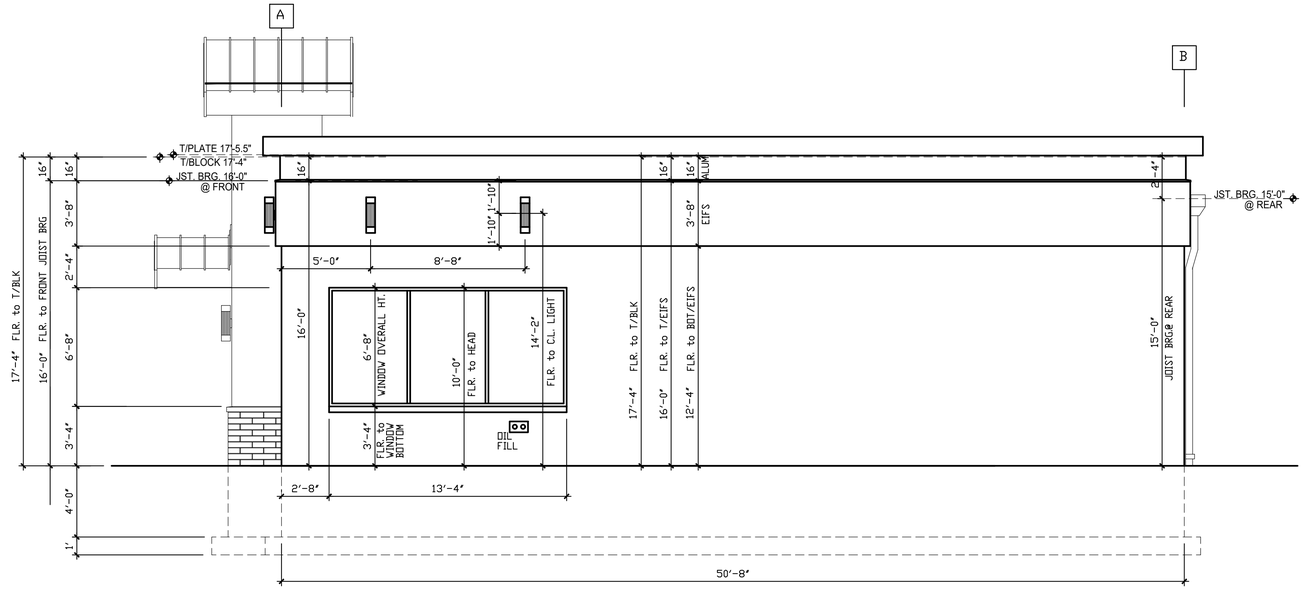
0 6"1' 2' 3' 4' 5' 10' 15'

DETAIL A (pictorial view, verify with supplier)

Surface Mount Fill Box



- Fill Box Dimensions:
  - Height = 7"
  - Width = 13" (including flange)
  - Depth = 6"
- Materials of Construction:
  - Stainless steel enclosure
  - Stainless steel inner panel
- Features:
  - Integral locking latch (key retained by RTI employees)
  - Food-grade new oil coupler
  - Incompatible waste oil coupler
  - Electrical connector for overfill protection
  - Drip tray to catch residual oil
- Mounting details:
  - Surface mounted
  - 3" diameter hole through wall (sealed)
  - Locate within 15 feet of waste oil tank (longer distances possible, but delivery times increase)
  - Locate away from drive-thru (if applicable)



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

0 6"1' 2' 3' 4' 5' 10' 15'

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expires:* 11-30-2026*

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F.A. Ross architecture

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NEW CASTLE, PA 16105
PHONE: (724) 658-7886
cell contact: (724) 856-1992

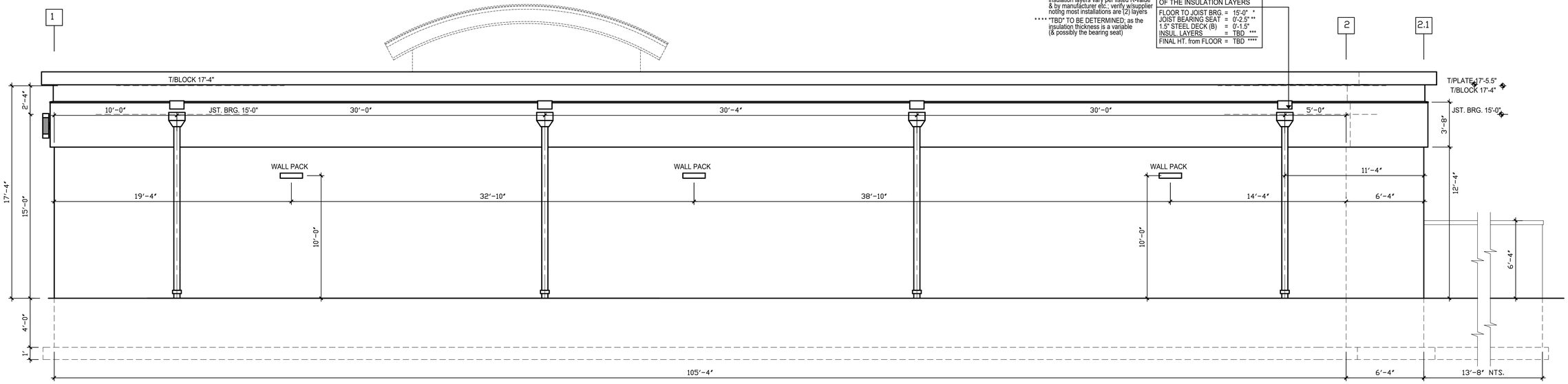
drawing: Front and side dimension elevations

project: Truenorth 8226 Cass Ave Darien, Illinois 60561

date: 10/10/2024

project number: TN 984

sheet: A-400



* height listed as rear wall bearing

** typical bearing seat height; always verify and add bearing plate etc.

*** insulation layers vary per listed R-value & by manufacturer etc., verify w/supplier noting most installations are (2) layers

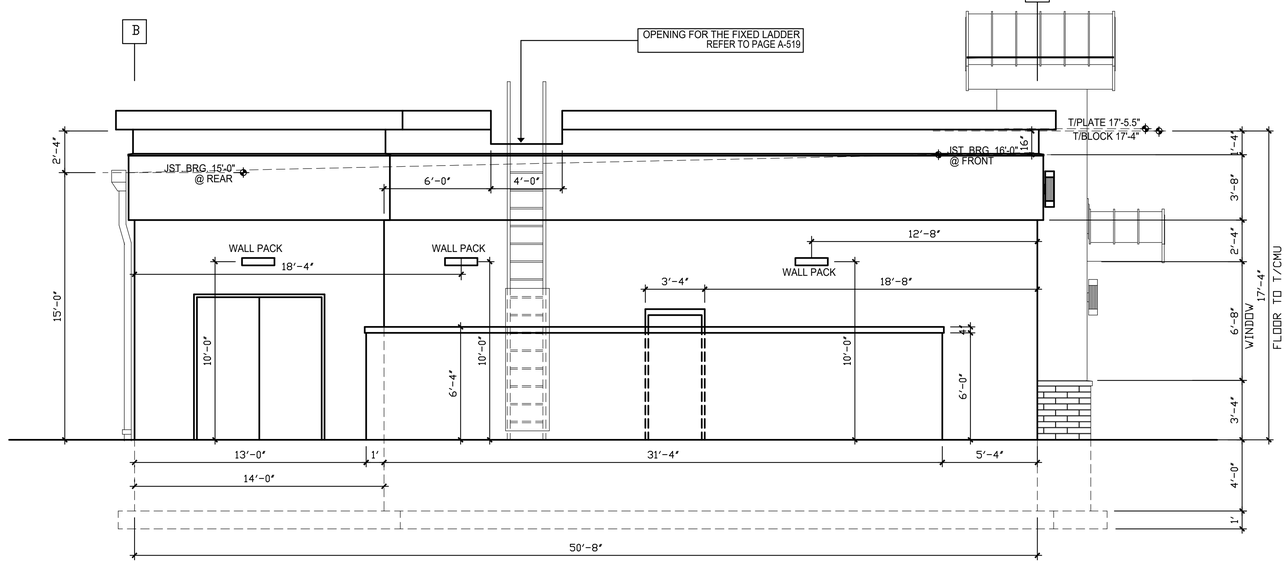
**** "TBD" TO BE DETERMINED; as the insulation thickness is a variable (& possibly the bearing seat)

THE HEIGHTS OF THE SCUPPER OPENING SHALL BE DETERMINED BY THE ADDITION OF THE HEIGHT THE JOIST BEARING PLUS THE BEARING SEAT; PLUS THE HEIGHT OF THE INSULATION LAYERS		
FLOOR TO JOIST BRG.	= 15'-0"	*
JOIST BEARING SEAT	= 0'-2.5"	**
1.5" STEEL DECK (B)	= 0'-1.5"	
INSUL. LAYERS	= TBD	***
FINAL HT. from FLOOR	= TBD	****

REAR ELEVATION

SCALE: 1/4" = 1'-0"

0 6"1' 2' 3' 4' 5' 10' 15'



LEFT ELEVATION

SCALE: 1/4" = 1'-0"

0 6"1' 2' 3' 4' 5' 10' 15'

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21587
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F.A. Ross architecture

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PHONE: (724) 658-7886
cell contact: (724) 856-1992

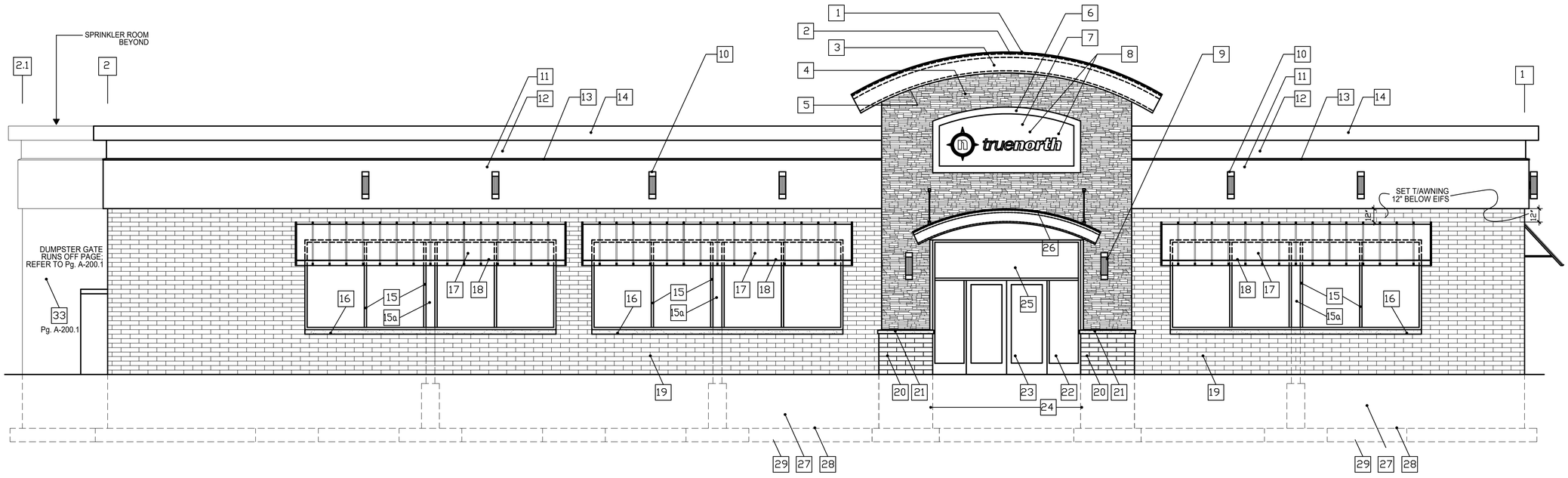
drawing: Rear and side dimension elevations

project: Truenorth 8226 Cass Ave Darlen, Illinois 60561

date 10/10/2024

project number TN 984

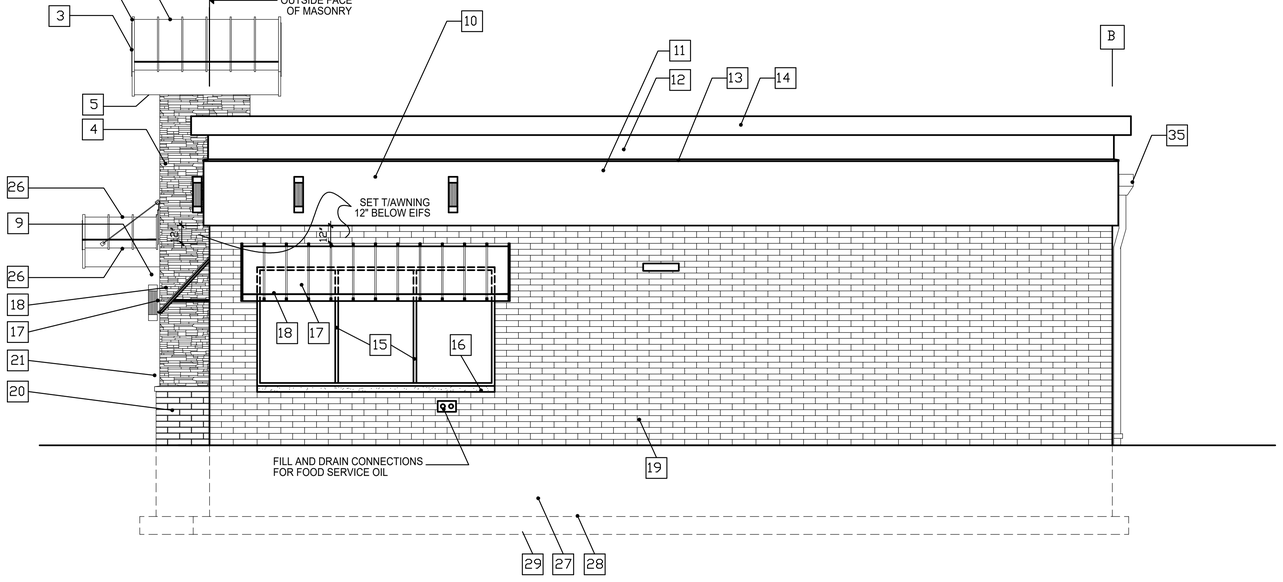
sheet A-401



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

0 6" 1' 2' 3' 4' 5' 10' 15'



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

0 6" 1' 2' 3' 4' 5' 10' 15'

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F. A. Ross - Architects
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PHONE: (724) 658-7886
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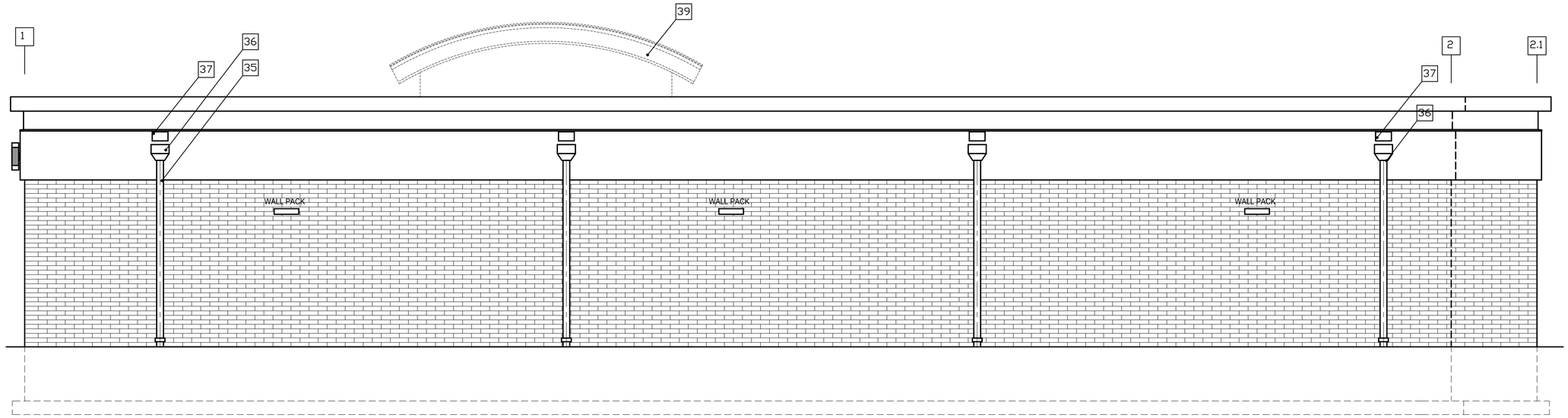
drawing: Front and side materials elevations

project: Truenorth 8226 Cass Ave Darien, Illinois 60561

date 10/10/2024

project number TN 984

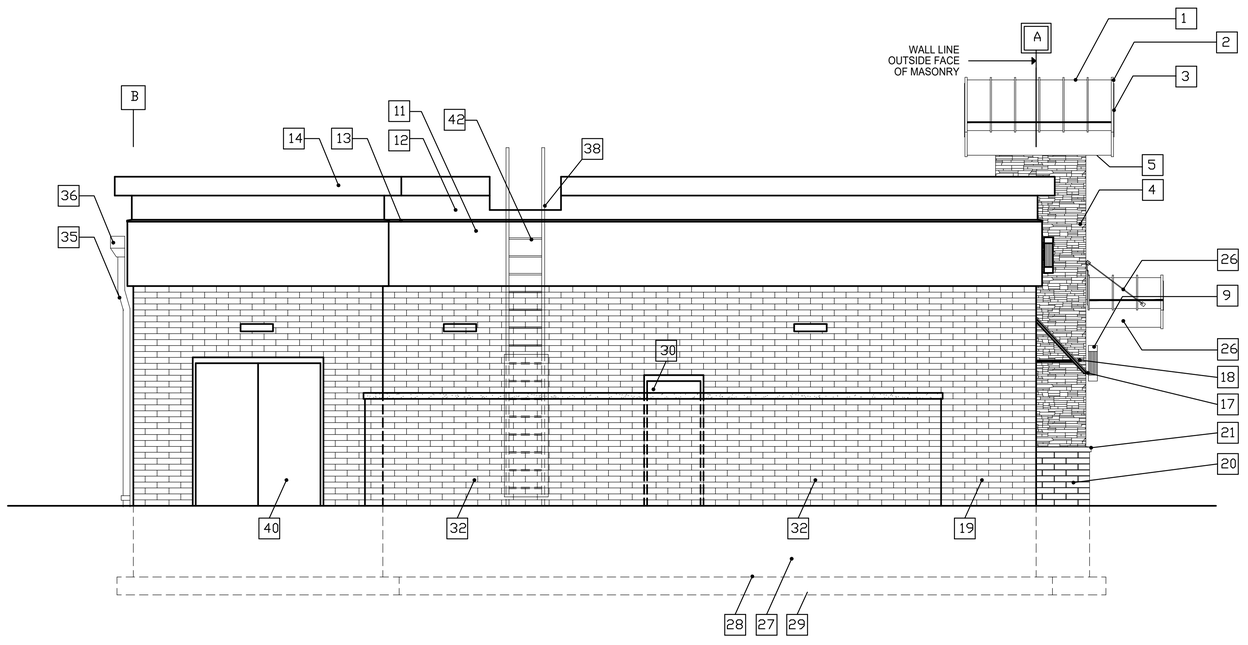
sheet A-402



REAR ELEVATION

SCALE: 1/4" = 1'-0"

0 6" 1' 2' 3' 4' 5' 10' 15'



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

0 6" 1' 2' 3' 4' 5' 10' 15'

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NEW CASTLE, PA 16105
PHONE: (724) 658-7886
cell contact: (724) 856-1992

drawing: Rear and side materials elevations

project: Truenorth 8226 Cass Ave Darien, Illinois 60561

date 10/10/2024

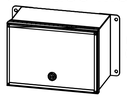
project number TN 984

sheet A-403

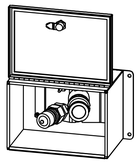
COOKING OIL FILL PORT

(pictorial view, verify with supplier)
(obtain supplier cut sheet for both)

Surface Mount Fill Box



Front View
(lid closed)



Front View
(lid open)

- Fill Box Dimensions:
  - Height = 7"
  - Width = 13" (including flange)
  - Depth = 6"
- Materials of Construction:
  - Stainless steel enclosure
  - Stainless steel inner panel
- Features:
  - Integral locking latch (key retained by RTI employees)
  - Food-grade new oil coupler
  - Incompatible waste oil coupler
  - Electrical connector for overfill protection
  - Drip tray to catch residual oil
- Mounting details:
  - Surface mounted
  - 3" diameter hole through wall (sealed)
  - Locate within 15 feet of waste oil tank (longer distances possible, but delivery times increase)
  - Locate away from drive-thru (if applicable)

ELEVATIONS NOTES

X	CODE NOTES ELEVATIONS
1	STANDING SEAM METAL ROOF; CUSTOM CURVED ATOP SEGMENTAL ARCH AT ENTRY.
2	CUSTOM ALUM. DRIP EDGE ALONG SIDE EDGE OF CUSTOM CURVED ARCH ATOP ENTRY.
3	CUSTOM CURVED ALUM. FASCIA AT THE CUSTOM CURVED ARCH ATOP ENTRY.
4	ADHERED TYPE STONE; REFER TO SPECIFICATIONS & SECTIONS
5	CUSTOM CURVED ALUM. "F" MOULD CHANNEL AT EACH END OF ENTRY AND STANDARD LINEAR SOFFIT PANELS SET IN ALONG THE RADIUS.
6	FRAMED EDGE OF EIFS TO CREATE THE SIGN PANEL RECESS.
7	BACK SURFACE OF EIFS TO CREATE THE SIGN PANEL RECESS. (concealed can light)
8	NON-ILLUMINATED (not internally) SIGN by OWNER (external can light shines on sign)
9	ENTRY WALL SCONCE; REFER TO LIGHTING PLAN.
10	MAIN WALL SCONCE; REFER TO LIGHTING PLAN.
11	EIFS WALL SURFACE; REFER TO WALL SECTIONS.
12	ALUMINUM WALL SURFACE; REFER TO WALL SECTIONS.
13	ALUMINUM FLASHING AT TRANSITION BETWEEN EIFS AND ALUM. SURFACES REFER TO WALL SECTIONS.
14	OVERHEAD ALUMINUM FASCIA AT THE PARAPET; REFER TO WALL SECTIONS.
15	BRONZE ANODIZED THERMALLY BROKEN WINDOW FRAME AND INSULATED GLASS; REFER TO WALL SECTIONS.
16	LIMESTONE WINDOW SILL.
17	CUSTOM MADE STANDING SEAM METAL CANOPY ATOP WINDOW; REFER TO MFG. SHOP DRAWINGS.
18	SNOW AND ICE RETENTION BAR OR GUARDS IN COLOR BRONZE.
19	12" HALF HEIGHT (2) courses = 8" w/mortar) SET IN RUNNING BOND.
20	12" HALF HEIGHT (2) courses = 8" w/mortar) SET IN RUNNING BOND.
21	LIMESTONE SILL BETWEEN THE BRICK AT THE ENTRY BASE AND THE STONE ABOVE.
22	BRONZE ANODIZED THERMALLY BROKEN DOOR FRAME AND SIDELITE INSULATION GLASS; REFER TO WALL SECTIONS.
23	BRONZE ANODIZED DOUBLE ENTRY DOOR; REFER TO DOOR SCHEDULE.
24	REINFORCED FOUNDATION FOR THE ENTRY STRUCTURE.
25	BRONZE ANODIZED TRANSOM FRAME AND GLASS; REFER TO DOOR SCHEDULE.

X	CODE NOTES ELEVATIONS CONT.
26	CUSTOM ARCHED CANOPY ATOP THE ENTRY DOOR; REFER TO CANOPY SHOP DRAWINGS. PLEASE NOTE YOU MUST OBTAIN A SHOP DRAWING PLAN AND IT MUST SHOW THE BLOCKING FOR ALL THE ARCH AND FOR THE ATTACHMENT AREA; AND DO NOT INSTALL THE STONE UNTIL THE ARCHTS INSTALLED • PROVIDE SOLID BLOCKING AND GROUTING IN CMU LOCATIONS FIRST; PER MFG.'S SHOP DRAWING • AFTER ARCH IS IN PLACE INSTALL TOP FLASHING TO FLASH WATER OVER AND NOT BEHIND AWNING • AFTER ARCH IS AND FLASHING ARE IN PLACE AND EIFS SIGN RECESS IN PLACE; THE STONE CAN BE SET
27	REINFORCED CONCRETE FOUNDATION WALL; REFER TO FOUND. PLANS AND SECTIONS AND SCHEDULES.
28	TOP OF FOUNDATION. FOUNDATION PLAN FOR ELEV.
29	BOTTOM OF FOUNDATION; REFER TO FOUNDATION PLAN FOR ELEV.
30	HOLLOW METAL DOOR, SEE DOOR COLOR PAINTED TO MATCH MASONRY
31	WALL PACK BRONZE COLOR, REFER TO LIGHTING PLAN
32	DUMPSTER WALL; REFER TO WALL SECTION No.3
33	COMPOSITE MATERIAL, SCRATCH AND DENT RESISTANT, TREX COLOR "ROPE SWING"
34	OPENING IN DUMPSTER FOR MAN DOOR
35	ALUMINUM DOWNSPOUT; REFER TO THE SECTION PAGE WITH DETAILS AND ALSO REFER TO ROOF PLAN.
36	ALUMINUM CONDUCTOR HEAD; REFER TO THE SECTION PAGE WITH DETAILS AND ALSO REFER TO ROOF PLAN.
37	MEMBRANE LINED SCUPPER OPENING ATOP THE CONDUCTOR HEAD AND ALSO TO SERVE AS AN EMERG. OVERFLOW. ALSO REFER TO ROOF PLAN.
38	MEMBRANE LINED PARAPET OPENING IN THE LOCATION AS SHOWN FOR ROOF ACCESS; ALSO REFER TO THE ROOF PLAN.
39	BACKSIDE OF THE ENTRY STRUCTURE; LINE WITH MEMBRANE.
40	LIMESTONE SILL. REFER TO WALL SECT.
41	OIL FILL & WASTE OIL PORTS PER MFG.; ONE FOR FILL AND ONE FOR WASTE
42	PARAPET OPENING FOR FIXED LADDER. FIXED LADDER w/TOP GRAB RAILS AND SECURITY PANEL AT BOTTOM (TO PREVENT UNAUTHORIZED USE)

**REFER TO FLOOR PLAN AND WINDOW SCHEDULE FOR OPAQUE WINDOWS

BUILDING MATERIAL LISTING

BUILDING MATERIAL COLORS
ALL EIFS MATERIALS EIFS COLOR: 3'-8" BAND DRYVIT COLOR 481 CLAY
ALL FINISH ALUMINUM (except window frames) FASCIA, SOFFIT, COPING, DOWNSPOUT AND CONDUCTOR HEAD, & MISC. TRIM TO BE DARK BRONZE, SUBMIT SAMPLE TO LINDSAY LYDEN.
THROUGH THE WALL BRICK 12" HALF COURSE HIGH (4"nominal or 3 5/8" actual height) (16" stretcher). QUIK -BRIK IN COLOR MESABA CALM. IF MANUFACTURER NOT AVAILABLE IN AREA, PLEASE SUBMIT SAMPLE TO LINDSAY LYDEN AT TRUENORTH.
STONE ON ENTRY ELDORADO STACKED STONE IN DRY CREEK STONE 4" H AND LENGTHS VARYING IN 8", 12", 20"
DECORATIVE WALL SCONCE LIGHTS TERON SCONCE LIGHTING; DIECAST ALUMINUM OIL RUBBED BRONZE POWDER COATED FINISH w/GLASS 4.5" W X 24" H X 6.7"D
WALL PACK LIGHT (& OTHER) BRONZE COLOR
WINDOW / DOOR FRAME DOUBLE THERMALLY BROKEN BRONZE ANODIZED FRAMES (or bronze Kynar coating) w/1" INSULATED GLASS WITH LOW EMMISIVITY COATING ON THE NUMBER 2 SURFACE, KAWNEER No. 40 DARK BRONZE PANES THAT ARE OPAQUE, COLOR BLACK TO MATCH APPEARANCE OF VIEWABLE GLASS
ROOF ROOF MEMBRANE EPDM FULLY ADHERED ROOF, COPING TO MATCH ADJACENT BRONZE METAL COLOR.
WINDOW AWNING SIZE ABOVE WINDOWS SHALL HAVE A VERTICAL HEIGHT OF 36" AND A HORIZONTAL PROJECTION FROM THE WALL OF 36" (The awning above the door entry projects 48" from the wall) 36" 36" SNOW PROTECTION ALL AWNINGS SHALL HAVE BRONZE COLOR SNOW GUARD. AWNING COLORS STANDING SEAM SLOPED METAL AWNING ABOVE WINDOWS IN MATCHING DARK BRONZE COLOR, FRAMES IN SAME COLOR CURVED AWNING ABOVE ENTRY DOOR IN DARK BRONZE COLOR, FRAMES IN SAME COLOR AWNINGS BY OTHERS GENERAL CONTRACTOR MUST MAIL A COLOR CHIP OF DARK BRONZE COLOR TO AWNING CO. FOR A COLOR MATCH.
REAR DOOR AND FRAME PAINT COLOR TO MATCH MASONRY UNITS COLOR
DUMPSTER GATE COMPOSITE MATERIAL, SCRATCH AND DENT RESISTANT, TREX DECKING COLOR "ROPE SWING"
SIGNAGE ABOVE THE DOOR THE SIGNAGE COLOR AND GRAPHICS WILL BE SUBMITTED TO THE LOCAL AUTHORITIES IN THE PROCESS OF SUMBITTING FOR A SIGN PERMIT. SIGNAGE COMPASS LOGO, 2'-6" H X 2'-3 5/8" W FOLLOWED BY TEXT LETTERS TRUENORTH, 8 1/4" X 11" H X 5'-10 1/2" WIDE LOGO TO HAVE SATIN ACRYLIC POLYURETHANE FINISH WITH LETTER FACES/RETURNS TO BE PMS#334 GREEN. LOGO FACE DIGITALLY PRINTED APPLIED FIRST SURFACE WITH PROTECTIVE CLEAR COAT

LICENSED ARCHITECT
FRANK A. ROSS
21587
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PHONE: (724) 658-7886
cell contact: (724) 856-1992

drawing: Material coded notes and misc. Information
project: Truenorth 8226 Cass Ave Darien, Illinois 60561

date: 10/10/2024
project number: TN xxx
sheet: A-404

ATTACHMENT 7 - ARCHITECTURAL RENDERINGS


truenorth

Traffic Impact Study
Fuel Center Redevelopment

Darien, Illinois

Prepared For:

rtm

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

February 14, 2025

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the proposed redevelopment of the existing fuel center located in Darien, Illinois. The site is located in the northwest corner of the intersection of Cass Avenue with the Frontage Road/Hinswood Drive. As proposed, the existing fuel center with 12 fueling positions will be redeveloped to include a larger convenience store totaling approximately 5,400 square feet. Access to the fuel center will be provided via the existing access drives off Cass Avenue and the east-west access road (Access Road) that serves the fuel center and Alpine Banquets and connects to the Frontage Road (access road).

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed redevelopment will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed redevelopment. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

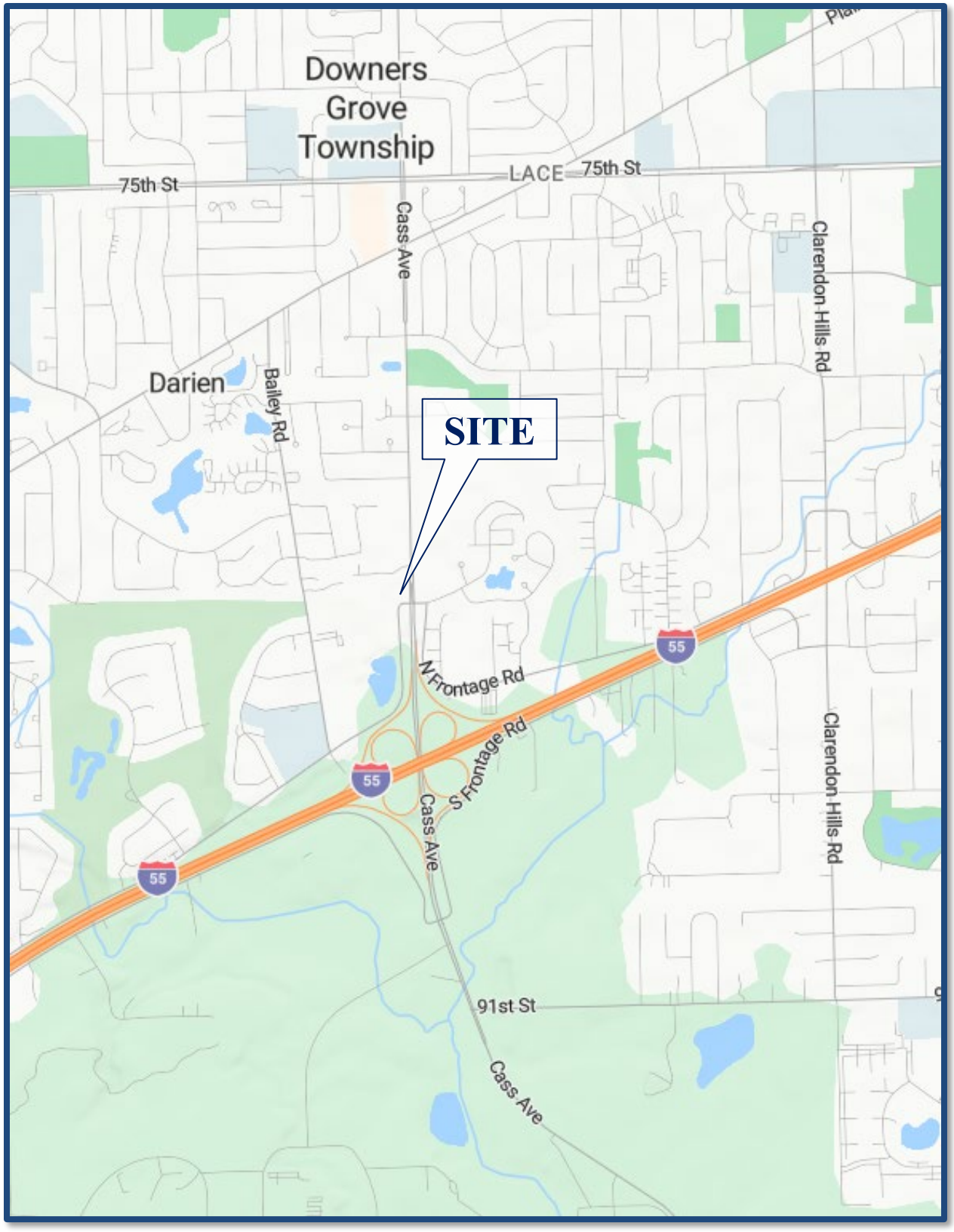
- Existing roadway conditions
- A description of the proposed redevelopment
- Directional distribution of the redevelopment traffic
- Vehicle trip generation for the redevelopment
- Future traffic conditions including access to the redevelopment
- Traffic analyses for the weekday morning and weekday evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

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

1. Existing Conditions – Analyzes the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.

2. Year 2030 No-Build Conditions – Analyzes the capacity of the existing roadway system using existing traffic volumes increased by an ambient area growth factor not attributable to any particular development.

3. Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient area growth not attributable to any particular development, and the traffic estimated to be generated by the proposed redevelopment.



Site Location **Figure 1**

Aerial View of Site **Figure 2**

2. Existing Conditions

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

Site Location

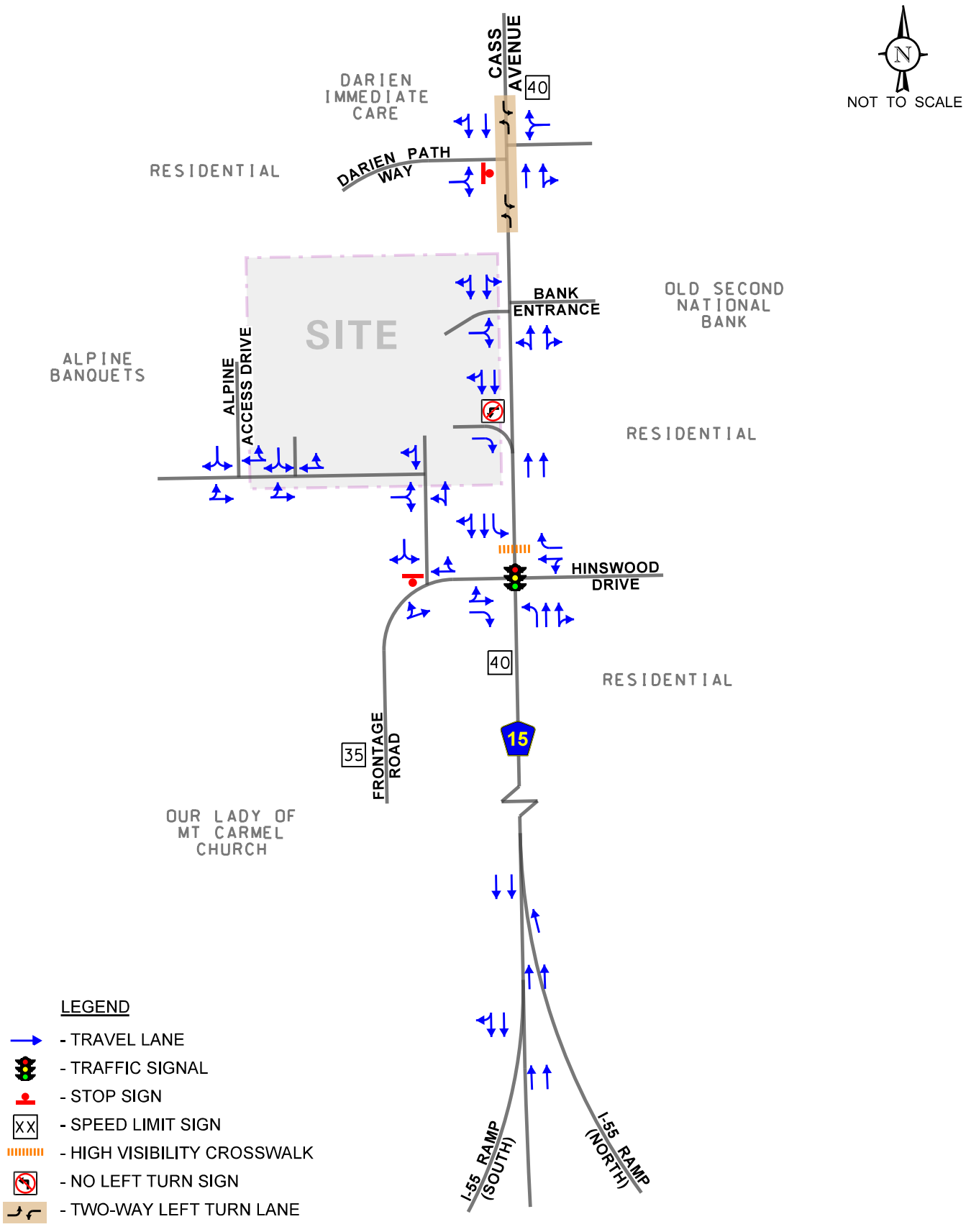
The site is located at 8226 South Cass Avenue in the northwest corner of Cass Avenue with the Frontage Road. The site is bordered by Cass Avenue on the east, the Frontage Road on the south, Alpine Banquets on the west, and Darien Path Way on the north. Land uses in the vicinity of the site include commercial uses along Cass Avenue and residential uses in all directions. It should be noted that Cass Avenue has a full interchange with Interstate 55 approximately 2,040 feet to the south (approximately 0.4 miles).

Existing Roadway System Characteristics

The characteristics of the existing roadways near the redevelopment are described below and illustrated in **Figure 3**.

Cass Avenue is a north-south minor arterial roadway that provides two through lanes in each direction in the vicinity of the site. At its signalized intersection with the Frontage Road/Hinswood Drive, Cass Avenue provides a left-turn lane, a through lane, and a combined through/right-turn lane on the northbound and southbound approaches. A high-visibility crosswalk is provided on the north leg of the intersection. North of the Frontage Road intersection, Cass Road provides a two-way left-turn lane and no exclusive turn lanes are provided for any access drives or local roadways included in the study area. Cass Avenue carries an annual average daily traffic (AADT) volume of 21,100 vehicles north of the Frontage Road and 12,500 vehicles to the south (IDOT 2020). Cass Avenue is under the jurisdiction of the DuPage County Division of Transportation (DuDOT) and has a posted speed limit of 40 miles per hour.

Frontage Road/Hinswood Drive is an east-west roadway that is classified as a local roadway east of Cass Avenue and a minor collector roadway west of Cass Avenue. Hinswood Drive runs concurrently with the Frontage Road east of Cass Avenue for approximately 195 feet. At its signalized intersection with Cass Avenue, the Frontage Road provides a combined left-turn/through lane and a right-turn lane on the eastbound and westbound approaches. At its unsignalized intersection with the access road, the Frontage Road provides no separate turn lanes. The Frontage Road is under the jurisdiction of the Illinois Department of Transportation (IDOT) and has a posted speed limit of 35 miles per hour.



Fuel Center
Darien, Illinois

Existing Roadway Characteristics

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Job No: 24-298 Figure: 3

Darien Path Way is an east-west local roadway that provides one lane in each direction extending west from Cass Avenue. At its unsignalized intersection with Cass Avenue, Darien Path Way provides a combined left-turn/through/right-turn lane that is under stop sign control. The roadway is under the jurisdiction of the City of Darien.

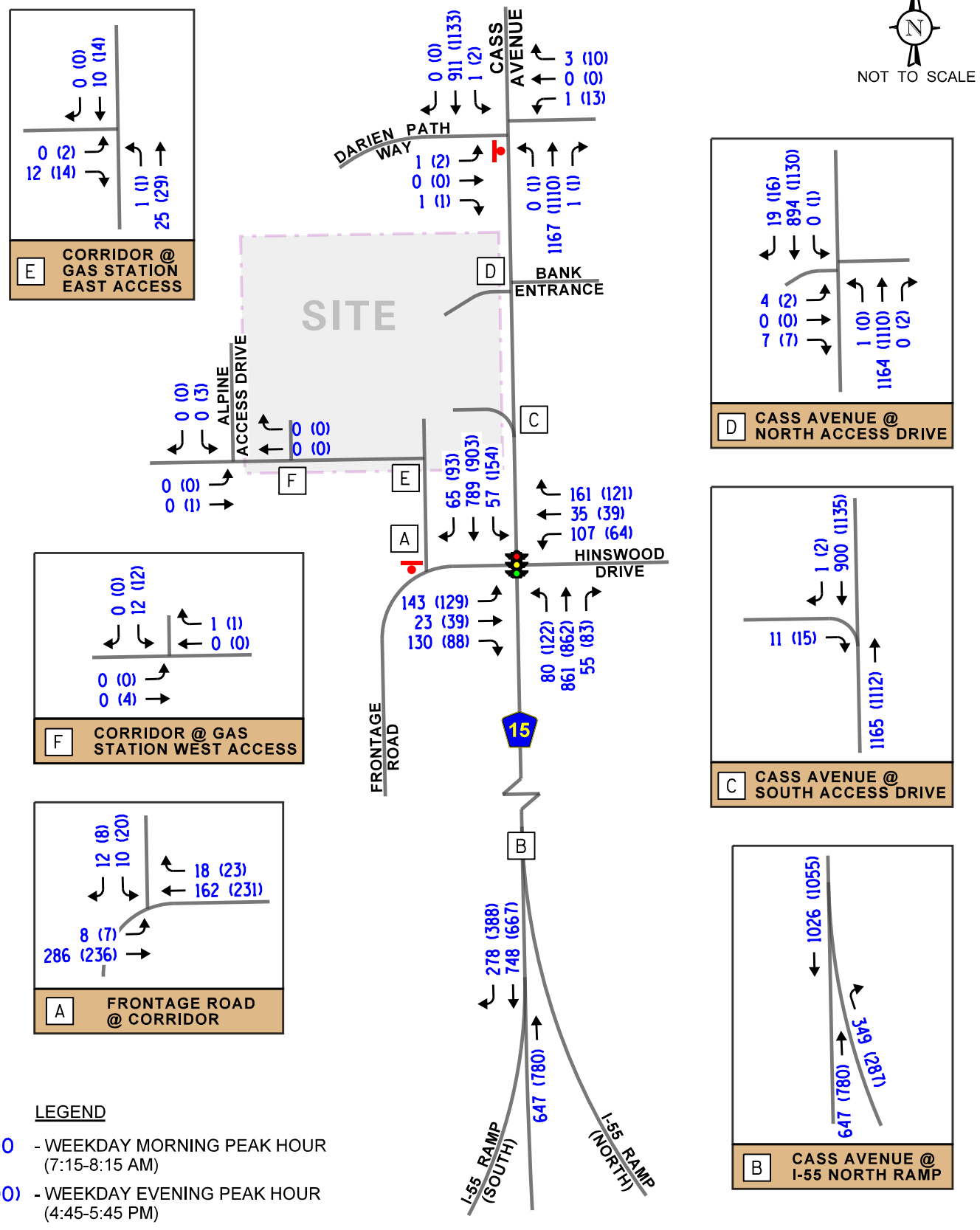
The *East-West Access Road (Access Road)* is a roadway that connects access drives for the existing fuel center and Alpine Banquets to the Frontage Road west of Cass Avenue. The access road provides one lane in each direction. At its unsignalized intersection with the Frontage Road, the access road provides a combined left-turn/right-turn lane on the southbound approach that is under stop sign control. The access road is under private jurisdiction.

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period vehicle, pedestrian, and bicycle traffic counts using Miovision Video Scout Collection Units on Wednesday, December 4, 2024, during the weekday morning (7:00 to 9:00 A.M.) and weekday evening (4:00 to 6:00 P.M.) peak periods at the following intersections:

- Cass Avenue with Frontage Road/Hinswood Drive
- Cass Avenue with South Site Access Drive
- Cass Avenue with North Site Access Drive
- Cass Avenue with Darien Path Way/North Bank Access Drive
- Frontage Road with Access Road
- Access Road with East Site Access Drive
- Access Road with West Site Access Drive
- Access Road with Alpine Banquets Access Drives
- Cass Avenue with Interstate 55 Southbound Exit Ramp
- Cass Avenue with Interstate 55 Southbound Entrance Ramp

From the count data, it was determined that the weekday morning peak hour generally occurs between 7:15 and 8:15 A.M. and the weekday evening peak hour generally occurs between 4:45 and 5:45 P.M. The existing peak hour traffic volumes are shown in **Figure 4**.



Fuel Center
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Existing Traffic Volumes

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Job No: 24-298 Figure: 4

Crash Data Summary

KLOA, Inc. obtained crash data[1] from IDOT for the most recent available five years (2019 to 2023) for the intersections of Cass Avenue with Frontage Road, Darien Path Way, and the Interstate 55 southbound exit and entrance ramps. No crashes were reported at the Interstate 55 ramps during the review period. The crash data for the intersections are summarized in **Tables 1** and **2**. A review of the crash data indicated no fatalities were reported at the intersections during the review period.

Table 1
CASS AVENUE WITH FRONTAGE ROAD – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	0	0	0	3	0	7	0	10
2020	0	0	0	3	1	1	0	5
2021	0	0	0	1	0	2	0	3
2022	0	0	0	2	0	2	0	4
2023	0	0	0	2	1	3	0	6
Total	**0**	**0**	**0**	**11**	**2**	**15**	**0**	**23**
Average	**0.0**	**0.0**	**0.0**	**2.2**	**<1.0**	**3.0**	**0.0**	**4.6**

Table 2
CASS AVENUE WITH DARIEN PATH WAY – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	1	0	1
2021	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
Average	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**<1.0**	**0.0**	**<1.0**

[1] IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s).

3. Traffic Characteristics of the Proposed Redevelopment

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

Proposed Site and Redevelopment Plan

As proposed, the existing fuel center will be redeveloped to contain a larger convenience store, totaling approximately 5,400 square feet. The fuel center will continue to provide 12 fueling positions. Access to the fuel center will be provided via the following:

- The existing north access drive on Cass Avenue located approximately 175 feet south of Darien Path Way will remain and continue to provide access to the site. This access drive will provide one inbound lane and one outbound lane, with outbound movements under stop sign control.

- The existing south access drive on Cass Avenue located approximately 320 feet south of Darien Path Way will remain and continue to provide access to the site. This access drive will provide one inbound lane and one outbound lane, with outbound movement under stop sign control. Movements will continue to be restricted via posted signage to right-turns only based on the geometry of the access drive and its proximity to the traffic signal.

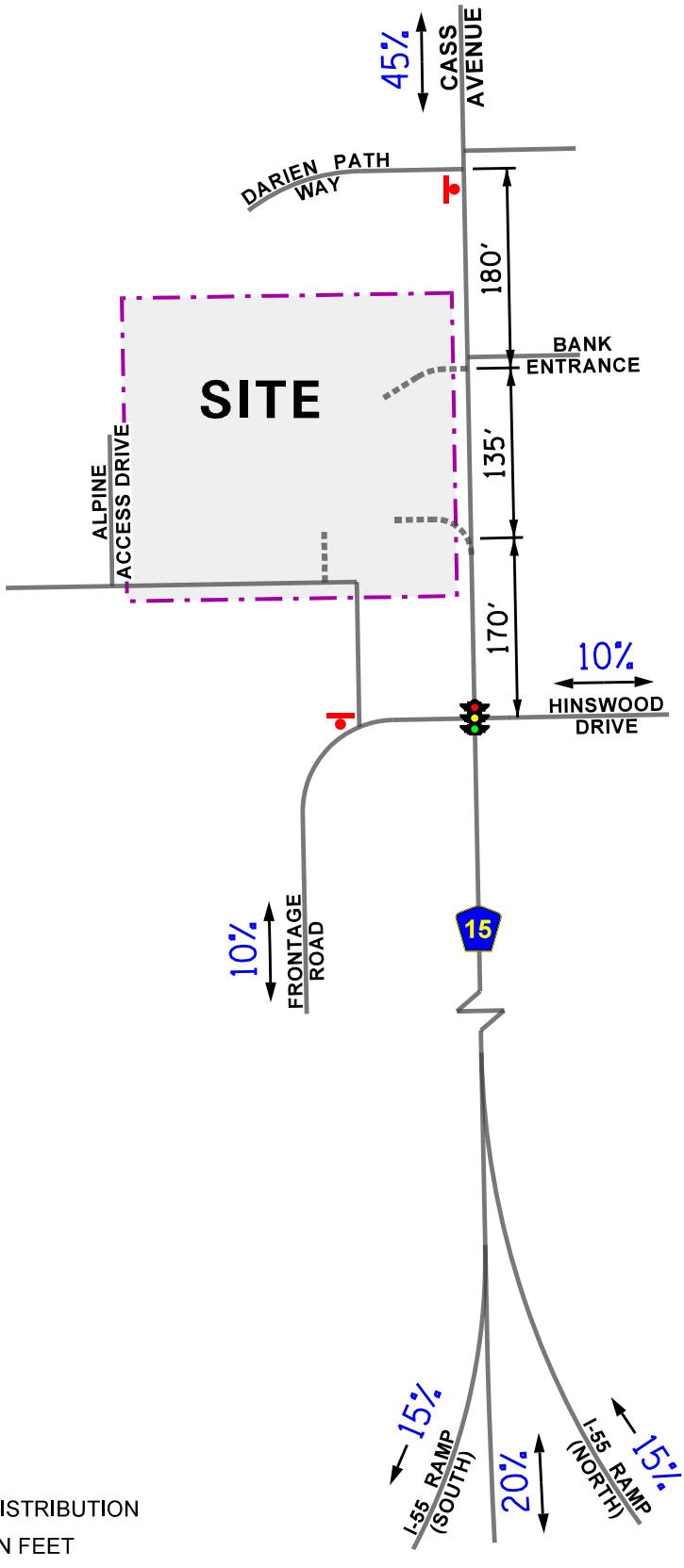
- The existing east access drive located off the east-west access road that serves the fuel center and Alpine Banquets and connects to the Frontage Road (access road), approximately 140 feet north of the intersection of the Frontage Road with the access road will remain and continue to provide access to the site. This access drive will be widened with outbound movements under stop sign control.

- As part of the redevelopment of the fuel center, the existing west access drive off the access road will be eliminated.

A site plan illustrating the proposed site and development plan is included in the Appendix.

Directional Distribution

The directional distribution of future site-generated trips on the roadway system is a function of several variables, including the operational characteristics of the roadway system, the ease with which drivers can travel over various sections of the roadway system, and the restrictions of the proposed access drive. This is particularly true for pass-by traffic. The directional distribution was based on these factors. The estimated directional distribution for the proposed development is illustrated in **Figure 5**.



Fuel Center Darien, Illinois	Directional Distribution	KLOA Kenig,Lindgren,O'Hara,Aboona,Inc. Job No: 24-298 Figure: 5

Peak Hour Traffic Volumes

The estimates of traffic to be generated by the proposed fuel center are based on the trip generation rates contained in the ITE *Trip Generation Manual*, 11th Edition for Land-Use Code 945 (Convenience Store/Gas Station).

As the site is currently operating as a fuel center with 12 fueling positions, the existing trips to the site were subtracted from the ITE rates for a proposed fuel center with 12 fueling positions to determine the total trips that will be made to the fuel center as a result of the redevelopment.

It is important to note that surveys conducted by ITE have shown that approximately 60 percent of trips are made to fuel centers are made up of existing traffic on the roadway system. This is particularly true during the weekday morning, evening peak hours when traffic is diverted from the home-to-work and work-to-home trips (pass-by traffic). As such, 60 percent of the traffic estimated to be generated by the redeveloped fuel center was assumed to be pass-by traffic.

Table 3 summarizes the trips projected to be generated by the proposed fuel center during the peak hours.

Table 3
PEAK HOUR SITE-GENERATED TRAFFIC VOLUMES

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		In	Out	Total	In	Out	Total
945	Proposed Convenience Store/Gas Station (12 fueling positions)	96	97	193	111	110	221
	Existing Convenience Store/Gas Station (12 fueling positions)	-47	-44	-91	-50	-50	-100
	Total Trips	**49**	**53**	**102**	**61**	**60**	**121**
	60% Pass-By	*-30*	*-30*	*-60*	*-36*	*-36*	*-72*
	Total New Trips	**19**	**23**	**42**	**25**	**24**	**49**

4. Projected Traffic Conditions

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

Development Traffic Assignment

The peak hour traffic volumes projected to be generated by the proposed redevelopment were assigned to the area roadways based on the established directional distribution (Figure 5).

Figure 6 shows the assignment of the redevelopment-generated traffic volumes. The pass-by traffic assignment is illustrated in **Figure 7**.

Background Traffic Conditions

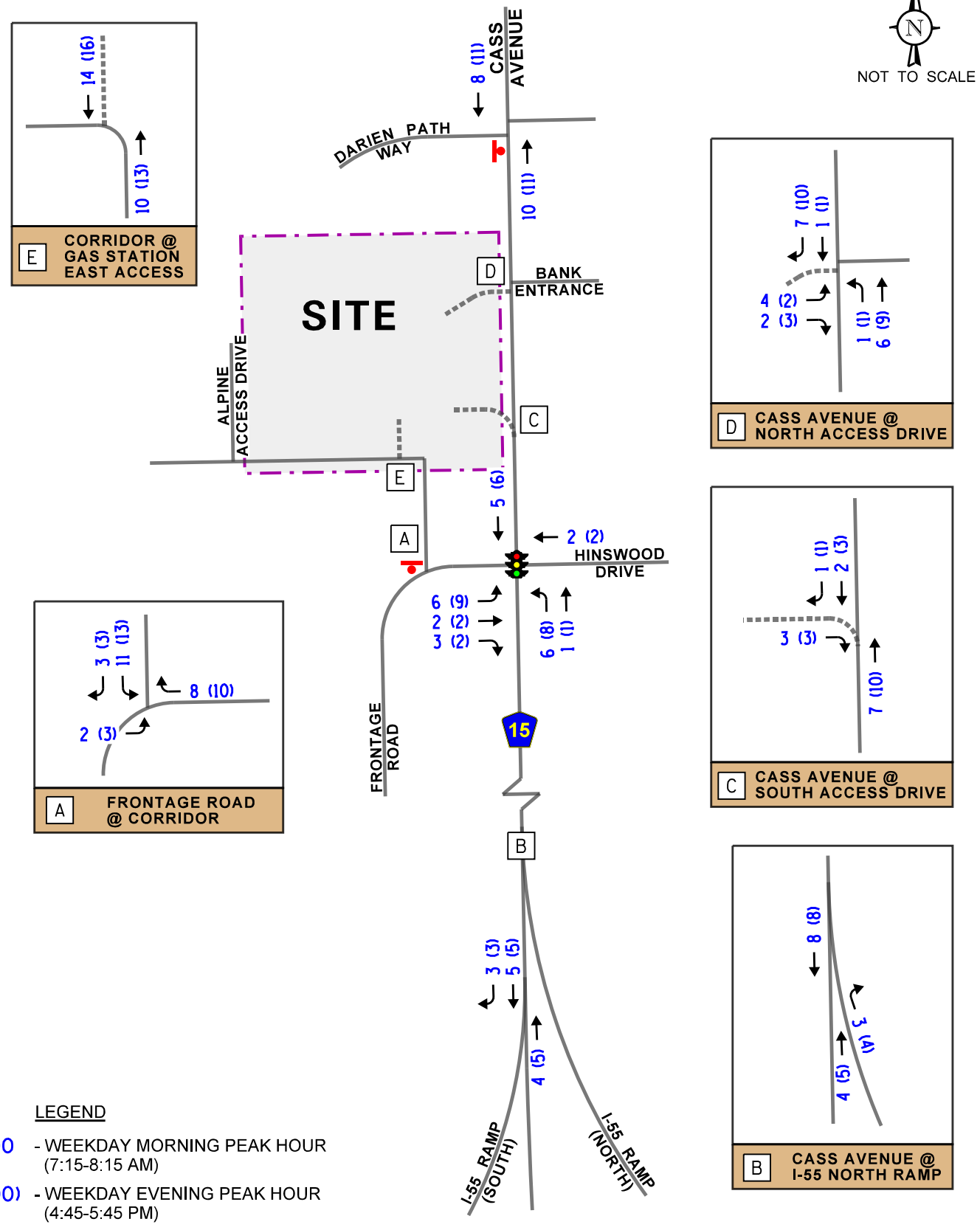
The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on Year 2050 Annual Average Daily Traffic (AADT) projections provided by the Chicago Metropolitan Agency for Planning (CMAP) in a letter dated November 12, 2024, the existing traffic volumes were increased by an annually compounded growth rate of approximately 0.3 percent per year for six years (buildout year plus five years) for a total of approximately two percent to project Year 2030 background conditions. A copy of the CMAP 2050 projections letter is included in the Appendix.

Figure 8 shows the Year 2030 background traffic volumes. A copy of the CMAP 2050 projections letter is included in the Appendix.

Total Projected Traffic Volumes

Total projected traffic volumes include the Year 2030 background traffic volumes (Figure 8), and the traffic estimated to be generated by the proposed redevelopment (Figures 6 and 7).

Figure 9 shows the Year 2030 total projected traffic volume conditions.



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Site-Generated Traffic Volumes

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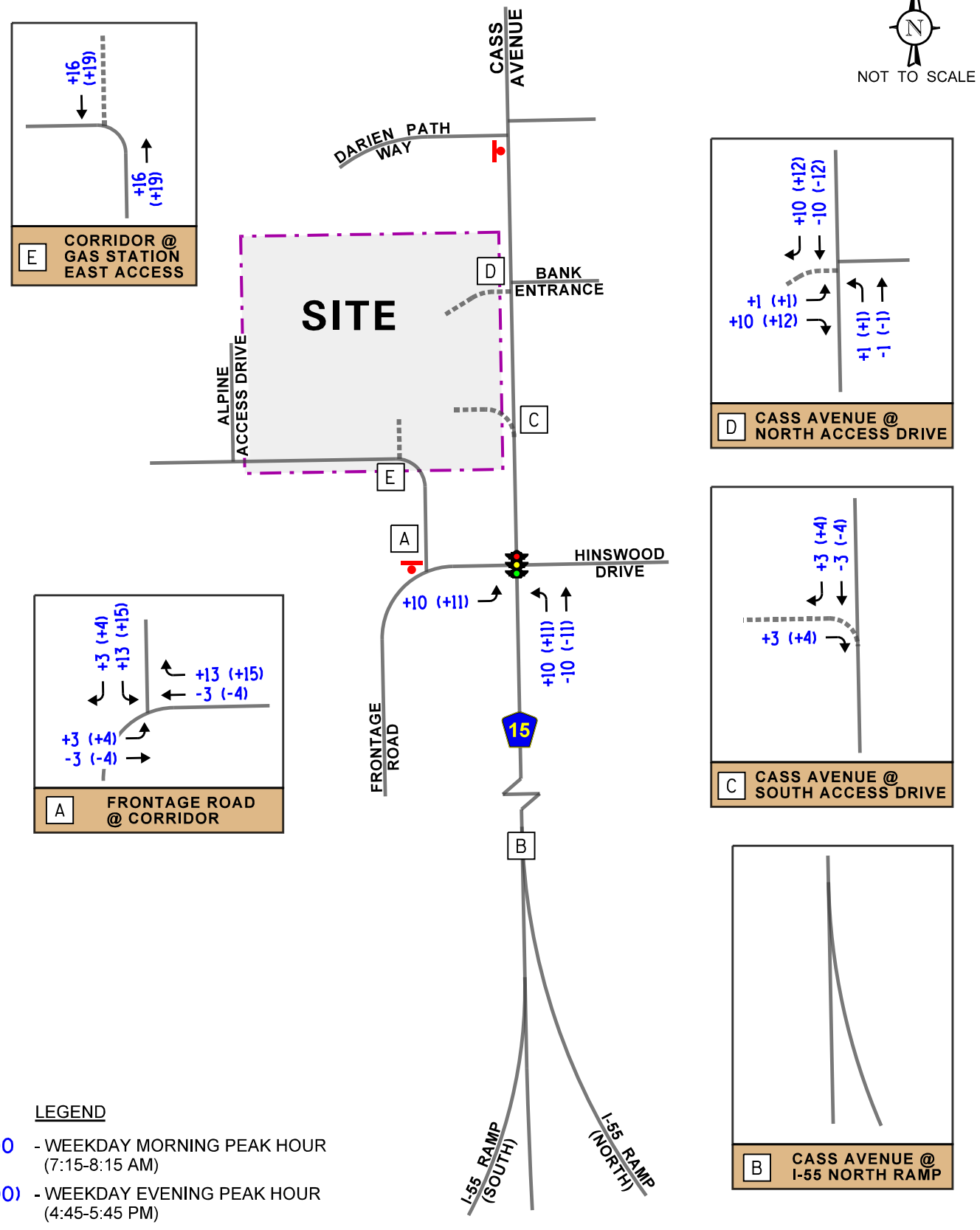

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Pass-By Traffic Volumes

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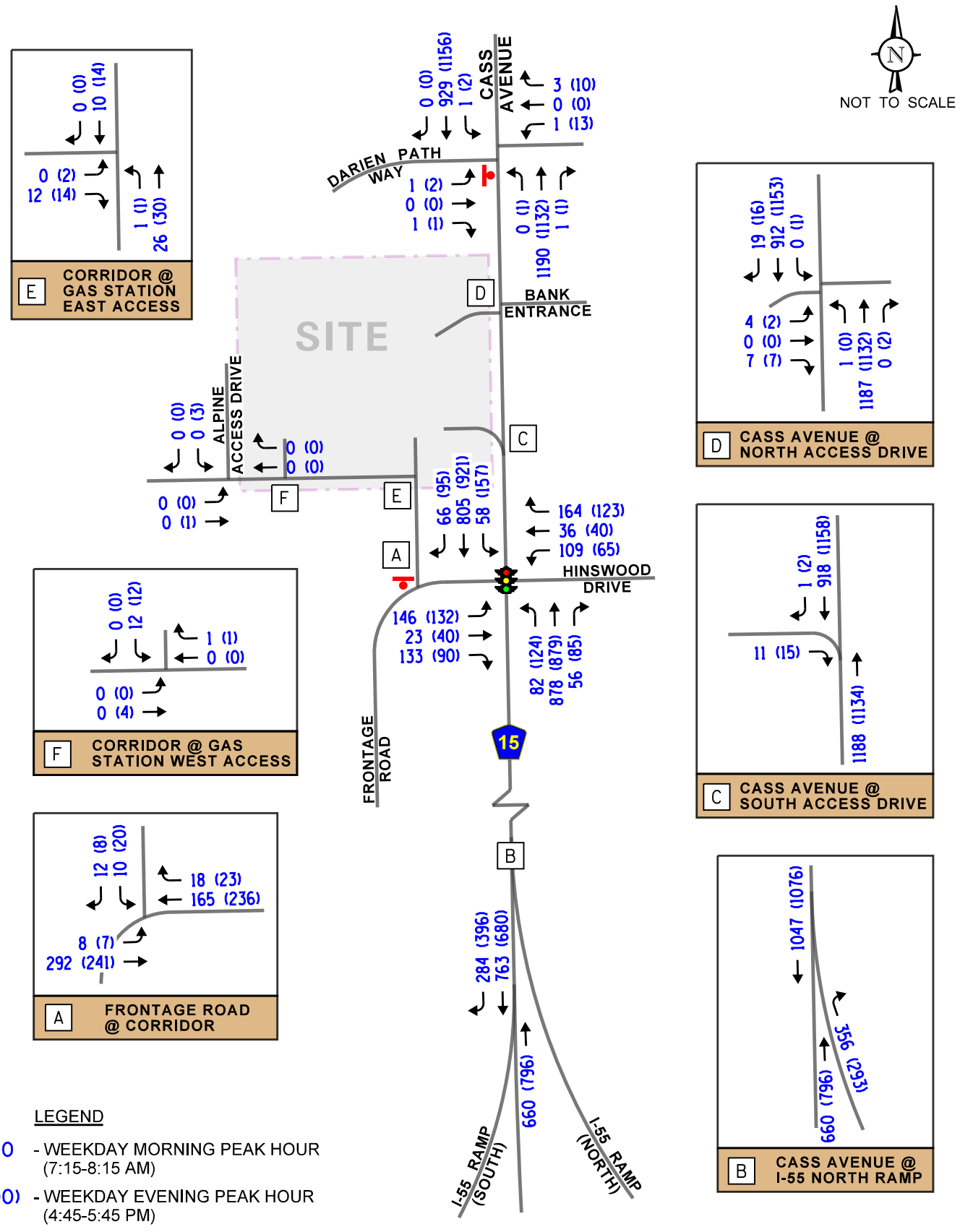
Job No: 24-298 Figure: 7



Fuel Center
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Year 2030 No-Build Traffic Volumes

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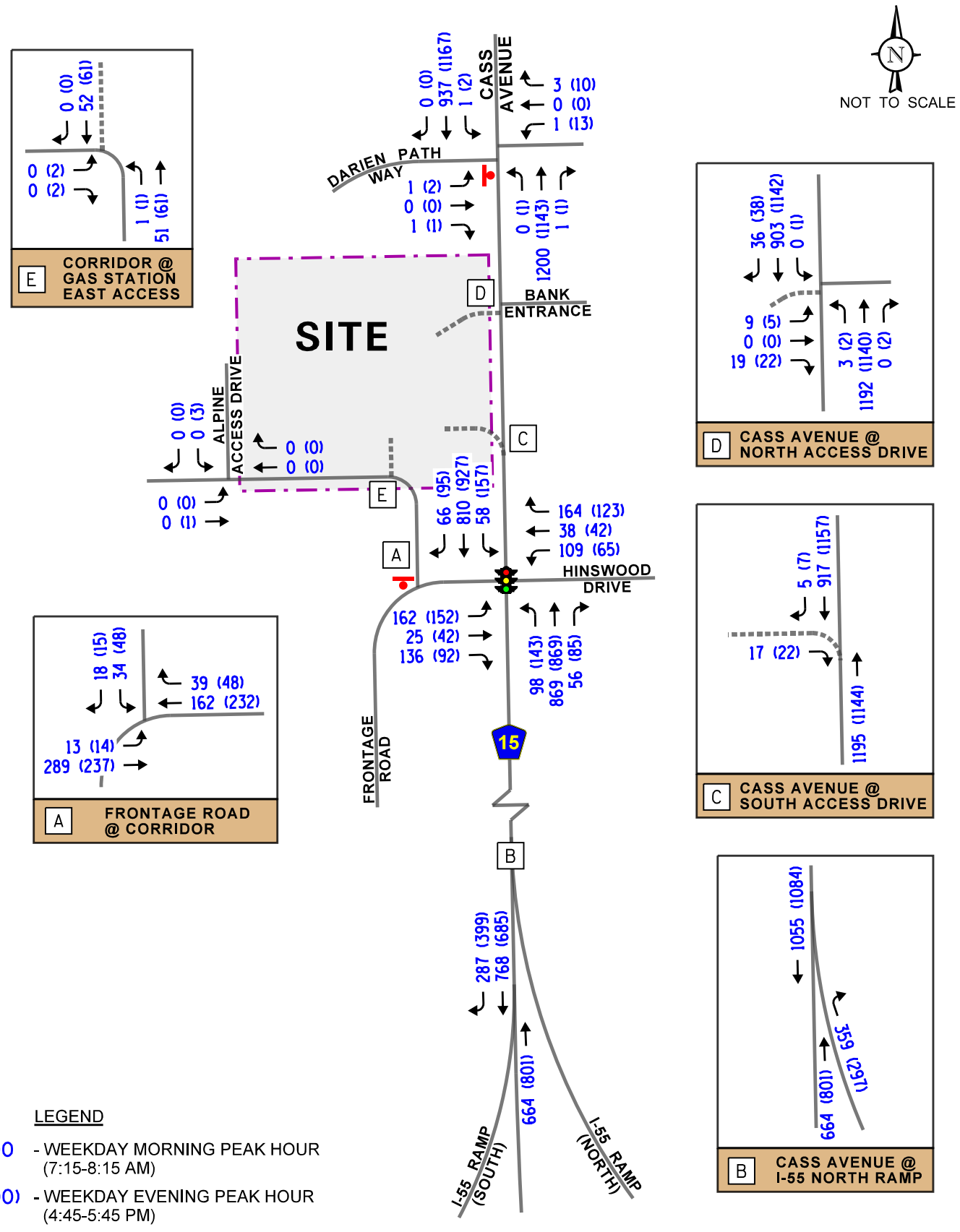
Job No: 24-298 Figure: 8



Fuel Center
Darien, Illinois

Year 2030 Total Traffic Volumes

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Job No: 24-298 Figure: 9

5. Traffic Analysis and Recommendations

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

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and weekday evening peak hours for the existing, no-build, and total projected traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM),* 6th Edition and analyzed using Synchro/SimTraffic 11 software. The analysis for the traffic-signal controlled intersections were accomplished using actual cycle lengths and phasings to determine the average overall vehicle delay and levels of service.

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

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

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the projected existing, no-build, and total projected conditions are presented in **Tables 4** through **7**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4
CASS AVENUE WITH FRONTAGE ROAD/HINSWOOD DRIVE – SIGNALIZED

	Peak Hour	Eastbound		Westbound		Northbound		Southbound		Overall
		L/T	R	L/T	R	L	T/R	L	T/R	
Existing Conditions	Weekday Morning	F 81.0	B 15.4	E 70.8	C 22.3	A 8.0	B 15.8	A 7.6	B 15.6	C 23.1
		D – 52.2		D – 45.0		B – 15.2		B – 15.1		
	Weekday Evening	E 64.0	B 10.5	E 55.4	B 12.9	A 7.5	B 13.9	A 7.9	B 13.8	B 17.8
		D – 45.6		C – 32.5		B – 13.1		B – 13.0		
No-Build Conditions	Weekday Morning	F 81.7	B 16.2	E 71.3	C 22.8	A 8.3	B 16.4	A 7.8	B 16.1	C 23.7
		D – 52.8		D – 45.6		B – 15.7		B – 15.5		
	Weekday Evening	E 64.8	B 11.6	E 55.9	B 13.7	A 7.8	B 14.3	A 8.3	B 14.2	B 18.3
		D – 46.6		C – 33.2		B – 13.6		B – 13.4		
Projected Conditions	Weekday Morning	F 83.8	B 16.0	E 70.6	C 21.8	A 9.4	B 17.1	A 8.2	B 17.3	C 24.8
		E – 55.3		D – 44.9		B – 16.4		B – 16.7		
	Weekday Evening	E 67.3	B 11.6	E 55.7	B 12.7	A 8.9	B 15.1	A 8.8	B 15.5	B 19.5
		D – 49.4		C – 32.7		B – 14.3		B – 14.6		

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 5
UNSIGNALIZED – EXISTING CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Cass Avenue with South Site Access Drive[1]				
• Eastbound Approach	B	12.0	B	13.6
Cass Avenue with North Site Access Drive[1]				
• Eastbound Approach	D	29.0	D	29.2
• Northbound Left Turn	B	10.6	A	0.0
Cass Avenue with Darien Path Way/North Bank Access Drive[1]				
• Eastbound Approach	C	18.1	C	21.3
• Westbound Approach	B	13.0	B	14.9
• Northbound Left Turn	--	--	B	11.0
• Southbound Left Turn	A	9.6	A	9.7
Frontage Road with Access Road[1]				
• Southbound Approach	B	10.7	B	11.8
• Eastbound Left Turn	A	7.6	A	7.8
Access Road with East Site Access Drive[2]				
• ICU	A	13.3%	A	13.3%

LOS = Level of Service
Delay is measured in seconds.
1 – Two-way stop control
2 – Intersection Capacity Utilization (ICU)

Table 6
UNSIGNALIZED – YEAR 2030 NO-BUILD CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Cass Avenue with South Site Access Drive[1]				
• Eastbound Approach	B	12.1	B	13.7
Cass Avenue with North Site Access Drive[1]				
• Eastbound Approach	D	30.4	D	30.6
• Northbound Left Turn	B	10.7	A	0.0
Cass Avenue with Darien Path Way/North Bank Access Drive[1]				
• Eastbound Approach	C	18.4	C	22.0
• Westbound Approach	B	13.2	C	15.1
• Northbound Left Turn	--	--	B	11.1
• Southbound Left Turn	A	9.5	A	9.7
Frontage Road with Access Road[1]				
• Southbound Approach	B	10.7	B	11.9
• Eastbound Left Turn	A	7.6	A	7.8
Access Road with East Site Access Drive[2]				
• ICU	A	13.3%	A	13.3%

LOS = Level of Service
Delay is measured in seconds.
1 – Two-way stop control
2 – Intersection Capacity Utilization (ICU)

Table 7
UNSIGNALIZED – YEAR 2030 TOTAL CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Cass Avenue with South Site Access Drive[1]				
• Eastbound Approach	B	12.2	B	13.9
Cass Avenue with North Site Access Drive[1]				
• Eastbound Approach	D	32.3	D	31.5
• Northbound Left Turn	B	10.7	B	11.2
Cass Avenue with Darien Path Way/North Bank Access Drive[1]				
• Eastbound Approach	C	18.6	C	22.0
• Westbound Approach	B	13.3	D	25.6
• Northbound Left Turn	--	--	B	11.2
• Southbound Left Turn	A	9.6	A	9.7
Frontage Road with Access Road[1]				
• Southbound Approach	B	11.9	B	12.8
• Eastbound Left Turn	A	7.7	A	7.9
Access Road with East Site Access Drive[2]				
• ICU	A	6.8%	A	14.0%

LOS = Level of Service
Delay is measured in seconds.
1 – Two-way stop control
2 – Intersection Capacity Utilization (ICU)

Discussion and Recommendations

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

Cass Avenue with Frontage Road/Hinswood Drive

The results of the capacity analysis indicate that overall this intersection currently operates at Level of Service (LOS) C during the weekday morning peak hour and at LOS B during the weekday evening peak hour. The northbound and southbound approaches on Cass Avenue currently operate at LOS B during the peak hours. The eastbound and westbound approaches on the Frontage Road currently operate at LOS D or better during the peak hours. Under Year 2030 no-build conditions, the intersection and its approaches are projected to continue operating at the current levels of service during the peak hours, with increases in delay of approximately one second or less over the existing conditions.

Under Year 2030 total projected conditions, the intersection is projected to continue to operate at LOS C during the weekday morning peak hour and at LOS B during the weekday evening peak hour, with increases in delay of approximately one second over the no-build conditions. All approaches are projected to operate at an acceptable LOS D or better during the peak hours, with the exception of the eastbound approach, which during the weekday morning peak hour, is projected to operate at LOS E. Observations and a review of the traffic simulation indicate that the queues at the approach clear the intersection every cycle. Further, the volume to capacity ratio (v/c) is less than 1.0. It should be noted that the queue for the right-turn movement is projected to be 90 feet during the weekday morning peak hour and 52 feet during the weekday evening peak hour, which can be fully contained within the 100 feet of storage that the right-turn lane provides.

Overall, the proposed fuel center is only projected to increase the volume of traffic traversing this intersection by approximately one percent during the peak hours. As such, the intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the fuel center redevelopment, and no roadway or traffic signal modifications are required.

Cass Avenue with South Site Access Drive

The results of the capacity analysis indicate that the eastbound approach, which is restricted to right turns only, currently operates at LOS B during the weekday morning and weekday evening peak hours. Under Year 2030 no-build and total projected conditions, the eastbound approach is projected to continue to operate at the current levels of service, with increases in delays of less than one second over the existing conditions. As such, this access drive is projected to accommodate the increase in traffic generated by the fuel center redevelopment, and no additional roadway or traffic control modifications are required.

Cass Road with North Site Access Drive/South Bank Access Drive

The results of the capacity analysis indicate that the eastbound approach from the north site access drive currently operates at LOS D during the weekday morning and weekday evening peak hours. The northbound left-turn movement currently operates at LOS B or better during the peak hours. Under Year 2030 no-build and total projected conditions, the critical movements and approaches are projected to continue to operate at the current levels of service, with increases in delay of approximately three seconds or less over the existing conditions. It should be noted that the southbound queues on Cass Avenue extending from the Frontage Road occasionally extend to this access drive, impacting the eastbound left-turn movement and the northbound left-turn movement. Queues typically clear within one signal cycle. Additionally, gaps in the traffic flow allow for left-turn movements due to the platooning from traffic signal to the north on Cass Avenue. As such, this access drive is projected to accommodate the increase in traffic generated by the fuel center redevelopment, and no additional roadway or traffic control modifications are required.

Cass Avenue with Darien Path Way/North Bank Access Drive

The results of the capacity analysis indicate that the eastbound approach from Darien Path Way and the westbound approach from the north bank access drive currently operate at LOS C or better during the weekday morning and weekday evening peak hours. The northbound and southbound left-turn movements currently operate at LOS B or better during the peak hours. Under Year 2030 no-build and total projected conditions, the critical movements and approaches are projected to operate at LOS C or better during the peak hours. As such, no roadway or traffic control modifications are required at this intersection in conjunction with the proposed fuel center redevelopment.

Frontage Road with Access Road

The results of the capacity analysis indicate that the southbound approach from the access road currently operates at LOS B during the weekday morning and weekday evening peak hours. The eastbound left-turn movement currently operates at LOS A during both peak hours. Under Year 2030 no-build and total projected conditions, the critical approaches and movements are projected to continue to operate at the current levels of service, with increases in delay of approximately one second over the existing conditions. It should be noted that the westbound queues on the Frontage Road extending from Cass Avenue occasionally extend to this intersection, specifically the left-turn/through movements which have a projected 95th percentile queue of approximately 290 feet during the weekday morning peak hour and 230 feet during the weekday evening peak hour. However, the queues typically clear within one signal cycle. This was confirmed based on a review of the traffic simulation, which was consistent with existing operations at the intersection. As such, this intersection is projected to continue to operate well and accommodate the traffic projected to be generated by the proposed fuel center redevelopment.

Access Road with East Site Access Drive

As this intersection is atypical with the northbound and eastbound approaches uncontrolled and the southbound approach from the access drive being under stop sign control, the intersection was evaluated using the Intersection Capacity Utilization (ICU) method. The results of the capacity analysis indicate that the intersection currently operates at ICU A with minimal queues during the weekday morning and weekday evening peak hours. Under Year 2030 no-build conditions, the intersection is projected to continue to operate at ICU A during the peak hours.

Under Year 2030 total projected conditions, this intersection will be widened. It is projected to operate at ICU A during both peak hours with minimal queues. However, it is recommended that the proposed width of the driveway be reduced while still accommodating traffic movements at this access drive. As such, given the reduction in the proposed access drive width, this access drive is projected to provide flexible and efficient access to the redeveloped fuel center and no additional roadway or traffic control modifications are required.

6. Conclusion

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

- The existing fuel center on the site will be redeveloped to have a larger convenience store and continue to have 12 fueling positions.

- The proposed fuel center redevelopment is only projected to increase the volume of traffic traversing the intersection of Cass Avenue with the Frontage Road by approximately one percent during the peak hours.

- The results of the capacity analysis indicate that the roadway system generally has sufficient reserve capacity to accommodate the redevelopment-generated traffic and no roadway or traffic control improvements are required at the study area intersections.

- Access to the site will be provided via two existing access drives off Cass Avenue and one access drive off the east-west access road that serves the fuel center and Alpine Banquets and connects to the Frontage Road

- The proposed access system that will serve the site will be adequate in accommodating the traffic estimated to be generated by the proposed redevelopment of the fuel center and will ensure flexible access is provided.

Appendix

Traffic Count Summary Sheets
Site Plan
ITE Trip Generation Sheets
CMAP 2050 Projections Letter
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Cass Avenue with Hinswood Drive
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Frontage Road Eastbound						Frontage Road Westbound						Cass Avenue Northbound						Cass Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	7	2	28	0	37	0	34	7	19	0	60	0	8	157	20	0	185	0	17	180	8	0	205	487
7:15 AM	0	29	8	33	0	70	0	22	10	30	0	62	0	19	195	8	0	222	0	10	180	5	0	195	549
7:30 AM	0	52	7	35	0	94	0	29	5	41	0	75	1	14	246	17	0	278	0	15	202	7	0	224	671
7:45 AM	0	47	2	38	0	87	0	30	5	59	0	94	0	20	247	19	0	286	0	14	218	26	0	258	725
Hourly Total	0	135	19	134	0	288	0	115	27	149	0	291	1	61	845	64	0	971	0	56	780	46	0	882	2432
8:00 AM	0	15	6	24	0	45	0	26	7	31	0	64	0	27	173	11	0	211	0	18	189	20	0	227	547
8:15 AM	0	13	7	36	0	56	0	34	15	21	0	70	0	24	192	8	0	224	0	8	185	17	0	210	560
8:30 AM	0	23	18	36	0	77	0	19	12	27	0	58	0	26	186	10	0	222	0	15	170	9	0	194	551
8:45 AM	0	18	3	22	0	43	0	20	10	28	0	58	2	18	241	16	0	277	0	11	167	25	0	203	581
Hourly Total	0	69	34	118	0	221	0	99	44	107	0	250	2	95	792	45	0	934	0	52	711	71	0	834	2239
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	17	8	27	0	52	0	23	5	26	0	54	1	33	162	29	0	225	0	42	216	20	1	278	609
4:15 PM	0	23	13	31	0	67	0	20	7	32	0	59	0	37	209	15	0	261	0	33	224	17	0	274	661
4:30 PM	0	20	12	26	0	58	0	17	9	27	0	53	0	26	202	12	0	240	0	30	205	18	0	253	604
4:45 PM	0	40	11	23	0	74	0	16	12	25	0	53	0	30	208	22	0	260	0	34	226	21	0	281	668
Hourly Total	0	100	44	107	0	251	0	76	33	110	0	219	1	126	781	78	0	986	0	139	871	76	1	1086	2542
5:00 PM	0	25	12	24	0	61	0	20	13	30	0	63	2	27	211	13	0	253	0	40	228	20	0	288	665
5:15 PM	0	32	9	24	0	65	0	13	9	34	0	56	1	33	227	20	0	281	0	45	212	24	0	281	683
5:30 PM	0	32	5	17	0	54	0	15	5	32	0	52	3	32	201	17	0	253	0	28	197	23	0	248	607
5:45 PM	0	20	8	21	0	49	0	13	6	16	0	35	0	31	227	18	0	276	0	32	200	13	0	245	605
Hourly Total	0	109	34	86	0	229	0	61	33	112	0	206	6	123	866	68	0	1063	0	145	837	80	0	1062	2560
Grand Total	0	413	131	445	0	989	0	351	137	478	0	966	10	405	3284	255	0	3954	0	392	3199	273	1	3864	9773
Approach %	0.0	41.8	13.2	45.0	-	-	0.0	36.3	14.2	49.5	-	-	0.3	10.2	83.1	6.4	-	-	0.0	10.1	82.8	7.1	-	-	-
Total %	0.0	4.2	1.3	4.6	-	10.1	0.0	3.6	1.4	4.9	-	9.9	0.1	4.1	33.6	2.6	-	40.5	0.0	4.0	32.7	2.8	-	39.5	-
Lights	0	407	125	439	-	971	0	340	132	468	-	940	10	393	3195	242	-	3840	0	388	3119	263	-	3770	9521
% Lights	-	98.5	95.4	98.7	-	98.2	-	96.9	96.4	97.9	-	97.3	100.0	97.0	97.3	94.9	-	97.1	-	99.0	97.5	96.3	-	97.6	97.4
Buses	0	6	4	1	-	11	0	1	2	2	-	5	0	3	18	4	-	25	0	1	14	7	-	22	63
% Buses	-	1.5	3.1	0.2	-	1.1	-	0.3	1.5	0.4	-	0.5	0.0	0.7	0.5	1.6	-	0.6	-	0.3	0.4	2.6	-	0.6	0.6
Single-Unit Trucks	0	0	1	5	-	6	0	9	3	6	-	18	0	7	50	8	-	65	0	3	45	2	-	50	139
% Single-Unit Trucks	-	0.0	0.8	1.1	-	0.6	-	2.6	2.2	1.3	-	1.9	0.0	1.7	1.5	3.1	-	1.6	-	0.8	1.4	0.7	-	1.3	1.4
Articulated Trucks	0	0	0	0	-	0	0	1	0	2	-	3	0	2	21	1	-	24	0	0	21	1	-	22	49
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.3	0.0	0.4	-	0.3	0.0	0.5	0.6	0.4	-	0.6	-	0.0	0.7	0.4	-	0.6	0.5
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1

% Bicycles on Road	-	0.0	0.8	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Cass Avenue with Hinswood Drive
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Frontage Road Eastbound						Frontage Road Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	29	8	33	0	70	0	22	10	30	0	62	0	19	195	8	0	222	0	10	180	5	0	195	549
7:30 AM	0	52	7	35	0	94	0	29	5	41	0	75	1	14	246	17	0	278	0	15	202	7	0	224	671
7:45 AM	0	47	2	38	0	87	0	30	5	59	0	94	0	20	247	19	0	286	0	14	218	26	0	258	725
8:00 AM	0	15	6	24	0	45	0	26	7	31	0	64	0	27	173	11	0	211	0	18	189	20	0	227	547
Total	0	143	23	130	0	296	0	107	27	161	0	295	1	80	861	55	0	997	0	57	789	58	0	904	2492
Approach %	0.0	48.3	7.8	43.9	-	-	0.0	36.3	9.2	54.6	-	-	0.1	8.0	86.4	5.5	-	-	0.0	6.3	87.3	6.4	-	-	-
Total %	0.0	5.7	0.9	5.2	-	11.9	0.0	4.3	1.1	6.5	-	11.8	0.0	3.2	34.6	2.2	-	40.0	0.0	2.3	31.7	2.3	-	36.3	-
PHF	0.000	0.688	0.719	0.855	-	0.787	0.000	0.892	0.675	0.682	-	0.785	0.250	0.741	0.871	0.724	-	0.872	0.000	0.792	0.905	0.558	-	0.876	0.859
Lights	0	140	19	128	-	287	0	102	27	155	-	284	1	75	823	50	-	949	0	56	769	55	-	880	2400
% Lights	-	97.9	82.6	98.5	-	97.0	-	95.3	100.0	96.3	-	96.3	100.0	93.8	95.6	90.9	-	95.2	-	98.2	97.5	94.8	-	97.3	96.3
Buses	0	3	4	0	-	7	0	0	0	1	-	1	0	0	10	1	-	11	0	1	4	2	-	7	26
% Buses	-	2.1	17.4	0.0	-	2.4	-	0.0	0.0	0.6	-	0.3	0.0	0.0	1.2	1.8	-	1.1	-	1.8	0.5	3.4	-	0.8	1.0
Single-Unit Trucks	0	0	0	2	-	2	0	4	0	4	-	8	0	4	17	4	-	25	0	0	10	1	-	11	46
% Single-Unit Trucks	-	0.0	0.0	1.5	-	0.7	-	3.7	0.0	2.5	-	2.7	0.0	5.0	2.0	7.3	-	2.5	-	0.0	1.3	1.7	-	1.2	1.8
Articulated Trucks	0	0	0	0	-	0	0	1	0	1	-	2	0	1	11	0	-	12	0	0	6	0	-	6	20
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.9	0.0	0.6	-	0.7	0.0	1.3	1.3	0.0	-	1.2	-	0.0	0.8	0.0	-	0.7	0.8
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	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Cass Avenue with Hinswood Drive
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Frontage Road Eastbound						Frontage Road Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	40	11	23	0	74	0	16	12	25	0	53	0	30	208	22	0	260	0	34	226	21	0	281	668
5:00 PM	0	25	12	24	0	61	0	20	13	30	0	63	2	27	211	13	0	253	0	40	228	20	0	288	665
5:15 PM	0	32	9	24	0	65	0	13	9	34	0	56	1	33	227	20	0	281	0	45	212	24	0	281	683
5:30 PM	0	32	5	17	0	54	0	15	5	32	0	52	3	32	201	17	0	253	0	28	197	23	0	248	607
Total	0	129	37	88	0	254	0	64	39	121	0	224	6	122	847	72	0	1047	0	147	863	88	0	1098	2623
Approach %	0.0	50.8	14.6	34.6	-	-	0.0	28.6	17.4	54.0	-	-	0.6	11.7	80.9	6.9	-	-	0.0	13.4	78.6	8.0	-	-	-
Total %	0.0	4.9	1.4	3.4	-	9.7	0.0	2.4	1.5	4.6	-	8.5	0.2	4.7	32.3	2.7	-	39.9	0.0	5.6	32.9	3.4	-	41.9	-
PHF	0.000	0.806	0.771	0.917	-	0.858	0.000	0.800	0.750	0.890	-	0.889	0.500	0.924	0.933	0.818	-	0.931	0.000	0.817	0.946	0.917	-	0.953	0.960
Lights	0	129	37	86	-	252	0	64	39	121	-	224	6	121	839	71	-	1037	0	145	847	87	-	1079	2592
% Lights	-	100.0	100.0	97.7	-	99.2	-	100.0	100.0	100.0	-	100.0	100.0	99.2	99.1	98.6	-	99.0	-	98.6	98.1	98.9	-	98.3	98.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	1	-	2	0	0	2	0	-	2	4
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	1.4	-	0.2	-	0.0	0.2	0.0	-	0.2	0.2
Single-Unit Trucks	0	0	0	2	-	2	0	0	0	0	-	0	0	1	5	0	-	6	0	2	10	1	-	13	21
% Single-Unit Trucks	-	0.0	0.0	2.3	-	0.8	-	0.0	0.0	0.0	-	0.0	0.0	0.8	0.6	0.0	-	0.6	-	1.4	1.2	1.1	-	1.2	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	4	0	-	4	6
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	0.0	-	0.2	-	0.0	0.5	0.0	-	0.4	0.2
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	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Cass Avenue with Shell Access Drive (south)

		Eastbound			Westbound			Northbound			Southbound			
Time Period	Class.	L	T	R	L	T	R	L	T	R	L	T	R	Total
Peak 1														
Specified Period														
7:15 AM - 8:15 AM														
One Hour Peak														
7:15 AM - 8:15 AM	**Total**	**1**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**13**
Peak 2														
Specified Period														
4:45 PM - 5:45 PM														
One Hour Peak														
4:45 PM - 5:45 PM	**Total**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**17**

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Count Name: Cass Avenue with Shell Gas Station Access Drive (north) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Shell Access Drive Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	2	0	1	0	3	0	0	0	0	0	0	0	0	185	1	0	186	0	0	191	5	0	196	385
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	241	2	0	244	0	0	205	4	0	209	454
7:30 AM	0	1	0	3	0	4	0	0	0	0	0	0	0	0	327	3	0	330	0	0	210	1	0	211	545
7:45 AM	0	2	0	1	0	3	0	0	0	0	0	0	0	0	350	6	0	356	0	0	248	9	0	257	616
Hourly Total	0	6	0	5	0	11	0	0	0	0	0	0	0	1	1103	12	0	1116	0	0	854	19	0	873	2000
8:00 AM	0	0	0	3	0	3	0	0	0	0	0	0	0	0	221	3	0	224	0	0	231	5	0	236	463
8:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	222	3	0	225	0	2	203	3	0	208	435
8:30 AM	0	1	0	1	0	2	0	0	0	0	1	0	0	0	230	2	0	232	0	0	200	2	0	202	436
8:45 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	1	283	4	0	288	0	0	205	2	0	207	496
Hourly Total	0	3	0	5	0	8	0	0	0	0	1	0	0	1	956	12	0	969	0	2	839	12	0	853	1830
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	192	3	0	195	0	0	273	4	0	277	474
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	261	2	0	264	0	1	278	5	0	284	549
4:30 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	244	2	0	246	0	0	257	4	0	261	509
4:45 PM	0	0	0	3	0	3	0	0	0	0	0	0	0	0	276	1	0	277	0	0	279	8	0	287	567
Hourly Total	0	3	0	5	0	8	0	0	0	0	0	0	0	1	973	8	0	982	0	1	1087	21	0	1109	2099
5:00 PM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	275	1	0	276	1	0	291	2	0	294	572
5:15 PM	0	1	0	2	0	3	0	0	0	0	0	0	0	0	269	0	0	269	0	1	299	3	0	303	575
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	267	0	0	267	0	0	261	3	0	264	532
5:45 PM	0	1	0	1	0	2	0	0	0	0	0	0	0	0	271	0	0	271	0	1	236	6	0	243	516
Hourly Total	0	3	0	5	0	8	0	0	0	0	0	0	0	0	1082	1	0	1083	1	2	1087	14	0	1104	2195
Grand Total	0	15	0	20	0	35	0	0	0	0	1	0	0	3	4114	33	0	4150	1	5	3867	66	0	3939	8124
Approach %	0.0	42.9	0.0	57.1	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1	99.1	0.8	-	-	0.0	0.1	98.2	1.7	-	-	-
Total %	0.0	0.2	0.0	0.2	-	0.4	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	50.6	0.4	-	51.1	0.0	0.1	47.6	0.8	-	48.5	-
Lights	0	13	0	20	-	33	0	0	0	0	-	0	0	3	4018	33	-	4054	1	5	3780	65	-	3851	7938
% Lights	-	86.7	-	100.0	-	94.3	-	-	-	-	-	-	-	100.0	97.7	100.0	-	97.7	100.0	100.0	97.8	98.5	-	97.8	97.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	28	0	-	28	0	0	23	1	-	24	52
% Buses	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	0.0	0.7	0.0	-	0.7	0.0	0.0	0.6	1.5	-	0.6	0.6
Single-Unit Trucks	0	2	0	0	-	2	0	0	0	0	-	0	0	0	49	0	-	49	0	0	49	0	-	49	100
% Single-Unit Trucks	-	13.3	-	0.0	-	5.7	-	-	-	-	-	-	-	0.0	1.2	0.0	-	1.2	0.0	0.0	1.3	0.0	-	1.2	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	19	0	-	19	0	0	15	0	-	15	34
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	0.0	0.5	0.0	-	0.5	0.0	0.0	0.4	0.0	-	0.4	0.4
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	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Shell Access Drive Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	241	2	0	244	0	0	205	4	0	209	454
7:30 AM	0	1	0	3	0	4	0	0	0	0	0	0	0	0	327	3	0	330	0	0	210	1	0	211	545
7:45 AM	0	2	0	1	0	3	0	0	0	0	0	0	0	0	350	6	0	356	0	0	248	9	0	257	616
8:00 AM	0	0	0	3	0	3	0	0	0	0	0	0	0	0	221	3	0	224	0	0	231	5	0	236	463
Total	0	4	0	7	0	11	0	0	0	0	0	0	0	1	1139	14	0	1154	0	0	894	19	0	913	2078
Approach %	0.0	36.4	0.0	63.6	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1	98.7	1.2	-	-	0.0	0.0	97.9	2.1	-	-	-
Total %	0.0	0.2	0.0	0.3	-	0.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	54.8	0.7	-	55.5	0.0	0.0	43.0	0.9	-	43.9	-
PHF	0.000	0.500	0.000	0.583	-	0.688	0.000	0.000	0.000	0.000	-	0.000	0.000	0.250	0.814	0.583	-	0.810	0.000	0.000	0.901	0.528	-	0.888	0.843
Lights	0	4	0	7	-	11	0	0	0	0	-	0	0	1	1098	14	-	1113	0	0	871	18	-	889	2013
% Lights	-	100.0	-	100.0	-	100.0	-	-	-	-	-	-	-	100.0	96.4	100.0	-	96.4	-	-	97.4	94.7	-	97.4	96.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	14	0	-	14	0	0	7	1	-	8	22
% Buses	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	0.0	1.2	0.0	-	1.2	-	-	0.8	5.3	-	0.9	1.1
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	18	0	-	18	0	0	10	0	-	10	28
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	0.0	1.6	0.0	-	1.6	-	-	1.1	0.0	-	1.1	1.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	9	0	-	9	0	0	6	0	-	6	15
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	0.0	0.8	0.0	-	0.8	-	-	0.7	0.0	-	0.7	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	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Cass Avenue with Shell Gas Station Access Drive (north) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Shell Access Drive Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:45 PM	0	0	0	3	0	3	0	0	0	0	0	0	0	0	276	1	0	277	0	0	279	8	0	287	567
5:00 PM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	275	1	0	276	1	0	291	2	0	294	572
5:15 PM	0	1	0	2	0	3	0	0	0	0	0	0	0	0	269	0	0	269	0	1	299	3	0	303	575
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	267	0	0	267	0	0	261	3	0	264	532
Total	0	2	0	7	0	9	0	0	0	0	0	0	0	0	1087	2	0	1089	1	1	1130	16	0	1148	2246
Approach %	0.0	22.2	0.0	77.8	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	99.8	0.2	-	-	0.1	0.1	98.4	1.4	-	-	-
Total %	0.0	0.1	0.0	0.3	-	0.4	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	48.4	0.1	-	48.5	0.0	0.0	50.3	0.7	-	51.1	-
PHF	0.000	0.500	0.000	0.583	-	0.750	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.985	0.500	-	0.983	0.250	0.250	0.945	0.500	-	0.947	0.977
Lights	0	1	0	7	-	8	0	0	0	0	-	0	0	0	1080	2	-	1082	1	1	1116	16	-	1134	2224
% Lights	-	50.0	-	100.0	-	88.9	-	-	-	-	-	-	-	-	99.4	100.0	-	99.4	100.0	100.0	98.8	100.0	-	98.8	99.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	1	0	-	1	2
% Buses	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	0.1	0.0	-	0.1	0.0	0.0	0.1	0.0	-	0.1	0.1
Single-Unit Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	4	0	-	4	0	0	11	0	-	11	16
% Single-Unit Trucks	-	50.0	-	0.0	-	11.1	-	-	-	-	-	-	-	-	0.4	0.0	-	0.4	0.0	0.0	1.0	0.0	-	1.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	2	0	-	2	4
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	0.2	0.0	-	0.2	0.0	0.0	0.2	0.0	-	0.2	0.2
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	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Darien Path wat with Cass Avenue
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Darien Path Way Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	2	0	0	0	2	0	1	0	0	0	1	0	0	191	0	0	191	0	0	201	0	0	201	395
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	245	0	0	245	0	0	212	0	0	212	458
7:30 AM	0	1	0	0	0	1	0	0	0	2	0	2	0	0	327	0	0	327	0	0	208	0	0	208	538
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	357	0	0	357	0	0	264	0	0	264	622
Hourly Total	0	3	0	0	0	3	0	2	0	3	0	5	0	0	1120	0	0	1120	0	0	885	0	0	885	2013
8:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	221	1	0	222	0	1	221	0	0	222	445
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	228	0	0	228	0	0	201	0	0	201	430
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	226	0	0	227	0	1	189	1	0	191	418
8:45 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	282	0	0	282	0	1	198	0	0	199	482
Hourly Total	0	0	0	2	0	2	0	1	0	0	0	1	1	0	957	1	0	959	0	3	809	1	0	813	1775
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	1	0	0	0	1	0	5	0	1	0	6	0	1	198	0	0	199	0	0	273	0	0	273	479
4:15 PM	0	0	0	0	0	0	0	3	0	3	0	6	0	0	259	0	0	259	0	2	275	0	0	277	542
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	249	0	0	249	0	0	257	0	0	257	508
4:45 PM	0	1	0	0	0	1	0	3	0	2	0	5	0	0	275	0	0	275	0	1	268	0	0	269	550
Hourly Total	0	2	0	0	0	2	0	12	0	7	0	19	0	1	981	0	0	982	0	3	1073	0	0	1076	2079
5:00 PM	0	1	0	0	0	1	0	4	0	2	0	6	0	0	283	1	0	284	0	0	282	0	0	282	573
5:15 PM	0	0	0	0	0	0	0	3	0	5	0	8	0	1	266	0	0	267	0	1	286	0	0	287	562
5:30 PM	0	0	0	1	0	1	0	3	0	1	0	4	0	0	267	0	0	267	0	0	243	0	0	243	515
5:45 PM	0	0	0	1	0	1	0	1	0	1	0	2	0	0	264	0	0	264	0	0	234	2	0	236	503
Hourly Total	0	1	0	2	0	3	0	11	0	9	0	20	0	1	1080	1	0	1082	0	1	1045	2	0	1048	2153
Grand Total	0	6	0	4	0	10	0	26	0	19	0	45	1	2	4138	2	0	4143	0	7	3812	3	0	3822	8020
Approach %	0.0	60.0	0.0	40.0	-	-	0.0	57.8	0.0	42.2	-	-	0.0	0.0	99.9	0.0	-	-	0.0	0.2	99.7	0.1	-	-	-
Total %	0.0	0.1	0.0	0.0	-	0.1	0.0	0.3	0.0	0.2	-	0.6	0.0	0.0	51.6	0.0	-	51.7	0.0	0.1	47.5	0.0	-	47.7	-
Lights	0	6	0	4	-	10	0	26	0	19	-	45	1	2	4029	2	-	4034	0	6	3721	3	-	3730	7819
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	100.0	100.0	97.4	100.0	-	97.4	-	85.7	97.6	100.0	-	97.6	97.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	30	0	-	30	0	0	22	0	-	22	52
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.7	0.0	-	0.7	-	0.0	0.6	0.0	-	0.6	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	57	0	-	57	0	1	50	0	-	51	108
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	1.4	0.0	-	1.4	-	14.3	1.3	0.0	-	1.3	1.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	22	0	-	22	0	0	19	0	-	19	41
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.5	0.0	-	0.5	-	0.0	0.5	0.0	-	0.5	0.5
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	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Darien Path wat with Cass Avenue
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Darien Path Way Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	245	0	0	245	0	0	212	0	0	212	458
7:30 AM	0	1	0	0	0	1	0	0	0	2	0	2	0	0	327	0	0	327	0	0	208	0	0	208	538
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	357	0	0	357	0	0	264	0	0	264	622
8:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	221	1	0	222	0	1	221	0	0	222	445
Total	0	1	0	1	0	2	0	1	0	3	0	4	0	0	1150	1	0	1151	0	1	905	0	0	906	2063
Approach %	0.0	50.0	0.0	50.0	-	-	0.0	25.0	0.0	75.0	-	-	0.0	0.0	99.9	0.1	-	-	0.0	0.1	99.9	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.1	0.0	0.0	0.0	0.1	-	0.2	0.0	0.0	55.7	0.0	-	55.8	0.0	0.0	43.9	0.0	-	43.9	-
PHF	0.000	0.250	0.000	0.250	-	0.500	0.000	0.250	0.000	0.375	-	0.500	0.000	0.000	0.805	0.250	-	0.806	0.000	0.250	0.857	0.000	-	0.858	0.829
Lights	0	1	0	1	-	2	0	1	0	3	-	4	0	0	1103	1	-	1104	0	1	879	0	-	880	1990
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	-	95.9	100.0	-	95.9	-	100.0	97.1	-	-	97.1	96.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	16	0	-	16	0	0	8	0	-	8	24
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.4	0.0	-	1.4	-	0.0	0.9	-	-	0.9	1.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	20	0	-	20	0	0	12	0	-	12	32
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.7	0.0	-	1.7	-	0.0	1.3	-	-	1.3	1.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	11	0	-	11	0	0	6	0	-	6	17
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.0	0.0	-	1.0	-	0.0	0.7	-	-	0.7	0.8
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	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Darien Path wat with Cass Avenue
TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Darien Path Way Eastbound						Access Drive Westbound						Cass Avenue Northbound						Cass Avenue Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	1	0	0	0	1	0	3	0	2	0	5	0	0	275	0	0	275	0	1	268	0	0	269	550
5:00 PM	0	1	0	0	0	1	0	4	0	2	0	6	0	0	283	1	0	284	0	0	282	0	0	282	573
5:15 PM	0	0	0	0	0	0	0	3	0	5	0	8	0	1	266	0	0	267	0	1	286	0	0	287	562
5:30 PM	0	0	0	1	0	1	0	3	0	1	0	4	0	0	267	0	0	267	0	0	243	0	0	243	515
Total	0	2	0	1	0	3	0	13	0	10	0	23	0	1	1091	1	0	1093	0	2	1079	0	0	1081	2200
Approach %	0.0	66.7	0.0	33.3	-	-	0.0	56.5	0.0	43.5	-	-	0.0	0.1	99.8	0.1	-	-	0.0	0.2	99.8	0.0	-	-	-
Total %	0.0	0.1	0.0	0.0	-	0.1	0.0	0.6	0.0	0.5	-	1.0	0.0	0.0	49.6	0.0	-	49.7	0.0	0.1	49.0	0.0	-	49.1	-
PHF	0.000	0.500	0.000	0.250	-	0.750	0.000	0.813	0.000	0.500	-	0.719	0.000	0.250	0.964	0.250	-	0.962	0.000	0.500	0.943	0.000	-	0.942	0.960
Lights	0	2	0	1	-	3	0	13	0	10	-	23	0	1	1082	1	-	1084	0	1	1066	0	-	1067	2177
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	99.2	100.0	-	99.2	-	50.0	98.8	-	-	98.7	99.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	2	0	-	2	3
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	-	0.0	0.2	-	-	0.2	0.1
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	6	0	-	6	0	1	9	0	-	10	16
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.5	0.0	-	0.5	-	50.0	0.8	-	-	0.9	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	2	0	-	2	4
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	0.0	0.2	-	-	0.2	0.2
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	-	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Frontage RD with Corridor

		Eastbound			Westbound			Northbound			Southbound			
Time Period	Class.	L	T	R	L	T	R	L	T	R	L	T	R	Total
Peak 1														
Specified Period														
7:15 AM - 8:15 AM														
One Hour Peak														
7:15 AM - 8:15 AM	**Total**	**7**	**282**	**0**	**0**	**162**	**18**	**0**	**0**	**0**	**10**	**0**	**11**	**490**
Peak 2														
Specified Period														
4:45 PM - 5:45 PM														
One Hour Peak														
4:45 PM - 5:45 PM	**Total**	**3**	**236**	**0**	**0**	**231**	**23**	**0**	**0**	**0**	**20**	**0**	**8**	**521**

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Frontage Road with Shell Gas Station (east) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Frontage Road Eastbound					Frontage Road Northbound					Access Drive Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	4	0	4	0	0	6	0	6	0	4	0	0	4	14
7:15 AM	0	0	3	0	3	0	0	7	0	7	0	2	0	0	2	12
7:30 AM	0	0	1	0	1	0	0	6	0	6	0	3	0	0	3	10
7:45 AM	0	0	5	0	5	0	1	6	0	7	0	3	0	0	3	15
Hourly Total	0	0	13	0	13	0	1	25	0	26	0	12	0	0	12	51
8:00 AM	0	0	3	0	3	0	0	6	0	6	0	2	0	0	2	11
8:15 AM	0	0	1	0	1	0	0	5	0	5	0	3	0	0	3	9
8:30 AM	0	0	3	0	3	1	0	11	0	12	0	3	0	1	3	18
8:45 AM	0	0	1	0	1	0	0	4	0	4	0	2	0	0	2	7
Hourly Total	0	0	8	0	8	1	0	26	0	27	0	10	0	1	10	45
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	3	0	3	0	0	10	0	10	0	5	1	0	6	19
4:15 PM	0	0	3	0	3	0	1	9	0	10	0	9	0	0	9	22
4:30 PM	0	0	10	0	10	0	1	12	0	13	0	1	0	0	1	24
4:45 PM	0	2	4	0	6	0	1	5	0	6	0	2	0	0	2	14
Hourly Total	0	2	20	0	22	0	3	36	0	39	0	17	1	0	18	79
5:00 PM	0	0	2	0	2	0	0	7	0	7	0	2	0	0	2	11
5:15 PM	0	0	5	0	5	0	0	8	0	8	0	4	0	0	4	17
5:30 PM	0	0	2	0	2	0	0	9	0	9	0	6	0	0	6	17
5:45 PM	0	0	5	0	5	0	2	5	0	7	0	4	0	0	4	16
Hourly Total	0	0	14	0	14	0	2	29	0	31	0	16	0	0	16	61
Grand Total	0	2	55	0	57	1	6	116	0	123	0	55	1	1	56	236
Approach %	0.0	3.5	96.5	-	-	0.8	4.9	94.3	-	-	0.0	98.2	1.8	-	-	-
Total %	0.0	0.8	23.3	-	24.2	0.4	2.5	49.2	-	52.1	0.0	23.3	0.4	-	23.7	-
Lights	0	2	51	-	53	1	6	111	-	118	0	52	1	-	53	224
% Lights	-	100.0	92.7	-	93.0	100.0	100.0	95.7	-	95.9	-	94.5	100.0	-	94.6	94.9
Buses	0	0	2	-	2	0	0	0	-	0	0	2	0	-	2	4
% Buses	-	0.0	3.6	-	3.5	0.0	0.0	0.0	-	0.0	-	3.6	0.0	-	3.6	1.7
Single-Unit Trucks	0	0	2	-	2	0	0	5	-	5	0	1	0	-	1	8
% Single-Unit Trucks	-	0.0	3.6	-	3.5	0.0	0.0	4.3	-	4.1	-	1.8	0.0	-	1.8	3.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	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
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Frontage Road with Shell Gas Station (east) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Frontage Road Eastbound					Frontage Road Northbound					Access Drive Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	3	0	3	0	0	7	0	7	0	2	0	0	2	12
7:30 AM	0	0	1	0	1	0	0	6	0	6	0	3	0	0	3	10
7:45 AM	0	0	5	0	5	0	1	6	0	7	0	3	0	0	3	15
8:00 AM	0	0	3	0	3	0	0	6	0	6	0	2	0	0	2	11
Total	0	0	12	0	12	0	1	25	0	26	0	10	0	0	10	48
Approach %	0.0	0.0	100.0	-	-	0.0	3.8	96.2	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	25.0	-	25.0	0.0	2.1	52.1	-	54.2	0.0	20.8	0.0	-	20.8	-
PHF	0.000	0.000	0.600	-	0.600	0.000	0.250	0.893	-	0.929	0.000	0.833	0.000	-	0.833	0.800
Lights	0	0	8	-	8	0	1	24	-	25	0	10	0	-	10	43
% Lights	-	-	66.7	-	66.7	-	100.0	96.0	-	96.2	-	100.0	-	-	100.0	89.6
Buses	0	0	2	-	2	0	0	0	-	0	0	0	0	-	0	2
% Buses	-	-	16.7	-	16.7	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	4.2
Single-Unit Trucks	0	0	2	-	2	0	0	1	-	1	0	0	0	-	0	3
% Single-Unit Trucks	-	-	16.7	-	16.7	-	0.0	4.0	-	3.8	-	0.0	-	-	0.0	6.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	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
% Bicycles on Road	-	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Frontage Road with Shell Gas Station (east) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Frontage Road Eastbound					Frontage Road Northbound					Access Drive Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	2	4	0	6	0	1	5	0	6	0	2	0	0	2	14
5:00 PM	0	0	2	0	2	0	0	7	0	7	0	2	0	0	2	11
5:15 PM	0	0	5	0	5	0	0	8	0	8	0	4	0	0	4	17
5:30 PM	0	0	2	0	2	0	0	9	0	9	0	6	0	0	6	17
Total	0	2	13	0	15	0	1	29	0	30	0	14	0	0	14	59
Approach %	0.0	13.3	86.7	-	-	0.0	3.3	96.7	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	3.4	22.0	-	25.4	0.0	1.7	49.2	-	50.8	0.0	23.7	0.0	-	23.7	-
PHF	0.000	0.250	0.650	-	0.625	0.000	0.250	0.806	-	0.833	0.000	0.583	0.000	-	0.583	0.868
Lights	0	2	13	-	15	0	1	28	-	29	0	13	0	-	13	57
% Lights	-	100.0	100.0	-	100.0	-	100.0	96.6	-	96.7	-	92.9	-	-	92.9	96.6
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	1	-	1	0	1	0	-	1	2
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.0	3.4	-	3.3	-	7.1	-	-	7.1	3.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	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
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Corridor with Shell Access Drive (west)

		Eastbound			Westbound			Northbound			Southbound			
Time Period	**Class.**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**Total**
Peak 1														
Specified Period														
7:15 AM - 8:15 AM														
One Hour Peak														
7:15 AM - 8:15 AM	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak 2														
Specified Period														
4:45 PM - 5:45 PM														
One Hour Peak														
4:45 PM - 5:45 PM	**Total**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**11**	**0**	**0**	**16**

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Frontage Road with Alpine Banquets Access Drive TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Alpine Banquets Access Drive Eastbound					Frontage Road Westbound					Alpine Banquets Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
Hourly Total	0	0	1	0	1	0	1	0	0	1	0	2	0	1	2	4
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Hourly Total	0	0	1	0	1	1	0	0	0	1	0	2	0	0	2	4
Grand Total	0	0	4	0	4	1	1	0	0	2	0	4	0	1	4	10
Approach %	0.0	0.0	100.0	-	-	50.0	50.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	40.0	-	40.0	10.0	10.0	0.0	-	20.0	0.0	40.0	0.0	-	40.0	-
Lights	0	0	4	-	4	1	1	0	-	2	0	4	0	-	4	10
% Lights	-	-	100.0	-	100.0	100.0	100.0	-	-	100.0	-	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	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
% Bicycles on Road	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Count Name: Frontage Road with Alpine Banquets Access Drive TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Alpine Banquets Access Drive Eastbound					Frontage Road Westbound					Alpine Banquets Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000
Lights	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Lights	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Frontage Road with Alpine Banquets Access Drive TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Alpine Banquets Access Drive Eastbound					Frontage Road Westbound					Alpine Banquets Access Drive Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	3	0	1	3	4
Approach %	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	25.0	-	25.0	0.0	0.0	0.0	-	0.0	0.0	75.0	0.0	-	75.0	-
PHF	0.000	0.000	0.250	-	0.250	0.000	0.000	0.000	-	0.000	0.000	0.375	0.000	-	0.375	0.500
Lights	0	0	1	-	1	0	0	0	-	0	0	3	0	-	3	4
% Lights	-	-	100.0	-	100.0	-	-	-	-	-	-	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	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
% Bicycles on Road	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Cass Avenue with 1-55 Ramp (north) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Westbound Approach Westbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	0	47	0	47	0	144	0	0	144	0	0	0	0	0	191
7:15 AM	0	0	69	0	69	0	156	0	0	156	0	0	0	0	0	225
7:30 AM	0	0	89	0	89	0	193	0	0	193	0	0	0	0	0	282
7:45 AM	0	0	117	0	117	0	162	0	0	162	0	0	0	0	0	279
Hourly Total	0	0	322	0	322	0	655	0	0	655	0	0	0	0	0	977
8:00 AM	0	0	74	0	74	0	124	0	0	124	0	0	0	0	0	198
8:15 AM	0	0	71	0	71	0	164	0	0	164	0	0	0	0	0	235
8:30 AM	0	0	70	0	70	0	155	0	0	155	0	0	0	0	0	225
8:45 AM	0	0	85	0	85	0	185	0	0	185	0	0	0	0	0	270
Hourly Total	0	0	300	0	300	0	628	0	0	628	0	0	0	0	0	928
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	57	0	57	0	158	0	0	158	0	0	0	0	0	215
4:15 PM	0	0	66	0	66	0	184	0	0	184	0	0	0	0	0	250
4:30 PM	0	0	61	0	61	0	179	0	0	179	0	0	0	0	0	240
4:45 PM	0	0	76	0	76	0	186	0	0	186	0	0	0	0	0	262
Hourly Total	0	0	260	0	260	0	707	0	0	707	0	0	0	0	0	967
5:00 PM	0	0	79	0	79	0	191	0	0	191	0	0	0	0	0	270
5:15 PM	0	0	64	0	64	0	212	0	0	212	0	0	0	0	0	276
5:30 PM	0	0	68	0	68	0	191	0	0	191	0	0	0	0	0	259
5:45 PM	0	0	95	0	95	0	168	0	0	168	0	0	0	0	0	263
Hourly Total	0	0	306	0	306	0	762	0	0	762	0	0	0	0	0	1068
Grand Total	0	0	1188	0	1188	0	2752	0	0	2752	0	0	0	0	0	3940
Approach %	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	30.2	-	30.2	0.0	69.8	0.0	-	69.8	0.0	0.0	0.0	-	0.0	-
Lights	0	0	1151	-	1151	0	2677	0	-	2677	0	0	0	-	0	3828
% Lights	-	-	96.9	-	96.9	-	97.3	-	-	97.3	-	-	-	-	-	97.2
Buses	0	0	2	-	2	0	24	0	-	24	0	0	0	-	0	26
% Buses	-	-	0.2	-	0.2	-	0.9	-	-	0.9	-	-	-	-	-	0.7
Single-Unit Trucks	0	0	30	-	30	0	34	0	-	34	0	0	0	-	0	64
% Single-Unit Trucks	-	-	2.5	-	2.5	-	1.2	-	-	1.2	-	-	-	-	-	1.6
Articulated Trucks	0	0	5	-	5	0	17	0	-	17	0	0	0	-	0	22
% Articulated Trucks	-	-	0.4	-	0.4	-	0.6	-	-	0.6	-	-	-	-	-	0.6
Bicycles on Road	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
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Cass Avenue with 1-55 Ramp (north) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Westbound Approach Westbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:15 AM	0	0	69	0	69	0	156	0	0	156	0	0	0	0	0	225
7:30 AM	0	0	89	0	89	0	193	0	0	193	0	0	0	0	0	282
7:45 AM	0	0	117	0	117	0	162	0	0	162	0	0	0	0	0	279
8:00 AM	0	0	74	0	74	0	124	0	0	124	0	0	0	0	0	198
Total	0	0	349	0	349	0	635	0	0	635	0	0	0	0	0	984
Approach %	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	35.5	-	35.5	0.0	64.5	0.0	-	64.5	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.746	-	0.746	0.000	0.823	0.000	-	0.823	0.000	0.000	0.000	-	0.000	0.872
Lights	0	0	334	-	334	0	604	0	-	604	0	0	0	-	0	938
% Lights	-	-	95.7	-	95.7	-	95.1	-	-	95.1	-	-	-	-	-	95.3
Buses	0	0	0	-	0	0	11	0	-	11	0	0	0	-	0	11
% Buses	-	-	0.0	-	0.0	-	1.7	-	-	1.7	-	-	-	-	-	1.1
Single-Unit Trucks	0	0	12	-	12	0	13	0	-	13	0	0	0	-	0	25
% Single-Unit Trucks	-	-	3.4	-	3.4	-	2.0	-	-	2.0	-	-	-	-	-	2.5
Articulated Trucks	0	0	3	-	3	0	7	0	-	7	0	0	0	-	0	10
% Articulated Trucks	-	-	0.9	-	0.9	-	1.1	-	-	1.1	-	-	-	-	-	1.0
Bicycles on Road	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
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Cass Avenue with 1-55 Ramp (north) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Westbound Approach Westbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:45 PM	0	0	76	0	76	0	186	0	0	186	0	0	0	0	0	262
5:00 PM	0	0	79	0	79	0	191	0	0	191	0	0	0	0	0	270
5:15 PM	0	0	64	0	64	0	212	0	0	212	0	0	0	0	0	276
5:30 PM	0	0	68	0	68	0	191	0	0	191	0	0	0	0	0	259
Total	0	0	287	0	287	0	780	0	0	780	0	0	0	0	0	1067
Approach %	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	26.9	-	26.9	0.0	73.1	0.0	-	73.1	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.908	-	0.908	0.000	0.920	0.000	-	0.920	0.000	0.000	0.000	-	0.000	0.966
Lights	0	0	283	-	283	0	775	0	-	775	0	0	0	-	0	1058
% Lights	-	-	98.6	-	98.6	-	99.4	-	-	99.4	-	-	-	-	-	99.2
Buses	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	2
% Buses	-	-	0.0	-	0.0	-	0.3	-	-	0.3	-	-	-	-	-	0.2
Single-Unit Trucks	0	0	4	-	4	0	1	0	-	1	0	0	0	-	0	5
% Single-Unit Trucks	-	-	1.4	-	1.4	-	0.1	-	-	0.1	-	-	-	-	-	0.5
Articulated Trucks	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	2
% Articulated Trucks	-	-	0.0	-	0.0	-	0.3	-	-	0.3	-	-	-	-	-	0.2
Bicycles on Road	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
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Cass Avenue with I-55 Ramp (south) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Data

Start Time	Eastbound Approach Eastbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	155	88	0	243	244
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	150	73	0	223	223
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	180	73	0	253	253
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	212	73	0	285	285
Hourly Total	0	0	0	0	0	0	1	0	0	1	0	697	307	0	1004	1005
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	181	50	0	231	231
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	184	68	0	252	252
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	168	59	0	227	227
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	156	56	0	212	212
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	689	233	0	922	922
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	182	100	0	282	282
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	167	114	0	281	281
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	171	83	0	254	254
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	166	96	0	262	262
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	686	393	0	1079	1079
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	168	111	0	279	279
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	154	94	0	248	248
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	149	79	0	228	228
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	143	80	0	223	223
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	614	364	0	978	978
Grand Total	0	0	0	0	0	0	1	0	0	1	0	2686	1297	0	3983	3984
Approach %	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	0.0	67.4	32.6	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	67.4	32.6	-	100.0	-
Lights	0	0	0	-	0	0	1	0	-	1	0	2636	1260	-	3896	3897
% Lights	-	-	-	-	-	-	100.0	-	-	100.0	-	98.1	97.1	-	97.8	97.8
Buses	0	0	0	-	0	0	0	0	-	0	0	14	1	-	15	15
% Buses	-	-	-	-	-	-	0.0	-	-	0.0	-	0.5	0.1	-	0.4	0.4
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	30	31	-	61	61
% Single-Unit Trucks	-	-	-	-	-	-	0.0	-	-	0.0	-	1.1	2.4	-	1.5	1.5
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	6	5	-	11	11
% Articulated Trucks	-	-	-	-	-	-	0.0	-	-	0.0	-	0.2	0.4	-	0.3	0.3
Bicycles on Road	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
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Cass Avenue with I-55 Ramp (south) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Eastbound Approach Eastbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	150	73	0	223	223
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	180	73	0	253	253
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	212	73	0	285	285
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	181	50	0	231	231
Total	0	0	0	0	0	0	0	0	0	0	0	723	269	0	992	992
Approach %	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	72.9	27.1	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	72.9	27.1	-	100.0	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000	0.853	0.921	-	0.870	0.870
Lights	0	0	0	-	0	0	0	0	-	0	0	704	259	-	963	963
% Lights	-	-	-	-	-	-	-	-	-	-	-	97.4	96.3	-	97.1	97.1
Buses	0	0	0	-	0	0	0	0	-	0	0	5	0	-	5	5
% Buses	-	-	-	-	-	-	-	-	-	-	-	0.7	0.0	-	0.5	0.5
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	11	8	-	19	19
% Single-Unit Trucks	-	-	-	-	-	-	-	-	-	-	-	1.5	3.0	-	1.9	1.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	3	2	-	5	5
% Articulated Trucks	-	-	-	-	-	-	-	-	-	-	-	0.4	0.7	-	0.5	0.5
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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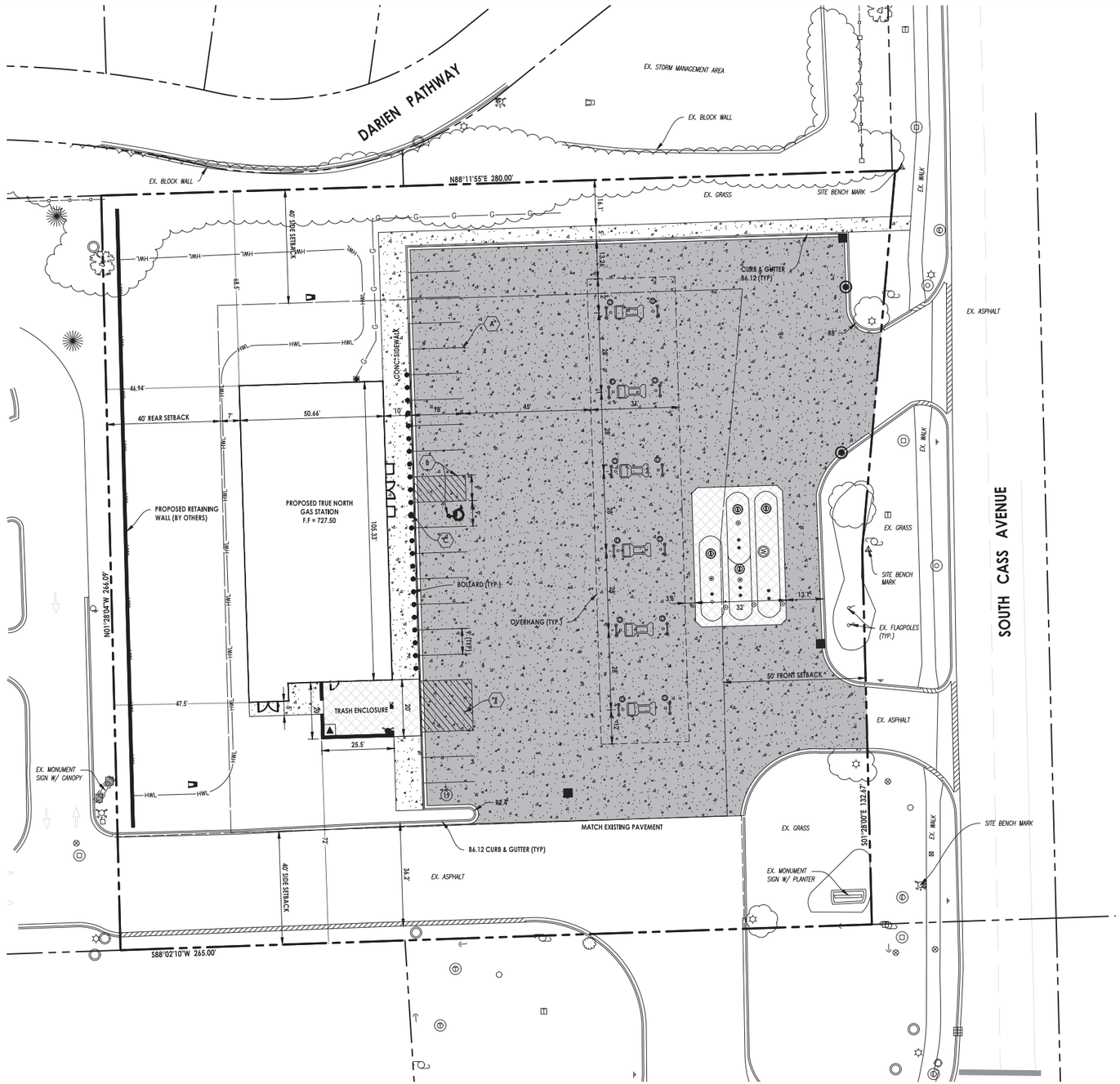
Count Name: Cass Avenue with I-55 Ramp (south) TMC
Site Code:
Start Date: 12/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Eastbound Approach Eastbound					I-55 Ramp Northbound					Cass Avenue Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	166	96	0	262	262
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	168	111	0	279	279
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	154	94	0	248	248
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	149	79	0	228	228
Total	0	0	0	0	0	0	0	0	0	0	0	637	380	0	1017	1017
Approach %	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	62.6	37.4	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	62.6	37.4	-	100.0	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000	0.948	0.856	-	0.911	0.911
Lights	0	0	0	-	0	0	0	0	-	0	0	634	373	-	1007	1007
% Lights	-	-	-	-	-	-	-	-	-	-	-	99.5	98.2	-	99.0	99.0
Buses	0	0	0	-	0	0	0	0	-	0	0	1	1	-	2	2
% Buses	-	-	-	-	-	-	-	-	-	-	-	0.2	0.3	-	0.2	0.2
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	4	-	5	5
% Single-Unit Trucks	-	-	-	-	-	-	-	-	-	-	-	0.2	1.1	-	0.5	0.5
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	1	2	-	3	3
% Articulated Trucks	-	-	-	-	-	-	-	-	-	-	-	0.2	0.5	-	0.3	0.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site Plan



NOTES:

1. ALL DIMENSIONS ALONG CURB LINES ARE TO FACE OF CURB, UNLESS NOTED OTHERWISE.
2. BUILDINGS AND ADJACENT TO BUILDING IMPROVEMENTS SHOWN ON THESE PLANS ARE BASED UPON THE BUILDING PLANS PROVIDED BY OTHERS AT THE DATE OF THESE PLANS BEING PREPARED. BUILDING PLANS NORMALLY CONTINUE TO CHANGE AFTER SITE PLANS HAVE BEEN APPROVED. THEREFORE THE CONTRACTOR SHALL USE THE BUILDING PLANS FOR FINAL BUILDING IMPROVEMENTS, AND VERIFY THAT ALL ADJACENT IMPROVEMENTS ARE CONSISTENT WITH THE DESIGN INTENT AND REQUIREMENTS OF THE SITE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF CLARIFICATION IS NEEDED, OR IF CONFLICTS OR INCONSISTENCIES EXIST.
3. ADA DETECTIBLE WARNING STRIPS SHALL BE CAST IRON TILES, WET SET INTO CONCRETE SURFACE, PER MANUFACTURERS INSTALLATION RECOMMENDATIONS.
4. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY SIGHT ON SOLUTIONS, INC.

(X) SIGNING AND STRIPING SCHEDULE

A. 4" YELLOW STRIPING
B. YELLOW HANDICAP PARKING STRIPING (SEE DETAIL)
C. "ACCESSIBLE" PARKING STALL SIGN ASSEMBLY (S250 FINE)
D. "STOP" SIGN R1-1 (30"X30")
E. 24" WHITE THERMOPLASTIC STOP BAR
F. 4" PAINTED CROSS STRIPING 4' C-C
G. DIRECTIONAL ARROW
H. RIGHT TURN ONLY R3-5 (24"X30")
I. THERMOPLASTIC RIGHT TURN ONLY STRIPING
J. 4" YELLOW LINES, 5.5' C-C SKIP-DASH AND SOLID
K. 6" SOLID WHITE THERMOPLASTIC.
L. "NO LEFT TURN" SIGN (30"X30")
M. 6" WHITE THERMOPLASTIC 6' SKIP 2' DASH

STRIPING NOTE: ON-SITE PAVEMENT MARKINGS AND GRAPHICS SHALL CONSIST OF TWO (2) COATS OF TRAFFIC-RATED PAINT APPLIED A MINIMUM OF 30 DAYS APART. STRIPING AND GRAPHICS AT ENTRY DRIVES SHALL BE THERMOPLASTIC AS NOTED. MATERIALS SHALL MEET ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARDS.

(X) PARKING SUMMARY

	PROPOSED
REGULAR STALLS (9'x18')	18
ACCESSIBLE STALLS (14'x18')	1
TOTAL STALL COUNT	19

LEGEND:

- ADA TRUNCATED DOMES
- EXISTING BARRIER CURB
- EXISTING CURB AND GUTTER
- EXISTING CURB AND GUTTER - DEPRESSED
- B6.12 CURB AND GUTTER UNLESS NOTED OTHERWISE
- B6.12 CURB AND GUTTER - DEPRESSED
- B6.12 CURB AND GUTTER - TRANSITION (ZERO TO FULL HEIGHT)
- BARRIER CURB AND GUTTER UNLESS NOTED OTHERWISE
- BARRIER CURB AND GUTTER - DEPRESSED
- B6.12 CURB AND GUTTER - TRANSITION (ZERO TO FULL HEIGHT)
- SAWCUT LINE
- CONCRETE PAVEMENT FOR TANK PAD, DUMPSTER ENCLOSURE, AND APRONS: 8" P.C. CONCRETE (CLASS PV) W/ 6x6 WWF EACH WAY; 6" AGGREGATE BASE COURSE, TYPE B, CA-6
- CONCRETE PAVEMENT FOR FUEL AND ISLAND PARKING: 6" P.C. CONCRETE (CLASS PV) W/ #4 REBAR @12" O.C. EACH WAY; 6" AGGREGATE BASE COURSE, TYPE B, CA-6
- CONCRETE SIDEWALK: 5" P.C. CONCRETE (CLASS SI); 4" AGGREGATE BASE COURSE, TYPE B, CA-6

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

No	DATE	DESCRIPTION
0	04/26/19	INTERNAL REVIEW

650 E. Algonquin Road
Suite 250
Schaumburg, IL 60173
Telephone: (847) 755-1480
www.rtmec.com
IL Design Firm: 184006777-0002

SHEET NAME: SITE GEOMETRIC PLAN

PROJECT NAME: TRUENORTH
8226 CASS AVE.
DARIEN, IL

PROJECT No. TN 984

SHEET No. C2.0
OF 13 SHEETS

ITE Trip Generation Sheets

Convenience Store/Gas Station - GFA (2-4k) (945)

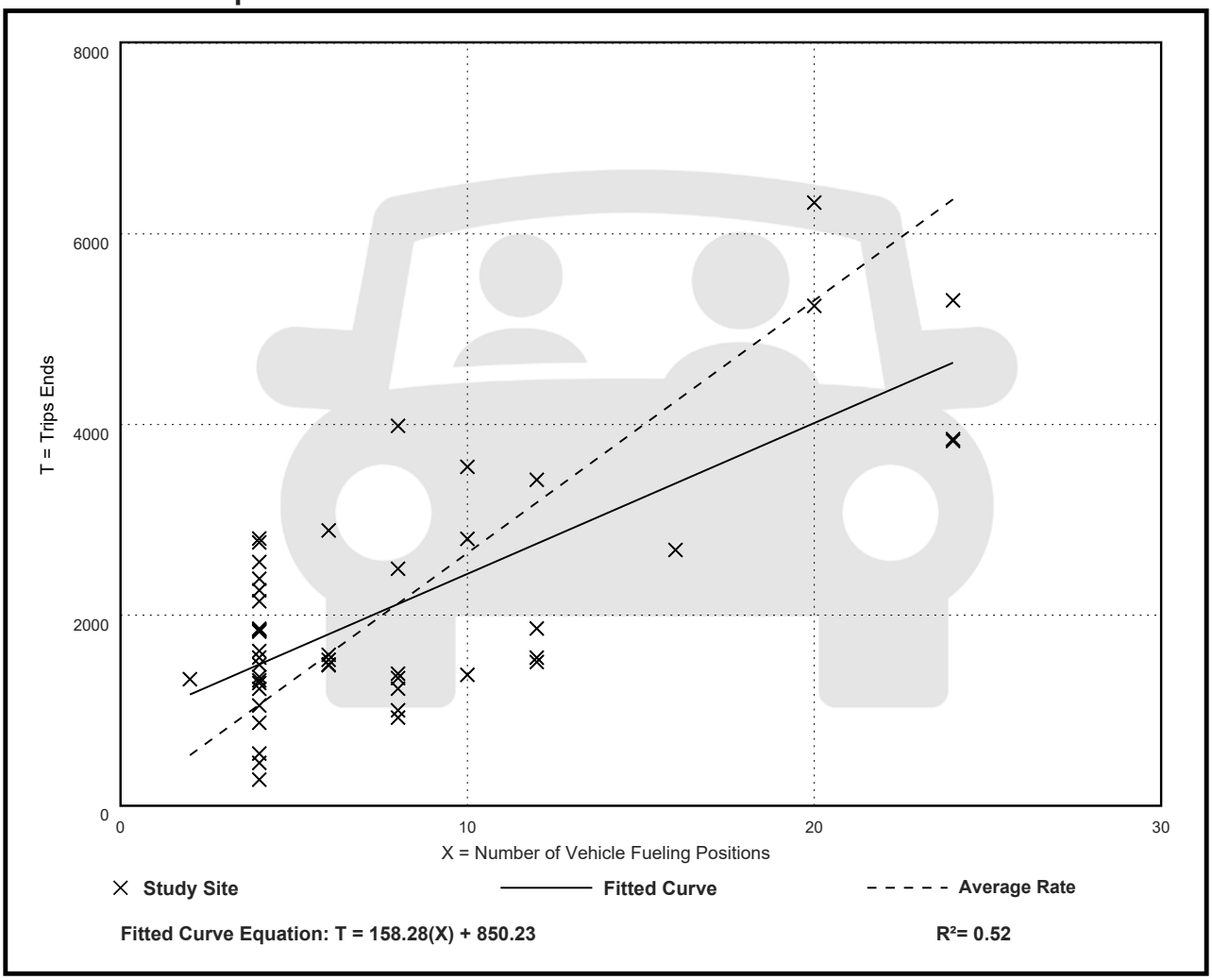
Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 48
Avg. Num. of Vehicle Fueling Positions: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
265.12	68.50 - 701.00	142.37

Data Plot and Equation



Fitted Curve Equation: T = 158.28(X) + 850.23

R^2= 0.52

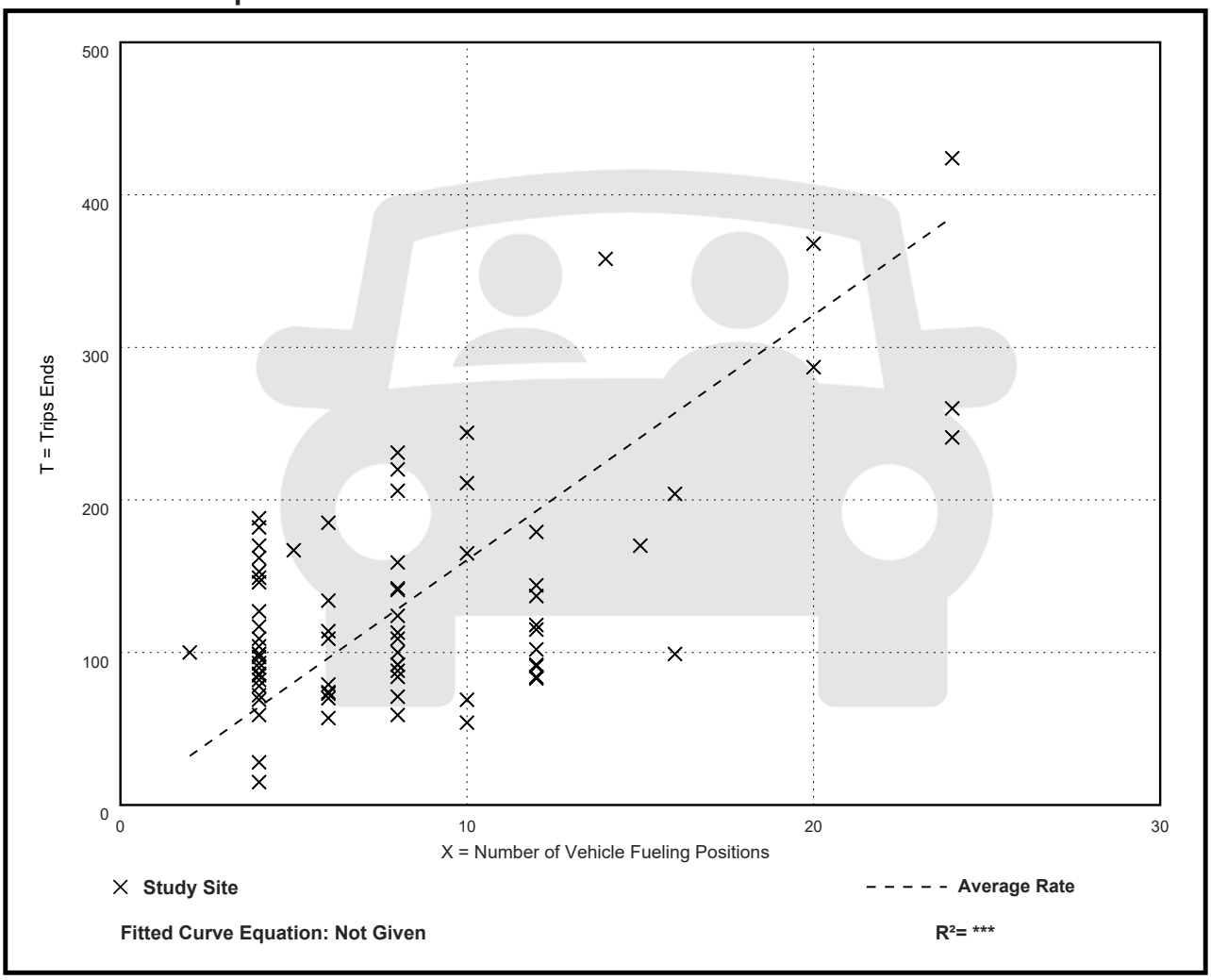
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
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: 76
Avg. Num. of Vehicle Fueling Positions: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
16.06	3.75 - 50.00	8.79

Data Plot and Equation



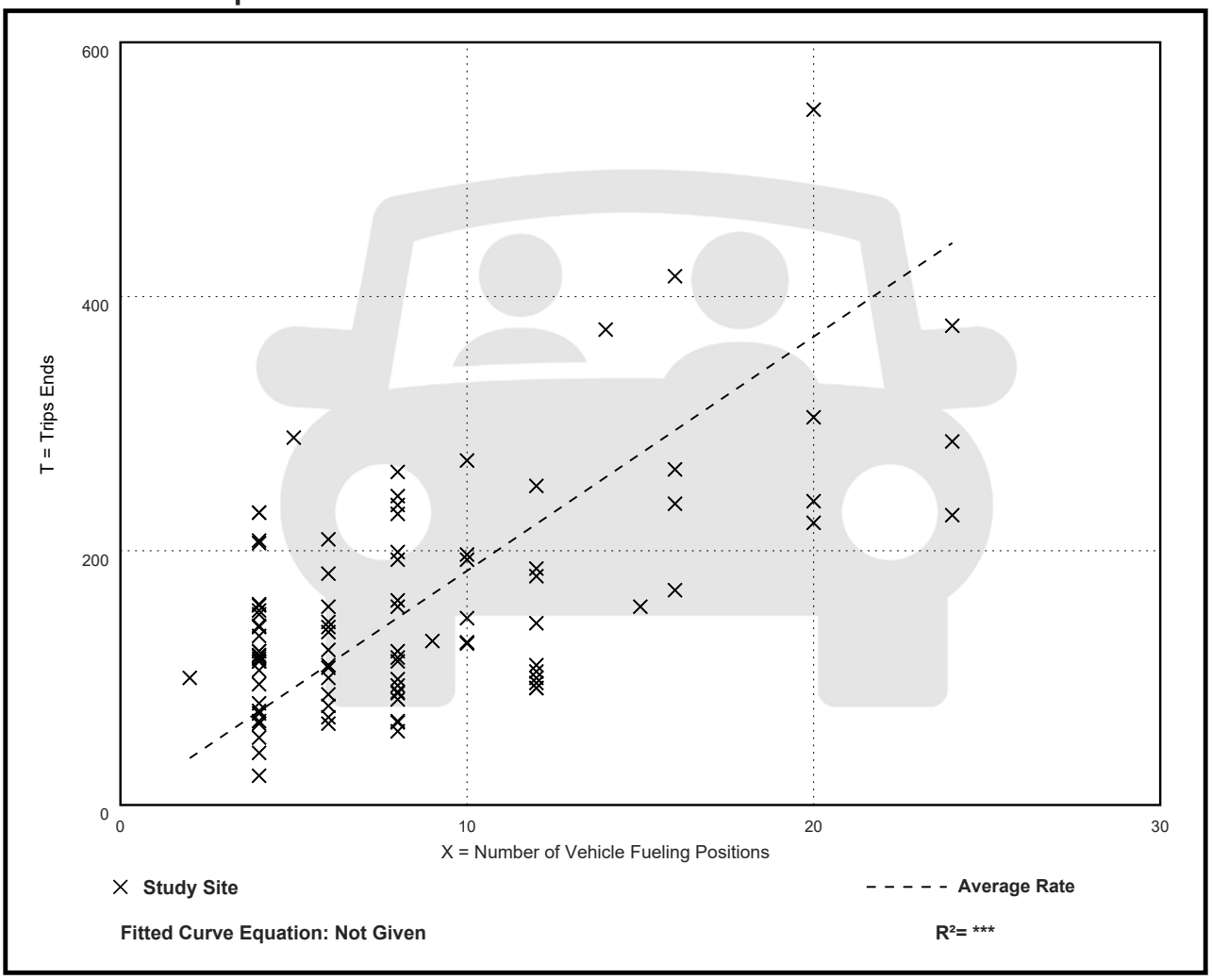
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
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: 93
Avg. Num. of Vehicle Fueling Positions: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
18.42	5.75 - 57.80	10.16

Data Plot and Equation



CMAP 2050 Projections Letter

Chicago Metropolitan Agency for Planning

433 West Van Buren Street, Suite 450
Chicago, IL 60607
cmap.illinois.gov | 312-454-0400

November 12, 2024

Ryan May
Project Coordinator
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: Cass Avenue with Frontage Road
IDOT

Dear Ms. May:

In response to a request made on your behalf and dated November 11, 2024, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
Cass Ave north of Frontage Rd	21,100	23,000
Cass Ave south of Frontage Rd	12,500	13,600

Traffic projections are developed using existing ADT data provided in the request letter and the results from the June 2024 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 or email me at jrodriguez@cmap.illinois.gov

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

cc: Rios (IDOT)
2024_TrafficForecasts\Darien\du-54-24\du-54-24.docx

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

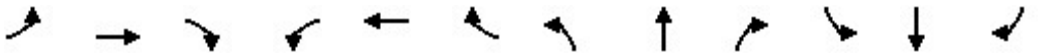
Signalized Intersections		
Level of Service	**Interpretation**	**Average Control Delay (seconds per vehicle)**
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	> 10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	> 20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	> 35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	> 55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80

Unsignalized Intersections	
Level of Service	**Average Total Delay (sec/veh)**
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 6th Edition.

Capacity Analysis Summary Sheets

Existing Weekday Morning Peak Hour



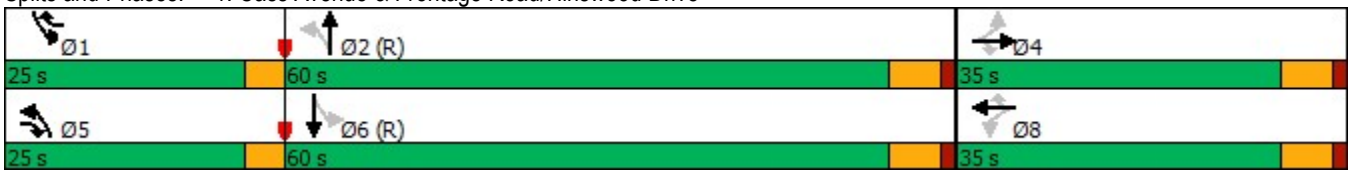
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	23	130	107	35	161	80	861	55	57	789	65
Future Volume (vph)	143	23	130	107	35	161	80	861	55	57	789	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.991			0.989	
Flt Protected		0.959			0.964		0.950			0.950		
Satd. Flow (prot)	0	1750	1583	0	1765	1553	1703	3430	0	1770	3492	0
Flt Permitted		0.559			0.525		0.229			0.212		
Satd. Flow (perm)	0	1020	1583	0	961	1553	410	3430	0	395	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			72			55		7			9	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	17%	2%	5%	0%	4%	6%	4%	9%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	151	0	165	187	93	1065	0	66	993	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		25.9	39.6		25.9	38.9	81.8	71.6		80.3	70.9	
Actuated g/C Ratio		0.22	0.33		0.22	0.32	0.68	0.60		0.67	0.59	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.88	0.26		0.80	0.35	0.26	0.52		0.19	0.48	
Control Delay		81.0	15.4		70.8	22.3	8.0	15.8		7.6	15.6	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		81.0	15.4		70.8	22.3	8.0	15.8		7.6	15.6	
LOS		F	B		E	C	A	B		A	B	
Approach Delay		52.2			45.0			15.2			15.1	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)		141	41		118	73	22	253		15	232	
Queue Length 95th (ft)		#241	83		#203	123	39	301		29	278	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		246	745		232	722	520	2050		524	2066	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.78	0.20		0.71	0.26	0.18	0.52		0.13	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 23.1 Intersection LOS: C
Intersection Capacity Utilization 58.0% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	12	1	25	10	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	12	0	0	26	10	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.85	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1615	0	0	1896	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	108		0	1223	1900	
Reference Time A (s)	13.4		0.0	2.6	0.6	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	9.6	0.6	
Reference Time (s)				2.6	0.6	
Adj Reference Time (s)				8.0	8.0	
Split Option						
Ref Time Combined (s)	0.9		0.0	1.6	0.6	
Ref Time Seperate (s)	0.0		0.1	1.6	0.6	
Reference Time (s)	0.9		1.6	1.6	0.6	
Adj Reference Time (s)	8.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.0	
Split Option (s)	8.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	1165	900	1
Future Vol, veh/h	0	11	0	1165	900	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	12	0	1266	978	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	490	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	529	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	529	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	529	-	-
HCM Lane V/C Ratio	-	0.023	-	-
HCM Control Delay (s)	-	12	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	7	0	0	0	1	1164	0	0	894	19
Future Vol, veh/h	4	0	7	0	0	0	1	1164	0	0	894	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	5
Mvmt Flow	5	0	8	0	0	0	1	1386	0	0	1064	23

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1771	2464	544	1087	0	0	1386	0	0
Stage 1	1076	1076	-	-	-	-	-	-	-
Stage 2	695	1388	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	76	31	488	649	-	-	500	-	-
Stage 1	293	298	-	-	-	-	-	-	-
Stage 2	462	212	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	75	0	488	649	-	-	500	-	-
Mov Cap-2 Maneuver	75	0	-	-	-	-	-	-	-
Stage 1	291	0	-	-	-	-	-	-	-
Stage 2	462	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	649	-	-	163	500	-	-
HCM Lane V/C Ratio	0.002	-	-	0.08	-	-	-
HCM Control Delay (s)	10.6	0	-	29	0	-	-
HCM Lane LOS	B	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	1	0	3	0	1167	1	1	911	0
Future Vol, veh/h	1	0	1	1	0	3	0	1167	1	1	911	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	1	0	1	1	0	4	0	1406	1	1	1098	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1803	2507	549	1958	2507	704	-	0	0	1407	0	0
Stage 1	1100	1100	-	1407	1407	-	-	-	-	-	-	-
Stage 2	703	1407	-	551	1100	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	*134	29	485	85	29	*622	0	-	-	783	-	-
Stage 1	*230	290	-	444	418	-	0	-	-	-	-	-
Stage 2	*586	418	-	491	290	-	0	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*133	28	485	85	28	*622	-	-	-	783	-	-
Mov Cap-2 Maneuver	*194	168	-	251	168	-	-	-	-	-	-	-
Stage 1	*230	289	-	444	418	-	-	-	-	-	-	-
Stage 2	*583	418	-	488	289	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	13	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	277	454	783	-	-
HCM Lane V/C Ratio	-	-	0.009	0.011	0.002	-	-
HCM Control Delay (s)	-	-	18.1	13	9.6	-	-
HCM Lane LOS	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	286	162	18	10	12
Future Vol, veh/h	8	286	162	18	10	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	311	176	20	11	13

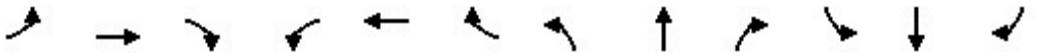
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	196	0	-	0	515	186
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	329	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1377	-	-	-	520	856
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	729	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1377	-	-	-	516	856
Mov Cap-2 Maneuver	-	-	-	-	516	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	729	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1377	-	-	-	659
HCM Lane V/C Ratio	0.006	-	-	-	0.036
HCM Control Delay (s)	7.6	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Capacity Analysis Summary Sheets

Existing Weekday Evening Peak Hour

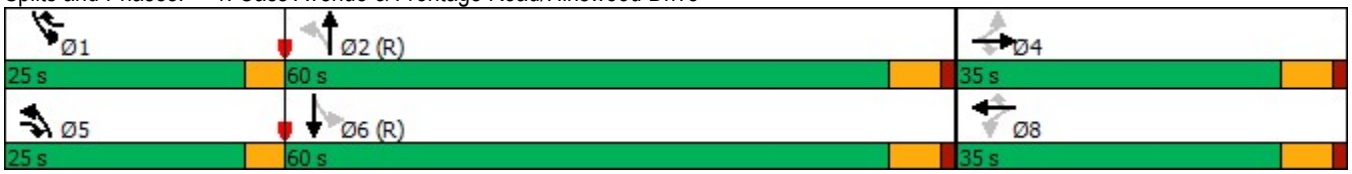


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	39	88	64	39	121	122	862	83	154	903	93
Future Volume (vph)	129	39	88	64	39	121	122	862	83	154	903	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.987			0.986	
Flt Protected		0.963			0.970		0.950			0.950		
Satd. Flow (prot)	0	1830	1583	0	1843	1615	1787	3528	0	1787	3493	0
Flt Permitted		0.697			0.560		0.228			0.239		
Satd. Flow (perm)	0	1324	1583	0	1064	1615	429	3528	0	450	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			76		11			12	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	1%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	92	0	108	126	127	984	0	160	1038	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		21.6	35.6		21.6	36.3	84.7	74.2		86.2	74.9	
Actuated g/C Ratio		0.18	0.30		0.18	0.30	0.71	0.62		0.72	0.62	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.74	0.18		0.57	0.23	0.32	0.45		0.38	0.48	
Control Delay		64.0	10.5		55.4	12.9	7.5	13.9		7.9	13.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		64.0	10.5		55.4	12.9	7.5	13.9		7.9	13.8	
LOS		E	B		E	B	A	B		A	B	
Approach Delay		45.6			32.5			13.1			13.0	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)		129	14		77	28	24	196		31	208	
Queue Length 95th (ft)		196	47		130	65	53	305		65	322	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		319	686		257	705	561	2184		573	2184	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.55	0.13		0.42	0.18	0.23	0.45		0.28	0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	2	14	1	29	14	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	16	0	0	30	14	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.86	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1640	0	0	1897	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	109		0	1285	1900	
Reference Time A (s)	17.6		0.0	2.8	0.9	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	9.9	0.9	
Reference Time (s)				2.8	0.9	
Adj Reference Time (s)				8.0	8.0	
Split Option						
Ref Time Combined (s)	1.2		0.0	1.9	0.9	
Ref Time Seperate (s)	0.1		0.1	1.8	0.9	
Reference Time (s)	1.2		1.9	1.9	0.9	
Adj Reference Time (s)	8.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.0	
Split Option (s)	8.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	1112	1135	2
Future Vol, veh/h	0	15	0	1112	1135	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	16	0	1209	1234	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	618	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	437	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	437	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	437	-	-
HCM Lane V/C Ratio	-	0.037	-	-
HCM Control Delay (s)	-	13.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	0	0	0	0	1110	2	1	1130	16
Future Vol, veh/h	2	0	7	0	0	0	0	1110	2	1	1130	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	50	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	2	0	7	0	0	0	0	1133	2	1	1153	16

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1730	2298	585	1169	0	0	1135	0	0
Stage 1	1163	1163	-	-	-	-	-	-	-
Stage 2	567	1135	-	-	-	-	-	-	-
Critical Hdwy	7.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	48	39	459	605	-	-	623	-	-
Stage 1	178	271	-	-	-	-	-	-	-
Stage 2	416	280	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	48	0	459	605	-	-	623	-	-
Mov Cap-2 Maneuver	48	0	-	-	-	-	-	-	-
Stage 1	178	0	-	-	-	-	-	-	-
Stage 2	414	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	605	-	-	158	623	-	-
HCM Lane V/C Ratio	-	-	-	0.058	0.002	-	-
HCM Control Delay (s)	0	-	-	29.2	10.8	0	-
HCM Lane LOS	A	-	-	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	13	0	10	1	1110	1	2	1133	0
Future Vol, veh/h	2	0	1	13	0	10	1	1110	1	2	1133	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	50	1	0
Mvmt Flow	2	0	1	14	0	10	1	1156	1	2	1180	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1764	2343	590	1753	2343	579	1180	0	0	1157	0	0
Stage 1	1184	1184	-	1159	1159	-	-	-	-	-	-	-
Stage 2	580	1159	-	594	1184	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.7	-	-
Pot Cap-1 Maneuver	*150	*43	456	*155	*43	*622	599	-	-	*761	-	-
Stage 1	*204	*265	-	*586	*513	-	-	-	-	-	-	-
Stage 2	*586	*513	-	*463	*265	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*146	*42	456	*153	*42	*622	599	-	-	*761	-	-
Mov Cap-2 Maneuver	*179	*175	-	*302	*175	-	-	-	-	-	-	-
Stage 1	*203	*263	-	*584	*511	-	-	-	-	-	-	-
Stage 2	*574	*511	-	*458	*263	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.3	14.9	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	599	-	-	224	389	* 761	-	-
HCM Lane V/C Ratio	0.002	-	-	0.014	0.062	0.003	-	-
HCM Control Delay (s)	11	-	-	21.3	14.9	9.7	-	-
HCM Lane LOS	B	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	236	231	23	20	8
Future Vol, veh/h	7	236	231	23	20	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	257	251	25	22	9

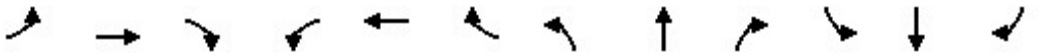
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	276	0	-	0	537	264
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1299	-	-	-	508	780
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	778	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1299	-	-	-	504	780
Mov Cap-2 Maneuver	-	-	-	-	504	-
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	778	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1299	-	-	-	561
HCM Lane V/C Ratio	0.006	-	-	-	0.054
HCM Control Delay (s)	7.8	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Capacity Analysis Summary Sheets

Year 2030 No-Build Weekday Morning Peak Hour



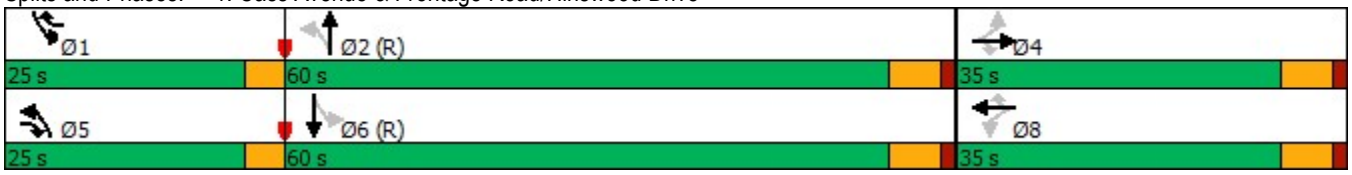
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	23	133	109	36	164	82	878	56	58	805	66
Future Volume (vph)	146	23	133	109	36	164	82	878	56	58	805	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.991			0.989	
Flt Protected		0.959			0.964		0.950			0.950		
Satd. Flow (prot)	0	1751	1583	0	1765	1553	1703	3430	0	1770	3492	0
Flt Permitted		0.553			0.521		0.221			0.203		
Satd. Flow (perm)	0	1010	1583	0	954	1553	396	3430	0	378	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68			52		7			9	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	17%	2%	5%	0%	4%	6%	4%	9%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	197	155	0	169	191	95	1086	0	67	1013	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		26.5	40.2		26.5	39.5	81.2	71.0		79.8	70.3	
Actuated g/C Ratio		0.22	0.34		0.22	0.33	0.68	0.59		0.66	0.59	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.88	0.27		0.80	0.35	0.27	0.53		0.20	0.49	
Control Delay		81.7	16.2		71.3	22.8	8.3	16.4		7.8	16.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		81.7	16.2		71.3	22.8	8.3	16.4		7.8	16.1	
LOS		F	B		E	C	A	B		A	B	
Approach Delay		52.8			45.6			15.7			15.5	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)		143	45		120	76	24	268		16	245	
Queue Length 95th (ft)		#251	88		#211	128	39	310		29	286	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		246	749		232	727	511	2033		514	2049	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.80	0.21		0.73	0.26	0.19	0.53		0.13	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 23.7 Intersection LOS: C
Intersection Capacity Utilization 58.8% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	12	1	26	10	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	12	0	0	27	10	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.85	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1615	0	0	1896	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	108		0	1240	1900	
Reference Time A (s)	13.4		0.0	2.6	0.6	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	9.7	0.6	
Reference Time (s)				2.6	0.6	
Adj Reference Time (s)				8.0	8.0	
Split Option						
Ref Time Combined (s)	0.9		0.0	1.7	0.6	
Ref Time Seperate (s)	0.0		0.1	1.6	0.6	
Reference Time (s)	0.9		1.7	1.7	0.6	
Adj Reference Time (s)	8.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.0	
Split Option (s)	8.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	1188	918	1
Future Vol, veh/h	0	11	0	1188	918	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	12	0	1291	998	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	500	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	522	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	522	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	522	-	-
HCM Lane V/C Ratio	-	0.023	-	-
HCM Control Delay (s)	-	12.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	7	0	0	0	1	1187	0	0	912	19
Future Vol, veh/h	4	0	7	0	0	0	1	1187	0	0	912	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	5
Mvmt Flow	5	0	8	0	0	0	1	1413	0	0	1086	23

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1807	2513	555	1109	0	0	1413	0	0
Stage 1	1098	1098	-	-	-	-	-	-	-
Stage 2	709	1415	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	72	29	480	637	-	-	489	-	-
Stage 1	285	291	-	-	-	-	-	-	-
Stage 2	454	206	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	71	0	480	637	-	-	489	-	-
Mov Cap-2 Maneuver	71	0	-	-	-	-	-	-	-
Stage 1	283	0	-	-	-	-	-	-	-
Stage 2	454	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	637	-	-	155	489	-	-
HCM Lane V/C Ratio	0.002	-	-	0.084	-	-	-
HCM Control Delay (s)	10.7	0	-	30.4	0	-	-
HCM Lane LOS	B	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	1	0	3	0	1190	1	1	929	0
Future Vol, veh/h	1	0	1	1	0	3	0	1190	1	1	929	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	1	0	1	1	0	4	0	1434	1	1	1119	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1838	2556	560	1997	2556	718	-	0	0	1435	0	0
Stage 1	1121	1121	-	1435	1435	-	-	-	-	-	-	-
Stage 2	717	1435	-	562	1121	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	*135	25	477	83	25	*596	0	-	-	796	-	-
Stage 1	*223	284	-	467	429	-	0	-	-	-	-	-
Stage 2	*562	429	-	484	284	-	0	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*134	25	477	82	25	*596	-	-	-	796	-	-
Mov Cap-2 Maneuver	*189	166	-	254	167	-	-	-	-	-	-	-
Stage 1	*223	283	-	467	429	-	-	-	-	-	-	-
Stage 2	*559	429	-	481	283	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	13.2	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	271	446	796	-	-
HCM Lane V/C Ratio	-	-	0.009	0.011	0.002	-	-
HCM Control Delay (s)	-	-	18.4	13.2	9.5	-	-
HCM Lane LOS	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	292	165	18	10	12
Future Vol, veh/h	8	292	165	18	10	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	317	179	20	11	13

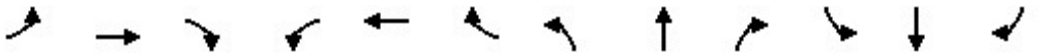
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	199	0	-	0	524	189
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1373	-	-	-	514	853
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1373	-	-	-	510	853
Mov Cap-2 Maneuver	-	-	-	-	510	-
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1373	-	-	-	653
HCM Lane V/C Ratio	0.006	-	-	-	0.037
HCM Control Delay (s)	7.6	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Capacity Analysis Summary Sheets

Year 2030 No-Build Weekday Evening Peak Hour

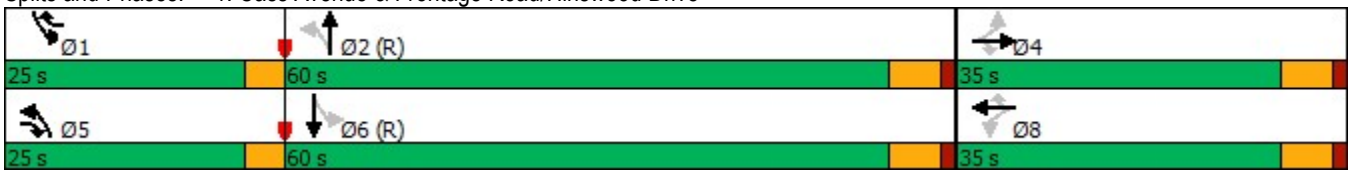


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	40	90	65	40	123	124	879	85	157	921	95
Future Volume (vph)	132	40	90	65	40	123	124	879	85	157	921	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.987			0.986	
Flt Protected		0.963			0.970		0.950			0.950		
Satd. Flow (prot)	0	1830	1583	0	1843	1615	1787	3528	0	1787	3493	0
Flt Permitted		0.693			0.550		0.221			0.231		
Satd. Flow (perm)	0	1317	1583	0	1045	1615	416	3528	0	435	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63			72		11			12	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	1%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	94	0	110	128	129	1005	0	164	1058	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		21.9	36.0		21.9	36.8	84.3	73.7		85.9	74.5	
Actuated g/C Ratio		0.18	0.30		0.18	0.31	0.70	0.61		0.72	0.62	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.75	0.18		0.58	0.23	0.34	0.46		0.40	0.49	
Control Delay		64.8	11.6		55.9	13.7	7.8	14.3		8.3	14.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		64.8	11.6		55.9	13.7	7.8	14.3		8.3	14.2	
LOS		E	B		E	B	A	B		A	B	
Approach Delay		46.6			33.2			13.6			13.4	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)		133	17		78	31	25	205		32	216	
Queue Length 95th (ft)		202	51		132	69	53	316		66	330	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		318	688		252	707	552	2169		563	2172	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.57	0.14		0.44	0.18	0.23	0.46		0.29	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 18.3		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	2	14	1	30	14	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	16	0	0	31	14	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.86	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1640	0	0	1897	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	109		0	1299	1900	
Reference Time A (s)	17.6		0.0	2.9	0.9	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	10.0	0.9	
Reference Time (s)				2.9	0.9	
Adj Reference Time (s)				8.0	8.0	
Split Option						
Ref Time Combined (s)	1.2		0.0	2.0	0.9	
Ref Time Seperate (s)	0.1		0.1	1.9	0.9	
Reference Time (s)	1.2		2.0	2.0	0.9	
Adj Reference Time (s)	8.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.0	
Split Option (s)	8.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	1134	1158	2
Future Vol, veh/h	0	15	0	1134	1158	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	16	0	1233	1259	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	631	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	429	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	429	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	429	-	-
HCM Lane V/C Ratio	-	0.038	-	-
HCM Control Delay (s)	-	13.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	0	0	0	0	1132	2	1	1153	16
Future Vol, veh/h	2	0	7	0	0	0	0	1132	2	1	1153	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	50	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	2	0	7	0	0	0	0	1155	2	1	1177	16

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1765	2344	597	1193	0	0	1157	0	0
Stage 1	1187	1187	-	-	-	-	-	-	-
Stage 2	578	1157	-	-	-	-	-	-	-
Critical Hdwy	7.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	45	37	451	592	-	-	611	-	-
Stage 1	172	264	-	-	-	-	-	-	-
Stage 2	409	273	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	45	0	451	592	-	-	611	-	-
Mov Cap-2 Maneuver	45	0	-	-	-	-	-	-	-
Stage 1	172	0	-	-	-	-	-	-	-
Stage 2	407	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	592	-	-	150	611	-	-
HCM Lane V/C Ratio	-	-	-	0.061	0.002	-	-
HCM Control Delay (s)	0	-	-	30.6	10.9	0	-
HCM Lane LOS	A	-	-	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	13	0	10	1	1132	1	2	1156	0
Future Vol, veh/h	2	0	1	13	0	10	1	1132	1	2	1156	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	50	1	0
Mvmt Flow	2	0	1	14	0	10	1	1179	1	2	1204	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1800	2390	602	1788	2390	590	1204	0	0	1180	0	0
Stage 1	1208	1208	-	1182	1182	-	-	-	-	-	-	-
Stage 2	592	1182	-	606	1208	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.7	-	-
Pot Cap-1 Maneuver	*135	*38	448	*140	*38	*622	587	-	-	*761	-	-
Stage 1	*197	*258	-	*586	*513	-	-	-	-	-	-	-
Stage 2	*586	*513	-	*456	*258	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*132	*38	448	*139	*38	*622	587	-	-	*761	-	-
Mov Cap-2 Maneuver	*171	*171	-	*294	*170	-	-	-	-	-	-	-
Stage 1	*196	*256	-	*584	*511	-	-	-	-	-	-	-
Stage 2	*574	*511	-	*451	*256	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22	15.1	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	587	-	-	215	381	* 761	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.063	0.003	-	-
HCM Control Delay (s)	11.1	-	-	22	15.1	9.7	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	241	236	23	20	8
Future Vol, veh/h	7	241	236	23	20	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	262	257	25	22	9

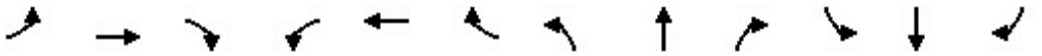
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	282	0	-	0	548	270
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1292	-	-	-	501	774
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1292	-	-	-	497	774
Mov Cap-2 Maneuver	-	-	-	-	497	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1292	-	-	-	554
HCM Lane V/C Ratio	0.006	-	-	-	0.055
HCM Control Delay (s)	7.8	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Capacity Analysis Summary Sheets

Year 2030 Total Projected Weekday Morning Peak Hour



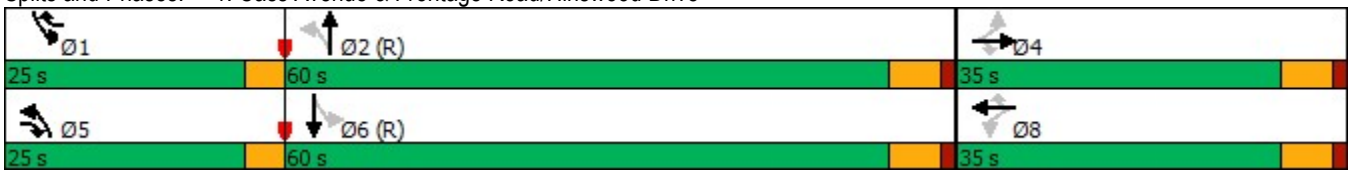
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	25	136	109	38	164	98	869	56	58	810	66
Future Volume (vph)	162	25	136	109	38	164	98	869	56	58	810	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.991			0.989	
Flt Protected		0.958			0.964		0.950			0.950		
Satd. Flow (prot)	0	1750	1583	0	1766	1553	1703	3430	0	1770	3493	0
Flt Permitted		0.558			0.497		0.211			0.204		
Satd. Flow (perm)	0	1019	1583	0	910	1553	378	3430	0	380	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			54		7			9	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	17%	2%	5%	0%	4%	6%	4%	9%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	217	158	0	171	191	114	1075	0	67	1019	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		28.2	42.4		28.2	41.1	80.1	69.4		77.6	68.1	
Actuated g/C Ratio		0.24	0.35		0.24	0.34	0.67	0.58		0.65	0.57	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.91	0.26		0.80	0.34	0.33	0.54		0.21	0.51	
Control Delay		83.8	16.0		70.6	21.8	9.4	17.1		8.2	17.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		83.8	16.0		70.6	21.8	9.4	17.1		8.2	17.3	
LOS		F	B		E	C	A	B		A	B	
Approach Delay		55.3			44.9			16.4			16.7	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)		159	46		121	73	29	270		17	254	
Queue Length 95th (ft)		#287	90		#224	127	46	305		29	293	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		250	770		222	749	496	1985		510	1985	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.87	0.21		0.77	0.26	0.23	0.54		0.13	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 60.2% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	1	51	52	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	52	52	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1805	0	0	1898	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	120		0	1492	1900	
Reference Time A (s)	0.0		0.0	4.2	3.3	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	11.3	3.3	
Reference Time (s)				4.2	3.3	
Adj Reference Time (s)				8.2	8.0	
Split Option						
Ref Time Combined (s)	0.0		0.0	3.3	3.3	
Ref Time Seperate (s)	0.0		0.1	3.2	3.3	
Reference Time (s)	0.0		3.3	3.3	3.3	
Adj Reference Time (s)	0.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.2	
Split Option (s)	0.0	16.0	
Minimum (s)	0.0	8.2	8.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	6.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	1195	917	5
Future Vol, veh/h	0	17	0	1195	917	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	18	0	1299	997	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	501	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	521	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	521	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	521	-	-
HCM Lane V/C Ratio	-	0.035	-	-
HCM Control Delay (s)	-	12.2	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	19	0	0	0	3	1192	0	0	903	36
Future Vol, veh/h	9	0	19	0	0	0	3	1192	0	0	903	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	5
Mvmt Flow	11	0	23	0	0	0	4	1419	0	0	1075	43

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1815	2524	559	1118	0	0	1419	0	0
Stage 1	1097	1097	-	-	-	-	-	-	-
Stage 2	718	1427	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	71	28	478	632	-	-	486	-	-
Stage 1	286	291	-	-	-	-	-	-	-
Stage 2	449	203	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	69	0	478	632	-	-	486	-	-
Mov Cap-2 Maneuver	69	0	-	-	-	-	-	-	-
Stage 1	277	0	-	-	-	-	-	-	-
Stage 2	449	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.3	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	632	-	-	165	486	-	-
HCM Lane V/C Ratio	0.006	-	-	0.202	-	-	-
HCM Control Delay (s)	10.7	0.2	-	32.3	0	-	-
HCM Lane LOS	B	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	1	0	3	0	1200	1	1	937	0
Future Vol, veh/h	1	0	1	1	0	3	0	1200	1	1	937	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	1	0	1	1	0	4	0	1446	1	1	1129	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1854	2578	565	2014	2578	724	-	0	0	1447	0	0
Stage 1	1131	1131	-	1447	1447	-	-	-	-	-	-	-
Stage 2	723	1447	-	567	1131	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	*128	24	473	78	24	*596	0	-	-	781	-	-
Stage 1	*220	281	-	453	420	-	0	-	-	-	-	-
Stage 2	*562	420	-	481	281	-	0	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*127	23	473	78	23	*596	-	-	-	781	-	-
Mov Cap-2 Maneuver	*186	163	-	248	163	-	-	-	-	-	-	-
Stage 1	*220	280	-	453	420	-	-	-	-	-	-	-
Stage 2	*559	420	-	478	280	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.6	13.3	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	267	441	781	-	-
HCM Lane V/C Ratio	-	-	0.009	0.011	0.002	-	-
HCM Control Delay (s)	-	-	18.6	13.3	9.6	-	-
HCM Lane LOS	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	289	162	39	34	18
Future Vol, veh/h	13	289	162	39	34	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	314	176	42	37	20

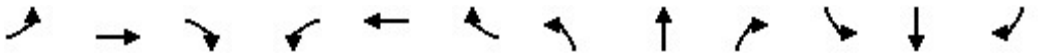
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	218	0	-	0	539	197
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1352	-	-	-	503	844
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1352	-	-	-	496	844
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1352	-	-	-	579
HCM Lane V/C Ratio	0.01	-	-	-	0.098
HCM Control Delay (s)	7.7	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Capacity Analysis Summary Sheets

Year 2030 Total Projected Weekday Evening Peak Hour



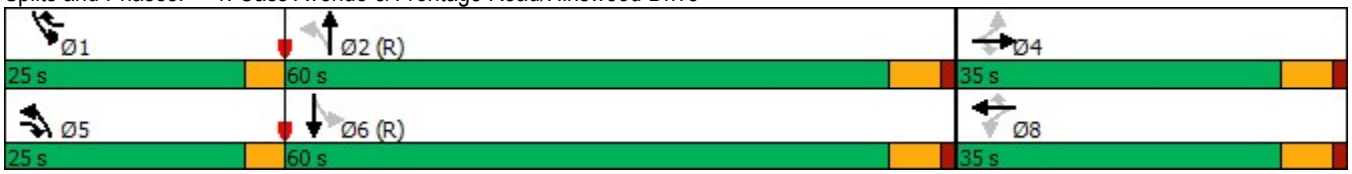
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	42	92	65	42	123	143	869	85	157	927	95
Future Volume (vph)	152	42	92	65	42	123	143	869	85	157	927	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		95	185		0	210		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	100			25			165			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850			0.850		0.987			0.986	
Flt Protected		0.962			0.971		0.950			0.950		
Satd. Flow (prot)	0	1828	1583	0	1845	1615	1787	3528	0	1787	3493	0
Flt Permitted		0.687			0.515		0.212			0.233		
Satd. Flow (perm)	0	1305	1583	0	978	1615	399	3528	0	438	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			62			75		11			12	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		130			179			615			208	
Travel Time (s)		3.0			4.1			10.5			3.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	1%	1%	1%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	96	0	112	128	149	994	0	164	1065	0
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	3.0	8.0	8.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	24.0	24.0	9.5	35.0	35.0	9.5	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0	25.0	35.0	35.0	25.0	25.0	60.0		25.0	60.0	
Total Split (%)	29.2%	29.2%	20.8%	29.2%	29.2%	20.8%	20.8%	50.0%		20.8%	50.0%	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	3.5		6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		23.4	38.1		23.4	38.5	83.2	72.0		83.9	72.4	
Actuated g/C Ratio		0.20	0.32		0.20	0.32	0.69	0.60		0.70	0.60	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.79	0.18		0.59	0.23	0.40	0.47		0.40	0.50	
Control Delay		67.3	11.6		55.7	12.7	8.9	15.1		8.8	15.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		67.3	11.6		55.7	12.7	8.9	15.1		8.8	15.5	
LOS		E	B		E	B	A	B		A	B	
Approach Delay		49.4			32.7			14.3			14.6	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)		149	18		79	28	31	213		35	234	
Queue Length 95th (ft)		227	52		136	67	60	310		66	338	
Internal Link Dist (ft)		50			99			535			128	
Turn Bay Length (ft)			100			95	185			210		
Base Capacity (vph)		315	707		236	728	538	2121		559	2111	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.64	0.14		0.47	0.18	0.28	0.47		0.29	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 25 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 67.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Cass Avenue & Frontage Road/Hinswood Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	2	2	1	61	61	0
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	4	0	0	62	61	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.90	0.85	0.95	1.00	1.00	0.85
Saturated Flow (vph)	1714	0	0	1898	1900	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	114		0	1546	1900	
Reference Time A (s)	4.2		0.0	4.8	3.9	
Adj Saturation B (vph	NA		0	0	1900	
Reference Time B (s)	NA		8.1	11.9	3.9	
Reference Time (s)				4.8	3.9	
Adj Reference Time (s)				8.8	8.0	
Split Option						
Ref Time Combined (s)	0.3		0.0	3.9	3.9	
Ref Time Seperate (s)	0.1		0.1	3.9	3.9	
Reference Time (s)	0.3		3.9	3.9	3.9	
Adj Reference Time (s)	8.0		8.0	8.0	8.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	8.8	
Split Option (s)	8.0	16.0	
Minimum (s)	8.0	8.8	16.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	14.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	0	1144	1157	7
Future Vol, veh/h	0	22	0	1144	1157	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	24	0	1243	1258	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	633	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	427	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	427	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	427	-	-
HCM Lane V/C Ratio	-	0.056	-	-
HCM Control Delay (s)	-	13.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	22	0	0	0	2	1140	2	1	1142	38
Future Vol, veh/h	5	0	22	0	0	0	2	1140	2	1	1142	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	50	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	5	0	22	0	0	0	2	1163	2	1	1165	39

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1773	2356	602	1204	0	0	1165	0	0
Stage 1	1187	1187	-	-	-	-	-	-	-
Stage 2	586	1169	-	-	-	-	-	-	-
Critical Hdwy	7.8	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	44	36	448	587	-	-	607	-	-
Stage 1	172	264	-	-	-	-	-	-	-
Stage 2	405	269	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	43	0	448	587	-	-	607	-	-
Mov Cap-2 Maneuver	43	0	-	-	-	-	-	-	-
Stage 1	170	0	-	-	-	-	-	-	-
Stage 2	403	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	587	-	-	163	607	-	-
HCM Lane V/C Ratio	0.003	-	-	0.169	0.002	-	-
HCM Control Delay (s)	11.2	0.1	-	31.5	10.9	0	-
HCM Lane LOS	B	A	-	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	13	0	10	1	1143	1	2	1167	0
Future Vol, veh/h	2	0	1	13	0	10	1	1143	1	2	1167	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	50	1	0
Mvmt Flow	2	0	1	14	0	10	1	1191	1	2	1216	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1818	2414	608	1806	2414	596	1216	0	0	1192	0	0
Stage 1	1220	1220	-	1194	1194	-	-	-	-	-	-	-
Stage 2	598	1194	-	612	1220	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.7	-	-
Pot Cap-1 Maneuver	*128	*36	444	*133	*36	*622	581	-	-	*761	-	-
Stage 1	*194	*255	-	*586	*513	-	-	-	-	-	-	-
Stage 2	*586	*513	-	*452	*255	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*125	*36	444	*131	*36	*622	581	-	-	*761	-	-
Mov Cap-2 Maneuver	*168	*169	-	*131	*36	-	-	-	-	-	-	-
Stage 1	*193	*253	-	*584	*511	-	-	-	-	-	-	-
Stage 2	*574	*511	-	*447	*253	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.2	25.6	0	0
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	581	-	-	212	199	* 761	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.12	0.003	-	-
HCM Control Delay (s)	11.2	-	-	22.2	25.6	9.7	-	-
HCM Lane LOS	B	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	237	232	48	48	15
Future Vol, veh/h	14	237	232	48	48	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	258	252	52	52	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	304	0	-	0	566	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1268	-	-	-	489	766
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1268	-	-	-	482	766
Mov Cap-2 Maneuver	-	-	-	-	482	-
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	766	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1268	-	-	-	529
HCM Lane V/C Ratio	0.012	-	-	-	0.129
HCM Control Delay (s)	7.9	0	-	-	12.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

January 22, 2025

City of Darian
1702 Plainfield Road
Darien, Illinois

Attention: Ryan Murphy

Subject: 8226 S. Cass Road – True North Energy LLC
(CBBEL Project No. 950323.H0266)

Dear Ryan:
As requested on January 21, 2025, we have reviewed the Preliminary Plans for a proposed gas station prepared by RTM Engineering Consultants and dated April 26, 2019. Previously, the site consisted of a separate drive through car wash and mini mart. The proposed project will eliminate the car wash and relocate the mini mart into a larger store where the car wash was originally located.

Preliminary Plans

All previous comments have been addressed, and we believe the preliminary engineering plans are now in general compliance with County stormwater management requirements and City code.

As the preliminary final engineering plans were also submitted, the following comments shall be addressed during the Final Engineering Plan Review process upon approval from the Planning and Zoning Commission:

Final Engineering Plans

Sheet C0.0

1. The owner's contact information shall be added to the cover sheet.
2. Under NOTES, note 2, revise note to state that the contractor shall notify all utility companies at minimum 2 business days before the beginning of construction.
3. The design engineer's stamp and stormwater certification shall be added to the sheet.

Sheet C1.0

4. Under GENERAL NOTES AND CONDITIONS, notes 11 and 12, the 48 hours shall be changed to 2 business days.
5. The existing water service line size shall be specified on the drawing, if known.

Sheet C2.0

6. Specify the distance between bollards for ADA access to the storefront walkway, ensuring sufficient spacing to allow for wheelchair passage.

Sheet C3.0

7. Provide the vertical crossing elevations for all proposed utility crossings.
8. The proposed 42 LF 12" RCP storm sewer when measured is only 16 LF. This typo should be revised to the correct length.
9. The slope for the 58 LF RCP storm sewer is calculated to be 0.78% instead of 0.74%. Verify and revise accordingly.
10. The slope for the 134 LF RCP storm sewer is calculated to be 0.37% instead of 0.45%. Verify and revise accordingly.
11. Provide the proposed rim and invert elevations, the proposed slopes, and connect invert to the proposed 18" storm sewer.
12. We note that an existing telecommunications line is located within the footprint of the proposed underground storage tanks and will likely need to be removed and relocated.
13. Callout the relocated water service from the connection point to the building. Also provide the material and size of the water service.

Sheet C4-0

14. Provide grading cross-section details of the ADA parking stall and the accessible route to the entrance, ensuring full ADA compliance.
15. The proposed 727 contour at the southern entrance along S. Cass Avenue should end at the back of the curb. The contour also extends beyond the existing 727 contour within the grass area south of the entrance, disrupting the existing 726 and 725 contours. The grading in this area must be revised accordingly to allow adequate drainage.
16. Provide details regarding the trickle channel and proposed grades along the channel.
17. The proposed contour lines at the south end of the detention pond are missing their elevation callout.
18. The proposed 727 contour line shown passing through the building shall terminate at the building's edge.
19. The proposed 726.76 spot elevation appears to have a typo, the elevation would create a high point, disrupting the flow line towards the northeast storm inlet.

Sheet C5.0

20. The construction fencing shall be shown to block access from the joint drive to the south.
21. Provide silt fencing or a ditch check within the proposed detention basins near the south inflow and outflow culvert.
22. If soil stockpiles will be utilized, then a location shall be specified.
23. The site's portable toilet location shall be specified.

General Comments

24. Provide manufacturer details for the proposed 6' Dia restrictor manhole specifying elevations and flow rates.
25. We note that the only lighting proposed consists of the existing fixtures and those associated with the gas pump canopy. If additional lighting is to be proposed, it shall be depicted on the plans and a photometric plan shall be added to the plan set.

26. Provide details regarding the proposed retaining wall with structural calculations.
27. An oil and grease interceptor shall be considered before stormwater enters the restrictor or detention basins as “good practice”.
28. The Preliminary Stormwater Narrative indicates that the proposed net new impervious area is approximately 6340 SF. The stormwater ordinance requires Best Management Practices (BMPs) for all new impervious areas if the net new impervious area is 2500 SF or greater. This can be addressed in the final stormwater report.

If you have any questions, please contact me.

Sincerely,

Daniel L. Lynch, PE, CFM
Vice President, Head Municipal Engineering Department

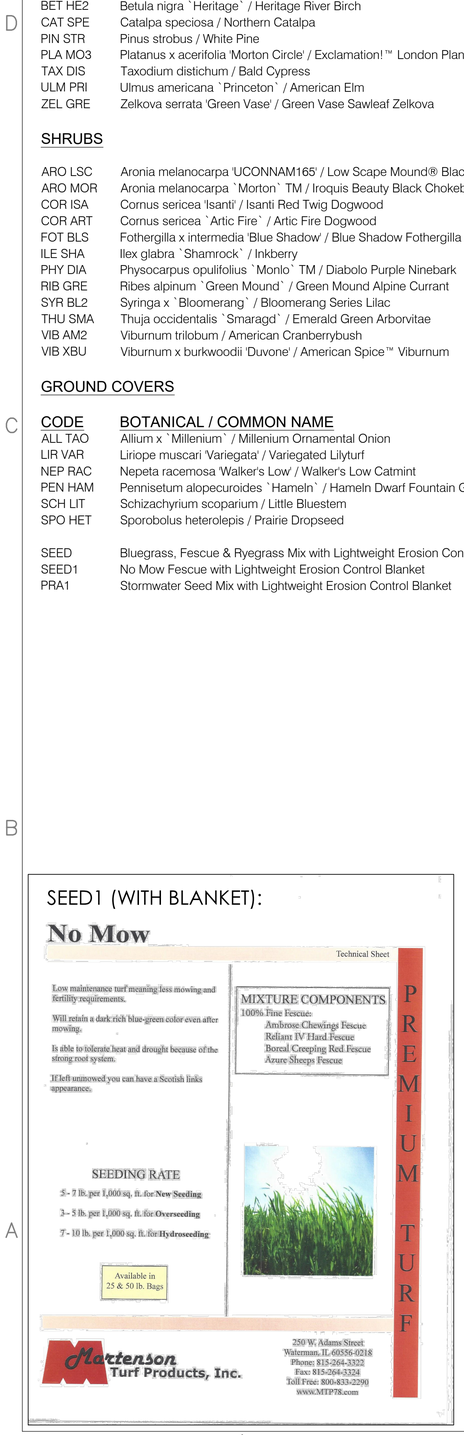
Cc Dan Gombac, City of Darien

PLANT SCHEDULE

CODE	BOTANICAL / COMMON NAME	CONT	SIZE	QTY	REMARKS
TREES					
ACE AR6	Acer x freemanii `Armstrong` / Armstrong Freeman Maple	B & B	2.5"Cal	7	
AME AU3	Amelanchier canadensis `Autumn Brilliance` / Autumn Brilliance Serviceberry	B & B	6` H.	2	Multi-Stem
BET HE2	Betula nigra `Heritage` / Heritage River Birch	B & B	6` H.	5	Multi-Stem
CAT SPE	Catalpa speciosa / Northern Catalpa	B & B	2.5"Cal	1	
PIN STR	Pinus strobus / White Pine	B & B	6` H.	8	
PLA MO3	Platanus x acerifolia 'Morton Circle' / Exclamation!™ London Plane Tree	B & B	2.5"Cal	1	
TAX DIS	Taxodium distichum / Bald Cypress	B & B	2.5"Cal	3	
ULM PRI	Ulmus americana `Princeton` / American Elm	B & B	2.5"Cal	2	
ZEL GRE	Zelkova serrata 'Green Vase' / Green Vase Sawleaf Zelkova	B & B	2.5"Cal	1	
SHRUBS					
ARO LSC	Aronia melanocarpa 'UCONNAM165' / Low Scape Mound® Black Chokeberry	3 gal	12" H.	32	
ARO MOR	Aronia melanocarpa `Morton` TM / Iroquis Beauty Black Chokeberry	3 gal	12" H.	39	
COR ISA	Cornus sericea 'Isanti' / Isanti Red Twig Dogwood	3 gal	12" H.	24	
COR ART	Cornus sericea `Artic Fire` / Artic Fire Dogwood	3 gal	12" H.	3	
FOT BLS	Fothergilla x intermedia 'Blue Shadow' / Blue Shadow Fothergilla	3 gal	12" H.	7	
ILE SHA	Ilex glabra `Shamrock` / Inkberry	3 gal	12" H.	10	
PHY DIA	Physocarpus opulifolius `Monlo` TM / Diabolo Purple Ninebark	5 gal	4`H	7	
RIB GRE	Ribes alpinum `Green Mound` / Green Mound Alpine Currant	3 gal	12" H.	8	
SYR BL2	Syringa x `Bloomerang` / Bloomerang Series Lilac	3 gal	12" H.	7	
THU SMA	Thuja occidentalis `Smaragd` / Emerald Green Arborvitae	B & B	4`H	5	
VIB AM2	Viburnum trilobum / American Cranberrybush	3 gal	12" H.	3	
VIB XBU	Viburnum x burkwoodii 'Duvone' / American Spice™ Viburnum	3 gal	12" H.	9	

GROUND COVERS

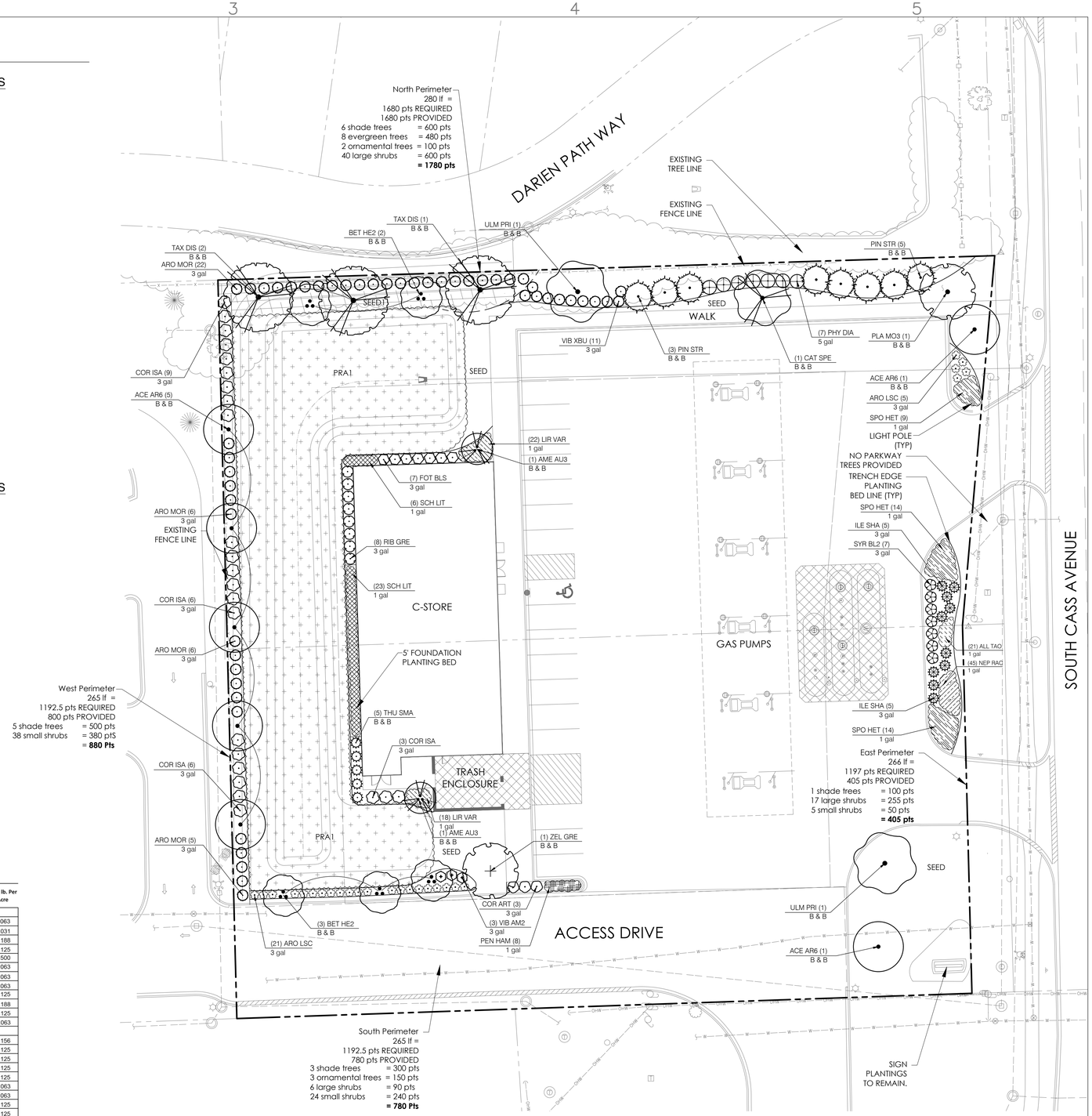
CODE	BOTANICAL / COMMON NAME	CONT	SPACING	QTY	REMARKS
ALL TAO	Allium x `Millenium` / Millenium Ornamental Onion	1 gal	18" o.c.	21	
LIR VAR	Liriope muscari 'Variegata' / Variegated Lilyturf	1 gal	24" o.c.	40	
NEP RAC	Nepeta racemosa 'Walker's Low' / Walker's Low Catmint	1 gal	18" o.c.	45	
PEN HAM	Pennisetum alopecuroides `Hameln` / Hameln Dwarf Fountain Grass	1 gal	30" o.c.	8	
SCH LIT	Schizachyrium scoparium / Little Bluestem	1 gal	36" o.c.	29	
SPO HET	Sporobolus heterolepis / Prairie Dropseed	1 gal	36" o.c.	37	
SEED	Bluegrass, Fescue & Ryegrass Mix with Lightweight Erosion Control Blanket			5000 SF	
SEED1	No Mow Fescue with Lightweight Erosion Control Blanket			800 SF	
PRA1	Stormwater Seed Mix with Lightweight Erosion Control Blanket			11000 SF	



PRA1 (WITH BLANKET):

Stormwater Seed Mixture

IDOT Specs / Acre	PLS lb. Per Acre
Permanent Grasses/Sedges	
SCIRPUS FLUVIATILIS (RIVER BULRUSH)	0.063
CAREX CRISTATELLA (CRESTED OVAL SEDGE)	0.031
CAREX LURIDA (LURID SEDGE)	0.188
CAREX VULPINOIDEA (FOX SEDGE)	0.125
ELYMUS VIRGINICUS (VIRGINIA WILD RYE)	1.500
GLYCERIA STRIATA (FOWL MANNA GRASS)	0.063
JUNCUS EFFUSUS (COMMON RUSH)	0.063
LEERSIA ORYZOIDES (RICE CUT GRASS)	0.063
PANICUM VIRGATUM (SWITCHGRASS)	0.125
SCIRPUS VALIDUS (SOFT STEM BULRUSH)	0.188
SCIRPUS ATROVIRENS (DARK GREEN BULRUSH)	0.125
SCIRPUS CYPERINUS (WOOL GRASS)	0.063
Forbs	
ALISMA SUBCORDATUM (MUD PLANTAIN)	0.156
ASCLEPIAS INCARNATA (SWAMP MILKWEED)	0.125
ALLIUM CERNUUM (NODDING WILD ONION)	0.125
BAPTISIA AUSTRALIS (BLUE FALSE INDIGO)	0.125
COREOPSIS TRIPTERIS (TALL COREOPSIS)	0.125
DESMODIUM CANADENSE (SHOWY TICK-TREFOIL)	0.063
EUPATORIUM PERFOLIATUM (BONESET)	0.063
HELENIUM AUTUMNALE (SNEEZEWEED)	0.125
HELIOPSIS HELIANTHOIDES (OX-EYE SUNFLOWER)	0.125
IRIS VIRGINICA (BLUE FLAG IRIS)	0.250
LIATRIS PYCNOSTACHYA (PRAIRIE BLAZINGSTAR)	0.063
LIATRIS SPICATA (MARSH BLAZINGSTAR)	0.125
LYCOPUS AMERICANUS (WATER HOREHOUND)	0.031
MIMULUS RINGENS (MONKEY FLOWER)	0.063
PENTHORUM SEDOIDES (DITCH STONECROP)	0.031
POLYGONUM SPP. (SMARTWEED)	0.125
RUDBECKIA SUBTOMENTOSA (SWEET BLACK-EYED SUSAN)	0.063
RUDBECKIA TRILOBA (BROWN-EYED SUSAN)	0.094
SAGITTARIA LATIFOLIA (ARROWHEAD-DUCK POTATO)	0.063
SENNA (CASSIA) HEBECARPA (WILD SENNA)	0.125
ASTER LAEVIS (SMOOTH BLUE ASTER)	0.063
ASTER (SYMPHYOTRICHUM) NOVAE-ANGLIAE (NEW ENGLAND ASTER)	0.031
THALICTRUM DASYCARPUM (PURPLE MEADOW RUE)	0.125
Cover Crop	
Annual Ryegrass	6.250
Oats	22.500



ANY AND ALL EXISTING LANDSCAPE PLANTINGS, EXCEPT TREES NOTED TO REMAIN WITHIN THE PROJECT LIMITS FOR THE SITE SHALL BE REMOVED. (TYPICAL.)

SURVEY INFORMATION PROVIDED BY OTHERS.

NORTH

20 0 20 40 60

SCALE: 1" = 20'

truenorth

TRUE NORTH
8226 South Cass Avenue
Darien, Illinois 60561

DesignPerspectives INC.
Grounded in Creativity

1167 Hobson Mill Drive
Naperville, Illinois 60540
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rtm engineering consultants

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Suite 250
Schaumburg, IL 60173
Telephone: (847) 756 - 4180
www.rtmec.com
Design Firm: 184006777-0002

REV.	COMMENT	DATE

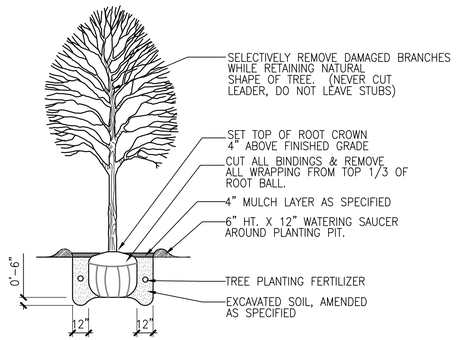
SEAL:

REGISTERED LANDSCAPE ARCHITECT Tod J. Stanton 157-001070 STATE OF ILLINOIS

DATE: 1/17/2025
JOB NO.: 24-3711J
DRAWN BY: TS
CHECKED BY: TS

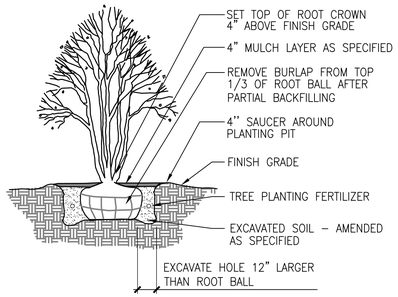
DRAWING TITLE:
LANDSCAPE PLAN

SHEET NO.:
LP-100



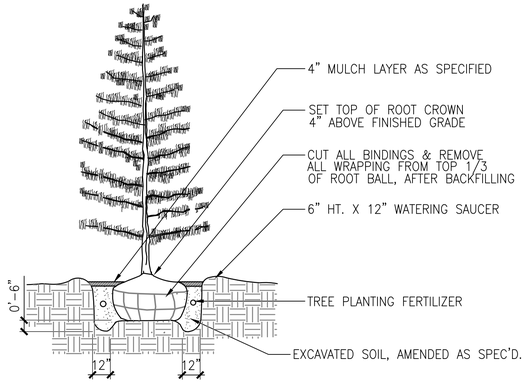
SHADE TREE PLANTING

SCALE: NTS



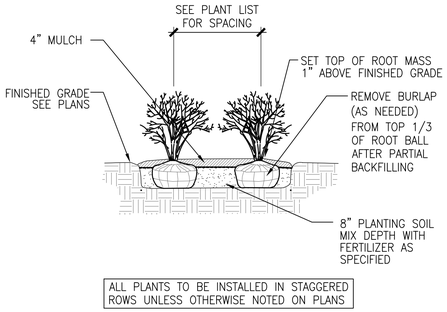
ORNAMENTAL TREE PLANTING

SCALE: 1/4"=1'-0" DT-ornamentaltree-gyn



EVERGREEN TREE PLANTING

SCALE: 1/4"=1'-0" DT-evergreen-gyn



SHRUB PLANTING

SCALE: 1/2"=1'-0" DT-shrub-gyn

GROUNDCOVER PLANTING

SCALE: 1"=1'-0" DT-groundcover-gyn

SHRUB SPACING

TRIANGULAR PLANT SPACING CHART FOR GROUNDCOVERS AND PERENNIALS

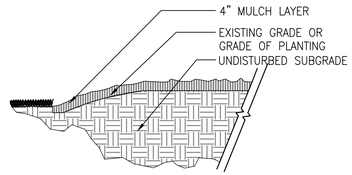
ROW "D"	"A"
18" O.C.	15" O.C.
24" O.C.	21" O.C.
36" O.C.	31" O.C.

GOUNDCOVER & PERENNIAL SPACING

PLANT SPACING DETAIL

SCALE: 1/2"=1'-0" DT-plantspace-gyn

NOTES:
1. TRENCH EDGE DETAIL SHALL BE USED AT ALL LAWN EDGES AND AT EDGES OF MULCHED AREAS (FOR CONTAINMENT)
2. TRENCH EDGE SHALL CREATE A CLEAN SEPARATION BETWEEN AREAS, AND SHALL CREATE SMOOTH AND EVEN LINES (AS INDICATED ON PLANS)



TRENCH EDGE DETAIL

SCALE: 1"=1'-0" DT-ls-trench-gyn

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES AND STRUCTURES. SEE CONSTRUCTION NOTES.

2. DO NOT WILLFULLY PROCEED WITH PLANTINGS AS DESIGNED WHEN IT IS OBVIOUS THAT OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN PROCESS. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER. THE LANDSCAPE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY NECESSARY REVISIONS AND COSTS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

3. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AND/OR SUPPLIERS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.

4. THE LANDSCAPE CONTRACTOR IS TO RECEIVE THE SITE AT +/- 1/10TH OF AN INCH. THE LANDSCAPE CONTRACTOR SHALL OBTAIN A LETTER OF GRADE FROM THE GENERAL CONTRACTOR PRIOR TO BEGINNING WORK.

5. REFER TO SPECIFICATIONS FOR PLANTING REQUIREMENTS, MATERIALS, AND EXECUTION.

6. ALL TREES SHALL BE TAGGED BY THE PROJECT MANAGER AT A NURSERY SELECTED BY THE LANDSCAPE CONTRACTOR OR AT THE DISCRETION OF THE PROJECT MANAGER.

7. FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL OF THE PROJECT MANAGER PRIOR TO DIGGING ANY HOLES. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROJECT MANAGER ADEQUATE ADVANCE NOTICE FOR ON-SITE APPROVALS. THE LANDSCAPE CONTRACTOR IS TO THE FOLLOWING BEFORE BEGINNING INSTALLING PLANTINGS:

SHRUBS – LAY OUT THE ACTUAL CONTAINERS ON-SITE BEFORE DIGGING HOLES.

TREES – STAKE THE LOCATIONS BEFORE DIGGING HOLES. ANY TREE PLANTED WITHOUT ITS FINAL LOCATION APPROVED BY THE PROJECT MANAGER MAY BE REQUESTED TO BE RELOCATED AT THE SOLE EXPENSE OF THE LANDSCAPE CONTRACTOR.

8. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AT LEAST 48 HOURS IN ADVANCE PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT OBSERVATION SCHEDULES.

9. IF CONFLICTS ARISE BETWEEN THE ACTUAL SIZE OF AREAS ON THE SITE AND THE DRAWINGS, CONTACT THE PROJECT MANAGER FOR RESOLUTION.

10. IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO FURNISH PLANTS FREE OF PESTS AND/OR DISEASES. PRE-SELECTED OR "PROJECT MANAGER TAGGED" PLANT MATERIAL MUST BE INSPECTED BY THE LANDSCAPE CONTRACTOR AND CERTIFIED PEST AND DISEASE FREE. IT IS THE LANDSCAPE CONTRACTOR'S OBLIGATION TO WARRANTY ALL PLANT MATERIAL PER THE SPECIFICATIONS.

11. GROUNDCOVERS AND SHRUBS ARE TO BE TRIANGULARLY SPACED UNLESS INDICATED ON THE PLANS.

12. ALL TREES WITHIN A SPECIES SHALL HAVE MATCHING FORM, UNLESS OTHERWISE NOTED.

13. ALL TREES, SHRUB AND GROUNDCOVER AREAS (EXCLUDING TURF AND SLOPE AREAS) ARE TO BE MULCHED PER DETAILS.

14. ALL MULCH TO BE DOUBLE SHREDDED HARDWOOD MULCH, BROWN IN COLOR MINIMUM 4" THICK.

15. TREES SHALL BE SET BACK A MINIMUM OF TEN FEET (10') HORIZONTALLY FROM UTILITY STRUCTURES, INCLUDING, BUT NOT LIMITED TO, MANHOLES, VALVE VAULTS, VALVE BOXES, FIRE HYDRANTS, TRANSFORMERS AND SWITCH CANS. TREES SHALL BE SET BACK A MINIMUM OF FIVE (5') HORIZONTALLY FROM SANITARY SEWER AND WATER SERVICES. CONTRACTOR TO MAKE NECESSARY ADJUSTMENTS UNDER THE APPROVAL OF OWNER.

16. PLANTING RESTRICTIONS: PLANT DURING ONE OF THE FOLLOWING PERIODS. COORDINATE PLANTING PERIODS WITH MAINTENANCE PERIODS TO PROVIDE REQUIRED MAINTENANCE FROM DATE OF SUBSTANTIAL COMPLETION.

1. SPRING PLANTING: 5/1 – 6/15
2. FALL PLANTING: 9/15 – 12/1

PLANTING NOTES

SCALE: NTS DT-plantnote-gyn

truenorth

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REV.	COMMENT	DATE

SEAL:

DATE: 1/17/2025
JOB NO.: 24-3711J
DRAWN BY: TS
CHECKED BY: TS

DRAWING TITLE:
LANDSCAPE DETAILS

SHEET NO.:
LP-500

December 4, 2024

Mr. Ryan Murphy
Senior Planner
City of Darien
1702 Plainfield Rd.
Darien, IL 60561

RE: 8226 Cass Avenue – BP Gas Stations Renovation
Zoning Variation Justification Narrative

Dear Mr. Murphy,

Thank you for providing clarity and information regarding the zoning review process. On behalf of True North Energy LLC. We have prepared a justification narrative of zoning variation requests for the proposed renovation of the fueling station and car wash on the subject property.

The intent of the owner is to perform a full tear down and renovation of the property which includes a new servicing island and canopy for six pumps and a new convenience storefront that is a hallmark of True North's unique touch to the latest in fueling stations. The car wash facility will not be returned in this renovation.

The following Variances are requested from O-31-85:

General Conditions

3. No alcoholic beverages shall be sold from the facility.
Request to amend to allow Alcohol sales.

Landscaping and Fencing

1. The owner shall install an eight foot (8') high stockade-type fence along the north two-hundred twenty-five feet (225') of the western perimeter of the subject property.
Request to amend to defer to the proposed landscaping plan.

2. A fence shall be constructed along the west two-hundred forty feet (240') of the northern property line with the first two-hundred twenty feel (220') being eight feet (8') in height, and the next ten feet (10') being six feet (6') in height, with the next ten feet (10') being four feet (4'), or such other acceptable method of constructl.ng the fence as the city and shell may agree. The remaining portion of the north property line shall be landscaped with 1ow-line vegetation. However, in the event it is determined that the-eastern building line of the residence to the immediate north of the subject property is set back less than sixty feet (60') from the property line along Cass Avenue, the owner shall

extend the fence along the northern property line of the subject property so that said fence extends at least ten feet (I0') east of said building Iine.
The referenced residence to the north is no longer present. Request to amend to defer to the proposed landscape plan.

In accordance with Section 5A-2-2-3 of the City Code the new design will impact the following items of Special Use Ordinance O-31-85. **Responses will be in bold**:

Decision Criteria (See City Code Section 5A-2-2-3)

- 2a. The property in question cannot yield a reasonable return if permitted to be used only under the conditions allowed by the regulations in the zone.
  A significant component of the viability of True North's convenience stores features the sale of Alcohol. Three of the four other gas stations within Darien currently serve alcohol. A copy of True North's alcohol training and enforcement policy is also attached for your benefit. If alcohol is not permitted True North has indicated that the cost to update is not viable. Considering the site is currently a fueling station anticipated impacts would be minimal considering the use is being retained.

- 2b. The plight of the owner is due to unique circumstances.
  N/A

- 2c. The variation if granted will not alter the essential character of the locality.
  The intended use as a fueling station will remain.

- 3a. Essential Need? The owner would suffer substantial difficulty or hardship and not mere inconvenience or a decrease in financial gain if the variation is not granted.
  Regarding landscaping, the physical constraints of the site affect the density of allowable plantings to the updated ordinance. The neighboring property to the north is a detention basin. The east property is along Cass (DuDOT) and is subject to DuDOT provisions. The southern property is an access road for the banquet hall to the west. The west boundary has a fence outlined in the special use ordinance and is bounded by the detention basin. The proposed landscaping would not be visible with the fence in place. What is proposed has more density than the requirements of O-31-85.

- 3b. Problem with Property? There is a feature of the property such as slope or shape or change made to the property, which does not exist on neighboring properties, which makes it unreasonable for the owner to make the proposed improvement in compliance with the Zoning Code. Such feature or change was not made by the current owner and was not known to the current buyer at the time of purchase.
  N/A

- 3c. Smallest Solution? There is no suitable or reasonable way to redesign the proposed improvements without incurring substantial difficulty or hardship or reduce the amount of variation required to make such improvements.
  Regarding landscaping the maximum attainable density is provided on the plan. Additional efforts would have impacts on the engineering design elements of the site

and could potentially alter the number of pumps available for use. This in turn would affect the financial feasibility of the project.

- 3d. Create Neighbor Problem? The variation, if granted, will not cause a substantial difficulty, undue hardship, unreasonable burden, or loss of value to the neighboring properties.
  With regard to landscaping and the removal of the car wash this design would be an improvement along neighboring properties that would be a benefit.

- 3e. Create Community Problem? The variation, if granted, may result in the same or similar requests from other property owners within the community, but will not cause an unreasonable burden or undesirable result within the community.
  N/A

- 3f. Net Benefit? The positive impacts to the community outweigh the negative impacts.
  The new aesthetic features of the convenience store, landscaping, and improved stormwater storage would be an improvement to the area. In addition, the removal of the car wash would also benefit with less noise.

- 3g. Sacrifice Basic Protections? The variation, if granted, will comply with the purposes and intent of the Zoning Code set forth in Section 5A-1-2(A) and summarized as follows; to lessen congestion, to avoid overcrowding, to prevent blight, to facilitate public services, to conserve land values, to protect from incompatible uses, to avoid nuisances, to enhance aesthetic values, to ensure an adequate supply of light and air, and to protect public health, safety, and welfare.
  It is our position that the proposed variations meet the intent of the Zoning Code.

We appreciate your time and consideration in reviewing the enclosed documents. Please do not hesitate to contact us with any additional questions or concerns you may have.

Sincerely,
RTM Engineering Consultants, LLC.

Christopher J. Palmer, P.E. – Senior Civil Engineer

Special Use and Variation Criteria

The criteria that the Planning, Zoning and Economic Development Commission and City Council must consider when acting on a request for a Special Use and Variation are included below.

Special Use Criteria:
No special use shall be recommended to the City Council by the Plan Commission, nor approved by the City Council, unless findings of fact have been made on those of the following factors which relate to the special use being sought:

1. *That the special use is deemed necessary for the public convenience at the location specified.*
2. *That the establishment, maintenance, or operation of the special use will not be detrimental to, or endanger the public health, safety, or general welfare.*
3. *That the special use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the neighborhood.*
4. *That the establishment of the special use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district.*
5. *That the exterior architectural design, landscape treatment, and functional plan of any proposed structure will not be at variation with either the exterior architectural design, landscape treatment, and functional plan of the structures already constructed or in the course of construction in the immediate neighborhood or the character of the applicable district, as to cause a substantial depreciation in the property values within the neighborhood.*
6. *That adequate utilities, access roads, drainage, and/or necessary facilities have been or are being provided.*
7. *That adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion in the public streets.*
8. *That the special use shall, in all other respects, conform to the applicable regulations of the district in which it is located, except as such regulations may, in each instance, be modified by the City Council pursuant to the recommendations of the Plan Commission and Planning and Development Committee.*

Variation Criteria:
The City may grant variations based on the finding-of-fact that supports the following criteria outlined below by the City to be the most relevant to the subject property situation.

a) *The property in question cannot yield a reasonable return if permitted to be used only under the conditions allowed by the regulations in the zone.*
b) *The plight of the owner is due to unique circumstances.*
c) *The variation if granted will not alter the essential character of the locality.*
d) *Essential Need: The owner would suffer substantial difficulty or hardship and not mere inconvenience or a decrease in financial gain if the variation is not granted.*
e) *Problem with Property: There is a feature of the property such as slope or shape or change made to the property, which does not exist on neighboring properties, which makes it unreasonable for the owner to make the proposed improvement in compliance with this*

title. Such feature or change was not made by the current owner and was not known to the current buyer at the time of purchase.

f) *Smallest Solution: There is no suitable or reasonable way to redesign the proposed improvements without incurring substantial difficulty or hardship or reduce the amount of variation required to make such improvements.*

g) *Create Neighbor Problem: The variation, if granted, will not cause a substantial difficulty, undue hardship, unreasonable burden, or loss of value to the neighboring properties.*

h) *Create Community Problem: The variation, if granted, may result in the same or similar requests from other property owners within the community, but will not cause an unreasonable burden or undesirable result within the community.*

i) *Net Benefit: The positive impacts to the community outweigh the negative impacts.*

j) *Sacrifice Basic Protections: The variation, if granted, will comply with the purposes and intent of this title set forth in subsection 5A-1-2(A) of this title and summarized as follows: to lessen congestion, to avoid overcrowding, to prevent blight, to facilitate public services, to conserve land values, to protect from incompatible uses, to avoid nuisances, to enhance aesthetic values, to ensure an adequate supply of light and air, and to protect public health, safety, and welfare.*

AGENDA MEMO
PLANNING, ZONING AND ECONOMIC DEVELOPMENT COMMISSION
MARCH 5, 2025

CASE
PZC2025-02 Short-Term Rentals – Zoning Text Amendment

ISSUE STATEMENT
Petition from the City of Darien to amend Title 5A (Zoning Regulations) to add "the offering of a short-term rental" as a prohibited action under the existing short-term rental prohibition contained in Section 5A-5-16 of the City Code.

ATTACHMENTS
1) **PROPOSED ORDINANCE REVISIONS (SHORT-TERM RENTALS)**

BACKGROUND/OVERVIEW
On June 19, 2023, the City Council adopted Ordinance No. O-11-23, defining "Short-Term Rentals" as a rental period of less than 30 consecutive days, and prohibiting them in all zones throughout the City.

While the City has had success in enforcing the ordinance, additional clarification is needed in the Code so that the City can adequately and comprehensively enforce the prohibition on short-term rentals, including the *offering* of short-term rentals. This will allow the City to compel property owners to remove listings of short-term rentals, as defined, on websites such as Airbnb, VRBO, etc. and aid the City in receiving compliance from property owners who may claim that they did not actually book a short-term rental, but rather only had offered a short-term rental, thereby avoiding enforcement action.

Attached to this memo are the proposed ordinance revisions, which includes the established definition of a short-term rental, and shows the added prohibited activity of offering a short-term rental.

DECISION MODE
The Planning and Zoning Commission will consider this item at its meeting on March 5, 2025.

MEETING SCHEDULE

Planning and Zoning Commission	March 5, 2025
Municipal Services Committee	March 24, 2025
City Council	April 7, 2025

PROPOSED ORDINANCE REVISIONS

(Red text = added text; ~~Strikethrough text~~ = deleted text)

5A-5-16: SHORT-TERM RENTALS PROHIBITED:

(A) Short-Term Rentals are prohibited in the City of Darien.

(B) The offering of a Short-Term Rental in the City of Darien is prohibited.

~~(B)~~(C) The prohibition on short-term rental units shall not apply when the immediately preceding owner of a property maintains possession of the dwelling unit after closing on a real estate transaction for the sale thereof and leases said property back from the successor owner for a period of time pursuant to a written agreement.

~~(C)~~(D) Any person who violates, disobeys, omits, neglects, or refuses to comply with, or who resists enforcement of any provisions of this section, shall be subject to a fine of not less than one thousand dollars ($1,000.00) nor more than two thousand five hundred dollars ($2,500.00) for each offense. A separate offense shall be deemed committed on each day that such violation occurs or continues.

~~(D)~~(E) The owner or tenant of any building, structure, or land, and any other person, who commits, participates assists in, or maintains such violation may each be found guilty of a separate offense and be subject to the penalties herein provided.

MINUTES CITY OF DARIEN

PLANNING, ZONING, AND ECONOMIC DEVELOPMENT COMMISSION

Wednesday, February 5, 2025

PRESENT: Lou Mallers – Chairperson, Jonathan Christ, Chris Jackson, Chris Green, Mark Kazich, Jonathan Johnson

ABSENT: Shari GIllespie

OTHERS: Ryan Murphy - City Planner

Chairperson Lou Mallers called the meeting to order at 7:01 p.m. at the Darien Police Department Training Room, 1710 Plainfield Road, Darien, Illinois. Chairperson Mallers declared a quorum present.

Regular Meeting – New Business

a. **PZC2025-01 – 7409 Cass Avenue – Indvestia Darien, LLC – A petition for a one-year extension of time for a special use permit and variations for the construction of a quick service drive-through eating establishment offering retail food items for consumption. The Property is located within the B-2 Community Shopping Center Business District.**

Mr. Ryan Murphy, City Planner reported that the petitioner was a requesting one-year time extension for a drive through eating establishment located at 7409 Cass Avenue that was approved in 2024. He reported that the plat of subdivision that was approved did not expire but that the special use and variations would expire if a time extension is not granted. He reported that the building would be located next to the Jewel-Osco shopping center. He reported the Planning and Zoning Commission would need to evaluate whether or not site conditions have changed and that there are various criteria for a time extension that would have to be met.

Commissioner Christopher Jackson recused himself from the meeting, stating that he was representing the petitioner for this application. Chairperson Lou Mallers swore in Christopher Jackson as a member of the public wishing to present public testimony.

The Petitioner's representative, architect Christopher Jackson, stated that application was an extension of time for a previously approved project. He described the property being separate from the Jewel shopping center. He described the two actions the petitioner previously got approved, a lot line revision, and a special use permit for the drive-through with zoning variations necessitated by the parcel lines and site plan.

Mr. Murphy confirmed the variations were included with the current application.

Mr. Jackson stated that the petitioner intended for a future tenant to build the building to-suit, and that while there is interest in the site, more time is needed to secure a tenant. He stated that building it without a tenant would be expensive, and residents wouldn't want it. He shared with the Commission that with the recent closing of the 25,000-square foot American Freight store, filling that space has become the priority. He disclosed that he was a minority owner in the property, and that the owner had Mid-America Real Estate to manage the leasing of the property.

Chairman Mallers asked Mr. Jackson if he said he was a part owner of the property, and questioned if eating inside the establishment will be permitted, or if there were conditions in the approved ordinance that prohibited indoor dining.

Mr. Jackson said he believed that was true and sought clarification from Mr. Murphy.

Mr. Murphy stated that the condition read "the building shall only be used as an eating establishment in conjunction with the drive-through facility" and clarified that it did not appear to restrict indoor dining.

There was some discussion about parking and drive aisle configuration.

Chairman Mallers stated that will be interesting to see what happens with the site now that the American Freight building will see a new tenant. There was some discussion about leasing efforts.

Commissioner Johnson stated that there were plenty of access points throughout the site.

Mr. Jackson described how a traffic report was previously prepared by V3 for the project and found no impacts. He stated that the variation was also approved to reduce the stacking in the drive through lane.

There was some discussion about vehicle ingress/egress and site design.

Mr. Jackson stated that the original application included a traffic memo from V3 which supported the development and analyzed reduced vehicle stacking in the drive-through.

Commissioner Johnson and Mr. Jackson discussed vehicle circulation on site. Mr. Jackson recalled that additional wayfinding was a condition required in the previous approval.

There was discussion about the length of the time extension. Mr. Murphy explained that the project will be granted an extension of one year from the date of the approval, which is anticipated to be heard at Council on March 3, 2025.

Mr. Jackson provided an explanation on how the need for a time extension was identified.

Chairman Mallers asked if starting construction within the next 12 months would eliminate the need for further extensions. Mr. Murphy stated that most commonly, pulling the building permit eliminates the need for further time extensions.

There was discussion regarding timing of plan review and construction.

Commissioner Kazich asked if there were any tenants for the building. He questioned if the City has a role in approving the future tenant. Mr. Jackson and Mr. Murphy stated that as long as they were a food/beverage retailer, they would be by-right occupants. Mr. Murphy also clarified that if there were site plan changes or other land use changes, an amendment to the Special Use would be required.

There was a discussion regarding businesses that might have staff serve food and beverages in scant attire. Mr. Jackson and Mr. Murphy stated that as long as they weren't adult entertainment businesses and operated legally, there would be no separate approval.

There was discussion regarding prohibited signage.

There was discussion reading the land use identified in the traffic study.

Commissioner Christ discussed the location of the property and the site layout.

Chairman Mallers closed the public hearing and opened the discussion for the Commission. There were no further comments.

Commissioner Johnson made a motion, seconded by Commissioner Green, to approve PZC2025-01 – 7409 Cass Avenue – Indvestia Darien, LLC – A petition for a one-year extension of time for a special use permit and variations for the construction of a quick service drive-through eating establishment offering retail food items for consumption.

Upon roll call vote, the MOTION PASSED UNANIMOUSLY 5-0.

AYES: Kazich, Johnson, Green, Christ, Mallers

NAYS: None

Mr. Murphy reported that this item would be heard next at both the Municipal Services Committee and City Council on the evening of March 3, 2025.

The Commission had a short discussion regarding how long it make take to secure a tenant and construct the project.

<u>Regular Meeting</u> – Old Business

a. <u>PZC2024-15</u>

1005 75th Street – Basia Janke c/o Smoke Bank – A request for a Special Use Amendment request pursuant to Section 5A-8-3-4 of the Zoning Ordinance. The petition specifically requests to amend a Special Use Permit for a drive-through Tobacco Shop/Food Store to allow additional signage consisting of a small electronic display/menu sign proposed to be mounted in the drive-through window. The Property is located within the B-2 Community Shopping Center Business District.

Mr. Murphy reported the results of the February 2, 2025 PZC meeting, stating that the application was continued by the Commission to the present meeting in order to give the applicant more time to address questions and concerns raised by the Commission. He reported that on February 3, the applicant withdrew their application and that a withdrawal memo was provided to the Commission in separate correspondence.

Chairman Mallers mentioned that at the last meeting there appeared to be lots of questions the petitioner was unprepared to answer. He reiterated his previous concern that the sign would take up a lot of window space and be very visible from the roadway.

Commissioner Johnson stated that the location is in an area with heavy traffic and appeared to him to be very visible from the roadway.

Commissioner Jackson stated that the concerns were valid under the Special Use Criteria, and that the opportunity to address their concerns was given.

Mr. Murphy stated that the petitioner was informed of the Commission's specified concerns but that the petitioner had no interest in continuing the application.

Staff Updates & Correspondence

Mr. Murphy reported an update regarding the Chestnut Court project and the Council's presentation on tax increment financing. He reported that the City put out an RFP to develop a TIF. He further reported that he would give a Chestnut Court update with a preliminary plat and overview of the proposal, and that learning resources for TIFs would be provided to the Commission.

Mr. Murphy reported that a public hearing will be held at the next meeting to update the short term rental prohibition to include the "offering" of a short term rental. A description of the existing prohibition was reported to the Commission.

Mr. Murphy reported that apartments located at 2305 Sokol Court submitted a request for a Minor Planned Unit Development Amendment to convert the two model units in the building, which will be heard by the Municipal Services Committee and City Council. He clarified that because it was a minor change, it did not need to go to the PZC again. He reported that the building had a high occupancy rate.

Mr. Murphy reported that Westwood Park may be improved with an outdoor concert pavilion, which would require PZC approval. He mentioned that the project was grant funded and the project depended on that funding.

Mr. Murphy reported that at the next meeting, a Special Use Permit amendment will be heard for the Shell Gas Station on South Cass Avenue to demolish the existing carwash and remodel the site with a new mini-mart. He reported that a request for an alcohol license was also submitted that would be considered by the City Council separately.

Mr. Murphy reported that there was legislation being considered at the state level to eliminate single-family zoning to allow for duplexes in all single family zones. He mentioned that staff will track the progress of the any pending legislation and report updates to the Commission.

Approval of Minutes

Commissioner Jackson made a motion, and it was seconded by Commissioner Johnson to approve the February 5, 2025 Regular Meeting Minutes, with a correction to the spelling of KLOA, which was previously spelled CLOA in the draft minutes.

Upon voice vote, the MOTION PASSED UNANIMOUSLY 6-0.

AYES: Kazich, Johnson, Green, Christ, Mallers, Jackson

ABSTAINS: None

Next Meeting

Mr. Ryan Murphy announced that the next meeting is scheduled for Wednesday, March 5, 2025 in the Police Department Training Room at 1710 Plainfield Road.

Public Comments (On Any Topic Related to Planning and Zoning)

There was no one in the audience wishing to present public comment.

Adjournment

With no further business before the Commission, the meeting adjourned at 7:54 p.m.

Respectfully Submitted: **Approved:**

X _____

Jessica Plzak
Secretary

X _____

Lou Mallers
Chairperson