WAHOO CITY COUNCIL AGENDA
Thursday, May 7, 2026 - 7:00 PM
Wahoo Public Library, 637 N Maple St, Wahoo, NE 68066

NOTICE IS HEREBY GIVEN that the Mayor and Council of the City of Wahoo meet on the second and fourth Tuesdays of each month at the Wahoo Public Library, 637 N Maple Street Wahoo, Nebraska, at 7:00 p.m. Notice of special meetings shall be given by posting a notice thereof on the bulletin board in City Hall, U.S. Post Office, and FirstBank of Nebraska, at least 24 hours before the special meeting. All Council meetings are open to the public and the agenda, which is kept continually current, is available for public inspection at the office of the City Clerk at City Hall during normal business hours.

Individuals requiring physical or sensory accommodations, individual interpreter service, Braille, large print or recorded material, please contact the ADA Coordinator at City Hall, 637 N Maple St, Wahoo, Nebraska, 68066, telephone 402-443-3222 as far in advance as possible, but no later than 48 hours before the scheduled event.

Pledge of Allegiance

Advise the public of the location of posting of Open Meetings Act and Title VI information

Roll Call

Comments from the public on items not on the Agenda

Public hearings and associated actions

1. Application for Conditional Use Permit for a car lot located at Lots 7-8 Blk 36 south Wahoo Addition with offices at 130 S Walnut Street

2. Application for Rezone of Krumel Industrial Subdivision from C-3 & Ag to C-2 and I-2

Items Not Requiring a Public Hearing

1. Consideration of a waiver of the Expressway Cooridor Design Standards changing it from 1/4 mile to 1/8 mile within the Krumel Subdivision.

2. Recommendation of approval of the final plat for Krumel Industrial Subdivision

3. Discussion regarding proposed amendment to section 2.03.160 of the zoning regulations regarding single family dwelling.

Report on current and upcoming projects

Miscellaneous and correspondence

Approve minutes of March 5, 2026, and April 2, 2026, meeting.

Adjournment

CITY OF WAHOO
APPLICATION FOR CONDITIONAL USE PERMIT

Name: Demon Shields

Address or Location: Lots 7-8 Block # 36 South Wahoo Addition (Behind Runza) with office at 130 S Walnut St, Wahoo, NE, 68066

Current zoning of property NRC

Under the provisions of Article 6 of the City of Wahoo Zoning Regulations, the undersigned hereby applies for a Conditional Use Permit to Run a Used car dealer ship

on the property described as: Lot 7-8 Block 36

Proposed development of the property is shown on plans attached hereto. Type and proposed use is as follows:
Grading & crushed concrete with an approved dealership signage

This application authorizes representatives of the City of Wahoo to enter the above property for purposes of inspection, examination, and investigation related to this application, and posting of signs as required by zoning regulations.

Date: 3/13/26

Signed _____ Applicant

Address: 654 w 16th St
Wahoo, NE, 68066

Phone: 531-248-7137

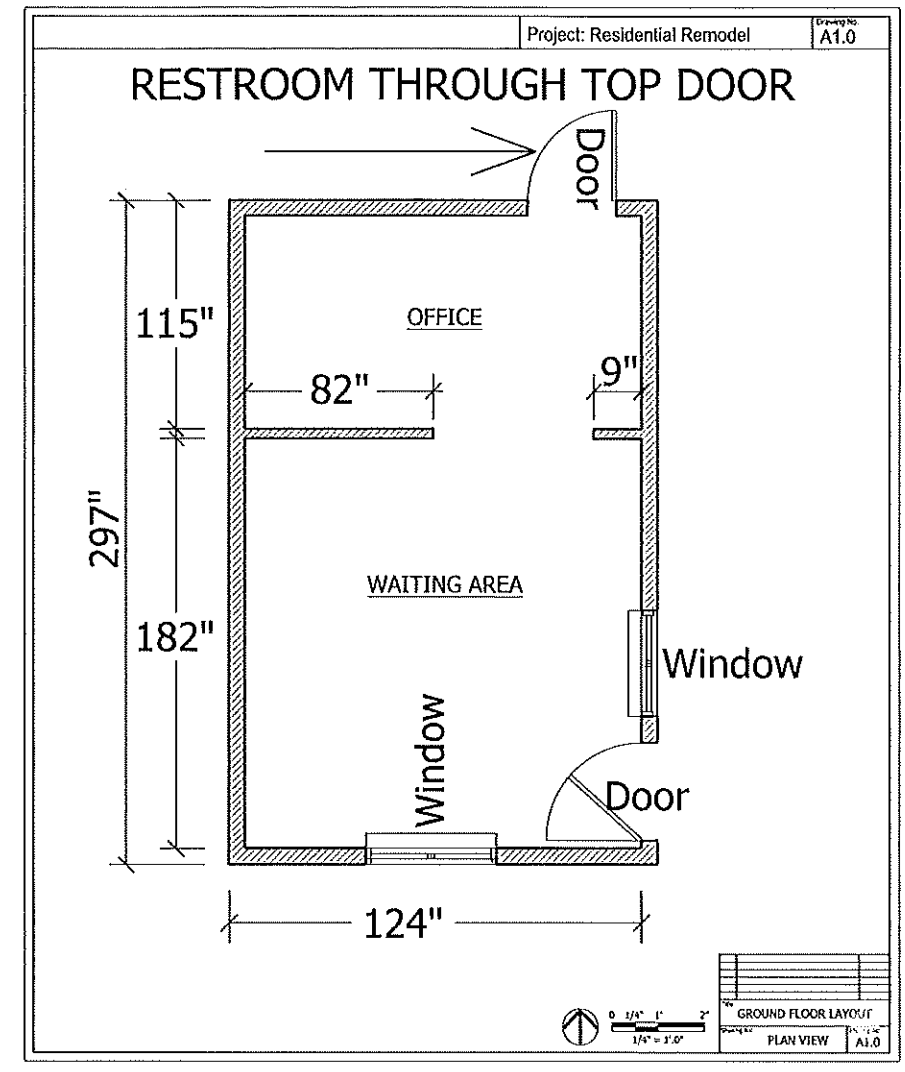
FEE: $ 250 Receipt # 31195

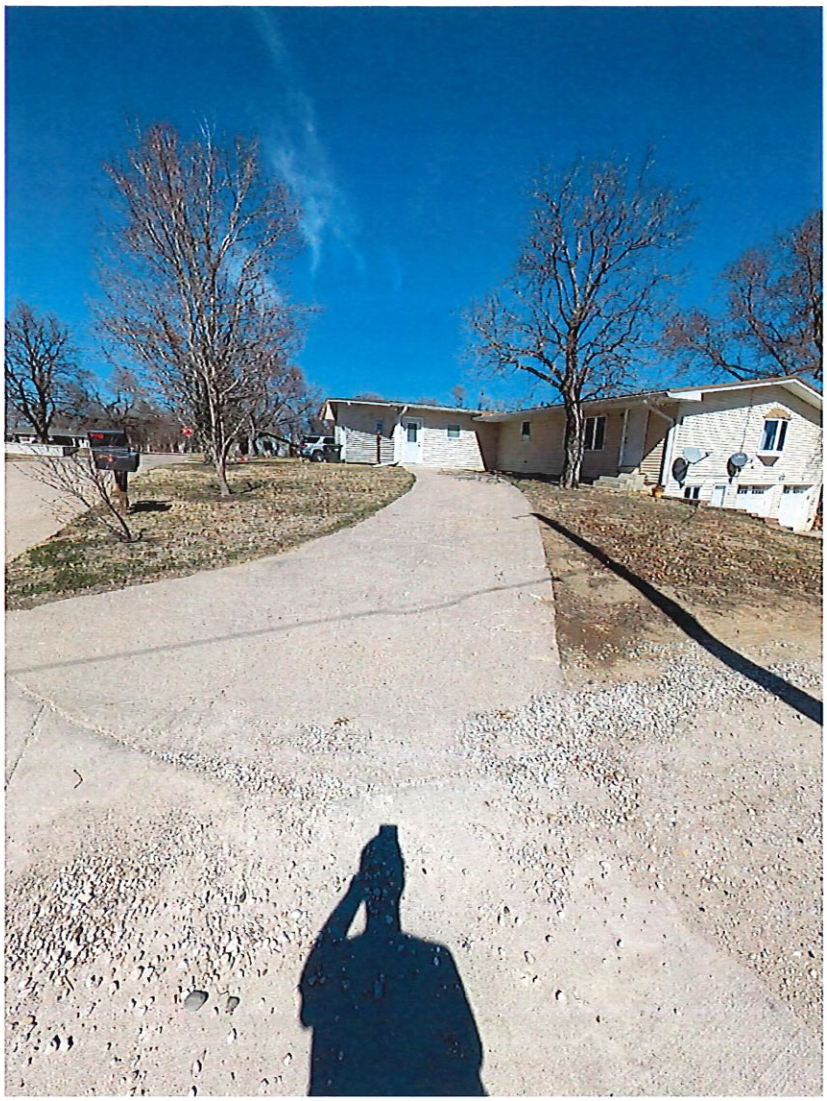
Publication fees will be billed to applicant

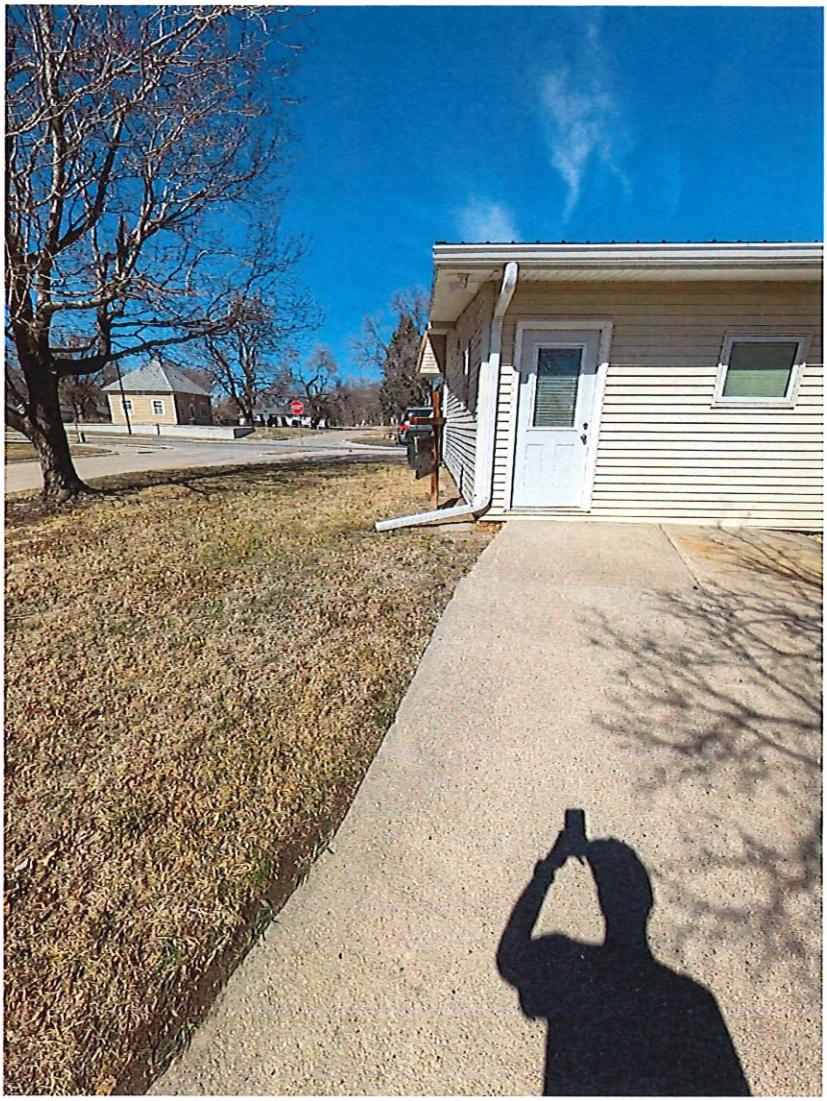
Date of Hearing (Planning Commission) May 7th, 2026. Approved ____ Denied ____

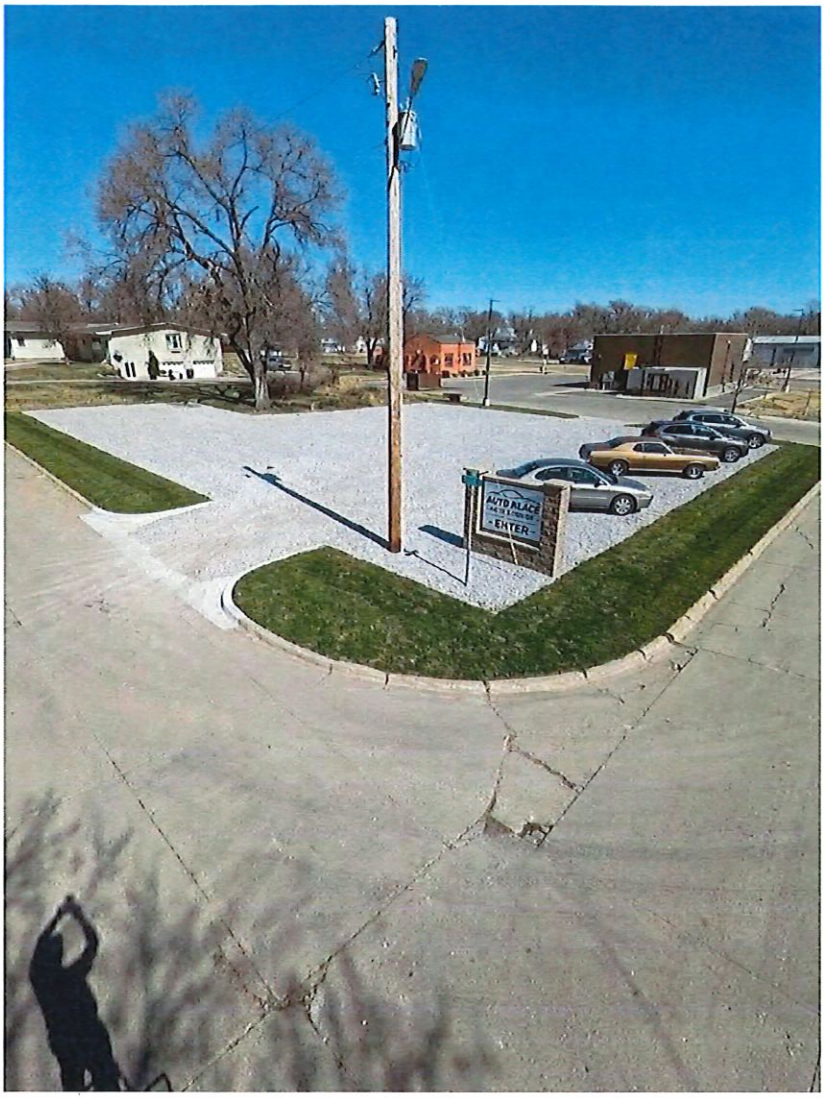
Date of Hearing (City Council) May 26th, 2026. Approved ____ Denied ____

_____
Zoning Administrator


Project: Residential Remodel
Drawing No.
A1.0
RESTROOM THROUGH TOP DOOR
Door
115"
OFFICE
82"
9"
297"
WAITING AREA
182"
Window
Window
Door
124"
GROUND FLOOR LAYOUT
PLAN VIEW
A1.0






AUTO PLACE
- ENTER -

CITY OF WAHOO
APPLICATION FOR CHANGE OF ZONING

Applicant's Name JEO Investments, Inc.

Applicant's Address 1937 N Chestnut St. Wahoo, NE 68066

Phone Number(s): 402-443-7455

Address or location of property to be rezoned A portion of the southeast corner of U.S. Highway 77 and Old Highway 77

Legal description of property to be rezoned A part of the west half of the northwest quarter in Section 35, Township 15 North Range 7 East, Wahoo, Nebraska

Area of property (Sq Ft or Acres) 48.89 acres

Current use of property Agricultural

Proposed use of property Industrial and Highway Commercial

Present zoning C-3 (AHO)(GCO) & Ag (AHO)(GCO) Requested zoning C-2 (AHO)(GCO) & I-2 (AHO)(GCO)

Current zoning and use of adjoining properties:

North: C-2 & C-3 (AHO) (GCO) South: I-2 (AHO)(GCO)

East: AG (AHO)(GCO) West: I-2 (AHO)(GCO)

Designated use of property on Future Land Use Map and Wahoo Comprehensive plan: Flex and Industrial

Applicant must furnish a survey plat of property proposed to be rezoned, and site plan showing existing and proposed structures, easements, water courses, curb cutbacks, etc.

Under the provisions of the City of Wahoo Zoning Regulations, the undersigned hereby applies for a change of zoning. This application authorizes representatives of the City of Wahoo to enter the above property for purposes of inspection, examination, and investigation related to this application, and posting of signs as required by Zoning Regulations.

Date: 11/3/25 Signed: _____
Owner or authorized agent

Address: 1937 N Chestnut St. Wahoo, NE 68066

Phone: 402-443-7455

FEE: $ $250.00 Receipt # 30896 - 11/3/2025

Publication fees will be billed to applicant

Date of Hearing (Planning Commission) 5/7/2026, 20___. Approved _____ Denied _____

Date of Hearing (City Council) 5/26/2026, 20___. Approved _____ Denied _____

_____
Zoning Administrator

(Rev. 3/27/2018)

JUSTIFICATION:

Questions 1 through 10 must be answered completely. Use additional sheets if needed.

1. Explain how this request is compatible with the future land use elements of the Wahoo, Nebraska Comprehensive Plan.

2. What type of development does the Wahoo, Nebraska comprehensive Plan recommend for this general area?

3. Can soil conditions support the kinds of development in the proposed zoning district? What is the soil classification of the area?

4. Is the proposed zoning district in the floodplain hazard area as delineated under the federal flood insurance program?

5. Provide reasons to support the need for the proposed zoning in this area.

6. How would the proposed district conform with adjacent zoning districts?

7. What is the general character of the area? Describe

8. What type of sewer and water system will be used?

9. Does the change affect any proposed public projects?

10. How will the proposed zoning district affect traffic in the area?

Rezone Justification – Krumel Industrial Subdivision

1. Explain how this request is compatible with the future land use elements of the Wahoo, Nebraska Comprehensive Plan.

Krumel Industrial Subdivision will be a combination of C-2 and I-2 zoning consistent with the Future Land Use designation of Flex and Industrial along the important transportation corridors of U.S. Highway 77 and Old Highway 77.

2. What type of development does the Wahoo, Nebraska comprehensive Plan recommend for this general area?

The 2017 Comprehensive Plan considered this area to be served by flex and industrial uses. The proposed subdivision is consistent with that vision. The subdivision will be a mix uses intended for highway traffic, flex industrial uses, and heavier industrial uses, all designed to provide important services and job creation opportunities.

3. Can soil conditions support the kinds of development in the proposed zoning district? What is the soil classification of the area?

A soil survey report is attached. A full geotechnical report has been commissioned to begin once crops are harvested in the project area and will be submitted prior to final plat.

4. Is the proposed zoning district in the floodplain hazard area as delineated under the federal flood insurance program?

N/A

5. Provide reasons to support the need for the proposed zoning in this area.

This project will facilitate the transition from service-adjacent agricultural uses to highway commercial and industrial development and services along the Highway 77 corridor.

A parallel zoning amendment request proposes to reduce the width of the Design Corridor Overlay from ¼ mile to 1/8 mile from the U.S. Highway 77 corridor east of Old Highway 77. This is appropriate as to not burden industrial development with the expense associated with the design regulations, but still protect the intent and design priority immediately adjacent to this important transportation corridor in Wahoo.

6. How would the proposed district conform with adjacent zoning districts?

The subdivision will be a continuation of adjacent commercial and industrial zoning districts.

7. What is the general character of the area? Describe

The current character of the area is transitional agricultural land.

8. What type of sewer and water system will be used?

Sewer and water will be designed and constructed to the City's specifications and connected to the existing Department of Utilities systems.

9. Does the change affect any proposed public projects?

No.

10. How will the proposed zoning district affect traffic in the area?

A traffic study has been commissioned and will be reviewed and approved by NDOT. A draft of the study is included herein.

LEGEND

COMMERCIAL LOTS (3)

INDUSTRIAL LOTS (8)

PAVEMENT

U.S. HIGHWAY 77

WAHOO MUNICIPAL AIRPORT

AGGREGATE DRIVE TO FARMSTEAD

E 29TH STREET

E 27TH STREET

PONDEROSA STREET

OLD HIGHWAY 77

LOT: 1
Area: 9.09 AC

LOT: 2
Area: 0.68 AC

LOT: 3
Area: 0.66 AC

LOT: 4
Area: 0.68 AC

LOT: 5
Area: 0.74 AC

LOT: 6
Area: 0.98 AC

LOT: 7
Area: 0.70 AC

LOT: 8
Area: 0.70 AC

LOT: 9
Area: 0.72 AC

LOT: 10
Area: 3.10 AC

LOT: 11
Area: 15.98 AC

OUTLOT A
Area: 1.87 AC

OUTLOT B
Area: 0.90 AC

OUTLOT C
Area: 8.99 AC

J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\7 Design\Drawings\exhibits\9TCB-BP-PropertyExhibit-11x17.dwg, on 4/27/2026 4:41 PM.

Krumel Industrial Subdivision

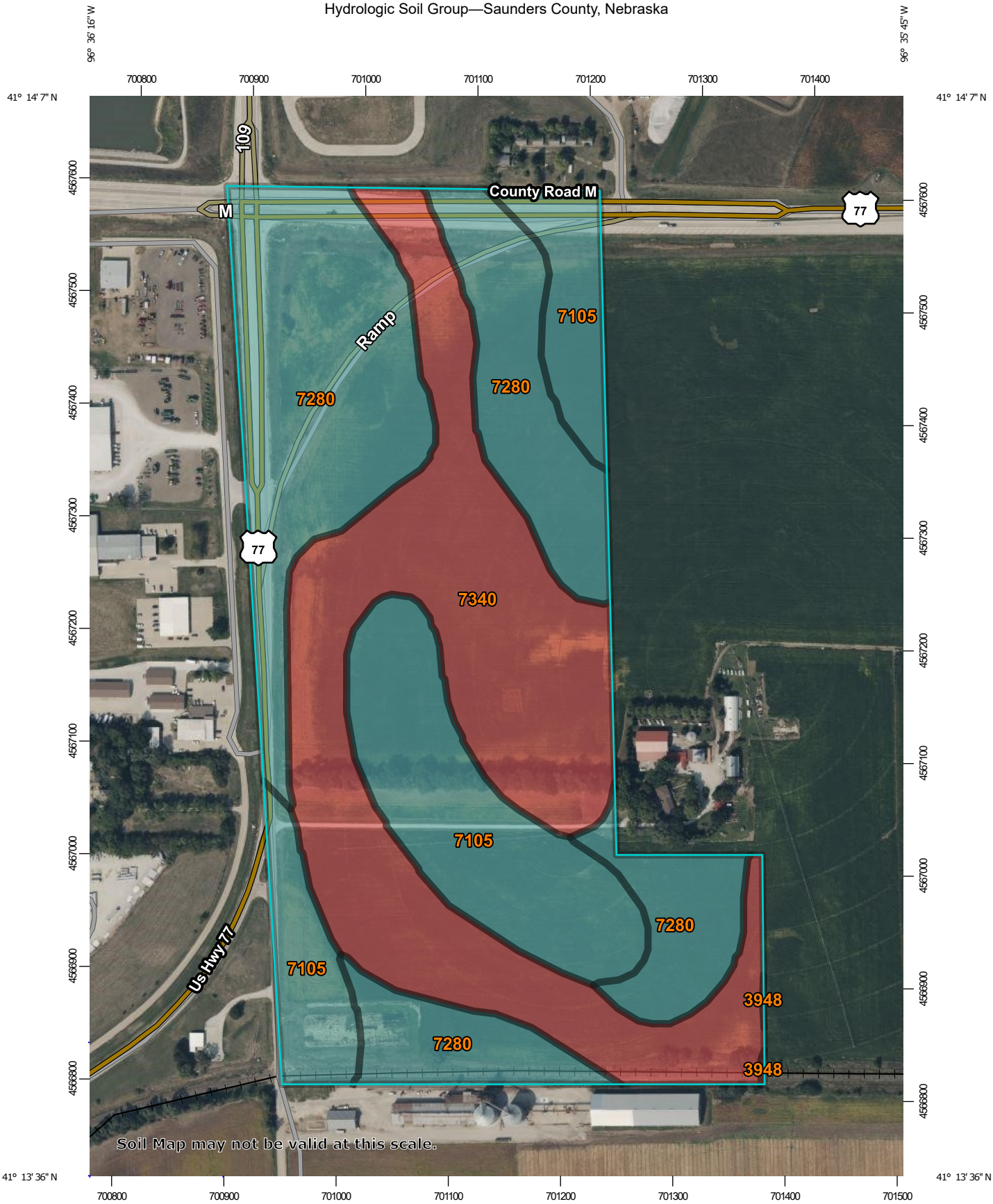
WAHOO, NE

GRAPHIC SCALE

0 50 100 200

UNIT OF MEASURE IS FEET

SCALE: 1"=200'



Map Scale: 1:4,670 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Saunders County, Nebraska
Survey Area Data: Version 22, Aug 28, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3948	Fillmore silt loam, terrace, occasionally ponded	D	0.0	0.0%
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	C	15.9	23.0%
7280	Tomek silt loam, 0 to 2 percent slopes	C	26.5	38.3%
7340	Filbert silt loam, 0 to 1 percent slopes	D	26.7	38.6%
Totals for Area of Interest			**69.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

"PRELIMINARY PLAT"

KRUMEL INDUSTRIAL SUBDIVISION

A PART OF THE WEST HALF OF THE NORTHWEST QUARTER
IN SECTION 35, TOWNSHIP 15 NORTH,
RANGE 7 EAST
WAHOO, NEBRASKA

LEGEND

- MONUMENT FOUND-5/8" REBAR (UNLESS NOTED OTHERWISE)
- MONUMENT SET-5/8" X 24" REBAR WITH A PLASTIC CAP STAMPED "BORCHERS L.S. 766"
- CALCULATED POINT
- D DEEDED DISTANCE
- G GOVERNMENT DISTANCE
- M MEASURED DISTANCE
- P PLATTED DISTANCE
- R RECORDED DISTANCE
- R1 RECORDED DISTANCE-SIMONDS 2010
- R2 RECORDED DISTANCE-BORCHERS 2016
- R3 RECORDED DISTANCE-CHARLES 2006

OWNER / DEVELOPER:
JEO INVESTMENTS INC.
ROB BRIGHAM
1937 N CHESTNUT STREET
WAHOO, NE 68066

ENGINEER / SURVEYOR:
JEO CONSULTING GROUP
ISAAC KREIKEMEIER AND JOSH BORCHERS
1937 N CHESTNUT STREET
WAHOO, NE 68066

ZONING INFORMATION

EXISTING ZONING:
EAST OF OLD HIGHWAY 77: TRANSITION ZONE
WEST OF OLD HIGHWAY 77: HEAVY INDUSTRIAL (I-2)

PROPOSED ZONING:
LOTS 1-9: HIGHWAY COMMERCIAL (C-2)
LOTS 10-11: HEAVY INDUSTRIAL (I-2)

BUILDING SETBACK RESTRICTIONS

HIGHWAY COMMERCIAL DISTRICT (C-2)

FRONT YARD	25 FEET
SIDE YARD	10 FEET
REAR YARD	20 FEET

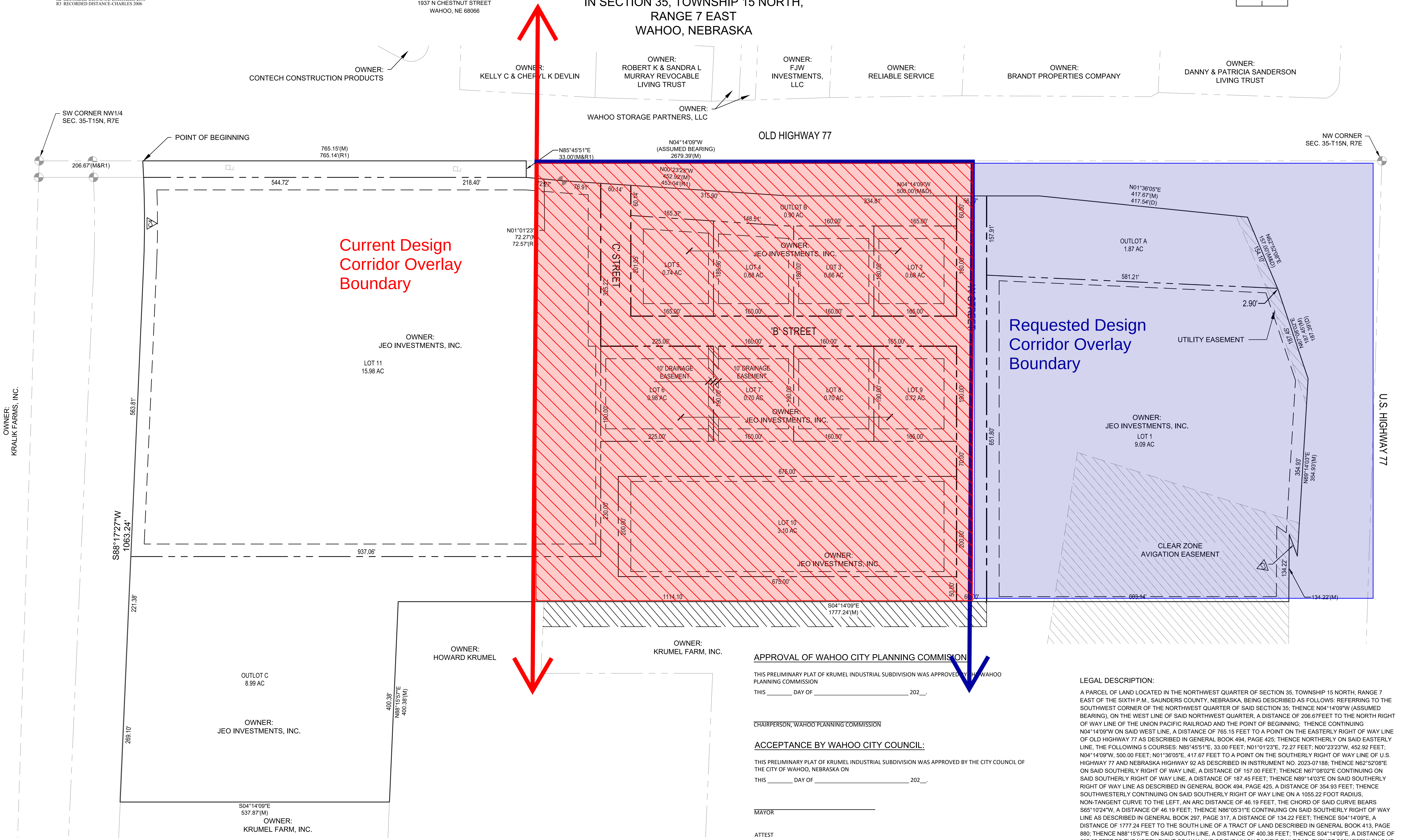
HEAVY INDUSTRIAL (I-2)

FRONT YARD	25 FEET
SIDE YARD	10 FEET
REAR YARD	10 FEET

VICINITY SKETCH
SAUNDERS COUNTY
NEBRASKA
R7E

GRAPHIC SCALE

UNIT OF MEASURE IS



CURVE DATA TABLE

CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	46.19'	1055.22'	002°30'29"	23.10'	S65°10'24"W	46.19'
C2	217.89'	2095.80'	005°57'24"	109.04'	S85°25'54"W	217.79'

APPROVAL OF WAHOO CITY PLANNING COMMISSION

THIS PRELIMINARY PLAT OF KRUMEL INDUSTRIAL SUBDIVISION WAS APPROVED BY THE WAHOO PLANNING COMMISSION

THIS ________ DAY OF ______________________________ 202__.

____
CHAIRPERSON, WAHOO PLANNING COMMISSION

ACCEPTANCE BY WAHOO CITY COUNCIL:

THIS PRELIMINARY PLAT OF KRUMEL INDUSTRIAL SUBDIVISION WAS APPROVED BY THE CITY COUNCIL OF THE CITY OF WAHOO, NEBRASKA ON

THIS ________ DAY OF ______________________________ 202__.

____
MAYOR

ATTEST
____
CITY CLERK

ACCEPTANCE BY WAHOO CITY ENGINEER:

THIS PRELIMINARY PLAT OF KRUMEL INDUSTRIAL SUBDIVISION WAS REVIEWED AND APPROVED BY THE WAHOO CITY ENGINEER ON

THIS ________ DAY OF ______________________________ 202___.

____
WAHOO CITY ENGINEER

LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST OF THE SIXTH P.M., SAUNDERS COUNTY, NEBRASKA, BEING DESCRIBED AS FOLLOWS: REFERRING TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE N04°14'09"W (ASSUMED BEARING), ON THE WEST LINE OF SAID NORTHWEST QUARTER, A DISTANCE OF 206.67FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD AND THE POINT OF BEGINNING; THENCE CONTINUING N04°14'09"W ON SAID WEST LINE, A DISTANCE OF 765.15 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF OLD HIGHWAY 77 AS DESCRIBED IN GENERAL BOOK 494, PAGE 425; THENCE NORTHERLY ON SAID EASTERLY LINE, THE FOLLOWING 5 COURSES: N85°45'51"E, 33.00 FEET; N01°01'23"E, 72.27 FEET; N00°23'23"W, 452.92 FEET; N04°14'09"W, 500.00 FEET; N01°36'05"E, 417.67 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF U.S. HIGHWAY 77 AND NEBRASKA HIGHWAY 92 AS DESCRIBED IN INSTRUMENT NO. 2023-07188; THENCE N62°52'08"E ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 157.00 FEET; THENCE N67°08'02"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 187.45 FEET; THENCE N89°14'03"E ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 494, PAGE 425, A DISTANCE OF 354.93 FEET; THENCE SOUTHWESTERLY CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE ON A 1055.22 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, AN ARC DISTANCE OF 46.19 FEET, THE CHORD OF SAID CURVE BEARS S65°10'24"W, A DISTANCE OF 46.19 FEET; THENCE N86°05'31"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 297, PAGE 317, A DISTANCE OF 134.22 FEET; THENCE S04°14'09"E, A DISTANCE OF 1777.24 FEET TO THE SOUTH LINE OF A TRACT OF LAND DESCRIBED IN GENERAL BOOK 413, PAGE 880; THENCE N88°15'57"E ON SAID SOUTH LINE, A DISTANCE OF 400.38 FEET; THENCE S04°14'09"E, A DISTANCE OF 537.87 FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S88°17'27"W ON SAID NORTH RIGHT OF WAY LINE, A DISTANCE OF 1063.24 FEET TO A POINT OF CURVATURE; THENCE WESTERLY CONTINUING ON SAID NORTH RIGHT OF WAY LINE, ON A 2095.80 FOOT RADIUS CURVE TO THE LEFT, AN ARC DISTANCE OF 217.89 FEET TO THE POINT OF BEGINNING, THE CHORD OF SAID CURVE BEARS S85°25'54"W, A DISTANCE OF 217.79 FEET, CONTAINING 48.89 ACRES, MORE OR LESS.

JEO CONSULTING GROUP

1937 N CHESTNUT ST
WAHOO, NE 68066
800.723.8567 | jeo.com

JEO CONSULTING, INC.
ORGANIZATION CERTIFICATE OF AUTHORIZATION NUMBER: CA-0069

PRELIMINARY
NOT FOR CONSTRUCTION
30%
DATE:
09.22.2025

[09.22.2025]
Isaac Kreikemeier - Civil Engineer
E-20028

ISSUE

MARK	DATE	DESCRIPTION
-	00/00/0000	XX

KRUMEL INDUSTRIAL SUBDIVISION

JEO INVESTMENTS, INC.
1937 N CHESTNUT STREET
WAHOO, NE 68066

JEO PROJECT NO.:	[242471.00]
DRAWN BY:	[BEG]
QAQC:	[IK]

811
Know what's below.
Call before you dig.

US SURVEY FEET (sFT)

PRELIMINARY PLAT

0

Plotted By: CHARLES MCFARLAND
Sheet Size: ANSI A (8.50 X 11.00 INCHES) Plot Scale: 0.3869:1

Drawing Name: 0.dwg
File Path: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\7 Design\2 Drawings_Sheets\PRELIM PLAT

"PRELIMINARY PLAT"

KRUMEL INDUSTRIAL SUBDIVISION

A PART OF THE WEST HALF OF THE NORTHWEST QUARTER IN SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST
WAHOO, NEBRASKA

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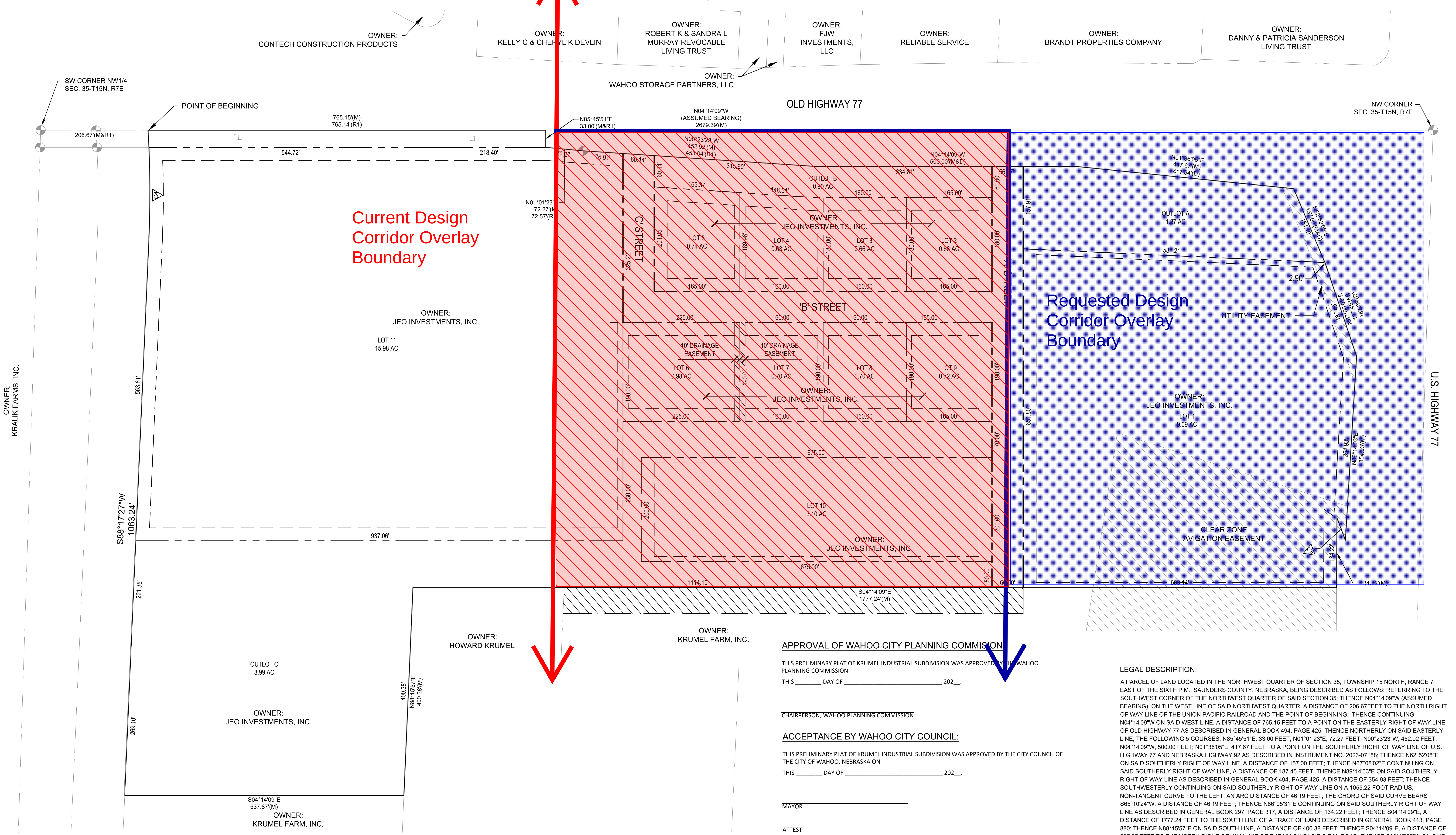

APPROVAL OF WAHOO CITY PLANNING COMMISSION

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THIS ________ DAY OF ______________________________ 202__.

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MAYOR

ATTEST ______________________________
CITY CLERK

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WAHOO CITY ENGINEER

LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST OF THE SIXTH P.M., SAUNDERS COUNTY, NEBRASKA, BEING DESCRIBED AS FOLLOWS: REFERRING TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE N04°14'09"W (ASSUMED BEARING), ON THE WEST LINE OF SAID NORTHWEST QUARTER, A DISTANCE OF 206.67FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD AND THE POINT OF BEGINNING; THENCE CONTINUING N04°14'09"W ON SAID WEST LINE, A DISTANCE OF 765.15 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF OLD HIGHWAY 77 AS DESCRIBED IN GENERAL BOOK 494, PAGE 425; THENCE NORTHERLY ON SAID EASTERLY LINE, THE FOLLOWING 5 COURSES: N85°45'51"E, 33.00 FEET; N01°01'23"E, 72.27 FEET; N00°23'23"W, 452.92 FEET; N04°14'09"W, 500.00 FEET; N01°36'05"E, 417.67 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF U.S. HIGHWAY 77 AND NEBRASKA HIGHWAY 92 AS DESCRIBED IN INSTRUMENT NO. 2023-07188; THENCE N62°52'08"E ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 157.00 FEET; THENCE N67°08'02"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 187.45 FEET; THENCE N89°14'03"E ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 494, PAGE 425, A DISTANCE OF 354.93 FEET; THENCE SOUTHWESTERLY CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE ON A 1055.22 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, AN ARC DISTANCE OF 46.19 FEET, THE CHORD OF SAID CURVE BEARS S65°10'24"W, A DISTANCE OF 46.19 FEET; THENCE N86°05'31"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 297, PAGE 317, A DISTANCE OF 134.22 FEET; THENCE S04°14'09"E, A DISTANCE OF 1777.24 FEET TO THE SOUTH LINE OF A TRACT OF LAND DESCRIBED IN GENERAL BOOK 413, PAGE 880; THENCE N88°15'57"E ON SAID SOUTH LINE, A DISTANCE OF 400.38 FEET; THENCE S04°14'09"E, A DISTANCE OF 537.87 FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S88°17'27"W ON SAID NORTH RIGHT OF WAY LINE, A DISTANCE OF 1063.24 FEET TO A POINT OF CURVATURE; THENCE WESTERLY CONTINUING ON SAID NORTH RIGHT OF WAY LINE, ON A 2095.80 FOOT RADIUS CURVE TO THE LEFT, AN ARC DISTANCE OF 217.89 FEET TO THE POINT OF BEGINNING, THE CHORD OF SAID CURVE BEARS S85°25'54"W, A DISTANCE OF 217.79 FEET, CONTAINING 48.89 ACRES, MORE OR LESS.

CURVE DATA TABLE

CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	46.19'	1055.22'	002°30'29"	23.10'	S65°10'24"W	46.19'
C2	217.89'	2095.80'	005°57'24"	109.04'	S85°25'54"W	217.79'

JEO CONSULTING GROUP
1937 N CHESTNUT ST
WAHOO, NE 68066
800.723.8567 | jeo.com

JEO CONSULTING, INC.
ORGANIZATION CERTIFICATE OF AUTHORIZATION NUMBER: CA-0069

PRELIMINARY
NOT FOR CONSTRUCTION
30%
DATE:
09.22.2025

[09.22.2025]
Isaac Kreikemeier - Civil Engineer
E-20028

ISSUE

MARK	DATE	DESCRIPTION
-	00/00/0000	XX

KRUMEL INDUSTRIAL SUBDIVISION

JEO INVESTMENTS, INC.
1937 N CHESTNUT STREET
WAHOO, NE 68066

JEO PROJECT NO.:	[242471.00]
DRAWN BY:	[BEG]
QAQC:	[IK]

811
Know what's below. Call before you dig.
US SURVEY FEET (sFT)

PRELIMINARY PLAT

0

LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST OF THE SIXTH P.M., SAUNDERS COUNTY, NEBRASKA, BEING DESCRIBED AS FOLLOWS: REFERRING TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE N04°14'09"W (ASSUMED BEARING), ON THE WEST LINE OF SAID NORTHWEST QUARTER, A DISTANCE OF 206.67FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD AND THE POINT OF BEGINNING; THENCE CONTINUING N04°14'09"W ON SAID WEST LINE, A DISTANCE OF 765.15 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF OLD HIGHWAY 77 AS DESCRIBED IN GENERAL BOOK 494, PAGE 425; THENCE NORTHERLY ON SAID EASTERLY LINE, THE FOLLOWING 5 COURSES: N85°45'51"E, 33.00 FEET; N01°01'23"E, 72.27 FEET; N00°23'23"W, 452.92 FEET; N04°14'09"W, 500.00 FEET; N01°36'05"E, 417.67 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF U.S. HIGHWAY 77 AND NEBRASKA HIGHWAY 92 AS DESCRIBED IN INSTRUMENT NO. 2023-07188; THENCE N62°52'08"E ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 157.00 FEET; THENCE N67°08'02"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 187.45 FEET; THENCE N89°14'03"E ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 494, PAGE 425, A DISTANCE OF 354.93 FEET; THENCE SOUTHWESTERLY CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE ON A 1055.22 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, AN ARC DISTANCE OF 46.19 FEET, THE CHORD OF SAID CURVE BEARS S65°10'24"W, A DISTANCE OF 46.19 FEET; THENCE N86°05'31"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 297, PAGE 317, A DISTANCE OF 134.22 FEET; THENCE S04°14'09"E, A DISTANCE OF 1777.24 FEET TO THE SOUTH LINE OF A TRACT OF LAND DESCRIBED IN GENERAL BOOK 413, PAGE 880; THENCE N88°15'57"E ON SAID SOUTH LINE, A DISTANCE OF 400.38 FEET; THENCE S04°14'09"E, A DISTANCE OF 537.87 FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S88°17'27"W ON SAID NORTH RIGHT OF WAY LINE, A DISTANCE OF 1063.24 FEET TO A POINT OF CURVATURE; THENCE WESTERLY CONTINUING ON SAID NORTH RIGHT OF WAY LINE, ON A 2095.80 FOOT RADIUS CURVE TO THE LEFT, AN ARC DISTANCE OF 217.89 FEET TO THE POINT OF BEGINNING, THE CHORD OF SAID CURVE BEARS S85°25'54"W, A DISTANCE OF 217.79 FEET, CONTAINING 48.89 ACRES, MORE OR LESS.

ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

Sand Creek Industrial Subdivision Traffic Impact Study

Wahoo, NE

JEO Project No. 242471.00

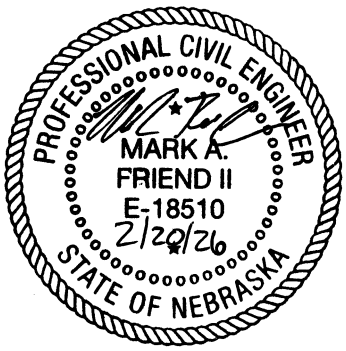
Prepared for:
JEO Investments

Prepared by:

JEO Consulting Group

Date:

February 20, 2026



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1.0 Introduction

This report documents the results of the traffic impact study conducted for the proposed Sand Creek Industrial Subdivision located in northeast Wahoo, Nebraska. The scope and methodology of this study was developed by JEO Consulting Group in coordination with the developer and the Nebraska Department of Transportation (NDOT).

1.1 Objective

The primary objective of this traffic study was to evaluate impacts to the adjacent street network associated with the site development located east of Old Hwy 77, south of the intersection of US Highway 77 (US-77) & Nebraska Highway 109 (N-109) / Old Hwy 77. This included capacity analyses for the intersection of US-77 & N-109 and the two site drive intersections with Old Hwy 77, auxiliary turn lane warrant analysis for the two site drive intersections, and an access assessment.

1.2 Project Description

The Sand Creek Industrial Subdivision is proposed to be constructed in northeast Wahoo, near the roundabout intersection of US-77 & N-109 / Old Hwy 77. On opening day, assumed as year 2028, the site is proposed to include a mix of general light industrial, manufacturing, warehouses, a construction equipment rental store, an automobile care center, an automobile parts and service center, and a convenience store / gas station.

There are two proposed accesses to the site. The north site drive is located across from Commercial Park Road at its intersection with Old Hwy 77. The south site drive is located approximately 715’ south of the north site drive.

The site development area is shown in red on the Vicinity Map in Figure 1. A preliminary site plan is provided in Appendix A.

1.3 Report Organization

The remainder of this report is organized as follows:

- 2.0 Existing Conditions
- 3.0 Future Peak Hour Volumes
- 4.0 Future Traffic Operations Analysis
- 5.0 Conclusion and Recommendations

Figure 1 – Vicinity Map

2.0 Existing Conditions

The following section summarizes existing study area conditions including current street and intersection geometrics, peak hour volumes, and traffic operations.

2.1 Street Network and Geometrics

The study area includes US-77, N-109, Old Hwy 77, and Commercial Park Road.

2.1.1 US-77

Starting at the west end of the study area, US-77 operates as a four-lane divided highway with a 15' raised median. It should be noted that while US-77 is a north/south highway, it operates east/west locally to the proposed development. Approximately 1000' west of the US-77 & N-109 / Old Hwy 77 intersection, it tapers down to a two-lane divided highway. 2000' east of the US-77 & N-109 / Old Hwy 77, it transitions to a two-lane undivided hwy. It is classified as an "Expressway" according to the NDOT National Functional Classification Map. The posted speed limit within the study area is 50 mph.

2.1.2 N-109

N-109 is a north/south, two-lane undivided highway. It is classified as a "Major Collector" according to the NDOT National Functional Classification Map. The posted speed limit within the study area is 65 mph.

2.1.3 Old Hwy 77

Starting at the south end of the study area, Old Hwy 77 begins as a two-lane undivided street and then transitions to a two-lane divided street with a striped median north of Commercial Park Road. It is classified as a "Major Collector" according to the NDOT National Functional Classification Map. The posted speed limit within the study area is 45 mph.

2.1.4 Commercial Park Road

Commercial Park Road is classified as "Local" according to the NDOT National Functional Classification Map with one lane of travel in each direction. It parallels and acts as a frontage road to Old Hwy 77. While there is no posted speed limit, it is assumed that the speed limit is 25 mph within the study area.

2.1.5 US-77 & N-109 / Old Hwy 77 Roundabout

The intersection of US-77 & N-109 / Old Hwy 77 is a roundabout with single lanes on all approaches and a single circulating lane. Existing adjacent land uses near the intersection vary, with commercial/retail uses in the southwest and northeast quadrants of the intersection. Additionally, the Wahoo Municipal Airport is located in the northeast quadrant. Lake Wanahoo is located in the northwest quadrant. In the southeast quadrant of the intersection at the proposed location of the Sand Creek Industrial Subdivision development, existing land use is agricultural. There are no sidewalks or pedestrian crosswalks on any of the approaches.

2.1.6 Old Hwy 77 & Commercial Park Road Intersection

The intersection of Old Hwy 77 & Commercial Park Road is unsignalized with stop-control on the eastbound Commercial Park Road approach. The northbound approach has a 50' auxiliary left-turn lane. Existing adjacent land uses near the intersection are primarily commercial/retail to the west and agricultural to the east. There are no sidewalks or pedestrian crosswalks on any of the approaches.

All existing lane configurations and traffic control at the existing study intersections are summarized in Figure 2.

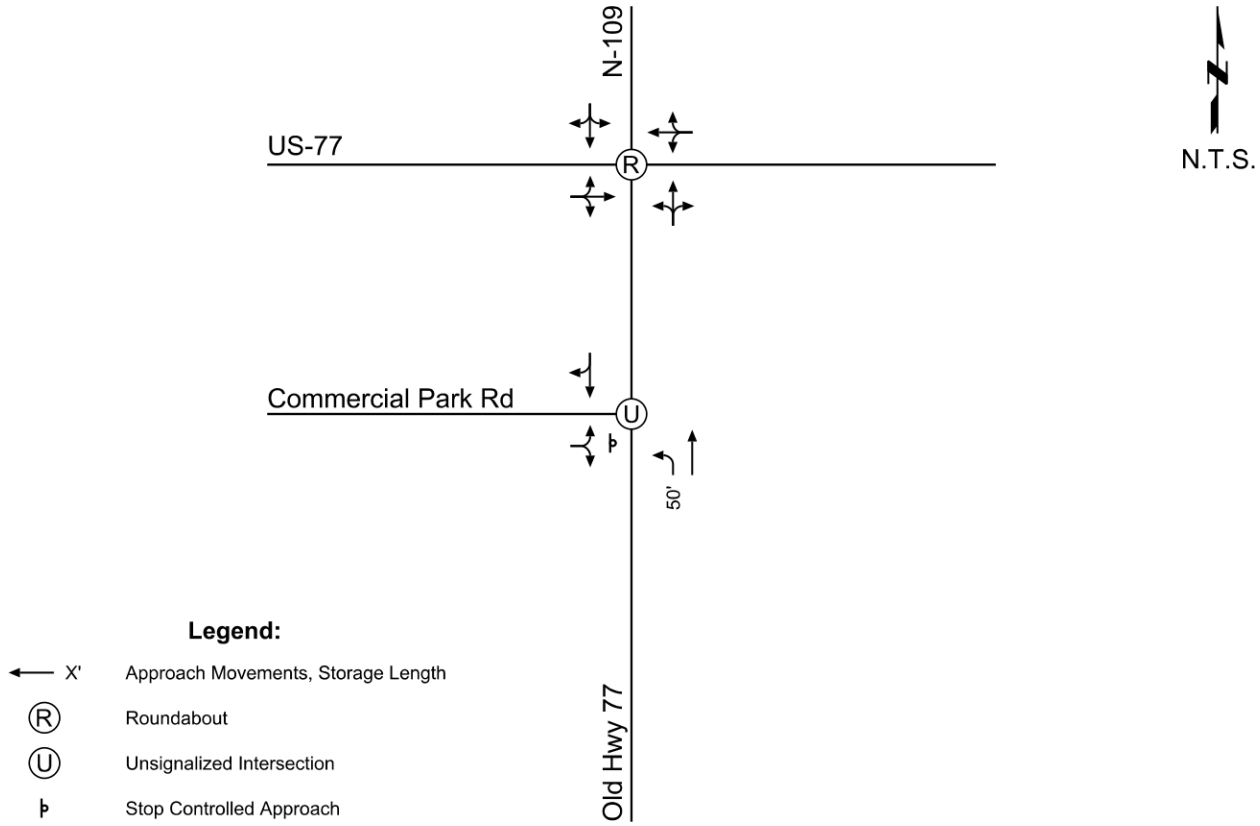


Figure 2 – Existing Lane Geometrics and Traffic Control

2.2 Peak Hour Volumes

Turning movement volume data was collected by JEO at the study intersections using Miovision Scout cameras on Thursday, August 28th, 2025. The existing system AM peak hour was 7:15 – 8:15 and the system PM peak hour was 4:00 – 5:00. Resulting existing AM and PM peak hour volumes are shown in Figure 3. Collected traffic count data can be found in Appendix B.

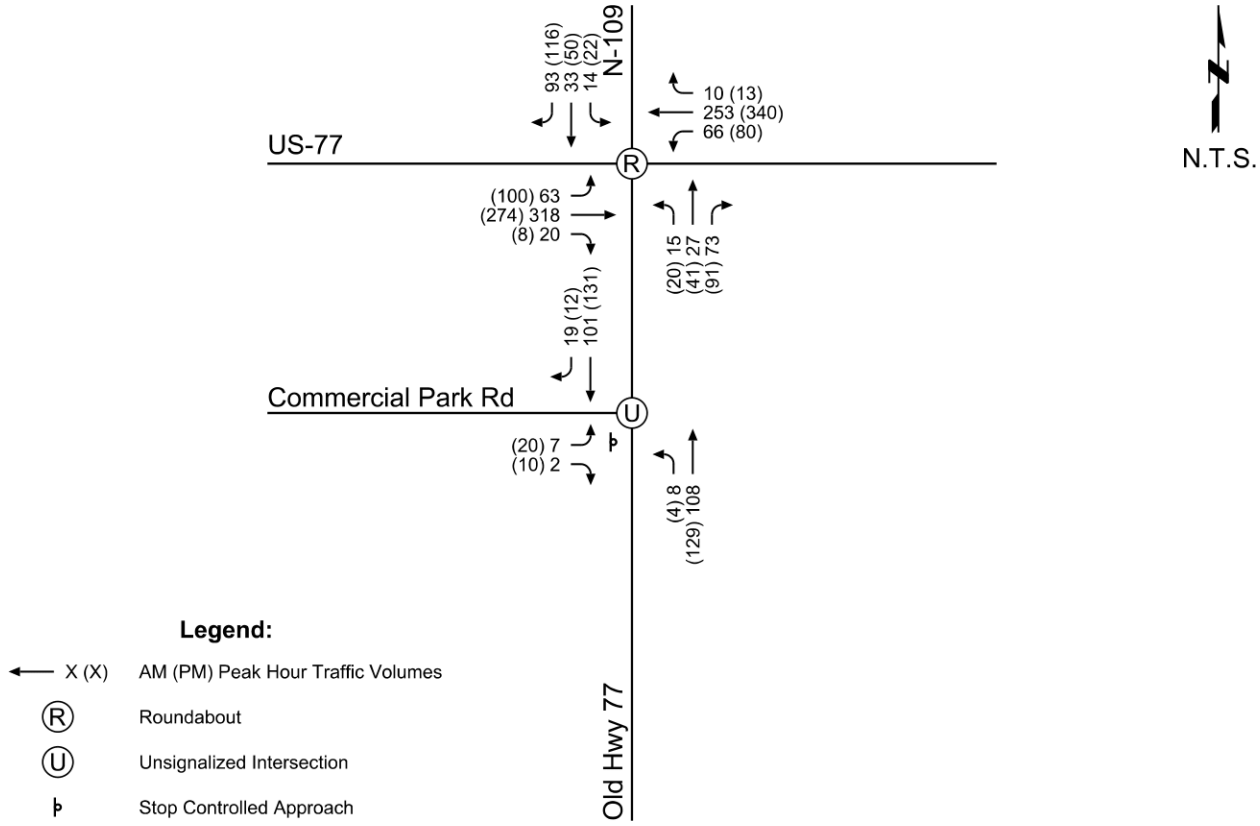


Figure 3 – Existing AM & PM Peak Hour Volumes

2.3 Peak Hour Capacity Analysis

The existing peak hour volumes were analyzed using the unsignalized intersection capacity analysis procedures outlined in the Highway Capacity Manual (HCM 7th edition). The efficiency of each movement was then given a grade or Level of Service (LOS). The LOS indicates how well the intersection operates during peak hour time periods. LOS A represents free flow movement with very little to no delay, while LOS F represents congested flow at, or over the capacity of the intersection. Further details regarding LOS methodology can be found in Table 1.

The existing weekday AM and PM peak hour traffic conditions were analyzed using the existing lane configurations and peak hour volumes shown previously in Figure 2 and Figure 3, respectively. Capacity analysis results of existing conditions are summarized in Figure 4. As shown, all movements at the study intersections currently operate at LOS B or better. 95th-percentile queues are negligible, with the largest queue of 2.9 vehicles on the eastbound approach (AM peak hour) and 2.7 vehicles on the westbound (PM peak hour) approach at the intersection of US-77 & N-109 / Old Hwy 77. Intersection operations analysis reports can be found in Appendix C.

Table 1 – Level of Service Interpretation

Level of Service	Description	Stop-Controlled and Roundabout Intersection Delay (seconds per vehicle)
A	Free-flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	< 10
B	Reasonably free flow. The ability to maneuver within the traffic stream is only slightly restricted.	>10 and < 15
C	At or near free flow. Freedom to maneuver within the traffic stream is noticeably restricted.	>15 and < 25
D	Speeds begin to decline slightly. Freedom to maneuver within the traffic stream is noticeably limited.	>25 and < 35
E	At capacity. Maneuverability within the traffic stream is extremely limited.	>35 and < 50
F	Breakdown. Vehicles are jammed. Generally, queues form behind the breakdown condition.	> 50

Source: Highway Capacity Manual, 7th Edition, A Guide for Multimodal Mobility Analysis, Transportation Research Board, Washington, D.C.

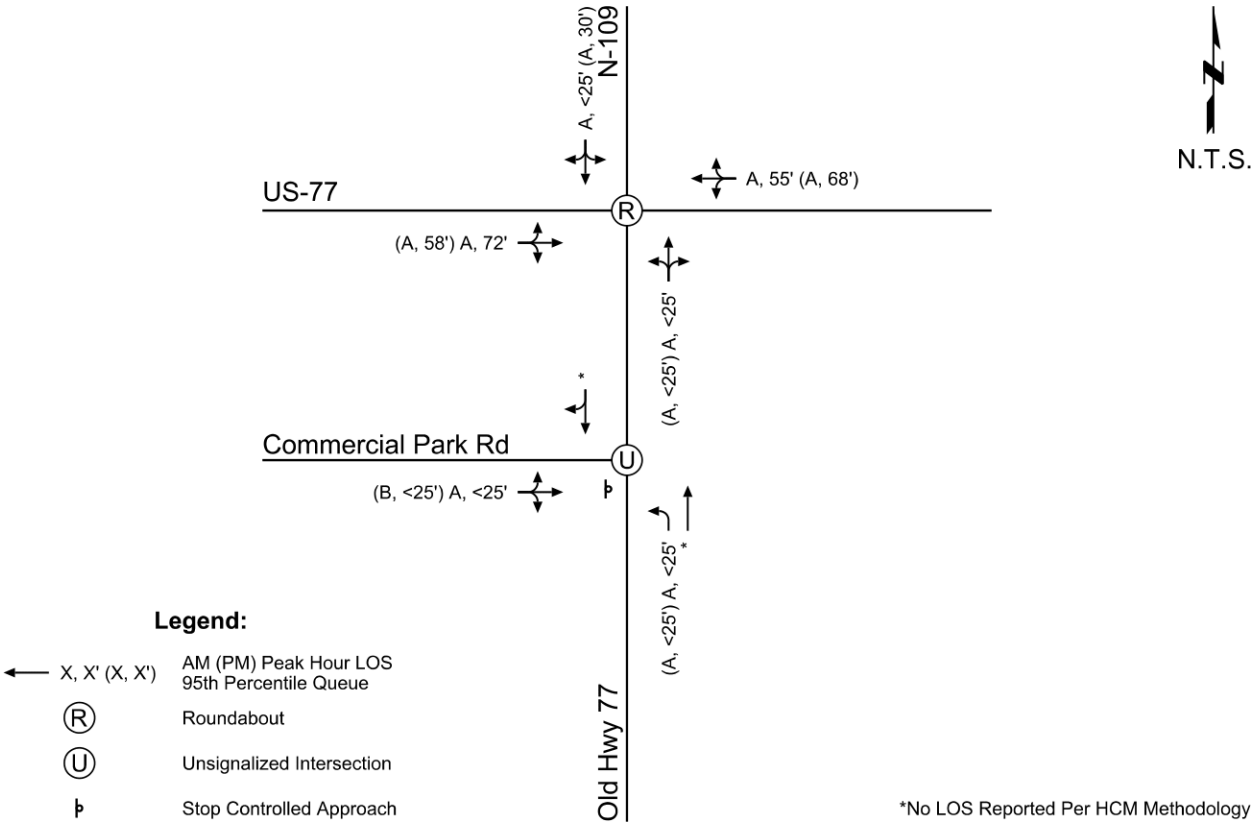


Figure 4 – Existing AM & PM Peak Hour LOS

3.0 Future Peak Hour Volumes

This section of the report presents the projected future peak hour volumes associated with opening day (2028) and the horizon year (2038).

3.1 Background Peak Hour Volumes

Existing (2025) peak hour volumes were projected to the years 2028 and 2038 using growth rates developed from NDOT's database of historical traffic volumes. During this analysis, it was discovered that the Average Annual Daily Traffic (AADT) along Old Hwy 77 has been declining since the implementation of the US-77 Wahoo bypass. To take a conservative approach, a 0.50% growth rate was used along Old Hwy 77. It should be noted that all movements at the Old Hwy 77 & Commercial Park Road intersection were also grown with a 0.50% growth rate. These resulting growth rates are summarized in Table 2 and have been approved for use on this project by NDOT. Opening day (2028) and horizon year (2038) background peak hour volumes are shown in Figure 5 and Figure 6, respectively.

Table 2 – Background Traffic Annual Growth Rates

Location	Annual Growth Rate
US-77	1.45%
N-109	1.25%
Old Hwy 77	0.50%

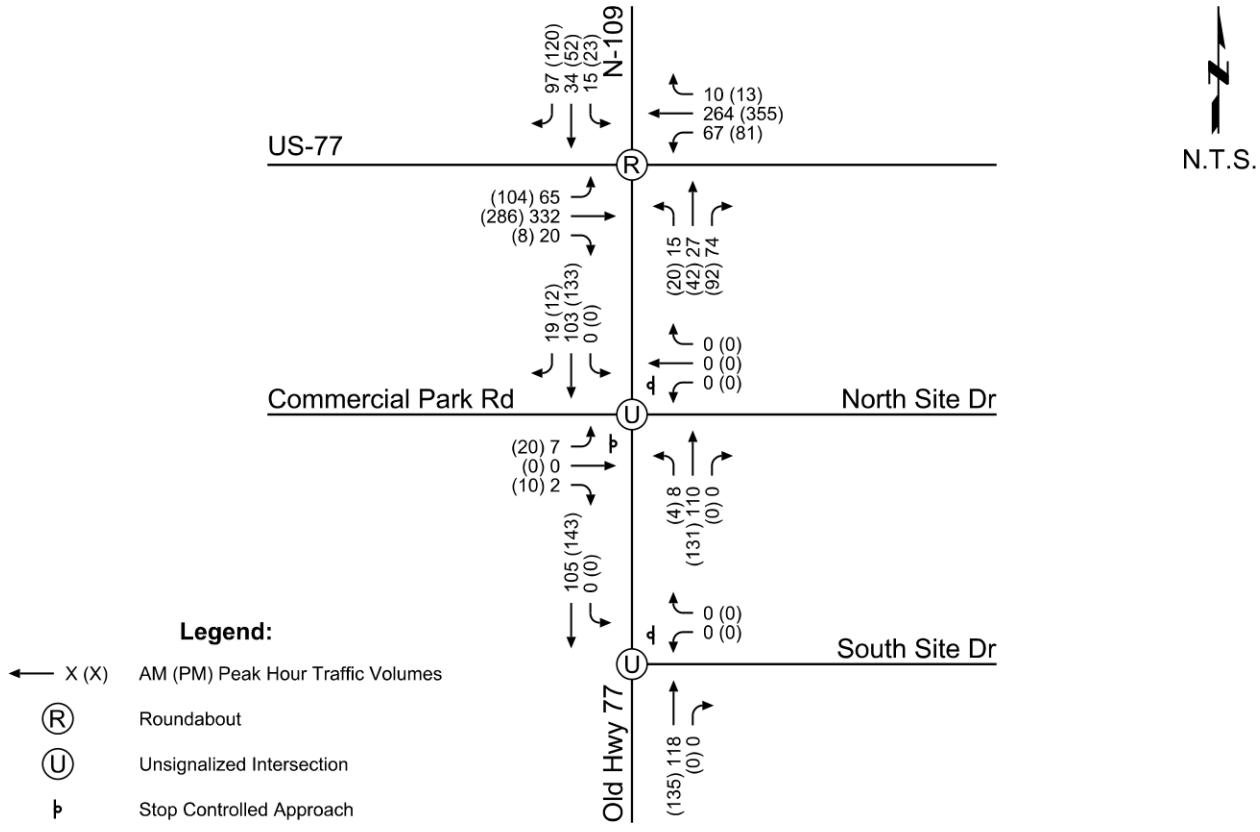


Figure 5 – Opening Day (2028) Background AM & PM Peak Hour Volumes

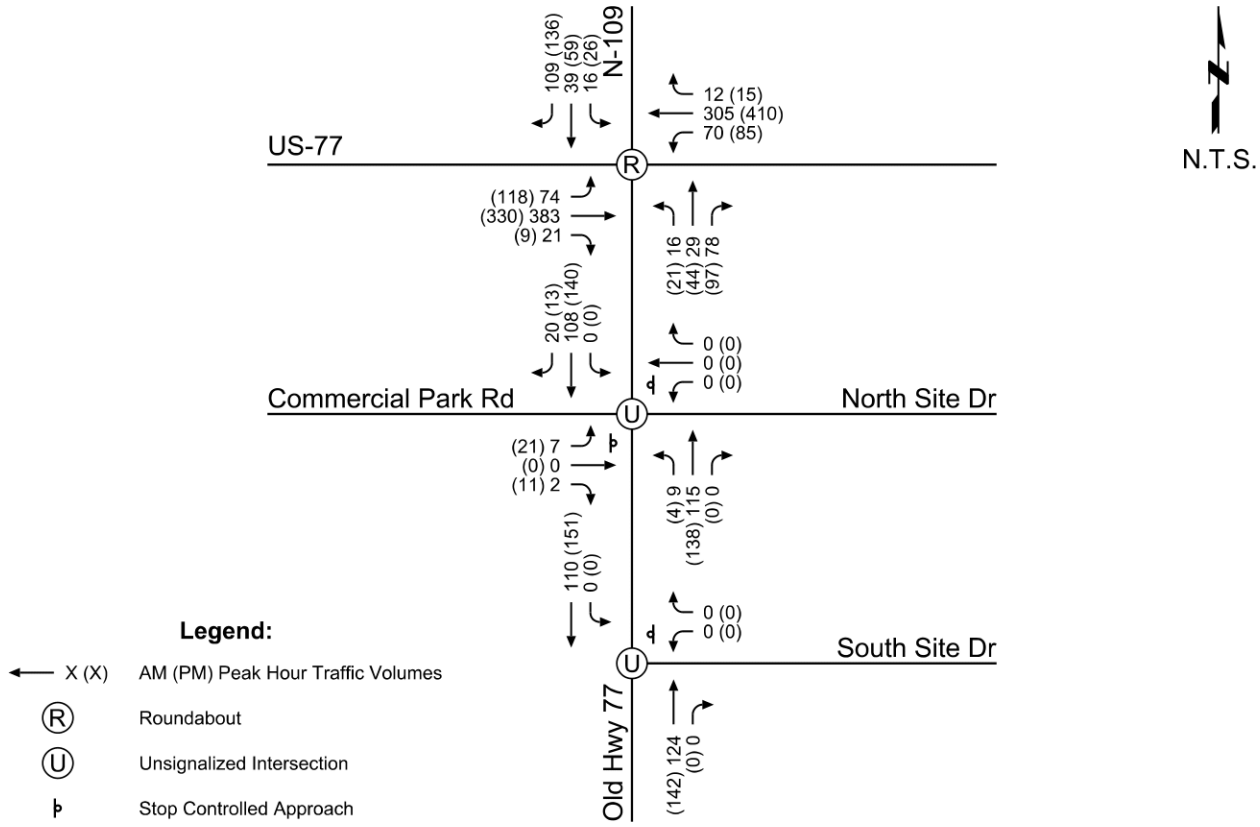


Figure 6 – Horizon Year (2038) Background AM & PM Peak Hour Volumes

3.2 Trip Generation, Trip Distribution and Traffic Assignment

To analyze the site's impacts on the adjacent street network, estimated trips entering and exiting the site were generated using methodology from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition.

Per correspondence with the developer's engineer, the new site is expected to include a mix of general light industrial, manufacturing, warehouses, a construction equipment rental store, an automobile care center, an automobile parts and service center, and a convenience store / gas station. For most lots, the size of each building is estimated at 50% of the total lot area, which is the maximum building to lot size ratio that is allowed in the zoning regulations for this area. The one exception to this is the general light industrial building, which is proposed to be approximately 160,000 square feet.

A summary of the estimated trips generated by each proposed land use during the AM and PM peak hours is tabulated in Table 3 and Table 5. Additionally, a pass-by rate was applied to the trips generated by the convenience store / gas station based on methodology from the ITE Trip Generation Manual, 12th Edition and summarized in Table 4 and Table 6. Pass-by trips are defined not as new trips to the area, but existing trips within the roadway network that now stop at the development along the way to their ultimate destination. For this reason, they don't need added to the network, just adjusted within the network.

Table 3 – AM Peak Hour Site Trip Generation

ITE Land Use Code	Usage	Trip Generation			Directional Distribution		AM Trips		
		Size	Unit	Average Rate / Equation	In	Out	Total	Inbound	Outbound
110	General Light Industrial	160	1000 SF GFA*	T = 0.48(X)	86%	14%	77	66	11
140	Manufacturing	69.70	1000 SF GFA*	T = 0.51(X)	75%	25%	36	27	9
150	Warehouse	18.08	1000 SF GFA*	T = 0.12 (X)	77%	23%	2	2	0
150	Warehouse	18.08	1000 SF GFA*	T = 0.12 (X)	77%	23%	2	2	0
150	Warehouse	18.73	1000 SF GFA*	T = 0.12 (X)	77%	23%	2	2	0
150	Warehouse	26.79	1000 SF GFA*	T = 0.12 (X)	77%	23%	3	2	1
811	Construction Equipment Rental Store	25.27	1000 SF GFA*	-	-	-	-	-	-
942	Automobile Care Center	18.73	1000 SF GFA*	T = 3.87(X)	66%	34%	72	48	24
943	Automobile Parts and Service Center	28.75	1000 SF GFA*	T = 1.91(X)	72%	28%	55	40	15
945	Convenience Store / Gas Station	18	Fuel Pumps	T = 23.21 (X)	50%	50%	418	209	209
						Total:	667	398	269
						Total with Pass-By Reduction:	416	273	144

*GFA: Gross Floor Area
Note: Numbers are rounded, therefore, sums may not align exactly.

Table 4 – AM Peak Hour Pass-By Trips

ITE Land Use Code	Usage	Vehicle Pass-By Rate	PM Vehicle Pass-By Trips		
			Total	Inbound	Outbound
945	Convenience Store / Gas Station	60%	251	125	126

Table 5 – PM Peak Hour Site Trip Generation

ITE Land Use Code	Usage	Trip Generation			Directional Distribution		PM Trips		
		Size	Unit	Average Rate / Equation	In	Out	Total	Inbound	Outbound
110	General Light Industrial	160	1000 SF GFA*	T = 0.49(X)	24%	76%	78	19	59
140	Manufacturing	69.70	1000 SF GFA*	T = 0.84(X)-29.93	29%	71%	29	8	21
150	Warehouse	18.08	1000 SF GFA*	T = 0.15(X)	28%	72%	3	1	2
150	Warehouse	18.08	1000 SF GFA*	T = 0.15(X)	28%	72%	3	1	2
150	Warehouse	18.73	1000 SF GFA*	T = 0.15(X)	28%	72%	3	1	2
150	Warehouse	26.79	1000 SF GFA*	T = 0.15(X)	28%	72%	4	1	3
811	Construction Equipment Rental Store	25.27	1000 SF GFA*	T = 0.99(X)	28%	72%	25	7	18
942	Automobile Care Center	18.73	1000 SF GFA*	T = 4.90(X)	46%	54%	92	42	50
943	Automobile Parts and Service Center	28.75	1000 SF GFA*	T = 2.06(X)	39%	61%	59	23	36
945	Convenience Store / Gas Station	18	Fuel Pumps	T = 21.08(X)	50%	50%	379	190	189
						Total:	675	293	382
						Total with Pass-by Reduction:	463	187	276

*GFA: Gross Floor Area
Note: Numbers are rounded, therefore, sums may not align exactly.

Table 6 – PM Peak Hour Pass-By Trips

ITE Land Use Code	Usage	Vehicle Pass-By Rate	PM Vehicle Pass-By Trips		
			Total	Inbound	Outbound
945	Convenience Store / Gas Station	56%	212	106	106

Internal to the development, trips were distributed to each site drive based on each lot's location within the site and its proximity to each driveway.

Pass-by and primary site trips were then distributed to the local roadway network, but in slightly different ways. As pass-by trips already exist on the local network, they were distributed based on existing traffic volumes. These pass-by trips are shown in Figure 7.

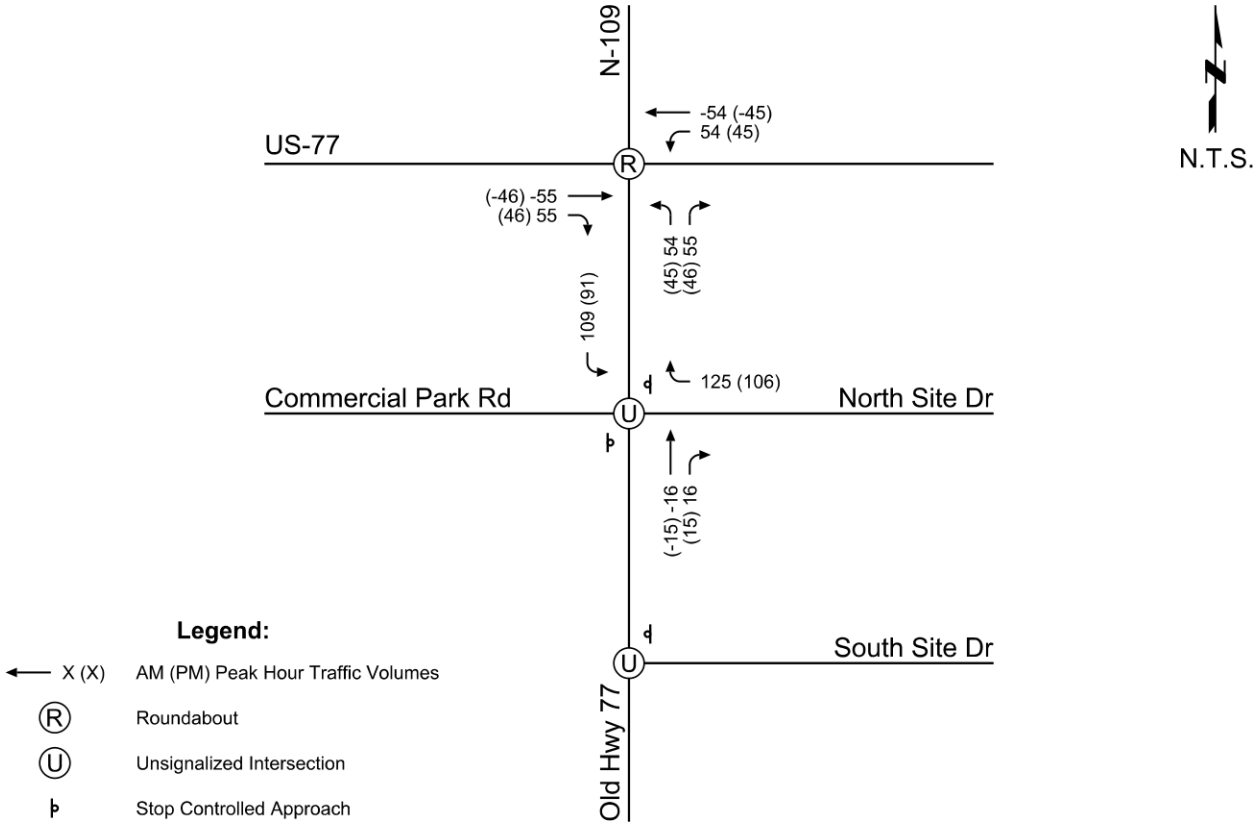


Figure 7 – AM & PM Peak Hour Pass-By Site Trips

Primary trips were assigned to the roadway network based on existing traffic and land use patterns. Distribution percentages are shown in Figure 8, with assigned volumes in Figure 9. It should be noted that these are primary trips that have the project site as their trip destination/origin and are not stopping on their way to another destination. This is the reason for similar distributions between Old Hwy 77 and the US-77 bypass.

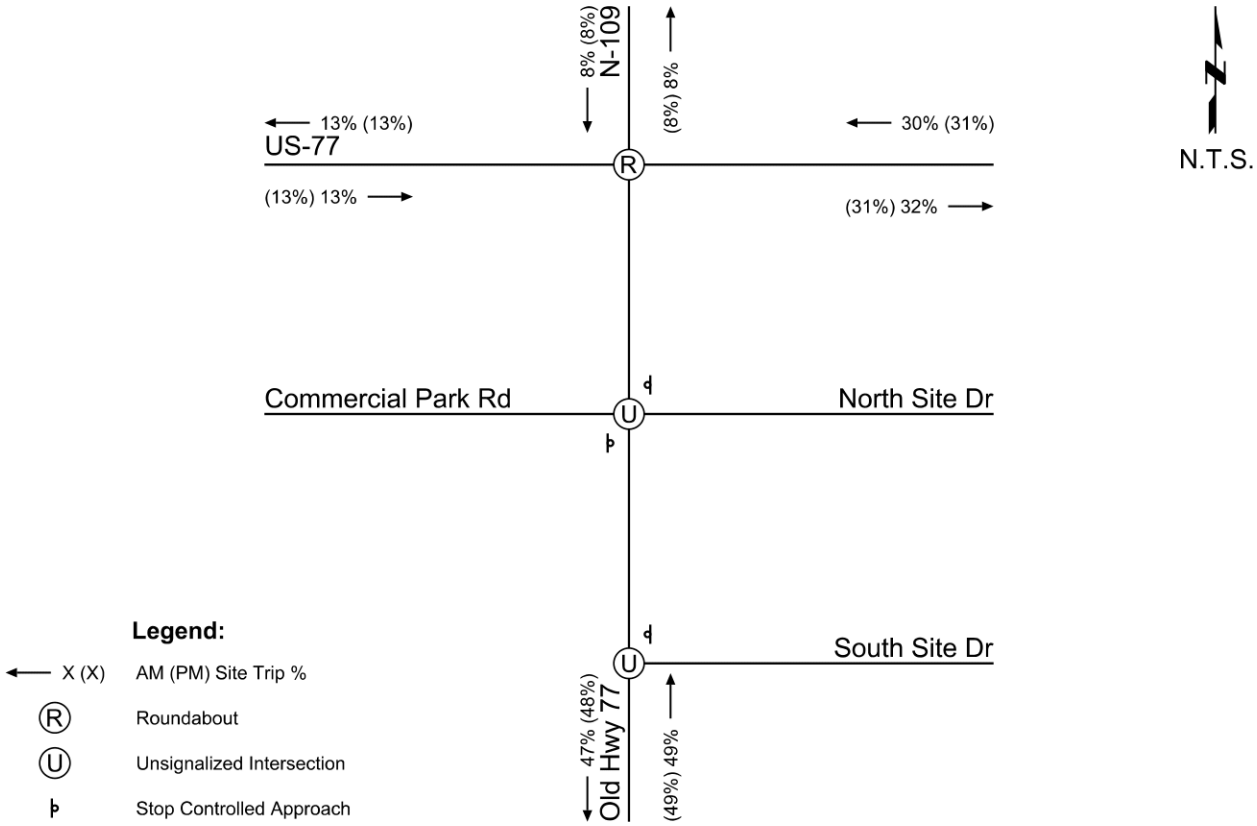


Figure 8 – Site Distribution Percentages

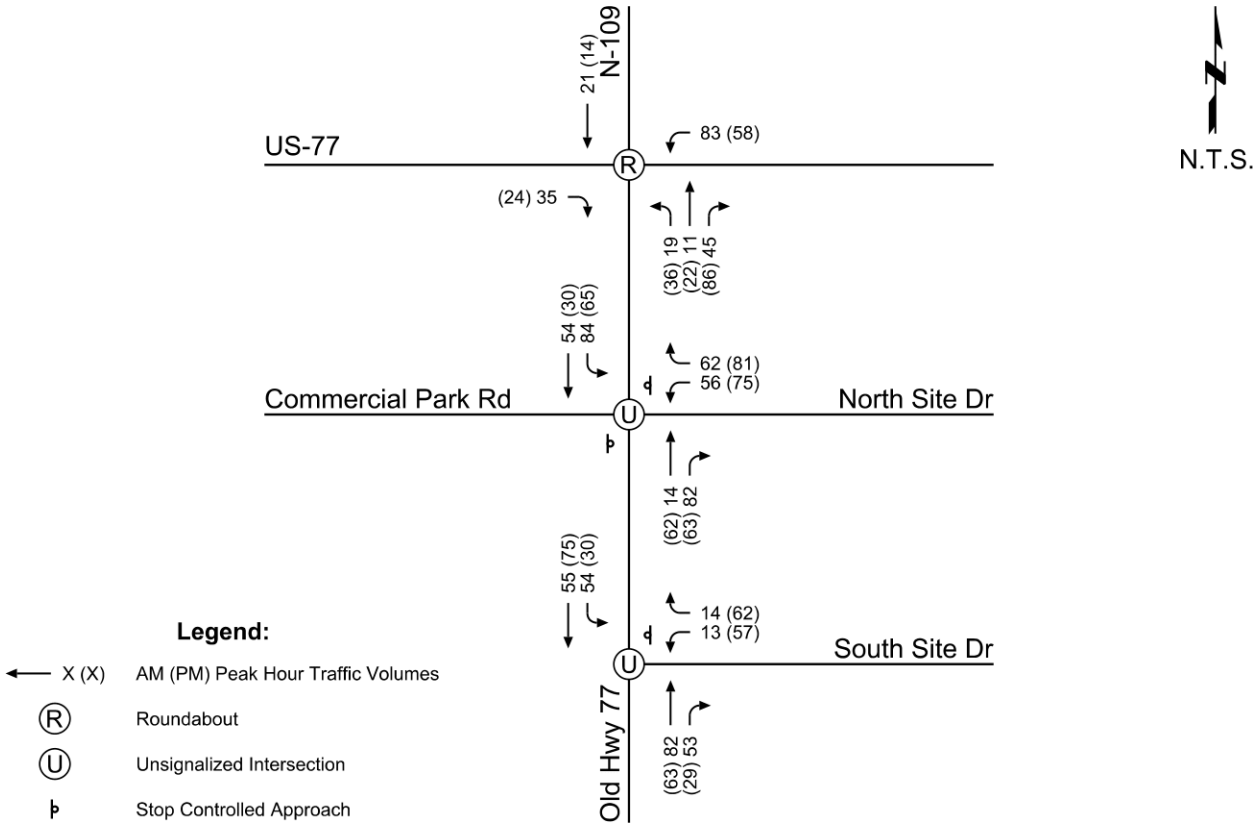


Figure 9 – AM & PM Peak Hour Primary Site Trips

These primary trips were then combined with the pass-by trips (previously generated) to produce the total site trips generated by the development. These are shown in Figure 10.

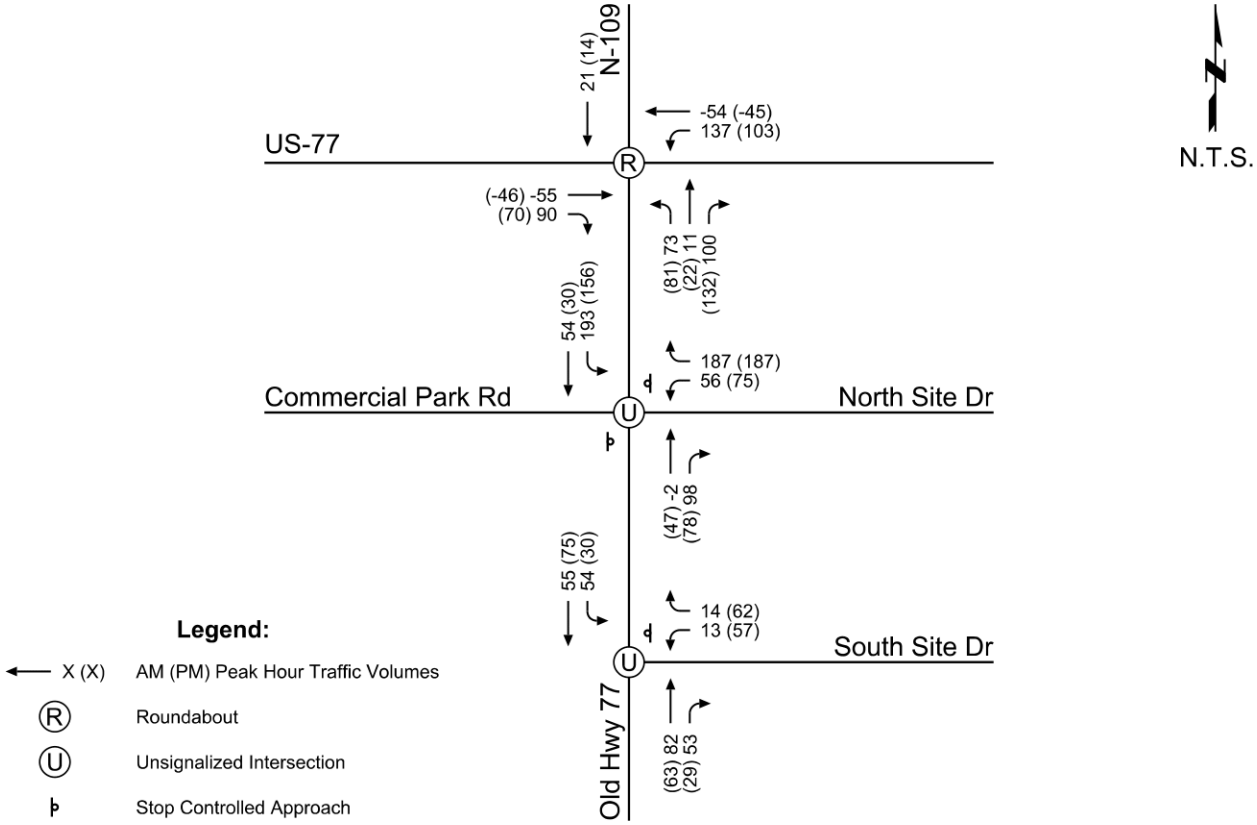


Figure 10 – Opening Day (2028) AM & PM Total Site Trips

3.3 Background Plus Site Trip Peak Hour Volumes

The generated site trips were then added to the opening day (2028) and horizon year (2038) background peak hour volumes to derive background plus site AM & PM peak hour volumes. The projected opening day (2028) and horizon year (2038) background plus site AM & PM peak hour volumes are shown in Figure 11 and Figure 12, respectively.

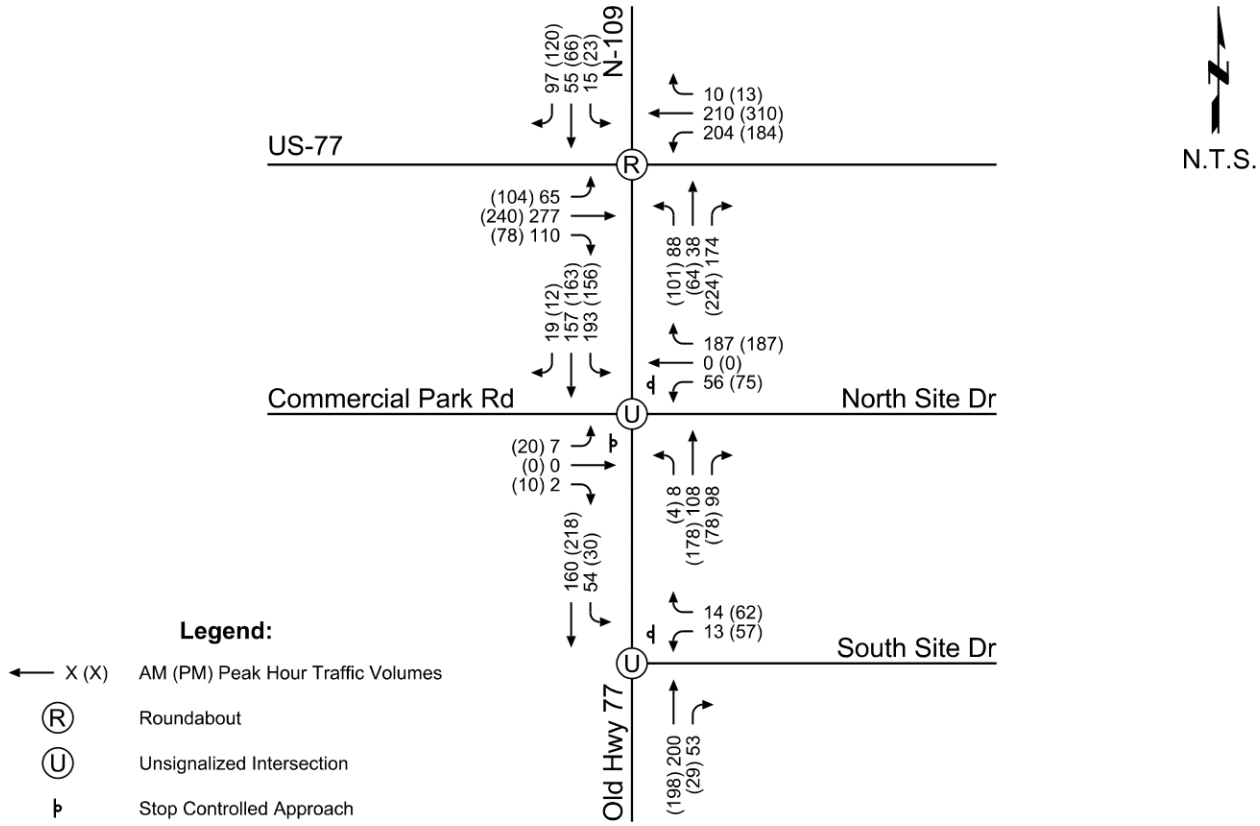


Figure 11 – Opening Day (2028) Background Plus Site Trip AM & PM Peak Hour Volumes

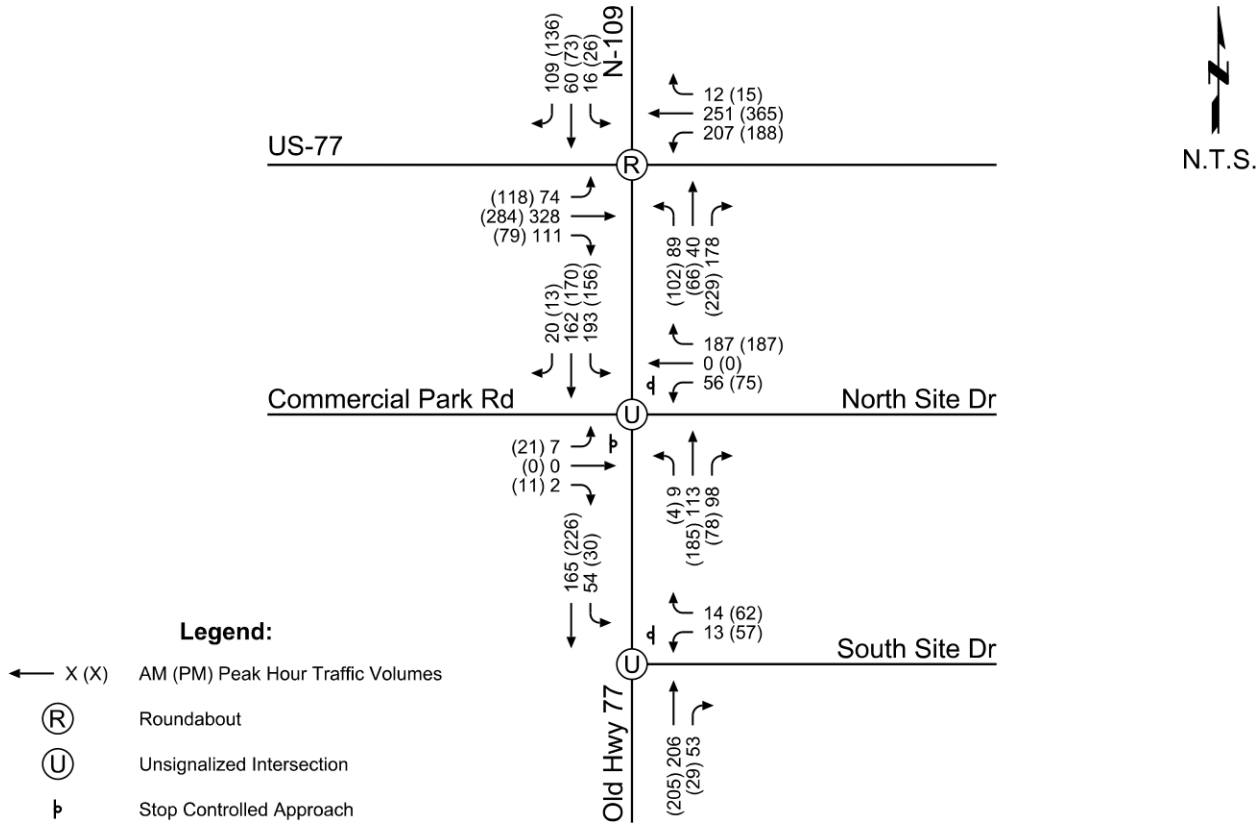


Figure 12 – Horizon Year (2038) Background Plus Site Trip AM & PM Peak Hour Volumes

4.0 Future Traffic Operations Analysis

Future traffic volumes developed in the previous section were then used to analyze the traffic operations of the street network under future year scenarios.

4.1 Future Background Peak Hour Capacity Analysis

Future background peak hour volumes were used to analyze how the existing street network would function in future years without the addition of site trips from the development. Figure 13 and Figure 14 summarize the results of this analysis. All movements operate at LOS A, except for the eastbound movement at Old Hwy 77 & Commercial Park Road which operates at LOS B in the PM peak hour under both years. 95th-percentile queues are expected to be minimal, with the largest queue of 3.5 vehicles on the westbound approach to the US-77 & N-109 / Old Hwy 77 intersection during the PM peak in year 2038. Intersection operations analysis reports can be found in Appendix C.

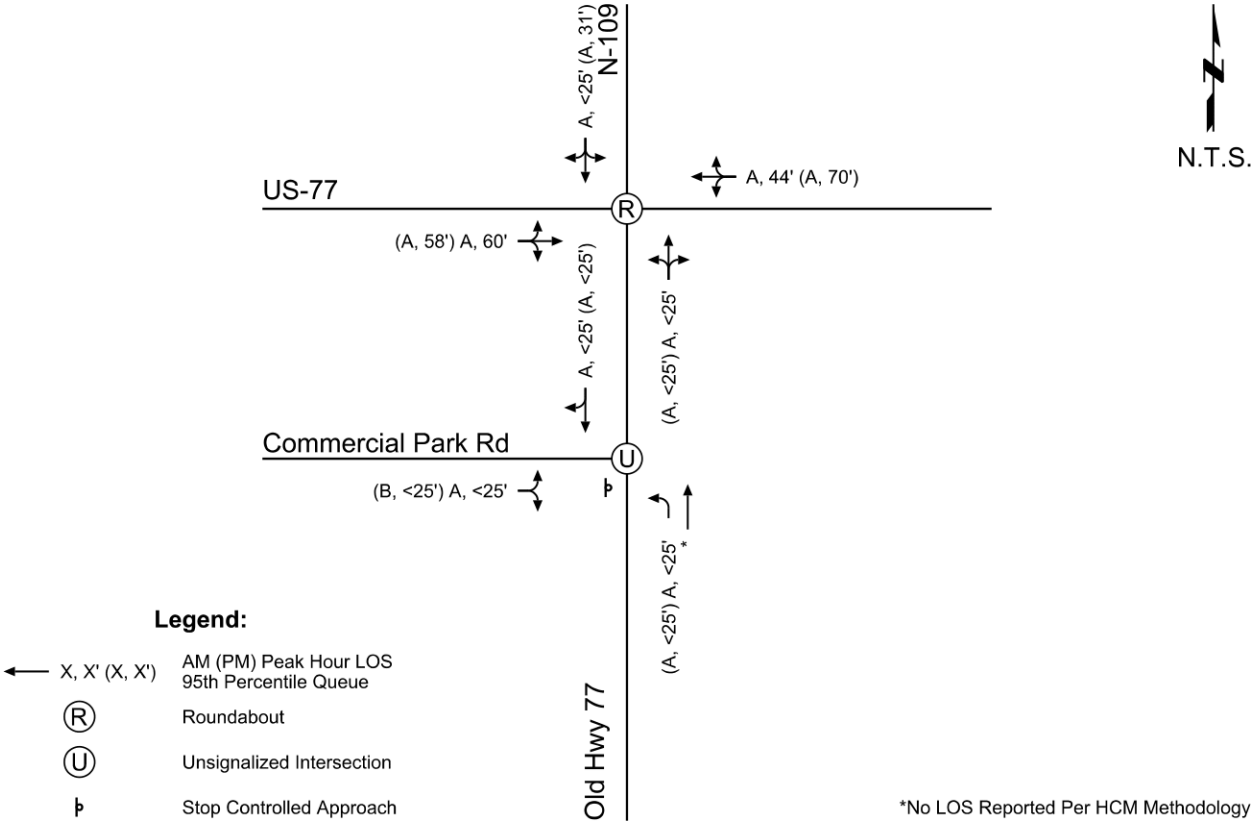


Figure 13 – Opening Day (2028) Future Background LOS

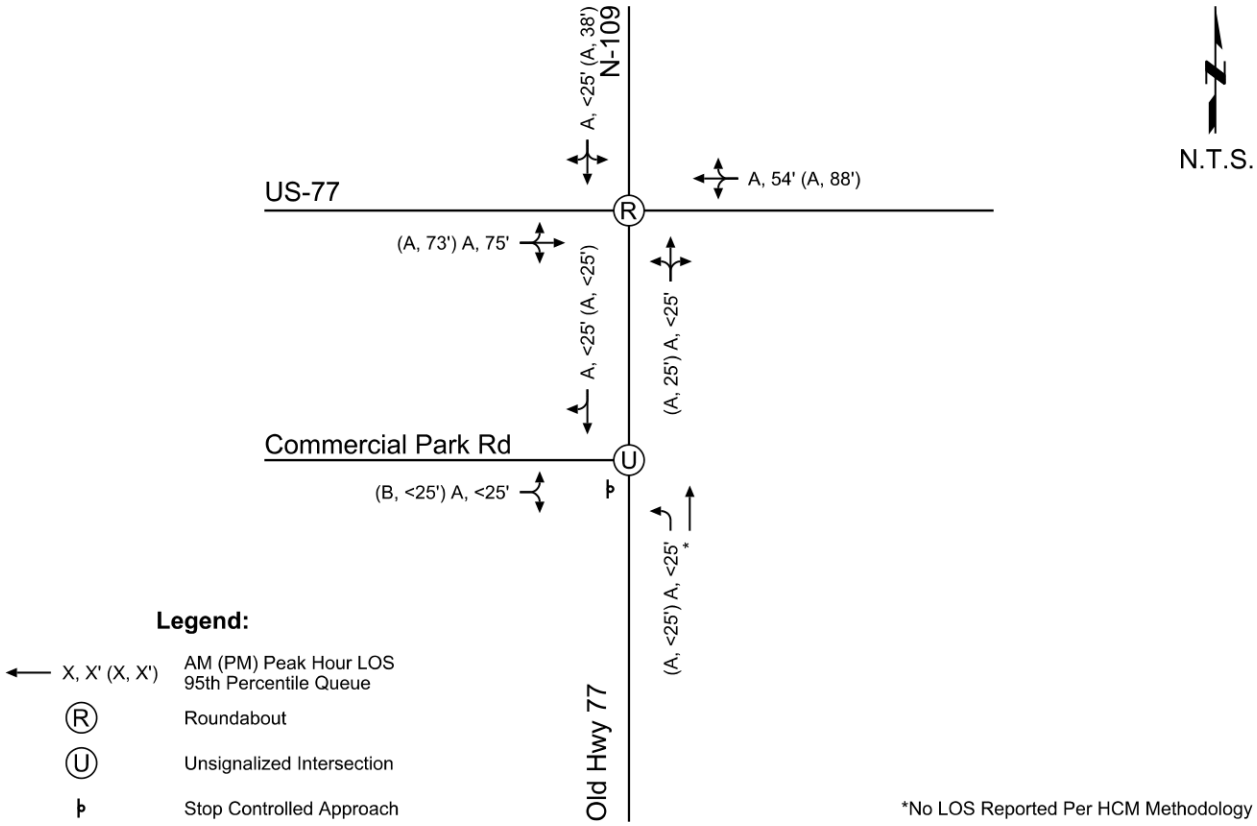


Figure 14 – Horizon Year (2038) Future Background LOS

4.2 Future Background Plus Site Trip Peak Hour Capacity Analysis

Future background plus site trip peak hour volumes were analyzed for opening day (2028) and horizon year (2038) conditions. The only geometric changes for this analysis includes the addition of the two access drives for the development. These driveways comprise of a single lane in each direction. At the Old Hwy 77 intersections with these site driveways, no turn lanes have been added. Capacity analysis results are summarized in Figure 15 and Figure 16. As shown, all movements at the intersection of US-77 & N-109 / Old Hwy 77 and Old Hwy 77 & South Site Drive are expected to operate at LOS B, or better. At the intersection of Old Hwy 77 & Commercial Park Road / North Site Drive, the stop-controlled approaches on the side streets experience LOS C, which is common for stop-controlled approaches to major through streets. Additionally, 95th-percentile queues increase with the largest queue expected to be 7.8 vehicles on the westbound approach to the US-77 & N-109 / Old Hwy 77 intersection during the PM peak in year 2038. The largest expected 95th-percentile queue of the two site drives is at the North Site Drive with a queue of 3.4 vehicles in 2028 and 3.5 vehicles in 2038. Intersection operations analysis reports can be found in Appendix C.

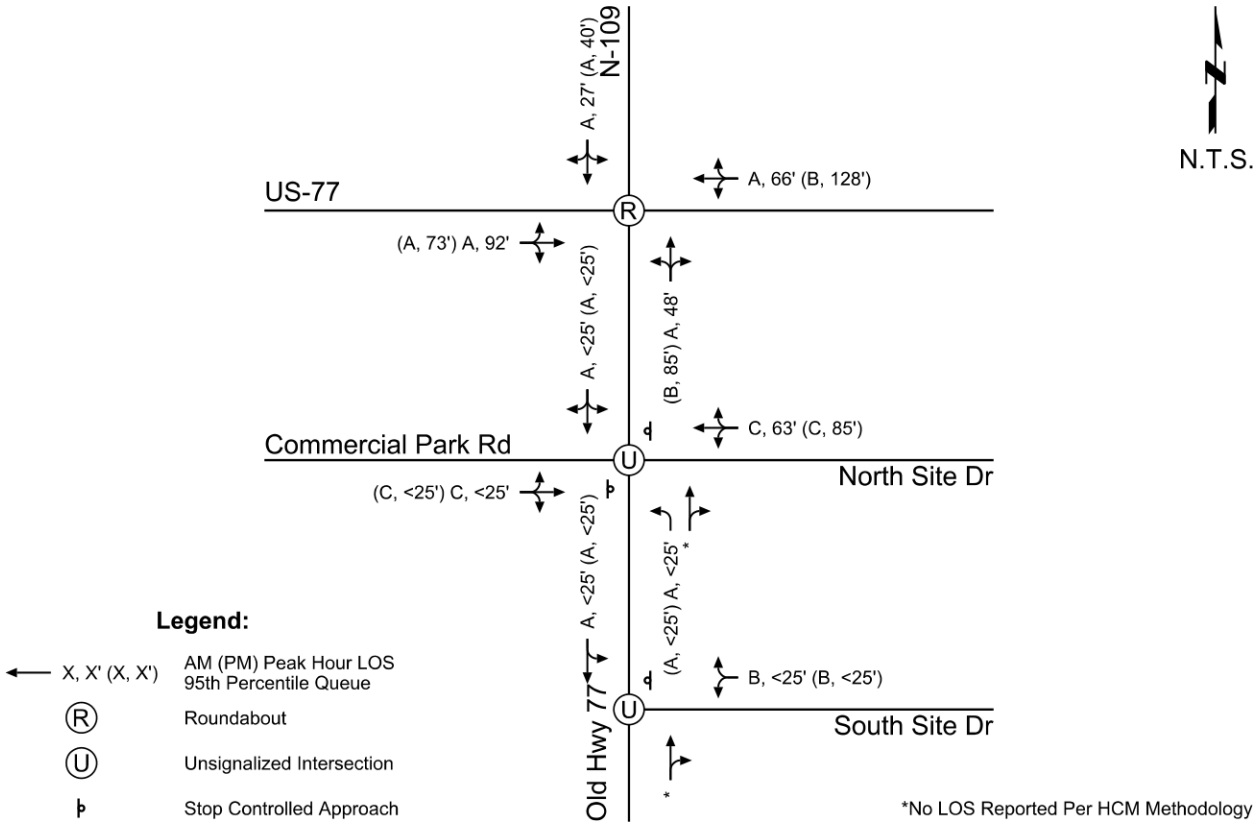


Figure 15 – Opening Day (2028) Future Background Plus Site Trip LOS

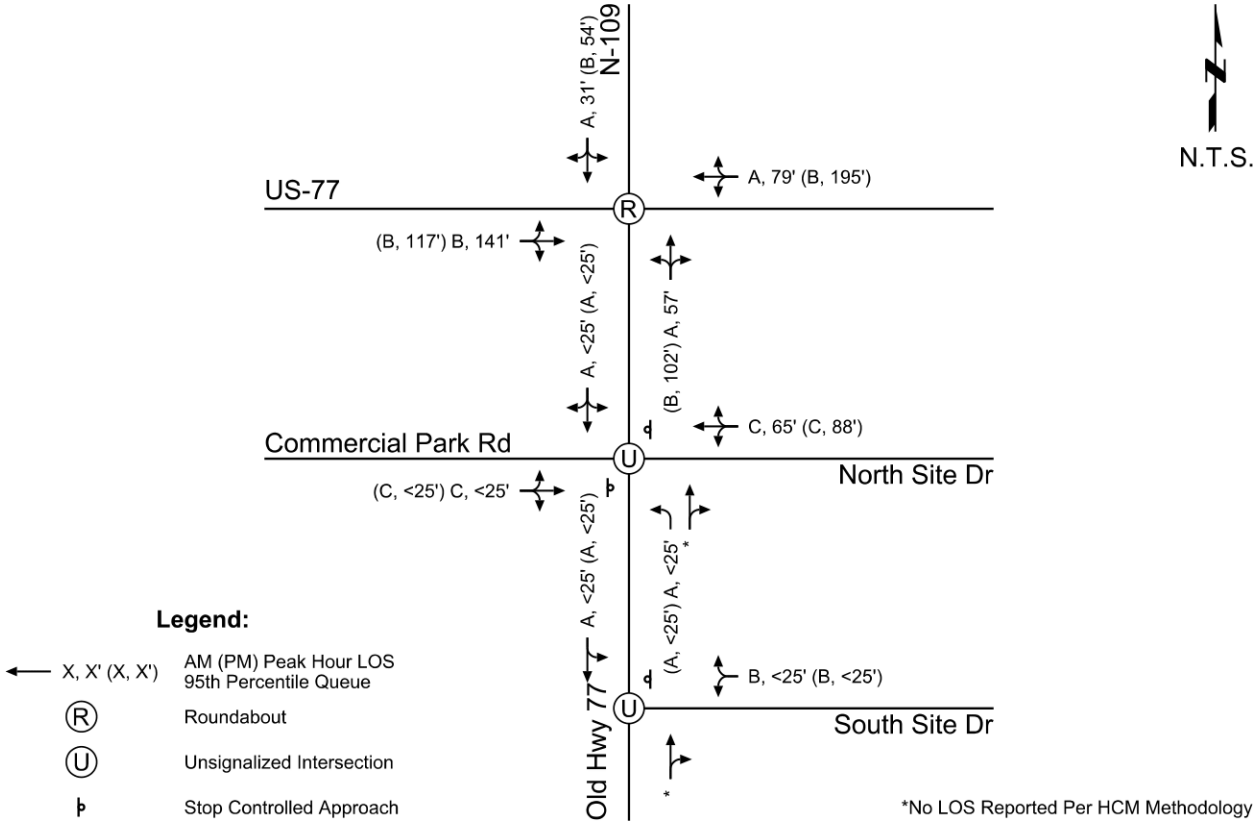


Figure 16 – Horizon Year (2038) Future Background Plus Site Trip LOS

4.3 Turn Lane Warrant Analysis

Peak hour volumes previously shown in Figure 11 and Figure 12 were evaluated in accordance with methodology found in the National Cooperative Highway Research Program (NCHRP) Report 457 to determine the need for major road left-turn and right-turn lanes at the two site drive intersections. A summary of the turn lane warrant analysis is shown in Table 7 indicating the first year a turn lane is warranted or not warranted at all. NCHRP turn lane warrant graphs are included in Appendix D.

Table 7 – Turn Lane Warrant Summary

Location	Movement			
	Northbound Left-Turn	Southbound Left-Turn	Northbound Right-Turn	Southbound Right-Turn
North Site Drive	Not Warranted	Warranted 2028	Not Warranted	Not Warranted
South Site Drive	-	Not Warranted	Not Warranted	-

4.4 Future Buildout Traffic Operations Analysis

Background plus site trip peak hour volumes were analyzed under a scenario that implements the warranted turn lane presented in Section 4.3. Analysis results showing the addition of a southbound left-turn lane at the North Site Drive intersection are displayed in Figure 17 and Figure 18. As shown, the intersections continue to operate with similar LOS. Additionally, 95th-percentile queues are similar to the results without the turn lane. Intersection operations analysis reports can be found in Appendix C. However, it should be noted that since there are no changes in intersection geometrics or traffic volumes at the US-77 & N-109 / Old Hwy 77 and Old Hwy 77 & South Site Drive intersections, output reports for this scenario are not included in Appendix C under “Future Buildout Conditions”. See output sheets for the “Future Background Plus Site Trip Conditions” for more detailed information on how these intersections function under the future buildout conditions.

It is recognized that the addition of a southbound left-turn lane at the North Site Drive intersection does not contribute much to improved operations. However, the addition of this turn lane does contribute to increasing overall safety. As noted in NCHRP 457, the presence of a left-turn lane separates slower left-turning vehicles from the faster through vehicles by providing them with their own lane to slow down and wait for a break in opposing traffic. According to NDOT’s list of approved crash modification factors (CMFs), the presence of a southbound left-turn lane at the North Site Drive intersection decreases the crash potential of that intersection by 27%.

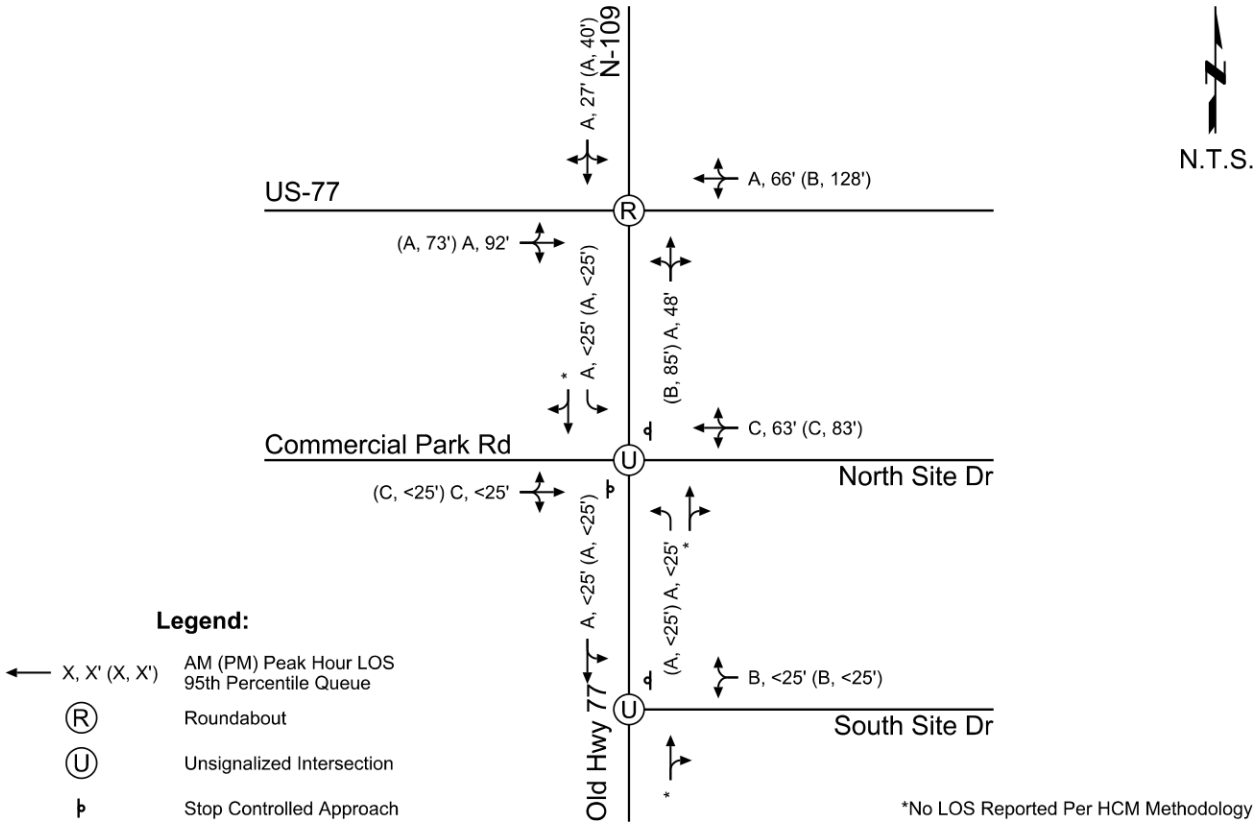


Figure 17 – Opening Day (2028) Future Buildout LOS

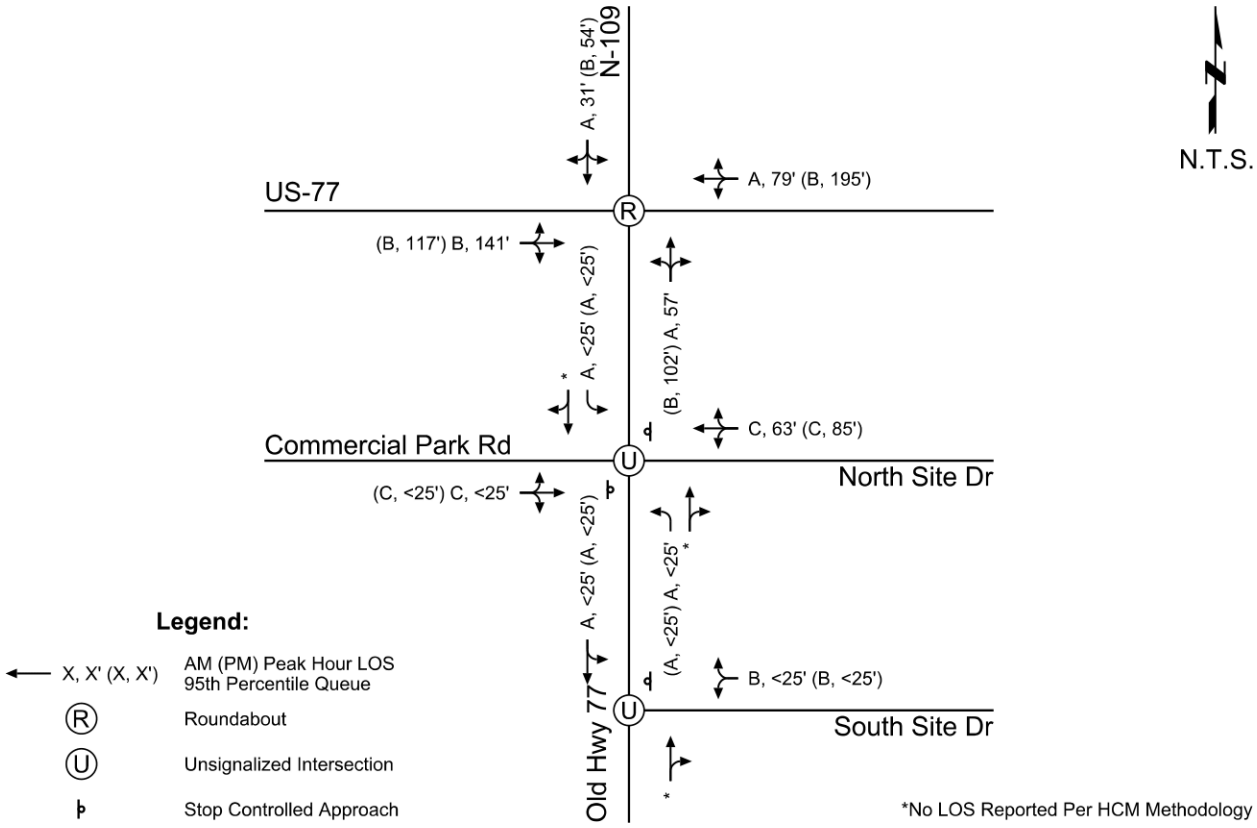


Figure 18 – Horizon Year (2038) Future Buildout LOS

4.5 Access Management

The locations of the two proposed site drives were reviewed to confirm compliance with NDOT's access control policy. For access points located on a public road intersecting a divided highway, the minimum distance from the edge of the nearest through lane of the highway to the nearest edge of the access road is 220'. Measured from the roundabout plans at US-77 & N-109 / Old Hwy 77, there is over 300' between the south edge of the splitter island on the south leg of the roundabout to the nearest edge of the proposed location of North Site Drive. This meets the required minimum distance desired by NDOT. The applicable sheet from NDOT's access control policy is included in Appendix E.

5.0 Conclusions and Recommendations

Based on the results of the traffic study analyses, the following conclusions and recommendations are provided:

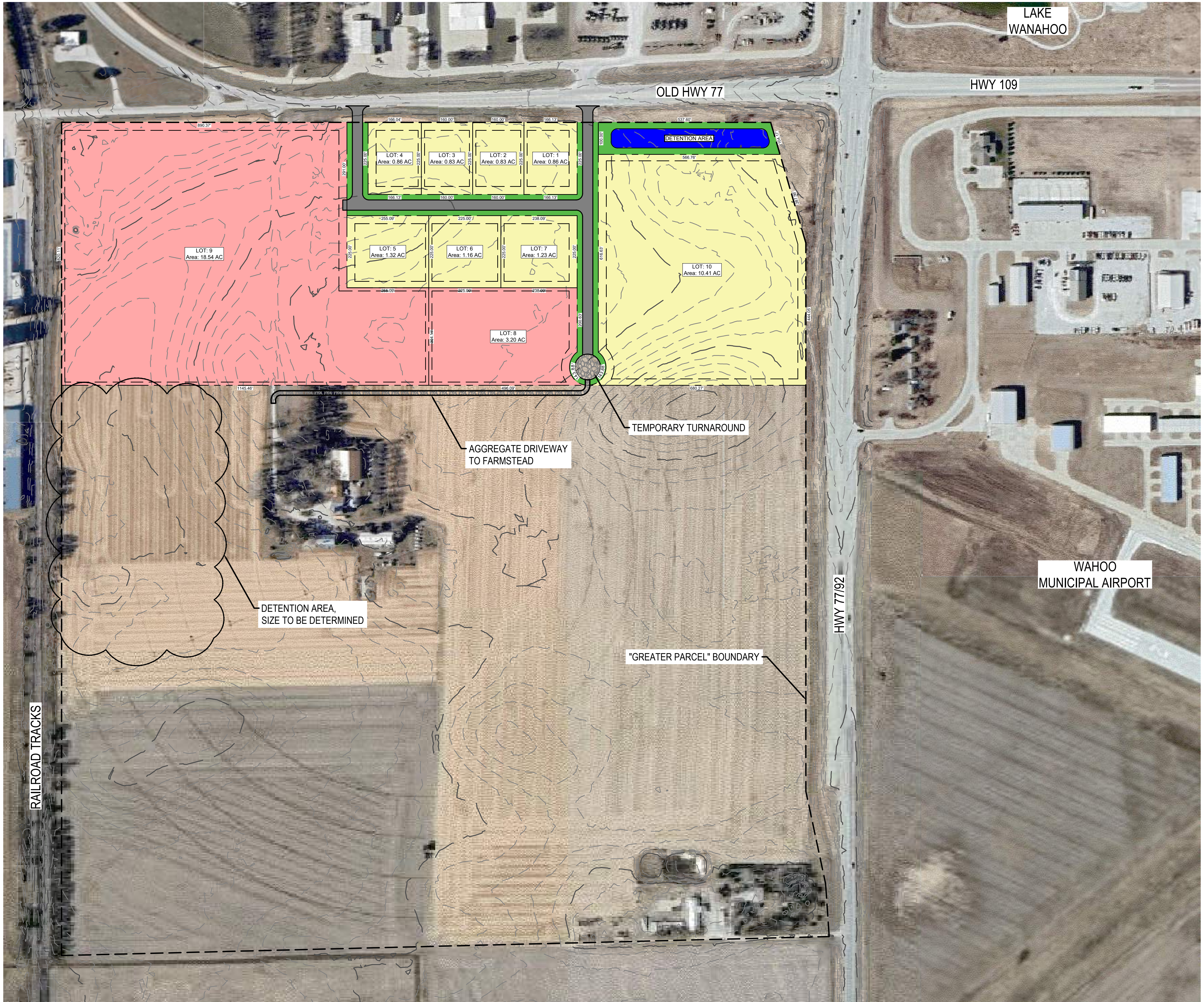
1. There are no major impacts to traffic operations of the existing street network with the increase in traffic associated with the development. All movements at the roundabout intersection of US-77 & N-109 / Old Hwy 77 are expected to operate at LOS B, or better, with the increase in traffic volumes generated by the site.

2. A southbound left-turn lane should be constructed on Old Hwy 77 at the North Site Drive intersection. Although any major improvement to traffic operations is not anticipated, separating out the left-turning traffic from through traffic improves safety and limits instances of rear end crashes. According to NDOT's approved list of CMFs, the crash potential at the intersection decreases by 28%. 95th-percentile queue lengths for the southbound left-turn movements at the two site drive intersections are expected to be less than one vehicle.

3. The site drive approaches to Old Hwy 77 should be single lane approaches. Traffic operations results show that the North Site Drive approach is expected to operate at LOS C under Opening Day (2028) and Horizon Year (2038) conditions. At the South Site Drive approach, traffic operations are expected to operate at LOS B for both time periods. 95th-percentile queues are minimal with the largest queue of about four vehicles on the westbound approach of North Site Drive to Old Hwy 77. These results are common for the stop-controlled approaches at TWSC intersections. Additionally, multiple lanes on stop-controlled approaches create potential safety issues such as obstructed sightlines and ambiguity in determining right-of-way.

4. At the request of NDOT, development discussions should be had between the developer, NDOT, and the City of Wahoo about sidewalk connectivity between the development and the existing sidewalk network as the proposed convenience store / gas station could be a potential generator for pedestrian trips to the development.

APPENDIX A:
Preliminary Site Plan



GRAPHIC SCALE

0 75 150 300

UNIT OF MEASURE IS FEET

JEO CONSULTING GROUP
1-800-723-8567

(yellow)	COMMERCIAL LOTS (8)
(pink)	INDUSTRIAL LOTS (2)
(grey)	PROPOSED PAVEMENT
(blue)	PROPOSED DETENTION

NOTE:

1. ALL ROADWAY CONNECTIONS TO EXISTING ROADS ARE CONCEPTUAL AND WILL REQUIRE APPROVALS.
2. CONTOURS SHOWN ARE TAKEN FROM AVAILABLE LIDAR DATA. NO FIELD WORK OR ELEVATION CONFIRMATION HAS BEEN COMPLETED OR SHOWN ON THIS EXHIBIT.

2024 CONCEPTUAL DEVELOPMENT
WAHOO, NE

KRUML CONCEPTUAL DEVELOPMENT
EXHIBIT A

PRELIMINARY
NOT FOR CONSTRUCTION
0%
DATE:
3/31/2025

PROJECT NO.	PROJECT NO.
DATE	3/31/2025
DRAWN BY	TCK
FILE NAME	Kruml_ConceptualDev_2025-03-31.dwg
FIELD BOOK	FIELD BOOK
FIELD CREW	FIELD CREW
SURVEY FILE NO.	SURVEY FILE #
PLAN IN HAND INITIALS / DATE	PIH INI / PIH DATE
70 PERCENT REVIEW INITIALS / DATE	70% INI / 70% DATE
95 PERCENT REVIEW INITIALS / DATE	95% INI / 95% DATE
REVISIONS	

811 Know what's below. Call before you dig.

APPENDIX B:
Traffic Data Collection Sheets

US-77 & N-109 / Old US-77 Roundabout - TMC

Thu Aug 28, 2025
Full Length (12 AM-12 AM (+1))
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2025-08-28 12:00AM	0	1	0	0	**1**	1	7	0	0	**8**	0	0	1	0	**1**	0	0	1	0	**1**	**11**
12:15AM	2	2	0	0	**4**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
12:30AM	0	2	0	0	**2**	3	9	0	0	**12**	0	1	2	0	**3**	0	0	3	0	**3**	**20**
12:45AM	1	2	0	0	**3**	1	2	1	0	**4**	0	0	1	0	**1**	0	0	1	0	**1**	**9**
Hourly Total	3	7	0	0	**10**	5	21	1	0	**27**	0	1	4	0	**5**	0	0	5	0	**5**	**47**
1:00AM	2	5	0	0	**7**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	1	0	**1**	**15**
1:15AM	0	0	0	0	**0**	1	4	0	0	**5**	0	0	0	0	**0**	0	3	0	0	**3**	**8**
1:30AM	0	1	0	0	**1**	0	4	0	0	**4**	0	2	1	0	**3**	0	0	1	0	**1**	**9**
1:45AM	1	2	0	0	**3**	1	2	0	0	**3**	0	0	2	0	**2**	0	0	0	0	**0**	**8**
Hourly Total	3	8	0	0	**11**	2	17	0	0	**19**	0	2	3	0	**5**	0	3	2	0	**5**	**40**
2:00AM	1	2	0	0	**3**	0	0	0	0	**0**	0	1	0	0	**1**	0	0	0	0	**0**	**4**
2:15AM	0	2	0	0	**2**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**4**
2:30AM	0	3	0	0	**3**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
2:45AM	0	1	0	0	**1**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**3**
Hourly Total	1	8	0	0	**9**	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	**16**
3:00AM	0	4	0	0	**4**	0	6	0	0	**6**	0	0	1	0	**1**	0	0	0	0	**0**	**11**
3:15AM	0	5	0	0	**5**	1	5	0	0	**6**	0	0	2	0	**2**	0	0	0	0	**0**	**13**
3:30AM	0	7	0	0	**7**	0	5	0	0	**5**	0	0	2	0	**2**	0	0	0	0	**0**	**14**
3:45AM	0	9	0	0	**9**	2	5	0	0	**7**	1	0	3	0	**4**	0	0	0	0	**0**	**20**
Hourly Total	0	25	0	0	**25**	3	21	0	0	**24**	1	0	8	0	**9**	0	0	0	0	**0**	**58**
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4:15AM	0	6	5	0	**11**	3	5	1	0	**9**	0	0	5	0	**5**	0	2	0	0	**2**	**27**
4:30AM	0	8	8	0	**16**	6	13	0	0	**19**	0	2	3	0	**5**	1	0	1	0	**2**	**42**
4:45AM	2	10	3	1	**16**	4	8	0	0	**12**	1	0	4	0	**5**	1	0	2	0	**3**	**36**
Hourly Total	3	30	16	1	**50**	13	31	1	0	**45**	2	2	12	0	**16**	2	2	3	0	**7**	**118**
5:00AM	0	15	0	0	**15**	0	20	1	0	**21**	0	0	3	0	**3**	0	0	3	0	**3**	**42**
5:15AM	2	24	1	0	**27**	3	18	1	0	**22**	0	0	11	0	**11**	0	0	9	0	**9**	**69**
5:30AM	12	23	2	0	**37**	1	25	0	0	**26**	0	3	12	0	**15**	2	1	4	0	**7**	**85**
5:45AM	5	32	4	0	**41**	7	29	0	0	**36**	0	4	7	0	**11**	1	2	4	0	**7**	**95**
Hourly Total	19	94	7	0	**120**	11	92	2	0	**105**	0	7	33	0	**40**	3	3	20	0	**26**	**291**
6:00AM	4	43	3	0	**50**	5	43	0	0	**48**	1	1	16	0	**18**	4	3	11	0	**18**	**134**
6:15AM	5	55	1	0	**61**	7	39	2	0	**48**	1	4	13	0	**18**	5	5	13	0	**23**	**150**
6:30AM	8	61	4	0	**73**	8	48	2	0	**58**	2	6	20	0	**28**	1	2	13	0	**16**	**175**
6:45AM	11	53	4	0	**68**	14	35	2	0	**51**	0	9	20	0	**29**	2	9	13	0	**24**	**172**
Hourly Total	28	212	12	0	**252**	34	165	6	0	**205**	4	20	69	0	**93**	12	19	50	0	**81**	**631**
7:00AM	8	67	3	0	**78**	6	36	0	0	**42**	1	5	21	0	**27**	10	13	12	0	**35**	**182**
7:15AM	14	75	2	0	**91**	14	54	1	0	**69**	3	11	24	0	**38**	4	5	29	0	**38**	**236**
7:30AM	13	105	6	0	**124**	19	84	5	0	**108**	2	4	8	0	**14**	3	16	24	0	**43**	**289**
7:45AM	17	76	6	0	**99**	18	61	2	0	**81**	3	4	27	0	**34**	2	6	26	0	**34**	**248**
Hourly Total	52	323	17	0	**392**	57	235	8	0	**300**	9	24	80	0	**113**	19	40	91	0	**150**	**955**
8:00AM	19	62	6	0	**87**	15	54	2	0	**71**	7	8	14	0	**29**	5	6	14	0	**25**	**212**
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8:30AM	26	74	1	0	**101**	17	63	5	0	**85**	2	9	23	0	**34**	5	6	18	0	**29**	**249**
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Hourly Total	67	214	12	0	**293**	40	200	13	0	**253**	12	13	72	0	**97**	15	25	54	0	**94**	**737**
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Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
Hourly Total	54	228	11	0	**293**	44	178	13	0	**235**	9	19	56	0	**84**	16	27	53	0	**96**	**708**
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11:15AM	6	48	8	0	**62**	13	41	2	0	**56**	3	6	15	0	**24**	2	2	22	0	**26**	**168**
11:30AM	20	53	3	0	**76**	16	56	2	0	**74**	5	1	20	0	**26**	4	8	16	0	**28**	**204**
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12:30PM	12	35	2	0	**49**	11	53	2	0	**66**	2	5	13	0	**20**	3	12	18	0	**33**	**168**
12:45PM	14	56	2	0	**72**	13	52	4	0	**69**	1	12	15	0	**28**	5	10	13	0	**28**	**197**
Hourly Total	59	192	6	0	**257**	48	176	12	0	**236**	8	34	61	0	**103**	20	36	77	0	**133**	**729**
1:00PM	14	49	3	0	**66**	10	55	1	0	**66**	3	5	15	0	**23**	6	9	13	0	**28**	**183**
1:15PM	13	55	4	0	**72**	17	35	5	0	**57**	1	15	17	0	**33**	3	7	17	0	**27**	**189**
1:30PM	14	49	3	0	**66**	20	58	1	0	**79**	4	8	12	0	**24**	8	5	17	0	**30**	**199**
1:45PM	12	75	4	0	**91**	13	59	1	0	**73**	2	14	16	0	**32**	2	3	21	0	**26**	**222**
Hourly Total	53	228	14	0	**295**	60	207	8	0	**275**	10	42	60	0	**112**	19	24	68	0	**111**	**793**
2:00PM	15	55	6	0	**76**	14	47	6	0	**67**	2	8	11	0	**21**	2	9	16	0	**27**	**191**
2:15PM	3	48	2	0	**53**	24	59	2	0	**85**	2	6	10	0	**18**	4	8	9	0	**21**	**177**
2:30PM	15	51	6	0	**72**	24	52	1	0	**77**	1	8	18	0	**27**	4	6	15	0	**25**	**201**
2:45PM	12	55	8	0	**75**	15	65	2	0	**82**	5	12	22	0	**39**	4	20	12	0	**36**	**232**
Hourly Total	45	209	22	0	**276**	77	223	11	0	**311**	10	34	61	0	**105**	14	43	52	0	**109**	**801**
3:00PM	12	48	4	0	**64**	20	68	2	0	**90**	4	11	13	0	**28**	1	10	14	0	**25**	**207**
3:15PM	20	69	4	0	**93**	17	74	6	0	**97**	2	13	14	0	**29**	1	10	22	0	**33**	**252**
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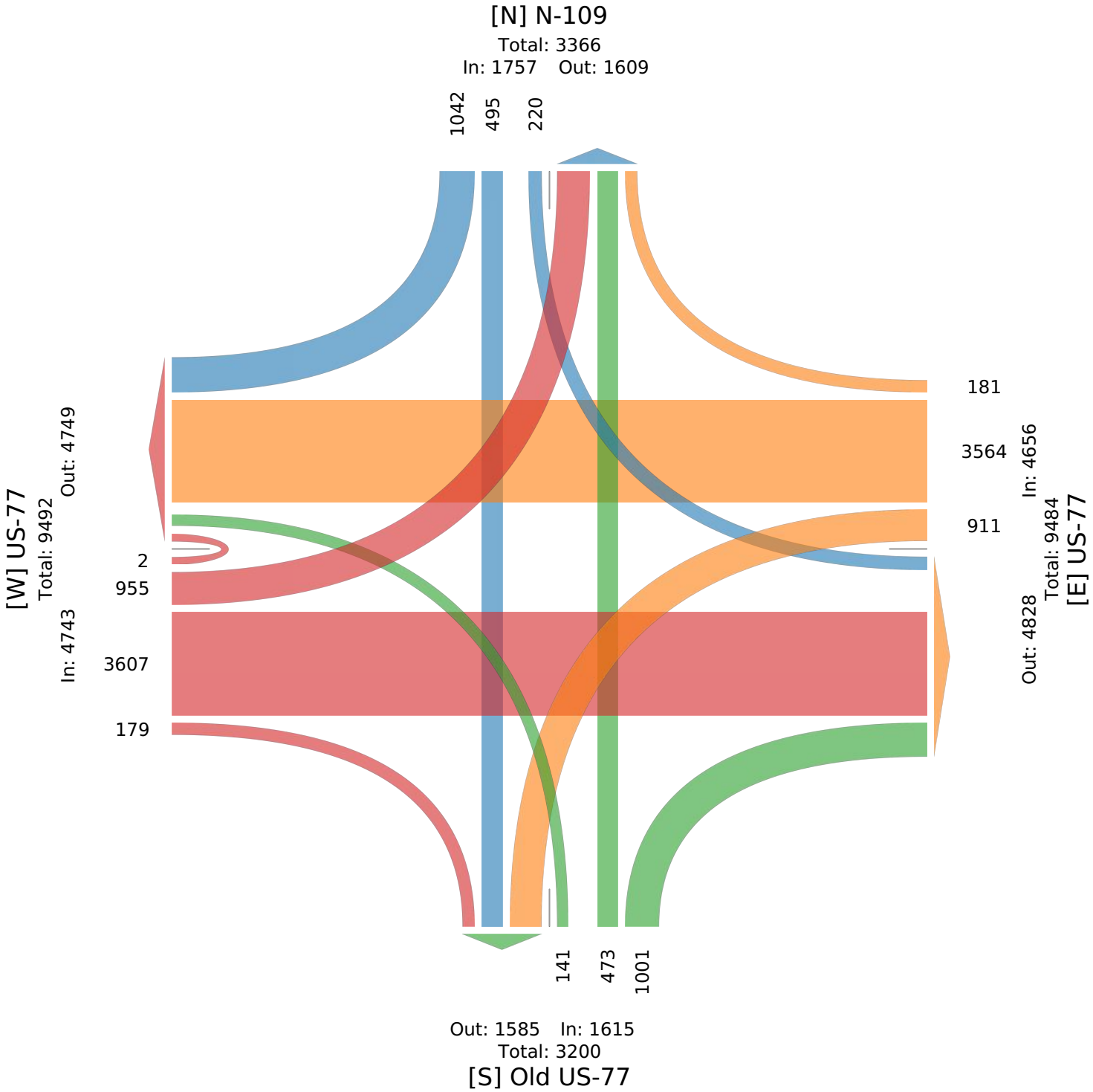
4:30PM	30	71	4	0	**105**	18	91	4	0	**113**	8	8	26	0	**42**	10	14	28	0	**52**	**312**
4:45PM	17	67	1	0	**85**	23	82	2	0	**107**	4	8	19	0	**31**	6	15	28	0	**49**	**272**
Hourly Total	100	274	8	0	**382**	80	340	13	0	**433**	20	41	91	0	**152**	22	50	116	0	**188**	**1155**
5:00PM	22	73	2	0	**97**	24	88	7	0	**119**	3	6	17	0	**26**	4	9	16	0	**29**	**271**
5:15PM	25	70	1	0	**96**	19	99	6	0	**124**	4	10	16	0	**30**	6	11	21	0	**38**	**288**
5:30PM	23	71	0	0	**94**	22	73	2	0	**97**	5	8	17	0	**30**	6	11	20	0	**37**	**258**
5:45PM	16	66	0	0	**82**	19	76	4	0	**99**	1	9	12	0	**22**	3	10	13	0	**26**	**229**
Hourly Total	86	280	3	0	**369**	84	336	19	0	**439**	13	33	62	0	**108**	19	41	70	0	**130**	**1046**
6:00PM	25	63	4	0	**92**	22	58	5	0	**85**	0	9	12	0	**21**	0	9	20	0	**29**	**227**
6:15PM	17	38	0	0	**55**	14	48	4	0	**66**	0	5	12	0	**17**	3	10	12	0	**25**	**163**
6:30PM	20	54	1	0	**75**	12	39	1	0	**52**	2	8	9	0	**19**	2	6	13	0	**21**	**167**
6:45PM	13	54	0	0	**67**	8	50	3	0	**61**	3	4	7	0	**14**	3	12	12	0	**27**	**169**
Hourly Total	75	209	5	0	**289**	56	195	13	0	**264**	5	26	40	0	**71**	8	37	57	0	**102**	**726**
7:00PM	13	39	2	0	**54**	9	45	2	0	**56**	0	6	9	0	**15**	1	9	11	0	**21**	**146**
7:15PM	10	38	0	0	**48**	12	29	1	0	**42**	0	6	16	0	**22**	3	7	13	0	**23**	**135**
7:30PM	10	26	2	1	**39**	13	30	0	0	**43**	0	0	11	0	**11**	1	5	13	0	**19**	**112**
7:45PM	6	21	1	0	**28**	9	39	3	0	**51**	0	5	3	0	**8**	0	1	7	0	**8**	**95**
Hourly Total	39	124	5	1	**169**	43	143	6	0	**192**	0	17	39	0	**56**	5	22	44	0	**71**	**488**
8:00PM	11	35	0	0	**46**	7	21	0	0	**28**	0	3	4	0	**7**	2	2	10	0	**14**	**95**
8:15PM	9	26	1	0	**36**	7	24	2	0	**33**	0	3	5	0	**8**	1	0	8	0	**9**	**86**
8:30PM	8	16	1	0	**25**	4	16	3	0	**23**	0	0	6	0	**6**	1	2	7	0	**10**	**64**
8:45PM	4	17	0	0	**21**	3	26	0	0	**29**	0	2	3	0	**5**	1	4	2	0	**7**	**62**
Hourly Total	32	94	2	0	**128**	21	87	5	0	**113**	0	8	18	0	**26**	5	8	27	0	**40**	**307**
9:00PM	5	12	0	0	**17**	4	17	1	0	**22**	1	7	3	0	**11**	2	0	3	0	**5**	**55**
9:15PM	1	11	1	0	**13**	4	18	0	0	**22**	0	4	5	0	**9**	0	2	6	0	**8**	**52**
9:30PM	6	11	0	0	**17**	0	15	0	0	**15**	0	0	1	0	**1**	0	1	2	0	**3**	**36**
9:45PM	1	12	0	0	**13**	2	24	1	0	**27**	0	2	2	0	**4**	1	3	5	0	**9**	**53**
Hourly Total	13	46	1	0	**60**	10	74	2	0	**86**	1	13	11	0	**25**	3	6	16	0	**25**	**196**
10:00PM	4	12	0	0	**16**	2	16	1	0	**19**	0	5	11	0	**16**	0	0	3	0	**3**	**54**
10:15PM	4	16	0	0	**20**	3	15	3	0	**21**	0	4	8	0	**12**	0	1	0	0	**1**	**54**
10:30PM	1	4	0	0	**5**	1	15	1	0	**17**	0	1	1	0	**2**	0	1	3	0	**4**	**28**
10:45PM	1	13	0	0	**14**	3	9	0	0	**12**	0	1	1	0	**2**	1	0	1	0	**2**	**30**

Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
Hourly Total	10	45	0	0	**55**	9	55	5	0	**69**	0	11	21	0	**32**	1	2	7	0	**10**	**166**
11:00PM	3	9	0	0	**12**	4	11	0	0	**15**	0	0	0	0	**0**	0	0	1	0	**1**	**28**
11:15PM	1	4	0	0	**5**	2	11	2	0	**15**	0	1	2	0	**3**	0	0	1	0	**1**	**24**
11:30PM	2	7	0	0	**9**	1	10	1	0	**12**	0	0	1	0	**1**	0	4	1	0	**5**	**27**
11:45PM	3	11	0	0	**14**	4	13	0	0	**17**	0	1	1	0	**2**	0	0	2	0	**2**	**35**
Hourly Total	9	31	0	0	**40**	11	45	3	0	**59**	0	2	4	0	**6**	0	4	5	0	**9**	**114**
Total	955	3607	179	2	**4743**	911	3564	181	0	**4656**	141	473	1001	0	**1615**	220	495	1042	0	**1757**	**12771**
% Approach	20.1%	76.0%	3.8%	0%	**-**	19.6%	76.5%	3.9%	0%	**-**	8.7%	29.3%	62.0%	0%	**-**	12.5%	28.2%	59.3%	0%	**-**	-
% Total	7.5%	28.2%	1.4%	0%	**37.1%**	7.1%	27.9%	1.4%	0%	**36.5%**	1.1%	3.7%	7.8%	0%	**12.6%**	1.7%	3.9%	8.2%	0%	**13.8%**	-
Lights	908	3008	158	2	**4076**	852	2978	162	0	**3992**	119	456	941	0	**1516**	188	480	976	0	**1644**	11228
% Lights	95.1%	83.4%	88.3%	100%	**85.9%**	93.5%	83.6%	89.5%	0%	**85.7%**	84.4%	96.4%	94.0%	0%	**93.9%**	85.5%	97.0%	93.7%	0%	**93.6%**	87.9%
Articulated Trucks	26	502	13	0	**541**	27	483	13	0	**523**	15	6	22	0	**43**	22	7	39	0	**68**	1175
% Articulated Trucks	2.7%	13.9%	7.3%	0%	**11.4%**	3.0%	13.6%	7.2%	0%	**11.2%**	10.6%	1.3%	2.2%	0%	**2.7%**	10.0%	1.4%	3.7%	0%	**3.9%**	9.2%
Buses and Single-Unit Trucks	21	97	8	0	**126**	32	103	6	0	**141**	7	11	38	0	**56**	10	8	27	0	**45**	368
% Buses and Single-Unit Trucks	2.2%	2.7%	4.5%	0%	**2.7%**	3.5%	2.9%	3.3%	0%	**3.0%**	5.0%	2.3%	3.8%	0%	**3.5%**	4.5%	1.6%	2.6%	0%	**2.6%**	2.9%

*L: Left, R: Right, T: Thru, U: U-Turn

US-77 & N-109 / Old US-77 Roundabout - TMC
Thu Aug 28, 2025
Full Length (12 AM-12 AM (+1))
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



US-77 & N-109 / Old US-77 Roundabout - TMC

Thu Aug 28, 2025
AM Peak (Aug 28 2025 7:15AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

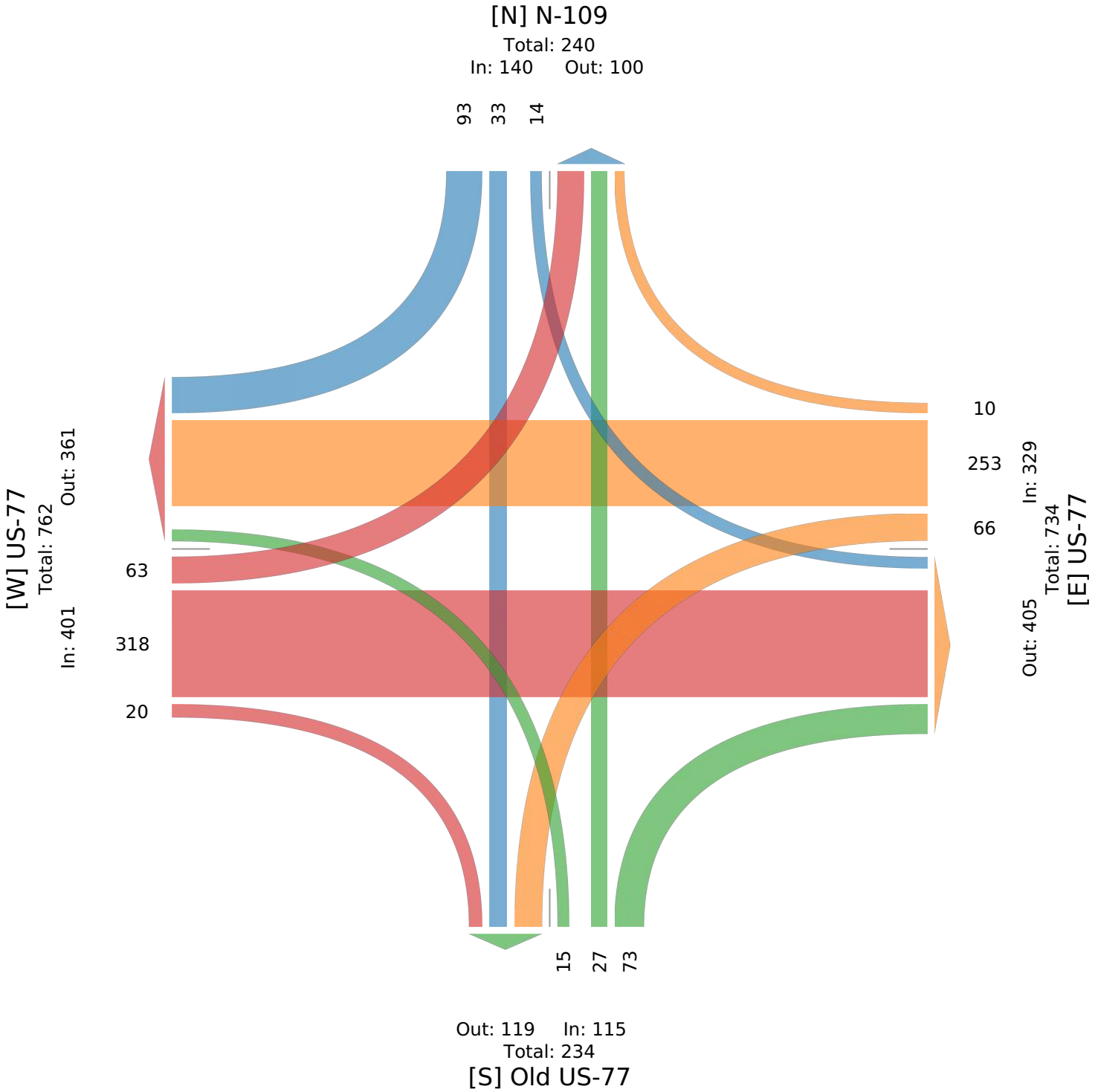
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2025-08-28 7:15AM	14	75	2	0	**91**	14	54	1	0	**69**	3	11	24	0	**38**	4	5	29	0	**38**	**236**
7:30AM	13	105	6	0	**124**	19	84	5	0	**108**	2	4	8	0	**14**	3	16	24	0	**43**	**289**
7:45AM	17	76	6	0	**99**	18	61	2	0	**81**	3	4	27	0	**34**	2	6	26	0	**34**	**248**
8:00AM	19	62	6	0	**87**	15	54	2	0	**71**	7	8	14	0	**29**	5	6	14	0	**25**	**212**
Total	63	318	20	0	**401**	66	253	10	0	**329**	15	27	73	0	**115**	14	33	93	0	**140**	**985**
% Approach	15.7%	79.3%	5.0%	0%	**-**	20.1%	76.9%	3.0%	0%	**-**	13.0%	23.5%	63.5%	0%	**-**	10.0%	23.6%	66.4%	0%	**-**	-
% Total	6.4%	32.3%	2.0%	0%	**40.7%**	6.7%	25.7%	1.0%	0%	**33.4%**	1.5%	2.7%	7.4%	0%	**11.7%**	1.4%	3.4%	9.4%	0%	**14.2%**	-
PHF	0.829	0.757	0.833	-	**0.808**	0.868	0.753	0.500	-	**0.762**	0.536	0.614	0.676	-	**0.757**	0.700	0.516	0.802	-	**0.814**	0.852
Lights	59	279	19	0	**357**	60	213	8	0	**281**	12	25	68	0	**105**	12	32	84	0	**128**	871
% Lights	93.7%	87.7%	95.0%	0%	**89.0%**	90.9%	84.2%	80.0%	0%	**85.4%**	80.0%	92.6%	93.2%	0%	**91.3%**	85.7%	97.0%	90.3%	0%	**91.4%**	88.4%
Articulated Trucks	2	33	1	0	**36**	3	30	2	0	**35**	3	1	1	0	**5**	1	1	4	0	**6**	82
% Articulated Trucks	3.2%	10.4%	5.0%	0%	**9.0%**	4.5%	11.9%	20.0%	0%	**10.6%**	20.0%	3.7%	1.4%	0%	**4.3%**	7.1%	3.0%	4.3%	0%	**4.3%**	8.3%
Buses and Single-Unit Trucks	2	6	0	0	**8**	3	10	0	0	**13**	0	1	4	0	**5**	1	0	5	0	**6**	32
% Buses and Single-Unit Trucks	3.2%	1.9%	0%	0%	**2.0%**	4.5%	4.0%	0%	0%	**4.0%**	0%	3.7%	5.5%	0%	**4.3%**	7.1%	0%	5.4%	0%	**4.3%**	3.2%

*L: Left, R: Right, T: Thru, U: U-Turn

US-77 & N-109 / Old US-77 Roundabout - TMC
Thu Aug 28, 2025
AM Peak (Aug 28 2025 7:15AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



US-77 & N-109 / Old US-77 Roundabout - TMC

Thu Aug 28, 2025
Midday Peak (Aug 28 2025 1PM - 2 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

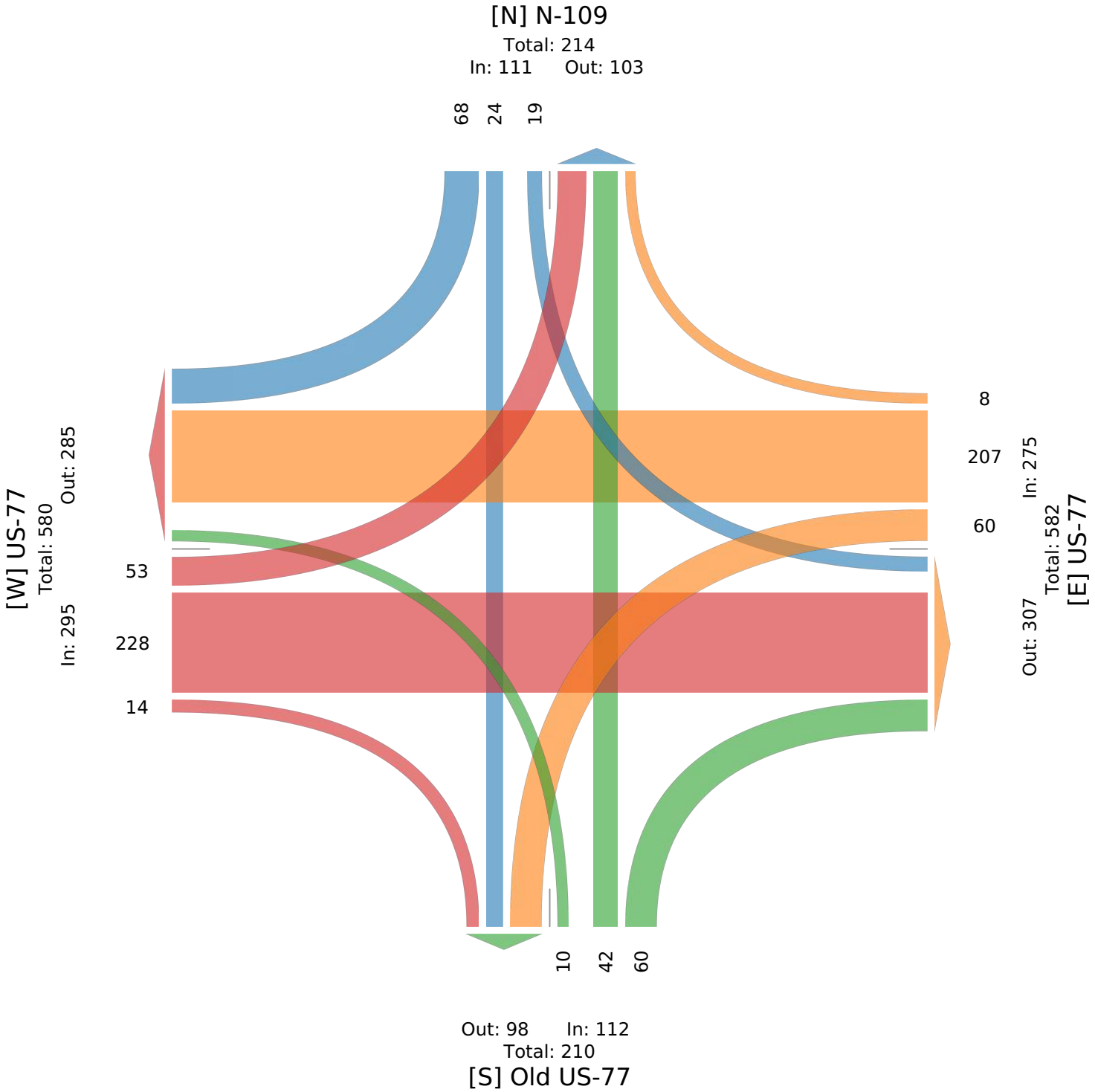
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2025-08-28 1:00PM	14	49	3	0	**66**	10	55	1	0	**66**	3	5	15	0	**23**	6	9	13	0	**28**	**183**
1:15PM	13	55	4	0	**72**	17	35	5	0	**57**	1	15	17	0	**33**	3	7	17	0	**27**	**189**
1:30PM	14	49	3	0	**66**	20	58	1	0	**79**	4	8	12	0	**24**	8	5	17	0	**30**	**199**
1:45PM	12	75	4	0	**91**	13	59	1	0	**73**	2	14	16	0	**32**	2	3	21	0	**26**	**222**
Total	53	228	14	0	**295**	60	207	8	0	**275**	10	42	60	0	**112**	19	24	68	0	**111**	**793**
% Approach	18.0%	77.3%	4.7%	0%	**-**	21.8%	75.3%	2.9%	0%	**-**	8.9%	37.5%	53.6%	0%	**-**	17.1%	21.6%	61.3%	0%	**-**	-
% Total	6.7%	28.8%	1.8%	0%	**37.2%**	7.6%	26.1%	1.0%	0%	**34.7%**	1.3%	5.3%	7.6%	0%	**14.1%**	2.4%	3.0%	8.6%	0%	**14.0%**	-
PHF	0.946	0.760	0.875	-	**0.810**	0.750	0.877	0.400	-	**0.870**	0.625	0.700	0.882	-	**0.848**	0.594	0.667	0.810	-	**0.925**	0.893
Lights	50	182	13	0	**245**	56	169	7	0	**232**	10	39	56	0	**105**	16	22	64	0	**102**	684
% Lights	94.3%	79.8%	92.9%	0%	**83.1%**	93.3%	81.6%	87.5%	0%	**84.4%**	100%	92.9%	93.3%	0%	**93.8%**	84.2%	91.7%	94.1%	0%	**91.9%**	86.3%
Articulated Trucks	2	34	0	0	**36**	1	27	1	0	**29**	0	1	2	0	**3**	1	1	3	0	**5**	73
% Articulated Trucks	3.8%	14.9%	0%	0%	**12.2%**	1.7%	13.0%	12.5%	0%	**10.5%**	0%	2.4%	3.3%	0%	**2.7%**	5.3%	4.2%	4.4%	0%	**4.5%**	9.2%
Buses and Single-Unit Trucks	1	12	1	0	**14**	3	11	0	0	**14**	0	2	2	0	**4**	2	1	1	0	**4**	36
% Buses and Single-Unit Trucks	1.9%	5.3%	7.1%	0%	**4.7%**	5.0%	5.3%	0%	0%	**5.1%**	0%	4.8%	3.3%	0%	**3.6%**	10.5%	4.2%	1.5%	0%	**3.6%**	4.5%

*L: Left, R: Right, T: Thru, U: U-Turn

US-77 & N-109 / Old US-77 Roundabout - TMC
Thu Aug 28, 2025
Midday Peak (Aug 28 2025 1PM - 2 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



US-77 & N-109 / Old US-77 Roundabout - TMC

Thu Aug 28, 2025
PM Peak (Aug 28 2025 4PM - 5 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

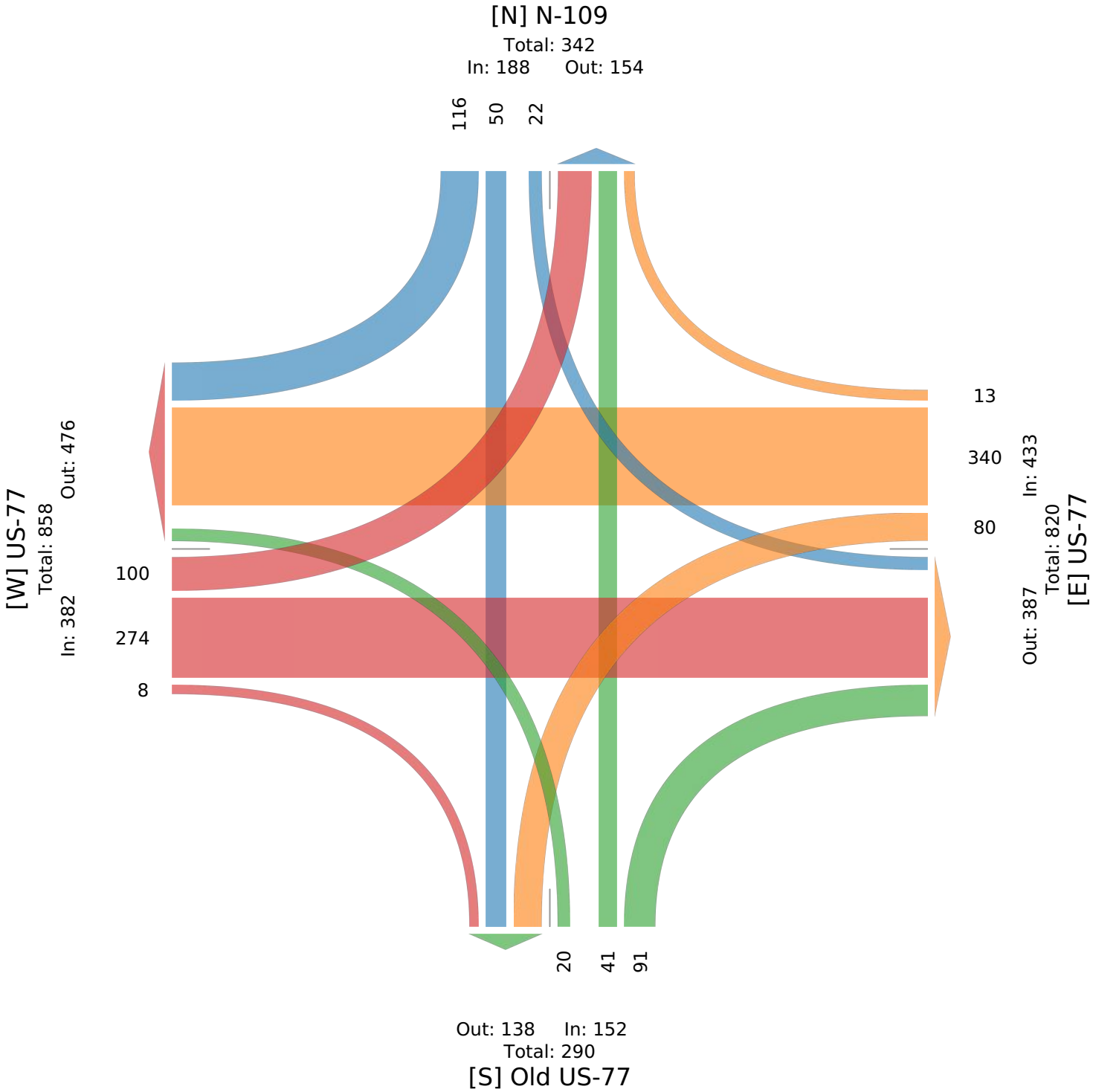
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	US-77					US-77					Old US-77					N-109					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2025-08-28 4:00PM	27	69	1	0	**97**	21	72	2	0	**95**	4	10	20	0	**34**	4	11	32	0	**47**	**273**
4:15PM	26	67	2	0	**95**	18	95	5	0	**118**	4	15	26	0	**45**	2	10	28	0	**40**	**298**
4:30PM	30	71	4	0	**105**	18	91	4	0	**113**	8	8	26	0	**42**	10	14	28	0	**52**	**312**
4:45PM	17	67	1	0	**85**	23	82	2	0	**107**	4	8	19	0	**31**	6	15	28	0	**49**	**272**
Total	100	274	8	0	**382**	80	340	13	0	**433**	20	41	91	0	**152**	22	50	116	0	**188**	**1155**
% Approach	26.2%	71.7%	2.1%	0%	**-**	18.5%	78.5%	3.0%	0%	**-**	13.2%	27.0%	59.9%	0%	**-**	11.7%	26.6%	61.7%	0%	**-**	-
% Total	8.7%	23.7%	0.7%	0%	**33.1%**	6.9%	29.4%	1.1%	0%	**37.5%**	1.7%	3.5%	7.9%	0%	**13.2%**	1.9%	4.3%	10.0%	0%	**16.3%**	-
PHF	0.833	0.965	0.500	-	**0.910**	0.870	0.895	0.650	-	**0.917**	0.625	0.683	0.875	-	**0.844**	0.550	0.833	0.906	-	**0.904**	0.925
Lights	95	244	8	0	**347**	80	313	13	0	**406**	19	40	89	0	**148**	19	49	109	0	**177**	1078
% Lights	95.0%	89.1%	100%	0%	**90.8%**	100%	92.1%	100%	0%	**93.8%**	95.0%	97.6%	97.8%	0%	**97.4%**	86.4%	98.0%	94.0%	0%	**94.1%**	93.3%
Articulated Trucks	0	24	0	0	**24**	0	19	0	0	**19**	1	0	0	0	**1**	1	0	3	0	**4**	48
% Articulated Trucks	0%	8.8%	0%	0%	**6.3%**	0%	5.6%	0%	0%	**4.4%**	5.0%	0%	0%	0%	**0.7%**	4.5%	0%	2.6%	0%	**2.1%**	4.2%
Buses and Single-Unit Trucks	5	6	0	0	**11**	0	8	0	0	**8**	0	1	2	0	**3**	2	1	4	0	**7**	29
% Buses and Single-Unit Trucks	5.0%	2.2%	0%	0%	**2.9%**	0%	2.4%	0%	0%	**1.8%**	0%	2.4%	2.2%	0%	**2.0%**	9.1%	2.0%	3.4%	0%	**3.7%**	2.5%

*L: Left, R: Right, T: Thru, U: U-Turn

US-77 & N-109 / Old US-77 Roundabout - TMC
Thu Aug 28, 2025
PM Peak (Aug 28 2025 4PM - 5 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1329255, Location: 41.234634, -96.602779

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



Old US-77 & Commercial Park Rd. TMC - TMC

Thu Aug 28, 2025
Full Length (6:30 AM-6:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

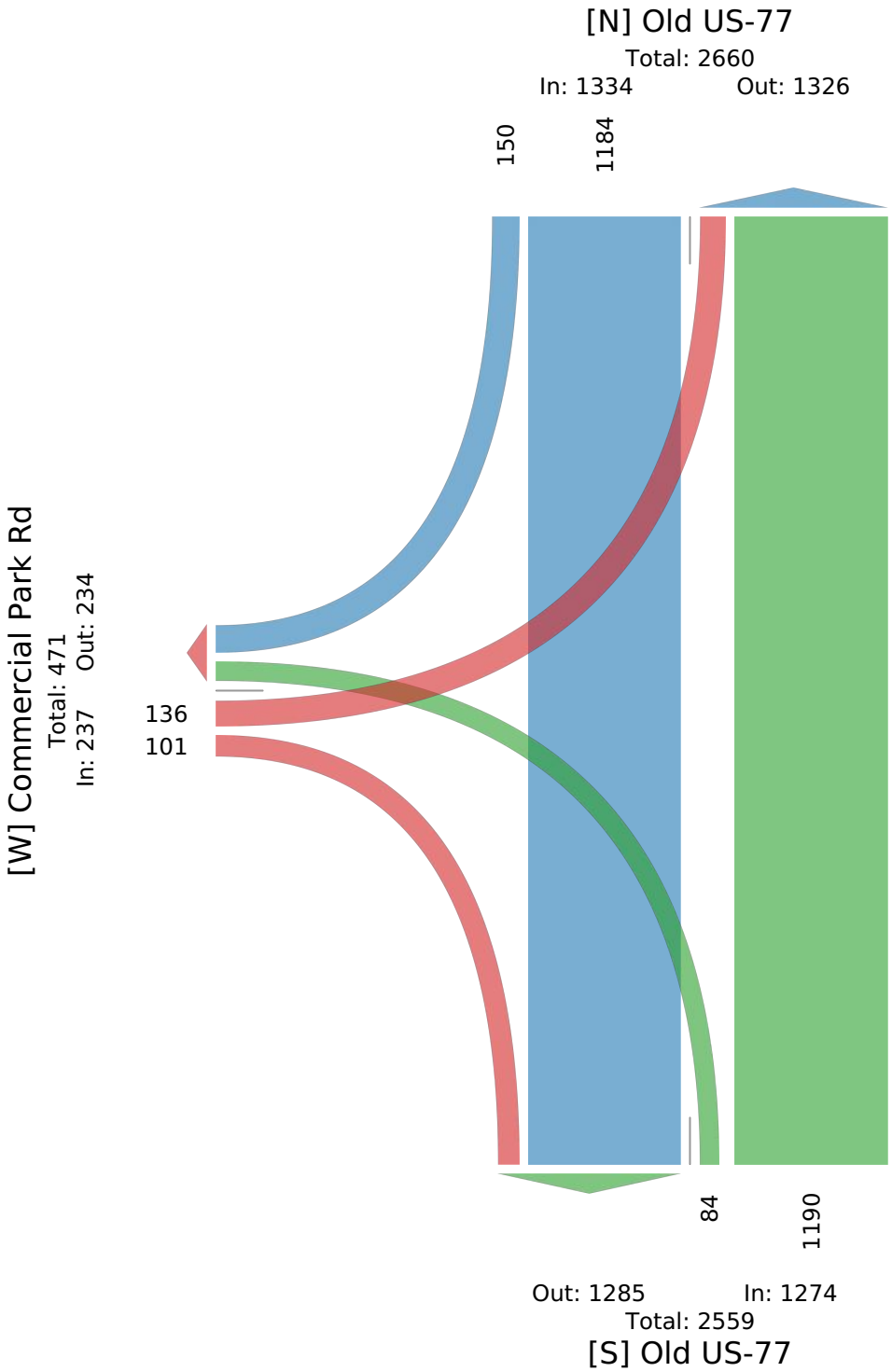
Leg	Commercial Park Rd				Old US-77				Old US-77				
Direction	Eastbound				Northbound				Southbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2025-08-28 6:30AM	1	0	0	**1**	6	28	0	**34**	11	3	0	**14**	**49**
6:45AM	0	0	0	**0**	4	29	0	**33**	21	6	0	**27**	**60**
Hourly Total	1	0	0	**1**	10	57	0	**67**	32	9	0	**41**	**109**
7:00AM	0	0	0	**0**	1	30	0	**31**	18	4	0	**22**	**53**
7:15AM	2	0	0	**2**	1	34	0	**35**	17	4	0	**21**	**58**
7:30AM	0	0	0	**0**	4	13	0	**17**	32	9	0	**41**	**58**
7:45AM	4	1	0	**5**	1	31	0	**32**	29	2	0	**31**	**68**
Hourly Total	6	1	0	**7**	7	108	0	**115**	96	19	0	**115**	**237**
8:00AM	1	1	0	**2**	2	30	0	**32**	23	4	0	**27**	**61**
8:15AM	1	2	0	**3**	3	21	0	**24**	21	0	0	**21**	**48**
8:30AM	3	1	0	**4**	2	30	0	**32**	18	4	0	**22**	**58**
8:45AM	6	1	0	**7**	3	31	0	**34**	27	3	0	**30**	**71**
Hourly Total	11	5	0	**16**	10	112	0	**122**	89	11	0	**100**	**238**
9:00AM	2	3	0	**5**	2	17	0	**19**	16	4	0	**20**	**44**
9:15AM	4	1	0	**5**	1	27	0	**28**	17	1	0	**18**	**51**
9:30AM	2	0	0	**2**	1	22	0	**23**	17	2	0	**19**	**44**
9:45AM	4	1	0	**5**	3	16	0	**19**	20	1	0	**21**	**45**
Hourly Total	12	5	0	**17**	7	82	0	**89**	70	8	0	**78**	**184**
10:00AM	0	1	0	**1**	0	20	0	**20**	20	2	0	**22**	**43**
10:15AM	0	0	0	**0**	1	26	0	**27**	10	3	0	**13**	**40**
10:30AM	3	1	0	**4**	2	13	0	**15**	25	4	0	**29**	**48**
10:45AM	3	0	0	**3**	1	19	0	**20**	19	0	0	**19**	**42**
Hourly Total	6	2	0	**8**	4	78	0	**82**	74	9	0	**83**	**173**
11:00AM	4	4	0	**8**	1	20	0	**21**	31	5	0	**36**	**65**
11:15AM	5	1	0	**6**	0	22	0	**22**	18	5	0	**23**	**51**
11:30AM	4	2	0	**6**	1	21	0	**22**	24	3	0	**27**	**55**
11:45AM	0	2	0	**2**	3	18	0	**21**	21	2	0	**23**	**46**
Hourly Total	13	9	0	**22**	5	81	0	**86**	94	15	0	**109**	**217**
12:00PM	4	10	0	**14**	2	30	0	**32**	22	2	0	**24**	**70**
12:15PM	2	4	0	**6**	5	22	0	**27**	17	1	0	**18**	**51**
12:30PM	3	7	0	**10**	7	15	0	**22**	22	4	0	**26**	**58**
12:45PM	2	2	0	**4**	3	25	0	**28**	20	5	0	**25**	**57**
Hourly Total	11	23	0	**34**	17	92	0	**109**	81	12	0	**93**	**236**
1:00PM	2	4	0	**6**	4	21	0	**25**	18	5	0	**23**	**54**
1:15PM	4	3	0	**7**	1	32	0	**33**	22	7	0	**29**	**69**
1:30PM	5	1	0	**6**	1	17	0	**18**	20	8	0	**28**	**52**
1:45PM	3	2	0	**5**	0	29	0	**29**	17	4	0	**21**	**55**
Hourly Total	14	10	0	**24**	6	99	0	**105**	77	24	0	**101**	**230**
2:00PM	3	1	0	**4**	4	19	0	**23**	26	3	0	**29**	**56**
2:15PM	2	3	0	**5**	3	16	0	**19**	33	2	0	**35**	**59**
2:30PM	3	3	0	**6**	3	25	0	**28**	32	3	0	**35**	**69**
2:45PM	6	10	0	**16**	2	33	0	**35**	40	5	0	**45**	**96**
Hourly Total	14	17	0	**31**	12	93	0	**105**	131	13	0	**144**	**280**
3:00PM	7	4	0	**11**	0	23	0	**23**	32	5	0	**37**	**71**
3:15PM	2	4	0	**6**	0	25	0	**25**	27	4	0	**31**	**62**
3:30PM	4	1	0	**5**	0	52	0	**52**	36	3	0	**39**	**96**
3:45PM	1	2	0	**3**	1	26	0	**27**	32	1	0	**33**	**63**
Hourly Total	14	11	0	**25**	1	126	0	**127**	127	13	0	**140**	**292**
4:00PM	2	4	0	**6**	2	31	0	**33**	30	3	0	**33**	**72**
4:15PM	4	1	0	**5**	1	41	0	**42**	28	3	0	**31**	**78**
4:30PM	9	4	0	**13**	1	31	0	**32**	32	4	0	**36**	**81**
4:45PM	5	1	0	**6**	0	26	0	**26**	41	2	0	**43**	**75**
Hourly Total	20	10	0	**30**	4	129	0	**133**	131	12	0	**143**	**306**
5:00PM	4	3	0	**7**	0	21	0	**21**	32	3	0	**35**	**63**

Leg	Commercial Park Rd				Old US-77				Old US-77				
Direction	Eastbound				Northbound				Southbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
5:15PM	7	3	0	**10**	0	23	0	**23**	30	1	0	**31**	**64**
5:30PM	3	0	0	**3**	0	28	0	**28**	31	0	0	**31**	**62**
5:45PM	0	1	0	**1**	0	22	0	**22**	29	0	0	**29**	**52**
Hourly Total	14	7	0	**21**	0	94	0	**94**	122	4	0	**126**	**241**
6:00PM	0	1	0	**1**	0	21	0	**21**	36	0	0	**36**	**58**
6:15PM	0	0	0	**0**	1	18	0	**19**	24	1	0	**25**	**44**
Hourly Total	0	1	0	**1**	1	39	0	**40**	60	1	0	**61**	**102**
Total	136	101	0	**237**	84	1190	0	**1274**	1184	150	0	**1334**	**2845**
% Approach	57.4%	42.6%	0%	**-**	6.6%	93.4%	0%	**-**	88.8%	11.2%	0%	**-**	-
% Total	4.8%	3.6%	0%	**8.3%**	3.0%	41.8%	0%	**44.8%**	41.6%	5.3%	0%	**46.9%**	-
Lights	123	94	0	**217**	78	1121	0	**1199**	1108	138	0	**1246**	2662
% Lights	90.4%	93.1%	0%	**91.6%**	92.9%	94.2%	0%	**94.1%**	93.6%	92.0%	0%	**93.4%**	93.6%
Articulated Trucks	5	1	0	**6**	1	33	0	**34**	33	6	0	**39**	79
% Articulated Trucks	3.7%	1.0%	0%	**2.5%**	1.2%	2.8%	0%	**2.7%**	2.8%	4.0%	0%	**2.9%**	2.8%
Buses and Single-Unit Trucks	8	6	0	**14**	5	36	0	**41**	43	6	0	**49**	104
% Buses and Single-Unit Trucks	5.9%	5.9%	0%	**5.9%**	6.0%	3.0%	0%	**3.2%**	3.6%	4.0%	0%	**3.7%**	3.7%

*L: Left, R: Right, T: Thru, U: U-Turn

Old US-77 & Commercial Park Rd. TMC - TMC
Thu Aug 28, 2025
Full Length (6:30 AM-6:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



Old US-77 & Commercial Park Rd. TMC - TMC

Thu Aug 28, 2025
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

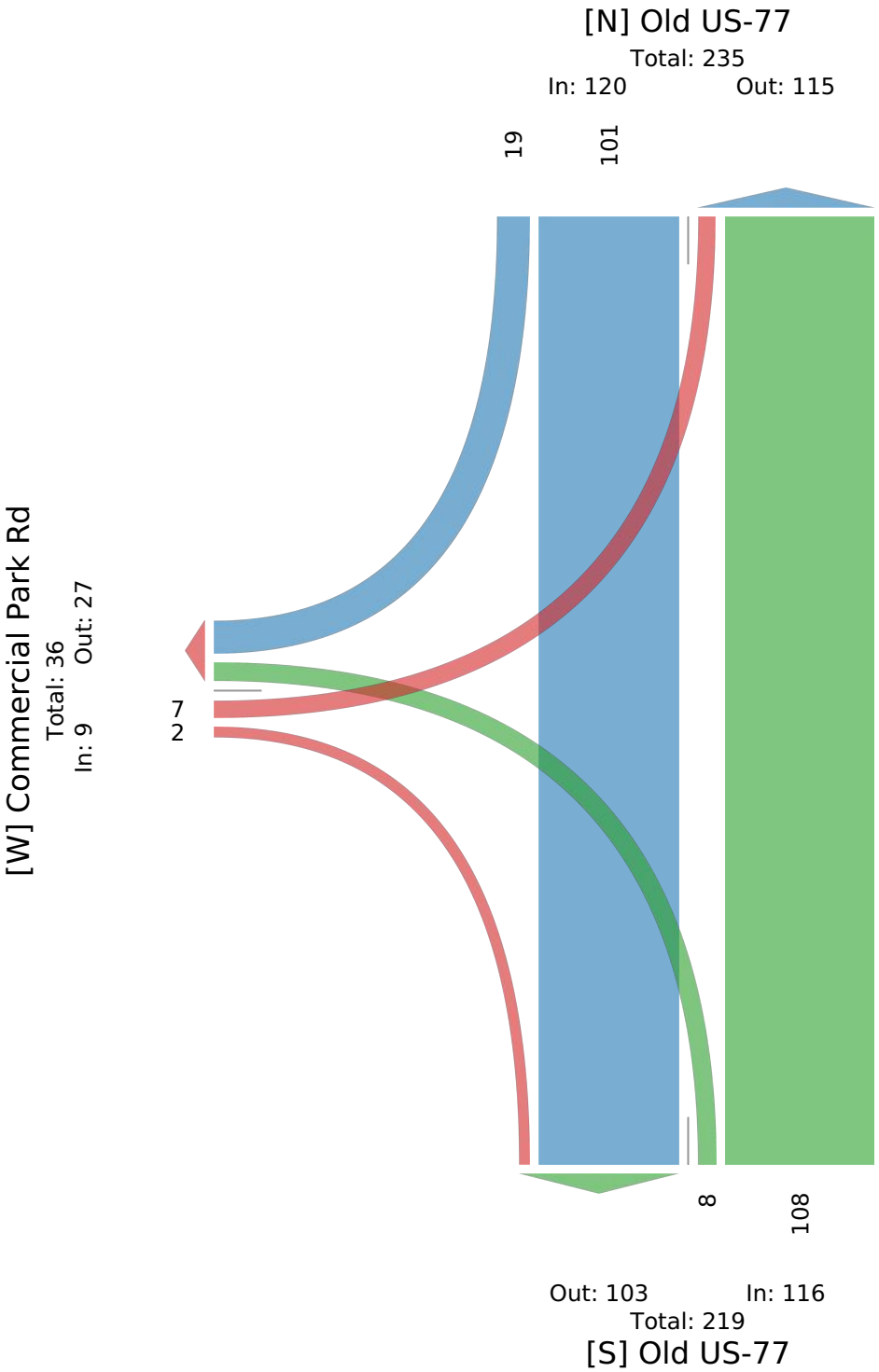
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg Direction	Commercial Park Rd Eastbound				Old US-77 Northbound				Old US-77 Southbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2025-08-28 7:15AM	2	0	0	**2**	1	34	0	**35**	17	4	0	**21**	**58**
7:30AM	0	0	0	**0**	4	13	0	**17**	32	9	0	**41**	**58**
7:45AM	4	1	0	**5**	1	31	0	**32**	29	2	0	**31**	**68**
8:00AM	1	1	0	**2**	2	30	0	**32**	23	4	0	**27**	**61**
Total	7	2	0	**9**	8	108	0	**116**	101	19	0	**120**	**245**
% Approach	77.8%	22.2%	0%	**-**	6.9%	93.1%	0%	**-**	84.2%	15.8%	0%	**-**	-
% Total	2.9%	0.8%	0%	**3.7%**	3.3%	44.1%	0%	**47.3%**	41.2%	7.8%	0%	**49.0%**	-
PHF	0.438	0.500	-	**0.450**	0.500	0.794	-	**0.829**	0.789	0.528	-	**0.732**	0.901
Lights	6	2	0	**8**	8	100	0	**108**	93	18	0	**111**	227
% Lights	85.7%	100%	0%	**88.9%**	100%	92.6%	0%	**93.1%**	92.1%	94.7%	0%	**92.5%**	92.7%
Articulated Trucks	0	0	0	**0**	0	4	0	**4**	3	1	0	**4**	8
% Articulated Trucks	0%	0%	0%	**0%**	0%	3.7%	0%	**3.4%**	3.0%	5.3%	0%	**3.3%**	3.3%
Buses and Single-Unit Trucks	1	0	0	**1**	0	4	0	**4**	5	0	0	**5**	10
% Buses and Single-Unit Trucks	14.3%	0%	0%	**11.1%**	0%	3.7%	0%	**3.4%**	5.0%	0%	0%	**4.2%**	4.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Old US-77 & Commercial Park Rd. TMC - TMC
Thu Aug 28, 2025
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



Old US-77 & Commercial Park Rd. TMC - TMC

Thu Aug 28, 2025
Midday Peak (12:30 PM - 1:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

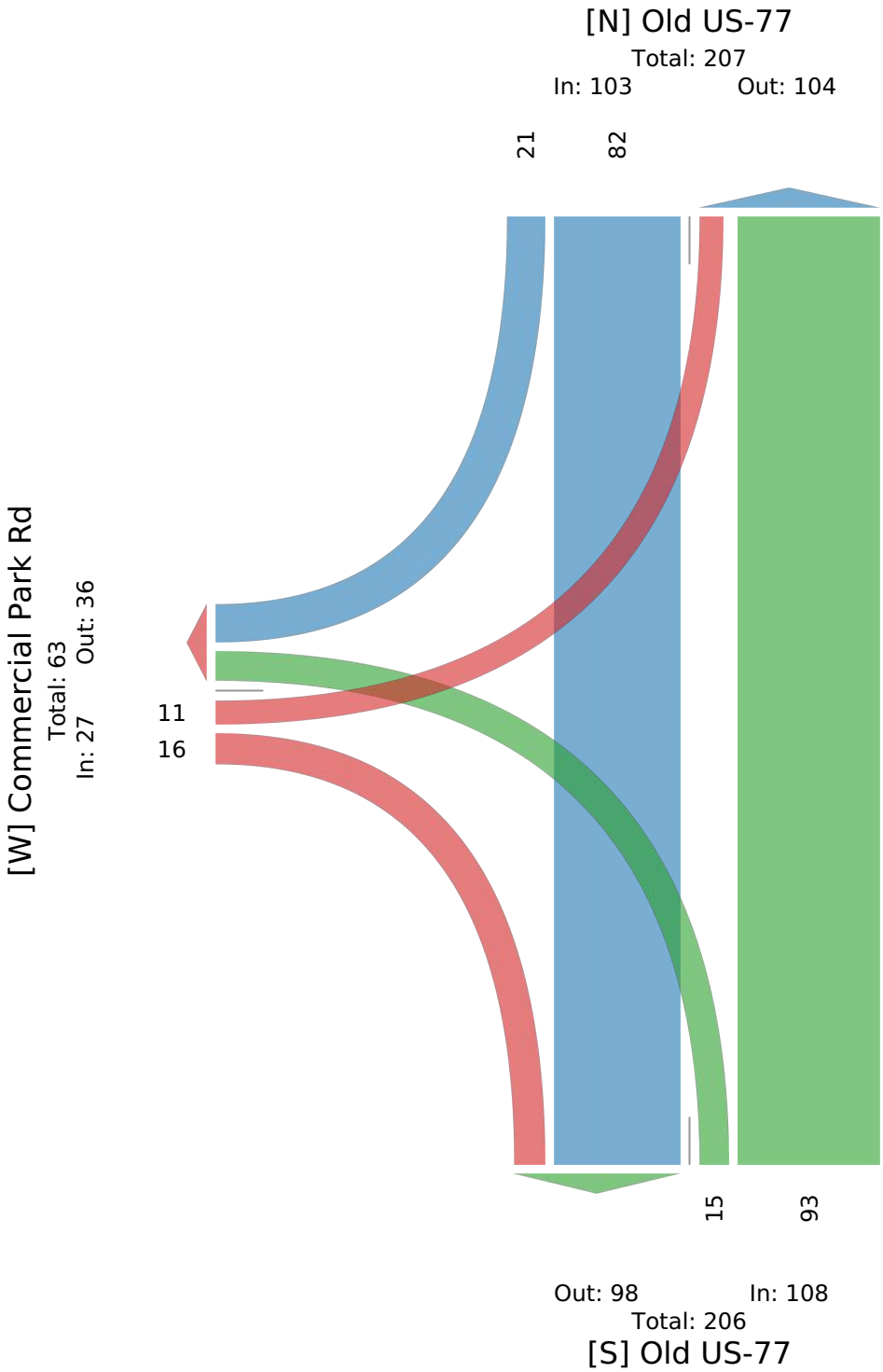
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	Commercial Park Rd				Old US-77				Old US-77				
Direction	Eastbound				Northbound				Southbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2025-08-28 12:30PM	3	7	0	**10**	7	15	0	**22**	22	4	0	**26**	**58**
12:45PM	2	2	0	**4**	3	25	0	**28**	20	5	0	**25**	**57**
1:00PM	2	4	0	**6**	4	21	0	**25**	18	5	0	**23**	**54**
1:15PM	4	3	0	**7**	1	32	0	**33**	22	7	0	**29**	**69**
Total	11	16	0	**27**	15	93	0	**108**	82	21	0	**103**	**238**
% Approach	40.7%	59.3%	0%	**-**	13.9%	86.1%	0%	**-**	79.6%	20.4%	0%	**-**	-
% Total	4.6%	6.7%	0%	**11.3%**	6.3%	39.1%	0%	**45.4%**	34.5%	8.8%	0%	**43.3%**	-
PHF	0.688	0.571	-	**0.675**	0.536	0.727	-	**0.818**	0.932	0.750	-	**0.888**	0.862
Lights	10	14	0	**24**	14	89	0	**103**	74	20	0	**94**	221
% Lights	90.9%	87.5%	0%	**88.9%**	93.3%	95.7%	0%	**95.4%**	90.2%	95.2%	0%	**91.3%**	92.9%
Articulated Trucks	1	0	0	**1**	0	2	0	**2**	2	0	0	**2**	5
% Articulated Trucks	9.1%	0%	0%	**3.7%**	0%	2.2%	0%	**1.9%**	2.4%	0%	0%	**1.9%**	2.1%
Buses and Single-Unit Trucks	0	2	0	**2**	1	2	0	**3**	6	1	0	**7**	12
% Buses and Single-Unit Trucks	0%	12.5%	0%	**7.4%**	6.7%	2.2%	0%	**2.8%**	7.3%	4.8%	0%	**6.8%**	5.0%

*L: Left, R: Right, T: Thru, U: U-Turn

Old US-77 & Commercial Park Rd. TMC - TMC
Thu Aug 28, 2025
Midday Peak (12:30 PM - 1:30 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



Old US-77 & Commercial Park Rd. TMC - TMC

Thu Aug 28, 2025
PM Peak (2:45 PM - 3:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

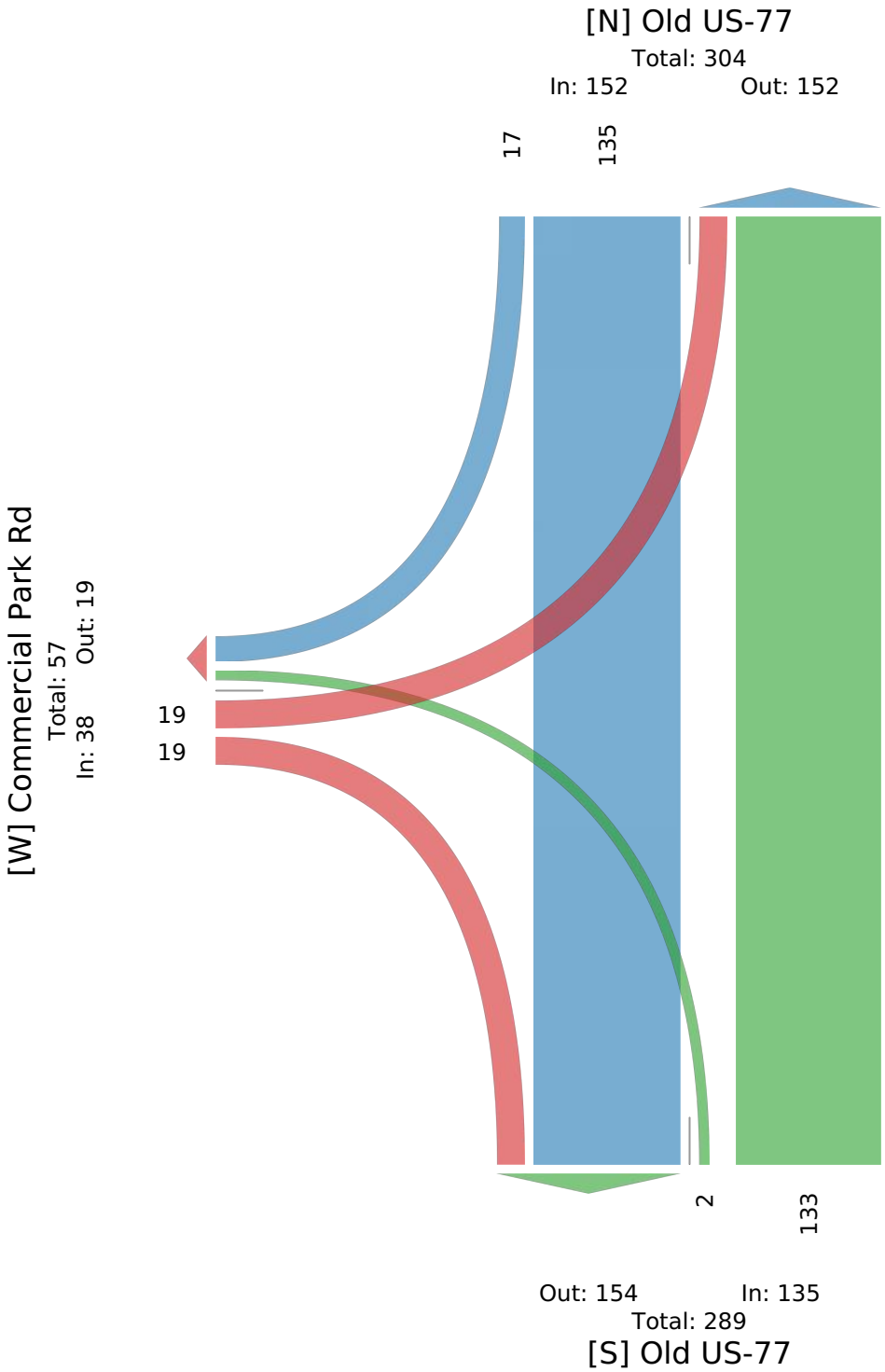
Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US

Leg	Commercial Park Rd				Old US-77				Old US-77				
Direction	Eastbound				Northbound				Southbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2025-08-28 2:45PM	6	10	0	**16**	2	33	0	**35**	40	5	0	**45**	**96**
3:00PM	7	4	0	**11**	0	23	0	**23**	32	5	0	**37**	**71**
3:15PM	2	4	0	**6**	0	25	0	**25**	27	4	0	**31**	**62**
3:30PM	4	1	0	**5**	0	52	0	**52**	36	3	0	**39**	**96**
Total	19	19	0	**38**	2	133	0	**135**	135	17	0	**152**	**325**
% Approach	50.0%	50.0%	0%	**-**	1.5%	98.5%	0%	**-**	88.8%	11.2%	0%	**-**	-
% Total	5.8%	5.8%	0%	**11.7%**	0.6%	40.9%	0%	**41.5%**	41.5%	5.2%	0%	**46.8%**	-
PHF	0.679	0.475	-	**0.594**	0.250	0.639	-	**0.649**	0.844	0.850	-	**0.844**	0.846
Lights	17	19	0	**36**	2	127	0	**129**	127	15	0	**142**	307
% Lights	89.5%	100%	0%	**94.7%**	100%	95.5%	0%	**95.6%**	94.1%	88.2%	0%	**93.4%**	94.5%
Articulated Trucks	0	0	0	**0**	0	1	0	**1**	4	1	0	**5**	6
% Articulated Trucks	0%	0%	0%	**0%**	0%	0.8%	0%	**0.7%**	3.0%	5.9%	0%	**3.3%**	1.8%
Buses and Single-Unit Trucks	2	0	0	**2**	0	5	0	**5**	4	1	0	**5**	12
% Buses and Single-Unit Trucks	10.5%	0%	0%	**5.3%**	0%	3.8%	0%	**3.7%**	3.0%	5.9%	0%	**3.3%**	3.7%

*L: Left, R: Right, T: Thru, U: U-Turn

Old US-77 & Commercial Park Rd. TMC - TMC
Thu Aug 28, 2025
PM Peak (2:45 PM - 3:45 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 1330724, Location: 41.232374, -96.602707

Provided by: JEO Consulting (NE)
2000 Q Street, Ste 500, Lincoln, NE, 68503, US



APPENDIX C:
Intersection Operations Analysis Reports

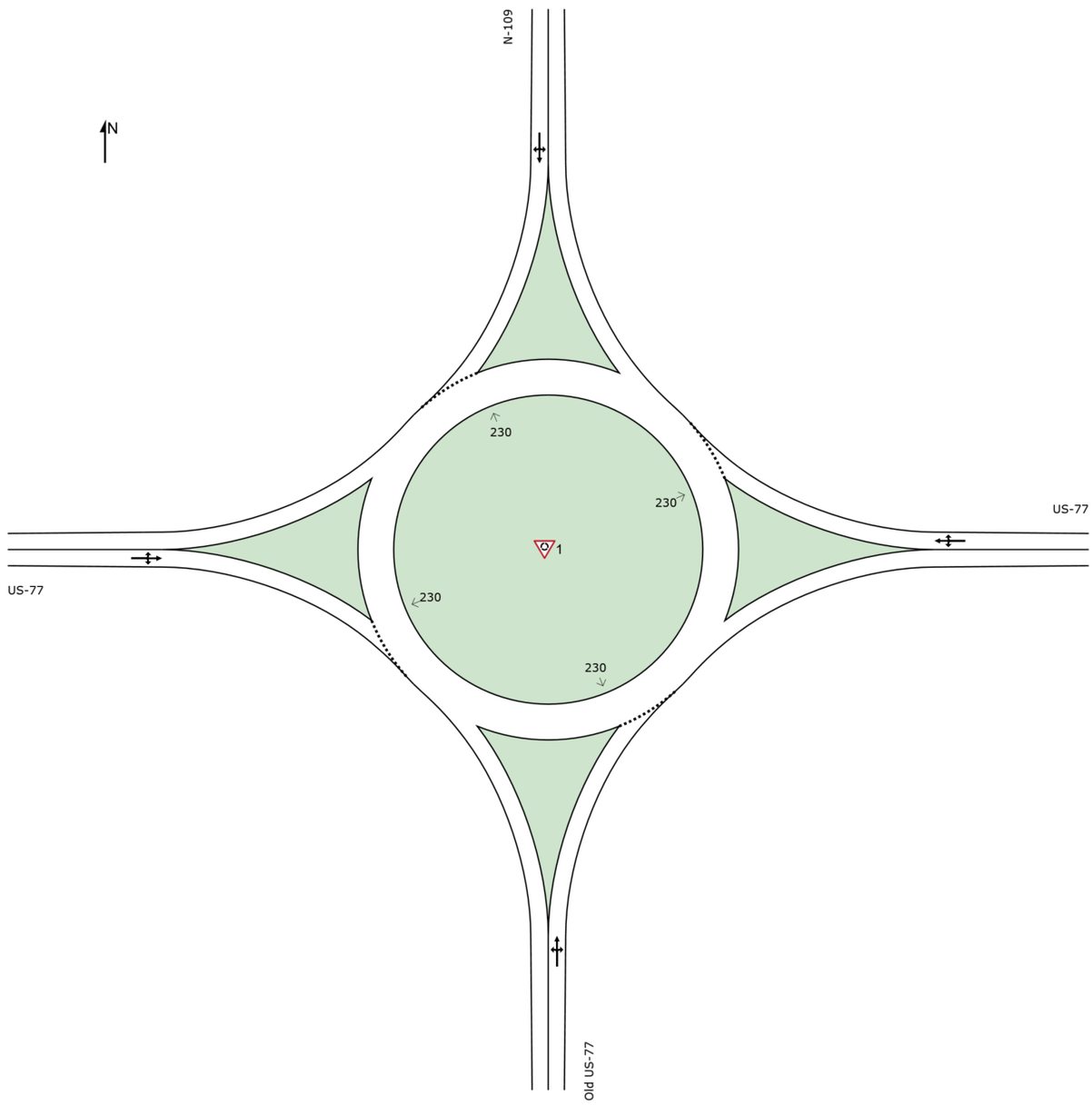
Existing Conditions

SITE LAYOUT

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: JEO CONSULTING GROUP | Licence: PLUS / 1PC | Created: Wednesday, December 10, 2025 2:50:32 PM
Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Existing Conditions\US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

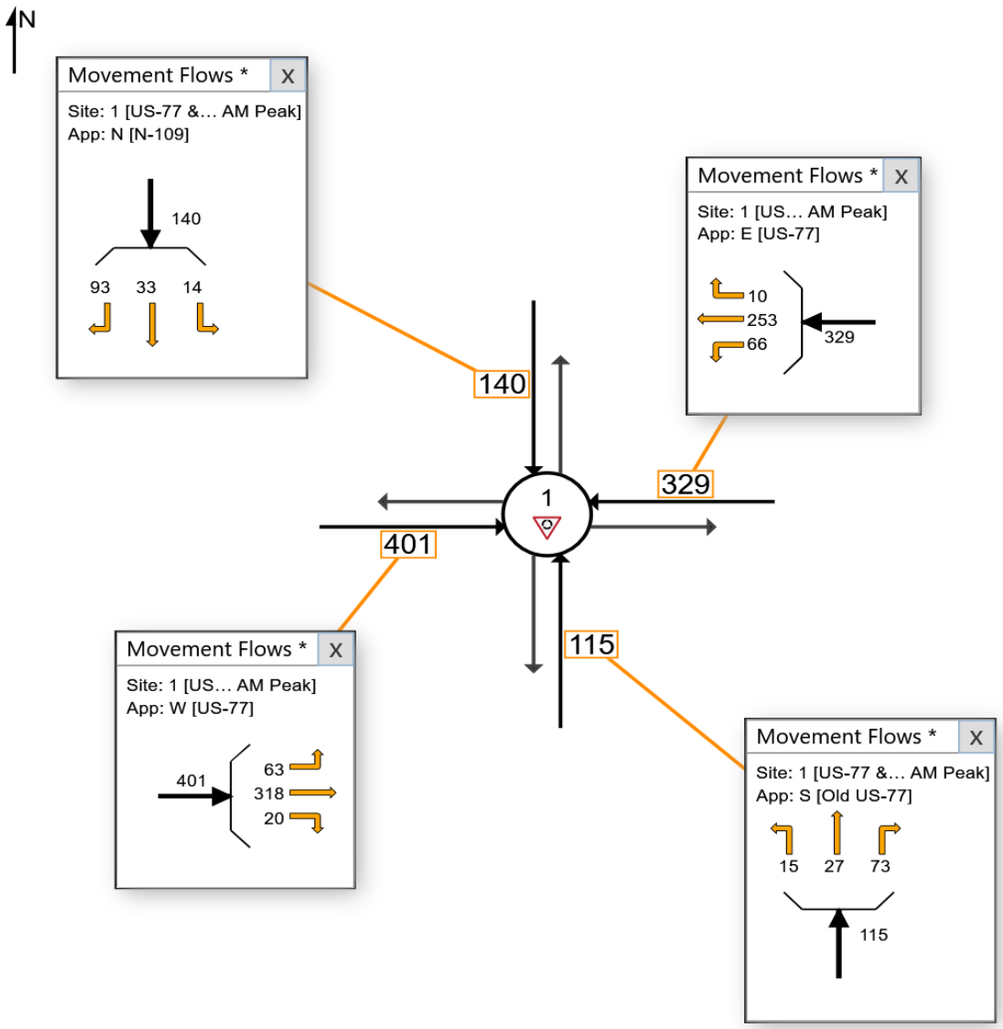
Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

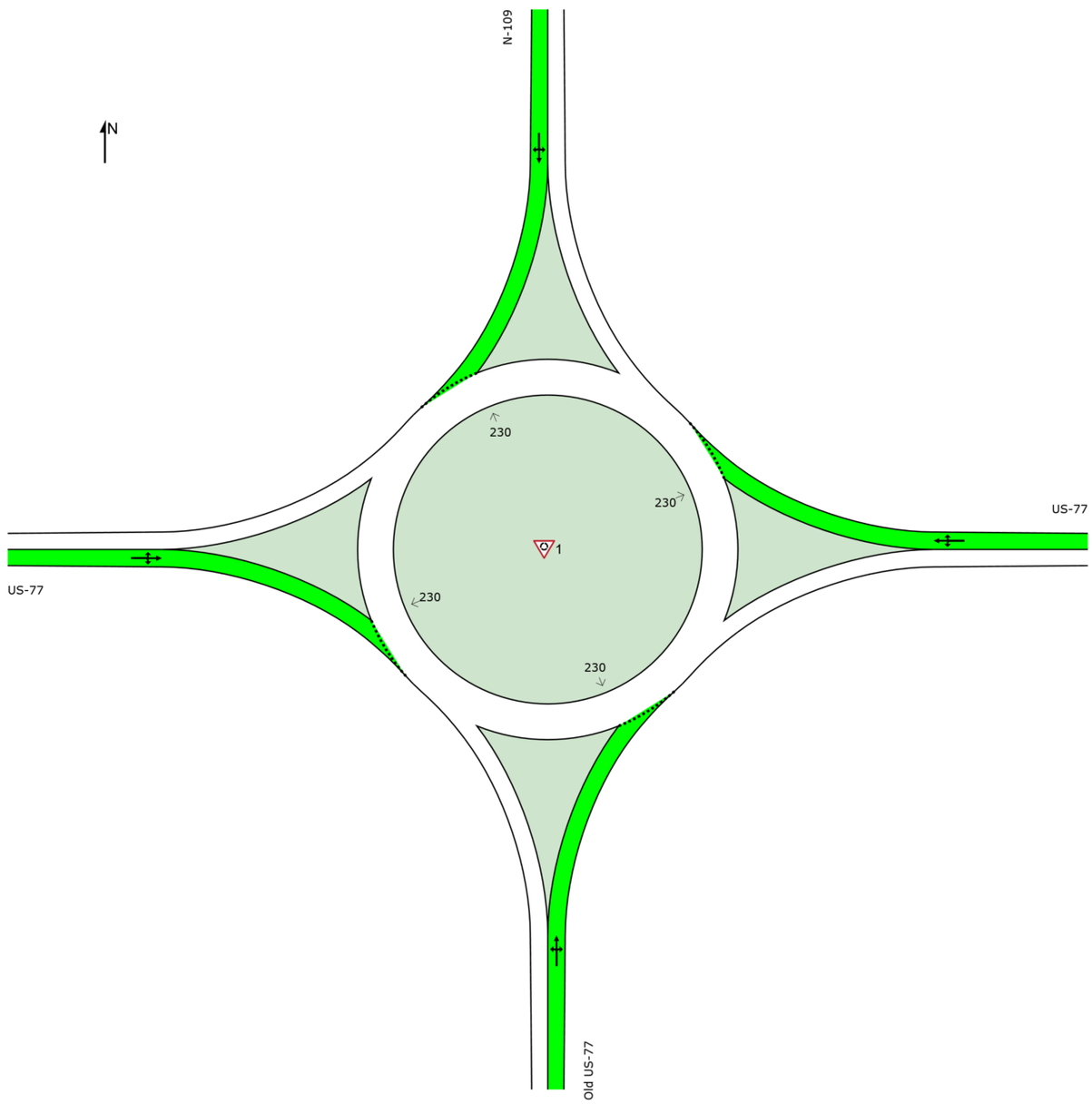
Lane Level of Service

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Organisation: JEO CONSULTING GROUP | Licence: PLUS / 1PC | Processed: Friday, September 5, 2025 12:38:03 PM
Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Existing Conditions\US-77 & N-109.sipx

MOVEMENT SUMMARY

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	18	20.0	18	20.0	0.188	8.8	LOS A	0.7	19.4	0.57	0.46	0.57	33.8
8	T1	All MCs	32	7.4	32	7.4	0.188	6.9	LOS A	0.7	19.4	0.57	0.46	0.57	29.8
18	R2	All MCs	86	6.9	86	6.9	0.188	6.8	LOS A	0.7	19.4	0.57	0.46	0.57	36.2
Approach			135	8.7	135	8.7	0.188	7.1	LOS A	0.7	19.4	0.57	0.46	0.57	34.2
East: US-77															
1	L2	All MCs	78	9.1	78	9.1	0.371	6.8	LOS A	2.0	54.6	0.38	0.19	0.38	34.6
6	T1	All MCs	298	15.8	298	15.8	0.371	7.3	LOS A	2.0	54.6	0.38	0.19	0.38	35.7
16	R2	All MCs	12	20.0	12	20.0	0.371	7.6	LOS A	2.0	54.6	0.38	0.19	0.38	37.0
Approach			387	14.6	387	14.6	0.371	7.2	LOS A	2.0	54.6	0.38	0.19	0.38	35.5
North: N-109															
7	L2	All MCs	16	14.3	16	14.3	0.212	7.7	LOS A	0.9	22.8	0.55	0.43	0.55	37.5
4	T1	All MCs	39	3.0	39	3.0	0.212	6.2	LOS A	0.9	22.8	0.55	0.43	0.55	39.3
14	R2	All MCs	109	9.7	109	9.7	0.212	7.0	LOS A	0.9	22.8	0.55	0.43	0.55	39.1
Approach			165	8.6	165	8.6	0.212	6.9	LOS A	0.9	22.8	0.55	0.43	0.55	39.0
West: US-77															
5	L2	All MCs	74	6.3	74	6.3	0.442	7.7	LOS A	2.6	71.5	0.43	0.22	0.43	29.5
2	T1	All MCs	374	12.3	374	12.3	0.442	8.2	LOS A	2.6	71.5	0.43	0.22	0.43	35.8
12	R2	All MCs	24	5.0	24	5.0	0.442	7.6	LOS A	2.6	71.5	0.43	0.22	0.43	36.0
Approach			472	11.0	472	11.0	0.442	8.1	LOS A	2.6	71.5	0.43	0.22	0.43	34.7
All Vehicles			1159	11.6	1159	11.6	0.442	7.5	LOS A	2.6	71.5	0.45	0.27	0.45	35.4

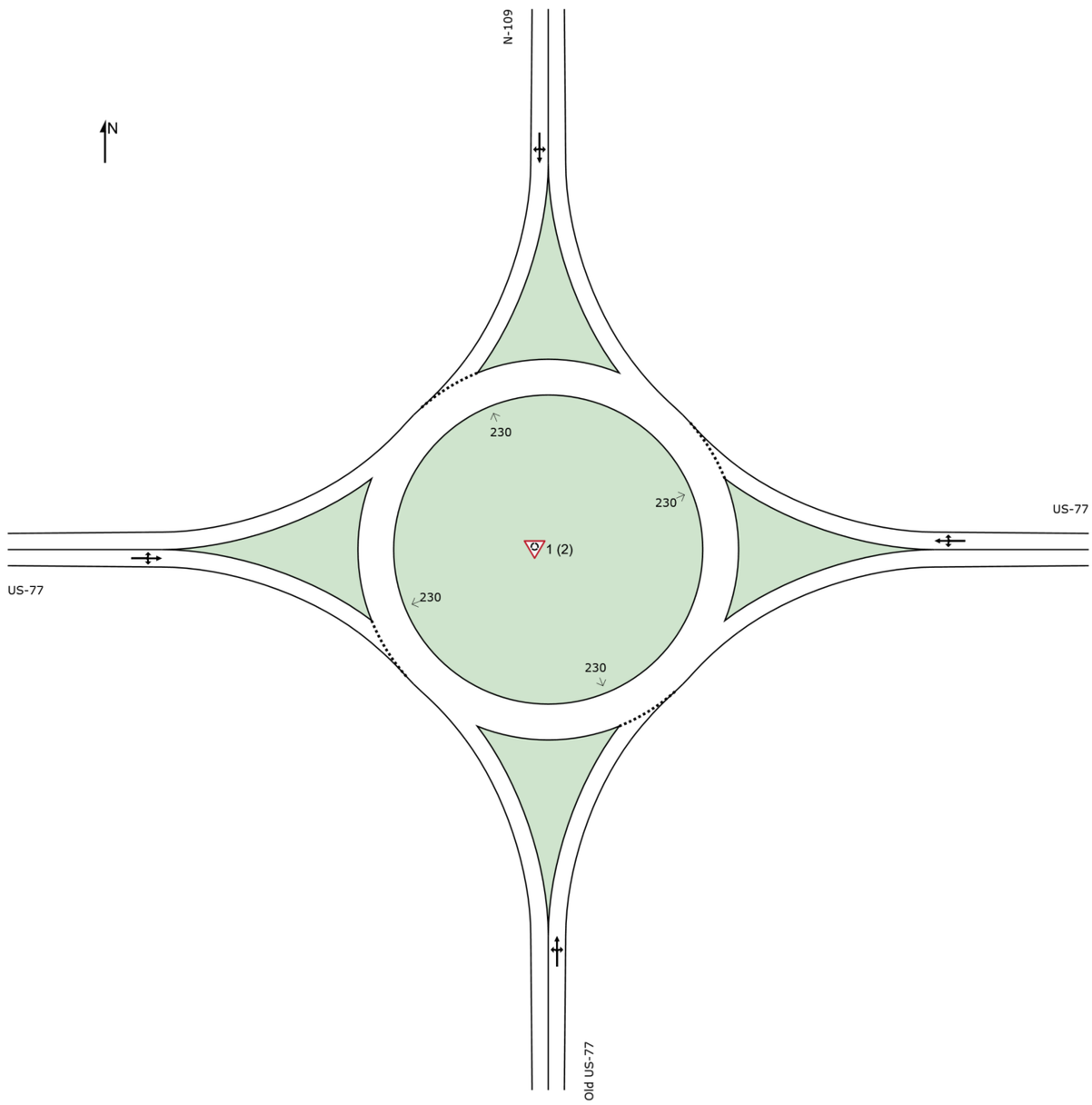
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Existing Conditions\US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

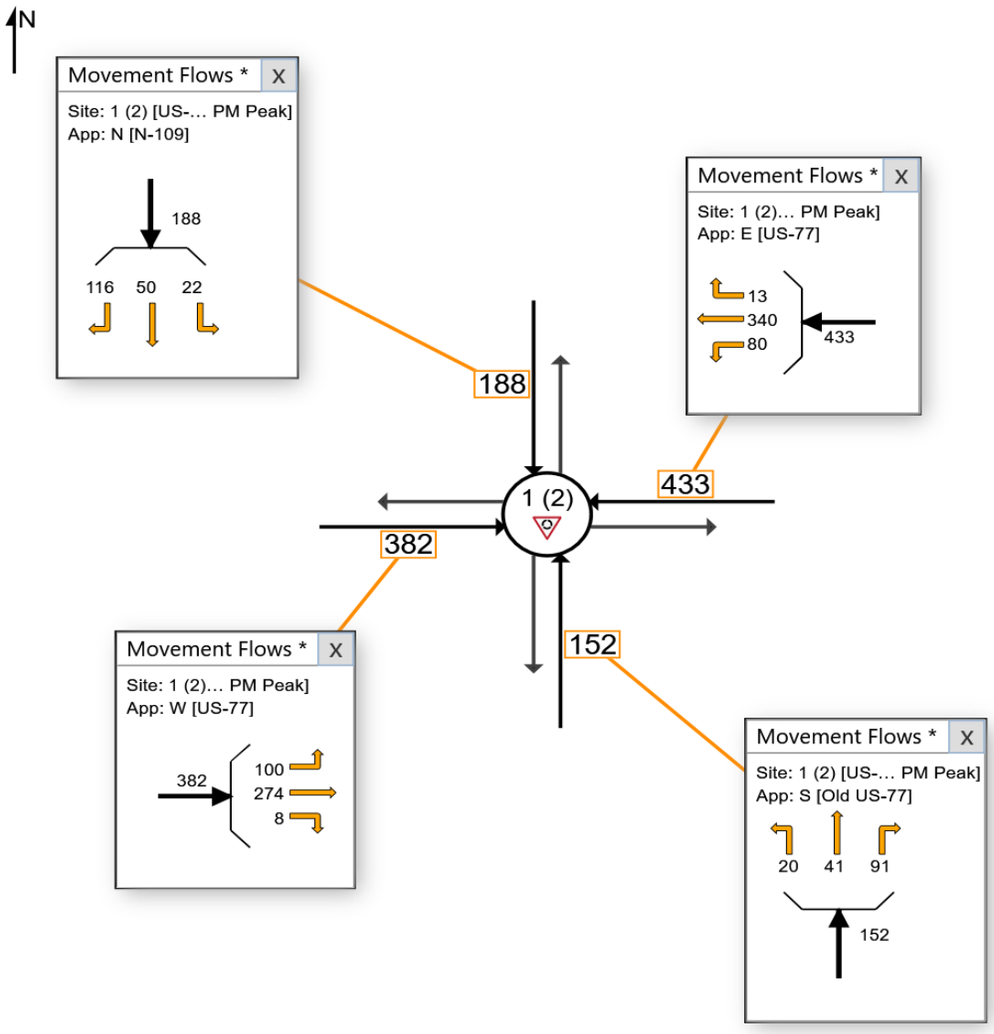
Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

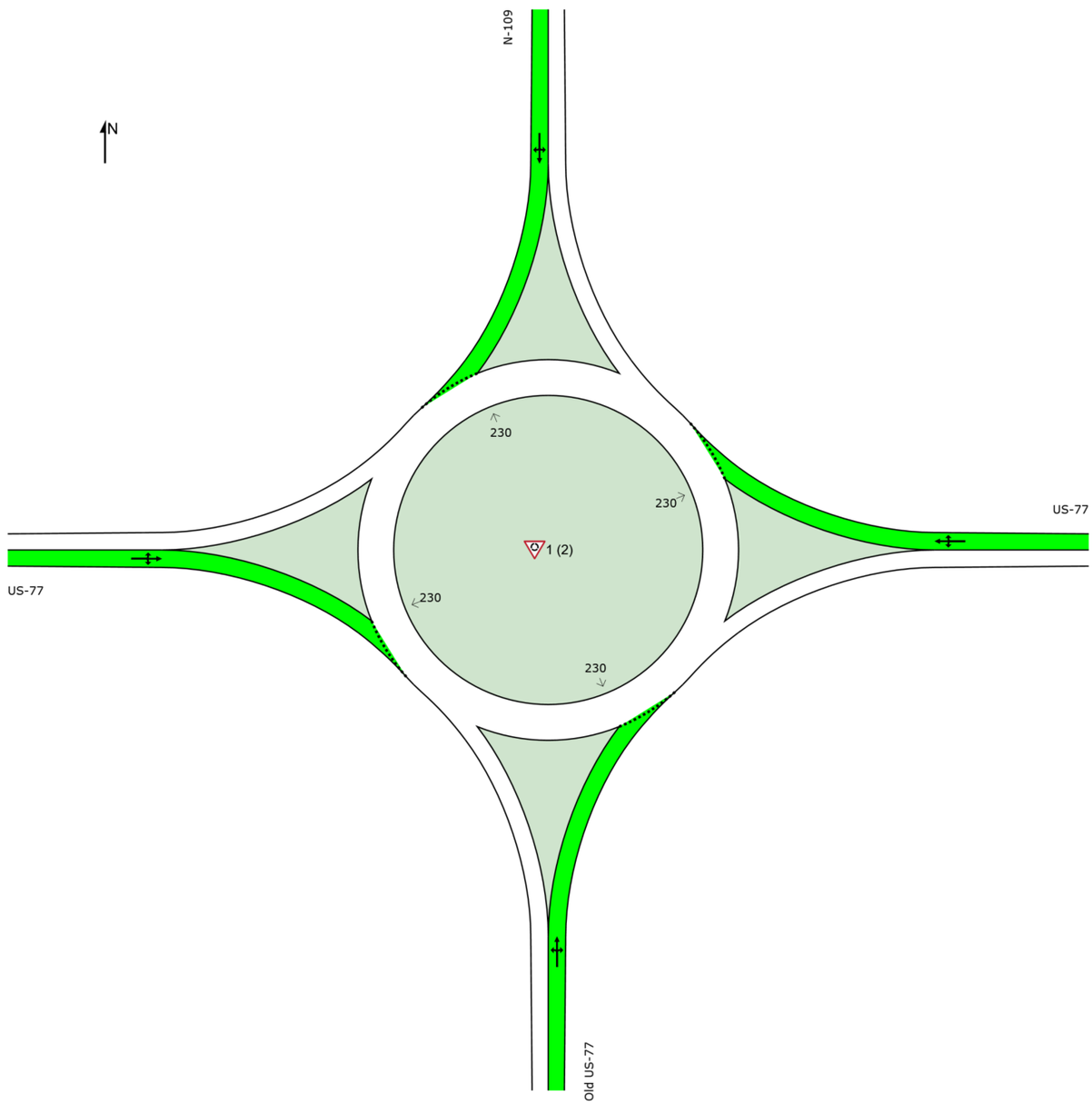
Lane Level of Service

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

MOVEMENT SUMMARY

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	22	5.0	22	5.0	0.198	6.7	LOS A	0.8	21.7	0.55	0.43	0.55	36.1
8	T1	All MCs	44	2.4	44	2.4	0.198	6.4	LOS A	0.8	21.7	0.55	0.43	0.55	30.2
18	R2	All MCs	98	2.2	98	2.2	0.198	6.3	LOS A	0.8	21.7	0.55	0.43	0.55	37.1
Approach			163	2.6	163	2.6	0.198	6.4	LOS A	0.8	21.7	0.55	0.43	0.55	34.8
East: US-77															
1	L2	All MCs	86	0.0	86	0.0	0.433	7.4	LOS A	2.6	68.0	0.47	0.26	0.47	35.5
6	T1	All MCs	366	7.9	366	7.9	0.433	8.1	LOS A	2.6	68.0	0.47	0.26	0.47	36.3
16	R2	All MCs	14	0.0	14	0.0	0.433	7.4	LOS A	2.6	68.0	0.47	0.26	0.47	37.7
Approach			466	6.2	466	6.2	0.433	7.9	LOS A	2.6	68.0	0.47	0.26	0.47	36.2
North: N-109															
7	L2	All MCs	24	13.6	24	13.6	0.266	8.9	LOS A	1.1	29.6	0.60	0.48	0.60	37.0
4	T1	All MCs	54	2.0	54	2.0	0.266	7.2	LOS A	1.1	29.6	0.60	0.48	0.60	38.7
14	R2	All MCs	125	6.0	125	6.0	0.266	7.8	LOS A	1.1	29.6	0.60	0.48	0.60	39.0
Approach			202	5.8	202	5.8	0.266	7.7	LOS A	1.1	29.6	0.60	0.48	0.60	38.6
West: US-77															
5	L2	All MCs	108	5.0	108	5.0	0.388	7.0	LOS A	2.1	57.7	0.43	0.23	0.43	29.6
2	T1	All MCs	295	11.0	295	11.0	0.388	7.5	LOS A	2.1	57.7	0.43	0.23	0.43	35.9
12	R2	All MCs	9	0.0	9	0.0	0.388	6.6	LOS A	2.1	57.7	0.43	0.23	0.43	36.0
Approach			411	9.2	411	9.2	0.388	7.4	LOS A	2.1	57.7	0.43	0.23	0.43	34.0
All Vehicles			1242	6.7	1242	6.7	0.433	7.5	LOS A	2.6	68.0	0.49	0.31	0.49	35.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	2	8	108	101	19
Future Vol, veh/h	7	2	8	108	101	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	14	0	0	7	8	5
Mvmt Flow	8	2	9	124	116	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	270	127	138	0	-	0
Stage 1	127	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Critical Hdwy	6.54	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	695	929	1458	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	690	929	1458	-	-	-
Mov Cap-2 Maneuver	690	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.99	0.52	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1458	-	732	-	-
HCM Lane V/C Ratio	0.006	-	0.014	-	-
HCM Control Delay (s/veh)	7.5	-	10	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	10	4	129	131	12
Future Vol, veh/h	20	10	4	129	131	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	0	7	8	5
Mvmt Flow	21	11	4	136	138	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	288	144	151	0	-	0
Stage 1	144	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.54	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	677	908	1443	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	675	908	1443	-	-	-
Mov Cap-2 Maneuver	675	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10.09	0.23	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1443	-	739	-	-
HCM Lane V/C Ratio	0.003	-	0.043	-	-
HCM Control Delay (s/veh)	7.5	-	10.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

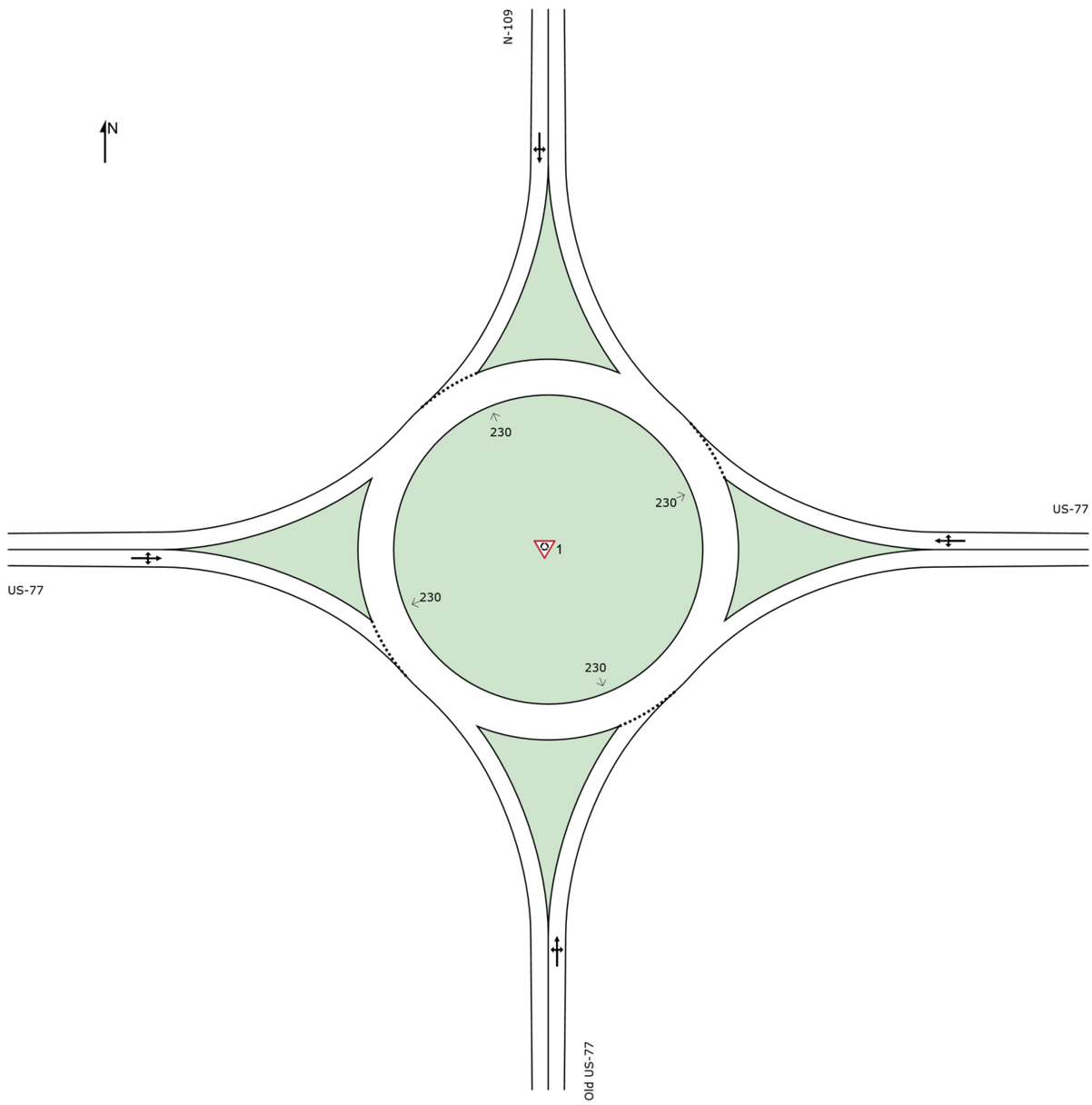
Opening Day (2028) Future Background Conditions

SITE LAYOUT

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

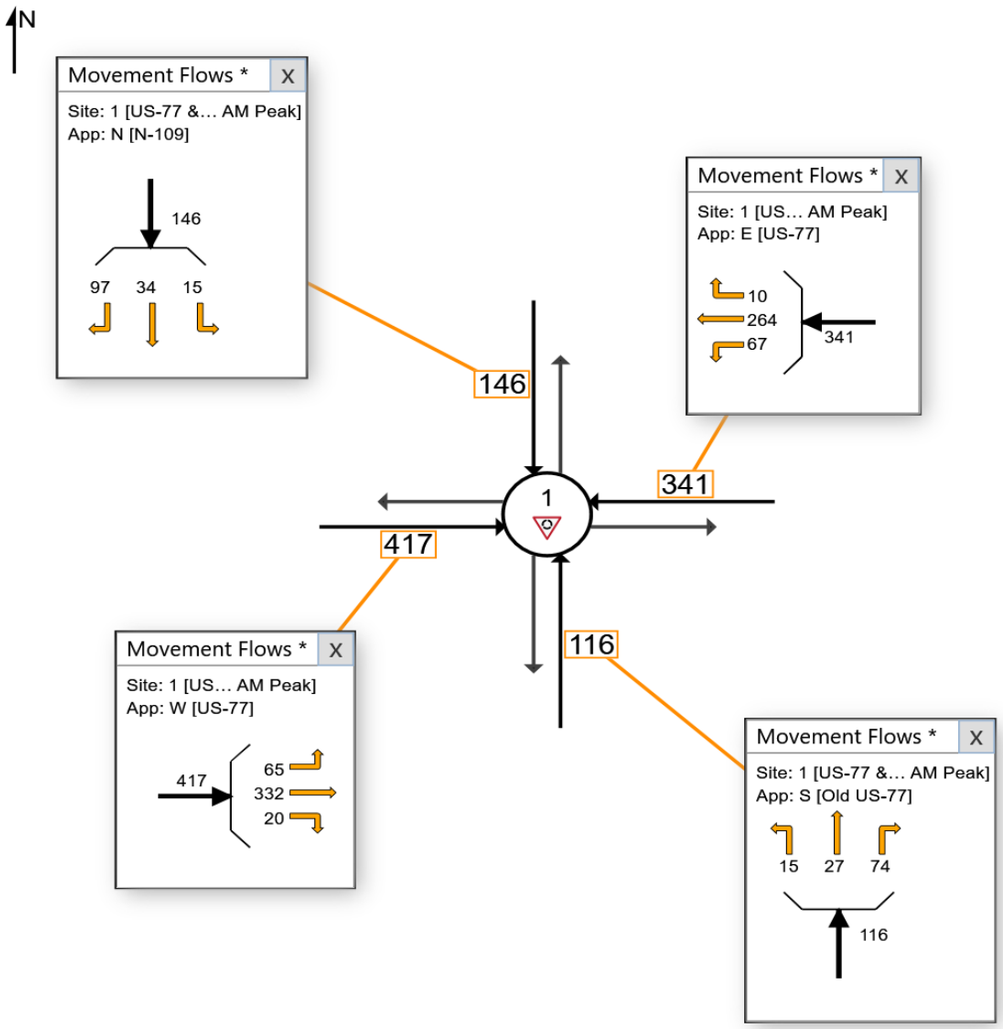
Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

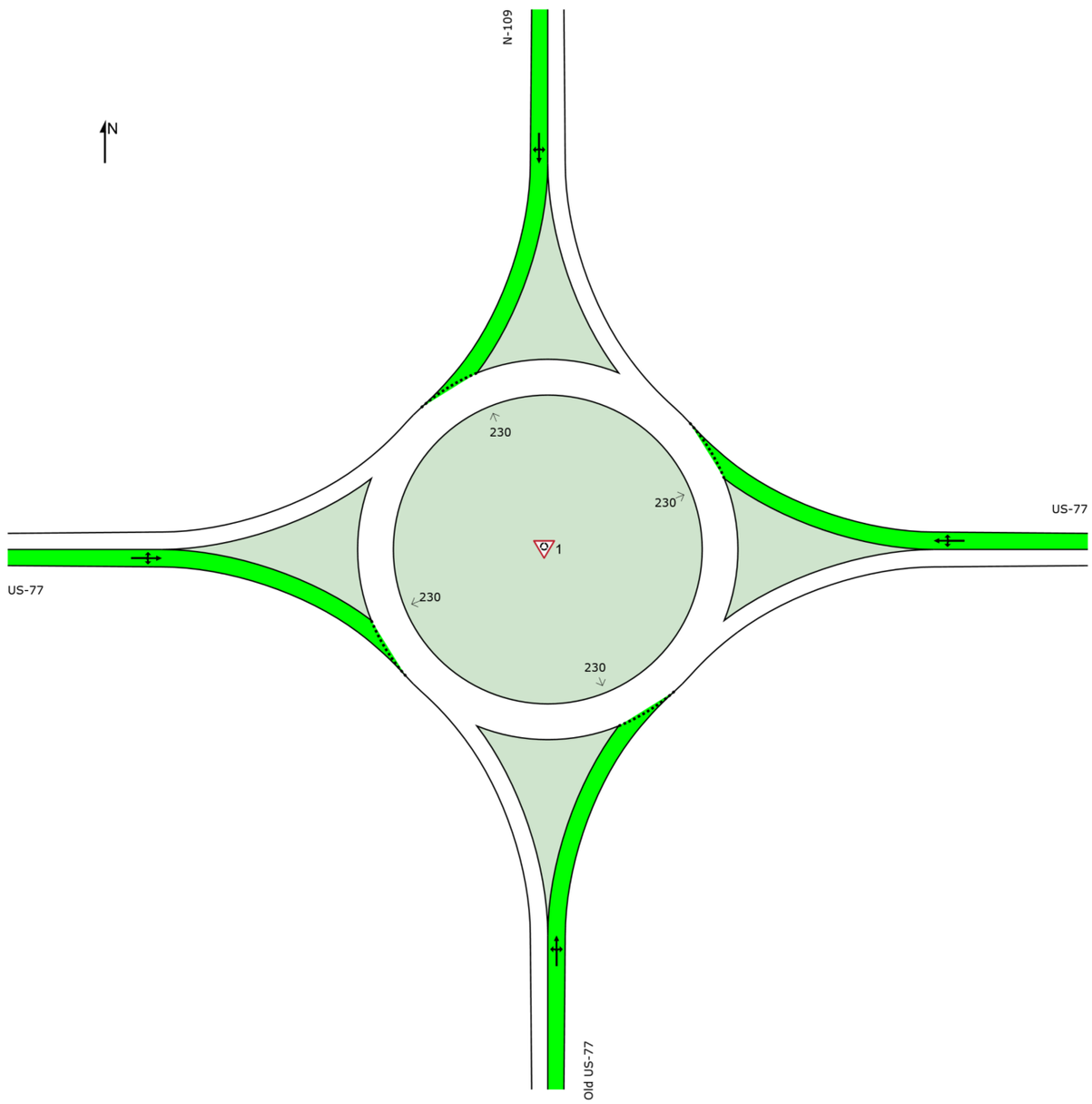
Lane Level of Service

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

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MOVEMENT SUMMARY

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	16	3.0	16	3.0	0.152	5.9	LOS A	0.6	16.2	0.53	0.41	0.53	36.6
8	T1	All MCs	29	3.0	29	3.0	0.152	5.9	LOS A	0.6	16.2	0.53	0.41	0.53	30.4
18	R2	All MCs	80	3.0	80	3.0	0.152	5.9	LOS A	0.6	16.2	0.53	0.41	0.53	37.3
Approach			126	3.0	126	3.0	0.152	5.9	LOS A	0.6	16.2	0.53	0.41	0.53	35.4
East: US-77															
1	L2	All MCs	73	3.0	73	3.0	0.313	5.9	LOS A	1.7	44.3	0.34	0.16	0.34	36.1
6	T1	All MCs	287	3.0	287	3.0	0.313	5.9	LOS A	1.7	44.3	0.34	0.16	0.34	38.0
16	R2	All MCs	11	3.0	11	3.0	0.313	5.9	LOS A	1.7	44.3	0.34	0.16	0.34	38.7
Approach			371	3.0	371	3.0	0.313	5.9	LOS A	1.7	44.3	0.34	0.16	0.34	37.7
North: N-109															
7	L2	All MCs	16	3.0	16	3.0	0.178	5.8	LOS A	0.8	19.6	0.51	0.37	0.51	40.0
4	T1	All MCs	37	3.0	37	3.0	0.178	5.8	LOS A	0.8	19.6	0.51	0.37	0.51	40.0
14	R2	All MCs	105	3.0	105	3.0	0.178	5.8	LOS A	0.8	19.6	0.51	0.37	0.51	40.8
Approach			159	3.0	159	3.0	0.178	5.8	LOS A	0.8	19.6	0.51	0.37	0.51	40.5
West: US-77															
5	L2	All MCs	71	3.0	71	3.0	0.387	6.8	LOS A	2.3	59.8	0.38	0.19	0.38	30.2
2	T1	All MCs	361	3.0	361	3.0	0.387	6.8	LOS A	2.3	59.8	0.38	0.19	0.38	37.7
12	R2	All MCs	22	3.0	22	3.0	0.387	6.8	LOS A	2.3	59.8	0.38	0.19	0.38	36.7
Approach			453	3.0	453	3.0	0.387	6.8	LOS A	2.3	59.8	0.38	0.19	0.38	36.2
All Vehicles			1109	3.0	1109	3.0	0.387	6.2	LOS A	2.3	59.8	0.40	0.23	0.40	37.1

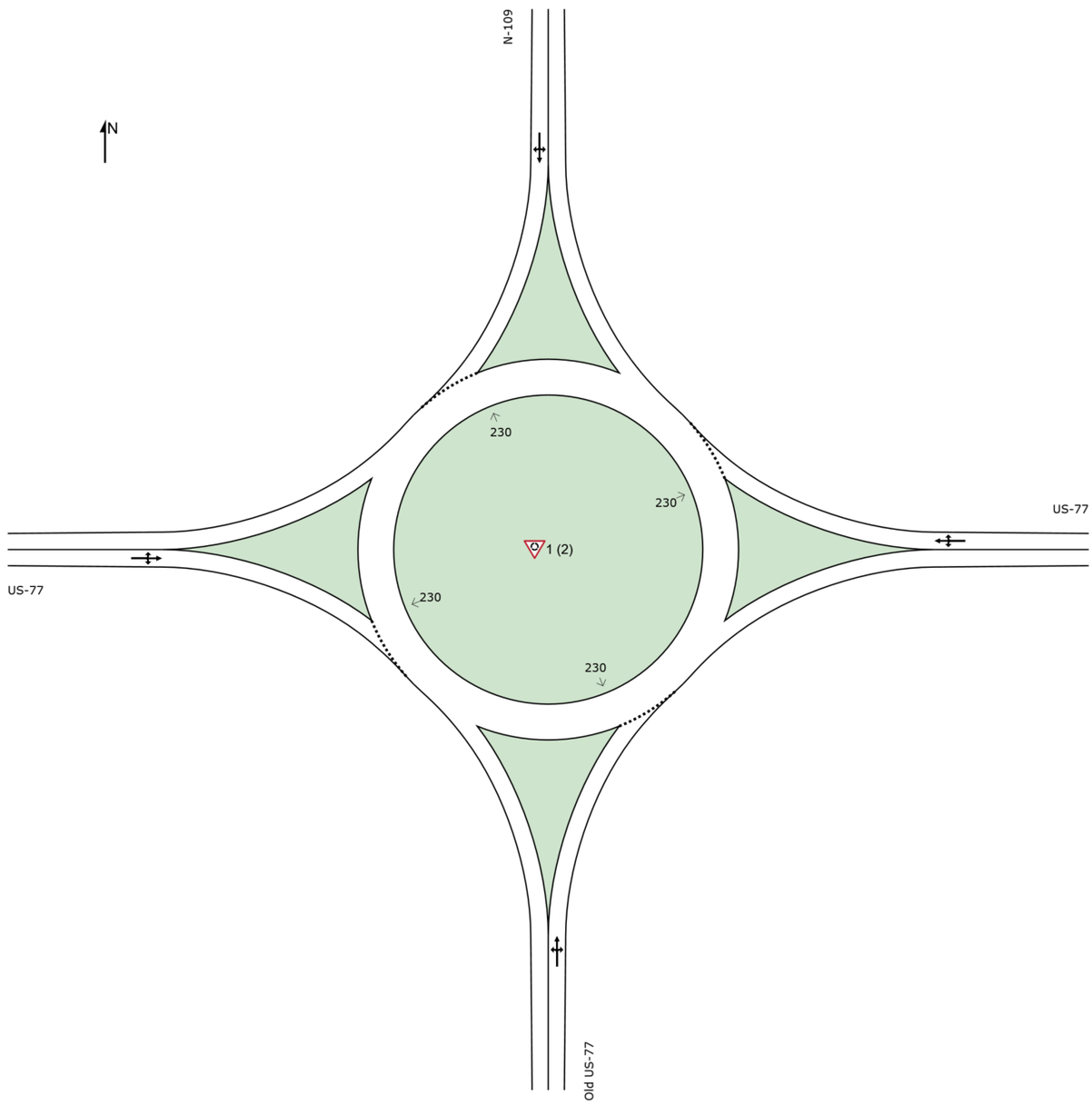
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Year 2028 Opening Day \Background\Year 2028 US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

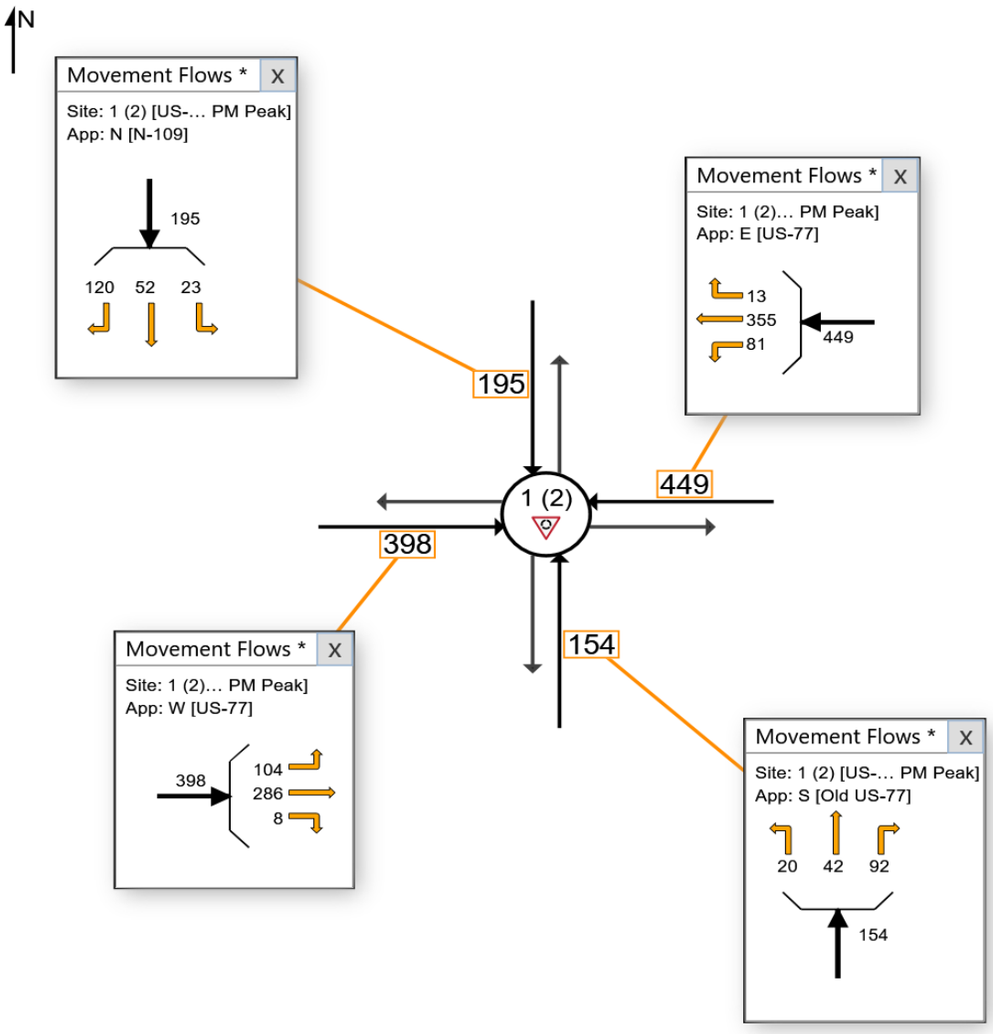
Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

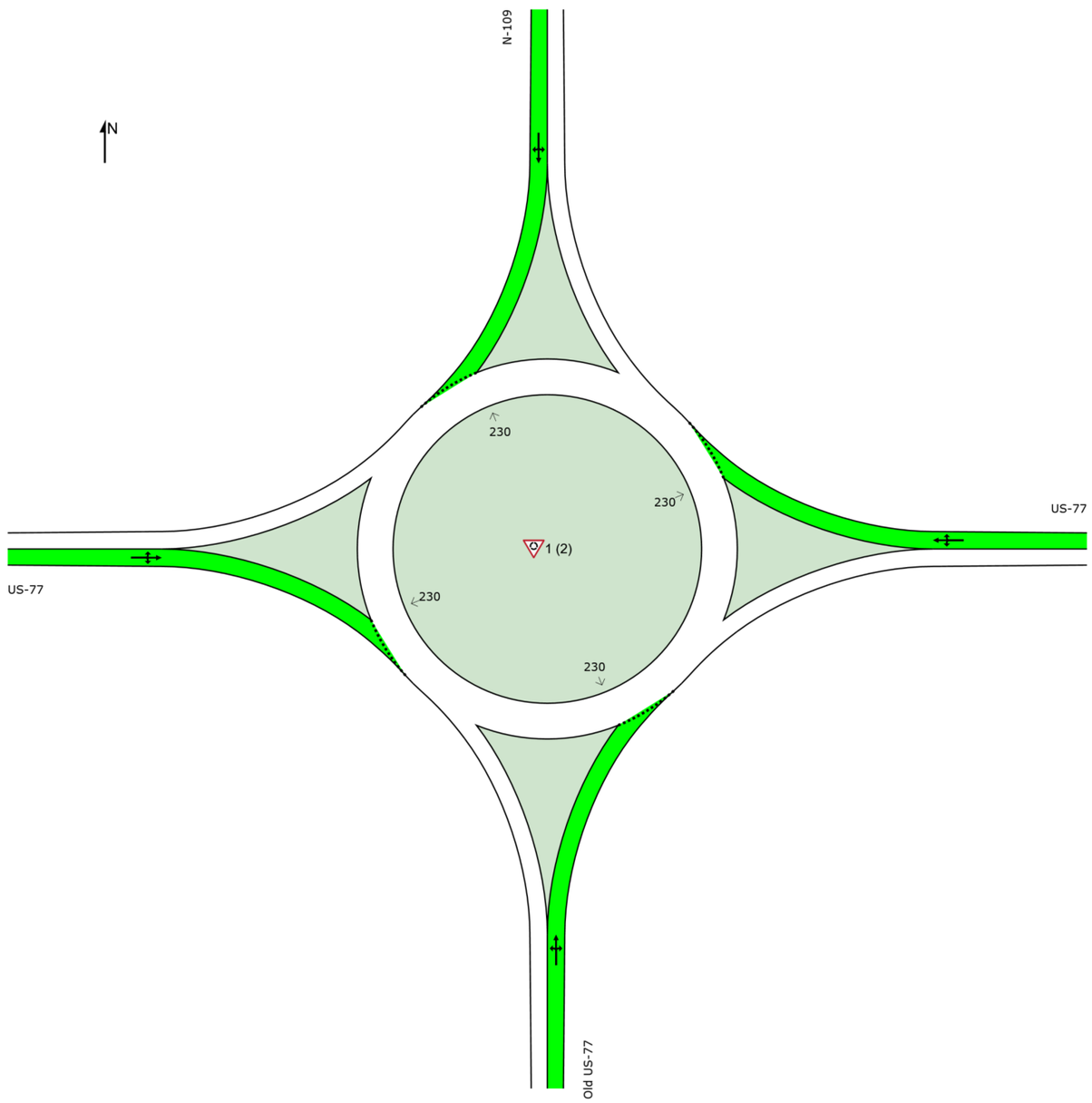
Lane Level of Service

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

MOVEMENT SUMMARY

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	22	3.0	22	3.0	0.203	6.5	LOS A	0.9	22.3	0.55	0.43	0.55	36.3
8	T1	All MCs	46	3.0	46	3.0	0.203	6.5	LOS A	0.9	22.3	0.55	0.43	0.55	30.2
18	R2	All MCs	100	3.0	100	3.0	0.203	6.5	LOS A	0.9	22.3	0.55	0.43	0.55	37.0
Approach			167	3.0	167	3.0	0.203	6.5	LOS A	0.9	22.3	0.55	0.43	0.55	34.7
East: US-77															
1	L2	All MCs	88	3.0	88	3.0	0.442	7.9	LOS A	2.7	70.4	0.49	0.27	0.49	35.1
6	T1	All MCs	386	3.0	386	3.0	0.442	7.9	LOS A	2.7	70.4	0.49	0.27	0.49	36.9
16	R2	All MCs	14	3.0	14	3.0	0.442	7.9	LOS A	2.7	70.4	0.49	0.27	0.49	37.6
Approach			488	3.0	488	3.0	0.442	7.9	LOS A	2.7	70.4	0.49	0.27	0.49	36.6
North: N-109															
7	L2	All MCs	25	3.0	25	3.0	0.270	7.6	LOS A	1.2	30.6	0.60	0.48	0.60	38.7
4	T1	All MCs	57	3.0	57	3.0	0.270	7.6	LOS A	1.2	30.6	0.60	0.48	0.60	38.7
14	R2	All MCs	130	3.0	130	3.0	0.270	7.6	LOS A	1.2	30.6	0.60	0.48	0.60	39.4
Approach			212	3.0	212	3.0	0.270	7.6	LOS A	1.2	30.6	0.60	0.48	0.60	39.1
West: US-77															
5	L2	All MCs	113	3.0	113	3.0	0.387	7.1	LOS A	2.3	58.0	0.44	0.24	0.44	29.8
2	T1	All MCs	311	3.0	311	3.0	0.387	7.1	LOS A	2.3	58.0	0.44	0.24	0.44	37.1
12	R2	All MCs	9	3.0	9	3.0	0.387	7.1	LOS A	2.3	58.0	0.44	0.24	0.44	36.2
Approach			433	3.0	433	3.0	0.387	7.1	LOS A	2.3	58.0	0.44	0.24	0.44	34.8
All Vehicles			1300	3.0	1300	3.0	0.442	7.4	LOS A	2.7	70.4	0.50	0.32	0.50	36.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	0	0	0	8	110	0	0	103	19
Future Vol, veh/h	7	0	2	0	0	0	8	110	0	0	103	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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	0	0	0	9	120	0	0	112	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	259	259	122	249	270	120	133	0	0	120	0	0
Stage 1	122	122	-	137	137	-	-	-	-	-	-	-
Stage 2	137	137	-	112	133	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	692	644	926	703	635	929	1446	-	-	1462	-	-
Stage 1	879	793	-	864	781	-	-	-	-	-	-	-
Stage 2	864	781	-	891	785	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	688	640	926	697	631	929	1446	-	-	1462	-	-
Mov Cap-2 Maneuver	688	640	-	697	631	-	-	-	-	-	-	-
Stage 1	879	793	-	859	777	-	-	-	-	-	-	-
Stage 2	859	777	-	889	785	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10	0	0.51	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1446	-	-	729	-	1462	-	-
HCM Lane V/C Ratio	0.006	-	-	0.013	-	-	-	-
HCM Control Delay (s/veh)	7.5	-	-	10	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	10	0	0	0	4	131	0	0	133	12
Future Vol, veh/h	20	0	10	0	0	0	4	131	0	0	133	12
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	0	11	0	0	0	4	142	0	0	145	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	302	302	151	296	309	142	158	0	0	142	0	0
Stage 1	151	151	-	151	151	-	-	-	-	-	-	-
Stage 2	151	151	-	145	158	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	648	609	893	655	604	903	1416	-	-	1434	-	-
Stage 1	849	770	-	849	770	-	-	-	-	-	-	-
Stage 2	849	770	-	856	765	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	646	607	893	645	602	903	1416	-	-	1434	-	-
Mov Cap-2 Maneuver	646	607	-	645	602	-	-	-	-	-	-	-
Stage 1	849	770	-	846	768	-	-	-	-	-	-	-
Stage 2	846	768	-	845	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.3	0	0.22	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1416	-	-	712	-	1434	-	-
HCM Lane V/C Ratio	0.003	-	-	0.046	-	-	-	-
HCM Control Delay (s/veh)	7.6	-	-	10.3	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	118	0	0	105
Future Vol, veh/h	0	0	118	0	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	0	0	128	0	0	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	128	0	0	128	0
Stage 1	128	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	744	919	-	-	1451	-
Stage 1	895	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	744	919	-	-	1451	-
Mov Cap-2 Maneuver	744	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	908	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1451	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	135	0	0	143
Future Vol, veh/h	0	0	135	0	0	143
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	0	0	147	0	0	155

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	302	147	0	0	147	0
Stage 1	147	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	687	898	-	-	1429	-
Stage 1	878	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	687	898	-	-	1429	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	870	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1429	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

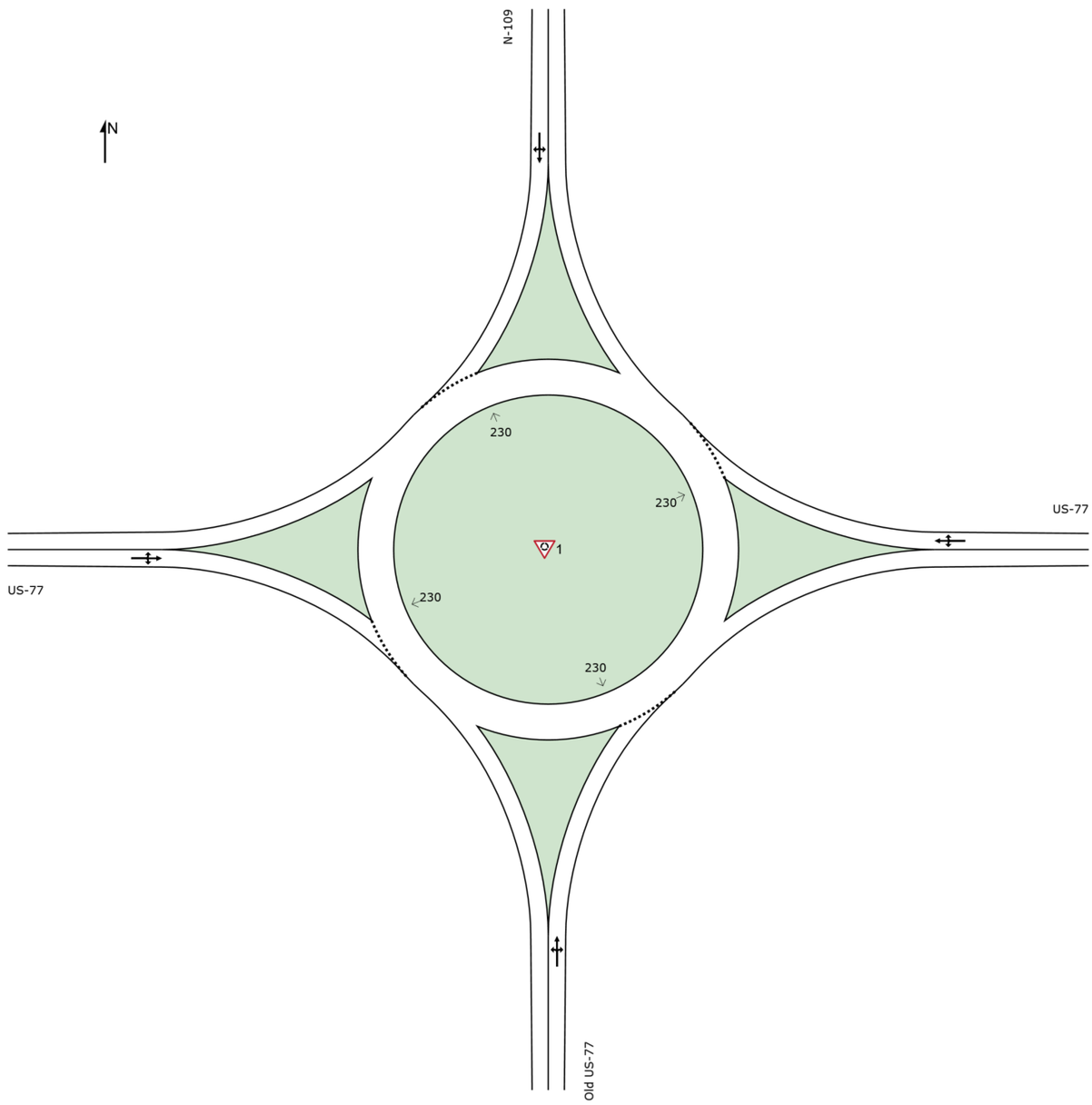
Horizon Year (2038) Future Background Conditions

SITE LAYOUT

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Year 2038 Horizon Year \Background\Year 2038 US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

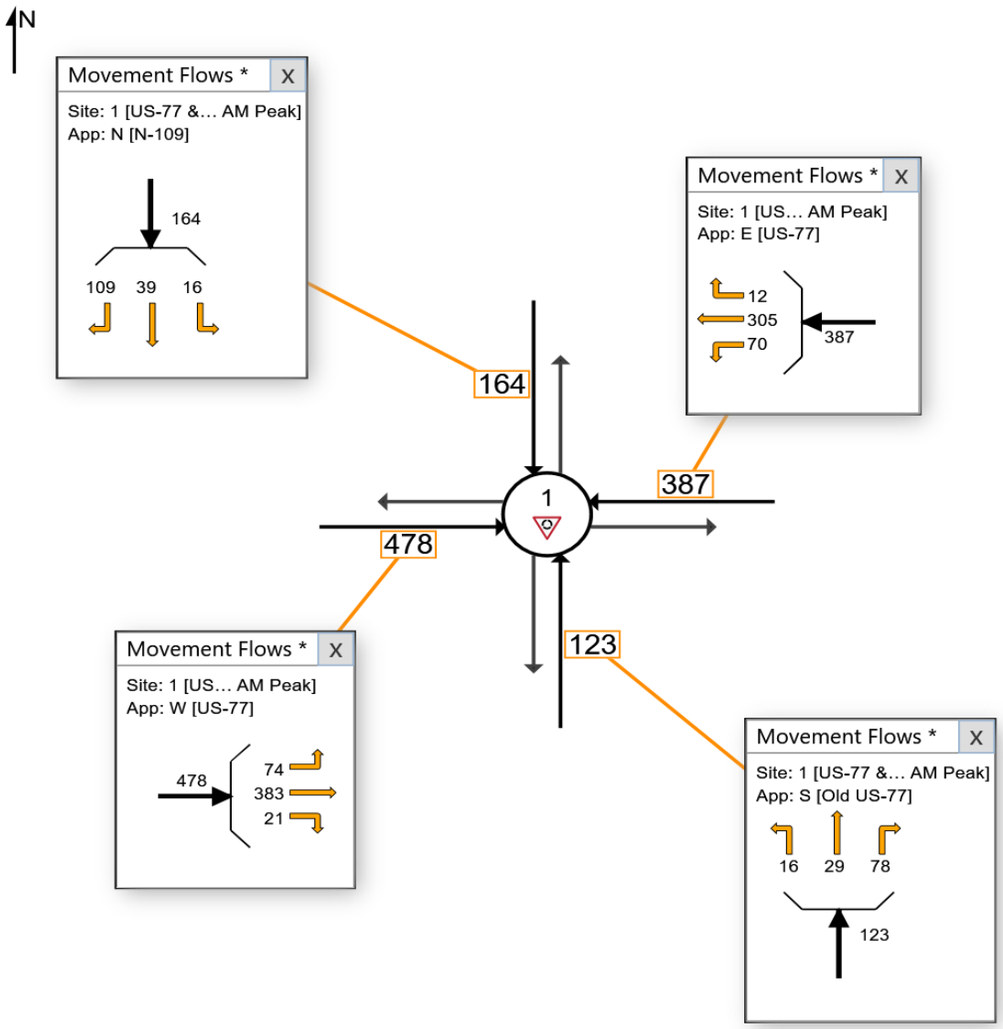
Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

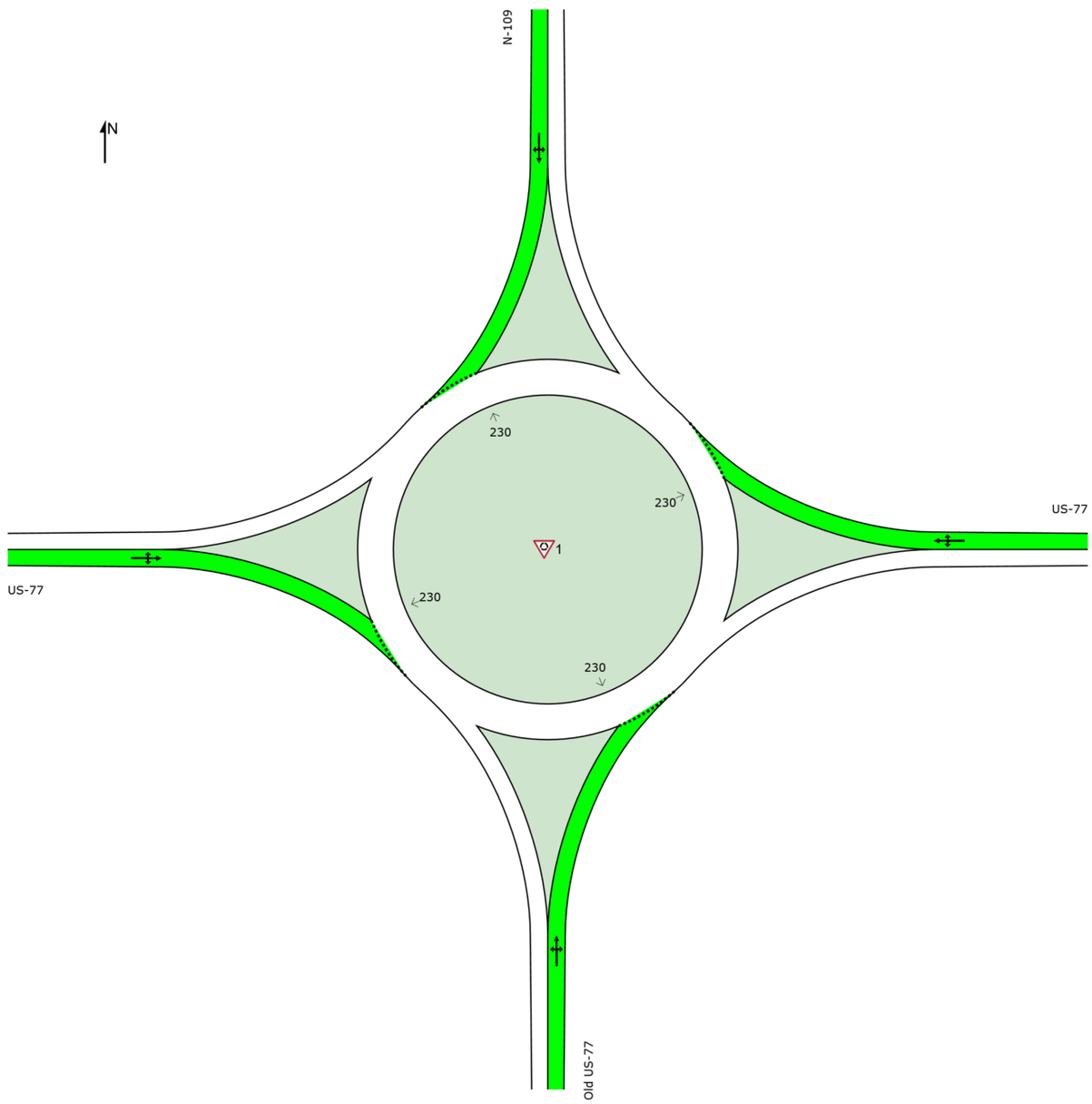
Lane Level of Service

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Organisation: JEO CONSULTING GROUP | Licence: PLUS / 1PC | Processed: Tuesday, September 30, 2025 6:36:13 PM
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MOVEMENT SUMMARY

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	17	3.0	17	3.0	0.174	6.5	LOS A	0.7	18.3	0.57	0.46	0.57	36.3
8	T1	All MCs	32	3.0	32	3.0	0.174	6.5	LOS A	0.7	18.3	0.57	0.46	0.57	30.1
18	R2	All MCs	85	3.0	85	3.0	0.174	6.5	LOS A	0.7	18.3	0.57	0.46	0.57	37.0
Approach			134	3.0	134	3.0	0.174	6.5	LOS A	0.7	18.3	0.57	0.46	0.57	35.0
East: US-77															
1	L2	All MCs	76	3.0	76	3.0	0.360	6.5	LOS A	2.1	53.7	0.38	0.19	0.38	35.9
6	T1	All MCs	332	3.0	332	3.0	0.360	6.5	LOS A	2.1	53.7	0.38	0.19	0.38	37.7
16	R2	All MCs	13	3.0	13	3.0	0.360	6.5	LOS A	2.1	53.7	0.38	0.19	0.38	38.4
Approach			421	3.0	421	3.0	0.360	6.5	LOS A	2.1	53.7	0.38	0.19	0.38	37.4
North: N-109															
7	L2	All MCs	17	3.0	17	3.0	0.210	6.4	LOS A	0.9	23.4	0.54	0.42	0.54	39.6
4	T1	All MCs	42	3.0	42	3.0	0.210	6.4	LOS A	0.9	23.4	0.54	0.42	0.54	39.6
14	R2	All MCs	118	3.0	118	3.0	0.210	6.4	LOS A	0.9	23.4	0.54	0.42	0.54	40.4
Approach			178	3.0	178	3.0	0.210	6.4	LOS A	0.9	23.4	0.54	0.42	0.54	40.1
West: US-77															
5	L2	All MCs	80	3.0	80	3.0	0.448	7.7	LOS A	2.9	74.7	0.43	0.22	0.43	29.8
2	T1	All MCs	416	3.0	416	3.0	0.448	7.7	LOS A	2.9	74.7	0.43	0.22	0.43	37.2
12	R2	All MCs	23	3.0	23	3.0	0.448	7.7	LOS A	2.9	74.7	0.43	0.22	0.43	36.3
Approach			520	3.0	520	3.0	0.448	7.7	LOS A	2.9	74.7	0.43	0.22	0.43	35.8
All Vehicles			1252	3.0	1252	3.0	0.448	7.0	LOS A	2.9	74.7	0.44	0.26	0.44	36.8

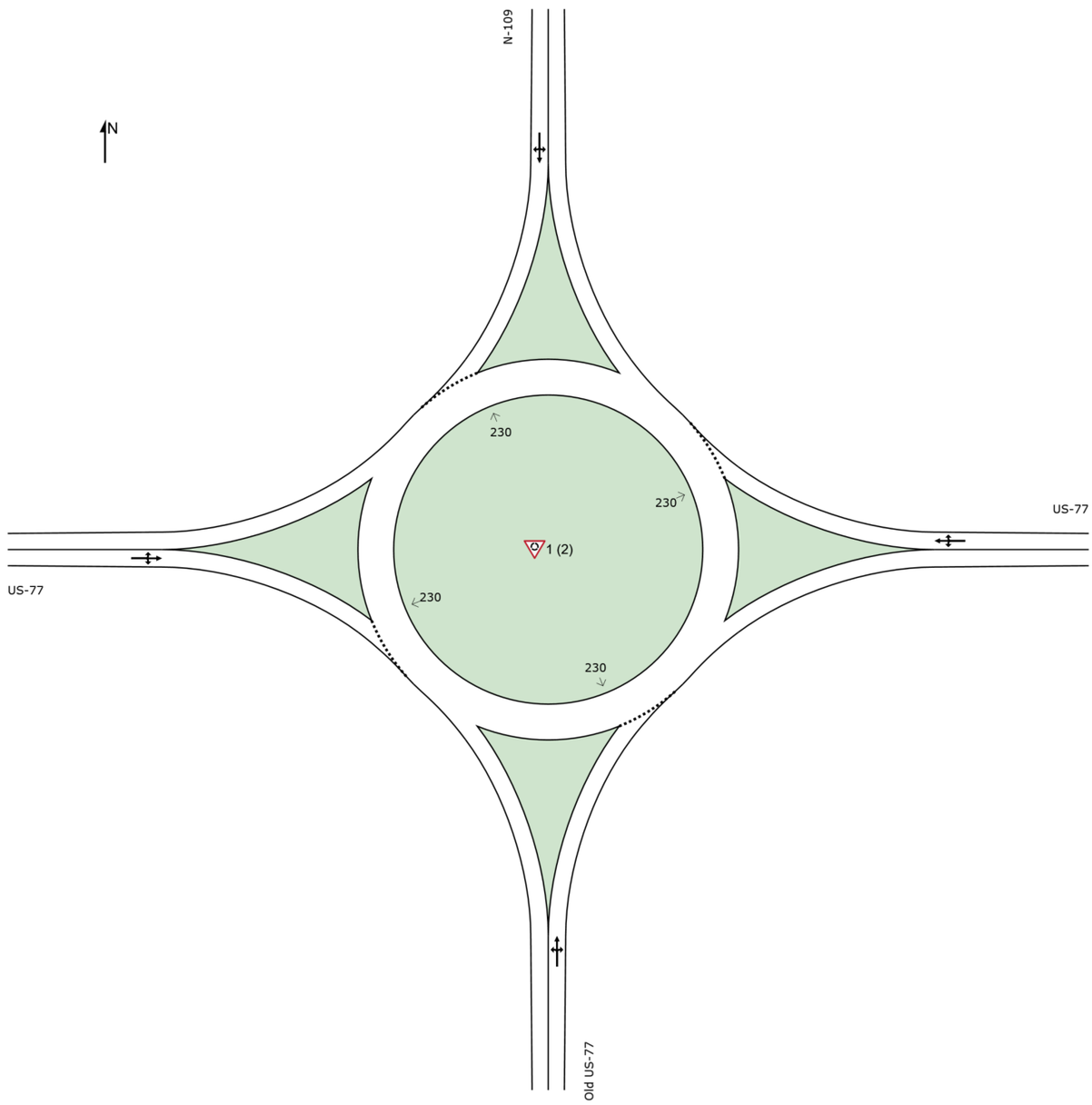
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Year 2038 Horizon Year \Background\Year 2038 US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

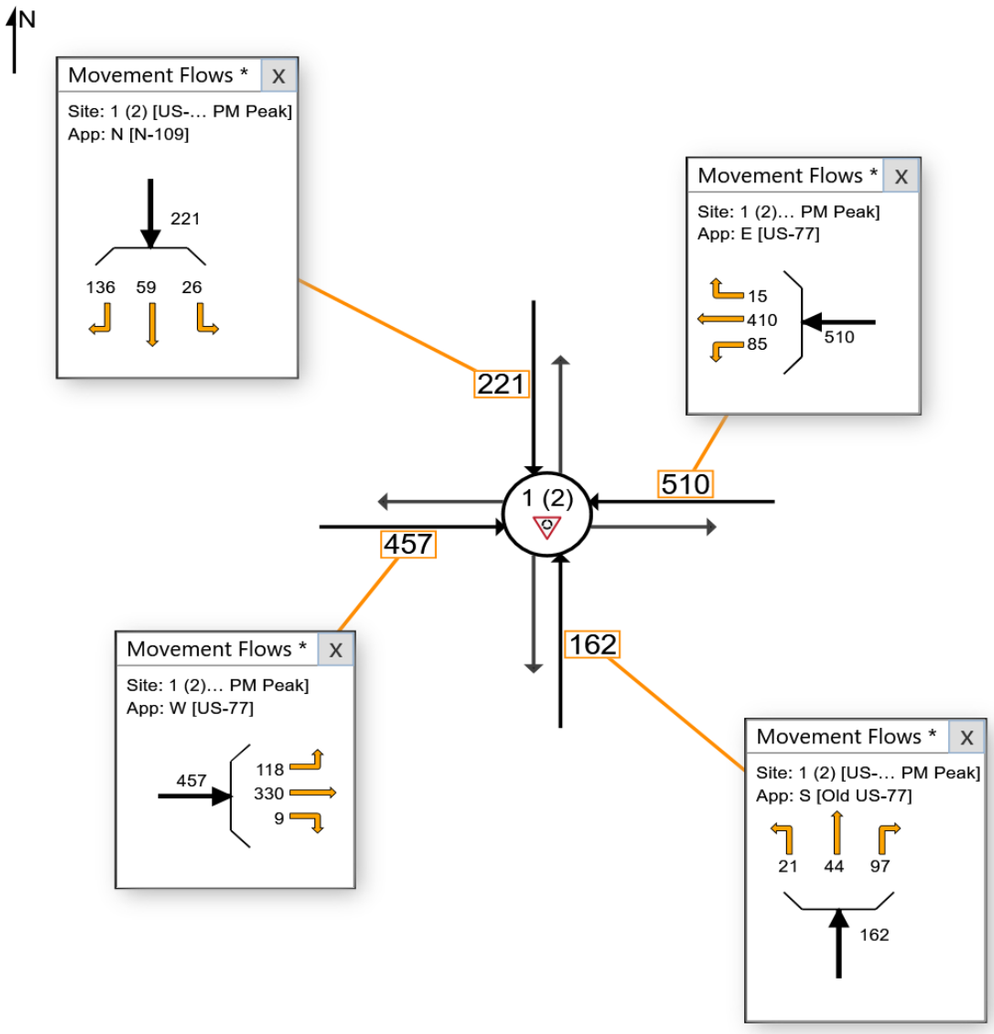
Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

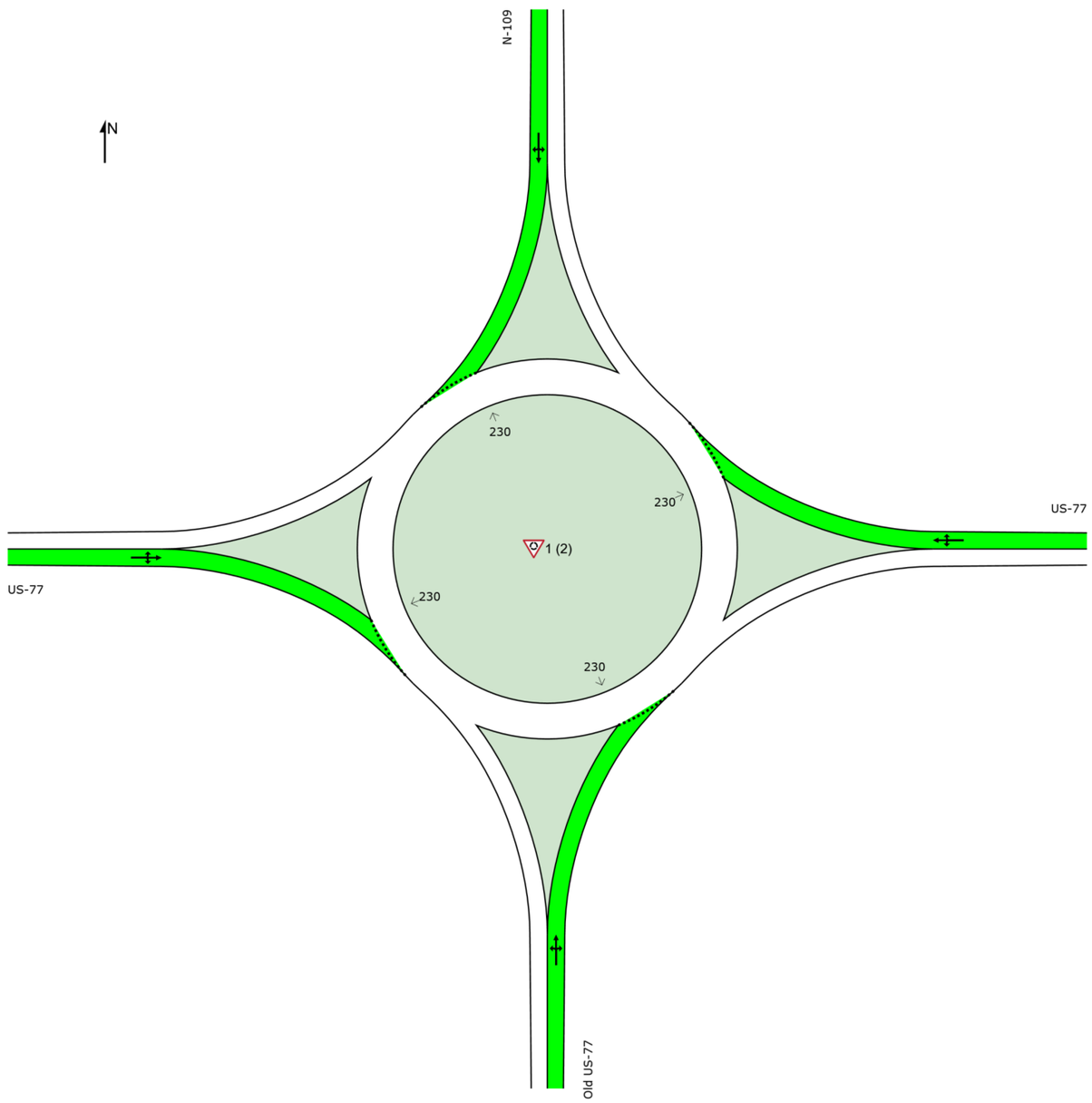
Lane Level of Service

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

MOVEMENT SUMMARY

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	23	3.0	23	3.0	0.229	7.2	LOS A	1.0	25.0	0.59	0.48	0.59	35.9
8	T1	All MCs	48	3.0	48	3.0	0.229	7.2	LOS A	1.0	25.0	0.59	0.48	0.59	29.9
18	R2	All MCs	105	3.0	105	3.0	0.229	7.2	LOS A	1.0	25.0	0.59	0.48	0.59	36.6
Approach			176	3.0	176	3.0	0.229	7.2	LOS A	1.0	25.0	0.59	0.48	0.59	34.4
East: US-77															
1	L2	All MCs	92	3.0	92	3.0	0.512	9.1	LOS A	3.4	88.2	0.56	0.32	0.56	34.6
6	T1	All MCs	446	3.0	446	3.0	0.512	9.1	LOS A	3.4	88.2	0.56	0.32	0.56	36.3
16	R2	All MCs	16	3.0	16	3.0	0.512	9.1	LOS A	3.4	88.2	0.56	0.32	0.56	36.9
Approach			554	3.0	554	3.0	0.512	9.1	LOS A	3.4	88.2	0.56	0.32	0.56	36.0
North: N-109															
7	L2	All MCs	28	3.0	28	3.0	0.329	8.9	LOS A	1.5	37.7	0.65	0.54	0.65	37.8
4	T1	All MCs	64	3.0	64	3.0	0.329	8.9	LOS A	1.5	37.7	0.65	0.54	0.65	37.8
14	R2	All MCs	148	3.0	148	3.0	0.329	8.9	LOS A	1.5	37.7	0.65	0.54	0.65	38.6
Approach			240	3.0	240	3.0	0.329	8.9	LOS A	1.5	37.7	0.65	0.54	0.65	38.3
West: US-77															
5	L2	All MCs	128	3.0	128	3.0	0.452	8.1	LOS A	2.8	72.7	0.50	0.28	0.50	29.5
2	T1	All MCs	359	3.0	359	3.0	0.452	8.1	LOS A	2.8	72.7	0.50	0.28	0.50	36.5
12	R2	All MCs	10	3.0	10	3.0	0.452	8.1	LOS A	2.8	72.7	0.50	0.28	0.50	35.7
Approach			497	3.0	497	3.0	0.452	8.1	LOS A	2.8	72.7	0.50	0.28	0.50	34.4
All Vehicles			1467	3.0	1467	3.0	0.512	8.5	LOS A	3.4	88.2	0.56	0.36	0.56	35.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	0	0	0	9	115	0	0	108	20
Future Vol, veh/h	7	0	2	0	0	0	9	115	0	0	108	20
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	0	0	0	10	125	0	0	117	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	273	273	128	262	284	125	139	0	0	125	0	0
Stage 1	128	128	-	145	145	-	-	-	-	-	-	-
Stage 2	145	145	-	117	139	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	678	632	919	689	624	923	1438	-	-	1455	-	-
Stage 1	873	788	-	856	775	-	-	-	-	-	-	-
Stage 2	856	775	-	885	780	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	673	628	919	683	619	923	1438	-	-	1455	-	-
Mov Cap-2 Maneuver	673	628	-	683	619	-	-	-	-	-	-	-
Stage 1	873	788	-	850	770	-	-	-	-	-	-	-
Stage 2	850	770	-	883	780	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.1	0	0.55	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	716	-	1455	-	-
HCM Lane V/C Ratio	0.007	-	-	0.014	-	-	-	-
HCM Control Delay (s/veh)	7.5	-	-	10.1	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	11	0	0	0	4	138	0	0	140	13
Future Vol, veh/h	21	0	11	0	0	0	4	138	0	0	140	13
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	0	12	0	0	0	4	150	0	0	152	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	318	318	159	311	325	150	166	0	0	150	0	0
Stage 1	159	159	-	159	159	-	-	-	-	-	-	-
Stage 2	159	159	-	152	166	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	633	597	883	640	591	894	1406	-	-	1425	-	-
Stage 1	841	764	-	841	765	-	-	-	-	-	-	-
Stage 2	841	765	-	848	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	631	595	883	629	590	894	1406	-	-	1425	-	-
Mov Cap-2 Maneuver	631	595	-	629	590	-	-	-	-	-	-	-
Stage 1	841	764	-	839	762	-	-	-	-	-	-	-
Stage 2	839	762	-	836	759	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.41	0	0.21	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1406	-	-	700	-	1425	-	-
HCM Lane V/C Ratio	0.003	-	-	0.05	-	-	-	-
HCM Control Delay (s/veh)	7.6	-	-	10.4	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	124	0	0	110
Future Vol, veh/h	0	0	124	0	0	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	0	0	135	0	0	120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	254	135	0	0	135	0
Stage 1	135	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	732	911	-	-	1443	-
Stage 1	889	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	732	911	-	-	1443	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1443	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	142	0	0	151
Future Vol, veh/h	0	0	142	0	0	151
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	0	0	154	0	0	164

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	318	154	0	0	154	0
Stage 1	154	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	673	889	-	-	1420	-
Stage 1	871	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	673	889	-	-	1420	-
Mov Cap-2 Maneuver	673	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1420	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

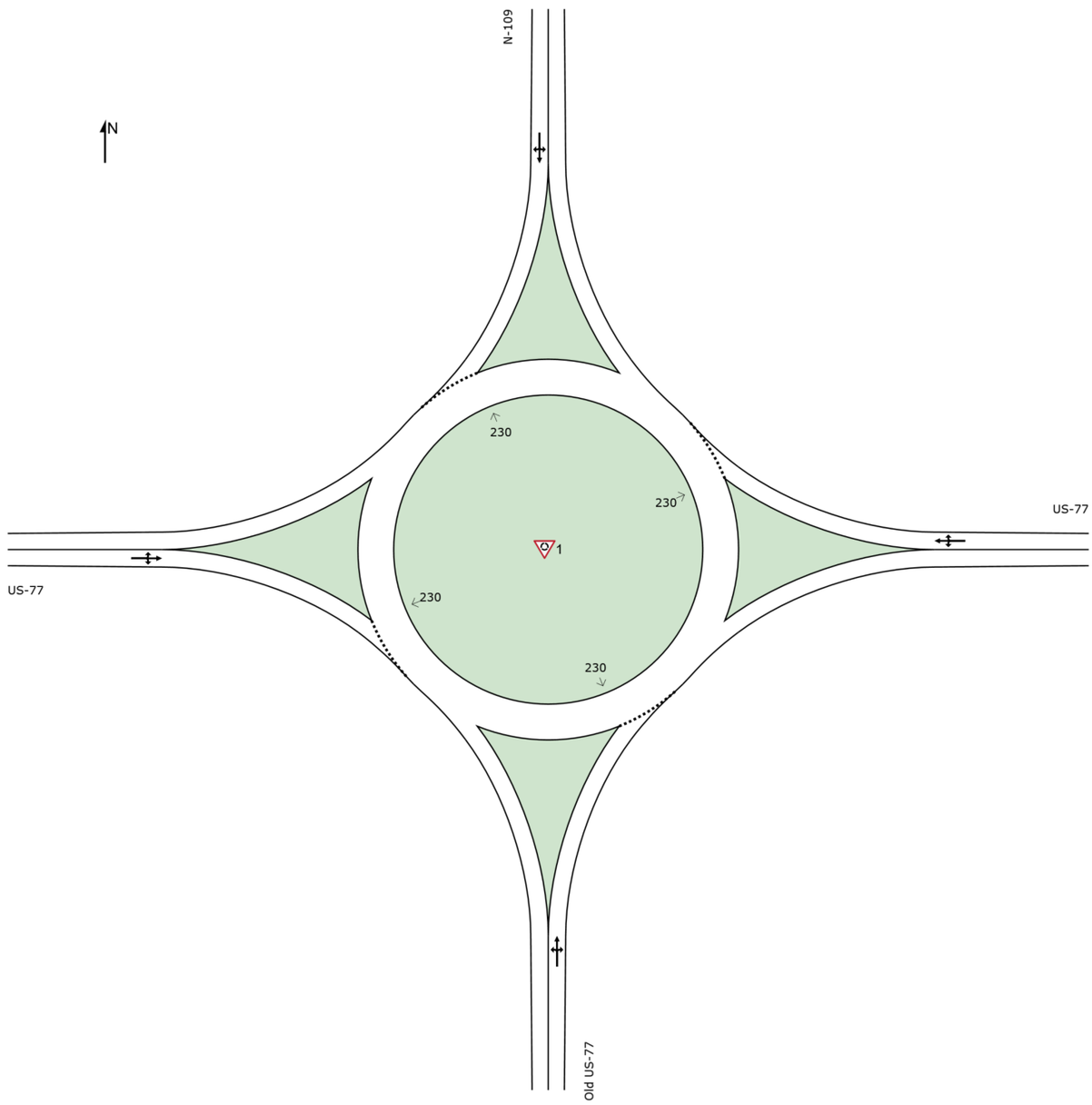
Opening Day (2028) Future Background Plus Site Trip Conditions

SITE LAYOUT

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

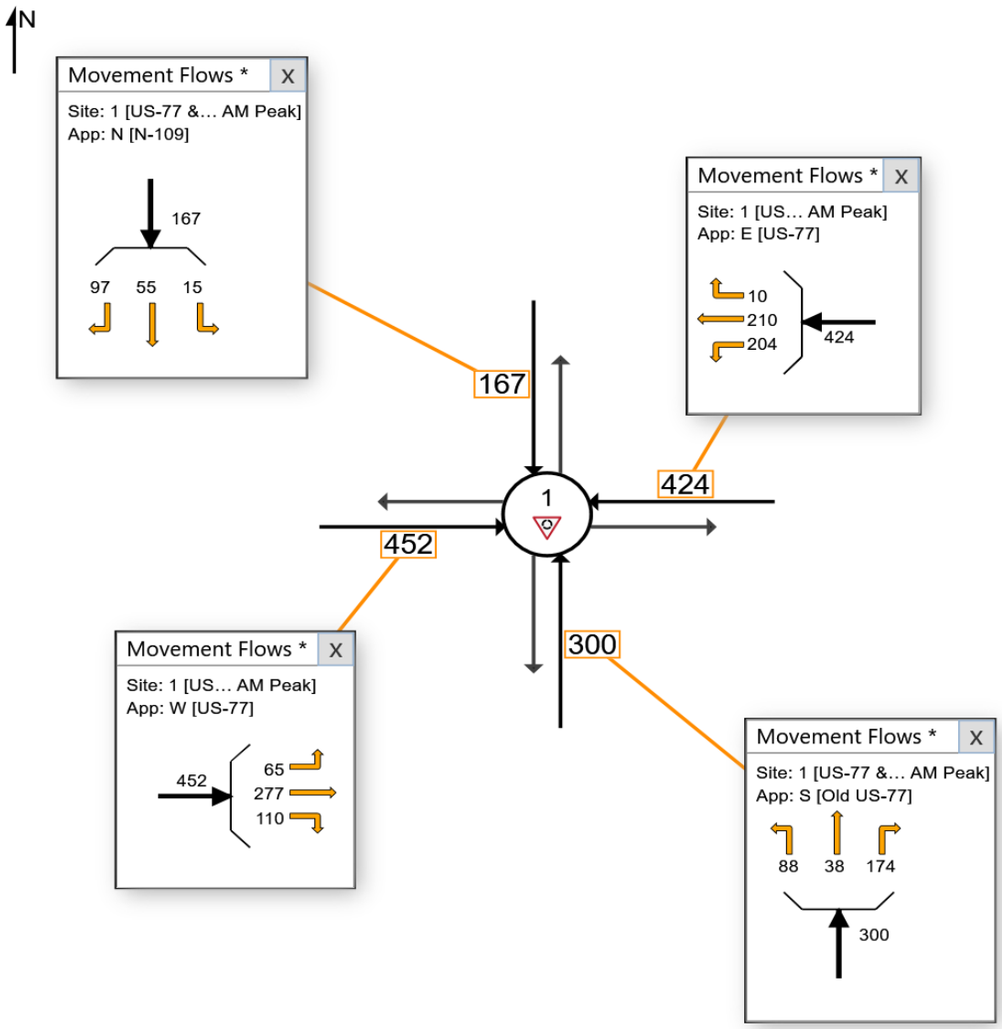
Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

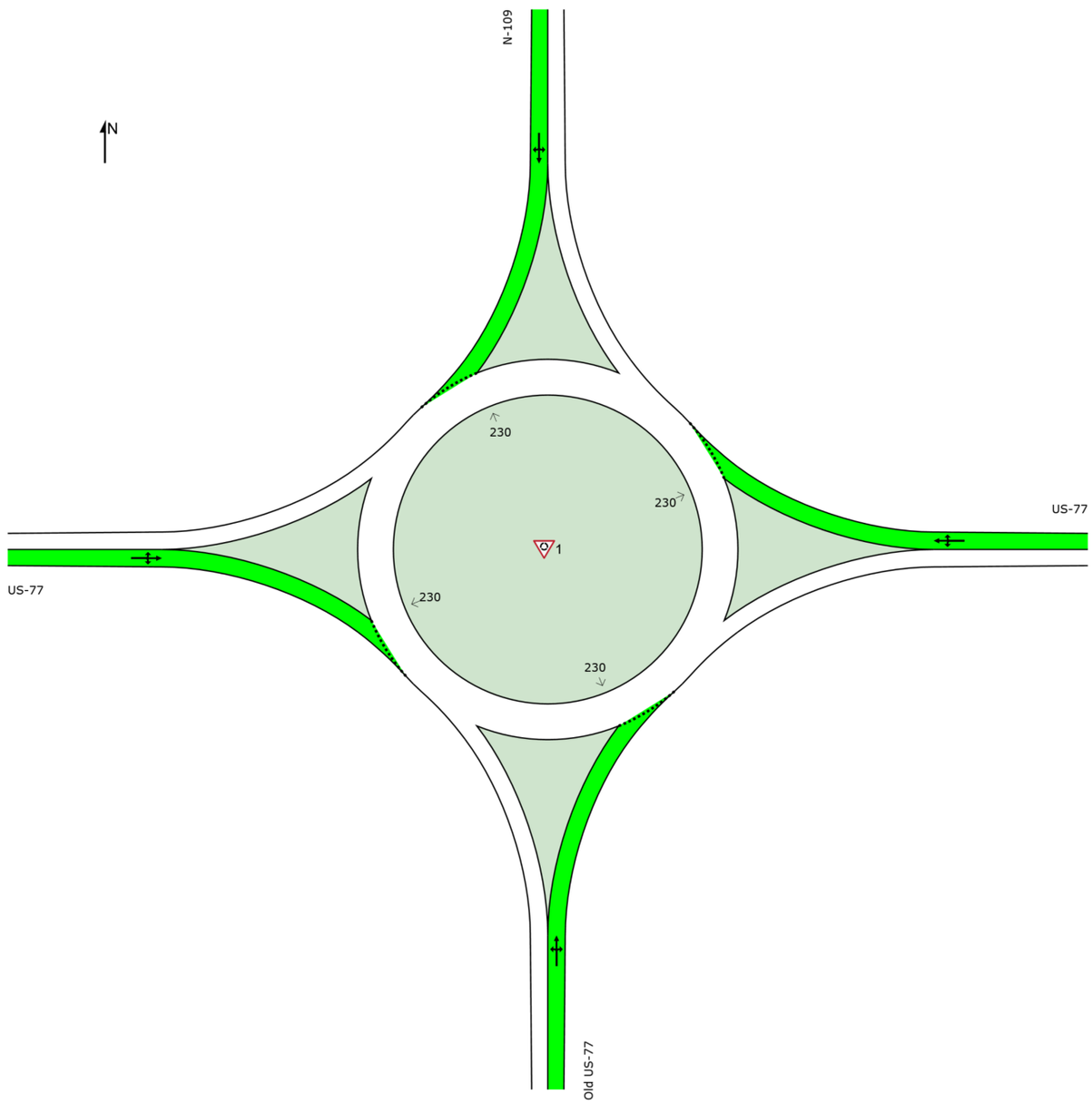
Lane Level of Service

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

MOVEMENT SUMMARY

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	96	3.0	96	3.0	0.370	8.2	LOS A	1.9	47.6	0.60	0.44	0.60	34.7
8	T1	All MCs	41	3.0	41	3.0	0.370	8.2	LOS A	1.9	47.6	0.60	0.44	0.60	29.1
18	R2	All MCs	189	3.0	189	3.0	0.370	8.2	LOS A	1.9	47.6	0.60	0.44	0.60	35.3
Approach			326	3.0	326	3.0	0.370	8.2	LOS A	1.9	47.6	0.60	0.44	0.60	34.2
East: US-77															
1	L2	All MCs	222	3.0	222	3.0	0.430	7.9	LOS A	2.6	66.0	0.51	0.30	0.51	34.1
6	T1	All MCs	228	3.0	228	3.0	0.430	7.9	LOS A	2.6	66.0	0.51	0.30	0.51	35.8
16	R2	All MCs	11	3.0	11	3.0	0.430	7.9	LOS A	2.6	66.0	0.51	0.30	0.51	36.4
Approach			461	3.0	461	3.0	0.430	7.9	LOS A	2.6	66.0	0.51	0.30	0.51	35.0
North: N-109															
7	L2	All MCs	16	3.0	16	3.0	0.244	7.6	LOS A	1.0	26.6	0.61	0.51	0.61	38.8
4	T1	All MCs	60	3.0	60	3.0	0.244	7.6	LOS A	1.0	26.6	0.61	0.51	0.61	38.8
14	R2	All MCs	105	3.0	105	3.0	0.244	7.6	LOS A	1.0	26.6	0.61	0.51	0.61	39.6
Approach			182	3.0	182	3.0	0.244	7.6	LOS A	1.0	26.6	0.61	0.51	0.61	39.2
West: US-77															
5	L2	All MCs	71	3.0	71	3.0	0.505	9.8	LOS A	3.6	91.5	0.63	0.46	0.71	29.1
2	T1	All MCs	301	3.0	301	3.0	0.505	9.8	LOS A	3.6	91.5	0.63	0.46	0.71	36.1
12	R2	All MCs	120	3.0	120	3.0	0.505	9.8	LOS A	3.6	91.5	0.63	0.46	0.71	35.2
Approach			491	3.0	491	3.0	0.505	9.8	LOS A	3.6	91.5	0.63	0.46	0.71	34.6
All Vehicles			1460	3.0	1460	3.0	0.505	8.6	LOS A	3.6	91.5	0.58	0.41	0.61	35.2

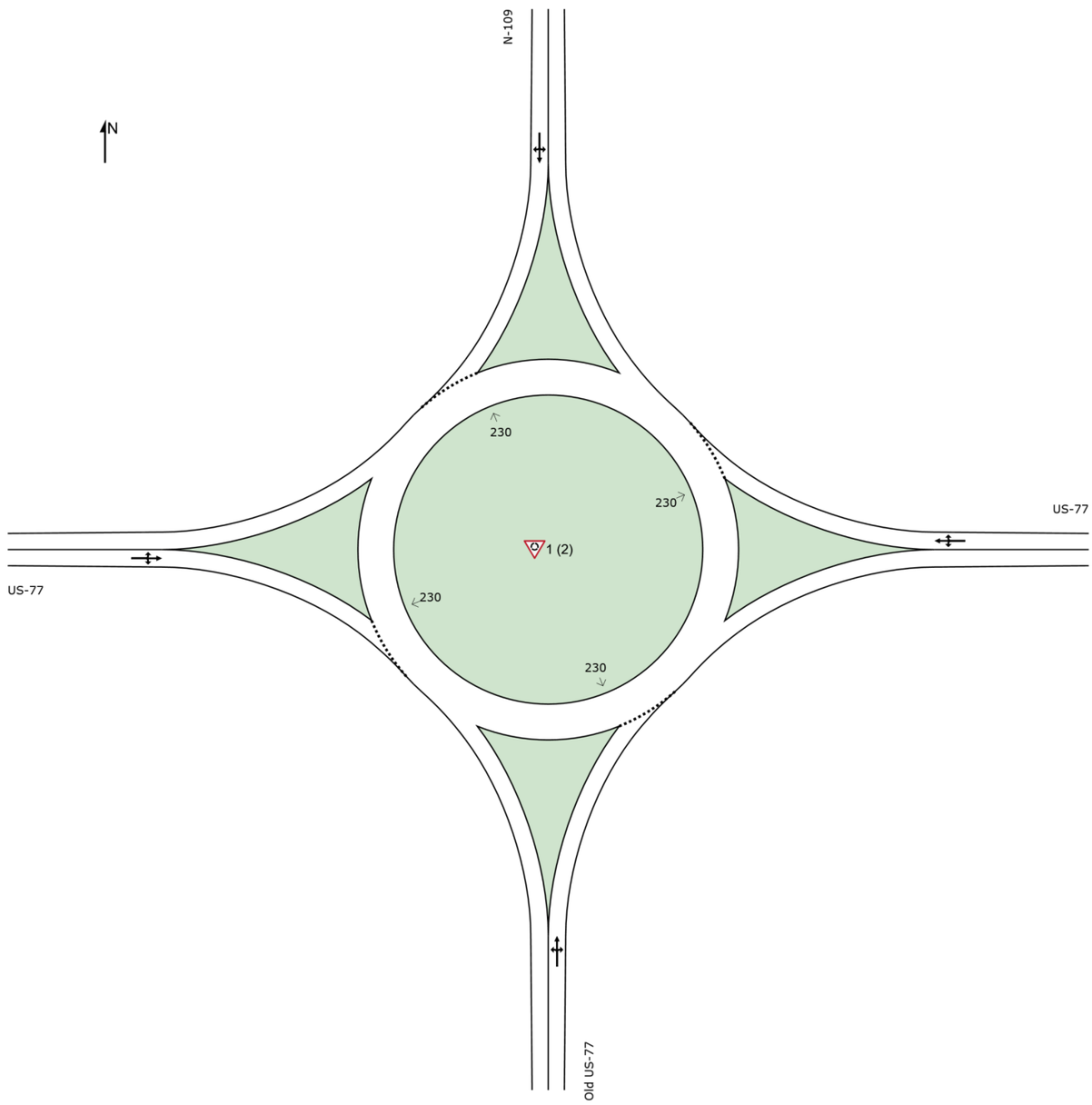
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

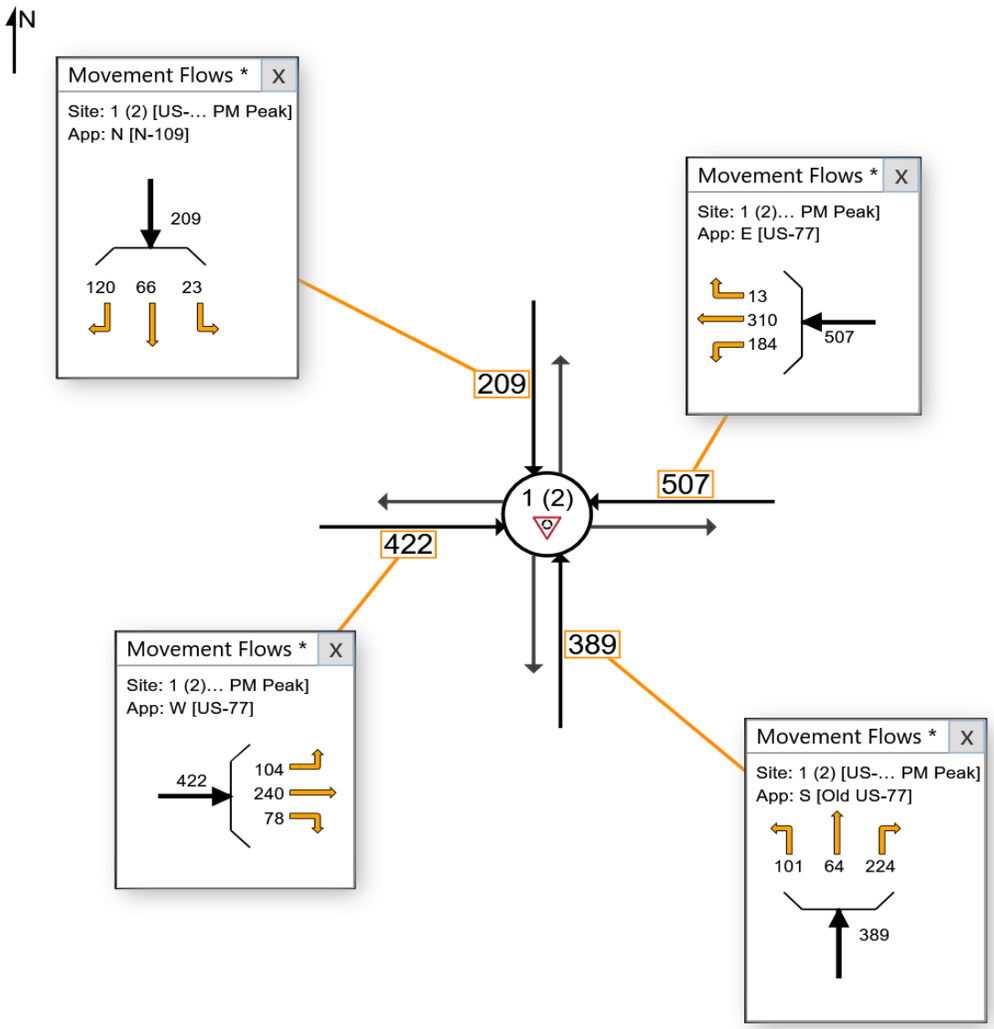
Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

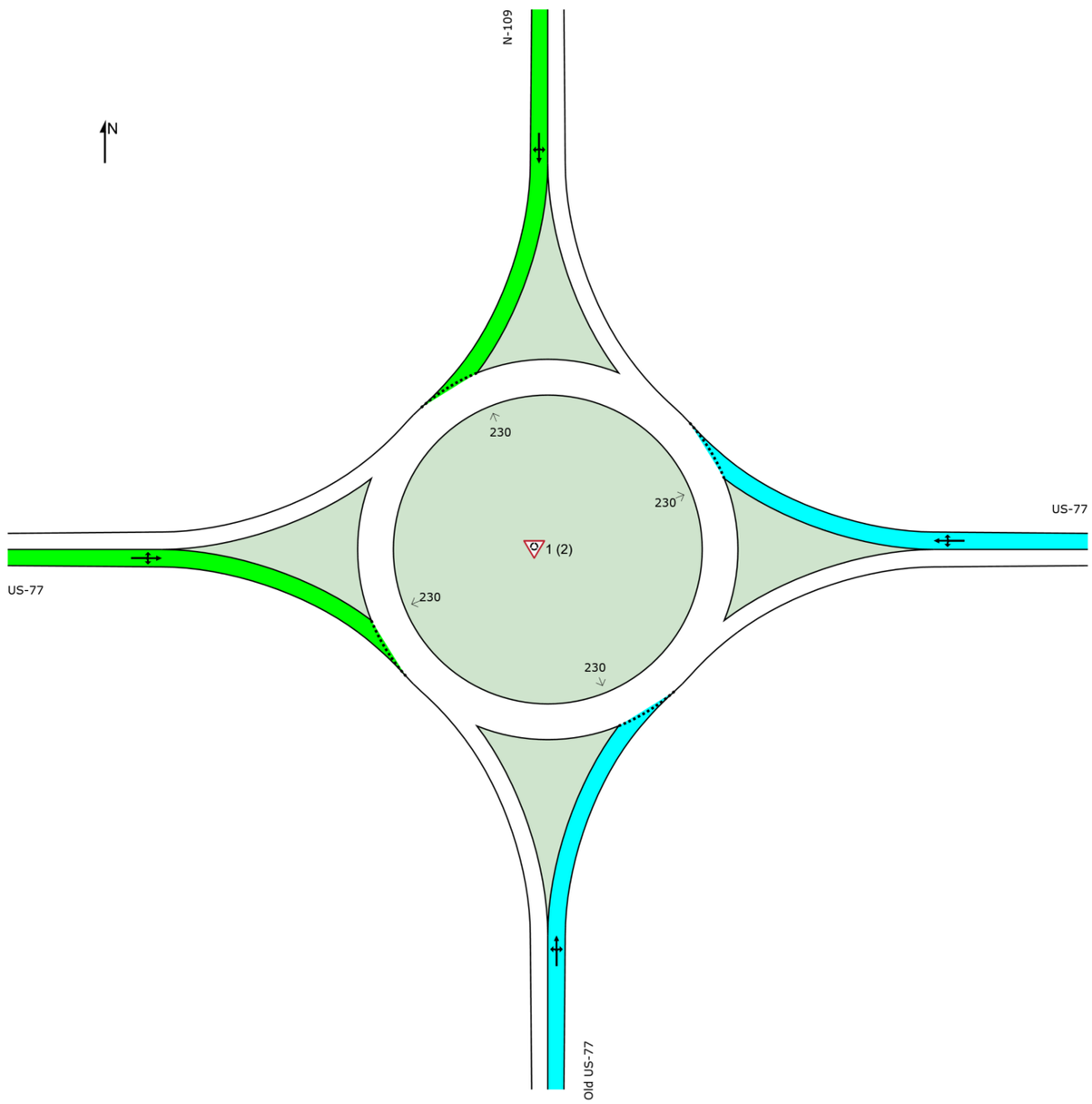
Lane Level of Service

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	A	A	B



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

MOVEMENT SUMMARY

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	110	3.0	110	3.0	0.485	10.3	LOS B	3.3	85.0	0.67	0.56	0.83	33.8
8	T1	All MCs	70	3.0	70	3.0	0.485	10.3	LOS B	3.3	85.0	0.67	0.56	0.83	28.5
18	R2	All MCs	243	3.0	243	3.0	0.485	10.3	LOS B	3.3	85.0	0.67	0.56	0.83	34.4
Approach			423	3.0	423	3.0	0.485	10.3	LOS B	3.3	85.0	0.67	0.56	0.83	33.1
East: US-77															
1	L2	All MCs	200	3.0	200	3.0	0.563	10.9	LOS B	5.0	128.4	0.67	0.52	0.86	33.1
6	T1	All MCs	337	3.0	337	3.0	0.563	10.9	LOS B	5.0	128.4	0.67	0.52	0.86	34.7
16	R2	All MCs	14	3.0	14	3.0	0.563	10.9	LOS B	5.0	128.4	0.67	0.52	0.86	35.2
Approach			551	3.0	551	3.0	0.563	10.9	LOS B	5.0	128.4	0.67	0.52	0.86	34.1
North: N-109															
7	L2	All MCs	25	3.0	25	3.0	0.341	9.8	LOS A	1.6	40.0	0.68	0.61	0.74	37.3
4	T1	All MCs	72	3.0	72	3.0	0.341	9.8	LOS A	1.6	40.0	0.68	0.61	0.74	37.3
14	R2	All MCs	130	3.0	130	3.0	0.341	9.8	LOS A	1.6	40.0	0.68	0.61	0.74	38.0
Approach			227	3.0	227	3.0	0.341	9.8	LOS A	1.6	40.0	0.68	0.61	0.74	37.7
West: US-77															
5	L2	All MCs	113	3.0	113	3.0	0.471	9.2	LOS A	2.9	73.0	0.61	0.41	0.62	29.1
2	T1	All MCs	261	3.0	261	3.0	0.471	9.2	LOS A	2.9	73.0	0.61	0.41	0.62	36.0
12	R2	All MCs	85	3.0	85	3.0	0.471	9.2	LOS A	2.9	73.0	0.61	0.41	0.62	35.2
Approach			459	3.0	459	3.0	0.471	9.2	LOS A	2.9	73.0	0.61	0.41	0.62	33.9
All Vehicles			1660	3.0	1660	3.0	0.563	10.1	LOS B	5.0	128.4	0.66	0.51	0.77	34.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
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Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	56	0	187	8	108	98	193	157	19
Future Vol, veh/h	7	0	2	56	0	187	8	108	98	193	157	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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	61	0	203	9	117	107	210	171	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	735	842	181	778	799	171	191	0	0	224	0	0
Stage 1	601	601	-	188	188	-	-	-	-	-	-	-
Stage 2	135	241	-	590	611	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	334	300	859	312	317	871	1376	-	-	1339	-	-
Stage 1	486	488	-	811	743	-	-	-	-	-	-	-
Stage 2	866	704	-	492	483	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	210	245	859	255	260	871	1376	-	-	1339	-	-
Mov Cap-2 Maneuver	210	245	-	255	260	-	-	-	-	-	-	-
Stage 1	400	402	-	806	738	-	-	-	-	-	-	-
Stage 2	660	700	-	404	398	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.87	17.05	0.29	4.28
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1376	-	-	252	560	922	-	-
HCM Lane V/C Ratio	0.006	-	-	0.039	0.472	0.157	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.9	17.1	8.2	0	-
HCM Lane LOS	A	-	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.5	0.6	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	10	75	0	187	4	178	78	156	163	12
Future Vol, veh/h	20	0	10	75	0	187	4	178	78	156	163	12
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	0	11	82	0	203	4	193	85	170	177	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	725	810	184	761	774	236	190	0	0	278	0	0
Stage 1	523	523	-	245	245	-	-	-	-	-	-	-
Stage 2	202	287	-	516	529	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	339	313	856	321	328	801	1378	-	-	1279	-	-
Stage 1	535	529	-	757	702	-	-	-	-	-	-	-
Stage 2	797	673	-	540	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	215	266	856	269	279	801	1378	-	-	1279	-	-
Mov Cap-2 Maneuver	215	266	-	269	279	-	-	-	-	-	-	-
Stage 1	456	450	-	754	700	-	-	-	-	-	-	-
Stage 2	593	670	-	454	447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.18	20.54	0.12	3.89
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1378	-	-	286	511	837	-	-
HCM Lane V/C Ratio	0.003	-	-	0.114	0.557	0.133	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.2	20.5	8.2	0	-
HCM Lane LOS	A	-	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.4	0.5	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	14	200	53	54	160
Future Vol, veh/h	13	14	200	53	54	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	14	15	217	58	59	174

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	538	246	0	0	275	0
Stage 1	246	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	503	790	-	-	1282	-
Stage 1	792	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	477	790	-	-	1282	-
Mov Cap-2 Maneuver	477	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.3	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	601	454	-
HCM Lane V/C Ratio	-	-	0.049	0.046	-
HCM Control Delay (s/veh)	-	-	11.3	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	62	198	29	30	218
Future Vol, veh/h	57	62	198	29	30	218
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	62	67	215	32	33	237

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	533	231	0	0	247	0
Stage 1	231	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	506	806	-	-	1313	-
Stage 1	805	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	491	806	-	-	1313	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	726	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.38	0	0.94
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	617	218	-
HCM Lane V/C Ratio	-	-	0.21	0.025	-
HCM Control Delay (s/veh)	-	-	12.4	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

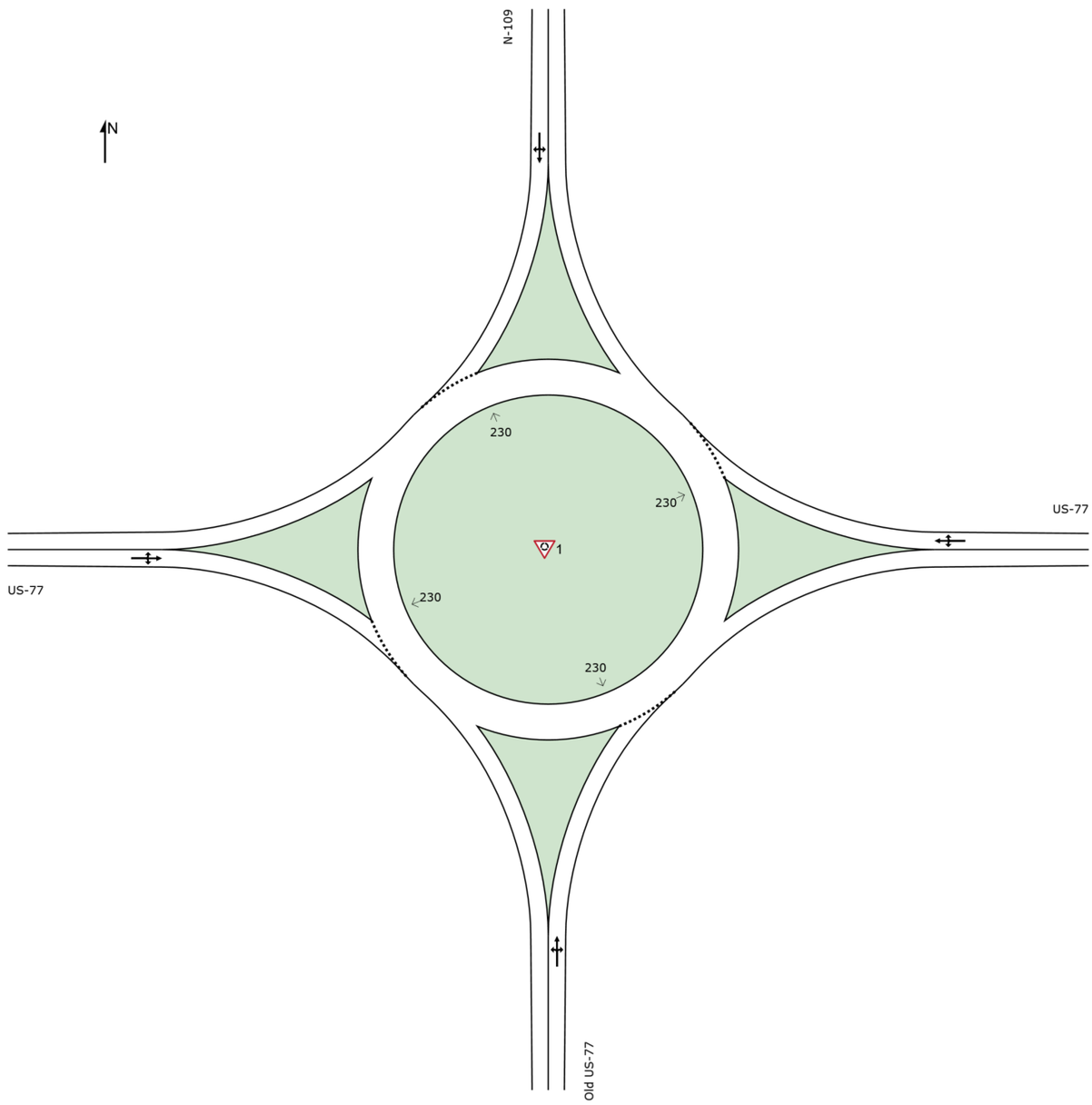
Horizon Year (2038) Future Background Plus Site Trip Conditions

SITE LAYOUT

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\5 Study and Report\3 Supporting Docs\Analysis\Year 2038 Horizon Year \Year 2038 US-77 & N-109.sipx

MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

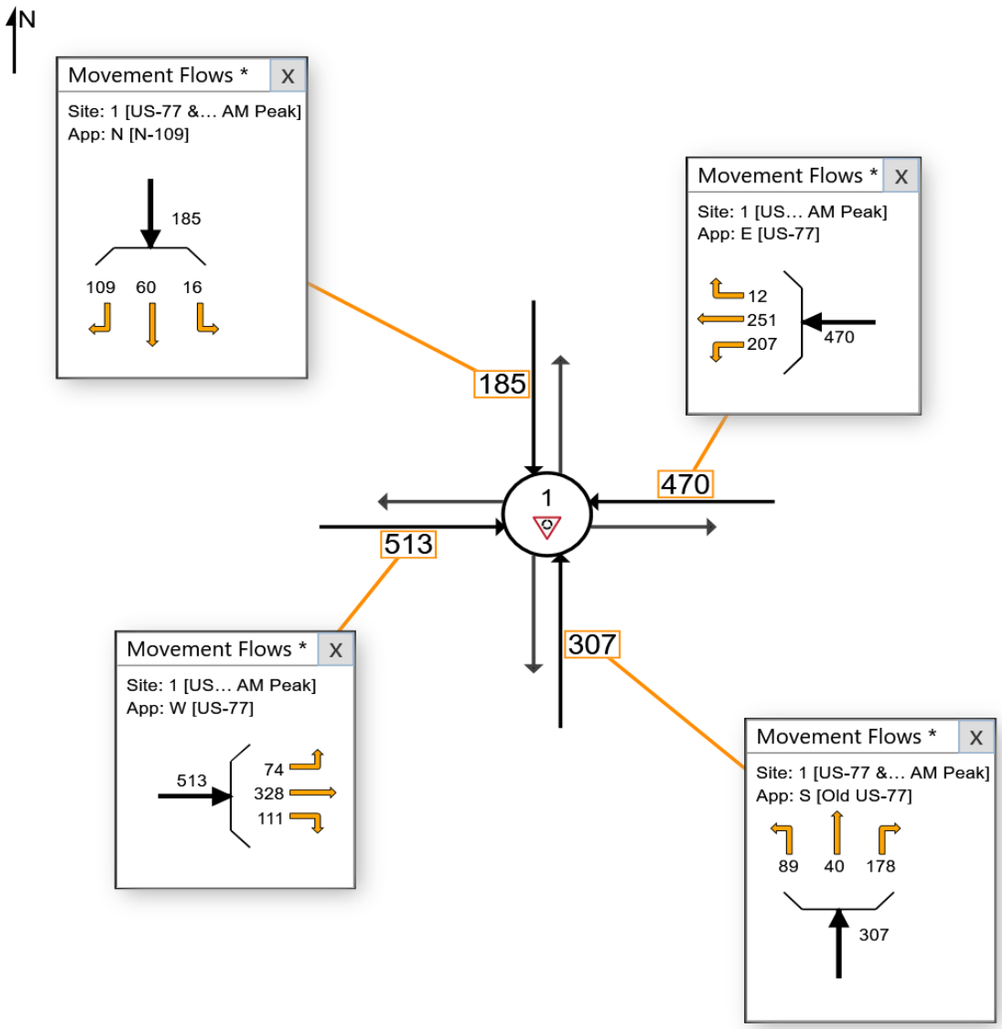
Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

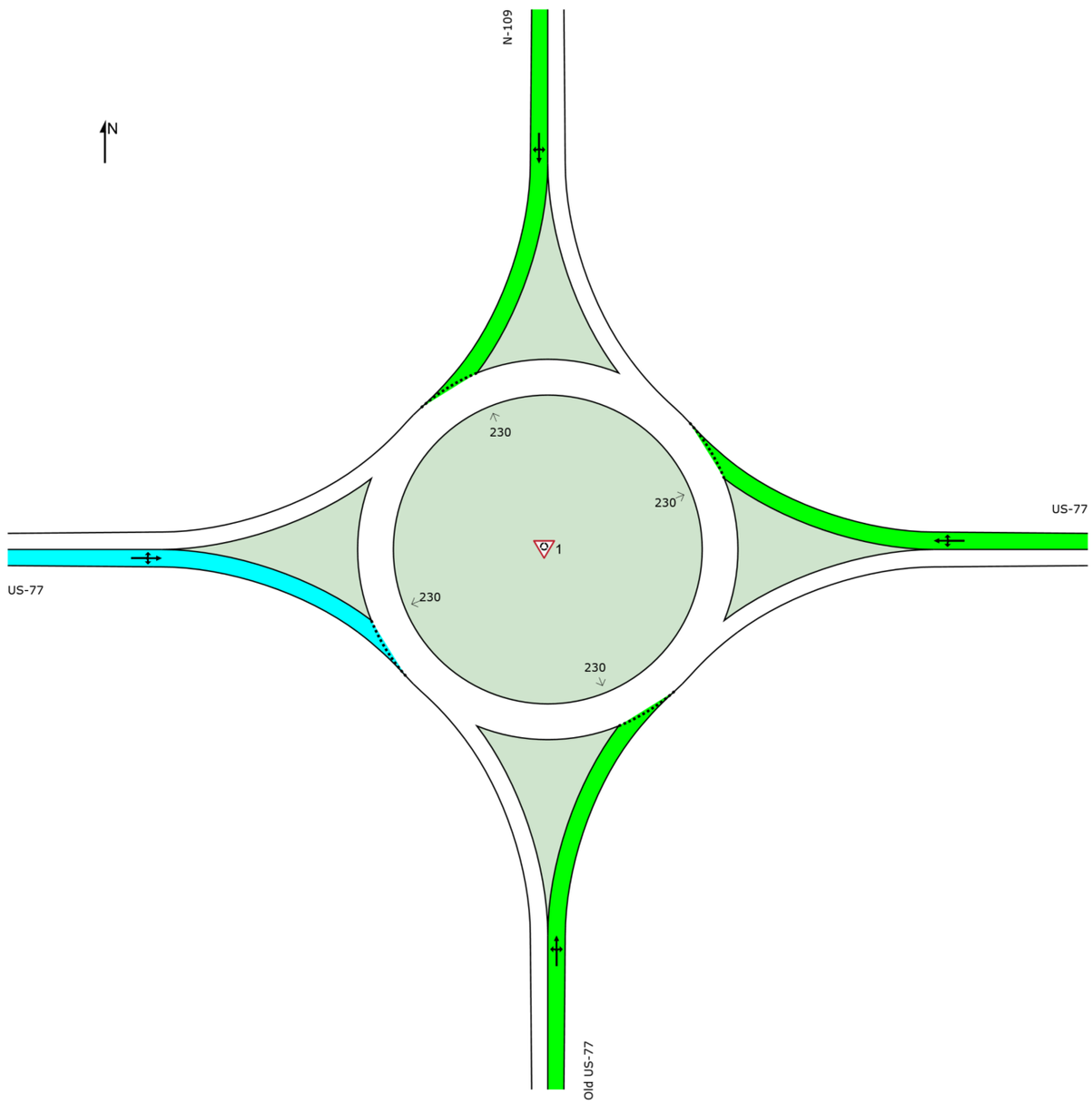
Lane Level of Service

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	B	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

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MOVEMENT SUMMARY

Site: [1] US-77 & N-109 AM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	97	3.0	97	3.0	0.406	9.3	LOS A	2.2	56.5	0.65	0.53	0.72	34.2
8	T1	All MCs	43	3.0	43	3.0	0.406	9.3	LOS A	2.2	56.5	0.65	0.53	0.72	28.7
18	R2	All MCs	193	3.0	193	3.0	0.406	9.3	LOS A	2.2	56.5	0.65	0.53	0.72	34.8
Approach			334	3.0	334	3.0	0.406	9.3	LOS A	2.2	56.5	0.65	0.53	0.72	33.7
East: US-77															
1	L2	All MCs	225	3.0	225	3.0	0.483	8.8	LOS A	3.1	78.5	0.56	0.34	0.56	33.8
6	T1	All MCs	273	3.0	273	3.0	0.483	8.8	LOS A	3.1	78.5	0.56	0.34	0.56	35.5
16	R2	All MCs	13	3.0	13	3.0	0.483	8.8	LOS A	3.1	78.5	0.56	0.34	0.56	36.1
Approach			511	3.0	511	3.0	0.483	8.8	LOS A	3.1	78.5	0.56	0.34	0.56	34.7
North: N-109															
7	L2	All MCs	17	3.0	17	3.0	0.285	8.5	LOS A	1.2	31.4	0.64	0.55	0.64	38.2
4	T1	All MCs	65	3.0	65	3.0	0.285	8.5	LOS A	1.2	31.4	0.64	0.55	0.64	38.2
14	R2	All MCs	118	3.0	118	3.0	0.285	8.5	LOS A	1.2	31.4	0.64	0.55	0.64	39.0
Approach			201	3.0	201	3.0	0.285	8.5	LOS A	1.2	31.4	0.64	0.55	0.64	38.6
West: US-77															
5	L2	All MCs	80	3.0	80	3.0	0.579	11.5	LOS B	5.5	140.6	0.70	0.56	0.93	28.5
2	T1	All MCs	357	3.0	357	3.0	0.579	11.5	LOS B	5.5	140.6	0.70	0.56	0.93	35.2
12	R2	All MCs	121	3.0	121	3.0	0.579	11.5	LOS B	5.5	140.6	0.70	0.56	0.93	34.3
Approach			558	3.0	558	3.0	0.579	11.5	LOS B	5.5	140.6	0.70	0.56	0.93	33.8
All Vehicles			1603	3.0	1603	3.0	0.579	9.8	LOS A	5.5	140.6	0.64	0.48	0.73	34.6

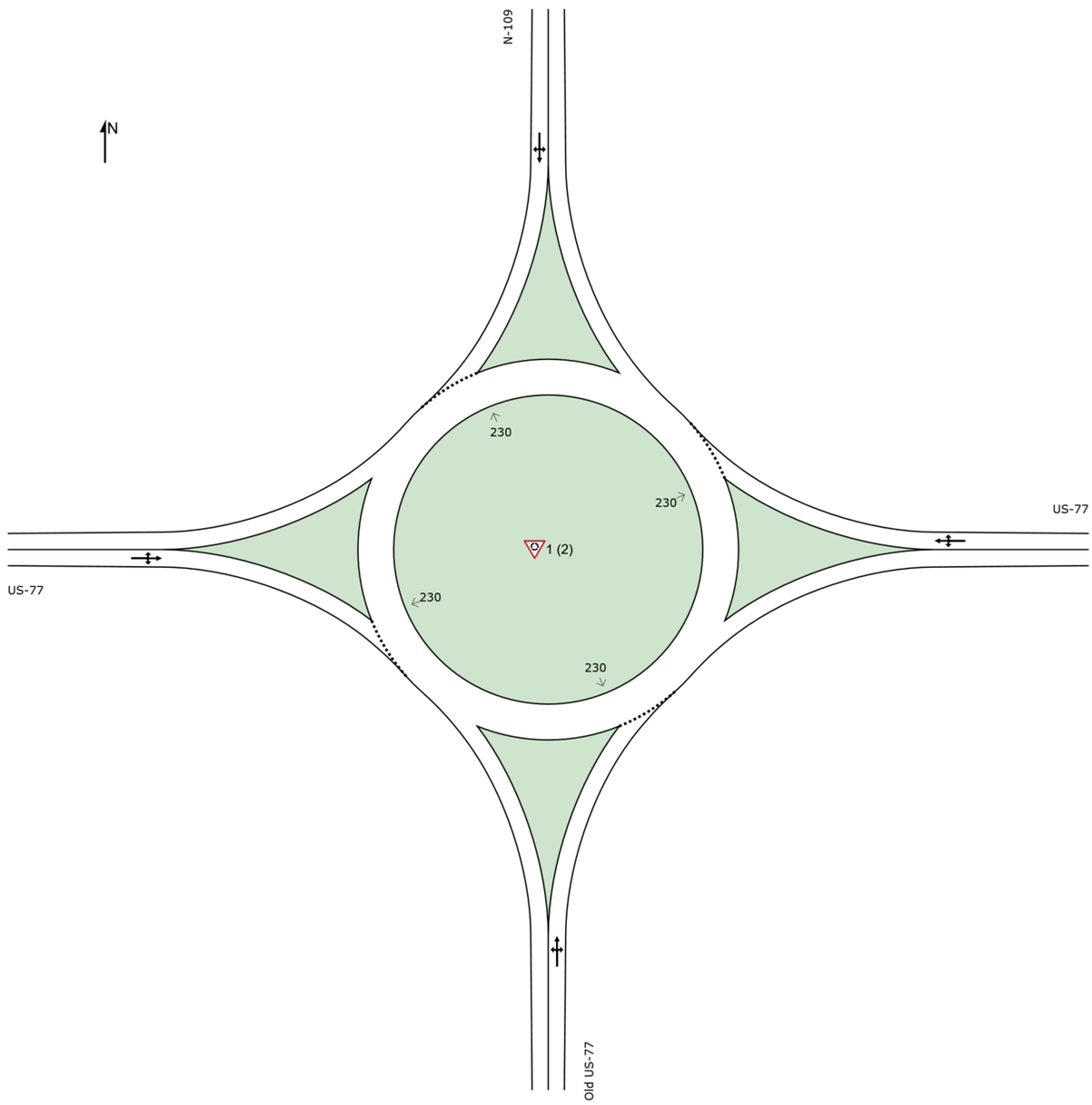
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT FLOWS FOR SITE (INPUT)

Approach movement input flow rates by movement class (vehicles per 60 mins)

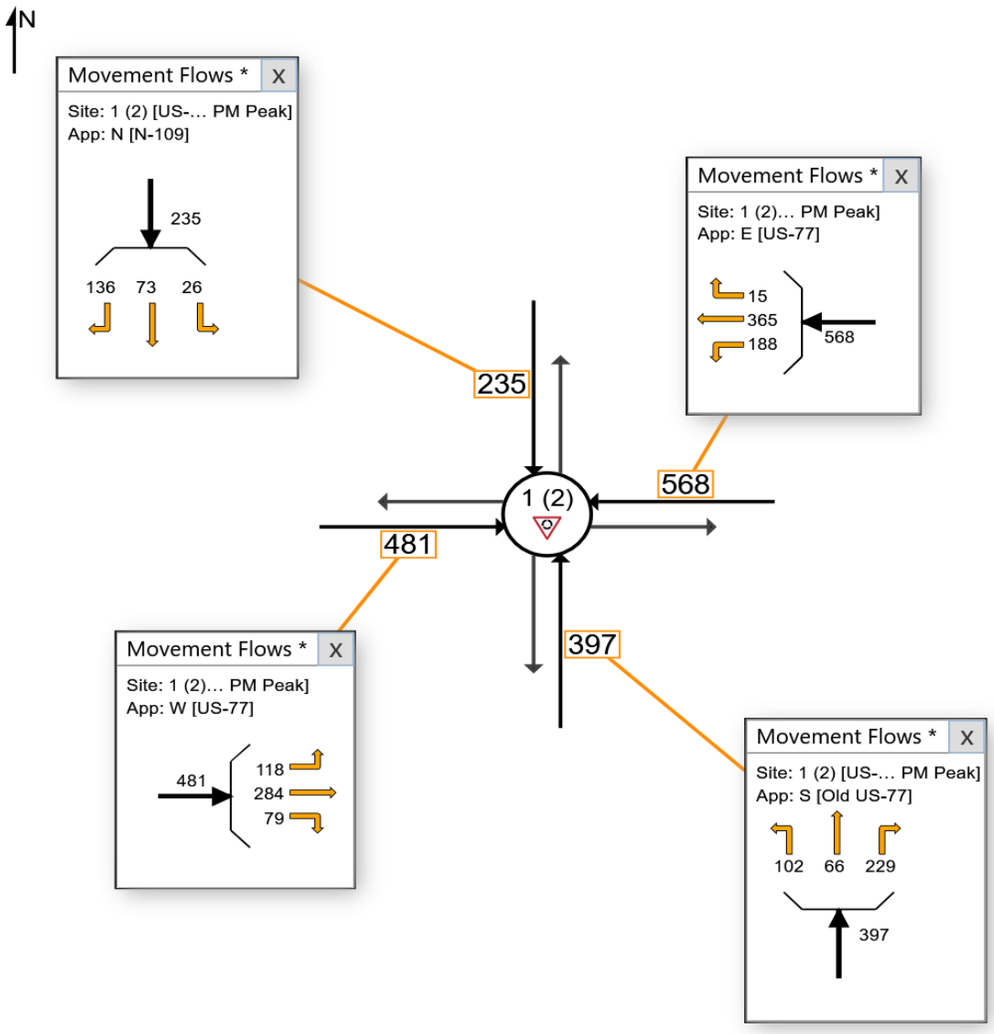
Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



LEVEL OF SERVICE

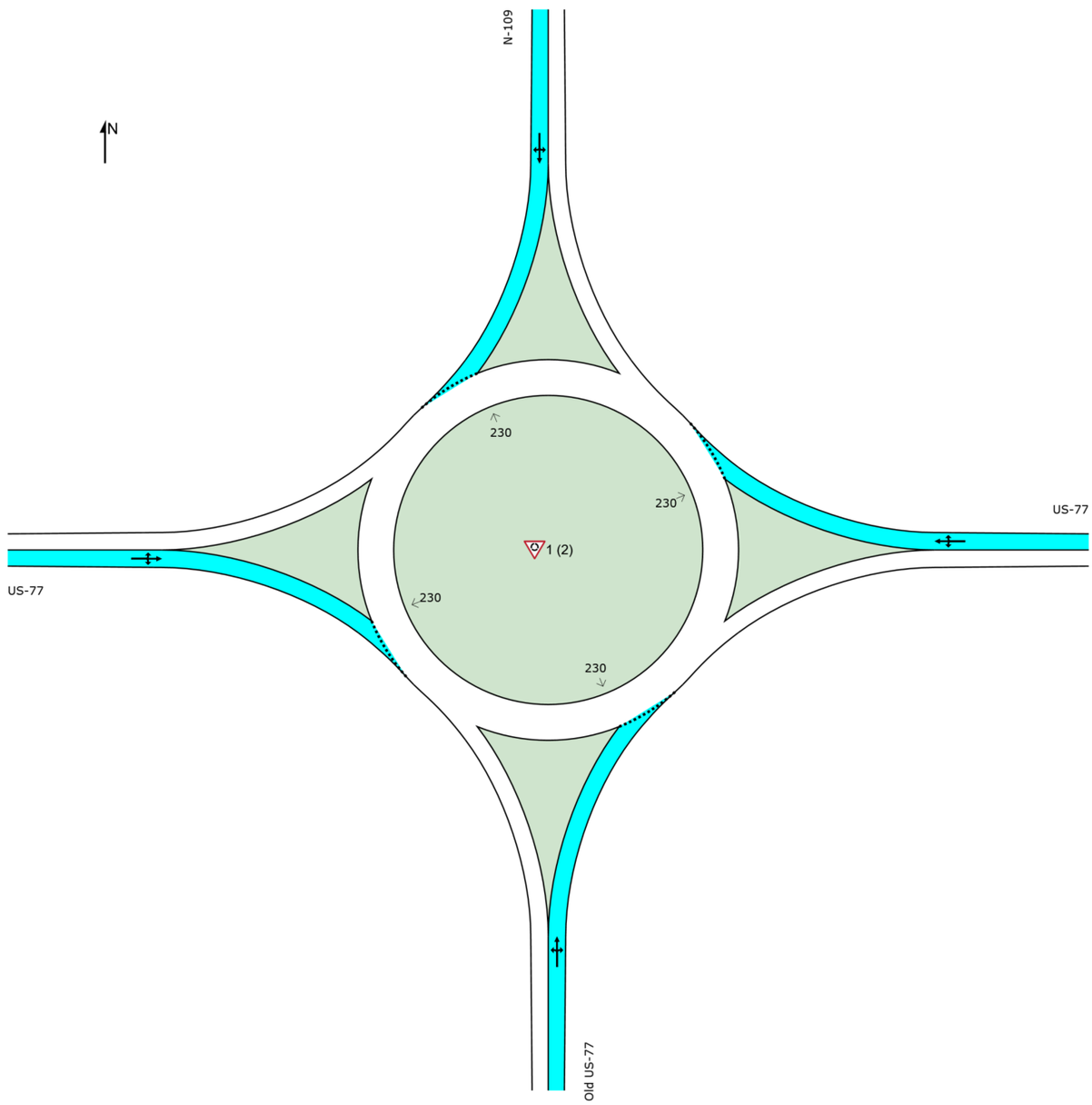
Lane Level of Service

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	B	B	B



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

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MOVEMENT SUMMARY

Site: [1 (2)] US-77 & N-109 PM Peak (Existing Conditions)
Output produced by SIDRA INTERSECTION Version: 10.0.6.236

Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Old US-77															
3	L2	All MCs	111	3.0	111	3.0	0.532	11.9	LOS B	4.0	102.3	0.73	0.67	1.01	33.0
8	T1	All MCs	72	3.0	72	3.0	0.532	11.9	LOS B	4.0	102.3	0.73	0.67	1.01	27.9
18	R2	All MCs	249	3.0	249	3.0	0.532	11.9	LOS B	4.0	102.3	0.73	0.67	1.01	33.6
Approach			432	3.0	432	3.0	0.532	11.9	LOS B	4.0	102.3	0.73	0.67	1.01	32.4
East: US-77															
1	L2	All MCs	204	3.0	204	3.0	0.644	13.2	LOS B	7.6	195.2	0.76	0.66	1.14	32.2
6	T1	All MCs	397	3.0	397	3.0	0.644	13.2	LOS B	7.6	195.2	0.76	0.66	1.14	33.7
16	R2	All MCs	16	3.0	16	3.0	0.644	13.2	LOS B	7.6	195.2	0.76	0.66	1.14	34.2
Approach			617	3.0	617	3.0	0.644	13.2	LOS B	7.6	195.2	0.76	0.66	1.14	33.2
North: N-109															
7	L2	All MCs	28	3.0	28	3.0	0.412	11.8	LOS B	2.1	53.5	0.72	0.69	0.90	36.1
4	T1	All MCs	79	3.0	79	3.0	0.412	11.8	LOS B	2.1	53.5	0.72	0.69	0.90	36.2
14	R2	All MCs	148	3.0	148	3.0	0.412	11.8	LOS B	2.1	53.5	0.72	0.69	0.90	36.8
Approach			255	3.0	255	3.0	0.412	11.8	LOS B	2.1	53.5	0.72	0.69	0.90	36.5
West: US-77															
5	L2	All MCs	128	3.0	128	3.0	0.546	10.7	LOS B	4.6	117.1	0.67	0.53	0.85	28.5
2	T1	All MCs	309	3.0	309	3.0	0.546	10.7	LOS B	4.6	117.1	0.67	0.53	0.85	35.2
12	R2	All MCs	86	3.0	86	3.0	0.546	10.7	LOS B	4.6	117.1	0.67	0.53	0.85	34.4
Approach			523	3.0	523	3.0	0.546	10.7	LOS B	4.6	117.1	0.67	0.53	0.85	33.2
All Vehicles			1827	3.0	1827	3.0	0.644	12.0	LOS B	7.6	195.2	0.72	0.63	0.99	33.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	56	0	187	9	113	98	193	162	20
Future Vol, veh/h	7	0	2	56	0	187	9	113	98	193	162	20
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	61	0	203	10	123	107	210	176	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	749	855	187	791	813	176	198	0	0	229	0	0
Stage 1	607	607	-	196	196	-	-	-	-	-	-	-
Stage 2	142	249	-	596	617	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	327	294	853	306	312	865	1369	-	-	1333	-	-
Stage 1	482	485	-	804	737	-	-	-	-	-	-	-
Stage 2	858	699	-	489	480	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	204	240	853	249	254	865	1369	-	-	1333	-	-
Mov Cap-2 Maneuver	204	240	-	249	254	-	-	-	-	-	-	-
Stage 1	397	399	-	798	732	-	-	-	-	-	-	-
Stage 2	652	694	-	401	394	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	20.26	17.4	0.31	4.22
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1369	-	-	246	551	906	-	-
HCM Lane V/C Ratio	0.007	-	-	0.04	0.479	0.157	-	-
HCM Control Delay (s/veh)	7.6	-	-	20.3	17.4	8.2	0	-
HCM Lane LOS	A	-	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.6	0.6	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	11	75	0	187	4	185	78	156	170	13
Future Vol, veh/h	21	0	11	75	0	187	4	185	78	156	170	13
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	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	0	12	82	0	203	4	201	85	170	185	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	741	826	192	776	790	243	199	0	0	286	0	0
Stage 1	531	531	-	252	252	-	-	-	-	-	-	-
Stage 2	210	295	-	524	538	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	331	306	847	313	321	793	1367	-	-	1271	-	-
Stage 1	530	524	-	750	696	-	-	-	-	-	-	-
Stage 2	790	667	-	535	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	208	259	847	262	272	793	1367	-	-	1271	-	-
Mov Cap-2 Maneuver	208	259	-	262	272	-	-	-	-	-	-	-
Stage 1	450	446	-	747	694	-	-	-	-	-	-	-
Stage 2	586	665	-	448	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.59	21.2	0.11	3.81
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1367	-	-	281	501	817	-	-
HCM Lane V/C Ratio	0.003	-	-	0.124	0.568	0.133	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.6	21.2	8.3	0	-
HCM Lane LOS	A	-	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.5	0.5	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	14	206	53	54	165
Future Vol, veh/h	13	14	206	53	54	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	14	15	224	58	59	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	549	253	0	0	282	0
Stage 1	253	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	495	784	-	-	1275	-
Stage 1	787	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	469	784	-	-	1275	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.39	0	1.96
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	593	444	-
HCM Lane V/C Ratio	-	-	0.05	0.046	-
HCM Control Delay (s/veh)	-	-	11.4	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	62	205	29	30	226
Future Vol, veh/h	57	62	205	29	30	226
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	62	67	223	32	33	246

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	549	239	0	0	254	0
Stage 1	239	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	495	798	-	-	1305	-
Stage 1	799	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	480	798	-	-	1305	-
Mov Cap-2 Maneuver	480	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.54	0	0.92
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	606	211	-
HCM Lane V/C Ratio	-	-	0.213	0.025	-
HCM Control Delay (s/veh)	-	-	12.5	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Opening Day (2028) Future Buildout Conditions

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	56	0	187	8	108	98	193	157	19
Future Vol, veh/h	7	0	2	56	0	187	8	108	98	193	157	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	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	61	0	203	9	117	107	210	171	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	735	842	181	778	799	171	191	0	0	224	0	0
Stage 1	601	601	-	188	188	-	-	-	-	-	-	-
Stage 2	135	241	-	590	611	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	334	300	859	312	317	871	1376	-	-	1339	-	-
Stage 1	486	488	-	811	743	-	-	-	-	-	-	-
Stage 2	866	704	-	492	483	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	214	251	859	261	266	871	1376	-	-	1339	-	-
Mov Cap-2 Maneuver	214	251	-	261	266	-	-	-	-	-	-	-
Stage 1	410	412	-	806	738	-	-	-	-	-	-	-
Stage 2	660	700	-	414	407	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.54	16.8	0.29	4.28
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1376	-	-	257	566	1339	-	-
HCM Lane V/C Ratio	0.006	-	-	0.038	0.467	0.157	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.5	16.8	8.2	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.5	0.6	-	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	10	75	0	187	4	178	78	156	163	12
Future Vol, veh/h	20	0	10	75	0	187	4	178	78	156	163	12
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	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	0	11	82	0	203	4	193	85	170	177	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	725	810	184	761	774	236	190	0	0	278	0	0
Stage 1	523	523	-	245	245	-	-	-	-	-	-	-
Stage 2	202	287	-	516	529	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	339	313	856	321	328	801	1378	-	-	1279	-	-
Stage 1	535	529	-	757	702	-	-	-	-	-	-	-
Stage 2	797	673	-	540	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	219	271	856	274	284	801	1378	-	-	1279	-	-
Mov Cap-2 Maneuver	219	271	-	274	284	-	-	-	-	-	-	-
Stage 1	464	459	-	754	700	-	-	-	-	-	-	-
Stage 2	593	670	-	462	456	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	18.92	20.21	0.12	3.89
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1378	-	-	291	516	1279	-	-
HCM Lane V/C Ratio	0.003	-	-	0.112	0.551	0.133	-	-
HCM Control Delay (s/veh)	7.6	-	-	18.9	20.2	8.2	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.3	0.5	-	-

Horizon Year (2038) Future Buildout Conditions

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	56	0	187	9	113	98	193	162	20
Future Vol, veh/h	7	0	2	56	0	187	9	113	98	193	162	20
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	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	0	2	61	0	203	10	123	107	210	176	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	749	855	187	791	813	176	198	0	0	229	0	0
Stage 1	607	607	-	196	196	-	-	-	-	-	-	-
Stage 2	142	249	-	596	617	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	327	294	853	306	312	865	1369	-	-	1333	-	-
Stage 1	482	485	-	804	737	-	-	-	-	-	-	-
Stage 2	858	699	-	489	480	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	246	853	255	261	865	1369	-	-	1333	-	-
Mov Cap-2 Maneuver	209	246	-	255	261	-	-	-	-	-	-	-
Stage 1	406	409	-	798	732	-	-	-	-	-	-	-
Stage 2	652	694	-	411	404	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.91	17.12	0.31	4.22
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1369	-	-	251	558	1333	-	-
HCM Lane V/C Ratio	0.007	-	-	0.039	0.473	0.157	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.9	17.1	8.2	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.5	0.6	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	11	75	0	187	4	185	78	156	170	13
Future Vol, veh/h	21	0	11	75	0	187	4	185	78	156	170	13
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	-	-	-	-	-	-	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	0	12	82	0	203	4	201	85	170	185	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	741	826	192	776	790	243	199	0	0	286	0	0
Stage 1	531	531	-	252	252	-	-	-	-	-	-	-
Stage 2	210	295	-	524	538	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	331	306	847	313	321	793	1367	-	-	1271	-	-
Stage 1	530	524	-	750	696	-	-	-	-	-	-	-
Stage 2	790	667	-	535	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	213	265	847	267	277	793	1367	-	-	1271	-	-
Mov Cap-2 Maneuver	213	265	-	267	277	-	-	-	-	-	-	-
Stage 1	459	454	-	747	694	-	-	-	-	-	-	-
Stage 2	586	665	-	457	451	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19.3	20.82	0.11	3.81
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1367	-	-	286	507	1271	-	-
HCM Lane V/C Ratio	0.003	-	-	0.121	0.562	0.133	-	-
HCM Control Delay (s/veh)	7.6	-	-	19.3	20.8	8.3	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.4	0.5	-	-

APPENDIX D:
Auxiliary Turn Lane Warrant Graphs

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	4%
Advancing volume (V_A), veh/h:	220
Opposing volume (V_O), veh/h:	169

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	672
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

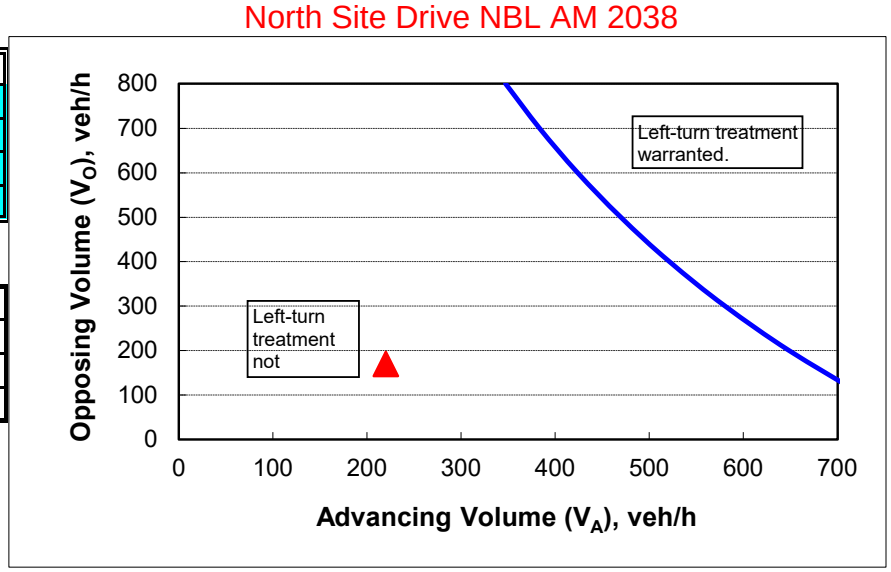


Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

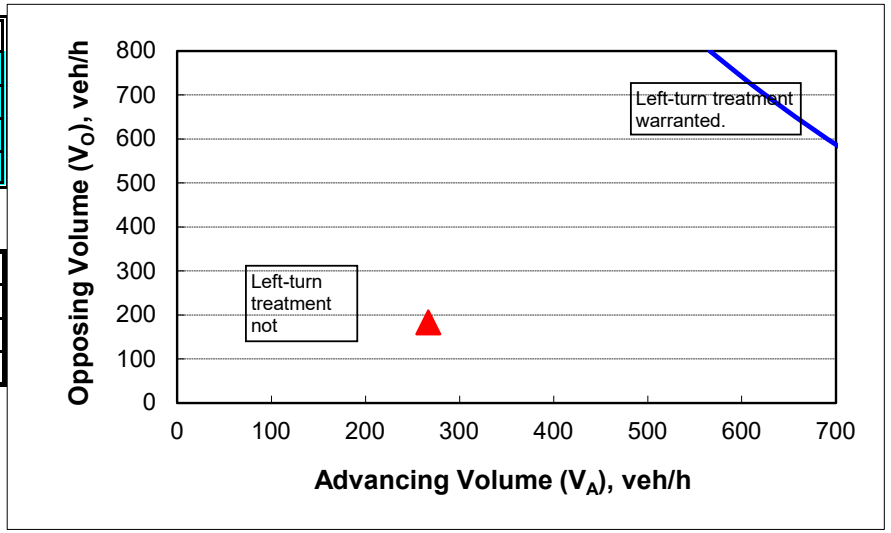
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	267
Opposing volume (V_O), veh/h:	183

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1078
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

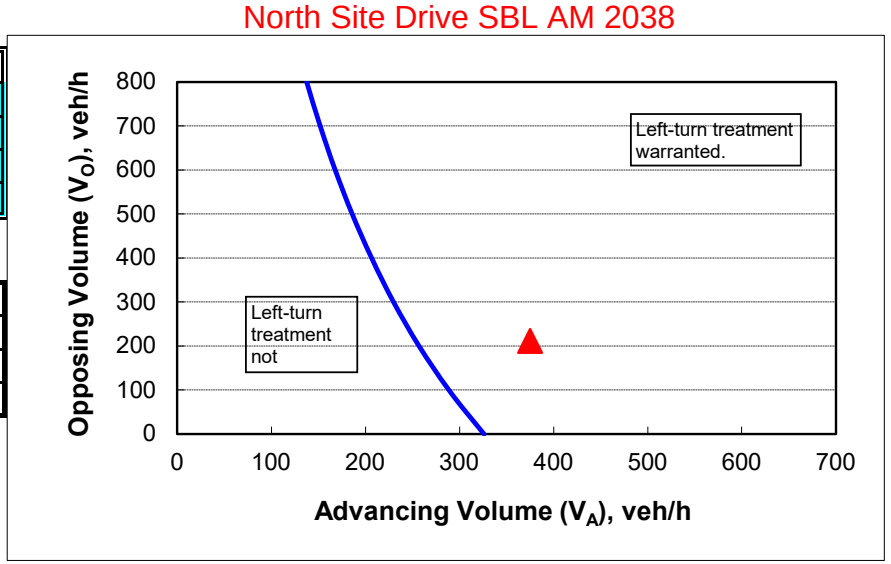
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	51%
Advancing volume (V_A), veh/h:	375
Opposing volume (V_O), veh/h:	211

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	254
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

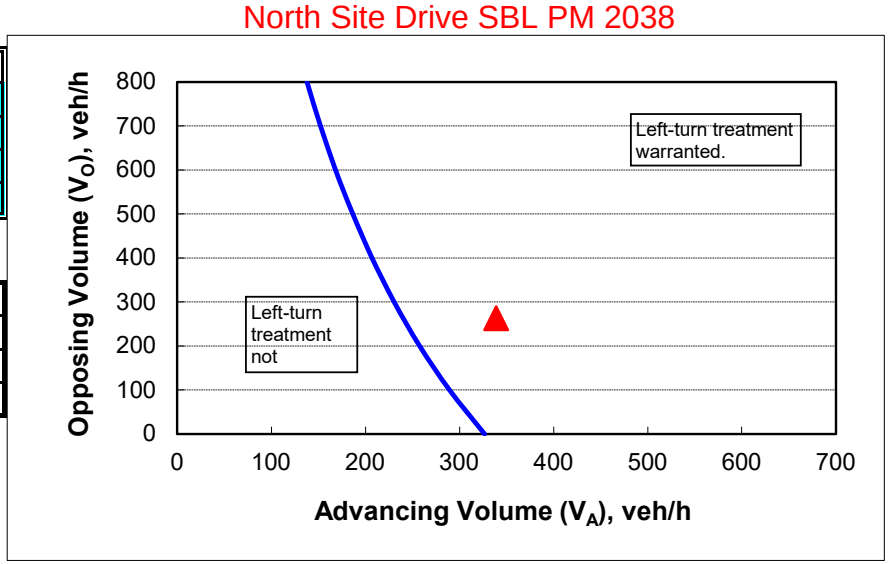
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	46%
Advancing volume (V_A), veh/h:	339
Opposing volume (V_O), veh/h:	263

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	240
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

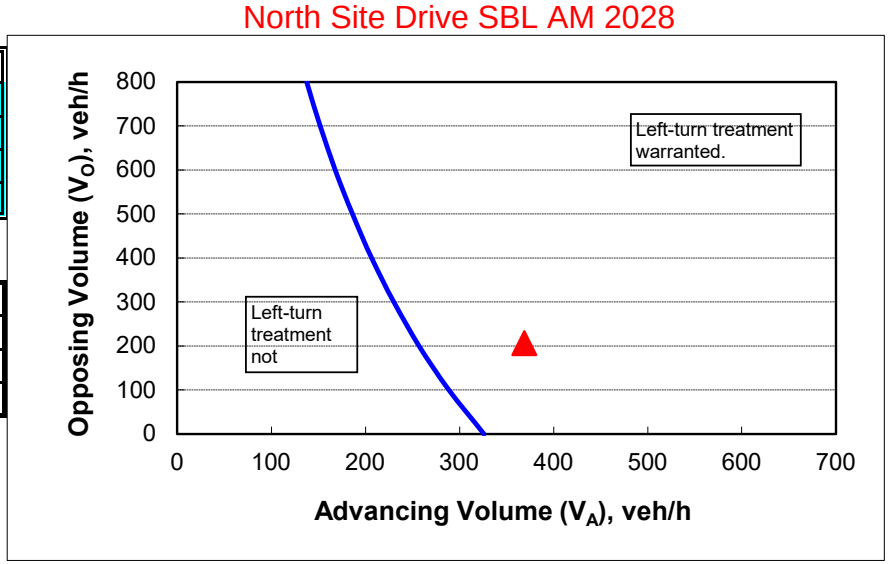
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	52%
Advancing volume (V_A), veh/h:	369
Opposing volume (V_O), veh/h:	206

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	255
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

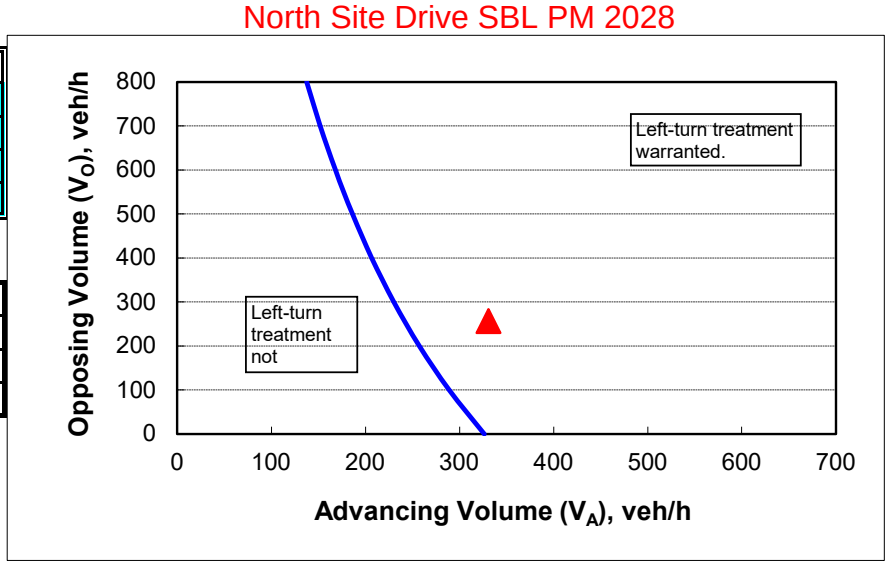
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	47%
Advancing volume (V_A), veh/h:	331
Opposing volume (V_O), veh/h:	256

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	242
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	220
Right-turn volume, veh/h:	98

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	194
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

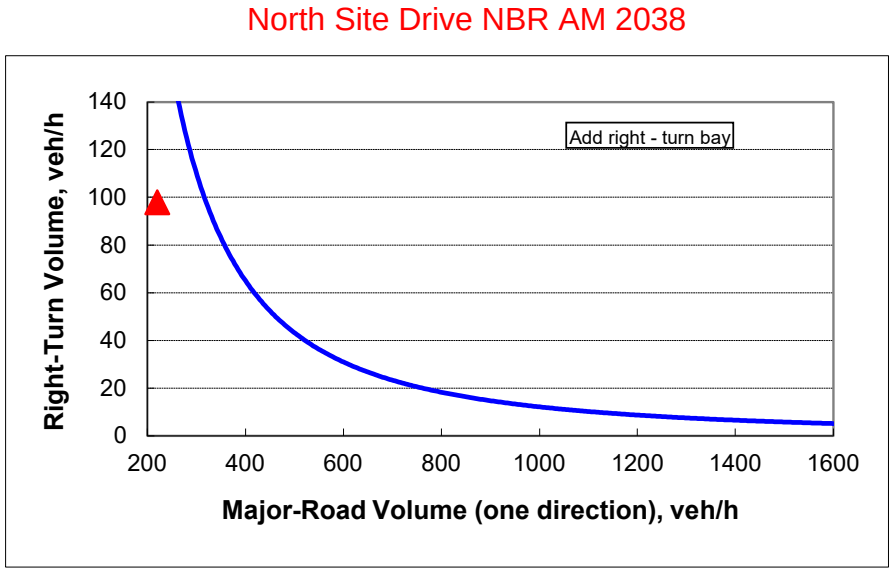


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	267
Right-turn volume, veh/h:	78

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	136
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

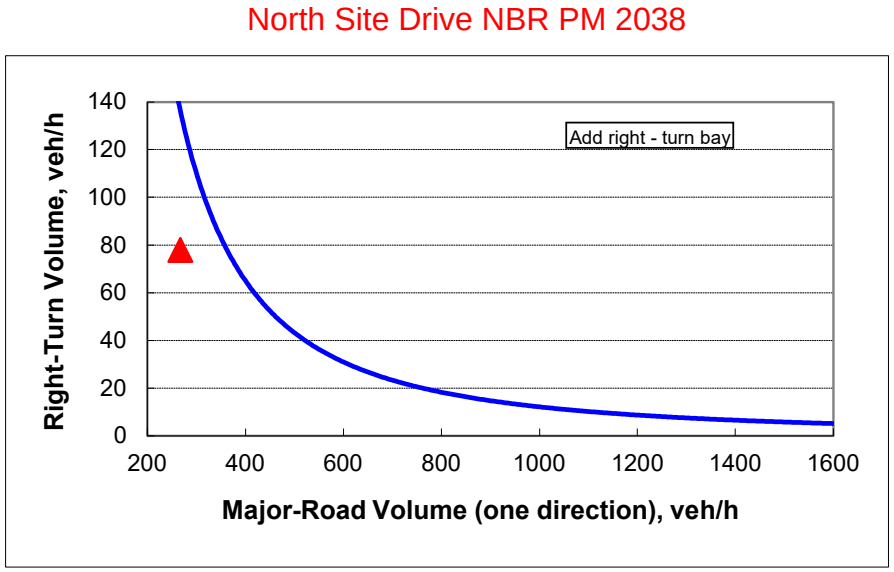


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	375
Right-turn volume, veh/h:	20

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	73
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

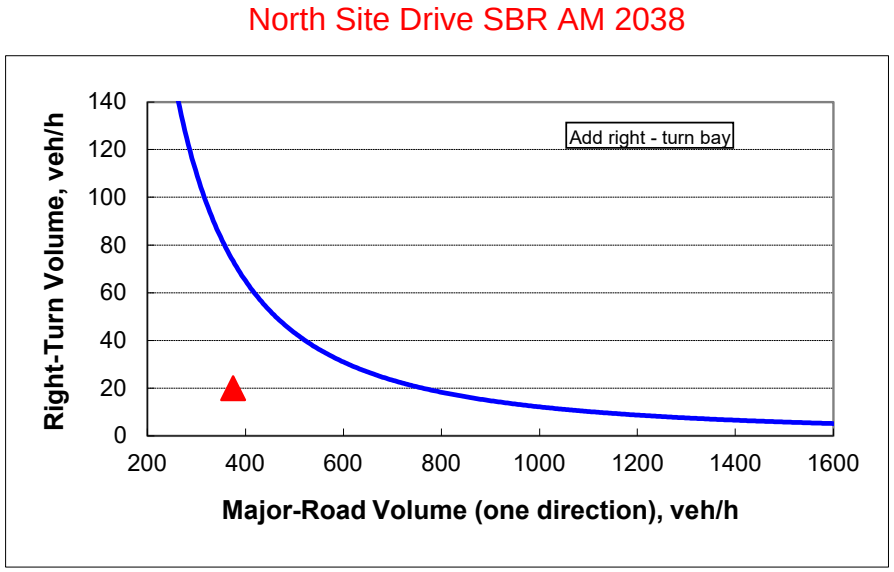


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	339
Right-turn volume, veh/h:	13

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	88
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

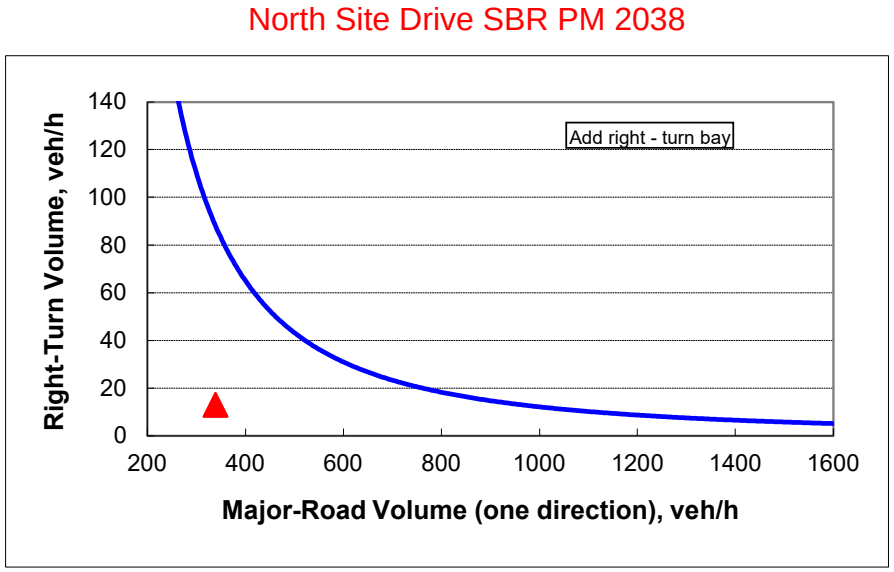


Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	25%
Advancing volume (V_A), veh/h:	219
Opposing volume (V_O), veh/h:	259

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	279
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

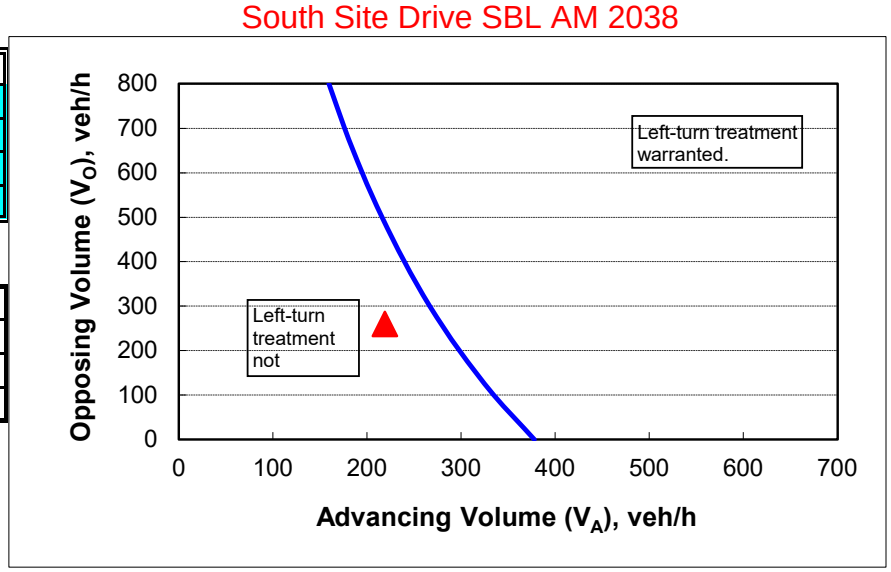


Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	12%
Advancing volume (V_A), veh/h:	256
Opposing volume (V_O), veh/h:	234

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	384
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

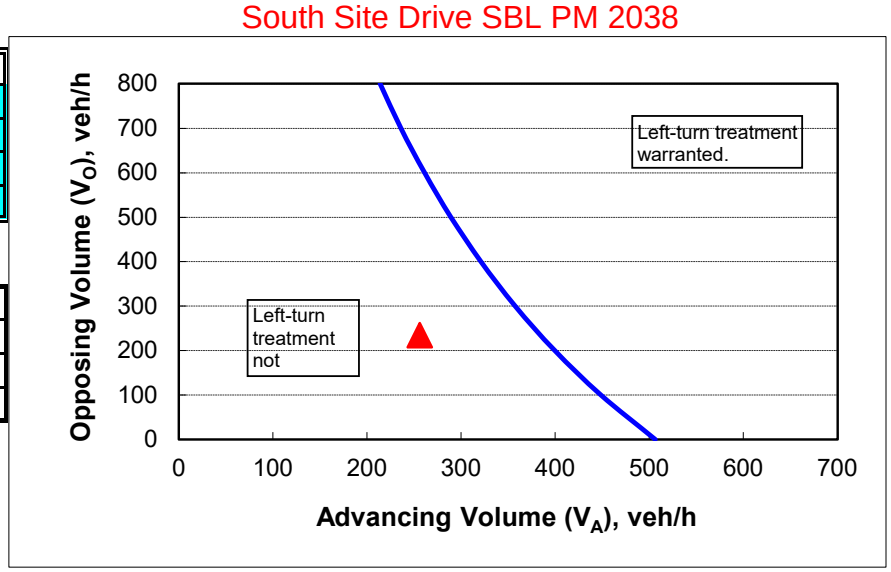


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	259
Right-turn volume, veh/h:	53

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	144
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

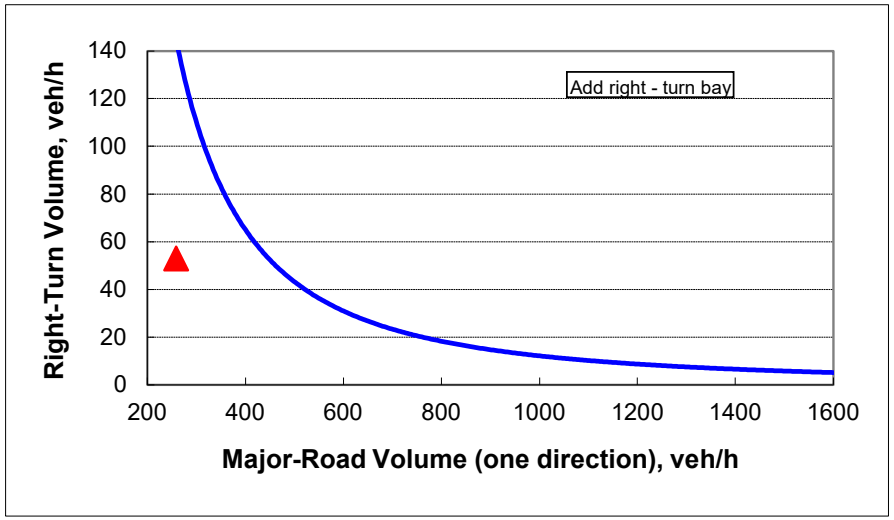


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

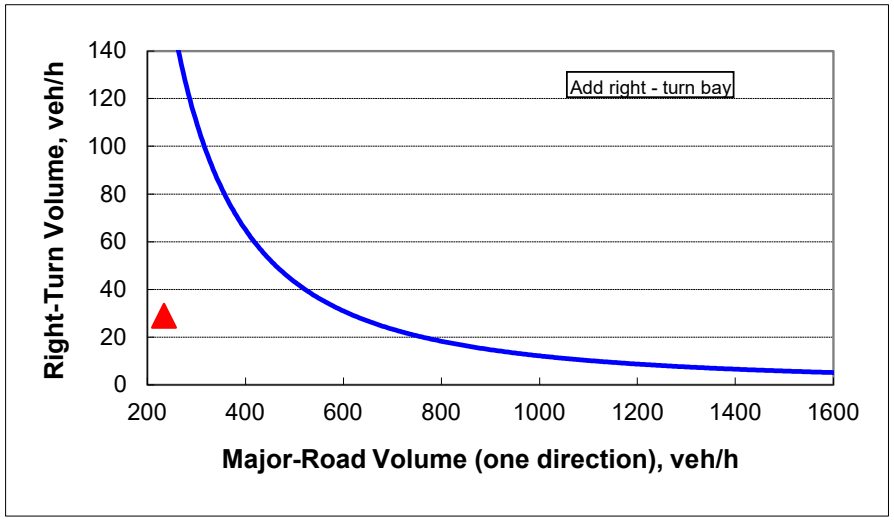
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	234
Right-turn volume, veh/h:	29

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	174
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



APPENDIX E:
NDOT Access Control Policy

Figure 008.01

DIVIDED HIGHWAY

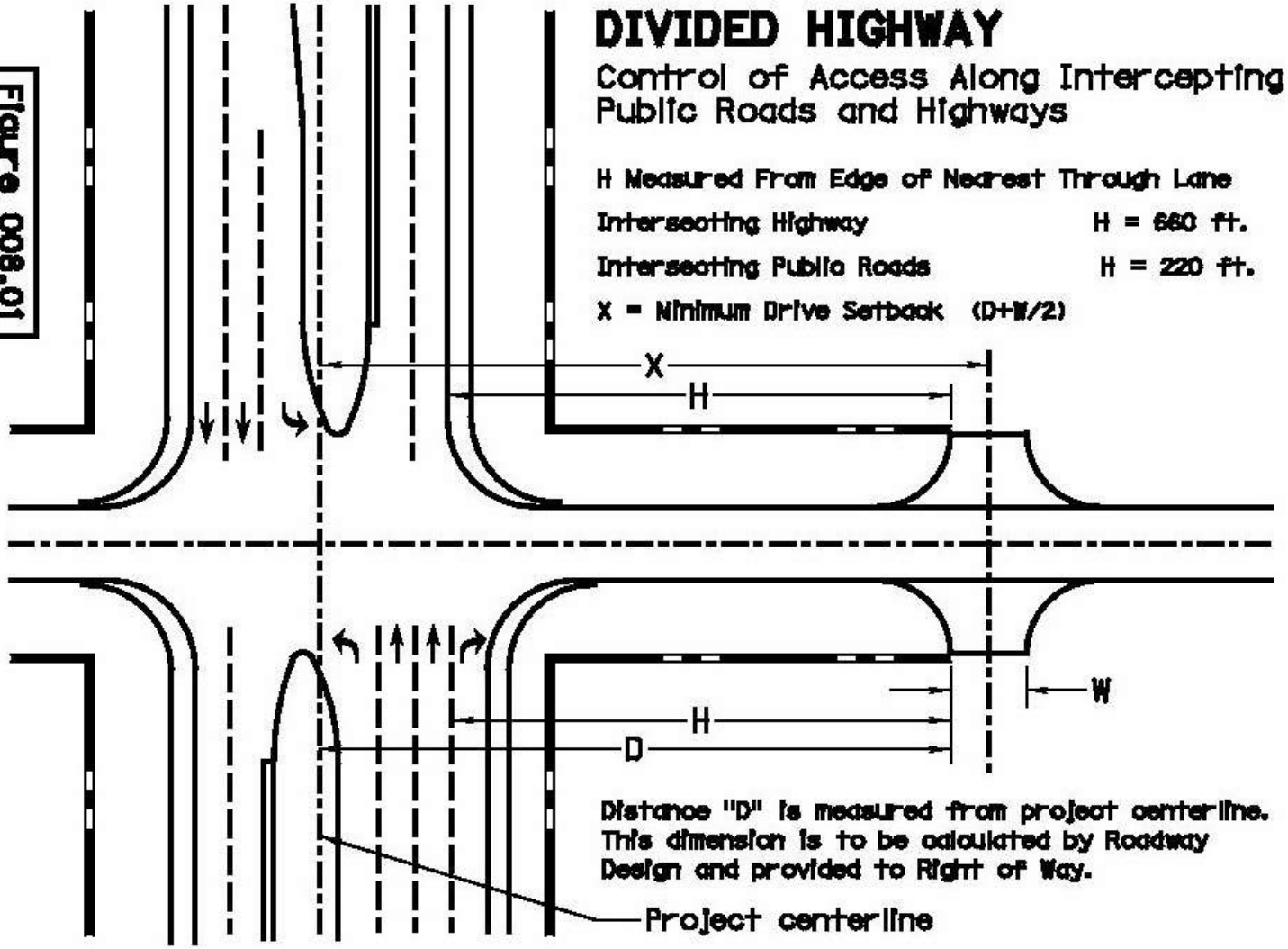
Control of Access Along Intercepting Public Roads and Highways

H Measured From Edge of Nearest Through Lane

Intersecting Highway H = 660 ft.

Intersecting Public Roads H = 220 ft.

X = Minimum Drive Setback (D+W/2)



Distance "D" is measured from project centerline. This dimension is to be calculated by Roadway Design and provided to Right of Way.

April 3, 2026

Melissa Harrell
City of Wahoo
608 N. Linden St.
Wahoo, NE 68066

RE: Krumel Industrial Subdivision Final Plat, Change of Zoning, and Annexation Request

Dear Ms. Harrell,

Attached herein are the Final Plat materials for the Krumel Industrial Subdivision development, located at U.S. Highway 77 and Old Highway 77. A rezone request from the site's current C-3 and TA classification to a C-2 and I-2 classification was submitted along with the Preliminary Plat materials for ultimate consideration and action tied to the Final Plat. As a function of the rezone we request an amendment to the boundary of the Gateway Corridor Design Overlay District for the area within the City's jurisdiction east of Old Highway 77.

Also included is a letter for the formal request for annexation of the proposed site accompanying the consideration and action of the Final Plat.

Included within are 90% plans for the subdivision. Final plans and specifications will be provided upon their completion.

On behalf of JEO Investments, I thank you for your consideration. I look forward to working with you on this and other projects.

Sincerely,

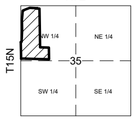
Kevin Andersen,
Senior Client Advisor

Enclosures

cc: Travis Beavers
City of Wahoo Planning Commission
Wahoo City Council

VICINITY SKETCH

SAUNDERS COUNTY
NEBRASKA

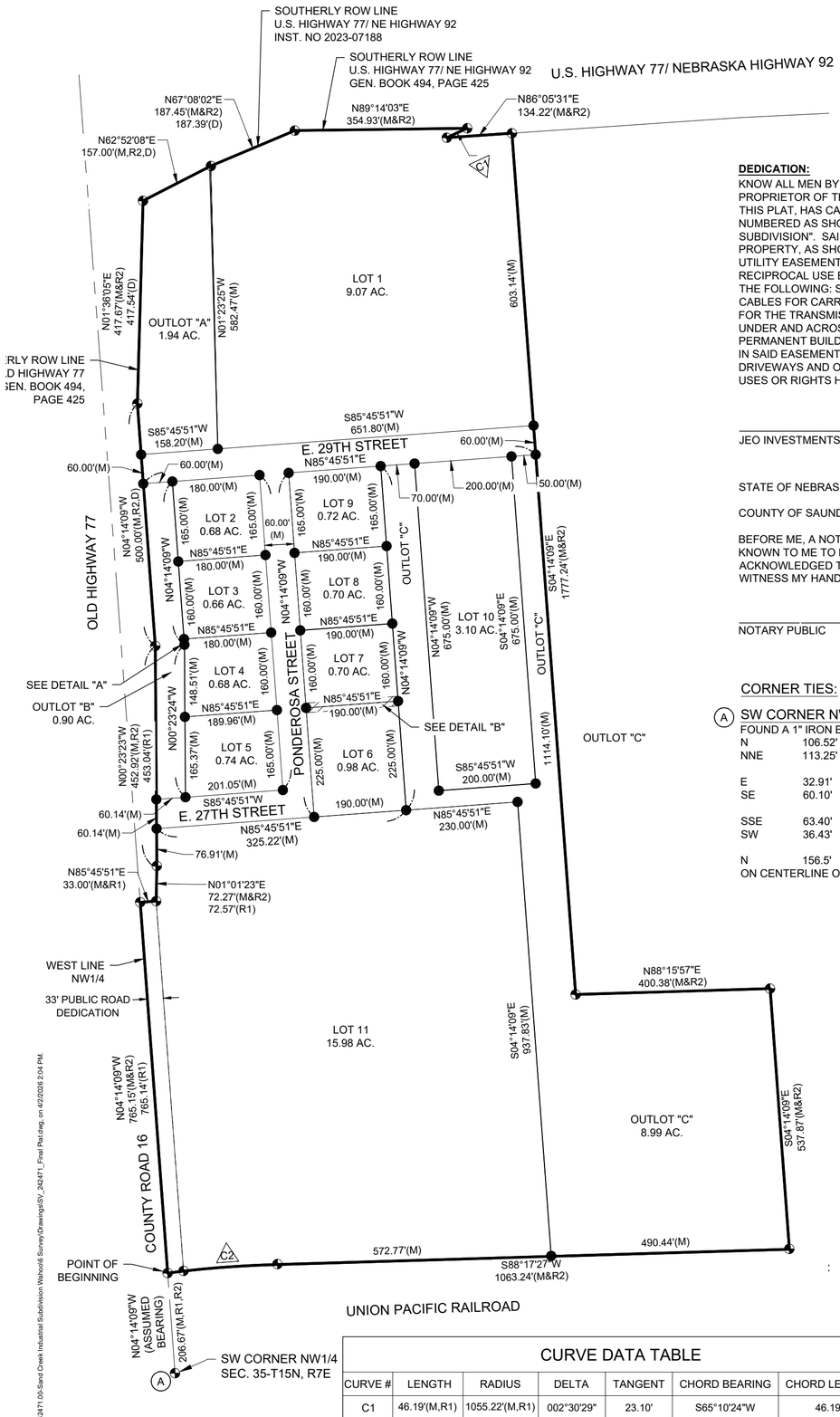


LEGEND

- MONUMENT FOUND (5/8" REBAR W/ PLASTIC CAP STAMPED "BORCHERS PLS 766" UNLESS NOTED)
- MONUMENT SET (5/8" X 24" REBAR W/ PLASTIC CAP STAMPED "BORCHERS PLS 766")
- CALCULATED POINT
- M MEASURED DISTANCE
- R1 ERICKSON 1980
- R2 BORCHERS 2026

"FINAL PLAT"
KRUMEL INDUSTRIAL SUBDIVISION

A PART OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST SAUNDERS COUNTY, NEBRASKA



DEDICATION:

KNOW ALL MEN BY THESE PRESENTS: THAT JEO INVESTMENTS, INC., BEING THE OWNER AND PROPRIETOR OF THE LAND DESCRIBED WITHIN THE PERIMETER DESCRIPTION AND EMBRACED WITHIN THIS PLAT, HAS CAUSED SAID LAND TO BE SUBDIVIDED INTO STREETS AND LOTS, TO BE NAMED AND NUMBERED AS SHOWN, SAID SUBDIVISION TO BE HEREAFTER KNOWN AS "KRUMEL INDUSTRIAL SUBDIVISION". SAID OWNER HEREBY RATIFIES AND APPROVES OF THE DISPOSITION OF THEIR PROPERTY, AS SHOWN ON THIS PLAT. SAID OWNER HEREBY DEDICATES TO THE PUBLIC FOR PERPETUAL UTILITY EASEMENTS TO THE CITY OF WAHOO, AND ANY OTHER PUBLIC OR PRIVATE UTILITY FOR RECIPROCAL USE BY THE LICENSEES OF SAID SUBDIVISION, TO BUILD, ERECT, MAINTAIN AND OR REPAIR THE FOLLOWING: SEWER LINES, WATER LINES, DRAINAGE FACILITIES, NATURAL GAS LINES, WIRES AND CABLES FOR CARRYING TRANSMISSION OF ELECTRICAL CURRENT FOR LIGHT, HEAT AND POWER, AND FOR THE TRANSMISSION AND RECEPTION OF SIGNALS AND SOUNDS OF ALL KINDS ON, OVER, THROUGH, UNDER AND ACROSS ALL STRIPS OF LAND LABELED AS UTILITY EASEMENTS ON THIS PLAT. NO PERMANENT BUILDINGS, FENCES, TREES, RETAINING WALLS OR LOOSE ROCK WALLS SHALL BE PLACED IN SAID EASEMENT WAYS, BUT THE SAME MAY BE USED FOR GARDENS, SHRUBS, LANDSCAPING, DRIVEWAYS AND OTHER PURPOSES THAT DO NOT THEN OR LATER INTERFERE WITH THE AFORESAID USES OR RIGHTS HEREIN GRANTED.

_____
JEO INVESTMENTS, INC.

STATE OF NEBRASKA)
) SS
COUNTY OF SAUNDERS)

BEFORE ME, A NOTARY PUBLIC QUALIFIED IN SAID COUNTY, PERSONALLY CAME, _____
KNOWN TO ME TO BE THE IDENTICAL PERSON WHO SIGNED THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED THE EXECUTION THEREOF TO BE HIS VOLUNTARY ACT AND DEED.
WITNESS MY HAND AND NOTARIAL SEAL ON _____ DAY OF _____, 202___.

_____ _____
NOTARY PUBLIC MY COMMISSION EXPIRES

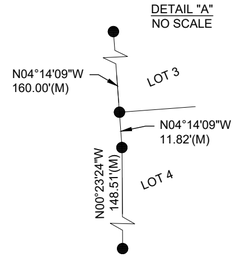
CORNER TIES:

(A) SW CORNER NW1/4 SECTION 35-T15N-R7E
FOUND A 1" IRON BAR, 0.5' DEEP.

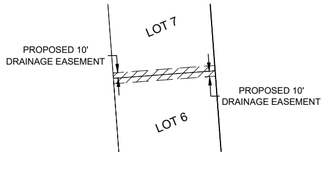
N	106.52'	TO A MAG NAIL FOUND IN ASPHALT ON SECTION LINE
NNE	113.25'	TO A 5/8" REBAR WITH A PLASTIC CAP STAMPED "LS 618" FOUND FLUSH WITH THE GROUND (N12°43'07"E)
E	32.91'	TO A 5/8" REBAR FOUND 0.2' DEEP (N87°34'03"E)
SE	60.10'	TO A 5/8" REBAR WITH A PLASTIC CAP STAMPED "LS 618" FOUND FLUSH WITH THE GROUND (S37°13'11"E)
SSE	63.40'	TO A 5/8" REBAR FOUND 1.0' DEEP (S31°03'33"E)
SW	36.43'	TO A 5/8" X 24" REBAR WITH A PLASTIC CAP STAMPED "RM 2025" SET FLUSH WITH THE GROUND (S44°51'32"W)
N	156.5'	TO THE CENTERLINE OF RAILROAD TRACKS

ON CENTERLINE OF NORTH-SOUTH COUNTY ROAD

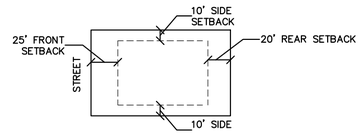
DETAIL "A"
NO SCALE



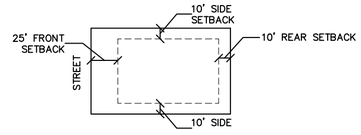
DETAIL "B"
NO SCALE



DETAIL OF TYPICAL BUILDING
SETBACKS AND UTILITY EASEMENTS
LOTS 1-9
ZONING DISTRICT: HIGHWAY COMMERCIAL DISTRICT (C-2)



DETAIL OF TYPICAL BUILDING
SETBACKS AND UTILITY EASEMENTS
LOTS 10, 11
ZONING DISTRICT: HEAVY INDUSTRIAL (I-2)



APPROVAL OF THE CITY COUNCIL OF WAHOO, NEBRASKA:
THIS PLAT OF "KRUMEL INDUSTRIAL SUBDIVSION" WAS APPROVED AND ACCEPTED BY THE CITY COUNCIL OF THE CITY OF WAHOO, NEBRASKA THIS _____DAY OF _____, 2026.

_____ _____ _____
MAYOR CITY CLERK

SAUNDERS COUNTY TREASURER:
I HEREBY CERTIFY THAT THE RECORDS IN MY OFFICE SHOW NO TAXES ARE DELINQUENT UPON THE LAND DESCRIBED IN THE PERIMETER DESCRIPTION AS APPEARS ON THIS PLAT AS OF THE _____ DAY OF _____ , 2026.

_____
TREASURER

SAUNDERS COUNTY SURVEYOR'S APPROVAL:
I HEREBY APPROVE THE NUMBERING OF THE LOTS IN "KRUMEL INDUSTRIAL SUBDIVISION", LOCATED IN THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST OF THE SIXTH P.M., SAUNDERS COUNTY, NEBRASKA, ON THIS _____ DAY OF _____, 2026.

_____
SAUNDERS COUNTY SURVEYOR

APPROVAL OF THE CITY PLANNING COMMISSION OF WAHOO, NEBRASKA:
THIS PLAT OF "KRUMEL INDUSTRIAL SUBDIVISION" WAS APPROVED BY THE CITY PLANNING COMMISSION OF WAHOO, NEBRASKA THIS _____ DAY OF _____, 2026.

_____
CHAIRMAN

PERIMETER DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 35, TOWNSHIP 15 NORTH, RANGE 7 EAST OF THE SIXTH P.M., SAUNDERS COUNTY, NEBRASKA, BEING DESCRIBED AS FOLLOWS: REFERRING TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE N04°14'09"W (ASSUMED BEARING), ON THE WEST LINE OF SAID NORTHWEST QUARTER, A DISTANCE OF 206.67FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD AND THE POINT OF BEGINNING; THENCE CONTINUING N04°14'09"W ON SAID WEST LINE, A DISTANCE OF 765.15 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF OLD HIGHWAY 77 AS DESCRIBED IN GENERAL BOOK 494, PAGE 425; THENCE NORTHERLY ON SAID EASTERLY LINE, THE FOLLOWING 5 COURSES: N85°45'51"E, 33.00 FEET; N01°01'23"E, 72.27 FEET; N00°23'23"W, 452.92 FEET; N04°14'09"W, 500.00 FEET; N01°36'05"E, 417.67 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF U.S. HIGHWAY 77 AND NEBRASKA HIGHWAY 92 AS DESCRIBED IN INSTRUMENT NO. 2023-07188; THENCE N62°52'08"E ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 157.00 FEET; THENCE N67°08'02"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 187.45 FEET; THENCE N89°14'03"E ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 494, PAGE 425, A DISTANCE OF 354.93 FEET; THENCE SOUTHWESTERLY CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE ON A 1055.22 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, AN ARC DISTANCE OF 46.19 FEET, THE CHORD OF SAID CURVE BEARS S65°10'24"W, A DISTANCE OF 46.19 FEET; THENCE N86°05'31"E CONTINUING ON SAID SOUTHERLY RIGHT OF WAY LINE AS DESCRIBED IN GENERAL BOOK 297, PAGE 317, A DISTANCE OF 134.22 FEET; THENCE S04°14'09"E, A DISTANCE OF 1777.24 FEET TO THE SOUTH LINE OF A TRACT OF LAND DESCRIBED IN GENERAL BOOK 413, PAGE 880; THENCE N88°15'57"E ON SAID SOUTH LINE, A DISTANCE OF 400.38 FEET; THENCE S04°14'09"E, A DISTANCE OF 537.87 FEET TO THE NORTH RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S88°17'27"W ON SAID NORTH RIGHT OF WAY LINE, A DISTANCE OF 1063.24 FEET TO A POINT OF CURVATURE; THENCE WESTERLY CONTINUING ON SAID NORTH RIGHT OF WAY LINE, ON A 2095.80 FOOT RADIUS CURVE TO THE LEFT, AN ARC DISTANCE OF 217.89 FEET TO THE POINT OF BEGINNING, THE CHORD OF SAID CURVE BEARS S85°25'54"W, A DISTANCE OF 217.79 FEET, CONTAINING 48.89 ACRES, MORE OR LESS.

SURVEYOR'S STATEMENT:
I JOSHUA D. BORCHERS, A PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT "KRUMEL INDUSTRIAL SUBDIVISION" HAS BEEN SURVEYED BY ME OR UNDER MY SUPERVISION AND THAT THE PERIMETER DESCRIPTION OF THE BOUNDARY OF "KRUMEL INDUSTRIAL SUBDIVISION" IS AS STATED IN THE PERIMETER DESCRIPTION. PERMANENT MONUMENTS WILL BE SET AT ALL LOT CORNERS ONCE CONSTRUCTION OF IMPROVEMENTS ARE COMPLETE.

_____
JOSHUA D. BORCHERS, P.L.S. 766 DATE

CURVE DATA TABLE

CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	46.19'(M,R1)	1055.22'(M,R1)	002°30'29"	23.10'	S65°10'24"W	46.19'
C2	217.89'(M,R1)	2095.80'(M,R1)	005°57'24"	109.04'	S85°25'54"W	217.79'

JEO CONSULTING GROUP
1-800-723-8567

PART OF THE W1/2 NW1/4
SEC. 35-R15N-R7E OF THE SIXTH P.M.
SAUNDERS COUNTY, NEBRASKA

FINAL PLAT
KRUMEL INDUSTRIAL SUBDIVISION

PROJECT NO. 242471
DATE 4/2/2026
DRAWN BY AWH
FILE NAME SV_242471_Final Plat.dwg
FIELD BOOK WAHOO 170
FIELD CREW NF
SURVEY FILE NO. 2026-072
REVISIONS

1 OF 1

J:\Projects\242471.00-Sand Creek Industrial Subdivision Wahoo\6 Survey\Drawings\SV_242471_Final Plat.dwg, on 4/2/2026 2:04 PM,

DWELLING, SINGLE FAMILY a building having accommodations for or occupied exclusively by one family which meet all the following standards:

1. The home shall have no less than 900 square feet of floor area, above grade, for single story construction; a minimum of 51 percent of the total square foot area must be habitable.

2. The home shall have no less than an 18 foot exterior width;

3. The roof shall be pitched with a minimum vertical rise of two and one-half inches for each 12 inches of horizontal run;

4. The exterior material shall be of a color, material and scale comparable with those existing in residential site-built, single family construction; and shall not include metal wall panels

5. The home shall have a non-reflective roof material that is or simulates asphalt or wood shingles, tile, or rock. Said roof may be finished in metal provided it is non-reflective and meets standards established for residential or commercial use;

6. The home shall be placed on a continuous permanent foundation and have wheels, axles, transporting lights, and removable towing apparatus removed, and

7. The home shall meet and maintain the same standards that are uniformly applied to all single-family dwellings in the zoning district.

8. Permanent foundation: Base on which building rests to be constructed from either poured concrete or laid masonry block or brick on a footing to be placed a minimum of 42 inches below the final ground level.

WAHOO PLANNING COMMISSION

Meeting Minutes

March 3, 2026

The Wahoo Planning Commission met in regular session and in accordance with the agenda posted at City Hall, the Post Office, and First Bank of Nebraska with each board member being notified of the agenda prior to the meeting. The meeting was called to order at 7:00 p.m. by Chair Tracy Pfligler and opened with the Pledge of Allegiance. The Chair advised the public of the posted information regarding Nebraska Open Meetings Act and Title VI. The Chair then directed the City Clerk to call the roll: Brooks: Present, Egr: Present, Fick: Absent, Gabel: Present, Lentfer: Absent, Miyoshi: Present, Pearson: Present, Pfligler: Present, Wilcox: Present.

Kevin Stuhr reported on Parks and Recreation projects throughout the city. Including Highlands Park conceptual plans that include a neighbor park, small playground, sports courts and green space. Smith Park conceptual plans will have updates done in phases and include a pavilion and sports courts. Trail development plans will connect the current trail system to the Heritage Heights neighborhood, taking foot traffic off of old Hwy 77/Chestnut street.

Discussion was had regarding the approval of the final plat of lots 51 and 52 North Highlands Subdivision. There is a utility easement between the lots, but it does not currently have utilities within that easement. It would be vacated with the approval of the final plat. Utilities General Manager Ryan Hurst does not have concerns with the vacation of that easement as infrastructure is in place in the right of way. Pfigler asked questions about the covenants of the lots and if there is a requirement regarding lot size as that area was originally plated for condos and townhomes. She indicated that the covenants specifically indicate those lots being for townhomes and condos and questioned if it is the City's responsibility to make sure that the covenants are being followed. A motion was made by Jessica Pearson, seconded by Glen Wilcox, to recommend approval of a final plat for a replat of lots. Roll call vote: Brooks: yes, Egr: yes, Fick: Absent, Gabel: yes, Lentfer: Absent, Miyoshi: yes, Pearson: yes, Pfligler: no, Wilcox: yes. Motion carried.

Discussion was had regarding the zoning of the area around the Wahoo Water Tower Planning Inspector/Zoning Administrator Travis Beavers stated that the future land use shows the area being zoned as R2 – Medium Density Residential. He stated there is a buyer interested in a parcel if the zoning was C3 – General Commercial. The board voiced that they were generally against the idea of changing zoning to C3.

Building Inspector/Zoning Administrator Travis Beavers asked for discussion for clarification on how the board interprets the definition of the 900sq/ft living area for residential building requirements. Lacking a current definition allows for multiple interpretations. After discussion the board generally agreed that the zoning regulations should be amended to define an expectation of at least 50% of the square footage as habitable. The board requested that a draft amendment be brought to the next meeting for further discussion.

Discussion was had regarding the 1/4 mile requirement for the design standards in anticipation of likely request for waiver. General consensus of the board was to maintain the 1/4 mile. And to potentially add design standards down 12th/old HWY 77.

Mayor Jerry Johnson spoke regarding a vacancy on the Board of Adjustments for a member of the Planning Commission.

Planning Inspector/Zoning Administrator Travis Beavers spoke to the current project throughout the city.

A motion was made by John Miyoshi, seconded by Glen Wilcox, to approve the minutes from the February 5, 2026, meeting of the Planning Commission. Roll Call vote: Brooks: yes, Egr: yes, Fick: Absent, Gabel: yes, Lentfer: Absent, Miyoshi: yes, Pearson: yes, Pfligler: yes, Wilcox: yes. Motion carried.

Meeting adjourned at 8:27pm.

Approved:

Christina Fasel
City Clerk
City of Wahoo

WAHOO PLANNING COMMISSION

Meeting Minutes

April 2, 2026

The Wahoo Planning Commission met in regular session and in accordance with the agenda posted at City Hall, the Post Office, and First Bank of Nebraska with each board member being notified of the agenda prior to the meeting. The meeting was called to order at 7:00 p.m. by Chair Tracy Pfligler and opened with the Pledge of Allegiance. The Chair advised the public of the posted information regarding Nebraska Open Meetings Act and Title VI. The Chair then directed the City Clerk to call the roll: Brooks: Present, Egr: Present, Fick: Absent, Gabel: Present, Lentfer: Present, Miyoshi: Present, Pearson: Absent, Pfligler: Present, Wilcox: Absent.

Mike Hancock spoke to an item not on the agenda. He has interest in building a sports facility on a property located near the water tower. This area would need to be rezoned for that project to be approved. There was no action taken.

Building Inspector/Zoning Administrator Beavers spoke to the proposed amendment to section 2.03.160 of the zoning regulations regarding single family dwellings. The board generally agreed that language should be added to indicate that 51% of the building's square footage must be livable space.

Discussion was had regarding the proposed rezone of the Chestnut Street Corridor. The proposed rezone was first discussed back in 2020 and had been met with some resistance from property owners. Planning Commission and City Council want the topic brought back up. There is an effort to better inform the property owners as to the need for the rezone and the effect it will have on them and their property. An Open House will be held in the near future.

Tracy Pfligler requested that more detail be added to the minutes from the March 3, 2026, meeting. Those minutes will be reviewed and approved at the May meeting.

Meeting adjourned at 8:34pm.

Approved:

Christina Fasel
City Clerk
City of Wahoo