CITY COUNCIL AGENDA

Monday, August 11, 2025

Broadcast on Cable TV Channel 16
and northmetrotv.com/lino-lakes-stream

Mayor Rafferty, Councilmembers Cavegn, Lyden, Ruhland and Stoesz
City Administrator: Karen Anderson

CITY COUNCIL WORK SESSION, 6:00 P.M.
Community Room (not televised)

A. Call to Order and Roll Call

B. Setting the Agenda: Addition or Deletion of Agenda Items

C. Review Regular Agenda

D. Adjourn

CITY COUNCIL MEETING, 6:30 PM
Council Chambers (televised)

➢ Call to Order and Roll Call

➢ Pledge of Allegiance

➢ Public Comment *(sign-in prior to start of meeting per Rules of Decorum)*

➢ Setting the Agenda: Addition or Deletion of Agenda Items

SPECIAL PRESENTATION

1. Consent Agenda

A. Consider Approval of Expenditures for August 11, 2025 (Check No. 123270 through 123370) in the Amount of $2,813,947.04

B. Approval of July 28, 2025, City Council Work Session Minutes

C. Approval of July 28, 2025, City Council Meeting Minutes

D. Approval of Hiring of Part-Time Staff for the Rookery Activity Center

E. Approval of Exempt Gambling Permit for Knights of Columbus Council #9905

F. Approval of Resolution No. 25-103 Appointing Election Judges for the 2025 Municipal Election

2. Finance Department Report

3. Administration Department Report

A. Consider Appointment of Finance Director, Meg Sawyer

B. Consider Appointment of Building Inspector, Meg Sawyer

C. Consider Appointment of Firefighter Admin, Meg Sawyer

4. Police Department Report

5. Fire Department Report

6. Public Services Department Report

7. Community Development Report

A. Consider Resolution 25-102 Approving Lino Lakes Main Street Final Alternative Urban Areawide Review, Tom Hoffman

B. Consider Resolution No. 25-105 Approving 1210 Main Street Accessory Structure Variance, Katie Larsen

C. Consider 2nd Reading and Adoption of Ordinance No. 14-25, Amending City Code Chapter 218.01 (10)(e) Relating to Special Connection Fees, Diane Hankee

D. Approving Payment No. 7 and Final, 2024 Street Rehabilitation and Trunk Watermain Project, Diane Hankee

E. Approving Trunk Utility Agreement, Natures Refuge North, Diane Hankee

F. Consider Resolution No. 25-106 Approving a Joint Powers Agreement for the Continued Operation of the Vadnais Lakes Area Water Management Organization , Michael Grochala

8. Unfinished Business

9. New Business

10. Notices and Communications

A. Planning & Zoning Board Meeting, August 13, 2025, at 6:30 p.m., in the Council Chambers.

ADJOURNMENT

Expenditures

August 11, 2025

Check #123270 to #123370

$2,813,947.04

Significant Disbursements this Period:

- R.L. Larson Excavating Inc. - $1,278,489.29 – 2025 Street Reconstruction Project
- Staab Construction Corporation - $815,740.96 – Water Treatment Plant

CHECK REGISTER FOR CITY OF LINO LAKES

CHECK NUMBER 123270 - 123370

- CHECK TYPE: PAPER CHECK

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
08/01/2025	123270	AFSCME COUNCIL #5	Remittance Check	550.98
08/01/2025	123271	INTERNATIONAL UNION OF OPERAT	Remittance Check	560.00
08/01/2025	123272	LAW ENFORCEMENT LABOR SERVICE	Remittance Check	1,898.00
08/11/2025	123273	AARP	AARP DRIVER SAFETY COURSE	225.00
08/11/2025	123274	ALLINA HEALTH SYSTEM	QUARTERLY EDUCATION AND MED DIRECTION	1,329.50
08/11/2025	123275	AMERICAN LEGAL PUBLISHING COR	INTERNET RENEWAL 08/23/25-08/23/26	150.00
08/11/2025	123276	ANOKA COUNTY PROPERTY RECORDS	2025 STREET RECONSTRUCTION EASEMENT	46.00
08/11/2025	123277	ANOKA COUNTY SHERIFF'S OFFICE	Q2 2025 TZD GRANT	10,465.44
08/11/2025	123278	ANOKA COUNTY TREASURY OFFICE	Q1 2025 SIGNAL BILLING	700.67
			4-APX BATTERIES	426.00
			1-APX BATTERY	106.50
				1,233.17
08/11/2025	123279	ASPEN MILLS, INC.	UNIFORM ALLOWANCE - B. FINKE	349.74
			DEPT EXP - G. EYESTONE	26.85
			UNIFORM ALLOWANCE - N. HAMANN	26.85
			UNIFORM ALLOWANCE - N. HAMANN	71.40
				474.84
08/11/2025	123280	BOULDER CONTRACTING LLC	ESCROW RELEASE - 525 LOIS LN	900.00
08/11/2025	123281	CENTENNIAL LAKES POLICE DEPAR	Q2 2025 TZD GRANT	1,088.59
08/11/2025	123282	CENTENNIAL UTILITIES	3RD QTR 2025 UTILITIES	738.38
08/11/2025	123283	CENTERPOINT ENERGY	NATURAL GAS	589.16
08/11/2025	123284	CINTAS CORPORATION	MATS AND SHOP TOWELS	668.33
08/11/2025	123285	CITY OF ANOKA	Q2 2025 TZD GRANT	5,088.91
08/11/2025	123286	CITY OF BLAINE	Q2 2025 TZD GRANT	12,750.92
08/11/2025	123287	CITY OF BLAINE	3RD QTR 2025 UTILITIES	4,561.14
08/11/2025	123288	CITY OF COLUMBIA HEIGHTS	Q2 2025 TZD GRANT	7,937.41
08/11/2025	123289	CITY OF COON RAPIDS	Q2 2025 TZD GRANT	15,968.30
08/11/2025	123290	CITY OF FRIDLEY	Q2 2025 TZD GRANT	9,355.95
08/11/2025	123291	CITY OF HUGO	HUGO BLDG INSPECTOR 7/30/2025	339.44
08/11/2025	123292	CITY OF RAMSEY	Q2 2025 TZD GRANT	13,904.12
08/11/2025	123293	CITY OF SPRING LAKE PARK	Q2 2025 TZD GRANT	1,248.44
08/11/2025	123294	CITY OF ST. FRANCIS	Q2 2025 TZD GRANT	7,618.60
08/11/2025	123295	CITY OF ST. PAUL	ASPHALT HOT MIX	1,175.00
08/11/2025	123296	COMCAST	PHONE & INTERNET SERVICES	398.19
08/11/2025	123297	CONNEXUS ENERGY	ELECTRICITY	7,370.36
			WATERMARK PARK PAVILION ELECTRICITY	70.52
				7,440.88
08/11/2025	123298	CRAFCO, INC.	FREIGHT	200.00
08/11/2025	123299	EHLERS AND ASSOCIATES	JUNE HOURLY SERVICES - K. HORN	24,437.50
08/11/2025	123300	EMERGENCY APPARATUS MAINTENAN	TEMP GAUGE, COOLANT & WINDOW CRANK REPA	1,615.36
			REPAIR REAR COMPARTMENT DOOR #630	312.72
			PRIMER OIL	58.50
				1,986.58

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
08/11/2025	123301	EMERGENCY AUTOMOTIVE TECHNOLO	LIGHTS AND INSTALLATION #628	546.53
			FACEPLATE FOR RADIO	29.76
			WEAPON MOUNT & RADAR DIVIDER #324	519.75
				1,096.04
08/11/2025	123302	ENDURANCE FITNESS OF MN, LLC	MONTHLY FEE	11,665.00
08/11/2025	123303	Erickson, Zach	REFUND CANCELLED PERMIT 1162 DURANGO PT	58.40
08/11/2025	123304	ETERNITY HOMES LLC	ESCROW RELEASE - 6754 21ST AVE	4,400.00
08/11/2025	123305	FACTORY MOTOR PARTS COMPANY	POLICE TAHOE BRAKE PADS (STOCK)	195.90
			FUEL FILTERS #518	36.01
				231.91
08/11/2025	123306	FERGUSON WATERWORKS #2518	MANHOLE SIGNS (10)	155.00
			MEASURING WHEEL, PAINT & FLAGS	271.59
			A1 COVERS (6)	916.02
			MARKING PAINT	146.64
				1,489.25
08/11/2025	123307	FIDELITY SECURITY LIFE INSURA	AUGUST INSURANCE PREMIUMS	215.12
08/11/2025	123308	FOOTCARE DISCIPLES, LLC	FOOTCARE CLINIC - 1 CLIENT	60.00
08/11/2025	123309	GDO LAW	AUGUST PROSECUTOR CONTRACT	8,750.00
08/11/2025	123310	GOPHER STATE ONE-CALL	JULY 2025 LOCATES	785.70
08/11/2025	123311	GREGORY CONTRACTING	REFUND DUPLICATE CC PAYMENT 488 POST RO	85.00
08/11/2025	123312	HALVERSON TREE	TREE REMOVAL - 7692 PALOMINO LN	1,000.00
			TREE REMOVAL - 6375 PAINTED TURTLE RD	650.00
			TREE REMOVAL - 6457 LAKOTA TRL	500.00
				2,150.00
08/11/2025	123313	HAUGO GEO TECHNICAL SERVICES,	2025 STREET REHAB PROJECT MATERIALS TE	608.00
			MARKET PLACE DRIVE MATERIAL TESTING	1,106.00
				1,714.00
08/11/2025	123314	HAWKINS, INC.	WATER TREATMENT CHEMICALS	13,540.42
			POOL CHEMICALS	609.33
				14,149.75
08/11/2025	123315	IDENTISYS, INC.	EMPLOYEE BADGE SOFTWARE CONTRACT	451.00
08/11/2025	123316	IMAGE PRINTING & GRAPHICS, IN	BLUE HERON DAYS PARADE ROUTE SIGNS (48)	697.48
08/11/2025	123317	IMPERIAL DADE	REPLACEMNT PART FOR KAIVAC MACHINE	17.06
			JANITORIAL SUPPLIES	1,035.59

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
				1,052.65
08/11/2025	123318	INFINITE HEALTH COLLABORATIVE	FIRE WELLNESS PROGRAM - AFG GRANT REIMB	2,310.00
			FIRE WELLNESS PROGRAM - AFG GRANT REIMB	3,668.70
				5,978.70
08/11/2025	123319	INNOVATIVE OFFICE SOLUTIONS L	PENS & NOTEPADS	61.74
08/11/2025	123320	INTERNATIONAL INSTITUTE OF MU	IIMC MEMBERSHIP RENEWAL - R. COLOTTI	235.00
08/11/2025	123321	KJOLHAUG ENVIRONMENTAL SERVIC	PUBLIC WORKS WETLAND DELINEATION	165.00
08/11/2025	123322	LANGUAGE LINE SERVICES	JULY INTERPRETATION SERVICES	62.83
08/11/2025	123323	LRS	TOILET RENTAL - WATERMARK PARK	65.00
			TOILET RENTAL - BIRCH PARK	65.00
			TOILET RENTAL - CITY HALL PARK	65.00
			TOILET RENTAL - CLEARWATER CREEK PARK	65.00
			TOILET RENTAL - HIGHLAND MEADOWS PARK	65.00
			TOILET RENTAL - LINO PARK	65.00
			TOILET RENTAL - MARSHAN PARK	65.00
			TOILET RENTAL - SUNRISE PARK	65.00
			TOILET RENTAL - TOWER PARK	65.00
				585.00
08/11/2025	123324	M/I HOMES	ESCROW RELEASE - 8066 GLENWOOD DR	900.00
			ESCROW RELEASE - 8067 GLENWOOD DR	4,400.00
			ESCROW RELEASE - 8067 HAYWOOD DR	5,400.00
			ESCROW RELEASE - 8147 HAYWOOD DR	5,400.00
				16,100.00
08/11/2025	123325	M/I HOMES	ESCROW RELEASE - 8059 HAYWOOD DR	5,400.00
			ESCROW RELEASE - 8063 ELLWOOD CT	900.00
			ESCROW RELEASE - 8037 HAZELWOOD CT	900.00
			ESCROW RELEASE - 609 HAYWOOD DR	4,400.00
			ESCROW RELEASE - 617 HAYWOOD DR	5,400.00
			ESCROW RELEASE - 8051 HAYWOOD DR	5,400.00
				22,400.00
08/11/2025	123326	MACQUEEN EQUIPMENT, INC.	HYDRAULIC FILTER #518	162.12
			CALIBRATION GAS FOR GAS MONITORS	437.73
				599.85
08/11/2025	123327	MCDONALD CONSTRUCTION	ESCROW RELEASE - 6121 BALD EAGLE BLVD W	4,400.00
08/11/2025	123328	MENARDS - BLAINE	NEW POOL FENCE PARTS	175.41
			POOL PLUMBING FITTINGS	14.76

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
				190.17
08/11/2025	123329	MENARDS - FOREST LAKE	GREENTREATED LUMBER FOR SKIMMER REPAIR	31.14
08/11/2025	123330	MET COUNCIL ENVIRONMENTAL SER	SEPTEMBER WASTE WATER SERVICES	112,082.94
08/11/2025	123331	METRO SALES INCORPORATED	CITY HALL COPY ROOM COPIER	630.95
			CITY HALL CD COPIER	271.82
			PD COPIER CONTRACT	36.00
				938.77
08/11/2025	123332	METRO-INET	O365 LICENSE - K. PAGE	383.00
			O365 LICENSE - C. KANOWITZ	381.00
				764.00
08/11/2025	123333	MIDWAY FORD COMPANY	AXLE SEAL #633	13.75
			BRAKE LIGHT ASSEMBLY #316	190.86
			CRANKCASE VENTIALTION FILTER #256	117.13
				321.74
08/11/2025	123334	MIDWEST MACHINERY CO.	DRIVE PULLEY #422	64.45
08/11/2025	123335	MINNESOTA FIRE SERVICE CERTIF	FIRE APPARATUS OPERATOR CERT EXAM - B.	317.00
08/11/2025	123336	MN METRO NORTH TOURISM BOARD	JUNE 2025 TOURISM TAX	9,226.00
08/11/2025	123337	MNSPECT, LLC	FIELD INSPECTIONS JULY 2025	7,276.25
08/11/2025	123338	NAC MECHANICAL & ELECTRICAL	REPAIRS DONE DURING ANNUAL PM	1,384.00
			DECTRON TRANSFORMER	2,090.91
				3,474.91
08/11/2025	123339	NORTHERN TOOL COMMERCIAL ACCO	(2) WHEELS & TIRES #409	246.98
08/11/2025	123340	O'REILLY AUTOMOTIVE STORES	A/C EVAPORATOR/CONDENSER CLEANER	17.99
			A/C SCHRADER VALVES #252	18.03
			(3) BATTERIES #622	484.95
			(3) BATTERIES #622	484.95
			30 LB TANK R134A A/C REFRIGERANT	279.99
			DIESEL FUEL ADDITIVE #256	17.99
			WEATHER STRIPPING ADHESIVE #316	9.83
			BRAKE ROTORS & BRAKE PADS #803	349.98
			(3) BATTERY CORE RETURN #622	(66.00)
				1,597.71
08/11/2025	123341	OERTEL ARCHITECTS	PUBLIC WORKS DESIGN	23,788.95
08/11/2025	123342	OFFICE OF THE SECRETARY OF ST	NOTARY REAPPOINTMENT - R. COLOTTI	120.00
08/11/2025	123343	OLSON'S SEWER SERVICE, INC.	PUMPING WASTE WATER TANK AT PUBLIC WORK	490.00
08/11/2025	123344	OTTER LAKE ANIMAL CARE CENTER	RESCUE BOARDING	95.00

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
			K9 MEDICATION	89.99
				184.99
08/11/2025	123345	PARK CONSTRUCTION COMPANY	2024 STREET REHAB & TRUNK WATER MAIN PR	21,821.81
08/11/2025	123346	Permits, Hero	CANCELLED PERMIT 6508 W SHADOW LAKE DR	58.40
08/11/2025	123347	PLUNKETT'S PEST CONTROL INC.	GENERAL PEST CONTROL (8/1/2025-7/31/202	433.31
			GENERAL PEST CONTROL (8/1/2025-7/31/202	751.68
				1,184.99
08/11/2025	123348	POMP'S TIRE SERVICE, INC.	(6) TIRES #262	1,785.54
			6 TIRES #262, 4 TIRES #225	2,604.54
				4,390.08
08/11/2025	123349	PRESS PUBLICATIONS, INC.	RFP PFML & SUPPLEMENTAL INSURANCE	38.01
			PHN MAIN STREET MASTER PLAN	44.35
			NOTICE OF FILING	38.01
			ORD. NO. 12-25 REGULATING PET STORES	202.72
				323.09
08/11/2025	123350	QUADIENT LEASING USA, INC.	POSTAGE MACHINE LEASE	527.04
08/11/2025	123351	R.L. LARSON EXCAVATING INC	2025 STREET RECONSTRUCTION PROJECT	1,278,489.29
08/11/2025	123352	REHBEIN TRANSIT CO, INC.	SUMMER CAMP TRANSPORTATION TO TWINS GAM	681.55
			SUMMER CAMP TRANSPORTATION TO MN ZOO	586.58
				1,268.13
08/11/2025	123353	SAFE-FAST, INC.	UNIFORM ALLOWANCE - R. BOLDT	74.95
08/11/2025	123354	SAFETY-KLEEN SYSTEMS, INC.	SOLVENT	50.42
08/11/2025	123355	SCOTT LARSON	MAY PICKLEBALL LESSONS	120.00
08/11/2025	123356	SHRED-IT, C/O STERICYCLE, INC	DOCUMENT DESTRUCTION	119.81
08/11/2025	123357	STAAB CONSTRUCTION CORPORATIO	WATER TREATMENT PLANT	815,740.96
08/11/2025	123358	STANDARD INSURANCE COMPANY	LIFE & DISABILITY INSURANCE PREMIUMS	2,394.06
08/11/2025	123359	STAPLES INC.	OFFICE SUPPLIES	290.16
08/11/2025	123360	STREICHER'S, INC.	DEPT EXP - C. TIMMONS	23.98
			UNIFORM ALLOWANCE - N. HAMANN	64.80
			UNIFORM ALLOWANCE - N. HAMANN	95.00
				183.78
08/11/2025	123361	T-MOBILE USA INC	CELL PHONES & WI-FI	798.74
08/11/2025	123362	TACTICAL SOLUTIONS	STALKER RADAR SQUAD #325	2,010.00
08/11/2025	123363	TASC - CLIENT INVOICES	ADMIN FEES JULY 2025	93.80
08/11/2025	123364	TIMESAVER OFF-SITE SECRETARIA	CHARTER COMMISSION MINUTES 7/10/2025	172.00
08/11/2025	123365	TWIN CITIES TRANSPORT & RECOV	TOW CHARGE ICR #25088822	85.00
08/11/2025	123366	U.S. CAD HOLDINGS LLC	BLUEBEAM SOFTWARE ANNUAL MAINTENANCE	1,370.00

Check Date	Check	Vendor Name	Description	Amount
Bank CKING POOLED CHECKING				
08/11/2025	123367	UPPER CUT TREE SERVICE	STORM DAMAGED TREE REMOVAL 178 GLENVIEW	1,200.00
08/11/2025	123368	W.W. GOETSCH ASSOCIATES, INC.	REPAIR WELL 4 BOOSTER PUMP	2,257.00
08/11/2025	123369	WHEELER HARDWARE COMPANY	DONGLE MONTHLY LICENSE AND SERVICE FEE	75.00
08/11/2025	123370	WSB & ASSOCIATES, INC.	JUNE MARKET PLACE DRIVE REALIGNMENT	24,042.10
			JUNE WINTER WETLANDS BANK	4,365.25
			JUNE WATERMARK PARK	981.00
			JUNE WATER TREATMENT PLANT	41,602.40
			JUNE 440 PARK CT - LINO LAKES TECH CENT	376.50
			JUNE OTTER LAKE RD EXT DESIGN & CONS	47,336.00
			JUNE 2025 STREET RECON & MUNICIPAL UTIL	72,268.50
			JUNE 2024 STREET REHAB & TRUNK WATERMAI	1,435.00
			JUNE NATURES REFUGE NORTH	2,002.50
			JUNE WATERMARK 7TH ADDITION	7,653.00
			JUNE 455 PARK CT - FIJI CUBE	746.50
			JUNE WATERMARK 8TH ADDITION	14,802.50
			JUNE WILKINSON WATERS	2,722.50
			JUNE 2025 GENERAL ENGINEERING SERVICES	8,088.34
			JUNE 2025 PRIVATE UTILITY PERMITS	7,746.50
			JUNE 2025 BIRCH ST SANITARY SEWER	874.50
			JUNE JAVA PROPERTIES - LINO LAKES 2.0	251.00
			JUNE 2025 STREET REHABILITATION	20,379.75
			JUNE OTTER LAKE RD EXT PROJECT - ROW SE	462.00
			JUNE PELTIER PONDS	4,543.00
			JUNE TEST WELL NO. 7B	171.00
			JUNE 2025 SURFACE WATER MGMT PROJECT	2,654.50
			JUNE ALDI	730.50
			JUNE OTTER CROSSING SOUTH STREET VACATI	376.50
			JUNE MAIN STREET MASTER PLAN	1,636.00
			JUNE CLEARWATER COMMONS	70.00
			JUNE JAVA LINO LAKES - 2ND ADDITION	105.00
			JUNE ERICKSON PROPERTY	1,530.00
			JUNE 2025 PHELPS ROAD STOCKPILE	1,418.00
			JUNE 2025 LUMEN FIBER EXTENSION	1,808.50
			JUNE 2025 TRUNK WATERMAIN PROJECT	299.50
			JUNE CSAH 21/32 ROUNDABOUT REVIEW	990.00
			JUNE I35E & CRJ RAB LANDSCAPING	156.00
			JUNE 2025 I35E CORRIDOR AUAR UPDATE	4,700.00
			JUNE 2025 GPS/GIS MISCELLANEOUS ASSISTA	3,440.00
				282,764.34

CKING TOTALS:

Total of 101 Checks:	2,813,947.04
Less 0 Void Checks:	0.00
Total of 101 Disbursements:	2,813,947.04

Electronic Funds Transfer
MN Statute 471.38 Subd. 3

Council Meeting August 11, 2025

		Transfer In/(Out)
7/31/2025	Transfer to MM Savings	1,500,000.00
8/1/2025	Council Payroll #08	(3,707.35)
8/1/2025	Council Payroll #08 Federal Deposit	(209.06)
8/1/2025	Council Payroll #08 PERA	(410.72)
8/1/2025	Council Payroll #08 State	(44.94)
8/1/2025	Payroll #16	(243,387.91)
8/1/2025	Payroll #16 Federal Deposit	(71,281.79)
8/1/2025	Payroll #16 PERA	(63,596.07)
8/1/2025	Payroll #16 State	(16,328.86)
8/1/2025	Payroll #16 H.S.A. Bank Pretax	(4,615.00)
8/1/2025	Payroll #16 TASC Pretax	(1,145.03)
8/1/2025	Payroll #16 Mission Sq 457 Def. Comp #301596	(2,850.00)
8/1/2025	Payroll #16 Mission Sq Roth IRA #706155	(869.23)
8/1/2025	Payroll #16 MSRS HCSP #98946-01	(13,961.46)
8/1/2025	Payroll #16 MSRS Def. Comp #98945-01	(2,455.00)
8/1/2025	Payroll #16 MSRS Roth IRA #98945-01	(1,064.00)

Lino Lakes City Council
Work Session
Minutes

DATE: July 28, 2025
TIME STARTED: 6:00 P.M.
TIME ENDED: 6:25 P.M.
LOCATION: Community Room
MEMBERS PRESENT: Mayor Rafferty Councilmembers Ruhland, Lyden and Stoesz
MEMBERS ABSENT: Councilmember Cavegn

Staff Members Present: City Administrator Karen Anderson, City Clerk Roberta Colotti, Community Development Director Mike Grochala, City Planner Katie Larsen, Chief of Police Curt Boehme, Fire Chief Dan L'Allier and City Attorney Jay Squires.

1. **Call to Order and Roll Call**
   Mayor Rafferty called the meeting to order at 6:00 p.m.

2. **Setting the Agenda: Addition or Deletion of Agenda Items**
   The City Clerk requested to add two items to the agenda: Establishment of a Budget Work Session Meeting Date and Review of the Order of Business for the Regular Meeting.

   The Agenda was adopted as amended to include the two items as presented.

3. **2026 Budget Work Session Meeting**
   The City Council reviewed the September 2025 date for submitting the 2026 Preliminary Budget and Levy, and December timeline for submitting the 2026 Final Budget and Levy. It was requested that the Council establish a Special Work Session to provide first review of the proposed 2026 Preliminary Budget and Levy.

   Council Consensus
   It was the consensus of the City Council to call a Special Work Session on Monday, August 18th at 6:00 p.m. for the primary purpose of discussing the 2026 Preliminary Budget and Levy.

4. **Review Order of Business**
   The City Clerk requested that the Order of Business for the Regular Meeting be amended to hold the Public Comment period after the Special Presentations, noting that there are three special presentations scheduled.

   Council Consensus
   It was the consensus of the City Council to amend the regular agenda to move the Public Comment period to after Special Presentations.

5. **Water Appropriation Permit Contested Case Appeal**
   The Community Development Director reported that on August 30, 2017, the Ramsey County District Court issued a judgement regarding the groundwater management of White Bear Lake and the Prairie Du Chien-Jordan Aquifer. As a result, the City's Minnesota Department of Natural Resources (DNR) Water Appropriation Permit 1985-6168 was amended to include the following requirements:
   - PREPARE A PLAN TO CONVERT TO SURFACE WATER SOURCE
   - ENACT AND ENFORCE A RESIDENTIAL IRRIGATION BAN WHEN WHITE BEAR LAKE DROPS BELOW 923.5
   - PREPARE AN ENFORCEABLE PLAN TO LIMIT PER CAPITA WATER USE (75 GPD FOR RESIDENTIAL AND 90 GPD TOTAL)
   - REPORT ANNUALLY ON COLLABORATIVE EFFORTS WITH NE COMMUNITIES TO MEET THE PER CAPITA REQUIREMENTS

   The City, along with multiple other communities, appealed three of the four amendments and a contested case hearing was held in 2023 before an Administrative Law Judge (ALJ). The ALJ struck the irrigation ban requirement but left the other amendments in place. Both the White Bear Lake Restoration Association and White Bear Lake Homeowners Association appealed the decision. The six communities involved appealed as well.

   In July the Minnesota Court of Appeals ruled on the appeals and reversed the decision of the ALJ and remanded for further review.

   The City Attorney recommended that the City ask the Supreme Court to review the decision. Under the Rules any party to a Court of Appeals matter can ask the Supreme Court to exercise its discretionary review power. The Supreme Court does not have to do so. A request is in the form of a Petition for Review, which is a short document highlighting the importance of the case.

   The Community Development Director requested that the Council place "Authorize the Filing of the Petition for Review" on the July 28, 2025 regular agenda.

   <u>Council Consensus</u>
   It was the consensus of the City Council to place "Authorize the Filing of the Petition for Review" as part of the Consent Agenda, on the July 28, 2025 Regular Meeting agenda.

6. **City Attorney Notice of Retirement**
   City Attorney Jay Squires provided notice to the City Council that he would be retiring in October of this year. He stated that the City contract is with his firm. He stated that the firm has 20 attorneys and that he has been working with the assigned attorneys to get them up to speed, so they will not miss a step when they become the key contact, after his retirement.

Mayor Rafferty and the Council thanked City Attorney Jay Squires for his years of service.

7. **Review Regular Agenda**
   The City Council reviewed the regular agenda.

   The City Planner provided an overview of the Erickson Property zoning ordinance amendment scheduled for second reading/adoption tonight.

   The Community Development Director reviewed the fee schedule amendment proposed for special connection fees. This item is scheduled for first reading of the ordinance amendment tonight.

8. **Adjournment**
   Mayor Rafferty adjourned the meeting at 6:25 p.m.

These minutes were approved at the regular Council Meeting on August 11, 2025.

_____	_____
Roberta Colotti, CMC	Rob Rafferty,
City Clerk	Mayor

LINO LAKES CITY COUNCIL
REGULAR MEETING
MINUTES

DATE: **July 28, 2025**
TIME STARTED: **6:30 PM**
TIME ENDED: **6:59 PM**
LOCATION: **City Council Chambers**
MEMBERS PRESENT: **Mayor Rafferty, Councilmembers Lyden, Ruhland and Stoesz**
MEMBERS ABSENT: **Councilmember Cavegn**

Staff Members Present: City Administrator Karen Anderson, City Clerk Roberta Colotti, Community Development Director Mike Grochala, City Planner Katie Larsen, Chief of Police Curt Boehme, Police Department Administrative Assistant Margie Schlueter, Fire Chief Dan L'Allier, Communications Specialist Andrea Turner, and members of the Police and Fire Departments.

The meeting was called to order by Mayor Rafferty at 6:30 PM.

SETTING THE AGENDA

Motion to re-order the agenda to move the Public Comment period after Special Presentations, with the Special Presentations to include a presentation by the Lino Lakes Ambassadors, and to add item 1H "Authorize the Filing of the Petition for Review" for the Water Appropriation Permit Contested Case Appeal to the Consent Agenda.

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Ruhland**
AYES:	**Rafferty, Stoesz, Lyden and Ruhland**
NAYS:	**None**

SPECIAL PRESENTATIONS

Chief of Police Boehme introduced Police Officer Lauren Clayton.

Mayor Rafferty administered the Oath of Police Service for Police Officer Lauren Clayton.

Fire Chief L'Allier introduced Firefighters Jake Crooks, Benjamin Searles, Scott Schmidt, Timothy Bertz, Gibson Eyestone, Richard LaDoucer, Benjamin Miller and Clayton Follet.

Mayor Rafferty administered the Oath of Fire Service for Firefighters Jake Crooks, Benjamin Searles, Scott Schmidt, Timothy Bertz, Gibson Eyestone, Richard LaDoucer, Benjamin Miller and Clayton Follet.

Lino Lakes Ambassadors Emily N and Kaiya N. provided a report on the Ambassador's 2024-2025 activities. It was noted that the Lino Lakes Ambassador's parade float won an award at the Isanti parade. They introduced the 2025-2026 Ambassador candidates.

PUBLIC COMMENT

Mayor Rafferty opened the public comment period at 6:46 p.m.

Catherine Decker, 614 Pine Street, Lino Lakes, spoke about 10-22-32 Main Trunk and Branch 4. She stated that she has watched the Watershed District fail to protect her neighbors properties and the basic function of the watershed. She presented a letter outlining the report provided to the Watershed.

Chris Stowe, 426 Pine Street, Lino Lakes, presented a written report on the information provided to the watershed at their 7/8/25 meeting. He spoke about wetland credits and their purpose and how they were being used, ethics, and the mechanics of the water flow and the level of understanding of the Watershed members.

Motion to close the public comment period at 6:51 p.m.

RESULT:	**CARRIED [4-0]**
MOVER:	**Ruhland**
SECONDER:	**Stoesz**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

1. **CONSENT AGENDA**

   Motion to Approve Consent Agenda Items 1A through 1H as presented.

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Lyden**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

2. **FINANCE DEPARTMENT REPORT**

   No Report

3. **ADMINISTRATION DEPARTMENT REPORT**

   No Report

4. **POLICE DEPARTMENT REPORT**

   No Report

5. **FIRE DEPARTMENT REPORT**
   No Report

6. **PUBLIC SERVICES DEPARTMENT REPORT**
   No Report

7. **COMMUNITY DEVELOPMENT REPORT**
   A. Erickson Property (7590 20th Avenue)
      i. Motion to waive full reading of Ordinance No. 13-25 Approving Zoning Ordinance Map Amendment (Rezoning) from R, Rural to R2, Two Family Residential

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Lyden**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

Motion to provide second reading and adopt Ordinance No. 13-25 Approving Zoning Ordinance Map Amendment (Rezoning) from R, Rural to R2, Two Family Residential

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Lyden**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

ii. Motion to adopt Resoltuion No. 25-100 Approving Summary Publication of Ordinance No. 13-25.

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Lyden**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

   B. Ordinance No. 14-25 Special Connection Fees

Motion to waive full reading of Ordinance No 14-25 Amending City Code Chapter 218.01 (10) (e) Relating to Special Connection Fees.

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Ruhland**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

Motion to provide first reading of Ordinance No 14-25 Amending City Code Chapter 218.01 (10) (e) Relating to Special Connection Fees.

RESULT:	**CARRIED [4-0]**
MOVER:	**Stoesz**
SECONDER:	**Lyden**
AYES:	**Rafferty, Lyden, Ruhland and Stoesz**
NAYS:	**None**

8. **UNFINISHED BUSINESS**
   None

9. **NEW BUSINESS**
   None

10. **NOTICES AND COMMUNICATIONS**

    Environmental Board Meeting, July 30th at 6:30 p.m., in the Council Chambers.

ADJOURNMENT

Mayor Rafferty adjourned the meeting at 6:59 p.m.

These minutes were approved at the City Council Meeting on August 11, 2025.

_____ _____

Roberta Colotti, CMC
City Clerk

Rob Rafferty,
Mayor

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 1.D.

STAFF ORIGINATOR: Meg Sawyer, Human Resources and Communications Manager

MEETING DATE August 11, 2025

AGENDA ITEM: Approval of Hiring of Part-Time Staff for the Rookery Activity Center

VOTE REQUIRED: Simple Majority

INTRODUCTION

The Council is being asked to approve the hiring of part-time staff for The Rookery.

BACKGROUND

Staff is seeking approval to hire part-time personnel to work at The Rookery. The recruiting process has identified candidates that will be a great addition to our staff at The Rookery.

RECOMMENDATION

Staff Recommends the Council approve the hiring of the part-time personnel listed below:

Lillian	Yang	Lifeguard
Naol	Geda	Lifeguard
Eric	Zuniga	Aquatics Lead
Giada	Provensano	Lifeguard
Kalyn	Buzay	Lifeguard

ATTACHMENTS

None

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 1.E.

STAFF ORIGINATOR: Roberta Colotti, City Clerk

MEETING DATE August 11, 2025

AGENDA ITEM: Approval of Exempt Gambling Permit for Knights of Columbus Council #9905

VOTE REQUIRED: Simple Majority

INTRODUCTION

The Minnesota Department of Public Safety, Alcohol and Gambling Enforcement division issues Exempt Permits to nonprofit organizations that conduct lawful gambling on five or fewer days and that award less than $50,000 in prizes during a calendar year. This is not a regular gambling permit which requires a City Council resolution. Instead, the City is asked to acknowledge the permit with either; no waiting period, require a 30-day waiting period or deny the application.

BACKGROUND

The City is in receipt of the following applications:

- Knights of Columbus Council #9905, Raffle to be held at St. Joseph of the Lakes Catholic Church in Lino Lakes on January 3, 2026

RECOMMENDATION

Motion to acknowledge and approve the application for Exempt and Excluded Gambling Permit for the Knights of Columbus Council #9905 as presented, with no waiting period.

ATTACHMENTS

None

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 1.F.

STAFF ORIGINATOR: Roberta Colotti, City Clerk

MEETING DATE August 11, 2025

AGENDA ITEM: Approval of Resolution No. 25-103 Appointing Election Judges for the 2025 Municipal Election

VOTE REQUIRED: Simple Majority

INTRODUCTION

The Municipal Election will be held on Tuesday, November 4, 2025.

BACKGROUND

Pursuant to Minnesota State Statutes, Election Judges shall be appointed to serve in an election precinct and the appointing authority shall also designate judges to serve as Head Election Judges. Students ages 16 and 17 are eligible to serve as Student Election Judges. Minnesota State Statutes require that appointments be made at least 25 days before the election at which the judges will serve, and that additional appointments may be made after the 25-day mark should the need arise.

The attached list of candidates are certified eligible voters who wish to serve as Election Judges, if called to do so for the 2025 Municipal Election.

It is requested that, should additional election judges, outside those hereby appointed, be needed within 25 days of the election, that the City Clerk be authorized to appoint additional certified and qualified Head Judges, Regular Election Judges and Student Election Judges.

RECOMMENDATION

Motion to adopt Resolution No. 25-103, Appointing Election Judges for the 2025 Municipal Election.

ATTACHMENTS

1. 25-103 - Resolution - Appointing Election Judges 2025

CITY OF LINO LAKES
RESOLUTION NO. 25-103

APPOINTING ELECTION JUDGES FOR THE 2025 MUNICIPAL ELECTION

WHEREAS, the Municipal Election will be held on Tuesday, November 4, 2025; and,

WHEREAS, pursuant to Minnesota State Statutes, Election Judges shall be appointed to serve in an election precinct and that appointing authority shall also designate judges to serve as Head Election Judges; and,

WHEREAS, students ages 16 and 17 are eligible to serve as Student Election Judges; and,

WHEREAS, Minnesota State Statutes require that appointments be made at least 25 days before the election at which the judges will serve and that additional appointments may be made after the 25-day mark should the need arise; and,

WHEREAS, the attached list of candidates are certified eligible voters and students who wish to serve as Head Judges, Regular Election Judges and Student Election Judges, if called to do so for the 2025 Municipal Election.

NOW, THEREFORE, BE IT RESOLVED by the City Council of Lino Lakes, Minnesota that the attached list of certified eligible voters and Student Election Judges are hereby appointed to serve in the 2025 Municipal Election if called to do so.

BE IT FURTHER RESOLVED that should additional election judges, outside of those hereby appointed, be needed within 25 days of the election, the City Clerk is authorized to appoint additional certified and qualified Head Judges, Regular Election Judges and Student Election Judges.

Adopted by the City Council of the City of Lino Lakes on this 11th day of August 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, CMC
City Clerk

Last Name	First Name	Position
Anderson	Lori	Election Judge
Andrychowicz	Joel	Election Judge
Bayandalai	Uyanga	Election Judge
Berg	Darman	Election Judge
Borys	Colleen	Head Judge
Briss	Debra	Election Judge
Carlson	Angela	Head Judge
Carlson	Van	Head Judge
Carr	Dolores	Election Judge
Cheesebrow	Kathryn	Election Judge
Cheesebrow	Tom	Election Judge
Couture	Eileen	Head Judge
Cravero	Andrew	Election Judge
Dahl	Laurinda	Election Judge
Damiani	Kelli	Election Judge
Dehmer	Leo	Election Judge
Dick	Candace	Election Judge
Donnay-Rice	Rhonda	Election Judge
Fletcher	Rebecca	Election Judge
Hermanson	Randy	Election Judge
Herr	Robert	Election Judge
Howard	Ruth	Election Judge
Hyden	Debra	Election Judge
Jacobson	Pamela	Head Judge
Jacobson	Thomas	Election Judge
Johnson	Kimberli	Head Judge
Kahat	Steve	Election Judge
Kisch	Sandra	Election Judge
Kohler	Patrick	Election Judge
Lahlum	Dan	Election Judge
Lee	Jennifer	Election Judge
Liberty	John	Election Judge
Lincoln	Tammy	Election Judge
Logid	Janet	Head Judge
Lucey	Jeff	Head Judge
Matti	Jennifer	Election Judge
Maxwell	Dawn	Election Judge
McCool	Patrick	Election Judge
Melanson	Nathan	Election Judge
Minar	Stephen	Election Judge
Moberg	Lyndell	Election Judge
Morris	Deborah	Head Judge
Musser	Dan	Head Judge
Nault	Ruth	Head Judge
Nordlund	John	Head Judge
Palmer	Denise	Head Judge
Penn	Marg	Election Judge
Peterson	Darren	Election Judge
Ruble	Anne	Election Judge
Schmidt	Barbara	Election Judge
Sheldon	Ann	Election Judge
Sheldon	Thomas	Election Judge
Simonson	Katey	Election Judge
Stennes-Rogness	Suzanne	Election Judge
Stevenson	Mary Jo	Election Judge
Surma-Heine	Loerane	Head Judge
Ueki	Lisa	Election Judge
Utecht	Betty	Head Judge
Wangert	Daryl	Election Judge
Wedll	Jody	Election Judge
Zola	Kenneth	Election Judge

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 3.A.

STAFF ORIGINATOR: Meg Sawyer, Human Resources and Communications Manager

MEETING DATE August 11, 2025

AGENDA ITEM: Consider Appointment of Finance Director

VOTE REQUIRED: Simple Majority

INTRODUCTION

The City Council is being asked to approve the promotion of Tracy Thoma to the Finance Director position within the Finance Department.

BACKGROUND

Staff has completed the recruitment process, provided a conditional offer, and is recommending the approval of Tracy Thoma for the full-time position.

Thoma has a strong work history with the City of Lino Lakes, starting as the Payroll/Accounts Payable Technician in 2012 and being promoted to Accountant in January 2019. She has a Bachelor's degree in Accounting from Gustavus Adolphus College.

The starting wage for Thoma will be $63.74 per hour, which is step 4 of a 10 step wage scale for the Finance Director position. With the Council's approval, Thoma would start in the position on August 11, 2025.

The promotion of Thoma will backfill the Finance Director vacancy that was created on January 24, 2025 due to a resignation. The 2025 Adopted Budget includes one full-time Finance Director.

RECOMMENDATION

Please approve the promotion of Tracy Thoma to the Finance Director position.

ATTACHMENTS

None

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 3.B.

STAFF ORIGINATOR: Meg Sawyer, Human Resources and Communications Manager

MEETING DATE August 11, 2025

AGENDA ITEM: Consider Appointment of Building Inspector

VOTE REQUIRED: Simple Majority

INTRODUCTION

The City Council is being asked to approve the appointment of Aleks Moz to the Building Inspector position within the Community Development Department.

BACKGROUND

Staff has completed the recruitment process, provided a conditional offer, and is recommending the approval of Aleks Moz for the full-time position.

Moz previously worked as an intern in the Building Department for the City of Blaine. He has an Associate's Degree from Anoka Technical College.

The starting wage for Moz will be $38.53 per hour, which is step 1 of a 7 step wage scale for the Building Inspector position. With the Council's approval, Moz would start in the position on August 18, 2025.

The hiring of Moz will backfill the vacancy that was created on August 8, 2024 due to a resignation. The 2025 Adopted Budget includes two full-time Building Inspectors.

RECOMMENDATION

Please approve the appointment of Aleks Moz to the Building Inspector position.

ATTACHMENTS

None

CITY COUNCIL
STAFF REPORT
AGENDA ITEM 3.C.

STAFF ORIGINATOR: Meg Sawyer, Human Resources and Communications Manager

MEETING DATE August 11, 2025

AGENDA ITEM: Consider Appointment of Firefighter Admin

VOTE REQUIRED: Simple Majority

INTRODUCTION

The City Council is being asked to approve the appointment of Gabrielle Streater to the Firefighter Admin position within the Fire Department.

BACKGROUND

Staff has completed the recruitment process, provided a conditional offer, and is recommending the approval of Gabrielle Streater for the full-time Firefighter Admin position.

Streater has been a part-time firefighter for the City of Lino Lakes since June 2023 and a paid on-call firefighter with Harris Fire since 2014. She is a certified Firefighter I & II and an Emergency Medical Technician, and she holds a Leadership and Marketing degree from Bethel College.

The starting wage for Streater will be $31.34 per hour, which is step 4 of a 10-step wage scale. With the Council's approval, she would start in the position on August 13, 2025.

RECOMMENDATION

Please approve the promotion of Gabrielle Streater to the Firefighter Admin position.

ATTACHMENTS

None

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7A

STAFF ORIGINATOR: Tom Hoffman, Environmental Coordinator

MEETING DATE: August 11, 2025

TOPIC: Consider Resolution Number 25-102, Approving Lino Lakes Main Street AUAR

VOTE REQUIRED: Simple Majority

INTRODUCTION

The Council is being asked to consider the approval of Resolution No. 25-102, Approving Lino Lakes Main Street AUAR.

BACKGROUND

In September of 2024, the City Council approved a professional services contract with Kimley Horn to prepare a master plan and complete an Alternative Urban Areawide Review (AUAR). The study area includes 980 acres of the northwest portion of Lino Lakes. The process has included multiple community outreach opportunities, involvement of study area stakeholders and review by the City advisory boards and City Council.

Three development scenarios originally emerged, one being the existing 2040 Comprehensive Plan. Each scenario maintained essentially the same residential unit count with a mix of land use types but provided for different design alternatives. Through the design process scenarios 2 and 3 merged into Scenario 2.1, which establishes a gateway into the City at the border with Blaine. Scenario 1 and Scenario 2.1 are proposed to be carried through the environmental review process.

Resolution No. 25-51 authorized the preparation of the draft AUAR document. The development scenarios were analyzed for potential environmental impacts. A mitigation plan was created to address the environmental impacts.

The draft AUAR became available for public comment on May 27th and closed on June 26, 2025. Five comment letters were received from government agencies and 12 comment letters were received from the public. Responses to those comments are included in the AUAR and copies of the comment letters can be found in Appendix F.

Staff has completed the review process for the Final AUAR and is submitted for the 10-day objection period. No objections to the final AUAR were submitted

The Environmental Board reviewed the AUAR at their July 30 meeting and recommended approval of the AUAR by City Council.

RECOMMENDATION

Adopt Resolution No. 25-102, Approving Lino Lakes Main Street AUAR

ATTACHMENTS

1. Resolution No. 25-102
2. Lino Lakes Main Street AUAR

CITY OF LINO LAKES
RESOLUTION NO. 25-102

APPROVING LINO LAKES MAIN STREET
FINAL ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR)

WHEREAS, an Alternative Urban Areawide Review (AUAR) has been completed for the project pursuant to Minnesota Rules 4410 and identifies and assesses the environmental impacts and mitigation measures associated with the Lino Lakes Main Street Study Area; and

WHEREAS, the Lino Lakes Main Street Corridor Study Area is located on approximately 962 acres located in the northwest portion of Lino Lakes and the AUAR was completed pursuant to Minnesota Rules 4410.3610; and

WHEREAS, the AUAR was distributed for the required 30-day comment period and published in the EQB Monitor, no agency objections were filed for the AUAR; comments received, and responses developed are included in the public record; and

WHEREAS, development in the Lino Lakes Main Street Study Area is expected to comply with all Lino Lakes and review agency standards as well as the mitigation measures outlined in the AUAR;

NOW, THEREFORE, BE IT RESOLVED by The City Council of The City of Lino Lakes hereby adopts the Lino Lakes Main Street Final Area Alternative Urban Areawide Review dated August 11, 2025.

Adopted by the City Council of Lino Lakes this 11th day of August, 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, CMC,
City Clerk

Lino Lakes Main Street

Final Alternative Urban Areawide Review (AUAR)

August 2025

Prepared for:

CITY OF LINO LAKES

Prepared by:

Kimley»Horn

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Alternative Urban Areawide Review

This Alternative Urban Areawide Review (AUAR) follows the format of an Environmental Assessment Worksheet (EAW) (December 2022 version). Where the AUAR guidance provided by the Minnesota Environmental Quality Board (EQB) indicates that an AUAR response should differ notably from what is required for an EAW, the guidance is noted in *italics*.

1. Project Title

Lino Lakes Main Street AUAR

2. Proposer

Proposer: City of Lino Lakes
Contact Person: Michael Grochala
Title: Community Development Director
Address: 600 Town Center Pkwy
City, State, ZIP: Lino Lakes, MN 55014-1182
Phone: 651-982-2427
Email: mgrochala@linolakes.us

3. RGU

RGU: City of Lino Lakes
Contact Person: Michael Grochala
Title: Community Development Director
Address: 600 Town Center Pkwy
City, State, ZIP: Lino Lakes, MN 55014-1182
Phone: 651-982-2427
Email: mgrochala@linolakes.us

4. Reason for EAW Preparation

AUAR Guidance: Not applicable to an AUAR.

5. Project Location

County: Anoka
City/Township: Lino Lakes
PLS Location (¼, ¼, Section, Township, Range): Section 6 and 7, Township 31N, Range 22W
Watershed (81 major watershed scale): Mississippi River – Twin Cities
GPS Coordinates: Approximately 45.196527, -93.132409
Tax Parcel Number: See **Appendix A** for full list.

At a minimum, attach each of the following to the AUAR:

- **US Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries** (see **Figure 1)**
- **Map depicting the boundaries of the AUAR and any subdistricts used in the AUAR analysis** (see **Figure 2**)
- **List of data sources, models, and other resources (from the Item-by-Item Guidance: Climate Adaptation and Resilience or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in Item 7)**
- **Cover types map as required for Item 8** (see **Figure 7**)
- **Land use and planning and zoning maps as required in conjunction with Item 10** (see **Figure 8**, **Figure 9**, and **Figure 10**)

Figure 1: USGS Map

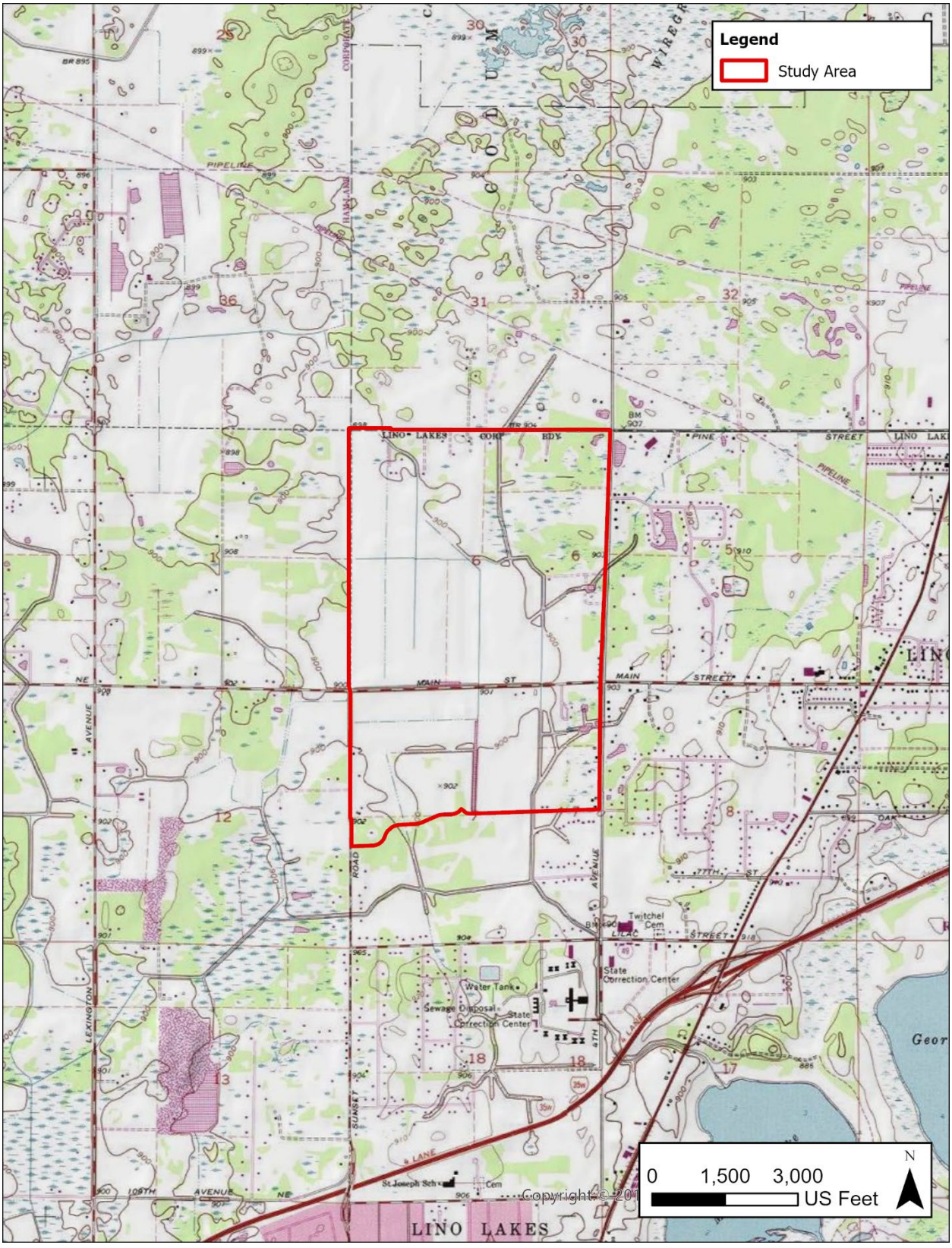
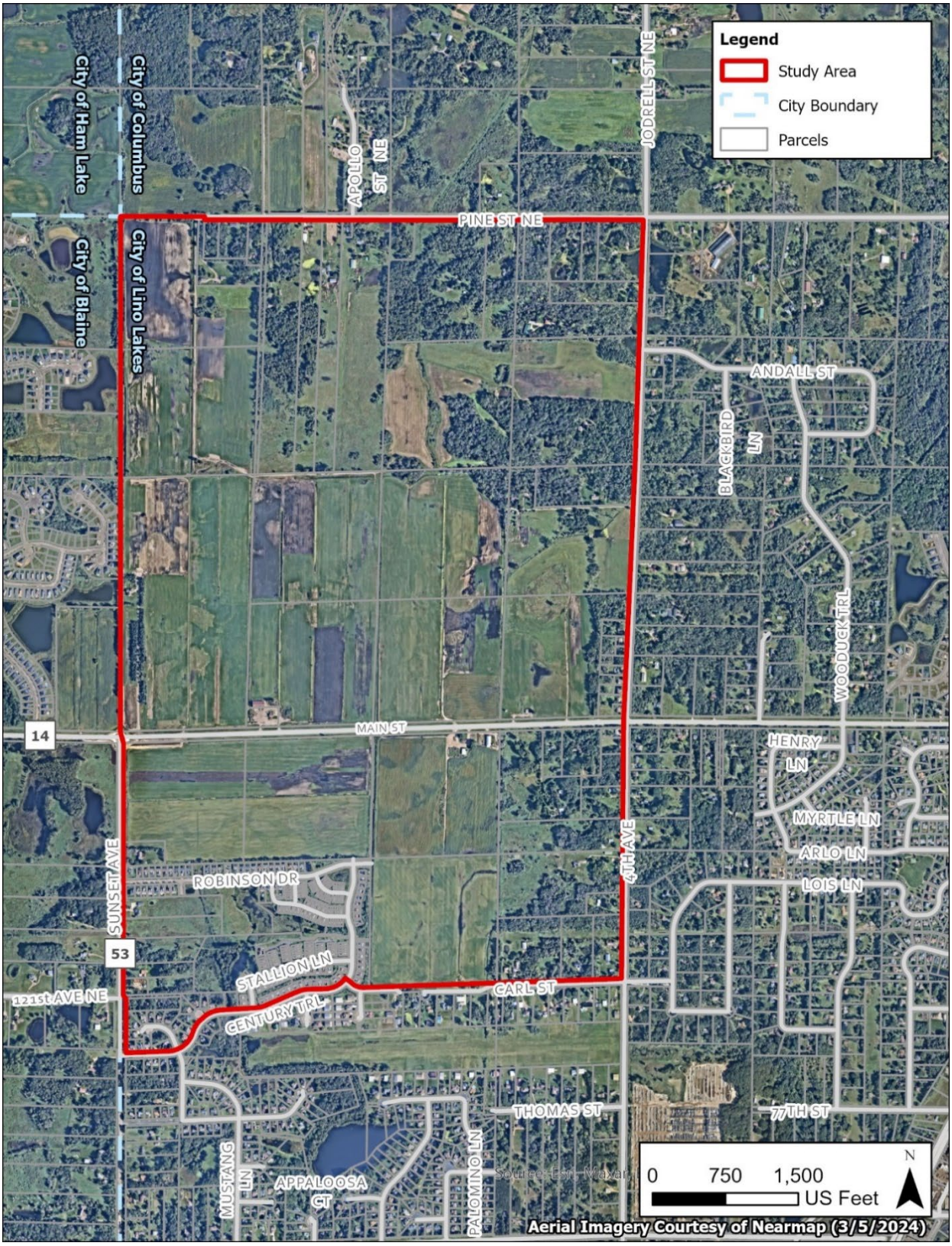


Figure 2: AUAR Study Area



6. Project Description

AUAR Guidance: Instead of the information called for on the EAW form, the description section of an AUAR should include the following elements for each major development scenario included:

- *Anticipated types and intensity (density) of residential and commercial/warehouse/light industrial development throughout the AUAR area*
- *Infrastructure planned to serve development (roads, sewers, water, stormwater system, etc.). Roadways intended primarily to serve as adjoining land uses within an AUAR area are normally expected to be reviewed as part of an AUAR. More "arterial" types of roadways that would cross an AUAR area are an optional inclusion in the AUAR analysis; if they are included, a more intensive level of review, generally including an analysis of alternative routes, is necessary.*
- *Information about the anticipated staging of various developments, to the extent known, and of the infrastructure, and how the infrastructure staging will influence the development schedule*

The AUAR study area encompasses 316 tax parcels on approximately 962 acres in the city of Lino Lakes, Anoka County, Minnesota. The study area is bound by Pine Street NE to the north, Sunset Avenue (CSAH 53) to the west, Century Trail and Carl Street to the south, and 4th Avenue to the east. Main Street (CSAH 14) is an east-west road that bisects the study area. The surrounding area generally consists of private residences ranging from medium-density housing to farmsteads. The study area is currently used for residential and agricultural (sod) purposes.

Development Scenarios

Two development scenarios evaluated in this AUAR are defined in **Table 1** and shown on **Figure 3** and **Figure 4**. Development within the study area may start as early as Spring 2026 and will be constructed over multiple phases over the next 30+ years, depending on market conditions.

The intent of the AUAR is to recognize the potential impacts of the maximum build-out and identify mitigation measures that may be taken to compensate for those impacts. Redevelopment of the study area would include new infrastructure, including streets, water service, sewer systems, stormwater infrastructure, and utilities. All of these new services would be extensions to existing infrastructure or upgrades to existing systems to support the new land development.

Scenario 1

Scenario 1 (**Figure 3**) is the city's existing 2040 Comprehensive Plan. Scenario 1 focuses on higher-density and commercial development along both sides of Main Street, with lower-density residential development to the north and south. Medium-density housing would bridge the space between the high-density areas and the low-density areas.

Scenario 2

Scenario 2 (**Figure 4)** centralizes higher- and medium-density housing and commercial development near the Lino Lakes/Blaine border around the Main Street and Sunset Avenue, with low-density prioritized on the eastern side of the study area, backing up to existing Lino Lakes housing.

Proposed Infrastructure

Roadway Network

In both scenarios, a proposed collector road would serve as a north-south connection from Robinson Drive to Main Street and continue north to Pine Street. Another collector road is anticipated to be built to provide an east-west connection from Robinson Drive to 4th Avenue. Additional neighborhood road connections are expected to be built to link future developments to these main roads. See Item 20: Transportation for more analysis on the impact the proposed development will have on the existing transportation system.

Parks and Trails

A portion of the study area for both scenarios is anticipated to be used for city park use, as well as several greenway systems, which allow for a natural resource enhancement/conservation area. The area's development will feature the construction of a segment of the Central Anoka Regional Trail along Main Street. Upon completion, the trail will span three cities, extend 14.5 miles, and connect to a wider regional trail system. Both scenarios also propose a network of trails throughout the future development, totaling approximately 41,500 linear feet (LF) of asphalt trail and 5,200 LF of regional trail.

Utilities

For both Scenarios, the City's existing water and sanitary sewer collection system will need to be extended to serve the new development. Stormwater management facilities will also need to be expanded. See Item 12: Water Resources for further analysis of existing and proposed systems.

Development Staging

According to the City's Utility Staging Plan, development near the study area will advance from south to north, depending on the locations of existing utilities. In Scenario 2, changes in development staging can be expected due to its variation from the comprehensive plan outlined in Scenario 1. Additionally, changes may arise from factors such as land ownership patterns, market conditions, and other influences.

Table 1: Development Scenarios

Component	Scenario 1 (Current Comprehensive Plan)	Scenario 2 (Preferred Development Scenario)
Low Density Residential	1,600 units	1,500 units
Medium Density Residential	600 units	900 units
High Density Residential	1,200 units	1,100 units
Commercial	60,000 square feet	62,000 square feet
Total Project Area	962 acres	962 acres

Figure 3: Scenario 1

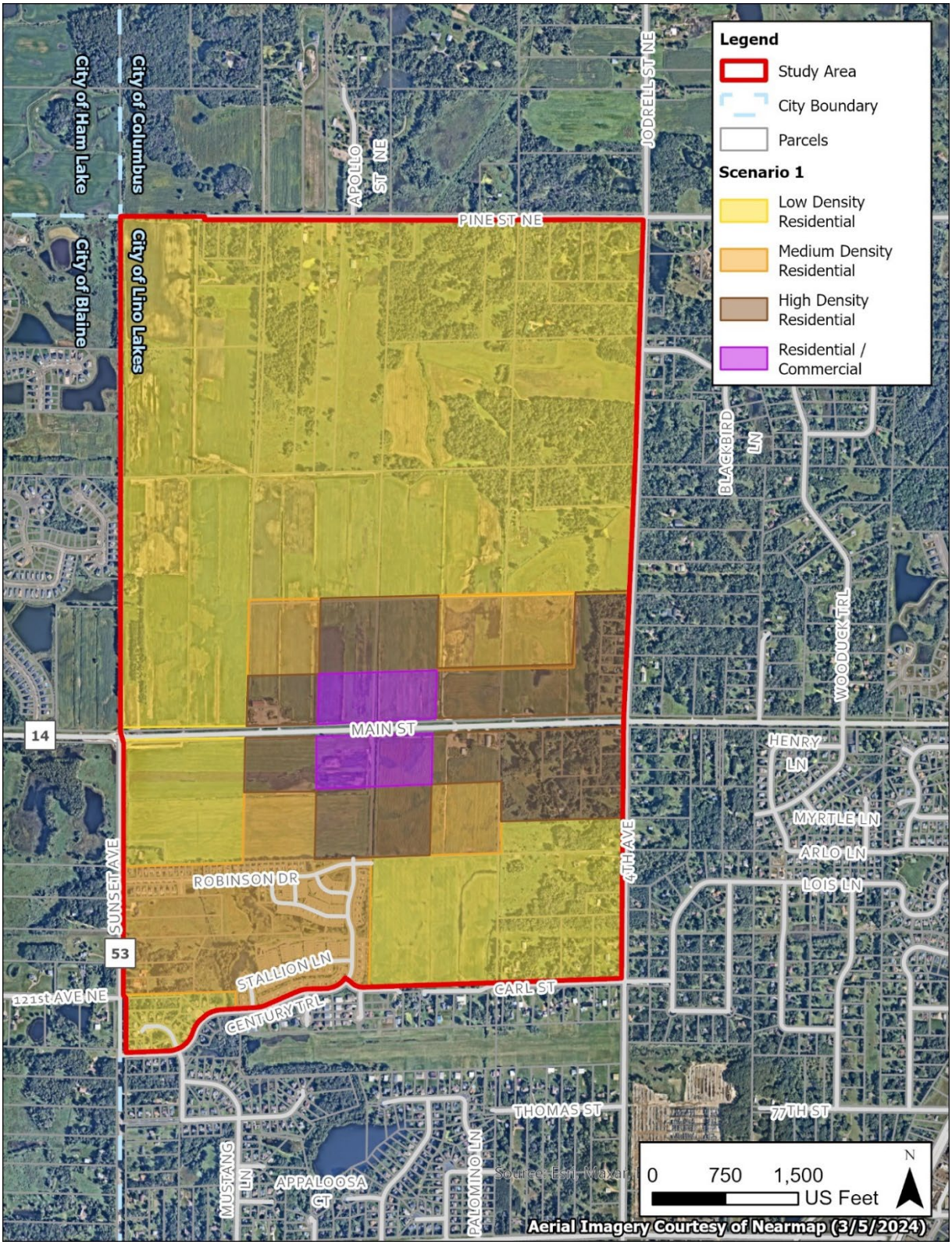
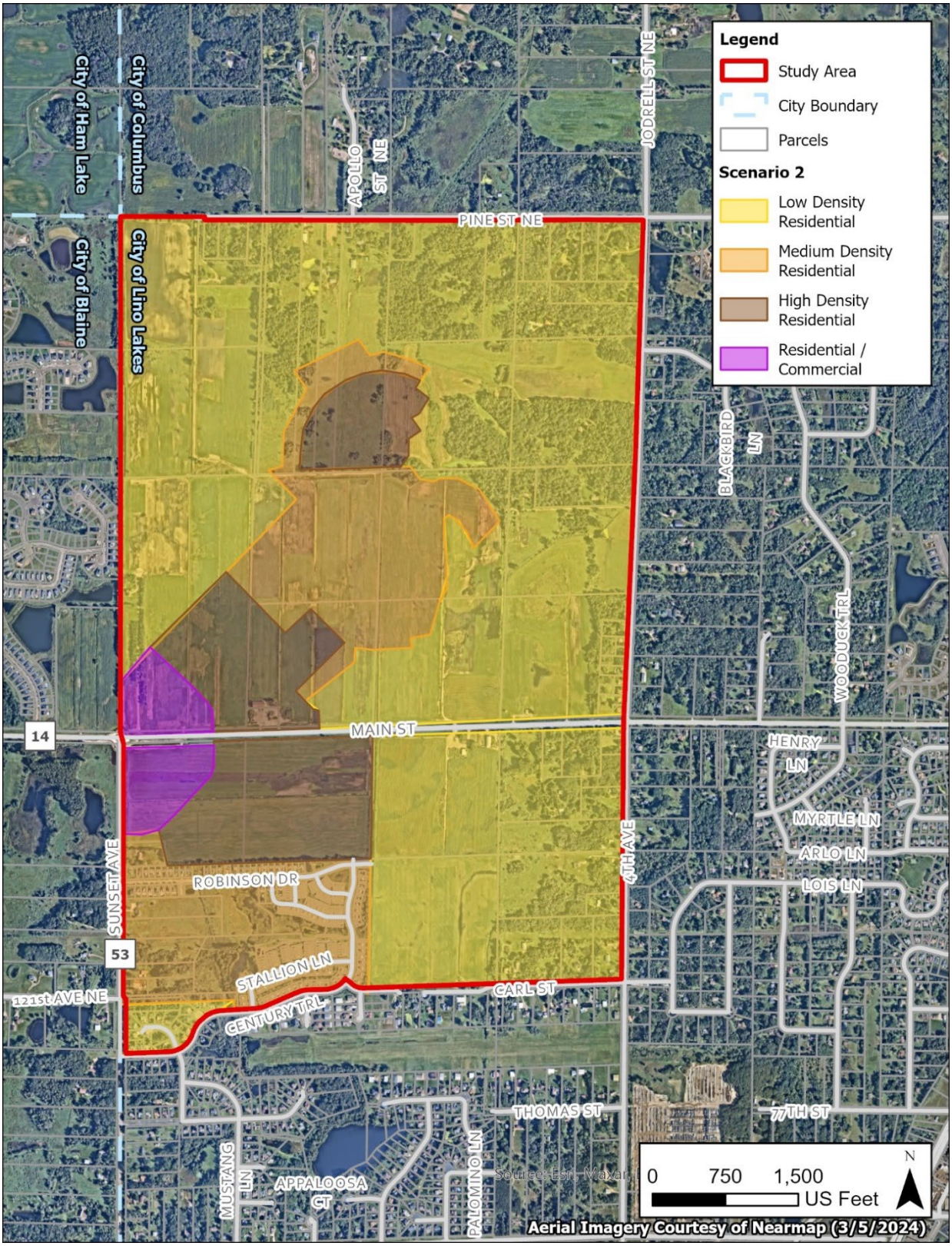


Figure 4: Scenario 2



7. Climate Adaptation and Resilience

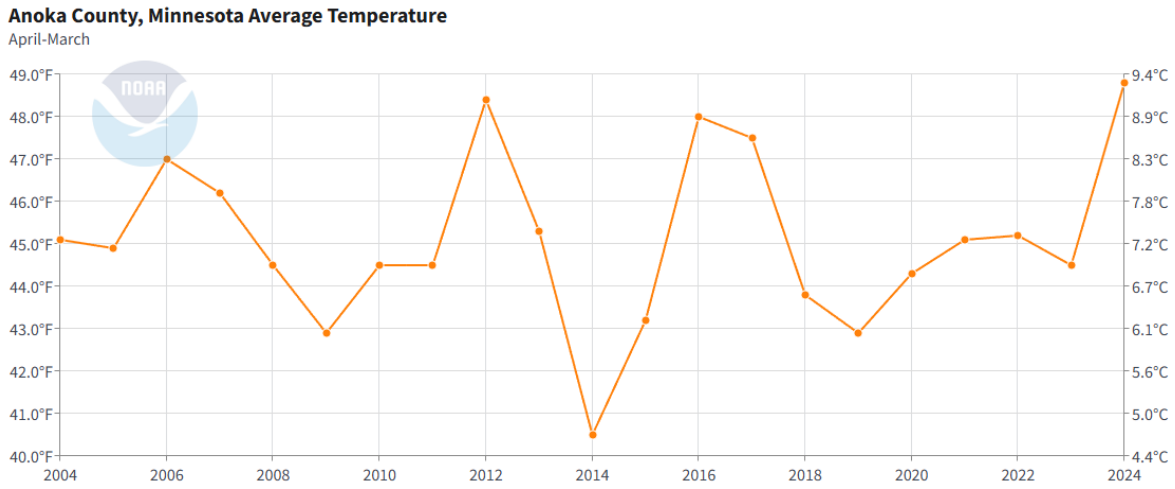
a. Describe the climate trends in the general location of the project (see guidance: Climate Adaptation and Resilience) and how climate change is anticipated to affect that location during the life of the project.

Trends in temperature, precipitation, flood risk, and cooling degree days are described below for the general project location. Some of these climate predictions use specific scenarios called SSPs (Shared Socioeconomic Pathways) or RCPs (Representative Concentration Pathways) by the Intergovernmental Panel on Climate Change. SSP 245 and RCP 4.5 are intermediate scenarios where emissions peak around 2040 and then decrease. SSP 370 and RCP 8.5 are high-emissions scenarios where emissions continue to rise through the century.[1] In an intermediate scenario, greenhouse gas emissions stabilize, whereas in a high emissions scenario, they continue to increase significantly.[2]

Temperature

According to the National Centers for Environmental Information (NCEI), the historical average temperature in Anoka County between 2004 and 2024 was approximately 45.15°F, with the lowest average in 2014 (40.5°F) and the highest average in 2024 (48.8°F), as shown in Figure 5.[3] According to the Minnesota Climate Mapping and Analysis Tool, the annual daily average temperature in the study area is projected to increase to 49.2°F from 2040 to 2059 under an intermediate emissions pathway (SSP 245).In 2080-2099, the annual daily average temperature is projected to further increase to 52.2°F and 54.4°F under an intermediate (SSP 245) and high emissions pathway (SSP 370), respectively.[4]

Figure 5: NCEI County Time Series - Average Temperature Trends for Anoka County



Urban Heat Island

Surfaces and structures such as roads, parking lots, and buildings absorb and re-emit more heat from the sun than natural landscapes. This can significantly raise air temperature and

1 Climate Explorer Metadata. Available at https://climate.umn.edu/dnrs-climate-explorer-tool-cmip5
2 Climate Explorer Metadata. Available at https://www.dnr.state.mn.us/climate/climate-explorer-metadata.html.
3 National Centers for Environmental Information, National Oceanic and Atmospheric Administration. *County Time Series*. Available at: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series.
4 Minnesota CliMAT. University of Minnesota. Available at https://app.climate.umn.edu/?output_type=modelVal&scenario=ssp370_2080-2099&model=ensemble&variable=tmax-degF&time_frame=yearly&aoi=none#intro_pane

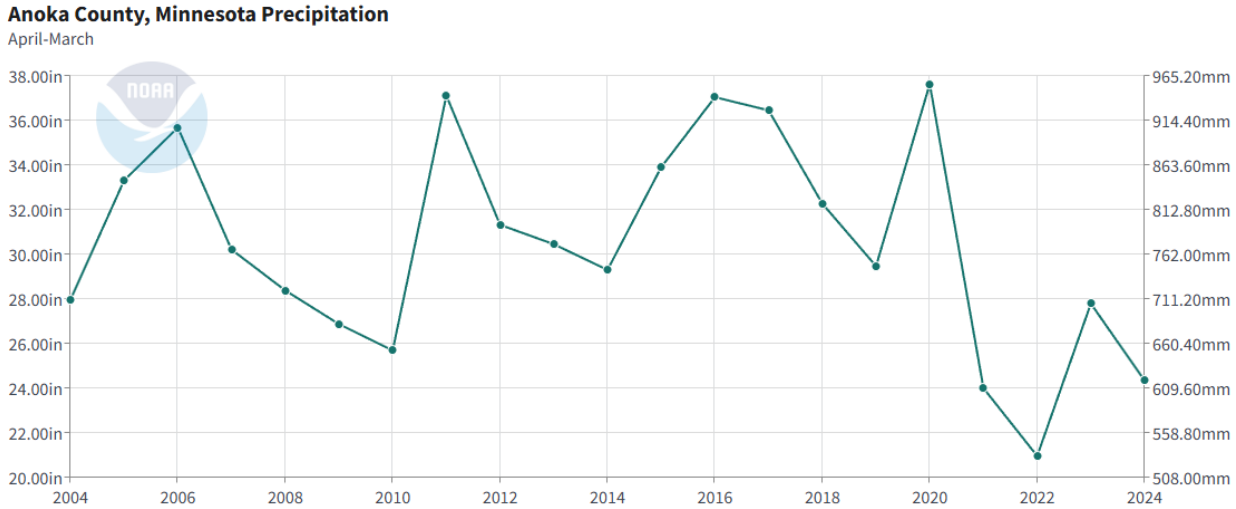
overall extreme heat vulnerability in urban areas where there are dense concentrations of these surfaces. This is referred to as urban heat island effect.

Extreme heat vulnerability means how likely people or communities are to suffer from health problems due to extreme heat. The Metropolitan Council's Extreme Heat Map Tool shows land surface temperature for the Twin Cities region with green representing areas of low land surface temperature, yellow representing medium temperature, and red representing high temperature. According to the map, the AUAR study area is located in an area of medium heat vulnerability.[5]

Precipitation

According to the National Centers for Environmental Information (NCEIS), historic average annual precipitation in Anoka County between 2004 and 2024 was approximately 30.49 inches, with the lowest average in 2022 (20.97 inches) and the highest average in 2020 (37.6 inches), as shown in Figure 6. Average annual precipitation under an immediate emissions pathway (SSP 245) in Anoka County from 2040-2059 is projected to be 34.4 inches. From 2080-2099, average annual precipitation is projected to be 33.3 inches and 33.4 under RCP 4.5 and 35.70 under an intermediate (SSP 245) and high emissions pathway (SSP 370), respectively.[6]

Figure 6: NCEI County Time Series - Average Precipitation Trends for Anoka County



Flood Risk

The study area has mapped floodplain from both FEMA and Rice Creek Watershed District (RCWD). The FEMA floodplain is delineated as Special Flood Hazard Zone A. Zone A is determined through approximate methods and does not have a base flood elevation associated with the delineation. The 100-year floodplain is delineated based on the area that has a 1% chance or greater of inundation from a flooding source in any given year. According to RCWD, the majority of the 100-year floodplain within the study area is one foot in depth or less outside of the ditch systems. Both FEMA and RCWD floodplain areas require permitting approvals prior to impacts or construction within the floodplain.

[5] Extreme Heat Map Tool. Metropolitan Council. Available at https://metrocouncil.org/Communities/Planning/Local-Planning-Assistance/CVA/Tools-Resources.aspx

[6] Minnesota CliMAT. University of Minnesota. Available at https://app.climate.umn.edu/?output_type=modelVal&scenario=ssp370_2080-2099&model=ensemble&variable=tmax-degF&time_frame=yearly&aoi=none#intro_pane

Additionally, the Metropolitan Council's Localized Flood Map Screening Tool[7] identifies localized flood hazards, referred to as Bluespots, which are broken into risk categories based on potential flood water depth. This tool is meant to show potential localized flood risk areas during short-term, extreme rain events. The tool shows several Primary, Secondary, Tertiary, and Shallow Bluespots mapped throughout the study area with maximum depths ranging from 0.37 feet to 8.92 feet. Primary Bluespots are the first areas to fill with water and are generally considered higher risk, while Secondary Bluespots are separate, isolated low areas generally considered low risk.

All three sources of flood data show a risk of flooding within the study area. Consideration should be taken during the design and review of individual proposed development to verify that appropriate flood mitigation measures are being implemented to protect future development as well as neighboring properties.

Further analysis of flood risks and mitigation is described in Item 12: Water Resources.

Cooling Degree Days

As defined by the National Weather Service, degree days are based on the assumption that when the outside temperature is 65°F, heating or cooling is not needed to be comfortable. Degree days are the difference between the daily temperature mean and 65°F. If the temperature mean is above 65°F, 65 is subtracted from the mean and the result is the cooling degree days. For example, if the mean temperature over a 24-hour period is 70°F, then there have been 5 cooling degree days.[8] Cooling degree days are used as a proxy to estimate cooling needs for buildings.

According to Heat Vulnerability in Minnesota, the number of cooling degree days in 2019 for Anoka County was 379. The number of cooling days in 2050 for Anoka County is projected to be 453 and 598 for RCP 4.5 and 8.5, respectively.[9]

[7] Localized Flood Map Screening Tool. Metropolitan Council Available at https://metrocouncil.org/Communities/Planning/Local-Planning-Assistance/CVA/Tools-Resources.aspx.
[8] "What Are Heating and Cooling Degree Days." National Weather Service. Available at https://www.weather.gov/key/climate_heat_cool.
[9] Heat Vulnerability in Minnesota. Minnesota Department of Health and the University of Minnesota. Available at https://maps.umn.edu/climatehealthtool/heat_app/.

b. For each resource category in the table below, describe the project's proposed activities and how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Table 2: Climate Considerations and Adaptations

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptations (Scenario 1 and Scenario 2)
Project Design	Aspects of building architecture/materials choices and site design may impact urban heat island conditions in the surrounding area, including changing climate zones, temperature trends, and potential for extended heat waves.	In the coming decades, the location of the study area is anticipated to experience: • Increased annual temperatures • Increased annual precipitation and more frequent heavy rainfall events • Increased freeze thaw cycles • Medium urban heat island effect	• Buildings could be constructed with rooftop-ready infrastructure for solar power generation and green or light colored roofs to reduce cooling needs. • Building shells could be designed so that they are more energy efficient by reducing the heating and cooling load. • City ordinance 1007.049 requires that boulevard trees be planted at a rate of one tree per lot for single and two-family properties. [10] • For townhome and multi-family properties, one tree is required for every 70 linear feet of street frontage, according to City zoning ordinance 1007.049. • Tree trenches may be used to provide additional stormwater capacity.
			• New trees and landscaping planted with future development could reduce runoff and mitigate urban heat island effect. City zoning ordinance 1007.049 requires a minimum canopy coverage for commercial parking areas. • Permeable pavers may be used and would reduce runoff by allowing rain to soak into the ground.

[10] Source: City Code 1007.049

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptations (Scenario 1 and Scenario 2)
Land Use	No critical facilities (i.e., facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed. A portion of the study area is located in a FEMA flood zone, where there is a 1% annual chance of flooding and a 26% chance of flooding over a 30-year period (FEMA Zone A). More details on flood areas and risks are provided in Items 10: Land Use and 12: Water Resources.	A portion of the proposed development is in an area with a risk of flooding.	• Future design of the study area and associated stormwater management facilities will be completed to reduce the risk of flooding in the AUAR study area. Buildings will be set at elevations to maintain clearance above 100-year flood elevations. Infiltration areas, such as native landscaping, may be used and would improve water quality and stormwater runoff in the project vicinity. Stormwater and Floodplain Mitigation items are detailed in Item 12: Water Resources.

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptations (Scenario 1 and Scenario 2)
Water Resources	Current Minnesota climate trends and anticipated climate change in the general location of the project may influence water resources.	Water resources in the general project area may become warmer, more polluted, and change in volume due to increased temperatures and runoff. There may be more evaporation and water available when it rains leading to an increase in the flood potential. It is projected that there will be more severe storm events with high, intense rain amounts which will require drainage systems to be adequately maintained to accommodate for the increase in water volume.	• Chapter 1011 of City Code requires native buffers around stormwater ponds, wetlands, streams, and ditches, and infiltration where necessary.[11] • Developers will consider native plants and perennials for landscaping and stormwater features to absorb water and reduce the water demand for irrigation. • Water reuse systems may be implemented to reduce water usage. • Stormwater Best Management Practices (BMPs) will be designed to weather a 100-year storm event in accordance with City / Watershed requirements as the property is developed, see Item 12: Water Resources. • In the event that a greater than 100-year storm event occurs, site layouts and location of proposed BMP should be designed to ensure that emergency stormwater overflow routes will be achievable.
Contamination/ Hazardous Materials/ Wastes	Current Minnesota climate trends and anticipated climate change in the general location of the project may influence the potential environmental effects of generation/use/storage of hazardous waste and materials.	Proposed residential and small-scale commercial development is not anticipated to generate hazardous waste or materials.	Not applicable.

[11] Source: Chapter 1011 of City Code: https://codelibrary.amlegal.com/codes/linolakes/latest/linolakes_mn/0-0-0-24002

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptations (Scenario 1 and Scenario 2)
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)	Current Minnesota climate trends and anticipated climate change in the general location of the project may influence the local species and suitable habitat.	Suitable habitat for species may become unsuitable due to land use changes, increased temperature, and increased runoff.	• Native plantings and stormwater BMPs could provide suitable habitat for small mammals, insects, and bird species. • Creation of greenways and/or interconnecting wildlife corridors will be incorporated as development plans advance.

8. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development.

AUAR Guidance: The following information should be provided:

- *A cover type map, at least at the scale of a USGS topographic map, depicting:*
  - *Wetlands (identified by Circular 39 type)*
  - *Watercourses (rivers, streams, creeks, ditches)*
  - *Lakes (identify public waters status and shoreland management classification)*
  - *Woodlands (break down by classes where possible)*
  - *Grassland (identify native and old field)*
  - *Cropland*
  - *Current development*
- *An overlay map showing anticipated development in relation to the cover types. This map should also depict any "protection areas," existing or proposed, that will preserve sensitive cover types. Separate maps for each major development scenario should be generally provided.*

The AUAR study area covers 962 acres of land. Existing and proposed cover types within the study area are shown in **Table 3** and **Figure 7** and were determined by reviewing aerial photography, National Wetland Inventory data, land cover classification maps. There are several wetlands throughout the study area, primarily in the southwest corner and north central portions of the study area.[12] The majority of the existing land use is wooded and used for agricultural (sod farms).

Scenario 1 and 2

Table 3 provides a high level estimate for cover types in both scenarios within the AUAR area. A detailed analysis of impacts on natural and semi-natural land cover types cannot be completed until specific projects are determined; however, a "Conservation Design Framework" will be used

[12] Wetland delineations have not been completed as part of this AUAR; therefore, jurisdictional wetland locations and exact wetland boundaries have not been confirmed. Wetland delineations will be required as individual development projects are proposed.

to guide future development. This Framework is focused on conservation of natural plant communities and high quality wildlife habitat. Its use will provide guidance to protect natural plant community and wildlife conservation in the AUAR area. A summary of the conservation design principles behind the Framework include:

- Protect streams, lakes, and groundwater by purifying, filtering, and infiltrating surface runoff to the maximum extent possible
- Preserve, restore, and enhance existing natural and semi-natural areas and wildlife habitat
- Create wildlife opportunities by restoring and managing wildlife habitat
- Establish wide buffers and connections around and between core and outlier habitats through greenway corridors

See Item 12: Water Resources for more information on the Conservation Design Framework as is relates to stormwater facilities and **Figure 17** and **Figure 18** for potential locations of the greenway corridors. Additionally, green infrastructure does not currently exist within the study area. Infiltration systems, tree trenches and tree boxes, wetlands, green roofs, and permeable pavements could be constructed as part of future development plans.

Table 3: Cover Types

Cover Type	Existing (Acres)	Proposed for Scenarios 1 and 2 (Acres)[13]
Wetlands	89	89
Wooded	155	180
Grassland	13	20
Cropland (horticulture)	525	0
Lawn/Landscaping	43	285
Ditches/Stormwater	76	196
Impervious Surface	61	192
Total	962 acres	962 acres

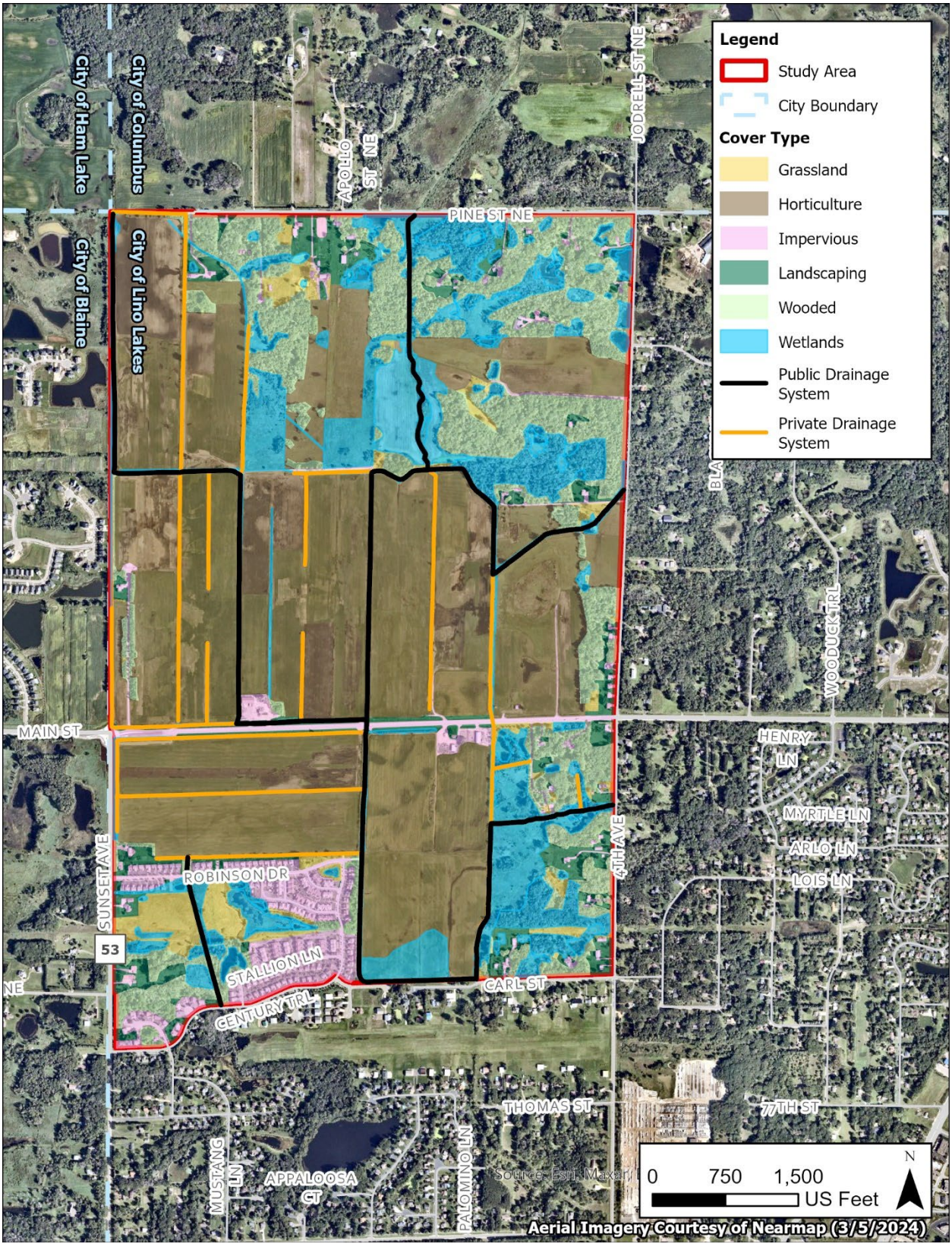
Table 4: Trees

Trees	Percent	Number
Percent of Tree Canopy Removed	Approximately 50% of the existing tree coverage within the study area. This number assumes most trees around the high-priority wetlands would remain.	N/A
Number of New Trees Planted	N/A	4,800[14]

Removal or damage to existing trees would have to follow tree replacement guidelines as outlined in City Ordinance 1007.049.[15]

[13] Note: Proposed cover types are a high level estimate and could change as development occurs within the study area.
[14] This was estimated using City Code Section 1007.049 (3) Canopy Cover, (4) Foundation landscape, (5) Open Areas, (7) Boulevard Trees, and (7)(b) single family and townhome/multi family Boulevard Tree requirements.
[15] Source: City Code 1007.049

Figure 7: Existing Cover Types



9. Permits and Approvals Required

AUAR Guidance: A listing of major approvals (including any comprehensive plan amendments and zoning amendments) and public financial assistance and infrastructure likely to be required by the anticipated types of development projects should be given for each major development scenario. This list will help orient reviewers to the framework that will protect environmental resources. The list can also serve as a starting point for the development of the implementation aspects of the mitigation plan to be developed as part of the AUAR.

Table 5: Permits and Approvals Required

Unit of Government	Type of Application	Status
Federal		
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	To be applied for, if applicable
	Approved Jurisdictional Determination	To be applied for, if applicable
U.S. Fish and Wildlife Service	Incidental Take Permit	To be applied for, if applicable
Federal Emergency Management Agency	Letter of Map Revision	To be applied for, if applicable
	Conditional Letter of Map Revision	To be applied for, if applicable
	Letter of Map Amendment	To be applied for, if applicable
State		
Minnesota Pollution Control Agency	Antidegradation Assessment	To be submitted, if applicable
	Construction Contingency Plan and Response Action Plan approval	To be applied for, if applicable
	National Pollutant Discharge Elimination System Stormwater Permit for Construction Activities and General Permit	To be applied for, if applicable
	Notice of Intent of Demolition	To be applied for, if applicable
	Sanitary Sewer Extension Permit	To be applied for, if applicable
	Section 401 Water Quality Certification	To be applied for, if applicable
Minnesota Department of Natural Resources	General Permit 97-0005 for Temporary Water Appropriations (need if more than 10,000 gallons per day of water is appropriated)	To be applied for; if applicable
	Preliminary Well Construction Assessment	To be applied for; if applicable
	Water Appropriations Permit	To be applied for; if applicable
	Public Waters Work Permit	To be applied for; if applicable
Minnesota Department of Health	Watermain Plan Review and Extension Approval	To be applied for; if applicable
	Notification of Asbestos Related Work	To be applied for; if applicable

Unit of Government	Type of Application	Status
	Sanitary Sewer Extension Permit Approval	To be applied for, if applicable
	Well Location and Construction Approval	To be applied for, if applicable
Regional		
Anoka County	Right-of-Way Permit	To be applied for, if applicable
	Road Access Permits	To be applied for, if applicable
Metropolitan Council	Sanitary Sewer Extension Permit	To be applied for, if applicable
	Direct Connection Permit	To be applied for, if applicable
	Encroachment Permit	To be applied for, if applicable
	Transportation Analysis Zone (TAZ) Allocation Adjustment	To be applied for, if applicable
	Comprehensive Plan Amendment Review	To be applied for, if applicable
Local		
Rice Creek Watershed District	Stormwater Management Plan	To be applied for, if applicable
	Erosion and Sediment Control Plan	To be applied for, if applicable
	Floodplain Alteration Permit	To be applied for, if applicable
	Drainage Authority Review and Approval – Mn. Stat. Section 103E.227 (impoundments & diversion) and/or Mn. Stat. Section 103E.805 (abandonment proceedings)	To be applied for, if applicable
	Wetland Delineation Boundary Confirmation	To be applied for, if applicable
	Wetland Conversation Act Replacement Plan Approval	To be applied for, if applicable
	Regional Conveyance Systems Permit	To be applied for, if applicable
	Public Drainage Systems Permit	To be applied for, if applicable
	Appropriation of Public Waters Permit	To be applied for, if applicable
City of Lino Lakes	AUAR Approval	In process
	Building Permit	To be applied for, if applicable
	Comprehensive Plan Amendment	To be applied for, if applicable
	Demolition Permit	To be applied for, if applicable
	Surface Water Management Plan Approval	To be applied for, if applicable

Unit of Government	Type of Application	Status
	Erosion Control Plan	To be applied for, if applicable
	Preliminary/Final Plat	To be applied for, if applicable
	Right-of-Way Permit	To be applied for, if applicable
	Rezoning	To be applied for, if applicable
	Site and Building Plan Approval	To be applied for, if applicable
	Sanitary Sewer Connection Permit	To be applied for, if applicable
	Municipal Water Connection Permit	To be applied for, if applicable
	Planned Unit Development Preliminary and Final Plan Approval	To be applied for, if applicable
	Use Permit – Floodplain District	To be applied for, if applicable

10. Land Use

a. Describe:

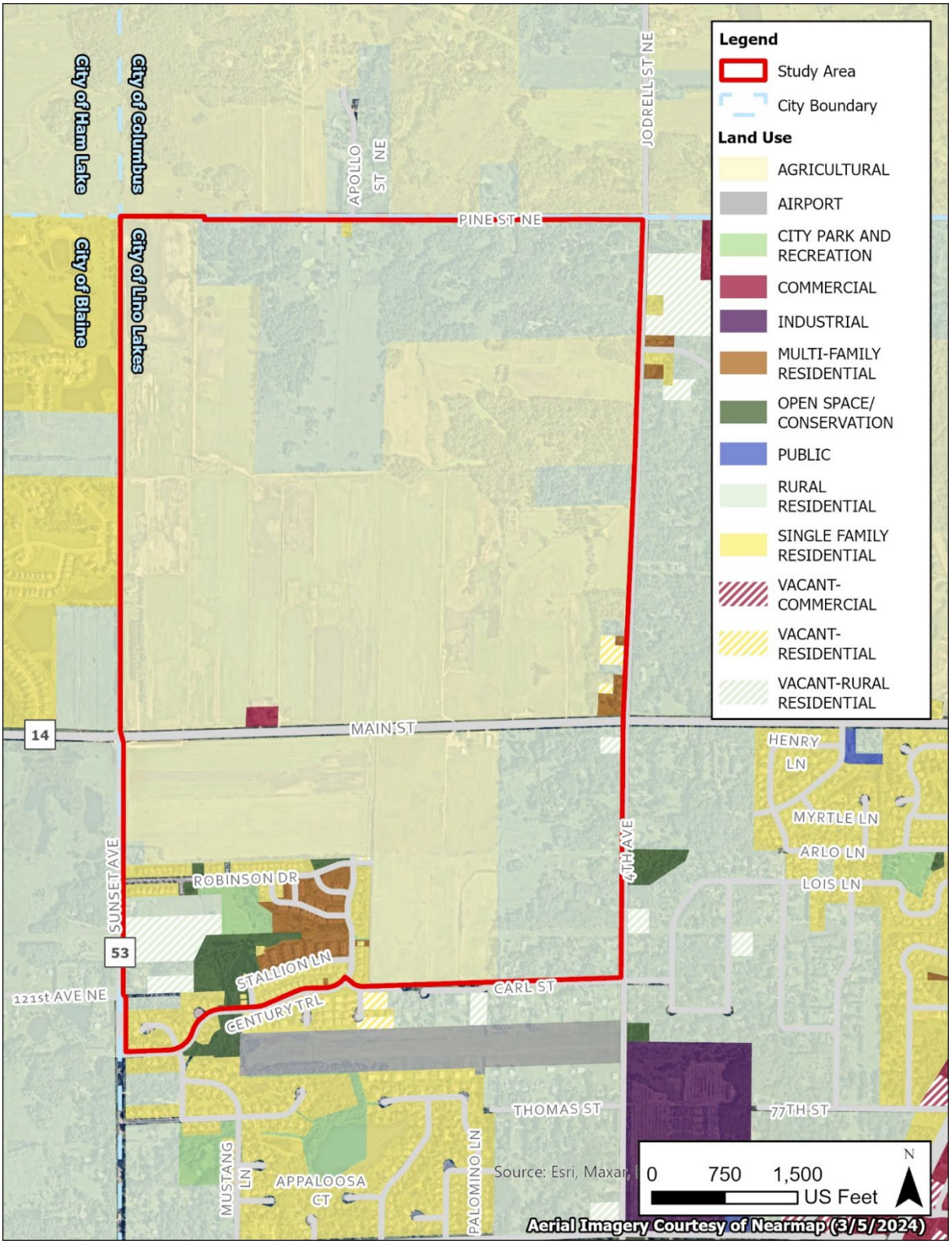
i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, and prime or unique farmlands.

Existing Land Use

The study area is located in the northwest corner of Lino Lakes, bordering Blaine to the west and Columbus to the north. The study area consists of 316 parcels that are currently used for agricultural use and low to medium-density housing, mostly located in the southwest corner of the study area and along Pine Street. The 962-acre study area is bounded by Sunset Ave to the west, 4th Ave to the east, Pine Street to the north, and Century Trail and Carl Street to the south. Land uses adjacent to the study area include residential land to the east and south, a small air park/airport to the south, agricultural land and open space to the north, and residential housing and open space to the west. There is one park within the study area and two nearby parks south of the study area.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, approximately 134 acres of the study area contain soils that are considered prime farmland or farmland of statewide importance (see **Table 6**).

Figure 8: Existing Land Use



ii. Planned land use as identified in comprehensive plans (if available) and any other applicable plan for land use, water, or resource management by a local, regional, state, or federal agency.

AUAR Guidance: Water-related land use management districts should be delineated on appropriate maps, and the land use restrictions applicable in those districts should be described. If any variances or deviations from these restrictions within the AUAR area are envisioned, this should be discussed.

2040 Comprehensive Plan

The City of Lino Lake's *2040 Comprehensive Plan* was adopted in November 2020 and identifies the study area as low-density residential, medium-density residential, high-density residential, planned residential/commercial, and urban reserve (see **Figure 9**).[16]

The plan emphasizes balanced growth, environmental stewardship, and integration of different land uses to enhance the overall living experience in Lino Lakes. A goal defined in the Plan is to "Increase commercial/residential development in appropriate and designated areas in the City of Lino Lakes." The City of Blaine's 2040 Comprehensive Plan identifies the land west of the study area as low-density residential, and the City of Columbus identifies the land north of the study area as rural residential and as a wildlife management area.

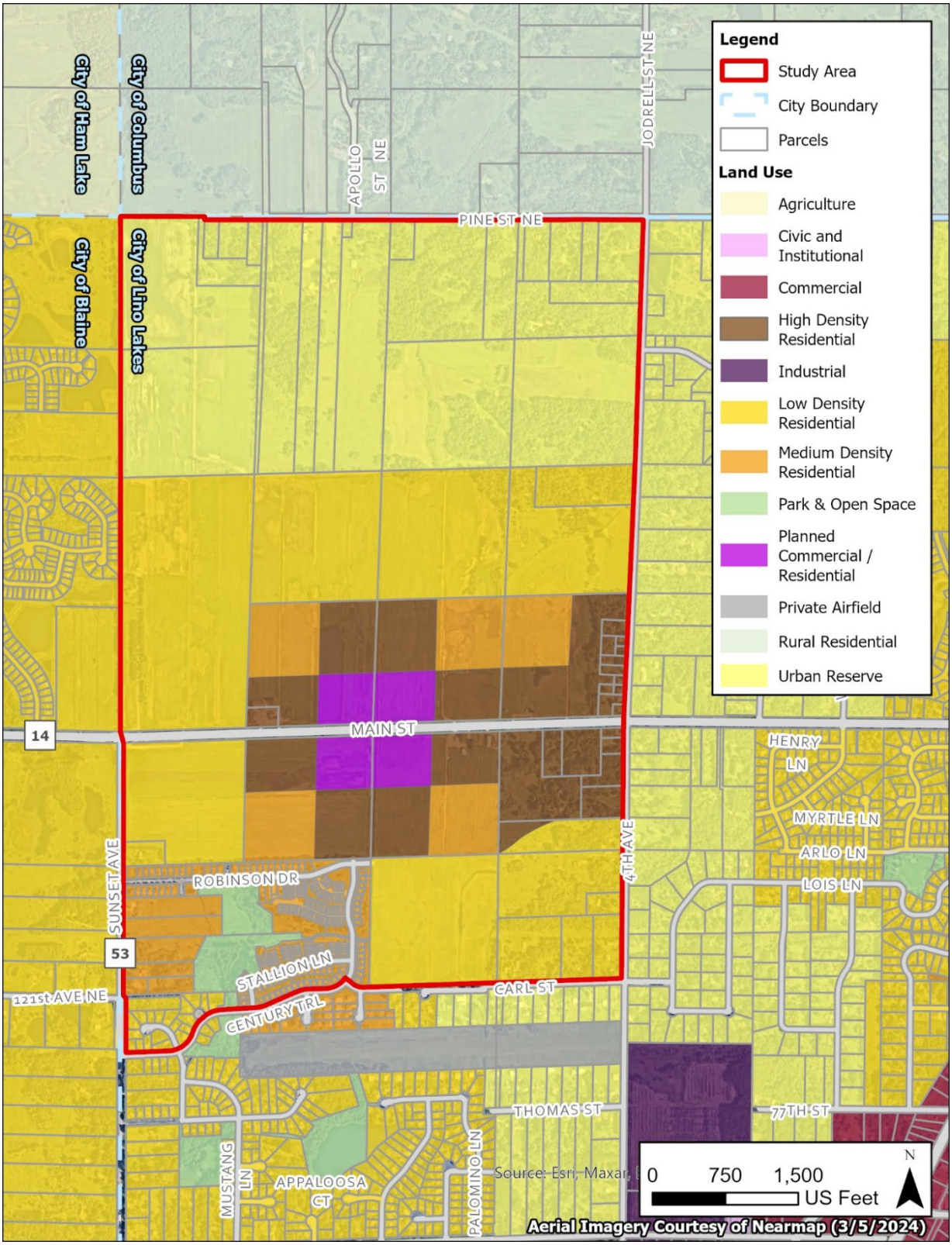
The Comprehensive Plan identified two new city parks and trails throughout the study area that are anticipated to be built as development occurs to serve future residential areas.

Table 6: Lino Lakes 2040 Comprehensive Plan Designations within the AUAR Study Area

Future Land Use Designation	Purpose
Low Density Residential	Land guided for residential development with 1.6 to 3 dwelling units per acre. The city's future residential land use will predominantly be low-density residential.
Medium Density Residential	Land guided for residential development with 4 to 6 dwelling units per acre.
High Density Residential	Land guided for residential development with 6 to 8 units per acre.
Planned Residential / Commercial	Land guided for a mix of residential, retail, and office uses to be incorporated within one building, structure, or development. Residential development in these areas may include higher-density housing options with densities ranging from 8 to 10 units per acre. This land use district provides opportunities for limited neighborhood-scale supportive commercial uses that are accessory to residential.
Urban Reserve	Land guided for post-2040 development to promote orderly and efficient expansion of future urban services and to prevent premature expansion.

[16] Source: 2040 Comprehensive Plan, City of Lino Lakes

Figure 9: 2040 Land Use



Rice Creek Watershed District (RCWD) 2020 Plan

The 2020 RCWD Watershed Management Plan outlines goals and strategies to address watershed challenges. Key focuses include water quality management, flood control, and natural resource preservation. RCWD aims to improve water quality and ensure sustainable water resource management through monitoring programs, watershed modeling, and BMPs. The plan highlights initiatives such as monitoring programs, BMPs, and stormwater management techniques tailored to the watershed's unique challenges.

The 2020 Plan will govern RCWD through 2029, and planning for the next update will begin in 2028.

Future Trails

A planned Central Anoka Regional Trail transects the study area along Main Street. Coordination with Anoka County Parks and Recreation will be needed as development occurs along Main Street.

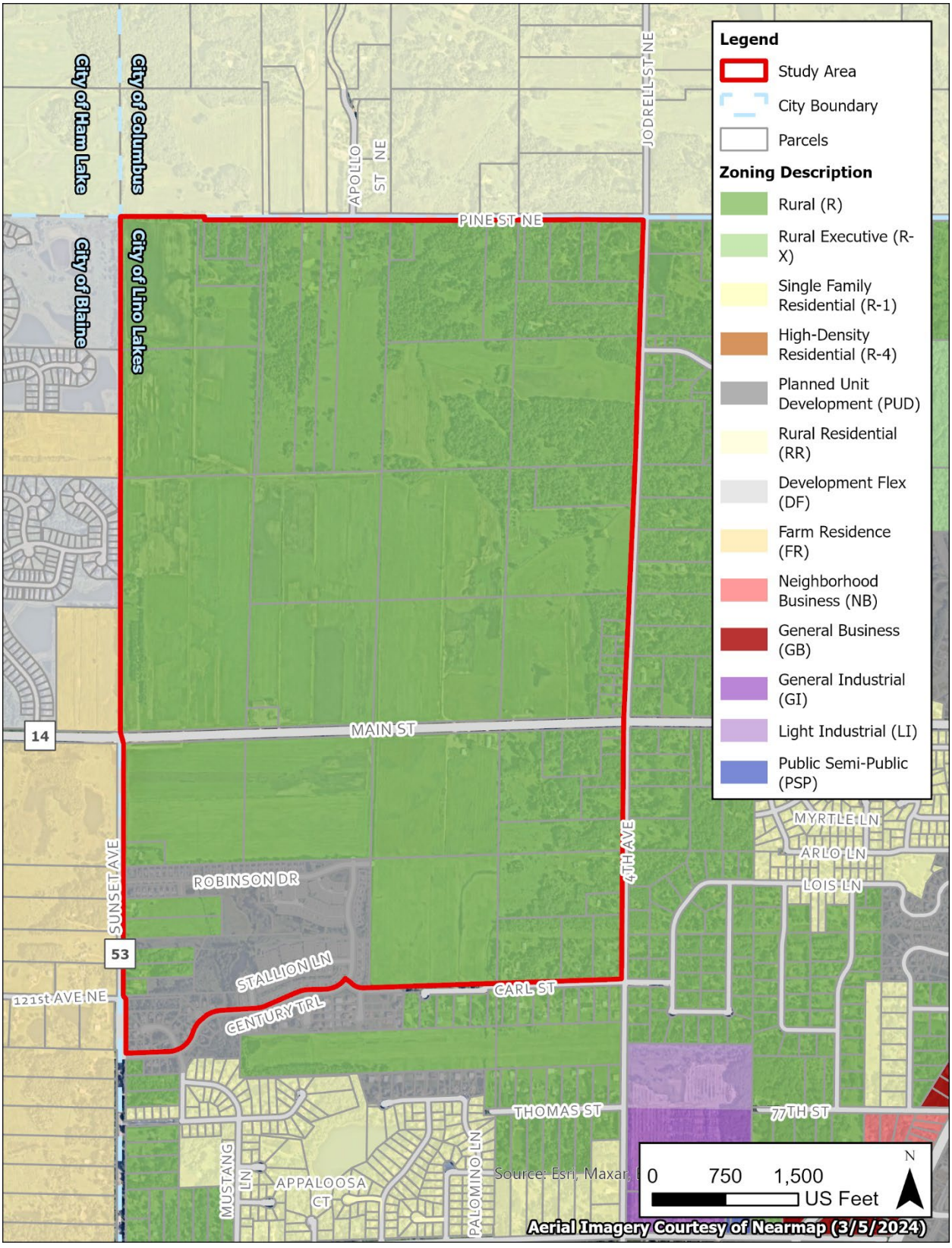
iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

Existing Zoning

The majority of the study area is currently zoned R, Rural. The southwest corner of the study area is zoned PUD, Planned Unit Development (see **Figure 9**). The purpose of the rural district is to preserve open land for agricultural purposes, maintain open space near urban areas, to help guide the development of urban and rural areas, and to allow urban farms to economically preserve land. The Planned Unit Development zoning grants flexibility from certain zoning regulations in order to achieve public benefits that may not otherwise be obtained under standard zoning regulations. It is further intended that PUDs are to be characterized by central management, integrated planning and architecture, a higher level of urban amenities, preservation of natural open space, and more economically efficient use of land.

Existing zoning in Lino Lakes to the east and south of the study area includes Rural, (R), Light Industrial (LI), General Industrial (GI), General Business (GB), Neighborhood Business (NB), and Public Semi-Public (PSP). Land in Blaine just west of the study area includes Development Flex (DF) and Farm Residence (FB). Zoning to the north of the study area in Columbus and Ham Lake is Rural Residential.

Figure 10: Existing Zoning

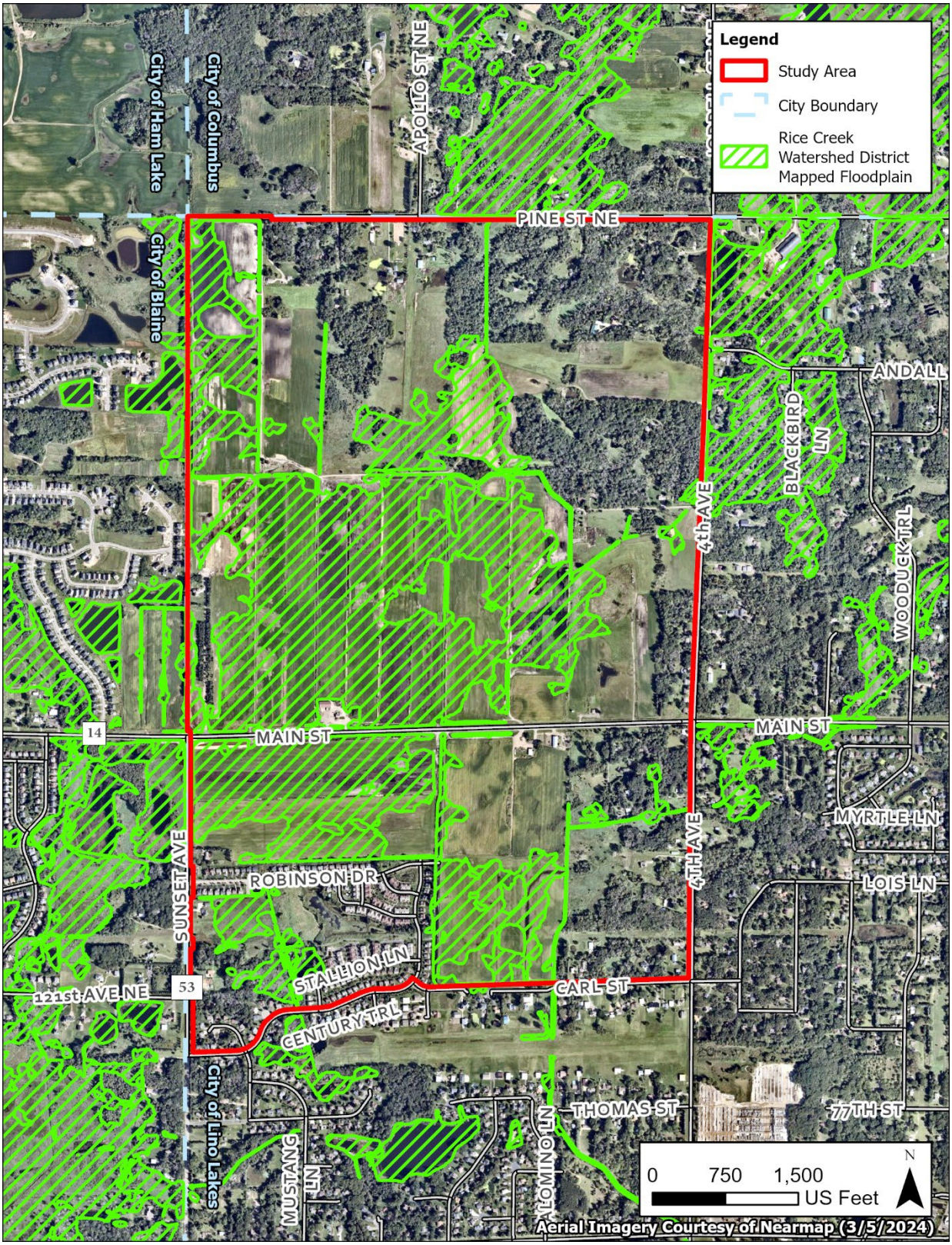


Other Designations

The study area does not fall within or adjacent to a wild and scenic river, critical area, agricultural preserve, or shoreland overlay district.

Floodplains within the study area have been identified using the RCWD mapped floodplains and are shown in **Figure 11**. Most of the study area is mapped as Flood Zone A. Additionally, Flood Zone AE is mapped offsite to the south and west. Rice Creek Watershed District has mapped the area as floodplain in their 2025 floodplain mapping and modeling update. The floodplain areas from FEMA and RCWD generally align in location and extent, with FEMA being slightly larger. Requirements from both agencies must be met for alterations or impacts to the floodplain.

Figure 11: Rice Creek Watershed District Floodplain



iv. If any critical facilities (i.e., facilities necessary for public health and safety, those storing hazardous materials, or those housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

No critical facilities are proposed as part of future development within the study area.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 10a above, concentrating on implications for environmental effects.

AUAR Guidance: The extent of conversion of existing farmlands anticipated in the AUAR should be described. If any farmland will be preserved by special protection programs, this should be discussed.

If development of the AUAR will interfere or change the use of any existing designated parks, recreation areas, or trails, this should be described in the AUAR. The RGU may also want to discuss under this item any proposed parks, recreation areas, or trails to be developed in conjunction with development of the AUAR area.

The AUAR must include a statement of certification from the RGU that its comprehensive plan complies with the requirements set out at Minnesota Rules, part 4410.3610, subpart 1. The AUAR document should discuss the proposed AUAR area development in the context of the comprehensive plan. If this has not been done as part of the responses to Items 6, 10, 12, 20, and others, it must be addressed here; a brief synopsis should be presented here if the material has been presented in detail under other items. Necessary amendments to comprehensive plan elements to allow for any of the development scenarios should be noted. If there are any management plans of any other local, state, or federal agencies applicable to the AUAR area, the document must discuss the compatibility of the plan with the various development scenarios studied, with emphasis on any incompatible elements.

Compatibility with Existing Land Use

Both scenarios are consistent with existing surrounding land uses, which include residential uses to the south, west, and east. All new development, redevelopment, change in land use, or change in zoning are required to be consistent with the comprehensive plan.

Consistency with 2040 Comprehensive Plan

Scenario 1 and Scenario 2 assume the transition of the existing agricultural land to residential and small-scale commercial land uses over a period of 30+ years. They also both address the full build-out of the area and provide a foundation for future updates to the Comprehensive Plan. Development of either scenario would not impact existing or future designated parks, recreation areas, or trails as described in the comprehensive plan.

The City of Lino Lakes has certified that *2040 Comprehensive Plan* complies with the requirements set forth in Minnesota Rules, part 4410.3610, subpart 1.

Existing Zoning

The existing R, Rural zoning does not allow for single-family lots of less than 10 acres or medium to high-density residential uses. Both scenarios would require a zoning change to allow for residential and commercial uses.

Rice Creek Watershed District 2020 Plan

Both scenarios would be consistent with the goals and strategies identified in the RCWD plan.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

Scenario 1

Scenario 1 is consistent with all rules and regulations pertaining to future land use and would require a rezoning for the areas designated as Rural. An amendment to the Comprehensive Plan is required to allocate land for urban services beyond the 2030 utility staging area.

Scenario 2

Scenario 2 would require a comprehensive plan amendment and rezoning for the areas designated as Rural.

Scenario 1 and Scenario 2

Future development will be required to meet the stormwater requirements of the surface water management plans of the City of Lino Lakes, Rice Creek Watershed District, and the MPCA NPDES General Permit. Additionally, all construction and development within will follow best management practices regarding stormwater, erosion control, and drainage.

The City will coordinate with the Metropolitan Council to increase the Transportation Analysis Zone (TAZ) allocations, if needed.

11. Geology, Soils, and Topography/Landforms

d. Geology – Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

AUAR Guidance: A map should be included to show any groundwater hazards identified.

According to the Geologic Atlas of Anoka County (Minnesota Geological Survey, 2016), the AUAR study area is underlain by peat and muck and sand facies.

Bedrock is encountered at varying depths across the AUAR study area, ranging in depth from approximately 101 to 250 feet below ground surface (bgs) across most of the study area. Bedrock is comprised of Cambrian systems including Jordan sandstone and St. Lawrence formation.

No known sinkholes, unconfined/shallow aquifers, or karst conditions were located within the AUAR study area. Additionally, there are no known limitations regarding geology and buildability of the project area.

e. Soils and Topography – Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability, or other soil limitations, such as steep slopes or highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections, or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.

AUAR Guidance: The number of acres to be graded and number of cubic yards of soil to be moved need not be given; instead, a general discussion of the likely earthmoving needs for development of the area should be given, with an emphasis on unusual or problem areas. In discussing mitigation measures, both the standard requirements of the local ordinances and any special measures that would be added for AUAR purposes should be included. A standard soils map for the area should be included.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the area is comprised of eight different soil types (see **Table 6** and **Figure 12**). The erosion hazard rating included in Table 6 indicates the hazard of soil loss from off-road areas after disturbance activities that expose the soil surface. Within the study area, the soils are almost entirely mapped as a slight hazard, meaning that erosion is unlikely under ordinary climate conditions. The remaining 0.1% of the study area is mapped as cut and fill land which is not rated for soil erosion hazard.

A previous Geotechnical Evaluation Report was conducted for a portion of the study area in 2021 for another proposed development that did not advance. Soil borings were conducted and noted topsoil in the area was mostly black and brown soils consisting of peat with lesser amounts of clay and silty sand. Topsoil in the area was found to be generally moist in nature. Discovered below the topsoil was a layer generally consisting of sand, with some silt or sand-silt mixtures also recorded. This report only covers a portion of the AUAR study area, south of Main Street to Robinson Drive. It is anticipated that future developers will complete a geotechnical report that would provide recommendations for structural and foundation design based on the soil types in the study area.

Topography within the study area varies from 892 to 912 feet above mean sea level in elevation. The study area generally drains south via agricultural ditches located throughout the study area.

Scenario 1 and 2

Under Scenarios 1 and 2, grading activities would be designed to preserve the current drainage patterns and protect the sensitive areas. Grading is expected to be done in phases as the individual developments are approved and will need to follow the overall drainage patterns of the area. Building pads will be constructed to meet the floodplain separation criteria and water quality features and will be graded into the terrain throughout the AUAR area. Impacts to sensitive areas and natural features will be taken into account when developing the grading plans for the development and will follow all local, state and federal guidelines for any impacts to these sensitive areas. Floodplain fill will most likely occur on the site, and areas of floodplain mitigation will be developed as part of the grading plans for each development based on their specific impacts. It is unclear on how much fill will be needed for each development until they are specifically refined and approved by the local jurisdictions, but in general it is anticipated that earthmoving within the study area will consist of developing several water feature areas (i.e. stormwater ponds) and using onsite materials to elevate the building and road areas throughout this area. Some import material may be required for the specific developments and this material will need to meet the standards for clean fill as set by the Minnesota Pollution Control Agency (MPCA) for residential and commercial developments.

Where appropriate, slope stabilization will be provided by means of vegetation establishment, erosion control blankets, or other standard methods of erosion and sediment control. The proposed development within the AUAR study area will comply with the City of Lino Lakes erosion and sediment control standards.[17]

A National Pollutant Discharge Elimination System Construction Stormwater Permit (NPDES) and Stormwater Pollution Prevention Program (SWPPP) will be obtained prior to any earthwork or grading activities within the AUAR study area.

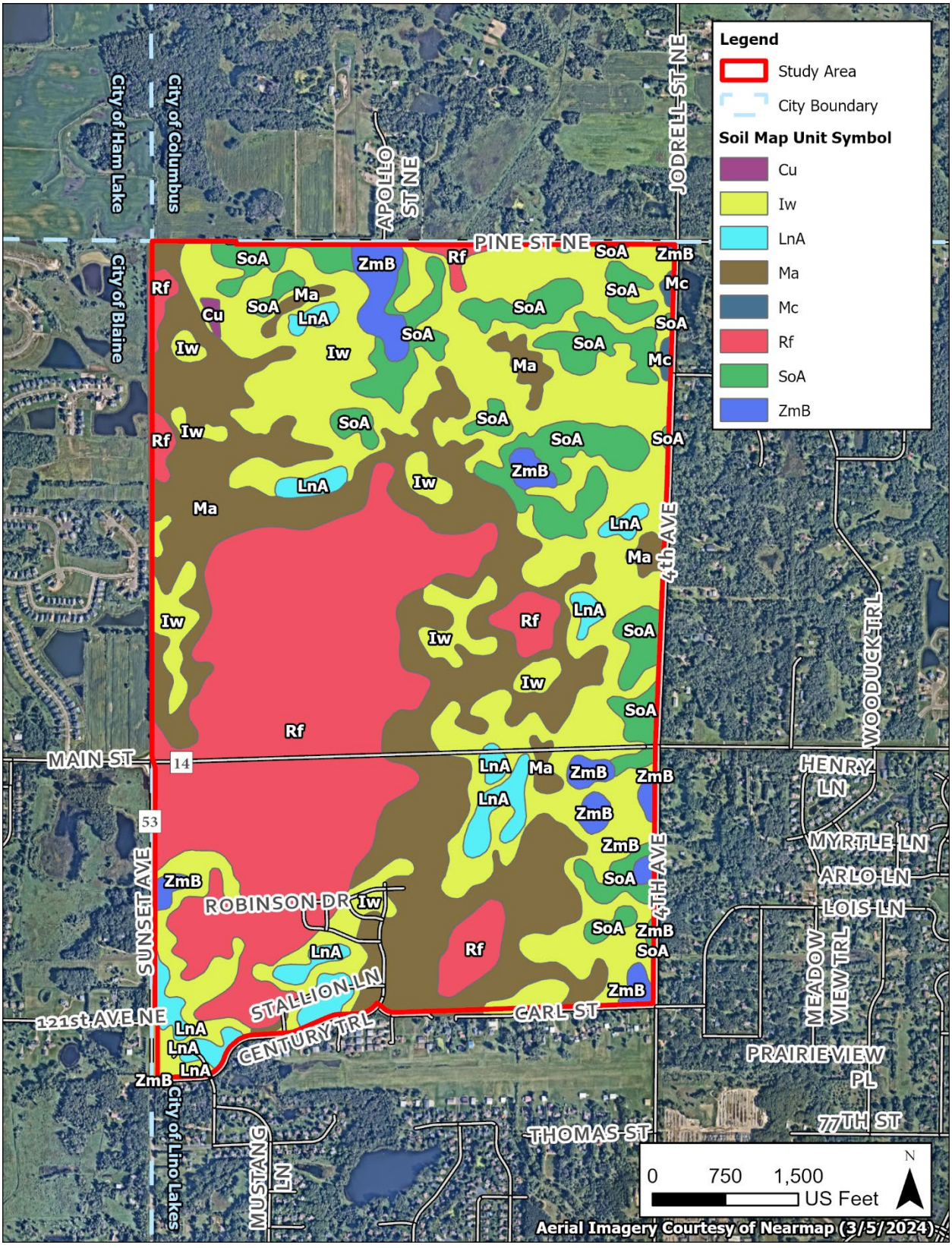
To the extent possible, existing soils will be used for future development. Based on the NRCS soil map, the site will likely require typical subgrade preparation.

[17] Source: Ordinance: §1007.050 DRAINAGE

Table 7: Soil Types

Map Unit Symbol	Soil Type	Farmland Classification	Erosion Hazard	Hydric Rating	Hydrologic Soil Group	Acres within Study Area	Percent of Study Area
Cu	Cut and fill land	Not prime farmland	Not rated	Non-hydric	N/A	1.2	0.1
Iw	Isanti fine sandy loam	Not prime farmland	Slight	Predominantly hydric	A/D	318.6	32.4
LnA	Lino loamy fine sand, 0 to 4 percent slopes	Farmland of statewide importance	Slight	Predominantly non-hydric	A/D	35.5	3.6
Ma	Markey muck, occasionally ponded, 0 to 1 percent slopes	Not prime farmland	Slight	Hydric Soils	A/D	240.3	24.5
Mc	Marsh	Not prime farmland	Slight	Hydric	A/D	2.4	0.2
Rf	Rifle mucky peat	Not prime farmland	Slight	Hydric	A/D	258.3	26.3
SoA	Soderville fine sand, 0 to 3 percent slopes	Farmland of statewide importance	Slight	Predominantly non-hydric	A/D	98.4	10.0
ZmB	Zimmerman fine sand, 1 to 6 percent slopes	Not prime farmland	Slight	Predominantly non-hydric	A	27.6	2.8

Figure 12: Soil Types



12. Water Resources

AUAR Guidance: The information called for on the EAW form should be supplied for any of the infrastructure associated with the AUAR development scenarios, and for any development expected to physically impact any water resources. Where it is uncertain whether water resources will be impacted depending on the exact design of future development, the AUAR should cover the possible impacts through a "worst case scenario" or else prevent impacts through the provisions of the mitigation plan.

a. Describe surface water and groundwater features on or near the site below.

i. Surface Water – lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodplain/floodway, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Kimley-Horn reviewed available background desktop data to identify potential surface water resources within the study area (see **Figure 13**). According to National Wetland Inventory (NWI)[18], 156.4 acres of freshwater emergent, freshwater forested/shrub, and freshwater pond wetlands were identified within the AUAR study area, as well as 17.5 acres of riverine features. The Rice Creek Watershed District (RCWD) Comprehensive Wetland Protection Management Plan (CWPMP) establishes protections to the Wetland Management Corridors. High priority wetlands establish critical nodes and linkages for what will become the Wetland Management Corridors. Wetland quality was assessed by looking at the function of the wetland habitat, characteristic wetland hydrology and water quality, wetland role in downstream flooding, as well as plant species and community diversity. The northeastern and southern portions of the study area include wetlands that are designated as high priority status and are shown in **Figure 13**.Therefore**,** a Wetland Management Corridor is identified within the study area and development practices must abide by the guidelines identified in Rule F.6. of the CWPMC[19]. All aquatic resource data is based upon a desktop review and has not been field verified.

The site generally drains through the existing public and private ditch systems which bisect the study area from the northwest to the south, with discharges to the onsite wetlands before flowing offsite to the southeast. The ditches mapped throughout the study area align with mapped National Hydrography Dataset (NHD) flowlines and NWI riverine features. These ditches are generally located between agricultural fields or adjacent to existing roadways and congregate in the southeastern portion of the study area before flowing offsite to the south. The public ditches located onsite are part of the Anoka County Ditch (ACD) system 10-22-32, denoted as the Public Drainage System on **Figure 13**. Three unnamed Minnesota Department of Natural Resources (DNR) public water wetlands are mapped in the northeast corner of the study area and generally align with NWI mapped wetlands.

Multiple NWI wetlands and riverine features are mapped within one mile of the study area (see **Figure 14**). These features generally align with offsite high priority wetlands identified by the Lino Lakes Resource Management Plan. Additionally, multiple NHD flowlines and waterbodies are mapped within one mile of the study

[18] Source: National Wetland Inventory for Minnesota (2019)
[19] Source: Rice Creek Watershed District Comprehensive Wetland Protection Management Plan Rule F.6.

area. A portion of the mapped NWI, NHD, and Lino Lakes High Priority Wetlands are mapped adjacent to the study area and are likely extensions of on-site resources.

A review of the Minnesota Pollution Control Agency's (MPCA) Part 303d Impaired Waters List within one mile of the study area was conducted. No impaired lakes, wetlands, or streams were identified within the study area or within one mile of the study area. Multiple DNR public waterbodies are mapped within one mile of the study area to the north and southwest. No DNR designated trout streams or public watercourses were located within the study area or within one mile of the study area.

Figure 13: Surface Water Resources Within the Study Area

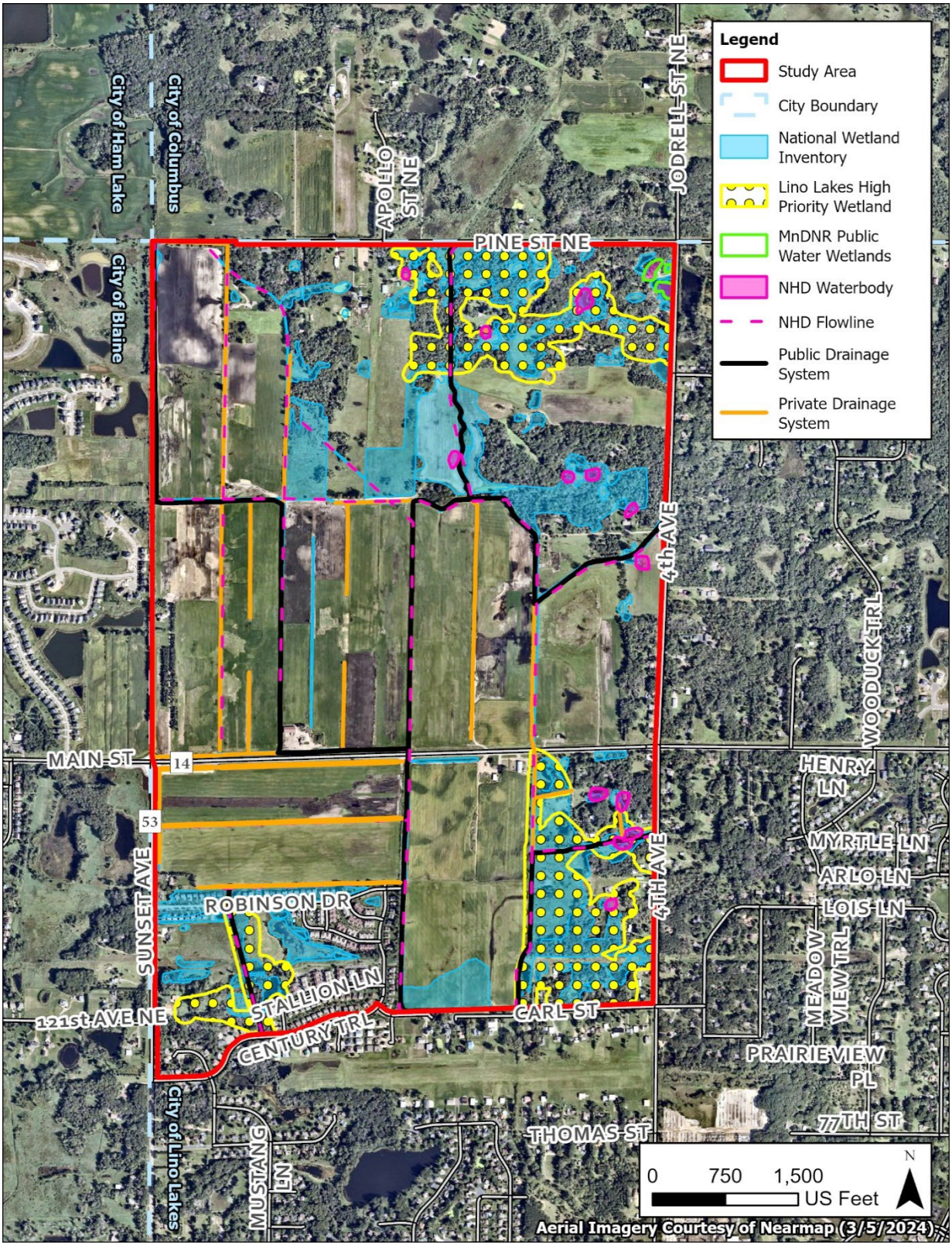
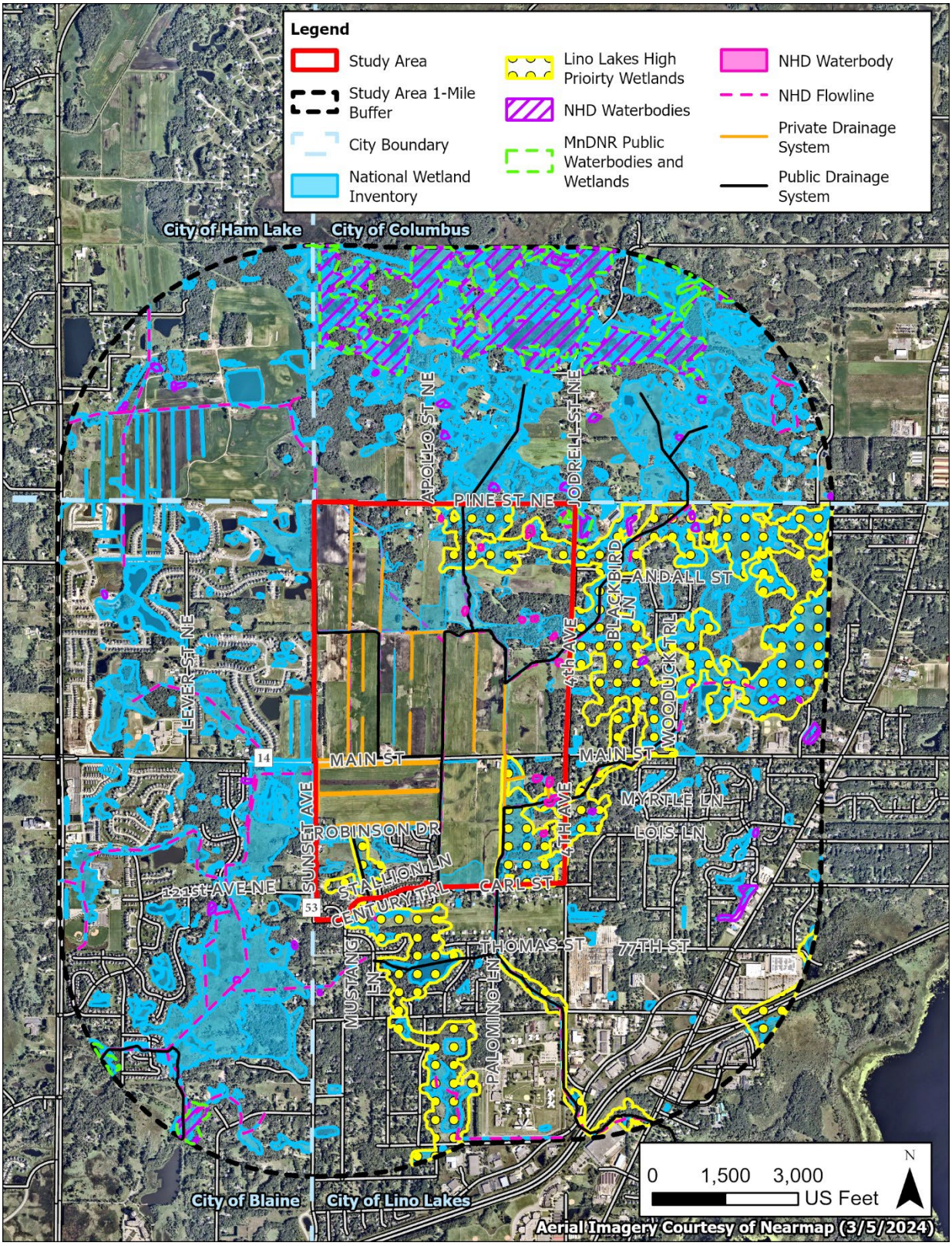


Figure 14: Surface Water Resources Within 1 Mile of AUAR Study Area



ii. Groundwater – aquifers, springs, and seeps. Include 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; and 3) identification of any onsite and/or nearby wells, including unique numbers and well logs, if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

According to the Minnesota DNR's Minnesota Hydrogeology Atlas, the depth to water table in the study area is mapped with an elevation of 0-10 feet and the water table elevation is mapped from 860 to 920 feet above sea level.

According to the Minnesota Department of Health's (MDH's) Minnesota Well Index, there are 76 wells within 500 feet of the study area. Well depth was recorded from 59 to 278 feet below the surface, see **Figure 15.**

According to MDH's Source Water Protection Web Map Viewer, the study area is not located within a wellhead protection area or drinking water supply management area. There are also no aquifers, springs, or seeps within the study area.

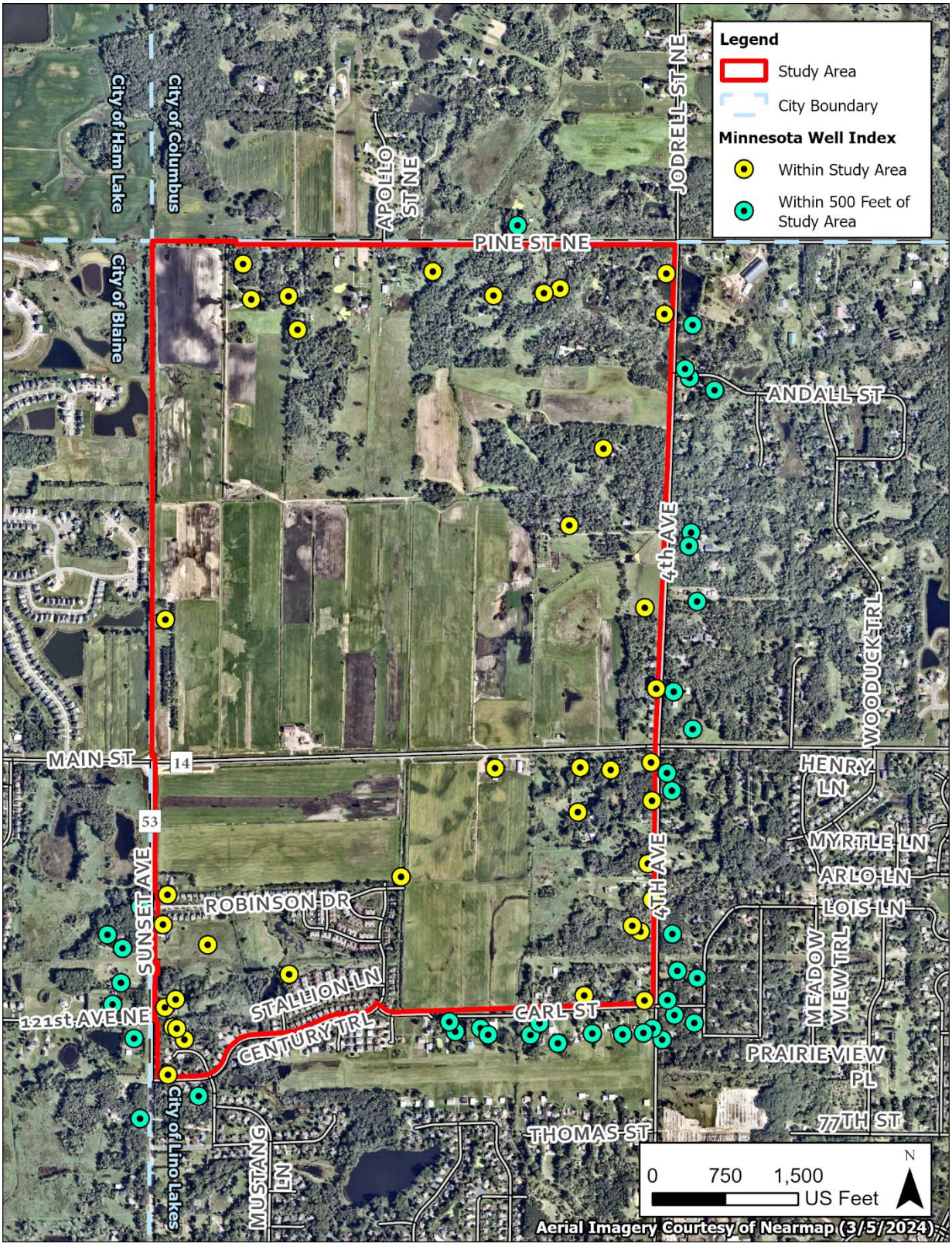
Scenario 1 and 2

With future stormwater BMPs, no adverse impacts to groundwater are anticipated as a result of future development projects.

Onsite wells will continue to serve the existing parcels for the foreseeable future. As development occurs, wells located within the AUAR study area would be properly sealed by a licensed well contractor prior to redevelopment within the AUAR study area per Minnesota Department of Health (MDH) well sealing requirements.

If unidentified wells are found, the Department of Health Well division will be notified and determine if the well is in service or not. Wells will be sealed per the MDH well sealing requirements by a licensed well driller.

Figure 15: Minnesota Well Index



b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects below.

iii. Wastewater – For each of the following, describe the sources, quantities, and composition of all sanitary, municipal/domestic, and industrial wastewaters projected or treated at the site.

AUAR Guidance: Observe the following points of guidance in an AUAR:

- *Only domestic wastewater should be considered in an AUAR—industrial wastewater would be coming from industrial uses that are excluded from review through an AUAR process*
- *Wastewater flows should be estimated by land use subareas of the AUAR area; the basis of flow estimates should be explained*
- *The major sewer system features should be shown on a map and the expected flows should be identified*
- *If not explained under Item 6, the expected staging of the sewer system construction should be described*
- *The relationship of the sewer system extension to the RGU's comprehensive sewer plan and (for metro area AUARs) to Metropolitan Council regional systems plans, including MUSA expansions, should be discussed. For non-metro area AUARs, the AUAR must discuss the capacity of the RGU's wastewater treatment system compared to the flows from the AUAR area; any necessary improvements should be described.*
- *If on-site systems will serve part of the AUAR, the guidance in the February 2000 edition of the EAW Guidelines on page 16 regarding item 18b under Residential development should be followed.*

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

The existing wastewater infrastructure within the study area includes an existing 12-inch diameter polyvinyl chloride (PVC) sanitary sewer along Robinson Drive and 15-inch diameter PVC sanitary sewer along Century Trail. A sewer stub extends to the north from the manhole at the intersection of Robinson Drive and Century Trail with an invert of 879.78. There is a sanitary manhole at the north end of Cardinal Way with an invert of 883.18. The sanitary sewer on Cardinal Way is 10-inch diameter PVC. Inverts are according to record plans for the Century Farms North development.

Scenario 1 and 2

The types and amounts of wastewater produced will be typical of residential and commercial uses. The proposed development is expected to generate approximately 502,000 gallons per day (GPD) of wastewater under Scenario 1 and approximately 557,100 GPD under Scenario 2. This volume was estimated using the Metropolitan Council's Sewer Availability Charge (SAC) tool for the following land uses (see **Table 8**).

Table 8: Projected Wastewater Demands

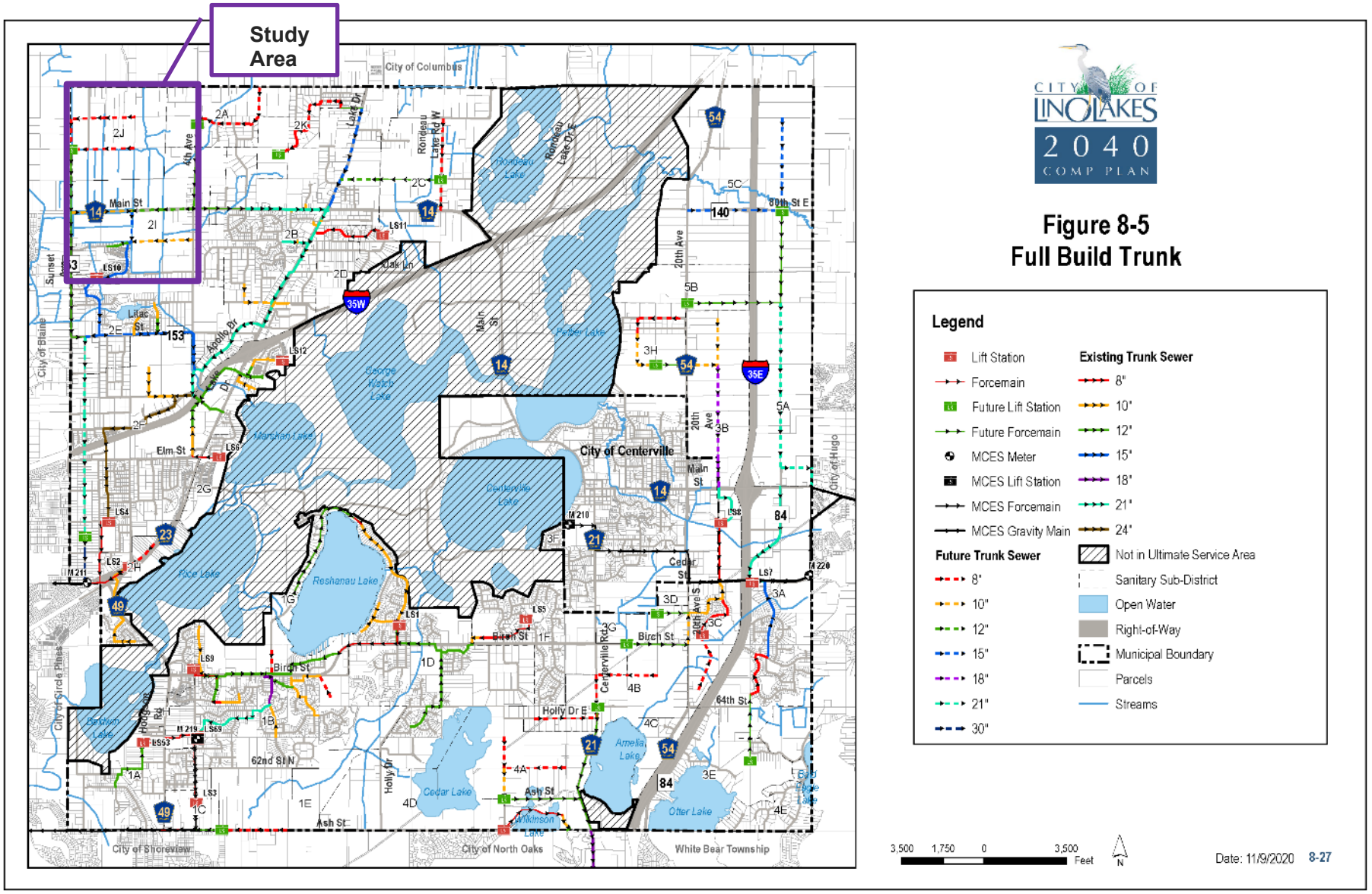
Wastewater Demands	Scenario 1 Average Daily Flow (GPD)	Scenario 2 Average Daily Flow (GPD)
Residential	493,200	548,000
Commercial	8,800	9,100
Total	502,000	557,100

The City's sanitary sewer collection system will be extended to serve the study area through a combination of 1) gravity sewer extensions from the existing sanitary sewer system, and 2) a new trunk sewer, lift station, and forcemain. All proposed units will be required to connect to the City's sanitary sewer system.

A new trunk line will need be extended from Met Council Interceptor 8361 located on North Road to the northwest sanitary sewer service sub-district 2J. This is outlined in the City's 2040 Comprehensive Plan Figure 8-5 with a forcemain along Sunset Avenue and a lift station north of Main Street. The area would be served by 10-inch and 12-inch trunk lines along Main Street (see Figure 16).

The City's sanitary sewer district 2 discharges to Metropolitan Council Environmental Services (MCES) Meter M211 and Interceptor 8361, and MCES will evaluate necessary improvements to their interceptor system. Wastewater is then conveyed to the Metropolitan Wastewater Treatment Plant (Metro WWTP). The Metro WWTP has a capacity of 314 million gallons per day (MGD) and receives 180 MGD of flow as of June 2024. The Metro WWTP is expected to have capacity to treat demand from both scenarios. The wastewater from the study area is anticipated to be of typical domestic strength and character, so pretreatment is not necessary.

Figure 16: Full Build – Sewer Infrastructure



2) **If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion.**

There are subsurface sewage treatment systems (SSTS) for the existing properties within the study area. The residential properties within the project area will remain until such time development starts. The SSTS systems will be pumped, collapsed, filled, and abandoned per the MPCA chapter 7080 code, along with any county and city requirements as well.

No subsurface sewage treatment systems (SSTS) are anticipated within the AUAR study area for either development scenario.

3) **If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.**

No wastewater discharge to surface waters is anticipated for either development scenario.

c. **Stormwater – Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post-construction, including how the project will affect runoff volume, discharge rate, and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.**

AUAR Guidance: For an AUAR the following additional guidance should be followed in addition to that in EAW Guidelines:

- *It is expected that an AUAR will have a detailed analysis of stormwater issues*
- *A map of the proposed stormwater management system and of the water bodies that will receive stormwater should be provided*
- *The description of the stormwater systems would identify on-site and "regional" detention ponding and also indicate whether the various ponds will be new water bodies or converted existing ponds or wetlands. Where on-site ponds will be used but have not yet been designed, the discussion should indicate the design standards that will be followed.*

- *If present in or adjoining the AUAR area, the following types of water bodies must be given special analyses:*
    - *Lakes: Within the Twin Cities metro area, a nutrient budget analysis must be prepared for any "priority lake" identified by the Metropolitan Council. Outside of the metro area, lakes needing a nutrient budget analysis must be determined by consultation with the MPCA and DNR staffs.*
    - *Trout streams: If stormwater discharges will enter or affect a trout stream, an evaluation of the impacts on the chemical composition and temperature regime of the stream and the consequent impacts on the trout population (and other species of concern) must be included.*

Environmental Effects

Stormwater runoff can cause a number of environmental problems. When untreated stormwater drains from man-made locations such as agricultural fields, impervious surfaces, and construction sites, it can carry sediments and/or chemical pollutants that harm aquatic ecosystems and wildlife.

It is assumed that infiltration practices will not be allowed onsite due to the assumed presence of clay and organic soil and high ground water table. Prior to the creation of the extensive ditch system throughout the site, the area was a marsh. In the event infiltration requirements cannot be met on the site, alternate means of runoff abstraction and water quality treatment will need to be reviewed for the site to be in compliance with current watershed, state, and local stormwater management plans. The developments will need to follow the minimal impact design standard guidelines for alternative design as documented in the Minnesota Stormwater Manual for abstraction such as filtration, irrigation reuse, or other methods to meet the water quality and abstraction requirements.

Existing Conditions

In existing conditions, the study area is a mix of sod farm, low-density residential, and forested area. According to the City stormwater database, there are no stormwater management practices in place to treat stormwater runoff outside of the Century Farm Subdivisions in the southwest corner of the study area and a large stormwater quality basin constructed as part of the new roundabout at the intersection of Sunset Avenue and Main Street. The remainder of the study area has numerous ditches, county and privately owned, that were constructed in the mid-1950s. The ditches have been realigned multiple times. Even with the existing ditch system, there is a significant portion of the site (~40-45% by area) that is covered in FEMA Zone A floodplain. Rice Creek Watershed District completed floodplain modeling and mapping in 2025 that shows similar, albeit less, floodplain areas within the study area.

During Construction

During construction, erosion and sediment control BMPs will be implemented to prevent impacts to aquatic ecosystems. The proposed alternatives include proposed impervious surfaces that vary depending on alternative and future design options.

Additionally, the following design/construction standards are to be adhered to during construction:

- Grading of the water quality basins shall be accomplished using low-impact, earthmoving equipment to prevent compaction of the underlying soils.
- Water quality basin excavation shall be held 1 foot above the bottom of the excavation until the contributing drainage areas with exposed soils have been fully stabilized.

- Divert upland drainage areas to prevent runoff from entering the excavated basins or into the work areas.
- Installation with dry soil conditions is critical to prevent smearing and compaction. Schedule work for periods of dry weather.
- In the event that the sediment is introduced into the BMP during or immediately following excavation, remove sediment prior to initiating the next step in the water quality basin construction process.
- Temporary erosion protection or permanent cover over exposed soil shall be initiated immediately and completed no later than seven days after an area is no longer being worked.
- Realignment of the Anoka County Ditch (ACD) system 10-22-32 and private ditches may be required as development occurs to meet future drainage requirements and allow for efficient development of the study area.

After Construction

The proposed future development within the AUAR study area will require compliance with the stormwater rules and standards of the City of Lino Lakes, the Rice Creek Watershed District, and the National Pollutant Discharge Elimination System (NPDES) Stormwater Permit for water quality, volume control, rate control, floodplain management, erosion control, and maintenance/monitoring.

As required by Chapter 1011 of the City of Lino Lakes code of ordinances, development projects within the AUAR study area will be required to provide stormwater BMPs to manage the rate, quantity, and quality of the stormwater runoff. The National Pollutant Discharge Elimination System (NPDES) Stormwater Permit requires treatment of 1-inch of runoff for the new impervious area since more than one acre of disturbance will occur. Additionally, the post-development discharge rates shall be less than or equal to the existing runoff rates for the 2-, 10-, and 100-year, 24-hour rainfall events, as required by the Rice Creek Watershed District.

RCWD Rule C: Stormwater Management requires that proposed developments will provide 1.1 inch of volume reduction over the proposed impervious surface coverage for the development through a combination of infiltration/filtration/reuse BMPs. The treatment volume is reduced by a total phosphorus removal factor based on BMP type as stated in Table C1 of the Rice Creek Watershed Rules (effective 1/1/2025).

Additionally, RCWD requires public linear projects to provide treatment for the greater of 1.0 inches over the new impervious or 0.5 inches over the new and reconstructed impervious surface. There is no total phosphorus removal factor for public linear projects. Treatment is currently planned to be provided through a distributed approach across the project area. Local water quality basins will be installed along with each proposed development followed by larger detention areas, as needed, to provide rate control for multiple proposed developments as well as provide compensatory storage for floodplain mitigation. The detention areas then outlet to the greenway corridors to convey stormwater discharge downstream through naturalized areas to the main discharge points in the south-southeastern portions of the study area.

Floodplains

The study area includes large areas of FEMA Zone A floodplain and Rice Creek Watershed 100-year floodplain. The areas of floodplain generally align with the FEMA floodplain being more expansive across the project site. The FEMA Zone A floodplain does not have a base flood elevation associated with the mapping

delineations, but the RCWD floodplain data does include base flood elevations. The base flood elevation at a specific property can be requested from RCWD staff. The proposed scenarios for development of the project site will result in significant realignment of existing ditch systems as well as alternation to the floodplains (FEMA and RCWD).

FEMA delegates the ordinance creation and enforcement to local communities thus the city of Lino Lakes administers the FEMA floodplain and requires the following be met for floodplain alteration:

1. Locations where floodway and flood fringe districts are not delineated on the floodplain maps are considered to fall within the General Floodplain District and the floodway district standards apply.
    a. Once a floodway boundary is determined, the flood fringe district standards may apply outside of the floodway.
2. All structures located within the flood fringe district must be elevated on fill so that the lowest floor is at or above the regulatory flood protection elevation.

The full floodplain ordinance can be found in Chapter 1103 of the City of Lino Lakes Code of Ordinances. Any development should review the current applicable floodplain ordinance to verify all design standards are met for the proposed development.

RCWD has additional floodplain impact requirements as stated in Rule E: Floodplain Alteration:

1. Provide compensatory storage volume.
2. Any structure/embankment placed within the floodplain will be capable of passing the 100-year flood without increasing 100-year flood elevation.
3. All structures constructed within the floodplain shall have 2 feet of freeboard to the lowest floor.
4. Drainage/flowage easements are required over stormwater management facilities, stormwater conveyances, ponds, wetlands, on-site floodplain up to the 100-year event, or any other hydrologic feature, only if required by the land use authority.
    a. Additionally, open channel systems shall be placed under easement for the right to the District to maintain the system. A minimum easement width includes the channel and the area on each side of the channel within 20 feet of the top of bank.

Areas that are covered by Rule E are also subject to Rule F: Wetland Alteration, as applicable.

Scenario 1 and 2

The city of Lino Lakes developed a plan to implement greenway corridors as the “backbone” of the stormwater, floodplain, and wetland management system for the study area through a conservation design framework. The greenway corridors are designed to connect the larger and higher quality natural areas. These corridors will provide three main services: 1) stormwater collection and conveyance, 2) ecological corridors for wildlife movement and native plant dispersal, and 3) recreational trails for people. Certain greenway corridors may warrant design for specific wildlife species, may provide certain stormwater management opportunities, or may need to accommodate different types of trails or passive recreational uses. Design

considerations may include corridor width, appropriate vegetation structure, human access and use, and whether or not it is appropriate for a corridor to cross a particular type of roadway.

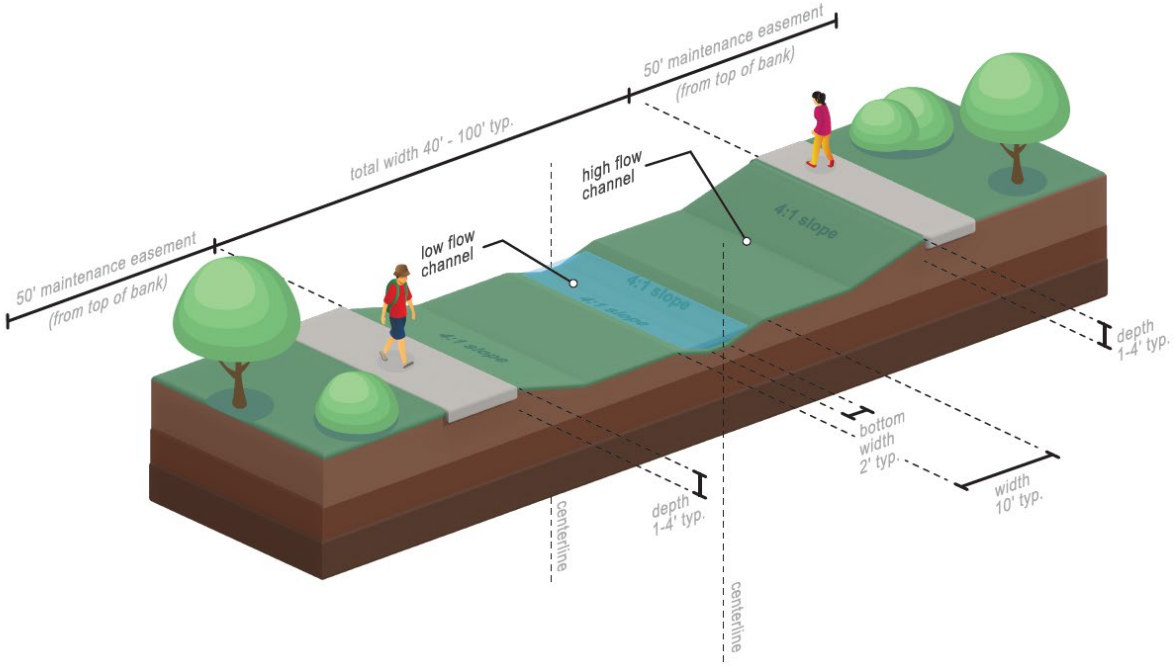
Conservation Design Framework

The City of Lino Lakes expects the current Anoka County ditch system through the area to remain in place in terms of function, but not in terms of location or overall quality. The ditch system can be relocated within a proposed development to facilitate drainage of stormwater runoff, aesthetics, passive recreational facilities, and habitat creation. The realigned ditch system shall meet the following expectations:

1) Easements
    a. RCWD requires a 20-foot easement on either side of the county ditch system, measured from the top of the bank, to provide access for maintenance.
    b. Lino Lakes proposes an average buffer width of 50-feet on either side of the county ditch system with a minimum of 20 feet, measured from the top of the bank, to provide space for the greenway corridor creation.
2) Lake/Pond Construction in-line with Ditch
    a. In the event that a proposed development will create an in-line lake or pond area in relation to the ditch system, the proposed development is required to provide:
        i. RCWD with a 20-foot easement from top of bank along the alignment of the ditch and extend into the pond based on the average width of easement at the entrance and exit location of the ditch into the lake/pond.
        ii. The RCWD easement shall be along a bank of the lake/pond, and not through the center of the pond to limit maintenance responsibility on the District.
        iii. Water Quality Basins shall be provided prior to discharge of stormwater runoff into the lake/pond.
        iv. City requires establishment of a buffer around a constructed lake/pond with minimum buffer based on function of the BMP.
            1. Buffers may vary around the perimeter of the constructed lake/pond but must meet the minimum and average distances along their edges.
3) Realignment
    a. The city of Lino Lakes is in support of realignment of the county ditch system when proposed to be consistent with the goals of the master plan.
        i. Realignment must be approved by RCWD through Rule I.
        ii. Additional buffer widths may be required through land use and zoning requirements.

See **Figure 16** for a cross section view of the easement and buffer requirements.

Figure 17: Cross Section View of Drainage and Conservation Framework



iv. Water Appropriation – Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use, and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

AUAR Guidance: If the area requires new water supply wells, specific information about that appropriation and its potential impacts on groundwater levels should be given; if groundwater levels would be affected, any impacts resulting on other resources should be addressed.

Dewatering

Construction dewatering may be required for the development of the AUAR study area. No permanent dewatering is anticipated as no underground structures will be constructed adjacent to a water body. Construction activities associated with dewatering will include discharging into temporary sedimentation basins to reduce the rate of water discharged from the site, as well as discharging to temporary stormwater BMPs. Any temporary dewatering will require a DNR Temporary Water Appropriations General Permit 1997-0005 if 10,000 gallons per day or 1 million

gallons per year are withdrawn. It is anticipated that the temporary dewatering would only occur during utility installation and potential construction of building foundations.

Estimated Water Supply

Existing water infrastructure within the study area includes a 12-inch diameter ductile iron pipe (DIP) watermain along Robinson Drive and Century Trail south of the site and 8-inch DIP watermain on Carl Street (west cul-de-sac). There is a 10-inch DIP water stub for the Robinson Property off of Cardinal Way and two 12-inch diameter DIP watermain stubs at the intersection of Robinson Drive and Century Trail.

The City's DNR water appropriation permit currently allows an annual withdrawal volume of 900 million gallons per year (MGY). The City's existing annual demand plus the projected annual demand for the study area will exceed this volume. Therefore, the City's DNR appropriation permit annual withdrawal volume will need to be amended prior to full build out of the study area.

Scenario 1 and 2

The projected water demand for the proposed development scenarios is approximately 559,800 gallons per day (GPD) for Scenario 1 and approximately 620,100 GPD for Scenario 2 (see **Table 9**).

Table 9: Project Water Demands

Water Demands	Scenario 1 Average Daily Flow (GPD)	Scenario 2 Average Daily Flow (GPD)
Residential	550,000	610,000
Commercial	9,800	10,100
Total	559,800	620,100

The City's current water production capacity will not be sufficient to serve the entire study area. It is anticipated that only a small percentage of the area could be served by the City's existing system assuming the City's proposed Well No. 7 is constructed in 2026. The City will need to install new wells, Wells No. 8 and 9, to serve the entirety of the study area and satisfy City-wide water demands. The 2040 Comprehensive Water Plan provides additional details on water demand for the city through the projected 2040 planning period.

It is feasible to extend the watermain to serve future lots. However, the size and layout of the watermain will have to be determined during preliminary design, and the watermain will need to be looped through the site. At a minimum, the larger 12-inch diameter trunk watermain will need to be looped through the high density residential areas. All proposed units will be required to connect to the City's water system.

The City is constructing a water treatment plant for manganese removal which will be placed in service in the fall of 2026 and will provide adequate treatment capacity through Well No. 9. The City's total elevated storage volume is 3.5 million gallons (MG), which is projected to be sufficient for the entire study area.

v. Surface Waters

4) Wetlands – Describe any anticipated physical effects or alterations to wetland features, such as draining, filling, permanent inundation, dredging, and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate

change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

Scenario 1 and 2

As development of the study area begins, wetland impacts will be avoided or minimized to the extent practicable, especially wetlands which are within the Wetland Management Corridor under the City of Lino Lakes Comprehensive Water Management Plan (CWPMP). Future development will comply with all federal, state, and local wetland requirements including wetland mitigation requirements. If it is determined that there are impacts to on-site regulated wetlands, wetland banking credits will be purchased and applicable City of Lino Lakes and/or Minnesota Wetland Conservation Act (WCA) approvals will be obtained prior to development. If required, on-site wetland replacement will be evaluated as design progresses within the AUAR study area. If on-site mitigation is not feasible, mitigation will be provided via purchase of credits from an approved wetland bank. The mitigation replacement ratio will be confirmed with RCWD.

Wetlands that will be preserved on site will need to comply with Rice Creek Watershed District's wetland buffer requirements as outlined in Rule F: Wetland Alteration.

5) **Other surface waters – Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.**

AUAR Guidance: Water surface use need only be addressed if the AUAR area would include or adjoin recreational water bodies.

Scenario 1 and 2

Realignment of the ACD system 10-22-32 is proposed in both scenarios. The result of the realignment of the ACD 10-22-32 must continue to provide sufficient flow capacity to not impact upstream properties in terms of high-water levels during a flood event or impact downstream properties in terms of higher discharge rates and velocities during a flood event. Private ditches may also be rerouted or changed to facilitate the proposed scenarios but any changes must demonstrate no negative impact in terms of high-water level, discharge rate, or velocity in the ACD 10-22-32 system. Rice Creek Watershed district requires a buffer of 20 feet on either side of the creek to complete maintenance and that the buffer be clear of obstructions such as trees and buildings.

No alternations to other surface waters are anticipated as part of the development scenario. The AUAR study area does not contain and is not adjacent to any recreational water bodies.

13. Contamination/Hazardous Materials/Wastes

a. Pre-project Site Conditions – Describe existing contamination or potential environmental hazards on or in close proximity to the project site, such as soil or groundwater contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize, or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The Minnesota Pollution Control Agency's (MPCA) What's In My Neighborhood (WIMN) database was reviewed to determine if any known contaminated properties or potential environmental hazards are located within 250 feet of the study area. During this review, nine active sites and one inactive site were found within 250 feet of the study area (see **Table 10** and **Figure 18**).

Table 10: MPCA "What's in My Neighborhood?" Sites

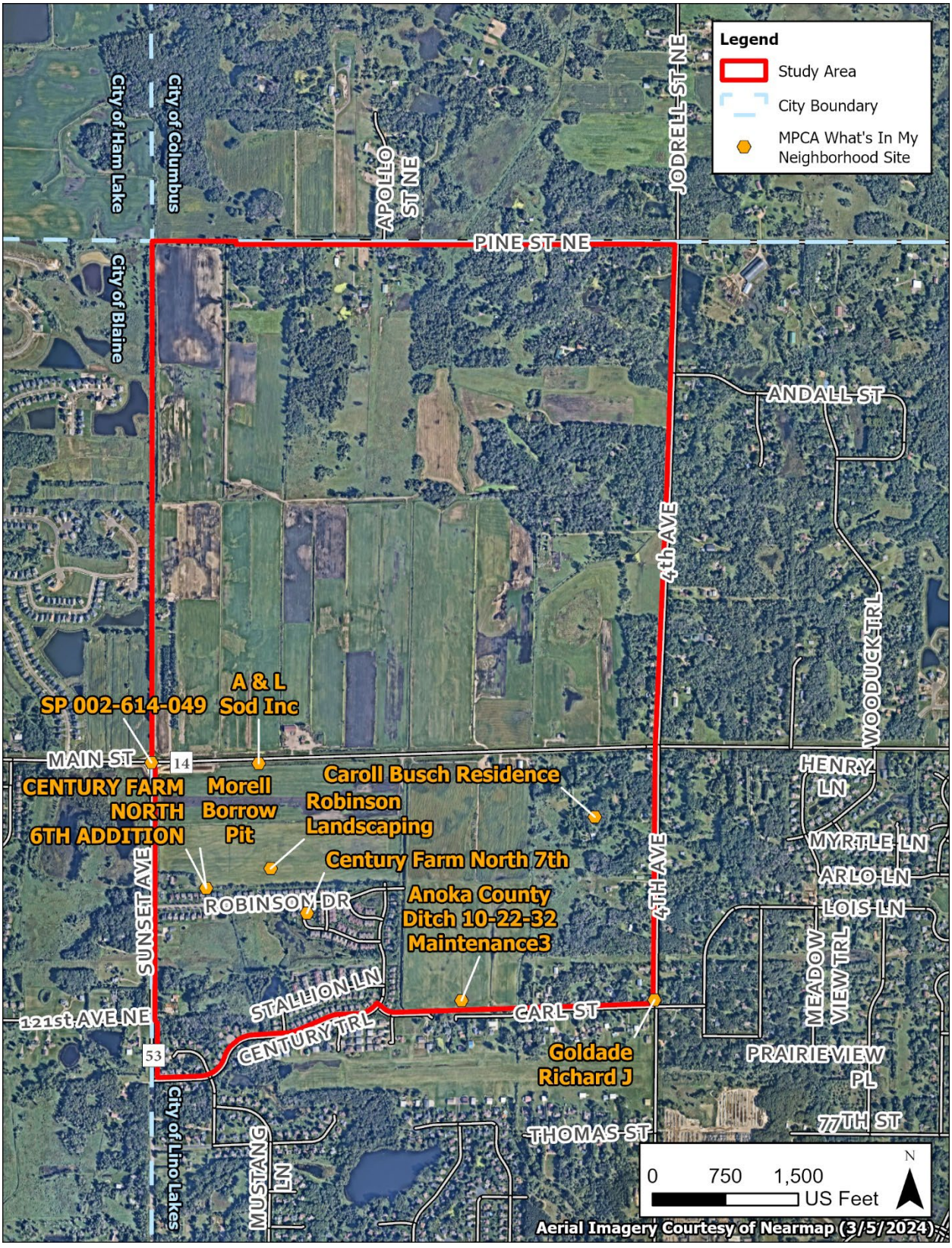
Site ID	Site Name	Activity Status	Activities	Program
16576	A & L Sod Inc.	Active	Tank leak site, Petroleum remediation, Minimal quantity hazardous waste generator	Multiple Programs
257812	SP 002-614-049	Active	Construction Stormwater	Stormwater
18236	Caroll Busch Residence	Inactive	Tank site leak, Petroleum remediation	Investigation and Cleanup
146100	LeVahn Bros	Active	Hazardous Waste, Minimal quantity generator	Hazardous Waste
212682	Century Farm North 6th Addition	Active[20]	Construction stormwater	Stormwater
157490	Morell Borrow Pit	Active[21]	Construction Stormwater	Stormwater
226150	Century Farm North 7th	Active	Construction stormwater	Stormwater
141380	Anoka County ditch 10-22032 Maintenace	Inactive	Construction Stormwater	Stormwater
107177	Goldade Richard J	Inactive	UST	Tanks

Future developers will need to complete a Phase I/II Environmental Site Assessment (ESA) prior to construction and coordinate with the MPCA on safe handling and disposal of any contamination and hazardous materials found on the site prior to and during construction. An asbestos and regulated materials (ARM) assessment would need to be completed prior to the demolition of any structures and a demolition notification will be made to the

[20] MPCA's database shows these as active; however, the city is aware these projects did not advance and status should be changed to inactive.

MPCA/Minnesota Department of Health (MDH) if asbestos containing material (ACM) is identified during the ARM assessment. If ACM and/or other regulated solid waste is identified during the ARM assessment requiring removal, generated solid waste will be disposed of at an MPCA permitted landfill.

Figure 18: MPCA Sites



b. Project Related Generation/Storage of Solid Wastes – Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage, and disposal. Identify measures to avoid, minimize, or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

AUAR Guidance: Generally, only the estimated total quantity of municipal solid waste generated and information about any recycling or source separation programs of the RGU need to be included.

According to Anoka County's Hazardous Waste Ordinance 2018-7 and Solid Waste Management Ordinance number 2022, Anoka County will ensure compliance with applicable laws, rules, and ordinances related to the management of solid and hazardous waste as required by Minnesota Statutes, section 473.811.

Construction Generated Solid Waste

Construction of the proposed development would generate construction-related waste materials such as wood, packaging, excess materials, and other wastes, which would either be recycled or disposed of in the proper facilities in accordance with City of Lino Lakes Ordinances and state regulations and guidelines.

Redevelopment of portions of the site may generate earth materials and debris during demolition activities. Demolition debris is inert material such as concrete, brick, bituminous, and rock. The solid wastes generated during demolition would be recycled or disposed of at a state-permitted landfill. For solid waste generated from the completed project, a source recycling/separation plan would be implemented, and wastes that cannot be recycled would be managed in accordance with state regulations and guidelines.

Operation Generated Solid Waste

Once constructed, future development should only generate municipal solid waste and household hazardous waste.

Scenario 1 and 2

Proposed development will generate new demands on solid waste management and sanitation services provided in the study area. It is estimated that 4.9 pounds of municipal solid waste (MSW) will be generated per person per day. An average household occupancy of 2.62 was applied to the estimated residential units based on 2015-2019 US Census Bureau data. The resulting residential MSW generated per year based upon the number of residences proposed in Scenario 1 is 6,373 tons, and Scenario 2 is 6,560. It is estimated that the non-residential (commercial/industrial) waste stream will be 720 tons and 744 tons per year under Scenario 1 and Scenario 2, respectively.

Under both development scenarios, recycling for buildings in the AUAR study area will be conducted in accordance with the 2016 Recycling Law (Minnesota Statutes, sections 115A.151 and 115A.552).

c. Project Related Use/Storage of Hazardous Materials – Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location, and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size, and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spills or releases of hazardous materials. Identify measures to avoid, minimize, or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

AUAR Guidance: Not required for an AUAR. Potential locations of storage tanks associated with commercial uses in the AUAR should be identified (e.g., gasoline tanks at service stations).

No underground or above ground storage tanks have been identified for the proposed development scenarios.

a. Project Related Generation/Storage of Hazardous Wastes – Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize, or mitigate adverse effects from the generation/storage of hazardous wastes including source reduction and recycling.

AUAR Guidance: Not required for an AUAR.

Not required for an AUAR.

14. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.

AUAR Guidance: The description of fish and wildlife resources should be related to the habitat types depicted on the cover types map. Any differences in impacts between development scenarios should be highlighted in the discussion.

The majority of the land within the AUAR study area has been previously disturbed through agricultural and private residential development. There are three public water wetlands, one area of Minnesota Biological Survey Site of Biodiversity Significance, and 21 Regionally Significant Ecological Areas (RSEAs) located within one mile of the study area (see **Figure 19**). There are 21 native plant communities within one mile of the study area. Approximately 155 acres of the site consist of wooded land cover and 89 acres of wetlands. Existing cover types are shown in **Figure 7** and **Table 3**.

b. Describe rare features such as state-listed (endangered, threatened, or special concern) species, native plant communities, Minnesota Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-1074) and/or correspondence number from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe results.

AUAR Guidance: For an AUAR, prior consultation with the DNR Division of Ecological Resources for information about reports of rare plant and animal species in the vicinity is required. Include the reference numbers called for on the EAW form in the AUAR and include the DNR's response letter. If such consultation indicates the need, an on-site habitat survey for rare species in the appropriate portions of the AUAR area is required. Areas of on-site surveys should be depicted on a map, as should any "protection zones" established as a result.

Federally Listed Species

The IPaC project planning tool provided by the U.S. Fish and Wildlife Service (USFWS) was used to identify federally-listed threatened, endangered, and special concern species within the study area. The IPaC tool identified five federally-listed species within this area:

- **Monarch Butterfly:** The monarch butterfly (*Danaus plexippus*) is designated as a proposed threatened species by the USFWS in 2024 and is documented within Anoka County. According to the USFWS, there are many potential reasons for the butterfly's decline, including habitat loss at breeding and overwintering sites, disease, pesticides, logging at overwintering sites, and climate change. Potential suitable habitat for the Monarch Butterfly may be located in the unmanicured portions of the study area.
- **Rusty Patched Bumble Bee:** The rusty patched bumble bee (*Bombus affinis*) was designated as a federal endangered species by the USFWS in February 2017 and is documented within Anoka County. According to the USFWS, habitat for this species includes grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. The majority of the study area is located within a low potential zone for the Rusty Patched Bumble Bee and a section of the southwest corner is located within a high potential zone.[21] Potential suitable habitat for the rusty patched bumble bee may be located in the unmanicured portions of the study area.
- **Whooping Crane** The whooping crane (*Grus Americana*) is designated as an experimental population, non-essential species by the USFWS in Minnesota in 2001 and is documented in Anoka County. Non-essential experimental populations are treated as threatened species on national wildlife refuges and national park lands, and as a proposed species on private land. The preferred habitat for the species includes shallow marshes and adjacent, open grasslands. Potential suitable habitat for the whooping crane may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of adjacent unmanicured areas present throughout the study area.
- **Western Regal Fritillary:** The western regal fritillary (*Speyeria idalia*) was designated as proposed threatened by the USFWS in 2024 and is documented in Anoka County. The western regal fritillary is most often found in native prairie habitat regions, specifically in prairies that contain violets (*Viola sp*). Larval development may occur in upland prairie, and larvae feed exclusively on violets. The adult western regal fritillary feeds on a variety of floral nectar. Potential suitable habitat for the western regal fritillary may be located in the unmanicured portions of the study area.
- **Salamander Mussel:** The salamander mussel (*Simpsonaias ambiguea*) was designated as proposed threatened 2023. Before the species was federally listed in 2023, it was listed as a threatened species in Minnesota in 1996.
  The salamander mussel is a small, thin-shelled mussel that inhabits swift-flowing rivers and streams with areas of shelter under rocks or in crevices. rivers, streams, and in some cases lakes with natural flow regimes. Seasonal low flow is expected in some systems and can be tolerated by salamander mussel, though periodic drying or intermittent flow in river habitats generally do not support mussels. No suitable habitat for the salamander mussel was identified within the study area due to lack of identified deep water flowing streams. Reviewed NWI riverine and NHD flowline features were considered intermittent in nature and therefore unsuitable for the salamander mussel.

[21] Rusty Patched Bumble Bee Map. Available at https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html

State-Listed Species

Kimley-Horn conducted a review of the DNR Natural Heritage Information System (NHIS) per license agreement LA-1074. According to the NHIS mapped data, no records within the study area itself. Within one mile of the study area, 15 species were identified, as listed below. Additionally, Kimley-Horn initiated consultation with the Minnesota DNR for the study area. A Natural Herriage Review letter was provided by the DNR and is included in **Appendix B**.

- **A Bristle Berry:** A bristle berry (*Rubus stipulates*) is a Midwestern plant with a very limited distribution in Minnesota and adjacent states. They are most often found in shallow wetlands on the Anoka Sandplain. They prefer open and sunny habitats with soils that consist of a thin layer of peat over a saturated layer of sand. Potential suitable habitat for a bristle berry may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Autumn Fimbry:** The autumn fimbry (*Fimbristylis autumnalis)* is a plant most commonly found in wet meadows and along the margins of shallow lakes or ponds on the Anoka sand plain. In many cases these plants occur on level areas with minimal depth to water table. Potential suitable habitat for the autumn fimbry may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Black Huckleberry:** The black huckleberry (*Gaylussacia baccata)* is an understory shrub most often found in well drained and sandy soils within fire dependent forests. These species are often associated with fire dependent trees such as the pin oak, jack pine, and red pines. Potential suitable habitat for the black huckleberry may be located within the study area due to the forested portions located throughout the study area.
- **Blanding's Turtle:** Blanding's turtle (*Emydoidea blandingii*) is a small reptile, roughly 5-10 inches and is most commonly found in wetland complexes with adjacent sandy uplands. Suitable wetlands for Blanding's turtle habitat require calm shallow waters with rich aquatic vegetation. Potential suitable habitat for the Blanding's turtle may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Blunt-lobed Grapefern:** The blunt-lobed grapefern *(Sceptridium oneidense***)** occurs in the understory of hardwood forests of maple, birch, ash, and oak trees. Within these forested areas, the blunt-lobed grapefern is located in moist to wet areas such as swamp edges and depressions that hold temporary surface water during rain periods. Sightings of this species generally note that it occurs in scattered clumps among more common fern species.
- **Clinton's Bulrush:** Clinton's bulrush (*Trichophorum clintonii)* is a plant that occurs in a variety of habitats, with few obvious features in common. Conditions are usually sunny or partially shaded and range from dry to moist. Soils are often sandy or sandy-loams, though sometimes heavy clay-loams. In Minnesota, these species have been observed to inhabit open prairies and edges of fire dependent forests. Potential suitable habitat for the Clinton's bulrush may be located within the study area due to the forested portions and unmanicured areas located throughout the study area.

- **Cross-leaved Milkwort:** The cross-leaved milkwort (*Polygala cruciate*) is a plant that has been observed in Minnesota primarily on wet sandy shores of shallow lakes in the Anoka Sandplain, and in sandy or peaty meadows or swales. These habitats may be in low depressions or at the margins of emergent wetlands. Habitats are typically open and sunny with acidic soils and dynamic water tables. Potential suitable habitat for the cross-leaved milkwort may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Fuller's Bristle-berry:** Fuller's bristle-berry (*Rubus fulleri)* is a plant that has been observed on the Anoka sandplain in swales and wet meadows. Suitable habitat consists of shallow wetlands sustained by a high-water table and have a ground layer of sedges, broad-leaved herbaceous plants, and often scattered shrubs. Adjacent uplands may also be suitable, if there is direct sunlight and little competition Potential suitable habitat for the Fuller's bristle-berry may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Lance-leaved Violet:** The lance-leaved violet (*Viola lanceolata)* is a plant which occurs in low, moist meadows with a sandy substrate, moist swales in sand dunes and savannas, and occasionally on sandy lakeshores. Potential suitable habitat for the lance-leaved violet may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Pale Sedge:** The pale sedge (*Carex pallescens*) is a vascular plant that has been observed on the margins of fire-dependent forests which inhabit pine, spruce, aspen, and birch. It is most commonly associated with the Lake Superior shoreline but has been documented in Anoka County as well. Potential suitable habitat for the pale sedge may be located within the study area due to the forested portions located throughout the study area.
- **Slimspike Three-awn:** The slimspike three-awn (*Aristida longespica*) is a vascular plant that has been observed in wet meadow and wet prairie habitats associated with the Anoka Sandplain. Soils located in suitable habitat for the three-awn are generally sandy and saturated for a large portion of the year. Potential suitable habitat for the slimspike three-awn may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **St. Lawrence Grapefern:** The St. Lawrence greapefern (*Sceptridium rugulosum)* is a vascular plant that grows in low and moist habitats in brushy or grassy areas and in open forested areas. It can be found growing in mossy areas in fire-dependent pine forests. Potential suitable habitat for the grapefern has also been documented in the transition zone between these habitats and adjacent habitats. The St. Lawrence grapefern may be located within the study area due to the forested portions located throughout the study area.
- **Swamp Blackberry:** The swamp Blackberry (*Rubus semisetosus*) is a vascular plant that inhabits moist sand along the margins of groundwater-fed swales or marshes but also in surface-dry uplands that are just above the water table. These are usually grass- or sedge-dominated habitats with scattered brush. Potential suitable habitat for the swamp blackberry may be located within the study area due to the presence

of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.

- **Toothcup:** The toothcup (*Rotala ramosior*) is a vascular plant which typically occurs on the sandy shores of small shallow lakes set in a savanna landscape. Potential suitable habitat for the toothcup is unlikely to be present within the study area due to the absence of larger lakes and lakeshore within the study area.
- **Tubercled Rein Orchid**: The tubercked rein orchid (*Platanthera flava var. herbiola*) is a vascular plant which inhabits wet meadows or sunny savanna swales. It also occurs at the margins of shallow marshy lakes, especially where there is a turf of low-growing native grasses or sedges. Potential suitable habitat for the trubercled rein orchid may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.
- **Twisted Yellow-eyed Grass:** The twisted yellow-eyed grass (*Xyris torta*) is a vascular plant that inhabits wet, sandy shores of shallow lakes in the Anoka Sandplain and in sandy or peaty meadows or swales. These environments are typically open and sunny, with acidic soils and fluctuating water tables. Potential suitable habitat for the twisted yellow-eyed grass may be located within the study area due to the presence of mapped NWI wetlands, NHD waterbodies, and Public Water Wetlands within the study area along with the presence of mapped sandy soils within the study area.

c. Discuss how the identified fish, wildlife, plant communities, rare features, and ecosystems may be affected by the project, including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Federally Listed Species

- **Monarch Butterfly:** The proposed project may affect monarch butterflies and/or suitable monarch habitat, but disturbances are anticipated to be temporary in nature and/or insignificant given available foraging and breeding habitat in the surrounding landscape; therefore, long-term impacts to the monarch butterfly are not anticipated. Additionally, the use of native species in seed mixes may be used to promote pollinator friendly habitat within the study area. Current climate trends may impact the availability of suitable habitat in the study area.
- **Rusty Patched Bumble Bee:** The proposed project may affect the rusty patched bumble bee and/or suitable bee habitat, but disturbances are anticipated to be temporary in nature and/or insignificant given available foraging and breeding habitat in the surrounding landscape; therefore, long-term impacts to the rusty patch bumble bee are not anticipated. Additionally, the use of native species in seed mixes may be used to promote pollinator friendly habitat within the study area. Current climate trends may impact the availability of suitable habitat in the study area.
- **Whooping Crane:** The proposed project may affect the whooping crane and/or suitable crane habitat. Given that the whooping crane is designated as an experimental population, non-essential species by the USFWS and the Proposed Action would be completed on lands outside of a National Wildlife Refuge or National Park. The proposed project is not expected to significantly diminish the quality or extent of whooping crane suitable habitat within the study area vicinity. Therefore,

the proposed project is not anticipated to have an adverse impact on the whooping crane.

- **Western Regal Fritillary:** The proposed project may affect the western regal fritillary and/or suitable fritillary habitat, but disturbances are anticipated to be temporary in nature and/or insignificant given available foraging and breeding habitat in the surrounding landscape; therefore, long-term impacts to western regal fritillary are not anticipated. Additionally, the use of native species in seed mixes may be used to promote pollinator friendly habitat within the study area. Current climate trends may impact the availability of suitable habitat in the study area.
- **Salamander Mussel:** The proposed project is not anticipated to affect the salamander mussel as a result of the lack suitable mussel habitat identified within the study area or directly adjacent to the study area.

State-Listed Species

The MnDNR Natural Heritage Review (NHR) letter identified the following state-listed species may be affected by the proposed project scenarios. Many state-listed plant species were identified as having the potential to be affected by the proposed development scenarios:

- **A Bristle Berry (*Rubus stipulates*) -** State-listed endangered species
- **Autumn Fimbry (Fimbristylis autumnalis) -** State-listed threatened species
- **Black Huckleberry *(Gaylussacia baccata)* –** State-listed threatened species
- **Blunt-lobed Grapefern *(Sceptridium oneidense)* –** State-listed threatened species
- **Clinton's Bulrush *(Trichophorum clintonii)* –** State-listed threatened species
- **Cross-leaved Milkwort *(Polygala cruciata)* –** State-listed endangered species
- **Fuller's Bristle-berry *(Rubus fulleri)* –** State-listed threatened species
- **Lance-leaved Violet *(Viola lanceolata)* –** State-listed threatened species
- **Pale Sedge *(Carex pallescens)* –** State-listed endangered species
- **Slimspike Three-awn *(Aristida longespica var. geniculata)* –** State-listed endangered species
- **St. Lawrence Grapefern *(Sceptridium rugulosum)* -** State-listed threatened species
- **Swamp Blackberry** (***Rubus semisetosus)* –** State-listed threatened species
- **Toothcup *(Rotala ramosior*) –** State-listed threatened species
- **Tubercled Rein Orchid *(Platanthera flava var. herbiola*) –** State-listed threatened species
- **Twisted Yellow-eyed Grass *(Xyris torta)* –** State-listed endangered species

Blanding's turtle *(Emydoidea blandingii)* is a state-listed threatened species has been documented in the vicinity of the study area.

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) have federal-level protections under the Bald and Golden Eagle Treaty Act (BGEPA) (16 U.S.C. 668-668d). Originally enacted in 1940, and since amended, BGEPA prohibits anyone without a permit issued by the Secretary of the Interior from take of bald or golden eagles, including their parts, nests, or eggs. In February 2024, the USFWS published a final rule pertaining to the issuance of

permits for eagle incidental take and eagle nest take in the Federal Register (89 FR 9920). The new rule is effective as of April 12, 2024. Bald and golden eagles have the potential to occur within the study area. In the event a bald or golden eagle nest is observed within the AUAR study area, all BGEPA protections will be adhered to, including USFWS Incidental Take guidelines. If required, an Incidental Take permit will be applied for from the USFWS.

Invasive Species

Invasive species are a major cause of biodiversity loss and are considered biological pollutants by the DNR. Invasive species can be moved on construction equipment, landscaping equipment, and other debris.

Stormwater

Stormwater run-off can cause a number of environmental problems. When stormwater drains off a site, it can carry sediment and pollutants that harm lakes, rivers, streams, and wetlands which in turn may harm wildlife.

Tree Removal

The AUAR study area contains approximately 155 acres of wooded land (see **Figure 7**). Forests and forested areas provide an important natural resource in Minnesota. Forest clearing and tree removal creates a variety of environmental impacts including habitat destruction, biodiversity impairment, soil erosion, and loss of carbon sinks. Although some tree removal will be necessary, the scope of removal will be limited as much as feasible to support the proposed development. All tree removal will be completed during the winter months (November 1 to March 31) to reduce potential for disease spreading, along with impacts to insects, nesting wildlife, and bat species. If winter tree clearing is not feasible, technical consultation with the USFWS may be required. Tree removal will adhere to the City's tree preservation requirements. The City of Lino Lakes regulates tree preservation and requires builders to submit a tree preservation plan prior to construction. City staff review these plans and attempt to identify and save as many significant trees as feasible.[22]

Other Sensitive Ecological Resources

Two Regionally Significant Ecological Areas (RESAs) are located within the project limits. One RSEA is entirely located within a previously developed area in the southwest portion of the AUAR study area and therefore no adverse impacts are anticipated. The second RSEA is located in a forested area in the east-central portion of the AUAR study area. Ground disturbance in this area could impact the RSEA. If future development in the area proposes impacts near the mapped RESA in the east-central portion of the study area, a survey may be required. If impacts are proposed to the field surveyed resource, avoidance and minimization measures would be discussed with the DNR to identify next steps. No native plant communities are located within or adjacent to the study area.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Federally Listed Species

- **Monarch Butterfly:** The use of native plant species in seed mixes may be used to promote pollinator friendly habitat within the study area.
- **Rusty Patched Bumble Bee:** The use of native plant species, including flowering plants, in seed mixes may be used to promote pollinator friendly habitat within the study area. Additional mitigation measures include the minimization of mowing during the active season, keeping some areas un-mowed, using a high cutting height (ideally 12-16 inches), and incorporating additional wildflower planting/restoration. As

[22] Source: Lino Lakes, Minn., Municipal Code § 1008.12 530

the RPBB High Potential Zone in the study area may contain suitable habitat, a habitat assessment may be required.

- **Whooping Crane:** No mitigation measures are anticipated to be required.
- **Western Regal Fritillary:** The use of native plant species in seed mixes may be used to promote pollinator friendly habitat within the study area.
- **Salamander Mussel:** Avoidance of swift flowing streams and rivers that display a rocky substrate is recommended to avoid impacts to the mussel.

State Listed Species

Avoidance and minimization recommendations were provided for the following species below from the DNR.

- To demonstrate avoidance, a qualified surveyor will need to determine if suitable habitat exists within the activity impact area and, if so, conduct a survey prior to any project activities for the following species:
  - **A Bristle Berry (*Rubus stipulates*) -** State-listed endangered species
  - **Autumn Fimbry (Fimbristylis autumnalis) -** State-listed threatened species
  - **Black Huckleberry *(Gaylussacia baccata)* –** State-listed threatened species
  - **Blunt-lobed Grapefern *(Sceptridium oneidense)* –** State-listed threatened species
  - **Clinton's Bulrush *(Trichophorum clintonii)* –** State-listed threatened species
  - **Cross-leaved Milkwort *(Polygala cruciata)* –** State-listed endangered species
  - **Fuller's Bristle-berry *(Rubus fulleri)* –** State-listed threatened species
  - **Lance-leaved Violet *(Viola lanceolata)* –** State-listed threatened species
  - **Pale Sedge *(Carex pallescens)* –** State-listed endangered species
  - **Slimspike Three-awn *(Aristida longespica var. geniculata)* –** State-listed endangered species
  - **St. Lawrence Grapefern *(Sceptridium rugulosum)* -** State-listed threatened species
  - **Swamp Blackberry** (***Rubus semisetosus)* –** State-listed threatened species
  - **Toothcup *(Rotala ramosior*) –** State-listed threatened species
  - **Tubercled Rein Orchid *(Platanthera flava var. herbiola*) –** State-listed threatened species
  - **Twisted Yellow-eyed Grass *(Xyris torta)* –** State-listed endangered species

The MnDNR required specific mitigation efforts for the Blanding's turtle, which include:

- Avoid wetland and aquatic impacts during hibernation season, between September 15 and April 15, if the area is suitable for hibernation.
- Limit erosion and sediment control to wildlife friendly erosion control.[23]
- Check bare ground within construction areas for turtles before the use of heavy equipment or any ground disturbance.
- Inspect trenches, holes, or depressions prior to starting work each day and immediately prior to filling. Upon completion, holes and trenches must be filled.
- The Blanding's turtle flyer sheet[24] must be given to all contractors working in the area.
- Report any sightings using the DNR Plant and Animal Observation Form.[25]
- If turtles are in imminent danger, move them by hand out of harm's way following Minnesota DNR's guidelines[26]; otherwise, they are to be left undisturbed. Directions on how to move turtles safely can be found at Helping Turtles Across the Road

Additional voluntary mitigation measures were provided in the Natural Heritage Review Letter which are not required by the DNR, but were still recommended include:

- Recommendations from List 1 of the Blanding's turtle fact Sheet.[27] If greater protection for turtles is desired, implement recommendations from List 2.
- Nesting occurs in open (grassy or brushy) sandy uplands. Blanding's turtles have been known to nest in residential areas, farm fields, and areas of exposed soil/sand/sediment (including soil stockpiles and gravel pads). To minimize impacts:
    - Avoid impacts to potential nesting habitat from June 1 through September 15, or
    - Exclude Blanding's turtles from potential nesting habitat from May 15 through July 15. To exclude turtles from potential nesting habitat: Install a barrier, buried 10 inches, around suitable nesting habitat.
- Minimize impacts to small, vegetated temporary wetlands (Types 2 & 3) as much as possible.
- Avoid hydro-mulch products that contain any materials with synthetic (plastic) fiber additives, as the fibers can re-suspend and flow into waterbodies.
- Disturbed ground should be restored to pre-construction contours and re-vegetated with native species suitable to the local habitat.[28]
- Culverts should be 36 inches or greater in diameter, at least twice as wide as the normal width of open water, and have an elliptical bottom, flat bottom, or be embedded.
- Roads should be ditched, not curbed or below grade. If curbs must be used, install wildlife friendly curbs to allow turtles to leave the road. Gutters and stormwater inlets should be designed to prevent turtles from entering the storm sewer.

Sensitive Ecological Resources

The southern RSEA is completely located within an existing housing development, and therefore no impacts are expected. The RSEA along the eastern border of the study area is currently a wooded area with some single-family residential use in the vicinity. Potential impacts to this area are proposed in both AUAR scenarios. Coordination with the DNR is ongoing to determine if mitigation is needed.

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[23] Wildlife-friendly Erosion Control Fact Sheet.
[24] Blanding's Turtle Flyer Sheet.
[25] Plant and Animal Observation Form.
[26] Helping Turtles Across the Road Guidelines.
[27] Blanding's Turtle Fact Seet.
[28] Native Plant ID and Information Guidance.

Native Plant Communities

No adverse impacts are anticipated to native plant communities as there is none located within the AUAR study area or directly adjacent to the study area.

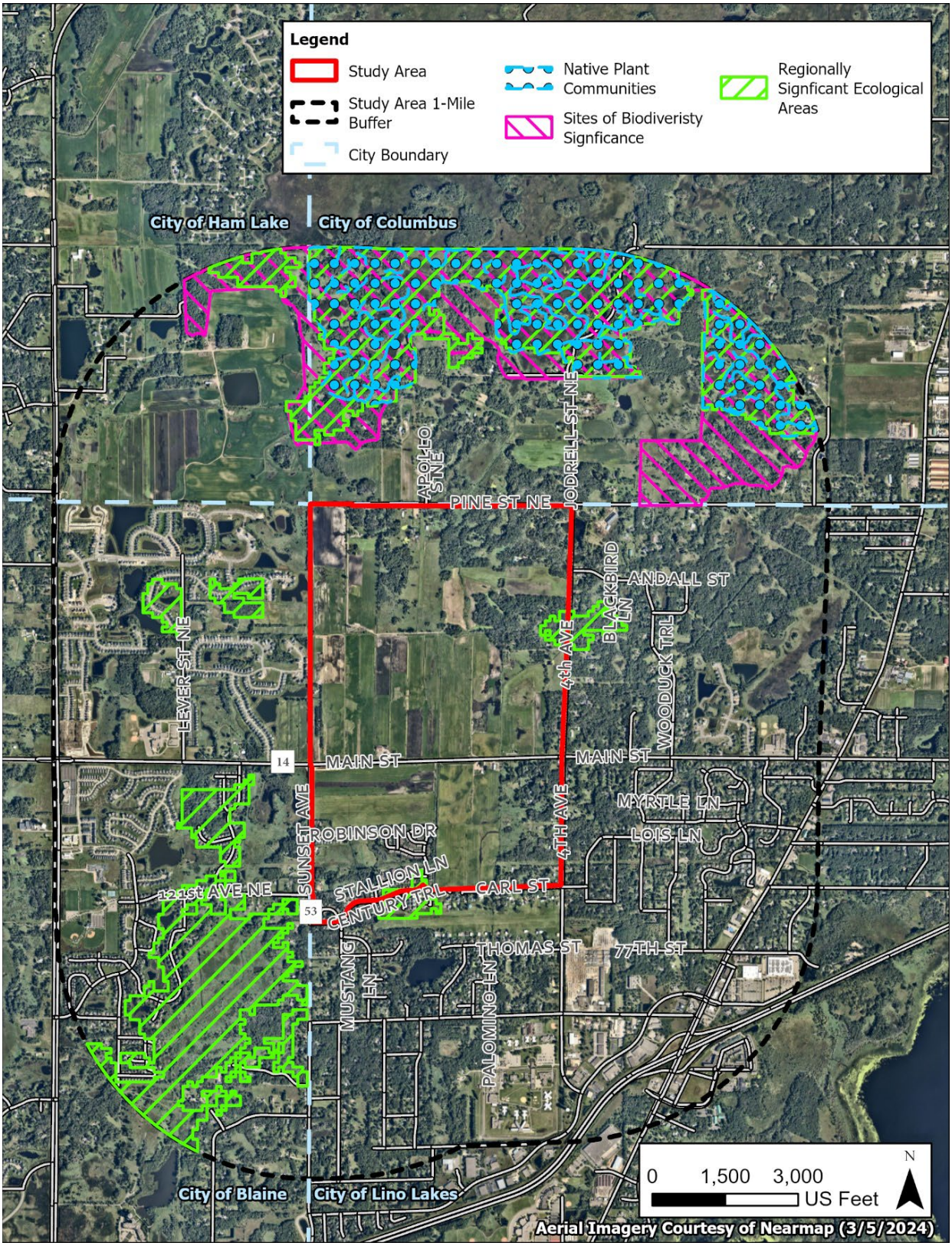
Invasive Species

Invasive species will be controlled onsite during construction. Additionally, both Scenario 1 and Scenario 2 include areas of added green space with native plantings that may provide some additional habitat for songbirds, small mammals, and insects.

Stormwater

The proposed development scenarios include stormwater management and treatment of all stormwater runoff within the AUAR study area (discussed in Item 12.b.ii), which will improve water quality.

Figure 19: Native Plant Communities, Sites of Biodiversity Significance, and Regionally Significant Ecological Areas



15. Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include 1) historic designations; 2) known artifact areas; and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

AUAR Guidance: For an AUAR, contact with the State Historic Preservation Office and State Archeologist is required to determine whether there are areas of potential impacts to these resources. If any exist, an appropriate site survey of high probability areas is needed to address the issue in more detail. The mitigation plan must include mitigation for any impacts identified.

A review of Minnesota's Statewide Historic Inventory Portal (MNSHIP) mapper was conducted for potential historical resources and there are none listed within or adjacent to the study area.

A review of the Office of the State Archaeologist (OSA) mapper was conducted for archaeological sites inventoried by the OSA and archaeological and cultural sites inventoried by the Minnesota Indian Affairs Council (MIAC) and there are no known archaeological sites within the study area.

If a federal nexus is identified during preparation of project permits (if a U.S. Army Corps of Engineer permit is required due to impacts to regulated wetlands), a Phase I Archaeological Assessment may be necessary. Additionally, if human remains are recovered at any time during archaeological investigation or development, all activities must stop and consultation initiated with the OSA and MIAC.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

AUAR Guidance: Any impacts on scenic views and vistas present in the AUAR should be addressed. This would include both direct physical impacts and impacts on visual quality or integrity. EAW Guidelines contains a list of possible scenic resources.

If any non-routine visual impacts would occur from the anticipated development, this should be discussed here along with appropriate mitigation.

The AUAR study area includes existing agricultural and residential land that is not near any unique designated scenic views or vistas. Any development of agricultural land will have an impact on the visual look of a property. Future development would conform with the city ordinances for building height, building form, landscape screening, and lighting to avoid impacts to neighboring properties and species. No significant visual impacts are anticipated.

As building and site designs advance, lighting practices will be selected to address ecological concerns and prevent avoidable impacts to insects, wildlife, rare plants, and adjacent natural areas. Guidance from the USFWS to minimize blue light, uplight, and backlight will be adhered to the extent practicable.

17. Air

a. **Stationary Source Emissions – Describe the type, sources, quantities, and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants and criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health, or applicable regulatory**

criteria. Include a discussion of any methods used to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

AUAR Guidance: This item is not applicable to an AUAR. Any stationary air emissions source large enough to merit environmental review requires individual review.

Not applicable for an AUAR.

b. Vehicle Emissions – Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g., traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

AUAR Guidance: Although the MPCA no longer issues Indirect Source Permits, traffic-related air quality may still be an issue if the analysis in Item 20 indicates that development would cause or worsen traffic congestion. The general guidance from the EAW form should still be followed. Questions about the details of air quality analysis should be directed to MPCA staff.

The Minnesota Department of Transportation (MnDOT) has developed a screening method designed to identify intersections that will not cause a carbon monoxide (CO) impact above state standards. MnDOT has demonstrated that even the 10 highest traffic volume intersections in the Twin Cities do not experience CO impacts.[29] Therefore, intersections with traffic volumes lower than these 10 highest intersections will not cause a CO impact above state standards. MnDOT's screening method demonstrates that intersections with total daily approaching traffic volumes below 82,300 vehicles per day will not have the potential for causing CO air pollution problems. None of the intersections in the AUAR study area exceed the criteria that would lead to a violation of the air quality standards.

c. Dust and Odors – Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under Item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

AUAR Guidance: Dust and odors need not be addressed in an AUAR, unless there is some unusual reason to do so. The RGU might want to discuss as part of the mitigation plan, however, any dust control ordinances in effect.

The proposed development may generate temporary fugitive dust emissions during construction. The City of Lino Lakes regulates dust in accordance with MPCA standards.[30] Dust will be generated during the construction process on the site. The contractors will be required to control dust generation by using watering trucks. The adjacent residential parcels will be the nearest receptors of the dust. Mitigation of the short-term dust and odor impacts will be managed through proper coordination and construction planning.

In either scenario, the construction and operation of the project is not expected to generate objectionable odors.

[29] Source: MnDOT CO Hot Spot Screening Method. https://www.dot.state.mn.us/project-development/subject-guidance/airquality/process.html#:~:text=The%20Twin%20Cities%20area%20has,carbon%20monoxide%20(CO)%20violations

[30] Source: Lino Lakes, Minn., Municipal Code § 1007.043

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification – For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to cometo that conclusion and any GHG emission sources not included in the total calculation.

About Greenhouse Gases (GHGs)

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming.[31]

Project Related GHG Emissions

This section describes the GHG emissions from the existing buildings within the study area and include an estimated quantification of the following GHG emissions associated with the proposed scenarios:

- Carbon dioxide (CO_2)
- Nitrous oxide (N_2O)
- Methane (CH_4)

The projected GHG emissions are provided on an average annual basis using the CO_2 equivalent (CO_2e) and include the proposer's best estimate of average annual emissions over the proposed life/design service life of future development. The estimates include emissions from the construction and operating phases of the scenarios. Emissions were estimated using the US Environmental Protection Agency's Simplified GHG Emissions Calculator (SGEC) (Version 7 June 2021)[32] and are summarized in **Table 11** and **Table 12** by project phase (i.e., construction and operations) and source type (e.g., combustion from mobile equipment, off-site electricity) (see **Appendix C** for tables).

[31] Summarized from U.S. EPA, Overview of Greenhouse Gases: https://www.epa.gov/ghgemissions/overview-greenhouse-gases

[32] Source: https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator

Construction emissions for the two proposed scenarios are based on length of construction[33] and are from mobile equipment, including passenger cars, light-duty trucks, and medium and heavy-duty trucks, and construction equipment (both gasoline and diesel).

Existing emissions during operations (full build out of either scenario) include natural gas (stationary equipment) for heating buildings and water, on-site generator testing, use of off-site electricity, and off-site waste management. Emissions from cooling and refrigeration systems are not accounted for in this analysis as GHGs from refrigerants are approximately less than 5 percent of the total GHG emissions of a building.[34]

Table 11: Construction Emissions

Scope[35]	Emission Type	Emission Sub-Type	Emitant	Scenario 1 Project-Related CO_{2e} Emissions	Scenario 2 Project-Related CO_{2e} Emissions
Scope 1	Combustion	Mobile equipment	CO2, N2O, CH4	278,006	336,743
Total				**278,006**	**282,965**

Table 12: Operational Emissions

Scope	Emission Type	Emission Sub-Type	Emitant	Existing CO2e Emissions (tons/year)	Scenario 1 Project-Related CO2e Emissions (tons/year)	Scenario 2 Project-Related CO2e Emissions (tons/year)
Scope 1	Combustion	Stationary equipment	CO2, N2O, CH4	534	7,154	7,291
Scope 2	Off-site electricity	Grid-based	CO2, N2O, CH4	862	12,066	12,324
Scope 3	Off-site waste management	Area	CO2, CH4	261	3,537	3,642
Total				**1,657**	**22,757**	**23,257**

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

In both Scenario 1 and Scenario 2, the following are potential design strategies and sustainability measures that could be taken into consideration for future development to reduce emissions:

[33] Total construction duration of the site is estimated to be completed over 6 to 8 construction seasons, over 30+ years.

[34] Source: https://practicegreenhealth.org/sites/default/files/2019-06/PracticeGreenhealth_GHG_Toolkit_0.pdf

[35] Emissions are categorized as either direct or indirect. Scope 1 emissions are direct emissions that are released directly from properties owned or under the control of the project proposer. This includes, for example, the use of mobile equipment during construction. Scope 2 and 3 emissions are indirect emissions. Scope 2 emissions are associated with the offsite generation of purchased electricity and/or steam. Scope 3 emissions are from the offsite provision of waste management services, including land disposal (landfilling), recycling, and solid waste composting.

- Use energy efficient appliances, equipment, and lighting
- Energy efficient building shells
- Encouragement of the use of alternative modes of transportation to and from the project through site design
- Implement waste best management practices and to recycle and compost appropriate material when applicable
- On-site landscaping to absorb water
- Trees, tree trenches and additional landscaping could be planted to improve local air quality, absorb greenhouse gas emissions, and reduce local urban heat island effect
- Provide electric vehicle ready charging infrastructure

Implementation of the above strategies will be evaluated on a case-by-case basis based on code requirements, feasibility, availability of materials, schedule, and tenant considerations.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.

The potential mitigation listed in Item 18.b.ii. was selected to comply with best management practices for new construction and reduce GHG emissions where practicable during operations.

iii. Quantify the proposed project's predicted net lifetime GHG emissions (total tons per number of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

The Next Generation Energy Act requires the state to reduce greenhouse gas emissions in the state by 80 percent between 2005 and 2050, while supporting clean energy, energy efficiency, and supplementing other renewable energy standards in Minnesota. The MPCA's biennial GHG emissions reduction report from 2021 identifies strategies for reducing emissions in the three economic sectors with the highest emissions – transportation, electricity generation, and agriculture, forestry, and land use.

In both Scenarios, the expected lifespan of the project is 50 years, this equates to a total estimated 1,137,850 CO2e metric tons over the lifetime of the development for Scenario 1 and 1,162,850 CO2e metric tons for Scenario 2 (for operational emissions). Future developers will evaluate implementing the sustainability measures listed in Item 18.b.i. to reduce operational emissions to the extent practicable. The proposed project will be built in compliance with state regulations and city code.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area; 2) nearby sensitive

receptors; 3) conformance to state noise standards; and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

AUAR Guidance: Construction noise need not be addressed in an AUAR, unless there is some unusual reason to do so. The RGU might want to discuss as part of the mitigation plan, however, any construction noise ordinances in effect.

If the area will include or adjoin major noise sources, a noise analysis is needed to determine if any noise levels in excess of standards would occur, and if so, to identify appropriate mitigation measures. With respect to traffic-generated noise, the noise analysis should be based on the traffic analysis of Item 20.

Existing Noise

The AUAR study area is currently mostly an undeveloped area with 61 acres of existing low to medium residential homes in the southwest quadrant. The existing noise sources within the study area consist mainly of noise from the surrounding roadways and land uses. The nearest receptors to future development are the residential homes in the southwest corner and northern portion of the study area. These nearest noise receptors will experience noise levels during construction that are elevated in comparison to existing noise levels. Grading and excavation activities on site will require heavy construction equipment.

Traffic Generated Noise

A sound increase of 3 A-weighted decibels (dBA) is barely noticeable by the human ear, a 5 dBA increase is clearly noticeable, and a 10 dBA increase is heard as twice as loud. For example, if the sound energy is doubled (i.e., the amount of traffic doubles), there is a 3 dBA increase in noise, which is just barely noticeable to most people. On the other hand, if traffic increases by a factor of 10, the resulting sound level will increase by about 10 dBA and be heard as twice as loud.

Scenario 1 and 2

Traffic volumes in the study area are either on roadways that do not have receivers that are sensitive to noise, or the traffic levels attributable to the future development are well below the amount that would generate a sound increase that could be noticeable. The change in traffic noise levels is not anticipated to be readily perceptible.

Construction Noise

As stated in the AUAR guidelines, construction noise need not be addressed unless there is some unusual reason to do so. No unusual circumstances have been identified that would necessitate a detailed construction noise analysis.

Scenario 1 and 2

The Lino Lakes Code of Ordinances regulates both the hours of operation for construction equipment and allowable noise levels. Normal construction hours are 7:00 a.m. to 7:00 p.m., Monday through Friday. Construction of the proposed project would comply with these requirements.

Operational Noise

Scenario 1 and 2

The Lino Lakes Code of Ordinances and the MPCA regulate mechanical noise associated with building operation. Construction equipment would be fitted with mufflers that would be properly maintained during the construction process. All future development will be required to comply with these requirements.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include 1) existing and proposed additional parking spaces; 2) estimated total average daily

traffic generated; 3) estimated maximum peak hour traffic generated and time of occurrence; 4) source of trip generation rates used in the estimates; and 5) availability of transit and/or other alternative transportation modes.

Traffic Generation

The trip generation of the proposed development scenarios were estimated based on data from the Institute of Transportation Engineers' *Trip Generation Manual, 11th Edition*. A combination of ITE Land Use Code (LUC) 210 (Single-Family Detached Housing), LUC 215 (Single-Family Attached Housing), LUC 220 (Multifamily Residential, Low rise), and LUC 821 (Shopping Plaza) were utilized to estimate the trip generation potential of the two development scenarios. Estimated trip generation figures are given below in **Table 13**.

Table 13: Trip Generation Forecasts

Scenario	AM Peak Hour			PM Peak Hour			Daily
	Total	In	Out	Total	In	Out	
Scenario 1	1,992	532	1,460	2,769	1,687	1,082	31,516
Scenario 2	2,029	543	1,487	2,806	1,702	1,104	32,193

The full traffic study conducted for the AUAR can be found in **Appendix D.**

Parking

The development will conform to the off-street parking requirements outlined in section 1007.052 of the City of Lino Lakes Code of Ordinances.

Transit

There is no transit service located near the study area.

Bike and Pedestrian Infrastructure

The development of the AUAR site will include connections to the nearby trail systems, including a regional trail along Main Street which will connect from Lexington Avenue to the Rice Creek Chain of Lakes Park Reserve trails southeast of the site. Sidewalks will be a priority for any development that occurs in the AUAR area.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.*

AUAR Guidance: For AUAR reviews, a detailed traffic analysis will be needed, conforming to the MnDOT guidance as listed on the EAW form. The results of the traffic analysis must be used in the response to Items 17 and 19.

A Traffic Impact Analysis (TIA) was completed in May 2025 based on the projected trip generation of the two proposed scenarios. The results of this study can be found in **Appendix D**. Based on the detailed findings of this study, the area's transportation network is expected to support development within the AUAR study area with mitigation.

The TIA includes intersection capacity analyses for intersections adjacent to the AUAR study area and included the review of intersection operations at proposed access points (see locations identified on **Figure 18**). Other minor access points were included in the analysis based on the anticipated access locations (see the TIA in **Appendix D** for more information).

Under the Existing and No-Build conditions, all intersections operate at acceptable Levels of Service (LOS) without the need for any mitigation (beyond the planned roadway improvements). Under Scenario 1 and Scenario 2 conditions, operations are anticipated to be acceptable in the Opening Year (2030) conditions with minimal mitigation required. Additionally, with operations remaining acceptable in Opening Year (2030) build Scenario 1 & 2, an east-west roadway connection on the south half of the AUAR site is not required from a traffic operations perspective, however, the connection of Robinson Drive (Access E) would help improve connectivity to the neighborhoods.

Under Design Year (2045) Build conditions for both scenarios, substantial operational deficiencies are anticipated, and the roadway network may require significant mitigation measures including upgrading Main Street to a four-lane road, installing a roundabout at Main Street & 4th Avenue, and capacity improvements at Main Street & Lake Drive. With mitigation in place, the study intersections are anticipated to operate acceptably. The infrastructure improvements within the AUAR site should be evaluated as development occurs on the site.

The LOS results from SimTraffic (for stop-controlled and signalized intersections) and Rodel (for roundabouts) are given below in **Table 14.**

Table 14: Intersection LOS

Location	Traffic Control	Level of Service by Scenario, with Mitigation						
		Existing/No-Build			Scenario 1		Scenario 2	
		2025	2030	2045	2030	2045	2030	2045
AM Peak Hour								
Main Street & Sunset Avenue	Roundabout	A	A	A	A	A	A	B
Sunset Avenue & Robinson Drive	Side Street Stop[36]	A	A	A	A	A	A	A
Sunset Avenue & Century Trail	Side Street Stop[36]	A	A	A	A	A	A	A
Sunset Avenue & Lilac Street	Side Street Stop / Roundabout[36]	A	A	A	A	C	A	E
Pine Street & 4th Avenue	Side Street Stop	A	A	A	A	A	A	A
Main Street & 4th Avenue	Side Street Stop	B	B	B	B	A	B	A
4th Avenue & Lilac Street	Side Street Stop	B	B	B	A	C	A	B
Lake Drive & Pine Street	Side Street Stop	A	A	A	A	B	A	B
Lake Drive & Main Street	Signal / Roundabout[37]	B	A	A	A	B	A	B

[36] Ongoing Sunset Avenue improvement project will reconstruct Sunset Avenue & Lilac Street as a single lane roundabout and convert other intersections to right-in/right-out; expected to be completed by 2030.
[37] Existing signal at Lake Drive & Main Street is planned to be replaced by a single-lane roundabout by the studied Opening Year (2030).

Location	Traffic Control	Level of Service by Scenario, with Mitigation						
		Existing/No-Build			Scenario 1		Scenario 2	
		2025	2030	2045	2030	2045	2030	2045
AM Peak Hour								
Main Street & Sunset Avenue	Roundabout	A	A	A	A	B	B	C
Sunset Avenue & Robinson Drive	Side Street Stop[36]	A	A	A	A	A	A	A
Sunset Avenue & Century Trail	Side Street Stop[36]	A	A	A	A	A	A	A
Sunset Avenue & Lilac Street	Side Street Stop / Roundabout[36]	A	A	A	A	A	A	A
Pine Street & 4th Avenue	Side Street Stop	A	A	A	A	A	A	A
Main Street & 4th Avenue	Side Street Stop	B	A	B	C	A	C	A
4th Avenue & Lilac Street	Side Street Stop	A	A	A	A	B	A	C
Lake Drive & Pine Street	Side Street Stop	B	A	A	A	B	A	B
Lake Drive & Main Street	Signal / Roundabout[37]	C	A	C	C	C	C	C

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The following provides a summary of the mitigation improvements that were identified as part of the traffic analysis for the Northwest Main development. Note that the following list is in addition to the currently planned roadway improvements along Sunset Avenue and at Main Street & Lake Drive.

Existing (2025) Conditions

- No recommended mitigation

Opening Year (2030) No-Build Conditions

- No recommended mitigation (beyond planned improvements)

Opening Year (2030) Scenario 1 Conditions

- Install side street stop control at the site access points.
- Install right turn lanes at all access points along Sunset Avenue & Main Street
- Install a roundabout at any full-access point along Main Street (Access C)
- While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.

Opening Year (2030) Scenario 2 Conditions

- Install side street stop control at site access points.
- Install right turn lanes at all access points along Sunset Avenue & Main Street
- Install a roundabout at any full-access point along Main Street (Access C)
- While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.

Design Year (2045) No-Build Conditions

- No recommended mitigation (beyond planned improvements)

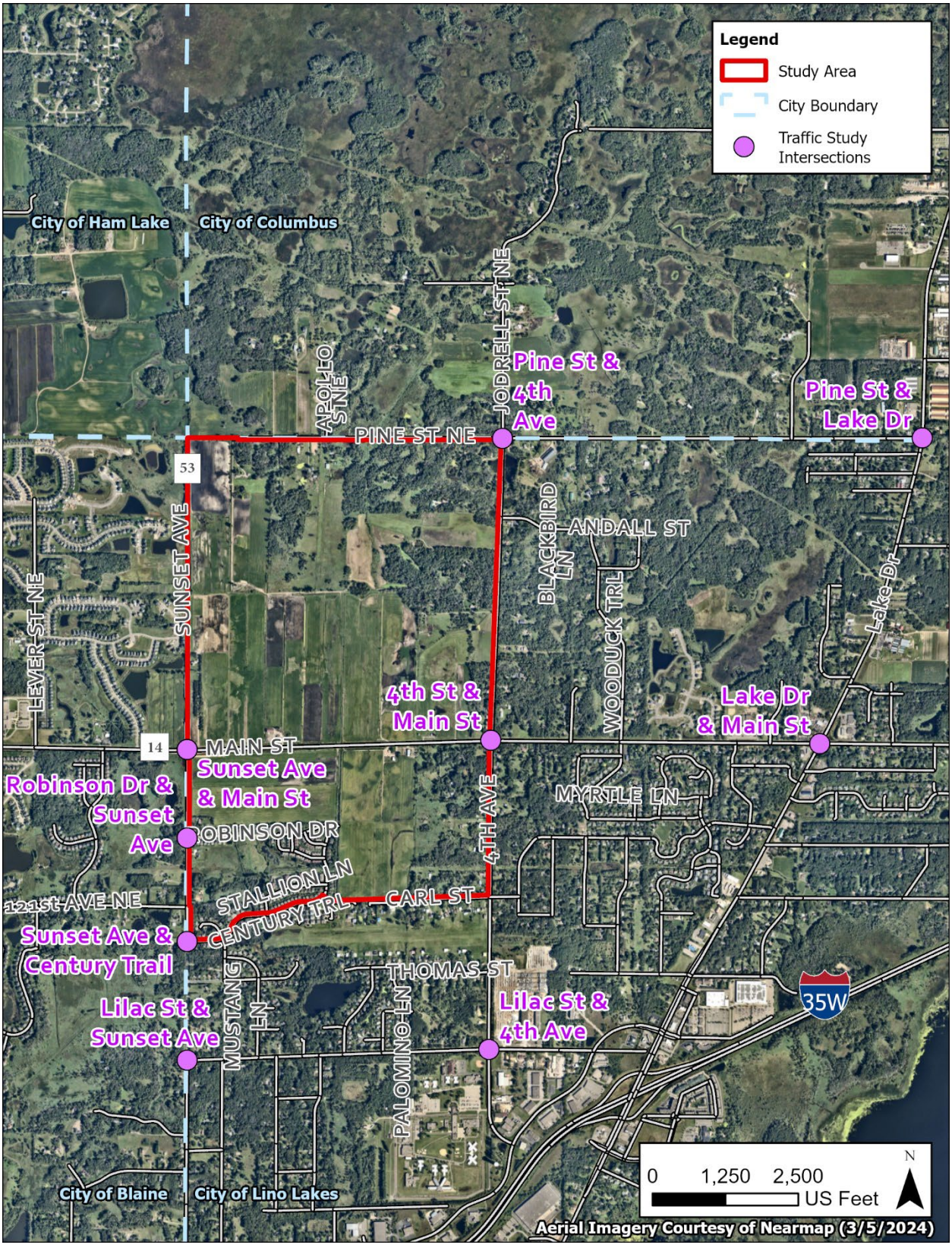
Design Year (2045) Scenario 1 and 2 Conditions

- All Opening Year (2030) Scenario 1 Conditions
- Install side street stop control at all access points along 4th Avenue and Pine Street.
- Install southbound right turn lanes at 4th Avenue & Access E (south of Main Street)
- Install northbound left turn lanes at access points on 4th Avenue north of Main Street (Access F and Access G).
- Expand Main Street to a four-lane road west of Lake Drive
    - Includes expanding roundabouts at Sunset Avenue and Access C to 2x1 roundabouts.
- Install a 2x1 roundabout at Main Street & 4th Avenue
- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
    - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach

- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
    - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach

Note that it is anticipated that the full development of the AUAR area would take up to 30 years. However, traffic projections as part of an AUAR are typically 20-year analysis horizon. This results in a conservative analysis for the Design Year as the full site may not be built out yet. All traffic mitigation should be updated when the AUAR is updated.

Figure 20: Traffic Study Intersections



21. Cumulative Potential Effects

AUAR Guidance: Because the AUAR process by its nature is intended to deal with cumulative potential effects from all future developments within the AUAR area, it is presumed that the responses to all items on the EAW form automatically encompass the impacts from all anticipated developments within the AUAR area.

However, the total impact on the environment with respect to any of the items on the EAW form may also be influenced by past, present, and reasonably foreseeable future projects outside of the AUAR area. The cumulative potential effect descriptions may be provided as part of the responses to other appropriate EAW items, or in response to this item.

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Cumulative effects are defined as the "effect on the environment that results from the incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects actually planned or for which a basis of expectation has been laid, regardless of what person undertakes the other projects or what jurisdictions have authority over the projects."[38] The geographic areas considered for cumulative effects are those areas adjacent to the AUAR study area, and the timeframe considered includes projects that would be constructed in the reasonably foreseeable future.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

There are several reasonably foreseeable future projects that may interact with the environmental effects of the development scenarios:

- Sunset Avenue Reconstruction – Anoka County is planning to reconstruct Sunset Avenue from Apollo Drive to the Main Street 125th Avenue intersection to add shoulders, turn lanes, and provide intersection improvements along the corridor, including roundabouts at 121st Avenue and Lilac Street. Anoka County is working in partnership with the Cities of Blaine and Lino Lakes. The project is planned for construction in the spring of 2027.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

The reasonably foreseeable future project may result in impacts to transportation in the project vicinity. These impacts will be addressed via the regulatory permitting and approval processes and will be individually mitigated to ensure minimal cumulative impacts occur.

22. Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by Items 1 to 21, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

Additional Environmental Effects

There are no other potential environmental effects that have not been addressed in preceding sections.

[38] Minnesota Rules, part 4410.0200, subpart 11a

Mitigation Plan

This Mitigation Plan is submitted as part of the AUAR to provide reviewers and regulators with an understanding of the actions that are advisable, recommended, or necessary to protect the environment and minimize potential impacts by the proposed development scenarios. This Mitigation Plan has been revised and updated based on comments received during the Draft AUAR comment period.

This Mitigation Plan is intended to satisfy the AUAR rules that require the preparation of a mitigation plan that specifies measures or procedures that will be used to avoid, minimize, or mitigate the potential impacts of development within the AUAR study area. Although mitigation strategies are discussed throughout the AUAR document, this plan will be formally adopted by the RGU as their action plan to prevent potentially significant environmental impacts.

The primary mechanism for mitigation of environmental impacts is the effective use of ordinances, rules, and regulations. The plan does not modify the regulatory agencies' responsibilities for implementing their respective regulatory programs nor create additional regulatory requirements. The plan specifies the legal and institutional arrangements that will assure that the adopted mitigation measures are implemented.

In addition to the anticipated permits and approvals listed in **Table 5**, the mitigation measures developed in the AUAR process are outlined in **Table 15.** The plan is formatted consistent with the sections of the AUAR for ease of reference.

Table 15: Mitigation Plan

Resource Area	Mitigation
Land Use	**Scenario 1 and 2:** Majority of the existing zoning is rural, which serves as a holding district until municipal services are available. Property will be considered for rezoning, consistent with the Comprehensive Plan, at the time of a development proposal.
	Scenario 2: Would require a comprehensive plan amendment.
	Scenario 1 and 2: The City will coordinate with the Metropolitan Council regarding any modifications needed to the TAZ forecasts for the AUAR study area, if needed.
	Scenario 1 and 2: Use the information contained in the AUAR during future considerations of updates or amendments to the adopted Comprehensive Plan and Zoning Ordinance. Any future consideration of amendments or updates to the Comprehensive Plan and Ordinances would follow the city's set procedures and guidelines for such amendments.
	Scenario 1 and 2: Require that tools such as clustering, buffering, and/or screening be incorporated into future development plans to mitigate potential land use conflicts.
Geology, Soils, and Topography	**Scenario 1 and 2:** Where required, slope stabilization will be provided by means of vegetation establishment, erosion control blankets, or other standard methods of erosion and sediment control. An erosion control plan will be submitted to the City of Lino Lakes and future proposed development within the AUAR study area will require compliance with the City's erosion and sediment control standards.
	Scenario 1 and 2: An NPDES and SWPPP will be obtained prior to any earthwork or grading activities within the AUAR study area. Require project proposers to meet the erosion and sediment control regulations in all applicable regulations, ordinances and rules of the city and MPCA, and Rice Creek Watershed District.

Resource Area	Mitigation	
	Scenario 1 and 2: Provide construction oversight to ensure designed sediment and erosion control measures are being implemented.	
	Scenario 1 and 2: Future developers would complete a geotechnical report that would provide recommendations for structural and foundation design based on the soil types in the study area.	
Water Resources	Floodplains	**Scenario 1 and 2:** If any potential impacts are proposed to FEMA 100-Year Floodplains as part of development within the AUAR study area, the applicable City of Lino Lakes and RCWD approvals will be obtained. Note: RCWD approvals are required specifically to RCWD's 100-year floodplains.
		Scenario 1 and 2: Floodplain alterations will require submittal of appropriate Letter of Map Change to FEMA to document changes to floodplain boundaries.
	Wetlands	**Scenario 1 and 2:** Delineate wetlands in accordance with the Army Corps of Engineers Wetlands Delineation Manual and classify wetlands according to Wetlands of the United States (Circular 39) and Wetlands and Deepwater Habitats of the United States.
		Scenario 1 and 2: Follow sequencing process of wetland avoidance, minimization, rectification, and mitigation as outlined in the Wetland Conservation Act (WCA) if wetlands area altered. If any potential impacts are proposed to regulated wetlands as part of development within the AUAR study area, the applicable City of Lino Lakes, WCA, RCWD, and USACE permits will be obtained.
		Scenario 1 and 2: Required wetland buffers will be incorporated into site design.
	Ditches	**Scenario 1 and 2:** Realignment of the ACD system 10-22-32 is proposed in both scenarios. A 20-foot buffer will be maintained on each side of the ditch as required by RCWD to allow for regular maintenance. Lino Lakes proposes an average buffer width of 50 feet on either side to provide space for the greenway corridor creation. The buffer zone will be clear of obstructions such as trees and buildings.
	Stormwater	**Scenario 1 and 2:** Stormwater BMPs will be constructed in accordance with City, RCWD, and MIDS requirements as the property is developed.
		Scenario 1 and 2: Developers are encouraged to use best practices to reduce chloride use in snow and ice removal.
		Scenario 1 and 2: During construction, erosion and sediment control BMPs will be implemented and maintained to prevent impacts to aquatic ecosystems.
		Scenario 1 and 2: Require stormwater management systems to be developed in accordance with the current version of the *Rice Creek Watershed District Rules and Chapter 1011 of City Code, as amended.*

Resource Area	Mitigation	
		Scenario 1 and 2: Stormwater BMPs shall follow the order of implementation of infiltration practices, water reuse, biofiltration, wet sedimentation, unless site restrictions can be documented to demonstrate that alternate practices can meet City and RCWD stormwater requirements and approval by City and RCWD.
		Scenario 1 and 2: Any supplementary volume, sediment, and other pollutants associated with stormwater originating offsite that travels through the study area will be accounted for in the final design of stormwater BMPs.
		Scenario 1 and 2: The City will mandate an evaluation of the feasibility of stormwater reuse for all residential and commercial developments requiring urban services, such as municipal water. The City will also recommend planting native and drought-tolerant species to minimize irrigation requirements.
Water Resources	Water Appropriation	**Scenario 1 and 2:** A DNR temporary water appropriation permit will be obtained for any dewatering that will be needed for construction.
		Scenario 1 and 2: If any unknown wells are found within the AUAR study area, the wells will be sealed and the sealings sent to the Department of Health if the termination of the permit is requested.
		Scenario 1 and 2: The City will need to install new wells, Wells No. 8 and 9, to serve the entirety of the study area and satisfy City-wide water demands.
		Scenario 1 and 2: Monitor water usage and do not permit new development to proceed if it exceeds the capacity of the water supply and distribution system.
		Scenario 1 and 2: Construct the water supply and distribution system in accordance with Minnesota Department of Health standards and with the goals, policies, and recommendations set forth in the city's Comprehensive Water System Plan.
		Scenario 1 and 2: As necessary, amend the city's Comprehensive Water System Plan and Capital Improvement Plan to be consistent with any future amendments or updates to the Comprehensive Plan that would necessitate expansion or alterations to the water system.
		Scenario 1 and 2: Prepare a Wellhead Protection Plan amendment for new wells and follow the adopted wellhead protection plans for Lino Lakes.
		Scenario 1 and 2: Continue to implement the City's adopted water conservation policies which are intended to attenuate peak water demands throughout the City.

Resource Area	Mitigation	
		Scenario 1 and 2: Mitigation will be regulated through the city's development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant water conservation mitigation measures prior to final approval by the city. Implementation of mitigation measures will be assured through developer agreements with the city, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.
	Wastewater	**Scenario 1 and 2:** Construct and phase appropriately the major infrastructure improvements needed to expand the capacity of the wastewater system (i.e. lift stations, forcemains, and upgrades to the existing systems) in accordance with the Comprehensive Sanitary Sewer Plan and Capital Improvement Plan.
		Scenario 1 and 2: Amend the Comprehensive Sanitary Sewer Plan and Capital Improvement Plan to be consistent with any amendments to the Comprehensive Plan that would necessitate expansions or alterations to the sanitary sewer system and regional capacity needs.
Water Resources		**Scenario 1 and 2:** Each proposed development will be required to provide a detailed projection of wastewater generation and flows. These calculations will be checked by the City's Engineering Consultant.
		Scenario 1 and 2: The City will create a year-end report to evaluate wastewater increases by major sewer lines and overall system usage in relation to capacity. Results of this assessment will become the targets for growth for the following year.
Contamination / Hazardous Waste	**Scenario 1 and 2:** Demolition-related waste material, such as wood, concrete, and glass, will be either recycled or disposed in the proper facilities in accordance with state regulations and guidelines.	
	Scenario 1 and 2: Development will generate construction-related waste materials such as wood, packaging, excess materials, and other wastes, which would be either recycled or disposed in the proper facilities in accordance with state regulations and guidelines.	
	Scenario 1 and 2: For solid waste generated from the completed project, a source recycling/separation plan would be implemented, and wastes that cannot be recycled would be managed in accordance with state regulations and guidelines.	
	Scenario 1 and 2: Future developers will need to complete a Phase I/II Environmental Site Assessment prior to construction and coordinate with the MPCA on safe handling and disposal of any contamination and hazardous materials found on the site prior and during construction.	
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources	**Scenario 1 and 2:** State requirements necessitate the control and spread of state listed noxious weeds and/or invasive weeds if encountered prior to construction. Methods to avoid spreading noxious weeds and/or invasive species will be incorporated into project specifications and/or SWPPP when developed.	
	Scenario 1 and 2: Disturbed areas would be reestablished using appropriate native pollinator-friendly and stabilization seed mixes.	

Resource Area	Mitigation
	Scenario 1 and 2: Invasive species will be controlled during site construction. Additionally, appropriate measures will be taken to control the spread of invasive species will be controlled during construction and landscaping: • Inspecting construction equipment and removing any visible plant, seeds, mud, dirt clods, and animals when arriving and leaving a site. • Using native seed mixes for revegetation whenever possible to encourage non-invasive plant communities in areas of bare soil post-construction. • Using mulch, soil, gravel, etc., that is free of invasive species whenever possible. • Inspecting soil and plant material during planting for signs of invasive species and removing or destroying the invasive species or the plant and associated soil if the invasive species cannot be separated out.
	Scenario 1 and 2: Tree clearing activities will be restricted to winter months (November 1 - March 31). If winter tree clearing is not feasible, technical consultation with the USFWS may be required. Tree removal will also adhere to the City's tree preservation requirements. Any tree removal will have to follow tree preservation requirements, as outlined in City Code 1007.049, as amended. [39]
	Scenario 1 and 2: Reseeding herbaceous areas with native seed mixes will be utilized when possible to avoid impacts to the monarch butterfly and rusty patch bumble bee.
	Scenario 1 and 2: Many state-listed plant species were identified by the DNR having the potential to be affected by the proposed development scenarios. To demonstrate avoidance, a qualified surveyor will need to determine if suitable habitat exists within the activity impact area and, if so, conduct a survey prior to any project activities. Survey results will determine next steps of species avoidance, minimization, and permitting process.
	Scenario 1 and 2: The DNR required specific mitigation measures to avoid impacts to the state-listed threatened Blanding's turtle. These efforts included limiting erosion and wetland impacts, checking bare ground, trenches, holes, and depressions during construction activities, information orientations, sighting reporting, and following guidelines for interactions of in-danger turtles.
	Scenario 1 and 2: Implement the Conservation Design Framework, which includes conservation of Environmentally Sensitive Areas (ESA's), buffering these natural resources, and establishing greenway corridors throughout the AUAR area to provide connectivity for ecological and wildlife corridors, regional stormwater collection and conveyance, and passive recreational opportunities.
	Scenario 1 and 2: Require public land dedication of priority natural open space areas through the subdivision process.
	Scenario 1 and 2: Require that cash in lieu of public land dedication for subdivisions within the AUAR area be spent within the AUAR area to purchase, restore, and/or maintain priority natural open space areas.
	Scenario 1 and 2: Establish mechanisms for ecological restoration, management, stewardship, and education.
	Scenario 1 and 2: Consult with the DNR and/or USFWS to determine appropriate mitigation strategies for activities near the Bald Eagle's nests within the AUAR area before development occurs within the vicinity of the nests, including reviewing recommended disturbance limit guidelines developed by the DNR.

[39] Source: City Code 1007.049

Resource Area	Mitigation
Historic Resources	**Scenario 1 and 2:** If a federal nexus is identified during preparation of project permits (if a U.S. Army Corps of Engineer permit is required due to impacts to regulated wetlands), a Phase I Archaeological Assessment may be necessary.
	Scenario 1 and 2: If human remains are recovered at any time during archaeological investigation or development, all activities must stop and consultation initiated with the Office of the State Archaeologist and Minnesota Indian Affairs Council.
Visual	**Scenario 1 and 2:** Guidance from the USFWS to minimize blue light, uplight, and backlight will be adhered to the extent practicable.
Air	**Scenario 1 and 2:** Construction will generate temporary fugitive dust emissions. These emissions will be controlled by sweeping or watering as appropriate or as prevailing weather and soil conditions dictate.
Greenhouse Gas (GHG) Emissions/Carbon Footprint	**Scenario 1 and 2:** To limit GHG emissions/carbon footprint, developers should consider the following measures: • Use energy efficient appliances, equipment, and lighting • Use energy efficient building shells • Encourage the use of the use of alternative modes of transportation to and from the project through site design • Implement waste best management practices and to recycle and compost appropriate material when applicable • Utilize on-site landscaping will absorb water • Consider trees and tree trenches, and additional landscaping will be planted to improve local air quality, absorb greenhouse gas emissions, and reduce local urban heat island effect • Construct buildings with rooftop-ready infrastructure for solar power generation • Provide electric vehicle ready charging infrastructure
Noise	**Scenario 1 and 2:** Construction activities may result in temporarily elevated noise levels. The City of Lino Lakes Code of Ordinances regulates both the hours of operation for construction equipment and allowable noise levels. Construction of the proposed project would comply with these requirements.
Transportation	**Scenario 1 and 2:** Create a monitoring program that closely evaluates traffic impacts from proposed developments within the AUAR area and implement traffic mitigation measures as development occurs within the AUAR area.
	Scenario 1 and 2: Prioritize alternative travel modes within the AUAR study area and require project proposers to address alternative travel modes (e.g., bicyclists and pedestrians) by identifying appropriate accommodations.
	Scenario 1 and 2: Require that site plans for each of the developments include measures such as appropriate setback distances, earthen berms, noise walls, and appropriate site design to reduce the impact of traffic noise to residential areas.
	Scenario 1 and 2: Achieve effective traffic operations within the city by requiring that site plans make use of access management practices to promote safe, effective traffic flow.
	Scenario 1 and 2: Require project proposers to follow the Anoka County Highway Department Development Review Process Manual.

Resource Area	Mitigation
	Scenario 1 and 2: Continue to coordinate capital improvement programming with applicable transportation authorities.
	Scenario 1 and 2: The improvements are intended to represent the minimum level of infrastructure investment that would be needed to meet acceptable level of service standards. Additional roadway and non-motorized improvements, beyond the minimum level, may be identified to accommodate specific development needs that are identified within the AUAR area. Primary improvements, regardless of land use scenario, include: **Opening Year (2030) No-Build Conditions** • No recommended mitigation (beyond planned improvements) **Opening Year (2030) Scenario 1 Conditions** • Install side street stop control at the site access points. • Install right turn lanes at all access points along Sunset Avenue & Main Street. • Install a roundabout at any full-access point along Main Street (Access C) • While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.

Transportation	**Opening Year (2030) Scenario 2 Conditions**
	• Install side street stop control at all right-in/right-out site access points.
	• Install right turn lanes at all access points along Sunset Avenue & Main Street.
	• Install a roundabout at any full-access point along Main Street (Access C)
	• While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.
	Design Year (2045) No-Build Conditions
	• No recommended mitigation (beyond planned improvements)
	Design Year (2045) Scenario 1 Conditions
	• All Opening Year (2030) Scenario 1 Conditions
	• Install side street stop control at all access points along 4th Avenue and Pine Street.
	• Extend Century Trail north to Main Street to accommodate traffic north of Robinson Drive.
	• Install southbound right turn lanes at 4th Avenue & Access E (south of Main Street)
	• Install northbound left turn lanes at access points on 4th Avenue north of Main Street (Access F and Access G).
	• Expand Main Street to a four-lane road west of Lake Drive
	  ○ Includes expanding roundabouts at Sunset Avenue and Access C to 2x1 roundabouts.
	• Install a 2x1 roundabout at Main Street & 4th Avenue
	• Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
	  ○ The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach.

Resource Area	Mitigation

	Design Year (2045) Scenario 2 Conditions
	• All Opening Year (2030) Scenario 1 Conditions
	• Install side street stop control at all access points along 4th Avenue and Pine Street.
	• Install southbound right turn lanes at access points along 4th Avenue south of Main Street (i.e., Access E).
	• Extend Century Trail north to Main Street to accommodate traffic north of Robinson Drive.
	• Install northbound left turn lanes at access points on 4th Avenue north of Main Street (Access F and Access G).
	• Expand Main Street to a four-lane road west of Lake Drive
	  ○ Includes expanding roundabouts at Sunset Avenue and Access C to 2x1 roundabouts.
	• Install a 2x1 roundabout at Main Street & 4th Avenue
	• Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
	  ○ The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach
	Additionally, the Sunset Avenue & Lilac Street roundabout should be monitored for potential future improvements, particularly under Scenario 2 conditions.

	Scenario 1 and 2: Require a traffic impact analysis for all development projects within the AUAR area. The traffic impact analysis will assist the City and other road authorities in determining the appropriate mitigation measures that are required to mitigate impacts of a specific development proposal.

Appendix A: *List of Tax Parcels*

Appendix B: *Agency Correspondence*

Appendix C: *Greenhouse Gas Analysis*

Appendix D: *Traffic Study*

Appendix E:
Comment Responses

Appendix F:
Comments

Appendix A: *List of Tax Parcels*

Parcel IDs within Study Area

Parcel ID
063122220008
063122220004
073122320059
063122230001
073122320050
073122320064
073122240003
073122230007
073122240062
073122320001
063122320002
073122320056
073122310038
073122310039
073122320066
073122320055
073122320054
073122230006
073122230001
073122220003
073122230002
073122320053
073122240004
073122320057
073122320074
073122320068
063122210001
063122120003
063122210002
073122140003
073122110007
073122110003
073122110005
073122110002
063122110008
063122130001
063122440002
063122440008
063122440006
063122440012
063122240001
063122410003
063122440009
063122440004
073122240083
073122240066
073122240069
073122240068
073122240030
073122240037
073122240074
073122240012
073122240070
073122240065
073122240063
073122240081
073122240006
073122240077
073122240078
073122240013
073122240072
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073122240039
073122240038
073122240106
073122240085
073122240105
073122240110
073122240112
073122240117
073122240059
073122240052
073122240049
073122240130
073122240109
073122240090
073122240033
073122240040
073122240060
073122240051
073122240084
073122240042
073122240036
073122240056
073122240032

Parcel IDs within Study Area

073122240055	073122240091	073122240163
073122240031	073122240101	073122240200
073122240047	073122240102	073122240201
063122220005	073122240128	073122240022
073122230040	073122240103	073122310042
073122240135	073122240126	073122240025
073122240115	073122320067	073122240014
073122240114	073122240134	073122230010
073122240113	073122240120	073122310041
063122220003	073122320065	073122240026
073122230005	073122240020	063122340002
073122240131	073122240021	063122310001
073122240099	073122240174	073122240028
073122240127	073122240173	073122130001
073122240123	073122240172	073122140001
073122240094	073122240177	073122140007
073122240122	073122240152	063122210003
073122240125	073122240187	073122140002
073122320061	073122240151	073122120001
073122240010	073122240188	073122110001
073122240019	073122240168	073122110008
073122320058	073122240196	073122110006
073122310037	073122240161	073122110004
073122320052	073122240175	063122110007
073122240011	073122240178	063122140001
073122320062	073122240166	063122440003
073122240159	073122240156	063122440001
073122240176	073122240155	063122440007
073122240154	073122240165	063122410002
073122320063	073122240164	063122430001

Parcel IDs within Study Area

063122440011	073122240111	073122240153
073122240082	073122240119	073122240199
073122240067	073122240167	073122240182
073122240064	073122240195	073122240183
073122240053	073122240100	073122240184
073122240048	073122240093	073122240061
073122240071	073122240160	073122240008
073122240073	073122240179	073122240023
073122240075	073122240181	073122240189
073122240076	073122240185	073122240027
073122240086	073122240009	063122440005
073122240089	073122230020	063122420001
073122240029	073122140006	063122440010
073122240129	063122340001	073122240043
073122240108	073122240024	073122240079
073122240136	073122240007	073122240116
073122240045	073122240157	073122240041
073122240034	073122240132	073122240035
073122220004	073122240096	073122240139
073122240138	073122240095	073122240121
073122240057	073122240124	073122240169
073122240118	073122240092	073122240162
073122240050	073122240133	073122240186
073122240058	073122320060	073122240198
073122240046	073122240002	073122310040
073122240098	073122320051	063122210007
073122240054	073122240171	063122210008
073122240044	073122240158	063122220006
073122240097	073122240170	063122110009
073122240104	073122240180	063122110004

Parcel IDs within Study Area

063122110003
063122110006
063122110005
063122120001
063122120002
073122240197
073122240005
073122210001
073122230014
073122410025
073122420019
073122230039
073122240209
073122230016
073122230031
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Appendix B: *Agency Correspondence*

DEPARTMENT OF NATURAL RESOURCES

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Lino Lakes Main Street AUAR

Project Proposer: City of Lino Lakes

Project Type: Development, Mixed Use

Project Type Activities: Wetland impacts (e.g., dewatering, tiling, drainage, discharge, excavation, fill, runoff, sedimentation, changes in hydrology);Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology));Tree Removal;Grading

TRS: T31 R22 S6, T31 R22 S7, T31 R23 S1, T31 R23 S12, T32 R22 S31, T32 R23 S36

County(s): Anoka

DNR Admin Region(s): Central

Reason Requested: Other

Project Description: The site is proposed to be developed into high, medium, and low density residential housing. A commercial area is proposed along the central western portion of the site as well.

Existing Land Uses: The site is largely agricultural sod farms. Some low density residential residential areas are present in the northern portion of the study area. Some ...

Landcover / Habitat Impacted: A large portion of the site is agricultural sod farms. Northern and eastern portions of the site include mixed forest.

Waterbodies Affected: Wetlands and agricultural ditches are present throughout the site. Impacts to wetlands and ditches will minimized or avoided to the extent practicable. ...

Groundwater Resources Affected: No change in groundwater resources has been proposed.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Tree Removal - Recommendations
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	Needs Further Review	State-protected Species - Needs Further Review
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	Comments	RPBB High Potential Zone

DEPARTMENT OF NATURAL RESOURCES

March 26, 2025

Project Name: Lino Lakes Main Street AUAR
Project Proposer: City of Lino Lakes
Project Type: Development, Mixed Use
Project ID: MCE #2025-00312

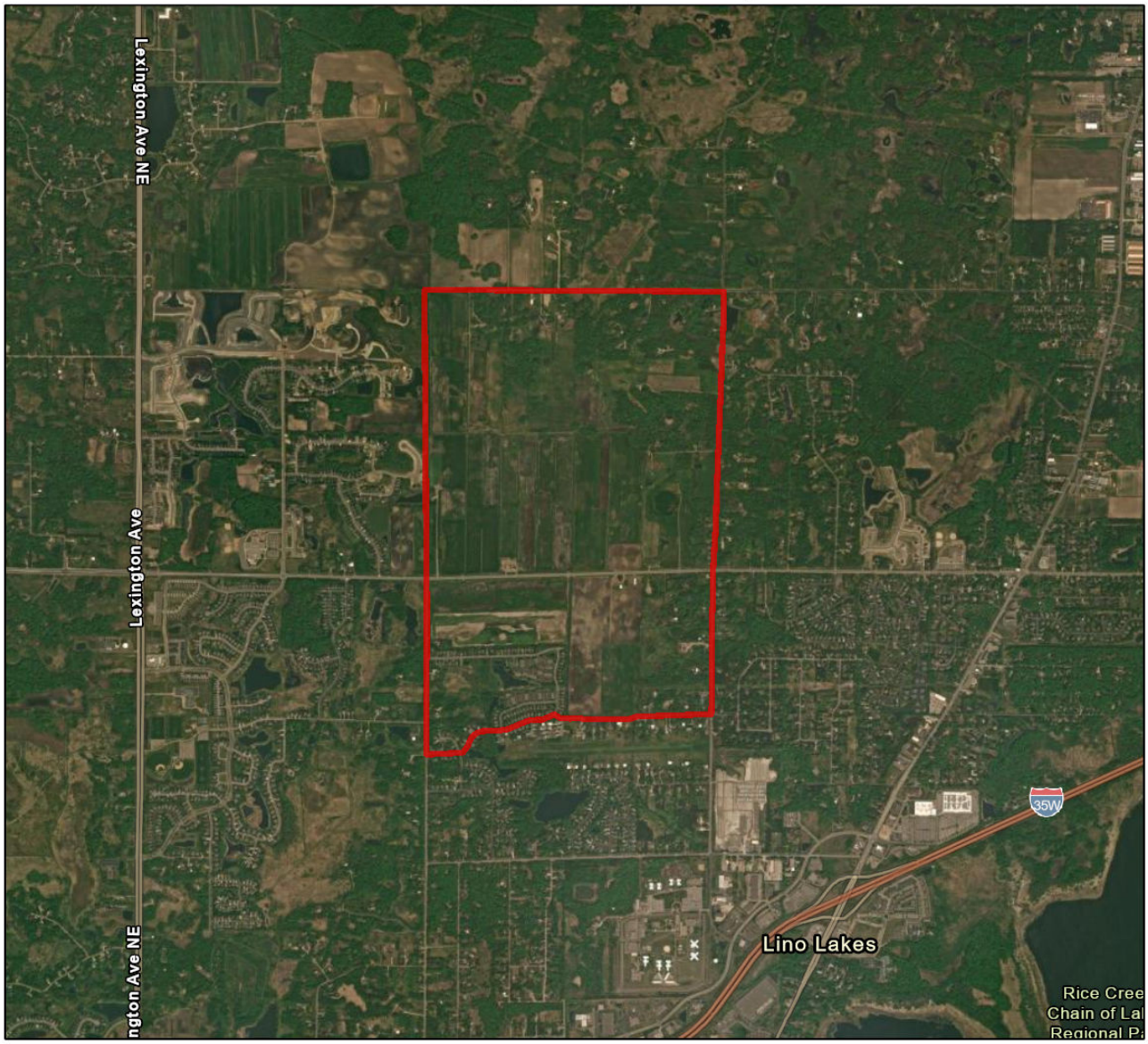
AUTOMATED RESULTS: FURTHER REVIEW IS NEEDED
As requested, the above project has undergone an automated review for potential impacts to rare features. Based on this review, one or more rare features may be impacted by the proposed project and further review by the Natural Heritage Review Team is needed. You will receive a separate notification email when the review process is complete and the Natural Heritage Review letter has been posted.

Please refer to the table on the cover page of this report for a summary of potential impacts to rare features. For additional information or planning purposes, use the Explore Page in Minnesota Conservation Explorer to view the potentially impacted rare features or to create a Conservation Planning Report for the proposed project.

If you have additional information to help resolve the potential impacts listed in the summary results, please attach related project documentation in the Edit Details tab of the Project page. Relevant information includes, but is not limited to, additional project details, completed habitat assessments, or survey results. This additional information will be considered during the project review.

Lino Lakes Main Street AUAR

Aerial Imagery With Locator Map



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Miles

Project Boundary

Project Type: Development, Mixed Use

Project Size (acres): 981.57

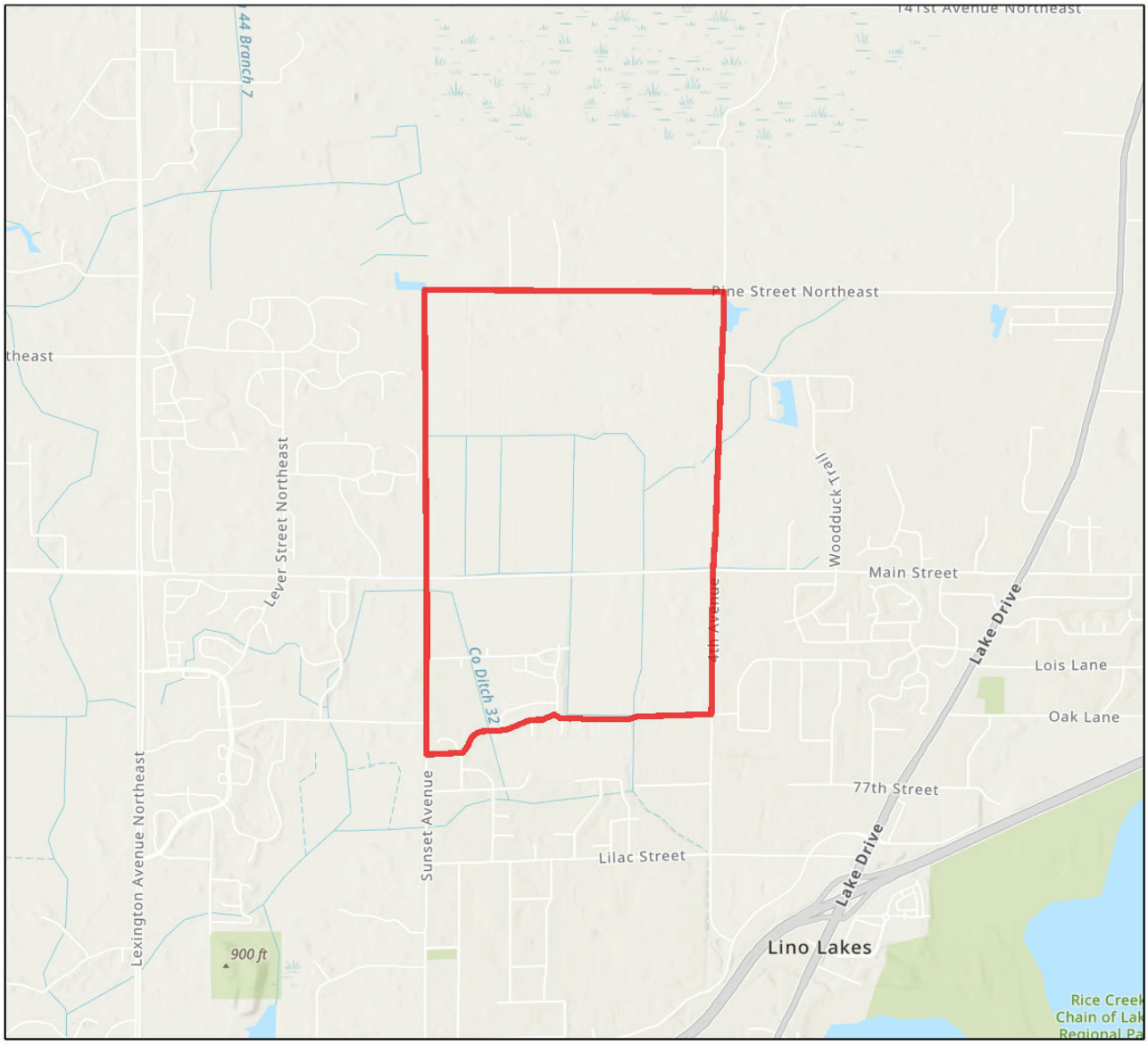
County(s): Anoka

TRS: T31 R22 S6, T31 R22 S7, T31 R23 S1, T31 R23 S12, T32 R22 S31 +

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Earthstar Geographics
Metropolitan Council, MetroGIS, Esri, TomTom, Garmin, SafeGraph,

Lino Lakes Main Street AUAR

USA Topo Basemap With Locator Map



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Project Boundary

Project Type: Development, Mixed Use

Project Size (acres): 981.57

County(s): Anoka

TRS: T31 R22 S6, T31 R22 S7, T31 R23 S1, T31 R23 S12, T32 R22 S31 +

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS, FEMA
Metropolitan Council, MetroGIS, Esri, TomTom, Garmin, SafeGraph,

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

June 3, 2025

Twin Cities - Environmental (Kimley-Horn)
Kimley-Horn and Associates, Inc.

RE: Natural Heritage Review of the proposed **Lino Lakes - Mapping Northwest Main - 161280000.3**, T31N R22W Sec. 6-7, T31N R23W Sec. 1 and 12, T32N R22W Sec. 31, T32N R23W Sec. 36; Anoka County

Dear Twin Cities - Environmental (Kimley-Horn),

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2025-00120** in the email subject line.

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

State-listed Species

- Many state-listed plant species, including endangered and threatened species, have been documented in the project vicinity. State-listed endangered plant species include slimspike three-awn *(Aristida longespica* var. *geniculata),* pale sedge *(Carex pallescens),* cross-leaved milkwort *(Polygala cruciata),* *Rubus stipulatus* (a bristle-berry), and twisted yellow-eyed grass (*Xyris torta*). State-listed threatened plant species include black huckleberry *(Gaylussacia baccata),* tubercled rein orchid *(Platanthera flava* var. *herbiola),* toothcup *(Rotala ramosior),* Fuller's bristle-berry *(Rubus fulleri),* swamp blackberry *(Rubus semisetosus),* blunt-lobed grapefern (*Sceptridium oneidense)* Clinton's bulrush *(Trichophorum clintonii)* and lance-leaf violet *(Viola lanceolata).* State-listed plant species of special concern include autumn fimbry *(Fimbristylis autumnalis)* and St. Lawrence grapefern *(Sceptridium rugulosum).* Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of endangered or threatened plants or animals, including their parts or seeds, without a permit. **To demonstrate avoidance, a qualified surveyor will need to determine if suitable habitat exists within the activity impact area and, if so, conduct a survey prior to any project activities.**

  Surveys must be conducted by a qualified surveyor and follow the standards contained in the Rare Species Survey Process and Rare Plant Guidance. Visit the Natural Heritage Review page for a list of certified surveyors and more information on this process. Survey proposals should be submitted to Reports.NHIS@state.mn.us prior to initiating survey work. Project planning should take into account

that any botanical survey needs to be conducted during the appropriate time of the year, which may be limited. Please consult Review.NHIS@state.mn.us if you have any questions regarding this process.

- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been documented in the vicinity of the proposed project. Blanding's turtles use upland areas up to and over a mile distant from wetlands, waterbodies, and watercourses. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands. Factors believed to contribute to the decline of this species include collisions with vehicles, wetland drainage and degradation, and the development of upland habitat. Any added mortality can be detrimental to populations of Blanding's turtles, as these turtles have a low reproduction rate that depends upon a high survival rate to maintain population levels.

  This project has the potential to impact this rare turtle through direct fatalities and habitat disturbance/destruction due to activities associated with the proposed project. Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of threatened or endangered species without a permit. As such, **the following avoidance measures are required**:
  - Avoid wetland and aquatic impacts during hibernation season, between September 15 and April 15, if the area is suitable for hibernation.
  - Limit erosion and sediment control to wildlife friendly erosion control.
  - Check bare ground within construction areas for turtles before the use of heavy equipment or any ground disturbance.
  - Inspect trenches, holes, or depressions prior to starting work each day and immediately prior to filling. Upon completion, holes and trenches must be filled.
  - The Blanding's turtle flyer must be given to all contractors working in the area.
  - Report any sightings using the DNR Plant and Animal Observation Form.
  - If turtles are in imminent danger, move them by hand out of harm's way; otherwise, they are to be left undisturbed. Directions on how to move turtles safely can be found at Helping Turtles Across the Road.

  Additional Blanding's turtle avoidance measures may include, but are not limited to, the following recommendations:
  - Recommendations from List 1 of the Blanding's turtle fact sheet. If greater protection for turtles is desired, implement recommendations from List 2.
  - Nesting occurs in open (grassy or brushy) sandy uplands. Blanding's turtles have been known to nest in residential areas, farm fields, and areas of exposed soil/sand/sediment (including soil stockpiles and gravel pads). To minimize impacts:
    - Avoid impacts to potential nesting habitat from June 1 through September 15, **or**
    - Exclude Blanding's turtles from potential nesting habitat from May 15 through July 15. To exclude turtles from potential nesting habitat: Install a barrier, buried 10 inches, around suitable nesting habitat.
    - See the Blanding's turtle fact sheet for more information regarding nesting.
  - Minimize impacts to small, vegetated temporary wetlands (Types 2 & 3) as much as possible.
  - Avoid hydro-mulch products that contain any materials with synthetic (plastic) fiber additives, as the fibers can re-suspend and flow into waterbodies.

- Disturbed ground should be restored to pre-construction contours and re-vegetated with native species suitable to the local habitat.
- Culverts should be 36 inches or greater in diameter, at least twice as wide as the normal width of open water, and have an elliptical bottom, flat bottom, or be embedded.
- Roads should be ditched, not curbed or below grade. If curbs must be used, install wildlife friendly curbs to allow turtles to leave the road. Gutters and stormwater inlets should be designed to prevent turtles from entering the storm sewer. For an example, reference "Curb Design and Small Animals" (Chapter 1, Page 24) in Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001 (state.mn.us).

Please contact Review.NHIS@state.mn.us **to confirm that the above required avoidance measures will be implemented or to inform us that they are not feasible.** If the measures are not feasible, a project-specific avoidance plan will likely be needed.

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed nearby, all of Minnesota's bats, including the federally endangered northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, **the DNR recommends that tree removal be avoided from June 1 through August 15.**

- Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts.

- Please report incidental sightings of state-listed species via the DNR Plant and Animal Observation Form.

Federally Protected Species

- The area of interest overlaps with a U.S Fish and Wildlife Service (USFWS) Rusty Patched Bumble Bee High Potential Zone. The rusty patched bumble bee *(Bombus affinis)* is federally listed as endangered and is likely to be present in suitable habitat within High Potential Zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. If applicable, **the DNR recommends reseeding disturbed soils with native species of grasses and forbs using BWSR Seed Mixes or MnDOT Seed Mixes.**

  To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool. Please note that all projects, regardless of whether there is a federal nexus, are subject to federal take prohibitions. The IPaC review will determine if prohibited take is likely to occur and, if not, will generate an automated

letter. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix.

Environmental Review and Permitting

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.
- Given the potential presence of state protected species, we encourage submission of Natural Heritage Review requests to ensure avoidance of take for these species and to determine survey needs as individual projects are planned.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available and is the most complete source of data on Minnesota's native plant communities, rare species, and other rare features. However, the NHIS is not an exhaustive inventory and does not contain the locations of all rare features in the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. **If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.** Resubmit by selecting *Clone Project as Draft* on the project page in MCE.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit Natural Heritage Review for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, please contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Molly Barrett

Natural Heritage Review Specialist
molly.barrett@state.mn.us

Cc: Melissa Collins, Regional Environmental Assessment Ecologist, Central (Region 3)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 03/31/2025 15:11:51 UTC
Project Code: 2025-0076181
Project Name: Lino Lakes AUAR

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected. For bat activity dates, please review Appendix L in the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines.

Examples of unsuitable habitat include:
- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:
- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC

species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the northern long-eared bat and tricolored bat range-wide D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. Additional information about available tools can be found on the Service's northern long-eared bat website.

Whooping Crane
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. It is the responsibility of the project proponent to survey the area for any migratory bird nests. If there is an eagle nest on-site while work is on-going, eagles may be disturbed. We recommend avoiding and minimizing disturbance to eagles whenever practicable. If you cannot avoid eagle disturbance, you may seek a permit. A nest take permit is always required for removal, relocation, or obstruction of an eagle nest. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. **Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.**

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2025-0076181
Project Name: Lino Lakes AUAR
Project Type: Mixed-Use Construction
Project Description: The study area is proposed to be developed.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@45.1992409,-93.13242033378383,14z

Counties: Anoka County, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Salamander Mussel *Simpsonaias ambigua* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6208	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Rusty Patched Bumble Bee *Bombus affinis* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9383 General project design guidelines: https://ipac.ecosphere.fws.gov/project/ZZVRWPDATZCB3PYQQZCMK3UHPM/documents/generated/5967.pdf	Endangered
Western Regal Fritillary *Argynnis idalia occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/12017	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

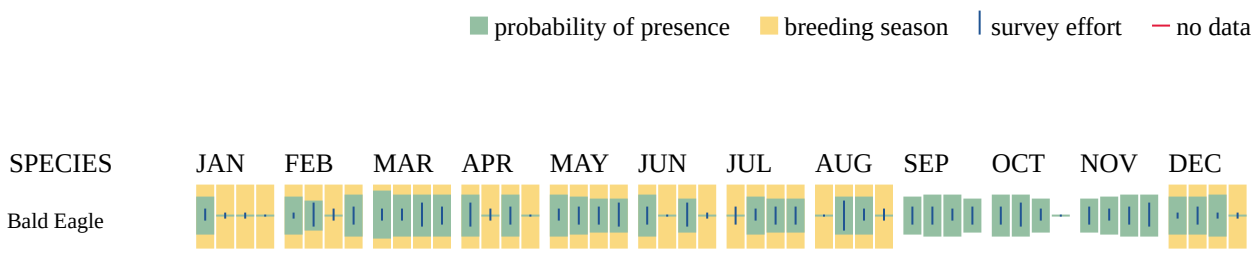
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds May 1 to Jul 31
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere

NAME	BREEDING SEASON
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

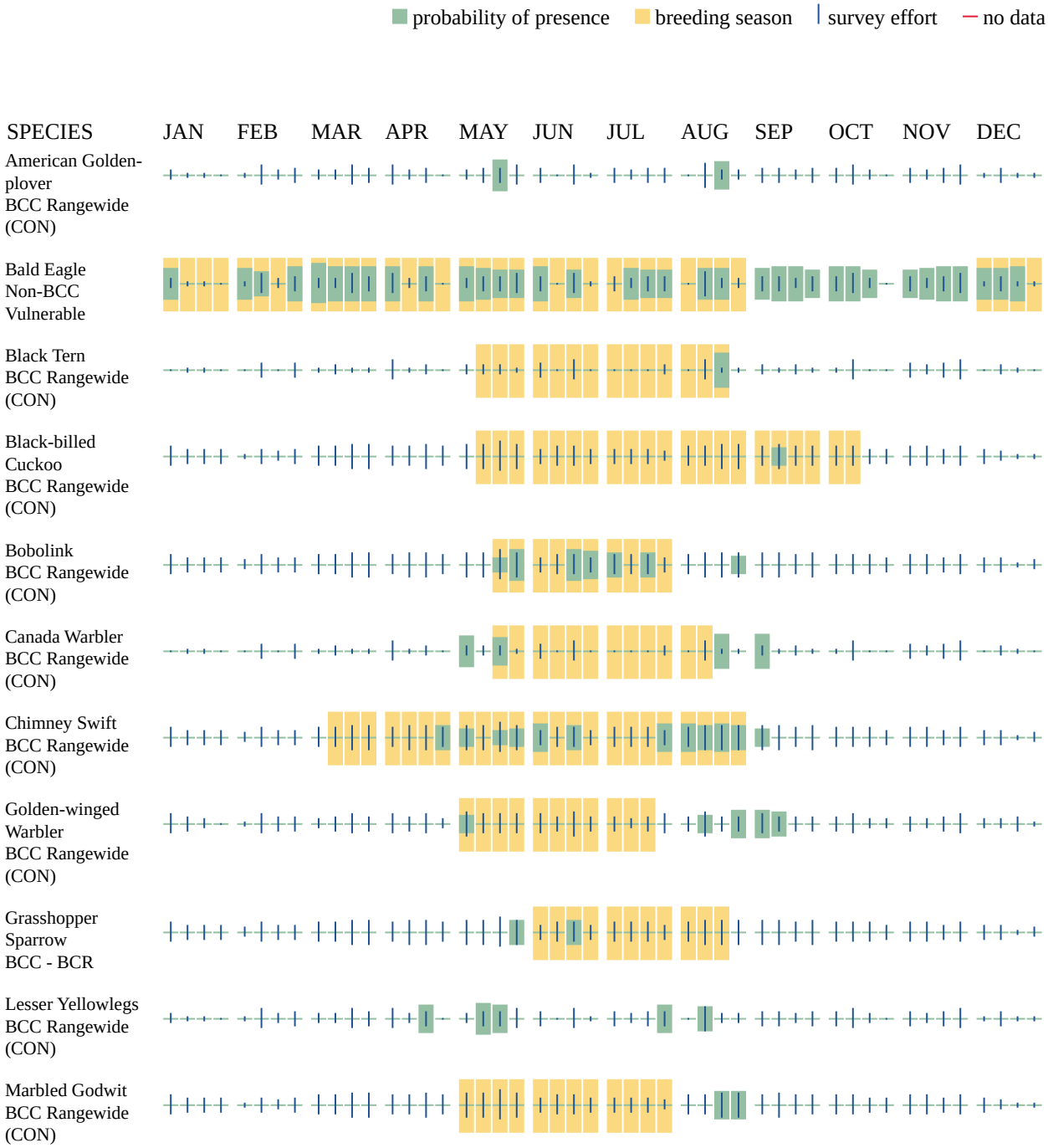
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

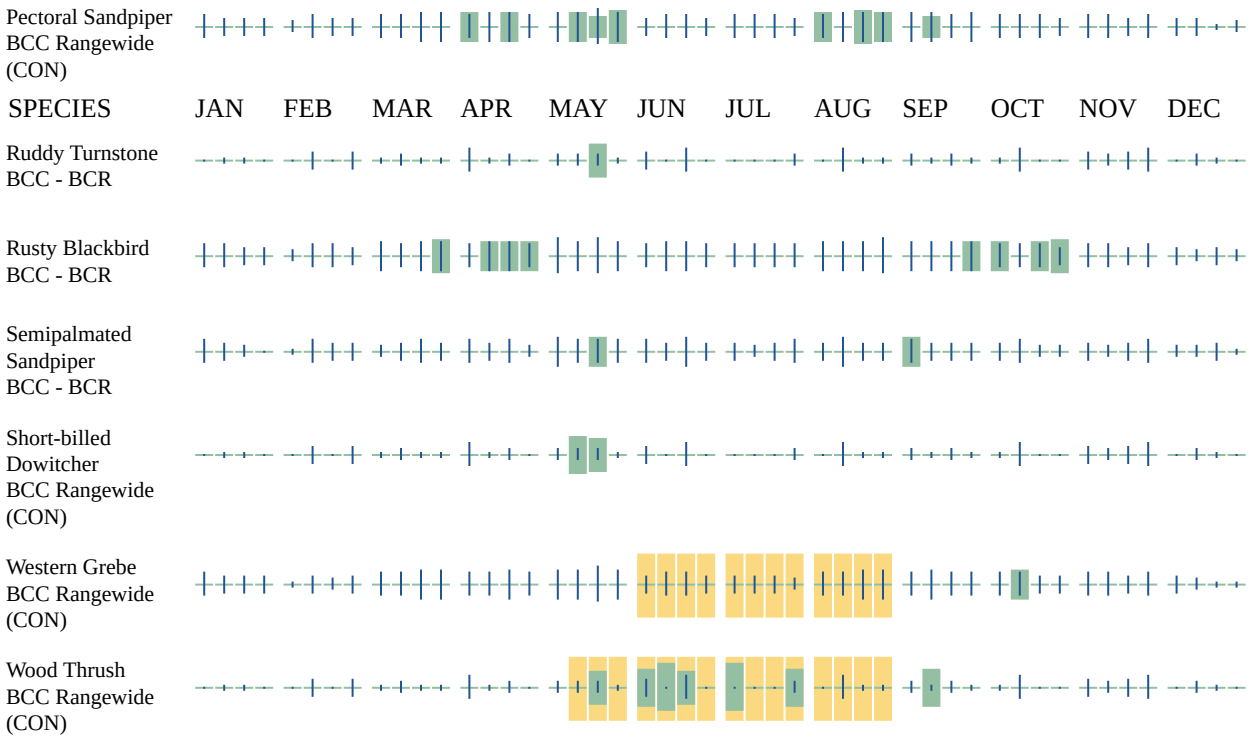
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1Ad

- PFO1A
- PFO1Ad
- PSS1A

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1Ad
- PEM1Cx
- PEM1Af
- PEM1Cd
- PEM1F
- PEM1C

FRESHWATER POND

- PUBHx
- PABHx
- PUBFx
- PUBH
- PABH
- PUBF

RIVERINE

- R5UBFx
- R2UBFx

IPAC USER CONTACT INFORMATION

Agency: Lino Lakes city
Name: Theo Robinson
Address: 767 N Eustis St #100
City: St. Paul
State: MN
Zip: 55114
Email theo.robinson@kimley-horn.com
Phone: 6516454197

Appendix C: *Greenhouse Gas Analysis*

Back to Intro

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U.S. Environmental Protection Agency

Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* as this calculator only quantifies one year of emissions at a time.

https://www.epa.gov/climateleadership/center-corporate-climate-leadership-annual-ghg-inventory-summary-and-goal-tracking

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form,* you will be able to compare multiple years of data.

If you have multiple Calculator files covering sub-sets of your inventory for a particular reporting period, sum each of the emission categories (e.g. Stationary Combustion) to an organizational total, which then can be entered into the *Annual GHG Inventory Summary and Goal Tracking Form* .

(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in their inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Existing Conditions
Organization Address:	
Inventory Reporting Period:	*2025*
Start:	*MM/DD/YY*
End:	*MM/DD/YY*
Name of Preparer:	
Phone Number of Preparer:	
Date Prepared:	

Summary of Organization's Emissions:

	Scope 1 Emissions		
Go To Sheet	Stationary Combustion	534	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	0	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)
	Location-Based Scope 2 Emissions		
Go To Sheet	Purchased and Consumed Electricity	862	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)
	Market-Based Scope 2 Emissions		
Go To Sheet	Purchased and Consumed Electricity	862	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)
	Total organization Emissions		
	Total Scope 1 & Location-Based Scope 2	1,396	CO_2-e (metric tons)
	Total Scope 1 & Market-Based Scope 2	1,396	CO_2-e (metric tons)
	Reductions		
Go To Sheet	Offsets	0	CO_2-e (metric tons)
	Net Scope 1 and 2 Location-Based Emissions	1,396	CO_2-e (metric tons)
	Net Scope 1 and 2 Market-Based Emissions	1,396	CO_2-e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO_2-e (metric tons)
Go To Sheet	Employee Commuting	0	CO_2-e (metric tons)
Go To Sheet	Product Transport	0	CO_2-e (metric tons)
Go To Sheet	Waste	261	CO_2-e (metric tons)

Required Supplemental Information

Go To Sheet	Biomass CO_2 Emissions from Stationary Sources	0	CO_2-e (metric tons)
Go To Sheet	Biomass CO_2 Emissions from Mobile Sources	0	CO_2-e (metric tons)

Back to Intro | Back to Summary | Heat Content | Help

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CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Scope 1 Emissions from Stationary Combustion Sources

Guidance

(A) Enter annual data for each combustion unit, facility, or site (by fuel type) in ORANGE cells on **Table 1**. Example entry is shown in first row (*GREEN Italics*).

- Select "Fuel Combusted" from drop down box.
- Enter "Quantity Combusted" and choose the appropriate units from the drop down box in the unit column. If it's necessary to convert units, common heat contents can be found on the "Heat Content" sheet and unit conversions on the "Unit Conversion" sheet.

(B) If fuel is consumed in a facility but stationary fuel consumption data are not available, an estimate should be made for completeness. See the "Items to Note" section of the Help sheet for suggested estimation approaches.

(C) Biomass CO_2 emissions are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Stationary Source Fuel Combustion

Source ID	Source Description	Source Area (sq ft)	Fuel Combusted	Quantity Combusted	Units
BLR-012	*East Power Plant*	*12,517*	*Natural Gas*	*10,000*	*MMBtu*
Residential	Natural Gas Use	784,080	Natural Gas	10,058	MMBtu

GHG Emissions

Total Organization-Wide Stationary Source Combustion by Fuel Type

Fuel Type	Quantity Combusted	Units
Anthracite Coal	0	short tons
Bituminous Coal	0	short tons

Back to Intro | Back to Summary | Help | Help - Market-Based Method

Scope 2 Emissions from Purchase of Electricity

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U.S. Environmental Protection Agency

Guidance

The Indirect Emissions from Purchased Electricity Guidance document provides guidance for quantifying two scope 2 emissions totals, using a **location-based method** and a **market-based method**. The organization should quantify and report both totals in its GHG inventory. The location-based method considers average emission factors for the electricity grids that provide electricity. The market-based method considers contractual arrangements under which the organization procures electricity from specific sources, such as renewable energy.

(A) Enter total annual electricity purchased in kWh and each eGRID subregion for each facility or site in ORANGE cells of **Table 1**.
(B) If electricity consumption data are not available for a facility, an estimate should be made for completeness.
See the "Items to Note" section of the Help sheet for suggested estimation approaches.
(C) Select "eGRID subregion" from drop box and enter "Electricity Purchased."
- Use map (Figure 1) at bottom of sheet to determine appropriate eGRID subregion. If subregion cannot be determined from the map, find the correct subregion by entering the location's zip code into EPA's Power Profiler:
https://www.epa.gov/egrid/power-profiler#/
(D) See the market-based emission factor hierarchy on the market-based method Help sheet. If any of the first four types of emission factors are applicable, enter the factors in the yellow cells marked as "<enter factor>". If not, leave the yellow cells as is, and eGRID subregion factors will be used for market-based emissions.
Example entry is shown in first row (*GREEN Italics*) for a facility that purchases RECs for 100% of its consumption, and therefore has a market-based emission factor of 0.

Help - Market-Based Method

Tips: Enter electricity usage by location and then look up the eGRID subregion for each location.
If you purchase renewable energy that is less than 100% of your site's electricity, see the example in the market-based method Help sheet.

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

					Market-Based (Use these cells to enter applicable market-based emission factors)						Location-Based		
					Emission Factors			Emissions			Emissions		
Source ID	Source Description	Source Area (sq ft)	eGRID Subregion *where electricity is consumed*	Electricity Purchased (kWh)	CO_2 Emissions (lb/MWh)	CH_4 Emissions (lb/MWh)	N_2O Emissions (lb/MWh)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)
Bldg-012	*East Power Plant*	*12,517*	*HIMS (HICC Miscellaneous)*	*200,000*	*0*	*0*	*0*	*0.0*	*0.0*	*0.0*	*237,120.0*	*28.6*	*4.4*
Residential	Electricity Use	784,080	MROW (MRO West)	1,717,201	<enter factor>	<enter factor>	<enter factor>	1,886,173.6	204.3	29.2	1,886,173.6	204.3	29.2
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
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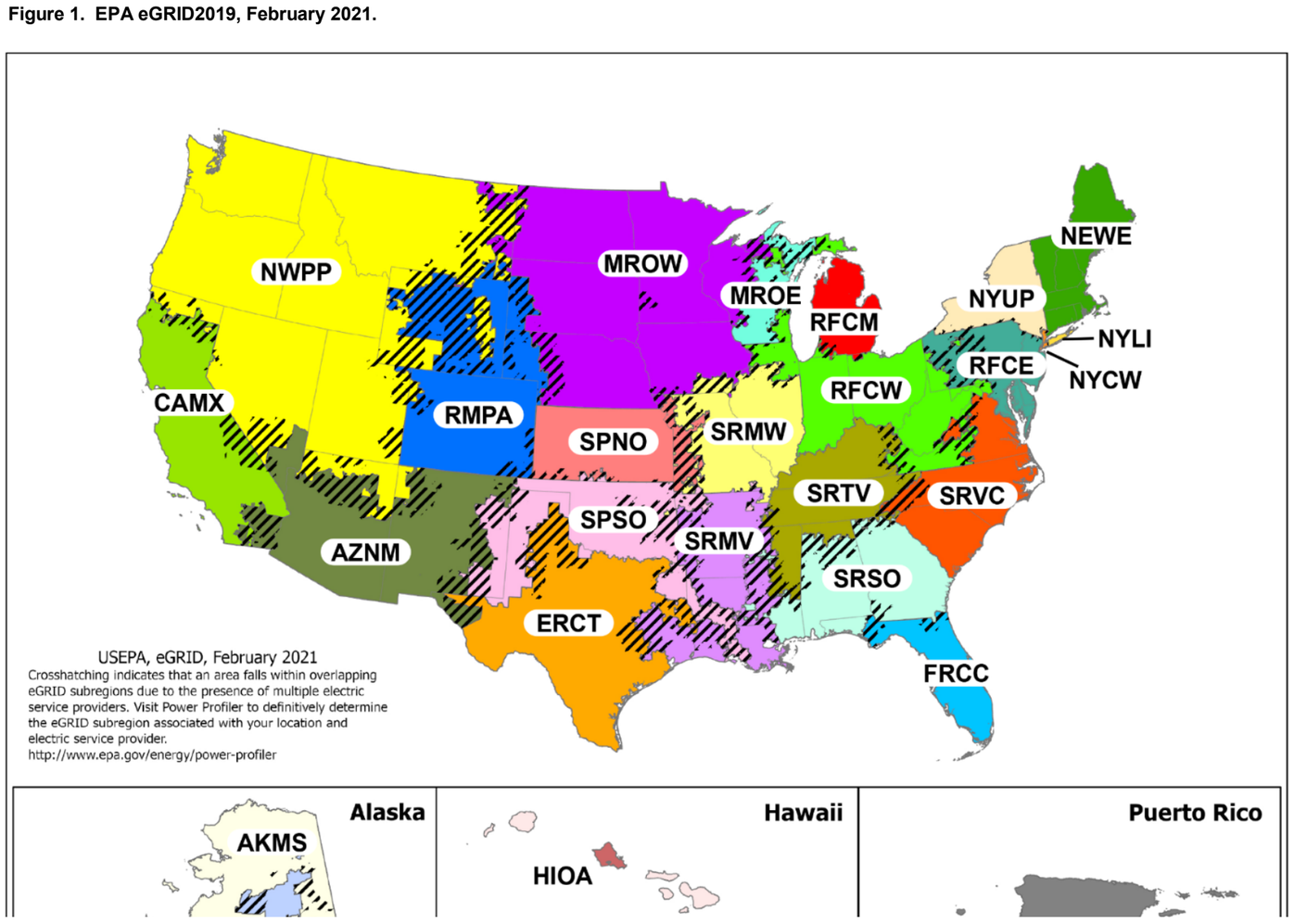
Total Emissions for All Sources				1,717,201				1,886,173.6	204.3	29.2	1,886,173.6	204.3	29.2

GHG Emissions

CO_2 Equivalent Emissions (metric tons)	
Location-Based Electricity Emissions	861.8
Market-Based Electricity Emissions	861.8

Notes:
1. CO_2, CH_4 and N_2O emissions are estimated using methodology provided in EPA's Center for Corporate Climate Leadership Greenhouse Gas Inventory Guidance - Indirect Emissions from Purchased Electricity (January 2016).

Figure 1. EPA eGRID2019, February 2021.



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U.S. Environmental Protection Agency

Scope 3 Emissions from Waste

Guidance

(A) Enter annual waste data in ORANGE cells. Example entry is shown in first row (*GREEN Italics*).

(B) Choose the appropriate material and disposal method from the drop down options. For the average-data method, use one of the mixed material types, such as mixed MSW. If the exact waste material is not available, consider an appropriate proxy. For example, dimensional lumber can be used as a proxy for wood furniture.

(C) Choose an appropriate disposal method. Note that not all disposal methods are available for all materials. If there is a #NA or # Value error in the emissions column, you must pick a new material type or appropriate disposal method.

Table 1. Waste Disposal Weight by Waste Material and Disposal Method (CO_2, CH_4 and N_2O)

Source ID	Source Description	Waste Material	Disposal Method	Weight	Unit	CO_2e Emissions (kg)
Bldg-012	*East Power Plant Finished Goods*	*Steel Cans*	*Landfilled*	*1,000*	*metric ton*	*22,040*
Residential	Residential Waste	Mixed MSW municipal solid waste	Landfilled	437	metric ton	*250,418*
Residential	Residential Waste	Mixed Recyclables	Recycled	109	metric ton	*10,811*

GHG Emissions

Total Emissions by Disposal Method

Waste Material	CO_2e (kg)
Recycled	10,811
Landfilled	250,418

Combusted	-
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO_2 Equivalent Emissions (metric tons) - Waste	**261.2**

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U.S. Environmental Protection Agency

Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* as this calculator only quantifies one year of emissions at a time.

https://www.epa.gov/climateleadership/center-corporate-climate-leadership-annual-ghg-inventory-summary-and-goal-tracking

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form,* you will be able to compare multiple years of data.

If you have multiple Calculator files covering sub-sets of your inventory for a particular reporting period, sum each of the emission categories (e.g. Stationary Combustion) to an organizational total, which then can be entered into the *Annual GHG Inventory Summary and Goal Tracking Form* .

(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in their inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Scenario 1
Organization Address:	
Inventory Reporting Period:	2025
Start:	MM/DD/YY
End:	MM/DD/YY
Name of Preparer:	
Phone Number of Preparer:	
Date Prepared:	

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	7,154	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	278,006	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	12,066	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	12,066	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

	Total Scope 1 & Location-Based Scope 2	297,227	CO_2-e (metric tons)
	Total Scope 1 & Market-Based Scope 2	297,227	CO_2-e (metric tons)

Reductions

Go To Sheet	Offsets	0	CO_2-e (metric tons)

Net Scope 1 and 2 Location-Based Emissions	297,227	CO_2-e (metric tons)
Net Scope 1 and 2 Market-Based Emissions	297,227	CO_2-e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO_2-e (metric tons)
Go To Sheet	Employee Commuting	0	CO_2-e (metric tons)
Go To Sheet	Product Transport	0	CO_2-e (metric tons)
Go To Sheet	Waste	3,537	CO_2-e (metric tons)

Required Supplemental Information

Go To Sheet	Biomass CO_2 Emissions from Stationary Sources	0	CO_2-e (metric tons)
Go To Sheet	Biomass CO_2 Emissions from Mobile Sources	0	CO_2-e (metric tons)

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Scope 1 Emissions from Stationary Combustion Sources

Guidance

(A) Enter annual data for each combustion unit, facility, or site (by fuel type) in ORANGE cells on **Table 1**. Example entry is shown in first row (*GREEN Italics*).

- Select "Fuel Combusted" from drop down box.
- Enter "Quantity Combusted" and choose the appropriate units from the drop down box in the unit column. If it's necessary to convert units, common heat contents can be found on the "Heat Content" sheet and unit conversions on the "Unit Conversion" sheet.

(B) If fuel is consumed in a facility but stationary fuel consumption data are not available, an estimate should be made for completeness. See the "Items to Note" section of the Help sheet for suggested estimation approaches.

(C) Biomass CO_2 emissions are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Stationary Source Fuel Combustion

Source ID	Source Description	Source Area (sq ft)	Fuel Combusted	Quantity Combusted	Units
BLR-012	*East Power Plant*	*12,517*	*Natural Gas*	*10,000*	*MMBtu*
Residential	Natural Gas Use	3,000,000	Natural Gas	133,408	MMBtu
Commercia	Natural Gas Use	60,000	Natural Gas	1,290	MMBtu

GHG Emissions

Total Organization-Wide Stationary Source Combustion by Fuel Type

Fuel Type	Quantity Combusted	Units
Anthracite Coal	0	short tons
Bituminous Coal	0	short tons
Sub-bituminous Coal	0	short tons

Lignite Coal	0	short tons
Natural Gas	131,284,600	scf
Distillate Fuel Oil No. 2	0	gallons
Residual Fuel Oil No. 6	0	gallons
Kerosene	0	gallons
Liquefied Petroleum Gases (LPG)	0	gallons
Wood and Wood Residuals	0	short tons
Landfill Gas	0	scf

Total Organization-Wide CO_2, CH_4 and N_2O Emissions from Stationary Source Fuel Combustion

Fuel Type	CO_2 (kg)	CH_4 (g)	N_2O (g)
Anthracite Coal	0.0	0.0	0.0
Bituminous Coal	0.0	0.0	0.0
Sub-bituminous Coal	0.0	0.0	0.0
Lignite Coal	0.0	0.0	0.0
Natural Gas	7,147,133.6	135,223.1	13,128.5
Distillate Fuel Oil No. 2	0.0	0.0	0.0
Residual Fuel Oil No. 6	0.0	0.0	0.0
Kerosene	0.0	0.0	0.0
Liquefied Petroleum Gases (LPG)	0.0	0.0	0.0
Total Fossil Fuel Emissions	**7,147,133.6**	**135,223.1**	**13,128.5**
Wood and Wood Residuals	0.0	0.0	0.0
Landfill Gas	0.0	0.0	0.0
Total Non-Fossil Fuel Emissions	**0.0**	**0.0**	**0.0**
Total Emissions for all Fuels	**7,147,133.6**	**135,223.1**	**13,128.5**

Total CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**7,154.4**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**0.0**

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Scope 1 Emissions from Mobile Sources

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (GREEN *Italics*). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- Select "On-Road" or "Non-Road" from drop down box to determine the Vehicle Types available.
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
- If mileage or fuel usage is unknown, estimate using approximate fuel economy values (see **Reference Table** below).
- Vehicle year and Miles traveled are not necessary for non-road equiment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO_2 emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
Fleet-012	*HQ Fleet*	*NonRoad*	*Ships and Boats - Diesel*	*1990*	*500*	*gal*	*3,670*
Construction Equipment (non-road ga	Construction Equipment	NonRoad	Construction/Mining Equipment - Gasoline (2 stroke)	2007	6,010,282	gal	0
Passenger Cars	Construction Equipment	OnRoad	Passenger Cars - Gasoline	2007	20,439	gal	4,368
Construction Equipment (non-road di	Construction Equipment	NonRoad	Construction/Mining Equipment - Diesel	2007	21,465,291	gal	0
Medium- and Heavy- Duty Trucks	Construction Equipment	OnRoad	Medium- and Heavy-Duty Vehicles - Diesel	2007	42,931	gal	1,560
Light Trucks	Construction Equipment	OnRoad	Light-Duty Trucks - Gasoline	2007	40,069	gal	1,560

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.1
Motorcycles	44.0
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.3
Other 2-axle, 4-Tire Vehicles	17.6
Single unit 2-Axle 6-Tire or More Trucks	7.5
Combination Trucks	6.1

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO_2 Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO_2 (kg)	
Motor Gasoline	6,070,789	gallons	53,301,531.6	
Diesel Fuel	21,508,222	gallons	###########	
Residual Fuel Oil	0	gallons	0.0	
Aviation Gasoline	0	gallons	0.0	
Kerosene-Type Jet Fuel	0	gallons	0.0	
Liquefied Petroleum Gas (LPG)	0	gallons	0.0	
Ethanol	0	gallons	0.0	*Note: emissions here are only for the ga*
Biodiesel	0	gallons	0.0	*Note: emissions here are only for the di*
Liquefied Natural Gas (LNG)	0	gallons	0.0	
Compressed Natural Gas (CNG)	0	scf	0.0	

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	4,368	31.4	22.7
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Light-Duty Trucks - Gasoline	1987-93	0	0.0	0.0
(Vans, Pickup Trucks, SUVs)	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0

	2006	0	0.0	0.0
	2007	1,560	16.1	9.5
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Motorcycles - Gasoline	1960-1995	0	0.0	0.0
	1996-present	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0
Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0
Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0.0	0.0
		2007-2018	1,560	14.8	67.2
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	-	-	-
	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Locomotives	Diesel	-	-	-
Aircraft	Jet Fuel	-	-	-
	Aviation Gasoline	-	-	-
Agricultural Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Agricultural Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Construction/Mining Equipment	Gasoline (2 stroke)	6,010,282	74,647,697	420,720
	Gasoline (4 stroke)	-	-	-
	Diesel	21,465,291	4,293,058	10,088,687
	LPG	-	-	-
Construction/Mining Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Lawn and Garden Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Airport Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Industrial/Commercial Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Logging Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Railroad Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Recreational Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**278,005.8**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**0.0**

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Scope 2 Emissions from Purchase of Electricity

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Guidance

The Indirect Emissions from Purchased Electricity Guidance document provides guidance for quantifying two scope 2 emissions totals, using a **location-based method** and a **market-based method**. The organization should quantify and report both totals in its GHG inventory. The location-based method considers average emission factors for the electricity grids that provide electricity. The market-based method considers contractual arrangements under which the organization procures electricity from specific sources, such as renewable energy.

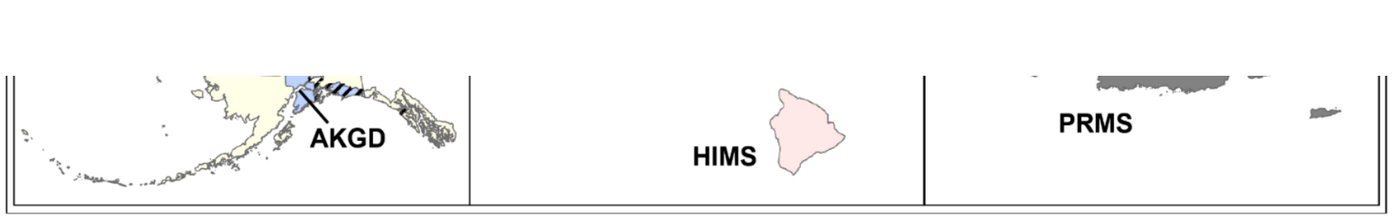
(A) Enter total annual electricity purchased in kWh and each eGRID subregion for each facility or site in ORANGE cells of **Table 1**.
(B) If electricity consumption data are not available for a facility, an estimate should be made for completeness.
See the "Items to Note" section of the Help sheet for suggested estimation approaches.
(C) Select "eGRID subregion" from drop box and enter "Electricity Purchased."
- Use map (Figure 1) at bottom of sheet to determine appropriate eGRID subregion. If subregion cannot be determined from the map, find the correct subregion by entering the location's zip code into EPA's Power Profiler:
https://www.epa.gov/egrid/power-profiler#/
(D) See the market-based emission factor hierarchy on the market-based method Help sheet. If any of the first four types of emission factors are applicable, enter the factors in the yellow cells marked as "<enter factor>". If not, leave the yellow cells as is, and eGRID subregion factors will be used for market-based emissions.
Example entry is shown in first row (*GREEN Italics*) for a facility that purchases RECs for 100% of its consumption, and therefore has a market-based emission factor of 0.

Help - Market-Based Method

Tips: Enter electricity usage by location and then look up the eGRID subregion for each location.
If you purchase renewable energy that is less than 100% of your site's electricity, see the example in the market-based method Help sheet.

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

					Market-Based (Use these cells to enter applicable market-based emission factors)						Location-Based		
					Emission Factors			Emissions			Emissions		
Source ID	Source Description	Source Area (sq ft)	eGRID Subregion *where electricity is consumed*	Electricity Purchased (kWh)	CO_2 Emissions (lb/MWh)	CH_4 Emissions (lb/MWh)	N_2O Emissions (lb/MWh)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)
Bldg-012	*East Power Plant*	*12,517*	*HIMS (HICC Miscellaneous)*	*200,000*	*0*	*0*	*0*	*0.0*	*0.0*	*0.0*	*237,120.0*	*28.6*	*4.4*
Residential	Electricity Use	1,600	MROW (MRO West)	23,196,200	<enter factor>	<enter factor>	<enter factor>	25,478,706.1	2,760.3	394.3	25,478,706.1	2,760.3	394.3
Commercia	Electricity Use	60,000	MROW (MRO West)	846,000	<enter factor>	<enter factor>	<enter factor>	929,246.4	100.7	14.4	929,246.4	100.7	14.4
					<enter factor>	<enter factor>	<enter factor>					


AKGD
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PRMS

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Scope 3 Emissions from Waste

Guidance

(A) Enter annual waste data in ORANGE cells. Example entry is shown in first row (*GREEN Italics*).

(B) Choose the appropriate material and disposal method from the drop down options. For the average-data method, use one of the mixed material types, such as mixed MSW. If the exact waste material is not available, consider an appropriate proxy. For example, dimensional lumber can be used as a proxy for wood furniture.

(C) Choose an appropriate disposal method. Note that not all disposal methods are available for all materials. If there is a #NA or # Value error in the emissions column, you must pick a new material type or appropriate disposal method.

Table 1. Waste Disposal Weight by Waste Material and Disposal Method (CO_2, CH_4 and N_2O)

Source ID	Source Description	Waste Material	Disposal Method	Weight	Unit	CO_2e Emissions (kg)
Bldg-012	*East Power Plant Finished Goods*	*Steel Cans*	*Landfilled*	*1,000*	*metric ton*	*22,040*
Nonresidential Buildings	Nonresidential Waste	Mixed MSW municipal solid waste	Combusted	720	metric ton	*341,179*
Residential	Residential Waste	Mixed MSW municipal solid waste	Combusted	6,373	metric ton	*3,019,807*
Nonresidential Buildings	Nonresidential Recycling	Mixed Recyclables	Recycled	180	metric ton	*17,852*
Residential	Residential Recycling	Mixed Recyclables	Recycled	1,593	metric ton	*158,013*

GHG Emissions

Total Emissions by Disposal Method

Waste Material	CO_2e (kg)
Recycled	175,866
Landfilled	-

Combusted	3,360,986
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO_2 Equivalent Emissions (metric tons) - Waste	**3,536.9**

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Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* as this calculator only quantifies one year of emissions at a time.

https://www.epa.gov/climateleadership/center-corporate-climate-leadership-annual-ghg-inventory-summary-and-goal-tracking

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form,* you will be able to compare multiple years of data.

If you have multiple Calculator files covering sub-sets of your inventory for a particular reporting period, sum each of the emission categories (e.g. Stationary Combustion) to an organizational total, which then can be entered into the *Annual GHG Inventory Summary and Goal Tracking Form* .

(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in their inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Scenario 2
Organization Address:	
Inventory Reporting Period:	2025
Start:	MM/DD/YY
End:	MM/DD/YY
Name of Preparer:	
Phone Number of Preparer:	
Date Prepared:	

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	7,291	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	336,743	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	12,324	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	12,324	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

	Total Scope 1 & Location-Based Scope 2	356,358	CO_2-e (metric tons)
	Total Scope 1 & Market-Based Scope 2	356,358	CO_2-e (metric tons)

Reductions

Go To Sheet	Offsets	0	CO_2-e (metric tons)

Net Scope 1 and 2 Location-Based Emissions	356,358	CO_2-e (metric tons)
Net Scope 1 and 2 Market-Based Emissions	356,358	CO_2-e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO_2-e (metric tons)
Go To Sheet	Employee Commuting	0	CO_2-e (metric tons)
Go To Sheet	Product Transport	0	CO_2-e (metric tons)
Go To Sheet	Waste	3,642	CO_2-e (metric tons)

Required Supplemental Information

Go To Sheet	Biomass CO_2 Emissions from Stationary Sources	0	CO_2-e (metric tons)
Go To Sheet	Biomass CO_2 Emissions from Mobile Sources	0	CO_2-e (metric tons)

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U.S. Environmental Protection Agency

Scope 1 Emissions from Stationary Combustion Sources

Guidance

(A) Enter annual data for each combustion unit, facility, or site (by fuel type) in ORANGE cells on **Table 1**. Example entry is shown in first row (*GREEN Italics*).

- Select "Fuel Combusted" from drop down box.
- Enter "Quantity Combusted" and choose the appropriate units from the drop down box in the unit column. If it's necessary to convert units, common heat contents can be found on the "Heat Content" sheet and unit conversions on the "Unit Conversion" sheet.

(B) If fuel is consumed in a facility but stationary fuel consumption data are not available, an estimate should be made for completeness. See the "Items to Note" section of the Help sheet for suggested estimation approaches.

(C) Biomass CO_2 emissions are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Stationary Source Fuel Combustion

Source ID	Source Description	Source Area (sq ft)	Fuel Combusted	Quantity Combusted	Units
BLR-012	*East Power Plant*	*12,517*	*Natural Gas*	*10,000*	*MMBtu*
Residential	Natural Gas Use	30,500,000	Natural Gas	135,938	MMBtu
Commercia	Natural Gas Use	62,000	Natural Gas	1,333	MMBtu

GHG Emissions

Total Organization-Wide Stationary Source Combustion by Fuel Type

Fuel Type	Quantity Combusted	Units
Anthracite Coal	0	short tons
Bituminous Coal	0	short tons
Sub-bituminous Coal	0	short tons

Lignite Coal	0	short tons
Natural Gas	133,792,398	scf
Distillate Fuel Oil No. 2	0	gallons
Residual Fuel Oil No. 6	0	gallons
Kerosene	0	gallons
Liquefied Petroleum Gases (LPG)	0	gallons
Wood and Wood Residuals	0	short tons
Landfill Gas	0	scf

Total Organization-Wide CO_2, CH_4 and N_2O Emissions from Stationary Source Fuel Combustion

Fuel Type	CO_2 (kg)	CH_4 (g)	N_2O (g)
Anthracite Coal	0.0	0.0	0.0
Bituminous Coal	0.0	0.0	0.0
Sub-bituminous Coal	0.0	0.0	0.0
Lignite Coal	0.0	0.0	0.0
Natural Gas	7,283,658.1	137,806.2	13,379.2
Distillate Fuel Oil No. 2	0.0	0.0	0.0
Residual Fuel Oil No. 6	0.0	0.0	0.0
Kerosene	0.0	0.0	0.0
Liquefied Petroleum Gases (LPG)	0.0	0.0	0.0
Total Fossil Fuel Emissions	**7,283,658.1**	**137,806.2**	**13,379.2**
Wood and Wood Residuals	0.0	0.0	0.0
Landfill Gas	0.0	0.0	0.0
Total Non-Fossil Fuel Emissions	**0.0**	**0.0**	**0.0**
Total Emissions for all Fuels	**7,283,658.1**	**137,806.2**	**13,379.2**

Total CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**7,291.1**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**0.0**

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Scope 1 Emissions from Mobile Sources

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (GREEN *Italics*). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- Select "On-Road" or "Non-Road" from drop down box to determine the Vehicle Types available.
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
- If mileage or fuel usage is unknown, estimate using approximate fuel economy values (see **Reference Table** below).
- Vehicle year and Miles traveled are not necessary for non-road equiment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO_2 emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
Fleet-012	*HQ Fleet*	*NonRoad*	*Ships and Boats - Diesel*	*1990*	*500*	*gal*	*3,670*
Construction Equipment (non-road ga	Construction Equipment	NonRoad	Construction/Mining Equipment - Gasoline (2 stroke)	2007	7,280,145	gal	0
Passenger Cars	Construction Equipment	OnRoad	Passenger Cars - Gasoline	2007	24,758	gal	4,368
Construction Equipment (non-road di	Construction Equipment	NonRoad	Construction/Mining Equipment - Diesel	2007	26,000,519	gal	0
Medium- and Heavy- Duty Trucks	Construction Equipment	OnRoad	Medium- and Heavy-Duty Vehicles - Diesel	2007	52,001	gal	1,560
Light Trucks	Construction Equipment	OnRoad	Light-Duty Trucks - Gasoline	2007	48,534	gal	1,560

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.1
Motorcycles	44.0
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.3
Other 2-axle, 4-Tire Vehicles	17.6
Single unit 2-Axle 6-Tire or More Trucks	7.5
Combination Trucks	6.1

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO_2 Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO_2 (kg)	
Motor Gasoline	7,353,437	gallons	64,563,176.9	
Diesel Fuel	26,052,520	gallons	###########	
Residual Fuel Oil	0	gallons	0.0	
Aviation Gasoline	0	gallons	0.0	
Kerosene-Type Jet Fuel	0	gallons	0.0	
Liquefied Petroleum Gas (LPG)	0	gallons	0.0	
Ethanol	0	gallons	0.0	*Note: emissions here are only for the ga*
Biodiesel	0	gallons	0.0	*Note: emissions here are only for the di*
Liquefied Natural Gas (LNG)	0	gallons	0.0	
Compressed Natural Gas (CNG)	0	scf	0.0	

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	4,368	31.4	22.7
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Light-Duty Trucks - Gasoline	1987-93	0	0.0	0.0
(Vans, Pickup Trucks, SUVs)	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0

	2006	0	0.0	0.0
	2007	1,560	16.1	9.5
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Motorcycles - Gasoline	1960-1995	0	0.0	0.0
	1996-present	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0
Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0
Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0.0	0.0
		2007-2018	1,560	14.8	67.2
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	-	-	-
	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Locomotives	Diesel	-	-	-
Aircraft	Jet Fuel	-	-	-
	Aviation Gasoline	-	-	-
Agricultural Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Agricultural Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Construction/Mining Equipment	Gasoline (2 stroke)	7,280,145	90,419,401	509,610
	Gasoline (4 stroke)	-	-	-
	Diesel	26,000,519	5,200,104	12,220,244
	LPG	-	-	-
Construction/Mining Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Lawn and Garden Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Airport Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Industrial/Commercial Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Logging Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Railroad Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Recreational Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**336,743.4**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**0.0**

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Scope 2 Emissions from Purchase of Electricity

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Guidance

The Indirect Emissions from Purchased Electricity Guidance document provides guidance for quantifying two scope 2 emissions totals, using a **location-based method** and a **market-based method**. The organization should quantify and report both totals in its GHG inventory. The location-based method considers average emission factors for the electricity grids that provide electricity. The market-based method considers contractual arrangements under which the organization procures electricity from specific sources, such as renewable energy.

(A) Enter total annual electricity purchased in kWh and each eGRID subregion for each facility or site in ORANGE cells of **Table 1**.
(B) If electricity consumption data are not available for a facility, an estimate should be made for completeness.
See the "Items to Note" section of the Help sheet for suggested estimation approaches.
(C) Select "eGRID subregion" from drop box and enter "Electricity Purchased."
- Use map (Figure 1) at bottom of sheet to determine appropriate eGRID subregion. If subregion cannot be determined from the map, find the correct subregion by entering the location's zip code into EPA's Power Profiler:
https://www.epa.gov/egrid/power-profiler#/
(D) See the market-based emission factor hierarchy on the market-based method Help sheet. If any of the first four types of emission factors are applicable, enter the factors in the yellow cells marked as "<enter factor>". If not, leave the yellow cells as is, and eGRID subregion factors will be used for market-based emissions.
Example entry is shown in first row (*GREEN Italics*) for a facility that purchases RECs for 100% of its consumption, and therefore has a market-based emission factor of 0.

Help - Market-Based Method

Tips: Enter electricity usage by location and then look up the eGRID subregion for each location.
If you purchase renewable energy that is less than 100% of your site's electricity, see the example in the market-based method Help sheet.

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

					Market-Based (Use these cells to enter applicable market-based emission factors)						Location-Based		
					Emission Factors			Emissions			Emissions		
Source ID	Source Description	Source Area (sq ft)	eGRID Subregion *where electricity is consumed*	Electricity Purchased (kWh)	CO_2 Emissions (lb/MWh)	CH_4 Emissions (lb/MWh)	N_2O Emissions (lb/MWh)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)
Bldg-012	*East Power Plant*	*12,517*	*HIMS (HICC Miscellaneous)*	*200,000*	*0*	*0*	*0*	*0.0*	*0.0*	*0.0*	*237,120.0*	*28.6*	*4.4*
Residential	Electricity Use	30,500,000	MROW (MRO West)	23,681,300	<enter factor>	<enter factor>	<enter factor>	26,011,539.9	2,818.1	402.6	26,011,539.9	2,818.1	402.6
Commercia	Electricity Use	62,000	MROW (MRO West)	874,200	<enter factor>	<enter factor>	<enter factor>	960,221.3	104.0	14.9	960,221.3	104.0	14.9
					<enter factor>	<enter factor>	<enter factor>						
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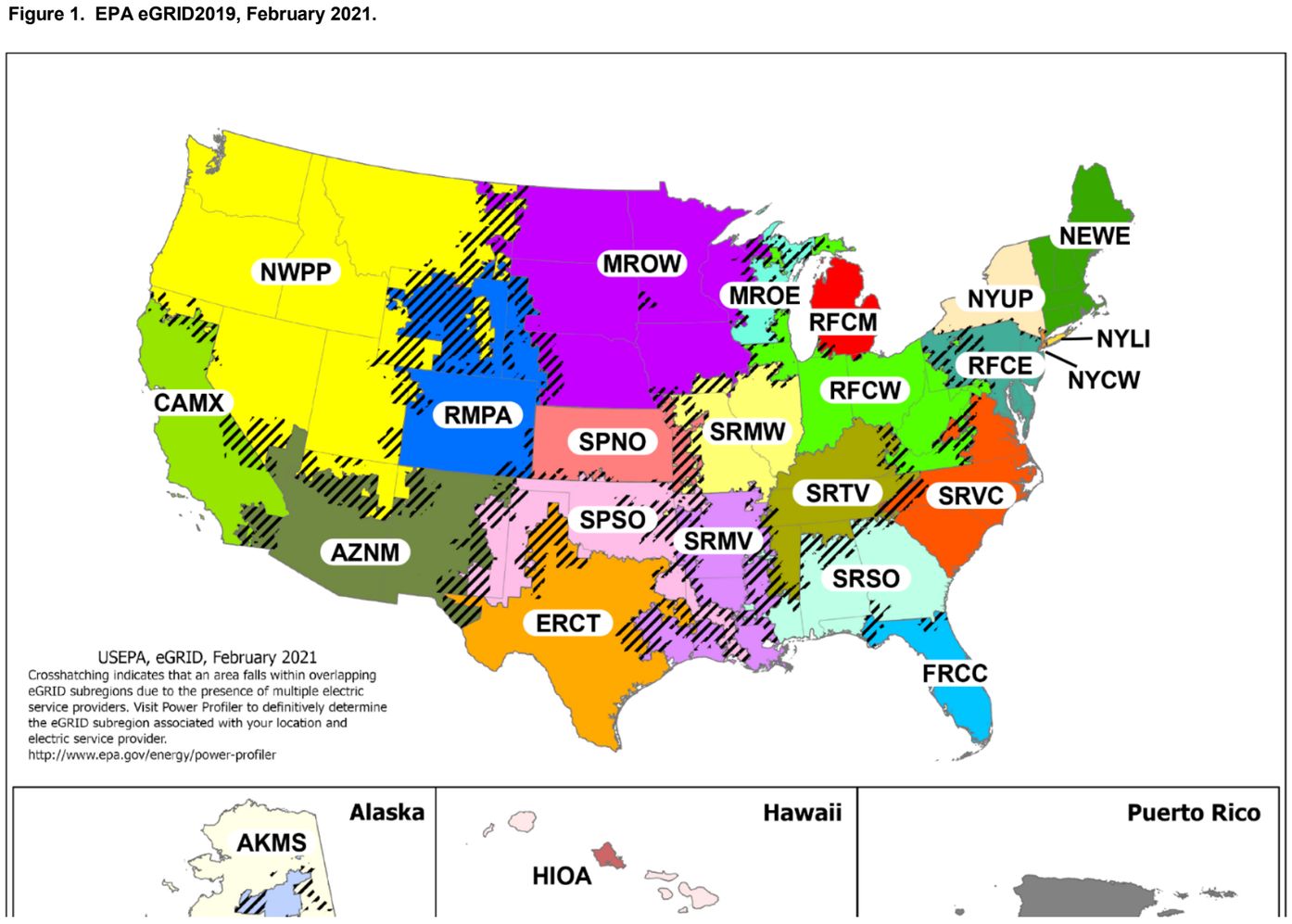
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
Total Emissions for All Sources				24,555,500				26,971,761.2	2,922.1	417.4	26,971,761.2	2,922.1	417.4

GHG Emissions

CO_2 Equivalent Emissions (metric tons)	
Location-Based Electricity Emissions	12,324.0
Market-Based Electricity Emissions	12,324.0

Notes:
1. CO_2, CH_4 and N_2O emissions are estimated using methodology provided in EPA's Center for Corporate Climate Leadership Greenhouse Gas Inventory Guidance - Indirect Emissions from Purchased Electricity (January 2016).

Figure 1. EPA eGRID2019, February 2021.



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Scope 3 Emissions from Waste

Guidance

(A) Enter annual waste data in ORANGE cells. Example entry is shown in first row (*GREEN Italics*).

(B) Choose the appropriate material and disposal method from the drop down options. For the average-data method, use one of the mixed material types, such as mixed MSW. If the exact waste material is not available, consider an appropriate proxy. For example, dimensional lumber can be used as a proxy for wood furniture.

(C) Choose an appropriate disposal method. Note that not all disposal methods are available for all materials. If there is a #NA or # Value error in the emissions column, you must pick a new material type or appropriate disposal method.

Table 1. Waste Disposal Weight by Waste Material and Disposal Method (CO_2, CH_4 and N_2O)

Source ID	Source Description	Waste Material	Disposal Method	Weight	Unit	CO_2e Emissions (kg)
Bldg-012	*East Power Plant Finished Goods*	*Steel Cans*	*Landfilled*	*1,000*	*metric ton*	*22,040*
Nonresidential Buildings	Nonresidential Waste	Mixed MSW municipal solid waste	Combusted	744	metric ton	*352,552*
Residential	Residential Waste	Mixed MSW municipal solid waste	Combusted	6,560	metric ton	*3,108,522*
Nonresidential Buildings	Nonresidential Recycling	Mixed Recyclables	Recycled	186	metric ton	*18,447*
Residential	Residential Recycling	Mixed Recyclables	Recycled	1,640	metric ton	*162,655*

GHG Emissions

Total Emissions by Disposal Method

Waste Material	CO_2e (kg)
Recycled	181,103
Landfilled	-

Combusted	3,461,073
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO_2 Equivalent Emissions (metric tons) - Waste	**3,642.2**

Appendix D: *Traffic Study*

TRAFFIC IMPACT ANALYSIS

NORTHWEST MAIN

LINO LAKES, MINNESOTA

REPORT CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Jacob Rojer, P.E., PTOE

License No. 56767

6/30/2025

Date

TABLE OF CONTENTS

APPENDIX

1. INTRODUCTION

Kimley-Horn was retained to prepare a Traffic Impact Analysis (TIA) for the Northwest Main Street development in Lino Lakes, Minnesota, as the site undergoes the Alternative Urban Areawide Review (AUAR) process. The site is located along Main Street (on both sides of the street) between the city limits and 4th Avenue. An aerial view of the study location and surrounding roadway network is presented in **Exhibit 1**.

As part of this study, the existing roadway network was analyzed to determine the current operations at the study intersections. In order to assess the potential impact of the development scenarios on the area roadway network, site-generated trips were established and added to the background traffic volumes. Background traffic volumes included the other major development projects in the vicinity. Future traffic conditions were evaluated for the approximate Opening Year of the proposed development (2030) and a long-term "Design Year" (2045). Background conditions were analyzed for each study year, along with the "build" conditions of the two development scenarios. Additionally, an Existing (2025) conditions traffic analysis was conducted.

This report presents and documents data collection, summarizes the evaluation of existing and projected future traffic conditions on the surrounding roadways, and identifies recommendations to address the potential impact of site-generated traffic on the adjacent roadway network.

1.1. REPORT PURPOSE AND OBJECTIVES

The purpose of this study is to address traffic and transportation impacts of the proposed development on surrounding streets and intersections. This traffic impact study was prepared based on criteria set forth by the AUAR guidelines. The following specific information, per AUAR recommended content, should be provided:

- *A description and map of the existing and proposed roadway system, including state, regional, and local roads to be affected by the development of the AUAR area. This information should include existing and proposed roadway capacities and existing and projected background (i.e. without the AUAR development) traffic volumes;*
- *Trip generation data – trip generation rates and trip totals – for each major development scenario broken down by land use zones and/or other relevant subdivisions of the area. The projected distributions onto the roadway system must be included;*
- *Analysis of impacts of the traffic generated by the AUAR area on the roadway system, including: comparison of peak period total flows to capacities and analysis of Level of Service and delay times at critical points (if any);*
- *A discussion of structural and non-structural improvements and traffic management measures that are proposed to mitigate problems.*

Note: in the above analyses the geographical scope must extend outward as far as the traffic to be generated would have a significant effect on the roadway system and traffic measurements and projections should include peak days and peak hours, or other appropriate measures related to identifying congestion problems, as well as ADTs (average daily traffic).

1.2. ANALYSIS METHODOLOGIES

Synchro/SimTraffic 12th edition capacity analysis software was used to evaluate the operating conditions at stop-controlled and signalized intersections. Specialized roundabout analysis software Rodel was utilized for the capacity analysis of roundabouts. The capacity of an intersection quantifies its ability to accommodate traffic volumes and is expressed in terms of level of service (LOS), measured in average delay per vehicle. LOS grades range from A to F, with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions). A 50-percent confidence interval was utilized for the Rodel analysis (the default value, representing the median results expected for an intersection).

The LOS grades shown below, which are provided in the Transportation Research Board's Highway Capacity Manual (HCM), quantify and categorize the driver's discomfort, frustration, fuel consumption, and travel times experienced as a result of intersection control and the resulting traffic queuing. A detailed description of each LOS rating can be found in **Table 1-1.**

Table 1-1: Level of Service Grading Descriptions

Level of Service	Description[1]
A	Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream.
B	Minor control delay at signalized intersections; traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream.
C	Moderate control delay; movement within traffic stream more restricted than at LOS B; formation of queues contributes to lower average travel speeds.
D	Considerable control delay that may be substantially increased by small increases in flow; average travel speeds continue to decrease.
E	High control delay; average travel speed no more than 33 percent of free flow speed.
F	Extremely high control delay; extensive queuing and high volumes create exceedingly restricted traffic flow.

[1]*Highway Capacity Manual, 7th Edition.*

The range of control delay for each rating (as detailed in the HCM) is shown in **Table 1-2**.

Table 1-2: Level of Service Grading Criteria

Level of Service[1]	Average Control Delay (s/veh) at:	
	Unsignalized Intersections	Signalized Intersections
A	0 – 10	0 – 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F[2]	> 50	> 80

[1]*Highway Capacity Manual, 7th Edition*

[2]*All movements with a Volume to Capacity (v/c) ratio greater than 1 receive a rating of LOS F.*

At side-street stop-controlled intersections, overall delay is not reported, and the worst side street delay is reported in its place. The overall delay at side-street stop-controlled intersections can misrepresent the operating conditions at the intersection since most vehicles on the main road experience zero delay.

2. ANALYSIS OF EXISTING CONDITIONS

Kimley-Horn conducted a review of the study area including existing land uses in the surrounding area, the adjacent street system, current traffic volumes and operating conditions, lane configurations and traffic controls at nearby intersections, and other key roadway characteristics. This section of the report details information on the existing conditions.

2.1. AREA LAND USES

The majority of the site is currently agricultural land, though there are sparse residences on the site. The surrounding parcels are largely occupied by residential developments, with the area to the north being largely undeveloped.

2.2. EXISTING ROADWAY CHARACTERISTICS

The following provides a description of the roadways near the study area:

CSAH 14 (Main Street) is a County State Aid Highway (CSAH) that runs east-west through the AUAR area. Main Street is a currently two-lane undivided roadway throughout the study area. According to the *Lino Lakes 2040 Comprehensive Plan*, Main Street is classified as a Principal Arterial. Based on MnDOT data, the Annual Average Daily Traffic (AADT) is approximately 11,900 vehicles per day east of Lexington Avenue and 9,800 vehicles per day west of Lake Drive, as of 2023. The posted speed limit ranges from 55 miles per hour (mph) near Sunset Avenue to 40 mph east of Lake Drive.

4th Avenue is a north-south roadway that forms the eastern boundary of the AUAR area. It is a two-lane undivided roadway and is classified as a major collector according to the *Lino Lakes 2040 Comprehensive Plan*. Based on MnDOT data, the AADT of 4th Avenue is 1,100 vehicles per day south of Main Street, and 500 vehicles per day north of Main Street, as of 2021 and 2023, respectively. The posted speed limit on 4th Avenue is 50 mph south of Main Street and 45 mph north of Main Street.

County Road 53 (Sunset Avenue) is a north-south roadway along the western boundary of the AUAR area. Sunset Avenue is a two-lane undivided roadway, and it currently does not continue north of Main Street. According to the *Lino Lakes 2040 Comprehensive Plan*, Sunset Avenue is classified as a major collector. Based on MnDOT data, the AADT along Sunset Avenue is 5,300 vehicles per day south of Lilac Street and 3,200 vehicles per day south of Main Street, as of 2022. The posted speed limit is 55 mph north of Lilac Street and 45 mph south of Lilac Street.

Lilac Street is an east-west roadway located south of the AUAR area. It is a two-lane undivided roadway and is classified as a Minor Collector according to the *Lino Lakes 2040 Comprehensive Plan*. Based on MnDOT data, the AADT along Lilac Street is 3,300 west of 4th Avenue, as of 2024. The posted speed limit is 50 mph.

CSAH 23 (Lake Drive) is a generally north-south roadway located east of the AUAR area. It is a two-lane undivided roadway and is classified as an A-Minor Reliever north of Main Street and a Principal Arterial south of Main Street according to the *Lino Lakes 2040 Comprehensive Plan.* Based on MnDOT data, Lake Drive has an AADT of 9,500 north of Main Street and 11,100 south of Main Street, as of 2022. The posted speed limit is 55 mph north of Main Street and 50 mph south of Main Street.

Pine Street is an east-west roadway that runs along the northern boundary of the AUAR area. Pine Street is a two-lane undivided roadway and is currently an unpaved road west of 4th Avenue. According to the *Lino*

Lakes 2040 Comprehensive Plan, Pine Street is classified as a Major Collector. Based on MnDOT data, Pine Street has an AADT of 400 west of Lake Street, as of 2021. The posted speed limit is 45 mph.

Robinson Drive is an east-west local road located within the AUAR area. It is a two-lane undivided roadway with an AADT of 122, based on MnDOT data from 2021. The posted speed limit is 30 mph.

Carl Street is an east-west local road located within the AUAR area. It is a two-lane undivided roadway with that does not have a posted AADT, based on MnDOT data. There is no posted speed limit; for modeling purposes, a speed limit of 30 mph is assumed.

Century Trail is an east-west local road located at the southern edge of the AUAR area. It is a two-lane undivided roadway with an AADT of 687, based on MnDOT data from 2021. There is no posted speed limit; for modeling purposes, a speed limit of 30 mph is assumed.

The existing geometry and intersection control for the intersections in the study area that will be included in this analysis are shown in **Exhibit 2**.

2.3. PEDESTRIAN AND BICYCLE INFRASTRUCTURE

Based on review of the Lino Lakes 2040 Comprehensive Plan, Main Street is a planned regional trail corridor and trails along the road will connect to the Rice Creek/Chain of Lakes Park Reserve trails. Additional trails are proposed within the AUAR area to connect the residential developments to the existing trail system.

2.4. TRAFFIC COUNT DATA

Turning Movement Counts (TMCs) were collected at the following nine (9) study intersections on Thursday, April 3, 2025. Nearby schools were in session at the time of data collection. Peak period (7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM) TMCs were conducted at the study intersections except where otherwise indicated. The counted study intersections include the following:

- Main Street & Sunset Avenue *(24-hour TMC)*
- Sunset Avenue & Robinson Drive
- Sunset Avenue & Century Trail
- Sunset Avenue & Lilac Street
- 4th Avenue & Pine Street
- Main Street & 4th Avenue *(24-hour TMC)*
- 4th Avenue & Lilac Street
- Pine Street & Lake Drive
- Main Street & Lake Drive

The TMC data indicates that peak hour traffic volumes occur within the study area from 7:00 to 8:00 AM and 4:30 to 5:30 PM on a typical weekday. Full turning movement count data is included in **Appendix A**. The Existing (2025) traffic volumes are shown in **Exhibit 3**.

2.5. EXISTING (2025) CONDITIONS CAPACITY ANALYSIS

Existing (2025) conditions capacity analysis was conducted to develop an understanding of the baseline operating conditions currently present at the study intersections. Existing geometry and intersection control are shown in **Exhibit 2**, while the Existing (2025) traffic volumes are shown in **Exhibit 3**.

Capacity analysis was conducted in Synchro 12/SimTraffic for stop-controlled and signalized intersections, while analysis of roundabouts (i.e., Main Street & Sunset Avenue) was conducted in roundabout analysis software Rodel with a 50% confidence level. The results of Existing (2025) conditions capacity analysis are summarized below in **Table 2-1**.

Based on the analysis results, all movements at the study intersections currently operate at LOS C or better and all study intersections operate at an overall LOS A or B during the AM and PM peak hours.

The 95th percentile queueing results were reviewed, and all queues are maintained within their provided storage bays with no significant queueing issues anticipated. The SimTraffic and Rodel analysis reports can be found in **Appendix B**.

Table 2-1: Existing Year (2025) Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	A (5.6)			A (4.9)	A (5.2)			A (5.1)
		WB	A (3.8)				A (5.3)			
		NB	A (3.9)				A (4.3)			
		SB	-				-			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (5.7)	-	-	-	A (5.3)
		WB	A (5.7)	-	A (2.8)		A (5.3)	-	A (2.5)	
		NB	-	A (0.5)	A (0.4)		-	A (0.7)	A (0.3)	
		SB	A (0.7)	A (0.6)	-		A (0.9)	A (0.6)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (7.6)	-	-	-	A (6.1)
		WB	A (7.6)	-	A (3.3)		A (6.1)	-	A (2.7)	
		NB	-	A (0.6)	A (0.2)		-	A (1.0)	A (0.7)	
		SB	A (0.8)	A (1.2)	-		A (1.0)	A (0.8)	-	
Sunset Avenue & Lilac Street	Side Street Stop	EB	-	-	-	A (6.7)	-	-	-	A (6.4)
		WB	A (6.7)	A (1.5)	A (2.4)		A (6.4)	A (0.8)	A (3.7)	
		NB	-	A (0.4)	A (0.1)		-	A (0.9)	A (0.4)	
		SB	A (1.7)	A (2.1)	-		A (1.8)	A (1.6)	-	
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (0.0)	A (0.0)	A (7.4)	-	A (0.0)	A (0.4)	A (4.6)
		WB	A (0.8)	A (0.3)	-		A (0.6)	A (0.2)	A (0.5)	
		NB	A (6.3)	A (5.3)	A (3.4)		A (4.6)	A (4.5)	A (3.4)	
		SB	A (2.2)	A (7.4)	-		-	-	A (0.8)	
Main Street & 4th Avenue	Side Street Stop	EB	A (1.5)	A (2.8)	A (2.3)	B (10.5)	A (5.1)	A (3.6)	A (3.5)	B (10.7)
		WB	A (7.6)	A (6.0)	A (5.8)		A (8.5)	A (7.4)	A (7.7)	
		NB	A (6.9)	B (10.4)	A (3.3)		B (10.7)	A (7.1)	A (4.2)	
		SB	A (5.1)	B (10.5)	A (3.4)		A (8.6)	A (7.4)	A (3.2)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.2)	A (1.1)	A (0.2)	B (10.5)	A (1.3)	A (1.3)	A (0.1)	A (9.3)
		WB	A (1.4)	A (1.0)	A (0.2)		A (1.1)	A (0.7)	A (0.2)	
		NB	A (3.1)	A (8.4)	A (1.7)		A (4.7)	A (9.3)	A (1.9)	
		SB	A (5.4)	B (10.5)	A (4.3)		A (3.4)	A (7.6)	A (2.8)	
Lake Drive & Pine Street	Side Street Stop	EB	A (4.0)	-	A (1.9)	A (4.0)	B (10.0)	A (0.3)	A (1.8)	B (10.0)
		WB	-	-	-		-	-	-	
		NB	A (1.3)	A (1.0)	-		A (1.8)	A (1.7)	-	
		SB	-	A (1.0)	A (0.1)		-	A (0.9)	A (0.6)	
Lake Drive & Main Street	Signal	EB	B (18.9)	C (30.2)	B (11.2)	B (19.9)	C (25.8)	C (34.0)	B (10.4)	C (21.4)
		WB	C (23.2)	C (24.2)	A (5.1)		C (23.0)	C (30.7)	A (8.5)	
		NB	B (19.0)	B (17.7)	A (4.4)		C (21.4)	C (23.7)	A (7.6)	
		SB	C (21.7)	C (21.0)	A (4.4)		B (19.6)	C (23.7)	A (6.4)	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

3. ANALYSIS OF FUTURE BACKGROUND CONDITIONS

Analysis of the future background conditions was carried out to determine the baseline operating conditions for the Opening Year (2030) and Design Year (2045) of the proposed development. A review of future traffic growth and planned geometric changes for the study roadways was conducted for the analysis.

3.1. PLANNED ROADWAY MODIFICATIONS

Sunset Avenue is undergoing a reconstruction project which is expected to include the conversion of Sunset Avenue & Lilac Street and Sunset Avenue & 121st Avenue intersections to roundabouts. A median will be installed along Sunset Avenue and other intersections along the roadway will be converted to right-in/right-out (including Century Trail, Robinson Drive, and any proposed future access points along Sunset Avenue). As this project is ongoing, it is expected to be completed by the studied Opening Year (2030).

Anoka County is also planning the installation of a single-lane roundabout at Main Street & Lake Drive. The estimated completion date of this roundabout is 2028.

As the AUAR area develops, multiple new roadways will be constructed to provide local access to new developments. Sunset Avenue will be extended north of Main Street to provide access to developments north of Main Street though it has not been determined if it will extend directly to Pine Street. For the access assumptions assumed with the site buildout, see **§4.1** (Scenario 1) and **§5.1** (Scenario 2).

For the purposes of this analysis, it was assumed that there was not an east-west connection in the Opening year scenario on the south half of the AUAR site, in order to be conservative with the analysis and determine if the connection is necessary from a traffic operations standpoint, and if access only from Main Street and Sunset Avenue would be sufficient. However, when the development on the AUAR site south of Main Street happens, it is anticipated that Robinson Drive would be extended to connect to 4th Avenue to provide an additional connection.

3.2. FUTURE BACKGROUND GROWTH

An annual background growth rate was calculated by comparing the projected 2040 AADTs included in the City of Lino Lakes 2040 Comprehensive Plan to the existing AADTs which were used to develop the projections (2016). A comparison of the major roadways existing and projected AADTs are shown below in **Table 3-1**.

Table 3-1: Roadway AADT Projections and Growth Rates

Roadway Segment		Existing Traffic	Projected Traffic	
		2016 AADT	2040 AADT	Growth Rate
Lake Drive	North of Main Street	8,700	10,000	0.6%
	South of Main Street	11,000	13,200	0.8%
4th Avenue	South of Main Street	1,300	2,500	2.8%
Main Street	East of Lexington Avenue	8,400	13,700	2.1%
Sunset Avenue	South of Main Street	2,400	2,900	0.8%
Lilac Street	West of 4th Avenue	1,850	1,900	0.1%

Based on a review of historical AADT trends in the area, Lake Drive and Sunset Avenue are expected to exhibit growth rates of about 0.6% to 0.8% while Main Street and 4th Avenue are expected to exhibit higher

growth rates of around 2%. Overall, the study roadways are expected to exhibit growth averaging about 1.2% annually.

MnDOT's ESAL worksheet was employed as an additional means of estimating growth rates. Demographically adjusted growth rates along Main Street, Sunset Avenue, and Lake Drive ranged from 0.5% to 1.7% and averaged 1.2%. The MnDOT ESAL worksheets are included in the Appendix. Based on both methods of estimation, growth rates in the area are expected to average about 1.2% annually. Therefore, a 1.2% annual growth rate was selected for all study intersections to account for traffic increases due to background growth and development.

The Opening Year (2030) No-Build traffic volumes were calculated by growing the Existing (2025) traffic volumes (**Exhibit 3)** by a 1.2% annual growth rate for 5 years. The resultant Opening Year (2030) No-Build traffic volumes are shown in **Exhibit 4**.

3.3. FUTURE BACKGROUND DEVELOPMENT

No major background developments are known in the area. All background growth of traffic is accounted for with the selected 1.2% annual growth rate.

3.4. OPENING YEAR (2030) NO-BUILD CAPACITY ANALYSIS

An Opening Year (2030) No-Build Condition analysis was completed to develop an understanding of the baseline operating conditions for the study area in the opening year. All planned roadway modifications discussed in **§3.1** were included in the capacity analysis. The Opening Year (2030) No-Build traffic volumes are shown in **Exhibit 4**. Results of the Opening Year (2030) No-Build conditions capacity analysis are provided in **Table 3-2**.

The reconstruction of Sunset Avenue is anticipated to slightly reduce the delays in the short term and the installation of a roundabout at Main Street & Lake Drive is expected to result in a substantial reduction in delays, with the intersection improving from LOS B and C in the AM and PM peak hours respectively to LOS A in both. Other intersections are generally expected to see negligible changes in delays as a result of short-term background growth. All movements and study intersections are anticipated to operate at LOS B or better during the AM and PM peak hours.

The 95th percentile queueing results were reviewed, and all queues are expected to remain within their provided storage bays with no significant queueing issues anticipated. The SimTraffic and Rodel analysis reports are provided in **Appendix B**.

Table 3-2: Opening Year (2030) No-Build Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	A (6.3)			A (5.4)	A (5.2)			A (5.4)
		WB	A (4.0)				A (4.5)			
		NB	A (4.2)				A (5.7)			
		SB	-				-			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (2.7)	-	-	-	A (2.7)
		WB	-	-	A (2.7)		-	-	A (2.7)	
		NB	-	A (0.6)	A (0.4)		-	A (0.8)	A (0.4)	
		SB	-	A (0.6)	-		-	A (0.4)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (2.9)	-	-	-	A (3.0)
		WB	-	-	A (2.9)		-	-	A (3.0)	
		NB	-	A (0.8)	A (0.3)		-	A (0.9)	A (0.4)	
		SB	-	A (0.8)	-		-	A (0.5)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			A (5.2)	-			A (4.4)
		WB	A (3.4)				A (3.9)			
		NB	A (4.6)				A (4.9)			
		SB	A (5.7)				A (3.9)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (0.0)	A (0.0)	A (7.6)	-	A (0.0)	A (0.1)	A (4.9)
		WB	A (1.5)	A (0.2)	-		A (1.3)	A (0.2)	A (0.3)	
		NB	A (3.9)	A (5.9)	A (1.7)		A (4.7)	A (4.9)	A (3.6)	
		SB	A (2.1)	A (7.6)	-		-	-	A (0.9)	
Main Street & 4th Avenue	Side Street Stop	EB	A (3.8)	A (2.8)	A (2.2)	B (10.4)	A (4.9)	A (3.8)	A (2.4)	A (9.9)
		WB	A (4.6)	A (3.4)	A (2.9)		A (7.5)	A (5.6)	A (4.7)	
		NB	A (6.6)	A (7.9)	A (3.9)		A (9.9)	A (7.7)	A (5.6)	
		SB	A (6.8)	B (10.4)	A (3.6)		A (5.8)	A (9.7)	A (3.2)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.0)	A (1.2)	A (0.6)	B (10.4)	A (2.7)	A (1.3)	A (0.3)	A (9.8)
		WB	A (1.2)	A (0.7)	A (0.5)		A (0.9)	A (0.8)	A (0.4)	
		NB	A (3.0)	A (8.9)	A (3.0)		A (3.4)	A (8.9)	A (1.8)	
		SB	A (6.9)	B (10.4)	A (3.4)		A (4.2)	A (9.8)	A (2.6)	
Lake Drive & Pine Street	Side Street Stop	EB	A (4.3)	-	A (2.1)	A (4.3)	A (5.6)	A (0.6)	A (2.1)	A (5.6)
		WB	-	-	-		-	-	-	
		NB	A (1.5)	A (0.7)	-		A (1.7)	A (1.2)	-	
		SB	-	A (1.1)	A (0.4)		-	A (0.9)	A (0.3)	
Lake Drive & Main Street	Round-about	EB	A (6.8)			A (6.0)	A (6.6)			A (9.2)
		WB	A (5.7)				A (9.6)			
		NB	A (4.8)				B (12.0)			
		SB	A (6.2)				A (6.5)			

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

3.5. DESIGN YEAR (2045) NO-BUILD CAPACITY ANALYSIS

The Design Year (2045) No-Build Condition analysis was completed to develop an understanding of the baseline operating conditions for the study area in the long-term without the addition of proposed development traffic. The background changes to intersection control and geometry discussed in **§3.1** were included in the analysis. The Design Year (2045) No-Build Traffic Volumes are shown in **Exhibit 6**. Results of the Design Year (2045) No-Build capacity analysis is included below in **Table 3-3**.

All movements at the study intersections are anticipated to operate at LOS D or better during the AM and PM peak hours. Delays are generally expected to see minor increase due to long-term background growth, particularly at the Main Street & Lake Drive intersection which is anticipated to operate at LOS C during the PM peak hour.

The 95th percentile queueing results were reviewed and all 95th percentile queues are expected to be maintained within their provided storage bays. The Main Street & Lake Drive roundabout is anticipated to see queues of about 450' at the eastbound approach during the PM peak hour, but no movement or roundabout approach is generally expected to see significant queueing issues. The SimTraffic and Rodel analysis reports are included in **Appendix B**.

Table 3-3: Design Year (2045) No-Build Level of Service – AM Peak Hour

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	A (8.4)			A (7.6)	A (6.7)			A (6.5)
		WB	A (7.6)				A (7.0)			
		NB	A (4.6)				A (5.1)			
		SB	-				-			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (2.6)	-	-	-	A (2.5)
		WB	-	-	A (2.6)		-	-	A (2.5)	
		NB	-	A (0.8)	A (0.6)		-	A (0.8)	A (0.7)	
		SB	-	A (0.5)	-		-	A (0.5)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (3.5)	-	-	-	A (3.3)
		WB	-	-	A (3.5)		-	-	A (3.3)	
		NB	-	A (1.0)	A (0.2)		-	A (1.1)	A (0.6)	
		SB	-	A (0.8)	-		-	A (0.5)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			A (5.1)	-			A (4.9)
		WB	A (3.9)				A (4.1)			
		NB	A (5.8)				A (5.6)			
		SB	A (4.4)				A (4.2)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (0.2)	A (0.1)	A (4.6)	-	A (0.0)	A (0.2)	A (4.6)
		WB	A (0.7)	A (0.1)	-		A (1.8)	A (0.4)	A (0.7)	
		NB	A (4.6)	A (5.7)	A (3.0)		A (4.6)	A (4.4)	A (2.9)	
		SB	A (2.5)	A (7.8)	-		-	-	A (1.2)	
Main Street & 4th Avenue	Side Street Stop	EB	A (3.9)	A (3.1)	A (2.6)	B (10.6)	A (5.1)	A (4.4)	A (2.8)	B (11.9)
		WB	A (5.4)	A (4.4)	A (3.9)		A (7.0)	A (6.3)	A (5.4)	
		NB	A (9.0)	A (8.9)	A (5.2)		B (11.9)	A (7.7)	A (5.7)	
		SB	A (6.1)	B (10.6)	A (4.5)		B (10.1)	B (10.5)	A (3.1)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (0.8)	A (1.3)	A (0.7)	B (10.7)	A (1.7)	A (1.6)	A (0.1)	A (9.5)
		WB	A (1.5)	A (1.2)	A (0.3)		A (1.1)	A (0.9)	A (0.4)	
		NB	A (6.8)	B (10.3)	A (4.0)		A (4.1)	A (9.5)	A (2.4)	
		SB	A (6.4)	B (10.7)	A (4.0)		A (4.1)	A (9.1)	A (3.0)	
Lake Drive & Pine Street	Side Street Stop	EB	A (5.9)	-	A (2.5)	A (5.9)	A (6.6)	A (0.5)	A (2.9)	A (6.6)
		WB	-	-	-		-	-	-	
		NB	A (1.4)	A (0.9)	-		A (2.3)	A (1.4)	-	
		SB	-	A (1.2)	A (0.5)		-	A (1.1)	A (0.7)	
Lake Drive & Main Street	Round-about	EB	A (9.0)			A (7.4)	A (8.6)			C (17.1)
		WB	A (6.8)				C (16.4)			
		NB	A (5.3)				D (27.1)			
		SB	A (7.6)				A (8.5)			

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

4. ANALYSIS OF SCENARIO 1 CONDITIONS

This section of the report outlines the proposed development Scenario 1, summarizes site-specific traffic characteristics, and develops future traffic projections for the Scenario 1 Build condition of the AUAR site. Scenario 1 represents the density and land uses presently allowed under the City of Lino Lakes' 2040 Comprehensive Plan.

4.1. DEVELOPMENT CHARACTERISTICS AND SITE ACCESS

The proposed Scenario 1 consists of 1,600 low-density residential units, 600 medium-density residential units, 1,200 high-density residential units, and 60,000 square feet of commercial space. The following major access points are included in the traffic modeling for Scenario 1:

- Via "Access A", a right-in/right-out access located along Sunset Avenue south of Main Street.
- Via Robinson Drive along Sunset Avenue.
- Via Century Trail along Sunset Avenue.
- Via "Access B", a right-in/right-out access located along Main Street east of Sunset Avenue.
- Via "Access C", a proposed roundabout along Main Street located midway between Sunset Avenue and 4th avenue (and east of Access B).
- Via "Access D", a proposed right-in/right-out along Main Street located west of 4th Avenue (and east of Access C).
- Via "Access E" (Robinson Drive extension), a proposed full-access intersection along 4th Avenue south of Main Street.
- Via "Access F" and "Access G", both of which are proposed full-access intersections along 4th Avenue north of Main Street, with Access G being the farther north of the two.
- Via "Access H", a full-access intersection along Pine Street west of 4th Avenue.
- Via the future north leg of the Main Street & Sunset Avenue roundabout.

Only portions of the development are anticipated to be short term developments included in the Opening Year (2030) analysis. Based on the anticipated future development patterns, Accesses E, F, G, H, and Access D north of Main Street are not included in the Opening Year (2030) conditions as these portions of the site are not anticipated to see development by this time. However, as previously noted, when the development on the AUAR site south of Main Street happens, it is anticipated that Robinson Drive (Access E) would be extended to connect to 4th Avenue to provide an additional connection, but this is not included in the analysis because the conservative analysis was used to determine if this Robinson Drive connection would be necessary from a traffic operations standpoint.

Note that the layout of the site is preliminary and subject to changes; future development plans may modify the assumed access points and affect how traffic is distributed throughout the site. The access assumptions outlined above are meant to provide a conservative means of estimating traffic levels at site access points and other minor access points are likely to be constructed along minor roadways such as 4th Avenue and Pine Street. It should also be noted that this access plan would only comply with access spacing standards if the speed limit along Main Street is reduced to 45 mph and each access point would need to be located ¼ mile apart. Site specific Traffic Impact Analyses should be conducted to determine the geometric, spacing, and control needs of the site access points.

It is anticipated that the full development of the AUAR area would take up to 30 years. However, traffic projections as part of an AUAR are typically 20-year analysis horizon. This results in a conservative analysis for the Design Year as the full site may not be built out yet.

4.2. TRIP GENERATION

Proposed development traffic was determined based on data from the Institute of Transportation Engineers' *Trip Generation Manual, 11th Edition*. The manual provides peak hour trips rates/equations, inbound-outbound percentages that can be attributed to the proposed site.

The site is anticipated to see partial buildout by the studied Opening Year (2030). It is estimated that approximately 650 single family detached residential units, 350 attached residential units, 90 multifamily (low-rise residential units) and 30kSF of retail space would be completed by the studied Opening Year.

The anticipated trip generation for the Opening Year (2030) Scenario 1 conditions is shown below in **Table 4-1**. The development is expected to generate 12,047 daily trips, including 788 trips during the AM peak hour (216 entering and 572 exiting) and 1,142 during the PM peak hour (697 entering and 444 exiting).

Table 4-1: Proposed Opening Year (2030) Trip Generation

Land Use Description	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 210 – Single-Family Detached Housing	650 Units	6,130	114	341	455	385	226	611
LUC 215 – Single-Family Attached Housing	350 Units	3,301	61	184	245	207	122	329
LUC 220 – Multifamily Low Rise Residential	90 Units	607	9	27	36	29	17	46
LUC 821 – Shopping Plaza	30 kSF	2,010	32	20	52	76	79	156
Total Site Trips (Opening Year)		12,047	216	572	788	697	444	1,142

The same ITE Land Use Codes were utilized to estimate the trip generation potential of the site at full buildout. Internal capture rates from ITE were reviewed, but with the majority of the site's trips expected to be traveling to/from residential land uses, few multi-use trips are anticipated. Therefore, no multi-use reduction was applied.

A summary of trip generation for the proposed Scenario 1 development at buildout is provided in **Table 4-1**. Based on the trip generation calculation, the proposed Scenario 1 development is anticipated to generate 31,516 daily trips, including 1,992 total trips during the AM Peak Hour (532 entering and 1,460 exiting), and 2,769 total trips during the PM Peak Hour (1,687 entering, 1,082 exiting).

Table 4-2: Scenario 1 Full Buildout Trip Generation

Land Use Description	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 210 – Single-Family Detached Housing	1,600	15,088	280	840	1,120	948	556	1,504
LUC 215 – Single-Family Attached Housing	600	4,320	72	216	288	202	140	342
LUC 220 – Multifamily Low Rise Residential	1,200	8,088	115	365	480	386	226	612
LUC 821 – Shopping Plaza	60	4,020	64	39	104	153	159	311
Total Site Trips		31,516	532	1,460	1,992	1,687	1,082	2,769

4.3. DIRECTIONAL DISTRIBUTION

The estimated distribution of site-generated traffic on the surrounding roadway network was developed based on a review of origin-destination data from Replica, a publicly available dataset which utilizes Census data, land use regulations, aggregate mobile data, transaction data, and real estate transaction data to model transportation patterns. Based on the origin-destination data and consideration of the existing traffic patterns and roadway characteristics, the following global distribution was developed:

- 35% to/from west on Main Street
- 25% to/from south on Sunset Avenue
- 20% to/from south on Lake Drive
- 10% to/from east on Lilac Street
- 5% to/from north on Lake Drive
- 5% to/from east on Main Street

The anticipated site trip distribution for Opening Year (2030) Scenario 1 conditions is shown in **Exhibit 7**. The site traffic assignment, representing traffic volumes associated with the proposed development at the study intersections, is a function of the estimated trip generation (**Table 4-1** and **Table 4-2**) as well as the directional distribution listed above. The site trip assignment for Opening Year (2030) Scenario 1 conditions is shown in **Exhibit 8**.

The Opening Year (2030) Scenario 1 traffic volumes were calculated by adding the total development site trips (**Exhibit 8**) to the Opening Year (2030) No-Build traffic volumes (**Exhibit 5**). The Opening Year (2030) Scenario 1 traffic volumes are shown in **Exhibit 9**.

The anticipated traffic distribution for the Design Year (2045) Scenario 1 conditions is shown in **Exhibit 10**. The site trip assignment for Scenario 1 in the Design Year (2045) is shown in **Exhibit 11**. The Design Year (2045) Build traffic volumes were calculated by adding the total Development Site Trips (**Exhibit 11**) to the Design Year (2045) No-Build traffic volumes (**Exhibit 6**). The Design Year (2045) Build traffic volumes are shown in **Exhibit 12**.

4.4. OPENING YEAR (2030) SCENARIO 1 CAPACITY ANALYSIS

The Opening Year (2030) Scenario 1 analysis was conducted to determine the impacts of the proposed Scenario 1 development on the short-term operations of the adjacent roadway network. The future year

(2030) geometry and intersection control changes discussed in **§3.1** as well as the access assumptions discussed in **§4.1** were included in the analysis. Opening Year (2030) Scenario 1 traffic volumes are shown in **Exhibit 9**. The results of the Opening Year (2030) Scenario 1 analysis are shown below in **Table 4-3**.

Based on the results of the Opening Year (2030) Scenario 1 conditions analysis, all intersections are anticipated to operate at LOS C or better and all individual movements are anticipated to operate at LOS D or better during the AM and PM peak hours. Comparing the delay and LOS results to the Opening Year (2030) No-Build scenario indicates that the proposed development Scenario 1 is anticipated to cause some increases in delay, with the Main Street & Lake Drive and Main Street & 4th Avenue intersections seeing the most substantial increases. All delays remain within an acceptable range and the overall traffic operations of the network remain acceptable with the anticipated Opening Year (2030) geometric changes in place. With operations remaining acceptable in Opening Year (2030) build Scenario 1, an east-west roadway connection on the south half of the AUAR site is not required from a traffic operations perspective, however, the connection of Robinson Drive (Access E) would help improve connectivity to the neighborhoods. The connection of Carl Street is not necessary from a traffic operations perspective. The 95th percentile queueing results were reviewed and all 95th percentile queues are expected to remain within their provided storage bays. SimTraffic reports are included in **Appendix B**.

Table 4-3: Opening Year (2030) Scenario 1 Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	A (9.3)			A (7.3)	B (11.1)			A (9.7)
		WB	A (6.3)				A (9.8)			
		NB	A (5.1)				A (7.1)			
		SB	A (4.7)				A (5.3)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (3.3)	-	-	-	A (3.2)
		WB	-	-	A (3.3)		-	-	A (3.2)	
		NB	-	A (1.2)	A (0.7)		-	A (1.5)	A (1.0)	
		SB	-	A (0.4)	-		-	A (0.3)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (3.6)	-	-	-	A (5.0)
		WB	-	-	A (3.6)		-	-	A (5.0)	
		NB	-	A (1.4)	A (0.6)		-	A (1.8)	A (0.9)	
		SB	-	A (1.1)	-		-	A (0.6)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			A (7.3)	-			A (6.0)
		WB	A (3.6)				A (4.6)			
		NB	A (5.8)				A (7.4)			
		SB	A (8.2)				A (4.7)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (2.2)	A (0.1)	A (7.9)	-	A (0.2)	A (0.0)	A (3.3)
		WB	A (1.2)	A (0.2)	-		A (1.1)	A (1.1)	A (0.2)	
		NB	A (2.1)	A (6.4)	A (1.4)		A (2.8)	A (3.3)	A (1.4)	
		SB	A (2.3)	A (7.9)	-		-	-	A (1.2)	
Main Street & 4th Avenue	Side Street Stop	EB	A (2.8)	A (1.5)	A (0.8)	B (10.9)	A (4.1)	A (2.3)	A (0.9)	C (20.3)
		WB	A (5.7)	A (4.8)	A (3.1)		A (5.3)	A (3.0)	A (1.4)	
		NB	A (6.3)	B (10.8)	A (3.1)		C (19.2)	C (20.3)	A (8.4)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		SB	A (7.7)	B (10.9)	A (2.9)		C (17.0)	C (15.0)	A (6.1)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.8)	A (1.4)	A (0.6)	A (9.8)	A (1.7)	A (1.2)	A (0.6)	A (9.7)
		WB	A (1.6)	A (1.2)	A (0.5)		A (1.0)	A (1.3)	A (0.5)	
		NB	A (4.8)	A (8.2)	A (1.8)		A (3.3)	A (9.7)	A (2.4)	
		SB	A (5.3)	A (9.8)	A (2.9)		A (4.2)	A (8.4)	A (2.3)	
Lake Drive & Pine Street	Side Street Stop	EB	A (5.6)	-	A (3.6)	A (5.6)	A (5.5)	-	A (3.0)	A (5.5)
		WB	-	-	-		-	-	-	
		NB	A (2.1)	A (0.9)	-		A (1.8)	A (1.4)	-	
		SB	-	A (1.7)	A (0.2)		-	A (1.1)	A (0.3)	
Lake Drive & Main Street	Round-about	EB	A (10.1)			A (7.5)	A (8.7)			C (15.6)
		WB	A (6.1)				B (14.0)			
		NB	A (5.3)				D (25.3)			
		SB	A (6.6)				A (8.5)			
Sunset Avenue & Access A	Side Street Stop	EB	-	-	-	A (3.5)	-	-	-	A (3.9)
		WB	-	-	A (3.5)		-	-	A (3.9)	
		NB	-	A (1.1)	A (0.5)		-	A (1.6)	A (0.3)	
		SB	-	A (1.1)	-		-	A (1.0)	-	
Main Street & Access B	Side Street Stop	EB	-	A (1.9)	A (1.3)	A (4.5)	-	A (3.1)	A (1.7)	A (5.8)
		WB	-	A (1.4)	A (0.7)		-	A (2.4)	A (1.5)	
		NB	-	-	A (4.5)		-	-	A (5.8)	
		SB	-	-	A (4.1)		-	-	A (5.2)	
Main Street & Access C	Round-about	EB	A (5.6)			A (5.1)	A (8.3)			A (9.0)
		WB	A (4.7)				A (10.7)			
		NB	A (4.9)				A (5.1)			
		SB	A (4.4)				A (5.5)			
Main Street & Access D	Side Street Stop	EB	-	A (1.1)	A (0.6)	A (4.3)	-	A (1.9)	A (1.0)	A (5.3)
		WB	-	A (1.7)	-		-	A (2.9)	-	
		NB	-	-	A (4.3)		-	-	A (5.3)	
		SB	-	-	-		-	-	-	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

4.5. DESIGN YEAR (2045) SCENARIO 1 CAPACITY ANALYSIS

Capacity analysis was conducted for the Design Year (2045) Scenario 1 conditions to determine the long-term effects of the proposed development. The background changes to intersection control discussed in **§3.1** were included along with the addition of the proposed development access points. The Design Year (2045) build Scenario 1 volumes are shown in **Exhibit 12**. Capacity analysis results for the Design Year (2045) Scenario 1 conditions are provided in **Table 4-4**.

Results of the Design Year (2045) Scenario 1 conditions analysis shows that with the addition of the proposed development site traffic and long-term background growth, multiple operational issues are

anticipated at the study area. With the full buildout of Scenario 1, Main Street is generally expected to be over the capacity of a two-lane road and would likely need to be expanded to four lanes. Furthermore, the intersection of Main Street & 4th Avenue does not operate acceptably with side street stop control under Design Year (2045) Scenario 1 conditions. A roundabout is likely the best option at this intersection in the long term. SimTraffic and Rodel queueing results were reviewed, and the intersection of Main Street & 4th Avenue sees excessive side street queueing which causes operational issues at the site access points along 4th Avenue. Furthermore, severe queues are anticipated at all roundabouts along Main Street.

Additionally, Sunset Avenue is anticipated to experience heavy traffic during the AM peak hour due to the school traffic at this time. The southbound approach at the Sunset Avenue & Lilac Street roundabout is anticipated to operate at LOS D with long 95th percentile queues (54 vehicles). However, the roundabout operates at an overall LOS C and operations along the corridor are not expected to present an issue.

Table 4-4: Design Year (2045) Scenario 1 Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	F (54.2)			F (57.0)	F (100+)			F (100+)
		WB	F (84.5)				F (100+)			
		NB	A (7.4)				A (9.9)			
		SB	A (7.4)				A (7.5)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (3.8)	-	-	-	A (4.6)
		WB	-	-	A (3.8)		-	-	A (4.6)	
		NB	-	A (1.5)	A (1.0)		-	A (2.1)	A (1.3)	
		SB	-	A (0.5)	-		-	A (0.7)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (4.1)	-	-	-	A (6.4)
		WB	-	-	A (4.1)		-	-	A (6.4)	
		NB	-	A (1.7)	A (0.6)		-	A (2.5)	A (1.4)	
		SB	-	A (1.5)	-		-	A (1.0)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			C (21.9)	-			A (8.9)
		WB	A (4.1)				A (6.1)			
		NB	A (4.3)				B (11.4)			
		SB	D (30.1)				A (6.4)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (2.1)	A (1)	A (8.2)	-	C (17.5)	E (44.6)	F (57.2)
		WB	A (1.6)	A (1)	-		E (45.9)	E (41.9)	F (57.2)	
		NB	A (3.8)	A (5.1)	A (2.1)		A (4.7)	A (4.0)	A (3.0)	
		SB	A (2)	A (8.2)	-		-	-	A (1.0)	
Main Street & 4th Avenue	Side Street Stop	EB	A (4.6)	A (4.2)	A (1.9)	F (100+)	F (100+)	F (100+)	F (100+)	F (100+)
		WB	B (10.8)	A (8.7)	A (6.2)		D (32.2)	C (23.4)	C (17.9)	
		NB	F (81)	F (68.5)	F (70.3)		F (100+)	F (100+)	F (100+)	
		SB	F (100+)	F (100+)	F (100+)		F (100+)	F (100+)	F (100+)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (2.3)	A (2.8)	A (1)	B (14.2)	F (100+)	F (100+)	F (100+)	F (100+)
		WB	A (2.1)	A (2)	A (0.6)		F (64.6)	F (100+)	F (100+)	
		NB	A (3.7)	B (12.3)	A (2)		F (100+)	F (100+)	F (100+)	
		SB	A (9.2)	B (14.2)	A (6)		F (51.7)	A (9.8)	E (47.2)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Lake Drive & Pine Street	Side Street Stop	EB	A (8.1)	-	A (5.1)	A (8.1)	B (11.4)	-	A (4.3)	B (11.4)
		WB	-	-	-		-	-	-	
		NB	A (2.7)	A (1.2)	-		A (2.8)	A (3.0)	-	
		SB	-	A (2.1)	A (0.7)		-	A (1.4)	A (0.7)	
Lake Drive & Main Street	Round-about	EB	F (98.6)			E (43.2)	D (26.0)			F (100+)
		WB	A (8.4)				F (57.7)			
		NB	A (6.9)				F (100+)			
		SB	B (10.2)				C (17.3)			
Sunset Avenue & Access A	Side Street Stop	EB	-	-	-	A (4.3)	-	-	-	A (4.9)
		WB	-	-	A (4.3)		-	-	A (4.9)	
		NB	-	A (1.5)	A (0.5)		-	A (2.0)	A (0.5)	
		SB	-	A (2.2)	-		-	A (1.5)	-	
Main Street & Access B	Side Street Stop	EB	-	A (3.3)	A (2.3)	F (95.7)	-	D (33.3)	D (31.2)	F (100+)
		WB	-	C (22.8)	D (27.8)		-	A (3.6)	A (2.2)	
		NB	-	-	A (6.2)		-	-	F (100+)	
		SB	-	-	F (95.7)		-	-	A (9.2)	
Main Street & Access C	Round-about	EB	A (9.8)			B (10.0)	F (100+)			F (100+)
		WB	B (11.9)				F (100+)			
		NB	A (7.8)				A (8.6)			
		SB	A (7.3)				A (8.0)			
Main Street & Access D	Side Street Stop	EB	-	A (2.4)	A (1.5)	C (16.1)	-	F (72.0)	F (76.8)	F (100+)
		WB	-	A (3.4)	A (1.7)		-	A (6.7)	A (5.2)	
		NB	-	-	A (5.6)		-	-	F (100+)	
		SB	-	-	C (16.1)		-	-	A (8.8)	
4th Avenue & Access E	Side Street Stop	EB	A (6.5)	-	A (4.2)	A (6.5)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (2.4)	A (1.9)	-		F (100+)	F (100+)	-	
		SB	-	A (3)	A (2.3)		-	A (1.1)	A (0.5)	
4th Avenue & Access F	Side Street Stop	EB	F (100+)	-	F (100+)	F (100+)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (3)	A (2.2)	-		A (1.5)	A (1.7)	-	
		SB	-	F (100+)	F (100+)		-	F (100+)	F (100+)	
4th Avenue & Access G	Side Street Stop	EB	A (6.2)	-	A (4.3)	A (6.2)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (1.6)	A (0.9)	-		A (1.8)	A (1.7)	-	
		SB	-	A (1.3)	A (0.4)		-	F (100+)	F (100+)	
Pine Street & Access H	Side Street Stop	EB	-	A (0.5)	-	A (3.4)	-	A (0.6)	-	A (3.1)
		WB	A (1.2)	A (1.5)	-		A (1.9)	-	-	
		NB	-	-	A (3.4)		-	-	A (3.1)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		SB	-	-	-		-	-	-	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

4.6. DESIGN YEAR (2045) SCENARIO 1 MITIGATED CAPACITY ANALYSIS

Based on the operational deficiencies of the network in the unmitigated scenario, the following mitigation measures are recommended for the Design Year (2045) Scenario 1 conditions:

- Install a roundabout at Main Street & 4th Avenue
- Expand Main Street to 4 lanes west of Lake Drive
  - This includes converting all roundabouts along Main Street (at Sunset Avenue, Access C, and 4th Avenue) to 2x1 roundabouts.
- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
  - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach.

A Design Year (2045) Scenario 1 Mitigated capacity analysis was conducted in order to test the impacts of the proposed mitigations on operations at the study intersections. The Design Year (2045) Scenario 1 traffic volumes are shown in **Exhibit 12**.

Results of the Design Year (2045) Scenario 1 Mitigated capacity analysis are included below in **Table 4-5**. With the proposed mitigations in place, all intersections and individual movements are expected to operate at LOS D or better in the AM and PM peak hours. The SimTraffic and Rodel 95th percentile queueing results were reviewed and all 95th percentile queues are expected to remain within their provided storage bays with no significant queueing issues anticipated. Based on the results of this analysis, acceptable traffic operations are expected to be maintained with the proposed mitigations in place. SimTraffic and Rodel analysis reports are included in **Appendix B**.

Table 4-5: Design Year (2045) Scenario 1 Mitigated Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about (2x1)	EB	B (12.0)			A (9.6)	B (13.8)			B (13.0)
		WB	A (9.2)				B (10.4)			
		NB	A (6.4)				C (16.7)			
		SB	A (5.5)				A (5.7)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (3.9)	-	-	-	- (-)
		WB	-	-	A (3.9)		-	-	A (4.9)	
		NB	-	A (1.4)	A (1.1)		-	A (2.2)	A (1.4)	
		SB	-	A (0.9)	-		-	A (0.8)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (4.5)	-	-	-	- (-)
		WB	-	-	A (4.5)		-	-	A (6.7)	
		NB	-	A (1.5)	A (0.3)		-	A (2.1)	A (0.6)	
		SB	-	A (2.0)	-		-	A (1.0)	-	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Sunset Avenue & Lilac Street	Round-about	EB	-			C (21.9)	-			A (8.9)
		WB	A (4.1)				A (6.1)			
		NB	A (4.3)				B (11.4)			
		SB	D (30.1)				A (6.4)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (2.5)	A (1.2)	A (8.4)	-	A (1.5)	A (0.9)	A (6.9)
		WB	A (2.5)	A (1.3)	-		A (2.8)	A (2.4)	A (0.4)	
		NB	A (4.2)	A (4.8)	A (2.3)		A (6.9)	A (4.9)	A (4.6)	
		SB	A (3.3)	A (8.4)	-		-	-	A (1.1)	
Main Street & 4th Avenue	Round-about (2x1)	EB	A (3.1)			A (3.8)	A (3.8)			A (4.7)
		WB	A (2.2)				A (4.4)			
		NB	A (5.2)				A (6.5)			
		SB	A (6.2)				A (7.1)			
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.7)	A (2.0)	A (0.7)	C (15.5)	A (3.7)	A (3.1)	A (0.8)	B (14.3)
		WB	A (2.2)	A (2.3)	A (0.8)		A (2.3)	A (3.0)	A (1.1)	
		NB	A (5.8)	B (11.0)	A (2.7)		A (7.9)	B (14.2)	A (7.9)	
		SB	B (11.9)	C (15.5)	A (7.4)		B (11.3)	B (14.3)	A (6.2)	
Lake Drive & Pine Street	Side Street Stop	EB	B (10.5)	-	A (6.9)	B (10.5)	B (12.5)	-	A (6.1)	B (12.5)
		WB	-	-	-		-	-	-	
		NB	A (2.5)	A (1.5)	-		A (3.3)	A (3.3)	-	
		SB	-	A (2.0)	A (0.8)		-	A (1.6)	A (0.7)	
Lake Drive & Main Street	Round-about (Multi-Lane)	EB	B (14.3)			B (10.4)	A (7.8)			C (19.5)
		WB	A (7.8)				D (27.7)			
		NB	A (6.1)				C (24.8)			
		SB	A (9.5)				B (11.7)			
Sunset Avenue & Access A	Side Street Stop	EB	-	-	-	A (4.0)	-	-	-	A (5.1)
		WB	-	-	A (4.0)		-	-	A (5.1)	
		NB	-	A (1.4)	A (0.5)		-	A (2.0)	A (0.6)	
		SB	-	A (1.6)	-		-	A (1.5)	-	
Main Street & Access B	Side Street Stop	EB	-	A (0.4)	A (0.2)	A (4.5)	-	A (0.9)	A (0.6)	A (5.1)
		WB	-	A (0.4)	A (0.2)		-	A (0.6)	A (0.2)	
		NB	-	-	A (3.9)		-	-	A (4.7)	
		SB	-	-	A (4.5)		-	-	A (5.1)	
Main Street & Access C	Round-about (2x1)	EB	A (2.5)			A (3.4)	A (4.2)			A (4.4)
		WB	A (2.6)				A (4.0)			
		NB	A (6.1)				A (6.9)			
		SB	A (5.6)				A (6.1)			
Main Street & Access D	Side Street Stop	EB	-	A (0.4)	A (0.1)	A (3.6)	-	A (0.7)	A (0.4)	A (4.7)
		WB	-	A (0.4)	A (0.1)		-	A (1.0)	A (0.5)	
		NB	-	-	A (3.6)		-	-	A (3.9)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		SB	-	-	A (3.4)		-	-	A (4.7)	
4th Avenue & Access E	Side Street Stop	EB	-	A (0.4)	A (0.1)	A (3.6)	A (7.0)	-	A (3.6)	A (7.0)
		WB	-	A (0.4)	A (0.1)		-	-	-	
		NB	-	-	A (3.6)		A (3.1)	A (3.0)	-	
		SB	-	-	A (3.4)		-	A (1.7)	A (0.5)	
4th Avenue & Access F	Side Street Stop	EB	A (7.1)	-	A (4.7)	A (7.1)	B (12.8)	-	A (4.9)	B (12.8)
		WB	-	-	-		-	-	-	
		NB	A (1.8)	A (1.7)	-		A (3.2)	A (3.2)	-	
		SB	-	A (1.0)	A (0.3)		-	A (1.7)	A (0.7)	
4th Avenue & Access G	Side Street Stop	EB	A (7.7)	-	A (5.1)	A (7.7)	A (8.9)	-	A (3.8)	A (8.9)
		WB	-	-	-		-	-	-	
		NB	A (2.0)	A (1.1)	-		A (3.5)	A (3.8)	-	
		SB	-	A (1.8)	A (1.0)		-	A (1.3)	A (0.4)	
Pine Street & Access H	Side Street Stop	EB	A (6.7)	-	A (4.3)	A (6.7)	-	A (0.5)	-	A (3.2)
		WB	-	-	-		A (2.6)	-	-	
		NB	A (1.9)	A (1.3)	-		-	-	A (3.2)	
		SB	-	A (1.5)	A (0.5)		-	-	-	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

5. ANALYSIS OF SCENARIO 2 CONDITIONS

This section of the report outlines the proposed development Scenario 2, summarizes site-specific traffic characteristics, and develops future traffic projections for the Scenario 2 build condition of the AUAR site. Scenario 2 represents an alternative development plan to the City of Lino Lakes' 2040 Comprehensive Plan and as such would require an amendment to the plan.

5.1. DEVELOPMENT CHARACTERISTICS AND SITE ACCESS

The proposed Scenario 2 consists of 1,500 low-density residential units, 900 medium-density residential units, 1,100 high-density residential units, and 62,000 square feet of commercial space. The following major access points are included in the traffic modeling for Scenario 2:

- Via "Access A", a right-in/right-out access located along Sunset Avenue south of Main Street.
- Via Robinson Drive along Sunset Avenue.
- Via Century Trail along Sunset Avenue.
- Via "Access B", a right-in/right-out access located along Main Street east of Sunset Avenue.
- Via "Access C", a proposed roundabout along Main Street located midway between Sunset Avenue and 4th avenue (and east of Access B).
- Via "Access E" (Robinson Drive extension), a proposed full-access intersection along 4th Avenue south of Main Street.
- Via "Access F" and "Access G", both of which are proposed full-access intersections along 4th Avenue north of Main Street, with Access G being the farther north of the two.
- Via "Access H", a full-access intersection along Pine Street west of 4th Avenue.

- Via the future north leg of the Main Street & Sunset Avenue roundabout.

Most access points are the same as in Scenario 1, with Access B being located significantly closer to Sunset Avenue and the development being concentrated largely in the areas at the northeast and southeast corner of the Main Street & Sunset Avenue roundabout. Note that in order to comply with the Anoka County Access Spacing standards, the speed limit along Main Street would need to be reduced to 45 mph and Access B would need to be located midway between Sunset Avenue and Access C (1/4 mile). Site specific traffic analysis should be conducted to determine the final geometric, spacing, and control needs of the access points.

Similar to Scenario 1, only portions of the development are anticipated to be short term developments included in the Opening Year (2030) Scenario 2 analysis. Based on the anticipated future development patterns, Accesses E, F, G, H, and Access D north of Main Street are not included in the Opening Year (2030) conditions as these portions of the site are not anticipated to see development by this time. However, as previously noted, when the development on the AUAR site south of Main Street happens, it is anticipated that Robinson Drive (Access E) would be extended to connect to 4th Avenue to provide an additional connection, but this is not included in the analysis because the conservative analysis was used to determine if this Robinson Drive connection would be necessary from a traffic operations standpoint.

Note that the layout of the site is preliminary and subject to significant changes; future development plans may modify the assumed access points and affect how traffic is distributed throughout the site. The access assumptions outlined above are meant to provide a conservative means of estimating traffic levels at site access points and other minor access points are likely to be constructed along minor roadways such as 4th Avenue and Pine Street. Minor access points are generally not expected to affect the results and findings of the study and thus are excluded from the analysis.

It is anticipated that the full development of the AUAR area would take up to 30 years. However, traffic projections as part of an AUAR are typically 20-year analysis horizon. This results in a conservative analysis for the Design Year as the full site may not be built out yet.

5.2. TRIP GENERATION

Proposed development traffic was determined based on data from the Institute of Transportation Engineers' *Trip Generation Manual, 11th Edition*. The manual provides peak hour trips rates/equations, inbound-outbound percentages that can be attributed to the proposed site.

The site is anticipated to see partial buildout by the studied Opening Year (2030). It is estimated that approximately 650 single family detached residential units, 350 attached residential units, 90 multifamily (low-rise residential units) and 30kSF of retail space would be completed by the studied Opening Year.

The anticipated trip generation for the Opening Year (2030) Scenario 2 conditions are shown below in **Table 5-1**. Note that the trip generation for the Opening Year (2030) is anticipated to be the same for both development Scenarios, but the scenarios differ in access and traffic distribution. The development is expected to generate 12,047 daily trips, including 788 trips during the AM peak hour (216 entering and 572 exiting) and 1,142 during the PM peak hour (697 entering and 444 exiting).

Table 5-1: Opening Year (2030) Scenario 2 Traffic

Land Use Description	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 210 – Single-Family Detached Housing	650 Units	6,130	114	341	455	385	226	611
LUC 215 – Single-Family Attached Housing	350 Units	3,301	61	184	245	207	122	329
LUC 220 – Multifamily Low Rise Residential	90 Units	607	9	27	36	29	17	46
LUC 821 – Shopping Plaza	30 kSF	2,010	32	20	52	76	79	156
Total Site Trips (Opening Year)		12,047	216	572	788	697	444	1,142

Table 5-2 provides a summary of trip generation for Scenario 2. Based on the trip generation calculation, the proposed development is anticipated to generate 32,193 daily trips, including 2,029 total trips during the AM Peak Hour (543 entering and 1,487 exiting), and 2,806 total trips during the PM Peak Hour (1,702 entering, 1,104 exiting).

Table 5-2: Scenario 2 Development Trip Generation

Land Use Description	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 210 - Single Family Detached Housing	1,500 Units	14,145	263	788	1,050	888	522	1,410
LUC 215 - Single Family Attached Housing	900 Units	6,480	108	324	432	303	210	513
LUC 220 - Low Rise Residential	1,100 Units	7,414	106	334	440	353	208	561
LUC 821 - Shopping Plaza	62 kSF	4,154	67	41	107	158	164	322
Total Site Trips		32,193	543	1,487	2,029	1,702	1,104	2,806

5.3. DIRECTIONAL DISTRIBUTION

The estimated distribution of site-generated traffic on the surrounding roadway network was developed based on a review of the roadway network, area development pattern, and access to the proposed development. The anticipated global distribution of passenger vehicle site traffic to the Scenario 2 development is anticipated to be the same as Scenario 1. The expected global traffic patterns are as follows:

- 35% to/from west on Main Street
- 25% to/from south on Sunset Avenue
- 20% to/from south on Lake Drive
- 10% to/from east on Lilac Street
- 5% to/from north on Lake Drive
- 5% to/from east on Main Street

The full site trip distribution for Opening Year (2030) Scenario 2 is shown in **Exhibit 13**. The site traffic assignment, representing traffic volumes associated with the proposed development at the study intersections, is a function of the estimated trip generation (**Table 5-1** and **Table 5-2**) and the directional distribution listed above. The site trip assignment for Opening Year (2030) Scenario 2 is shown in **Exhibit 14**.

The Opening Year (2030) Build traffic volumes were calculated by adding the total Development Site Trips (**Exhibit 14**) to the Opening Year (2030) No-Build traffic volumes (**Exhibit 5**). The Opening Year (2030) Build traffic volumes are shown in **Exhibit 15**.

The Design Year (2045) Scenario 2 site traffic distribution is shown in **Exhibit 16**. The site trip assignment for Scenario 2 in the Design Year (2045) is shown in **Exhibit 17**. The Design Year (2045) Build traffic volumes were calculated by adding the total Development Site Trips (**Exhibit 17**) to the Design Year (2045) No-Build traffic volumes (**Exhibit 6**). The Design Year (2045) Build traffic volumes are shown in **Exhibit 18**.

5.4. OPENING YEAR (2030) SCENARIO 2 CAPACITY ANALYSIS

The Opening Year (2030) Scenario 2 conditions analysis was conducted to determine the impacts of the proposed development on the short-term operations of the adjacent roadway network. The future year (2030) geometry and intersection control changes discussed in **§3.1**. All site access points were assumed to be side street stop controlled for the analysis. The Opening Year (2030) Scenario 2 traffic volumes are shown in **Exhibit 14**. The results of the Opening Year (2030) Scenario 2 conditions analysis is shown in **Table 5-2**.

Based on the results of the Opening Year (2030) Scenario 2 conditions analysis, all intersections are anticipated to operate at LOS C or better and all individual movements are anticipated to operate at LOS D or better during the AM and PM peak hours. Comparing the delay and LOS results to the Opening Year (2030) No-Build scenario indicates that the proposed development Scenario 2 is anticipated to cause some increases in delay, with the Main Street & Lake Drive and Main Street & 4th Avenue intersections seeing the most substantial increases. All delays remain within an acceptable range and the overall traffic operations of the network remain acceptable with the anticipated Opening Year (2030) geometric changes in place. With operations remaining acceptable in Opening Year (2030) build Scenario 2, an east-west roadway connection on the south half of the AUAR site is not required from a traffic operations perspective, however, the connection of Robinson Drive (Access E) would help improve connectivity to the neighborhoods. The connection of Carl Street is not necessary from a traffic operations perspective. The 95th percentile queueing results were reviewed and all 95th percentile queues are expected to remain within their provided storage bays. SimTraffic reports are included in **Appendix B**.

Table 5-3: Opening Year (2030) Scenario 2 Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	A (10.0)			A (7.4)	B (11.9)			B (10.4)
		WB	A (5.7)				B (11.3)			
		NB	A (5.3)				A (7.4)			
		SB	A (5.3)				A (5.9)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (3.5)	-	-	-	A (3.4)
		WB	-	-	A (3.5)		-	-	A (3.4)	
		NB	-	A (1.1)	A (0.7)		-	A (1.4)	A (0.9)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		SB	-	A (0.4)	-		-	A (0.3)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (3.8)	-	-	-	A (3.9)
		WB	-	-	A (3.8)		-	-	A (3.9)	
		NB	-	A (1.4)	A (0.6)		-	A (1.6)	A (0.8)	
		SB	-	-	-		-	-	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			A (7.3)	-			A (6.0)
		WB	A (3.6)				A (4.6)			
		NB	A (5.8)				A (7.4)			
		SB	A (8.2)				A (4.7)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (0.3)	A (0.0)	A (7.1)	-	A (0.0)	A (0.1)	A (3.0)
		WB	A (0.6)	A (0.2)	-		A (1.3)	A (0.3)	A (0.4)	
		NB	A (2.0)	A (7.1)	A (0.9)		A (2.7)	A (3.0)	A (1.4)	
		SB	A (2.4)	-	-		-	-	A (1.3)	
Main Street & 4th Avenue	Side Street Stop	EB	A (2.6)	A (1.8)	A (1.4)	B (11.9)	A (4.8)	A (2.6)	A (1.5)	C (18.5)
		WB	A (7.0)	A (4.4)	A (5.0)		A (5.6)	A (3.0)	A (1.5)	
		NB	A (8.1)	B (11.9)	A (3.4)		C (17.7)	C (18.5)	A (6.8)	
		SB	A (9.0)	-	A (3.6)		C (15.0)	-	A (5.2)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.6)	A (1.7)	A (0.7)	A (9.9)	A (2.8)	A (1.6)	A (2.8)	A (9.4)
		WB	A (1.4)	A (1.1)	A (0.5)		A (1.1)	A (1.3)	A (0.4)	
		NB	A (3.6)	A (9.7)	A (1.9)		A (4.7)	A (9.4)	A (2.3)	
		SB	A (5.3)	A (9.9)	A (2.6)		A (5.0)	A (8.9)	A (2.4)	
Lake Drive & Pine Street	Side Street Stop	EB	A (4.9)	-	A (2.8)	A (4.9)	A (6.5)	-	A (2.2)	A (6.5)
		WB	-	-	-		-	-	-	
		NB	A (0.8)	A (0.7)	-		A (1.4)	A (1.2)	-	
		SB	-	-	A (0.5)		-	-	A (0.3)	
Lake Drive & Main Street	Round-about	EB	B (10.1)			A (7.5)	A (8.7)			C (15.9)
		WB	A (6.1)				B (13.4)			
		NB	A (5.3)				D (25.3)			
		SB	A (6.6)				A (8.5)			
Sunset Avenue & Access A	Side Street Stop	EB	-	-	-	A (3.5)	-	-	-	A (4.1)
		WB	-	-	A (3.5)		-	-	A (4.1)	
		NB	-	A (1.0)	A (0.2)		-	A (1.8)	A (0.5)	
		SB	-	-	-		-	-	-	
Main Street & Access B	Side Street Stop	EB	-	A (2.2)	A (1.7)	A (4.4)	-	A (3.1)	A (2.0)	A (5.2)
		WB	-	A (0.8)	A (0.5)		-	A (1.6)	A (0.9)	
		NB	-	-	A (4.4)		-	-	A (5.2)	
		SB	-	-	A (3.4)		-	-	A (5.0)	
Main Street & Access C	Round-about	EB	A (5.6)			A (5.0)	A (7.1)			A (8.1)
		WB	A (4.5)				A (9.5)			

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		NB	A (4.5)				A (4.6)			
		SB	A (4.0)				A (5.1)			

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

5.5. DESIGN YEAR (2045) SCENARIO 2 CAPACITY ANALYSIS

Capacity analysis was conducted for the Design Year (2045) Scenario 2 conditions to determine the long-term effects of the proposed development. The background changes to intersection control discussed in **§3.1** were included along with the addition of the proposed development access points. The Design Year (2045) Scenario 2 traffic volumes are shown in **Exhibit 18**. Capacity analysis results for the Design Year (2045) Scenario 2 conditions are provided in **Table 4-4**.

Results of the Design Year (2045) Scenario 2 conditions analysis shows that with the addition of the proposed development site traffic and long-term background growth, multiple operational issues are anticipated at the study area. Similar to the results for Scenario 1, Main Street is generally expected to be over the capacity of a two-lane road and would likely need to be expanded to four lanes. The intersection of Main Street & 4th Avenue does not operate acceptably with side street stop control under Design Year (2045) Scenario 1 conditions. A roundabout is likely the best option at this intersection in the long term.

The Sunset Avenue & Lilac Avenue roundabout may also see minor operational issues during the AM peak hour due to school traffic, though LOS E operations at the intersection during this time likely do not necessitate further improvements. The intersection and the Sunset Avenue corridor should be monitored closely, however, as the road is anticipated to be nearing the capacity of a two-lane road under the Design Year (2045) Scenario 2 conditions.

SimTraffic and Rodel 95th percentile queueing results were reviewed, and the intersection of Main Street & 4th Avenue sees excessive side street queueing which causes operational issues at the site access points along 4th Avenue. Furthermore, severe queues are anticipated at all roundabouts along Main Street due to insufficient capacity for eastbound and westbound vehicles at peak times.

Table 5-4: Design Year (2045) Scenario 2 Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about	EB	F (100+)			F (56.3)	F (100+)			F (100+)
		WB	D (31.2)				F (100+)			
		NB	A (9.7)				D (33.0)			
		SB	C (16.4)				B (10.6)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (4.2)	-	-	-	A (5.3)
		WB	-	-	A (4.2)		-	-	A (5.3)	
		NB	-	A (1.8)	A (1.1)		-	A (2.5)	A (1.7)	
		SB	-	A (1.1)	-		-	A (0.8)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (5.3)	-	-	-	A (6.7)
		WB	-	-	A (5.3)		-	-	A (6.7)	
		NB	-	A (1.6)	A (0.3)		-	A (3.5)	A (2.2)	
		SB	-	A (2.1)	-		-	A (1.1)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			E (36.1)	-			A (9.6)
		WB	A (4.2)				A (6.9)			
		NB	A (4.5)				B (12.6)			
		SB	F (52.2)				A (7.0)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (2.0)	A (0.7)	A (8.0)	-	A (1.3)	A (0.9)	A (4.5)
		WB	A (1.8)	A (1.7)	-		A (3.0)	A (2.7)	A (0.8)	
		NB	A (3.7)	A (3.3)	A (2.1)		A (4.5)	A (2.8)	A (2.5)	
		SB	A (2.1)	A (8.0)	-		-	-	A (1.7)	
Main Street & 4th Avenue	Side Street Stop	EB	A (5.8)	A (4.5)	A (2.6)	F (100+)	F (100+)	F (77.7)	F (73.8)	F (100+)
		WB	A (7.7)	A (3.9)	A (1.9)		D (33.4)	D (27.4)	C (22.7)	
		NB	F (100+)	F (88.2)	F (81.7)		F (100+)	F (100+)	F (100+)	
		SB	F (100+)	F (100+)	F (100+)		F (100+)	F (100+)	F (100+)	
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.8)	A (2.1)	A (1.1)	B (13.0)	C (17.3)	A (10.0)	B (14.6)	C (17.3)
		WB	A (2.0)	A (1.9)	A (0.7)		A (2.6)	A (8.1)	A (8.0)	
		NB	A (4.9)	B (11.0)	A (4.9)		A (8.6)	C (16.9)	A (8.3)	
		SB	A (8.8)	B (13.0)	A (5.1)		A (8.2)	A (9.2)	A (3.5)	
Lake Drive & Pine Street	Side Street Stop	EB	B (11.7)	-	A (7.4)	B (11.7)	B (12.7)	-	A (4.8)	B (12.7)
		WB	-	-	-		-	-	-	
		NB	A (2.2)	A (1.4)	-		A (3.2)	A (3.0)	-	
		SB	-	A (2.1)	A (0.9)		-	A (1.5)	A (0.8)	
Lake Drive & Main Street	Round-about	EB	F (100+)			E (46.9)	D (27.3)			F (100+)
		WB	A (8.4)				F (58.7)			
		NB	A (6.9)				F (100+)			
		SB	B (10.3)				C (17.4)			
		EB	-	-	-	A (5.3)	-	-	-	A (6.3)
		WB	-	-	A (5.3)		-	-	A (6.3)	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Sunset Avenue & Access A	Side Street Stop	NB	-	A (2.0)	A (0.6)		-	A (3.4)	A (0.9)	
		SB	-	A (1.6)	-		-	A (1.5)	-	
Main Street & Access B	Side Street Stop	EB	-	A (2.1)	A (0.6)	A (8.4)	-	A (3.9)	A (1.6)	C (15.2)
		WB	-	A (2.1)	A (1.3)		-	B (10.0)	A (7.5)	
		NB	-	-	A (8.4)		-	-	C (15.2)	
		SB	-	-	A (6.3)		-	-	B (10.4)	
Main Street & Access C	Round-about	EB	A (9.3)			A (7.9)	E (48.6)			F (56.1)
		WB	A (7.1)				F (77.3)			
		NB	A (6.8)				A (7.3)			
		SB	A (5.5)				A (7.1)			
4th Avenue & Access E	Side Street Stop	EB	A (5.5)	-	A (4.0)	A (5.5)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (2.3)	A (1.8)	-		F (100+)	F (100+)	-	
		SB	-	A (2.9)	A (2.4)		-	A (1.2)	A (0.8)	
4th Avenue & Access F	Side Street Stop	EB	D (26.4)	-	D (31.8)	D (31.8)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (3.3)	A (2.2)	-		A (1.5)	A (1.3)	-	
		SB	-	B (12.4)	A (0.3)		-	F (100+)	F (100+)	
4th Avenue & Access G	Side Street Stop	EB	A (5.6)	-	A (3.4)	A (5.6)	F (100+)	-	F (100+)	F (100+)
		WB	-	-	-		-	-	-	
		NB	A (1.2)	A (0.7)	-		A (1.5)	A (1.4)	-	
		SB	-	A (1.2)	A (0.9)		-	F (100+)	F (100+)	
Pine Street & Access H	Side Street Stop	EB	-	A (0.4)	-	A (3.1)	-	A (0.6)	-	A (3.0)
		WB	A (1.4)	-	-		A (2.0)	-	-	
		NB	-	-	A (3.1)		-	-	A (3.0)	
		SB	-	-	-		-	-	-	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

5.6. DESIGN YEAR (2045) SCENARIO 2 MITIGATED CAPACITY ANALYSIS

Based on the operational deficiencies in the unmitigated scenario, the following mitigation measures are recommended for the Design Year (2045) Scenario 2 conditions:

- Install a roundabout at Main Street & 4th Avenue
- Expand Main Street to 4 lanes west of Lake Drive
  - This includes converting all roundabouts along Main Street (at Sunset Avenue, Access C, and 4th Avenue) to 2x1 roundabouts.
- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
  - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach.

A Design Year (2045) Scenario 2 Mitigated capacity analysis was conducted in order to test the effects of the proposed mitigations on the roadway network. The Design Year (2045) Scenario 2 traffic volumes are shown in **Exhibit 18**. Along with the background changes discussed in **§3.1**, the mitigation listed above in **§5.5** was included in the analysis.

Results of the Design Year (2045) Scenario 2 Mitigated capacity analysis are included below in **Table 5-4**. All intersections operate at an overall LOS D or better during the AM and PM peak hour, with the exception of the previously mentioned Sunset Avenue & Lilac Street roundabout which is anticipated to operate at LOS E during the AM peak hour due to heavy school traffic at this time. While this intersection and the Sunset Avenue corridor as a whole should be monitored for future improvements upon the full buildout of the site, no mitigation is anticipated to be required for Design Year (2045) Scenario 2 conditions.

The 95th percentile queueing results from SimTraffic and Rodel were reviewed and all 95th percentile queues are expected to remain within their provided storage bays. The Sunset Avenue & Lilac Street roundabout is anticipated to see extended queues at the southbound approach due to school traffic during the AM peak hour, but the delay of this approach being just over 50s indicates that these queues likely dissipate quickly. No other significant queueing issues are anticipated. The SimTraffic and Rodel analysis reports are included in **Appendix B**.

Table 5-5: Design Year (2045) Scenario 2 Mitigated Level of Service

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
Main Street & Sunset Avenue	Round-about (2x1)	EB	C (18.7)			B (12.3)	C (19.8)			C (18.9)
		WB	A (9.2)				C (16.5)			
		NB	A (8.2)				D (25.0)			
		SB	A (8.6)				A (7.5)			
Sunset Avenue & Robinson Drive	Side Street Stop	EB	-	-	-	A (4.6)	-	-	-	A (6.0)
		WB	-	-	A (4.6)		-	-	A (6.0)	
		NB	-	A (1.9)	A (1.2)		-	A (2.7)	A (1.8)	
		SB	-	A (1.1)	-		-	A (0.8)	-	
Sunset Avenue & Century Trail	Side Street Stop	EB	-	-	-	A (5.4)	-	-	-	A (8.0)
		WB	-	-	A (5.4)		-	-	A (8.0)	
		NB	-	A (1.7)	A (0.3)		-	A (2.3)	A (0.6)	
		SB	-	A (2.1)	-		-	A (1.2)	-	
Sunset Avenue & Lilac Street	Round-about	EB	-			E (36.1)	-			A (9.6)
		WB	A (4.2)				A (6.9)			
		NB	A (4.5)				B (12.6)			
		SB	F (52.2)				A (7.0)			
Pine Street & 4th Avenue	Side Street Stop	EB	-	A (1.6)	A (0.8)	A (4.2)	-	A (1.4)	A (0.6)	A (5.4)
		WB	A (2.0)	A (1.1)	-		A (3.0)	A (1.9)	A (3.2)	
		NB	A (4.2)	A (4.4)	A (2.3)		A (5.4)	A (4.5)	A (3.5)	
		SB	A (2.0)	A (8.0)	-		-	-	A (1.0)	
Main Street & 4th Avenue	Round-about (2x1)	EB	A (2.8)			A (3.2)	A (3.1)			A (3.9)
		WB	A (2.1)				A (3.7)			
		NB	A (4.8)				A (5.7)			

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
		SB	A (5.0)				A (6.1)			
4th Avenue & Lilac Street	Side Street Stop	EB	A (1.8)	A (2.1)	A (1.1)	B (14.4)	A (3.7)	A (3.2)	A (1.8)	C (16.3)
		WB	A (2.0)	A (1.8)	A (0.6)		A (2.3)	A (2.3)	A (0.9)	
		NB	A (7.5)	B (11.8)	A (3.0)		A (8.2)	B (14.1)	A (3.3)	
		SB	B (11.5)	B (14.4)	A (7.2)		A (9.5)	C (16.3)	A (5.0)	
Lake Drive & Pine Street	Side Street Stop	EB	B (10.3)	-	A (5.6)	B (10.3)	B (10.6)	-	A (3.7)	B (10.6)
		WB	-	-	-		-	-	-	
		NB	A (2.3)	A (1.3)	-		A (3.0)	A (3.0)	-	
		SB	-	A (2.0)	A (0.9)		-	A (1.6)	A (0.8)	
Lake Drive & Main Street	Round-about (Multi-Lane)	EB	A (17.0)			B (10.5)	A (7.9)			C (19.8)
		WB	A (5.3)				D (25.1)			
		NB	A (2.9)				D (28.2)			
		SB	A (6.5)				B (11.8)			
Sunset Avenue & Access A	Side Street Stop	EB	-	-	-	A (5.4)	-	-	-	A (6.2)
		WB	-	-	A (5.4)		-	-	A (6.2)	
		NB	-	A (2.1)	A (0.6)		-	A (3.7)	A (1.0)	
		SB	-	A (1.6)	-		-	A (1.5)	-	
Main Street & Access B	Side Street Stop	EB	-	A (1.6)	A (0.5)	A (8.2)	-	A (3.6)	A (1.7)	B (14.6)
		WB	-	A (1.7)	A (0.3)		-	A (4.6)	A (2.3)	
		NB	-	-	A (6.1)		-	-	B (14.6)	
		SB	-	-	A (8.2)		-	-	B (13.6)	
Main Street & Access C	Round-about (2x1)	EB	A (2.5)			A (3.4)	A (3.4)			A (4.0)
		WB	A (2.5)				A (3.9)			
		NB	A (6.1)				A (5.9)			
		SB	A (5.2)				A (5.9)			
4th Avenue & Access E	Side Street Stop	EB	A (5.7)	-	A (3.7)	A (5.7)	A (5.9)	-	A (2.7)	A (5.9)
		WB	-	-	-		-	-	-	
		NB	A (2.2)	A (1.9)	-		A (2.4)	A (2.0)	-	
		SB	-	A (0.6)	A (0.1)		-	A (1.1)	A (0.4)	
4th Avenue & Access F	Side Street Stop	EB	A (6.9)	-	A (4.0)	A (6.9)	A (9.6)	-	A (3.4)	A (9.6)
		WB	-	-	-		-	-	-	
		NB	A (1.7)	A (0.5)	-		A (2.0)	A (1.6)	-	
		SB	-	A (1.3)	A (0.5)		-	A (1.1)	A (0.6)	
4th Avenue & Access G	Side Street Stop	EB	A (5.5)	-	A (3.7)	A (5.5)	A (7.7)	-	A (3.4)	A (7.7)
		WB	-	-	-		-	-	-	
		NB	A (1.4)	A (0.8)	-		A (2.2)	A (2.5)	-	
		SB	-	A (1.3)	A (0.8)		-	A (1.0)	A (0.4)	
Pine Street & Access H		EB	-	A (0.5)	-	A (3.1)	-	A (0.7)	-	A (2.9)
		WB	A (1.5)	-	-		A (2.1)	-	-	

Intersection	Control	Approach	Operations by Movement							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall*	Left	Through	Right	Overall*
	Side Street Stop	NB	-	-	A (3.1)		-	-	A (2.9)	
		SB	-	-	-		-	-	-	

*Delay of worst movement is reported in place of overall delay at side-street stop-controlled intersections.

6. TURN LANE WARRANT ANALYSIS

The need for turn lanes along CSAH 70 was evaluated using the methodologies laid out in the National Cooperative Highway Research Program's *Report 457* on the need for major-road turn lanes at side-street stop-controlled intersections. Turn lane warrants were conducted at all stop-controlled site access points for each applicable turning movement. Results of the turn lane warrant analysis are given below in **Table 6-1**.

Table 6-1: Access Point Turn Lane Warrant Analysis Results

Intersection	Movement	Turn Lane Warrant Result By Scenario			
		Scenario 1		Scenario 2	
		2030	2045	2030	2045
Sunset Avenue & Access A	NBR	MET	MET	MET	MET
Main Street & Access B	EBR	MET	MET	MET	MET
	WBR	MET	MET	MET	MET
Main Street & Access D	EBR	MET	MET	-	-
	WBR	-	MET	-	-
4th Avenue & Access E	NBL	-	Not Met	-	Not Met
	SBR	-	MET	-	MET
4th Avenue & Access F	NBL	-	MET	-	MET
	SBR	-	Not Met	-	Not Met
4th Avenue & Access G	NBL	-	MET	-	MET
	SBR	-	Not Met	-	Not Met

The results of the analysis indicate that under both Scenario 1 and Scenario 2, right turn lanes are warranted on all access points along Sunset Avenue and Main Street. Additionally, the access point along 4th Avenue south of Main Street (Access E) meets the warrant for only a southbound right turn lane, while the access points along 4th Avenue north of Main Street (Accesses F and G) meet the warrant only for a northbound left turn lane. Further traffic analysis should be conducted as the site develops to confirm the need for geometric improvements after the access locations and development characteristics have been finalized.

7. CONCLUSION AND RECOMMENDATIONS

A traffic analysis was performed to quantify the impacts of the proposed development on the adjacent roadway network and study intersections. No-Build, and Build conditions were analyzed in the Opening Year (2030) and the Design Year (2045). An Existing Year (2025) analysis was also conducted.

7.1. PROJECT CHARACTERISTICS

The proposed development site is located along Main Street between Sunset Avenue and 4th Avenue in Lino Lakes, MN. There are two development scenarios included in the AUAR; Scenario 2 represents the densities, and land uses presently allowed in the City of Lino Lakes 2040 Comprehensive Plan, while Scenario 1 represents an alternative development to the City of Lino Lakes' 2040 Comprehensive Plan and as such would require an amendment to the plan. The study area intersections include the following:

- Main Street & Sunset Avenue
- Sunset Avenue & Robinson Drive
- Sunset Avenue & Century Trail
- Sunset Avenue & Lilac Street
- 4th Avenue & Pine Street
- Main Street & 4th Avenue
- 4th Avenue & Lilac Street
- Pine Street & Lake Drive
- Main Street & Lake Drive

The listed intersections were analyzed in the following scenarios:

- Existing Year (2025)
- Opening Year (2030) No-Build
- Opening Year (2030) Scenario 1
- Opening Year (2030) Scenario 2
- Design Year (2045) No-Build
- Design Year (2045) Scenario 1
- Design Year (2045) Scenario 2

Both Scenarios are anticipated to include numerous access points off Sunset Avenue, Main Street, 4th Avenue, and Pine Street. It is anticipated that the full development of the AUAR area would take up to 30 years. However, traffic projections as part of an AUAR are typically 20-year analysis horizon. This results in a conservative analysis for the Design Year as the site may not be fully developed by then.

7.2. BACKGROUND CONDITIONS CAPACITY ANALYSIS SUMMARY

A capacity analysis was conducted for Existing Year (2025) traffic conditions at the study intersections to determine current operating conditions of the roadway network. Based on the analysis, all intersections and individual movements are estimated to operate at LOS C or better.

A capacity analysis was conducted for the Opening Year (2030) No-Build traffic conditions at the study intersections to determine baseline conditions for the 2030 analysis year. Analysis included numerous background improvements including new roundabouts at Sunset Avenue & Lilac Street and Main Street & Lake Drive. Based on the analysis, all study intersections and individual movements are anticipated to operate at LOS B or better, with the operations seeing an overall improvement as a result of the upcoming roadway projects.

A capacity analysis was conducted for the Design Year (2045) No-Build traffic conditions at the study intersections to determine baseline conditions for the 2045 analysis year. Analysis included the upcoming background geometry changes that will be in place by the Opening Year but no further changes to geometry and control were assumed. All study intersections are anticipated to operate at LOS C or better and all intersection movements/roundabout approaches are anticipated to operate at LOS D or better.

7.3. SCENARIO 1 CONDITIONS CAPACITY ANALYSIS SUMMARY

A capacity analysis was conducted for the Opening Year (2030) Scenario 1 traffic conditions at the study intersection. It was found that the addition of site traffic causes some increases in network delays compared to the Opening Year (2030) No-Build conditions. All study intersections are anticipated to operate at an overall LOS C or better and all individual movements/roundabout approaches operate at LOS D or better. Additionally, with operations remaining acceptable in Opening Year (2030) build Scenario 1, an east-west roadway connection on the south half of the AUAR site is not required from a traffic operations perspective, however, the connection of Robinson Drive (Access E) would help improve connectivity to the neighborhoods. The connection of Carl Street is not necessary from a traffic operations perspective.

Under Design Year (2045) Scenario 1 traffic conditions, it was found that significant operational deficiencies could be caused by the full buildout of the proposed Scenario 1 development and mitigation measures are likely required if traffic reaches these levels. Main Street sees operational issues due to capacity constraints on eastbound and westbound traffic at the roundabouts and 4th Avenue sees severe side street delays at the intersection with Main Street. Therefore, it is anticipated that Main Street may need to be expanded to four lanes west of Lake Drive under the buildout conditions of Scenario 1 and a roundabout may be needed at Main Street & 4th Avenue. The infrastructure improvements within the AUAR site should be evaluated as development occurs on the site.

Analysis of the Design Year (2045) Scenario 1 Mitigated traffic conditions indicated that with the proposed improvements in place, all study intersections are anticipated to operate acceptably.

7.4. SCENARIO 2 CONDITIONS CAPACITY ANALYSIS SUMMARY

A capacity analysis was conducted for the Opening Year (2030) Scenario 2 traffic conditions at the study intersection. It was found that the addition of site traffic causes some increases in network delays compared to the Opening Year (2030) No-Build conditions. All study intersections are anticipated to operate at an overall LOS C or better and all individual movements/roundabout approaches operate at LOS D or better. Additionally, with operations remaining acceptable in Opening Year (2030) Build Scenario 2, an east-west roadway connection on the south half of the AUAR site is not required from a traffic operations perspective, however, the connection of Robinson Drive (Access E) would help improve connectivity to the neighborhoods. The connection of Carl Street is not necessary from a traffic operations perspective.

Under Design Year (2045) Scenario 2 traffic conditions, it was found that significant operational deficiencies could be caused by the full buildout of the proposed Scenario 2 development and mitigation measures are likely required if traffic reaches these levels. Main Street sees operational issues due to capacity constraints on eastbound and westbound traffic at the roundabouts and 4th Avenue sees severe side street delays at the intersection with Main Street. Therefore, it is anticipated that Main Street may need to be expanded to four lanes west of Lake Drive under the buildout conditions of Scenario 2 and a roundabout may be needed at Main Street & 4th Avenue. The infrastructure improvements within the AUAR site should be evaluated as development occurs on the site.

Analysis of the Design Year (2045) Scenario 2 Mitigated traffic conditions indicated that with the proposed improvements in place, all study intersections are anticipated to operate acceptably. Some minor

operational deficiencies may also be present along Sunset Avenue in the AM peak hour due to the presence of school traffic, but the anticipated level of delay does not necessitate further improvement.

7.5. MITIGATION PLAN

The following provides a summary of mitigation improvements that were identified as part of the traffic analysis for the proposed development.

Existing (2025) Conditions

- No recommended mitigation

Opening Year (2030) No-Build Conditions

- No recommended mitigation (beyond planned improvements)

Opening Year (2030) Scenario 1 Conditions

- Install side street stop control at the site access points.
- Install right turn lanes at all access points along Sunset Avenue & Main Street
- Install a roundabout at the full-access point along Main Street (Access C)
- While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.

Opening Year (2030) Scenario 2 Conditions

- Install a roundabout at the full-access point along Main Street (Access C)
- Install side street stop control at all other site access points.
- Install right turn lanes at all access points along Sunset Avenue & Main Street
- While not required based on the traffic operations results, it is recommended to connect Robinson Drive to 4th Avenue (Access E) to improve connectivity.

Design Year (2045) No-Build Conditions

- No recommended mitigation (beyond planned improvements)

Design Year (2045) Scenario 1 Conditions

- All Opening Year (2030) Scenario 1 conditions mitigations
- Install side street stop control at all access points along 4th Avenue and Pine Street.
- Install southbound right turn lanes at 4th Avenue & Access E (south of Main Street)
- Install northbound left turn lanes at access points on 4th Avenue north of Main Street (Access F and Access G).
- Expand Main Street to a four-lane road west of Lake Drive
    - Includes expanding roundabouts at Sunset Avenue and Access C to 2x1 roundabouts.
- Install a 2x1 roundabout at Main Street & 4th Avenue.
- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
    - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach

Design Year (2045) Scenario 2 Conditions

- All Opening Year (2030) Scenario 2 conditions mitigations

- Install side street stop control at all access points along 4th Avenue and Pine Street.
- Install southbound right turn lanes at access points along 4th Avenue south of Main Street (i.e., Access E).
- Install northbound left turn lanes at access points on 4th Avenue north of Main Street (Access F and Access G).
- Expand Main Street to a four-lane road west of Lake Drive
    - Includes expanding roundabouts at Sunset Avenue and Access C to 2x1 roundabouts.
- Install a 2x1 roundabout at Main Street & 4th Avenue
- Expand Main Street & Lake Drive roundabout to accommodate northbound left-turn traffic.
    - The roundabout is anticipated to require two northbound entry lanes, two exit lanes on the west leg, and a bypass lane for the eastbound approach

Note that it is anticipated that the full development of the AUAR area would take up to 30 years. However, traffic projections as part of an AUAR are typically 20-year analysis horizon. This results in a conservative analysis for the Design Year as the full site may not be built out yet. All traffic mitigation should be updated when the AUAR is updated.

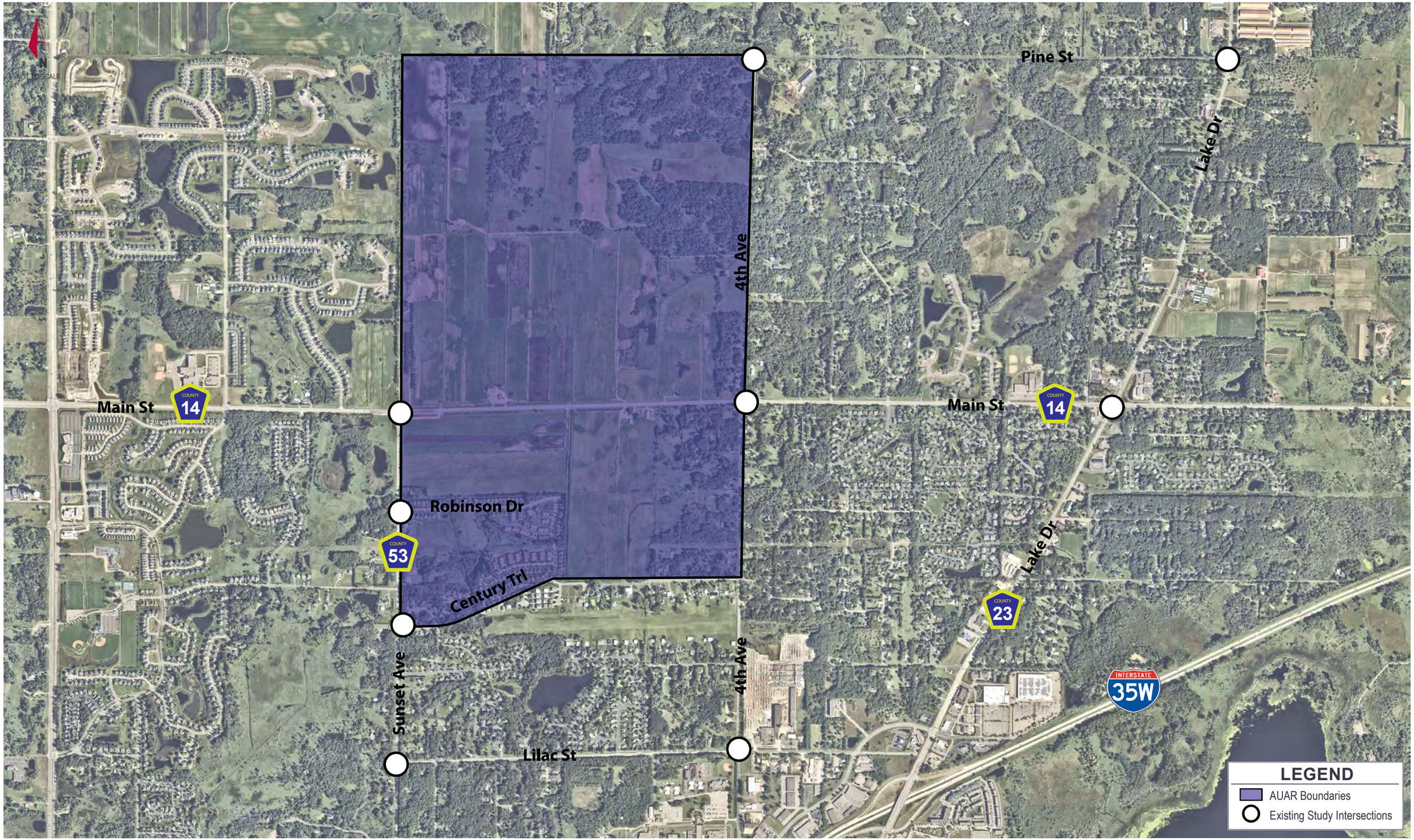

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EXHIBIT 1

AUAR BOUNDARIES & STUDY INTERSECTIONS

NORTHWEST MAIN — LINO LAKES, MN

N
NOT TO SCALE

Pine St

Lake Dr

4th Ave

Main St

COUNTY 14

Robinson Dr

COUNTY 53

Century Trl

Sunset Ave

Lilac St

COUNTY 23

INTERSTATE 35W

LEGEND

- Study Intersections
- Existing Stop Control
- Existing Signal Control
- Roundabout
- Channelized Turn

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EXHIBIT 2

EXISTING GEOMETRY AND INTERSECTION CONTROL

NORTHWEST MAIN — LINO LAKES, MN

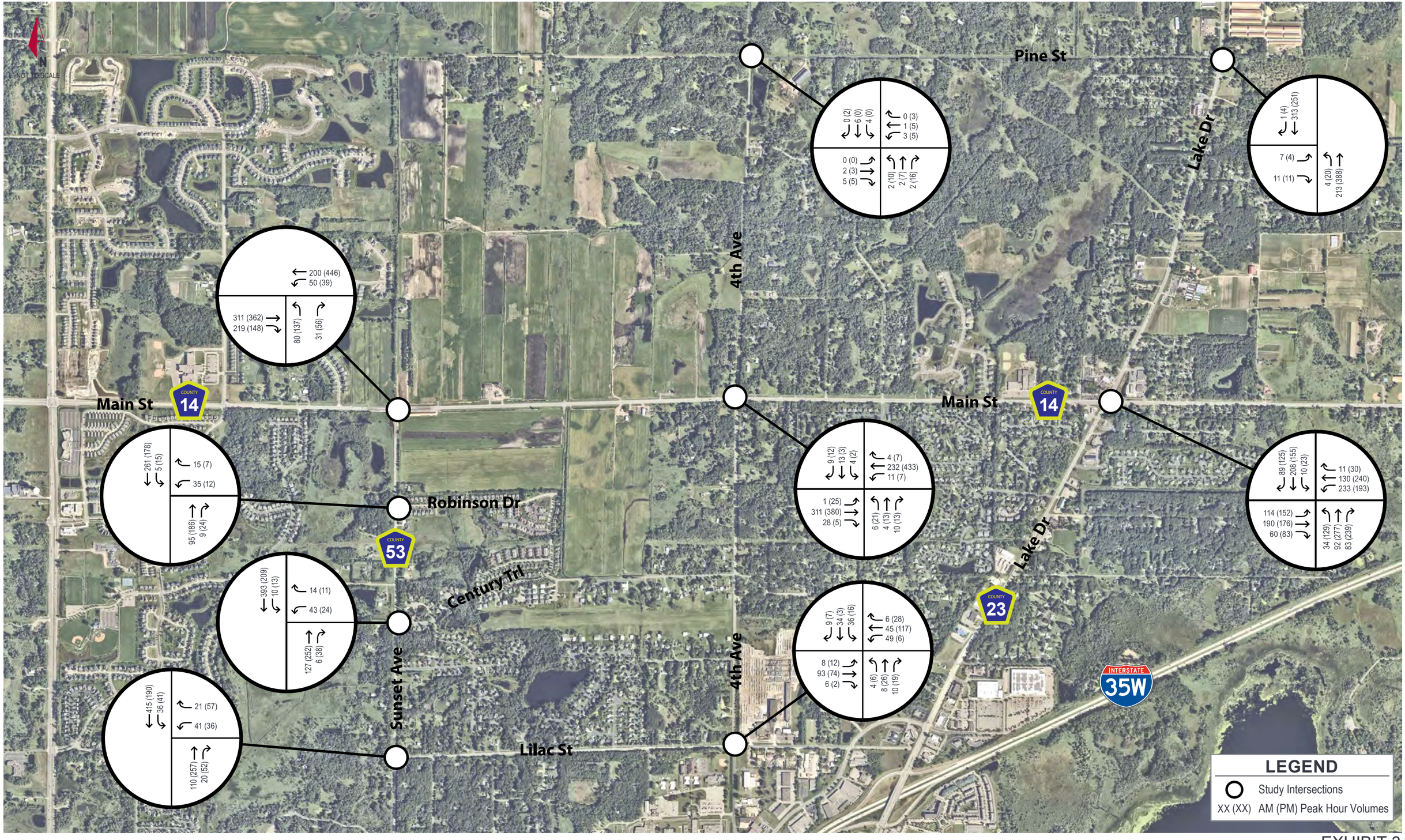

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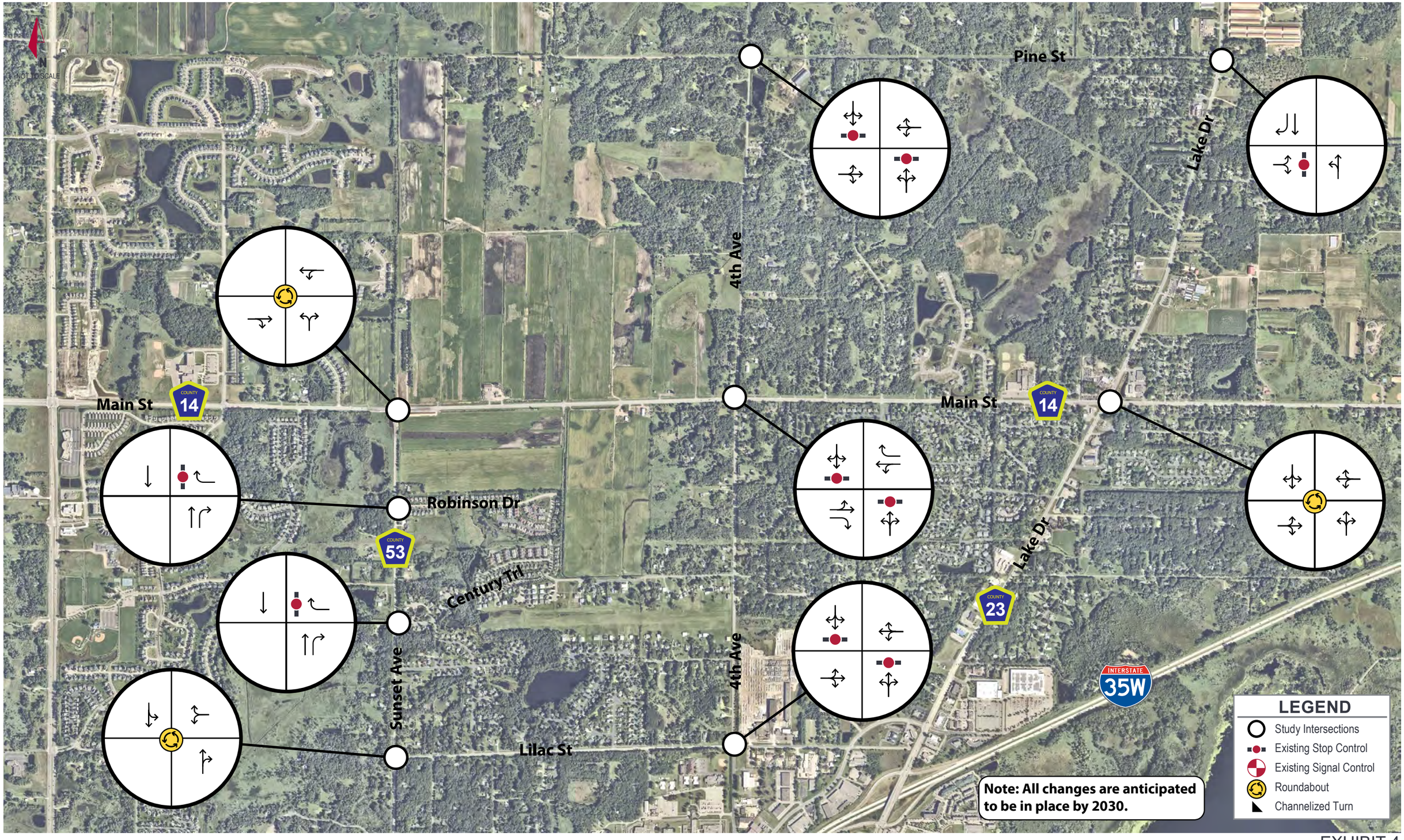
EXHIBIT 3

EXISTING (2025) TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN



Kimley»Horn

EXHIBIT 4

PLANNED FUTURE GEOMETRY AND INTERSECTION CONTROL

NORTHWEST MAIN — LINO LAKES, MN

N
NOT TO SCALE

Pine St

Lake Dr

4th Ave

Main St

COUNTY 14

Robinson Dr

COUNTY 53

Century Trl

Sunset Ave

Lilac St

COUNTY 23

INTERSTATE 35W

0 (3)
7 (0)
5 (0)
0 (4)
2 (6)
4 (6)
0 (0)
3 (4)
6 (6)
3 (11)
3 (8)
3 (17)

2 (5)
333 (267)
8 (5)
12 (12)
5 (22)
227 (412)

213 (474)
54 (42)
331 (385)
233 (158)
38 (13)
85 (146)
33 (60)

10 (13)
14 (4)
5 (3)
5 (8)
247 (360)
12 (8)
2 (27)
331 (404)
30 (6)
7 (23)
5 (14)
11 (14)

95 (133)
221 (165)
11 (25)
12 (32)
138 (255)
248 (205)
122 (162)
202 (187)
64 (89)
37 (137)
98 (295)
89 (254)

322 (218)
54 (21)
101 (198)
16 (42)

475 (262)
61 (38)
192 (308)
18 (55)

441 (202)
39 (44)
11 (14)
23 (61)
44 (39)
117 (273)
22 (56)

10 (8)
37 (4)
39 (14)
7 (30)
48 (125)
53 (7)
9 (13)
99 (79)
7 (3)
5 (7)
9 (28)
11 (21)

LEGEND

Study Intersections

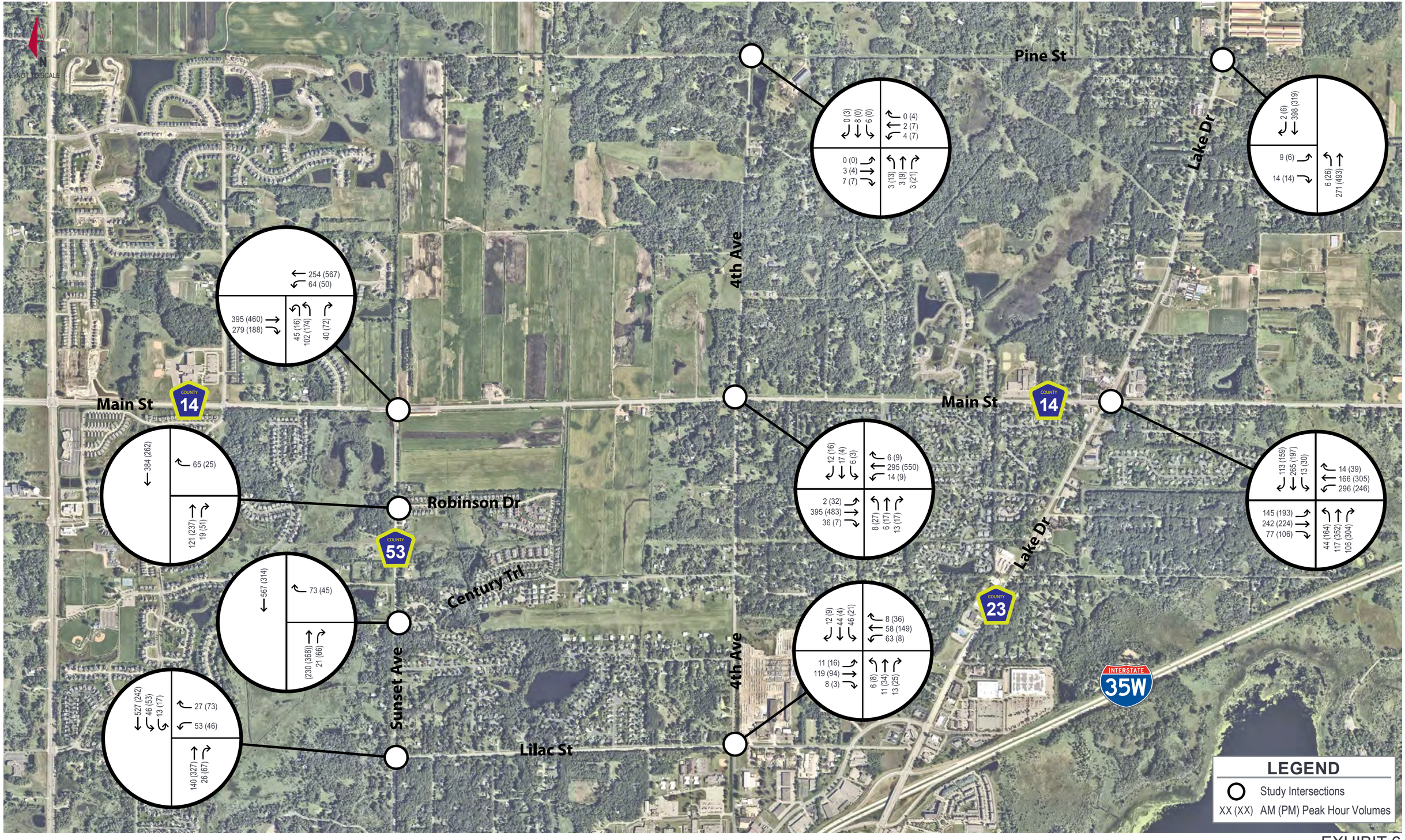
XX (XX) AM (PM) Peak Hour Volumes

Kimley»Horn

EXHIBIT 5

OPENING YEAR (2030) NO-BUILD TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN

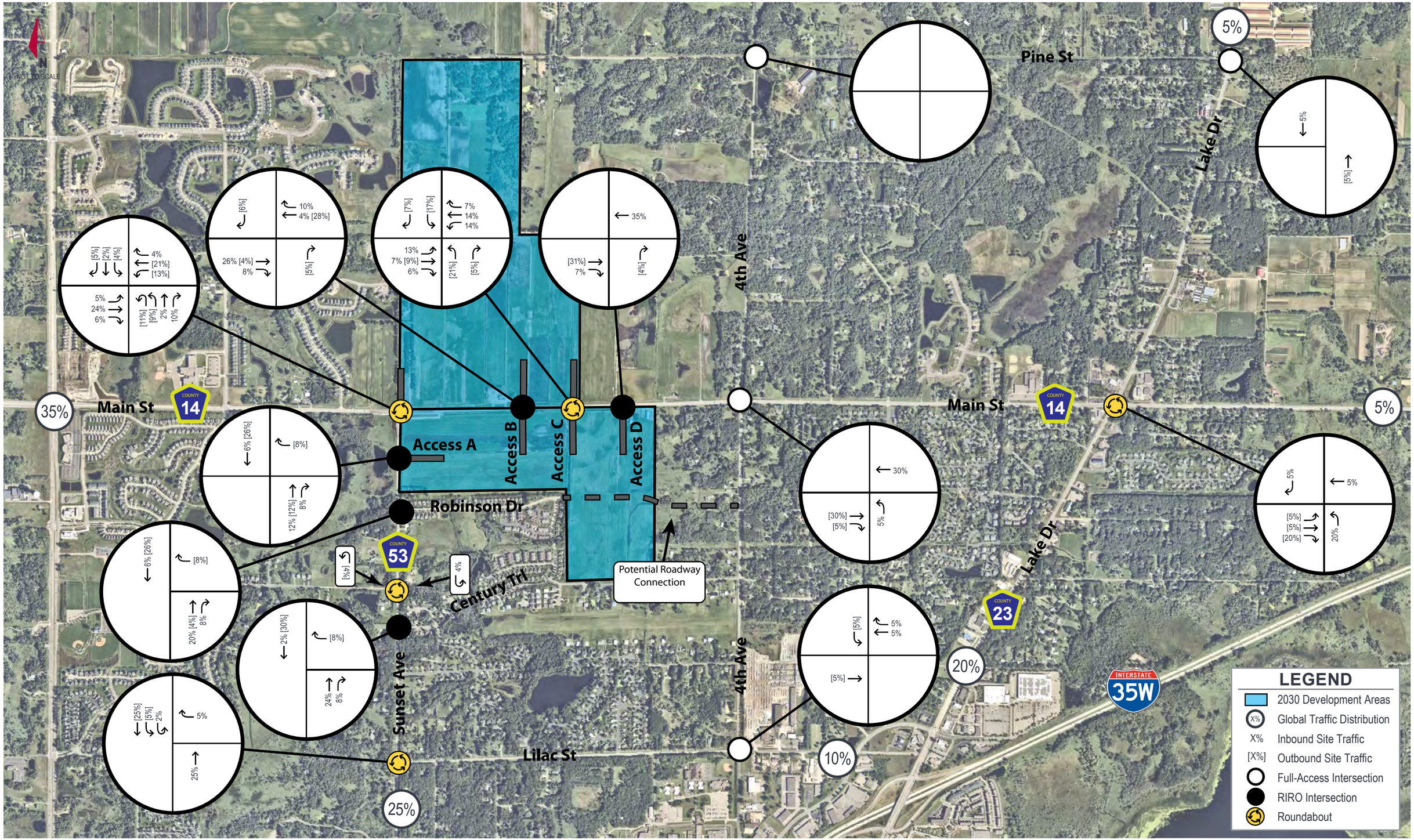


Kimley»Horn

EXHIBIT 6

DESIGN YEAR (2045) NO-BUILD TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN



Kimley»Horn

EXHIBIT 7

OPENING YEAR (2030) SCENARIO 1 TRAFFIC DISTRIBUTION

NORTHWEST MAIN — LINO LAKES, MN

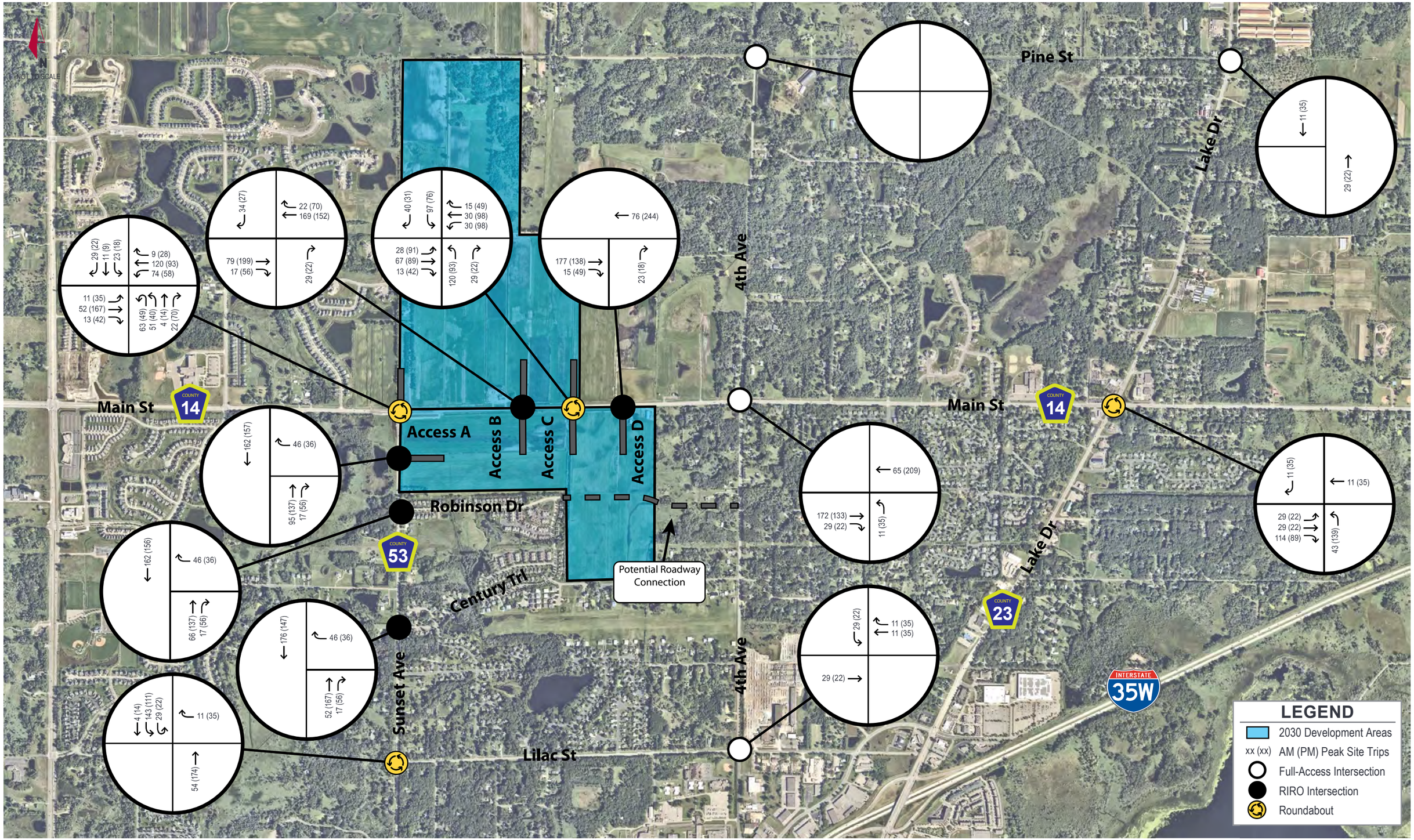


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EXHIBIT 8

OPENING YEAR (2030) SCENARIO 1 SITE TRIPS

NORTHWEST MAIN — LINO LAKES, MN

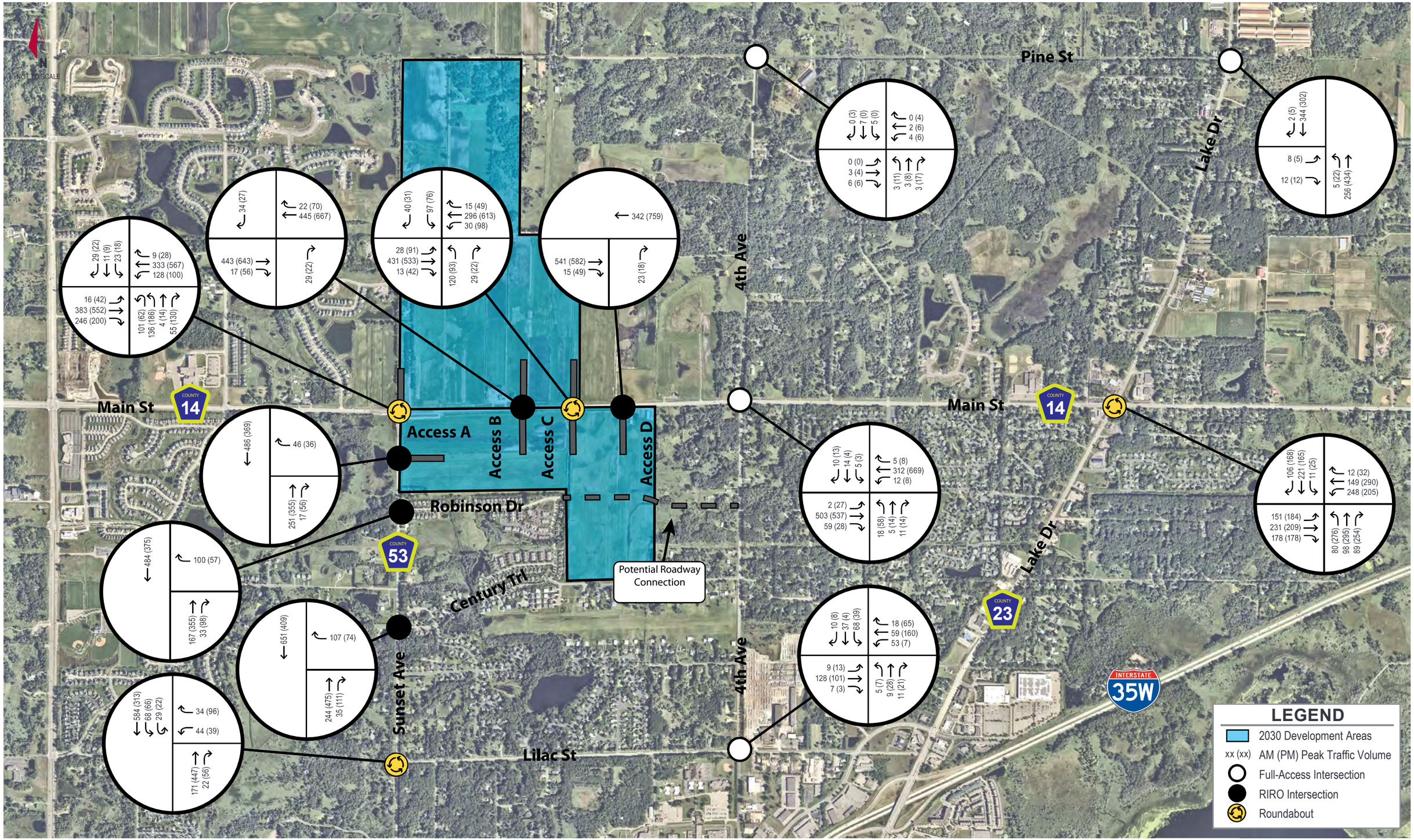

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EXHIBIT 9

OPENING YEAR (2030) SCENARIO 1 TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN

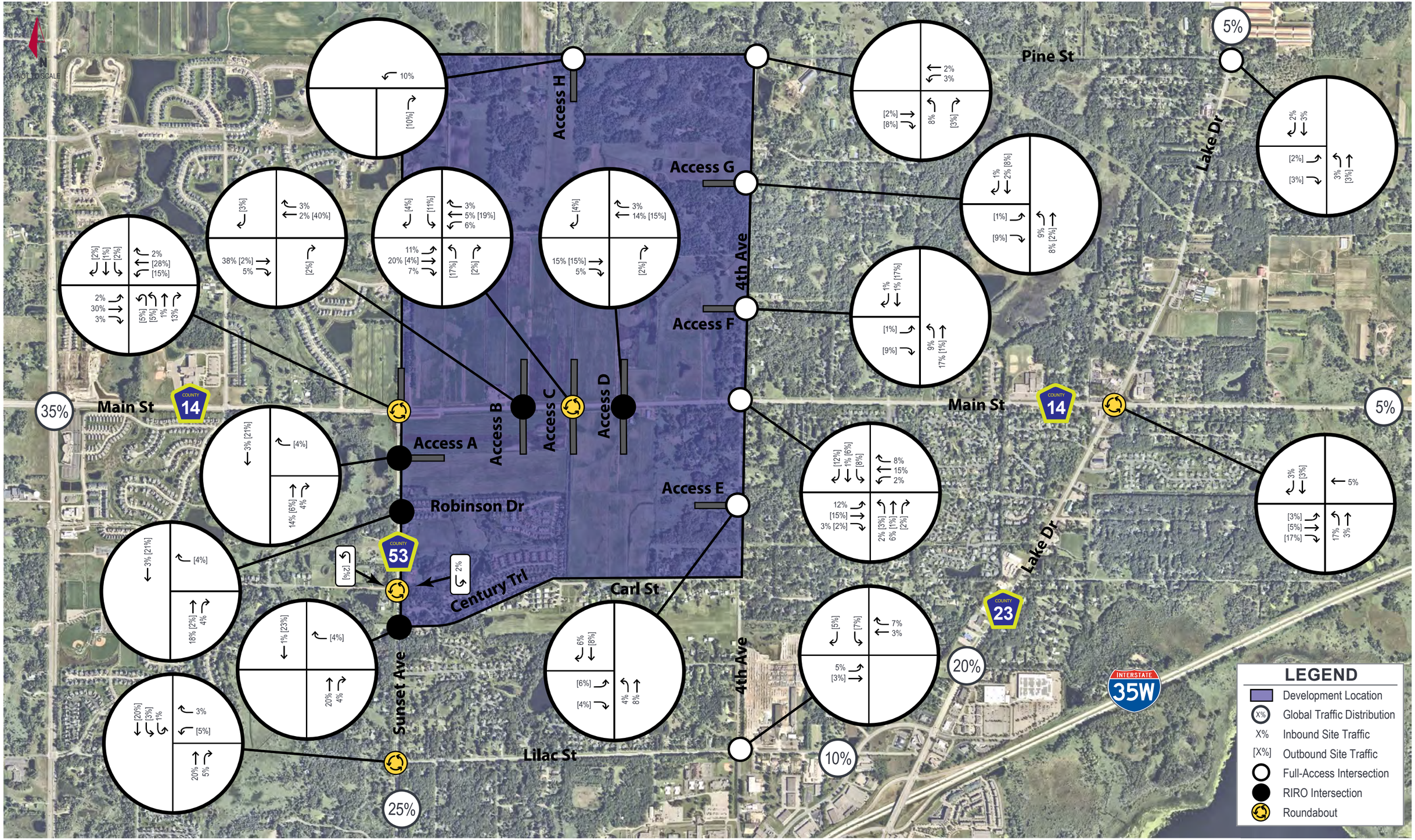

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EXHIBIT 10

DESIGN YEAR (2045) SCENARIO 1 TRAFFIC DISTRIBUTION

NORTHWEST MAIN — LINO LAKES, MN

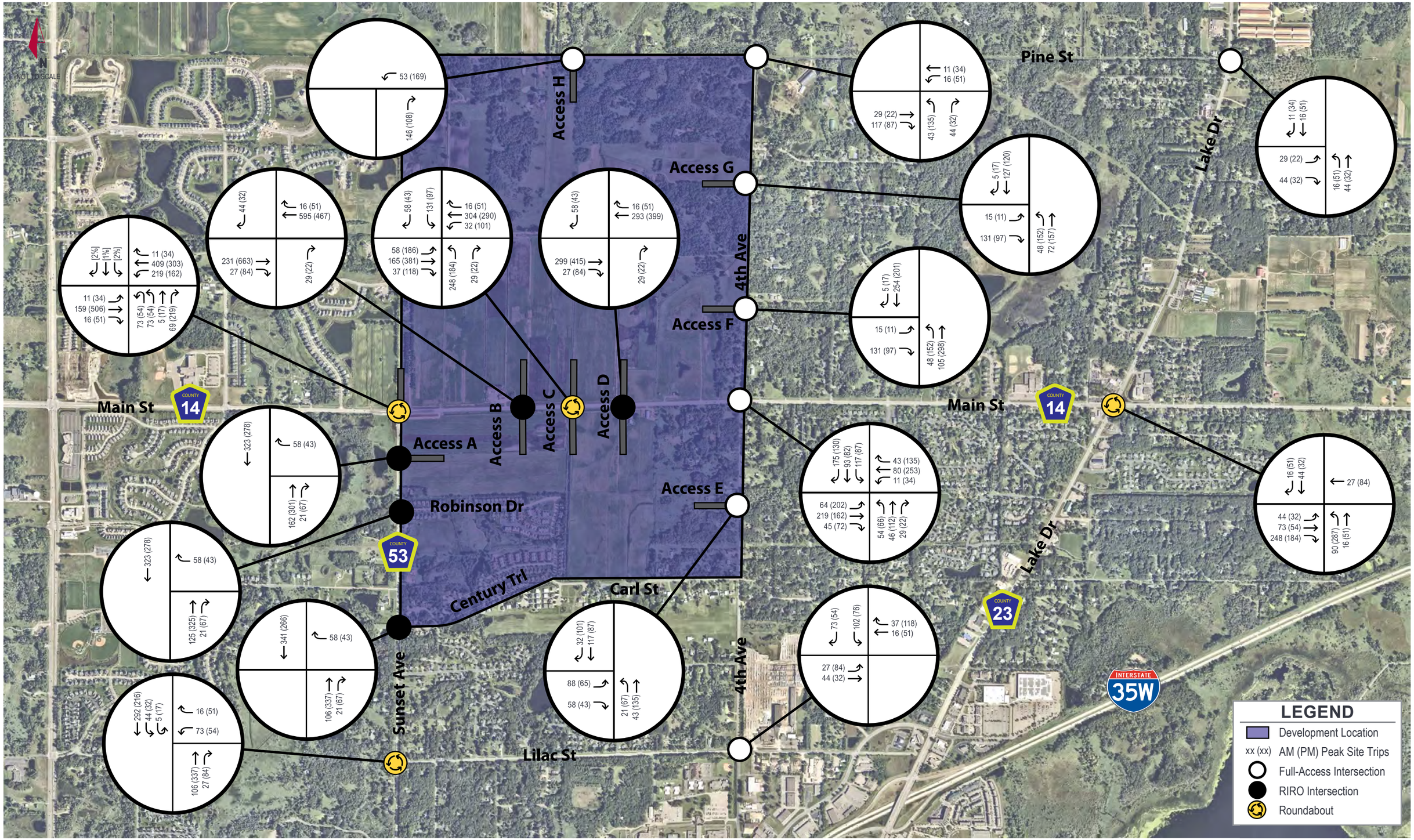

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EXHIBIT 11

DESIGN YEAR (2045) SCENARIO 1 SITE TRIPS

NORTHWEST MAIN — LINO LAKES, MN

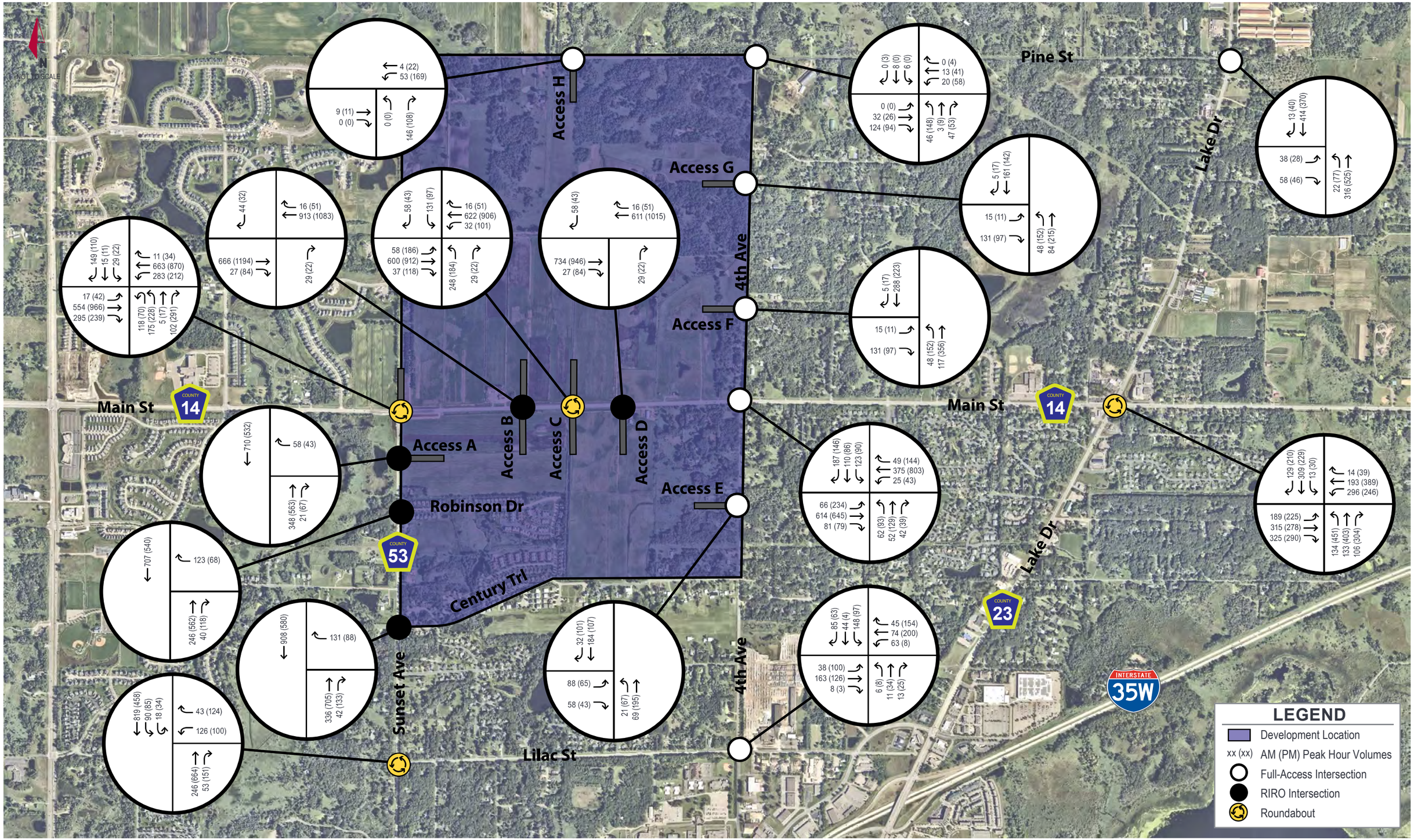

EXHIBIT 12

DESIGN YEAR (2045) SCENARIO 1 TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN

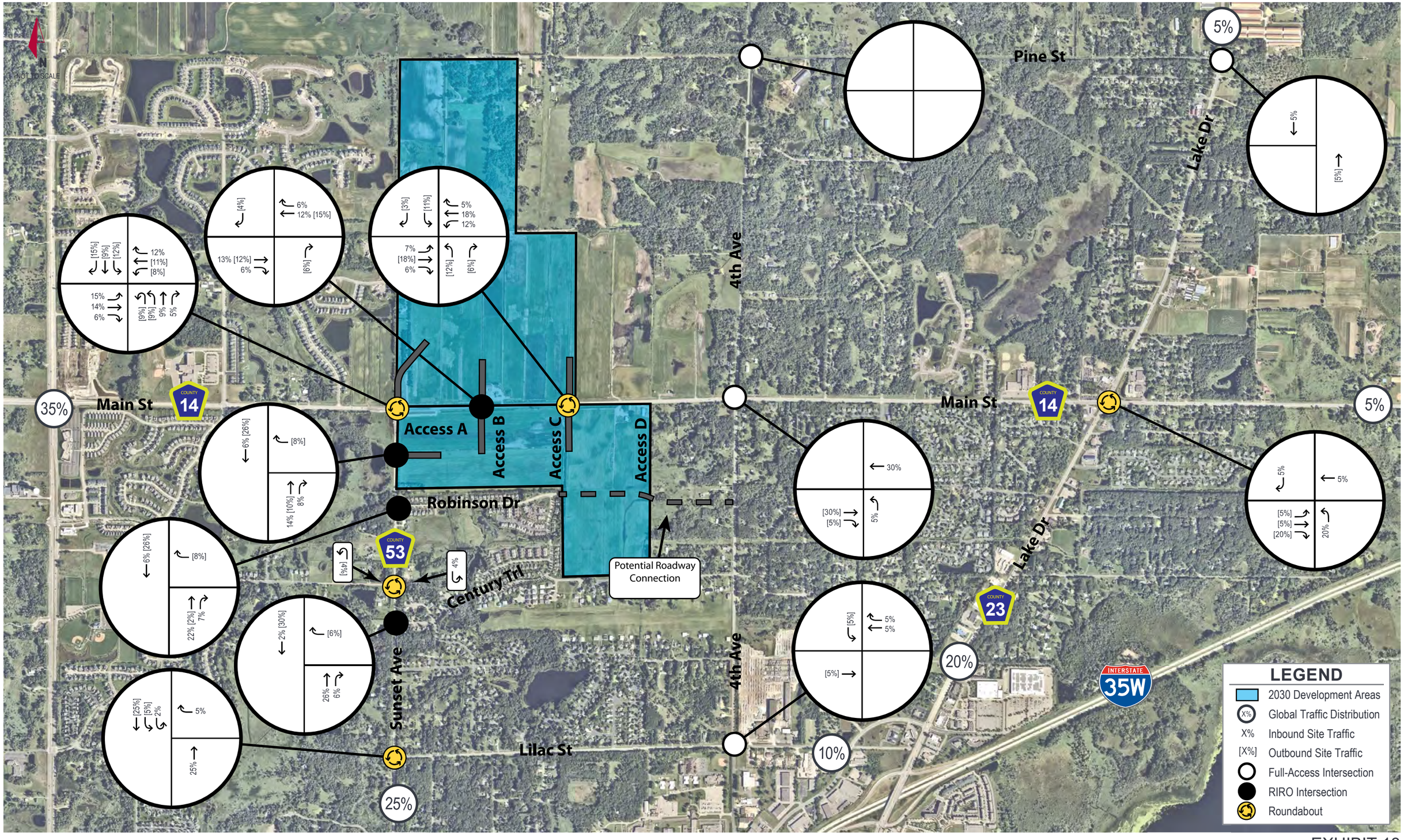

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EXHIBIT 13

OPENING YEAR (2030) SCENARIO 2 TRAFFIC DISTRIBUTION

NORTHWEST MAIN — LINO LAKES, MN

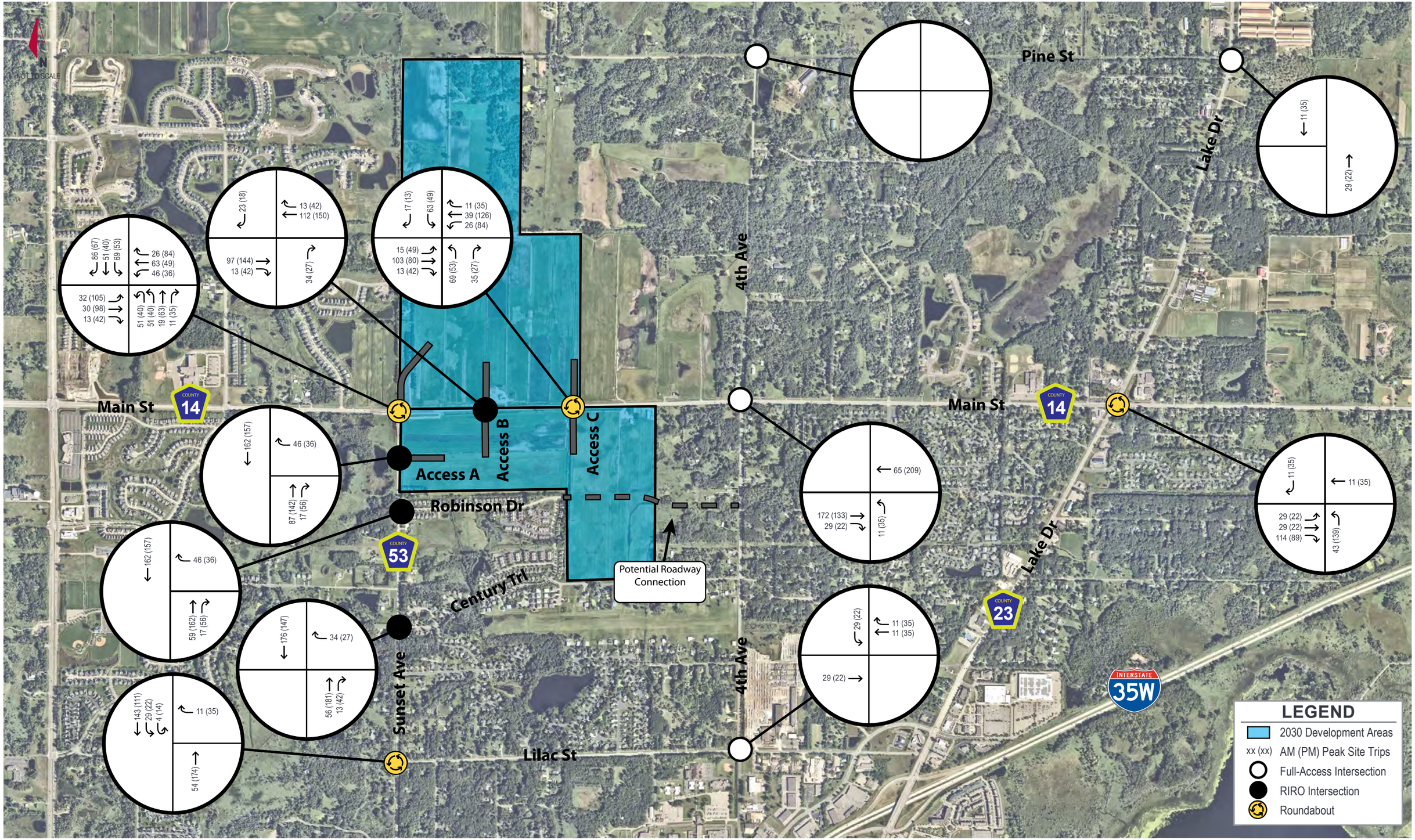

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EXHIBIT 14

OPENING YEAR (2030) SCENARIO 2 SITE TRIPS

NORTHWEST MAIN — LINO LAKES, MN

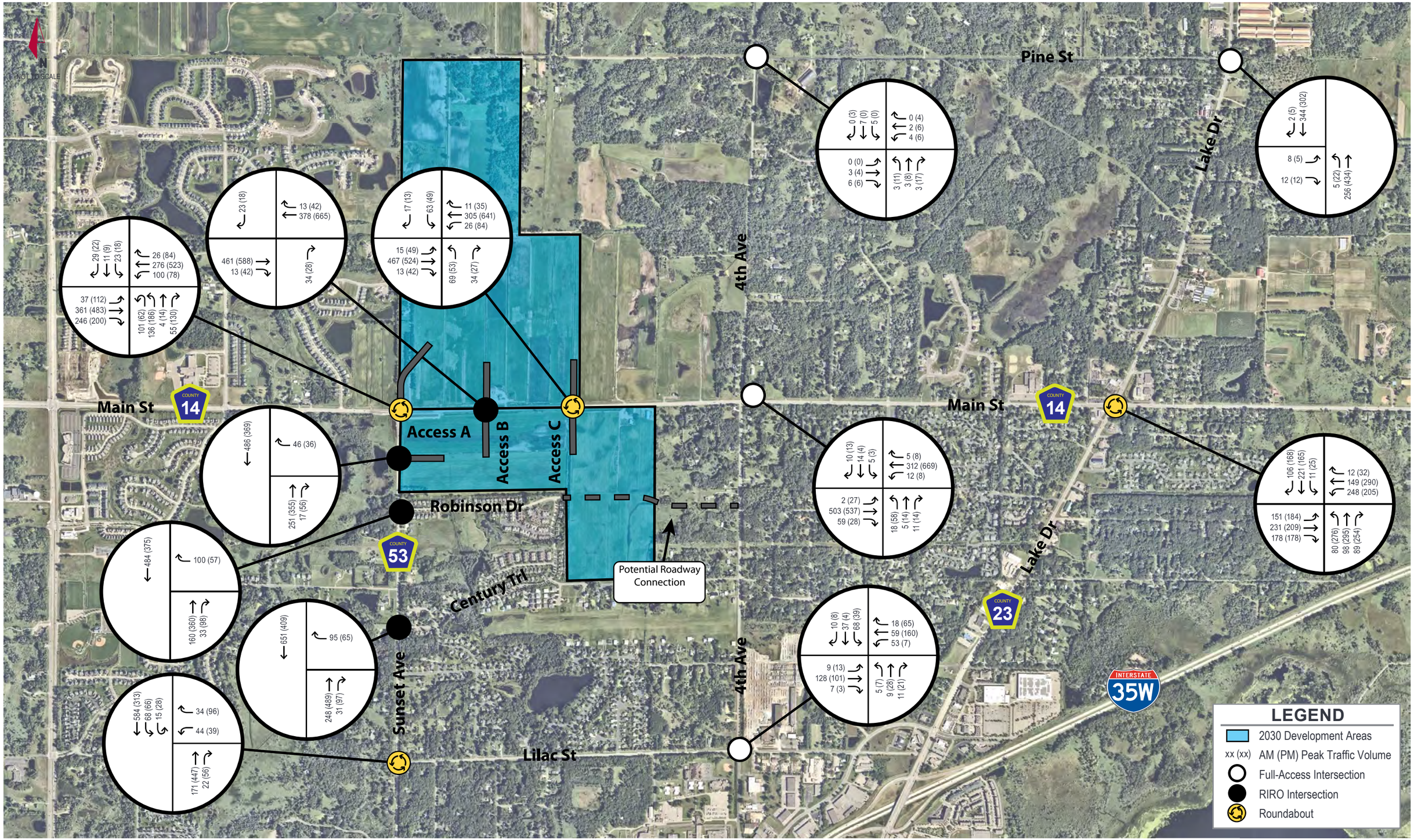

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EXHIBIT 15

OPENING YEAR (2030) SCENARIO 2 TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN

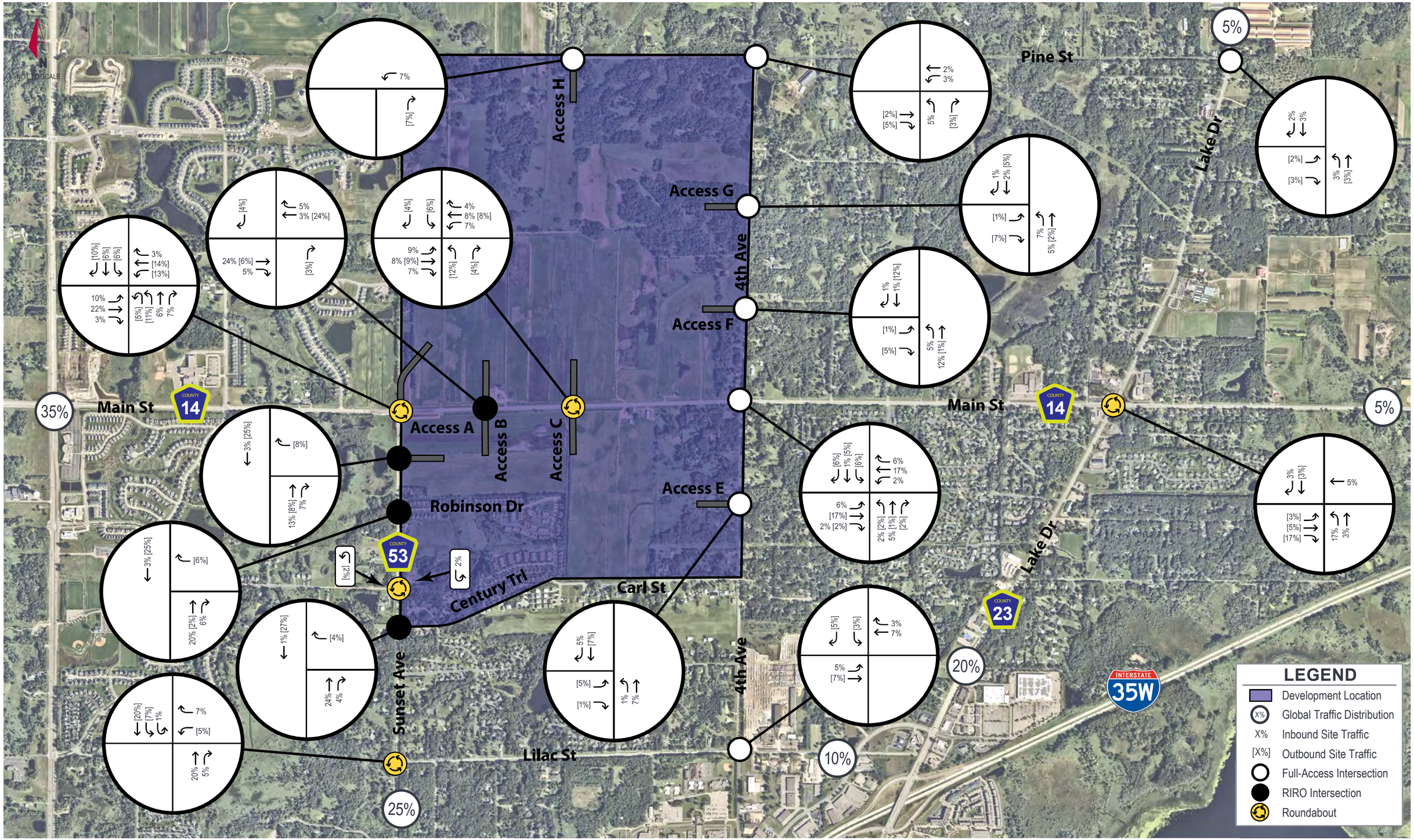

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EXHIBIT 16

DESIGN YEAR (2045) SCENARIO 2 TRAFFIC DISTRIBUTION

NORTHWEST MAIN — LINO LAKES, MN

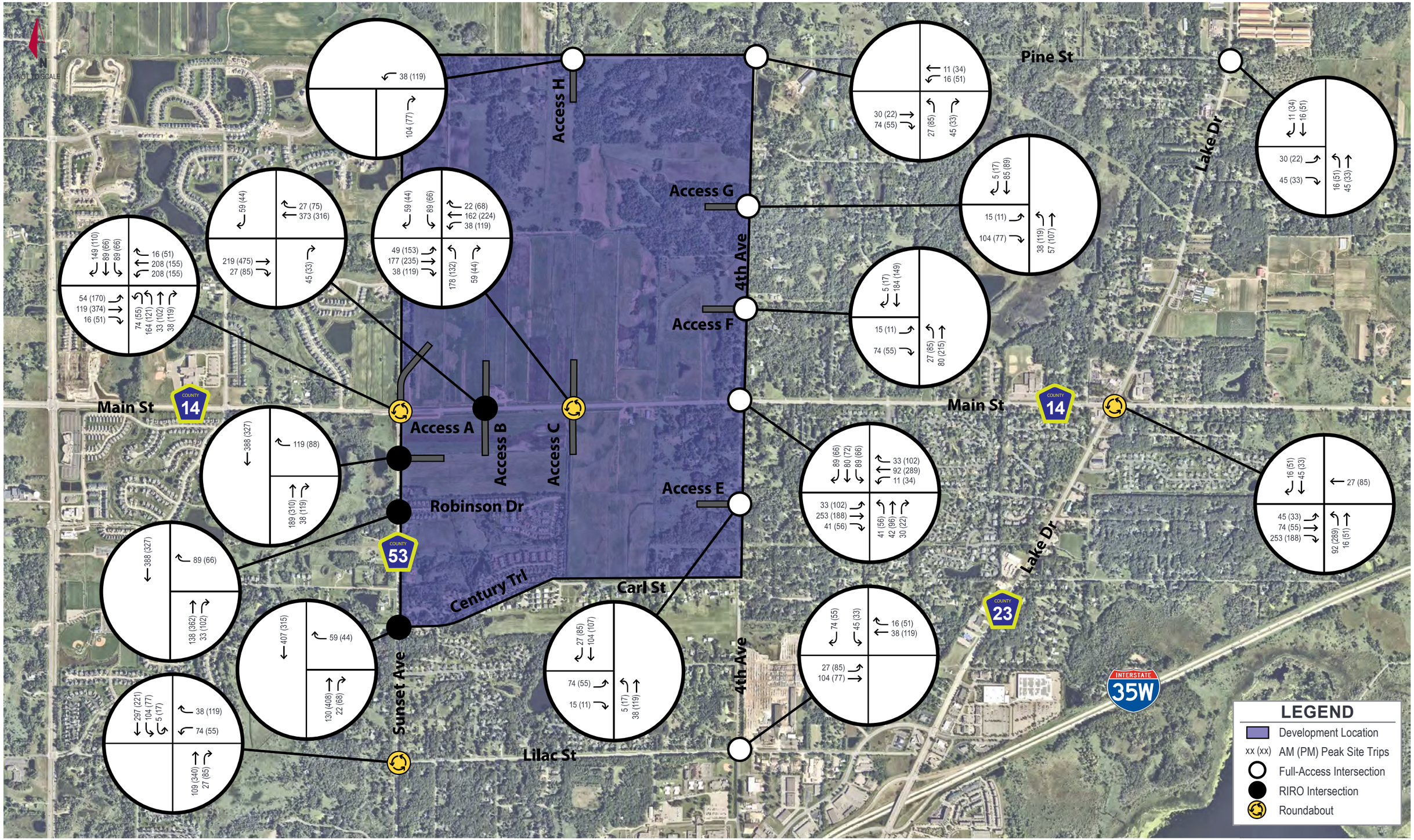

EXHIBIT 17

DESIGN YEAR (2045) SCENARIO 2 SITE TRIPS

NORTHWEST MAIN — LINO LAKES, MN

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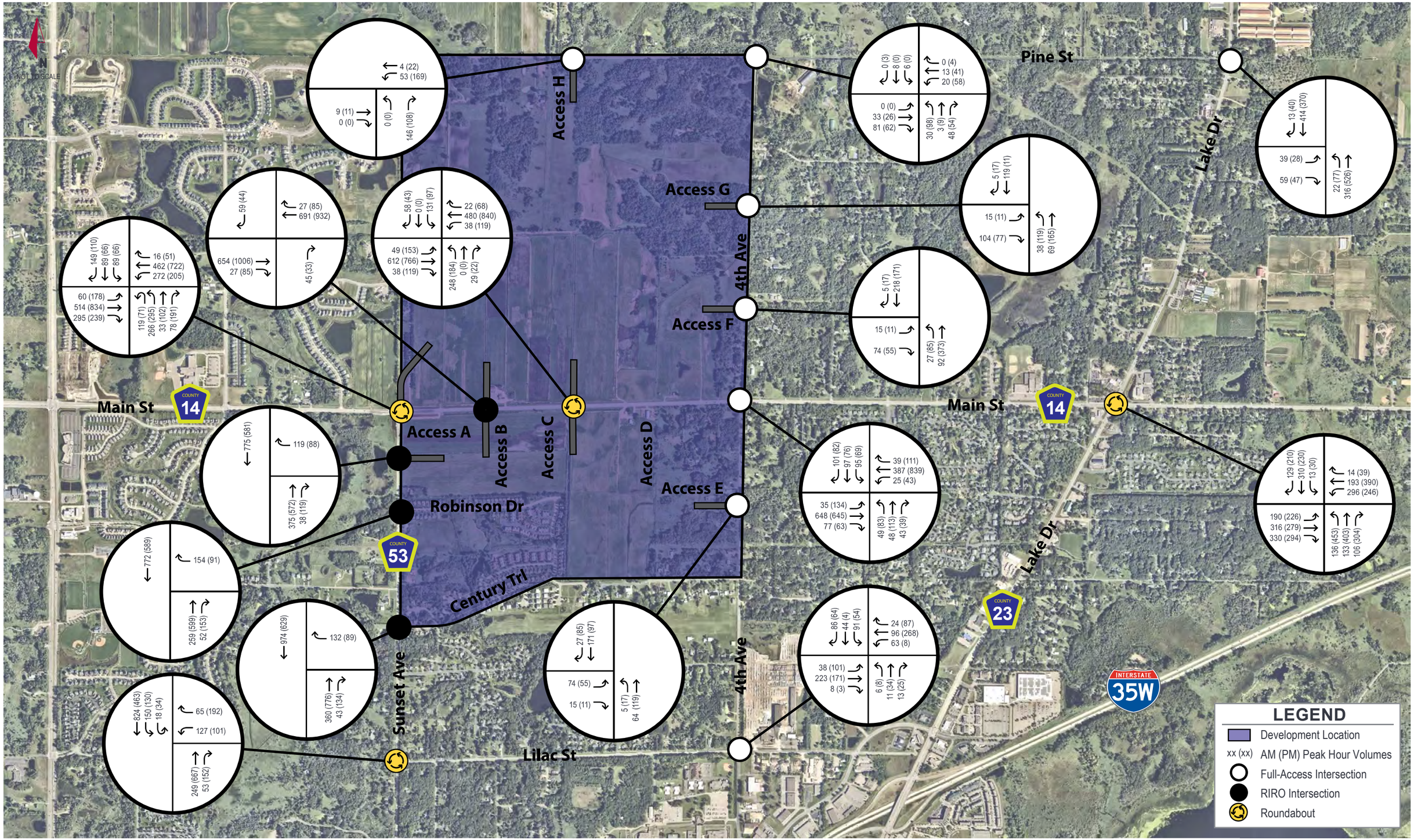


Kimley»Horn

EXHIBIT 18

DESIGN YEAR (2045) SCENARIO 2 TRAFFIC VOLUMES

NORTHWEST MAIN — LINO LAKES, MN

8. APPENDIX

Appendix A: Turning Movement Counts

Appendix B: SimTraffic Reports

Appendix C: Turn Lane Warrant Sheets

Appendix A:

Turning Movement Counts

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 1

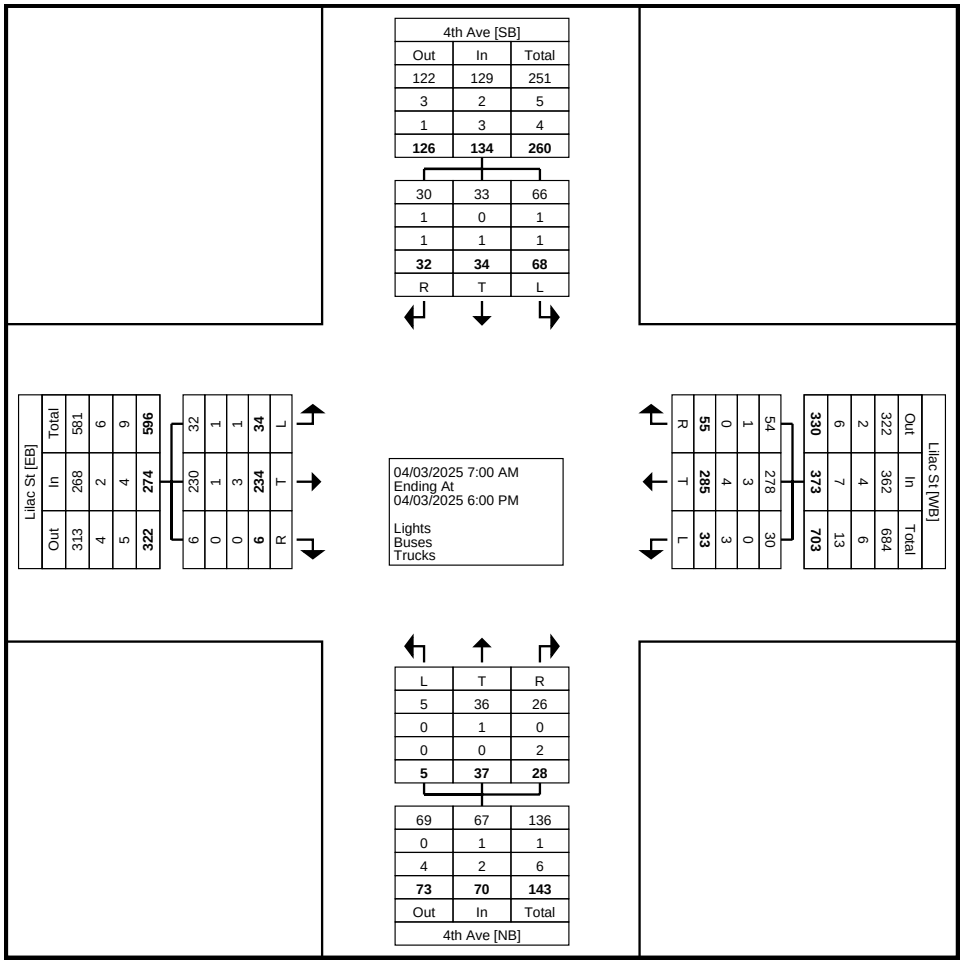
Turning Movement Data

Start Time	Lilac St Eastbound				Lilac St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:00 AM	3	20	2	25	6	10	4	20	0	1	0	1	6	7	1	14	60
7:15 AM	4	18	0	22	5	11	2	18	0	1	1	2	10	4	4	18	60
7:30 AM	2	15	0	17	2	8	3	13	0	1	0	1	7	3	1	11	42
7:45 AM	0	18	0	18	1	10	0	11	0	2	1	3	9	3	1	13	45
Hourly Total	9	71	2	82	14	39	9	62	0	5	2	7	32	17	7	56	207
8:00 AM	1	19	0	20	2	8	2	12	0	0	0	0	4	1	2	7	39
8:15 AM	1	9	0	10	2	11	1	14	0	0	4	4	1	1	1	3	31
8:30 AM	1	6	2	9	0	11	3	14	0	2	0	2	3	4	1	8	33
8:45 AM	3	9	0	12	4	6	1	11	1	2	3	6	2	1	0	3	32
Hourly Total	6	43	2	51	8	36	7	51	1	4	7	12	10	7	4	21	135
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	4	13	1	18	1	34	7	42	2	7	12	21	3	0	1	4	85
4:15 PM	3	28	0	31	0	26	3	29	0	3	2	5	5	3	2	10	75
4:30 PM	3	17	1	21	1	32	8	41	0	4	0	4	2	2	6	10	76
4:45 PM	5	16	0	21	1	28	3	32	0	5	2	7	4	4	1	9	69
Hourly Total	15	74	2	91	3	120	21	144	2	19	16	37	14	9	10	33	305
5:00 PM	0	16	0	16	6	35	7	48	1	2	1	4	3	0	3	6	74
5:15 PM	1	8	0	9	0	20	3	23	0	2	1	3	4	0	2	6	41
5:30 PM	2	12	0	14	1	15	4	20	1	2	0	3	1	0	3	4	41
5:45 PM	1	10	0	11	1	20	4	25	0	3	1	4	4	1	3	8	48
Hourly Total	4	46	0	50	8	90	18	116	2	9	3	14	12	1	11	24	204
Grand Total	34	234	6	274	33	285	55	373	5	37	28	70	68	34	32	134	851
Approach %	12.4	85.4	2.2	-	8.8	76.4	14.7	-	7.1	52.9	40.0	-	50.7	25.4	23.9	-	-
Total %	4.0	27.5	0.7	32.2	3.9	33.5	6.5	43.8	0.6	4.3	3.3	8.2	8.0	4.0	3.8	15.7	-
Lights	32	230	6	268	30	278	54	362	5	36	26	67	66	33	30	129	826
% Lights	94.1	98.3	100.0	97.8	90.9	97.5	98.2	97.1	100.0	97.3	92.9	95.7	97.1	97.1	93.8	96.3	97.1
Buses	1	1	0	2	0	3	1	4	0	1	0	1	1	0	1	2	9
% Buses	2.9	0.4	0.0	0.7	0.0	1.1	1.8	1.1	0.0	2.7	0.0	1.4	1.5	0.0	3.1	1.5	1.1
Trucks	1	3	0	4	3	4	0	7	0	0	2	2	1	1	1	3	16
% Trucks	2.9	1.3	0.0	1.5	9.1	1.4	0.0	1.9	0.0	0.0	7.1	2.9	1.5	2.9	3.1	2.2	1.9

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 2



Turning Movement Data Plot

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025

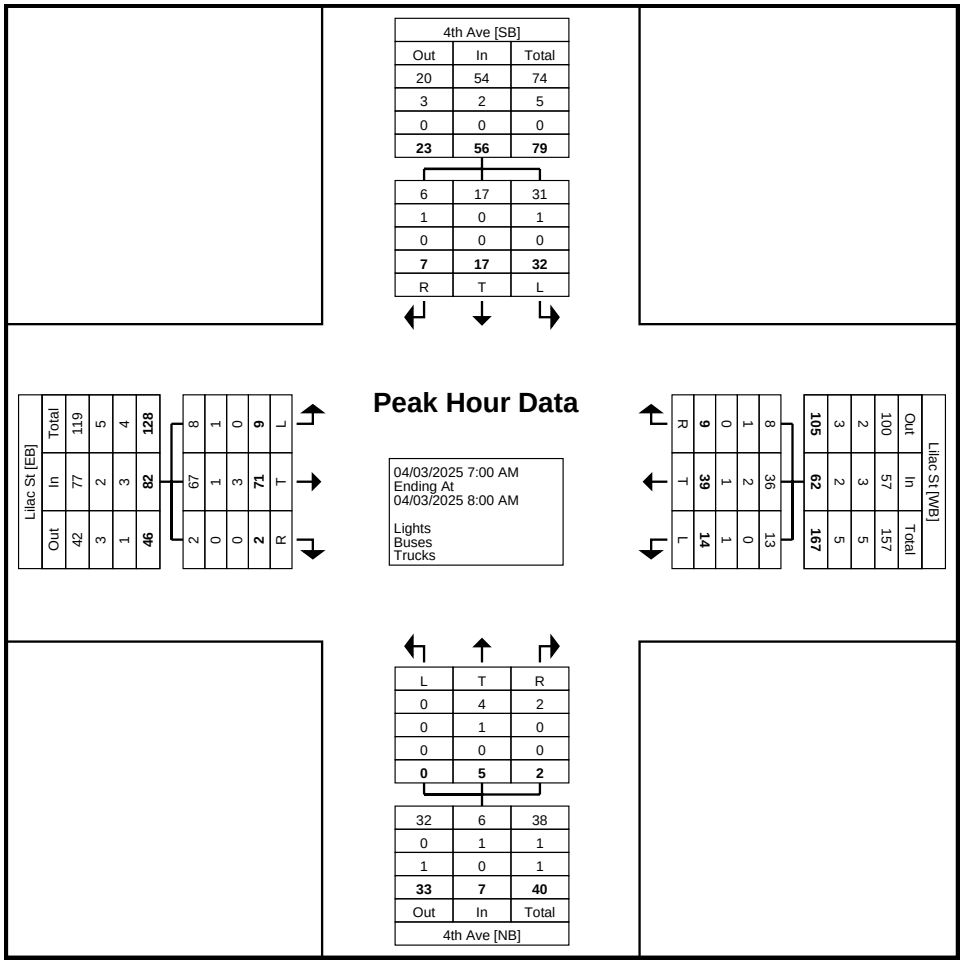
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Lilac St Eastbound				Lilac St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:00 AM	3	20	2	25	6	10	4	20	0	1	0	1	6	7	1	14	60
7:15 AM	4	18	0	22	5	11	2	18	0	1	1	2	10	4	4	18	60
7:30 AM	2	15	0	17	2	8	3	13	0	1	0	1	7	3	1	11	42
7:45 AM	0	18	0	18	1	10	0	11	0	2	1	3	9	3	1	13	45
Total	9	71	2	82	14	39	9	62	0	5	2	7	32	17	7	56	207
Approach %	11.0	86.6	2.4	-	22.6	62.9	14.5	-	0.0	71.4	28.6	-	57.1	30.4	12.5	-	-
Total %	4.3	34.3	1.0	39.6	6.8	18.8	4.3	30.0	0.0	2.4	1.0	3.4	15.5	8.2	3.4	27.1	-
PHF	0.563	0.888	0.250	0.820	0.583	0.886	0.563	0.775	0.000	0.625	0.500	0.583	0.800	0.607	0.438	0.778	0.863
Lights	8	67	2	77	13	36	8	57	0	4	2	6	31	17	6	54	194
% Lights	88.9	94.4	100.0	93.9	92.9	92.3	88.9	91.9	-	80.0	100.0	85.7	96.9	100.0	85.7	96.4	93.7
Buses	1	1	0	2	0	2	1	3	0	1	0	1	1	0	1	2	8
% Buses	11.1	1.4	0.0	2.4	0.0	5.1	11.1	4.8	-	20.0	0.0	14.3	3.1	0.0	14.3	3.6	3.9
Trucks	0	3	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
% Trucks	0.0	4.2	0.0	3.7	7.1	2.6	0.0	3.2	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 4



Turning Movement Peak Hour Data Plot (7:00 AM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Lilac St Eastbound				Lilac St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
4:00 PM	4	13	1	18	1	34	7	42	2	7	12	21	3	0	1	4	85
4:15 PM	3	28	0	31	0	26	3	29	0	3	2	5	5	3	2	10	75
4:30 PM	3	17	1	21	1	32	8	41	0	4	0	4	2	2	6	10	76
4:45 PM	5	16	0	21	1	28	3	32	0	5	2	7	4	4	1	9	69
Total	15	74	2	91	3	120	21	144	2	19	16	37	14	9	10	33	305
Approach %	16.5	81.3	2.2	-	2.1	83.3	14.6	-	5.4	51.4	43.2	-	42.4	27.3	30.3	-	-
Total %	4.9	24.3	0.7	29.8	1.0	39.3	6.9	47.2	0.7	6.2	5.2	12.1	4.6	3.0	3.3	10.8	-
PHF	0.750	0.661	0.500	0.734	0.750	0.882	0.656	0.857	0.250	0.679	0.333	0.440	0.700	0.563	0.417	0.825	0.897
Lights	15	74	2	91	3	118	21	142	2	19	16	37	14	9	10	33	303
% Lights	100.0	100.0	100.0	100.0	100.0	98.3	100.0	98.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trucks	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% Trucks	0.0	0.0	0.0	0.0	0.0	1.7	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7

Kimley-Horn
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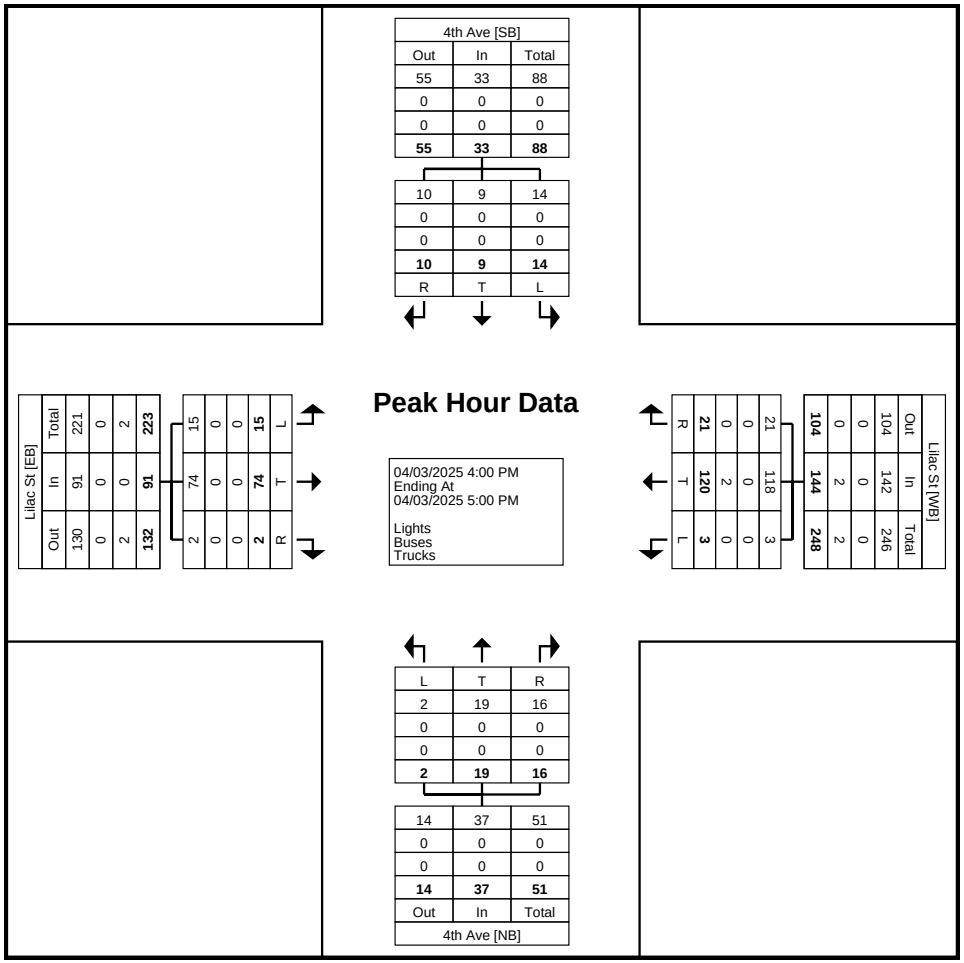
Count Name: 4th Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 6



Turning Movement Peak Hour Data Plot (4:00 PM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Main St Eastbound				Main St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
12:15 AM	0	2	1	3	0	3	0	3	1	0	0	1	0	0	0	0	7
12:30 AM	0	2	0	2	0	5	0	5	0	0	0	0	0	0	0	0	7
12:45 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
Hourly Total	0	7	1	8	0	10	0	10	2	0	0	2	0	0	0	0	20
1:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
1:15 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
Hourly Total	0	3	0	3	0	6	0	6	0	0	0	0	0	0	0	0	9
2:00 AM	0	4	1	5	0	1	0	1	0	0	0	0	0	0	0	0	6
2:15 AM	0	3	1	4	0	6	0	6	0	0	0	0	0	0	0	0	10
2:30 AM	0	3	1	4	0	1	0	1	0	0	0	0	0	0	0	0	5
2:45 AM	0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	6
Hourly Total	0	12	3	15	0	12	0	12	0	0	0	0	0	0	0	0	27
3:00 AM	0	5	1	6	0	0	0	0	0	0	0	0	0	0	0	0	6
3:15 AM	0	2	1	3	0	1	0	1	1	0	0	1	0	0	0	0	5
3:30 AM	0	9	2	11	0	6	0	6	0	0	0	0	0	1	1	2	19
3:45 AM	0	12	4	16	0	8	0	8	0	0	0	0	0	1	0	1	25
Hourly Total	0	28	8	36	0	15	0	15	1	0	0	1	0	2	1	3	55
4:00 AM	0	8	2	10	0	8	0	8	2	0	1	3	0	0	3	3	24
4:15 AM	0	23	3	26	0	11	0	11	0	0	1	1	2	1	0	3	41
4:30 AM	0	36	5	41	1	14	0	15	0	0	1	1	0	0	1	1	58
4:45 AM	1	37	12	50	2	11	0	13	0	0	3	3	0	1	1	2	68
Hourly Total	1	104	22	127	3	44	0	47	2	0	6	8	2	2	5	9	191
5:00 AM	0	26	7	33	1	22	0	23	1	0	0	1	1	4	2	7	64
5:15 AM	0	46	9	55	6	39	0	45	2	0	2	4	0	4	1	5	109
5:30 AM	0	71	6	77	2	41	0	43	1	0	3	4	3	6	1	10	134
5:45 AM	0	72	16	88	5	40	0	45	1	0	1	2	1	3	1	5	140
Hourly Total	0	215	38	253	14	142	0	156	5	0	6	11	5	17	5	27	447
6:00 AM	0	68	7	75	2	47	0	49	4	1	4	9	0	1	3	4	137
6:15 AM	0	70	7	77	2	52	2	56	0	0	3	3	1	1	2	4	140
6:30 AM	1	109	8	118	4	62	1	67	0	1	1	2	2	4	1	7	194
6:45 AM	0	64	6	70	3	71	1	75	2	2	2	6	1	7	3	11	162
Hourly Total	1	311	28	340	11	232	4	247	6	4	10	20	4	13	9	26	633
7:00 AM	7	64	6	77	1	49	0	50	3	0	3	6	2	2	3	7	140

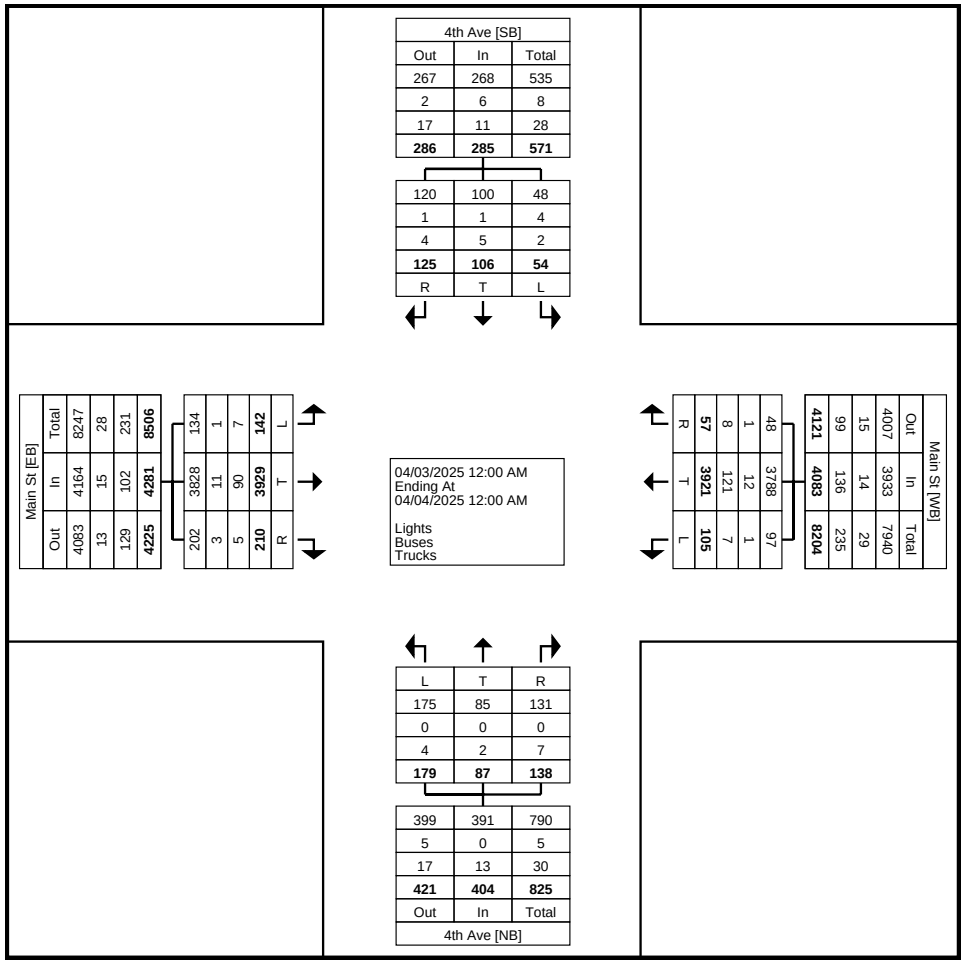
7:15 AM	0	66	6	72	2	63	0	65	2	2	3	7	0	3	0	3	147
7:30 AM	2	53	0	55	4	50	1	55	4	1	2	7	1	1	4	6	123
7:45 AM	1	62	3	66	2	50	0	52	1	1	0	2	5	4	3	12	132
Hourly Total	10	245	15	270	9	212	1	222	10	4	8	22	8	10	10	28	542
8:00 AM	2	47	0	49	2	50	0	52	2	0	1	3	0	5	3	8	112
8:15 AM	1	59	2	62	1	61	1	63	0	0	1	1	0	0	2	2	128
8:30 AM	2	57	2	61	1	39	1	41	0	3	0	3	4	0	3	7	112
8:45 AM	0	56	2	58	1	37	1	39	1	0	1	2	0	0	1	1	100
Hourly Total	5	219	6	230	5	187	3	195	3	3	3	9	4	5	9	18	452
9:00 AM	1	40	3	44	2	38	1	41	2	0	0	2	0	2	2	4	91
9:15 AM	0	46	7	53	0	44	0	44	1	0	2	3	4	2	1	7	107
9:30 AM	3	58	2	63	1	43	4	48	0	0	4	4	0	2	1	3	118
9:45 AM	3	50	1	54	2	44	3	49	1	1	2	4	1	3	1	5	112
Hourly Total	7	194	13	214	5	169	8	182	4	1	8	13	5	9	5	19	428
10:00 AM	3	46	1	50	1	46	0	47	0	1	2	3	0	2	2	4	104
10:15 AM	2	55	0	57	3	41	1	45	0	1	2	3	1	0	0	1	106
10:30 AM	1	46	1	48	0	51	1	52	2	1	2	5	0	0	4	4	109
10:45 AM	1	65	2	68	5	53	0	58	3	5	2	10	1	1	2	4	140
Hourly Total	7	212	4	223	9	191	2	202	5	8	8	21	2	3	8	13	459
11:00 AM	1	56	1	58	1	65	1	67	3	0	2	5	0	2	2	4	134
11:15 AM	2	44	0	46	0	69	1	70	0	0	2	2	2	0	5	7	125
11:30 AM	0	51	0	51	3	51	2	56	0	2	0	2	0	1	1	2	111
11:45 AM	4	56	0	60	3	59	2	64	2	4	0	6	2	2	2	6	136
Hourly Total	7	207	1	215	7	244	6	257	5	6	4	15	4	5	10	19	506
12:00 PM	1	50	0	51	0	52	0	52	8	0	1	9	0	3	0	3	115
12:15 PM	4	53	1	58	2	37	1	40	4	0	1	5	0	1	3	4	107
12:30 PM	0	65	1	66	0	49	1	50	2	2	4	8	1	1	0	2	126
12:45 PM	2	56	1	59	2	63	2	67	4	0	0	4	1	1	1	3	133
Hourly Total	7	224	3	234	4	201	4	209	18	2	6	26	2	6	4	12	481
1:00 PM	0	48	2	50	1	59	1	61	1	2	3	6	1	1	1	3	120
1:15 PM	1	42	7	50	1	52	0	53	1	1	1	3	0	1	0	1	107
1:30 PM	2	67	5	74	1	66	1	68	3	2	3	8	0	1	2	3	153
1:45 PM	1	74	3	78	2	63	1	66	11	3	2	16	3	2	0	5	165
Hourly Total	4	231	17	252	5	240	3	248	16	8	9	33	4	5	3	12	545
2:00 PM	3	56	2	61	1	72	0	73	11	2	6	19	1	2	5	8	161
2:15 PM	4	63	2	69	1	88	0	89	4	4	2	10	2	1	0	3	171
2:30 PM	9	65	2	76	3	96	0	99	5	0	3	8	0	3	3	6	189
2:45 PM	2	70	5	77	1	112	2	115	5	1	12	18	1	1	1	3	213
Hourly Total	18	254	11	283	6	368	2	376	25	7	23	55	4	7	9	20	734
3:00 PM	5	70	3	78	2	85	0	87	8	1	6	15	1	1	5	7	187
3:15 PM	3	91	4	98	2	126	1	129	5	4	3	12	0	0	2	2	241
3:30 PM	4	121	2	127	2	113	2	117	11	3	8	22	2	2	3	7	273
3:45 PM	6	81	3	90	1	104	2	107	1	3	1	5	0	0	2	2	204
Hourly Total	18	363	12	393	7	428	5	440	25	11	18	54	3	3	12	18	905
4:00 PM	8	91	0	99	3	114	1	118	6	6	2	14	0	0	2	2	233
4:15 PM	7	87	0	94	1	102	2	105	3	1	2	6	0	1	5	6	211
4:30 PM	2	101	0	103	4	114	1	119	4	2	4	10	0	0	5	5	237
4:45 PM	4	71	2	77	2	88	1	91	3	6	2	11	1	3	1	5	184
Hourly Total	21	350	2	373	10	418	5	433	16	15	10	41	1	4	13	18	865
5:00 PM	4	44	3	51	0	62	1	63	2	1	0	3	1	1	1	3	120
5:15 PM	3	58	1	62	2	69	1	72	2	1	0	3	0	1	2	3	140
5:30 PM	4	61	0	65	1	61	1	63	3	1	0	4	0	1	1	2	134

5:45 PM	1	54	3	58	2	49	1	52	1	1	1	3	0	3	1	4	117
Hourly Total	12	217	7	236	5	241	4	250	8	4	1	13	1	6	5	12	511
6:00 PM	3	45	1	49	1	58	1	60	4	1	2	7	1	0	4	5	121
6:15 PM	1	51	2	54	1	57	1	59	1	3	1	5	0	1	1	2	120
6:30 PM	3	53	0	56	0	47	2	49	3	2	2	7	0	1	3	4	116
6:45 PM	4	57	3	64	0	47	2	49	4	1	1	6	1	0	1	2	121
Hourly Total	11	206	6	223	2	209	6	217	12	7	6	25	2	2	9	13	478
7:00 PM	1	46	1	48	0	36	0	36	0	1	0	1	0	2	2	4	89
7:15 PM	1	32	1	34	0	55	0	55	1	3	0	4	1	1	2	4	97
7:30 PM	3	32	0	35	1	35	1	37	0	1	0	1	1	1	0	2	75
7:45 PM	2	30	0	32	0	21	2	23	0	1	0	1	1	0	1	2	58
Hourly Total	7	140	2	149	1	147	3	151	1	6	0	7	3	4	5	12	319
8:00 PM	1	33	2	36	0	25	0	25	0	0	0	0	0	0	1	1	62
8:15 PM	2	29	1	32	0	32	0	32	0	0	0	0	0	0	1	1	65
8:30 PM	1	16	1	18	0	21	0	21	0	0	0	0	0	0	0	0	39
8:45 PM	0	24	0	24	0	14	0	14	1	0	0	1	0	0	0	0	39
Hourly Total	4	102	4	110	0	92	0	92	1	0	0	1	0	0	2	2	205
9:00 PM	1	10	1	12	0	20	0	20	0	0	1	1	0	1	1	2	35
9:15 PM	0	11	2	13	1	18	0	19	1	0	0	1	0	0	0	0	33
9:30 PM	0	6	2	8	0	14	1	15	5	0	4	9	0	1	0	1	33
9:45 PM	0	7	0	7	0	12	0	12	2	0	0	2	0	0	0	0	21
Hourly Total	1	34	5	40	1	64	1	66	8	0	5	13	0	2	1	3	122
10:00 PM	1	6	1	8	0	8	0	8	4	0	7	11	0	0	0	0	27
10:15 PM	0	9	0	9	0	5	0	5	0	0	0	0	0	0	0	0	14
10:30 PM	0	6	0	6	1	4	0	5	1	0	0	1	0	1	0	1	13
10:45 PM	0	6	0	6	0	11	0	11	0	1	0	1	0	0	0	0	18
Hourly Total	1	27	1	29	1	28	0	29	5	1	7	13	0	1	0	1	72
11:00 PM	0	9	1	10	0	8	0	8	0	0	0	0	0	0	0	0	18
11:15 PM	0	6	0	6	0	5	0	5	0	0	0	0	0	0	0	0	11
11:30 PM	0	7	0	7	0	5	0	5	1	0	0	1	0	0	0	0	13
11:45 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
Hourly Total	0	24	1	25	0	21	0	21	1	0	0	1	0	0	0	0	47
Grand Total	142	3929	210	4281	105	3921	57	4083	179	87	138	404	54	106	125	285	9053
Approach %	3.3	91.8	4.9	-	2.6	96.0	1.4	-	44.3	21.5	34.2	-	18.9	37.2	43.9	-	-
Total %	1.6	43.4	2.3	47.3	1.2	43.3	0.6	45.1	2.0	1.0	1.5	4.5	0.6	1.2	1.4	3.1	-
Lights	134	3828	202	4164	97	3788	48	3933	175	85	131	391	48	100	120	268	8756
% Lights	94.4	97.4	96.2	97.3	92.4	96.6	84.2	96.3	97.8	97.7	94.9	96.8	88.9	94.3	96.0	94.0	96.7
Buses	1	11	3	15	1	12	1	14	0	0	0	0	4	1	1	6	35
% Buses	0.7	0.3	1.4	0.4	1.0	0.3	1.8	0.3	0.0	0.0	0.0	0.0	7.4	0.9	0.8	2.1	0.4
Trucks	7	90	5	102	7	121	8	136	4	2	7	13	2	5	4	11	262
% Trucks	4.9	2.3	2.4	2.4	6.7	3.1	14.0	3.3	2.2	2.3	5.1	3.2	3.7	4.7	3.2	3.9	2.9

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025
Page No: 4



Turning Movement Data Plot

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (6:30 AM)

Start Time	Main St Eastbound				Main St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
6:30 AM	1	109	8	118	4	62	1	67	0	1	1	2	2	4	1	7	194
6:45 AM	0	64	6	70	3	71	1	75	2	2	2	6	1	7	3	11	162
7:00 AM	7	64	6	77	1	49	0	50	3	0	3	6	2	2	3	7	140
7:15 AM	0	66	6	72	2	63	0	65	2	2	3	7	0	3	0	3	147
Total	8	303	26	337	10	245	2	257	7	5	9	21	5	16	7	28	643
Approach %	2.4	89.9	7.7	-	3.9	95.3	0.8	-	33.3	23.8	42.9	-	17.9	57.1	25.0	-	-
Total %	1.2	47.1	4.0	52.4	1.6	38.1	0.3	40.0	1.1	0.8	1.4	3.3	0.8	2.5	1.1	4.4	-
PHF	0.286	0.695	0.813	0.714	0.625	0.863	0.500	0.857	0.583	0.625	0.750	0.750	0.625	0.571	0.583	0.636	0.829
Lights	7	296	26	329	10	229	2	241	7	4	8	19	5	15	7	27	616
% Lights	87.5	97.7	100.0	97.6	100.0	93.5	100.0	93.8	100.0	80.0	88.9	90.5	100.0	93.8	100.0	96.4	95.8
Buses	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% Buses	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Trucks	1	7	0	8	0	15	0	15	0	1	1	2	0	1	0	1	26
% Trucks	12.5	2.3	0.0	2.4	0.0	6.1	0.0	5.8	0.0	20.0	11.1	9.5	0.0	6.3	0.0	3.6	4.0

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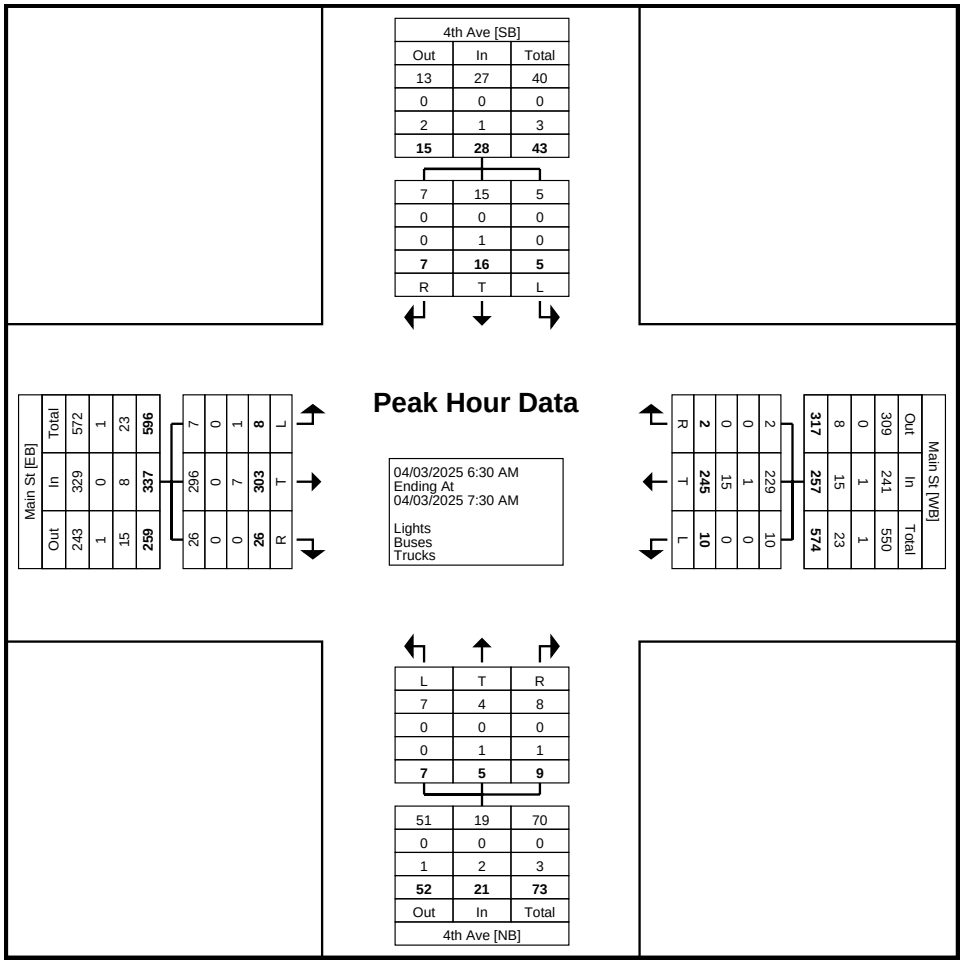
Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (6:30 AM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (3:15 PM)

Start Time	Main St Eastbound				Main St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
3:15 PM	3	91	4	98	2	126	1	129	5	4	3	12	0	0	2	2	241
3:30 PM	4	121	2	127	2	113	2	117	11	3	8	22	2	2	3	7	273
3:45 PM	6	81	3	90	1	104	2	107	1	3	1	5	0	0	2	2	204
4:00 PM	8	91	0	99	3	114	1	118	6	6	2	14	0	0	2	2	233
Total	21	384	9	414	8	457	6	471	23	16	14	53	2	2	9	13	951
Approach %	5.1	92.8	2.2	-	1.7	97.0	1.3	-	43.4	30.2	26.4	-	15.4	15.4	69.2	-	-
Total %	2.2	40.4	0.9	43.5	0.8	48.1	0.6	49.5	2.4	1.7	1.5	5.6	0.2	0.2	0.9	1.4	-
PHF	0.656	0.793	0.563	0.815	0.667	0.907	0.750	0.913	0.523	0.667	0.438	0.602	0.250	0.250	0.750	0.464	0.871
Lights	21	380	9	410	8	448	6	462	23	16	14	53	2	2	8	12	937
% Lights	100.0	99.0	100.0	99.0	100.0	98.0	100.0	98.1	100.0	100.0	100.0	100.0	100.0	100.0	88.9	92.3	98.5
Buses	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
% Buses	0.0	0.8	0.0	0.7	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Trucks	0	1	0	1	0	8	0	8	0	0	0	0	0	0	1	1	10
% Trucks	0.0	0.3	0.0	0.2	0.0	1.8	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	11.1	7.7	1.1

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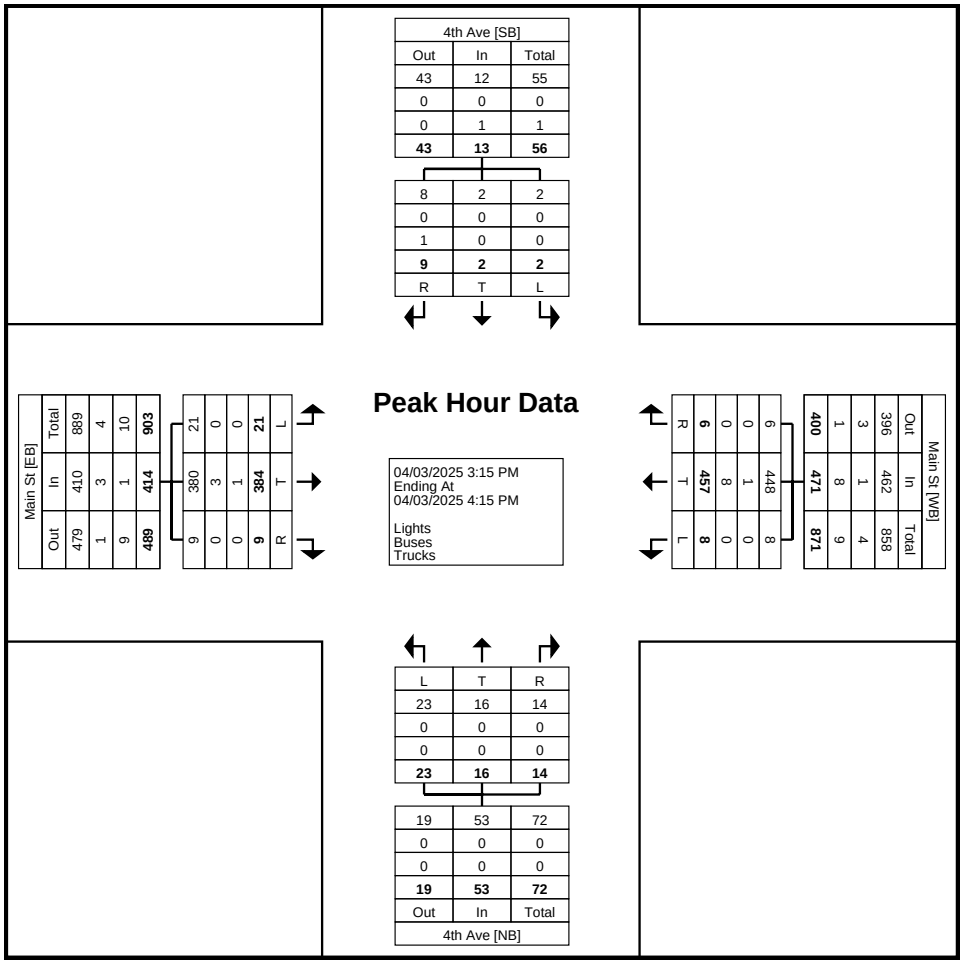
Count Name: 4th Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (3:15 PM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: 4th Ave & Pine St
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:00 AM	0	0	1	1	2	0	0	2	1	2	1	4	0	2	0	2	9
7:15 AM	0	0	2	2	0	1	1	2	4	0	1	5	0	1	0	1	10
7:30 AM	0	0	2	2	1	1	0	2	0	0	2	2	0	1	0	1	7
7:45 AM	0	6	5	11	0	0	1	1	0	0	2	2	0	1	0	1	15
Hourly Total	0	6	10	16	3	2	2	7	5	2	6	13	0	5	0	5	41
8:00 AM	0	1	4	5	0	1	0	1	1	0	1	2	0	2	1	3	11
8:15 AM	0	0	2	2	1	0	0	1	1	0	1	2	0	0	0	0	5
8:30 AM	0	1	1	2	1	2	1	4	0	1	0	1	0	0	0	0	7
8:45 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	3
Hourly Total	0	2	7	9	2	3	1	6	2	3	3	8	0	2	1	3	26
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	2	0	2	2	2	2	6	2	3	5	10	0	0	1	1	19
4:15 PM	0	1	3	4	1	1	0	2	3	1	5	9	0	0	1	1	16
4:30 PM	0	0	1	1	1	0	0	1	0	0	1	1	0	0	0	0	3
4:45 PM	0	1	0	1	2	0	0	2	4	0	0	4	1	2	0	3	10
Hourly Total	0	4	4	8	6	3	2	11	9	4	11	24	1	2	2	5	48
5:00 PM	0	1	0	1	1	2	1	4	0	1	3	4	1	1	0	2	11
5:15 PM	0	0	0	0	2	0	1	3	1	2	3	6	0	0	0	0	9
5:30 PM	0	1	0	1	2	0	0	2	2	2	1	5	1	0	0	1	9
5:45 PM	0	0	0	0	3	0	0	3	0	1	2	3	0	0	0	0	6
Hourly Total	0	2	0	2	8	2	2	12	3	6	9	18	2	1	0	3	35
Grand Total	0	14	21	35	19	10	7	36	19	15	29	63	3	10	3	16	150
Approach %	0.0	40.0	60.0	-	52.8	27.8	19.4	-	30.2	23.8	46.0	-	18.8	62.5	18.8	-	-
Total %	0.0	9.3	14.0	23.3	12.7	6.7	4.7	24.0	12.7	10.0	19.3	42.0	2.0	6.7	2.0	10.7	-
Lights	0	12	16	28	19	7	7	33	17	15	27	59	3	10	1	14	134
% Lights	-	85.7	76.2	80.0	100.0	70.0	100.0	91.7	89.5	100.0	93.1	93.7	100.0	100.0	33.3	87.5	89.3
Buses	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% Buses	-	7.1	0.0	2.9	0.0	10.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Trucks	0	1	5	6	0	2	0	2	2	0	2	4	0	0	2	2	14
% Trucks	-	7.1	23.8	17.1	0.0	20.0	0.0	5.6	10.5	0.0	6.9	6.3	0.0	0.0	66.7	12.5	9.3

Kimley-Horn
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Count Name: 4th Ave & Pine St
Site Code:
Start Date: 04/03/2025
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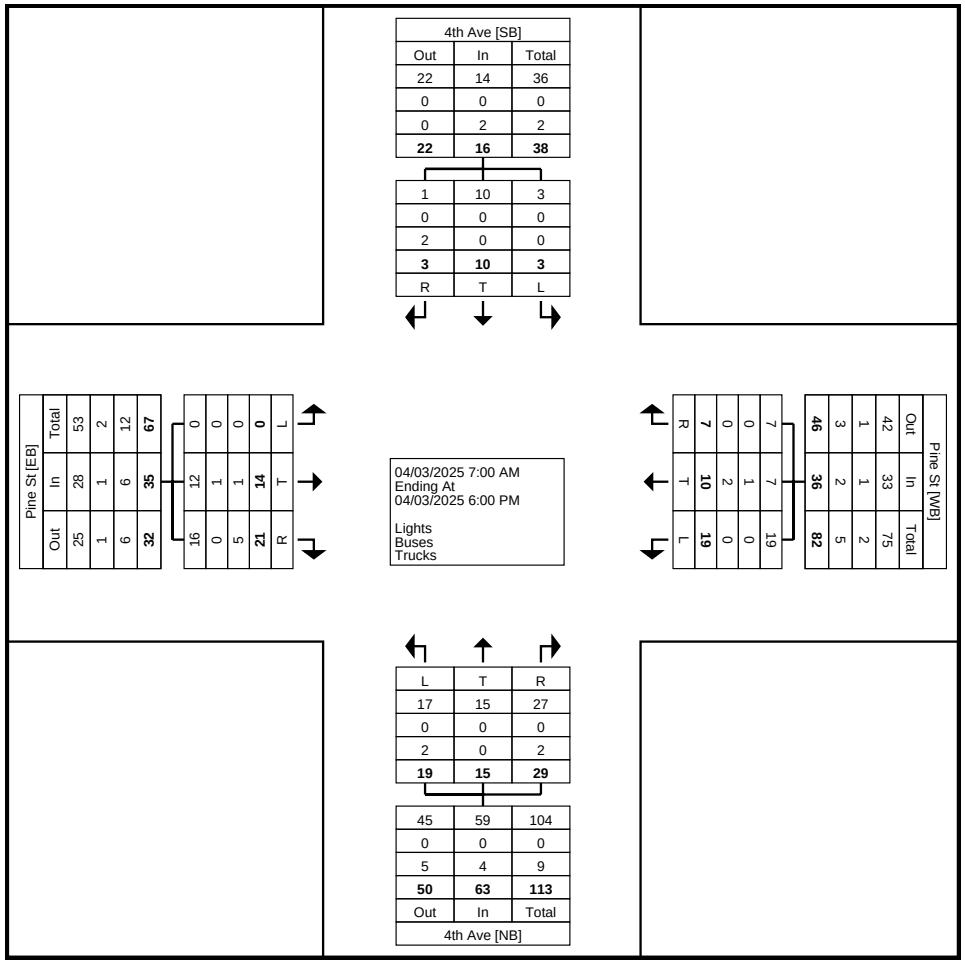

Turning Movement Data Plot

Kimley-Horn
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Count Name: 4th Ave & Pine St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:15 AM	0	0	2	2	0	1	1	2	4	0	1	5	0	1	0	1	10
7:30 AM	0	0	2	2	1	1	0	2	0	0	2	2	0	1	0	1	7
7:45 AM	0	6	5	11	0	0	1	1	0	0	2	2	0	1	0	1	15
8:00 AM	0	1	4	5	0	1	0	1	1	0	1	2	0	2	1	3	11
Total	0	7	13	20	1	3	2	6	5	0	6	11	0	5	1	6	43
Approach %	0.0	35.0	65.0	-	16.7	50.0	33.3	-	45.5	0.0	54.5	-	0.0	83.3	16.7	-	-
Total %	0.0	16.3	30.2	46.5	2.3	7.0	4.7	14.0	11.6	0.0	14.0	25.6	0.0	11.6	2.3	14.0	-
PHF	0.000	0.292	0.650	0.455	0.250	0.750	0.500	0.750	0.313	0.000	0.750	0.550	0.000	0.625	0.250	0.500	0.717
Lights	0	5	10	15	1	1	2	4	3	0	6	9	0	5	0	5	33
% Lights	-	71.4	76.9	75.0	100.0	33.3	100.0	66.7	60.0	-	100.0	81.8	-	100.0	0.0	83.3	76.7
Buses	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% Buses	-	14.3	0.0	5.0	0.0	33.3	0.0	16.7	0.0	-	0.0	0.0	-	0.0	0.0	0.0	4.7
Trucks	0	1	3	4	0	1	0	1	2	0	0	2	0	0	1	1	8
% Trucks	-	14.3	23.1	20.0	0.0	33.3	0.0	16.7	40.0	-	0.0	18.2	-	0.0	100.0	16.7	18.6

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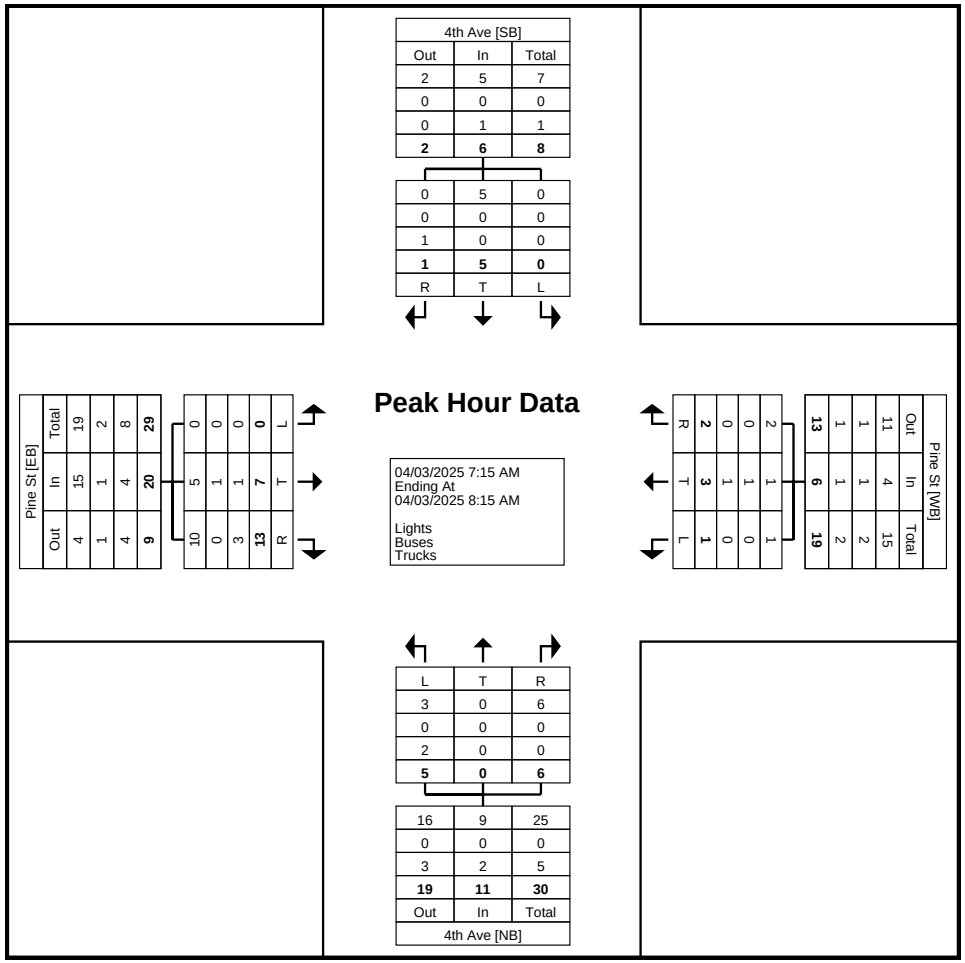

Turning Movement Peak Hour Data Plot (7:15 AM)

Kimley-Horn
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Count Name: 4th Ave & Pine St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
4:00 PM	0	2	0	2	2	2	2	6	2	3	5	10	0	0	1	1	19
4:15 PM	0	1	3	4	1	1	0	2	3	1	5	9	0	0	1	1	16
4:30 PM	0	0	1	1	1	0	0	1	0	0	1	1	0	0	0	0	3
4:45 PM	0	1	0	1	2	0	0	2	4	0	0	4	1	2	0	3	10
Total	0	4	4	8	6	3	2	11	9	4	11	24	1	2	2	5	48
Approach %	0.0	50.0	50.0	-	54.5	27.3	18.2	-	37.5	16.7	45.8	-	20.0	40.0	40.0	-	-
Total %	0.0	8.3	8.3	16.7	12.5	6.3	4.2	22.9	18.8	8.3	22.9	50.0	2.1	4.2	4.2	10.4	-
PHF	0.000	0.500	0.333	0.500	0.750	0.375	0.250	0.458	0.563	0.333	0.550	0.600	0.250	0.250	0.500	0.417	0.632
Lights	0	4	3	7	6	3	2	11	9	4	11	24	1	2	1	4	46
% Lights	-	100.0	75.0	87.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	50.0	80.0	95.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trucks	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
% Trucks	-	0.0	25.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	20.0	4.2

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Count Name: 4th Ave & Pine St
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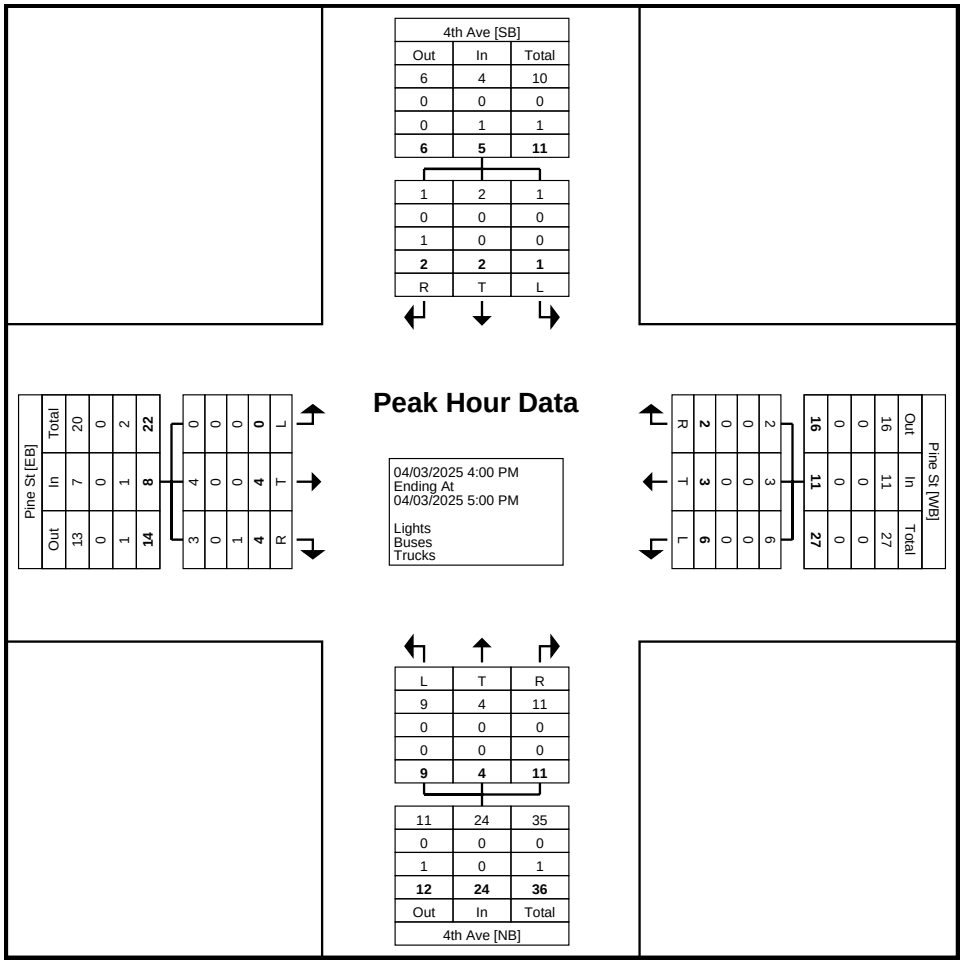
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:00 PM)

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Count Name: Lake Dr & Main St
Site Code:
Start Date: 04/03/2025

Turning Movement Data

Start Time	Main St Eastbound				Main St Westbound				Lake Dr Northbound				Lake Dr Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:00 AM	30	32	11	73	42	25	3	70	5	22	19	46	4	60	19	83	272
7:15 AM	26	58	12	96	67	31	4	102	6	18	20	44	3	63	20	86	328
7:30 AM	31	63	18	112	77	45	2	124	6	23	21	50	3	56	25	84	370
7:45 AM	31	43	21	95	54	36	4	94	17	34	31	82	3	45	30	78	349
Hourly Total	118	196	62	376	240	137	13	390	34	97	91	222	13	224	94	331	1319
8:00 AM	21	34	22	77	38	30	5	73	16	25	38	79	2	34	16	52	281
8:15 AM	21	34	20	75	39	33	4	76	8	22	18	48	6	41	26	73	272
8:30 AM	20	33	10	63	38	26	4	68	10	17	29	56	7	30	22	59	246
8:45 AM	22	32	18	72	43	37	9	89	13	23	24	60	4	26	29	59	280
Hourly Total	84	133	70	287	158	126	22	306	47	87	109	243	19	131	93	243	1079
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	25	46	10	81	49	56	6	111	23	74	55	152	7	25	34	66	410
4:15 PM	44	47	20	111	50	80	8	138	23	91	52	166	9	40	37	86	501
4:30 PM	52	52	20	124	52	67	10	129	34	72	51	157	8	30	25	63	473
4:45 PM	31	39	28	98	46	59	9	114	31	87	64	182	5	45	30	80	474
Hourly Total	152	184	78	414	197	262	33	492	111	324	222	657	29	140	126	295	1858
5:00 PM	31	45	17	93	46	61	9	116	43	62	59	164	4	50	39	93	466
5:15 PM	41	41	18	100	54	55	7	116	22	66	71	159	6	34	34	74	449
5:30 PM	36	45	21	102	29	64	4	97	32	63	42	137	2	37	27	66	402
5:45 PM	21	34	20	75	34	43	3	80	23	42	49	114	3	22	24	49	318
Hourly Total	129	165	76	370	163	223	23	409	120	233	221	574	15	143	124	282	1635
Grand Total	483	678	286	1447	758	748	91	1597	312	741	643	1696	76	638	437	1151	5891
Approach %	33.4	46.9	19.8	-	47.5	46.8	5.7	-	18.4	43.7	37.9	-	6.6	55.4	38.0	-	-
Total %	8.2	11.5	4.9	24.6	12.9	12.7	1.5	27.1	5.3	12.6	10.9	28.8	1.3	10.8	7.4	19.5	-
Lights	472	661	272	1405	742	726	81	1549	308	700	620	1628	64	602	423	1089	5671
% Lights	97.7	97.5	95.1	97.1	97.9	97.1	89.0	97.0	98.7	94.5	96.4	96.0	84.2	94.4	96.8	94.6	96.3
Buses	6	1	5	12	2	8	0	10	1	3	6	10	1	1	3	5	37
% Buses	1.2	0.1	1.7	0.8	0.3	1.1	0.0	0.6	0.3	0.4	0.9	0.6	1.3	0.2	0.7	0.4	0.6
Trucks	5	16	9	30	14	14	10	38	3	38	17	58	11	35	11	57	183
% Trucks	1.0	2.4	3.1	2.1	1.8	1.9	11.0	2.4	1.0	5.1	2.6	3.4	14.5	5.5	2.5	5.0	3.1

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Count Name: Lake Dr & Main St
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Start Date: 04/03/2025
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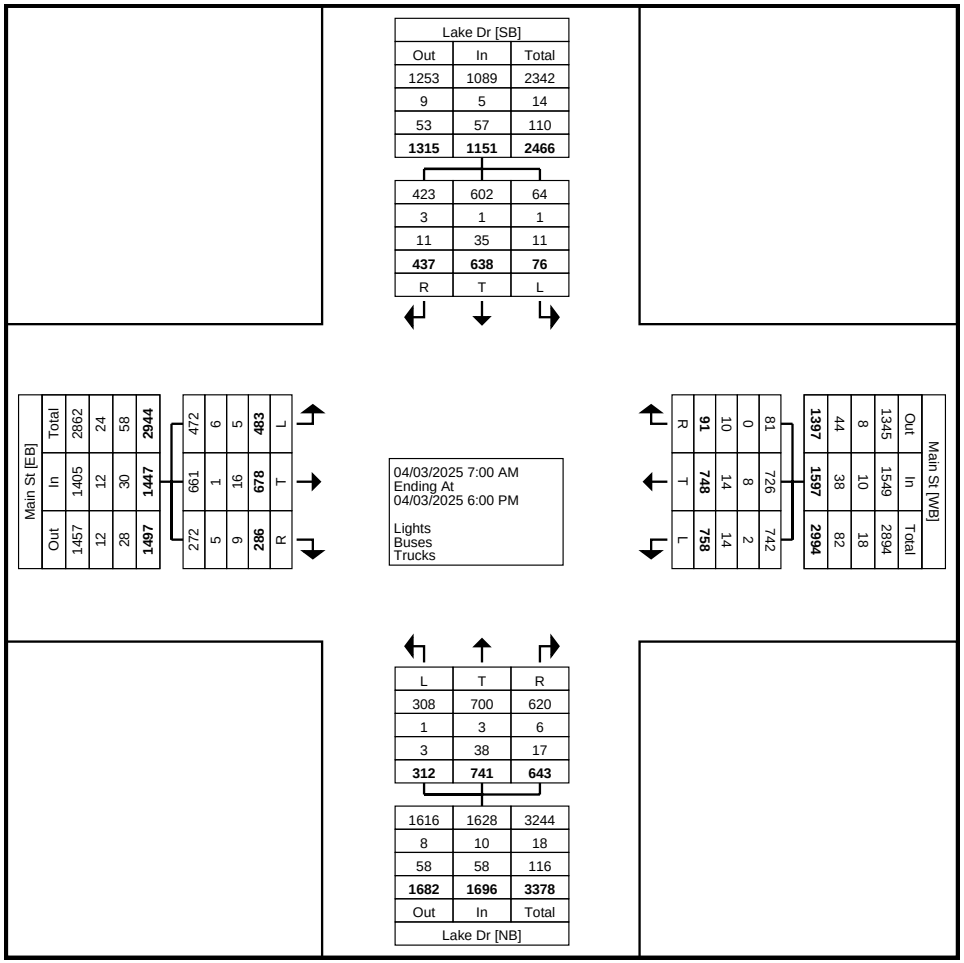

Turning Movement Data Plot

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Count Name: Lake Dr & Main St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Main St Eastbound				Main St Westbound				Lake Dr Northbound				Lake Dr Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:15 AM	26	58	12	96	67	31	4	102	6	18	20	44	3	63	20	86	328
7:30 AM	31	63	18	112	77	45	2	124	6	23	21	50	3	56	25	84	370
7:45 AM	31	43	21	95	54	36	4	94	17	34	31	82	3	45	30	78	349
8:00 AM	21	34	22	77	38	30	5	73	16	25	38	79	2	34	16	52	281
Total	109	198	73	380	236	142	15	393	45	100	110	255	11	198	91	300	1328
Approach %	28.7	52.1	19.2	-	60.1	36.1	3.8	-	17.6	39.2	43.1	-	3.7	66.0	30.3	-	-
Total %	8.2	14.9	5.5	28.6	17.8	10.7	1.1	29.6	3.4	7.5	8.3	19.2	0.8	14.9	6.9	22.6	-
PHF	0.879	0.786	0.830	0.848	0.766	0.789	0.750	0.792	0.662	0.735	0.724	0.777	0.917	0.786	0.758	0.872	0.897
Lights	107	193	68	368	230	134	13	377	44	93	100	237	10	182	85	277	1259
% Lights	98.2	97.5	93.2	96.8	97.5	94.4	86.7	95.9	97.8	93.0	90.9	92.9	90.9	91.9	93.4	92.3	94.8
Buses	0	0	1	1	0	1	0	1	0	2	2	4	0	0	1	1	7
% Buses	0.0	0.0	1.4	0.3	0.0	0.7	0.0	0.3	0.0	2.0	1.8	1.6	0.0	0.0	1.1	0.3	0.5
Trucks	2	5	4	11	6	7	2	15	1	5	8	14	1	16	5	22	62
% Trucks	1.8	2.5	5.5	2.9	2.5	4.9	13.3	3.8	2.2	5.0	7.3	5.5	9.1	8.1	5.5	7.3	4.7

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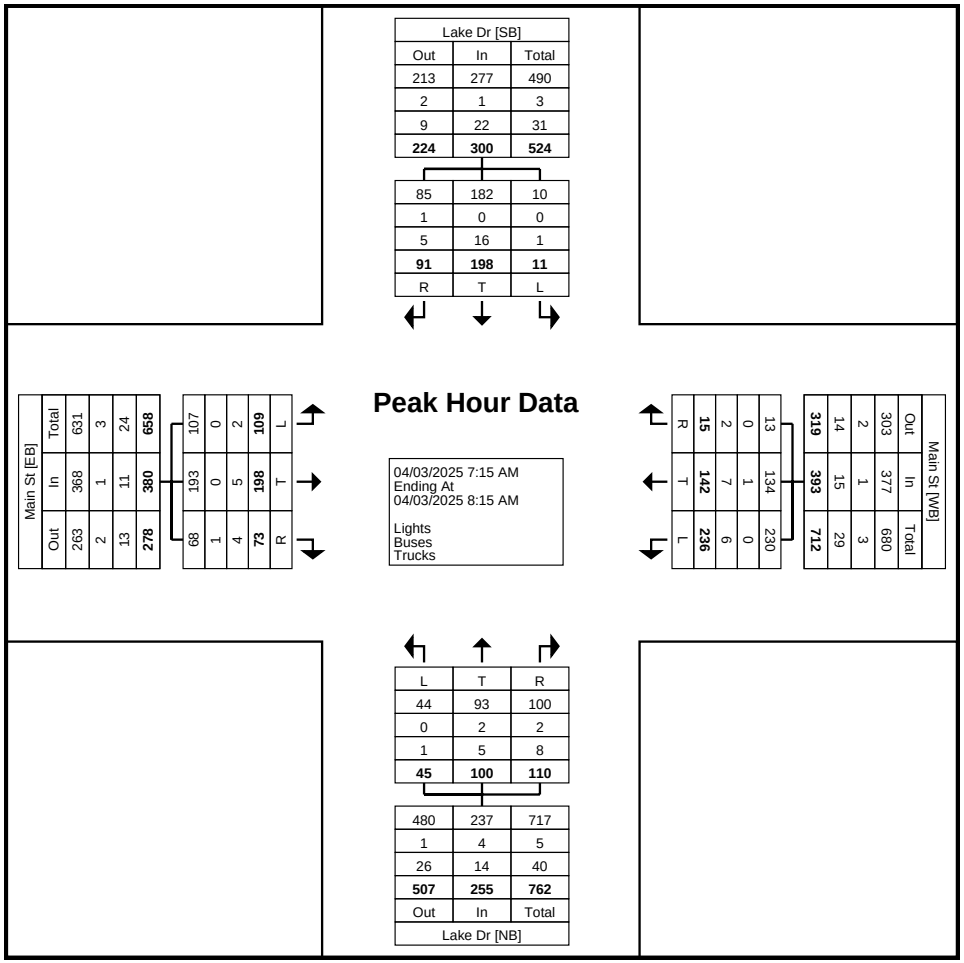

Turning Movement Peak Hour Data Plot (7:15 AM)

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Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Main St Eastbound				Main St Westbound				Lake Dr Northbound				Lake Dr Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
4:15 PM	44	47	20	111	50	80	8	138	23	91	52	166	9	40	37	86	501
4:30 PM	52	52	20	124	52	67	10	129	34	72	51	157	8	30	25	63	473
4:45 PM	31	39	28	98	46	59	9	114	31	87	64	182	5	45	30	80	474
5:00 PM	31	45	17	93	46	61	9	116	43	62	59	164	4	50	39	93	466
Total	158	183	85	426	194	267	36	497	131	312	226	669	26	165	131	322	1914
Approach %	37.1	43.0	20.0	-	39.0	53.7	7.2	-	19.6	46.6	33.8	-	8.1	51.2	40.7	-	-
Total %	8.3	9.6	4.4	22.3	10.1	13.9	1.9	26.0	6.8	16.3	11.8	35.0	1.4	8.6	6.8	16.8	-
PHF	0.760	0.880	0.759	0.859	0.933	0.834	0.900	0.900	0.762	0.857	0.883	0.919	0.722	0.825	0.840	0.866	0.955
Lights	156	181	84	421	188	264	31	483	130	293	219	642	25	160	125	310	1856
% Lights	98.7	98.9	98.8	98.8	96.9	98.9	86.1	97.2	99.2	93.9	96.9	96.0	96.2	97.0	95.4	96.3	97.0
Buses	1	1	1	3	2	1	0	3	0	0	1	1	0	0	1	1	8
% Buses	0.6	0.5	1.2	0.7	1.0	0.4	0.0	0.6	0.0	0.0	0.4	0.1	0.0	0.0	0.8	0.3	0.4
Trucks	1	1	0	2	4	2	5	11	1	19	6	26	1	5	5	11	50
% Trucks	0.6	0.5	0.0	0.5	2.1	0.7	13.9	2.2	0.8	6.1	2.7	3.9	3.8	3.0	3.8	3.4	2.6

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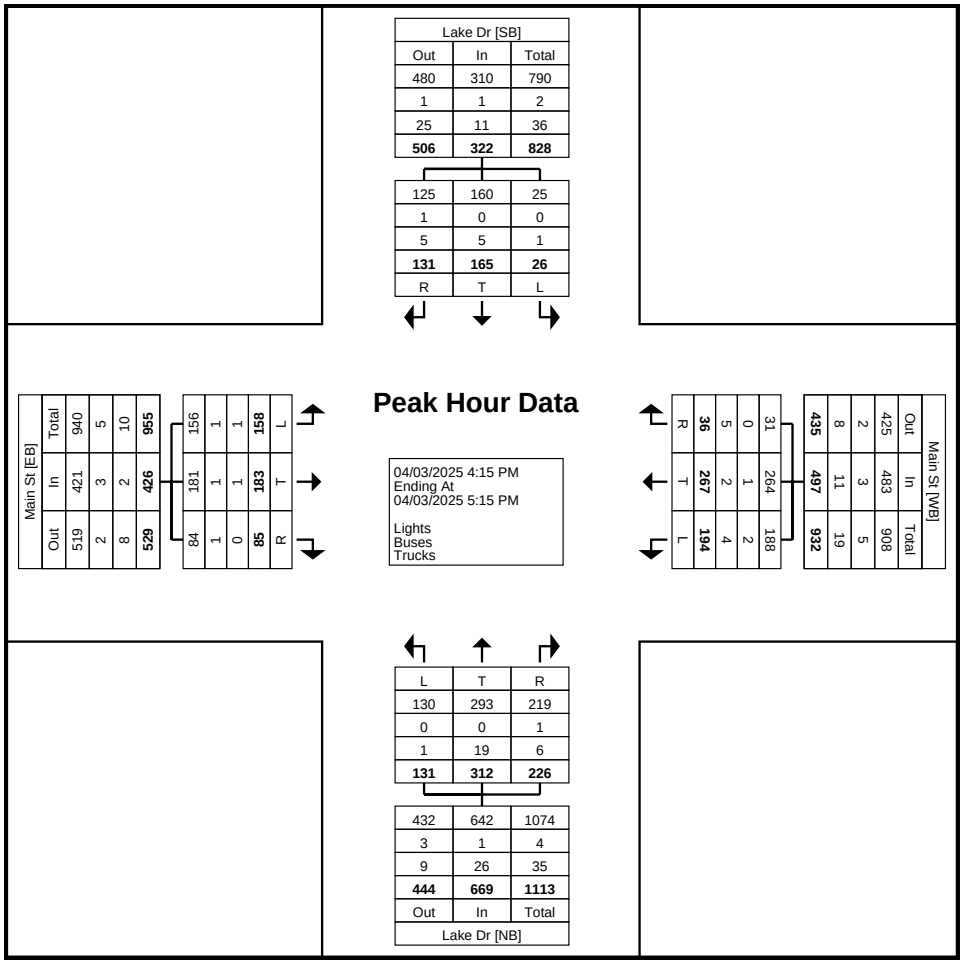

Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: Lake Dr & Pine St
Site Code:
Start Date: 04/03/2025
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Turning Movement Data

Start Time	Pine St Eastbound			Lake Dr Northbound			Lake Dr Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
7:00 AM	0	2	2	2	47	49	52	0	52	103
7:15 AM	0	0	0	1	45	46	63	0	63	109
7:30 AM	1	3	4	3	38	41	52	0	52	97
7:45 AM	3	4	7	1	39	40	58	0	58	105
Hourly Total	4	9	13	7	169	176	225	0	225	414
8:00 AM	1	4	5	0	63	63	45	0	45	113
8:15 AM	1	1	2	2	40	42	61	0	61	105
8:30 AM	1	2	3	3	43	46	35	0	35	84
8:45 AM	0	2	2	1	41	42	40	0	40	84
Hourly Total	3	9	12	6	187	193	181	0	181	386
*** BREAK ***	-	-	-	-	-	-	-	-	-	-
4:00 PM	2	4	6	3	84	87	61	1	62	155
4:15 PM	1	5	6	3	84	87	64	1	65	158
4:30 PM	2	4	6	8	98	106	48	2	50	162
4:45 PM	1	4	5	3	62	65	36	1	37	107
Hourly Total	6	17	23	17	328	345	209	5	214	582
5:00 PM	3	3	6	3	47	50	38	1	39	95
5:15 PM	2	2	4	1	57	58	40	2	42	104
5:30 PM	0	3	3	3	55	58	52	2	54	115
5:45 PM	1	1	2	1	55	56	40	1	41	99
Hourly Total	6	9	15	8	214	222	170	6	176	413
Grand Total	19	44	63	38	898	936	785	11	796	1795
Approach %	30.2	69.8	-	4.1	95.9	-	98.6	1.4	-	-
Total %	1.1	2.5	3.5	2.1	50.0	52.1	43.7	0.6	44.3	-
Lights	19	39	58	32	846	878	735	11	746	1682
% Lights	100.0	88.6	92.1	84.2	94.2	93.8	93.6	100.0	93.7	93.7
Buses	0	1	1	1	10	11	3	0	3	15
% Buses	0.0	2.3	1.6	2.6	1.1	1.2	0.4	0.0	0.4	0.8
Trucks	0	4	4	5	42	47	47	0	47	98
% Trucks	0.0	9.1	6.3	13.2	4.7	5.0	6.0	0.0	5.9	5.5

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Start Date: 04/03/2025
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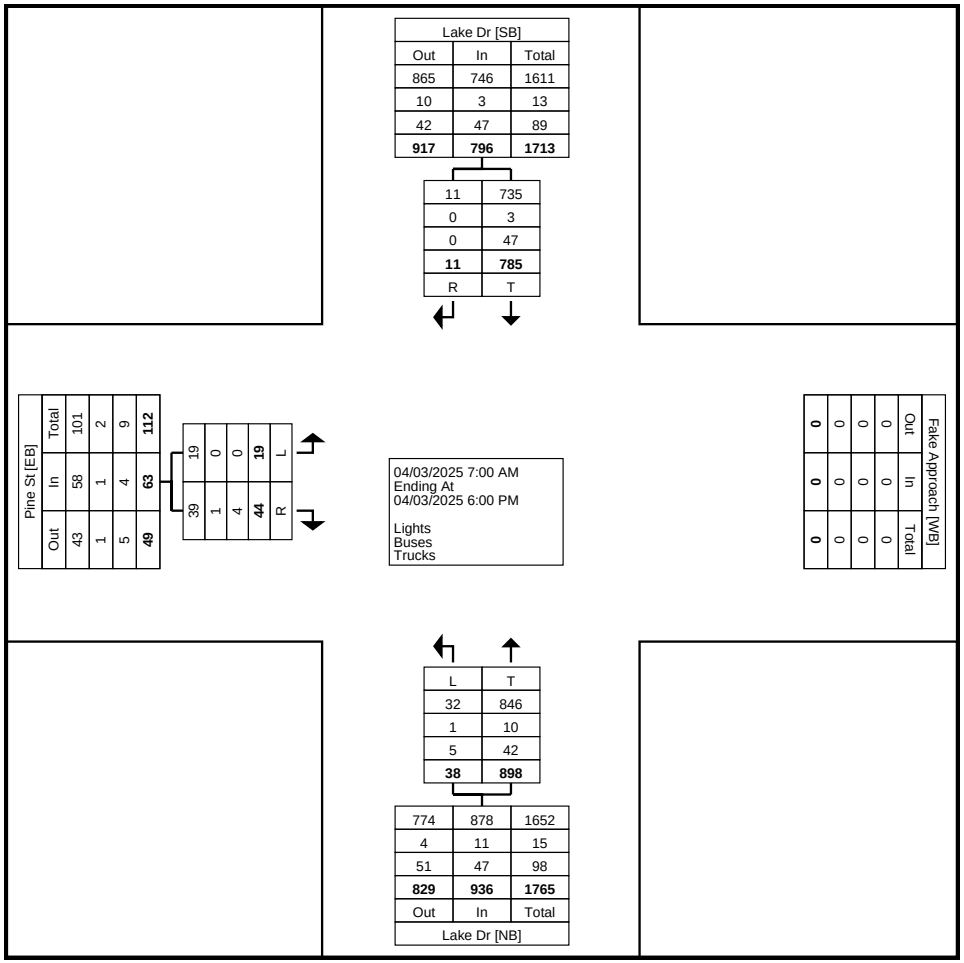

Turning Movement Data Plot

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Lake Dr & Pine St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Pine St Eastbound			Lake Dr Northbound			Lake Dr Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
7:15 AM	0	0	0	1	45	46	63	0	63	109
7:30 AM	1	3	4	3	38	41	52	0	52	97
7:45 AM	3	4	7	1	39	40	58	0	58	105
8:00 AM	1	4	5	0	63	63	45	0	45	113
Total	5	11	16	5	185	190	218	0	218	424
Approach %	31.3	68.8	-	2.6	97.4	-	100.0	0.0	-	-
Total %	1.2	2.6	3.8	1.2	43.6	44.8	51.4	0.0	51.4	-
PHF	0.417	0.688	0.571	0.417	0.734	0.754	0.865	0.000	0.865	0.938
Lights	5	9	14	2	161	163	196	0	196	373
% Lights	100.0	81.8	87.5	40.0	87.0	85.8	89.9	-	89.9	88.0
Buses	0	1	1	1	9	10	3	0	3	14
% Buses	0.0	9.1	6.3	20.0	4.9	5.3	1.4	-	1.4	3.3
Trucks	0	1	1	2	15	17	19	0	19	37
% Trucks	0.0	9.1	6.3	40.0	8.1	8.9	8.7	-	8.7	8.7

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Count Name: Lake Dr & Pine St
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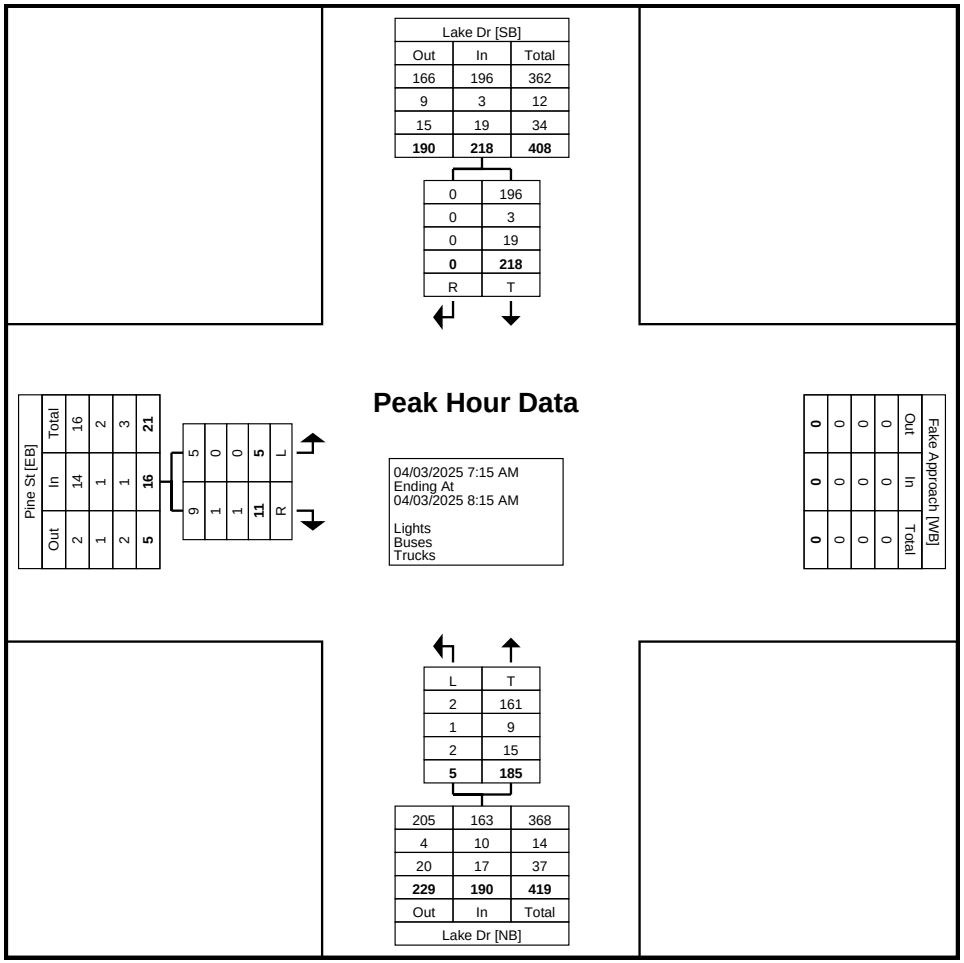
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Kimley-Horn
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Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Lake Dr & Pine St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Pine St Eastbound			Lake Dr Northbound			Lake Dr Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
4:00 PM	2	4	6	3	84	87	61	1	62	155
4:15 PM	1	5	6	3	84	87	64	1	65	158
4:30 PM	2	4	6	8	98	106	48	2	50	162
4:45 PM	1	4	5	3	62	65	36	1	37	107
Total	6	17	23	17	328	345	209	5	214	582
Approach %	26.1	73.9	-	4.9	95.1	-	97.7	2.3	-	-
Total %	1.0	2.9	4.0	2.9	56.4	59.3	35.9	0.9	36.8	-
PHF	0.750	0.850	0.958	0.531	0.837	0.814	0.816	0.625	0.823	0.898
Lights	6	17	23	16	319	335	206	5	211	569
% Lights	100.0	100.0	100.0	94.1	97.3	97.1	98.6	100.0	98.6	97.8
Buses	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trucks	0	0	0	1	9	10	3	0	3	13
% Trucks	0.0	0.0	0.0	5.9	2.7	2.9	1.4	0.0	1.4	2.2

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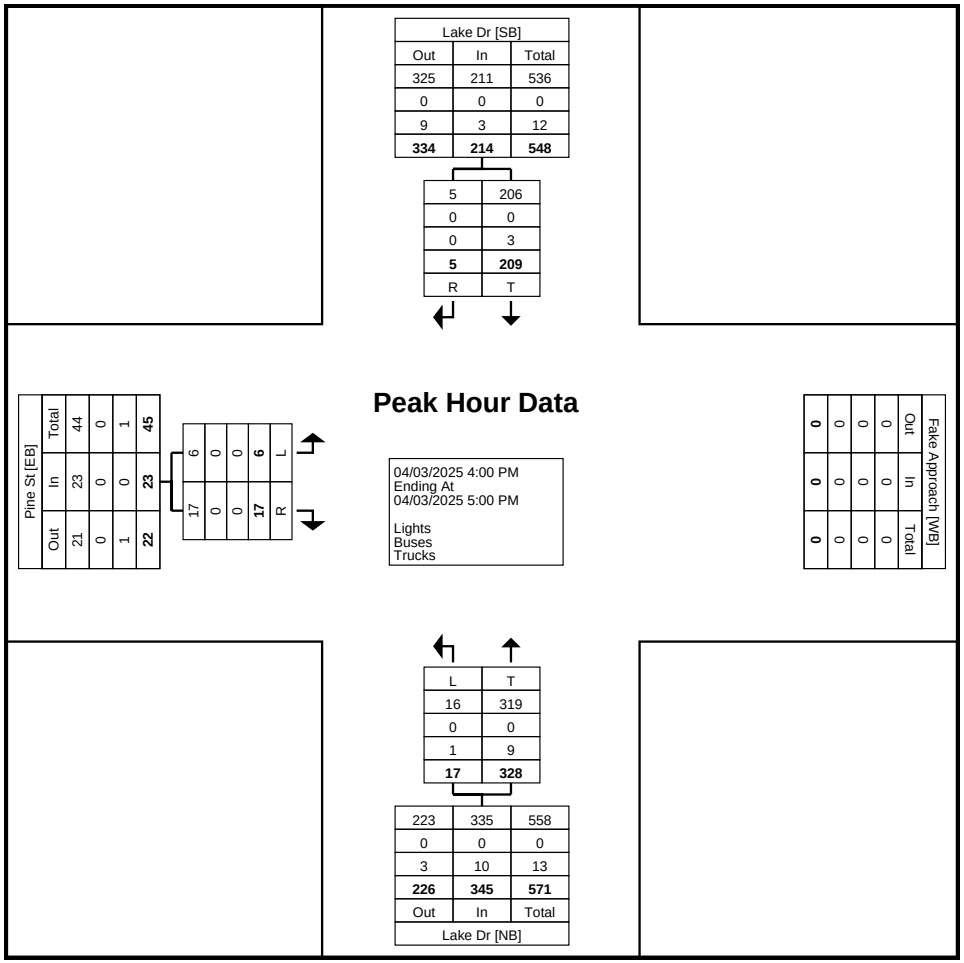
Count Name: Lake Dr & Pine St
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:00 PM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Data

Start Time	Lilac St Eastbound				Lilac St Westbound				4th St Northbound				4th St Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
6:00 AM	2	19	2	23	13	13	0	26	2	5	2	9	9	5	4	18	76
6:15 AM	3	20	1	24	16	8	2	26	0	1	4	5	9	8	1	18	73
6:30 AM	0	33	1	34	9	10	0	19	2	1	2	5	9	12	4	25	83
6:45 AM	3	21	2	26	11	14	4	29	0	1	2	3	9	9	0	18	76
Hourly Total	8	93	6	107	49	45	6	100	4	8	10	22	36	34	9	79	308
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	2	9	0	11	3	26	6	35	0	10	9	19	3	0	2	5	70
3:15 PM	2	22	0	24	2	31	14	47	5	7	10	22	5	2	1	8	101
3:30 PM	5	17	1	23	2	25	11	38	3	11	4	18	5	0	2	7	86
3:45 PM	0	16	0	16	3	32	7	42	1	5	1	7	3	0	2	5	70
Hourly Total	9	64	1	74	10	114	38	162	9	33	24	66	16	2	7	25	327
Grand Total	17	157	7	181	59	159	44	262	13	41	34	88	52	36	16	104	635
Approach %	9.4	86.7	3.9	-	22.5	60.7	16.8	-	14.8	46.6	38.6	-	50.0	34.6	15.4	-	-
Total %	2.7	24.7	1.1	28.5	9.3	25.0	6.9	41.3	2.0	6.5	5.4	13.9	8.2	5.7	2.5	16.4	-
Lights	16	156	7	179	55	157	44	256	12	40	31	83	52	35	15	102	620
% Lights	94.1	99.4	100.0	98.9	93.2	98.7	100.0	97.7	92.3	97.6	91.2	94.3	100.0	97.2	93.8	98.1	97.6
Buses	1	1	0	2	1	2	0	3	1	0	0	1	0	1	1	2	8
% Buses	5.9	0.6	0.0	1.1	1.7	1.3	0.0	1.1	7.7	0.0	0.0	1.1	0.0	2.8	6.3	1.9	1.3
Trucks	0	0	0	0	3	0	0	3	0	1	3	4	0	0	0	0	7
% Trucks	0.0	0.0	0.0	0.0	5.1	0.0	0.0	1.1	0.0	2.4	8.8	4.5	0.0	0.0	0.0	0.0	1.1

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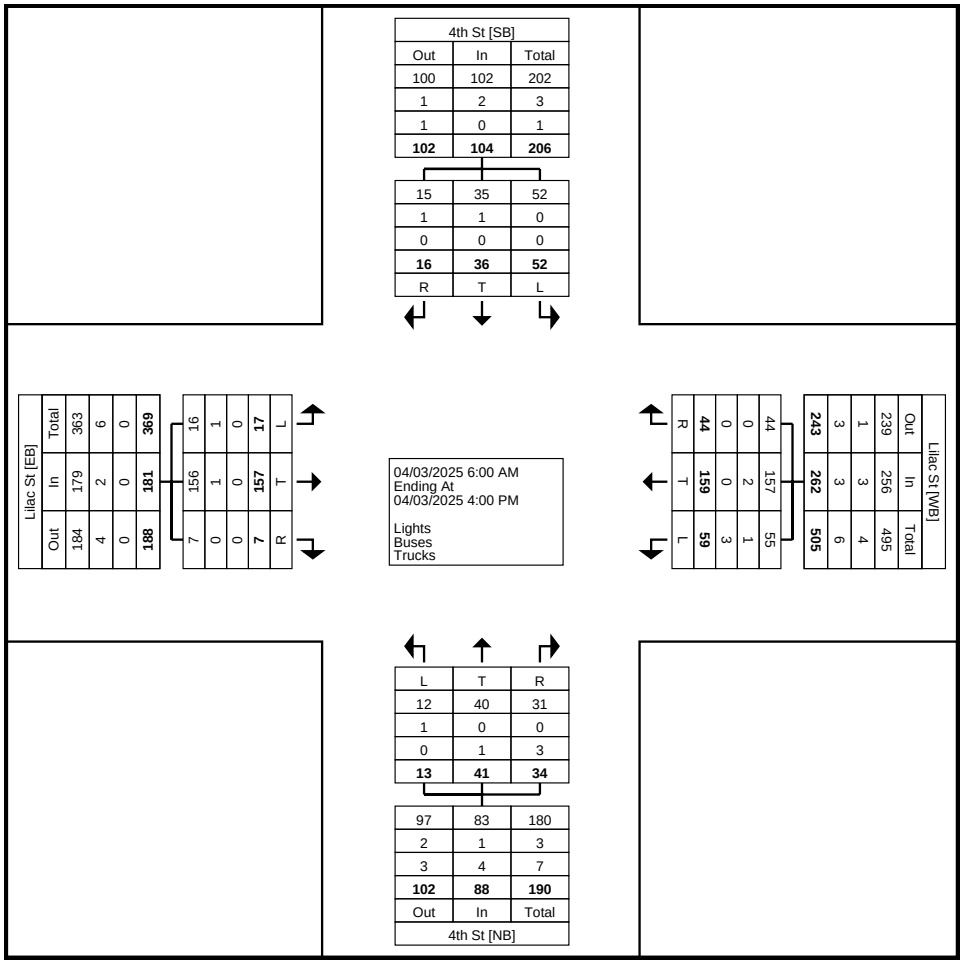
Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Data Plot

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (6:00 AM)

Start Time	Lilac St Eastbound				Lilac St Westbound				4th St Northbound				4th St Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
6:00 AM	2	19	2	23	13	13	0	26	2	5	2	9	9	5	4	18	76
6:15 AM	3	20	1	24	16	8	2	26	0	1	4	5	9	8	1	18	73
6:30 AM	0	33	1	34	9	10	0	19	2	1	2	5	9	12	4	25	83
6:45 AM	3	21	2	26	11	14	4	29	0	1	2	3	9	9	0	18	76
Total	8	93	6	107	49	45	6	100	4	8	10	22	36	34	9	79	308
Approach %	7.5	86.9	5.6	-	49.0	45.0	6.0	-	18.2	36.4	45.5	-	45.6	43.0	11.4	-	-
Total %	2.6	30.2	1.9	34.7	15.9	14.6	1.9	32.5	1.3	2.6	3.2	7.1	11.7	11.0	2.9	25.6	-
PHF	0.667	0.705	0.750	0.787	0.766	0.804	0.375	0.862	0.500	0.400	0.625	0.611	1.000	0.708	0.563	0.790	0.928
Lights	7	92	6	105	48	44	6	98	3	8	7	18	36	33	9	78	299
% Lights	87.5	98.9	100.0	98.1	98.0	97.8	100.0	98.0	75.0	100.0	70.0	81.8	100.0	97.1	100.0	98.7	97.1
Buses	1	1	0	2	1	1	0	2	1	0	0	1	0	1	0	1	6
% Buses	12.5	1.1	0.0	1.9	2.0	2.2	0.0	2.0	25.0	0.0	0.0	4.5	0.0	2.9	0.0	1.3	1.9
Trucks	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
% Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	13.6	0.0	0.0	0.0	0.0	1.0

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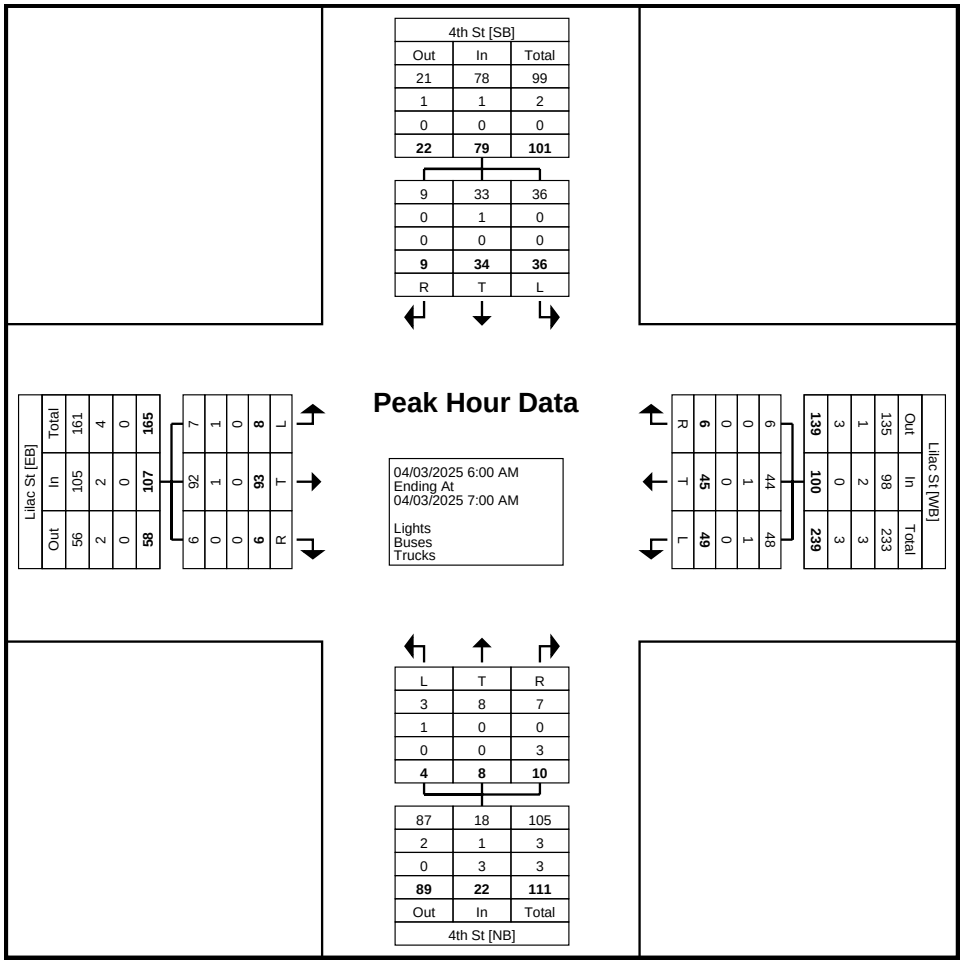
Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025
Page No: 4



Turning Movement Peak Hour Data Plot (6:00 AM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Lilac St Eastbound				Lilac St Westbound				4th St Northbound				4th St Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
3:00 PM	2	9	0	11	3	26	6	35	0	10	9	19	3	0	2	5	70
3:15 PM	2	22	0	24	2	31	14	47	5	7	10	22	5	2	1	8	101
3:30 PM	5	17	1	23	2	25	11	38	3	11	4	18	5	0	2	7	86
3:45 PM	0	16	0	16	3	32	7	42	1	5	1	7	3	0	2	5	70
Total	9	64	1	74	10	114	38	162	9	33	24	66	16	2	7	25	327
Approach %	12.2	86.5	1.4	-	6.2	70.4	23.5	-	13.6	50.0	36.4	-	64.0	8.0	28.0	-	-
Total %	2.8	19.6	0.3	22.6	3.1	34.9	11.6	49.5	2.8	10.1	7.3	20.2	4.9	0.6	2.1	7.6	-
PHF	0.450	0.727	0.250	0.771	0.833	0.891	0.679	0.862	0.450	0.750	0.600	0.750	0.800	0.250	0.875	0.781	0.809
Lights	9	64	1	74	7	113	38	158	9	32	24	65	16	2	6	24	321
% Lights	100.0	100.0	100.0	100.0	70.0	99.1	100.0	97.5	100.0	97.0	100.0	98.5	100.0	100.0	85.7	96.0	98.2
Buses	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
% Buses	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	14.3	4.0	0.6
Trucks	0	0	0	0	3	0	0	3	0	1	0	1	0	0	0	0	4
% Trucks	0.0	0.0	0.0	0.0	30.0	0.0	0.0	1.9	0.0	3.0	0.0	1.5	0.0	0.0	0.0	0.0	1.2

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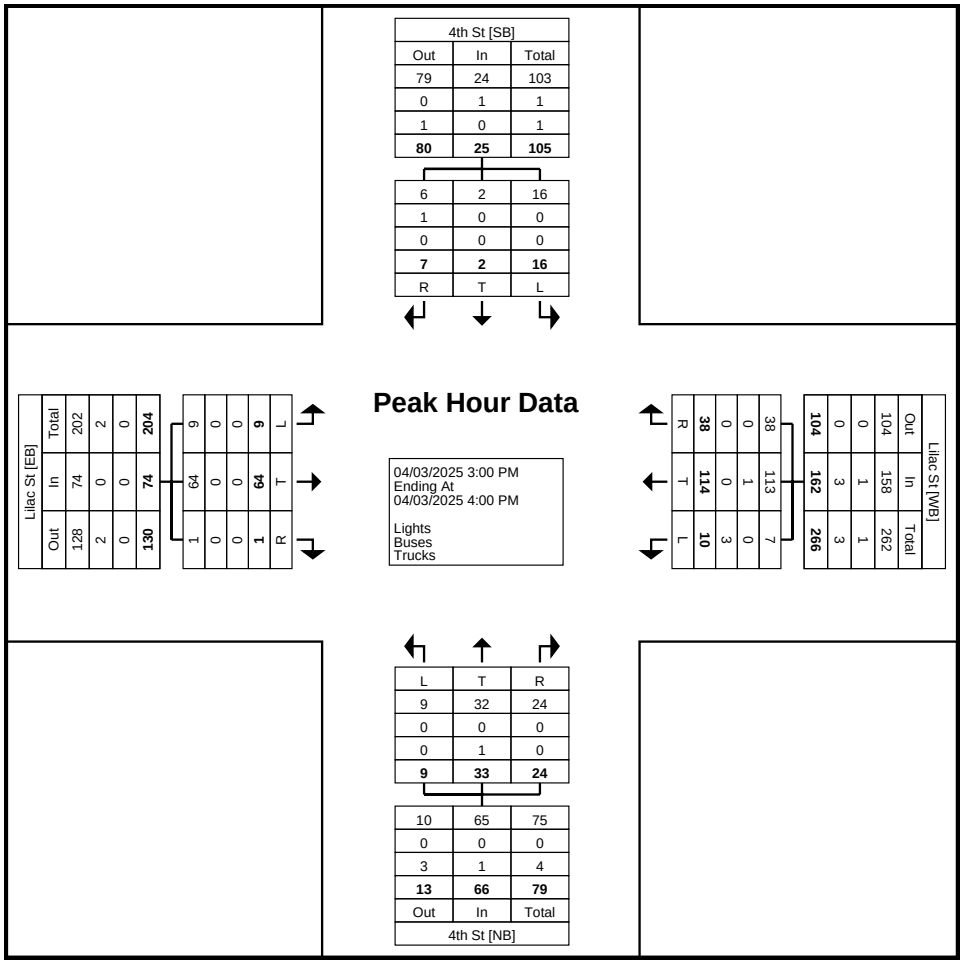
Count Name: Lilac St & 4th Ave
Site Code:
Start Date: 04/03/2025
Page No: 6



Turning Movement Peak Hour Data Plot (3:00 PM)

Kimley-Horn
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Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Pine St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Data

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
6:00 AM	0	0	1	1	2	0	0	2	0	1	1	2	1	0	0	1	6
6:15 AM	0	2	0	2	0	0	0	0	0	1	1	2	1	3	0	4	8
6:30 AM	0	0	2	2	0	1	0	1	1	0	0	1	1	1	0	2	6
6:45 AM	0	0	2	2	1	0	0	1	1	0	0	1	1	2	0	3	7
Hourly Total	0	2	5	7	3	1	0	4	2	2	2	6	4	6	0	10	27
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	1	1	2	2	1	0	3	0	1	3	4	0	2	0	2	11
3:15 PM	0	0	0	0	3	0	0	3	2	1	6	9	0	0	0	0	12
3:30 PM	0	0	2	2	2	0	1	3	1	0	5	6	0	0	0	0	11
3:45 PM	0	0	0	0	0	2	0	2	4	3	1	8	0	0	0	0	10
Hourly Total	0	1	3	4	7	3	1	11	7	5	15	27	0	2	0	2	44
Grand Total	0	3	8	11	10	4	1	15	9	7	17	33	4	8	0	12	71
Approach %	0.0	27.3	72.7	-	66.7	26.7	6.7	-	27.3	21.2	51.5	-	33.3	66.7	0.0	-	-
Total %	0.0	4.2	11.3	15.5	14.1	5.6	1.4	21.1	12.7	9.9	23.9	46.5	5.6	11.3	0.0	16.9	-
Lights	0	2	8	10	10	3	1	14	9	7	16	32	4	8	0	12	68
% Lights	-	66.7	100.0	90.9	100.0	75.0	100.0	93.3	100.0	100.0	94.1	97.0	100.0	100.0	-	100.0	95.8
Buses	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% Buses	-	33.3	0.0	9.1	0.0	25.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	2.8
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Trucks	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	3.0	0.0	0.0	-	0.0	1.4

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Count Name: Pine St & 4th Ave
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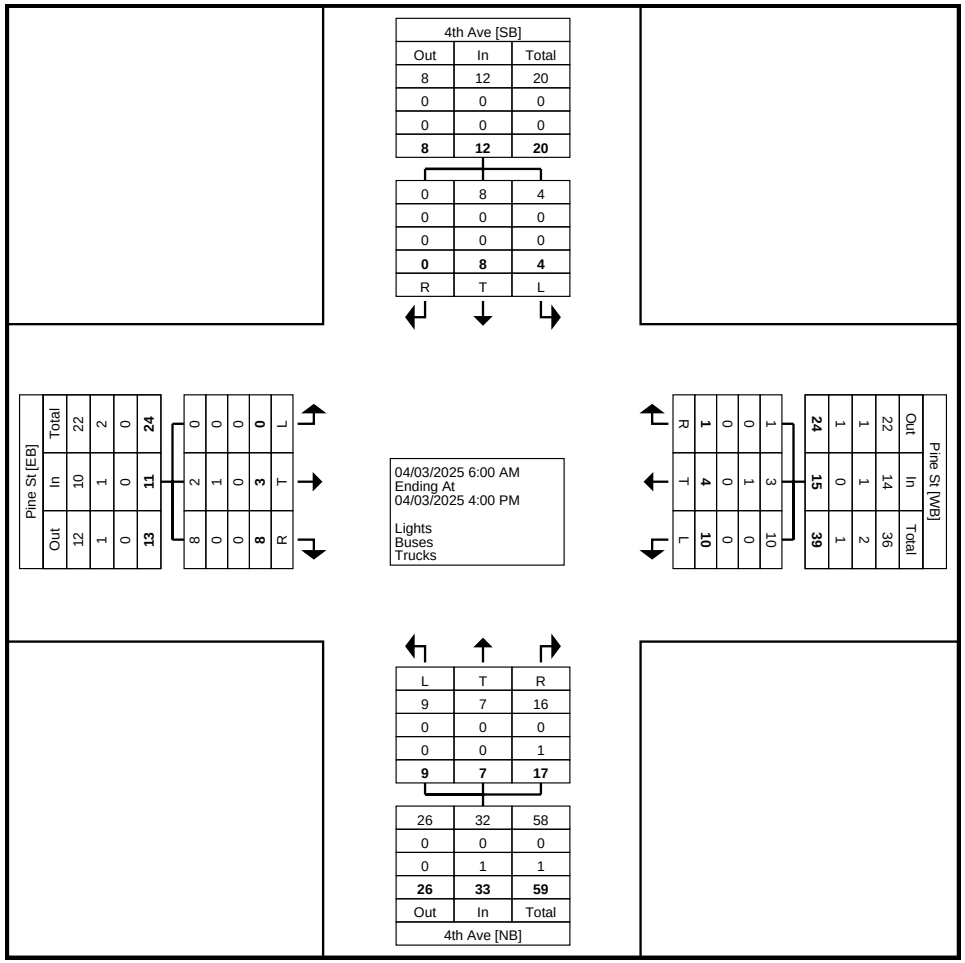
Start Date: 04/03/2025
Page No: 2



Turning Movement Data Plot

Kimley-Horn
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(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Pine St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (6:00 AM)

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
6:00 AM	0	0	1	1	2	0	0	2	0	1	1	2	1	0	0	1	6
6:15 AM	0	2	0	2	0	0	0	0	0	1	1	2	1	3	0	4	8
6:30 AM	0	0	2	2	0	1	0	1	1	0	0	1	1	1	0	2	6
6:45 AM	0	0	2	2	1	0	0	1	1	0	0	1	1	2	0	3	7
Total	0	2	5	7	3	1	0	4	2	2	2	6	4	6	0	10	27
Approach %	0.0	28.6	71.4	-	75.0	25.0	0.0	-	33.3	33.3	33.3	-	40.0	60.0	0.0	-	-
Total %	0.0	7.4	18.5	25.9	11.1	3.7	0.0	14.8	7.4	7.4	7.4	22.2	14.8	22.2	0.0	37.0	-
PHF	0.000	0.250	0.625	0.875	0.375	0.250	0.000	0.500	0.500	0.500	0.500	0.750	1.000	0.500	0.000	0.625	0.844
Lights	0	2	5	7	3	1	0	4	2	2	2	6	4	6	0	10	27
% Lights	-	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0

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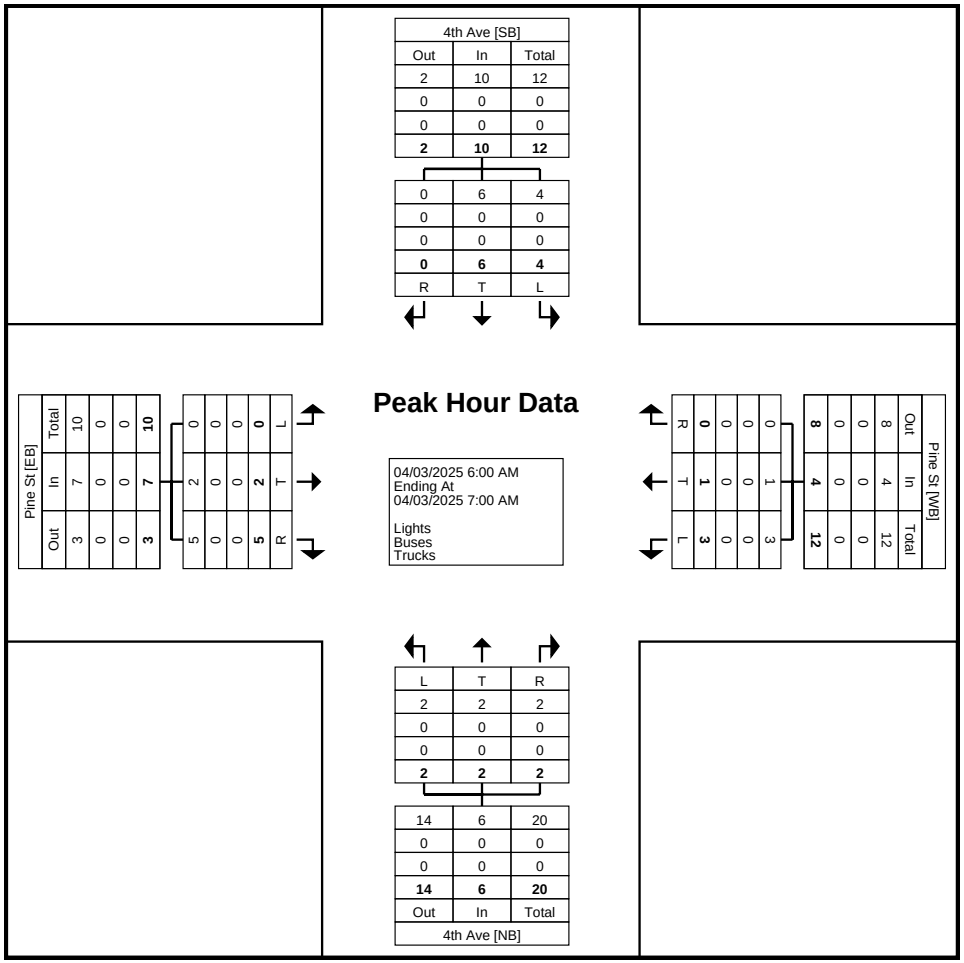
Count Name: Pine St & 4th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (6:00 AM)

Kimley-Horn
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Count Name: Pine St & 4th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Pine St Eastbound				Pine St Westbound				4th Ave Northbound				4th Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
3:00 PM	0	1	1	2	2	1	0	3	0	1	3	4	0	2	0	2	11
3:15 PM	0	0	0	0	3	0	0	3	2	1	6	9	0	0	0	0	12
3:30 PM	0	0	2	2	2	0	1	3	1	0	5	6	0	0	0	0	11
3:45 PM	0	0	0	0	0	2	0	2	4	3	1	8	0	0	0	0	10
Total	0	1	3	4	7	3	1	11	7	5	15	27	0	2	0	2	44
Approach %	0.0	25.0	75.0	-	63.6	27.3	9.1	-	25.9	18.5	55.6	-	0.0	100.0	0.0	-	-
Total %	0.0	2.3	6.8	9.1	15.9	6.8	2.3	25.0	15.9	11.4	34.1	61.4	0.0	4.5	0.0	4.5	-
PHF	0.000	0.250	0.375	0.500	0.583	0.375	0.250	0.917	0.438	0.417	0.625	0.750	0.000	0.250	0.000	0.250	0.917
Lights	0	0	3	3	7	2	1	10	7	5	14	26	0	2	0	2	41
% Lights	-	0.0	100.0	75.0	100.0	66.7	100.0	90.9	100.0	100.0	93.3	96.3	-	100.0	-	100.0	93.2
Buses	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% Buses	-	100.0	0.0	25.0	0.0	33.3	0.0	9.1	0.0	0.0	0.0	0.0	-	0.0	-	0.0	4.5
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Trucks	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	3.7	-	0.0	-	0.0	2.3

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
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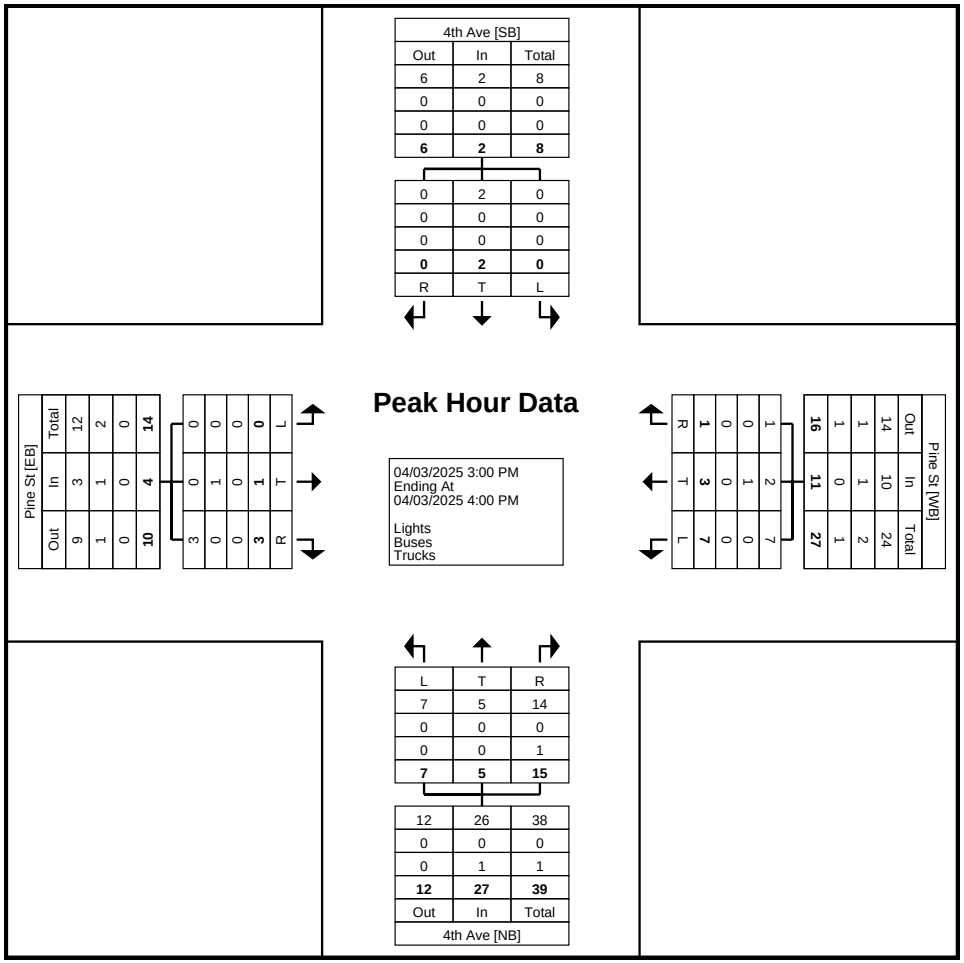
Count Name: Pine St & 4th Ave
Site Code:
Start Date: 04/03/2025
Page No: 6



Turning Movement Peak Hour Data Plot (3:00 PM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Pine St Eastbound			Lake Drive Northbound			Lake Drive Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
6:00 AM	1	2	3	0	55	55	80	0	80	138
6:15 AM	1	4	5	0	55	55	81	0	81	141
6:30 AM	2	3	5	2	48	50	80	1	81	136
6:45 AM	3	2	5	2	55	57	72	0	72	134
Hourly Total	7	11	18	4	213	217	313	1	314	549
*** BREAK ***	-	-	-	-	-	-	-	-	-	-
3:00 PM	2	3	5	3	99	102	53	2	55	162
3:15 PM	4	5	9	1	105	106	75	4	79	194
3:30 PM	0	2	2	7	121	128	57	2	59	189
3:45 PM	1	0	1	7	99	106	69	0	69	176
Hourly Total	7	10	17	18	424	442	254	8	262	721
Grand Total	14	21	35	22	637	659	567	9	576	1270
Approach %	40.0	60.0	-	3.3	96.7	-	98.4	1.6	-	-
Total %	1.1	1.7	2.8	1.7	50.2	51.9	44.6	0.7	45.4	-
Lights	14	20	34	20	611	631	514	8	522	1187
% Lights	100.0	95.2	97.1	90.9	95.9	95.8	90.7	88.9	90.6	93.5
Buses	0	1	1	0	5	5	2	0	2	8
% Buses	0.0	4.8	2.9	0.0	0.8	0.8	0.4	0.0	0.3	0.6
Trucks	0	0	0	2	21	23	51	1	52	75
% Trucks	0.0	0.0	0.0	9.1	3.3	3.5	9.0	11.1	9.0	5.9

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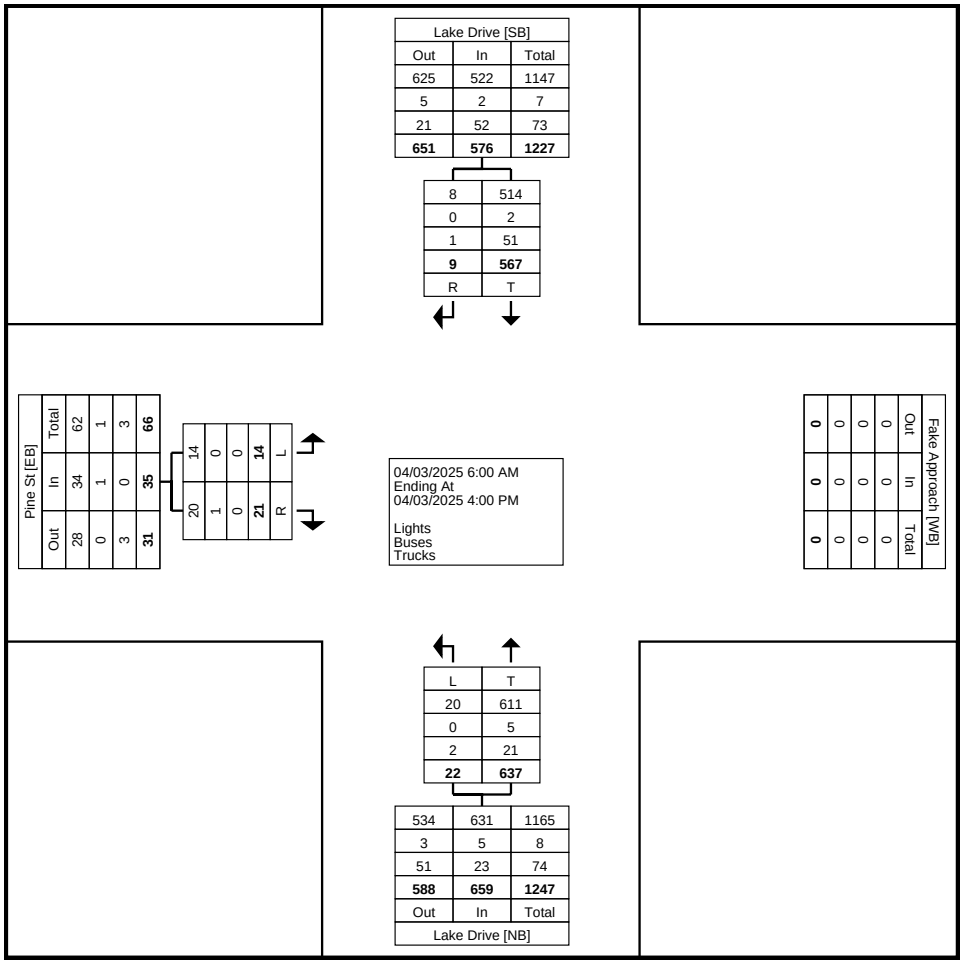
Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025
Page No: 2



Turning Movement Data Plot

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(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (6:00 AM)

Start Time	Pine St Eastbound			Lake Drive Northbound			Lake Drive Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
6:00 AM	1	2	3	0	55	55	80	0	80	138
6:15 AM	1	4	5	0	55	55	81	0	81	141
6:30 AM	2	3	5	2	48	50	80	1	81	136
6:45 AM	3	2	5	2	55	57	72	0	72	134
Total	7	11	18	4	213	217	313	1	314	549
Approach %	38.9	61.1	-	1.8	98.2	-	99.7	0.3	-	-
Total %	1.3	2.0	3.3	0.7	38.8	39.5	57.0	0.2	57.2	-
PHF	0.583	0.688	0.900	0.500	0.968	0.952	0.966	0.250	0.969	0.973
Lights	7	11	18	4	205	209	272	1	273	500
% Lights	100.0	100.0	100.0	100.0	96.2	96.3	86.9	100.0	86.9	91.1
Buses	0	0	0	0	2	2	1	0	1	3
% Buses	0.0	0.0	0.0	0.0	0.9	0.9	0.3	0.0	0.3	0.5
Trucks	0	0	0	0	6	6	40	0	40	46
% Trucks	0.0	0.0	0.0	0.0	2.8	2.8	12.8	0.0	12.7	8.4

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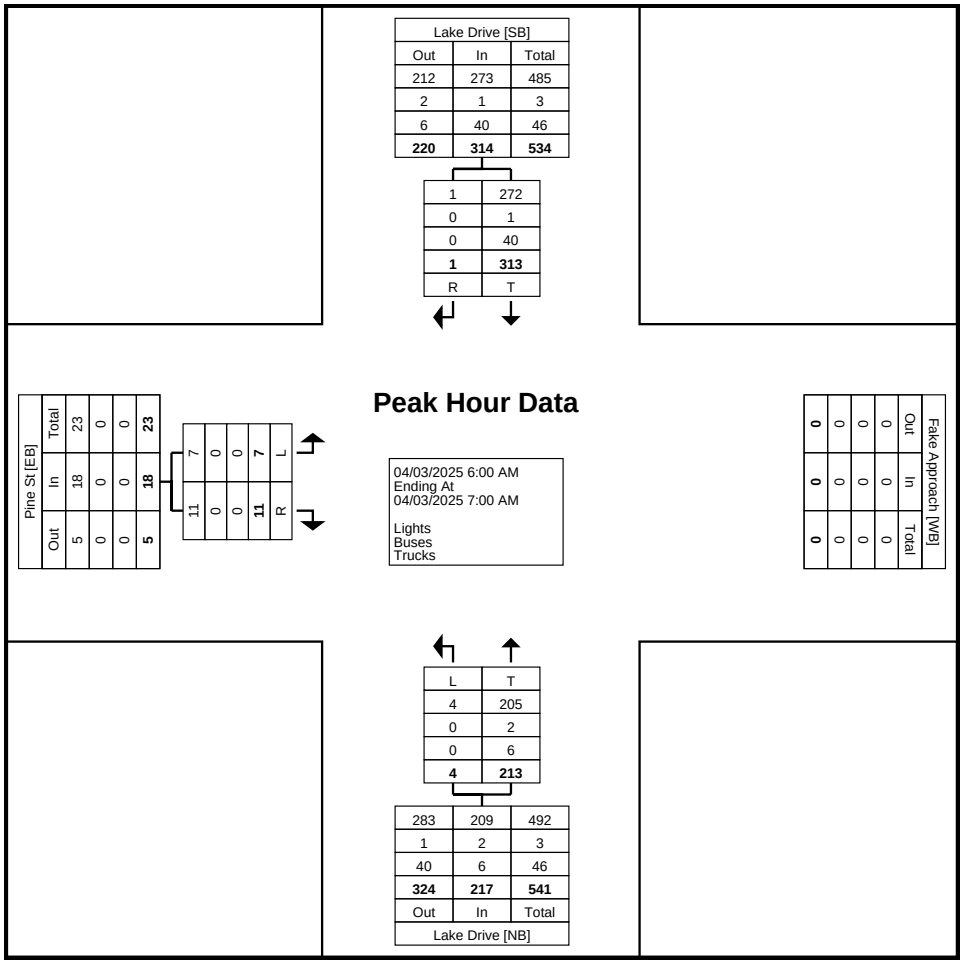
Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (6:00 AM)

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(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Pine St Eastbound			Lake Drive Northbound			Lake Drive Southbound			
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
3:00 PM	2	3	5	3	99	102	53	2	55	162
3:15 PM	4	5	9	1	105	106	75	4	79	194
3:30 PM	0	2	2	7	121	128	57	2	59	189
3:45 PM	1	0	1	7	99	106	69	0	69	176
Total	7	10	17	18	424	442	254	8	262	721
Approach %	41.2	58.8	-	4.1	95.9	-	96.9	3.1	-	-
Total %	1.0	1.4	2.4	2.5	58.8	61.3	35.2	1.1	36.3	-
PHF	0.438	0.500	0.472	0.643	0.876	0.863	0.847	0.500	0.829	0.929
Lights	7	9	16	16	406	422	242	7	249	687
% Lights	100.0	90.0	94.1	88.9	95.8	95.5	95.3	87.5	95.0	95.3
Buses	0	1	1	0	3	3	1	0	1	5
% Buses	0.0	10.0	5.9	0.0	0.7	0.7	0.4	0.0	0.4	0.7
Trucks	0	0	0	2	15	17	11	1	12	29
% Trucks	0.0	0.0	0.0	11.1	3.5	3.8	4.3	12.5	4.6	4.0

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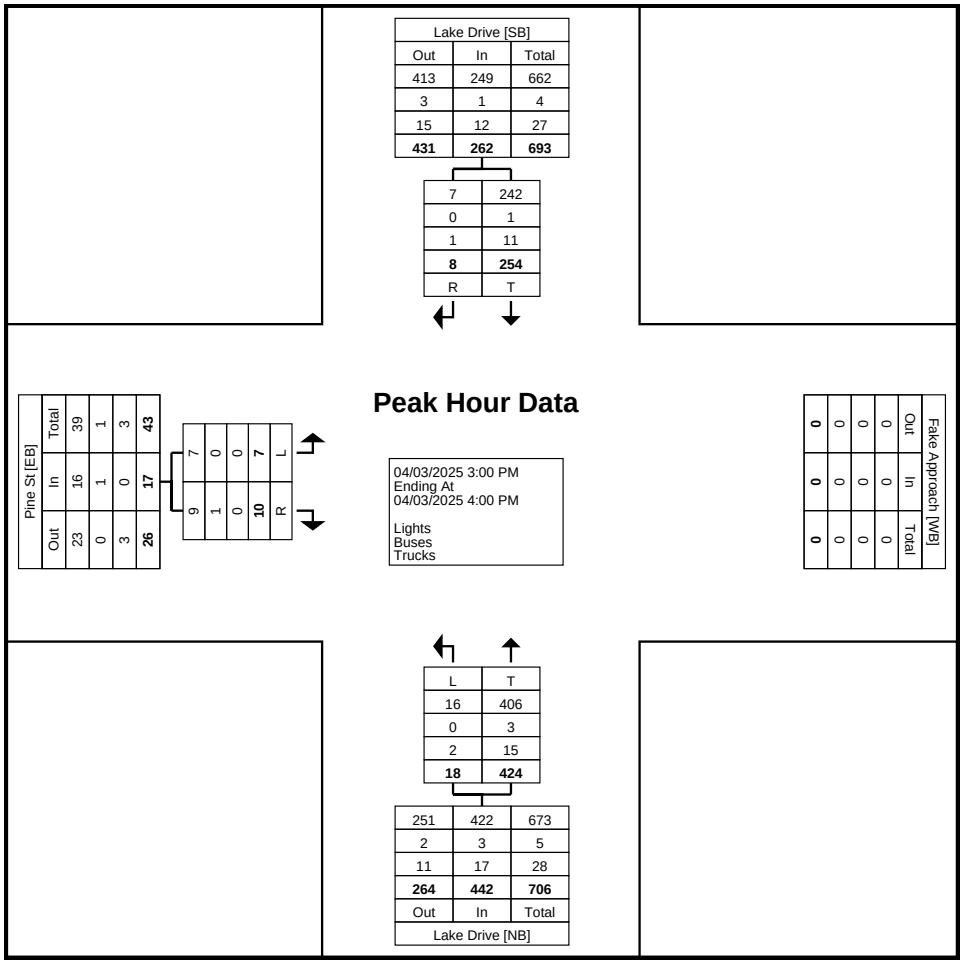
Count Name: Pine St & Lake Dr
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (3:00 PM)

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Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Eastbound Approach Eastbound				Century Trail Westbound				Sunset Ave Northbound				Sunset Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:00 AM	0	0	0	0	5	0	3	8	0	36	1	37	1	29	0	30	75
7:15 AM	0	0	0	0	5	0	0	5	0	28	1	29	1	40	0	41	75
7:30 AM	0	0	0	0	4	0	3	7	0	20	2	22	2	41	0	43	72
7:45 AM	0	0	0	0	3	0	1	4	0	18	2	20	1	62	0	63	87
Hourly Total	0	0	0	0	17	0	7	24	0	102	6	108	5	172	0	177	309
8:00 AM	0	0	0	0	6	0	1	7	0	38	2	40	0	46	0	46	93
8:15 AM	0	0	0	0	7	0	1	8	0	49	1	50	1	31	0	32	90
8:30 AM	0	0	0	0	4	0	0	4	0	33	3	36	1	17	0	18	58
8:45 AM	0	0	0	0	5	0	2	7	0	10	2	12	1	20	0	21	40
Hourly Total	0	0	0	0	22	0	4	26	0	130	8	138	3	114	0	117	281
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	8	0	0	8	0	66	12	78	3	60	0	63	149
4:15 PM	0	0	0	0	5	0	5	10	0	71	5	76	4	57	0	61	147
4:30 PM	0	0	0	0	4	0	2	6	0	59	11	70	1	52	0	53	129
4:45 PM	0	0	0	0	7	0	0	7	0	53	7	60	2	47	0	49	116
Hourly Total	0	0	0	0	24	0	7	31	0	249	35	284	10	216	0	226	541
5:00 PM	0	0	0	0	6	0	3	9	0	56	7	63	1	33	0	34	106
5:15 PM	0	0	0	0	7	0	2	9	0	47	10	57	2	30	0	32	98
5:30 PM	0	0	0	0	5	0	2	7	0	46	7	53	6	42	0	48	108
5:45 PM	0	0	0	0	6	0	2	8	0	40	4	44	2	22	0	24	76
Hourly Total	0	0	0	0	24	0	9	33	0	189	28	217	11	127	0	138	388
Grand Total	0	0	0	0	87	0	27	114	0	670	77	747	29	629	0	658	1519
Approach %	0.0	0.0	0.0	-	76.3	0.0	23.7	-	0.0	89.7	10.3	-	4.4	95.6	0.0	-	-
Total %	0.0	0.0	0.0	0.0	5.7	0.0	1.8	7.5	0.0	44.1	5.1	49.2	1.9	41.4	0.0	43.3	-
Lights	0	0	0	0	85	0	26	111	0	663	75	738	28	617	0	645	1494
% Lights	-	-	-	-	97.7	-	96.3	97.4	-	99.0	97.4	98.8	96.6	98.1	-	98.0	98.4
Buses	0	0	0	0	1	0	1	2	0	2	2	4	1	4	0	5	11
% Buses	-	-	-	-	1.1	-	3.7	1.8	-	0.3	2.6	0.5	3.4	0.6	-	0.8	0.7
Trucks	0	0	0	0	1	0	0	1	0	5	0	5	0	8	0	8	14
% Trucks	-	-	-	-	1.1	-	0.0	0.9	-	0.7	0.0	0.7	0.0	1.3	-	1.2	0.9

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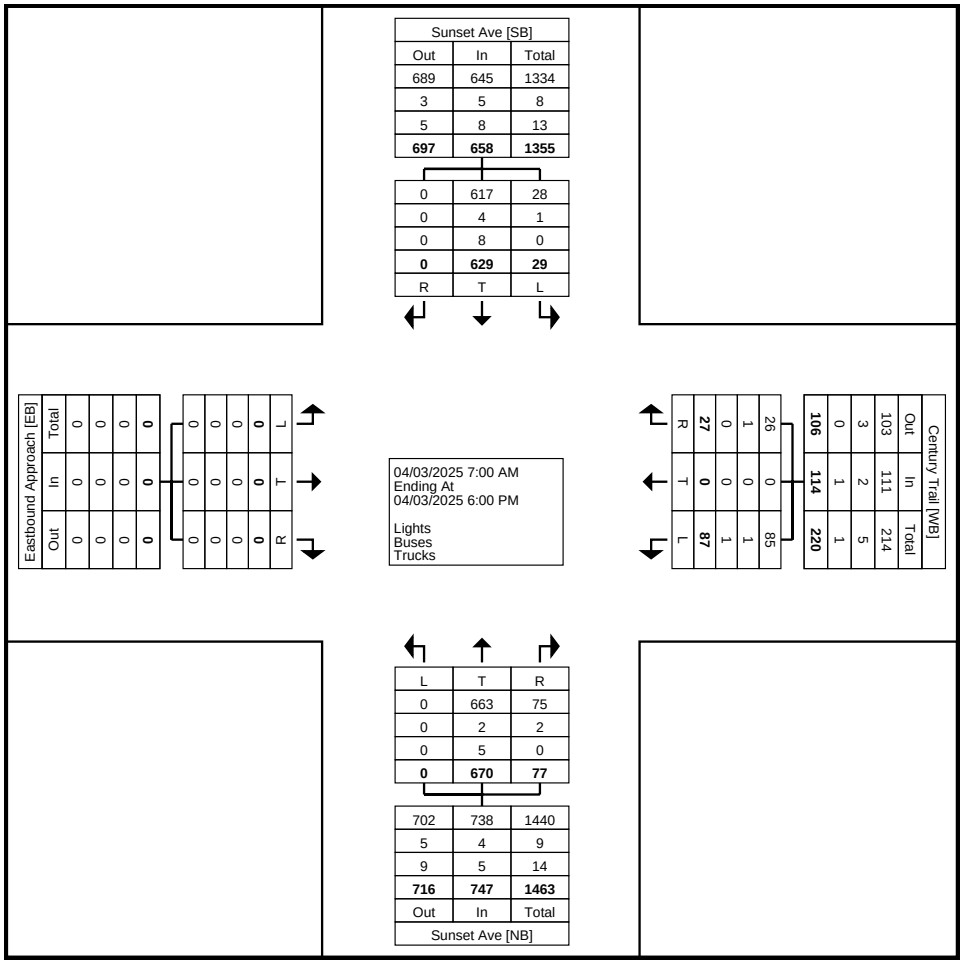
Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025
Page No: 2



Turning Movement Data Plot

Kimley-Horn
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Warrenville, Illinois, United States 60555
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Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Eastbound Approach Eastbound				Century Trail Westbound				Sunset Ave Northbound				Sunset Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
7:30 AM	0	0	0	0	4	0	3	7	0	20	2	22	2	41	0	43	72
7:45 AM	0	0	0	0	3	0	1	4	0	18	2	20	1	62	0	63	87
8:00 AM	0	0	0	0	6	0	1	7	0	38	2	40	0	46	0	46	93
8:15 AM	0	0	0	0	7	0	1	8	0	49	1	50	1	31	0	32	90
Total	0	0	0	0	20	0	6	26	0	125	7	132	4	180	0	184	342
Approach %	0.0	0.0	0.0	-	76.9	0.0	23.1	-	0.0	94.7	5.3	-	2.2	97.8	0.0	-	-
Total %	0.0	0.0	0.0	0.0	5.8	0.0	1.8	7.6	0.0	36.5	2.0	38.6	1.2	52.6	0.0	53.8	-
PHF	0.000	0.000	0.000	0.000	0.714	0.000	0.500	0.813	0.000	0.638	0.875	0.660	0.500	0.726	0.000	0.730	0.919
Lights	0	0	0	0	20	0	5	25	0	125	5	130	3	173	0	176	331
% Lights	-	-	-	-	100.0	-	83.3	96.2	-	100.0	71.4	98.5	75.0	96.1	-	95.7	96.8
Buses	0	0	0	0	0	0	1	1	0	0	2	2	1	3	0	4	7
% Buses	-	-	-	-	0.0	-	16.7	3.8	-	0.0	28.6	1.5	25.0	1.7	-	2.2	2.0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
% Trucks	-	-	-	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	2.2	-	2.2	1.2

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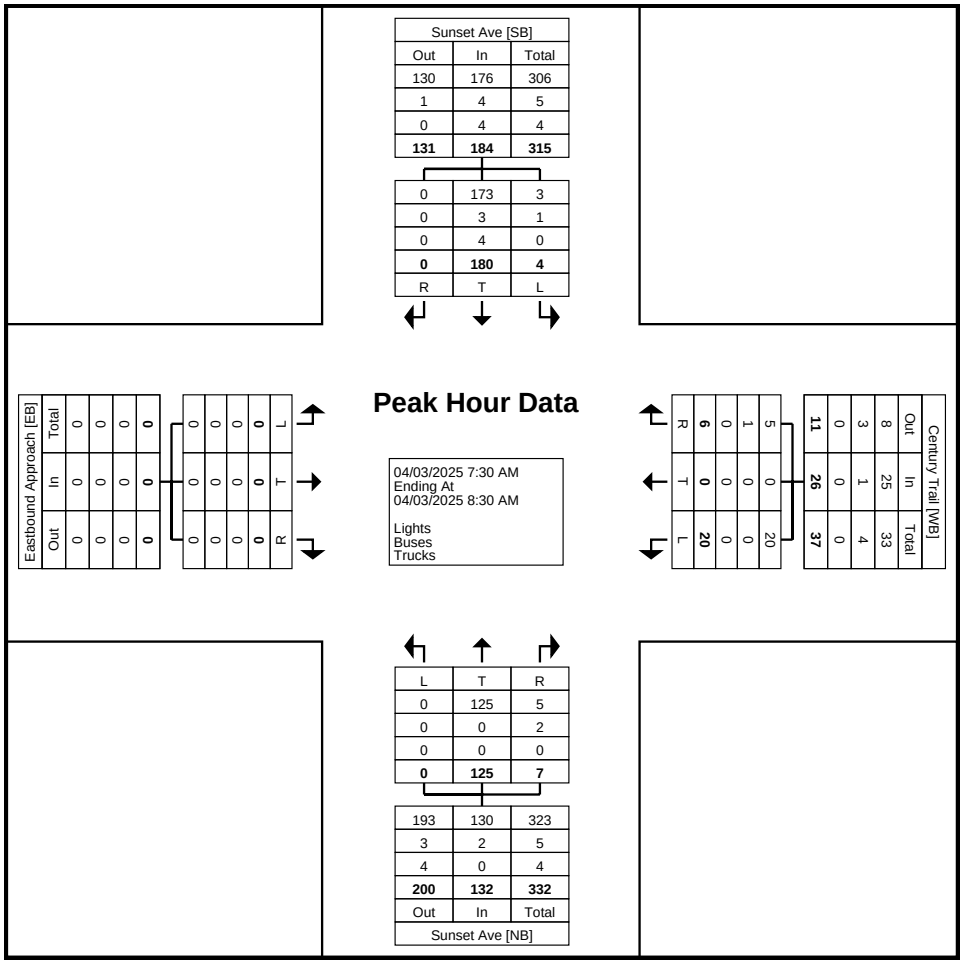
Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (7:30 AM)

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Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Eastbound Approach Eastbound				Century Trail Westbound				Sunset Ave Northbound				Sunset Ave Southbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
4:00 PM	0	0	0	0	8	0	0	8	0	66	12	78	3	60	0	63	149
4:15 PM	0	0	0	0	5	0	5	10	0	71	5	76	4	57	0	61	147
4:30 PM	0	0	0	0	4	0	2	6	0	59	11	70	1	52	0	53	129
4:45 PM	0	0	0	0	7	0	0	7	0	53	7	60	2	47	0	49	116
Total	0	0	0	0	24	0	7	31	0	249	35	284	10	216	0	226	541
Approach %	0.0	0.0	0.0	-	77.4	0.0	22.6	-	0.0	87.7	12.3	-	4.4	95.6	0.0	-	-
Total %	0.0	0.0	0.0	0.0	4.4	0.0	1.3	5.7	0.0	46.0	6.5	52.5	1.8	39.9	0.0	41.8	-
PHF	0.000	0.000	0.000	0.000	0.750	0.000	0.350	0.775	0.000	0.877	0.729	0.910	0.625	0.900	0.000	0.897	0.908
Lights	0	0	0	0	24	0	7	31	0	249	35	284	10	216	0	226	541
% Lights	-	-	-	-	100.0	-	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	-	-	-	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	-	-	-	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0

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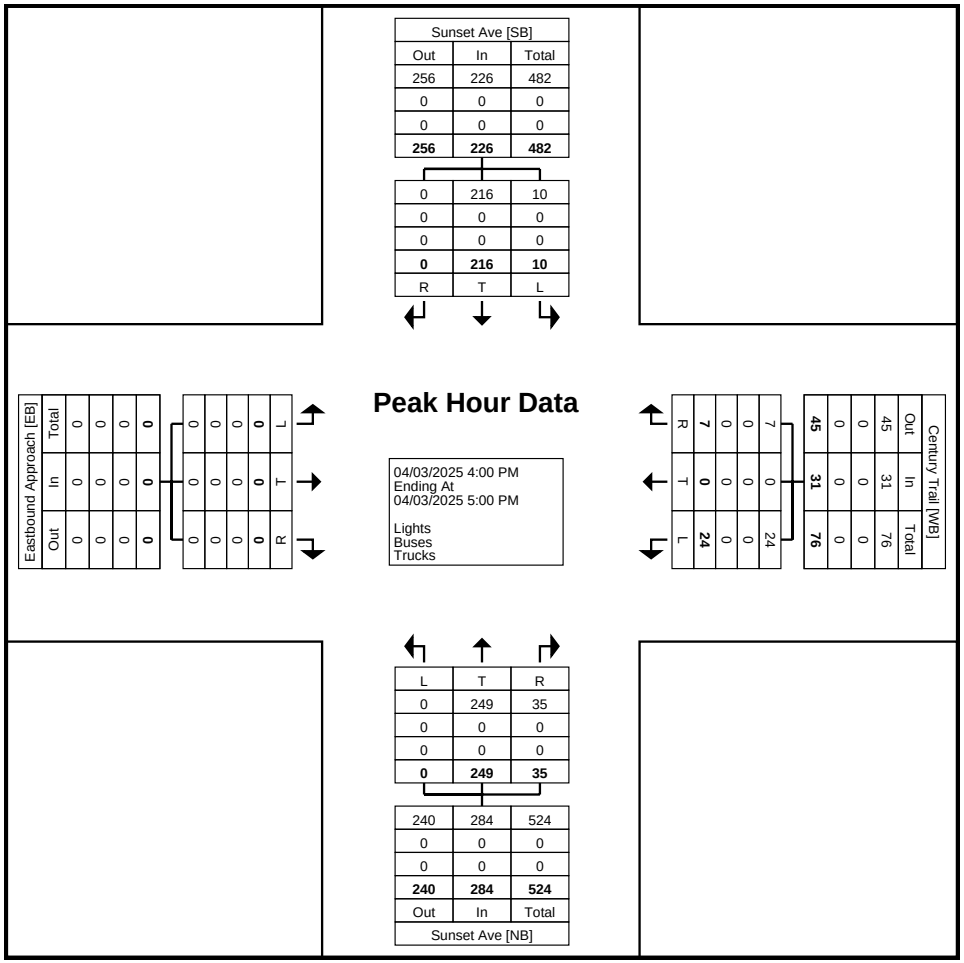
Count Name: Sunset Ave & Century Trl
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:00 PM)

Kimley-Horn
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Count Name: Sunset Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Lilac St Westbound			Sunset Ave Northbound			Sunset Ave Southbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
7:00 AM	9	7	16	19	6	25	7	53	60	101
7:15 AM	9	2	11	21	4	25	10	94	104	140
7:30 AM	13	3	16	23	1	24	14	178	192	232
7:45 AM	10	9	19	47	9	56	5	90	95	170
Hourly Total	41	21	62	110	20	130	36	415	451	643
8:00 AM	4	8	12	30	5	35	6	32	38	85
8:15 AM	9	7	16	22	0	22	11	34	45	83
8:30 AM	4	7	11	18	7	25	5	40	45	81
8:45 AM	12	2	14	18	5	23	3	64	67	104
Hourly Total	29	24	53	88	17	105	25	170	195	353
*** BREAK ***	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	11	12	79	15	94	4	26	30	136
4:15 PM	5	22	27	52	12	64	12	37	49	140
4:30 PM	8	9	17	67	6	73	8	34	42	132
4:45 PM	9	14	23	52	16	68	11	49	60	151
Hourly Total	23	56	79	250	49	299	35	146	181	559
5:00 PM	8	20	28	66	18	84	9	57	66	178
5:15 PM	11	14	25	72	12	84	13	50	63	172
5:30 PM	22	14	36	60	14	74	13	46	59	169
5:45 PM	7	18	25	50	19	69	11	46	57	151
Hourly Total	48	66	114	248	63	311	46	199	245	670
Grand Total	141	167	308	696	149	845	142	930	1072	2225
Approach %	45.8	54.2	-	82.4	17.6	-	13.2	86.8	-	-
Total %	6.3	7.5	13.8	31.3	6.7	38.0	6.4	41.8	48.2	-
Lights	140	162	302	677	146	823	139	914	1053	2178
% Lights	99.3	97.0	98.1	97.3	98.0	97.4	97.9	98.3	98.2	97.9
Buses	1	1	2	13	3	16	0	15	15	33
% Buses	0.7	0.6	0.6	1.9	2.0	1.9	0.0	1.6	1.4	1.5
Trucks	0	4	4	6	0	6	3	1	4	14
% Trucks	0.0	2.4	1.3	0.9	0.0	0.7	2.1	0.1	0.4	0.6

Kimley-Horn
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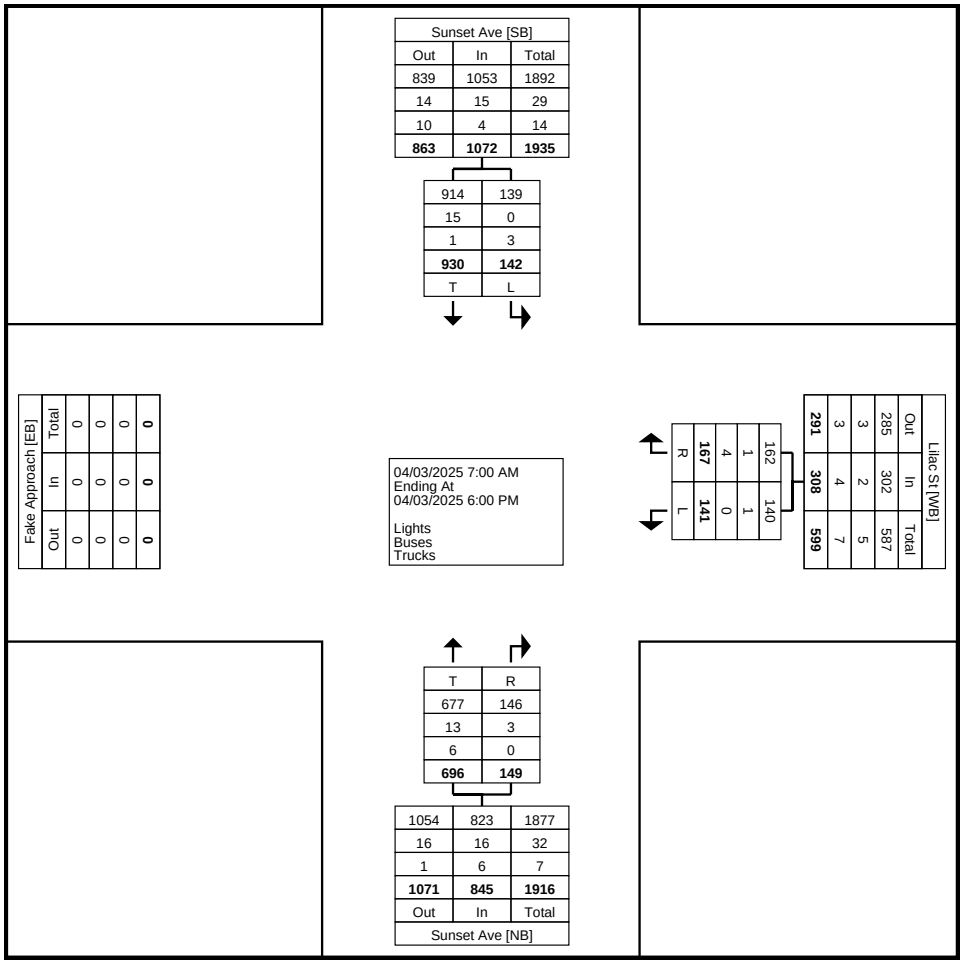
Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Lilac St
Site Code:
Start Date: 04/03/2025
Page No: 2



Turning Movement Data Plot

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Lilac St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Lilac St Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
7:00 AM	9	7	16	19	6	25	7	53	60	101
7:15 AM	9	2	11	21	4	25	10	94	104	140
7:30 AM	13	3	16	23	1	24	14	178	192	232
7:45 AM	10	9	19	47	9	56	5	90	95	170
Total	41	21	62	110	20	130	36	415	451	643
Approach %	66.1	33.9	-	84.6	15.4	-	8.0	92.0	-	-
Total %	6.4	3.3	9.6	17.1	3.1	20.2	5.6	64.5	70.1	-
PHF	0.788	0.583	0.816	0.585	0.556	0.580	0.643	0.583	0.587	0.693
Lights	40	21	61	104	19	123	36	408	444	628
% Lights	97.6	100.0	98.4	94.5	95.0	94.6	100.0	98.3	98.4	97.7
Buses	1	0	1	6	1	7	0	6	6	14
% Buses	2.4	0.0	1.6	5.5	5.0	5.4	0.0	1.4	1.3	2.2
Trucks	0	0	0	0	0	0	0	1	1	1
% Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2

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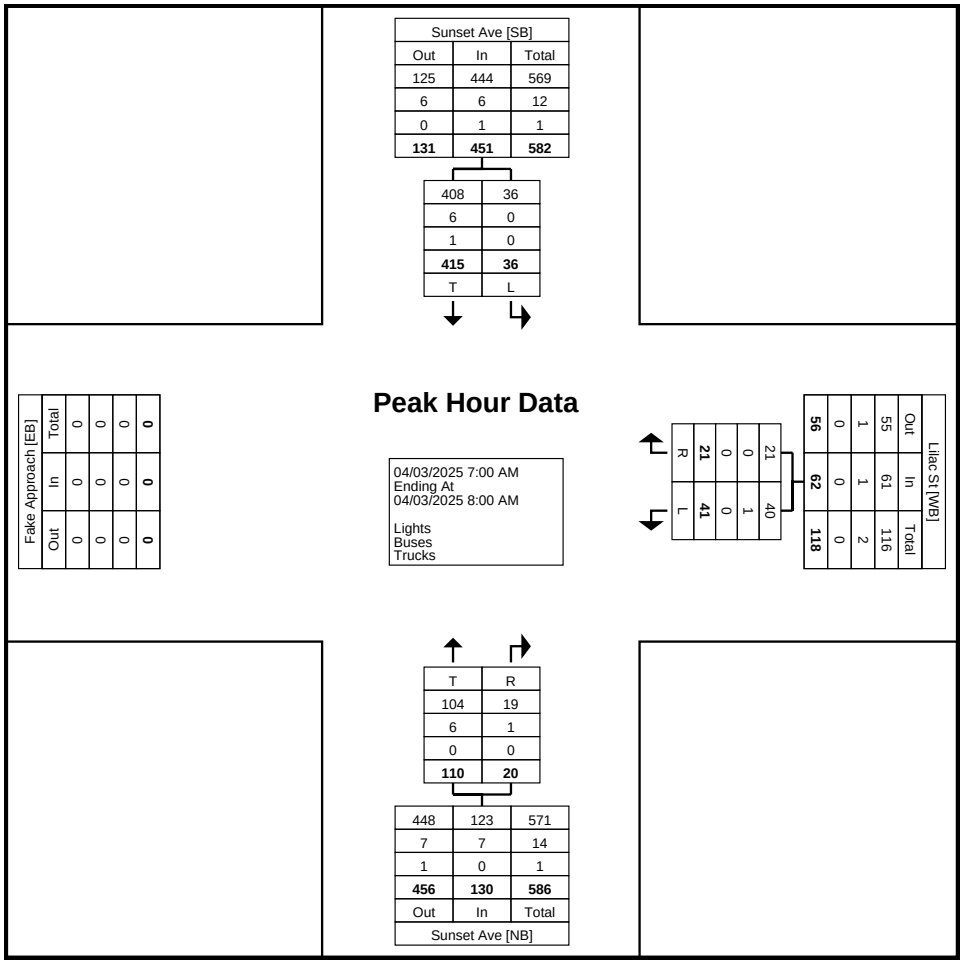
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (7:00 AM)

Kimley-Horn
4201 Winfield Road Suite 600

Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Lilac St
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Lilac St Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
4:45 PM	9	14	23	52	16	68	11	49	60	151
5:00 PM	8	20	28	66	18	84	9	57	66	178
5:15 PM	11	14	25	72	12	84	13	50	63	172
5:30 PM	22	14	36	60	14	74	13	46	59	169
Total	50	62	112	250	60	310	46	202	248	670
Approach %	44.6	55.4	-	80.6	19.4	-	18.5	81.5	-	-
Total %	7.5	9.3	16.7	37.3	9.0	46.3	6.9	30.1	37.0	-
PHF	0.568	0.775	0.778	0.868	0.833	0.923	0.885	0.886	0.939	0.941
Lights	50	60	110	246	58	304	46	201	247	661
% Lights	100.0	96.8	98.2	98.4	96.7	98.1	100.0	99.5	99.6	98.7
Buses	0	0	0	0	2	2	0	1	1	3
% Buses	0.0	0.0	0.0	0.0	3.3	0.6	0.0	0.5	0.4	0.4
Trucks	0	2	2	4	0	4	0	0	0	6
% Trucks	0.0	3.2	1.8	1.6	0.0	1.3	0.0	0.0	0.0	0.9

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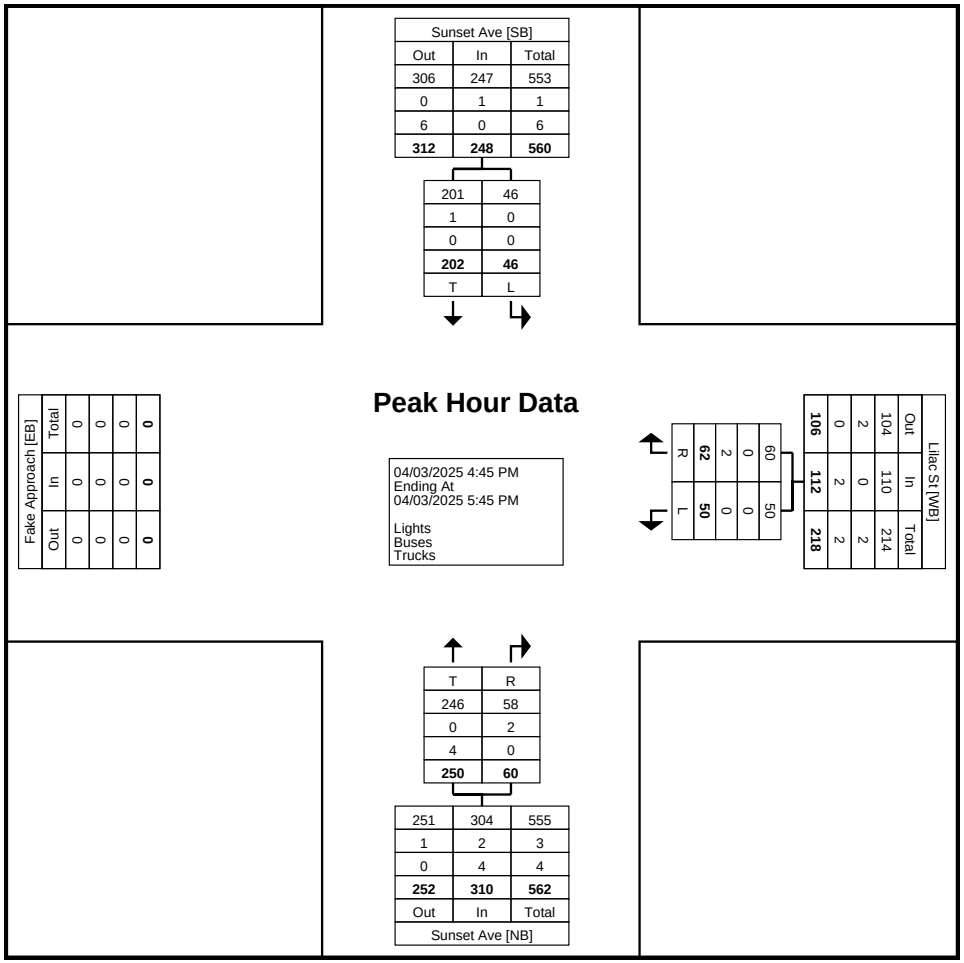
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

Kimley-Horn
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(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Data

Start Time	Main St Eastbound				Main St Westbound			Sunset Ave Northbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
12:00 AM	0	8	2	10	0	1	1	1	0	1	12
12:15 AM	0	5	0	5	1	5	6	0	0	0	11
12:30 AM	0	4	2	6	0	3	3	0	0	0	9
12:45 AM	0	3	1	4	0	1	1	0	0	0	5
Hourly Total	0	20	5	25	1	10	11	1	0	1	37
1:00 AM	0	1	1	2	1	1	2	0	1	1	5
1:15 AM	0	2	0	2	0	3	3	0	0	0	5
1:30 AM	0	3	0	3	0	5	5	0	0	0	8
1:45 AM	0	2	0	2	0	3	3	0	0	0	5
Hourly Total	0	8	1	9	1	12	13	0	1	1	23
2:00 AM	0	0	1	1	0	3	3	0	0	0	4
2:15 AM	0	3	1	4	0	1	1	0	0	0	5
2:30 AM	0	0	1	1	0	0	0	0	0	0	1
2:45 AM	0	3	0	3	0	1	1	1	0	1	5
Hourly Total	0	6	3	9	0	5	5	1	0	1	15
3:00 AM	0	4	0	4	0	2	2	0	0	0	6
3:15 AM	0	3	0	3	0	5	5	0	1	1	9
3:30 AM	0	4	1	5	0	1	1	0	0	0	6
3:45 AM	0	2	1	3	0	4	4	0	0	0	7
Hourly Total	0	13	2	15	0	12	12	0	1	1	28
4:00 AM	0	6	0	6	0	1	1	1	0	1	8
4:15 AM	0	3	0	3	0	2	2	2	0	2	7
4:30 AM	0	11	2	13	1	5	6	1	0	1	20
4:45 AM	0	15	1	16	2	6	8	0	1	1	25
Hourly Total	0	35	3	38	3	14	17	4	1	5	60
5:00 AM	0	11	5	16	1	9	10	0	2	2	28
5:15 AM	0	25	4	29	1	13	14	3	1	4	47
5:30 AM	1	40	7	48	1	14	15	7	2	9	72
5:45 AM	0	48	9	57	1	12	13	3	1	4	74
Hourly Total	1	124	25	150	4	48	52	13	6	19	221
6:00 AM	0	34	9	43	1	22	23	6	0	6	72
6:15 AM	1	55	13	69	5	40	45	6	2	8	122
6:30 AM	1	80	17	98	2	42	44	14	3	17	159
6:45 AM	0	75	44	119	2	38	40	9	7	16	175
Hourly Total	2	244	83	329	10	142	152	35	12	47	528
7:00 AM	1	69	26	96	7	50	57	16	9	25	178
7:15 AM	0	74	55	129	11	43	54	13	8	21	204
7:30 AM	2	104	82	188	18	49	67	23	8	31	286
7:45 AM	1	64	56	121	14	58	72	28	6	34	227
Hourly Total	4	311	219	534	50	200	250	80	31	111	895
8:00 AM	1	75	18	94	5	52	57	29	8	37	188
8:15 AM	2	65	29	96	8	57	65	25	2	27	188
8:30 AM	0	53	18	71	6	56	62	20	1	21	154
8:45 AM	0	61	29	90	5	49	54	13	7	20	164
Hourly Total	3	254	94	351	24	214	238	87	18	105	694
9:00 AM	2	42	24	68	8	42	50	17	5	22	140
9:15 AM	2	56	25	83	9	54	63	30	4	34	180
9:30 AM	2	53	14	69	5	39	44	30	7	37	150
9:45 AM	0	57	8	65	4	37	41	7	3	10	116
Hourly Total	6	208	71	285	26	172	198	84	19	103	586
10:00 AM	1	41	5	47	3	39	42	15	2	17	106
10:15 AM	1	49	12	62	6	39	45	16	5	21	128
10:30 AM	0	57	9	66	3	41	44	8	6	14	124
10:45 AM	1	48	18	67	2	46	48	15	5	20	135
Hourly Total	3	195	44	242	14	165	179	54	18	72	493
11:00 AM	0	38	11	49	6	38	44	10	7	17	110
11:15 AM	0	54	14	68	2	44	46	19	7	26	140
11:30 AM	0	37	11	48	9	45	54	17	6	23	125
11:45 AM	0	65	15	80	3	56	59	12	6	18	157
Hourly Total	0	194	51	245	20	183	203	58	26	84	532
12:00 PM	1	52	14	67	9	60	69	14	4	18	154

12:15 PM	1	47	6	54	9	62	71	10	2	12	137
12:30 PM	1	49	10	60	6	46	52	17	5	22	134
12:45 PM	0	50	17	67	9	56	65	14	6	20	152
Hourly Total	3	198	47	248	33	224	257	55	17	72	577
1:00 PM	1	46	10	57	5	56	61	16	8	24	142
1:15 PM	0	48	20	68	4	39	43	10	6	16	127
1:30 PM	0	63	11	74	2	50	52	19	7	26	152
1:45 PM	0	54	20	74	6	55	61	11	7	18	153
Hourly Total	1	211	61	273	17	200	217	56	28	84	574
2:00 PM	0	44	14	58	1	60	61	18	6	24	143
2:15 PM	0	48	21	69	6	51	57	18	6	24	150
2:30 PM	0	69	25	94	10	60	70	20	8	28	192
2:45 PM	1	60	20	81	3	69	72	30	14	44	197
Hourly Total	1	221	80	302	20	240	260	86	34	120	682
3:00 PM	2	55	21	78	12	76	88	50	7	57	223
3:15 PM	2	59	29	90	5	87	92	39	10	49	231
3:30 PM	1	64	38	103	6	94	100	26	12	38	241
3:45 PM	3	66	24	93	9	112	121	50	12	62	276
Hourly Total	8	244	112	364	32	369	401	165	41	206	971
4:00 PM	1	63	15	79	2	100	102	41	12	53	234
4:15 PM	2	93	26	121	11	117	128	46	16	62	311
4:30 PM	1	115	41	157	6	121	127	37	15	52	336
4:45 PM	2	76	34	112	15	98	113	32	11	43	268
Hourly Total	6	347	116	469	34	436	470	156	54	210	1149
5:00 PM	2	90	41	133	10	113	123	32	14	46	302
5:15 PM	1	81	32	114	8	114	122	36	16	52	288
5:30 PM	2	92	31	125	11	116	127	29	12	41	293
5:45 PM	0	67	22	89	9	94	103	29	9	38	230
Hourly Total	5	330	126	461	38	437	475	126	51	177	1113
6:00 PM	0	46	18	64	4	68	72	38	7	45	181
6:15 PM	1	51	23	75	6	66	72	30	8	38	185
6:30 PM	1	56	21	78	9	60	69	24	11	35	182
6:45 PM	3	48	16	67	4	52	56	19	6	25	148
Hourly Total	5	201	78	284	23	246	269	111	32	143	696
7:00 PM	2	47	21	70	5	58	63	12	3	15	148
7:15 PM	2	46	13	61	2	64	66	14	7	21	148
7:30 PM	0	54	13	67	6	47	53	14	7	21	141
7:45 PM	3	54	13	70	5	50	55	8	11	19	144
Hourly Total	7	201	60	268	18	219	237	48	28	76	581
8:00 PM	2	38	7	47	4	35	39	14	2	16	102
8:15 PM	1	35	14	50	8	50	58	6	3	9	117
8:30 PM	1	33	13	47	4	33	37	12	1	13	97
8:45 PM	4	29	18	51	1	19	20	19	2	21	92
Hourly Total	8	135	52	195	17	137	154	51	8	59	408
9:00 PM	3	31	11	45	2	24	26	13	4	17	88
9:15 PM	3	29	7	39	1	36	37	12	0	12	88
9:30 PM	2	15	12	29	3	18	21	5	2	7	57
9:45 PM	0	25	4	29	2	14	16	5	1	6	51
Hourly Total	8	100	34	142	8	92	100	35	7	42	284
10:00 PM	0	11	4	15	1	21	22	3	0	3	40
10:15 PM	0	11	7	18	0	14	14	8	3	11	43
10:30 PM	0	8	4	12	2	22	24	4	1	5	41
10:45 PM	0	7	4	11	0	16	16	2	0	2	29
Hourly Total	0	37	19	56	3	73	76	17	4	21	153
11:00 PM	1	10	4	15	0	11	11	2	1	3	29
11:15 PM	1	7	1	9	0	6	6	2	0	2	17
11:30 PM	1	6	1	8	0	5	5	1	1	2	15
11:45 PM	0	3	2	5	0	9	9	1	4	5	19
Hourly Total	3	26	8	37	0	31	31	6	6	12	80
Grand Total	74	3863	1394	5331	396	3881	4277	1329	443	1772	11380
Approach %	1.4	72.5	26.1	-	9.3	90.7	-	75.0	25.0	-	-
Total %	0.7	33.9	12.2	46.8	3.5	34.1	37.6	11.7	3.9	15.6	-
Lights	74	3769	1364	5207	392	3761	4153	1303	432	1735	11095
% Lights	100.0	97.6	97.8	97.7	99.0	96.9	97.1	98.0	97.5	97.9	97.5
Buses	0	15	11	26	3	16	19	4	5	9	54
% Buses	0.0	0.4	0.8	0.5	0.8	0.4	0.4	0.3	1.1	0.5	0.5
Trucks	0	79	19	98	1	104	105	22	6	28	231
% Trucks	0.0	2.0	1.4	1.8	0.3	2.7	2.5	1.7	1.4	1.6	2.0

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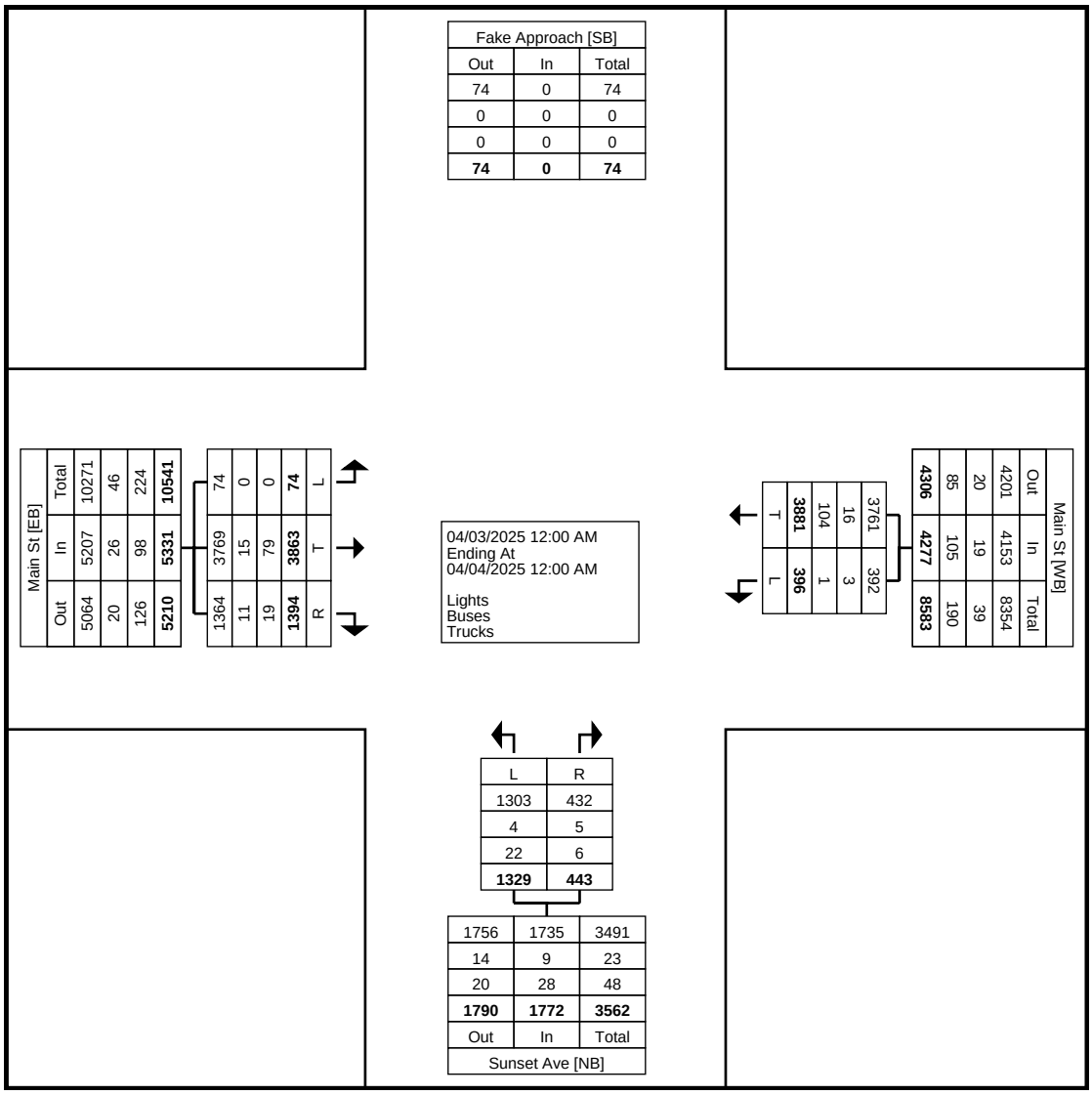
Count Name: Sunset Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Data Plot

Kimley-Horn
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Warrenville, Illinois, United States 60555
(630) 487-5550 ethan.scowcroft@kimley-horn.com

Count Name: Sunset Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Main St Eastbound				Main St Westbound			Sunset Ave Northbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
7:15 AM	0	74	55	129	11	43	54	13	8	21	204
7:30 AM	2	104	82	188	18	49	67	23	8	31	286
7:45 AM	1	64	56	121	14	58	72	28	6	34	227
8:00 AM	1	75	18	94	5	52	57	29	8	37	188
Total	4	317	211	532	48	202	250	93	30	123	905
Approach %	0.8	59.6	39.7	-	19.2	80.8	-	75.6	24.4	-	-
Total %	0.4	35.0	23.3	58.8	5.3	22.3	27.6	10.3	3.3	13.6	-
PHF	0.500	0.762	0.643	0.707	0.667	0.871	0.868	0.802	0.938	0.831	0.791
Lights	4	309	206	519	48	188	236	93	29	122	877
% Lights	100.0	97.5	97.6	97.6	100.0	93.1	94.4	100.0	96.7	99.2	96.9
Buses	0	0	3	3	0	1	1	0	1	1	5
% Buses	0.0	0.0	1.4	0.6	0.0	0.5	0.4	0.0	3.3	0.8	0.6
Trucks	0	8	2	10	0	13	13	0	0	0	23
% Trucks	0.0	2.5	0.9	1.9	0.0	6.4	5.2	0.0	0.0	0.0	2.5

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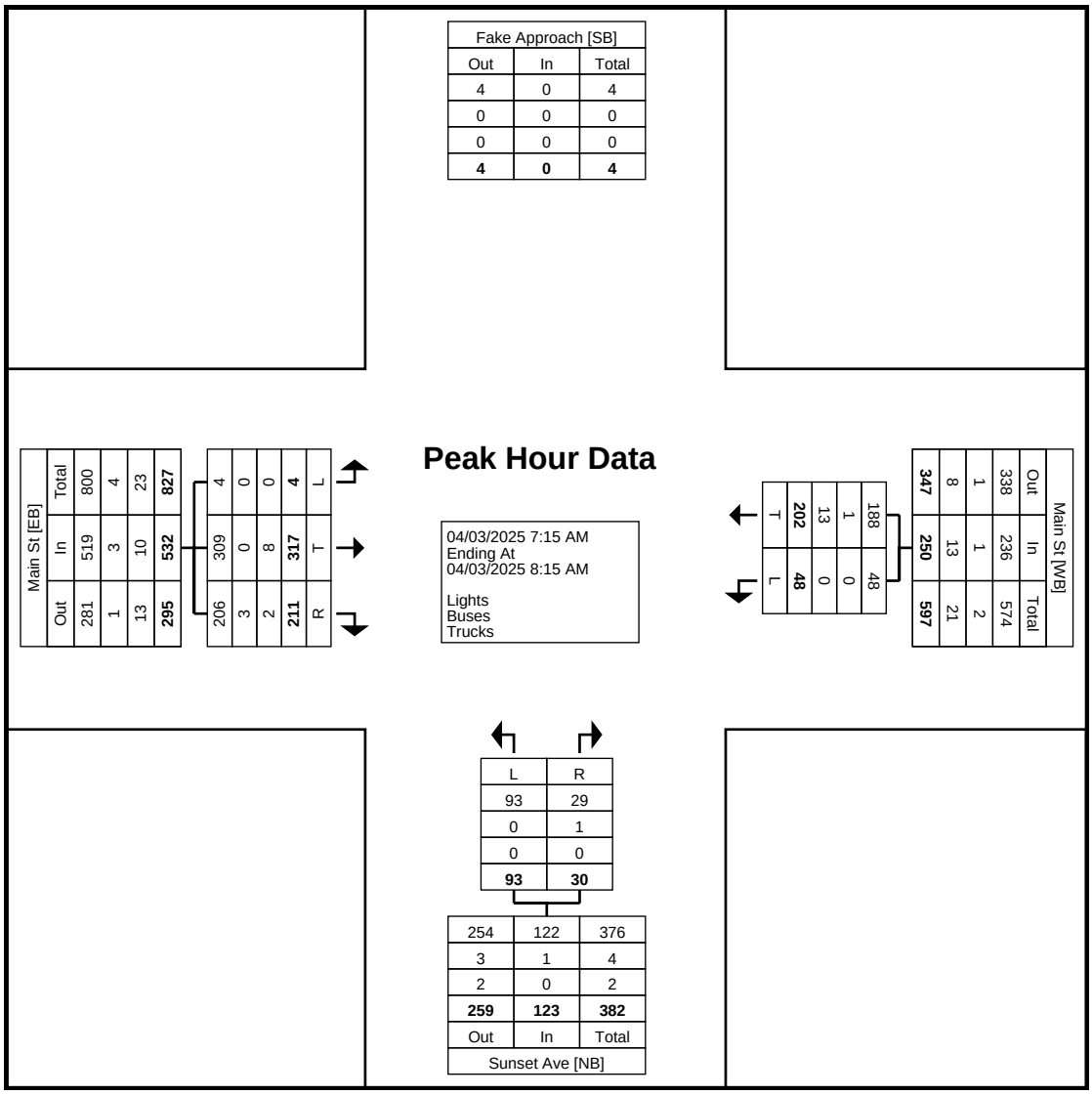
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

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Count Name: Sunset Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Main St Eastbound				Main St Westbound			Sunset Ave Northbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
4:15 PM	2	93	26	121	11	117	128	46	16	62	311
4:30 PM	1	115	41	157	6	121	127	37	15	52	336
4:45 PM	2	76	34	112	15	98	113	32	11	43	268
5:00 PM	2	90	41	133	10	113	123	32	14	46	302
Total	7	374	142	523	42	449	491	147	56	203	1217
Approach %	1.3	71.5	27.2	-	8.6	91.4	-	72.4	27.6	-	-
Total %	0.6	30.7	11.7	43.0	3.5	36.9	40.3	12.1	4.6	16.7	-
PHF	0.875	0.813	0.866	0.833	0.700	0.928	0.959	0.799	0.875	0.819	0.906
Lights	7	372	141	520	42	440	482	147	54	201	1203
% Lights	100.0	99.5	99.3	99.4	100.0	98.0	98.2	100.0	96.4	99.0	98.8
Buses	0	1	1	2	0	1	1	0	2	2	5
% Buses	0.0	0.3	0.7	0.4	0.0	0.2	0.2	0.0	3.6	1.0	0.4
Trucks	0	1	0	1	0	8	8	0	0	0	9
% Trucks	0.0	0.3	0.0	0.2	0.0	1.8	1.6	0.0	0.0	0.0	0.7

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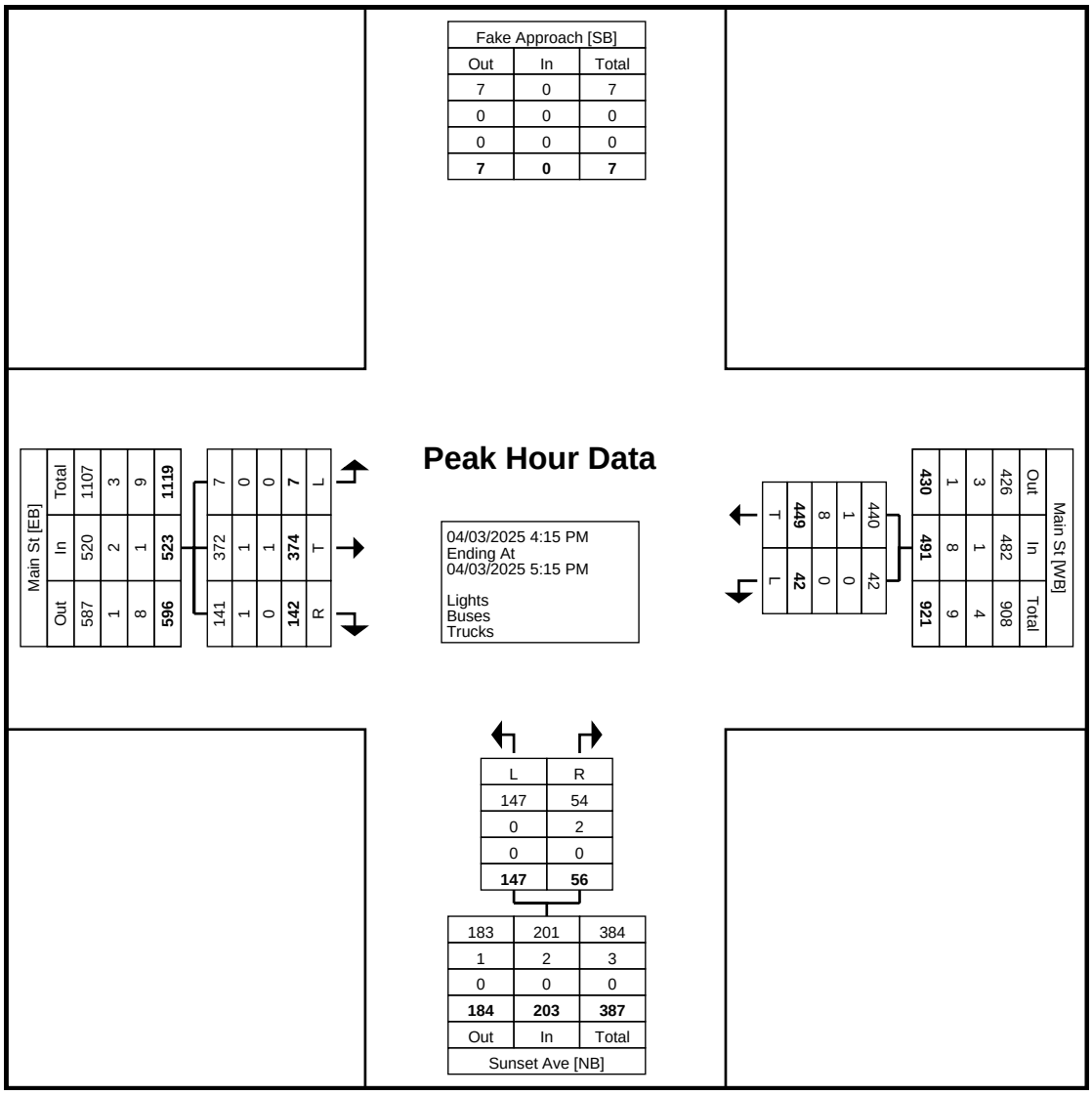
Count Name: Sunset Ave & Main St/125th Ave
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:15 PM)

Kimley-Horn
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Count Name: Sunset Ave & Robinson Dr
Site Code:
Start Date: 04/03/2025

Turning Movement Data

Start Time	Robinson Dr Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
7:02 AM	8	6	14	20	2	22	1	29	30	66
7:17 AM	9	4	13	19	2	21	1	72	73	107
7:32 AM	12	3	15	20	2	22	2	99	101	138
7:47 AM	6	2	8	36	3	39	1	61	62	109
Hourly Total	35	15	50	95	9	104	5	261	266	420
8:02 AM	6	1	7	33	1	34	3	27	30	71
8:17 AM	5	4	9	23	2	25	5	32	37	71
8:32 AM	5	2	7	21	0	21	2	20	22	50
8:47 AM	11	1	12	12	0	12	1	30	31	55
Hourly Total	27	8	35	89	3	92	11	109	120	247
*** BREAK ***	-	-	-	-	-	-	-	-	-	-
3:47 PM	1	0	1	6	4	10	1	2	3	14
Hourly Total	1	0	1	6	4	10	1	2	3	14
4:02 PM	4	0	4	65	7	72	1	15	16	92
4:17 PM	2	2	4	51	3	54	5	36	41	99
4:32 PM	2	4	6	45	5	50	5	49	54	110
4:47 PM	6	0	6	41	6	47	3	45	48	101
Hourly Total	14	6	20	202	21	223	14	145	159	402
5:02 PM	2	1	3	49	10	59	2	48	50	112
5:17 PM	2	1	3	53	16	69	2	36	38	110
5:32 PM	6	2	8	43	5	48	2	42	44	100
5:47 PM	6	1	7	28	8	36	3	25	28	71
Hourly Total	16	5	21	173	39	212	9	151	160	393
Grand Total	93	34	127	565	76	641	40	668	708	1476
Approach %	73.2	26.8	-	88.1	11.9	-	5.6	94.4	-	-
Total %	6.3	2.3	8.6	38.3	5.1	43.4	2.7	45.3	48.0	-
Lights	88	33	121	556	74	630	40	657	697	1448
% Lights	94.6	97.1	95.3	98.4	97.4	98.3	100.0	98.4	98.4	98.1
Buses	5	1	6	5	2	7	0	4	4	17
% Buses	5.4	2.9	4.7	0.9	2.6	1.1	0.0	0.6	0.6	1.2
Trucks	0	0	0	4	0	4	0	7	7	11
% Trucks	0.0	0.0	0.0	0.7	0.0	0.6	0.0	1.0	1.0	0.7

Kimley-Horn
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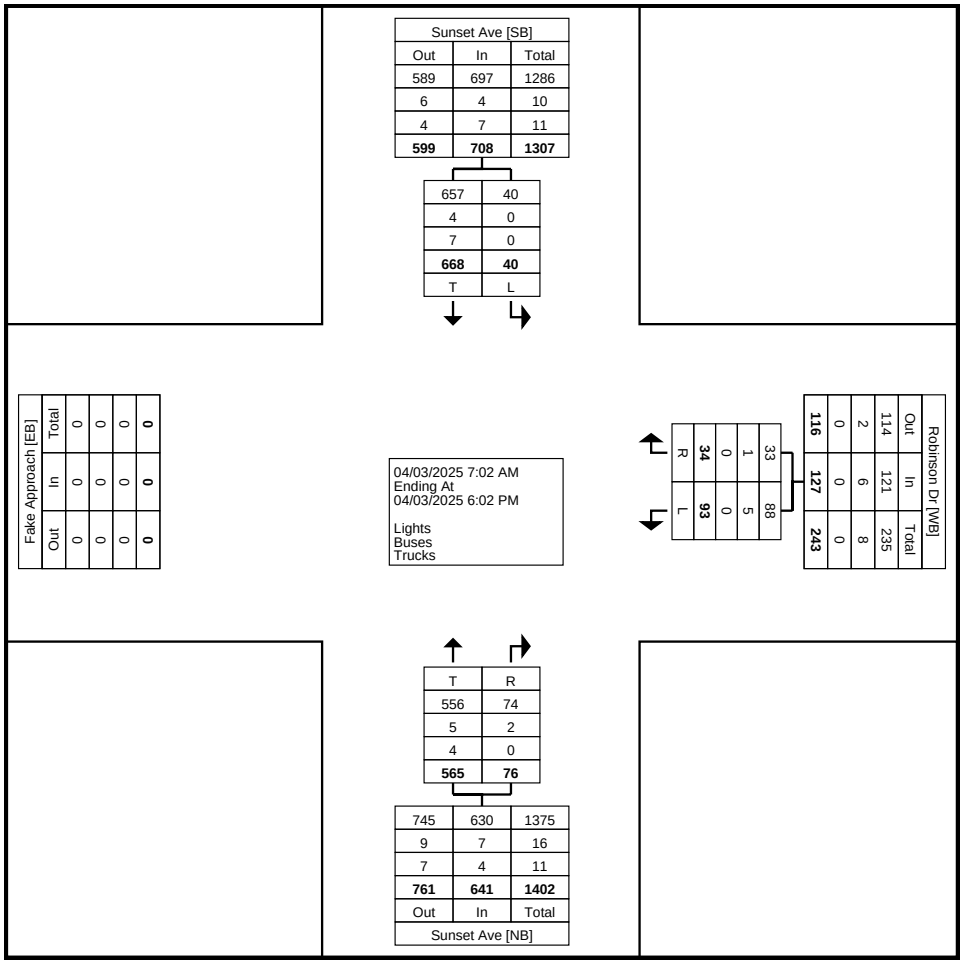
Count Name: Sunset Ave & Robinson Dr
Site Code:
Start Date: 04/03/2025
Page No: 2



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Count Name: Sunset Ave & Robinson Dr
Site Code:
Start Date: 04/03/2025
Page No: 3

Turning Movement Peak Hour Data (7:17 AM)

Start Time	Robinson Dr Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
7:17 AM	9	4	13	19	2	21	1	72	73	107
7:32 AM	12	3	15	20	2	22	2	99	101	138
7:47 AM	6	2	8	36	3	39	1	61	62	109
8:02 AM	6	1	7	33	1	34	3	27	30	71
Total	33	10	43	108	8	116	7	259	266	425
Approach %	76.7	23.3	-	93.1	6.9	-	2.6	97.4	-	-
Total %	7.8	2.4	10.1	25.4	1.9	27.3	1.6	60.9	62.6	-
PHF	0.688	0.625	0.717	0.750	0.667	0.744	0.583	0.654	0.658	0.770
Lights	32	9	41	106	7	113	7	254	261	415
% Lights	97.0	90.0	95.3	98.1	87.5	97.4	100.0	98.1	98.1	97.6
Buses	1	1	2	0	1	1	0	3	3	6
% Buses	3.0	10.0	4.7	0.0	12.5	0.9	0.0	1.2	1.1	1.4
Trucks	0	0	0	2	0	2	0	2	2	4
% Trucks	0.0	0.0	0.0	1.9	0.0	1.7	0.0	0.8	0.8	0.9

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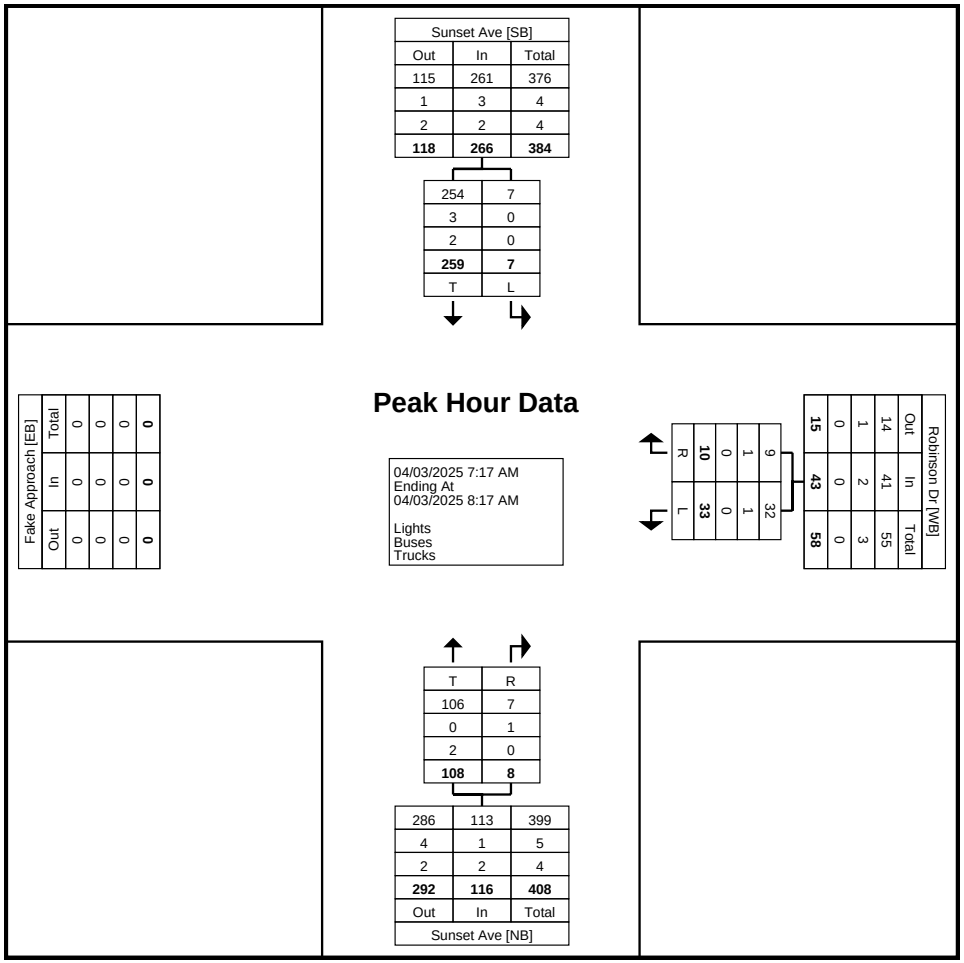
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (7:17 AM)

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Count Name: Sunset Ave & Robinson Dr
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (4:32 PM)

Start Time	Robinson Dr Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
4:32 PM	2	4	6	45	5	50	5	49	54	110
4:47 PM	6	0	6	41	6	47	3	45	48	101
5:02 PM	2	1	3	49	10	59	2	48	50	112
5:17 PM	2	1	3	53	16	69	2	36	38	110
Total	12	6	18	188	37	225	12	178	190	433
Approach %	66.7	33.3	-	83.6	16.4	-	6.3	93.7	-	-
Total %	2.8	1.4	4.2	43.4	8.5	52.0	2.8	41.1	43.9	-
PHF	0.500	0.375	0.750	0.887	0.578	0.815	0.600	0.908	0.880	0.967
Lights	12	6	18	187	37	224	12	176	188	430
% Lights	100.0	100.0	100.0	99.5	100.0	99.6	100.0	98.9	98.9	99.3
Buses	0	0	0	1	0	1	0	1	1	2
% Buses	0.0	0.0	0.0	0.5	0.0	0.4	0.0	0.6	0.5	0.5
Trucks	0	0	0	0	0	0	0	1	1	1
% Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.2

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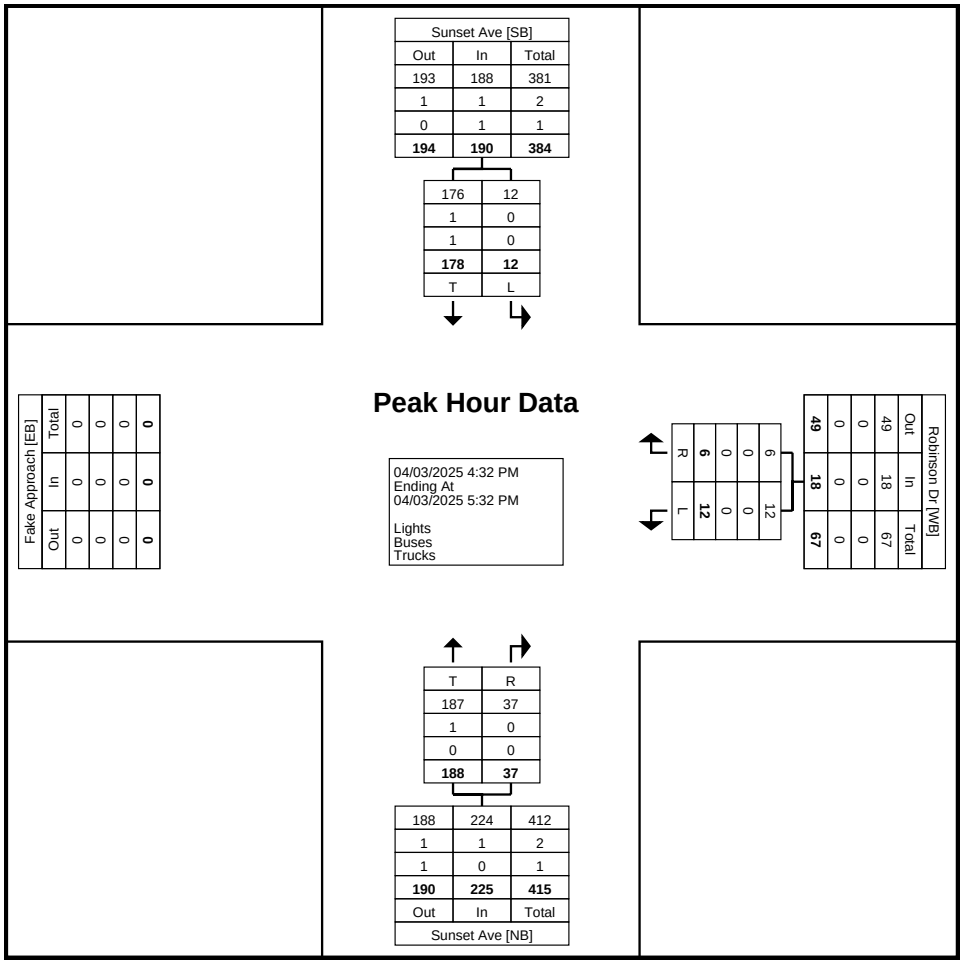
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (4:32 PM)

Kimley-Horn
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Count Name: Sunset Rd & Century Trl
Site Code:
Start Date: 04/03/2025
Page No: 1

Turning Movement Data

Start Time	Century Trl Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
6:00 AM	8	5	13	25	3	28	3	48	51	92
6:15 AM	9	3	12	21	1	22	4	91	95	129
6:30 AM	20	4	24	28	0	28	2	165	167	219
6:45 AM	6	2	8	53	2	55	1	89	90	153
Hourly Total	43	14	57	127	6	133	10	393	403	593
*** BREAK ***	-	-	-	-	-	-	-	-	-	-
3:00 PM	8	0	8	82	7	89	1	21	22	119
3:15 PM	4	3	7	72	7	79	2	41	43	129
3:30 PM	5	5	10	55	14	69	5	40	45	124
3:45 PM	6	1	7	60	7	67	1	52	53	127
Hourly Total	23	9	32	269	35	304	9	154	163	499
Grand Total	66	23	89	396	41	437	19	547	566	1092
Approach %	74.2	25.8	-	90.6	9.4	-	3.4	96.6	-	-
Total %	6.0	2.1	8.2	36.3	3.8	40.0	1.7	50.1	51.8	-
Lights	66	19	85	385	39	424	18	534	552	1061
% Lights	100.0	82.6	95.5	97.2	95.1	97.0	94.7	97.6	97.5	97.2
Buses	0	3	3	9	2	11	1	9	10	24
% Buses	0.0	13.0	3.4	2.3	4.9	2.5	5.3	1.6	1.8	2.2
Trucks	0	1	1	2	0	2	0	4	4	7
% Trucks	0.0	4.3	1.1	0.5	0.0	0.5	0.0	0.7	0.7	0.6

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Count Name: Sunset Rd & Century Trl
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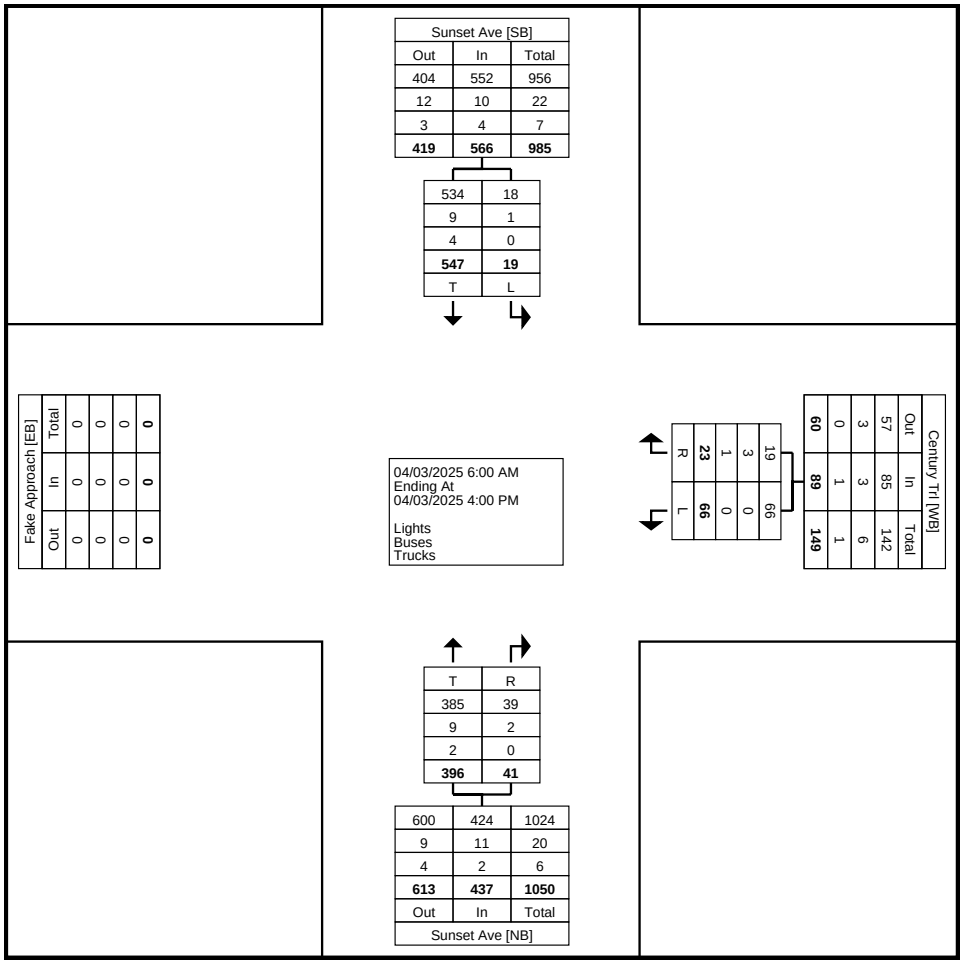
Start Date: 04/03/2025



Turning Movement Data Plot

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Count Name: Sunset Rd & Century Trl
Site Code:
Start Date: 04/03/2025

Turning Movement Peak Hour Data (6:00 AM)

Start Time	Century Trl Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
6:00 AM	8	5	13	25	3	28	3	48	51	92
6:15 AM	9	3	12	21	1	22	4	91	95	129
6:30 AM	20	4	24	28	0	28	2	165	167	219
6:45 AM	6	2	8	53	2	55	1	89	90	153
Total	43	14	57	127	6	133	10	393	403	593
Approach %	75.4	24.6	-	95.5	4.5	-	2.5	97.5	-	-
Total %	7.3	2.4	9.6	21.4	1.0	22.4	1.7	66.3	68.0	-
PHF	0.538	0.700	0.594	0.599	0.500	0.605	0.625	0.595	0.603	0.677
Lights	43	12	55	120	6	126	10	386	396	577
% Lights	100.0	85.7	96.5	94.5	100.0	94.7	100.0	98.2	98.3	97.3
Buses	0	1	1	6	0	6	0	5	5	12
% Buses	0.0	7.1	1.8	4.7	0.0	4.5	0.0	1.3	1.2	2.0
Trucks	0	1	1	1	0	1	0	2	2	4
% Trucks	0.0	7.1	1.8	0.8	0.0	0.8	0.0	0.5	0.5	0.7

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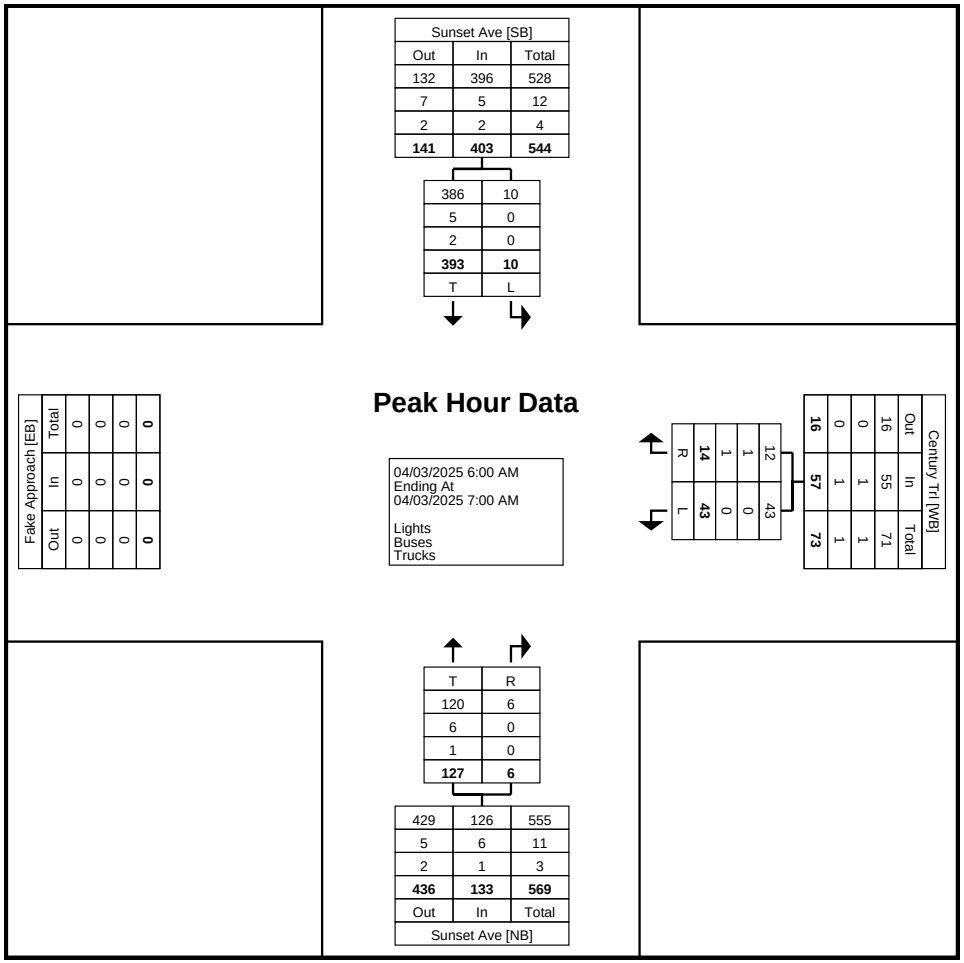
Count Name: Sunset Rd & Century Trl
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (6:00 AM)

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Count Name: Sunset Rd & Century Trl
Site Code:
Start Date: 04/03/2025
Page No: 5

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Century Trl Westbound			Sunset Ave Northbound			Sunset Ave Southbound			
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
3:00 PM	8	0	8	82	7	89	1	21	22	119
3:15 PM	4	3	7	72	7	79	2	41	43	129
3:30 PM	5	5	10	55	14	69	5	40	45	124
3:45 PM	6	1	7	60	7	67	1	52	53	127
Total	23	9	32	269	35	304	9	154	163	499
Approach %	71.9	28.1	-	88.5	11.5	-	5.5	94.5	-	-
Total %	4.6	1.8	6.4	53.9	7.0	60.9	1.8	30.9	32.7	-
PHF	0.719	0.450	0.800	0.820	0.625	0.854	0.450	0.740	0.769	0.967
Lights	23	7	30	265	33	298	8	148	156	484
% Lights	100.0	77.8	93.8	98.5	94.3	98.0	88.9	96.1	95.7	97.0
Buses	0	2	2	3	2	5	1	4	5	12
% Buses	0.0	22.2	6.3	1.1	5.7	1.6	11.1	2.6	3.1	2.4
Trucks	0	0	0	1	0	1	0	2	2	3
% Trucks	0.0	0.0	0.0	0.4	0.0	0.3	0.0	1.3	1.2	0.6

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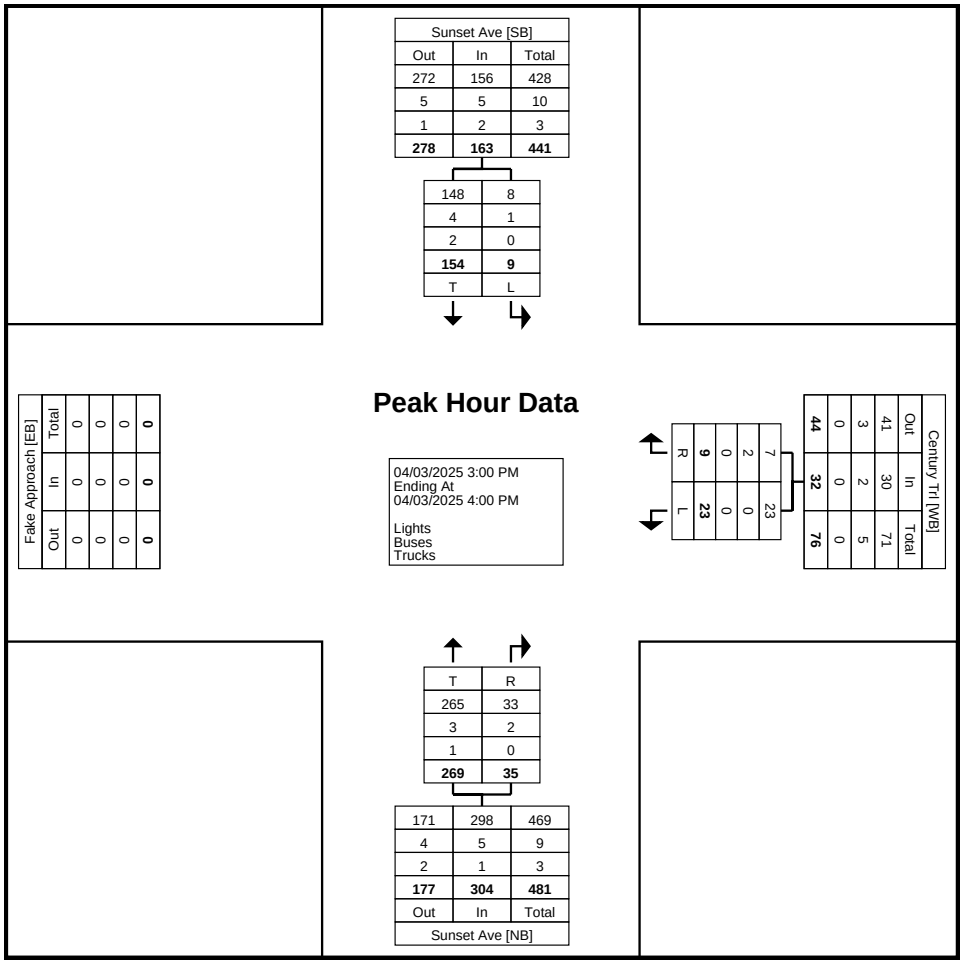
Count Name: Sunset Rd & Century Trl
Site Code:
Start Date: 04/03/2025



Turning Movement Peak Hour Data Plot (3:00 PM)

Appendix B:

SimTraffic/Rodel Reports

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.7	2.8	0.5	0.4	0.7	0.6	1.0

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.1	0.1	0.1
Total Del/Veh (s)	7.6	3.3	0.6	0.2	0.8	1.2	1.6

4: CR 53 (Sunset Avenue) & Lilac Street Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	3.1	0.0	0.0	0.1
Total Del/Veh (s)	6.7	1.5	2.4	0.4	0.1	1.7	2.1	2.0

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.0	0.0	0.8	0.3	6.3	5.3	3.4	2.2	7.4	3.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	1.5	2.8	2.3	7.6	6.0	5.8	6.9	10.4	3.3	5.1	10.5	3.4

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.3

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.2	1.1	0.2	1.4	1.0	0.2	3.1	8.4	1.7	5.4	10.5	4.3

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	3.0

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.3	3.0	0.2
Total Del/Veh (s)	4.0	1.9	1.3	1.0	1.0	0.1	1.0

9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.0	0.2	1.6	0.5	1.7	1.6	0.3	1.8	0.0	0.0	0.0
Total Del/Veh (s)	18.9	30.2	11.2	23.2	24.2	5.1	19.0	17.7	4.4	21.7	21.0	4.4

9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	19.9

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	260.4

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	44	5
Average Queue (ft)	20	0
95th Queue (ft)	40	4
Link Distance (ft)	1079	1423
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	65	5
Average Queue (ft)	25	0
95th Queue (ft)	50	6
Link Distance (ft)	576	1743
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: CR 53 (Sunset Avenue) & Lilac Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	27
Average Queue (ft)	20	2
95th Queue (ft)	41	15
Link Distance (ft)	5087	1967
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: 4th Avenue & Pine Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	29	29
Average Queue (ft)	0	5	8
95th Queue (ft)	4	21	28
Link Distance (ft)	7093	5136	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	58	30	38
Average Queue (ft)	4	9	16
95th Queue (ft)	29	24	38
Link Distance (ft)	5545	5211	5136
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	6	34	65	64
Average Queue (ft)	1	5	19	31
95th Queue (ft)	8	23	52	54
Link Distance (ft)	5087	1167	1004	5211
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	27	21
Average Queue (ft)	8	1
95th Queue (ft)	24	11
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	84	187	76	256	193	32	50	89	42	32	214	53
Average Queue (ft)	36	83	28	92	58	6	14	22	5	5	70	12
95th Queue (ft)	72	156	60	179	132	24	38	61	24	20	147	38
Link Distance (ft)		5545			3209			3100			1978	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300	250		250	300		200	300		300
Storage Blk Time (%)				1								
Queuing Penalty (veh)				1								

Zone Summary

Zone wide Queuing Penalty: 1

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	2.5	0.7	0.3	0.9	0.6	0.8

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.1	2.7	1.0	0.7	1.0	0.8	1.1

4: CR 53 (Sunset Avenue) & Lilac Street Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	3.0	0.0	0.0	0.4
Total Del/Veh (s)	6.4	0.8	3.7	0.9	0.4	1.8	1.6	1.7

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.0	0.4	0.6	0.2	0.5	4.6	4.5	3.4	0.8	2.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.1	3.6	3.5	8.5	7.4	7.7	10.7	7.1	4.2	8.6	7.4	3.2

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.7

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0
Total Del/Veh (s)	1.3	1.2	0.1	1.1	0.7	0.2	4.7	9.3	1.9	3.4	7.6	2.8

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.9

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.2	2.4	0.1
Total Del/Veh (s)	10.0	0.3	1.8	1.8	1.7	0.9	0.6	1.5

9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.1	2.0	0.6	1.9	1.9	0.8	2.0	0.7	0.0	0.6
Total Del/Veh (s)	25.8	34.0	10.4	23.0	30.7	8.5	21.4	23.7	7.6	19.6	23.7	6.4

9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	21.4

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	134.8

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	23	20
Average Queue (ft)	11	1
95th Queue (ft)	29	10
Link Distance (ft)	1079	1423
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	44	25
Average Queue (ft)	19	2
95th Queue (ft)	37	12
Link Distance (ft)	576	1743
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: CR 53 (Sunset Avenue) & Lilac Street

Movement	WB	NB	SB
Directions Served	LR	R	LT
Maximum Queue (ft)	61	4	35
Average Queue (ft)	24	0	8
95th Queue (ft)	44	3	31
Link Distance (ft)	5087		1967
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		275	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	39	40
Average Queue (ft)	17	2
95th Queue (ft)	39	17
Link Distance (ft)	5136	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	85	31	42	29
Average Queue (ft)	9	2	15	11
95th Queue (ft)	42	15	33	32
Link Distance (ft)	5120	5545	5211	5136
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	15	10	61	31
Average Queue (ft)	1	0	24	15
95th Queue (ft)	7	5	48	36
Link Distance (ft)	5087	1167	1004	5211
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	37
Average Queue (ft)	7	5
95th Queue (ft)	23	23
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: CSAH 23 (Lake Drive) & CSAH 14 (Main Street)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	142	192	75	181	235	51	115	246	146	37	136	66
Average Queue (ft)	59	78	29	73	113	15	43	90	27	12	51	13
95th Queue (ft)	114	148	60	136	202	41	92	179	82	33	103	42
Link Distance (ft)		5545			3209			3100			1978	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300	250		250	300		200	300		300
Storage Blk Time (%)					0			1				
Queuing Penalty (veh)					0			3				

Zone Summary

Zone wide Queuing Penalty: 3

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	0.6	0.4	0.6	0.8

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.1	1.6	0.1	0.2
Total Del/Veh (s)	2.9	0.8	0.3	0.8	0.9

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.0	0.0	1.5	0.2	3.9	5.9	1.7	2.1	7.6	3.0

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.8	2.8	2.2	4.6	3.4	2.9	6.6	7.9	3.9	6.8	10.4	3.6

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.3

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1
Total Del/Veh (s)	1.0	1.2	0.6	1.2	0.7	0.5	3.0	8.9	1.7	6.0	10.4	3.4

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	3.0

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.3	2.1	0.2
Total Del/Veh (s)	4.3	2.1	1.5	0.7	1.1	0.4	1.0

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	28.3

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	54
Average Queue (ft)	22
95th Queue (ft)	42
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	22
95th Queue (ft)	41
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	29	30
Average Queue (ft)	5	9
95th Queue (ft)	22	30
Link Distance (ft)	5142	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	14	46	28	47
Average Queue (ft)	0	4	8	18
95th Queue (ft)	5	23	22	42
Link Distance (ft)	5120	5554	5217	5142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	37	56	66
Average Queue (ft)	5	16	31
95th Queue (ft)	23	46	53
Link Distance (ft)	1167	1004	5217
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	15
Average Queue (ft)	9	1
95th Queue (ft)	27	8
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	0.8	0.4	0.4	0.7

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.0	0.1
Total Del/Veh (s)	3.0	0.9	0.4	0.5	0.8

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.0	0.1	1.3	0.2	0.3	4.7	4.9	3.6	0.9	2.7

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	4.9	3.8	2.4	7.5	5.6	4.7	9.9	7.7	5.6	5.8	9.7	3.2

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.7	1.3	0.3	0.9	0.8	0.4	3.4	8.9	1.8	4.2	9.8	2.6

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.1

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.2	2.1	0.1
Total Del/Veh (s)	5.6	0.6	2.1	1.7	1.2	0.9	0.3	1.2

Total Zone Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	27.0

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	23
Average Queue (ft)	11
95th Queue (ft)	28
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	18
95th Queue (ft)	39
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	44	45
Average Queue (ft)	21	3
95th Queue (ft)	41	20
Link Distance (ft)	5142	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	77	55	44	30
Average Queue (ft)	11	4	18	13
95th Queue (ft)	46	25	34	34
Link Distance (ft)	5120	5554	5217	5142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	16	56	35
Average Queue (ft)	3	1	26	17
95th Queue (ft)	16	7	45	38
Link Distance (ft)	5072	1167	1004	5217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	50
Average Queue (ft)	10	6
95th Queue (ft)	26	31
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.6	0.8	0.6	0.5	0.9

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.1	1.6	0.1	0.2
Total Del/Veh (s)	3.5	1.0	0.2	0.8	1.1

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	0.2	0.1	0.7	0.1	4.6	5.7	3.0	2.5	7.8	3.2

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Total Del/Veh (s)	3.9	3.1	2.6	5.4	4.4	3.9	9.0	8.9	5.2	6.1	10.6	4.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	4.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0
Total Del/Veh (s)	0.8	1.3	0.7	1.5	1.2	0.3	6.8	10.3	2.5	6.4	10.7	4.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	3.3

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.3	1.9	0.2
Total Del/Veh (s)	5.9	2.5	1.4	0.9	1.2	0.5	1.2

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	31.4

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	23
95th Queue (ft)	49
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	64
Average Queue (ft)	25
95th Queue (ft)	48
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	28	35
Average Queue (ft)	7	11
95th Queue (ft)	25	34
Link Distance (ft)	5142	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	10	42	38	53
Average Queue (ft)	1	3	11	21
95th Queue (ft)	8	20	28	45
Link Distance (ft)	5120	5554	5217	5142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	10	35	75	70
Average Queue (ft)	0	5	21	32
95th Queue (ft)	5	24	54	55
Link Distance (ft)	5072	1167	1004	5217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	27	33
Average Queue (ft)	11	1
95th Queue (ft)	27	16
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.5	0.8	0.7	0.5	0.8

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.0	0.1
Total Del/Veh (s)	3.3	1.1	0.6	0.5	0.9

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.0	0.2	1.8	0.4	0.7	4.6	4.4	2.9	1.2	2.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	4.4	2.8	7.0	6.3	5.4	11.9	7.7	5.7	10.1	10.5	3.1

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	5.6

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0
Total Del/Veh (s)	1.7	1.6	0.1	1.1	0.9	0.4	4.1	9.5	2.4	4.1	9.1	3.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.2

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.3	2.1	0.1
Total Del/Veh (s)	6.6	0.5	2.9	2.3	1.4	1.1	0.7	1.3

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	29.0

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	39
Average Queue (ft)	14
95th Queue (ft)	32
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	40
Average Queue (ft)	17
95th Queue (ft)	37
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	30	56
Average Queue (ft)	20	5
95th Queue (ft)	39	29
Link Distance (ft)	5142	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	56	49	57	34
Average Queue (ft)	11	4	20	15
95th Queue (ft)	40	24	44	37
Link Distance (ft)	5120	5554	5217	5142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	21	54	40
Average Queue (ft)	1	1	27	19
95th Queue (ft)	14	9	46	39
Link Distance (ft)	5072	1167	1004	5217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	41	61
Average Queue (ft)	10	7
95th Queue (ft)	28	32
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.3	1.2	0.7	0.4	1.0

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.1	1.1	0.2	0.2
Total Del/Veh (s)	3.6	1.4	0.6	1.1	1.4

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.2	0.1	1.2	0.2	2.1	6.4	1.4	2.3	7.9	3.0

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.8	1.5	0.8	5.7	4.8	3.1	6.3	10.8	3.1	7.7	10.9	2.9

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.9

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.8	1.4	0.6	1.6	1.2	0.5	4.8	8.2	1.8	5.3	9.8	2.9

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.9

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	5.6	3.6	2.1	0.9	1.7	0.2	1.4

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	3.5	1.1	0.5	1.1	1.2

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	1.9	1.3	1.4	0.7	4.5	4.1	1.8

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.1	0.0
Total Del/Veh (s)	1.1	0.6	1.7	4.3	1.4

14: 4th Avenue & Access E Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.8	0.9	1.2

15: 4th Avenue & Access F Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.9	0.1	0.5

16: 4th Avenue & Access G Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.2	1.0

17: Access H & Pine Street Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	0.1	0.7	0.3

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	34.3

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	67
Average Queue (ft)	28
95th Queue (ft)	51
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	68
Average Queue (ft)	30
95th Queue (ft)	53
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	28	31
Average Queue (ft)	5	9
95th Queue (ft)	21	30
Link Distance (ft)	1860	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	15	46	52	46
Average Queue (ft)	1	5	16	18
95th Queue (ft)	7	27	39	43
Link Distance (ft)	1790	5554	1310	1282
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	33	50	63
Average Queue (ft)	1	5	17	34
95th Queue (ft)	10	23	45	53
Link Distance (ft)	5072	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	32	29	11
Average Queue (ft)	8	2	0
95th Queue (ft)	25	15	8
Link Distance (ft)	7093	1359	2481
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	61
Average Queue (ft)	27
95th Queue (ft)	50
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	44	47
Average Queue (ft)	18	20
95th Queue (ft)	43	45
Link Distance (ft)	643	640
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	NB
Directions Served	TR
Maximum Queue (ft)	43
Average Queue (ft)	17
95th Queue (ft)	43
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: 4th Avenue & Access E

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: 4th Avenue & Access F

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: 4th Avenue & Access G

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: Access H & Pine Street

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.2	1.5	1.0	0.3	1.1

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.0	0.1
Total Del/Veh (s)	5.0	1.8	0.9	0.6	1.4

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.2	0.0	1.1	1.1	0.2	2.8	3.3	1.4	1.2	1.7

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	0.5	0.6	0.4	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	2.3	0.9	5.3	3.0	1.4	19.2	20.3	8.4	17.0	15.0	6.1

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	3.7

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	1.7	1.2	0.6	1.0	1.3	0.5	3.3	9.7	2.4	4.2	8.4	2.3

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.2

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.3	2.9	0.1
Total Del/Veh (s)	5.5	0.4	3.0	1.8	1.4	1.1	0.3	1.3

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	1.6	0.3	1.0	1.4

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.1	1.7	2.4	1.5	5.8	5.2	2.8

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.9	1.0	2.9	5.3	2.4

14: 4th Avenue & Access E Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.7	0.6	1.4

15: 4th Avenue & Access F Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.5	0.0	1.1

16: 4th Avenue & Access G Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.1	0.1

17: Access H & Pine Street Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.1	0.0	0.0
Total Del/Veh (s)	0.0	0.6	0.4

Total Zone Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	63.8

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	40
Average Queue (ft)	20
95th Queue (ft)	36
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	59
Average Queue (ft)	26
95th Queue (ft)	48
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	34	57
Average Queue (ft)	20	5
95th Queue (ft)	39	29
Link Distance (ft)	1882	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	64	55	87	34
Average Queue (ft)	13	4	31	13
95th Queue (ft)	45	26	68	34
Link Distance (ft)	1817	2789	1450	1292
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	6	48	50
Average Queue (ft)	2	0	25	23
95th Queue (ft)	15	5	45	44
Link Distance (ft)	5072	1167	1004	3711
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	32	40
Average Queue (ft)	9	5
95th Queue (ft)	27	23
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	57
Average Queue (ft)	21
95th Queue (ft)	48
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	48	59
Average Queue (ft)	17	18
95th Queue (ft)	43	45
Link Distance (ft)	643	959
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	NB
Directions Served	TR
Maximum Queue (ft)	43
Average Queue (ft)	16
95th Queue (ft)	42
Link Distance (ft)	702
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: 4th Avenue & Access E

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: 4th Avenue & Access F

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: 4th Avenue & Access G

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: Access H & Pine Street

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.8	1.5	1.0	0.5	1.2

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.1	1.0	0.2	0.2
Total Del/Veh (s)	4.1	1.7	0.6	1.5	1.7

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.1	1.0	1.6	1.0	3.8	5.1	2.1	2.0	8.2	2.0

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3	17.0	14.6
Total Del/Veh (s)	4.6	4.2	1.9	10.8	8.7	6.2	81.0	68.5	70.3	360.1	302.5	326.4

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	3.5
Total Del/Veh (s)	84.1

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.1	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.3	2.8	1.0	2.1	2.0	0.6	3.7	12.3	2.0	9.2	14.2	6.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	5.0

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	8.1	5.1	2.7	1.2	2.1	0.7	2.3

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	4.3	1.5	0.5	2.2	2.1

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	15.9	15.0	0.1	0.1	9.0
Total Del/Veh (s)	3.3	2.3	22.8	27.8	6.2	95.7	16.9

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.4	1.5	3.4	1.7	5.6	16.1	3.4

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	6.5	4.2	2.4	1.9	3.0	2.3	3.6

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.7	8.2	0.0	0.0	0.0	0.0	1.9
Total Del/Veh (s)	151.8	120.5	3.0	2.2	141.0	116.2	99.8

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.1	0.1
Total Del/Veh (s)	6.2	4.3	1.6	0.9	1.3	0.4	2.3

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.5	1.2	1.5	3.4	2.7

Total Zone Performance

Denied Del/Veh (s)	9.3
Total Del/Veh (s)	444.9

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	61
Average Queue (ft)	33
95th Queue (ft)	56
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	72
Average Queue (ft)	32
95th Queue (ft)	54
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	4	21	58	30
Average Queue (ft)	0	2	28	10
95th Queue (ft)	3	12	44	31
Link Distance (ft)	2985	7093	1860	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	107	20	94	347	1293
Average Queue (ft)	22	1	18	119	898
95th Queue (ft)	72	8	62	323	1504
Link Distance (ft)	1790		5554	1310	1282
Upstream Blk Time (%)					21
Queuing Penalty (veh)					92
Storage Bay Dist (ft)		300			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	49	58	130
Average Queue (ft)	5	9	21	56
95th Queue (ft)	26	32	50	95
Link Distance (ft)	5072	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	69	72	18
Average Queue (ft)	28	7	1
95th Queue (ft)	53	37	14
Link Distance (ft)	7093	1359	2481
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	62
Average Queue (ft)	28
95th Queue (ft)	54
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	WB	NB	SB
Directions Served	TR	TR	TR
Maximum Queue (ft)	519	47	209
Average Queue (ft)	155	20	52
95th Queue (ft)	588	49	145
Link Distance (ft)	606	643	640
Upstream Blk Time (%)	12		
Queuing Penalty (veh)	112		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	WB	NB	SB
Directions Served	TR	TR	TR
Maximum Queue (ft)	23	50	102
Average Queue (ft)	2	20	33
95th Queue (ft)	20	46	83
Link Distance (ft)	1790	650	528
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	90	32
Average Queue (ft)	42	4
95th Queue (ft)	68	21
Link Distance (ft)	798	3850
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	518	43	1107
Average Queue (ft)	145	7	285
95th Queue (ft)	441	28	1069
Link Distance (ft)	628	1282	1885
Upstream Blk Time (%)	4		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	79	56
Average Queue (ft)	40	7
95th Queue (ft)	66	32
Link Distance (ft)	1130	1885
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	11	70
Average Queue (ft)	1	38
95th Queue (ft)	7	60
Link Distance (ft)	2985	947
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 204

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	1.4	1.1	0.9	1.4

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.4	3.4	0.2	0.3
Total Del/Veh (s)	4.5	1.5	0.3	2.0	2.0

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.5	1.2	2.5	1.3	4.2	4.8	2.3	3.3	8.4	2.3

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.7	2.0	0.7	2.2	2.3	0.8	5.8	11.0	2.7	11.9	15.5	7.4

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	5.7

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	10.5	6.9	2.5	1.5	2.0	0.8	2.5

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.6	0.4
Total Del/Veh (s)	4.0	1.4	0.5	1.6	1.6

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	0.4	0.2	0.4	0.2	3.9	4.5	0.6

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	0.4	0.1	0.4	0.1	3.6	3.4	0.5

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.2	0.2	0.2
Total Del/Veh (s)	7.1	4.7	1.8	1.7	1.0	0.3	2.8

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	7.7	5.1	2.0	1.1	1.8	1.0	2.4

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.1	0.1
Total Del/Veh (s)	6.7	4.3	1.9	1.3	1.5	0.5	2.4

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.4	1.3	1.0	3.5	2.8

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	76.0

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	62
Average Queue (ft)	31
95th Queue (ft)	53
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	78
Average Queue (ft)	32
95th Queue (ft)	58
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	4	42	55	30
Average Queue (ft)	0	4	28	10
95th Queue (ft)	3	23	45	32
Link Distance (ft)	2985	7093	1860	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	51	52	180
Average Queue (ft)	4	10	22	62
95th Queue (ft)	21	36	49	118
Link Distance (ft)	2549	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	76	93
Average Queue (ft)	31	9
95th Queue (ft)	60	47
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	67
Average Queue (ft)	29
95th Queue (ft)	56
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	59	58
Average Queue (ft)	18	22
95th Queue (ft)	45	48
Link Distance (ft)	631	628
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	52	56
Average Queue (ft)	19	27
95th Queue (ft)	46	50
Link Distance (ft)	638	516
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	98	26
Average Queue (ft)	43	3
95th Queue (ft)	76	17
Link Distance (ft)	798	3850
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	102	44
Average Queue (ft)	40	11
95th Queue (ft)	71	36
Link Distance (ft)	628	948
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	80	53
Average Queue (ft)	40	7
95th Queue (ft)	64	31
Link Distance (ft)	1130	1885
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	12	74
Average Queue (ft)	1	40
95th Queue (ft)	7	65
Link Distance (ft)	2985	947
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.9	2.2	1.4	0.8	1.7

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	1.0	3.1	0.0	0.7
Total Del/Veh (s)	6.7	2.1	0.6	1.0	1.8

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.5	0.9	2.8	2.4	0.4	6.9	4.9	4.6	1.1	3.9

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.3	0.2	0.3	0.3	0.1	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.7	3.1	0.8	2.3	3.0	1.1	7.9	14.2	3.6	11.3	14.3	6.2

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	4.6

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.2
Total Del/Veh (s)	12.5	1.4	6.1	3.3	3.3	1.6	0.7	3.0

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.4	0.2
Total Del/Veh (s)	5.1	2.0	0.6	1.5	1.8

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.2	0.3	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	0.9	0.6	0.6	0.2	4.7	5.1	0.8

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	0.7	0.4	1.0	0.5	3.9	4.7	0.9

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	7.0	3.6	3.1	3.0	1.7	0.5	2.8

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.4	0.4	0.0	0.0	0.3
Total Del/Veh (s)	12.8	4.9	3.2	3.2	1.7	0.7	3.1

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.9	3.8	3.5	3.8	1.3	0.4	3.2

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.5	2.6	2.6	3.2	2.7

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	92.2

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	58
Average Queue (ft)	25
95th Queue (ft)	46
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	72
Average Queue (ft)	29
95th Queue (ft)	56
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	46	100	43
Average Queue (ft)	7	46	3
95th Queue (ft)	31	80	23
Link Distance (ft)	7093	1882	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	16	65	89
Average Queue (ft)	26	2	29	47
95th Queue (ft)	56	12	52	82
Link Distance (ft)	2549	1167	1004	3711
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB	SB
Directions Served	LR	LT	R
Maximum Queue (ft)	76	89	9
Average Queue (ft)	26	23	0
95th Queue (ft)	55	65	0
Link Distance (ft)	7093	1359	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			325
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	55
Average Queue (ft)	22
95th Queue (ft)	48
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	34	49
Average Queue (ft)	16	20
95th Queue (ft)	40	46
Link Distance (ft)	631	948
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	41	54
Average Queue (ft)	14	24
95th Queue (ft)	40	49
Link Distance (ft)	690	1026
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	74	56
Average Queue (ft)	37	11
95th Queue (ft)	62	39
Link Distance (ft)	624	3711
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	81	104	9
Average Queue (ft)	39	28	0
95th Queue (ft)	66	74	5
Link Distance (ft)	905	1068	1856
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	72	62
Average Queue (ft)	37	20
95th Queue (ft)	60	53
Link Distance (ft)	1097	1856
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	27	69
Average Queue (ft)	2	35
95th Queue (ft)	14	56
Link Distance (ft)	2956	1520
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	2.1	1.3	0.7	1.6

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.4	0.0	0.1
Total Del/Veh (s)	6.4	2.5	1.4	1.0	2.1

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	17.5	44.6	45.9	41.9	57.2	4.7	4.0	3.0	1.0	26.7

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.1	1.3	0.0	0.9	0.9	0.9	0.0	179.1	103.9	1011.1	919.3	804.9
Total Del/Veh (s)	195.9	190.8	150.0	32.2	23.4	17.9	3558.0	3392.1	3417.9	3549.7	3368.7	3452.7

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	6.1
Total Del/Veh (s)	312.5

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	37.9	54.6	66.0	0.2	0.1	0.1	0.0	0.1	0.0
Total Del/Veh (s)	207.3	166.6	160.2	64.6	159.8	143.7	201.2	225.1	167.4	51.7	9.8	47.2

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	28.9
Total Del/Veh (s)	154.5

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.3	1.9	0.2
Total Del/Veh (s)	11.4	1.3	4.3	2.8	3.0	1.4	0.7	2.6

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.4	0.2
Total Del/Veh (s)	4.9	2.0	0.5	1.5	1.8

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	23.7	24.9	0.1	0.1	0.2	0.1	13.5
Total Del/Veh (s)	33.3	31.2	3.6	2.2	117.9	9.2	21.3

13: Access D & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	72.0	76.8	6.7	5.2	133.6	8.8	45.2

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	739.3	798.7	0.0	0.0	0.0	0.0	194.3
Total Del/Veh (s)	2173.4	1906.8	1927.9	1830.8	1.1	0.5	1250.6

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	697.2	656.8	0.0	0.0	35.8	0.0	133.6
Total Del/Veh (s)	3109.6	2806.9	1.5	1.7	2877.4	2670.4	788.8

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	63.9	106.5	0.0	0.0	26.7	24.0	30.1
Total Del/Veh (s)	772.6	943.2	1.8	1.7	825.2	916.2	424.0

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.6	1.9	1.8	3.1	2.3

Total Zone Performance

Denied Del/Veh (s)	49.4
Total Del/Veh (s)	1431.1

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	24
95th Queue (ft)	46
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	77
Average Queue (ft)	29
95th Queue (ft)	54
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	358	284	66	62
Average Queue (ft)	34	38	33	6
95th Queue (ft)	211	194	51	33
Link Distance (ft)	2956	7093	1882	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	1831	375	825	1458	1298
Average Queue (ft)	1400	190	221	1440	1292
95th Queue (ft)	2353	498	607	1526	1308
Link Distance (ft)	1817		2789	1450	1292
Upstream Blk Time (%)	12			92	99
Queuing Penalty (veh)	118			240	316
Storage Bay Dist (ft)		300			
Storage Blk Time (%)	59				
Queuing Penalty (veh)	47				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	1588	1182	543	164
Average Queue (ft)	287	286	110	49
95th Queue (ft)	1075	1055	363	190
Link Distance (ft)	5072	1167	1004	3711
Upstream Blk Time (%)		17		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	57	101
Average Queue (ft)	22	23
95th Queue (ft)	44	67
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	62
Average Queue (ft)	25
95th Queue (ft)	51
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	EB	NB	SB
Directions Served	TR	TR	TR
Maximum Queue (ft)	966	91	60
Average Queue (ft)	302	27	23
95th Queue (ft)	1000	75	54
Link Distance (ft)	917	643	959
Upstream Blk Time (%)	17		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Access D & CSAH 14 (Main Street)

Movement	EB	NB	SB
Directions Served	TR	TR	TR
Maximum Queue (ft)	1391	118	57
Average Queue (ft)	659	37	25
95th Queue (ft)	1673	96	50
Link Distance (ft)	1380	702	1038
Upstream Blk Time (%)	4		
Queuing Penalty (veh)	47		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	631	3721
Average Queue (ft)	495	2252
95th Queue (ft)	837	4508
Link Distance (ft)	624	3711
Upstream Blk Time (%)	51	31
Queuing Penalty (veh)	0	90
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	912	5	1861
Average Queue (ft)	734	0	1570
95th Queue (ft)	1164	5	2388
Link Distance (ft)	904	1292	1856
Upstream Blk Time (%)	47		67
Queuing Penalty (veh)	0		161
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	1107	45	1890
Average Queue (ft)	500	5	744
95th Queue (ft)	1226	25	1936
Link Distance (ft)	1097	1856	1882
Upstream Blk Time (%)	21		13
Queuing Penalty (veh)	0		19
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	17	68
Average Queue (ft)	1	34
95th Queue (ft)	9	54
Link Distance (ft)	2956	1520
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1038

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.5	1.1	0.7	0.4	1.0

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.1	1.1	0.1	0.2
Total Del/Veh (s)	3.8	1.4	0.6	1.1	1.4

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.3	0.0	0.6	0.2	2.0	7.1	0.9	2.4	7.6	2.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.6	1.8	1.4	7.0	4.4	5.0	8.1	11.9	3.4	9.0	11.4	3.6

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.1

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	1.6	1.7	0.7	1.4	1.1	0.5	3.6	9.7	1.9	5.3	9.9	2.6

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	3.1

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	4.9	2.8	0.8	0.7	1.7	0.5	1.3

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.5	1.0	0.2	1.2	1.2

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.2	1.7	0.8	0.5	4.4	3.4	1.7

14: 4th Avenue & Access E Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.9	1.1	1.4

15: 4th Avenue & Access F Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.5	0.0	0.5

16: 4th Avenue & Access G Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.0	0.7	0.5

17: Access H & Pine Street Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	0.0	0.7	0.3

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	33.3

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	29
95th Queue (ft)	55
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	63
Average Queue (ft)	27
95th Queue (ft)	52
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	30	29
Average Queue (ft)	7	8
95th Queue (ft)	26	28
Link Distance (ft)	1860	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	28	58	66	54
Average Queue (ft)	0	7	14	19
95th Queue (ft)	5	34	38	43
Link Distance (ft)	2506	5554	1310	1282
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	10	27	52	65
Average Queue (ft)	1	4	17	33
95th Queue (ft)	8	19	45	52
Link Distance (ft)	5072	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	10
Average Queue (ft)	9	1
95th Queue (ft)	26	6
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	49
Average Queue (ft)	23
95th Queue (ft)	48
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	55	33
Average Queue (ft)	20	14
95th Queue (ft)	46	38
Link Distance (ft)	643	640
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: 4th Avenue & Access F

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: 4th Avenue & Access G

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: Access H & Pine Street

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.4	1.4	0.9	0.3	1.0

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.4	0.0	0.1
Total Del/Veh (s)	3.9	1.6	0.8	0.6	1.3

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.0	0.1	1.3	0.3	0.4	2.7	3.0	1.4	1.3	1.5

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.7	0.6	0.6	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.8	2.6	1.5	5.6	3.0	1.5	17.7	18.5	6.8	15.0	19.3	5.2

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	3.8

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	2.8	1.6	2.8	1.1	1.3	0.4	4.7	9.4	2.3	5.0	8.9	2.4

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.3

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.3	1.6	0.1
Total Del/Veh (s)	6.5	0.4	2.2	1.4	1.2	1.0	0.3	1.2

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	1.8	0.5	1.4	1.6

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.1	2.0	1.6	0.9	5.2	5.0	2.4

14: 4th Avenue & Access E Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.6	0.6	1.3

15: 4th Avenue & Access F Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.6	0.1	1.2

16: 4th Avenue & Access G Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.1	0.1

17: Access H & Pine Street Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.1	0.0	0.0
Total Del/Veh (s)	0.0	0.6	0.4

Total Zone Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	53.4

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	52
Average Queue (ft)	19
95th Queue (ft)	39
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	49
Average Queue (ft)	22
95th Queue (ft)	37
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	35	44
Average Queue (ft)	0	19	4
95th Queue (ft)	6	39	26
Link Distance (ft)	7093	1882	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	129	58	76	51
Average Queue (ft)	17	6	30	14
95th Queue (ft)	69	34	63	37
Link Distance (ft)	2518	2789	1450	1292
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	35	5	51	64
Average Queue (ft)	3	0	26	23
95th Queue (ft)	19	0	44	51
Link Distance (ft)	5072	1167	1004	3711
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	26	43
Average Queue (ft)	9	5
95th Queue (ft)	25	25
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	53
Average Queue (ft)	25
95th Queue (ft)	49
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	43	35
Average Queue (ft)	18	15
95th Queue (ft)	43	39
Link Distance (ft)	643	959
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: 4th Avenue & Access F

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: 4th Avenue & Access G

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: Access H & Pine Street

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.2	1.8	1.1	1.1	1.7

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.5	3.3	0.2	0.4
Total Del/Veh (s)	5.3	1.6	0.3	2.1	2.2

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.0	0.7	1.8	1.7	3.7	3.3	2.1	2.1	8.0	2.0

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.2	0.3	0.3	0.3	0.0	0.2	0.0	0.0	2.4	3.3
Total Del/Veh (s)	5.8	4.5	2.6	7.7	3.9	1.9	114.8	88.2	81.7	223.2	218.9	222.9

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	50.2

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.8	2.1	1.1	2.0	1.9	0.7	4.9	11.0	3.5	8.8	13.0	5.1

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	4.0

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	11.7	7.4	2.2	1.4	2.1	0.9	2.6

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.6	0.4
Total Del/Veh (s)	5.3	2.0	0.6	1.6	2.0

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.6	0.6	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	2.1	0.6	2.1	1.3	8.4	6.3	2.4

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.5	4.0	2.3	1.8	2.9	2.4	3.3

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	26.4	31.8	3.3	2.2	12.4	0.3	13.0

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.6	3.4	1.2	0.7	1.2	0.9	1.9

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	0.4	1.4	1.6	3.1	2.4

Total Zone Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	270.3

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	91
Average Queue (ft)	36
95th Queue (ft)	68
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	101
Average Queue (ft)	37
95th Queue (ft)	71
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	32	55	31
Average Queue (ft)	2	28	9
95th Queue (ft)	15	44	30
Link Distance (ft)	7093	1860	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	90	22	128	393	1199
Average Queue (ft)	18	1	23	124	495
95th Queue (ft)	66	10	80	381	1229
Link Distance (ft)	2506		2789	1310	1282
Upstream Blk Time (%)					5
Queuing Penalty (veh)					15
Storage Bay Dist (ft)		300			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	45	52	61	108
Average Queue (ft)	5	10	20	48
95th Queue (ft)	24	36	52	84
Link Distance (ft)	2549	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	92	60	11
Average Queue (ft)	33	7	0
95th Queue (ft)	69	35	8
Link Distance (ft)	7093	1359	2481
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	75
Average Queue (ft)	41
95th Queue (ft)	66
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	70	62
Average Queue (ft)	26	27
95th Queue (ft)	55	52
Link Distance (ft)	643	640
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	58	10
Average Queue (ft)	32	0
95th Queue (ft)	52	8
Link Distance (ft)	798	3850
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	138	33	128
Average Queue (ft)	45	4	20
95th Queue (ft)	132	20	157
Link Distance (ft)	628	1282	1885
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	63	34
Average Queue (ft)	35	4
95th Queue (ft)	55	20
Link Distance (ft)	1130	1885
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	62
Average Queue (ft)	0	34
95th Queue (ft)	4	54
Link Distance (ft)	2985	947
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 15

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	1.9	1.2	1.1	1.7

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.4	3.4	0.2	0.4
Total Del/Veh (s)	5.4	1.7	0.3	2.1	2.2

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	1.6	0.8	2.0	1.1	4.2	4.4	2.3	2.0	8.0	2.1

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.8	2.1	1.1	2.0	1.8	0.6	7.5	11.8	3.0	11.5	14.4	7.2

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	4.8

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	10.3	5.6	2.3	1.3	2.0	0.9	2.4

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.7	0.4
Total Del/Veh (s)	5.4	2.1	0.6	1.6	2.1

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	0.6	0.7	0.6	0.7	0.1	0.1	0.6
Total Del/Veh (s)	1.6	0.5	1.7	0.3	6.1	8.2	2.0

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	5.7	3.7	2.2	1.9	0.6	0.1	2.0

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	6.9	4.0	1.7	0.5	1.3	0.5	1.8

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.5	3.7	1.4	0.8	1.3	0.8	2.1

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.5	1.5	2.2	3.1	2.5

Total Zone Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	78.2

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	82
Average Queue (ft)	35
95th Queue (ft)	63
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	84
Average Queue (ft)	37
95th Queue (ft)	67
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	4	28	67	30
Average Queue (ft)	0	2	29	11
95th Queue (ft)	3	15	50	33
Link Distance (ft)	2985	7093	1860	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	62	65	134
Average Queue (ft)	5	12	22	59
95th Queue (ft)	27	41	55	108
Link Distance (ft)	2549	1167	1004	3850
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	76	63
Average Queue (ft)	30	8
95th Queue (ft)	59	36
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	84
Average Queue (ft)	40
95th Queue (ft)	66
Link Distance (ft)	911
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	52	65
Average Queue (ft)	22	29
95th Queue (ft)	46	58
Link Distance (ft)	643	640
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	58	26
Average Queue (ft)	33	1
95th Queue (ft)	51	9
Link Distance (ft)	798	3850
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	57	42
Average Queue (ft)	34	5
95th Queue (ft)	52	25
Link Distance (ft)	628	657
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	70	38
Average Queue (ft)	39	3
95th Queue (ft)	59	19
Link Distance (ft)	1130	1885
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	73
Average Queue (ft)	0	32
95th Queue (ft)	0	56
Link Distance (ft)	2985	947
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.0	2.7	1.8	0.8	2.1

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	1.1	3.0	0.0	0.8
Total Del/Veh (s)	8.0	2.3	0.6	1.2	2.0

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.4	0.6	3.0	1.9	3.2	5.4	4.5	3.5	1.0	3.1

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.3	0.2	0.3	0.3	0.1	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.7	3.2	1.8	2.3	2.3	0.9	8.2	14.1	3.3	9.5	16.3	5.0

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	3.7

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.4	2.0	0.2
Total Del/Veh (s)	10.6	0.6	3.7	3.0	3.0	1.6	0.8	2.7

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.4	0.2
Total Del/Veh (s)	6.2	3.7	1.0	1.5	2.7

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	1.1	1.2	1.0	1.1	0.1	0.1	1.1
Total Del/Veh (s)	3.6	1.7	4.6	2.3	14.6	13.6	4.3

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	5.9	2.7	2.4	2.0	1.1	0.4	2.0

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.3	0.3	0.0	0.0	0.2
Total Del/Veh (s)	9.6	3.4	2.0	1.6	1.1	0.6	1.8

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.7	3.4	2.2	2.5	1.0	0.4	2.2

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.7	2.1	1.9	2.9	2.3

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	114.1

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	31
95th Queue (ft)	59
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	66
Average Queue (ft)	29
95th Queue (ft)	53
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	38	98	47
Average Queue (ft)	4	38	4
95th Queue (ft)	23	65	26
Link Distance (ft)	7093	1882	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	84	34	60	80
Average Queue (ft)	25	2	28	37
95th Queue (ft)	62	15	52	64
Link Distance (ft)	2549	1167	1004	3711
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	64	84
Average Queue (ft)	24	21
95th Queue (ft)	45	57
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	80
Average Queue (ft)	39
95th Queue (ft)	66
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	69	71
Average Queue (ft)	22	27
95th Queue (ft)	50	55
Link Distance (ft)	643	959
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	64	26
Average Queue (ft)	30	2
95th Queue (ft)	54	12
Link Distance (ft)	624	3711
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	61	48	4
Average Queue (ft)	28	12	0
95th Queue (ft)	51	37	3
Link Distance (ft)	905	737	1856
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	59	59
Average Queue (ft)	34	9
95th Queue (ft)	54	36
Link Distance (ft)	1097	1856
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	12	61
Average Queue (ft)	0	31
95th Queue (ft)	6	52
Link Distance (ft)	2956	1520
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

2: CR 53 (Sunset Avenue) & Robinson Drive Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	2.5	1.7	0.8	1.9

3: CR 53 (Sunset Avenue) & Century Trail Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.0	0.1
Total Del/Veh (s)	6.7	3.5	2.2	1.1	2.6

5: 4th Avenue & Pine Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.3	0.9	3.0	2.7	0.8	4.5	2.8	2.5	1.7	2.6

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	1.0	0.9	1.0	69.1	39.5	0.0	0.0	85.8	145.0
Total Del/Veh (s)	101.3	77.7	73.8	33.4	27.4	22.7	2917.1	2578.2	2757.6	2571.3	2592.7	2392.6

6: 4th Avenue & CSAH 14 (Main Street) Performance by movement

Movement	All
Denied Del/Veh (s)	2.7
Total Del/Veh (s)	246.9

7: 4th Avenue & Lilac Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	17.3	10.0	14.6	2.6	8.1	8.0	8.6	16.9	8.3	8.2	9.2	3.5

7: 4th Avenue & Lilac Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	9.8

8: CSAH 23 (Lake Drive) & Pine Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.2
Total Del/Veh (s)	12.7	0.4	4.8	3.2	3.0	1.5	0.8	2.7

10: CR 53 (Sunset Avenue) & Access A Performance by movement

Movement	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.5	0.2
Total Del/Veh (s)	6.3	3.4	0.9	1.5	2.5

11: Access B & CSAH 14 (Main Street) Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Del/Veh (s)	1.2	1.2	0.0	0.0	0.1	0.1	0.6
Total Del/Veh (s)	3.9	1.6	10.0	7.5	15.2	10.4	6.6

14: 4th Avenue & Access E Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	382.9	301.0	0.0	0.0	0.0	0.0	61.9
Total Del/Veh (s)	1716.2	1954.9	1161.9	1167.2	1.2	0.8	849.8

15: 4th Avenue & Access F Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	90.6	90.1	0.0	0.0	0.7	0.0	13.0
Total Del/Veh (s)	1488.7	1480.9	1.5	1.3	1601.7	1574.2	632.3

16: 4th Avenue & Access G Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	1.8	0.7	0.0	0.0	3.3	5.4	1.3
Total Del/Veh (s)	284.7	305.5	1.5	1.4	269.1	219.4	150.5

17: Access H & Pine Street Performance by movement

Movement	EBT	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	0.6	2.0	2.0	3.0	2.3

Total Zone Performance

Denied Del/Veh (s)	9.1
Total Del/Veh (s)	1162.8

Intersection: 2: CR 53 (Sunset Avenue) & Robinson Drive

Movement	WB
Directions Served	R
Maximum Queue (ft)	60
Average Queue (ft)	27
95th Queue (ft)	49
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: CR 53 (Sunset Avenue) & Century Trail

Movement	WB
Directions Served	R
Maximum Queue (ft)	64
Average Queue (ft)	28
95th Queue (ft)	51
Link Distance (ft)	576
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 4th Avenue & Pine Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	4	44	51	44
Average Queue (ft)	0	7	29	4
95th Queue (ft)	3	32	46	25
Link Distance (ft)	2956	7093	1882	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: 4th Avenue & CSAH 14 (Main Street)

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	2122	375	914	1461	1302
Average Queue (ft)	772	105	235	1425	1279
95th Queue (ft)	1964	381	731	1578	1380
Link Distance (ft)	3252		2789	1450	1292
Upstream Blk Time (%)				86	87
Queuing Penalty (veh)				201	197
Storage Bay Dist (ft)		300			
Storage Blk Time (%)	30				
Queuing Penalty (veh)	19				

Intersection: 7: 4th Avenue & Lilac Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	298	315	72	58
Average Queue (ft)	42	17	30	29
95th Queue (ft)	160	159	57	52
Link Distance (ft)	5072	1167	1004	3711
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: CSAH 23 (Lake Drive) & Pine Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	61	94
Average Queue (ft)	23	24
95th Queue (ft)	48	67
Link Distance (ft)	7093	1359
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: CR 53 (Sunset Avenue) & Access A

Movement	WB
Directions Served	R
Maximum Queue (ft)	75
Average Queue (ft)	39
95th Queue (ft)	64
Link Distance (ft)	1094
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Access B & CSAH 14 (Main Street)

Movement	NB	SB
Directions Served	TR	TR
Maximum Queue (ft)	60	65
Average Queue (ft)	24	28
95th Queue (ft)	54	53
Link Distance (ft)	643	959
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: 4th Avenue & Access E

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	632	3673
Average Queue (ft)	408	1606
95th Queue (ft)	804	3614
Link Distance (ft)	624	3711
Upstream Blk Time (%)	44	5
Queuing Penalty (veh)	0	10
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 4th Avenue & Access F

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	909	21	1862
Average Queue (ft)	479	1	1183
95th Queue (ft)	1012	9	2336
Link Distance (ft)	904	1292	1856
Upstream Blk Time (%)	19		38
Queuing Penalty (veh)	0		72
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 4th Avenue & Access G

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	832	50	1039
Average Queue (ft)	195	6	232
95th Queue (ft)	637	28	848
Link Distance (ft)	1097	1856	1882
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Access H & Pine Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	28	65
Average Queue (ft)	1	31
95th Queue (ft)	10	53
Link Distance (ft)	2956	1520
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 499

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	4th Ave SB	None	420		462		167	988		0.4250	
2	Main St EB	None	761		322		560	2048		0.3716	
3	4th Ave NB	None	156		867		216	834		0.1871	
4	Main St WB	None	449		180		843	2200		0.2041	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	4th Ave SB	None	6.24		6.24	3.00		A		A
2	Main St EB	None	3.07		3.07	2.58		A		A
3	4th Ave NB	None	5.20		5.20	0.89		A		A
4	Main St WB	None	2.23		2.23	1.00		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1786		1786
Capacity	veh/hr	6070		6070
Average Delay	sec/veh	3.79		3.79
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.88		1.88

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	4th Ave SB	None	322		939		507	806		0.3993	
2	Main St EB	None	958		219		1042	2158		0.4439	
3	4th Ave NB	None	261		969		208	795		0.3283	
4	Main St WB	None	990		456		774	1905		0.5198	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	4th Ave SB	None	7.11		7.11	1.82		A		A
2	Main St EB	None	3.80		3.80	2.81		A		A
3	4th Ave NB	None	6.48		6.48	1.34		A		A
4	Main St WB	None	4.38		4.38	3.41		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2531		2531
Capacity	veh/hr	5664		5664
Average Delay	sec/veh	4.72		4.72
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.32		3.32

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	4th Ave SB	None	293		461		122	989		0.2964	
2	Main St EB	None	760		217		537	2160		0.3518	
3	4th Ave NB	None	140		778		199	868		0.1613	
4	Main St WB	None	451		132		786	2251		0.2004	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	4th Ave SB	None	5.03		5.03	1.58		A		A
2	Main St EB	None	2.79		2.79	2.27		A		A
3	4th Ave NB	None	4.82		4.82	0.72		A		A
4	Main St WB	None	2.11		2.11	0.95		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1644		1644
Capacity	veh/hr	6268		6268
Average Delay	sec/veh	3.17		3.17
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.45		1.45

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	4th Ave SB	None	227		965		358	797		0.2850	
2	Main St EB	None	842		188		1004	2191		0.3843	
3	4th Ave NB	None	235		848		182	841		0.2794	
4	Main St WB	None	993		330		753	2039		0.4869	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	4th Ave SB	None	6.09		6.09	1.09		A		A
2	Main St EB	None	3.05		3.05	1.99		A		A
3	4th Ave NB	None	5.73		5.73	1.06		A		A
4	Main St WB	None	3.69		3.69	2.87		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2297		2297
Capacity	veh/hr	5868		5868
Average Delay	sec/veh	3.90		3.90
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.49		2.49

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	137		446		43	929		0.1475	
2	Main St EB	None	472		127		456	1097		0.4301	
3	Access C NB	None	149		556		43	871		0.1711	
4	Main St WB	None	341		148		557	1086		0.3139	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	4.41		4.41	0.62		A		A
2	Main St EB	None	5.60		5.60	2.90		A		A
3	Access C NB	None	4.86		4.86	0.77		A		A
4	Main St WB	None	4.67		4.67	1.66		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1099		1099
Capacity	veh/hr	3984		3984
Average Delay	sec/veh	5.06		5.06
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.55		1.55

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	107		804		140	740		0.1446	
2	Main St EB	None	666		174		737	1073		0.6209	
3	Access C NB	None	115		700		140	795		0.1447	
4	Main St WB	None	760		184		631	1067		0.7121	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.51		5.51	0.47		A		A
2	Main St EB	None	8.28		8.28	4.30		A		A
3	Access C NB	None	5.13		5.13	0.46		A		A
4	Main St WB	None	10.71		10.71	6.37		B		B

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1648		1648
Capacity	veh/hr	3675		3675
Average Delay	sec/veh	9.00		9.00
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	4.12		4.12

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	80		400		26	953		0.0839	
2	Main St EB	None	495		89		391	1117		0.4430	
3	Access C NB	None	103		545		39	877		0.1175	
4	Main St WB	None	342		84		564	1120		0.3053	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	3.99		3.99	0.32		A		A
2	Main St EB	None	5.62		5.62	3.05		A		A
3	Access C NB	None	4.52		4.52	0.49		A		A
4	Main St WB	None	4.46		4.46	1.56		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1020		1020
Capacity	veh/hr	4068		4068
Average Delay	sec/veh	5.00		5.00
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.42		1.42

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	62		778		84	754		0.0823	
2	Main St EB	None	615		133		707	1094		0.5620	
3	Access C NB	None	80		622		126	836		0.0957	
4	Main St WB	None	760		102		600	1111		0.6843	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.05		5.05	0.25		A		A
2	Main St EB	None	7.09		7.09	3.39		A		A
3	Access C NB	None	4.63		4.63	0.29		A		A
4	Main St WB	None	9.47		9.47	5.60		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1517		1517
Capacity	veh/hr	3795		3795
Average Delay	sec/veh	8.07		8.07
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.40		3.40

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	189		902		74	688		0.2746	
2	Main St EB	None	695		163		928	1078		0.6445	
3	Access C NB	None	277		789		69	748		0.3703	
4	Main St WB	None	670		306		760	1003		0.6680	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	7.31		7.31	1.73		A		A
2	Main St EB	None	9.80		9.80	9.07		A		A
3	Access C NB	None	7.82		7.82	2.76		A		A
4	Main St WB	None	11.93		11.93	11.56		B		B

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1831		1831
Capacity	veh/hr	3518		3518
Average Delay	sec/veh	10.02		10.02
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	B		B
Total Delay	veh.hrs	5.10		5.10

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	140		1118		210	574		0.2438	
2	Main St EB	None	1216		191		1067	1064		1.1431	
3	Access C NB	None	206		1058		197	606		0.3399	
4	Main St WB	None	1058		347		917	981		1.0781	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	7.98		7.98	0.86		A		A
2	Main St EB	None	265.63		265.63	303.66		F		F
3	Access C NB	None	8.64		8.64	1.37		A		A
4	Main St WB	None	159.55		159.55	151.37		F		F

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2620		2620
Capacity	veh/hr	3225		3225
Average Delay	sec/veh	188.82		188.82
L.O.S. (Signal)	A – F	F		F
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	137.42		137.42

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	148		695		71	797		0.1856	
2	Main St EB	None	699		127		716	1097		0.6369	
3	Access C NB	None	237		749		76	769		0.3081	
4	Main St WB	None	540		227		759	1045		0.5169	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.45		5.45	0.90		A		A
2	Main St EB	None	9.33		9.33	8.51		A		A
3	Access C NB	None	6.78		6.78	1.94		A		A
4	Main St WB	None	7.09		7.09	4.56		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1624		1624
Capacity	veh/hr	3709		3709
Average Delay	sec/veh	7.86		7.86
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.55		3.55

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	110		1069		218	600		0.1833	
2	Main St EB	None	1038		182		996	1068		0.9717	
3	Access C NB	None	176		974		234	650		0.2708	
4	Main St WB	None	1027		283		867	1015		1.0119	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	7.08		7.08	0.61		A		A
2	Main St EB	None	48.57		48.57	37.52		E		E
3	Access C NB	None	7.30		7.30	1.02		A		A
4	Main St WB	None	77.25		77.25	60.69		F		F

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2351		2351
Capacity	veh/hr	3333		3333
Average Delay	sec/veh	56.07		56.07
L.O.S. (Signal)	A – F	E		E
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	36.62		36.62

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	189		902		74	821		0.2303	
2	Main St EB	None	695		163		928	2218		0.3134	
3	Access C NB	None	277		789		69	864		0.3207	
4	Main St WB	None	670		306		760	2065		0.3244	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.61		5.61	1.19		A		A
2	Main St EB	None	2.50		2.50	1.81		A		A
3	Access C NB	None	6.07		6.07	1.93		A		A
4	Main St WB	None	2.64		2.64	1.91		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1831		1831
Capacity	veh/hr	5967		5967
Average Delay	sec/veh	3.41		3.41
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.74		1.74

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	140		1191		237	710		0.1971	
2	Main St EB	None	1216		198		1133	2180		0.5577	
3	Access C NB	None	206		1195		219	709		0.2906	
4	Main St WB	None	1058		370		1031	1997		0.5299	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	6.10		6.10	0.68		A		A
2	Main St EB	None	4.17		4.17	3.94		A		A
3	Access C NB	None	6.89		6.89	1.13		A		A
4	Main St WB	None	4.03		4.03	3.34		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2620		2620
Capacity	veh/hr	5596		5596
Average Delay	sec/veh	4.43		4.43
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.22		3.22

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	189		766		71	872		0.2166	
2	Main St EB	None	699		169		786	2212		0.3161	
3	Access C NB	None	277		792		76	862		0.3212	
4	Main St WB	None	540		297		772	2075		0.2603	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.15		5.15	1.06		A		A
2	Main St EB	None	2.48		2.48	1.81		A		A
3	Access C NB	None	6.08		6.08	1.93		A		A
4	Main St WB	None	2.45		2.45	1.38		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1705		1705
Capacity	veh/hr	6021		6021
Average Delay	sec/veh	3.35		3.35
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.59		1.59

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Access C SB	None	140		1143		221	729		0.1921	
2	Main St EB	None	1038		162		1121	2219		0.4678	
3	Access C NB	None	206		962		238	798		0.2583	
4	Main St WB	None	1027		337		831	2032		0.5054	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Access C SB	None	5.92		5.92	0.66		A		A
2	Main St EB	None	3.42		3.42	2.75		A		A
3	Access C NB	None	5.87		5.87	0.95		A		A
4	Main St WB	None	3.86		3.86	3.10		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2411		2411
Capacity	veh/hr	5777		5777
Average Delay	sec/veh	3.96		3.96
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.65		2.65

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	388		480		270	888		0.4371	
2	Lake Dr NB	None	224		335		533	915		0.2448	
3	Main St WB	None	398		257		302	988		0.4027	
4	Lake Dr SB	None	327		423		232	838		0.3901	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	6.77		6.77	2.40		A		A
2	Lake Dr NB	None	4.77		4.77	0.92		A		A
3	Main St WB	None	5.65		5.65	1.98		A		A
4	Lake Dr SB	None	6.15		6.15	1.80		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1337		1337
Capacity	veh/hr	3629		3629
Average Delay	sec/veh	5.95		5.95
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.21		2.21

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	438		395		525	958		0.4572	
2	Lake Dr NB	None	686		374		459	951		0.7212	
3	Main St WB	None	492		594		466	837		0.5879	
4	Lake Dr SB	None	323		597		489	851		0.3795	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	6.60		6.60	2.27		A		A
2	Lake Dr NB	None	11.96		11.96	6.50		B		B
3	Main St WB	None	9.57		9.57	3.76		A		A
4	Lake Dr SB	None	6.53		6.53	1.67		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1939		1939
Capacity	veh/hr	3597		3597
Average Delay	sec/veh	9.24		9.24
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	4.98		4.98

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	560		480		335	888		0.6308	
2	Lake Dr NB	None	267		393		647	887		0.3010	
3	Main St WB	None	409		329		331	951		0.4299	
4	Lake Dr SB	None	338		477		261	812		0.4161	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	10.12		10.12	5.59		B		B
2	Lake Dr NB	None	5.29		5.29	1.23		A		A
3	Main St WB	None	6.13		6.13	2.24		A		A
4	Lake Dr SB	None	6.60		6.60	2.02		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1574		1574
Capacity	veh/hr	3538		3538
Average Delay	sec/veh	7.51		7.51
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.28		3.28

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	571		395		733	958		0.5959	
2	Lake Dr NB	None	825		418		548	929		0.8882	
3	Main St WB	None	527		753		487	755		0.6980	
4	Lake Dr SB	None	358		770		510	760		0.4709	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	8.72		8.72	3.92		A		A
2	Lake Dr NB	None	25.27		25.27	16.68		D		D
3	Main St WB	None	13.98		13.98	5.99		B		B
4	Lake Dr SB	None	8.50		8.50	2.43		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2281		2281
Capacity	veh/hr	3402		3402
Average Delay	sec/veh	15.89		15.89
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	10.07		10.07

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	560		480		335	888		0.6308	
2	Lake Dr NB	None	267		393		647	887		0.3010	
3	Main St WB	None	409		329		331	951		0.4299	
4	Lake Dr SB	None	338		477		261	812		0.4161	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	10.12		10.12	5.59		B		B
2	Lake Dr NB	None	5.29		5.29	1.23		A		A
3	Main St WB	None	6.13		6.13	2.24		A		A
4	Lake Dr SB	None	6.60		6.60	2.02		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1574		1574
Capacity	veh/hr	3538		3538
Average Delay	sec/veh	7.51		7.51
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.28		3.28

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	571		395		733	958		0.5959	
2	Lake Dr NB	None	825		418		548	929		0.8882	
3	Main St WB	None	527		753		487	755		0.6980	
4	Lake Dr SB	None	358		770		510	760		0.4709	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	8.72		8.72	3.92		A		A
2	Lake Dr NB	None	25.27		25.27	16.68		D		D
3	Main St WB	None	13.98		13.98	5.99		B		B
4	Lake Dr SB	None	8.50		8.50	2.43		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2281		2281
Capacity	veh/hr	3402		3402
Average Delay	sec/veh	15.89		15.89
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	10.07		10.07

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	464		574		323	838		0.5537	
2	Lake Dr NB	None	267		400		638	883		0.3022	
3	Main St WB	None	476		306		361	963		0.4942	
4	Lake Dr SB	None	391		506		276	799		0.4894	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	8.97		8.97	4.03		A		A
2	Lake Dr NB	None	5.32		5.32	1.24		A		A
3	Main St WB	None	6.77		6.77	2.92		A		A
4	Lake Dr SB	None	7.55		7.55	2.73		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1598		1598
Capacity	veh/hr	3484		3484
Average Delay	sec/veh	7.36		7.36
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.27		3.27

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	523		473		627	917		0.5701	
2	Lake Dr NB	None	820		447		549	914		0.8971	
3	Main St WB	None	590		707		557	779		0.7576	
4	Lake Dr SB	None	386		714		583	790		0.4888	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	8.59		8.59	3.55		A		A
2	Lake Dr NB	None	27.15		27.15	17.85		D		D
3	Main St WB	None	16.40		16.40	7.88		C		C
4	Lake Dr SB	None	8.46		8.46	2.60		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2319		2319
Capacity	veh/hr	3400		3400
Average Delay	sec/veh	17.12		17.12
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	11.03		11.03

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	829		618		456	814		1.0179	
2	Lake Dr NB	None	373		497		917	836		0.4461	
3	Main St WB	None	503		448		422	890		0.5654	
4	Lake Dr SB	None	451		623		329	743		0.6070	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	98.60		98.60	80.92		F		F
2	Lake Dr NB	None	6.89		6.89	2.21		A		A
3	Main St WB	None	8.41		8.41	3.90		A		A
4	Lake Dr SB	None	10.20		10.20	4.54		B		B

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2156		2156
Capacity	veh/hr	3283		3283
Average Delay	sec/veh	43.20		43.20
L.O.S. (Signal)	A – F	D		D
L.O.S. (Unsig)	A – F	E		E
Total Delay	veh.hrs	25.87		25.87

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	793		502		933	902		0.8788	
2	Lake Dr NB	None	1158		531		761	871		1.3295	
3	Main St WB	None	674		867		536	697		0.9673	
4	Lake Dr SB	None	469		967		566	657		0.7140	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	26.04		26.04	16.53		D		D
2	Lake Dr NB	None	546.24		546.24	597.75		F		F
3	Main St WB	None	57.74		57.74	28.40		F		F
4	Lake Dr SB	None	17.28		17.28	6.44		C		C

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3094		3094
Capacity	veh/hr	3127		3127
Average Delay	sec/veh	226.31		226.31
L.O.S. (Signal)	A – F	F		F
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	194.51		194.51

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	836		619		458	814		1.0272	
2	Lake Dr NB	None	375		497		921	836		0.4485	
3	Main St WB	None	503		451		421	888		0.5661	
4	Lake Dr SB	None	452		625		329	742		0.6092	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	105.68		105.68	86.03		F		F
2	Lake Dr NB	None	6.91		6.91	2.23		A		A
3	Main St WB	None	8.44		8.44	3.91		A		A
4	Lake Dr SB	None	10.27		10.27	4.58		B		B

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2166		2166
Capacity	veh/hr	3281		3281
Average Delay	sec/veh	46.09		46.09
L.O.S. (Signal)	A – F	D		D
L.O.S. (Unsig)	A – F	E		E
Total Delay	veh.hrs	27.73		27.73

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	None	799		503		935	902		0.8860	
2	Lake Dr NB	None	1160		533		766	870		1.3332	
3	Main St WB	None	675		867		536	696		0.9692	
4	Lake Dr SB	None	470		968		566	656		0.7163	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	None	27.25		27.25	17.41		D		D
2	Lake Dr NB	None	551.70		551.70	604.70		F		F
3	Main St WB	None	58.67		58.67	28.87		F		F
4	Lake Dr SB	None	17.42		17.42	6.51		C		C

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3104		3104
Capacity	veh/hr	3125		3125
Average Delay	sec/veh	228.59		228.59
L.O.S. (Signal)	A – F	F		F
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	197.09		197.09

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	Yield	504	325	618	618	456	814	752	0.6189	0.4321
2	Lake Dr NB	None	372		517		929	1251		0.2973	
3	Main St WB	None	503		456		433	1047		0.4806	
4	Lake Dr SB	None	451		623		336	825		0.5466	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	Yield	17.18	9.79	14.28	16.55	4.83	C	A	B
2	Lake Dr NB	None	6.11		6.11	2.85		A		A
3	Main St WB	None	7.82		7.82	5.31		A		A
4	Lake Dr SB	None	9.54		9.54	6.46		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1830	325	2155
Capacity	veh/hr	3937	752	4689
Average Delay	sec/veh	10.48	9.79	10.37
L.O.S. (Signal)	A – F	B	A	B
L.O.S. (Unsig)	A – F	B	A	B
Total Delay	veh.hrs	5.33	0.88	6.21

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	Yield	503	290	504	504	1047	901	829	0.5582	0.3498
2	Lake Dr NB	None	1158		533		764	1315		0.8803	
3	Main St WB	None	674		1076		611	810		0.8317	
4	Lake Dr SB	None	469		1083		665	754		0.6221	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	Yield	8.52	6.61	7.82	3.39	1.50	A	A	A
2	Lake Dr NB	None	27.65		27.65	24.68		D		D
3	Main St WB	None	24.79		24.79	13.53		C		C
4	Lake Dr SB	None	11.74		11.74	4.45		B		B

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2804	290	3094
Capacity	veh/hr	3781	829	4610
Average Delay	sec/veh	20.87	6.61	19.53
L.O.S. (Signal)	A – F	C	A	B
L.O.S. (Unsig)	A – F	C	A	C
Total Delay	veh.hrs	16.25	0.53	16.79

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	Yield	506	330	619	619	458	814	752	0.6218	0.4390
2	Lake Dr NB	None	375		519		935	1249		0.3001	
3	Main St WB	None	503		459		435	1045		0.4811	
4	Lake Dr SB	None	452		625		337	824		0.5483	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	Yield	17.50	9.99	14.53	17.01	5.05	C	A	B
2	Lake Dr NB	None	6.18		6.18	2.91		A		A
3	Main St WB	None	7.85		7.85	5.34		A		A
4	Lake Dr SB	None	9.60		9.60	6.53		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1836	330	2166
Capacity	veh/hr	3933	752	4685
Average Delay	sec/veh	10.60	9.99	10.51
L.O.S. (Signal)	A – F	B	A	B
L.O.S. (Unsig)	A – F	B	A	B
Total Delay	veh.hrs	5.40	0.92	6.32

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Main St EB	Yield	505	294	505	505	1050	901	828	0.5608	0.3549
2	Lake Dr NB	None	1160		535		769	1314		0.8831	
3	Main St WB	None	675		1079		612	809		0.8343	
4	Lake Dr SB	None	470		1086		666	753		0.6244	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Main St EB	Yield	8.57	6.67	7.87	3.42	1.54	A	A	A
2	Lake Dr NB	None	28.18		28.18	25.19		D		D
3	Main St WB	None	25.11		25.11	13.72		D		D
4	Lake Dr SB	None	11.82		11.82	4.49		B		B

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2810	294	3104
Capacity	veh/hr	3776	828	4604
Average Delay	sec/veh	21.18	6.67	19.81
L.O.S. (Signal)	A – F	C	A	B
L.O.S. (Unsig)	A – F	C	A	C
Total Delay	veh.hrs	16.53	0.54	17.08

Operational Results

2025 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	530		50		280	1168		0.4539	
2	Main St NB	None	111		311		269	970		0.1145	
3	Main St WB	None	250		80		342	1160		0.2156	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	5.64		5.64	3.69		A		A
2	Main St NB	None	3.93		3.93	0.48		A		A
3	Main St WB	None	3.83		3.83	1.04		A		A

Global Results

Performance and Accidents

2025 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	891		891
Capacity	veh/hr	3297		3297
Average Delay	sec/veh	4.92		4.92
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.22		1.22

Operational Results

2025 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	510		39		583	1173		0.4346	
2	Main St NB	None	193		362		187	1000		0.1930	
3	Main St WB	None	485		137		418	1130		0.4292	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	5.19		5.19	2.05		A		A
2	Main St NB	None	4.32		4.32	0.65		A		A
3	Main St WB	None	5.34		5.34	2.01		A		A

Global Results

Performance and Accidents

2025 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1188		1188
Capacity	veh/hr	3304		3304
Average Delay	sec/veh	5.11		5.11
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.69		1.69

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	564		92		298	1145		0.4927	
2	Main St NB	None	156		331		325	960		0.1626	
3	Main St WB	None	267		123		364	1136		0.2351	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	6.32		6.32	4.59		A		A
2	Main St NB	None	4.21		4.21	0.73		A		A
3	Main St WB	None	4.02		4.02	1.18		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	987		987
Capacity	veh/hr	3240		3240
Average Delay	sec/veh	5.36		5.36
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.47		1.47

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	543		55		620	1165		0.4661	
2	Main St NB	None	219		385		213	988		0.2217	
3	Main St WB	None	516		159		445	1118		0.4614	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	5.52		5.52	2.32		A		A
2	Main St NB	None	4.53		4.53	0.77		A		A
3	Main St WB	None	5.70		5.70	2.28		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1278		1278
Capacity	veh/hr	3271		3271
Average Delay	sec/veh	5.43		5.43
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.93		1.93

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	63		697		29	819		0.0769	
2	Main St EB	None	645		263		498	1051		0.6136	
3	Sunset Ave NB	None	296		421		485	980		0.3021	
4	Main St WB	None	470		257		460	1005		0.4675	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	4.65		4.65	0.31		A		A
2	Main St EB	None	9.25		9.25	7.90		A		A
3	Sunset Ave NB	None	5.13		5.13	1.66		A		A
4	Main St WB	None	6.27		6.27	3.37		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1474		1474
Capacity	veh/hr	3855		3855
Average Delay	sec/veh	7.27		7.27
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.98		2.98

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	49		915		84	711		0.0689	
2	Main St EB	None	794		189		775	1093		0.7266	
3	Sunset Ave NB	None	392		612		371	879		0.4462	
4	Main St WB	None	695		304		700	1040		0.6683	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.27		5.27	0.23		A		A
2	Main St EB	None	11.11		11.11	8.42		B		B
3	Sunset Ave NB	None	7.07		7.07	2.51		A		A
4	Main St WB	None	9.75		9.75	6.38		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1930		1930
Capacity	veh/hr	3723		3723
Average Delay	sec/veh	9.65		9.65
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	5.17		5.17

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	206		601		82	871		0.2364	
2	Main St EB	None	644		309		498	1027		0.6270	
3	Sunset Ave NB	None	288		466		485	956		0.3012	
4	Main St WB	None	402		281		473	993		0.4047	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.31		5.31	1.21		A		A
2	Main St EB	None	10.00		10.00	8.81		A		A
3	Sunset Ave NB	None	5.27		5.27	1.67		A		A
4	Main St WB	None	5.67		5.67	2.53		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1540		1540
Capacity	veh/hr	3848		3848
Average Delay	sec/veh	7.36		7.36
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.15		3.15

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	160		840		259	751		0.2131	
2	Main St EB	None	795		224		776	1074		0.7402	
3	Sunset Ave NB	None	397		648		371	859		0.4619	
4	Main St WB	None	685		414		631	981		0.6985	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.88		5.88	0.84		A		A
2	Main St EB	None	11.87		11.87	9.13		B		B
3	Sunset Ave NB	None	7.43		7.43	2.70		A		A
4	Main St WB	None	11.34		11.34	7.57		B		B

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2037		2037
Capacity	veh/hr	3665		3665
Average Delay	sec/veh	10.36		10.36
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	B		B
Total Delay	veh.hrs	5.86		5.86

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	674		95		669	1143		0.5896	
2	Main St NB	None	187		395		374	927		0.2017	
3	Main St WB	None	617		147		435	1122		0.5497	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	8.37		8.37	8.10		A		A
2	Main St NB	None	4.60		4.60	0.99		A		A
3	Main St WB	None	7.60		7.60	6.53		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1478		1478
Capacity	veh/hr	3193		3193
Average Delay	sec/veh	7.57		7.57
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.11		3.11

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave EB	None	648		66		741	1159		0.5590	
2	Main St NB	None	262		460		254	948		0.2765	
3	Main St WB	None	617		190		532	1101		0.5601	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave EB	None	6.65		6.65	3.34		A		A
2	Main St NB	None	5.07		5.07	1.04		A		A
3	Main St WB	None	7.01		7.01	3.37		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1527		1527
Capacity	veh/hr	3208		3208
Average Delay	sec/veh	6.53		6.53
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.77		2.77

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	73		1213		33	540		0.1352	
2	Main St EB	None	866		437		849	956		0.9062	
3	Sunset Ave NB	None	407		597		701	887		0.4590	
4	Main St WB	None	957		315		689	976		0.9806	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	7.42		7.42	0.57		A		A
2	Main St EB	None	54.22		54.22	78.60		F		F
3	Sunset Ave NB	None	7.38		7.38	3.44		A		A
4	Main St WB	None	84.51		84.51	116.71		F		F

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2303		2303
Capacity	veh/hr	3358		3358
Average Delay	sec/veh	57.05		57.05
L.O.S. (Signal)	A – F	E		E
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	36.49		36.49

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	55		1280		83	519		0.1061	
2	Main St EB	None	1247		295		1040	1036		1.2039	
3	Sunset Ave NB	None	406		859		472	747		0.5436	
4	Main St WB	None	1116		350		915	1015		1.0992	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	7.46		7.46	0.34		A		A
2	Main St EB	None	320.99		320.99	403.45		F		F
3	Sunset Ave NB	None	9.93		9.93	3.49		A		A
4	Main St WB	None	176.67		176.67	189.61		F		F

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2824		2824
Capacity	veh/hr	3316		3316
Average Delay	sec/veh	213.13		213.13
L.O.S. (Signal)	A – F	F		F
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	167.19		167.19

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	327		1114		106	595		0.5496	
2	Main St EB	None	869		567		873	886		0.9806	
3	Sunset Ave NB	None	496		643		763	862		0.5755	
4	Main St WB	None	749		475		663	894		0.8378	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	16.41		16.41	8.68		C		C
2	Main St EB	None	119.57		119.57	129.66		F		F
3	Sunset Ave NB	None	9.68		9.68	5.79		A		A
4	Main St WB	None	31.17		31.17	45.44		D		D

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2441		2441
Capacity	veh/hr	3237		3237
Average Delay	sec/veh	56.30		56.30
L.O.S. (Signal)	A – F	E		E
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	38.17		38.17

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	242		1193		288	564		0.4289	
2	Main St EB	None	1251		386		1049	987		1.2671	
3	Sunset Ave NB	None	659		865		509	744		0.8858	
4	Main St WB	None	978		606		914	877		1.1155	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	10.55		10.55	2.21		B		B
2	Main St EB	None	411.32		411.32	517.18		F		F
3	Sunset Ave NB	None	33.04		33.04	21.65		D		D
4	Main St WB	None	199.92		199.92	192.23		F		F

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3130		3130
Capacity	veh/hr	3172		3172
Average Delay	sec/veh	234.64		234.64
L.O.S. (Signal)	A – F	F		F
L.O.S. (Unsig)	A – F	F		F
Total Delay	veh.hrs	204.00		204.00

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	73		1238		33	720		0.1014	
2	Main St EB	None	866		445		867	1337		0.6477	
3	Sunset Ave NB	None	407		600		711	966		0.4212	
4	Main St WB	None	957		315		692	1554		0.6157	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.49		5.49	0.45		A		A
2	Main St EB	None	12.04		12.04	14.84		B		B
3	Sunset Ave NB	None	6.38		6.38	3.04		A		A
4	Main St WB	None	9.17		9.17	11.69		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2303		2303
Capacity	veh/hr	4578		4578
Average Delay	sec/veh	9.64		9.64
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	6.17		6.17

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	55		1378		93	666		0.0825	
2	Main St EB	None	1247		315		1119	1542		0.8087	
3	Sunset Ave NB	None	606		1029		531	807		0.7508	
4	Main St WB	None	1116		356		1277	1515		0.7368	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.70		5.70	0.28		A		A
2	Main St EB	None	13.82		13.82	17.91		B		B
3	Sunset Ave NB	None	16.70		16.70	10.97		C		C
4	Main St WB	None	10.38		10.38	11.37		B		B

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3024		3024
Capacity	veh/hr	4530		4530
Average Delay	sec/veh	12.98		12.98
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	B		B
Total Delay	veh.hrs	10.90		10.90

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	327		1118		109	766		0.4268	
2	Main St EB	None	869		568		876	1225		0.7095	
3	Sunset Ave NB	None	496		662		774	942		0.5265	
4	Main St WB	None	750		478		680	1395		0.5375	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	8.58		8.58	3.75		A		A
2	Main St EB	None	18.70		18.70	27.32		C		C
3	Sunset Ave NB	None	8.24		8.24	5.23		A		A
4	Main St WB	None	9.19		9.19	8.95		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2442		2442
Capacity	veh/hr	4328		4328
Average Delay	sec/veh	12.30		12.30
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	B		B
Total Delay	veh.hrs	8.34		8.34

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	242		1290		331	700		0.3456	
2	Main St EB	None	1252		407		1125	1453		0.8618	
3	Sunset Ave NB	None	659		1077		580	789		0.8356	
4	Main St WB	None	978		645		1088	1235		0.7921	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	7.54		7.54	1.67		A		A
2	Main St EB	None	19.81		19.81	28.17		C		C
3	Sunset Ave NB	None	25.05		25.05	19.18		D		D
4	Main St WB	None	16.52		16.52	17.54		C		C

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3131		3131
Capacity	veh/hr	4177		4177
Average Delay	sec/veh	18.94		18.94
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	16.47		16.47

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	491		44		179	1077		0.4560	
2	Lilac St NB	None	139		480		55	901		0.1543	
3	Sunset Ave WB	None	67		156		463	1081		0.0620	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	5.66		5.66	3.02		A		A
2	Lilac St NB	None	4.59		4.59	0.67		A		A
3	Sunset Ave WB	None	3.42		3.42	0.22		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	697		697
Capacity	veh/hr	3058		3058
Average Delay	sec/veh	5.23		5.23
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.01		1.01

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	260		39		378	1144		0.2273	
2	Lilac St NB	None	329		246		53	1033		0.3185	
3	Sunset Ave WB	None	100		317		258	995		0.1005	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	3.94		3.94	0.81		A		A
2	Lilac St NB	None	4.92		4.92	1.30		A		A
3	Sunset Ave WB	None	3.90		3.90	0.31		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	689		689
Capacity	veh/hr	3172		3172
Average Delay	sec/veh	4.40		4.40
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	0.84		0.84

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	667		44		273	1077		0.6195	
2	Lilac St NB	None	193		652		59	806		0.2394	
3	Sunset Ave WB	None	78		239		606	1036		0.0753	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	8.17		8.17	6.68		A		A
2	Lilac St NB	None	5.79		5.79	1.27		A		A
3	Sunset Ave WB	None	3.63		3.63	0.28		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	938		938
Capacity	veh/hr	2919		2919
Average Delay	sec/veh	7.31		7.31
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.90		1.90

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	407		39		609	1144		0.3559	
2	Lilac St NB	None	503		379		67	962		0.5228	
3	Sunset Ave WB	None	135		513		369	891		0.1516	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	4.69		4.69	1.53		A		A
2	Lilac St NB	None	7.42		7.42	3.09		A		A
3	Sunset Ave WB	None	4.61		4.61	0.50		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1045		1045
Capacity	veh/hr	2996		2996
Average Delay	sec/veh	6.00		6.00
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.74		1.74

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	667		44		273	1077		0.6195	
2	Lilac St NB	None	193		652		59	806		0.2394	
3	Sunset Ave WB	None	78		239		606	1036		0.0753	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	8.17		8.17	6.68		A		A
2	Lilac St NB	None	5.79		5.79	1.27		A		A
3	Sunset Ave WB	None	3.63		3.63	0.28		A		A

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	938		938
Capacity	veh/hr	2919		2919
Average Delay	sec/veh	7.31		7.31
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.90		1.90

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	407		39		609	1144		0.3559	
2	Lilac St NB	None	503		379		67	962		0.5228	
3	Sunset Ave WB	None	135		513		369	891		0.1516	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	4.69		4.69	1.53		A		A
2	Lilac St NB	None	7.42		7.42	3.09		A		A
3	Sunset Ave WB	None	4.61		4.61	0.50		A		A

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1045		1045
Capacity	veh/hr	2996		2996
Average Delay	sec/veh	6.00		6.00
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.74		1.74

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	312		53		407	1072		0.2910	
2	Lilac St NB	None	394		295		70	1002		0.3931	
3	Sunset Ave WB	None	80		380		309	961		0.0833	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	4.38		4.38	1.38		A		A
2	Lilac St NB	None	5.79		5.79	2.55		A		A
3	Sunset Ave WB	None	3.95		3.95	0.32		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	786		786
Capacity	veh/hr	3035		3035
Average Delay	sec/veh	5.05		5.05
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.10		1.10

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	312		46		453	1140		0.2737	
2	Lilac St NB	None	394		295		63	1007		0.3913	
3	Sunset Ave WB	None	119		380		309	962		0.1238	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	4.19		4.19	1.04		A		A
2	Lilac St NB	None	5.62		5.62	1.80		A		A
3	Sunset Ave WB	None	4.14		4.14	0.39		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	825		825
Capacity	veh/hr	3108		3108
Average Delay	sec/veh	4.87		4.87
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.12		1.12

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	927		126		307	1076		0.8615	
2	Lilac St NB	None	299		106		931	1107		0.2701	
3	Sunset Ave WB	None	169		264		141	1024		0.1651	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	30.81		30.81	54.09		D		D
2	Lilac St NB	None	4.29		4.29	1.30		A		A
3	Sunset Ave WB	None	4.07		4.07	0.69		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1395		1395
Capacity	veh/hr	3207		3207
Average Delay	sec/veh	21.89		21.89
L.O.S. (Signal)	A – F	C		C
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	8.48		8.48

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	577		100		822	1111		0.5193	
2	Lilac St NB	None	815		119		558	1101		0.7403	
3	Sunset Ave WB	None	224		698		236	792		0.2829	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	6.39		6.39	2.99		A		A
2	Lilac St NB	None	11.42		11.42	7.85		B		B
3	Sunset Ave WB	None	6.10		6.10	1.13		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1616		1616
Capacity	veh/hr	3004		3004
Average Delay	sec/veh	8.88		8.88
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	3.99		3.99

Operational Results

2045 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	992		127		332	1075		0.9224	
2	Lilac St NB	None	302		165		937	1075		0.2808	
3	Sunset Ave WB	None	192		267		201	1022		0.1879	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	52.22		52.22	88.29		F		F
2	Lilac St NB	None	4.48		4.48	1.37		A		A
3	Sunset Ave WB	None	4.19		4.19	0.81		A		A

Global Results

Performance and Accidents

2045 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1486		1486
Capacity	veh/hr	3173		3173
Average Delay	sec/veh	36.31		36.31
L.O.S. (Signal)	A – F	D		D
L.O.S. (Unsig)	A – F	E		E
Total Delay	veh.hrs	14.99		14.99

Operational Results

2045 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Sunset Ave SB	None	627		101		893	1111		0.5646	
2	Lilac St NB	None	819		164		564	1077		0.7605	
3	Sunset Ave WB	None	293		701		282	790		0.3707	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Sunset Ave SB	None	7.02		7.02	3.59		A		A
2	Lilac St NB	None	12.55		12.55	8.76		B		B
3	Sunset Ave WB	None	6.93		6.93	1.70		A		A

Global Results

Performance and Accidents

2045 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1739		1739
Capacity	veh/hr	2978		2978
Average Delay	sec/veh	9.61		9.61
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	4.64		4.64

Appendix C:

Turn Lane Warrant Sheets

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

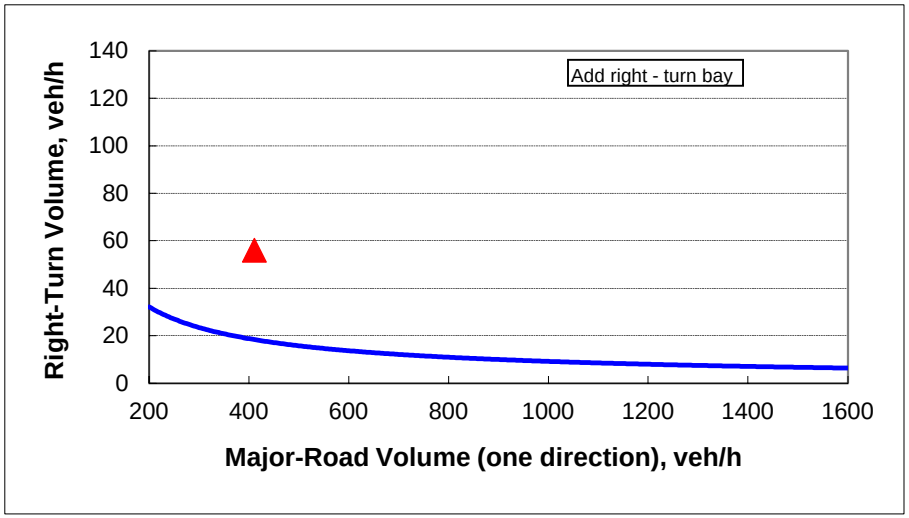
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	55
Major-road volume (one direction), veh/h:	411
Right-turn volume, veh/h:	56

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	18
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access A - 2030 Scenario 1 NBR Warrant

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

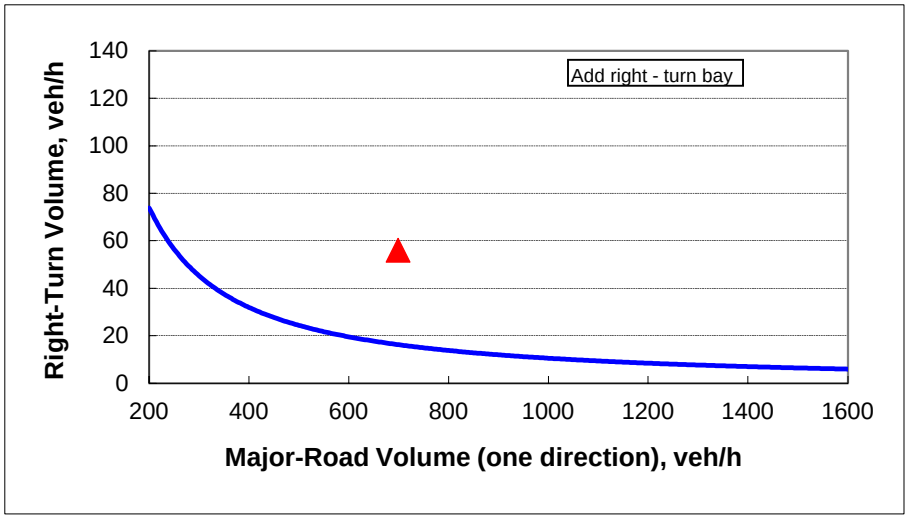
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	699
Right-turn volume, veh/h:	56

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	16
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access B - 2030 Scenario 1 EBR Warrant

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

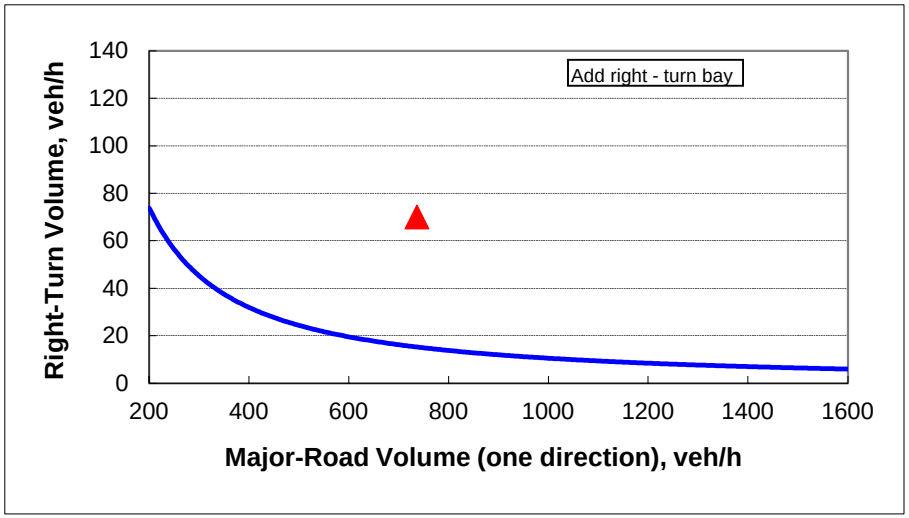
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	737
Right-turn volume, veh/h:	70

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	15
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access B - 2030 Scenario 1 WBR Warrant

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

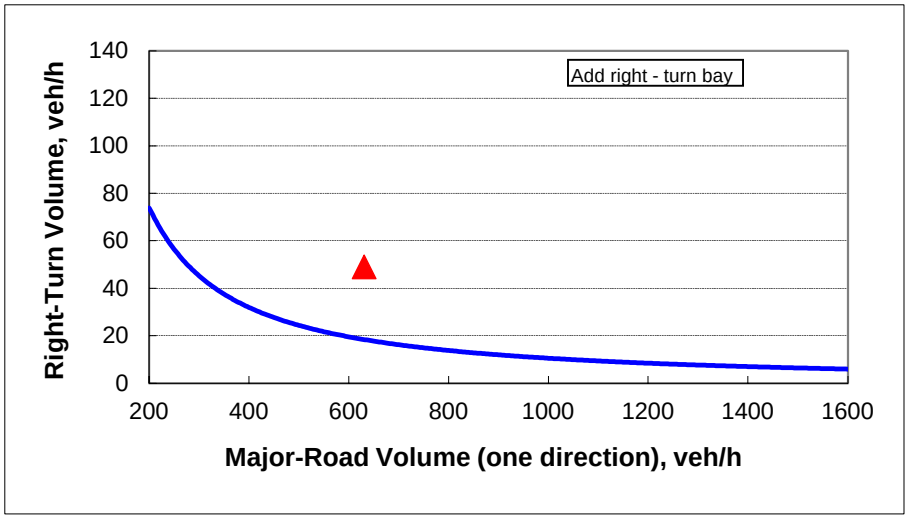
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	631
Right-turn volume, veh/h:	49

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	18
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access D - 2030 Scenario 1 EBR Warrant

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

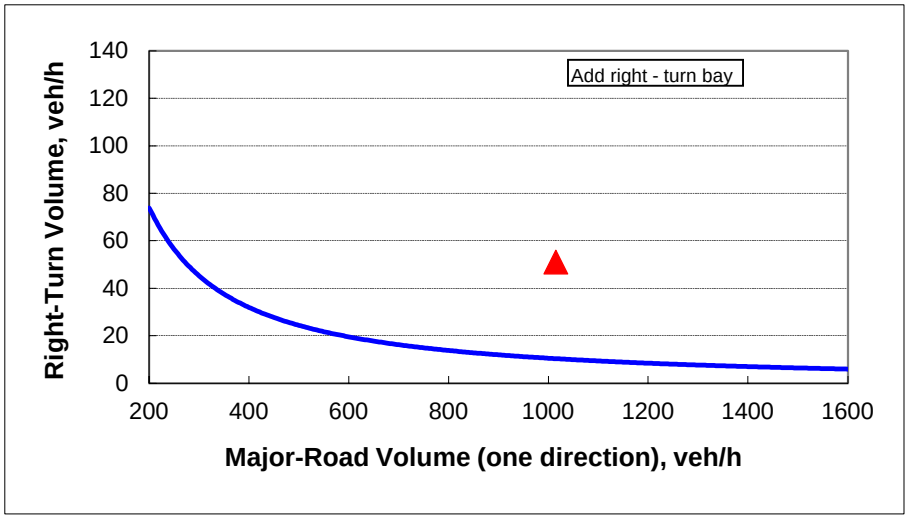
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	1015
Right-turn volume, veh/h:	51

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	10
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access D - 2045 Scenario 1 WBR Warrant

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

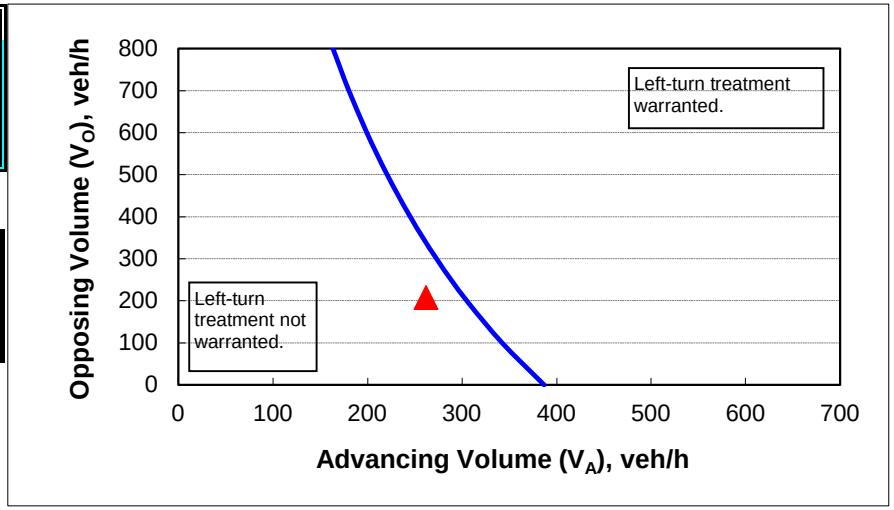
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	42
Percent of left-turns in advancing volume (V_A), %:	26%
Advancing volume (V_A), veh/h:	262
Opposing volume (V_O), veh/h:	208

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	302
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

Access E - 2045 Scenario 1 NBL Warrant

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

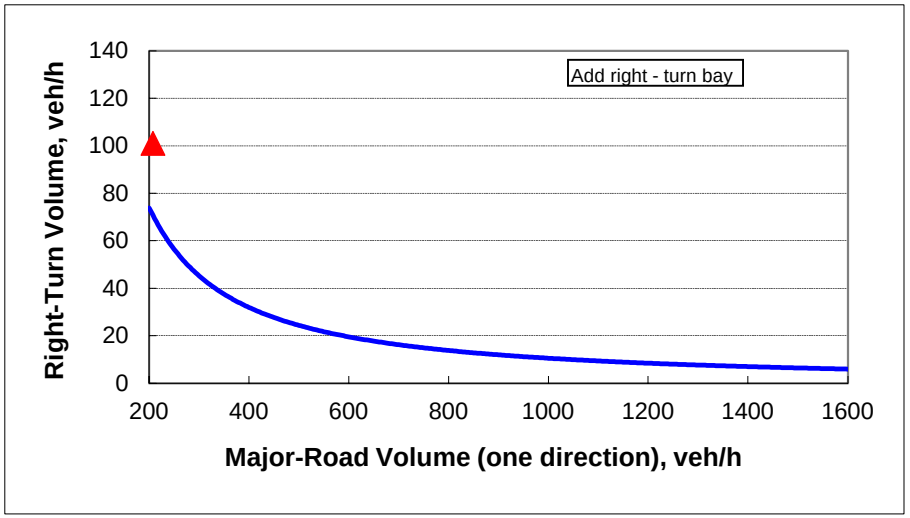
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	208
Right-turn volume, veh/h:	101

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	70
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access E - 2045 Scenario 1 SBR Warrant

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

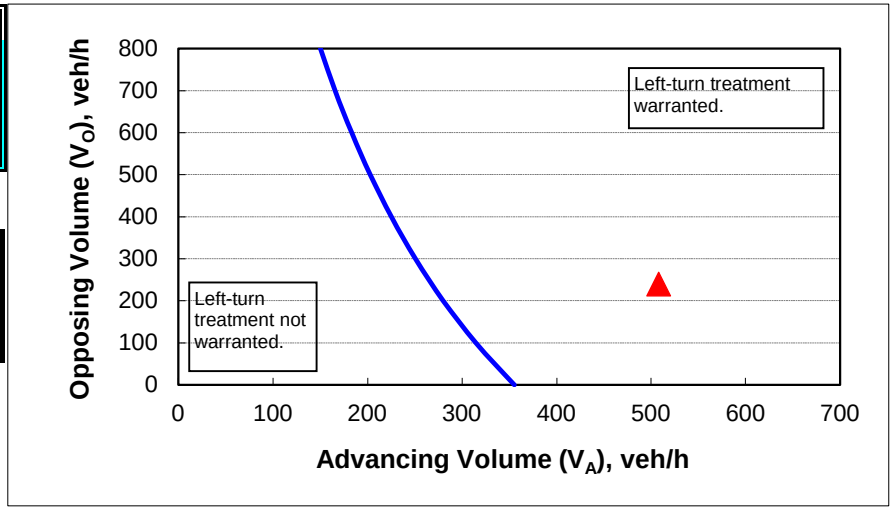
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	30%
Advancing volume (V_A), veh/h:	508
Opposing volume (V_O), veh/h:	240

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	268
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

Access F - 2045 Scenario 1 NBL Warrant

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

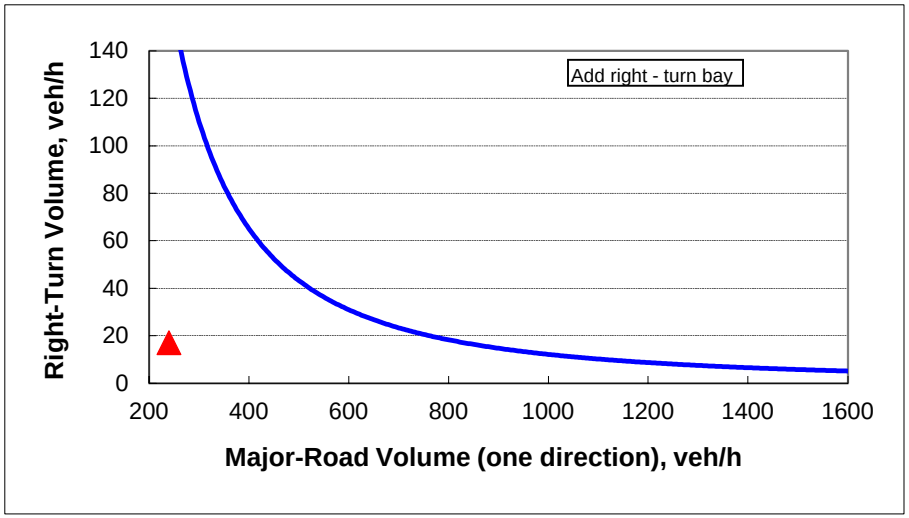
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	240
Right-turn volume, veh/h:	17

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	166
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Access F - 2045 Scenario 1 SBR Warrant

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

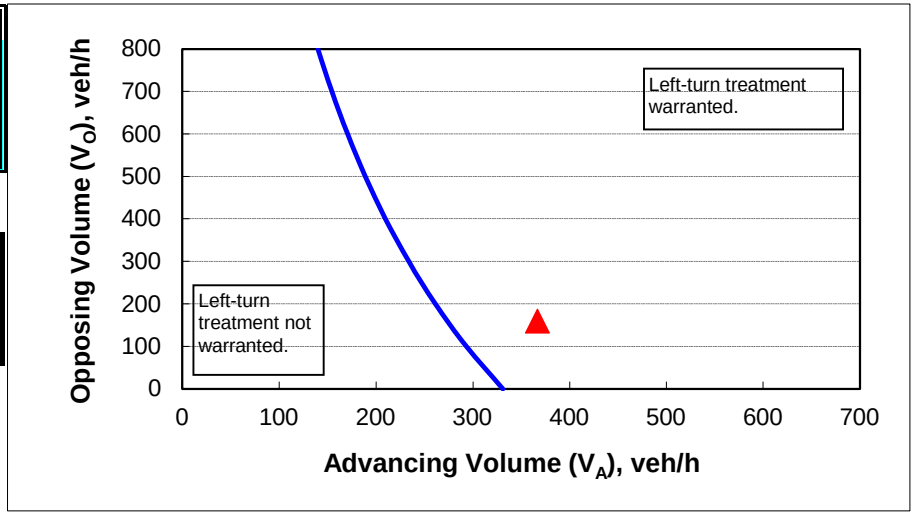
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	41%
Advancing volume (V_A), veh/h:	367
Opposing volume (V_O), veh/h:	159

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	274
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

Access G - 2045 Scenario 1 NBL Warrant

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

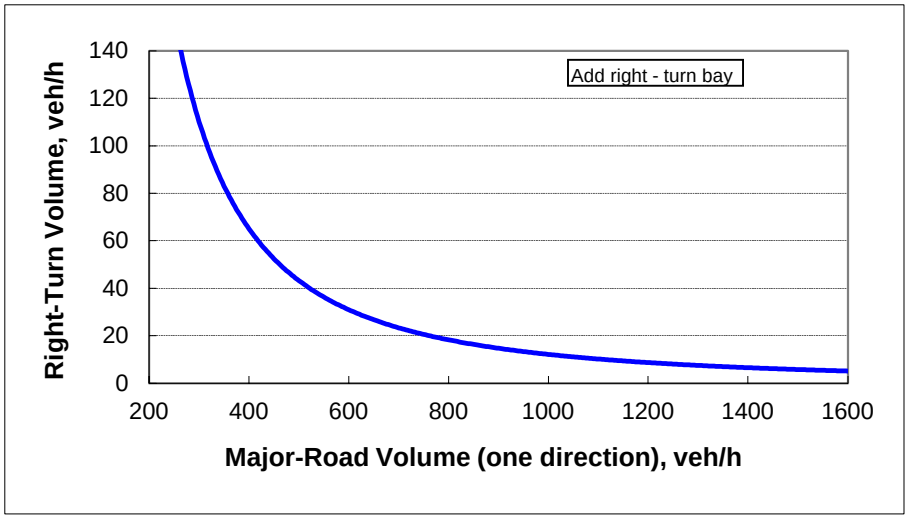
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	159
Right-turn volume, veh/h:	17

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	352
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Access G - 2045 Scenario 1 SBR Warrant

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

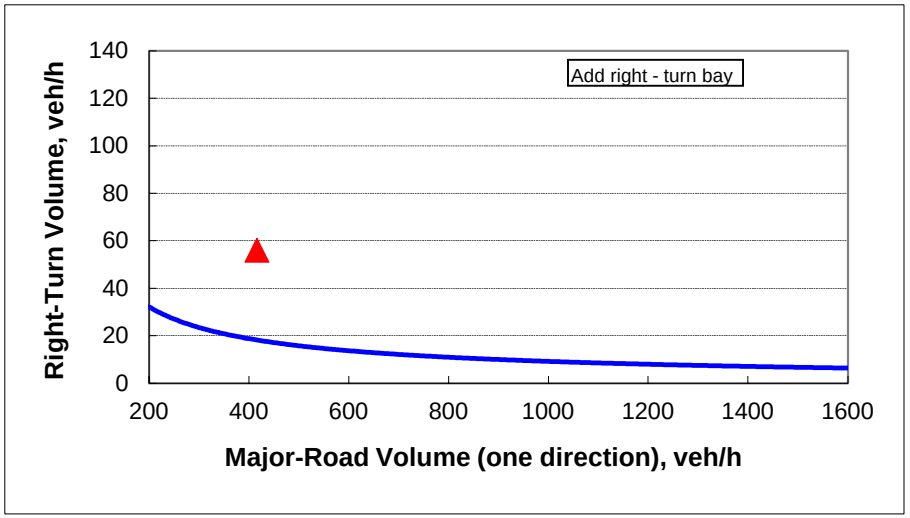
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	55
Major-road volume (one direction), veh/h:	416
Right-turn volume, veh/h:	56

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	18
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access A - 2030 Scenario 2 NBR

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

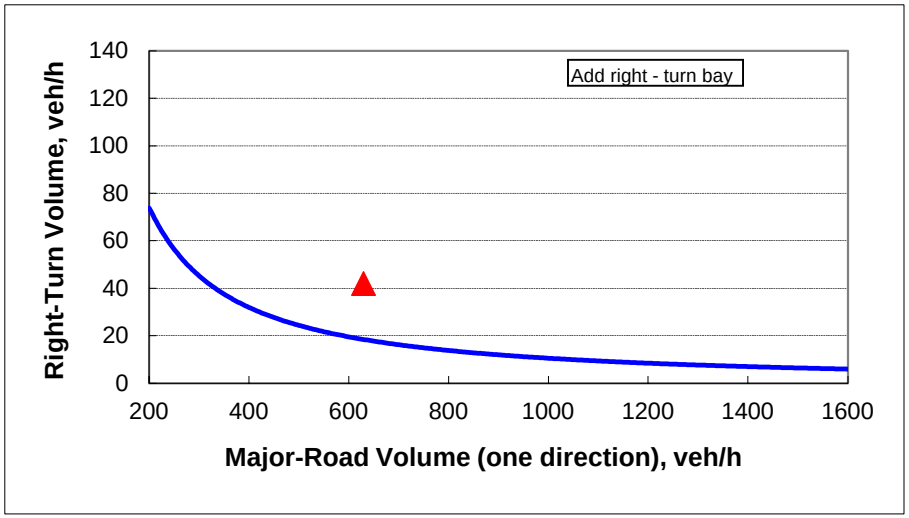
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	630
Right-turn volume, veh/h:	42

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	18
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access B - 2030 Scenario 2 EBR

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

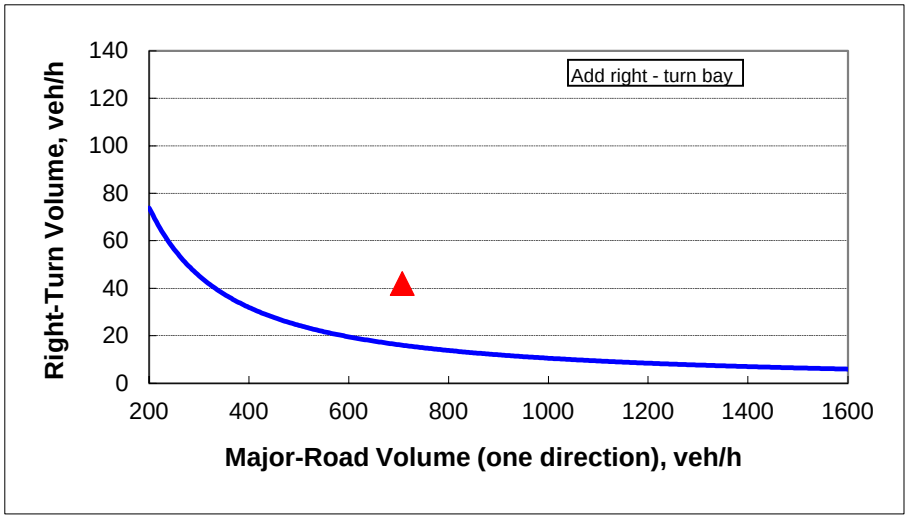
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	707
Right-turn volume, veh/h:	42

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	16
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access B - 2030 Scenario 2 WBR

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

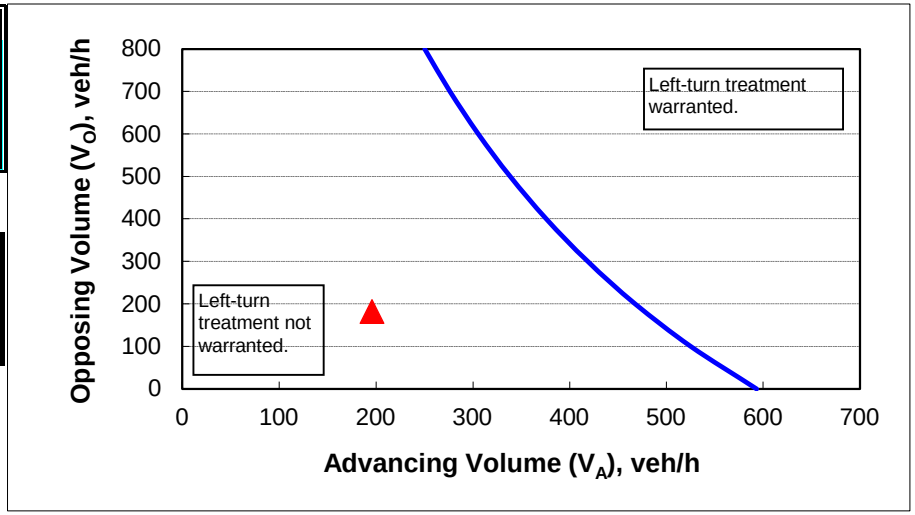
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	42
Percent of left-turns in advancing volume (V_A), %:	9%
Advancing volume (V_A), veh/h:	196
Opposing volume (V_O), veh/h:	182

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	477
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

Access E - 2045 Scenario 2 NBL

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

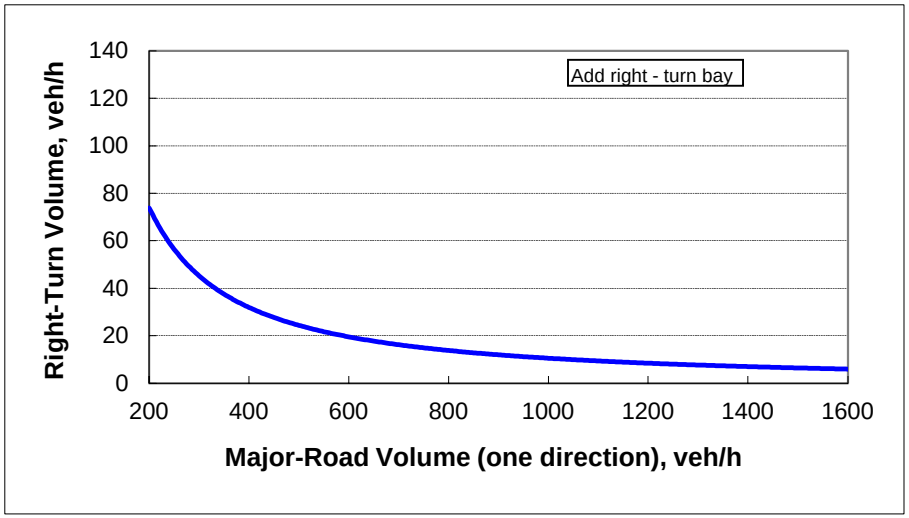
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	182
Right-turn volume, veh/h:	85

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	83
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Access E - 2045 Scenario 2 SBR

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

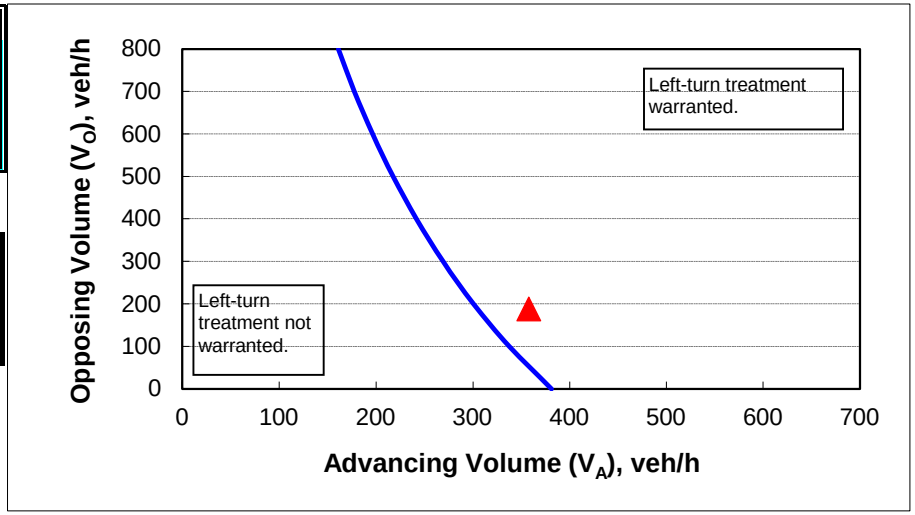
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	24%
Advancing volume (V_A), veh/h:	358
Opposing volume (V_O), veh/h:	188

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	305
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

Access F - 2045 Scenario 2 NBL

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

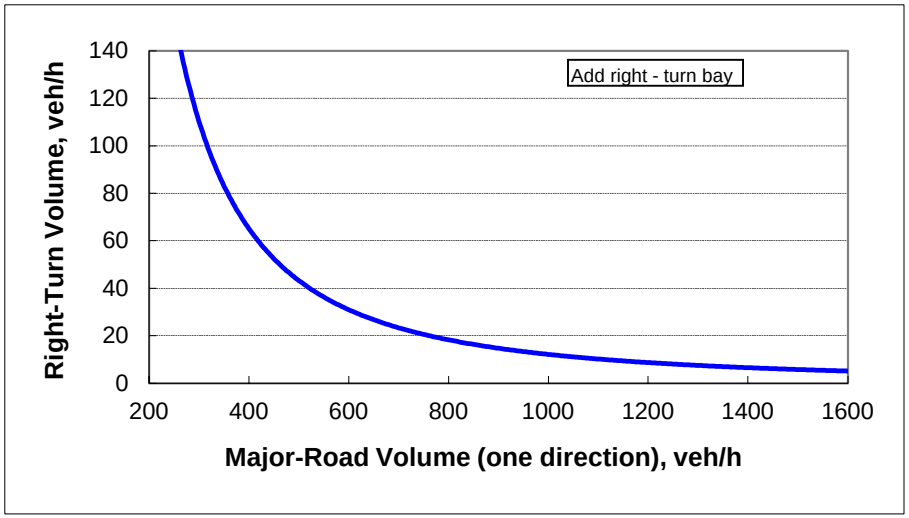
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	188
Right-turn volume, veh/h:	17

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	259
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Access F - 2045 Scenario 2 SBR

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

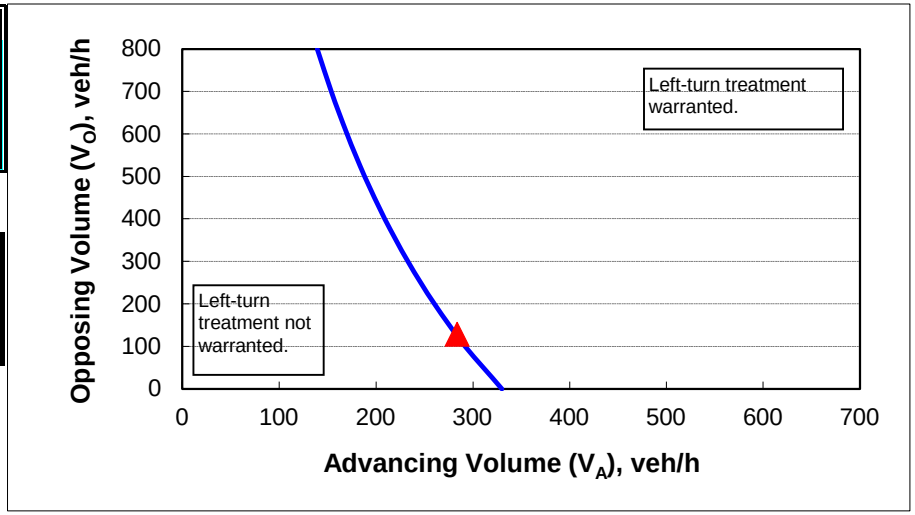
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	42%
Advancing volume (V_A), veh/h:	284
Opposing volume (V_O), veh/h:	128

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	283
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

Access G - 2045 Scenario 2 NBL

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

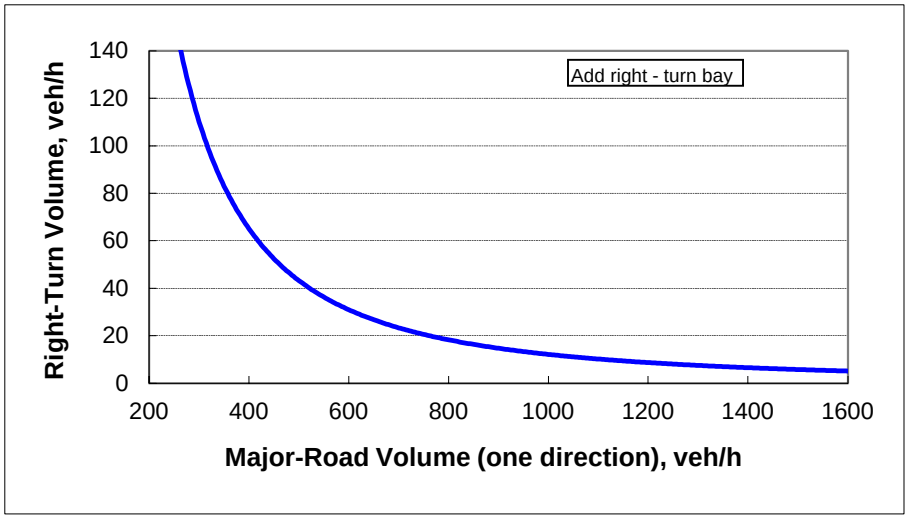
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	128
Right-turn volume, veh/h:	17

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	524
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Access G - 2045 Scenario 2 SBR

Appendix E:
Comment Responses

OVERVIEW

Pursuant to Minnesota Rules, part 4410.3610, subpart 5a(C), the Responsible Governmental Unit (RGU) shall revise the environmental analysis document based on comments received during the comment period. The RGU shall include in the document a section specifically responding to each timely, substantive comment received that indicates in what way the comment has been addressed.

The 30-day Alternative Urban Areawide Review (AUAR) comment period began May 27, 2025, and comments were accepted through June 26, 2025. Five comment letters were received from government agencies and 12 comment letters were received from the public. Responses to those comments are included in the following sections, and copies of the comment letters are included in Appendix F.

AGENCY COMMENTS

Comment	Response
1. Metropolitan Council	
Item 6 - Project Description	
The AUAR presents two scenarios for planned land use and accompanying development. Scenario 1 has an ultimate capacity of 3,400 housing units, 60,000 sq. ft. of commercial use, with intense mixed residential and commercial arrays along Main Street. Scenario 2, the preferred scenario, includes 3,500 housing units, 62,000 sq. ft. of commercial use, with greatest intensity shifted 1/3 mile west of the Scenario 1 concept, at Main Street & Sunset. Should future development result in ultimate levels of Scenarios 1 or 2, the result would exceed citywide forecasts for Lino Lakes. The AUAR area includes parts of Transportation Analysis Zones # 182 (south of Main) and 183 (north of Main). In its 2040 Comprehensive Plan the City expected additions of 814 households, 2,120 population, and 18 jobs in these two zones during 2020-2040. Council staff may recommend a different allocation at the time of the 2050 Plan update.	Thank you for your review. Comment noted.
Item 7 - Climate Adaptation and Resilience	
The discussion of anticipated climate trends is adequate; however, the AUAR would benefit from considering if different scenarios merit different adaptations. The list of adaptations is well suited to both scenarios, but the project proposer should consider how the different scenarios lend themselves to different street patterns and how adaptations like clustering development could reduce the impervious surfaces associated with single-family residential uses.	Comment noted. The City will encourage developers to consider adaptation strategies to reduce impervious surface.

Comment	Response
Item 9 - Permits and approvals	
The City will need to amend their comprehensive plan to reflect the proposed land use changes, development staging, and the corresponding wastewater flow projections before any MPCA sanitary sewer extension permit applications can be recommended for approval by the Council. This information will allow the Council time for the needed improvements, to ensure capacity is available for growth within the AUAR project area	Comment noted.
Item 10 – Land Use	
The land uses presented in Scenario 1 appear consistent with the 2040 Comprehensive Plan. Scenario 2 proposes high and medium density housing, and commercial development around Main Street and Sunset Avenue, with low-density on the eastern side of the subject site. Any changes to land use, density, or intensity that deviates from the adopted comprehensive plan will require a comprehensive plan amendment process independent of the AUAR and will be subject to additional Council review.	Comment noted.
Item 10 – Land Use, Parks (received during 10-day objection period)	

Comment	Response
The planned Central Anoka Regional Trail overlaps the 962-acre study area. This regional trail has a Met Council-approved long-range plan, most recently amended in 2018. Anoka County Parks and Recreation is the Regional Park Implementing Agency that manages Central Anoka Regional Trail. The AUAR needs to reference the planned Central Anoka Regional Trail in Section 6. Project Description and Section 10. Land Use, parts ii, b, and c. The Parks and Trails section of Section 6 currently states that "the area's development will feature the construction of a segment of the Bunker-Chain of Lakes Regional Trail along Main Street" (pg. 8). This sentence needs to reference Central Anoka Regional Trail instead of Bunker (Hills)-Chain of Lakes Regional Trail. Bunker Hills-Chain of Lakes Regional Trail coincides with Elm Street, approximately 2.0 miles south of Central Anoka Regional Trail, which is planned to travel along Main Street (125th Avenue NE). Council Parks and Trails staff appreciate that "both scenarios also propose a network of trails through the future development, totaling 41,5000 linear feet (LF) of asphalt trail and 5,200 LF of regional trail" (pg. 8).	The Final AUAR has been updated to correct the trail name and include a description in project Section 6. Project Description and Section 10. Land Use.
Item 12 – Water Resources – water supply	
Chloride management best practices should be considered and implemented during the winter months to limit impacts to surrounding water bodies and wetlands.	Comment noted. The City encourages developers to use best practices to reduce chloride use in snow and ice removal.

Comment	Response
The AUAR states that the city's current water appropriation is not sufficient to meet the additional demand required by either scenario 1 or 2, and that additional water supply will be needed. Before developing, the city should work with the Minnesota DNR (DNR) and surrounding communities to assess the potential impacts of additional pumping on source water aquifers, connected ecosystems, and surrounding wells and ensure water will be available to meet future demands associated with this and other developments. Potential wellfield expansion in Lino Lakes and by nearby communities could impact each other and nearby private wells. The current use of the Prairie du Chien and Jordan aquifers as the sole source of water may need to be evaluated. Increasing the efficiency of water use by commercial, institutional, and industrial users may help eliminate or delay the need for additional water supply infrastructure, and lower costs for the city utility and its rate payers. Estimated water demands for scenarios 1 and 2 are equivalent to about 36% of the city's current water demands and 23% of demand in 2040, per the Lino Lakes 2040 Comprehensive Plan.	Comment noted.
If new wellfields are developed in the area, the city should consider the compatibility of these and additional development scenarios with Drinking Water Supply Management Areas (DWSMAs) and Wellhead Protection Plan goals. Any wells that are identified and abandoned during development should be sealed according to Minnesota Department of Health (MDH) standards.	Comment noted.
Capturing and storing water to be used for residential or commercial irrigation (or other purposes) would lessen flood risks for both development scenarios, while offsetting the demand for outdoor water uses. Using treated source water for outdoor purposes is costly, inefficient, and generates additional stress on sources and surrounding ecosystems during the summer months. Lessening these stressors improves the sustainability of supply sources and water supply systems.	The City is mandated to prioritize infiltration practices as required by the MPCA. In cases where infiltration is not permitted, reuse alternatives will be considered. The City will also recommend planting native and drought-tolerant species to minimize irrigation requirements.

Comment	Response
Much of the proposed development for scenarios 1 and 2 is in areas mapped as flood prone. Drainage ditches, pipes, and culverts are currently used to drain and route water out of the area for sod farming, lessening infiltration and altering near surface hydrology. However, as development proceeds, any new infrastructure including roads, homes, business, and utilities will contend with flood risk. The removal of drain tiles, ditches, etc. creates an opportunity for the city to restore wetland function in the area, thereby increasing infiltration and potential aquifer recharge and improving ground and surface water quality, with the added benefit of additional habitat and green space. The reduction of flood risk through nature-based water management can help to improve the longevity of developed infrastructure, with added climate adaptation and mitigation benefits.	Comment noted.
The Anoka Co. Geologic Atlas reference on page 31 section 11 is out of date. An update to the Anoka Co. Atlas part A was completed in 2013, with part B following in 2016. The AUAR should be updated to reflect and consider modern mapped geologic and hydrogeologic conditions. The AUAR should also consider water table information included in the geologic atlas's and estimated by the DNR in 2014. Soils in this area are either hydric or formerly hydric (drained hydric). These areas were wetlands prior to drainage and development for commercial agricultural purposes. New developments would contend with high water tables seasonally and during periods of increased precipitation.	Comment noted. The updated Anoka County Geologic Atlas was reviewed and included in Final AUAR.
Item 18 – Greenhouse Gas Emissions	
The anticipated greenhouse gas emissions are reasonable and the proposed mitigation measures are appropriate. An additional mitigation measure to consider is the orientation of new homes and overhang designs with the sun and horizon to maximize solar energy gain during the winter and minimize solar energy gain in the summer.	Comment noted. The City will encourage developers to consider home orientation and energy-efficient design.
Item 20 – Transportation, Transit	
Roadways: The AUAR accurately identifies Main Street (CSAH 14) as a principal arterial. Any proposed additional or changed access to a principal arterial should consult the Transportation Policy Plan (TPP) functional classification guidance before finalizing any proposed access changes to a principal arterial Imagine 2050 TPP Functional Classification.	Comment noted.

Comment	Response
Transit: The AUAR accurately notes that there is not any existing transit service in the area. However, as this area develops, with the AUAR study area and neighboring developments, the city should be considering ways in which transit services could be extended to serve this area in the future as it develops, which could aid in mitigating future traffic impacts.	Comment noted.
Aviation: The AUAR site is not within the Anoka County-Blaine airport 3-mile influence area, however there is a private turf air strip (Lino Air Park) located just south of the AUAR study area. The city should consider compatibility with and potential impacts to the facility for any development proposals within the AUAR study area.	Comment noted.
The Draft AUAR correctly states, "There is no transit service located near the study area" (page 69). Table 15 Draft Mitigation Plan includes a mitigation measure stating, "Prioritize alternative travel modes within the AUAR study area…(e.g., buses, bicyclists, and pedestrians)" (page 80). The authors should remove "buses" from the parenthetical list on page 80. The study area is in Transit Market Area 5, which indicates that the level of density in the surrounding area is not well suited for regular-route transit service. Metro Transit operates commuter express routes in the I-35W and I-35E corridors near Lino Lakes, but there is no other existing or planned service to this study area currently.	"Buses" was removed from the list on pg. 80.
2. Anoka County	
Item 6 - Project Description	
Multiple comments.	Thank you for your review. Comments noted and applicable edits have been made in Final AUAR.
Item 7 - Climate Adaptation and Resilience	
Multiple comments.	Comments noted and applicable edits have been made in Final AUAR.
Item 8 - Cover Types	

Comment	Response
Multiple comments.	Comments noted and applicable edits have been made in Final AUAR.
Item 9 - Permits and approvals	
Multiple comments	Comments noted and applicable edits have been made in Final AUAR.
Item 20- Transportation, Traffic	
Table 5-3: Opening Year (2030) Scenario 2 Level of Service	
Speed limit varies from 55 MPH to 40 MPH between Lexington Ave. and Lake Dr.	Comment noted and speed limit edit has been made in the Final AUAR.
CSAH 17 (Lexington Ave) should be added to the study area as the traffic from the potential development will likely have impacts on the CSAH 17 corridor. Specifically, the intersection of CSAH 14 and CSAH 17.	In earlier coordination with Anoka County staff in March 2025, it was decided to not include Lexington Ave as a study intersection since it is an existing signal-controlled intersection and a 4-lane divided road and any traffic from this future development will likely be insignificant to the growth in Blaine.
Number doesn't match Appendix value	Number has been updated to match the appendix value in the TIA.
7.6 s delay should be LOS A	The LOS has been updated in the TIA and AUAR.
Verify values shown in Table match those provided in appendix B	Values have been verified in the TIA.

Comment	Response
Do these accesses meet Anoka County intersection spacing guidelines?	Access locations shown are preliminary and subject to change. Because Main Street is a Principal Arterial, the proposed access locations do not conform to the County's Access Spacing Guidelines but are generally consistent with the existing access conditions along Main Street. The final locations of access points will be coordinated with the county.
Check LOS grades	Checks were performed on all tables. Some corrections were made to reported LOS and delay. Note that worst movement delay is reported at side street stop controlled intersections instead of overall delay.
Does expanding Main St. to 4 lanes significantly improve operations for NB side street approach?	Yes, congestion and lack of gaps along Main Street is anticipated to represent an issue for right turning vehicles if Main Street were to remain a two-lane road under buildout conditions. Expanding Main Street to four-lanes removes this issue.
Where is info for Main St & Access D?	Added results for Main Street & Access D to the table.

Comment	Response
Does school traffic not cause issues for Scenario 1?	School traffic does cause delays under Scenario 1 conditions. These delays are worse under Scenario 2 conditions because the development is more concentrated on the west side of the site under Scenario 2 and Sunset Avenue sees higher traffic levels as a result.
7.4 Scenario 2 Conditions Capacity Analysis Summary	
Scenario 2?	Corrected to say Scenario 2.
3. City of Blaine	
Location of commercial land use is proposed to abut the Lino Lakes/Blaine city boundary. The City of Blaine has identified low-density residential land use for the parcel abutting Lino Lakes. If commercial land use is proposed, the city of Blaine would encourage certain zoning requirements for the commercial development to address compatibility between single family and commercial land uses.	Thank you for your review and comment noted. The City will require future developers to include tools such as buffering and/or screening between new developments and adjacent, less dense areas in their development plans
The AUAR identifies proposed bike and pedestrian trails from Sunset Avenue to Lexington Avenue, which is in Blaine. While we understand the need for such trails, this would require capital planning by the city as a cost-share for installation of the trails is likely required from Anoka County.	Comment noted.
The roundabout at Sunset and Main Street is designed to service parcels on the north side of Main Street for both Blaine and Lino Lakes. It should be noted that the city of Blaine discourages cross-jurisdictional road connections of city streets. Design of future roads from the roundabout should be discussed with the City of Blaine to encourage traffic and access compatibility between development in each city.	Comment noted.

Comment	Response
The well map on pages 39/40 should identify all private wells abutting the subject site, not just within 150'.	The well buffer has been updated in the Final AUAR.
4. Minnesota Pollution Control Agency	
Wastewater	
A figure should be provided that shows the location of the major sewer system features in the project area that are described in the draft AUAR.	Thank you for your review. Figure has been added in the Final AUAR.
Watershed	
With this development, there will be an increase in impervious area. Design considerations should be taken to reduce salt usage which could lead to a chloride impairment for nearby resources.	Comment noted. The City encourages developers to use best practices to reduce chloride use in snow and ice removal.
Planning to store snow in areas that won't increase icy areas as the pile melts and planting trees in strategic places will be beneficial. The goal is to develop with winter maintenance in mind and use less salt.	Comment noted. The City will encourage developers to keep winter maintenance in mind as site planning advances.
There is a ditch in the Southeast corner of the project area that has had high chloride samples collected. While not impaired, being proactive may help keep it off of the impaired waters list for chlorides.	Comment noted.
5. Rice Creek Watershed District (RCWD)	
District encourages early coordination on permitting matters, including a pre-application meeting between RCWD, developers, and Lino Lakes.	Thank you for your review. Comment noted.
The Water Appropriation Permit Program is managed by Minnesota Department of Natural Resources (DNR). The District would, however, review a copy of the dewatering plan for discharges into Anoka County Ditch (ACD) 10-22-32.	Comment noted.
Other designations, Page 28	

Comment	Response
This section references RCWD floodplain mapping. The District recently (2025) updated floodplain polygons using recent Anoka County LiDAR reflecting significant changes to region conveyance systems. A figure similar to Figure 11: FEMA 100-year Floodplain utilizing updated RCWD data could be included.	Comment noted. The figure in the Final AUAR has been updated with RCWD floodplain data.
Stormwater – Existing Conditions, Page 44	
Rice Creek Watershed District completed floodplain modeling and mapping in 2022 that shows similar, albeit less, floodplain areas within the study area." 2022 floodplain mapping is referenced on pages 18 and 44.	Comment noted. The text has been updated to 2025.
Water Appropriation – Dewatering and Estimated Water Supply, Page 48	
The District will review a copy of the dewatering plan for discharges into ACD 10-22-32.	Comment noted.
The District understands the City's current water production capacity is not sufficient to serve the entire study area. Its DNR appropriation permit will need to be amended prior to full build out of the study area to allow for two additional wells. The District encourages thoughtful consideration with selection of drilling locations.	Comment noted.
Modification of Anoka County Ditch 10-22-32	
Early coordination with the 103E public drainage authority (RCWD) for any modifications to the drainage system is encouraged.	Comment noted.
The system may be relocated as necessary (p. 46), without decreasing its capacity, through the statutory petition process to the 103E public drainage authority (RCWD), approved by RCWD through Rule I, consistent with 103E.	Comment noted.
RCWD requires 20 feet (also referenced on p. 46) from top of bank to either side for a buffer to complete required maintenance.	Ditch and buffer requirements have been added to the final AUAR.
The ditch must remain open and trees or other structures are prohibited in the maintenance corridor may not obstruct access.	Ditch and buffer requirements have been added to the final AUAR.

Comment	Response
Item 8 – Cover Types	
The District supports efforts to infiltrate and filter stormwater and mitigate runoff. Above and beyond basic requirements including implementation of BMP's such as Iron Enhanced Sand Filter (IESF) to address dissolved phosphorus, and stormwater re-use systems for reducing volume are encouraged where applicable.	Comment noted. The City will encourage developers to consider BMP's such as Iron Enhanced Sand Filter.
After Construction, Page 45	
The paragraph regarding RCWD Rule C: Stormwater Management identifies that the Rice Creek Watershed Rules were most recently updated on 1/1/2021. This date should be corrected to 1/1/2025.	Date correction made in the Final AUAR.
Floodplains, Page 45	
Numbered item 4 should identify that drainage/flowage easements need to be provided only if required by the land use authority.	Easement language has been added to the Final AUAR.
Continuing onto page 46, "Areas that are covered by Rule E are also subject to Rule F: Wetland Alteration, as applicable."	As applicable has been added to this statement in the Final AUAR.
Water Resources, Page 76	
In the Floodplains row, please identify that RCWD approvals relate specifically to RCWD's 100-year floodplains and not FEMA.	Note has been added to the Mitigation Plan in the Final AUAR.
Both Development Scenarios include lands within the floodplain, RCWD rules require all proposed development to quantify impacts to floodplain and address, mitigate, according to rule.	Comment noted.
Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources, Page 77/78	

Comment	Response
Include language that permits are required from the DNR for the taking of an endangered or threatened species (Minnesota Statutes section 84.0895 and Minnesota Rules parts 6212.1800-2100).	The need for a take permit is dependent on survey results as well as site design. Once the survey is conducted, the presence or absence of state-listed species will be identified, and specific avoidance and mitigation measures will be required only if state-listed species are discovered. If required avoidance and minimization measures are not feasible with the proposed project, then a take permit would be required.

PUBLIC COMMENTS

Comment	Response
1. Daryl Wangert	
Natural integration, open housing without interest in income, race, religion, or political affiliations. A reasonable density with disclosure as to effects of building on low fema flood plain. Cracked foundation and soft saggy backyard possible over time, reduced value over time due to floods. Certainly disclose the possibility of flood insurance requirements!	The developer would be required by the city/watershed to do floodplain mitigation and revise the floodplain boundary (LOMR submittal to FEMA) so flood insurance will not be required. Everything must be elevated above the flood plain boundary and any changes to the boundary must be submitted to FEMA to update the flood insurance maps within 6 months of construction completion.

Comment	Response
2. Sam Bennett	
I was the one who suggested bringing the park in towards the high density and commercial areas. This was intended to make the park more accessible to those most likely to use it and drive mutually beneficial activities most simply, being able to buy lunch and enjoy the playground. Instead the high density was stretched out to the park. Which does make it more accessible to many users it does not close the gap between the commercials and park space and now a much higher percentage of single family lots are adjacent to the density. Overall, I don't see enough benefit for option 2.1 over 2.0. it feels like a hybrid of "islands of density" that was first to be eliminated.	Comment noted. The scope of the AUAR did not evaluate changing the location of the land uses in the two scenarios. As site development advances, specific residential and commercial land use boundaries should be generally followed and considered somewhat flexible in order to accommodate natural features, land assembly and other physical issues.
My primary concern with option 2.1 is that drives the most impactful development into the center where it cannot be avoided. It would be more practical to keep that more compact so the back half can have reduced impacts. The park should be the center of this higher density area and please design the park to be adjacent to the commercial and higher density areas. That way it can be accessed by the most people and events benefit small businesses. This is a great opportunity to close the street and have a block party, holiday stroll, or Blue Heron Days but that's not nearly as beneficial if the green space and commercial spaces are so divorced.	Comment noted.
3. Christina Narwid	
With the additional development in the NW Main corridor, I worry about the traffic going to Centennial Middle School and High School. There is a plan in place to make Sunset Avenue safer, but I would love to see the Sunset bridge over 35W have a pedestrian/bike lane. That is the main route from this neighborhood to the schools so there are many kids riding their bikes to get to those locations. It is already unsafe and there will be even more traffic with the increased density.	Comment noted. The City will coordinate with the County for consideration.
4. Sue Bass	

Comment	Response
If you put the street through from Main Street to Century Trail and Robinson Dr you are going to create a freeway along Robinson Drive as most people, instead of going to the traffic circle at Main and Sunset are going to cut down Century Trail and turn on Robinson. Robinson at that point is a straight shot/short cut to Sunset. It is going to create horrible traffic for people living on or near Robinson. People will not use Century Trail because it winds so much. There needs to be some way to funnel the traffic away from Robinson. PLEASE!	A Traffic Impact Analysis (TIA) was completed as part of the AUAR to study projected future traffic trip generation (see Appendix D). A site-specific traffic impact analysis will also be required for proposed development projects within the AUAR area to determine the appropriate mitigation measures that may be required. Robinson Drive is identified as a collector street in the City's Comprehensive Plan. As a collector street, it is intended to handle a higher volume of traffic; however, Sunset Avenue and Main Street allow for a much quicker drive than neighborhood streets, and the roundabout at Main Street & Sunset Avenue sees low levels of delay currently and minimal delay expected in the future. Cutting through the neighborhood is estimated to take at least 10-20 seconds longer than the alternative roads. Additionally, cutting through the neighborhoods from Main Street onto Sunset Avenue will not be possible due to planned right-in/right-out restrictions along Sunset Avenue at Robinson Drive and Century Trail. Overall, it is not anticipated that a significant number of vehicles would cut through the neighborhood.
5. James Bosak	
Both scenarios appear to show an extension of 121st that would run along the north side of my property at 7798 Sunset and connect to Robinson Drive. I cannot imagine what value such a road might have since it essentially parallels Sunset.	There is no plan currently to extend 121st Avenue to Robinson Drive. The road network shown on the scenario figures was only a concept to give a

Comment	Response
What it would do for me personally is completely destroy the value of my property, at least to me. Please let me know as soon as possible if this is a serious possibility so that I can start looking for another place to live. If that road is built neither of the scenarios will make any difference to me since I would not be living in Lino Lakes anymore.	sense of how the infrastructure could be laid out to coincide with the changes in land use; however, future developers would propose specific road networks for City review and would need to align with the access points shown in the Traffic Impact Analysis (see Appendix D of the AUAR).
I am not sure what more feedback on this issue will achieve, guessing it's probably just a mandatory part of the whole AUAR process and will not have any impact whatsoever on what is eventually allowed to go forward. I would hope that by now the wishes of the residents living in close proximity to the proposed development area are fairly well known, i.e. "Slow the Grow". Simply put those wishes are; the lowest possible housing density and the highest possible green natural space possible. At 3400 or 3500 units neither of the scenarios presented come close to achieving this, at least in my view. Dividing the 962 acres by 3450 units gives about only .28 acres per unit. But it is really even lower than this since at significant portion of the 962 acres are already fully developed (not sure why they were even included in the study). I would be interested to know what the process and criteria were that determined what the appropriate density should be. If this was explained in the AUAR report I must have missed it. There must have been some consistent considerations since both scenarios come up with almost the same overall density.	Comment noted. The City underwent a multi-phased engagement process to determine the scenarios to evaluate in the AUAR. More information about the process can be found on the project website here: https://mappingnwmain.com/process and engagement summaries of the feedback we collected can be found here: https://mappingnwmain.com/resources The intent of this process was to gather community feedback on the scenarios and establish development criteria for future projects in this area, without impacting citywide sewered residential average densities of 3-5 units per acre as required by the Metropolitan Council. Scenario 1 is based on the City's existing 2040 Comprehensive Plan, aiming to maintain consistent housing units and densities across scenarios in line with City-wide density requirements.
In order for the density proposed to be achieved it looks to me like it will be at a very high cost since according to the map presented in the AUAR about half of the acres are in the FEMA flood zones. An awful lot of dirt will have to be moved	Any proposed floodplain alterations by future developers will require the submittal of an appropriate Letter of Map Change to FEMA and

Comment	Response
around. Oh well, I'm sure some developer will be allowed to give it a try, hopefully not one convicted of theft by swindle. For what it's worth, between the two scenarios presented, this resident votes for scenario 1.	the applicable City of Lino Lakes and RCWD approvals will need to be obtained. To the extent possible, existing soils will be used for future development. Please see item 12 for additional floodplain mitigation strategies.
6. William Grant	
Sunset is a short street that is already problematic to turn left out of the neighborhood in the morning. Putting high density all centered on Sunset will make a problem worse. The higher density should be farther East closer to the major roadways. That is Scenario 1.	A Traffic Impact Analysis (TIA) was completed as part of the AUAR and based on projected trip generation, the area's transportation network is expected to support development within the study area with mitigation (see Appendix D).
7. James Kukkonen	
As a current resident of Century Trail I would prefer a scenario with low density development. My concerns would include the increased traffic, use of local resources and added pressure on local schools. I am not against growth but I do believe we need to consider the effects of increasing too much in a small area	Appropriate improvements to infrastructure will be required by future developers to support development in a sustainable way. See the Mitigation Plan section in the AUAR for a full list of next steps required. The City has met with both the Centennial and Forest Lake School Districts through this process, and district leadership had no concerns about how the development scenarios would affect enrollment, operations or funding. Furthermore, the proposed development growth aligns with the projected growth of both school districts.
8. *Teresa O'Connell*	
Water and lighting are my concerns. Water this area I believe was tiled for farming so with that in mind keeping the water on this site with slow release into the soil or sewer system is important. Whatever system is used plan ahead on making maintenance of these water areas easily accessible. Decided in advance before	Comment noted. The City will encourage future developers to consider the climate adaptions and sustainability measures identified in Section 7 and 18 of the AUAR.

Comment	Response
sales happen to the future landowners who will be responsible for cost and maintenance of the water devices. If a retention pond is put in, I believe they need to be cleaned out between 15 to 20 years after being built. The developer could choose to build each lot with a rain garden in and that also has to be maintained and cleaned out, yearly would be good. There are many options for controlling water but currently from what I have observed this is not being planned during the development of the land. Lighting since this area already has development around it on the South, North and East side maintaining lighting as close to what is in the surrounding area is important. Dark sky cities are becoming more and more popular and since full build out is not planned for another 30 years. Talk with the 10- and 13-year-olds over at Lino Lakes Stem school and get them involved I suspect they have dreams of what the future will look like. They will be the ones living there but at the same time the current neighbors' needs should be met. 35 W which is very close to this site sees more traffic than Main St, Sunset and 4th streets see on a daily basis and there are no streetlights between Lexington and going north to Lake dr. on 35 W.	Stormwater BMPs will be required to adhere to both City and RCWD standards for development and long-term maintenance. These will be evaluated on a case-by-case basis for each location as it is developed.
9. Kevin and Tammy Dunrud	
Our first priority is to leave Carl Street alone. There are many pedestrians and bicyclists that use this road along with the residential homes that would be highly impacted if this were to connect to other roadways as part of the development-too much traffic. This is a street we call home and it has been here for a lot longer than a new development. We will already have a very different quality of life with the development across the street. It would be great to keep one thing the same.	A Traffic Impact Analysis was conducted for both land use scenarios (see Appendix D of the AUAR). A connection between Carl Street to Century Trail is not necessary from a traffic operations perspective. Please see the mitigation plan of the AUAR for a full list of traffic mitigation strategies. Additional road infrastructure improvements within the AUAR study area will be evaluated as development occurs on the site.
As we are an existing neighborhood on the southside of Carl Street, we would like to ask that the development put in trees at the far south end of the quadrant along Carl Street to provide a noise and view buffer of the development. Again, this	The City will encourage developers to consider tools such as clustering, vegetation buffers, and screening to mitigate potential land use conflicts.

Comment	Response
development will affect our quality of life, and trees would be a good faith effort on the developers' part to show they want to do well with existing neighborhoods.	
As there will need to be a new water treatment plant built for this development as well as new roads and roundabouts, we are very concerned how this will impact our taxes. Our taxes took a big jump this year and we don't feel we should be taxed for these services as we will not benefit at all from the water and roads.	The City is constructing a water treatment plant for manganese removal which will be placed in service in the fall of 2026 and will provide adequate treatment capacity for this area. No additional water treatment plants are anticipated for this area. The Water Treatment Plant is funded by users of the municipal water system.
Finally, we are concerned about traffic on 4th Ave. Many people walk along this road and there is an airstrip that also ends at 4th and there are no sidewalks planned.	As development occurs along 4th Avenue, the City will consider trails and/or sidewalks along 4th Avenue.
We realized we forgot to add one item to our list of comments. We are also concerned about the water table with the sod farm being a floodplain and how that might impact our property. We have a wood foundation and have had absolutely no water problems. We would like to keep it that way.	Future development will require the construction of local water quality basins and larger detention areas to provide compensatory storage for floodplain mitigation. See the mitigation plan in the AUAR for full list of floodplain mitigation strategies.
10. *Kristen Iverson*	
My concern is the negative impact of traffic, high density and commercial buildings this will have on our natural environment and ecosystem in the study area. I live on Carl Street, a few feet from the study area. This is a rural area, with large lots and open green areas. We have Blanding turtles that nest every year in our yards and surrounding areas. We have 4 sets of Sandhill Cranes that breed and make their home here on Carl Street. We also have Bald Eagles, owls, waterfowl, pheasants, turkeys, deer and bear. Seven miles north is Carlos Avery Wildlife Management Area. This is an important wildlife refuge of marshlands, lakes and swamps which provide habitat for the migratory Sandhill cranes and Eagles, in addition to habitat for the Blanding turtles, deer, waterfowl and upland birds. This is a protected ecosystem that needs to be protected, including the surrounding land south of	Creation of greenways and/or interconnecting wildlife corridors and buffers will be incorporated as development plans advance. Native habitat and wetland buffers will enhance biodiversity and improve the environmental functionality of the study area. See the mitigation plan of the Final AUAR which has been updated with the DNR's mitigation strategies for protected species.

Comment	Response
Carlos Avery in which we live and reside in. We cannot allow high density homes and apartment buildings, in addition to commercial areas to destroy this ecosystem. Migratory birds aloft at night migrate through our area, with stops to Carlos Avery Wildlife Refuge. It is important to eliminate outdoor lighting and parking lot lighting as much as possible, and to reduce the amount of reflective windows to help birds get safely to their destinations.	
In summary, Lino Lakes needs to locate commercial and high density areas to Lake Drive and to nearby areas near Interstate 35. Let's make that area the "downtown" area. The area in this NW quadrant, near Carlos Avery, is a precious ecosystem. We must make sure that as much natural habitat is saved.	Comment noted.
11. Betsy Garcia	
It is my understanding the Lino Lakes Flood Plain Administrator is responsible for assuring compliance with FEMA guidelines & local ordinances regarding any development of land on the current Robinson Sod Farm. Because my property abuts this sod farm just to the east, I want to assure the proposed mitigation interventions will protect my land from any flooding. Additionally, what communication will be provided identifying the specific interventions, and to whom would I report any negative sequelae related to flooding that could possibly occur as a result of the interventions in the future?	Future design of the study area and associated stormwater management facilities will be completed to reduce the risk of flooding in the AUAR study area. Buildings will be set at elevations to maintain clearance above 100-year flood elevations, which would also result in re-mapping the floodplain and obtaining approval from FEMA for the changes. Infiltration areas may be used and would improve water quality and stormwater runoff in the project vicinity. Additional stormwater and floodplain mitigation items are detailed in section 12 of the Final AUAR.
I am concerned regarding contaminated soil on the sod farm which already has or will occur during mitigation secondary to fertilizers, pesticides and other chemicals. These have been used for years on the sod farm, and would like to know what EPA approved testing or other methods will be done to determine levels of toxic pollutants, harmful particulates or emissions from the helicopter crash, farm vehicles and machinery. Would the testing include Nitrogen Oxides,	The AUAR's purpose is to focus on the environmental impacts of the proposed development. The existing condition of the property as a sod farm is in compliance with the MN Department of Agriculture guidelines and regulations. The MN Department of

Comment	Response
Hydrocarbons, Greenhouse gases, ammonia and other identified agriculturally related particles that contain substances linked to respiratory or potentially cancer related harm to humans and wildlife. How will these findings be proactively communicated to residents?	Agriculture would be the regulatory agency to contact for this information. In addition, future developer will need to complete a Phase I Environmental Site Assessment (ESA) that will document site contamination and next steps. If contaminated soils are present that do not meet residential reuse requirements they will be hauled offsite and disposed of per MPCA guidelines. Dust BMPs will be in place during construction to minimize the potential for dust.
Lastly, it would have been beneficial and prudent for our Lino Lakes residents to receive a synopsis of your very well organized and extensive findings in layman's terms, including avoidance of professional jargon. We are far from experts in your field and in conversations with neighbors who read or tried to read the AUAR report, it was impossible for them to understand or interpret findings, especially technical data reports. Thus, it was not possible to reply to a report when you don't understand it in the first place.	Comment noted. If you would like to meet to discuss the project, please reach out to us at: mappingnwmain@linolakes.us
12. John Grattan	
I would prefer scenario 2, but there is still way too much high density housing in every option.	Comment noted

Appendix F:
Comments

METROPOLITAN COUNCIL

June 26, 2025

Michael Grochala, Community Development Director
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, MN 55014

RE: City of Lino Lakes – Draft Alternative Urban Areawide Review (AUAR) – Lino Lakes Main Street
Metropolitan Council Review File No. 23082-1
Metropolitan Council District No. 11

Dear Michael Grochala:

The AUAR study area encompasses approximately 962 acres located in the City's northwest, bisected by Main Street and between Pine Street and Carl Street. The AUAR proposes two scenarios. Scenario 1 is the city's existing 2040 Comprehensive Plan which focuses higher-density and commercial development along both sides of Main Street, with lower-density residential development to the north and south. Scenario 2 centralizes higher- and medium-density housing and commercial development near the Lino Lakes/Blaine border around the Main Street and Sunset Avenue, with low-density prioritized on the eastern side of the study area Metropolitan Council staff completed its review of the Lino Lakes Main Street AUAR to determine its accuracy and completeness in addressing regional concerns. Staff conclude that the AUAR is complete and accurate with respect to regional concerns and does not raise major issues of consistency with Council policies. However, staff offers the following comments for your consideration:

Item 6 - Project Description, Forecasts *(Todd Graham, 651-602-1322)*
The AUAR presents two scenarios for planned land use and accompanying development. Scenario 1 has an ultimate capacity of 3,400 housing units, 60,000 sq. ft. of commercial use, with intense mixed residential and commercial arrays along Main Street. Scenario 2, the preferred scenario, includes 3,500 housing units, 62,000 sq. ft. of commercial use, with greatest intensity shifted 1/3 mile west of the Scenario 1 concept, at Main Street & Sunset. Should future development result in ultimate levels of Scenarios 1 or 2, the result would exceed citywide forecasts for Lino Lakes. The AUAR area includes parts of Transportation Analysis Zones # 182 (south of Main) and 183 (north of Main). In its 2040 Comprehensive Plan the City expected additions of 814 households, 2,120 population, and 18 jobs in these two zones during 2020-2040. Council staff may recommend a different allocation at the time of the 2050 Plan update.

Item 7 – Climate Adaptation and Resilience *(Shawn James, 651-602-1233)*
The discussion of anticipated climate trends is adequate; however, the AUAR would benefit from considering if different scenarios merit different adaptations. The list of adaptations is well suited to both scenarios, but the project proposer should consider how the different scenarios lend themselves to different street patterns and how adaptations like clustering development could reduce the impervious surfaces associated with single-family residential uses.

Item 9- Permits and Approvals, Wastewater *(Roger Janzig, 651-602-1119)*
The City will need to amend their comprehensive plan to reflect the proposed land use changes, development staging, and the corresponding wastewater flow projections before any MPCA sanitary sewer extension permit applications can be recommended for approval by the Council. This information will allow the Council time for the needed improvements, to ensure capacity is available for growth within the AUAR project area.

Item 10 - Land Use *(Emma Dvorak, 651-602-1399)*
The land uses presented in Scenario 1 appear consistent with the 2040 Comprehensive Plan. Scenario 2 proposes high and medium density housing, and commercial development around Main Street and Sunset Avenue, with low-density on the eastern side of the subject site. Any changes to land use, density, or intensity that deviates from the adopted comprehensive plan will require a comprehensive plan amendment process independent of the AUAR and will be subject to additional Council review.

Item 12 - Water Resources, Surface Water *(Maureen Hoffman, 651-602-8026)*
Chloride management best practices should be considered and implemented during the winter months to limit impacts to surrounding water bodies and wetlands.

Item 12 - Water Resources, Water Supply *(John Clark, 651-602-1452)*
The AUAR states that the city's current water appropriation is not sufficient to meet the additional demand required by either scenario 1 or 2, and that additional water supply will be needed. Before developing, the city should work with the Minnesota DNR (DNR) and surrounding communities to assess the potential impacts of additional pumping on source water aquifers, connected ecosystems, and surrounding wells and ensure water will be available to meet future demands associated with this and other developments. Potential wellfield expansion in Lino Lakes and by nearby communities could impact each other and nearby private wells. The current use of the Prairie du Chien and Jordan aquifers as the sole source of water may need to be evaluated. Increasing the efficiency of water use by commercial, institutional, and industrial users may help eliminate or delay the need for additional water supply infrastructure, and lower costs for the city utility and its rate payers. Estimated water demands for scenarios 1 and 2 are equivalent to about 36% of the city's current water demands and 23% of demand in 2040, per the Lino Lakes 2040 Comprehensive Plan.

If new wellfields are developed in the area, the city should consider the compatibility of these and additional development scenarios with Drinking Water Supply Management Areas (DWSMAs) and Wellhead Protection Plan goals. Any wells that are identified and abandoned during development should be sealed according to Minnesota Department of Health (MDH) standards.

Capturing and storing water to be used for residential or commercial irrigation (or other purposes) would lessen flood risks for both development scenarios, while offsetting the demand for outdoor water uses. Using treated source water for outdoor purposes is costly, inefficient, and generates additional stress on sources and surrounding ecosystems during the summer months. Lessening these stressors improves the sustainability of supply sources and water supply systems.

Much of the proposed development for scenarios 1 and 2 is in areas mapped as flood prone. Drainage ditches, pipes, and culverts are currently used to drain and route water out of the area for sod farming, lessening infiltration and altering near surface hydrology. However, as development proceeds, any new infrastructure including roads, homes, business, and utilities will contend with flood risk. The removal of drain tiles, ditches, etc. creates an opportunity for the city to restore wetland function in the area, thereby increasing infiltration and potential aquifer recharge and improving ground and surface water quality, with the added benefit of additional habitat and green space. The reduction of flood risk through nature-based water management can help to improve the longevity of developed infrastructure, with added climate adaptation and mitigation benefits.

The Anoka Co. Geologic Atlas reference on page 31 section 11 is out of date. An update to the Anoka Co. Atlas part A was completed in 2013, with part B following in 2016. The AUAR should be updated to reflect and consider modern mapped geologic and hydrogeologic conditions. The AUAR should also consider water table information included in the geologic atlas's and estimated by the DNR in 2014. Soils in this area are either hydric or formerly hydric (drained hydric). These areas were wetlands prior to drainage and development for commercial agricultural purposes. New developments would contend with high water tables seasonally and during periods of increased precipitation.

Item 18 - Greenhouse Gas (GHG) *(Shawn James, 651-602-1233)*
The anticipated greenhouse gas emissions are reasonable and the proposed mitigation measures are appropriate. An additional mitigation measure to consider is the orientation of new homes and overhang

designs with the sun and horizon to maximize solar energy gain during the winter and minimize solar energy gain in the summer.

Item 20 - Transportation, Transit *(Joe Widing, 651-602-1822)*
Roadways: The AUAR accurately identifies Main Street (CSAH 14) as a principal arterial. Any proposed additional or changed access to a principal arterial should consult the Transportation Policy Plan (TPP) functional classification guidance before finalizing any proposed access changes to a principal arterial- Imagine 2050 TPP Functional Classification.

Transit: The AUAR accurately notes that there is not any existing transit service in the area. However, as this area develops, with the AUAR study area and neighboring developments, the city should be considering ways in which transit services could be extended to serve this area in the future as it develops, which could aid in mitigating future traffic impacts.

Aviation: The AUAR site is not within the Anoka County-Blaine airport 3-mile influence area, however there is a private turf air strip (Lino Air Park) located just south of the AUAR study area. The city should consider compatibility with and potential impacts to the facility for any development proposals within the AUAR study area.

Item 20 - Transportation, Transit *(Barrett Clausen, 612-349-7596)*
The Draft AUAR correctly states, “There is no transit service located near the study area” (page 69). Table 15 Draft Mitigation Plan includes a mitigation measure stating, “Prioritize alternative travel modes within the AUAR study area…(e.g., buses, bicyclists, and pedestrians)” (page 80). The authors should remove “buses” from the parenthetical list on page 80. The study area is in Transit Market Area 5, which indicates that the level of density in the surrounding area is not well suited for regular-route transit service. Metro Transit operates commuter express routes in the I-35W and I-35E corridors near Lino Lakes, but there is no other existing or planned service to this study area currently.

The Council will not take formal action on the AUAR. If you have any questions or need further information, please contact Emma Dvorak, Principal Reviewer, at 651-602-1399 or via email at emma.dvorak@metc.state.mn.us.

Sincerely,

Angela R. Torres

Angela R. Torres, AICP, Senior Manager
Local Planning Assistance

CC: Tod Sherman, Development Reviews Coordinator, MnDOT - Metro Division
Gail Cederberg, Metropolitan Council District No. 11
Judy Sventek, Water Resources Manager
Emma Dvorak, Sector Representative/Principal Reviewer
Reviews Coordinator

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August 1, 2025

Michael Grochala, Community Development Director
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, MN 55014-1182

RE: City of Lino Lakes – Final Alternative Urban Areawide Review (FAUAR) –
Lino Lakes Main Street AUAR
Metropolitan Council Review File No. 23082-2
Metropolitan Council District No. 11

Dear Michael Grochala:

Council staff has conducted a review of this Final Alternative Urban Areawide Review (FAUAR) and Mitigation Plan to determine its accuracy and completeness in addressing regional concerns. Council staff commented on the draft AUAR in its June 26, 2025 letter. The study area includes 962 acres located in the City's northwest, bisected by Main Street and between Pine Street and Carl Street. The staff review has concluded that the FAUAR addresses previous comments and is complete and accurate with respect to regional concerns and raises no major issues of consistency with Council policies. The Council does not object to the FAUAR but is providing the following advisory comments.

Item 6 - Project Description, Forecasts (Todd Graham, *651-602-1322*)
Should future development result in ultimate levels of Scenarios 1 or 2, the result would exceed citywide forecasts for Lino Lakes. The AUAR area includes parts of Transportation Analysis Zones # 182 (south of Main) and 183 (north of Main). In its 2040 Comprehensive Plan the City expected additions of 814 households, 2120 population, and 18 jobs in these two zones during 2020-2040. Council staff may recommend a different allocation at the time of the 2050 Plan update. The City acknowledges this comment and will coordinate with Met Council staff (p. 79).

Item 7 – Climate Adaptation and Resilience (Shawn James *651-602-1233*)
In Table 2 Climate Considerations and Adaptations, the proposer notes that a minimum tree canopy coverage is required for commercial parking areas per City Zoning Ordinance 1007.049. To ensure that trees reach maturity and their potential canopy coverages, Council staff recommend that adequate soil volumes be provided for root system growth. The Minnesota Buildings, Benchmarks & Beyond (B3) Guidelines recommend minimum soil volumes of 400 cubic feet (c.f.) for small trees, 800 c.f. for medium trees, and 1,200 c.f. for large trees. Mature tree canopies are necessary for effective stormwater runoff reduction and urban heat island mitigation.

Item 9- Permits and Approvals, Wastewater (Roger Janzig *651-602-1119*)
The AUAR also correctly identifies a future Metropolitan Council project that will be required to provide additional capacity for this area of the City. There is adequate reserve capacity in the existing system to accommodate the projected growth until the aforementioned project is completed. Coordination between the City and the Council will be necessary to identify the specific location and elevation of the local forcemain improvements identified in the AUAR, that

will be necessary to service the increased development in the AUAR area. The forcemain will be provided a connection point to the new interceptor facility.

The City will need to amend their comprehensive plan to reflect the proposed land use changes, development staging, and the corresponding wastewater flow projections before any MPCA sanitary sewer extension permit applications can be recommended for approval by the Council. This information will allow the Council time for the needed improvements, to ensure capacity is available for growth within the AUAR project area.

Item 10 - Land Use (Emma Dvorak, *651-602-1399*)
The land uses presented in Scenario 1 appear consistent with the 2040 Comprehensive Plan. Scenario 2 proposes high and medium density housing, and commercial development around Main Street and Sunset Avenue, with low-density on the eastern side of the subject site, which differs from the existing 2040 Plan. Any changes to land use, density, or intensity that deviates from the adopted comprehensive plan will require a comprehensive plan amendment, independent of the AUAR and will be subject to additional Council review.

Item 10- Land Use, Parks (Colin Kelly, *651-602-1361*)
The planned Central Anoka Regional Trail overlaps the 962-acre study area. This regional trail has a Met Council-approved long-range plan, most recently amended in 2018. Anoka County Parks and Recreation is the Regional Park Implementing Agency that manages Central Anoka Regional Trail.

The AUAR needs to reference the planned Central Anoka Regional Trail in Section 6. Project Description and Section 10. Land Use, parts ii, b, and c.

The Parks and Trails section of Section 6 currently states that “the area’s development will feature the construction of a segment of the Bunker-Chain of Lakes Regional Trail along Main Street” (pg. 8). This sentence needs to reference Central Anoka Regional Trail instead of Bunker (Hills)-Chain of Lakes Regional Trail.

Bunker Hills-Chain of Lakes Regional Trail coincides with Elm Street, approximately 2.0 miles south of Central Anoka Regional Trail, which is planned to travel along Main Street (125th Avenue NE). Council Parks and Trails staff appreciate that “both scenarios also propose a network of trails through the future development, totaling 41,5000 linear feet (LF) of asphalt trail and 5,200 LF of regional trail” (pg. 8).

Item 12- Water Resources, Surface Water (Maureen Hoffman, *651-602-8026*)
Chloride management best practices should be considered and implemented during the winter months to limit impacts to surrounding water bodies, wetlands, and soils.

Item 12 - Water Resources, Water Supply (John Clark, *651-602-1452*)
The AUAR states that the city’s current water appropriation is not sufficient to meet the additional demand required by either scenario 1 or 2, and that additional water supply will be needed. Before developing, the city should work with the Minnesota DNR (DNR) and surrounding communities to assess the potential impacts of additional pumping on source water aquifers, connected ecosystems, and surrounding wells. This will help to ensure water will be available to meet future demands associated with this and other developments.

Potential wellfield expansion in Lino Lakes and by nearby communities could impact each other and nearby private wells.

The current use of the Prairie du Chien and Jordan aquifers as the sole source of water may need to be evaluated.

Increasing the efficiency of water use by commercial, institutional, and industrial users may help eliminate or delay the need for additional water supply infrastructure, and lower costs for the city utility and its rate payers. Estimated water demands for Scenarios 1 and 2 are equivalent to about 36% of the city's current water demands and 23% of demand in 2040, per the Lino Lakes 2040 Comprehensive Plan.

If new wellfields are developed in the area, the city should consider the compatibility of these and additional development scenarios with Drinking Water Supply Management Areas (DWSMAs) and Wellhead Protection Plan goals. Any wells that are identified and abandoned during development should be sealed according to Minnesota Department of Health (MDH) standards.

Capturing and storing water to be used for residential or commercial irrigation (or other purposes) would lessen flood risks for both development scenarios, while offsetting the demand for outdoor water uses. Using treated source water for outdoor purposes is costly, inefficient, and generates additional stress on sources and surrounding ecosystems during the summer months. Lessening these stressors improves the sustainability of supply sources and water supply systems.

This will conclude the Council's review of the FAUAR. The Council will take no formal action on the FAUAR. If you have any questions regarding the review or need further information, please contact Emma Dvorak, Principal Reviewer, at 651-602-1399 or via email at Emma.Dvorak@metc.state.mn.us.

Sincerely,

Angela R. Torres, AICP, Senior Manager
Local Planning Assistance

CC: Tod Sherman, Development Reviews Coordinator, MnDOT Metro Division
Gail Cederberg, Metropolitan Council District No. 11
Emma Dvorak, Sector Representative/Principal Reviewer
Reviews Coordinator

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MINNESOTA POLLUTION CONTROL AGENCY

Marshall Office | 504 Fairgrounds Road | Suite 200 | Marshall, MN 56258-1688 | 507-537-7146

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

June 18, 2025

VIA EMAIL

Michael Grochala
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, Minnesota 55014
mgrochala@linolakes.us

RE: Lino Lakes Main Street – Alternative Urban Areawide Review

Dear: Michael Grochala

Thank you for the opportunity to review and comment on the Alternative Urban Areawide Review (AUAR) for the Lino Lakes Main Street project (Project) located in Anoka County, Minnesota. The Project consists of 316 tax parcels on approximately 962 acres in the city of Lino Lakes, Anoka County, Minnesota. The study area is bounded by Pine Street NE to the north, Sunset Avenue (CSAH 53) to the west, Century Trail and Carl Street to the south, and 4th Avenue to the east. Main Street (CSAH 14) is an east-west road that bisects the study area. The surrounding area generally consists of private residences ranging from medium-density housing to farmsteads. The study area is currently used for residential and agricultural (sod) purposes. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility and other interests, the MPCA staff has the following comments for your consideration.

Wastewater

- A figure should be provided that shows the location of the major sewer system features in the project area that are described in the draft AUAR.

Watershed

- With this development, there will be an increase in impervious area. Design considerations should be taken to reduce salt usage which could lead to a chloride impairment for nearby resources.
    - Planning to store snow in areas that won't increase icy areas as the pile melts and planting trees in strategic places will be beneficial.
    - The goal is to develop with winter maintenance in mind and use less salt.
    - There is a ditch in the Southeast corner of the project area that has had high chloride samples collected. While not impaired, being proactive may help keep it off of the impaired waters list for chlorides.

We appreciate the opportunity to review this Project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit actions by the MPCA. Ultimately, it is the responsibility of the Project Proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions

concerning our review of this AUAR, please contact me by email at chris.green@state.mn.us or by telephone at 507-476-4258.

Sincerely,

Chris Green

This document has been electronically signed.

Chris Green, Project Manager
Environmental Review Unit
Resource Management and Assistance Division

CG:rs

Attachment

cc: Dan Card, MPCA
Melinda Neville, MPCA
Nicole Peterson, MPCA
Lauren Dickerson, MPCA
Innocent Eyoh, MPCA
Deepa deAlwis, MPCA
David Sahli, MPCA
Julie Henderson, MPCA
Amy Timm, MPCA

RCWD
RICE CREEK WATERSHED DISTRICT

June 26, 2025

City of Lino Lakes
Michael Grochala, Community Development Director

Re: Lino Lakes Main Street Draft AUAR May 2025

Thank you for the opportunity to provide input on the Lino Lakes Main Street Draft AUAR. Rice Creek Watershed District (RCWD) has reviewed the draft plan and affirms many sections of the plan and highlights a few sections for further consideration.

- With regards to RCWD, permitting requirements lists erosion control, stormwater management, floodplain management, public drainage system rules, and wetlands for regulatory compliance.
    - The District encourages early coordination on permitting matters including a pre-application meeting between RCWD, developers, and Lino Lakes.
    - The Water Appropriation Permit Program is managed by Minnesota Department of Natural Resources (DNR). The District would, however, review a copy of the dewatering plan for discharges into Anoka County Ditch (ACD) 10-22-32.

- Other designations, Page 28
    - This section references RCWD floodplain mapping. The District recently (2025) updated floodplain polygons using recent Anoka County LiDAR reflecting significant changes to region conveyance systems. A figure similar to Figure 11: FEMA 100-year Floodplain utilizing updated RCWD data could be included.

- Stormwater – Existing Conditions, Page 44
    - "Rice Creek Watershed District completed floodplain modeling and mapping in 2022 that shows similar, albeit less, floodplain areas within the study area." 2022 floodplain mapping is referenced on pages 18 and 44.
        - See the previous comment regarding recent updates to floodplain polygons.

- Water Appropriation – Dewatering and Estimated Water Supply, Page 48
    - The District will review a copy of the dewatering plan for discharges into ACD 10-22-32.
    - The District understands the City's current water production capacity is not sufficient to serve the entire study area. Its DNR appropriation permit will need to be amended prior to full build out of the study area to allow for two additional wells. The District encourages thoughtful consideration with selection of drilling locations.
        - RCWD supports efforts to protect wellhead protection areas through its regulatory program and is willing to collaborate on stormwater reuse projects.

- Stormwater Section, Page 43
    - Modification of Anoka County Ditch 10-22-32
        - Early coordination with the 103E public drainage authority (RCWD) for any modifications to the drainage system is encouraged.
        - The system may be relocated as necessary (p. 46), without decreasing its capacity, through the statutory petition process to the 103E public drainage authority (RCWD), approved by RCWD through Rule I, consistent with 103E.
        - RCWD requires **20 feet** (also referenced on p. 46) from top of bank to either side for a buffer to complete required maintenance.
        - The ditch must remain open and trees or other structures are prohibited in the maintenance corridor may not obstruct access.

- Section 8 Cover Types, Page 19
    - "Infiltration systems, tree trenches and tree boxes, wetlands, green roofs, and permeable pavements could be constructed as part of future development plans."
        - The District supports efforts to infiltrate and filter stormwater and mitigate runoff. Above and beyond basic requirements including implementation of BMP's such as Iron Enhanced Sand Filter (IESF) to address dissolved phosphorus, and stormwater re-use systems for reducing volume are encouraged where applicable.

- After Construction, Page 45
    - The paragraph regarding RCWD Rule C: Stormwater Management identifies that the Rice Creek Watershed Rules were most recently updated on 1/1/2021. This date should be corrected to 1/1/2025.

- Floodplains, Page 45
    - Numbered item 4 should identify that drainage/flowage easements need to be provided only if required by the land use authority.
    - Continuing onto page 46, "Areas that are covered by Rule E are also subject to Rule F: Wetland Alteration, as applicable."

- Water Resources, Page 76
    - In the Floodplains row, please identify that RCWD approvals relate specifically to RCWD's 100-year floodplains and not FEMA.

- Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources, Page 77/78
    - Include language that permits are required from the DNR for the taking of an endangered or threatened species (Minnesota Statutes section 84.0895 and Minnesota Rules parts 6212.1800-2100).

- Both Development Scenarios include lands within the floodplain, RCWD rules require all proposed development to quantify impacts to floodplain and address, mitigate, according to rule.

Date Submitted: 5/27/2025

Name: Daryl Wangert

Subject: Housing

Comment: Natural integration, open housing without interest in income, race, religion, or political affiliations. A reasonable density with disclosure as to effects of building on low fema flood plain. Cracked foundation and soft saggy backyard possible over time, reduced value over time due to floods. Certainly disclose the possibility of flood insurance requirements!

Address: 7868 Century Trail, Lino Lakes, MN 55014

Date Submitted: 05/27/2025

Name: Sam Bennett

Subject: 2.1 Thoughts

Comment: I was the one who suggested bringing the park in towards the high density and commercial areas. This was intended to make the park more accessible to those most likely to use it and drive mutually beneficial activities most simply, being able to buy lunch and enjoy the playground.

Instead the high density was stretched out to the park. Which does make it more accessible to many users it does not close the gap between the commercials and park space and now a much higher percentage of single family lots are adjacent to the density.

Overall, I don't see enough benefit for option 2.1 over 2.0. it feels like a hybrid of "islands of density" that was first to be eliminated.

Address: 6841 Lakeview Dr, Lino Lakes, MN 55014

Date Submitted: 05/28/2025

Name: Christina Narwid

Subject: 35W and Sunset Bridge

Comment: With the additional development in the NW Main corridor, I worry about the traffic going to Centennial Middle School and High School. There is a plan in place to make Sunset Avenue safer, but I would love to see the Sunset bridge over 35W have a pedestrian/bike lane. That is the main route from this neighborhood to the schools so there are many kids riding their bikes to get to those locations. It is already unsafe and there will be even more traffic with the increased density.

Address: 7768 Pinto Lane, Lino Lakes, MN 55014, United States

Date Submitted: 05/28/2025

Name: Sue Bass

Subject: Robinson Drive

Comment: If you put the street through from Main Street to Century Trail and Robinson Dr you are going to create a freeway along Robinson Drive as most people, instead of going to the traffic circle at Main and Sunset are going to cut down Century Trail and turn on Robinson. Robinson at that point is a straight shot/short cut to Sunset. It is going to create horrible traffic for people living on or near Robinson. People will not use Century Trail because it winds so much. There needs to be some way to funnel the traffic away from Robinson. PLEASE!

Address: 197 Shetland Ln, Lino Lakes, MN 55014, United States

Date Submitted: 05/28/2025

Name: James Bosak

Subject: Both Scenarios

Comment: Both scenarios appear to show an extension of 121st that would run along the north side of my property at 7798 Sunset and connect to Robinson Drive. I cannot imagine what value such a road might have since it essentially parallels Sunset. What it would do for me personally is completely destroy the value of my property, at least to me. Please let me know as soon as possible if this is a serious possibility so that I can start looking for another place to live. If that road is built neither of the scenarios will make any difference to me since I would not be living in Lino Lakes anymore.

Address: 7798 SUNSET AVE, LINO LAKES, MN 55014, United States

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Date Submitted: 06/03/2025

Name: James Bosak

Subject: feedback

Comment: I am not sure what more feedback on this issue will achieve, guessing it's probably just a mandatory part of the whole AUAR process and will not have any impact whatsoever on what is eventually allowed to go forward. I would hope that by now the wishes of the residents living in close proximity to the proposed development area are fairly well known, i.e. "Slow the Grow". Simply put those wishes are; the lowest possible housing density and the highest possible green natural space possible. At 3400 or 3500 units neither of the scenarios presented come close to achieving this, at least in my view. Dividing the 962 acres by 3450 units gives about only .28 acres per unit. But it is really even lower than this since at significant portion of the 962 acres are already fully developed (not sure why they were even included in the study). I would be interested to know what the process and criteria were that determined what the appropriate density should be. If this was explained in the AUAR report I must have missed it. There must have been some consistent considerations since both scenarios come up with almost the same overall density. In order for the density proposed to be achieved it looks to me like it will be at a very high cost since according to the map presented in the AUAR about half of the acres are in the FEMA flood zones. An awful lot of dirt will have to be moved around. Oh well, I'm sure some developer will be allowed to give it a try, hopefully not one convicted of theft by swindle. For what it's worth, between the two scenarios presented, this resident votes for scenario 1.

Address: 7798 SUNSET AVE, LINO LAKES, MN 55014, United States

Date Submitted: 05/28/2025

Name: William Grant

Subject: Prefer Scenario 1

Comment: Sunset is a short street that is already problematic to turn left out of the neighborhood in the morning. Putting high density all centered on Sunset will make a problem worse. The higher density should be farther East closer to the major roadways. That is Scenario 1.

Address: 102 Century Trail, Lino Lakes, MN 55014, United States

Date Submitted: 05/30/2025

Name: James Kukkonen

Subject: Main Development

Comment: As a current resident of Century Trail I would prefer a scenario with low density development. My concerns would include the increased traffic, use of local resources and added pressure on local schools. I am not against growth but I do believe we need to consider the effects of increasing too much in a small area.

Address: 7824 Century Trail, Circle Pines, MN 55014, United States

Date Submitted: 06/03/2025

Name: Teresa O'Connell

Subject: AUAR project main street

Comment: Water and lighting are my concerns. Water this area I believe was tiled for farming so with that in mind keeping the water on this site with slow release into the soil or sewer system is important. Whatever system is used plan ahead on making maintenance of these water areas easily accessible. Decided in advance before sales happen to the future landowners who will be responsible for cost and maintenance of the water devices. If a retention pond is put in, I believe they need to be cleaned out between 15 to 20 years after being built. The developer could choose to build each lot with a rain garden in and that also has to be maintained and cleaned out, yearly would be good. There are many options for controlling water but currently from what I have observed this is not being planned during the development of the land.

Lighting since this area already has development around it on the South, North and East side maintaining lighting as close to what is in the surrounding area is important. Dark sky cities are becoming more and more popular and since full build out is not planned for another 30 years. Talk with the 10- and 13-year-olds over at Lino Lakes Stem school and get them involved I suspect they have dreams of what the future will look like. They will be the ones living there but at the same time the current neighbors' needs should be met.

35 W which is very close to this site sees more traffic than Main St, Sunset and 4th streets see on a daily basis and there are no streetlights between Lexington and going north to Lake dr. on 35 W.

Address: 1000 Main St., Lino Lakes, MN 55014, United States

Date Submitted: 06/25/2025

Name: Kevin and Tammy Danrud

Subject: AUAR Comments

Comment: First, thank you for allowing public input into this process. After reviewing the AUAR, we are in favor of Scenario 2. However, we still have comments, questions and concerns over this scenario.

1. Our first priority is to leave Carl Street alone. There are many pedestrians and bicyclists that use this road along with the residential homes that would be highly impacted if this were to connect to other roadways as part of the development-too much traffic. This is a street we call home and it has been here for a lot longer than a new development. We will already have a very different quality of life with the development across the street. It would be great to keep one thing the same.

2. As we are an existing neighborhood on the southside of Carl Street, we would like to ask that the development put in trees at the far south end of the quadrant along Carl Street to provide a noise and view buffer of the development. Again, this development will affect our quality of life, and trees would be a good faith effort on the developers' part to show they want to do well with existing neighborhoods.

3. As there will need to be a new water treatment plant built for this development as well as new roads and roundabouts, we are very concerned how this will impact our taxes. Our taxes took a big jump this year and we don't feel we should be taxed for these services as we will not benefit at all from the water and roads.

4. Finally, we are concerned about traffic on 4th Ave. Many people walk along this road and there is an airstrip that also ends at 4th and there are no sidewalks planned.

Address: 314 Carl Street, Lino Lakes, MN 55014

Date Submitted: 06/25/2025

Name: Kristen Iverson

Subject: AUAR Response

Comment: Hello,

I have a few concerns I would like to address in response to the AUAR study.

My concern is the negative impact this will have on traffic, and on our natural environment and ecosystems in the study area and surrounding areas. I live on Carl Street, very close to the study area. This is a rural area with larger lot sizes and open green areas.

We have Blanding Turtles that nest every year in our yards and surrounding areas. We currently have four sets of Sandhill Cranes that breed and make their home here on Carl Street. We also have Bald Eagles, numerous Owls, waterfowl, pheasants, turkey, deer and bear. Roughly seven miles north is Carlos Avery Wildlife Management Area. This is an important wildlife refuge that contains marshland, lakes and swamps that provides habitat for migratory birds and other wildlife species. This ecosystem needs to be protected, including the land south of Carlos Avery in which we live and reside in. Many of these animals live amongst us on Carl Street and in the surrounding forest areas and open fields near us.

We cannot allow high density homes and apartment building high rises, in addition to commercial buildings, in this area because it will destroy this ecosystem. Migratory birds aloft at night migrate through our area on Carl Street and surrounding neighborhoods, with stops to Carlos Avery Wildlife Refuge.

It is important to eliminate outdoor lighting and parking lot lighting as much as possible, and to help reduce the amount of reflective glass on windows to help get the birds safely to their destinations.

In summary, Lino Lakes needs to locate their commercial and high density developments to areas by Lake Drive and Interstate 35. Let’s make the Lake Drive area the new “downtown” area, and let’s not ruin peaceful residential neighborhoods with abundant wildlife with close proximity to Carlos Avery Wildlife Management Area. This is a precious ecosystem with natural habitat that has to be saved and protected. Thank you for your time.

Address: 352 Carl St, Lino Lakes, MN 55014, United States

Date Submitted: 06/26/2025

Name: Betsy Garcia

Subject: Soil Contamination and Floodplains

Comment: Thank you for compiling the AUAR report.

1) It is my understanding the Lino Lakes Flood Plain Administrator is responsible for assuring compliance with FEMA guidelines & local ordinances regarding any development of land on the current Robinson Sod Farm.

Because my property abuts this sod farm just to the east, I want to assure the proposed mitigation interventions will protect my land from any flooding. Additionally, what communication will be provided identifying the specific interventions, and to whom would I report any negative sequelae related to flooding that could possibly occur as a result of the interventions in the future?

2) i am concerned regarding contaminated soil on the sod farm which already has or will occur during mitigation secondary to fertilizers, pesticides and other chemicals. These have been used for years on the sod farm, and would like to know what EPA approved testing or other methods will be done to determine levels of toxic pollutants, harmful particulates or emissions from the helicopter crash, farm vehicles and machinery. Would the testing include Nitrogen Oxides, Hydrocarbons, Greenhouse gases, ammonia and other identified agriculturally related particles that contain substances linked to respiratory or potentially cancer related harm to humans and wildlife. How will these findings be proactively communicated to residents?

Lastly, it would have been beneficial and prudent for our Lino Lakes residents to receive a synopsis of your very well organized and extensive findings in layman's terms, including avoidance of professional jargon. We are far from experts in your field and in conversations with neighbors who read or tried to read the AUAR report, it was impossible for them to understand or interpret findings, especially technical data reports. Thus, it was not possible to reply to a report when you don't understand it in the first place. .

Address: N/A

Date Submitted: 05/28/2025

Name: John Grattan

Subject: Housing Density

Comment: I would prefer scenario 2, but there is still way too much high density housing in every option.

Address: N/A

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7B

STAFF ORIGINATOR: Katie Larsen, City Planner

MEETING DATE: August 11, 2025

TOPIC: Consider Resolution No. 25-105 Approving 1210 Main Street Accessory Structure Variance

VOTE REQUIRED: Simple Majority

INTRODUCTION

The applicant and property owner of 1210 Main Street, Bruce Amdahl, submitted a Land Use Application for a variance to allow for the construction of a metal building on a lot less than 5 acres.

Tentative Review Schedule:

Complete Application Date:	June 11, 2025
60-Day Deadline:	August 10, 2025
60-Day Extension:	October 9, 2025
Environmental Board Meeting:	N/A
Park Board Meeting:	N/A
Planning & Zoning Board Meeting:	July 9, 2025
City Council Work Session:	August 11, 2025
City Council Meeting:	August 11, 2025

BACKGROUND

This staff report is based on the following submittals:

- Applicant Narrative
- Boundary Survey prepared by Bro Land Surveying, LLC dated June 4, 2025
- Original Building Permit Application
- Revised Building Permit Application

ANALYSIS

The lot is 4.91 acres and is zoned R, Rural.

On January 6, 2025, the applicant submitted a building permit application to the City to construct a 40ft x 64ft accessory building with metal panel siding with vertical orientation and exposed fasteners on the entire building. The accessory structure would be 107ft from the front lot line and 18ft from the west lot line.

Per City Code Section 1007.044(10): *Rural, residential and special zoning district accessory buildings*. The following establishes accessory buildings requirements allowed on a property according to lot size and zoning district. For the purposes of this section, lot size for metes and bounds properties shall include roadway easements.

(e) *Less than five acres.*

5. Metal sheet or metal panel siding with vertical orientation is prohibited. Metal horizontal lap siding is allowed.
6. Exterior walls shall be similar in appearance to standard wood or masonry residential construction. The accessory building shall be covered with shingles, tiles, or a standing seam metal roof.

The building permit application was not approved because metal panel siding with vertical orientation and exposed fasteners is prohibited on lots less than 5 acres.

On May 19, 2025, the applicant submitted revised building plans to construct the same size accessory building with LP wood panel siding with vertical orientation and roof shingles.

On May 29, 2025, the building permit application was approved.

On June 6, 2025, the applicant submitted the land use application for a variance requesting the original proposed metal building be allowed.

Staff recommended denial of the variance because it did not meet the variance criteria detailed in City Code Section 1007.018(3)(a).

Planning & Zoning Board

The Planning & Zoning Board reviewed the application on July 9, 2025 and recommended approval of the variance. Discussion points included:

- 4.91 acres is very close to 5 acres
- There are other metal accessory structures in the neighboring area
- Higher traffic speed on Main Street makes structure less visible

Findings of Fact

Resolution No. 25-105 details the Planning & Zoning Board's findings of fact.

Additional Comments

1. Outdoor storage shall be compliant with City Code Section 1007.048.
2. Off-street parking shall be compliant with City Code Section 1007.052.
3. Home occupation shall be compliant with City Code Section 1007.056.
4. Construction-related businesses are not permitted uses on the property.
5. Per City Code Section 1007.044(10)(e) 2. Total allowable accessory building footprint shall be limited to the following:
    a. One attached garage and one detached building, or
    b. Two detached accessory buildings.
6. Existing non-compliant accessory structures shall be removed prior to issuing a building permit. This includes but is not limited to the storage containers currently onsite.

RECOMMENDATION

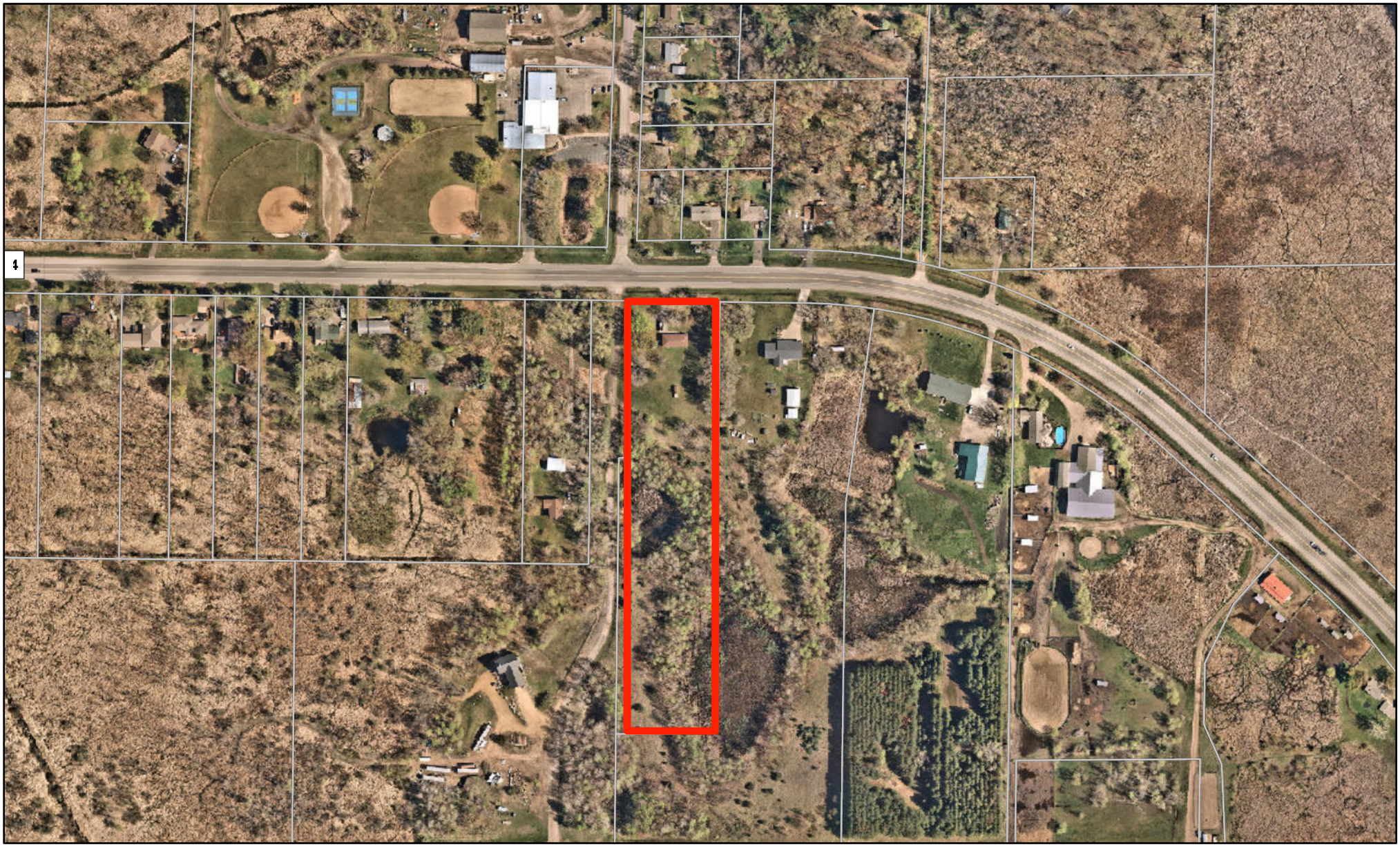
The Planning & Zoning Board recommended approval of the 1210 Main Street accessory structure variance.

ATTACHMENTS

1. Site Location & Aerial Map
2. Applicant's Narrative
3. Boundary Survey
4. Original Building Permit Plan
5. Revised and Approved Building Permit Plan
6. Resolution No. 25-105

1. Site Location & Aerial Map

1210 Main Street



1 in = 300 Ft

Parcels

N

July 1, 2025

Map Powered By Datafi

WSD

1210 Main Street

July 1, 2025
Map Powered By Datafi

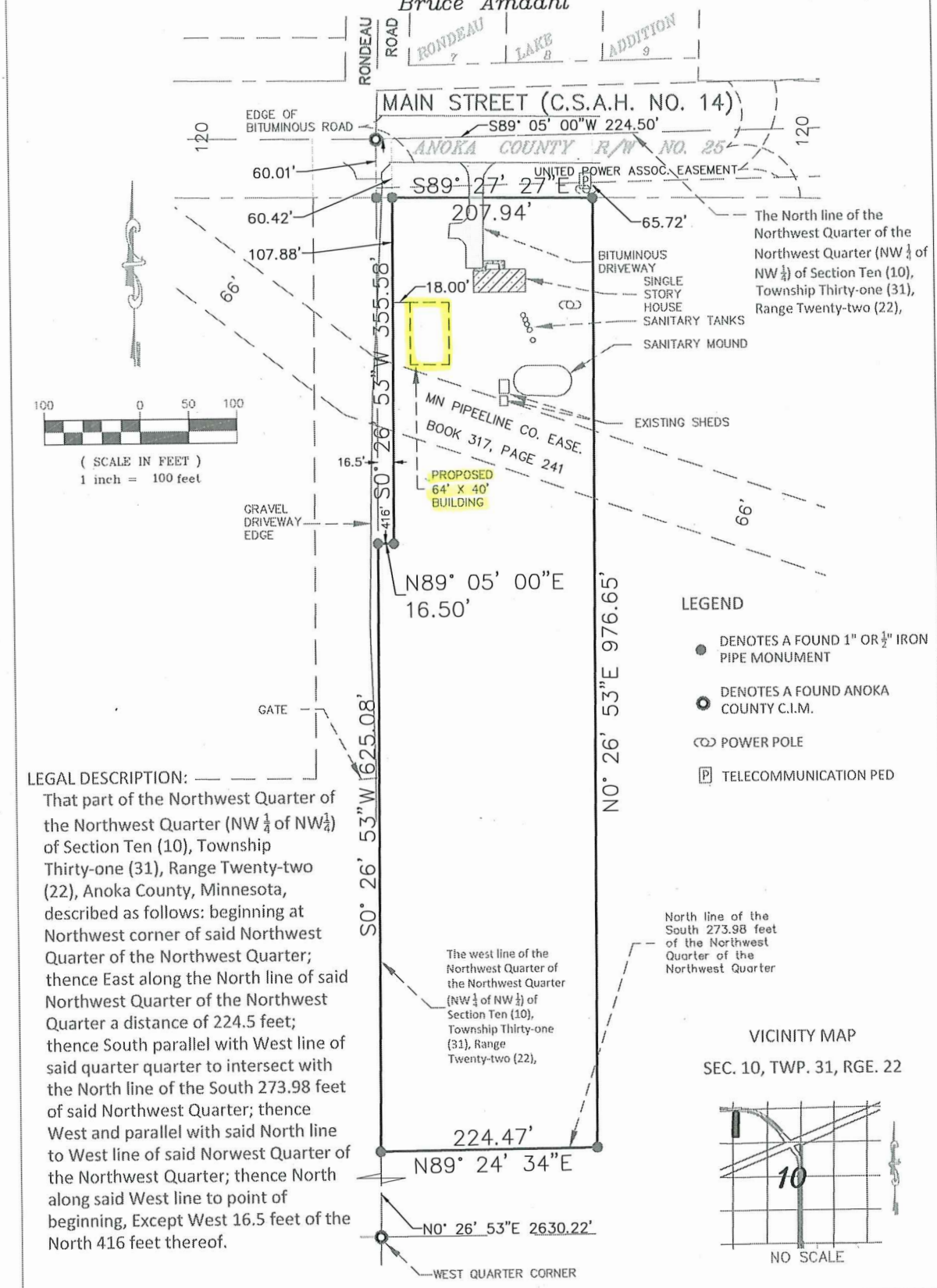
We are applying for a variance for an accessory structure to be built.
We have 4.9 acres. There's a zoning ordinance that says for the structure I would like to build. I need 5 acres.
The accessory structure that I would like to build would have metal panel siding with vertical orientation. The roof also would be of similar material.

We have priced out the materials for the building to be built with wood sheeting and metal horizontal lap siding with asphalt shingles for roofing and the cost comes in about $25,000 higher than if we would use the material on the plan would be a pro rib, steel siding and roofing material

40 x 60

BOUNDARY SURVEY
FOR
Bruce Amdahl

CITY OF LINO LAKES
COUNTY OF ANOKA
SEC. 10, TWP 31, RNG. 22



LEGEND

- DENOTES A FOUND 1" OR ½" IRON PIPE MONUMENT
- DENOTES A FOUND ANOKA COUNTY C.I.M.
- POWER POLE
- TELECOMMUNICATION PED

LEGAL DESCRIPTION:

That part of the Northwest Quarter of the Northwest Quarter (NW ¼ of NW ¼) of Section Ten (10), Township Thirty-one (31), Range Twenty-two (22), Anoka County, Minnesota, described as follows: beginning at Northwest corner of said Northwest Quarter of the Northwest Quarter; thence East along the North line of said Northwest Quarter of the Northwest Quarter a distance of 224.5 feet; thence South parallel with West line of said quarter quarter to intersect with the North line of the South 273.98 feet of said Northwest Quarter; thence West and parallel with said North line to West line of said Norwest Quarter of the Northwest Quarter; thence North along said West line to point of beginning, Except West 16.5 feet of the North 416 feet thereof.

VICINITY MAP
SEC. 10, TWP. 31, RGE. 22

NO SCALE

SURVEY NOTES:

EXISTING EASEMENTS WERE NOT RESEARCHED FOR THIS SURVEY

Bro Land surveying LLC
Linwood, Mn 651-233-3168

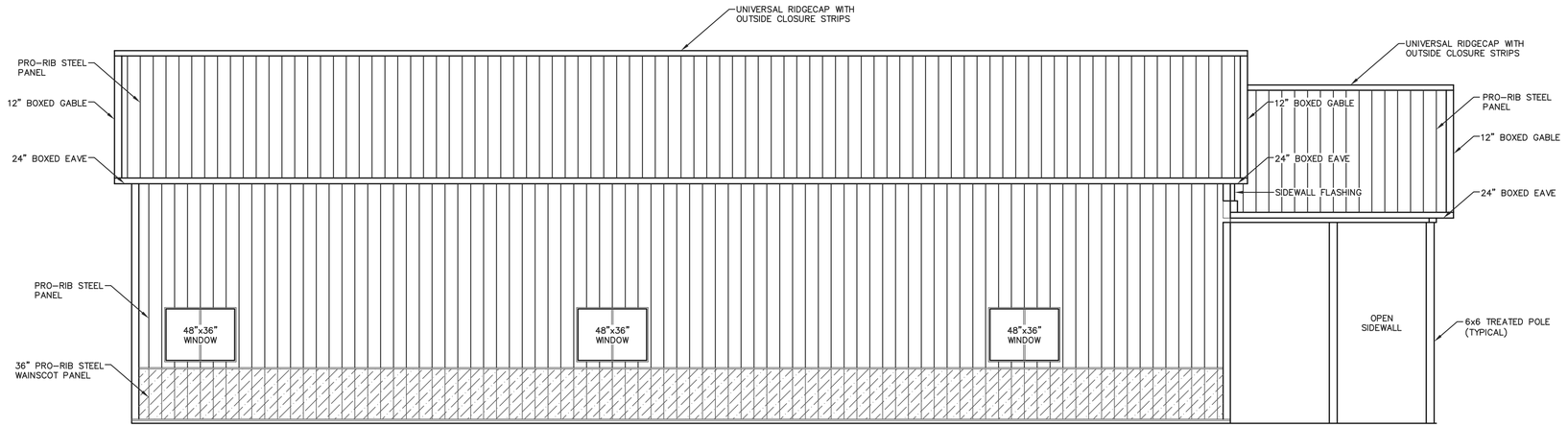
I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Survey under the laws of the state of Minnesota.

Signature Christopher S Osterhus Date: 6/4/2025

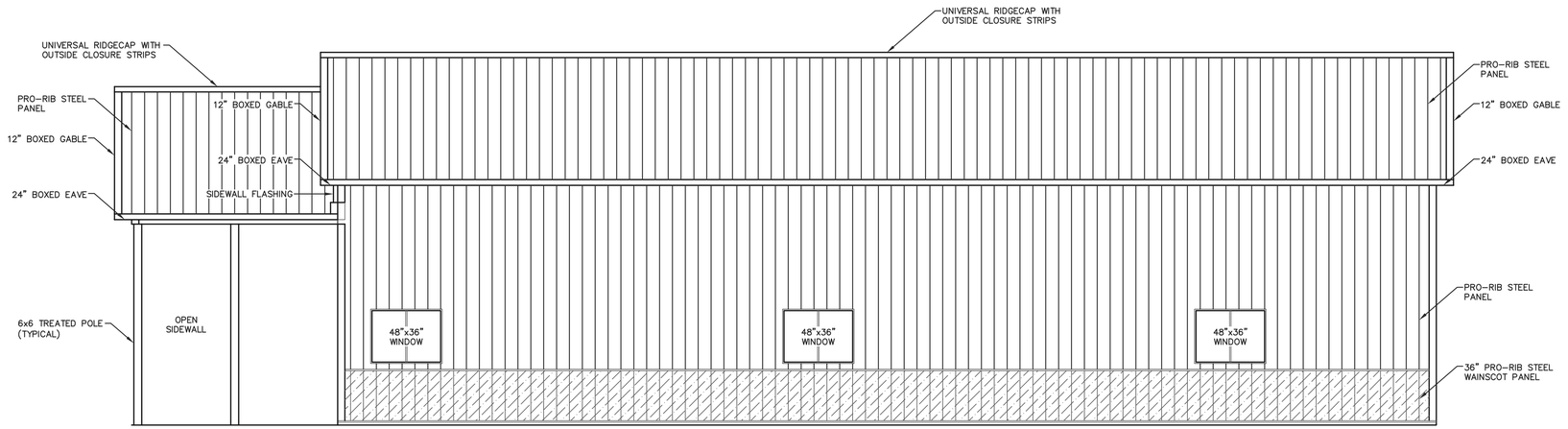
Name, Christopher S. Osterhus , LICENSE NUMBER 57071

PHYSICAL ADDRESS:
1210 Main Street LINO LAKES MN 55308

PROPERTY ID:
10-31-22-22-0011
AREA= 4.91 ACRES
(213822.4 SF)



NOTE:
OWNER/CONTRACTOR SHALL VERIFY WINDOW LOCATIONS AT TIME OF CONSTRUCTION.



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

Metal panel siding with vertical orientation and exposed fasteners

CODE EXEMPT PRINT
6311 KANE RD. EAU CLAIRE, WI 54703 (715) 876-5555

PROJECT TITLE:

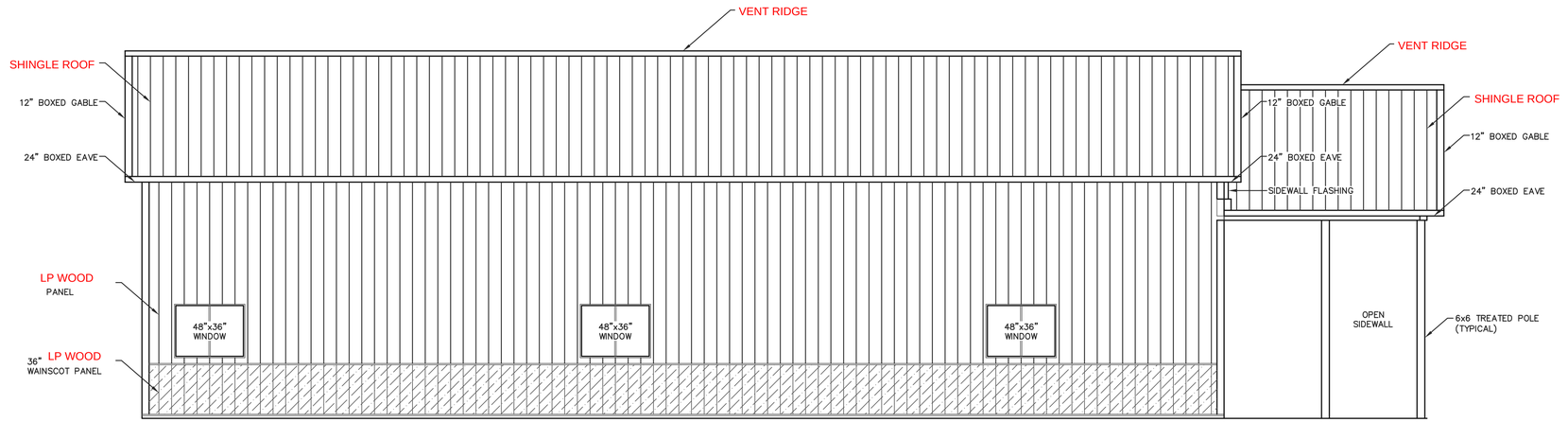
AMDAHL BUILDERS
MINNEAPOLIS, MN

FILE NAME: AMDAHL BUILDERS

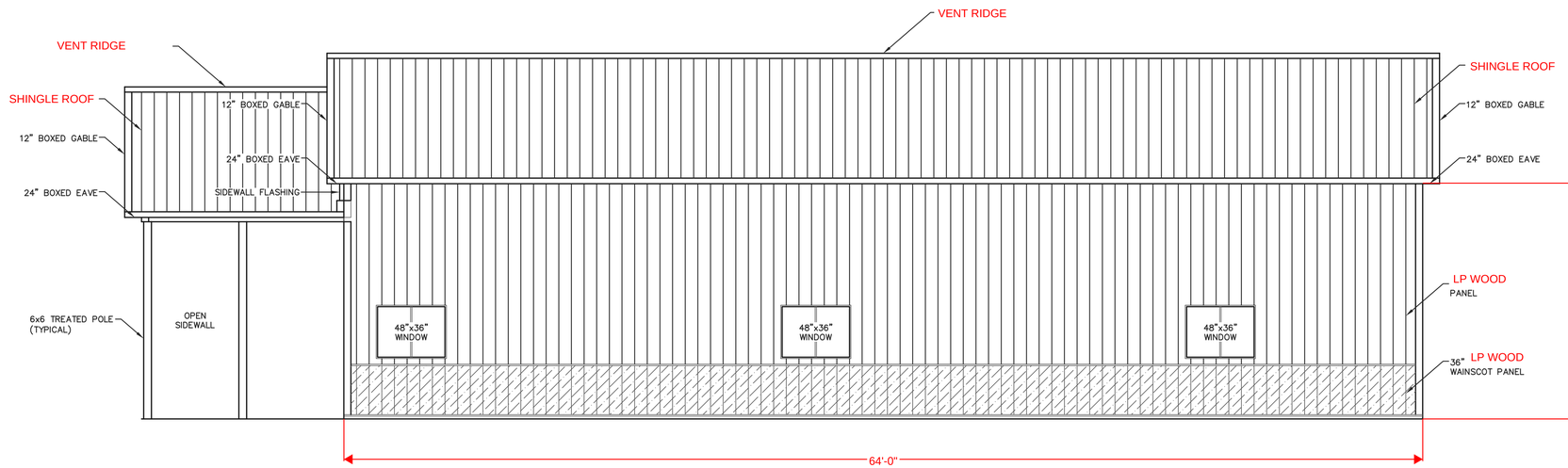
DIMENSIONS
WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS.

ERRORS AND OMISSIONS
MENARD INC. IS UNABLE TO ACCEPT LIABILITY FOR ANY ERRORS OR OMISSIONS IN EXCESS OF THE ORIGINAL PURCHASE PRICE FOR THESE PLANS. CONSEQUENTLY, BUILDER MUST CAREFULLY CHECK ALL DETAILS AND INFORMATION IN THESE DRAWINGS INCLUDING DIMENSIONING, MATERIAL QUANTITIES AND CURRENT AVAILABILITY OF PRODUCTS SPECIFIED. ANY ERRORS OR OMISSIONS FOUND SHOULD BE REPORTED IMMEDIATELY TO MENARD INC. 4777 MENARD DRIVE EAU CLAIRE, WI 54703

ADAPTATION & UTILIZATION OF THIS PLAN
THESE PLANS HAVE BEEN PROFESSIONALLY PREPARED TO CONFORM TO MOST GENERALLY ACCEPTED CONSTRUCTION REQUIREMENTS THROUGHOUT NORTH AMERICA. HOWEVER, DUE TO LOCAL CODES, REGULATIONS AND BUILDING PRACTICES AND/OR BECAUSE OF SPECIFIC SITE CONDITIONS, THESE DRAWINGS MAY NOT BE SUITABLE OR LEGAL FOR USE IN THE CONSTRUCTION OF THIS BUILDING IN ALL LOCALITIES. CONSEQUENTLY, THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED FOR CONSTRUCTION UNLESS THE BUILDER HAS CONFIRMED THEIR SUITABILITY OR UNTIL THE DRAWINGS HAVE BEEN BROUGHT INTO CONFORMITY WITH ALL LOCAL REQUIREMENTS.



NOTE:
OWNER/CONTRACTOR SHALL VERIFY WINDOW LOCATIONS AT TIME OF CONSTRUCTION.



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

LP wood panel siding with vertical orientation and roof shingles

LINDERMAN ENGINEERING & CONSULTING
Brooklyn Park, Minnesota 55443
(612) 405-6109
LECLinderman@gmail.com
www.LindermanEC.com

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature
Typed or Printed Name: Wayne C. Linderman
Date 5/22/25 Lic.No. 40154

"FOR STRUCTURAL SCOPE ONLY"

CODE EXEMPT PRINT
6311 KANE RD. EAU CLAIRE, WI 54703 (715) 876-5555

PROJECT TITLE:

AMDAHL
BUILDERS
MINNEAPOLIS, MN

FILE NAME: AMDAHL BUILDERS

BRUCE AMDAHL
1210 MAIN ST LINO LAKES

CITY OF LINO LAKES
RESOLUTION NO. 25-105

APPROVING 1210 MAIN STREET ACCESSORY STRUCTURE VARIANCE

WHEREAS, the City received a land use application for 1210 Main Street accessory structure variance; and

WHEREAS, City staff completed review of the proposed variance based on the following submittals:

- Applicant Narrative
- Boundary Survey prepared by Bro Land Surveying, LLC dated June 4, 2025
- Original Building Permit Application
- Revised Building Permit Application; and

WHEREAS, the legal description of the property addressed 1210 Main Street is as follows:

THAT PRT OF NW1/4 OF NW1/4 OF SEC 10 TWP 31 RGE 22 DESC AS FOL, BEG AT NW COR OF SD 1/4 1/4, TH E ALG N LINE OF SD 1/4 1/4 224.5 FT, TH S PRLL/W W LINE OF SD 1/4 1/4 TO INTER/W N LINE OF S 273.98 FT O F SD 1/4 1/4, TH W PRLL/W SD N LINE TO W LINE OF SD 1/4 1/4, TH N ALG SD W LINE TO POB, EX W 16.5 FT OF N 416 FT THEREOF, EX RD, SUBJ TO EASE OF REC; and

WHEREAS, on January 6, 2025, the applicant submitted a building permit application to the City to construct a 40ft x 64ft accessory building with metal panel siding with vertical orientation and exposed fasteners on the entire building.; and

WHEREAS, City Code Section 1007.044(10): *Rural, residential and special zoning district accessory buildings*. The following establishes accessory buildings requirements allowed on a property according to lot size and zoning district. For the purposes of this section, lot size for metes and bounds properties shall include roadway easements.

(e) *Less than five acres.*

5. Metal sheet or metal panel siding with vertical orientation is prohibited. Metal horizontal lap siding is allowed.

6. Exterior walls shall be similar in appearance to standard wood or masonry residential construction. The accessory building shall be covered with shingles, tiles, or a standing seam metal roof; and

WHEREAS, the building permit application was not approved because metal panel siding with vertical orientation and exposed fasteners is prohibited on lots less than 5 acres; and

WHEREAS, on May 19, 2025, the applicant submitted revised building plans to construct the same size accessory building with LP wood panel siding with vertical orientation and roof shingles; and

WHEREAS, on May 29, 2025, the building permit application was approved; and

WHEREAS, on June 6, 2025, the applicant submitted the land use application for a variance requesting the original proposed metal building be allowed; and

WHEREAS, the Planning & Zoning Board reviewed and recommended approval of the variance on July 9, 2025.

NOW, THEREFORE BE IT RESOLVED by the City Council of Lino Lakes, Minnesota that:

FINDINGS OF FACT

Per City Code Section 1007.018(3):

(a) *Criteria and findings of fact.* No variance shall be granted unless it meets all the criteria in divisions 1. through 6. below, or unless division 7. below applies. The city shall make findings regarding compliance with these criteria.

1. The variance shall be in harmony with the general purposes and intent of this chapter.

The variance is in harmony with the general purposes and intent of Chapter 1007: Zoning Code. Per City Code Section 1007.000(2) Intent and purposed. This chapter is adopted for the purpose of:

(a) Protecting the public health, safety, comfort, convenience and general welfare.
(b) Dividing the City of Lino Lakes into zones and districts restricting and regulating therein the location and use of structures and land and lot size.

2. The variance shall be consistent with the official City Comprehensive Plan.

The variance is consistent with the official City Comprehensive Plan. Per the 2040 Comprehensive Plan, the lot is guided Urban Reserve. Land is preserved for post-2040 urban development. Land use prior to 2040 is limited to agriculture related uses and single family residential limited to one unit per 10 acres. Accessory buildings are permitted uses.

3. There shall be practical difficulties in complying with this chapter. “Practical difficulties,” as used in connection with the granting of a variance, means that the property owner

proposes to use the property in a reasonable manner not permitted by this chapter. Economic considerations alone do not constitute practical difficulties. Practical difficulties include, but are not limited to, inadequate access to direct sunlight for solar energy systems.

There are practical difficulties in complying with this chapter. The property owner proposes to use the property in a reasonable manner.

4. The plight of the landowner shall be due to circumstances unique to the property not created by the landowner.

The plight of the landowner is due to circumstances unique to the property not created by the landowner. The lot size is 4.91 acres which is slightly less than the required 5 acres.

5. The variance shall not alter the essential character of the locality.

The variance shall not alter the essential character of the locality. There are other metal accessory structures in the locality.

6. A variance shall not be granted for any use that is not allowed under the ordinance for property in the zoning district where the subject site is located.

Accessory structures are allowed in R, Rural zoning districts.

7. In accordance with M.S. § 462.357, Subd. 6, variances shall be granted for earth sheltered construction as defined in M.S. § 216C.06, Subd. 14, when in harmony with the zoning ordinance.

Not applicable.

BE IT FURTHER RESOLVED the variance to allow for the construction of an accessory building with metal panel siding with vertical orientation and exposed fasteners on the entire building is approved with the following conditions:

1. Existing non-compliant accessory structures shall be removed prior to issuing a building permit. This includes but is not limited to the storage containers currently onsite.

Adopted by the City Council of the City of Lino Lakes this _____day of _____, 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, CMC, City Clerk

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7C

STAFF ORIGINATOR: Diane Hankee PE, City Engineer

MEETING DATE: August 11, 2025

TOPIC: Consider 2nd Reading and Adoption of Ordinance No. 14-25, Amending City Code Chapter 218.01 (10)(e) Relating to Special Connection Fees

VOTE REQUIRED: Simple Majority

INTRODUCTION

Staff is requesting council consideration of the 2nd Reading of Ordinance No. 14-25 to amend City Code Chapter 218.01 (10)(e) for special connection fees.

BACKGROUND

On June 10, 2025 the City Council accepted the Feasibility Study's for the 2024/2025 Street Reconstruction and Sewer and Water Extension Project for both the Colonial Woods and Pine Haven neighborhoods. The funding identified a special connection fee for each neighborhood as follows:

i. Colonial Woods

Sewer	$4,000
Water	$3,908
Total	$7,908

ii. Pine Haven

Sewer	$2,647
Water	$3,280
Total	$5,927

The sanitary sewer and watermain have now been installed and tested and ready for connection. The next step is establish the special connection fee.

The City held a public hearing on July 28, 2025 for the amendment where there were no comments received. The full ordinance will be published and no resolution for a summary publication will be required.

RECOMMENDATION

Staff is recommending approval of the 2nd Reading of Ordinance No. 14-25 amending City Code Section 218.10 (10)(e) relating to special connection fees.

ATTACHMENTS

1. Ordinance No. 14-25

1st Reading: July 28, 2025	Publication: August 19, 2025
2nd Reading and Adoption: August 11, 2025	Effective: September 18, 2025

CITY OF LINO LAKES
ORDINANCE NO. 14-25

AN ORDINANCE AMENDING CITY CODE CHAPTER 218.01 (10) (E) RELATING TO SPECIAL CONNECTION FEES

The City Council of Lino Lakes ordains:

Section 1. City Code Chapter 218.01 (10)(e) Relating to City Trunk Utility Connection Fees is hereby amended to include the following:

3. *Special Connection Fees*
In addition to the charges above, the following projects shall have special connection fees:

2025 Street Reconstruction and Municipal Sewer and Water Extension

i. Colonial Woods
Sewer $4,000
Water $3,908

ii. Pine Haven
Sewer $2,647
Water $3,280

Adopted by the Lino Lakes City Council this 11th day of August, 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, CMC,
City Clerk

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7D

STAFF ORIGINATOR: Diane Hankee, PE City Engineer

MEETING DATE: August 11, 2025

TOPIC: Consider Resolution No. 25-107, Approving Payment No. 7 and Final, 2024 Street Rehabilitation and Trunk Watermain Project

VOTE REQUIRED: Simple Majority

INTRODUCTION

Staff is requesting Council consideration to finalize the 2024 Street Rehabilitation and Trunk Watermain Project.

BACKGROUND

On February 12, 2024, the City Council passed Resolution 24-13, awarding the contract for the 2024 Street Rehabilitation and Trunk Watermain Project to Park Construction Company in the amount of $1,875,110.71 for the base bid and the bid alternate. Construction of the project began in spring of 2024 and was completed in fall of 2024.

The final contract amount is $1,743,343.50 for the 2024 Street Rehabilitation Project. Funding for the project is through the Pavement Management fund and the Water Operating fund.

RECOMMENDATION

Staff is recommending approval of Resolution No. 25-107 Approving Payment No. 7 and Final, 2024 Street Rehabilitation and Trunk Watermain Project in the amount of $21,821.81 to Park Construction Company.

ATTACHMENTS

1. Resolution No. 25-107
2. Pay Request No. 7 & Final – 2024 Street Rehabilitation and Trunk Watermain Project

CITY OF LINO LAKES
RESOLUTION NO. 25-107

RESOLUTION APPROVING PAYMENT NO. 7 AND FINAL FOR THE 2024 STREET REHABILITATION AND TRUNK WATERMAIN PROJECT

WHEREAS, pursuant to Resolution 24-13 of the Council adopted on February 12, 2024, awarding the contract for the 2024 Street Rehabilitation and Trunk Watermain Project to Park Construction Company in the amount of $1,875,110.71; and

WHEREAS, a complete summary of costs are detailed in Payment No. 7 (Final) where the final Base Bid amount and the Bid Alternate for the 2024 Street Rehabilitation and Trunk Watermain Project was $1,743,343.50; and

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Lino Lakes, Minnesota that Payment Request No. 7 (Final) is approved in the amount of $21,821.81 for the 2024 Street Rehabilitation and Trunk Watermain Project.

Adopted by the Council of the City of Lino Lakes this 11th day of August 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, City Clerk

2024 Street Rehabilitation and Trunk Water Main Project

Final Pay Voucher 7

wsb

Client: City of Lino Lakes 600 Town Center Parkway Lino Lakes, MN 55014-1182	**Contractor:** Park Construction Company 1481 81st Avenue NE Minneapolis, MN 55432

WSB Project No.: 023839-000
Client Project No.:
State Project No.:
Federal Project No.:

Contract Amount		**Funds Encumbered**	
Original Contract	$1,875,110.71	Original	$1,875,110.71
Contract Changes	$0.00	Additional	N/A
Revised Contract	$1,875,110.71	Total	$1,875,110.71

Work Certified To Date	
Base Bid Items	$1,743,343.50
Contract Changes	$0.00
Material On Hand	$0.00
Total	$1,743,343.50

Work Certified This Voucher	Work Certified To Date	Less Amount Retained	Less Previous Payments	Amount Paid This Voucher	Total Amount Paid To Date
$4,432.70	$1,743,343.50	$0.00	$1,721,521.69	$21,821.81	$1,743,343.50
		Percent Retained: 0%			Percent Complete: 92.97%

FINAL PAY VOUCHER

I hereby certify that a Final Examination has been made of the noted Contract, that the Contract has been completed, that the entire amount of Work Shown in this Final Voucher has been performed and the Total Value of the Work Performed in accordance with, and pursuant to, the terms of the Contract is as shown in this Final Voucher.

Approved By Park Construction Company

Signature

7-21-2025

Date

Approved By WSB

Signature

July 22, 2025

Date

Approved By City of Lino Lakes

Signature

Obtained

Date

Payment Summary				
No.	**Up Through Date**	**Work Certified Per Voucher**	**Amount Retained Per Voucher**	**Amount Paid Per Voucher**
1	05/02/2024	$422,919.50	$21,145.98	$401,773.52
2	05/30/2024	$869,748.80	$43,487.44	$826,261.36
3	06/27/2024	$135,950.20	$6,797.51	$129,152.69
4	07/26/2024	$269,181.50	$13,459.07	$255,722.43
5	10/09/2024	$39,877.60	($67,513.22)	$107,390.82
6	12/17/2024	$1,233.20	$12.33	$1,220.87
7	07/14/2025	$4,432.70	($17,389.11)	$21,821.81

Funding Category Name	Work Certified To Date	Less Amount Retained	Less Previous Payments	Amount Paid This Voucher	Total Amount Paid To Date
Operating Fund	$158,049.90	$0.00	$156,469.41	$1,580.49	$158,049.90
Pavement Management Fund	$588,386.20	$0.00	$578,114.16	$10,272.04	$588,386.20
Stormwater Utility Fund	$39,109.70	$0.00	$38,718.40	$391.30	$39,109.70
Trunk Water Fund	$957,797.70	$0.00	$948,219.72	$9,577.98	$957,797.70

Accounting Number	Funding Source	Amount Paid This Voucher	Revised Contract Amount	Funds Encumbered To Date	Paid Contractor To Date
1	Local	$10,272.04	$634,299.31	$634,299.31	$588,386.20
2	Local	$391.30	$46,801.50	$46,801.50	$39,109.70
3	Local	$9,577.98	$1,019,679.60	$1,019,679.60	$957,797.70
4	Local	$1,580.49	$174,330.30	$174,330.30	$158,049.90

Contract Item Status									
Line No.	**Item**	**Description**	**Unit**	**Unit Price**	**Contract Quantity**	**Quantity This Voucher**	**Amount This Voucher**	**Quantity To Date**	**Amount To Date**
1	2021.501	MOBILIZATION	LS	$99,300.00	1	0	$0.00	1	$99,300.00
2	2101.502	CLEARING	EACH	$485.00	31	0	$0.00	31	$15,035.00
3	2101.502	GRUBBING	EACH	$76.50	30	0	$0.00	25	$1,912.50
4	2104.502	REMOVE CASTING	EACH	$240.00	36	0	$0.00	36	$8,640.00
5	2104.502	REMOVE CASTING	EACH	$240.00	1	0	$0.00	1	$240.00
6	2104.502	SALVAGE CASTING	EACH	$240.00	40	0	$0.00	40	$9,600.00
7	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	$368.00	1	0	$0.00	0	$0.00
8	2104.502	REMOVE GATE VALVE & BOX	EACH	$1,290.00	12	0	$0.00	12	$15,480.00
9	2104.502	REMOVE HYDRANT	EACH	$1,860.00	2	0	$0.00	2	$3,720.00
10	2104.502	SALVAGE STRUCTURE	EACH	$264.00	1	0	$0.00	0	$0.00
11	2104.502	SALVAGE SIGN	EACH	$40.80	10	0	$0.00	3	$122.40
12	2104.503	SALVAGE CHAIN LINK FENCE	L F	$53.20	15	0	$0.00	0	$0.00

Contract Item Status

Line No.	Item	Description	Unit	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
13	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	L F	$5.60	100	0	$0.00	100	$560.00
14	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	L F	$0.01	4800	0	$0.00	4800	$48.00
15	2104.503	REMOVE CURB & GUTTER	L F	$10.00	1680	0	$0.00	1628	$16,280.00
16	2104.503	SALVAGE CURB	L F	$20.40	120	0	$0.00	80	$1,632.00
17	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	S Y	$13.80	90	0	$0.00	70	$966.00
18	2104.504	REMOVE CONCRETE PAVEMENT	S Y	$21.40	100	0	$0.00	105	$2,247.00
19	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	S Y	$10.70	90	0	$0.00	45	$481.50
20	2104.504	REMOVE BITUMINOUS PAVEMENT	S Y	$43.20	1630	0	$0.00	1543	$66,657.60
21	2104.504	REMOVE WATER MAIN	L F	$8.30	54	0	$0.00	56	$464.80
22	2104.518	REMOVE TIMBER DECK	S F	$124.00	6	0	$0.00	0	$0.00
23	2104.601	SALVAGE AND REINSTALL LANDSCAPE STRUCTURES	L S	$5,990.00	1	0	$0.00	1	$5,990.00
24	2104.603	ABANDON WATER MAIN	L F	$17.60	850	0	$0.00	850	$14,960.00
25	2106.507	EXCAVATION - COMMON	C Y	$0.01	650	20	$0.20	20	$0.20
26	2106.507	EXCAVATION - SUBGRADE	C Y	$0.01	420	0	$0.00	0	$0.00
27	2106.507	SELECT GRANULAR EMBANKMENT (CV)	C Y	$0.01	420	0	$0.00	0	$0.00
28	2106.507	EXCAVATION - CHANNEL AND POND	C Y	$42.00	150	0	$0.00	120	$5,040.00
29	2106.601	DEWATERING	LS	$29,800.00	1	0	$0.00	1	$29,800.00
30	2106.610	EXPLORATORY EXCAVATION	HOUR	$259.00	20	0	$0.00	0	$0.00
31	2108.504	GEOTEXTILE FABRIC TYPE 5	S Y	$1.10	2780	0	$0.00	110	$121.00
32	2123.610	SKID LOADER	HOUR	$173.00	15	0	$0.00	0	$0.00
33	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	$173.00	30	0	$0.00	27	$4,671.00
34	2123.610	UTILITY CREW	HOUR	$601.00	60	0	$0.00	15	$9,015.00
35	2130.523	WATER	MGAL	$56.00	40	0	$0.00	95.2	$5,331.20
36	2211.509	AGGREGATE BASE (CV) CLASS 5	TON	$0.01	580	0	$0.00	0	$0.00

Contract Item Status

Line No.	Item	Description	Unit	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
37	2232.504	MILL BITUMINOUS SURFACE	S Y	$1.65	1290	0	$0.00	1290	$2,128.50
38	2232.504	MILL BITUMINOUS SURFACE (1.5")	S Y	$1.40	13470	0	$0.00	13470	$18,858.00
39	2232.504	MILL BITUMINOUS SURFACE (2.0")	S Y	$1.70	1720	0	$0.00	1720	$2,924.00
40	2331.603	JOINT ADHESIVE	L F	$0.64	16100	0	$0.00	16100	$10,304.00
41	2360.504	TYPE SP 9.5 WEAR CRS MIX (2,B) 3.0" THICK	S Y	$53.40	90	0	$0.00	60	$3,204.00
42	2360.509	TYPE SP 9.5 BIT MIXTURE FOR PATCHING	TON	$182.00	310	0	$0.00	171	$31,122.00
43	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B)	TON	$88.50	2730	0	$0.00	2702	$239,127.00
44	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (2,B)	TON	$105.00	80	37.1	$3,895.50	37.1	$3,895.50
45	2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	$880.00	1	0	$0.00	0	$0.00
46	2503.601	CLEAN STORM SEWER	LS	$10,400.00	1	0	$0.00	1	$10,400.00
47	2503.602	RECONNECT SANITARY SEWER SERVICE	EACH	$782.00	3	0	$0.00	0	$0.00
48	2503.602	TELEVISE SANITARY SEWER SERVICE	EACH	$570.00	6	0	$0.00	7	$3,990.00
49	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	$1,550.00	14	0	$0.00	14	$21,700.00
50	2504.602	HYDRANT ASSEMBLY	EACH	$9,110.00	3	0	$0.00	3	$27,330.00
51	2504.602	6" GATE VALVE & BOX	EACH	$3,570.00	2	0	$0.00	2	$7,140.00
52	2504.602	8" GATE VALVE & BOX	EACH	$4,600.00	1	0	$0.00	1	$4,600.00
53	2504.602	10" GATE VALVE & BOX	EACH	$5,540.00	1	0	$0.00	1	$5,540.00
54	2504.602	12" GATE VALVE & BOX	EACH	$6,980.00	3	0	$0.00	3	$20,940.00
55	2504.602	16" GATE VALVE & BOX	EACH	$23,600.00	2	0	$0.00	2	$47,200.00
56	2504.602	IRRIGATION SYSTEM REPAIR	EACH	$270.00	5	0	$0.00	10	$2,700.00
57	2504.602	SACRIFICIAL ANODE BAG (32 LB)	EACH	$782.00	13	0	$0.00	13	$10,166.00
58	2504.602	ADJUST GATE VALVE	EACH	$445.00	9	0	$0.00	9	$4,005.00
59	2504.603	6" WATERMAIN DUCTILE IRON CL 52	L F	$82.80	30	0	$0.00	22	$1,821.60
60	2504.603	16" WATERMAIN DUCTILE IRON CL 52	L F	$129.00	150	0	$0.00	105	$13,545.00

Contract Item Status

Line No.	Item	Description	Unit	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
61	2504.603	12" PVC WATERMAIN	L F	$93.20	60	0	$0.00	0	$0.00
62	2504.603	12" PVC WATERMAIN (DIRECTIONAL DRILLED)	L F	$171.00	2370	0	$0.00	2400	$410,400.00
63	2504.603	18" WATERMAIN HDPE (DIRECTIONAL DRILLED)	L F	$280.00	880	0	$0.00	863.4	$241,752.00
64	2504.604	4" POLYSTYRENE INSULATION	S Y	$72.50	10	0	$0.00	0	$0.00
65	2504.608	DUCTILE IRON FITTINGS	LB	$10.40	7021	0	$0.00	2089	$21,725.60
66	2506.502	INSTALL CASTING	EACH	$948.00	36	0	$0.00	36	$34,128.00
67	2506.502	INSTALL CASTING	EACH	$880.00	1	0	$0.00	1	$880.00
68	2506.602	INSTALL STRUCTURE	EACH	$932.00	1	0	$0.00	0	$0.00
69	2506.602	GRATE CASTING SPECIAL	EACH	$164.00	40	0	$0.00	40	$6,560.00
70	2506.602	CHIMNEY SEAL	EACH	$289.00	36	0	$0.00	72	$20,808.00
71	2511.507	RANDOM RIPRAP CLASS II	C Y	$124.00	8	0	$0.00	0	$0.00
72	2521.518	6" CONCRETE WALK	S F	$16.70	322	0	$0.00	376	$6,279.20
73	2531.503	CONCRETE CURB & GUTTER DESIGN B618	L F	$36.00	930	0	$0.00	1199	$43,164.00
74	2531.503	CONCRETE CURB & GUTTER DESIGN SPECIAL	L F	$36.00	740	0	$0.00	410	$14,760.00
75	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	S Y	$94.30	90	0	$0.00	70	$6,601.00
76	2531.618	TRUNCATED DOMES	S F	$61.80	80	0	$0.00	32	$1,977.60
77	2554.603	PORTABLE NON-CONCRETE BARRIER	L F	$20.40	140	0	$0.00	140	$2,856.00
78	2554.603	RELOCATE PORTABLE NON-CONCRETE BARRIER	L F	$7.65	140	0	$0.00	140	$1,071.00
79	2557.602	REPAIR DOG FENCE	EACH	$211.00	4	0	$0.00	3	$633.00
80	2557.603	INSTALL CHAIN LINK FENCE	L F	$124.00	15	0	$0.00	0	$0.00
81	2563.601	TRAFFIC CONTROL	LS	$5,920.00	1	0	$0.00	1	$5,920.00
82	2563.610	FLAGGER	HOUR	$191.00	20	0	$0.00	20	$3,820.00
83	2564.602	INSTALL SALVAGED SIGN	EACH	$179.00	10	3	$537.00	3	$537.00
84	2573.502	STORM DRAIN INLET PROTECTION	EACH	$200.00	40	0	$0.00	41	$8,200.00

Contract Item Status

Line No.	Item	Description	Unit	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
85	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER	L F	$3.05	400	0	$0.00	1000	$3,050.00
86	2574.507	COMMON TOPSOIL BORROW	C Y	$45.70	330	0	$0.00	294	$13,435.80
87	2574.508	FERTILIZER TYPE 3	LB	$2.00	105	0	$0.00	30	$60.00
88	2575.504	SODDING TYPE LAWN	S Y	$11.00	2000	0	$0.00	2220	$24,420.00
89	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	S Y	$6.10	300	0	$0.00	500	$3,050.00
90	2575.505	SEEDING	ACRE	$51,000.00	0.06	0	$0.00	0.06	$3,060.00
91	2575.505	RAPID STABILIZATION METHOD 2	ACRE	$5,100.00	0.5	0	$0.00	1	$5,100.00
92	2575.508	SEED MIXTURE 33-261	LB	$51.00	2	0	$0.00	6	$306.00
93	2104.502	REMOVE CASTING	EACH	$240.00	4	0	$0.00	4	$960.00
94	2104.502	SALVAGE CASTING	EACH	$240.00	2	0	$0.00	2	$480.00
95	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	L F	$1.95	110	0	$0.00	144	$280.80
96	2104.503	REMOVE CURB & GUTTER	L F	$16.00	70	0	$0.00	144	$2,304.00
97	2104.504	REMOVE CONCRETE PAVEMENT	S Y	$13.80	60	0	$0.00	50	$690.00
98	2104.504	REMOVE BITUMINOUS PAVEMENT	S Y	$10.50	30	0	$0.00	32	$336.00
99	2123.610	SKID LOADER	HOUR	$173.00	1	0	$0.00	0	$0.00
100	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	$173.00	2	0	$0.00	2	$346.00
101	2123.610	UTILITY CREW	HOUR	$601.00	4	0	$0.00	4	$2,404.00
102	2130.523	WATER	MGAL	$0.01	1	0	$0.00	0	$0.00
103	2232.504	MILL BITUMINOUS SURFACE (1.5")	S Y	$2.30	1110	0	$0.00	1125	$2,587.50
104	2331.603	JOINT ADHESIVE	L F	$0.64	1250	0	$0.00	1250	$800.00
105	2360.509	TYPE SP 9.5 BIT MIXTURE FOR PATCHING	TON	$204.00	10	0	$0.00	9.7	$1,978.80
106	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B)	TON	$92.60	180	0	$0.00	183	$16,945.80
107	2504.602	ADJUST GATE VALVE	EACH	$307.00	1	0	$0.00	1	$307.00
108	2506.502	INSTALL CASTING	EACH	$1,060.00	4	0	$0.00	4	$4,240.00

Contract Item Status

Line No.	Item	Description	Unit	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
109	2506.602	GRATE CASTING SPECIAL	EACH	$880.00	2	0	$0.00	2	$1,760.00
110	2506.602	CHIMNEY SEAL	EACH	$289.00	4	0	$0.00	8	$2,312.00
111	2531.503	CONCRETE CURB & GUTTER DESIGN SPECIAL	L F	$54.90	70	0	$0.00	144	$7,905.60
112	2573.502	STORM DRAIN INLET PROTECTION	EACH	$201.00	2	0	$0.00	2	$402.00
113	2574.507	COMMON TOPSOIL BORROW	C Y	$176.00	3	0	$0.00	3	$528.00
114	2574.508	FERTILIZER TYPE 3	LB	$2.00	1	0	$0.00	0	$0.00
115	2575.504	SODDING TYPE LAWN	S Y	$14.00	20	0	$0.00	19	$266.00
Bid Totals:							**$4,432.70**		**$1,743,343.50**

Project Category Totals

Category	Amount This Voucher	Amount To Date
ALTERNATE 1 - ASPEN LANE	$0.00	$47,833.50
SCHEDULE A - BASE BID	$4,432.70	$1,695,510.00

Contract Change Item Status

CC	CC No.	Line No.	Item	Description	Units	Unit Price	Contract Quantity	Quantity This Voucher	Amount This Voucher	Quantity To Date	Amount To Date
Contract Change Totals:											

Contract Change Totals

No.	Contract Change	Description	Amount This Voucher	Amount To Date

Material On Hand Additions

Line No.	Item	Description	Date	Added	Comments

Material On Hand Balance

Line No.	Item	Description	Date	Added	Used	Remaining

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7E

STAFF ORIGINATOR: Diane Hankee PE, City Engineer

MEETING DATE: August 11, 2025

TOPIC: Consider Resolution No. 25-108, Approving Trunk Utility Agreement, Natures Refuge North

VOTE REQUIRED: Simple Majority

INTRODUCTION

Staff is requesting City Council consideration to approve a Trunk Utility Agreement for the installation of utilities at Natures Refuge North.

BACKGROUND

On May 12, 2025 the City Council approved the PUD preliminary plan and plat for the Natures Refuge North project. The applicant, M/I Homes of Minneapolis/St. Paul, LLC, is proposing to plat and develop a 94-lot residential subdivision on 60 acres north of Natures Refuge.

On May 27, 2025 the City Council approved a Grading Agreement for the Natures Refuge North project. The applicant has commenced grading on the site. The applicant has requested to start installing the trunk utilities including the deep sanitary sewer lift station manhole in the fall of 2025. M/I Homes will acknowledge through the Trunk Utility Agreement that they are completing this work at their own risk and prior to final plat approval. Final plat will be presented City Council on September 8, 2025.

The applicant is required to submit a cash escrow to cover City Costs in the amount of $145,032.00 along with a letter of credit in the amount of $3,120,729.00 to secure completion of the improvements.

RECOMMENDATION

Staff is recommending approval of Resolution No. 25-108 for a Trunk Utility Agreement, Natures Refuge North.

ATTACHMENTS

1. Resolution No. 25-108
2. Trunk Utility Agreement

CITY OF LINO LAKES
RESOLUTION NO. 25-108

RESOLUTION APPROVING THE TRUNK UTILITY AGREEMENT FOR NATURES REFUGE NORTH

WHEREAS, the City Council approved the Planned Unit Development (PUD) Preliminary Plan/Preliminary Plat for the Natures Refuge North on May 12, 2025, and

WHEREAS, the City has reviewed the utility plans and found them to be in conformance with the City Standard Specifications for Construction, and

WHEREAS, The Developer of the Natures Refuge North project is required to submit a cash escrow to cover City Costs in the amount of $145,032.00 and a letter of credit in the amount of $3,120,729.00 to secure completion of the utility improvements.

NOW, THEREFORE BE IT RESOLVED by the City Council of Lino Lakes that the Trunk Utility Agreement between M/I Homes of Minneapolis/St. Paul LLC. and the City of Lino Lakes for the Natures Refuge North PUD is hereby approved.

BE IT FURTHER RESOLVED that the Mayor and City Clerk are hereby authorized to execute such agreement on behalf of the City.

Adopted by the Lino Lakes City Council this 11th day of August, 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, City Clerk

TRUNK UTILITY AGREEMENT

Natures Refuge North

THIS AGREEMENT is made this _____ day of _____, 2025, by and between the City of Lino Lakes ("City"), a Minnesota municipal corporation, and M/I Homes of Minneapolis/St. Paul LLC. ("Developer").

1. **Subdivision.** Developer received preliminary plat approval from the City by Resolution No. 25-61 for a plat known as Natures Refuge North ("Subdivision"). Unless otherwise stated, all terms and conditions of this Agreement relate to work within the Subdivision.

2. **Legal Description of Property.** The Legal Description is attached hereto as Exhibit A.

3. **Developer Plans.**

    a. The subject property shall have sanitary sewer, water, and storm sewer utilities installed in accordance with the following Developer Plans, original copies of which are on file with the City Engineer. The Developer Plans may be prepared and revised after entering into this Agreement but must be approved by the City before commencement of any work. If the plans vary from the written terms of this Agreement, this Agreement shall control.

    b. The Developer Plans as of the date of this Agreement are Natures Refuge North 1st Addition Sanitary Sewer, Watermain, Storm Sewer and Street Construction Plans containing 19 sheets, prepared by Carlson McCain, dated June 26, 2025. The street construction portion of the plans are not party to this agreement.

4. **Trunk Utility Installation Prior to Final Plat Approval.** The Developer may install sanitary sewer, water, and storm sewer utilities on the Exhibit A property at its sole cost in conformance with the Developer Plans. In the event the early utility installation work needs to be modified due to changes in the Developer plans required by the City or other jurisdictional authority, Developer shall make the changes at its own expense. Developer expressly acknowledges that installing utilities on the site prior to receiving full project approvals is done at the Developer's sole risk.

5. **Permits.** The Developer shall be responsible for securing all utility installation and development approvals and all other required permits from all appropriate Federal, State, Regional and Local jurisdictions prior to the commencement of the utility installation and construction.

6. **Developer Improvements.** The Developer shall secure a contractor to install the improvements described in this paragraph, or otherwise required herein to be installed by Developer, hereinafter referred to as the "Developer Improvements," which

contractor shall be approved by the City in its absolute and sole discretion. The Developer Improvements shall be constructed per the City Standard Specifications for Construction January 2024.

The estimated cost of Developer Improvements is as shown on Exhibit B attached hereto. All Developer Improvements shall require City inspection and approval and, where appropriate, the approval of any other governmental agency having jurisdiction. The Developer shall construct and install at the Developer's sole cost and expense the following improvements according to the following terms and conditions:

a. Site Grading. Not applicable to this Agreement. There is a separate Grading Agreement for Exhibit A property Resolution No. 25-66.

b. Site Improvements

   i. The street right-of-way, storm water storage ponds, and surface water drainage ways are to be graded per a separate early grading agreement. Surface water management systems shall be maintained by the Developer until they are accepted by the City.

   ii. The Developer shall be responsible for ascertaining that site geotechnical and groundwater conditions are adequate and conforming with the site improvements as proposed. The Developer shall provide testing from an approved testing company.

   iii. The Developer shall install sanitary sewer, water, and storm sewer utilities. The Developer's engineer shall certify in writing, with an as-built survey, that utility installation complies with the approved construction plans.

   iv. The Developer shall promptly clear dirt and debris within public rights-of-way and drainage and utility easements resulting from construction by the Developer, its purchasers, builders and contractors within five (5) days after notification by the City. The Developer shall be responsible for all necessary street and storm sewer maintenance, including street sweeping, unless otherwise released by the City.

7. **Time of Performance.** The Developer shall install all required improvements enumerated in Paragraph 6 by November 30, 2025. The Developer may request a reasonable extension of time from the City, and the City will consider the extension in its sole discretion. If the extension is granted, it shall be conditioned upon updating the security posted by the Developer to reflect cost increases and the extended completion date.

8. **City Improvements.** No City installed improvements are proposed to be constructed.

9. **Record Drawings.**

    a. Upon project completion, Developer shall submit record drawings, in electronic format, of utilities constructed by Developer. The files shall be drawn in Anoka County NAD 83 Coordinate system and provided in both AutoCAD .dwg and Adobe .pdf file formats. The plans shall include accurate locations, dimensions, elevations, grades, slopes and all other pertinent information concerning the complete work.

    b. No securities will be fully released until all record drawings have been submitted and accepted by the City Engineer.

10. **Faithful Performance of Construction Contracts and Security.**

    a. The Developer will fully and faithfully comply with all terms and conditions of any and all contracts entered into by the Developer for the installation and construction of all Developer Improvements. Concurrent with the execution hereof by the Developer, the Developer will furnish to, and at all times thereafter maintain with the City, a cash deposit, certified check, or Irrevocable Letter of Credit, based on thirty-five (35%) percent of the total estimated cost of Developer's Improvements as determined by the City Engineer.

    b. Irrevocable Letter of Credit. If an Irrevocable Letter of Credit is utilized, it shall be for the exclusive use and benefit of the City of Lino Lakes and shall state that it is issued to guarantee and assure performance by the Developer of all the terms and conditions of this Development Agreement and construction of all required improvements referenced therein in accordance with the ordinances and specifications of the City. The letter shall be in a form, and from a bank, as approved by the City. The City reserves the right to draw, in whole or in part, on any portion of the Irrevocable Letter of Credit for the purpose of guaranteeing the terms and conditions of this agreement. The Irrevocable Letter of Credit shall be automatically extended for additional periods of one year from present or future expiration dates on an annual basis, unless at least sixty (60) days prior to the expiration date, the Community Development Director and City Engineer, are notified by certified mail or overnight courier, that the Letter of Credit will not be extended.

    c. Alternatively, the Developer may enter into a Public Improvement Surety Agreement, subject to City approval.

    d. Reduction of Security. The Developer may request reduction of the Letter of Credit or cash deposit based on prepayment or the value of the completed improvements at the time of the requested reduction.

11. **Warranty.** The Developer warrants all utility work required to be performed by it against poor material and faulty workmanship for a period of two years after its completion and acceptance by the City. Prior to final acceptance of the Developer Improvements the City shall require a Surety Bond or Cash Escrow to cover the warranty provisions of this Agreement. The amount shall be 20 % of the original cost of construction identify in Exhibit B.

12. **Dedication.** The Developer shall grant to the City, at no cost to the City, temporary public drainage and utility easements covering the sanitary sewer, watermain and storm sewer utility improvements. The temporary easements for sanitary sewer, watermain and storm sewer shall be co-extensive with street right-of-way and permanent easements within which the utilities are located, as those rights-of-way and easements are shown on the Preliminary Plat. The temporary easements shall be in effect until a final plat is approved over said easement area. The required easements shall be in writing, in recordable form, containing such terms and conditions as the City shall determine.

13. **Ownership of Improvements**. Upon completion and City acceptance of the sanitary sewer, watermain and storm sewer installation those improvements, lying within the approved easements, shall become City property without further notice or action. Unless the improvements are to be deemed private infrastructure.

14. **Recording and Release.** The Developer agrees that the terms of this Trunk Utility Installation Agreement shall be a covenant on any and all property included in the Subdivision. The Developer agrees that the City shall have the right to record a copy of this Agreement with the Anoka County Recorder to give notice to future purchasers and owners. This shall be recorded against the Subdivision described on Page 1.

15. **Escrow for City's Costs.**

    a. The Developer agrees to establish a non-interest bearing escrow account with the City in an amount determined by the City Administrator or their designee for the payment of all costs incurred by the City related to the development of the Subdivision including, but not limited to, the following (See Exhibit B for breakdown of costs):

        i. Administration - 3% of Developer Improvement Costs

        ii. Estimated City Engineering and Legal Costs

    b. If the above escrowed amounts are insufficient, the Developer shall make such additional deposits as required by the City. The City shall have a right to reimburse itself from the Escrow with suitable documentation supporting the charges.

16. **Developer Fees.** Not Applicable.

17. **Assessment of Charges and Waiver of Rights.** Not Applicable.

18. **Building Permits.** No building permits will be issued and no connections to the municipal utilities will be allowed until the filing of the final plat.

19. **Hours of Construction Activity.**

All construction activity shall be limited to the hours as follows:

Monday through Friday	7:00 a.m. to 7:00 p.m.
Saturday	9:00 a.m. to 5:00 p.m.
Sunday and Holidays	No working hours allowed

20. **Insurance and Indemnity.** Developer or its general contractor shall take out and maintain until one year after the City accepted the Developer Improvements, public liability and property damage insurance covering personal injury, including death, and claims for property damage which may arise out of the Developer's or general contractor's work, as the case may be, or the work of its subcontractors or by one directly or indirectly employed by any of them. Limits for bodily injury and death shall be not less than Five Hundred Thousand and no/100 ($500,000.00) Dollars for one person and Two Million and no/100 ($2,000,000.00) Dollars for each occurrence; limits for property damage shall be not less than One Million and no/100 ($1,000,000.00) Dollars for each occurrence; or a combination single limit policy of Two Million and no/100 ($2,000,000.00) Dollars or more. The City, its employees, its agents and assigns shall be named as an additional insured on the policy, and the Developer or its general contractor shall file with the City a certificate evidencing coverage prior to the City signing the plat. The certificate shall provide that the City must be given ten days advance written notice of the cancellation of the insurance. The certificate may not contain any disclaimer for failure to give the required notice.

    Developer shall defend, indemnify, and hold harmless the City and its officers, employees, and consultants from any loss, injury or damage arising out of or related to the early installation of utilities authorized by this Agreement.

21. **Developer's Default.** In the event of default by the Developer as to any of the work to be performed by it hereunder, the City may, at its option, perform the work and the Developer shall promptly reimburse the City for any expense incurred by the City, including but not limited to attorney and engineering fees, provided the Developer is first given notice of the work in default, not less than 48 hours in advance. This Agreement is a license for the City to act, and it shall not be necessary for the City to seek a court order for permission to enter the land. When the City does any such work, the City may, in addition to its other remedies, levy the cost in whole or in part as a

special assessment against the Subject Property. Developer waives its rights to notice of hearing and hearing on such assessments and its right to appeal such assessments pursuant to Minnesota Statutes, chapter 429.

22. **General.**

a. Binding Effect

The terms and provisions hereof shall be binding upon and inure to the benefit of the heirs, representatives, successors and assigns of the parties hereto and shall be binding upon all future owners of all or any part of the Subdivision and shall be deemed covenants running with the land.

b. Validity.

If a portion, section, subsection, sentence, clause, paragraph or phrase in this agreement is for any reason held to be invalid by a court of competent jurisdiction, such decision shall not affect or void any of the other provisions of the Development Agreement.

c. Notices

Whenever in this Agreement it shall be required or permitted that notice or demand be given or served by either party to this Agreement to or on the other party, such notice or demand shall be delivered personally, or mailed by United States mail to the addresses below, or sent by email to the email address below. Such notice or demand shall be deemed timely given when delivered personally or when deposited in the mail in accordance with the above or when emailed. The addresses of the parties are as set forth until changed by notice given as above.

M/I Homes of Minneapolis/St. Paul, LLC
Attn: John Rask
5354 Parkdale Drive #100
St. Louis Park, MN 55416
jrask@mihomes.com

Community Development Director
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, MN 55014
mgrochala@linolakes.us

IN WITNESS WHEREOF, the City and the Developer have caused this Development Agreement to be executed in their respective corporate names by their duly authorized officers, all as of the date and year first written above.

CITY OF LINO LAKES

By _____
Mayor

ATTEST

By _____
City Clerk

STATE OF MINNESOTA)
) SS
COUNTY OF ANOKA)

This instrument was acknowledged before me on _____ day of _____, 2025, by Rob Rafferty as Mayor of the City of Lino Lakes on behalf of said City.

_____
Notary Public

STATE OF MINNESOTA)
) SS
COUNTY OF ANOKA)

This instrument was acknowledged before me on _____ day of _____, 2025, by Roberta Colotti as City Clerk of the City of Lino Lakes on behalf of said City.

_____
Notary Public

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Execution page of the Developer to the Development Agreement, dated as of the date and year first written above.

DEVELOPER

By _____

Its _____

STATE OF MINNESOTA)
) SS
COUNTY OF _____)

On this _____ day of _____, 2025, before me, a Notary Public within and for said County, personally appeared _____, _____ of _____. (Developer), who executed the foregoing instrument.

_____
Notary Public

This instrument was drafted by:

City of Lino Lakes
600 Town Center Parkway
Lino Lakes, Minnesota 55014

EXHIBIT A

Legal Description of Property

SW1/4 OF NE1/4 OF SEC 5 TWP 31 RGE 22, EX RD SUBJ TO EASE OF REC

And

THE N1/2 OF NW1/4 OF SE1/4 OF SEC 5 TWP 31 RGE 22, SUBJ TO EASE OF REC

EXHIBIT B

Securities, Escrows & Fees

EXHIBIT B
Securities, Escrows & Fees

PROJECT: Natures Refuge N Trunk Utility Installation Agree
APPLICANT: M/I Homes of Minneapolis/St. Paul, LLC

NUMBER OF REU's: 0
NO. OF LOT FRONTAGE: 0
AREA (LOT 1 BLOCK 1): 0

IMPROVEMENTS	COST
DEVELOPER IMPROVEMENT COSTS (Public)	
SITE GRADING	$0
EROSION CONTROL	$0
LANDSCAPING	$0
TRAIL	$0
STREETS	$0
STORM SEWER CONST.	$326,735
SANITARY SEWER CONST.	$1,080,631
WATERMAIN CONST.	$642,374
ENGINEERING & SURVEYING	$30,746
Total	$2,080,486
Letter of Credit Amount X 150%	$3,120,729
ESCROW for CITY'S COSTS	
ADMINISTRATION	$62,415
ENGINEER PLAN REVIEW	$1,500
ENGINEER CONSTRUCTION SERVICES	$72,817
PROJECT FINAL DOCUMENTS & CITY ENGINEER	$2,300
STREET LIGHT INSTALLATION	$0
STREET & STORMWATER MAINTENANCE	$3,000
PROPERTY TAXES	$0
TRAFFIC AND SIGNING IMPROVEMENTS	$0
BOULEVARD TREE PLANTING	$0
Total	$142,032
DEVELOPMENT FEES	
PARK DEDICATION	$0
PARK DEDICATION CREDIT	$0
Subtotal Park Dedication Fee	$0
AUAR	$0
GIS MAPPING FEE	$0
STREET LIGHTING OPERATION	$0
Total	$0
TRUNK SANITARY SEWER	
TRUNK CHARGE PER ACRE	$0
AVAILABILITY CHARGE PER SAC UNIT	$0
TRUNK SANITARY SEWER CREDIT	$0
TRUNK WATERMAIN	
TRUNK CHARGE PER ACRE	$0
AVAILABILITY CHARGE PER SAC UNIT	$0
TRUNK WATERMAIN CREDIT	$0
TOTAL TRUNK SEWER & WATER FEES	$0
SURFACE WATER MANAGEMENT	$0
SURFACE WATER MANAGEMENT CREDIT	$0
TOTAL SURFACE WATER MANAGEMENT FEES	$0
Total	$0
Letter of Credit Amount X 35%	$0

SUMMARY OF SECURITIES, ESCROW & FEES

SECURITY: DEVELOPER IMP'MENT COSTS	$3,120,729
ESCROW FOR CITY COSTS	$142,032
DEVELOPMENT FEES	$0
SECURITY: TRUNK FEES	$0

CITY COUNCIL
REGULAR MEETING STAFF REPORT
AGENDA ITEM 7F

STAFF ORIGINATOR: Michael Grochala, Community Development Director

MEETING DATE: August 11, 2025

TOPIC: Consider Resolution No. 25-106 Approving a Joint Powers Agreement for the Continued Operation of the Vadnais Lakes Area Water Management Organization

VOTE REQUIRED:

INTRODUCTION

Staff is requesting City Council consideration to approve the Joint Powers Agreement (JPA) for the Vadnais Lake Area Water Management Organization (VLAWMO).

BACKGROUND

Since the early 1980's, communities in the metropolitan area have been required to manage surface water in accordance with the Metropolitan Water Management Program set out in Minnesota Statutes, sections 103B.201 through 103B.253 ("Act"). To address that requirement, the City, together with the other communities in the watershed, adopted a joint powers agreement in 1983 to form the Vadnais Lake Area Water Management Organization ("VLAWMO"). VLAWMO is a joint powers watershed management organization under Minnesota Statutes, section 103B.211 and is authorized to carry out the duties under the Act.

Since its formation, VLAWMO has developed, adopted, and updated its watershed management plan as required by the Act. It has also undertaken, on its own and in cooperation with the member communities, water quality and restoration projects throughout the watershed. VLAWMO is in the process of updating its watershed management plan and is working to update the JPA at the same time.

The JPA has been amended and renewed since its original adoption, with the current JPA set to expire on December 31, 2026. The JPA was last updated and readopted in 2016. The updated JPA is the result of a detailed review and work to incorporate VLAWMO's long-standing practices and procedures. This update also includes recognizing the storm sewer utility fee as VLAWMO's primary source of funding. VLAWMO was originally funded through a cost sharing assessment to each community.

As with any joint powers agreement, all member communities need to adopt the same agreement language. VLAWMO staff worked with member community staff to seek review and comments. Staff reviewed the City's comments at the June 2, 2025, work session. Those comments were then incorporated into the JPA.

The Board considered the revised JPA at its June 25, 2025, meeting and adopted a resolution to approve forwarding the JPA to the Board of Water and Soil Resources (BWSR) for review and then to the member communities. VLAWMO submitted the JPA to BWSR for review and then made some revisions to respond to BWSR's comments.

City staff made some final comments on July 31,2025 which have since been incorporated into the document. The finalized JPA is now before the City Council for consideration and approval.

While the wording was substantially updated to create the current JPA, there were relatively few substantive changes. The primary changes from the previous agreement are:

1. The specific years each group of Board members are to serve was removed.

2. It was made clear the secretary-treasurer can delegate duties of the position as currently occurs.

3. Requires a majority vote on matters coming before the Board.

4. The storm water utility and the authorizing special legislation is called out and is recognized as the primary funding source for VLAWMO.

5. The process for capital improvement projects was more specifically spelled out.

6. Expanded the language on the Technical Commission to further detail its role and authority.

7. The budgeting and funding processes were updated to reflect the current process and to make clear Member assessments are no longer used to fund VLAWMO's operations. Member assessments, which is the primary source of funding the operations of most WMOs, is still in the agreement as a possibility if it ever needs to be relied on to help fund VLAWMO's operation.

8. Revised the capital improvement language to reflect how projects are currently funded.

9. The appeal and arbitration process was replaced with a dispute resolution process that focuses on mediation as the primary method to seek resolution.

10. Various miscellaneous provisions were added to address basic statutory requirements (such as data practices and audit compliance) and other general agreement provisions (governing law, etc.).

11. The two amendments adopted in 2019 are incorporated into the JPA (insurance and liability & revenue bond authority).

RECOMMENDATION

Staff is recommending approval of Resolution No. 25-106.

ATTACHMENTS

1. Resolution No. 25-106
2. Amended JPA

CITY OF LINO LAKES
RESOLUTION NO. 25-106

RESOLUTION APPROVING A JOINT POWERS AGREEMENT FOR THE CONTINUED OPERATION OF THE VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION

WHEREAS, the City has been a member of the Vadnais Lake Area Water Management Organization ("VLAWMO") since it was originally establishment in 1983; and

WHEREAS, the City's participation in VLAWMO allows it to address its obligation under Minnesota Statutes, sections 103B.201 through 103B.253 to manage surface water within the watershed; and

WHEREAS, the current joint powers agreement, which is a cooperative effort of all member communities with land in the watershed, expires on December 31, 2026; and

WHEREAS, the attached joint powers agreement, which is incorporated herein by reference, updates the language in the joint powers agreement to better reflect how VLAWMO has actually operated for years, recognizes the storm sewer utility fee imposed by VLAWMO as its primary funding source, and provides for the continued operation of VLAWMO through January 1, 2036; and

WHEREAS, the VLAWMO has funded many projects throughout the watershed, including in the City, which has contributed to improved surface water quality and ecological integrity within the watershed; and

WHEREAS, the City Council determines it is in the best interests of the City to continue its participation in the VLAWMO to further its goals of improving water quality and in furtherance of satisfying its obligations to properly manage surface water in accordance with the Metropolitan Surface Water Management Program.

NOW, THEREFORE, BE IT RESOLVED by the City Council of Lino Lakes, Minnesota that

1. The attached Vadnais Lake Area Water Management Organization Joint Powers Agreement is hereby approved and entered into by the City.

2. The Mayor and Clerk are hereby authorized and directed to execute the attached joint powers agreement on behalf of the City.

Adopted by the City Council of the City of Lino Lakes this 11th day of August, 2025.

_____
Rob Rafferty, Mayor

ATTEST:

_____
Roberta Colotti, CMC, City Clerk

VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION
JOINT POWERS AGREEMENT

THIS JOINT POWERS AGREEMENT ("**Agreement**") is made and entered into by and between the participating units of local government of the Cities of Gem Lake, Lino Lakes, North Oaks, Vadnais Heights, and White Bear Lake and the Township of White Bear (individually a "**Member**" and collectively the "**Members**").

RECITALS

A. The Vadnais Lake Area Water Management Organization ("**VLAWMO**") was organized in 1983 and is located in the northeast metro area within Ramsey and Anoka counties.

B. VLAWMO is responsible for an approximately 24.2 square mile watershed that encompasses the City of North Oaks, along with portions of the Cities of White Bear Lake, Gem Lake, Vadnais Heights, Lino Lakes, and White Bear Township and includes 17 lakes, 1 creek, and over 1000 wetlands as shown on the map maintained by VLAWMO.

C. Local government units in the metropolitan area are required by the Metropolitan Water Management Program (Minn. Stat. §§ 103B.201 to 103B.255) ("**Act**") to plan for and manage surface water.

D. Under the Act, one of the options available to local government units to satisfy its requirements is to adopt a joint powers agreement pursuant to Minn. Stat. § 471.59 to establish a watershed management organization to jointly plan for and manage surface water within a watershed.

E. The Members elected to exercise their authority under the Act to adopt a joint powers agreement establishing VLAWMO to cooperatively manage and plan for the management of surface water within the watershed.

F. The original joint powers agreement has been updated over time and the term of the current joint powers agreement expires on December 31, 2026.

G. VLAWMO is funded in large part by storm sewer utility fees certified to the respective County Auditors and imposed by the Counties on properties within the watershed as authorized by special legislation adopted by the Minnesota Legislature in 2008 (2008 Minn. Laws Chap. 366, Art. 6, Sec. 47).

H. The Members previously acted pursuant to their authority to establish the "Vadnais Lake Area Water Management Organization Board of Directors" ("**Board**") and said Board is hereby reaffirmed as the entity charged with the authority and responsibility to manage VLAWMO.

I. VLAWMO has also established a Technical Commission that performs a variety of functions to assist with VLAWMO's operations and assist with developing VLAWMO's annual budget.

J. The Board has previously acted to adopt a Watershed Management Plan for the watershed and has regularly updated the Watershed Management Plan in accordance with Minn. Stat. § 103B.231, Minn. R., chap. 8410, and such other law as may apply.

K. The Members desire to enter into this Agreement to reaffirm VLAWMO and the Board in furtherance of its efforts to continue working cooperatively to prepare and administer a watershed management plan to manage surface water within the watershed in accordance with the Act and Minn. R., chap. 8410.

AGREEMENT

In consideration of the mutual promises and agreements contained herein, the Members mutually agree as follows:

SECTION I
ESTABLISHMENT AND GENERAL PURPOSE

1.1 Reaffirming the Establishment. The Members hereby reaffirm and ratify the establishment and continued operation of the "Vadnais Lake Area Water Management Organization" pursuant to the Act and such other laws and rules as may apply.

1.2 General Purpose. The general purpose of this Agreement is to continue VLAWMO and its work on behalf of the Members to cooperatively adopt, administer, and update as needed the Watershed Management Plan, and to carry out the purposes identified in Minn. Stat. § 103B.201 and the other provisions of the Act. The plan and programs shall operate within the boundaries of VLAWMO as identified in the official map filed with the Minnesota Board of Soil and Water Resources. The most current version of the official map defining the boundaries of the Watershed is incorporated herein by reference. The boundaries of the Watershed are subject to change utilizing the procedure set out in Minn. Stat. § 103B.225 as may be needed to better reflect the hydrological boundaries of the Area.

SECTION II
DEFINITIONS

2.1 Definitions. The definitions contained in Minn. Stat. § 103B.205 and Minn. R., part 8410.0020 are hereby adopted by reference, except that the following terms shall have the meanings given them in this section.

(a) "Agreement" means this Agreement developed pursuant to Minn. Stat. §§ 103B.211 & 471.59 and which reestablishes and continues the Vadnais Lake Area Water Management Organization.

(b) "Alternate Commissioner" means the person appointed by a Member to serve as its alternate to represent the Member on the Technical Commission in the absence or disability of its appointed Commissioner.

(c) "Alternate Director" means the person appointed by a Member to serve as its alternate to represent the Member on the Board in the absence or disability of its appointed Director.

(d) "Area" means the boundaries of the Vadnais Lake Area Watershed as set forth on the official map incorporated herein by reference.

(e) "Board of Directors" or "Board" means the governing board of VLAWMO consisting of one elected official from each of the Members which are parties to this Agreement.

(f) "Capital Improvement" means a physical improvement that has an extended useful life. A capital improvement is not directed toward maintenance of an in-place system during its life expectancy. A study or a research project do not constitute a capital improvement that must be included in the Watershed Management Plan.

(g) "Capital Improvement Program" means an itemized program for at least a five-year prospective period, and any amendments to it, subject to at least biennial review, setting forth the schedule, timing, and details of specific contemplated capital improvements by year, together with their estimated cost, the need for each improvement, financial sources, and the financial effect that the improvements will have on the local government unit or watershed management organization.

(h) "Commissioner" means a person appointed by each Member to the Technical Commission.

(i) "Director" means the elected official appointed by each Member as its representative on the Board of Directors.

(j) "Governing Body" means the city council of a Member city or the town board of the Member town.

(k) "Local Water Management Plan" means a plan adopted by the each of the Members pursuant to Minn. Stat. § 103B.235 and Minn. R., part 8410.0160.

(l) "Member" means each of the cities and the town that are parties to this Agreement.

(m) "Special Legislation" means 2008 Minn. Laws Chap. 366, Art. 6, Sec. 47.

(n) "Storm Sewer Utility" or "SSU" means the public utility established by VLAWMO pursuant to the Special Legislation. The Board establishes and certifies to the County for collection within the Area a Storm Sewer Utility fee for the management of surface water.

(o) "Technical Commission" or "TEC" means the commission established herein that is composed of technically skilled persons, appointed by each Member.

(p) "Vadnais Lake Area Watershed" or "Watershed" means the area contained within a line drawn around the extremities of all terrain whose surface drainage is tributary to Vadnais Lake as shown on the official watershed map incorporated herein by reference.

(q) "VLAWMO" means the "Vadnais Lake Area Water Management Organization" that is reestablished and continued pursuant to this Agreement.

(r) "Watershed Management Plan" means a plan adopted by VLAWMO pursuant to Minn. Stat. § 103B.231.

SECTION III
ORGANIZATION OF VLAWMO

3.1 Board of Directors. The governing body of VLAWMO shall be the "Vadnais Lake Area Water Management Organization Board of Directors." The Board of Directors is comprised of a total of six (6) Directors. The parties hereby reaffirm the establishment and continued operation of the Board of Directors, which shall carry out the purposes and have the powers as provided in this Agreement.

3.2 Appointment of Directors. Each Member shall appoint one representative to serve as the Member's Director on the Board. The appointment process shall comply with the requirements in Minn. Stat. § 103B.227, subds. 1 and 2.

3.3 Appointment of Alternate Directors. Each Member may appoint one representative to serve as the Member's Alternate Director on the Board. A Member's Alternate Director may attend the meetings of the Board, but shall only be counted as part of the quorum and be allowed to vote on matters before the Board in the absence of the same Member's Director.

3.4 Eligibility to Serve. Each Member shall determine the eligibility or qualification standards for its Director and Alternate Director appointments. Only current elected officials on the governing body of the Member are eligible to serve as a Director or Alternate Director.

3.5 Terms of Office. Directors and Alternate Directors serve three-year terms of office, which shall commence from the date of their appointment and will continue until their successors are selected. Each Member shall notify VLAWMO Administrator of its appointments.

3.6 Removal. Directors and Alternate Directors shall serve at the will and consent of the Members that appointed them. If a Member removes a Director or Alternate Director, it shall provide VLAWMO written notice within 10 days of the removal. The governing body of the Member shall act within 90 days to appoint an elected official to fill the vacancy and shall promptly provide VLAWMO written notice of such appointment.

3.7 Vacancies. A Member shall notify VLAWMO in writing within 10 days of the occurrence of a vacancy in its Director or Alternate Director positions. VLAWMO will notify BWSR of the vacancy within 30 days of receiving the notice of a vacancy as required by Minn. Stat. § 103B.227, subd. 1. The Member shall comply with the requirements of Minn. Stat. § 103B.227, subd. 2 and appoint someone to fill the vacancy. The Member shall promptly notify VLAWMO of the appointment in writing. The appointed person shall serve the unexpired term of the position.

3.8 Appointment of Technical Commission Commissioners. Each Member to this Agreement shall appoint one Commissioner, and may also appoint one Alternate Commissioner, to serve on the Technical Commission. A Member shall promptly appoint someone to fill a vacancy in its Commissioner or, if applicable, Alternate Commissioner positions.

3.9 Compensation. Directors, Alternate Directors, Commissioners, and Alternate Commissioners shall serve without compensation and without an expense allowance from VLAWMO. A Director or Alternate Director may be reimbursed for out-of-pocket expenses incurred on VLAWMO business with the approval of the Board. A Member may compensate its Director, Alternate Director, Commissioner, and Alternate Commissioner for their service, in the discretion of the Member.

3.10 Annual Meeting; Election of Officers. At a meeting of the Board held no later than April of each calendar year, also known as the Annual Meeting, the Board shall elect from among the Directors a Chair, Vice Chair, a Secretary-Treasurer, and such other officers as it deems necessary to conduct its meetings and affairs. An Alternate Director may not serve as an officer of VLAWMO.

3.11 Duties of Board Officers.

(a) Chair. The Chair shall preside over meetings of the Board, sign checks, and review audits. In the absence of the Chair, the Vice Chair shall perform the Chair's duties. In the absence of the Chair or Vice Chair, the Secretary-Treasurer shall serve as the presiding officer at the Board meeting. The Chair shall retain all rights of a Director to speak, make motions, and vote on matters coming before the Board.

(b) Vice Chair. The Vice Chair shall preside at meetings when the Chair is absent and shall automatically be promoted to complete the annual term of the Chair if the elected Chair resigns or is removed from the Board.

(c) Secretary-Treasurer. The Secretary-Treasurer shall maintain a record of the proceedings of the Board, be responsible for the custody of the Board's records, see that notices are duly given, and complete such other duties as the Board may assign. The Secretary-Treasurer shall also be responsible for all monies of VLAWMO and shall periodically report the fiscal condition of VLAWMO to the Board. The Secretary-Treasurer may delegate one or more of its duties to another officer or the VLAWMO Administrator. If the duties of the Secretary-Treasurer are delegated to

another person, the Secretary-Treasurer shall supervise the performance of those duties.

3.12 Quorum. A majority of the Directors shall constitute a quorum at all Board meetings. No business or decision of the Board may be made without a quorum.

3.13 Meetings. Regular meetings of the Board shall be held on a schedule adopted by the Board. All meetings of the Board are subject to the Minnesota Open Meeting Law. Notice of the time and place of each meeting shall be sent to all Members and public notice shall be provided as required by Minn. Stat. § 13D.04. Board meeting agendas shall be posted on VLAWMO's website. Meetings shall be conducted in accordance with the most current version of Robert's Rules of Order, or such other rules as may be adopted by the Board.

3.14 Voting. Each Director shall have one (1) vote in all matters coming before the Board. Approval of all matters, except capital improvement projects, will be determined by a simple majority of Directors present and voting at the meeting. The Board must approve a capital improvement project by a two-thirds vote of the Directors present and voting at a meeting before a contract may be let to construct the project.

3.15 Committees. The Board may establish such committees and subcommittees as it deems appropriate. At least one Board member shall be appointed as the Chairperson of each committee and all committees shall regularly report their activities to the Board.

3.16 Public Participation. The Board may appoint such committees and subcommittees composed of citizens as needed to provide for public participation and input in watershed activities and the responsibilities of VLAWMO. Such citizen committees shall be advisory.

SECTION IV
POWERS AND DUTIES OF THE BOARD OF DIRECTORS

4.1 Policies and Procedures. The Board shall adopt rules and regulations as it deems necessary to carry out its duties and the purpose of this Agreement. Such rules and regulations may be amended from time to time in either a regular or special meeting of the Board. No such amendment shall be adopted unless the language of the proposed amendment is included in the packet for the meeting at which it is considered. These rules and regulations, after adoption, shall be recorded in the VLAWMO policy book.

4.2 Watershed Management Plan (Plan). The Board shall adopt a water management plan, as required by the Act. The Plan shall be subject to the appropriate governmental unit review as required by the Act.

4.3 Data. The Board, in order to give effect to the purposes of the Act, may:

(a) Acquire and record appropriate data within the Area; and

(b) Establish and maintain devices for acquiring and recording hydrological or other data within the Vadnais Lake Area Watershed.

4.4 Studies. VLAWMO is authorized to conduct studies as it deems appropriate to carry out its purposes and to further the goals of the Watershed Management Plan. Nothing in this Agreement limits the authority of Members to conduct separate or concurrent studies on any matter under study by VLAWMO. The Member shall make every effort to coordinate its studies with VLAWMO in order to maximize the use of resources.

4.5 Transfer of Drainage System. VLAWMO shall have the authority to accept the transfer of drainage systems in the watershed, to repair, improve, and maintain the transferred drainage systems, and to construct all new drainage systems and improvements of existing drainage systems in the watershed. All such activities and projects shall be carried out in accordance with the powers and procedures set forth in the Act and must be in conformance with the Watershed Management Plan.

4.6 Storm Sewer Utility Fee. VLAWMO is authorized pursuant to the Special Legislation and this Agreement developed pursuant to Minn. Stat. 103B.211 to establish and impose on nonexempt properties within the Area a storm sewer utility fee pursuant to Minn. Stat. § 444.075 to pay for the management of water within the watershed. The storm sewer utility fee shall be approved by the Board and, as required by the Special Legislation, certified to the County Auditors in Anoka County and Ramsey County by November 30th each year to be placed on property taxes payable in the following year.

4.7 Capital Improvements.

(a) Authority. VLAWMO is authorized to undertake, construct, and maintain capital improvements within the Area and may cooperate with one or more Members in the construction and maintenance of such improvements.

(b) New Capital Improvements. A proposed new capital improvement may be initiated by VLAWMO, the TEC, or by one or more Members. If the Board agrees to include the proposed capital improvement in its Capital Improvement Program, it will undertake the process to include it in the Watershed Management Plan, its budget, and to work cooperatively with the affected Member as needed to complete the Capital Improvement.

(c) Costs. VLAWMO may use funds budgeted by the Board for the capital improvement, as well as any funds received from grants and any other outside funding sources. If VLAWMO works cooperatively with one or more Members to construct a capital improvement, the parties will enter into a cooperative agreement that identifies the responsibilities and cost share of each party toward the project, including associated engineering, planning, legal, and administrative costs.

(d) County Levy. Nothing in this Agreement limits the authority of VLAWMO to undertake capital improvements and to certify the costs to the County for collection in accordance with Minn. Stat. § 103B.251.

4.8 Water Conveyances. The Board may order any Member to construct, clean, repair, alter, abandon, consolidate, reclaim or change the course of terminus of any ditch, drain, storm sewer, water course, natural or artificial, that affects the Watershed in accordance with its adopted plans.

4.9 Watershed Operations. The Board may order any Member to acquire, operate, construct or maintain dams, dikes, reservoirs and appurtenant works in accordance with adopted plans.

4.10 Storm and Surface Waters. The Board shall regulate, conserve and control the use of storm and surface water within the Vadnais Lakes Area Watershed pursuant to its Watershed Management Plan.

4.11 Entrance upon Land. To the extent permitted by law, or with the owner's permission, the Board or its designated representatives may enter upon lands within or outside the Watershed to make surveys and investigations to accomplish the purposes of VLAWMO and the Act.

4.12 Legal and Technical Assistance. The Board may obtain and provide legal and technical assistance as it determines is needed, including in connection with its on-going operations and projects, any litigation, and on such other matters as the Board may request.

4.13 Permits. VLAWMO shall cooperate with appropriate local, state, and federal agencies in obtaining required permits and shall review permits issued by local units of government to accomplish the purposes identified in Section I of this Agreement.

4.14 Office. VLAWMO shall maintain an office within the Area. All notices to VLAWMO shall be mailed or delivered to such office.

4.15 Insurance and Liability. VLAWMO may contract for or purchase such insurance as the Board deems necessary for its protection. The Members agree as follows with respect to the liability of VLAWMO and the Members:

(a) VLAWMO is a separate and distinct public entity to which the Members have transferred all responsibility and control for action taken pursuant to this Agreement.

(b) VLAWMO shall defend and indemnify the Members, and their officers, employees, and volunteers, from and against all claims, damages, losses, and expenses, including attorney fees, arising out of the acts or omissions of the Board in carrying out the terms of this Agreement. This Agreement does not constitute a waiver on the limitations of liability set forth in Minn. Stat. § 466.04.

(c) Nothing herein shall be construed to provide insurance coverage or indemnification to an officer, employee, or volunteer of any Member for any act or omission for which the officer, employee, or volunteer is guilty of malfeasance in office, willful neglect of duty, or bad faith.

(d) To the fullest extent permitted by law, action by the Members to this Agreement are intended to be and shall be construed as a "cooperative activity," and it is the intent of the Members that they shall be deemed a "single governmental unit" for purposes of liability, as set forth in Minn. Stat. § 471.59, subd. 1a, and provided further that for purposes of that statute, each part to this Agreement expressly declines responsibility for the acts and omissions of another Member. The Members are not liable for the acts or omissions of another Member to this Agreement except to the extent they have expressly agreed in writing to be responsible for the acts or omissions of the other Members.

(e) Any excess or uninsured liability shall be borne equally by all the Members, but this does not include the liability of any individual officer, employee or volunteer that arises from his or her own malfeasance, willful neglect of duty, or bad faith.

4.16 Financial Records. The Board shall maintain the books and accounts of VLAWMO consistent with generally accepted accounting principles.

4.17 Audit. The Board shall annually cause an independent certified audit of the books and accounts of VLAWMO.

4.18 Claims. To the extent required by Minnesota Statutes, VLAWMO shall be responsible for damages caused by it. All Minnesota Statutes governing notices of claims and limits on municipal liability shall be applicable to VLAWMO. To the extent permitted by Minnesota Statutes, VLAWMO shall be treated as a single municipal entity for municipal liability purposes.

4.19 Employees. The Board may employ or subcontract with such persons or entities as it determines are needed to fulfill defined responsibilities of VLAWMO with the approval of the Board.

4.20 Contracts. The Board may make such contracts and enter into such agreements as necessary to fulfill its obligations under this Agreement. Any such contract or agreement shall be in accordance with the Uniform Municipal Contracting Law and other applicable laws.

4.21 Annual Report to Members. The Board shall make and file a report with the administrator of each Members at least once each year that includes the following information:

(a) The financial condition of VLAWMO;

(b) The status of all VLAWMO projects and work; and

(c) The business transacted by VLAWMO and other matters which affect the interests of VLAWMO.

4.22 Records. VLAWMO's books, reports and records shall be available for and open to inspection at reasonable times.

4.23 Planning.

(a) Watershed Management Plan (Plan). VLAWMO shall prepare and/or update a watershed management plan as required by the Act. The Plan, either a new one or an updated one, shall be recommended to the Board for approval. The Plan shall be compliant with Minn. Stat., chap. 103B and applicable Minnesota Rules. The Plan shall be subject to the appropriate governmental unit review as required by the Act.

(b) Local Water Management Plan. As provided in Minn. Stat. § 103B.235, once VLAWMO adopts a new or revised watershed management plan, each Member and any other local government unit within the Area shall review its local water management plan for changes needed for it to be consistent with the new or revised Watershed Management Plan. Each local water management plan shall be consistent with the Plan and state law. After consideration, but before adoption of a new or revised local water management plan, each Member shall submit its water management plan to the Board. The Board shall within sixty (60) days approve or disapprove the plan or parts thereof. If the Board fails to complete its review within the prescribed period, and unless an extension is agreed to by the Member, the local plan shall be deemed approved consistent with applicable state laws.

4.24 Other Powers. The Board may exercise such other powers necessary and incidental to the implementation of the purposes set forth herein as authorized by the Members.

4.25 Special Tax District. Nothing in this Agreement limits the authority of a Member to establish a special tax district pursuant to its authority under Minn. Stat. 103B.245 or such other law as may apply.

4.26 Amendments to this Agreement. The Board may recommend changes in this Agreement to the Members. This Agreement may be amended only by the agreement of all of its Members.

SECTION V
RESPONSIBILITIES AND DUTIES OF TECHNICAL COMMISSION

5.1 Establishment. The Board has established, and shall maintain, a Technical Commission ("**TEC**") that provides technical expertise for the planning and operation of VLAWMO programs and projects. Each Member shall appoint one Commissioner, and may appoint one Alternate Commissioner, to serve on the TEC. Each Member shall determine the eligibility or qualification standards for its TEC appointments, following guidelines

promulgated by the Board. The VLAWMO Administrator shall serve as a non-voting member of the TEC.

5.2 Duties and Responsibilities. The TEC, through the VLAWMO Administrator and other VLAWMO employees, shall administer the day-to-day operations of VLAWMO and shall review VLAWMO expenditures. The TEC has the authority to review and approve VLAWMO's monthly expenditures and may approve capital improvements in accordance with a policy adopted by the Board. The Board may assign additional duties and responsibilities to the TEC as it may determine are appropriate.

5.3 Technical Commission Officers. At the first meeting of the TEC each calendar year the Commissioners shall appoint from among its members a Chair, Vice-Chair, Financial Officer, and Liaison to the Board. The TEC shall assign duties to the officers as it deems appropriate. An Alternate Commissioner may not serve as an officer of the TEC.

5.4 Meetings. Regular monthly meetings of the TEC shall be held on a day and time selected by the Commissioners. All meetings of the TEC are subject to the Minnesota Open Meeting Law. Notice of the time and place of each meeting shall be sent to all Commissioners, and provided to the public requesting this information, and follow notice requirements outlined in Minn. Stat. § 13D.04. Meetings shall be conducted in accordance with the rules adopted by the TEC or, if a specific set of rules has not been adopted, then the latest version of Roberts Rules of Order. Each Commissioner shall have one vote. A majority of the Commissioners present shall constitute a quorum at all TEC meetings. In the absence of a quorum, a scheduled meeting shall be opened, re-scheduled, and adjourned.

SECTION VI
FINANCING VLAWMO

6.1 Annual Budget. The annual VLAWMO budget, which includes both operational costs and capital improvement costs, shall be developed and approved as provided in this section.

(a) Staff Prepares Draft. VLAWMO staff shall work with the appropriate Member staff to prepare a preliminary draft long range budget, which shall include the proposed budget for the upcoming year and the proposed SSU rates.

(b) Budget Subcommittee Recommendation. VLAWMO staff shall present the preliminary draft budget to the budget subcommittee. The budget subcommittee is responsible for reviewing and making a recommendation to the Board regarding the proposed budget and the SSU rates.

(c) Budget Approval. The Board shall consider the annual budget as recommended by the budget subcommittee and act on it. A majority vote of Directors present and voting is required to approve the annual budget. The Board may modify the annual budget proposed by the budget subcommittee. This review and approval of the annual budget

typically occurs at the June Board meeting, but can occur at a different meeting as the Board may determine is appropriate.

(d) SSU Rate Approval. The Board shall consider and act to approve the SSU rates. This review and approval typically occurs at the August Board meeting, but can occur at a different meeting as the Board may determine is appropriate.

(e) SSU Charge Certification. The Board shall act by November 1st each year to certify the SSU charges to the County Auditors for collection on the upcoming year's property taxes.

(f) Budget Adjustments. Before December 31st each year, the Board shall consider and make such adjustments to the annual budget as may be needed to allocate funds being carried over into the following year.

(g) Work Plan. Included with the annual activity report required by Minn. R., part 8410.0150 shall be a work plan specifying the activities planned to be undertaken and a summary of the budget for the current year.

6.2 Funding**.** The annual budget is funded by one or more of the following:

(a) The primary source of funding for the annual budget is the SSU charges imposed on properties within the Watershed each year pursuant to the Special Legislation.

(b) Member contributions toward specific capital improvement projects.

(c) VLAWMO may also receive grants to help fund specific capital improvements.

(d) If the funds collected from the SSU charges and grants are not sufficient to fully fund an approved budget, the Board may exercise any other authority available to it under law to fund the budget including, but not limited, Member assessments.

6.3 Member Assessments.

(a) Authorized. A Member assessment may be imposed to cover an anticipated shortfall in VLAWMO's annual budget. A Member assessment amount shall be calculated using the formula set out in this section. At least 10 days prior to the meeting at which the Board considers acting on a proposed Member assessment, VLAWMO shall provide each Member written notice of the proposed Member assessment that identifies the amount to be paid by each Member. Members shall be given an opportunity to be heard at the meeting before the Board acts on the Member assessment. A Member assessment must be approved by at least a majority of the full Board by no later than July 1st for collection in the following year. If approved, VLAWMO shall notify each Member in writing of the approved Member assessment amount.

(b) Formula. To the extent a Member assessment is established, it shall be calculated based upon the following formula:

(1) Forty percent (40%) based upon the assessed valuation of all real property of each government unit within the Area;

(2) Forty percent (40%) based upon the total area of the property within each governmental unit with the Area; and

(3) Twenty percent (20%) based upon the population of each governmental unit within the Area.

(c) Payment. Each Member shall pay its Member assessment amount: (1) no later than January 31st in the year in which it is due; or pay one-half (1/2) of the assessment by January 31st of the year due and pay the second one-half (1/2) of the assessment by August 31st of the year due. If a Member fails to pay its assessment by the applicable due dates, it will be required to pay a one percent (1%) per month service on the unpaid amount due.

6.4 Capital Improvement Program and Funding.

(a) Preparation. Each year the Board shall prepare a Capital Improvement Program and budget for Capital Improvements anticipated to be started or completed in the following year as described in the Watershed Management Plan. Each proposed Capital Improvement shall be specifically identified and its estimated cost and time for completion shall be provided. Only Capital Improvements included in the Watershed Management Plan, or its amendments, may be included in the capital improvement budget.

(b) Funding. Capital Improvements may be funded by a combination of funds budgeted by VLAWMO as part of its annual budget, grants received by VLAWMO, and expenditures made directly by one or more Members. For jointly funded projects, VLAWMO shall agree in writing with the Members making direct contributions toward the Capital Improvement the amounts of funding and the responsibilities toward constructing and maintaining the Capital Improvement.

6.5 Governmental Unit Financing. Members may establish a watershed management tax district in the Area for the purpose of paying costs of the engineering and planning required to develop a watershed management plan for the Area. After the plan is adopted and approved, a tax district may be established for the purpose of paying capital costs of projects described in the plan (including normal and routine maintenance of projects). If required, the tax district shall be established by ordinance adopted after a hearing by a local government unit, following provisions of Minn. Stat., chap. 103B.

6.6 Reserve Funds. The Board may accumulate reserve funds for the purposes herein mentioned and may invest funds of the Board not currently needed for its operations in the

manner and subject to the laws of Minnesota applicable to statutory cities. Any and all reserve funds must be clearly indicated on the annual financial audit provided to the Members.

6.7 Gifts; Grants; Loans. VLAWMO may, within the scope of this Agreement, accept gifts, apply for and use grants or loans of money or other personal property from the United States, the State of Minnesota, a unit of government, or other governmental unit or organization or any person or entity for the purposes described herein; may enter into any reasonable agreement required in connection therewith, shall comply with any laws or regulations applicable thereto, and may hold, use, and dispose of such money or personal property in accordance with the terms of the gift, grant, loan, or agreement related thereto.

6.8 Disbursements. VLAWMO disbursements on budget items shall be reviewed and approved by the Technical Committee. A report of all disbursements shall be sent to the Board's Secretary-Treasurer and the TEC's Finance Officer for review and a copy provided to the Board. Checks issued by VLAWMO shall be signed by the VLAWMO Administrator and the Board Chair. The Secretary-Treasurer shall maintain a bond in the amount of at least $10,000. VLAWMO will be responsible for paying the premium on said bond.

6.9 Revenue Bonds to Secure MPCA Loan. VLAWMO is given express authority to issue revenue bonds in a principal amount not to exceed $800,000 (the "Bonds") to secure the Loan to finance the Project. The term "Bonds" shall also include bonds issued to refund and refinance the Bonds. As provided in Minn. Stat. § 471.59, subd. 11, the Bonds shall be revenue obligations of VLAWMO which are issued on behalf of the Members, and shall be issued subject to the conditions and limitations set forth in Minn. Stat. § 471.59, subd. 11. The Bonds shall be payable solely from VLAWMO's revenues including its storm water utility fees. VLAWMO may not pledge to the payment of the Bonds the full faith and credit or taxing power of the Members. No bonds, obligations or other forms of indebtedness other than the Bonds may be issued by VLAWMO without the prior consent of the Members.

SECTION VII
DURATION OF THIS JOINT POWERS AGREEMENT

7.1 Duration of Agreement. Each Member agrees to be bound by the terms of this Agreement until December 31, 2036, and that it may be continued thereafter at the option of the Members. This Agreement shall be in full force and effect upon the filing of certified copy of the resolution approving said Agreement by each Member.

7.2 Termination of Agreement. This Agreement may be terminated prior to December 31, 2046, by the unanimous consent of the Members. If the Agreement is to be terminated, a notice of the intent to dissolve VLAWMO shall be sent to the Board of Water and Soil Resources and to Ramsey and Anoka Counties at least 90 days prior to the date of dissolution.

7.3 Dissolution. In addition to termination as provided above, any Member may petition the Board of Directors to dissolve this Agreement. Upon ninety (90) days' notice in writing to the clerk of each Member, the Board of Water and Soil Resources, and to Anoka and Ramsey County, the Board shall hold a hearing and upon a favorable vote by a majority of all eligible votes of then existing Board members, the Board may by resolution recommend that VLAWMO be dissolved. Said resolution shall be submitted to each Member and if ratified by three-fourths of the governing bodies of all eligible Members within sixty (60) days, said Board shall dissolve VLAWMO allowing a reasonable time to complete work in progress, pay any outstanding obligations, and to dispose of personal property owned by VLAWMO.

7.4 Assets. Upon a set of findings and order for dissolution of VLAWMO by the State Board of Water and Soil Resources, all personal property of VLAWMO shall be transferred, either jointly or severally, to the Members after all VLAWMO's obligations are paid. The Board may determine to allocate and transfer VLAWMO assets to members in accordance with the formula set out herein for determining Member assessments.

SECTION VIII
MISCELLANEOUS PROVISIONS

8.1 Adoption of Agreement. This Agreement shall be in full force and effect upon the filing of a copy of the resolution approving said Agreement by all six members. Said resolutions shall be filed with the Chair. VLAWMO shall provide each a Member a fully executed copy of this Agreement.

8.2 Dispute Resolution. The Members agree that any dispute related to this Agreement that cannot be resolved by discussions among the Board and a Member shall be submitted to mediation. The mediation shall be conducted in accordance with a process agreed to by the parties involved in the dispute. If the parties are not able to mutually agree on a mediator, each party shall provide a list of two mediators to VLAWMO. The Chair shall select the mediator from the combined list. If, however, the Chair is from a Member that is a party to the dispute, then the Vice-Chair shall select the mediator from the combined list. Each party to the mediation shall be responsible for its own costs in mediation and shall share equally in the costs of the mediator and all other costs of mediation. If the dispute is not resolved in mediation, the parties may agree to submit the dispute to binding arbitration or any party may pursue any options available to it under law to seek a resolution of the dispute.

8.3 Data Practices. VLAWMO shall comply with the requirements of Minn. Stat., chap. 13, the Minnesota Government Data Practices Act ("**MGDPA**"). Any entity with which VLAWMO contracts is required to comply with the MGDPA as provided in Minn. Stat. § 13.05. The contractor shall be required to notify the Board if it receives a data request and to work with VLAWMO to respond to it.

8.4 Amendments. The Board may recommend changes and amendments to this Agreement to the governing bodies of the Members. Amendments will only take effect if adopted by all

governing bodies of the Members. Adopted amendments shall be evidenced by appropriate resolutions or certified copies of meeting minutes of the governing bodies of each party filed with the Board and shall, if no effective date is contained in the amendment, become effective as of the date all such filings have been completed.

8.5 Waiver. The delay or failure of any party of this Agreement at any time to require performance or compliance by any other party of any of its obligations under this Agreement shall in no way be deemed a waiver of those rights to require such performance or compliance.

8.6 Headings and Captions. The headings and captions of these paragraphs and sections of this Agreement are included for convenience or reference only and shall not constitute a part hereof.

8.7 Entire Agreement. This Agreement, including the recitals and the official boundary map (which are incorporated in and made part of this Agreement), contains the entire understanding of the Members concerning the subject matter hereof. This Agreement supersedes and replaces the prior joint powers agreement among the Members regarding VLAWMO and such prior agreement is hereby terminated. Any outstanding obligations of the Members under the prior agreement are not affected by the termination and shall be continued under this Agreement.

8.8 Examination of Books. Pursuant to Minn. Stat. § 16C.05, subdivision 5, the books, records, documents, and accounting procedures and practices of the Board are subject to examination by the State.

8.9 Governing Law. The respective rights, obligations, and remedies of the Members under this Agreement and the interpretation thereof shall be governed by the laws of the State of Minnesota which pertain to agreements made and to be performed in the State of Minnesota.

8.10 Counterparts. This Agreement shall be executed in several counterparts and all so executed shall constitute one Agreement, binding on all of the Members hereto. Each party to the agreement shall receive a fully executed copy of the entire document following adoption by all Members.

8.11 Notice. To the extend this Agreement requires a notice to be mailed to a Member, the notice requirement may be satisfied by VLAWMO emailing the notice to its primary contact for the Member.

8.12 Statutory References. All references to statutes in this Agreement include any amendments made thereto and any successor provisions.

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minn. Stat. §§ 103B.211 and 471.59.

CITY OF GEM LAKE

Adopted on the ____ of _____ 2025.

BY THE CITY COUNCIL

_____
Mayor

Attest: _____
Clerk

CITY OF LINO LAKES

Adopted on the ____ of _____ 2025.

BY THE CITY COUNCIL

_____
Mayor

Attest: _____
Clerk

CITY OF NORTH OAKS

Adopted on the ____ of _____ 2025.

BY THE CITY COUNCIL

_____
Mayor

Attest: _____
Clerk

CITY OF VADNAIS HEIGHTS

Adopted on the ____ of _____ 2025.

BY THE CITY COUNCIL

_____
Mayor

Attest: _____
Clerk

CITY OF WHITE BEAR LAKE

Adopted on the ____ of _____ 2025.

BY THE CITY COUNCIL

_____
Mayor

Attest: _____
Clerk

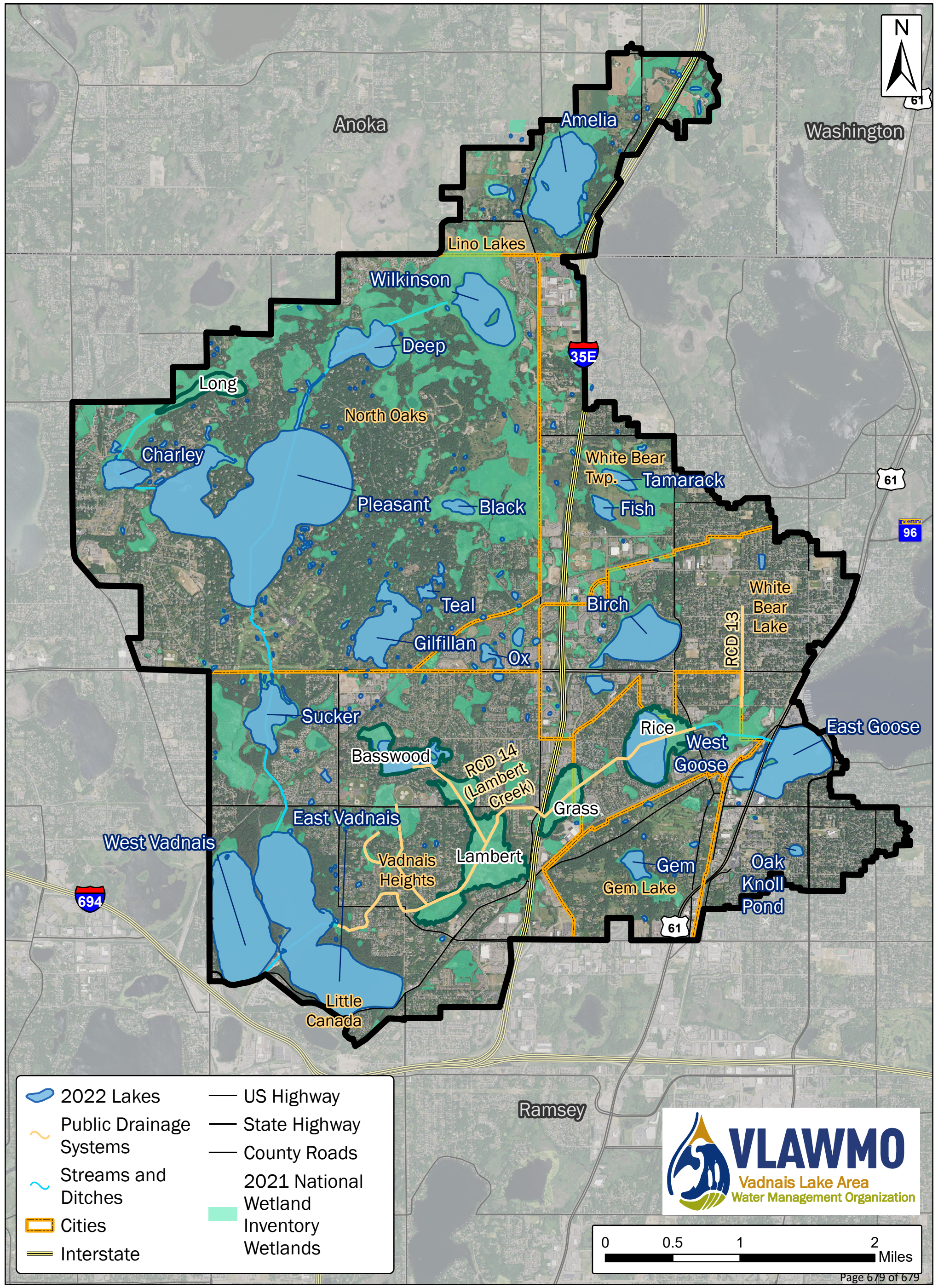
WHITE BEAR TOWNSHIP

Adopted on the ____ of _____ 2025.

BY THE TOWN BOARD

_____
Chairperson

Attest: _____
Clerk


N
Anoka
Amelia
Washington
Lino Lakes
Wilkinson
Deep
Long
35E
North Oaks
Charley
Pleasant
Black
White Bear Twp.
Tamarack
Fish
61
96
Teal
Birch
White Bear Lake
RCD 13
Gilfillan
Ox
Sucker
Basswood
RCD 14 (Lambert Creek)
Rice
West Goose
East Goose
Grass
East Vadnais
West Vadnais
Vadnais Heights
Lambert
Gem
Gem Lake
Oak Knoll Pond
694
Little Canada
Ramsey
2022 Lakes
Public Drainage Systems
Streams and Ditches
Cities
Interstate
US Highway
State Highway
County Roads
2021 National Wetland Inventory Wetlands
VLAWMO
Vadnais Lake Area
Water Management Organization
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1
2
Miles