



2025 ALTERNATIVE URBAN AREAWIDE REVIEW UPDATE

I-35E CORRIDOR AUAR UPDATE

LINO LAKES, MN

APRIL 29, 2025

Prepared for:
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, MN 55014

WSB PROJECT NO. 027919-000



I-35E CORRIDOR AUAR UPDATE

This document provides for an update to the Lino Lakes I-35E Corridor AUAR. The original AUAR was completed in 2005. Updates were adopted in 2010, 2015, and 2020. This document serves as the 2025 five-year update. An abbreviated version of the EAW questionnaire form has been used for this update to assist in the review of this AUAR Update. The following figures and appendices are included in this Update.

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1. Project title: Lino Lakes I-35E Corridor AUAR Update

2. Proposer: NA

3. RGU City of Lino Lakes

Contact person: Michael Grochala
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4. Reason for EAW Preparation: (check one)

NA

5. Project Location:

County: Anoka

City/Township: Lino Lakes

6. Project Description:

Overview

The City of Lino Lakes adopted the I-35E Corridor AUAR in conformance with Minnesota Rules 4410 in 2005. The City has subsequently updated the AUAR every five years. The AUAR study area is approximately 4,670 acres and is located in the northeastern portion of the City as shown in **Figure 1**.

Development Scenarios

Three development scenarios were included in the original 2005 AUAR and the 2020 update included two revised scenarios based on both the 2030 and draft 2040 Comprehensive Plans. The City has since adopted its 2040 Comprehensive Plan; making the revised Scenario 3 (2030 Comprehensive Plan) outdated and no longer applicable. The revised scenarios are within the original density thresholds of the original AUAR, and the scenarios are consistent the 2040 Comprehensive Plan.

Scenario 1

This scenario represents development based on the City's current 2040 Comprehensive Plan full build out land use. This scenario has a higher industrial use and less residential than the Scenario 2. **Table 1** provides a summary of this uses for this scenario. **Figure 2** shows the studied land uses.

Scenario 2

This scenario has higher residential and commercial land use, with less industrial than Scenario 1. This scenario is still within the assumptions of the original AUAR. **Table 1** provides a summary of this uses for this scenario. **Figure 3** shows the studied land uses.

Approximately 843.3 acres have been developed within the study area (**Figure 4**). The remaining 3,826.7 acres are anticipated to develop over the next 5-40 years, depending upon market conditions.

Table 1. Summary of AUAR Scenarios

Land Use	AUAR Scenarios
	Scenario 1
Residential (units)	4,888
Commercial (sf)	5,084,819
Industrial (sf)	12,817,289
	Scenario 2
Residential (units)	7,403
Commercial (sf)	5,306,914
Industrial (sf)	10,053,499

Planned Infrastructure

Development in the study area will require infrastructure improvements. The analysis for stormwater, water, wastewater, and traffic have been updated. Analyses of climate adaptation and resilience, and greenhouse gas emissions were included as part of this AUAR Update to evaluate the revised scenarios. These analyses are included in the appendices.

Stormwater: The stormwater analysis was updated based on the development scenarios land use assumptions. Additionally, rules and regulations regarding stormwater management in the study area have changed since the original AUAR was completed and is consistent with the 2020 update. Stormwater will be required to be managed based on local, regional, and state water resource rules. The updated analysis indicates that runoff volumes will be reduced by approximately 60% compared to existing conditions based on the implementation of stormwater management controls for both development scenarios. This will also reduce downstream pollutant loading. **Appendix B** contains the stormwater management analysis.

Water: The projected water demands for the development scenarios have remained within the parameters discussed in the original AUAR and subsequent updates. These scenarios are anticipated to increase the annual water use above the current authorized appropriated volume for the City, similarly as anticipated in the original AUAR. The mitigation measures for water appropriation and use have been reviewed and minor revisions were made. **Appendix C** contains the water appropriation analysis.

Wastewater: Wastewater within the study area would be conveyed with existing and future sanitary sewer and then directed to two Metropolitan Council Environmental Services (MCES)

interceptors. Wastewater is then conveyed through the regional collection system to the Metropolitan Wastewater Treatment Plant. The revised analysis projects less wastewater flow than anticipated in the original AUAR and is consistent with the 2020 update. The mitigation measures have been reviewed, and no changes were needed with this Update. **Appendix D** contains wastewater management analysis.

Traffic: The traffic analysis was updated based on the development scenarios. This incorporated the existing conditions and projected 2040 conditions. The analysis shows that future traffic generated with the revised development scenarios will be less than those assumed in the original AUAR and consistent with the 2020 update. No changes to the mitigation measures are needed. **Appendix E** contains the traffic analysis.

Climate Adaptation and Resilience: The climate adaptation and resilience analysis was included within this update. The climate analysis for the project location supported the overall Minnesota climate trend of increasing temperatures, more damaging rains, and an increased risk of drought. The AUAR update includes mitigation measures that can help mitigate the projected climate trends for the proposed development scenarios. **Appendix F** contains the Climate adaptation and resilience memo.

Greenhouse Gas (GHG) Emission/Carbon Footprint: A GHG analysis was included with this project update, measuring the difference in emissions between estimated existing conditions and Scenarios 1 and 2. The proposed Scenarios will significantly increase housing, commercial, and industrial uses within the project area, as well as anticipated emissions from these uses. **Appendix J** contains the GHG memo and analysis.

Approved Development within the Study Area

Since the 2020 AUAR Update, some anticipated development did not occur, and some projects were constructed within the study area. **Figure 4** shows the areas that have developed in the study area. Since the 2020 Update, the following has occurred in the study area:

- NorthPointe Garden Estates: A 72-unit multi-tenant senior living facility was completed in 2022.
- Kwik Trip #1182: A 10,900 square foot gas station containing gas and diesel pumps was completed in 2022/2023 within the City of Centerville.
- NorBella Senior Living: A 40-unit multi-tenant senior living facility was completed in 2022/2023 within the City of Centerville.
- New Horizon Academy: A 12,027 square foot daycare and preschool center was completed in 2024.
- Associated Eye Care: A 12,305 square foot eye clinic completed in 2022/2023
- 7107 Otter Lake Rd: A 7,000 square foot multi-tenant commercial building completed in 2022.
- Culver's: A 4,260 square foot commercial property completed in 2024.
- Sutton Transport: A 40,000 square foot industrial property completed in 2023 within the City of Centerville.
- 2010 Fairview St: A 10,400 square foot multi-tenant industrial property completed in 2024 within the City of Centerville.

- DMS6 Amazon Delivery Station: A 141,000 square foot warehouse / logistics hub completed in 2024 within the City of Centerville.
- Watermark: Phases 4-8 of single-family residential development (440 lots) completed 2021-2024
- Tidal Wave Auto Spa: A 3,500 square foot commercial property completed in 2023.
- Aldi: A 20,000 square foot commercial property is pending approval.

AUAR Mitigation Plan

The mitigation plan that has been developed as part of the AUAR process has been revised with this Update. It is included in **Appendix K**.

6. Climate Adaptation and Resilience:

- 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**
- For each Resource Category in the table below: Describe how 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 1.**

Analysis on climate adaptation and resilience can be found in **Appendix F**.

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

The original AUAR cites the Minnesota Land Cover Classification System (MLCCS). This data is applicable today. Some areas as shown in **Figure 4** have developed and have shifted to impervious and landscaped cover types. The land cover of the undeveloped areas continues to be consistent with the original AUAR with planted or cultivated areas, urban areas, wooded and shrub areas, and wetlands.

The Conservation Design Framework outlined in the AUAR has continued to be carried forward in the mitigation plan. This framework outlines open space and conservation corridor space where some areas would be preserved, and some areas would be reviewed for development that could be inclusive to open space.

8. Permits and approvals required: List all known local, state and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Type of Application	Status
Federal		
Army Corps of Engineers	Section 404 Permit	To be Applied for
State		
Minnesota Pollution Control Agency	Section 401 Water Quality Certificate	To be Applied for
	NPDES/SDS General Permit	To be Applied for
	Sanitary Sewer Extension Permit	To be Applied for

Unit of Government	Type of Application	Status
State Historic Preservation Office	Cultural Resources Review	To be Applied for
Minnesota Department of Transportation	Use of or Work within MnDOT right of way	To be Applied for
	Drainage Permit	To be Applied for
Minnesota Department of Natural Resources	Water Appropriations Permit	To be Applied for
	Preliminary Well Construction Assessment	To be Applied for
	Public Waters Work Permit	To be Applied for
	General Permit 1997-0005 for Temporary Water Appropriations (need if more than 10,000 gpd of water is appropriated)	To be applied for, if necessary
Minnesota Department of Health	Watermain Extension Approval	To be Applied for
	Sanitary Sewer Extension Permit Approval	To be Applied for
	Well Location and Construction Approval	To be Applied for
Regional		
Rice Creek Watershed District	Erosion and Sediment Control Plan Approval	To be Applied for
	Stormwater Management Plan Approval	To be Applied for
	Wetland Delineation Boundary Confirmation	To be approved upon completion of wetland delineation
	Certificate of Wetland Exemption	To be Applied for
	Wetland Impact/Replacement Application	To be approved upon completion of wetland delineation
Metropolitan Council	Sanitary Sewer Service Connection Approval	To be Applied for
County		
Anoka County	County Roadway Access Permits	To be Applied for
Local		
City of Lino Lakes	Site Plan Approval	To be Applied for
	AUAR and Mitigation Plan Approval	Ongoing
	Planned Unit Development Approval	To be Applied for
	Preliminary Plat Approval	To be Applied for
	Final Plat (multiple) Approval	To be Applied for
	Grading, Excavation and Foundation Permits (multiple)	To be Applied for
	Building Permits (multiple)	To be Applied for
	Sanitary Sewer Connection Permit (multiple)	To be Applied for
	Municipal Water Connection Permit (multiple)	To be Applied for
	Use Permit – Floodplain District	To be Applied for

Unit of Government	Type of Application	Status
	City Roadway Access/Crossing Permits	To be Applied for
	Comprehensive Plan Amendment(s)	To be Applied for

9. Land use:

No significant changes are noted for this section. The surrounding land uses are residential, highway, commercial, industrial, agricultural, and open space. The scenarios are consistent with development that has occurred in the area and compatible with adjacent land uses.

10. Geology, soils, and topography/land forms:

The soils and geology of the study area have not changed from the original AUAR. The area is within the Anoka Sandplain and has a flat topography. The Anoka County Soil Survey shows numerous types of soils in the study area including loamy fine sands, fine sandy loams, and hydric soils in wetland areas.

11. Water Resources:

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

- i. **Surface water – lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include 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.**

Surface water in the study area remains the same as the original AUAR and includes numerous wetlands and water bodies. Of note continues to be Peltier Lake (#2000400), Rondeau Lake (#2001500), Clearwater Creek (#82006a), and Hardwood Creek (#0213a). Based on a review of information from the MPCA, impaired waters in the study area include:

- Peltier Lake
- Clearwater Creek
- Hardwood Creek

Additional information can be found in **Appendix B** which contains an updated analysis of stormwater management for the study area.

- ii. **Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 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.**

As indicated in the original AUAR, the study area has shallow groundwater. Additional information about groundwater can be found in **Appendix C**.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

- i. **Wastewater – For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.**
 - 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.**

- 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.
- 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.

Updated analysis on the wastewater system can be found in **Appendix D**.

- ii. **Stormwater** – Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

Updated analysis on stormwater can be found in **Appendix B**.

- iii. **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. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Updated analysis on water system impacts can be found in **Appendix C**.

- iv. **Surface Waters**
 - a) **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. 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.
 - b) **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. 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.

Impacts to wetlands and surface waters include potential impacts associated with filling or draining as development occurs. These impacts were contemplated in the original AUAR and subsequent updates. Aquatic resource delineations are required and completed as development progresses. Estimates of impacts for the study area are difficult to anticipate without specific site plans. However, these impacts are anticipated to be typical of development and are subject to local, state, and federal wetland rules through the Rice Creek Watershed District, Wetland Conservation Act, US Army Corps of Engineers, Minnesota Department of Natural Resources, and the Minnesota Pollution Control Agency. Impacts to wetlands will need to meet the sequencing requirements and water quality regulations, and wetland replacement and/or pre-treatment may be needed. Replacement could occur on-site or through the purchase of wetland banking credits. Hardwood Creek and Peltier Lake are impaired waters and development within 1 mile of these resources are required to incorporate additional BMPs listed in Section 23 of the Minnesota Construction Stormwater General Permit as applicable for discharges from the project site that then drains to these waters. No significant difference in analysis from the 2020 Update is needed for this Update.

12. 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 ground water 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.**

No significant changes to existing conditions in relation to existing contamination or hazards have occurred based on a review of “What’s In My Neighborhood.” A summary of the review is included in **Appendix G**.

- 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.**

There are no changes from the original AUAR in terms of solid waste assumptions.

- 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 above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release 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.**

As indicated in the original AUAR, there is the potential for gas stations to be included as development occurs with the appropriate land use and zoning per scenario. A gas stations or convenience stores would have underground storage tanks. There may also be light industrial development that includes storage of diesel fuel for operations. These types of developments would be required to meet all other state and federal permitting and guidance for operations.

A gas station and convenience store were constructed within the study area since the 2020 Update.

- d. **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 waste including source reduction and recycling.**

Generation of significant amounts of hazardous wastes are not anticipated with development of either of the scenarios. Waste generated will be of similar nature to residential, light industrial, and commercial uses and will be required to comply with applicable state laws.

- 13. **Fish, wildlife, plant communities, and sensitive ecological resources (rare features):**
 - a. **Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.**
 - b. **Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County 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-____) and/or correspondence number (ERDB-20200206) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.**
 - c. **Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. 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.**
 - d. **Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.**

The U.S. Fish and Wildlife Services' Information for Planning and Consultation (IPaC) system was queried for federally listed threatened or endangered species and is included in **Appendix H**.

An updated request for a review of the DNR Natural Heritage Information Database was submitted 2/3/2025 and is under further review by the DNR. An automated formal review report was published, and this information is to be similar to the information obtained in the previous updates and the original AUAR. The mitigation plan contains measures that acknowledge the natural resource features in the area. The DNR NHIS information is included in **Appendix H**.

14. 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.

MNSHPO's Statewide Historic Inventory Portal and the Office of the State Archaeologist Portal were queried on February 20, 2025 and multiple documented aboveground historic resources or known archaeological and cultural sites are listed within the project area (**Appendix I**). The City has a robust review requirement for cultural resources when development is proposed, and the mitigation plan is adequate to address this issue.

15. 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.

No changes from previous AUARs.

16. 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, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used 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.

Not applicable to 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.

An updated traffic study is included in **Appendix E**. The traffic generation is within the parameters of the original AUAR.

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 16a). 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.

No changes from the original AUAR.

17. Greenhouse Gas (GHG) Emission/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 come to that conclusion and any GHG emission sources not included in the total calculation.

b. GHG Assessment

An analysis on Greenhouse Gas (GHG) Emission/Carbon Footprint can be found in **Appendix J**.

17. 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.

No changes from the original AUAR.

18. 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) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

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.

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

An updated traffic study is included in **Appendix E**.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

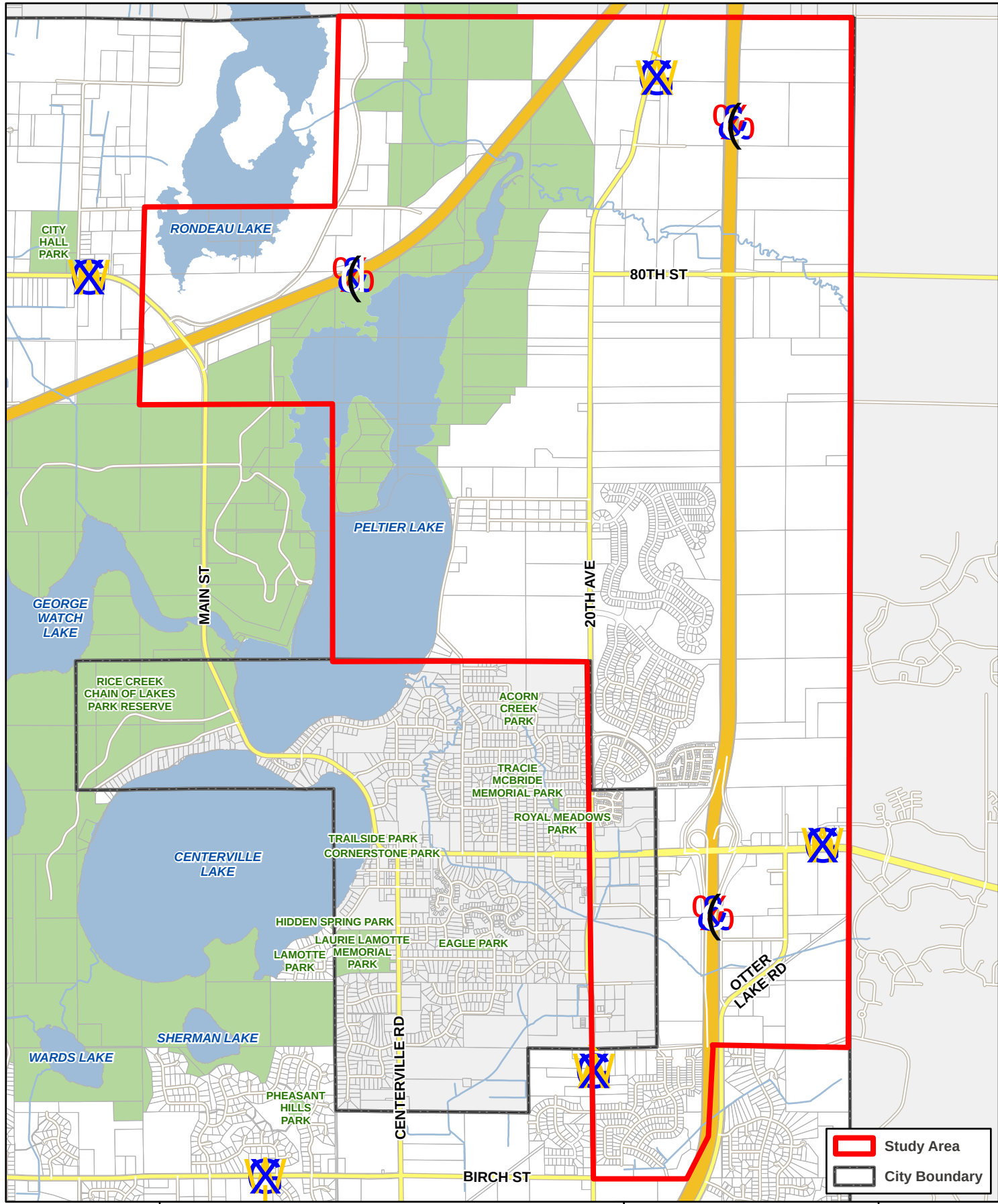
NA to AUAR

20. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 19, 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.

No additional environmental effects have been identified.

Appendix A

Figures



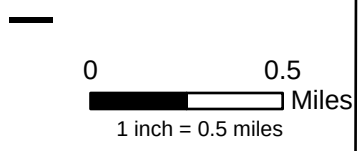
Study Area

City Boundary



Figure 1- Project Location

I-35E Corridor AUAR
Lino Lakes, MN



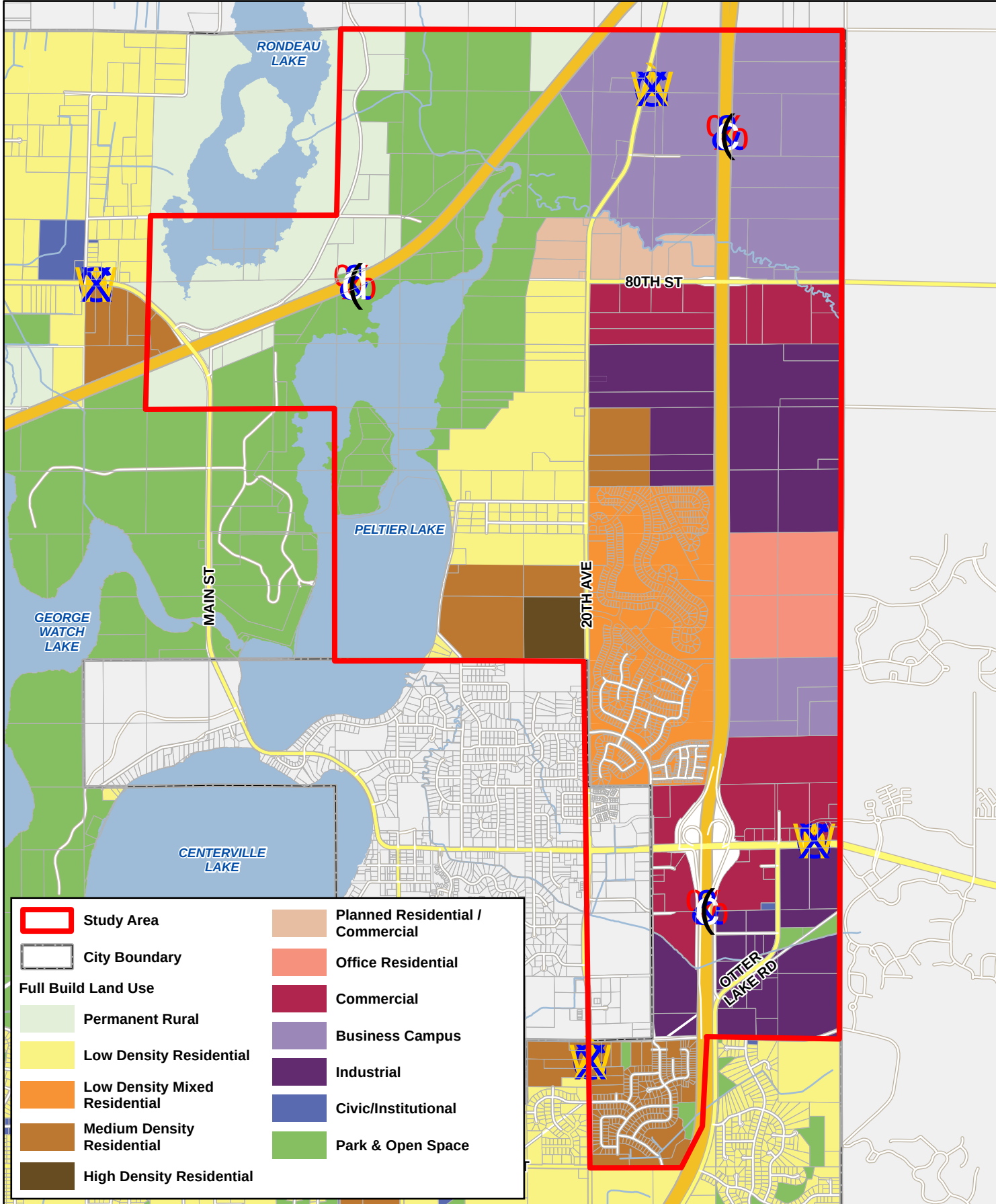
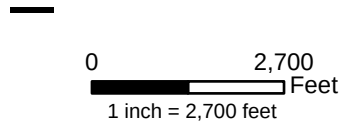


Figure 2 - Revised Scenario 1

I-35 Corridor AUAR Project
Lino Lakes, MN



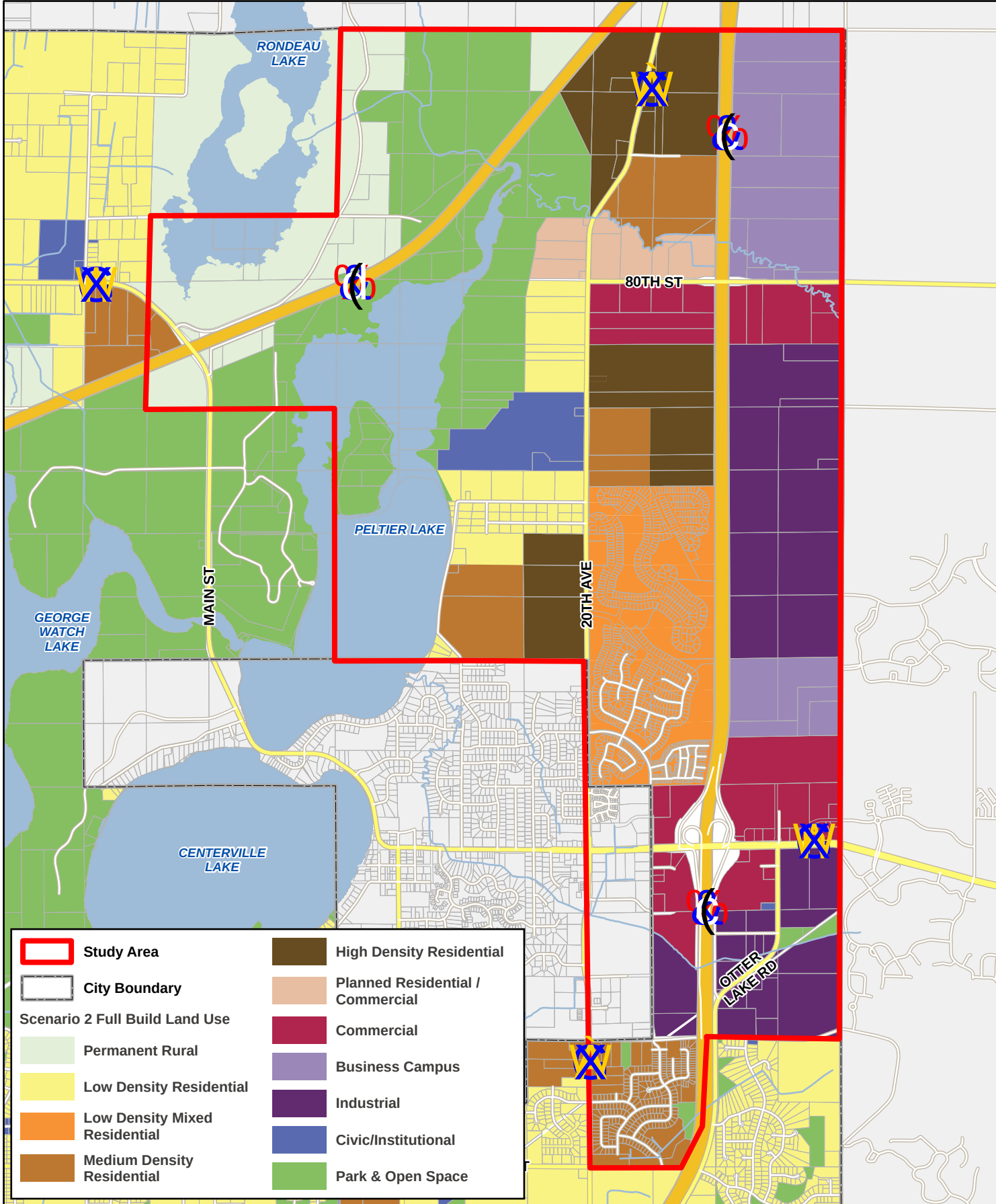


Figure 3 - Revised Scenario 2

I-35 Corridor AUAR Project
Lino Lakes, MN



0 2,700
Feet
1 inch = 2,700 feet



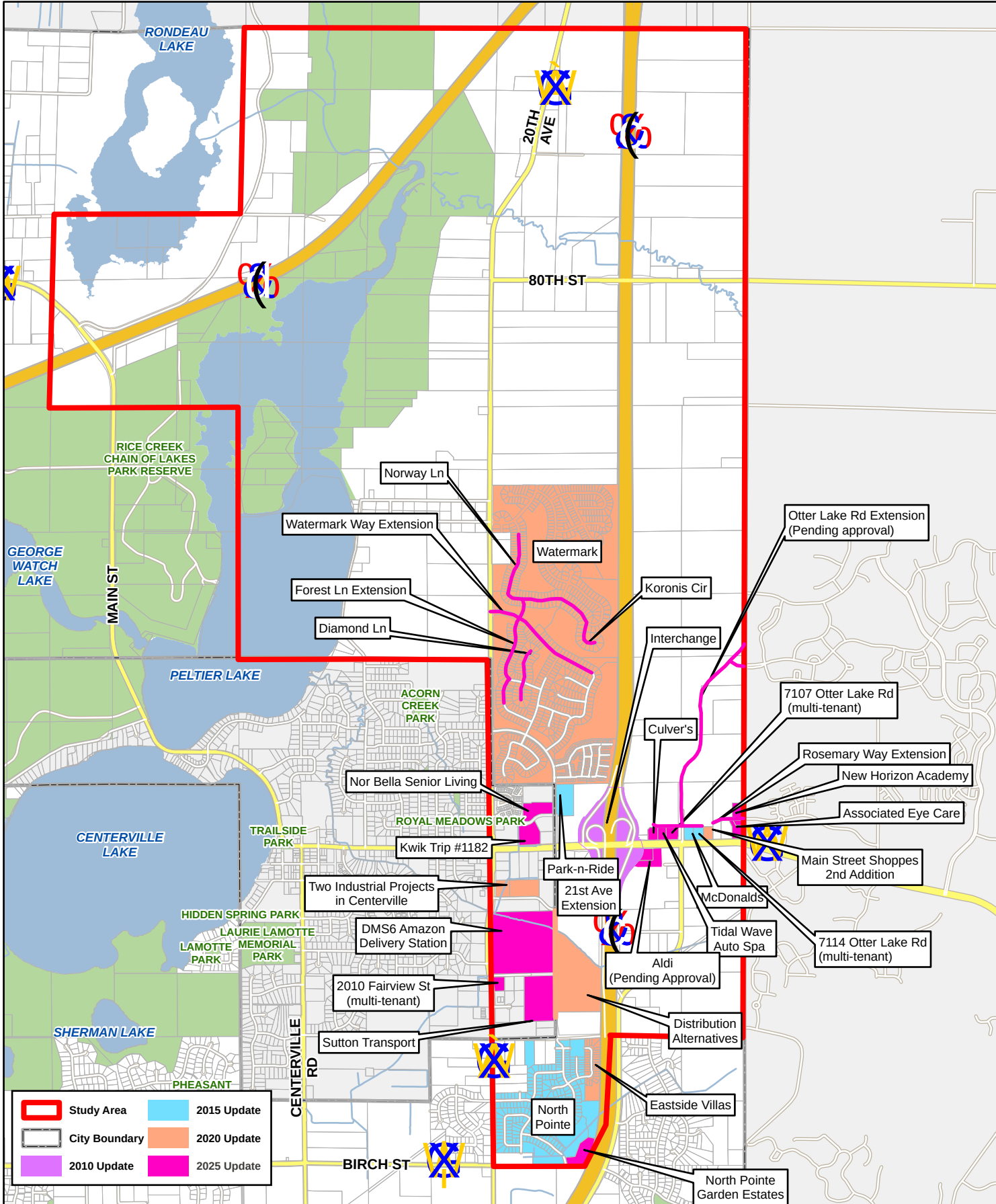


Figure 4 - Developments Map

I-35 Corridor AUAR Project
Lino Lakes, MN

0 2,700
Feet
1 inch = 2,700 feet

Appendix B
Stormwater Management Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Henry Meeker, WSB
Alison Harwood, WSB

Date: April 29, 2025

Re: Stormwater Management – I-35 Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005. The AUAR analyzed the stormwater impacts of the three development scenarios. Based on the analysis, a Mitigation Plan was developed.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. The 2020 update was made with draft scenarios of the Lino Lakes 2040 Comprehensive Plan, which was adopted in November 2020. This AUAR update is based on two development scenarios. It includes mitigation improvements that have been completed at this time and the proposed future land uses.

The information and analysis outlined within this memo is intended to complete a portion of the AUAR Update related to Item # 11.ii – Water Resources – Stormwater related to two proposed development scenarios. This memo is intended to update the stormwater analysis provided in the original AUAR where applicable.

WATER RESOURCES – STORMWATER

- ii. *Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.*

Procedures and Methods Followed

The procedures and methods used to estimate the runoff volumes and pollutants loads within the AUAR were based on the Natural Resource Conservation Service (NRCS) runoff curve number method and event mean concentration pollutant values from the Minnesota Stormwater Manual. Any development within the study area will be required to meet the stormwater standards of the City of Lino Lakes and Rice Creek Watershed District (RCWD). These standards include:

- Promote volume control and groundwater recharge.
- Protect water quality from nutrients, heavy metals, and other urban pollutants.

- Protect life, public and private property, and the natural resources from damage resulting from runoff and the dangers associated with flooding.

Existing Conditions

The study area currently consists primarily of agricultural, single/multifamily/rural residential, commercial, industrial, and park/open space areas. The impervious surface is primarily made up of residential/commercial roofs and the existing roadways. The major roads include 20th Avenue, 80th Street, County Road 14, and Interstates 35E and 35W.

There are four major watersheds within the study area. The west and central portion of the study area is part of the Peltier subwatershed. The north part of the study area is within the Hardwood Creek subwatershed and Upper Rice Creek subwatershed, and the southeast part is within the Clearwater Creek subwatershed. All of these subwatersheds drain to Peltier Lake through tile drain or county ditch systems.

Future development will need to address any requirements that are established due to current regulatory standards adopted by the RCWD, City of Lino Lakes, and Minnesota Pollution Control Agency (MPCA).

The MPCA has listed three water resources within the study area as impaired: Peltier Lake, Hardwood Creek, and Clearwater Creek. Peltier Lake and Hardwood Creek have approved Total Maximum Daily Load (TMDL) that provides additional guidance and requirements for pollutant loads.

Approximately 67% of the study area consists of Group D soils, and the remaining area consists of Group A, B, and C soils, plus open water surface. These soil ratings are based on hydrologic soil classifications, with A soils having high infiltration rates even when thoroughly wetted. The infiltration rates for A soils range from 0.8 to 1.63 inches per hour (Minnesota Stormwater Manual). These soils consist chiefly of deep, well drained to excessively drained sands and gravel. Group A soils have a high rate of water transmission, therefore resulting in a low runoff potential. Group B soils have moderate infiltration rates ranging from 0.3 to 0.45 inches per hour when thoroughly wetted. Group B soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures. Group C soils have a low infiltration rate of 0.2 inches per hour when thoroughly wetted. Group C soils include a layer that impedes downward movement of water and soils with moderately fine to fine structure. Infiltration is very low in areas with Group D soils, and the design of infiltration basins is not recommended in areas with Group D soils (per the MPCA National Pollution Discharge Elimination System Construction General Permit).

Proposed Conditions

The two development scenarios were considered in this analysis for proposed conditions. Existing conditions and two proposed land use classifications were evaluated using curve numbers from the NRCS. Stormwater management for either proposed condition can be provided through a combination of wet detention ponds and infiltration and filtration features. Achieving volume reduction and pollutant reduction through the use of infiltration may be challenging for a majority of the study area due to a majority D soils with low infiltration rates and a high groundwater table. Stormwater management via green infrastructure such as stormwater reuse has been and will continue to be encouraged by the City of Lino Lakes and RCWD to achieve volume reduction and pollutant removal requirements.

Local Stormwater Management Requirements

Stormwater management within the future development of the study area must be in conformance with local requirements of the City of Lino Lakes, RCWD, and MPCA. Some requirements are more stringent than others. However, the development in the study area will need to demonstrate that all local standards are being met under proposed stormwater management techniques. The following is a summary of major stormwater management requirements:

- **Rice Creek Watershed District**

The RCWD rules (approved November 13, 2024) require that proposed peak runoff rates shall not exceed existing for the 2, 10, 100-year 24-hour rainfall events. Proposed projects must not adversely affect off-site water levels or resources supported by local recharge, or increase potential for on- and off-site flooding, during or after construction.

The RCWD requires a water quality treatment volume depending on the area of new or reconstructed impervious surface. Applicants can use BMPs including infiltration, water reuse, filtration, and stormwater ponds to achieve the required water quality treatment volume. Each BMP design variation has a different pollutant removal factor, and applicants must provide sufficient treatment volume depending on the BMP used for the site. The RCWD has an approved Comprehensive Stormwater Management Plan (CSMP) for a portion of the AUAR area (*Northeast Lino Lakes Drainage Area CSMP*). This purpose of the CSMP is to present an alternative means to meet the RCWD rules. Projects within the CSMP area must conform to design requirements detailed in the CSMP report as applicable.

- **City of Lino Lakes**

The City's Stormwater, Erosion, and Sediment Control Ordinance (adopted October 26, 2015; amended January 9, 2023) requires proposed development to maintain or decrease runoff volume and flow frequency, duration and peak runoff rates. Proposed development must also increase infiltration or filtration opportunities, maintain existing flow patterns, and provide storage of stormwater runoff on site. Stormwater BMPs must provide infiltration where feasible, but if infiltration is shown as not feasible for a site due to physical or contamination limitations, then another stormwater BMP may be used with preference for stormwater reuse. Water discharged to BMPs shall be pretreated to National Urban Runoff Program (NURP) standards.

- **National Pollution Discharge Elimination System (NPDES) Standards**

The MPCA is responsible for implementing NPDES standards. The NPDES requirements in the AUAR area will be from the NPDES Construction General Permit (effective August 1, 2023) and the NPDES Municipal Separate Storm Sewer System (MS4) Permit (effective November 16, 2020).

The NPDES Construction General Permit requires that for sites replacing pervious surfaces with one acre or more of impervious surface, a water quality volume equivalent to 1 inch of runoff from the net increase of impervious surface should be treated. This can be met through wet sedimentation basins, infiltration/filtration, or regional ponding. There are three impaired waterbodies within the study area, and sites that are within one mile of impaired water bodies require additional BMPs.

The NPDES MS4 permit requires permittees to provide post-construction water quality standards adopted at the local level. The MS4 permit requires permittees to meet the requirements of future TMDLs. Currently there is a TMDL Implementation Plan proposed for discharges to Peltier Lake and Hardwood Creek, they are identified as the Peltier Lake and Centerville Lake Excess Nutrients TMDL and the Hardwood Creek Impaired Biota (Fish) and Dissolved Oxygen TMDL. Depending on the location and proximity to impaired waters, development within the AUAR area may need to complete an anti-degradation analysis for the impaired water.

Water Quantity and Quality Analysis

A water quantity and quality analysis was completed for the existing and proposed conditions within the study area. This quantitative analysis uses the NRCS runoff curve number method to calculate runoff, and the results are summarized in **Table 1** and **Table 2**.

Table 1 summarizes the total runoff volumes for both proposed conditions scenarios, with and without volume reductions, compared to the existing condition.

Table 1. Existing and Proposed Annual Runoff Volumes¹

Existing conditions (AC-FT)	2040 Scenario 1 without Volume Reduction (AC-FT)	2040 Scenario 1 with Volume Reduction ² (AC-FT)	2040 Scenario 2 without Volume Reduction (AC-FT)	2040 Scenario 2 with Volume Reduction ² (AC-FT)
11,193	11,357	4,026	11,365	3,787

¹Annual runoff volumes are based on an average of 32 inches of rainfall for the state of Minnesota.

²1.1 inches represents approximately 90% of all rain events in Minnesota (Minnesota Minimal Impact Design Standards, MPCA), therefore volume reduction of 90% was assumed in all land use areas for proposed scenarios, except Permanent Rural, Urban Reserve and Right-of Way, which are assumed to not require any future stormwater management.

Table 2 summarizes the total pollutant loads for proposed conditions, with and without volume reductions, compared to the existing condition.

Table 2. Total Suspended Solids and Total Phosphorus Annual Loads

Pollutant ¹	Existing conditions	2040 Scenario 1 without Volume Reduction	2040 Scenario 1 with Volume Reduction	2040 Scenario 2 without Volume Reduction	2040 Scenario 2 with Volume Reduction
TSS (tons/yr)	888	950	298	955	282
TP (lbs/yr)	7,958	7,603	2,377	8,010	2,248

¹Pollutant loading was determined using Event Mean Concentration values from the MPCA Stormwater Manual, based on Land Use classification for the AUAR area.

To achieve compliance with regulatory requirements, future development must provide annual volume and pollutant load reductions in the amounts required by Local Stormwater Management Regulations and comply with the TMDL. The values presented in **Tables 1** and **2** show the estimated annual volume and pollutant load reductions based on the conceptual analysis, and do not include any site-specific constraints for individual developments within the AUAR area.

Potential Impact to Downstream Receiving Waters

The analysis within the AUAR area shows that the runoff volumes will be reduced by approximately 60 percent for the two proposed land use scenarios compared to existing conditions. This is achieved through implementing City of Lino Lakes, RCWD, and NPDES volume reduction requirements. This reduction in runoff translates directly to the reduction in pollutant loads shown in **Table 2**.

Review and Update of the Mitigation Plan

The table below provides the mitigation plan for stormwater management. These mitigation measures have been reviewed and revised as needed for this AUAR Update.

Table 3. Water Quantity and Quality Mitigation Plan

Item No.	Mitigation Description	Update
17.3	Require stormwater management systems to be developed in accordance with the current version of the <i>Rice Creek Watershed District Rules</i> (these rules assist in achieving the goals of the Resource Management Plan – 3) and all other local, state, and federal stormwater management requirements. The Watershed rules outline additional requirements for areas within the CSMP.	This mitigation measure is ongoing. Requirements have changed slightly with local and state rule changes.

Appendix C
Water Appropriation Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Jon Christensen, WSB

Date: April 28, 2025

Re: Water Appropriations – I-35E Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005. The AUAR analyzed the stormwater impacts of the two development scenarios. Based on the analysis, a Mitigation Plan was developed.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. Each assumed no change in the proposed development land use scenarios and included discussion of mitigation improvements that had been completed at the time. Since the 2020 update, the City has adopted its 2040 Comprehensive Plan. This AUAR Update reviews two scenarios.

The information and analysis outlined within this memo is intended to complete a portion of the AUAR Update related to Item # 11.b.iii – Water Resources – Water Appropriation related to revising of the three scenarios. This memo is intended to update the water analysis provided in the original AUAR where applicable.

WATER RESOURCES – WATER APPROPRIATIONS

11.b.iii - 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. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Existing Conditions

Currently, the majority of the study area is served by private wells. The Minnesota Well Index indicates there are approximately 90 wells within the study area which are nearly all for domestic use. No information is available regarding these private wells beyond the Minnesota Well Index.

The municipal water supply system has a DNR water appropriation permit. The water distribution system exists in the southern portion of the study area and currently extends north of Main Street on either side of I-35E. The system will continue to be extended as development progresses. The southern portion of the study area overlaps with a moderate vulnerability portion of the City of Lino Lakes Drinking Water Supply Management Area (DWSMA) that is delineated in the City's Wellhead Protection Plan.

The geology of the City's existing wells is consistent with other communities in the Twin Cities Metro Area. The Paleozoic sedimentary rocks around the Twin Cities Metro area have three primary aquifers (in descending order): Prairie du Chien–Jordan, Tunnel City-Wonewoc (formerly the Franconian-Ironton-Galesville (FIG)), and Mt. Simon-Hinckley. Each of these are separated by a confining layer that essentially separates the aquifers.

The Prairie du Chien–Jordan aquifer is the highest yielding aquifer in the Metro Area. Although these two formations have different names and are geologically different, the two units have been shown to be hydraulically connected. All of the City's existing production wells are located in the Prairie du Chien–Jordan aquifer, and all future wells are anticipated to be as well.

Existing and future water demands for the entire City are detailed in the City's 2040 Comprehensive Water Supply Plan (Plan). Future infrastructure needs for the City, encompassing the AUAR study area, were developed in the Plan. A future well field was preliminarily located within the study area.

The water system currently has six wells and three water towers, although Well No. 2 has been taken out of service due to poor water quality. Tower No. 3 was constructed in 2021, and Well No. 7 is anticipated in 2026. Well capacities range from 600 gallons per minute (gpm) to 1,800 gpm. The existing system firm capacity (with the largest well out of service) is 3,650 gpm excluding Well No. 2 due to poor water quality.

From 2020-2024, the City averaged a total water demand of 99 gallons per capita per day and a maximum day to average day ratio (peaking factor) of 2.5. For the existing population served of approximately 18,000, this results in an average day demand of 1.78 million gallons per day (MGD) and a maximum day demand of 4.45 MGD.

The DNR water appropriation permit for the City of Lino Lakes includes several restrictions imposed by the Ramsey County District Court Order from litigation related to the White Bear Lake water level. The restrictions are intended to protect the White Bear Lake water level and connected groundwater aquifers. The DNR North and East Metro Groundwater Management Area and Metropolitan Council are preparing a White Bear Lake Area Comprehensive Plan to study water supply alternatives for the Northeast Metro of the Twin Cities that both allow for growth and sustain the area's surface water and groundwater resources.

Proposed Conditions

Two possible development scenarios were considered. These were revised from the 2005 Original AUAR. The 2040 Comprehensive Plan corresponds to revised Scenario 1. Scenario 2 has also been revised. Based on the planned land uses for each scenario, the projected water demand is summarized below. New development within the study area will connect to the municipal water system.

Scenario 1

The projected water demands within the study area for Scenario 1 are shown in **Table 1**. There are a number of properties within the southern portion of the study area that already receive municipal water, so these areas have been removed from the areas listed in **Table 1**.

Table 1. Projected Water Demand for Scenario 1

Land Use Type	Area (acres)	Density (units/acre)	Demand Assumption (gpd/acre) *	Average Day Demand (gpd)	Max Day Demand (gpd)
Low Density Sewered Residential	282.6	2.3	511	144,296	404,029
Low Density Mixed Residential	376.9	3.5	777	292,838	819,947
Medium Density Residential	180.5***	5.0	1,110	200,324	560,906
High Density Residential	39.0	7.0	1,554	60,628	169,759
Planned Residential / Commercial**	89.9	9.0	1,499	134,827	377,514
Office Residential**	139.5	5.0	1,055	147,159	412,046
Mixed Use	0.0	2.3	511	0	0
Commercial	348.9***	N/A	1,000	348,907	976,940
Business Campus****	624.0	N/A	1,000	623,978	2,047,138
Industrial	472.4***	N/A	1,000	472,434	1,322,815
Civic/Institutional	1.0	N/A	750	775	2,169
Urban Reserve	0.0	N/A	N/A	N/A	N/A
Permanent Rural	358.1	N/A	N/A	N/A	N/A
Park & Open Space	837.5	N/A	N/A	N/A	N/A
Right-of-Way	3.7	N/A	N/A	N/A	N/A
Total	3,754.1	N/A	N/A	2,426,166	7,093,264

*Based on residential per capita water use of 79 gallons per capita per day (historical average from 2020-2024) and 2.81 persons per household (Met Council estimate).

**Assumes 50% residential and 50% commercial development.

***Areas for properties within the southern portion of the study area that already receive municipal water have been removed.

****Includes contingency for higher intensity max day water demands.

Scenario 2

The projected water demands within the study area for Scenario 2 are shown in **Table 2**. There are a number of properties within the southern portion of the study area that already receive municipal water, so these areas have been removed from the areas listed in **Table 2**.

Table 2. Projected Water Demand for Scenario 2

Land Use Type	Area (acres)	Density (units/acre)	Demand Assumption (gpd/acre) *	Average Day Demand (gpd)	Max Day Demand (gpd)
Low Density Sewered Residential	173.2	2.3	511	88,452	247,667
Low Density Mixed Residential	376.9	3.5	777	292,838	819,947
Medium Density Residential	240.9***	5.0	1,110	267,359	748,605
High Density Residential	391.1	7.0	1,554	607,806	1,701,857
Planned Residential / Commercial**	89.9	9.0	1,499	134,827	377,514
Office Residential**	0.0	5.0	1,055	0	0
Mixed Use	0.0	2.3	511	0	0
Commercial	348.9***	N/A	1,000	348,907	976,940
Business Campus****	362.6	N/A	1,000	362,561	1,315,171
Industrial	480.3***	N/A	1,000	480,285	1,344,797
Civic/Institutional	90.9	N/A	750	68,195	190,947
Urban Reserve	0.0	N/A	N/A	N/A	N/A
Permanent Rural	358.1	N/A	N/A	N/A	N/A
Park & Open Space	837.5	N/A	N/A	N/A	N/A
Right-of-Way	3.7	N/A	N/A	N/A	N/A
Total	3,754.1	N/A	N/A	2,651,231	7,723,446

*Based on residential per capita water use of 79 gallons per capita per day (historical average from 2020-2024) and 2.81 persons per household (Met Council estimate).

**Assumes 50% residential and 50% commercial development.

***Areas for properties within the southern portion of the study area that already receive municipal water have been removed.

****Includes contingency for higher intensity max day water demands.

Both scenarios will trigger the need for additional municipal water supply infrastructure. The additional wells and storage needed are summarized in **Table 4**.

Table 4. Supply and Storage Summary

	Existing System	With Scenario 1	With Scenario 2
Average Day Demand (MGD)	1.78	4.21	4.43
Maximum Day Demand (MGD)	4.45	11.54	12.17
Additional Wells Required	N/A	4 to 5	4 to 5
Additional Storage Required (MG)	N/A	0 to 0.7	0 to 0.9

The City's existing authorized appropriation volume is 900 million gallons per year (MGY), and the City's historical water use from 2020-2024 was 623 MGY. Both scenarios are projected to increase the annual water use beyond 900 MGY. Therefore, the City will likely require an amendment to its appropriation volume prior to full build out of the study area. The City's historical water use shows a decreasing trend in per capita use, which will likely decrease these projections by the time of development.

Water Demand Projection Comparison

Table 5 summarizes the projected average water demands from the 2005 Original AUAR and the 2025 AUAR Update for the scenarios outlined above.

Table 5. Comparison of Average Water Demand Projections

Scenario	2005 Original AUAR	2025 AUAR Update
Scenario 1	1.86 MGD	2.43 MGD
Scenario 2	2.45 MGD	2.65 MGD
Scenario 3	2.61 MGD	N/A

The projected water demands have remained within the parameters discussed in the original AUAR. The expansion and layout of the water supply system will generally conform to the layout identified in the 2005 Original AUAR. The 2005 Original AUAR identified the need for 1.0 MG of additional storage, approximately four additional wells, and trunk and lateral watermain. Water Tower No. 3 (1.5 MG) was constructed in 2021, and this AUAR Update reiterates the need for four to five additional wells. Computer modeling completed as part of the City's 2040 Comprehensive Plan Update confirmed the adequacy of the planned 16-inch trunk watermain loop.

Review and Update of the Mitigation Plan

The table below provides the mitigation plan for water appropriations. These mitigation measures have been reviewed and revised as needed for this AUAR Update.

Table 6. Water Use

Item No.	Mitigation Description	Update
13.1	Monitor water usage and do not permit new development to proceed if it exceeds the capacity of the water supply and distribution system.	This mitigation measure is ongoing.
13.2	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 Supply Plan.	This mitigation measure is ongoing.
13.3	As necessary, amend the City's Comprehensive Water Supply Plan and Capital Improvement Plan to be consistent with any future amendments or updates to the Comprehensive Plan that would necessitate expansions or alterations to the water system.	This mitigation measure is ongoing. No updates have been needed to date for the study area.
13.4	Follow the adopted Wellhead Protection Plans for Lino Lakes and Centerville. As necessary, amend the City's Wellhead Protection Plan for new wells.	This mitigation measure is ongoing.
13.5	Require abandoned private wells to be sealed in compliance with the Minnesota Department of Health regulations.	This mitigation measure is ongoing.
13.6	Require that the installation of any private individual wells be constructed and installed in accordance with the Minnesota Department of Health regulations (Minnesota Well Code).	This mitigation measure is ongoing.
13.7	Continue to implement the City's adopted water conservation policies which are intended to attenuate peak water demands throughout the City.	This mitigation measure is ongoing.
13.8	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	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
	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 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.	
13.9	Evaluate the use of alternative water sources such as stormwater reuse for irrigation in conjunction with development and implement where feasible, sustainable, and cost-effective.	This mitigation measure is ongoing.

Appendix D
Wastewater Management Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Jon Christensen, WSB

Date: April 28, 2025

Re: Wastewater Management – I-35 E Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005. The AUAR analyzed the wastewater impacts of the three development scenarios. Based on the analysis, a Mitigation Plan was developed.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. Each assumed no change in the proposed development land use scenarios and included discussion of mitigation improvements that had been completed at the time. Since the 2020 update, the City has adopted its 2040 Comprehensive Plan. This AUAR Update reviews two scenarios.

The information and analysis outlined within this memo is intended to complete a portion of the AUAR Update related to Item # 11.b.i – Water Resources – Wastewater related to revising of the three scenarios. This memo is intended to update the wastewater analysis provided in the original AUAR where applicable.

WATER RESOURCES – WASTEWATER

Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

- i. *Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.*
 - 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.*
 - 2) *If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.*
 - 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.*

Existing Conditions

Within the City of Lino Lakes, the number of sanitary sewer connections is currently 5,400. Of the 5,400 connections to the public sanitary sewer system, most are single family residential with some multi-family residential, commercial/ industrial, and institutional connections. The City has approximately 1,705 properties that are served by on-site septic systems. Based on Metropolitan Council Environmental Services (MCES) meter data from 2019-2023, the City's existing average daily wastewater flow is 1.04 million gallons per day (MGD).

Since the wastewater generated within the City of Lino Lakes is primarily from residential units, the wastewater characteristics are assumed to be of typical domestic strength. **Table 1** is a summary of the estimated existing wastewater characteristics for Lino Lakes.

Table 1. Estimated Existing Wastewater Characteristics and Total Average Loading

Parameter	Concentration (mg/L)	Average Load (lbs/day)
Biochemical Oxygen Demand	220	1,909
Total Suspended Solids	220	1,909
Ammonia – Nitrogen	25	217
Total Phosphorous	8	69

Wastewater generated within the City is collected by a series of laterals, trunk sewer mains, and lift stations and is then directed to one of three interceptor sewers that are owned, operated, and maintained by MCES (Interceptors 9106, 8361, and 9708). Wastewater is then conveyed through the MCES regional collection system to the Metropolitan WWTP. The Metropolitan WWTP has a design capacity of 314 MGD and currently receives an average daily flow of 180 MGD.

Proposed Conditions

The original AUAR considered three possible development scenarios, and the 2020 update revised Scenarios 1, 2 and 3 with the third scenario being considered as the 2030 comprehensive plan. The 2040 Comprehensive Plan corresponds to revised Scenario 1 and Scenario 2 was also revised. The third scenario considered is the 2030 Comprehensive Plan Scenario and is outdated and no longer applicable. The projected wastewater flow for each scenario is based on the planned land uses as described below.

The municipal collection system currently extends to Main Street on either side of I-35E. The municipal trunk sewers will continue to be extended as development progresses. As detailed in the 2040 Comprehensive Sanitary Sewer Plan, development within Sanitary Sewer District 3 and 5 will require at least one large regional lift station and several smaller lift stations.

The majority of the wastewater generated within the study area will discharge to MCES Interceptor 802325 which is currently extended approximately 1,000 ft northwest of the intersection of Main Street and Elmcrest Avenue. The remainder will discharge to MCES Interceptor 7651 which currently serves the existing Sanitary Sewer District 3. All of the flow generated within the study area will be conveyed through the MCES regional collection system to the Metropolitan WWTP.

Scenario 1

The proposed development within the study area for revised Scenario 1, the assumed wastewater flow for each land use type, and the projected wastewater flow for that development are summarized in **Table 2**. There are a number of properties within the southern portion of the

study area that are already sewered, so these areas have been removed from the areas listed in **Table 2**

Table 2. Projected Average Daily Flow for Scenario 1

Land Use Type	Area (acres)	Density (units/acre)	Flow Assumption (gpd/acre)	Average Flow (gpd)
Low Density Sewered Residential	282.6	2.3	414	117,002
Low Density Mixed Residential	376.9	3.5	630	237,447
Medium Density Residential	180.5**	5.0	900	162,432
High Density Residential	39.0	7.0	1,260	49,160
Planned Residential / Commercial*	89.9	9.0	1,210	108,836
Office Residential*	139.5	5.0	850	118,567
Mixed Use	0.0	2.3	414	0
Commercial	348.9**	N/A	800	279,126
Business Campus***	624.0	N/A	800	799,182
Industrial	472.4**	N/A	800	377,947
Civic/Institutional	1.0	N/A	600	620
Urban Reserve	0.0	N/A	N/A	N/A
Permanent Rural	358.1	N/A	N/A	N/A
Park & Open Space	837.5	N/A	N/A	N/A
Right-of-Way	3.7	N/A	N/A	N/A
Total	3,754.1	N/A	N/A	2,250,319

*Assumes 50% residential and 50% commercial development.

**Areas for properties within the southern portion of the study area that are already sewered have been removed.

***Includes contingency for higher intensity wastewater flow.

Table 3 summarizes the projected wastewater flow by MCES connection point under Scenario 1. Note that the flows listed in **Table 3** include only additional flows generated within the study area.

Table 3. Projected Additional Regional Wastewater Flow by MCES Connection Point for Scenario 1

MCES Interceptor	City Sanitary Sewer District	Average Flow (MGD)	Peak Hourly Flow (MGD)
7651	3	0.62	2.11
802325	5	1.63	4.73

Table 4 summarizes the projected wastewater characteristics and additional loading for the wastewater that will be generated under Scenario 1.

Table 4. Projected Wastewater Characteristics and Additional Total Average Daily Wastewater Loading for Scenario 1

Parameter	Concentration (mg/L)	Average Load (lbs/day)
Biochemical Oxygen Demand	220	4,131
Total Suspended Solids	220	4,131

Ammonia –Nitrogen	25	469
Total Phosphorous	8	150

Scenario 2

The proposed development within the study area for Scenario 2, the assumed wastewater flow for each land use type, and the projected wastewater flow for that development are summarized in **Table 5**. There are a number of properties within the southern portion of the study area that are already sewered, so these areas have been removed from the areas listed in **Table 5**.

Table 5. Projected Average Daily Flow for Scenario 2

Land Use Type	Area (acres)	Density (units/acre)	Flow Assumption (gpd/acre)	Average Flow (gpd)
Low Density Sewered Residential	173.2	2.3	414	71,721
Low Density Mixed Residential	376.9	3.5	630	237,447
Medium Density Residential	240.9**	5.0	900	216,787
High Density Residential	391.1	7.0	1,260	492,838
Planned Residential / Commercial*	89.9	9.0	1,210	108,836
Office Residential*	0.0	5.0	850	0
Mixed Use	0.0	2.3	414	0
Commercial	348.9**	N/A	800	279,126
Business Campus***	362.6	N/A	800	590,049
Industrial	480.3**	N/A	800	384,228
Civic/Institutional	90.9	N/A	600	54,556
Urban Reserve	0.0	N/A	N/A	N/A
Permanent Rural	358.1	N/A	N/A	N/A
Park & Open Space	837.5	N/A	N/A	N/A
Right-of-Way	3.7	N/A	N/A	N/A
Total	3,754.1	N/A	N/A	2,435,589

*Assumes 50% residential and 50% commercial development.

**Areas for properties within the southern portion of the study area that are already sewered have been removed.

***Includes contingency for higher intensity wastewater flow.

Table 6 summarizes the projected wastewater flow by MCES connection point under Scenario 2. Note that the flows listed in **Table 6** include only those generated within the study area.

Table 6. Projected Regional Wastewater Flow by MCES Connection Point for Scenario 2

MCES Interceptor	City Sanitary Sewer District	Average Flow (MGD)	Peak Hourly Flow (MGD)
7651	3	0.64	2.18
802325	5	1.79	5.19

Table 7 summarizes the projected wastewater characteristics and additional loading for the wastewater that will be generated under Scenario 2.

Table 7. Projected Wastewater Characteristics and Additional Total Average Daily Wastewater Loading for Scenario 2

Parameter	Concentration (mg/L)	Average Load (lbs/day)
Biochemical Oxygen Demand	220	4,471
Total Suspended Solids	220	4,471
Ammonia –Nitrogen	25	508
Total Phosphorous	8	163

Wastewater Projection Comparison

Table 11 summarizes the projected average wastewater flows from the 2005 Original AUAR and the 2025 AUAR Update for the scenarios outlined above. The 2005 Original AUAR used flow assumptions of 274 gpd/unit for residential development and 1,500 gpd/acre for commercial and industrial development. The 2005 flow assumptions were very conservative, so the 2020 flow assumptions used in this update have been revised to agree more closely with metered wastewater flows from the last five years.

Table 11. Comparison of Average Wastewater Flow Projections

Scenario	2005 Original AUAR	2025 AUAR Update
Scenario 1	2.529 MGD	2.250 MGD
Scenario 2	3.646 MGD	2.436 MGD
Scenario 3	3.733 MGD	N/A

The projected wastewater flows have decreased in this update. Due to topography constraints, the expansion and layout of the sanitary sewer system will generally conform to the layout identified in the 2005 Original AUAR. However, the exact sizing of trunk facilities may be revised based on the most current wastewater flow projections.

Review and Update of the Mitigation Plan

The table below provides the mitigation plan for wastewater management. These mitigation measures have been reviewed and revised as needed for this AUAR Update.

Table 12. Water Quality: Wastewater

Item No.	Mitigation Description	Update
18.1	Monitor wastewater flows and not permit new development to proceed if it exceeds the capacity of the wastewater system.	This mitigation measure is ongoing.
18.2	Construct the major infrastructure improvements needed to expand the capacity of the wastewater system (i.e. lift stations, force mains, and upgrades to the existing systems) in accordance with the Comprehensive Sanitary Sewer Plan and Capital Improvement Plan.	This mitigation measure is ongoing.
18.3	Adequately phase capacity improvements.	This mitigation measure is ongoing.
18.4	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.	This mitigation measure is ongoing. No updates have been needed to date for the study area.
18.5	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.	This mitigation measure is ongoing.
18.6	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.	This mitigation measure is ongoing.

Appendix E
Transportation Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Mallori Fitzpatrick, PE, PTOE, WSB
Alison Harwood, WSB

Date: April 2, 2025

Re: Transportation – I-35 Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005. The AUAR analyzed the transportation impacts of the three development scenarios for the years 2030 and post 2030. Based on the analysis, a Mitigation Plan was developed. Mitigation included adding new roadway connections, intersection control, turn lanes, and widening roads as necessary as development occurs throughout the area.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. The 2010 and 2015 updates assumed no change in the proposed development land use scenarios and included discussion of mitigation improvements that had been completed at the time. In both cases no additional mitigation was recommended. As part of the 2020 AUAR update, the City completed an updated Comprehensive Plan including a Transportation Plan for the 2040 forecast year.

TRAFFIC AND TRANSPORTATION UPDATE

There have been several developments in the study area that have been approved since the original AUAR was completed in 2005 through the 2020 update including:

- Park-and-Ride in the northwest quadrant of I-35E and CSAH 14
- McDonald's restaurant and Main Street Shoppes east of I-35E on CSAH 14
- NorthPointe residential development north of Birch Street between I-35E and CSAH 54
- Watermark residential development west of I-35E, north of CSAH 14
- Clearwater Creek commercial development west of I-35E and south of CSAH 14 on 21st Avenue

Since the 2020 update, the following developments have occurred:

- 7107 Otter Lake Rd multi-tenant development north of CSAH 14 on Otter Lake Road
- Culver's development north of CSAH 14 on Otter Lake Road
- Tidal Wave Auto Spa development north of CSAH 14 on Otter Lake Road
- Kwik Trip gas station development west of 21st Avenue on CSAH 14
- NorBella Senior Living development west of 21st Avenue on Michaud Way
- New Horizon Academy development west of 24th Avenue on Rosemary Way
- Associated Eye Care development north of CSAH 14 on Rosemary Way
- NorthPointe Garden Estates development west of I35e on Chestnut St
- Sutton Transportation development east of CSAH 54 on Gateway Circle
- 2010 Fairview St – multi tenant development east of CSAH 54 on Fairview Street
- DMS6 Amazon Delivery Station development in the northeast quadrant of CSAH 54 and Fairview Street

In addition, there have been roadway improvements completed since the original AUAR through the 2020 update including:

- CSAH 14 Improvements west of I-35E
- I-35E at CSAH 14 Interchange Improvements

Since the 2020 update, the following roadway improvements have occurred:

- Extension of Rosemary Way west of 24th Avenue
- Watermark development neighborhood street construction and a roundabout at Watermark Way and Forest Lane

As previously discussed, three development scenarios were included in the original AUAR and three consolidated scenarios were included with the 2020 update that were consistent with the original AUAR. The revised Scenario 3 was considered the 2030 Comprehensive Plan Scenario and is now outdated and no longer applicable.

Traffic Generation

The original AUAR include traffic generation for the three land use scenarios using the Institute of Transportation Engineers (ITE) "*Trip Generation Manual, 7th Edition*." The traffic generation was prepared for both the 2030 base year and the Post 2030 conditions. For comparison purposes, the Post 2030 conditions were used. **Tables 1 – 3** shows the Post 2030 Traffic Generation from the original AUAR. For the 2020 AUAR Update, the traffic generation was updated based on the revised development scenarios. Traffic generation rates from the ITE Trip Generation Manual "*Trip Generation Manual, 10th Edition*" were used to determine the updated traffic forecasts. **Table 4**, **Table 5**, and **Table 6** show the 2020 AUAR Update Scenario traffic generation.

Table 1. 2005 AUAR Scenario 1 – City Comprehensive Plan

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Rural Land Use	DU	125	93	127	1,196
Low Density Res	DU	510	383	516	4,880
Med Density Res	DU	1,129	416	496	6,078
High Density Res	DU	473	241	294	3,178
Commercial	SF	2,985,000	5,090	6,773	63,598
Industrial	SF	11,175,000	7,912	8,270	68,872
Total			14,135	16,476	147,802

Table 2. 2005 AUAR Scenario 2 – Commercial / Industrial Emphasis

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Rural Land Use	DU	44	33	44	422
Low Density Res	DU	118	88	119	1,130

Low/Med Density Res	DU	2,419	1,439	1,060	18,662
Med/High Density Res	DU	2,173	954	1,149	13,150
High Density Res	DU	981	490	596	6,458
Commercial	SF	5,617,000	9,577	12,745	119,676
Industrial	SF	9,570,000	6,775	7,082	58,980
Total			19,356	22,795	218,478

Table 3. 2005 AUAR Scenario 3 – Residential Emphasis

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Rural Land Use	DU	43	32	43	412
Low Density Res	DU	118	88	119	1,130
Low/Med Density Res	DU	3,685	2,192	1,614	28,430
Med/High Density Res	DU	3,247	1,425	1,718	19,650
High Density Res	DU	1,566	799	971	10,524
Commercial	SF	4,141,000	7,060	9,396	88,228
Industrial	SF	5,829,000	4,127	4,313	35,924
Total			15,723	18,174	184,298

Table 4. 2020 AUAR Update Scenario 1 – City 2040 Comprehensive Plan

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Low Density Res	DU	2,335	1,728	2,312	22,042
Med Density Res	DU	1,675	687	838	11,089
High Density Res	DU	678	312	380	4,963
Commercial	SF	5,085,000	3,865	4,831	67,936
Industrial	SF	12,817,000	5,127	4,999	41,014
Total			11,718	13,358	147,044

Table 5. 2020 AUAR Update Scenario 2

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Low Density Res	DU	2,283	1,689	2,260	21,552
Med Density Res	DU	1,977	811	989	13,088
High Density Res	DU	3,143	1,446	1,760	23,007
Commercial	SF	5,307,000	4,033	5,042	77,270
Industrial	SF	10,054,000	4,022	3,921	32,173
Total			12,001	13,971	167,089

Table 6. 2020 AUAR Update Scenario 3 – City 2030 Comprehensive Plan

Land Use	Unit	Size	AM Peak	PM Peak	ADT
Low Density Res	DU	190	140	188	1,794
Med Density Res	DU	1,991	816	996	13,180
High Density Res	DU	273	126	153	1,998
Commercial	SF	3,229,000	2,454	3,068	47,014
Industrial	SF	10,128,000	4,051	3,950	32,410
Total			7,588	8,354	96,396

Comparing the land use scenarios shows that the future traffic generated with the 2020 updated land uses will be less than that from the original AUAR. The percent reduction in traffic generation is shown below in **Table 7**.

Table 7. Scenario Comparison

2005 Scenario	2020 Updated Scenario	AM Peak % Reduction	PM Peak % Reduction	ADT % Reduction
Scenario 1	Scenario 1	21%	23%	1%
Scenario 2	Scenario 2	61%	63%	31%
Scenario 3	Scenario 2	31%	30%	10%
Scenario 1	Scenario 3	86%	97%	53%

Traffic Analysis

The Transportation Study completed as part of the original AUAR analyzed the effects the land use scenarios had on the local and regional roadway systems. The analysis was based on existing traffic counts at the time and the Anoka County version of the Metropolitan Council's Travel Demand Forecasting Model.

The Traffic analysis focused on the operation of the primary roadways and their intersections during the peak travel periods (a.m. and p.m. peak hours), which is typically the time when the most severe traffic congestion is incurred. The results found that mitigation improvements would be required for each Scenario for the transportation system to operate at acceptable levels.

Based on the analysis a Mitigation Plan was developed. Mitigation included adding new roadway connections, intersection control, turn lanes and widening roads as necessary as development occurs throughout the area. The improvements were 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.

As part of the 2020 Update, traffic forecasts were revised for 2040 and Post 2040 with the Cities *"Draft 2040 Transportation Plan"*. The forecasts assumed a roadway network consistent with the AUAR mitigation improvements. Since the 2020 Update, the 2040 Comprehensive Plan has been finalized, and a few forecasts were slightly modified. **Figure 1** shows the forecasted 2040 and Post 2040 (Full Build) Average Daily Traffic volumes with the future roadway network.

Based on the comparison of the forecasted traffic generation from the AUAR area and the forecasted 2040 traffic volumes, the traffic analysis conducted, and Mitigation Plan recommended with the 2005 AUAR and the 2010, 2015, and 2020 updates remain valid for this AUAR Update.

Review and Update of the Mitigation Plan

The table below provides the mitigation plan for Transportation. These mitigation measures have been reviewed and revised as needed for this AUAR Update.

Table 7. Transportation

Item No.	Mitigation Description	Update
21.1	Create a monitoring program that closely evaluates traffic impacts from proposed developments within the AUAR area.	Traffic Impact Studies are required for proposed developments showing the impact on the transportation system and consistency with the AUAR.
21.2	Implement traffic mitigation measures as development occurs within the AUAR area. Specific mitigation measures for the three development scenarios are discussed in Item 21 and depicted on Figures 21-8, 21-9, and 21-10. These mitigation measures improve overall traffic operations for the respective development scenarios. 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: 21.2.1 Develop frontage road system in compliance with local, county and state access management guidelines to serve local and regional traffic. 21.2.2 Work with appropriate road authorities to reconstruct and provide additional capacity for CSAH 14. 21.2.3 Work with appropriate road authorities to construct Northerly Bypass with new interchanges at I-35W and I-35E (80th Street East) to improve traffic operations and access to and within the AUAR area. As recommended by FHWA and Mn/DOT, a phasing plan should be established to construct each piece of the Northerly Connector as it becomes necessary to maintain the serviceability of the transportation system.	CSAH 14 improvements were completed in 2009 and noted in the 2010 AUAR Update CSAH 54 with CSAH 14 (formerly CSAH 21) 20th Avenue North intersection improvements were completed and noted in the 2010 AUAR Update. I-35E Interchange reconstruction was completed in 2011. This mitigation measure is complete.

Item No.	Mitigation Description	Update
	<u>Phase Improvement</u> 1. CSAH 14, I-35W to I-35E (funded and programmed for construction) 2. CSAH 14, I-35E Interchange 3. CR 140 (80th Street)/I-35E Interchange 4. CSAH 14 across Peltier Lake (Northerly Bypass/Connector) 5. CSAH 14/I-35W Interchange As part of these improvements, the following steps should be taken as the opportunity is presented: ▪ Inclusion of the northerly bypass and proposed interchanges in future transportation and comprehensive plans ▪ Preservation of right of way through official mapping or other process ▪ Right of way dedication through the platting process	
21.3	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.	This mitigation measure is ongoing.
21.4	Work with appropriate road authorities to mitigate the impact of the additional traffic on the on the regional system, specifically Interstates 35W and 35E, by reconstructing each to provide a six-lane cross-section consistent with the recommendations outlined in the I-35 IRC. It should be noted that it was determined that an expansion will be necessary even without the development scenarios used in this analysis. As the interstates serve a much larger area, the projected growth of the entire Twin Cities region should warrant expansion by the year 2030.	This mitigation measure is ongoing.
21.5	Prioritize alternative travel modes within the AUAR study area and require project proposers to address alternative travel modes (e.g., buses, bicyclists, and pedestrians) by identifying appropriate accommodations.	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
21.6	Consider the need for additional infrastructure improvements (see item #21.2) in future updates or amendments to the Comprehensive Plan. Submit the plan update to the appropriate agencies (i.e., FHWA, MnDOT, Met Council, etc.).	This mitigation measure is ongoing.
21.7	Require project proposers to follow all appropriate guidelines and policies related to traffic noise and noise walls.	This mitigation measure is ongoing.
21.8	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.	This mitigation measure is ongoing.
21.9	Continue to require the implementation of the conditions of approval for the Eagle Brook Church relating to mitigating traffic impacts.	This mitigation measure is ongoing.
21.10	Achieve effective traffic operations within the city by requiring that site plans make use of access management practices to promote safe, effective traffic flow.	This mitigation measure is ongoing.
21.11	Require project proposers to follow the Anoka County Highway Department Development Review Process Manual (updated August 2014).	This mitigation measure is ongoing and has been updated to reflect the newest manual.
21.12	Continue to coordinate capital improvement programming with applicable transportation authorities.	This mitigation measure is ongoing.

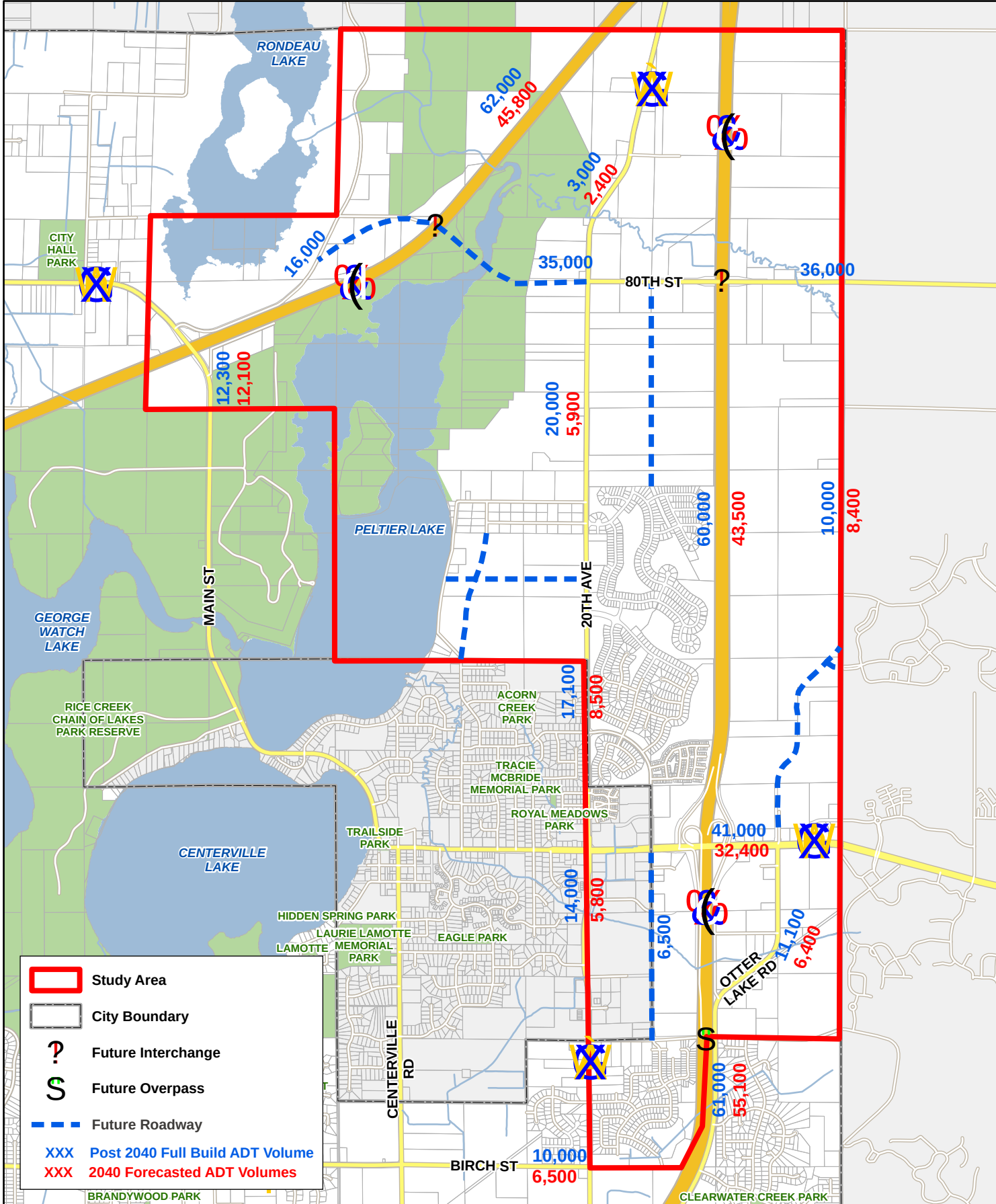


Figure 1 - Transportation

I-35 Corridor AUAR Project
Lino Lakes, MN

0 2,700
Feet
1 inch = 2,700 feet

Appendix F
Climate Adaptation and Resilience Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Tim Paquin, WSB

Date: March 31, 2025

Re: Climate Adaptation and Resilience – I-35 Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. Each assumed no change in the proposed development land use scenarios and included discussion of mitigation improvements that had been completed at the time. Since the 2015 AUAR update was prepared, the City has completed an updated Comprehensive Plan. This AUAR Update includes review of two scenarios.

The information and analysis outlined within this memo is intended to complete a portion of the AUAR Update related to Item # 6 – Climate Adaptation and Resilience related to revising of the two scenarios. This memo is intended to update the climate analysis provided in the original AUAR where applicable.

CLIMATE ADAPTATION AND RESILIENCE

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

For the general project location, trends in precipitation, temperature, flood risk, and cooling degree days have been analyzed and described below. Some of the climate projections summarized below use Representative Concentration Pathways (RCPs), which are greenhouse gas concentration scenarios used by the Intergovernmental Panel on Climate Change.¹

Precipitation

According to the Minnesota Climate Explorer, the historic average precipitation level in Anoka County between 2000 and 2024 was 31.04 inches with the lowest range in 2021 (21.94 inches) and the highest average in 2002 (41.01 inches).² Average annual precipitation in Anoka County from 2040-2059 is projected to be 32.79 inches under RCP 4.5. From 2080-2099, average annual precipitation is projected to be 33.62 inches under RCP 4.5 and 35.87 inches under RCP 8.5.

Temperature

According to the Minnesota Climate Explorer, the historic average temperature in Anoka County between 2000 and 2024 was approximately 45.14°F with the lowest average in 2014 (40.93°F) and the highest average in 2012 (48.39°F). The average annual temperature in Anoka County is projected to increase to 48.42°F from 2040 to 2059 under RCP 4.5 (intermediate emissions pathway). In 2080-2099, average annual temperature is projected to further increase to 50.84°F and 54.58°F under RCP 4.5 and 8.5 (high emissions pathway), respectively.

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 overall extreme heat vulnerability in urban areas where there are dense concentrations of these surfaces. This is referred to as urban heat island effect. According to the Metropolitan Council's Extreme Heat Map Tool, the AUAR study area is located in an area of medium heat vulnerability in the less developed areas and high heat vulnerability in areas with more development.³

Flood Risk

Climate change can exacerbate the frequency and intensity of extreme rainfall events and associated flooding in some locations. According to the FEMA National Flood Hazard Layer, a tool that identifies current effective flood hazard data, the majority of the study area has a

¹ RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040, and RCP 8.5 is a worst-case scenario in which emissions continue to rise through the 21st century. Climate Explorer Metadata available at: <https://www.dnr.state.mn.us/climate/climate-explorer-metadata.html>

² Available at: <https://arcgis.dnr.state.mn.us/climateexplorer/main/historical>

³ Available at: <https://metrocouncil.org/Communities/Planning/Local-Planning-Assistance/CVA/Tools-Resources.aspx>

minimal risk of flooding despite increases in extreme rainfall events.⁴ However, special flood hazard areas were identified near water bodies and waterways where flooding has an increased chance of occurring. Development within special flood hazard areas is required to follow FEMA permitting requirements.

Cooling Degree Days

Degree days are based on the assumption that when the outside temperature is 65°F, heating or cooling is not needed to be comfortable, as defined by the National Weather Service. Degree days are the difference between the daily temperature mean and 65°F. If the temperature 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.⁵ Cooling degree days are used as a proxy to estimate cooling needs for buildings. According to Heat Vulnerability in Minnesota, the number of cooling 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.⁶

⁴ Available at: [Flood Data Viewers and Geospatial Data | FEMA.gov](https://www.fema.gov/flood-data-viewers-and-geospatial-data)

⁵ Available at: https://www.weather.gov/key/climate_heat_cool

⁶ Available at: https://maps.umn.edu/climatehealthtool/heat_app/

For each Resource Category in the table below: Describe how 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 1.

Table 1 - Climate Considerations

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptations
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 precipitation and more frequent heavy rainfall events - Increased annual temperatures - Increased freeze thaw cycles - Medium to high urban heat island effect	- Buildings could be constructed with rooftop-ready infrastructure for green roofs or solar power generation - Building shells could be energy efficient - Proposed climate smart tree plantings and landscaping will reduce runoff and mitigate urban heat island effect
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.	Portions of the proposed development may experience flooding during extreme rain events.	- Design of the site and 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 flood elevations per Lino Lakes City code. - Infiltration areas may be used and would improve water quality and stormwater runoff in the project vicinity.

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.	- Developer will consider using native plants and perennials for landscaping and stormwater features will absorb water and reduce the water demand for irrigation. - Stormwater BMPs will be designed to weather a 100-year storm event in accordance with City/ Watershed requirements as the property is developed. - Developments occurring within special flood hazard areas will need to follow FEMA permitting requirements
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.	The proposed development is not anticipated to generate hazardous waste or materials.	Not applicable.
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 runoff.	Native plantings and stormwater BMPs will provide suitable habitat for small mammals, insects, and bird species that currently utilize the existing developed area.

Appendix G
Contamination Review Memo

Memorandum

To: Michael Grochala, City of Lino Lakes

From: Ryan Spencer, WSB
Roxy Robertson, WSB

Date: April 2, 2025

Re: Desktop Contamination Review – I-35 Corridor AUAR
Lino Lakes, Minnesota
WSB Project No. 027919-000

Introduction

WSB reviewed public database information to identify sites that pose a contamination risk to the Lino Lakes I-35 Corridor located in Lino Lakes, Minnesota (the Study Area). A map showing the Study Area is included as **Figure 1**. The following online databases were reviewed on February 6, 2025, as part of this desktop contamination review:

- Minnesota Pollution Control Agency (MPCA) "What's in My Neighborhood?" website
- Minnesota Department of Agriculture (MDA) "What's in My Neighborhood?" website

This desktop contamination review is not intended to replace a Phase I Environmental Site Assessment (ESA) performed by ASTM Standard E1527-21. WSB did not verify the database information for accuracy. Therefore, further environmental review is recommended prior to performing any follow-up investigation work (e.g. subsurface borings) to verify What's in My Neighborhood (WIMN) source information. Based on this desktop review, the following pertinent contamination information is provided:

Study Area Sites

Seventy two (72) sites were identified within the Study Area (see **Figure 2**). Many of the sites were included on multiple databases listings, however, not all listings indicate the presence of contamination. The following Study Area listings indicate the presence of contamination:

Site 3 – Private Residence, 8196 20th Avenue, Lino Lakes, MN

- Brownfields BF0002193: The site was enrolled into the Petroleum Brownfields (PB) Program in 2022. Brownfields are potentially contaminated sites where the MPCA is assisting with environmental investigations and/or redevelopment activities. The status is listed as active.

Site 32 – Eagle Trucking Inc, 7087 20th Avenue, Centerville, MN

- Leak Site LS0013133: The identified leak was discovered in 1999, consisted of diesel, and was issued site closure by the MPCA in 2000. Site closure does not mean that the site is free of contamination.

Site 41 – Lakes 1 Stop, 7090 21st Avenue South, Centerville, MN

- Leak Site LS0013380: The identified leak was discovered in 2000, consisted of gasoline, and was issued site closure by the MPCA in 2003.

Site 62 – Acton Construction, 2209 Phelps Road, Lino Lakes, MN

- Leak Site LS0001284: The identified leak was discovered in 1989, consisted of fuel oil #1 & #2 and lead gasoline, impacted groundwater, and was issued site closure by the MPCA in 1992.
- Brownfields VP3340: The site entered the Brownfields Voluntary Investigation and Cleanup (VIC) Program from 1992 to 1997.
- Brownfields BF0001207: A second VIC listing associated with Site 62 was listed as active from June 2019 to December 2019.

Site 85 – Rehbein Shop/Office, 6805 20th Avenue South, Centerville, MN

- Leak Site LS0015707: The identified leak was discovered in 2003, consisted of diesel, did not impact groundwater, and was issued site closure by the MPCA in 2006.

Adjacent Sites

Nine (9) sites were identified adjacent to the Study Area (see **Figure 2**). Many of the sites were included on multiple database listings, however, not all listings indicate the presence of contamination. The following adjacent site listings indicate the presence of contamination:

Site 31 – Corner Express, 1990 Main Street, Centerville, MN

- Leak Site LS0018115: The identified leak was discovered in 2010, consisted of unleaded gasoline, impacted groundwater, and was issued site closure by the MPCA in 2011.
- Leak Site LS0020747: The identified leak was discovered in June 2018, consisted of gasoline, and was issued site closure by the MPCA in August 2018.

Site 70 – Jim Stevens Construction, 7007 20th Avenue, Centerville, MN

- Leak Site LS0009694: The identified leak was discovered in 1996, consisted of diesel and gasoline, impacted groundwater, and was issued site closure by the MPCA in 1998.

Site 81 – Lino Lakes Well #4, 6786 Clearwater Creek Dr, Centerville, MN

- Leak Site LS0014107: The identified leak was discovered in 2000, consisted of (unknown), did not impact groundwater, and was issued site closure by the MPCA in 2003.

Surrounding Area Sites (Within 500 Feet)

Nine (9) sites were identified in the surrounding area (within 500 feet) of the Study Area (see **Figure 2**). Many of the sites were included on multiple databases, however, not all listings indicate the presence of contamination. The following surrounding area site listing indicates the presence of contamination:

Site 7 – Hugo 30 Acres, 4330 170th Street North, Hugo, MN

- Brownfields PB4670: The site entered the PB Program from September 2014 to December 2014.
- Brownfields VP31840: A second VIC listing associated with Site 20 was listed as active from September 2014 to January 2015.

Conclusion

Multiple sites were identified during this desktop contamination review that pose a contamination risk to the Study Area. These sites include:

- Study Area Sites
 - Sites 3, 32, 41, 62, and 85
- Adjacent Sites
 - Sites 31, 70, and 81
- Surrounding Area Sites (Within 500 Ft.)
 - Site 7

Prior to redevelopment in the vicinity of the above listed sites, it is recommended that a subsurface environmental investigation is completed to determine if contaminated soil and/or groundwater will be encountered during redevelopment. Further, a Response Action Plan / Construction Contingency Plan (RAP/CCP) should be in place prior to disturbance near the above listed sites to ensure all contaminated materials (if encountered) are managed in accordance with local, state, and federal regulations.

If you have any questions or need additional information, please contact Ryan Spencer at 763-231-3644 or rspencer@wsbeng.com.

Enclosures:

Figure 1 – Study Area

Figure 2 – MPCA/MDA What's in My Neighborhood Search Results

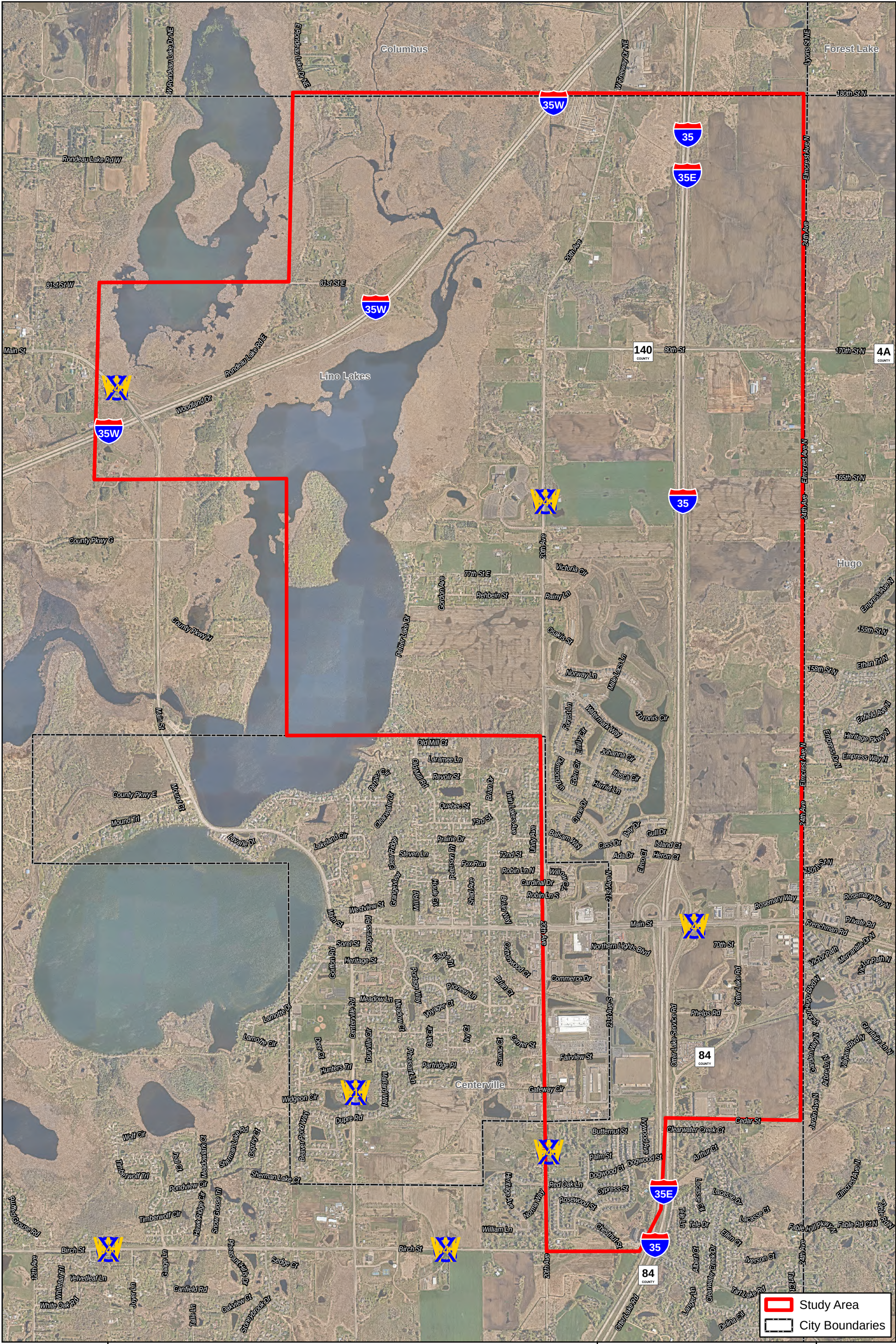
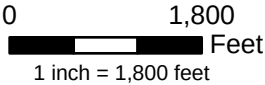
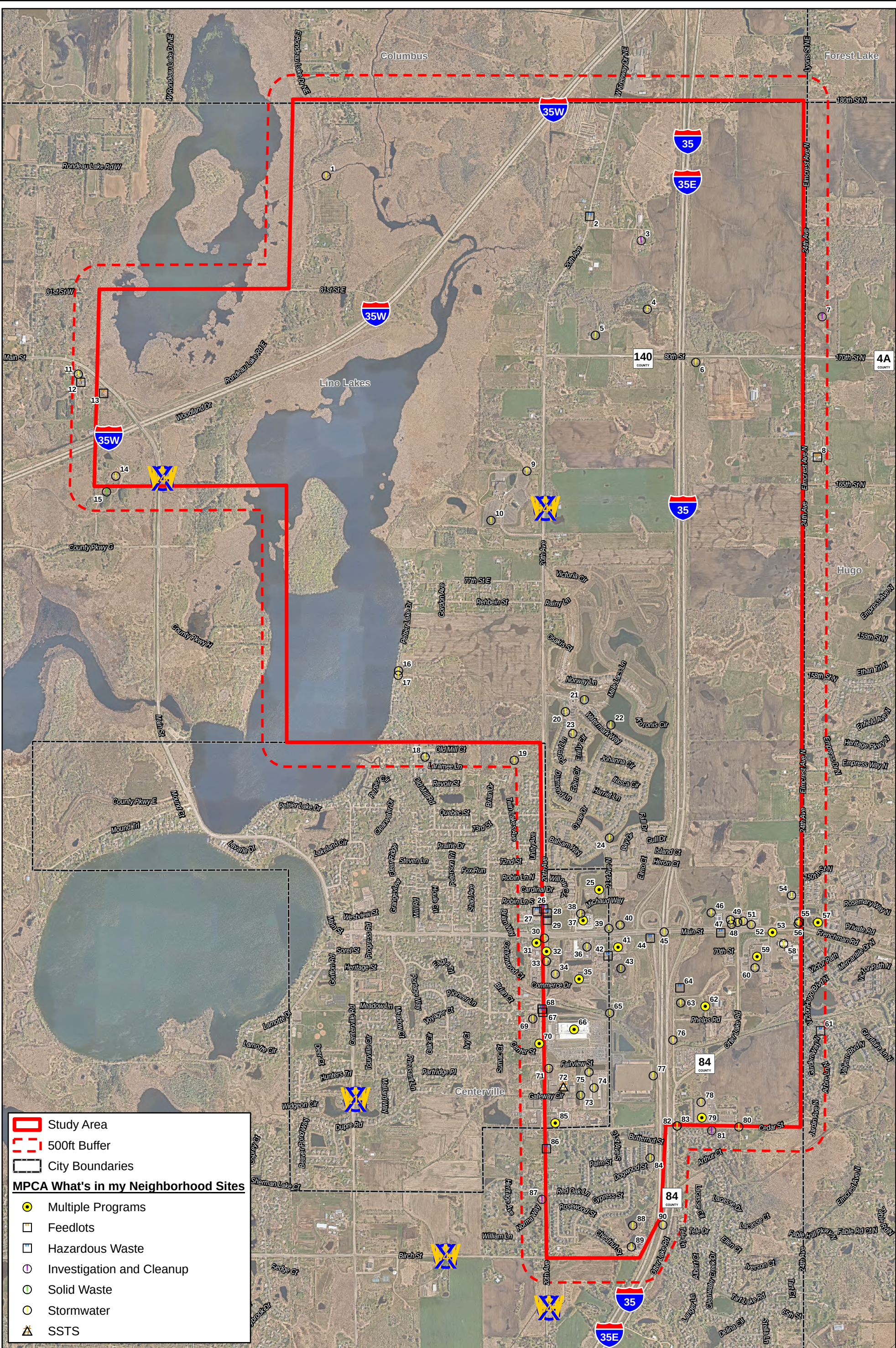


Figure 1 - Project Location

Contamination Review
I-35 Corridor AUAR Project
City of Lino Lakes, Minnesota





Appendix H

IPAC and DNR Information



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:
Project Code: 2025-0075798
Project Name: I35 E AUAR Update

03/28/2025 18:21:18 UTC

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 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 help 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: 2025-0075798

Project Name: I35 E AUAR Update

Project Type: Land Management Plans - NWR

Project Description: The City of Lino Lakes adopted the I-35E Corridor AUAR and in conformance with Minnesota Rules 4410 in 2005. Pursuant to Minnesota Rules 4410.3610 Subp. 7, for the AUAR to remain valid as the environmental review document for the area, the document needs to be updated every five years until all development in the study area has received final approval. Since undeveloped areas still remain in the study area and the AUAR will expire in 2025, the purpose of this document is to update the AUAR pursuant to Minnesota Rules

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@45.178302200000005,-93.04079016887556,14z>



Counties: Anoka County, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 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 Fisheries¹, 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.

-
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.

MAMMALS

NAME	STATUS
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane <i>Grus americana</i> 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 <i>Simpsonaias ambigua</i> 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 <i>Danaus plexippus</i> 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 <i>Bombus affinis</i> 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/L4O2XUU4V5GSDHQKYBKW6BB3YY/documents/generated/5967.pdf	Endangered
Western Regal Fritillary <i>Argynnis idalia occidentalis</i> 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.

-
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 <i>Haliaeetus leucocephalus</i> 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
Golden Eagle <i>Aquila chrysaetos</i> 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/1680	Breeds elsewhere

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 (■)

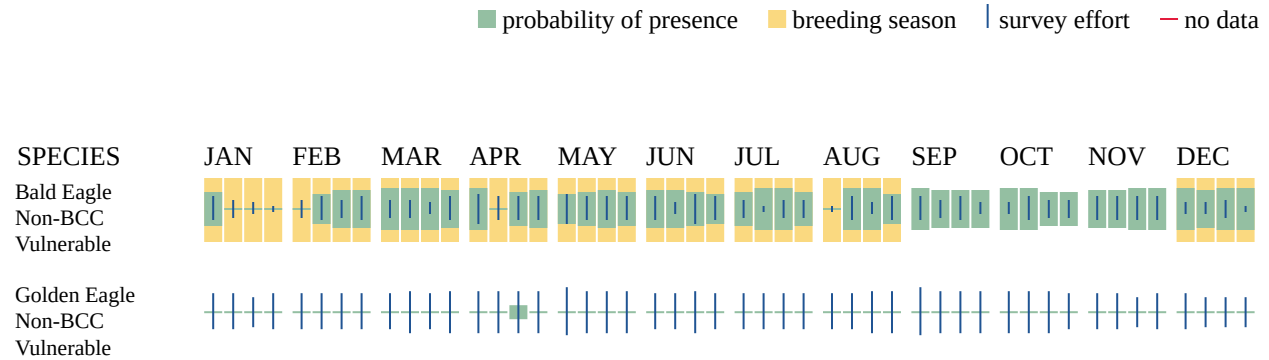
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

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 <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.

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 <i>Pluvialis dominica</i> 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 <i>Haliaeetus leucocephalus</i> 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
Black Tern <i>Chlidonias niger surinamenis</i> 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 <i>Coccyzus erythrophthalmus</i> 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 <i>Dolichonyx oryzivorus</i> 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 <i>Cardellina canadensis</i> 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 <i>Chaetura pelagica</i> 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 Eagle <i>Aquila chrysaetos</i> 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/1680	Breeds elsewhere
Golden-winged Warbler <i>Vermivora chrysoptera</i> 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 <i>Ammodramus savannarum perpallidus</i> 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

NAME	BREEDING SEASON
Henslow's Sparrow <i>Centronyx henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Le Conte's Sparrow <i>Ammospiza leconteii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9469	Breeds Jun 1 to Aug 15
Lesser Yellowlegs <i>Tringa flavipes</i> 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
Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Marbled Godwit <i>Limosa fedoa</i> 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 <i>Calidris melanotos</i> 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
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Ruddy Turnstone <i>Arenaria interpres morinella</i> 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 <i>Euphagus carolinus</i> 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 <i>Calidris pusilla</i> 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

NAME	BREEDING SEASON
Short-billed Dowitcher <i>Limnodromus griseus</i> 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 <i>aechmophorus occidentalis</i> 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 <i>Hylocichla mustelina</i> 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 (|)

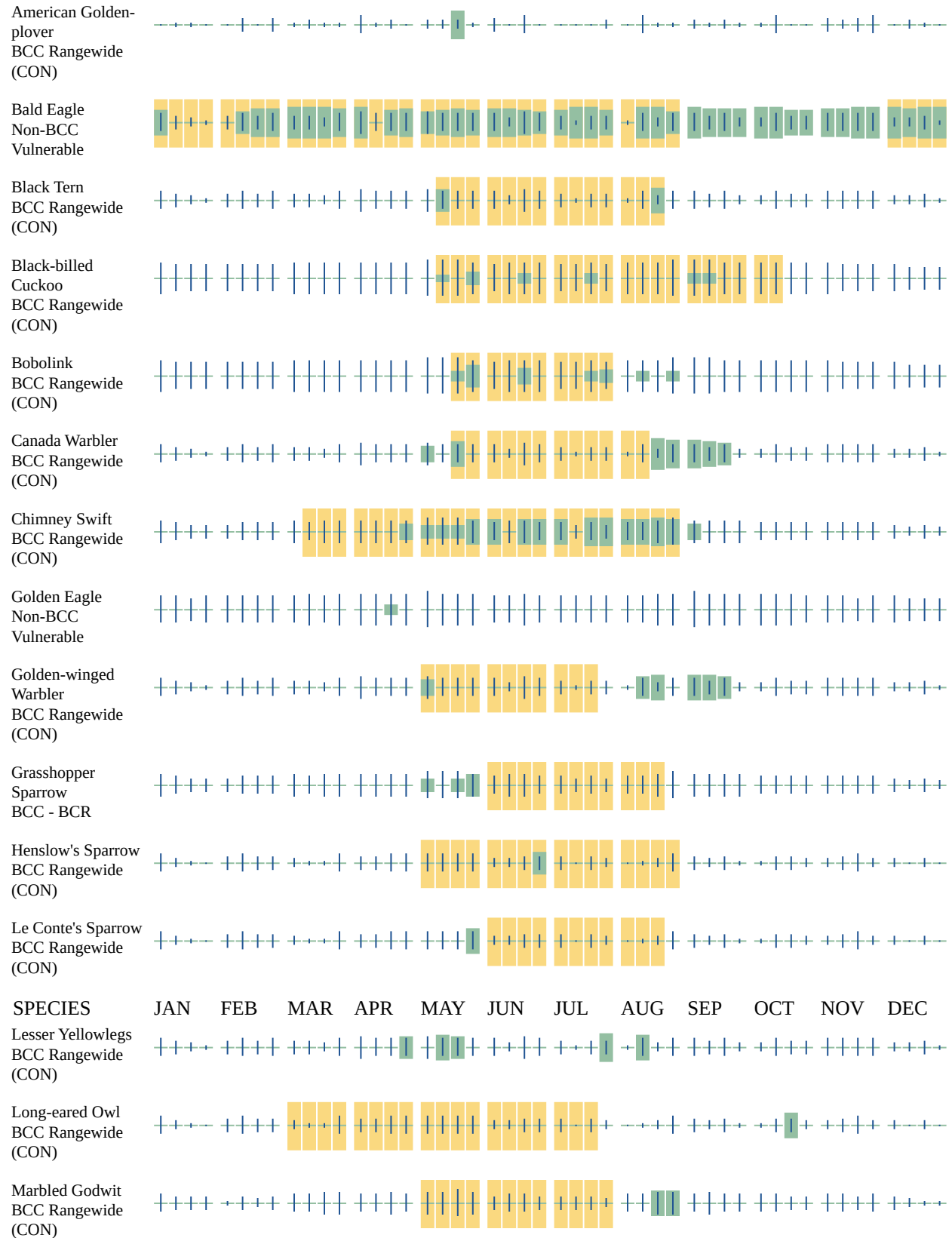
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

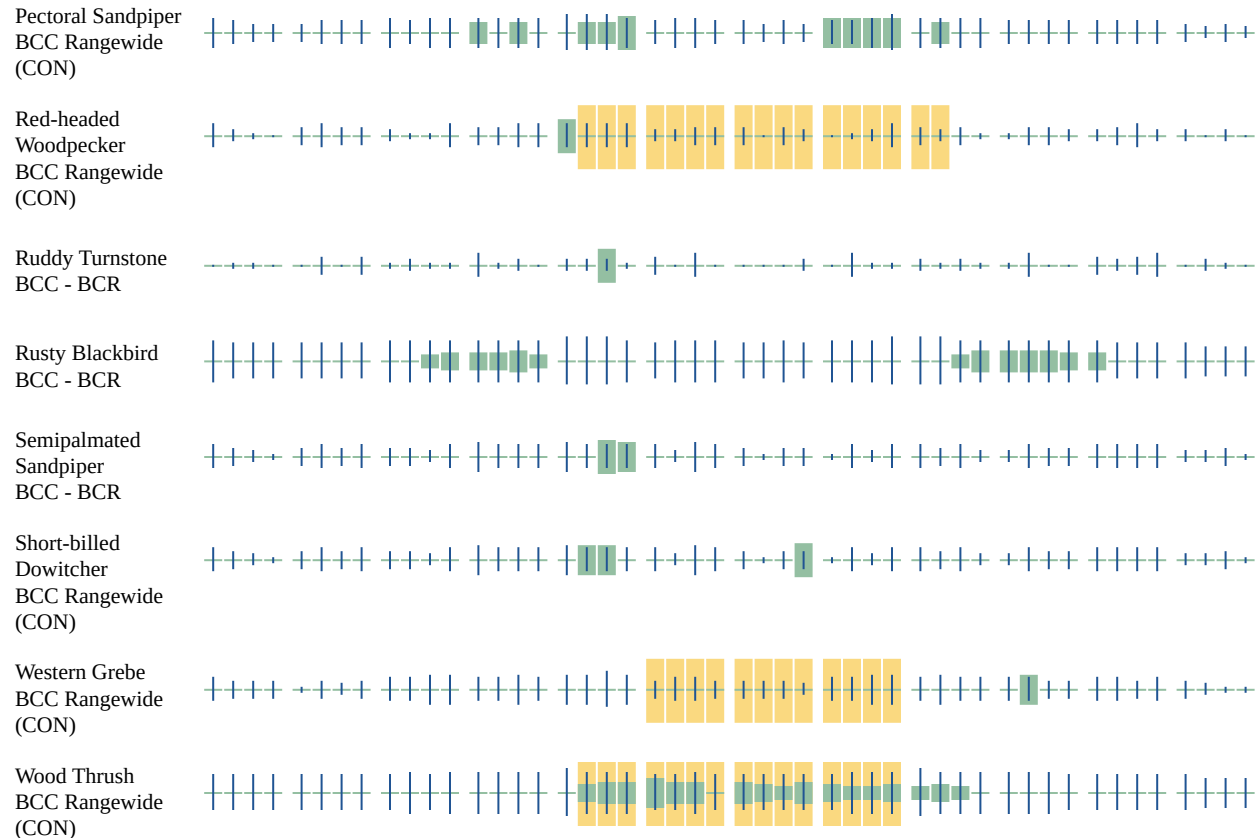
No Data (—)

A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort — no data

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC





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 EMERGENT WETLAND

- PEM1Af
- PEM1Fx
- PEM1Cx
- PEM1C
- PEM1Cd
- PEM1A
- PEM1F
- PEM1Ad

LAKE

- L1UBH
- L2UBH
- L2ABH

FRESHWATER POND

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

RIVERINE

- R4SBC
- R5UBH
- R2UBH
- R2UBFx
- R5UBFx

FRESHWATER FORESTED/SHRUB WETLAND

- PFO2Dg
- PSS1C
- PFO1/EM1A
- PFO1A
- PSS1/EM1C
- PFO1Ad
- PSS1A
- PFO1/SS1C
- PSS1/EM1Cd

- PSS3Dg
- PSS1/EM1A

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Chaldelia Browne
Address: 701 Xenia Ave S
Address Line 2: Unit 300
City: Golden Valley
State: MN
Zip: 55416
Email: cbrowne@wsbeng.com
Phone: 6123942395



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: I-35E Corridor AUAR Update

Project Proposer: City of Lino Lakes

Project Type: Development, Mixed Use

Project Type Activities: Other

TRS: T31 R22 S1, T31 R22 S10, T31 R22 S11, T31 R22 S12, T31 R22 S13, T31 R22 S14, T31 R22 S15, T31 R22 S2, T31 R22 S23, T31 R22 S24, T31 R22 S25, T31 R22 S26 +

County(s): Anoka

DNR Admin Region(s): Central

Reason Requested: State EAW, Other

Project Description: This is an AUAR update that is evaluating different urban redevelopment scenarios.

Existing Land Uses: The existing land use includes developed areas, agricultural, wooded, wetlands, lakes, highways.

Landcover / Habitat Impacted: Any development would most likely occur in upland areas.

Waterbodies Affected: Waterbodies within the study area include: Centerville, George Watch, Peltier, Rondeau, Rice and wetland areas. Treated stormwater may be directed to these waterbodies as development occurs.

Groundwater Resources Affected: Future wells may be installed to provided public drinking water as developments occur.

Previous Natural Heritage Review: Yes, ERDB#: 20150232

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	No Comments	No Further Review Required
Ecologically Significant Area	Comments	Potential RNC under WCA MBS Sites - Recommendations NPCs - Recommendations
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	Visit IPaC for Federal Review RPBB High Potential Zone



February 3, 2025

Project Name: I-35E Corridor AUAR Update

Project Proposer: City of Lino Lakes

Project Type: Development, Mixed Use

Project ID: MCE #2025-00105

AUTOMATED RESULTS: FURTHER REVIEW IS NEEDED

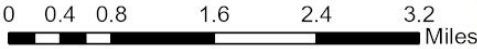
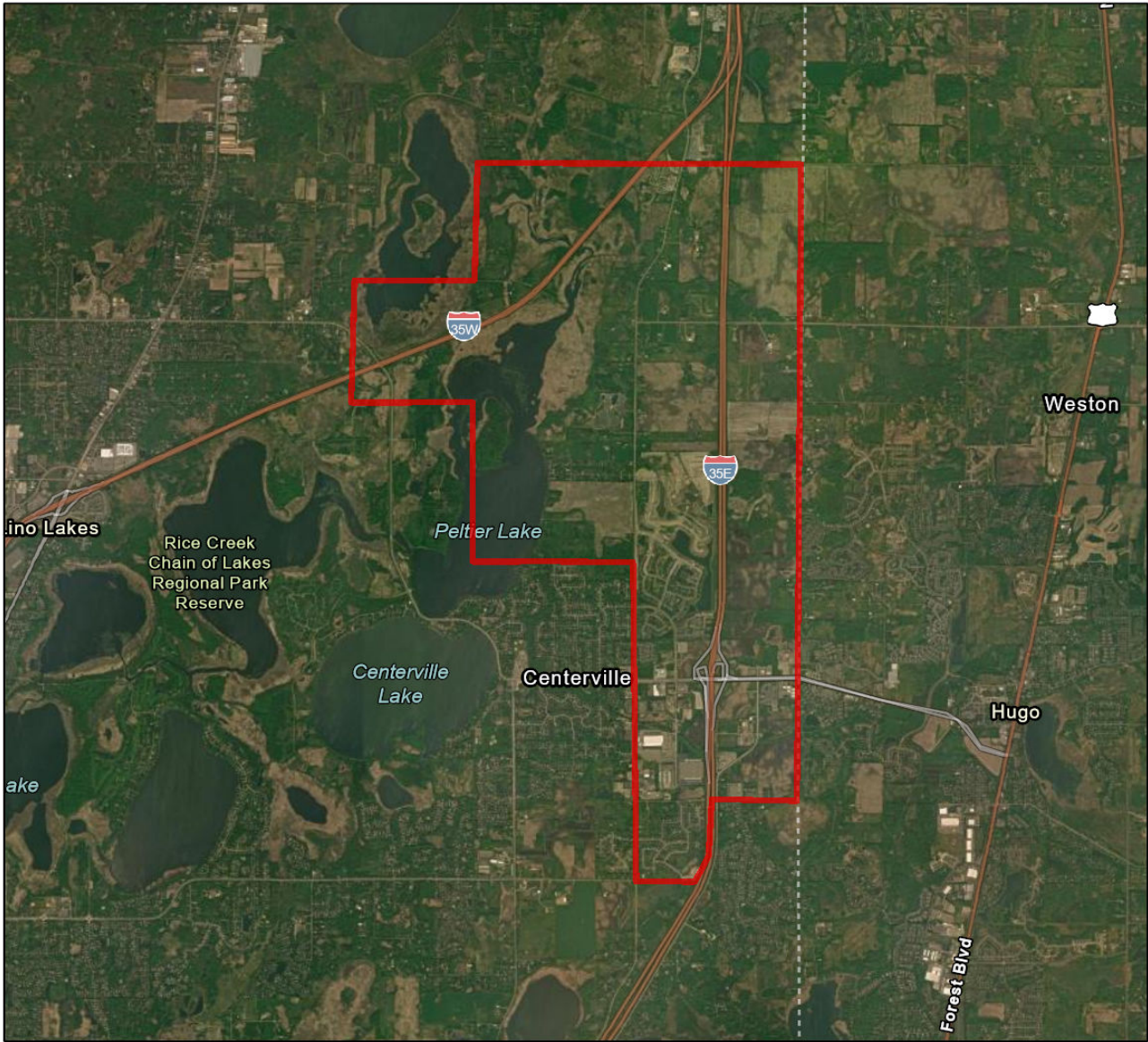
As requested, the above project has undergone an automated review for potential impacts to rare features. Based on this review, one or more rare features may be impacted by the proposed project and further review by the Natural Heritage Review Team is needed. You will receive a separate notification 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.

I-35E Corridor AUAR Update

Aerial Imagery With Locator Map



 Project Boundary

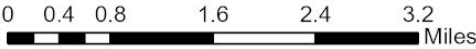
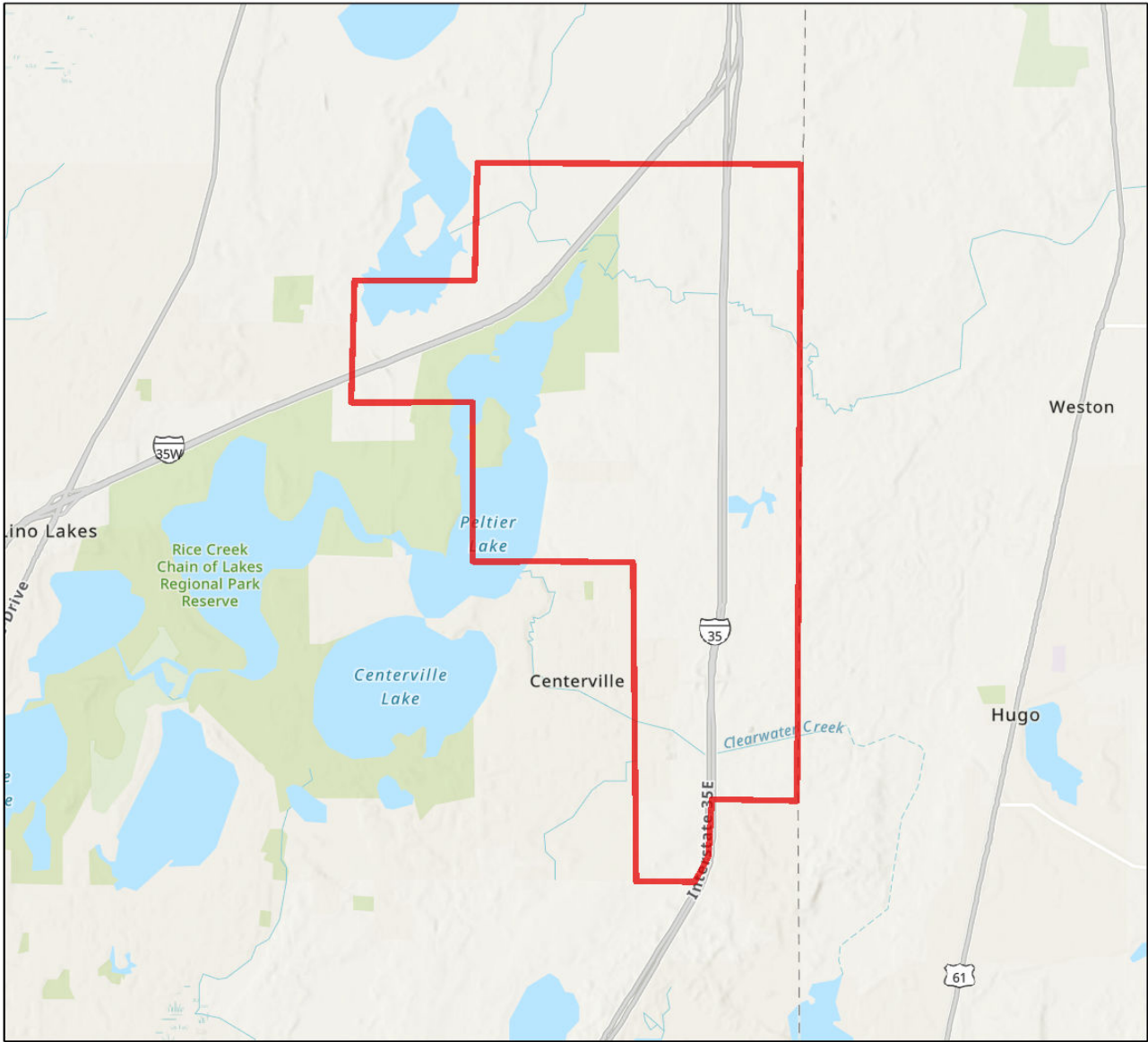
Project Type: Development, Mixed Use
Project Size (acres): 4,669.93
County(s): Anoka
TRS: T31 R22 S1, T31 R22 S10, T31 R22 S11, T31 R22 S12, T31 R22 S13 +

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



I-35E Corridor AUAR Update

USA Topo Basemap With Locator Map



 Project Boundary

Project Type: Development, Mixed Use

Project Size (acres): 4,669.93

County(s): Anoka

TRS: T31 R22 S1, T31 R22 S10, T31 R22 S11, T31 R22 S12, T31 R22 S13 +

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



Appendix I
SHPO Information

HISTORY/ARCHITECTURE INVENTORY
COUNTY CITYTWP
Anoka

Centerville

PROPNAME

ADDRESS

TOWNSHIP RANGE SECTION QUARTER USGS

REPORTNUM NRHP CEF DOE INVENTNUM

house

7238 Main St.

31

22

14 SW-SW

Centerville

AN-2005-1H

AN-CVC-009

house

1695 Sorel Rd.

31

22

22 SW-NW

Centerville

AN-2005-1H

AN-CVC-035

Lino Lakes

Bridge 9830

CSAH 14 over I35 W 2.2 miles NE of Junction TH49

31

22

10 SE-NW

Centerville

AN-LKC-009

Bridge 02802

CR 140 over I 35E 1.5 miles S of Junction TH 35W

31

22

12 NE-NW

Centerville

AN-LKC-011

ARCHAEOLOGICAL SITE LOCATIONS

COUNTY	SITENUM	SITENAME	TOWNSHIP	RANGE	SECTION	XQUARTERS	ACRES	WORKTYPE	DESCRIPT	TRADITION	CONTEXT	ReportNum	Natreg	CEF	DOE
Anoka	21AN0003		31	22	11	C-S-S SE-NE-NW-SE,SE-NE-	6 2		EW, AS	W-1	Ps-2, SO-2	AN-01-11			
	21AN0037	Paul	31	22	10	SW-NE	16 1		AS	W-1					
	21AN0038	Hensel	31	22	22	NA-NW	80 1,2		AS	W-1,PL-2	MW-1, LW-2,PI-2	AN-16-13			
	21AN0039	Wards Lake	31	22	22	W-NW-SW	26 2,1		AS	W-1					
	21AN0040	Cartier	31	22	10	SW-SE-SE	60 1		AS	A-2, W-1	AL-2, HR-1, LW-2	AN-02-03			
	21AN0041		31	22	10	N-S-SW	25 1		AS	W-1	RA-1				
			31	22	10	SE-NW-SW	25 1		AS	W-1	RA-1				
			31	22	10	SW-NE-SW	25 1		AS	W-1	RA-1				
	21AN0049	Dupre	31	22	14	SW-NW-SW	21 1,2		AS	PL-1,A-1,W-1	PI-1,AL-1,HR-2,SO-1,Ka-2				
		Dupre	31	22	14	NW-SW-SW	21 1,2		AS	PL-1,A-1,W-1	PI-1,AL-1,HR-2,SO-1,Ka-2				
	21AN0060	Peltier Island	31	22	11	W-SW	50 2		AS	W-1	MW-1	AN-02-03			
	21AN0067		31	22	3	SW-SE-NE-NW	3 1		AS	A-1					
	21AN0071	(overlaps w/21AN72)	31	22	14	SE-NE-SE-NW	1 1		AS	W-2	MW-2				
	21AN0072	(overlaps w/ 21AN71)	31	22	14	NE-SE-SE-NW	1 1		AS	W-2	MW-2				
	21AN0083		31	22	2	S-NE-SW, N-SE-SW	15 1		AS	W-1					
	21AN0089		31	22	10	C-NE-NW-NW	3 1		LS	A-2					
	21AN0090		31	22	2	C-N-NW-SW	6 1		AS	W-1					
Anoka	21AN0091		31	22		S-NW-NE-NW, N-SW-2 NE-NW	5 1		AS	W-1, O-2					
	21AN0095		31	22	2	SE-SE; E-NW-NE-NE	24 1		AS	W-1	LW-1				
			31	22	11		24 1		AS	W-1	LW-1				
	21AN0128		31	22	22	NE-SE-SW-SW	0.5 1		LS						
	21AN0132	Iverson III	31	22	12	NE-NE	0 5		LS						
	21AN0143		31	22	14	SW-SE-SW	2.4 1		AS,LS	A-3,W-1		AN-97-02			
	21AN0166		31	22	22	NW-SW-SW-SW	1 1		LS						
	21AN0168	Paul Farm (east)	31	22	10	SW-SE	19 1		AS	W-1	RA-1				
	21AN0174	Old Willow	31	22	1	SW-SW-NW-SW	0.1 1		LS						
	21ANd		31	22	14	C-SW	5		LS						

Appendix J
Greenhouse Gas (GHG) Emission Memo

Final Technical Memorandum

To: Michael Grochala, City of Lino Lakes

From: Tim Paquin, WSB

Date: April 28, 2025

Re: Greenhouse Gas (GHG) Emission/Carbon Footprint– I-35 Corridor AUAR
City of Lino Lakes, Minnesota
WSB Project No. 027919-000

INTRODUCTION

The original Alternative Urban Areawide Review (AUAR) was completed and approved in September 2005. The AUAR analyzed the stormwater impacts of the three development scenarios. Based on the analysis, a Mitigation Plan was developed.

AUAR updates are required every five years from the original date of the approved AUAR. Updates were prepared in 2010, 2015, and 2020. Each assumed no change in the proposed development land use scenarios and included discussion of mitigation improvements that had been completed at the time. Since the 2020 update, the City has adopted its 2040 Comprehensive Plan. This AUAR Update reviews two scenarios.

The information and analysis outlined within this memo is intended to complete a portion of the AUAR Update related to Item # 17.a. and 17.b. – Greenhouse Gas Emission/Carbon Footprint related to revising of the two scenarios. This memo is intended to update the climate analysis provided in the original AUAR where applicable.

GREENHOUSE GAS (GHG) EMISSION/CARBON FOOTPRINT

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 come to that conclusion and any GHG emission sources not included in the total calculation.

Analyses for GHG emissions for the study area under existing conditions, Scenario 1, and Scenario 2 were prepared; each is shown in **Appendix A**. Project-specific emission sources and references to the methods used to quantify emissions are included within the calculation tables in the appendix.

GHG Assessment

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

During this phase in site planning, plans are concept-level; exploration and development of potential mitigation practices is dependent on further development planning and design. Proposed land use change scenarios increase housing density and availability of shops and live-work units. The existing 35 E Park and Ride within the area can accommodate increased density and encourage non-vehicle travel which would reduce

GHG emissions. The following are potential design strategies and sustainability measures that could be considered for the proposed development to reduce emissions:

- Use energy efficient appliances, equipment, and lighting,
- Energy efficient building shells,
- Implement waste best management practices; recycle and compost appropriate material when applicable,
- On-site native landscaping to reduce potable water and pesticide use, along with the inclusion of trees and tree trenches to improve local air quality, absorb greenhouse gas emissions, and reduce local urban heat island effect,
- Provide on-site electric vehicle charging infrastructure,
- On-site solar PV installations,
- Purchase of off-site carbon sequestration credits,
- Grid-based wind and solar power purchases,
- Other actions

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

This level of detail is not known due to the high-level nature of this analysis and uncertainty of any specific future development.

Both Scenarios 1 and 2 significantly increase density of all uses.
Table 1 shows a summary of proposed land use changes.

Table 1 - Development Scenarios for GHG Analysis

	Existing (2024)		Scenario 1 (2040)		Scenario 2 (2040)	
Land Use	<i>Res Units</i>	<i>Area (sqft)</i>	<i>Res Units</i>	<i>Area (sqft)</i>	<i>Res Units</i>	<i>Area (sqft)</i>
Commercial	-	93,748	-	5,084,819	-	5,306,914
Residential	1,764	2,116,800	4,888	5,865,600	7,403	8,883,600
Industrial	-	583,000	-	12,817,289	-	10,053,499

Compared to existing conditions, Scenario 1 proposes a 17,225,360 sq ft increase in commercial *and* industrial use area, and Scenario 2 proposes a 14,683,665 sq ft increase in commercial *and* industrial use area compared to existing commercial and industrial use. Compared to existing uses, Scenario 1 proposes a 3,124-unit increase to residential units in the project area (3,748,800 sq ft increase) and Scenario 2 proposes a 5,639-unit increase (6,766,800 sq ft increase).

It is understood that mixed-use zones (allowing retail and commercial establishments near housing) allow people to drive less and thus emit less greenhouse gases. Reductions from other potential voluntary mitigation measures could also contribute to reducing overall GHG emissions. In addition to these proposed mitigation efforts, the project may consider additional strategies as it continues to move through the design process.

In both Scenarios, increasing residential density may improve ridership and service among the transit route that serve this area. Additionally, in each Scenario, it is assumed that improved trail and sidewalk connections to the surrounding network will be provided. Each Scenario's potential impact on transportation and reduction to single-occupancy vehicle travel is not accounted for in the emissions analysis above.

Existing and proposed future sustainability or climate-related City/County programs and greenhouse gas reduction strategies were not explicitly incorporated within the modeling methods; however, incorporating greenhouse gas mitigation measures such as those mentioned above may further reduce greenhouse gas emissions beyond what is provided in the Scenario estimates.

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

Minnesota's Next Generation Energy Act requires the state to reduce greenhouse gas emissions in the state by 80% between 2005 and 2050, while supporting clean energy, energy efficiency, and supplementing other renewable energy standards in Minnesota. Within the city's 2040 Comprehensive Plan, among the sustainable energy action items, it is identified that the city aims to:

- Protect access to direct sunlight for solar energy systems on principal structures,
- Encourage future sites and building plans to maximize efforts to design for efficient use of solar energy including such elements as the location of windows, shade trees (and types), windows, and driveways,
- Use where possible solar energy design elements for future public facilities and infrastructure development, and
- Encourage and support educational programs and research that focuses on alternative or renewable energy systems

Methods for modeling air emissions were completed in accordance with EAW (Environmental Assessment Worksheet) standards. The expected lifespan of the project is 50 years. The project's predicted net GHG emissions over the project's lifespan (compared to existing conditions) are estimated at 184,790 CO₂e metric tons per year for Scenario 1 or 213,938 CO₂e metric tons per year for Scenario 2. **Error! Reference source not found.** presents a summary of modeled emissions for existing and proposed development Scenarios.

Table 2 – GHG Emissions Summary

	Total Emissions (tonnes/yr)	Net Total Emissions (tonnes/yr)	Building Area (sqft)	Total Emissions per Building Area (kg/yr/sqft)
Existing	89,843	-	2,793,548	6.0
Scenario 1	184,790	94,947	23,767,708	7.8
Scenario 2	213,938	124,095	24,244,013	7.9

The proposed Scenarios will significantly increase housing, commercial, and industrial uses within the project area.

Developments within each Scenario could also implement any applicable state or local GHG goals as determined by the City or project proposers. The proposer may explore additional sustainability measures such as the examples listed above to reduce operational emissions to the extent practicable. The proposed project will be built in compliance with state regulations and city building codes.

Appendix A: GHG Analysis Results

Existing Greenhouse Gas Emissions, 35e AUAR - Existing
Project Components

Use	Size (sq ft)	Units
Uses:		
Commercial	93,748	
Residential:		1,764
Residential Building	2,116,800	
Average sq. ft. per unit	1,200	
Industrial	583,000	

Existing Greenhouse Gas Emissions, 35e AUAR - Existing

Emission Source	Scope*	Data Source Notes**	Amount	Units	Site Energy Use Index (kBtu/sq. ft.) ³	Emission Factors	GHG (tonnes)	GHG (kg/sq. ft.)	Percent of Total GHG
Uses and project average daily vehicle miles traveled (ADVMT):									
Operational emissions, mobile equipment, after project is operational	1	2	329,273	ADVMT		0.44	53,091	19.00	59%
Combustion, stationary equipment, natural gas (therms/sq. ft./yr.):	1			therms					
Commercial		3	93,748	sq. ft.	20.3	0.20	101	1.08	
Dwelling units (1764 units)		3	2,116,800	sq. ft.	48.4	0.48	5,436	2.57	
Industrial		3	583,000	sq. ft.	13.8	0.14	426	0.73	
Subtotal			2,793,548	sq. ft.			5,964	2.13	7%
Combustion area (diesel, back-up generators, GHG kg/gal.)	1	1 & 2	1,774	gallons		10.74	19		0.0%
Off-site electricity, Xcel 2021 (GHG kg/sq. ft.)	2			kWh					
Commercial		3	93,748	sq. ft.	35.3	10.35	278	2.96	
Dwelling units (1764 units)		3	2,116,800	sq. ft.	25.9	7.59	4,605	2.18	
Industrial		3	12,817,289	sq. ft.	19.6	5.75	21,100	1.65	
Subtotal			15,027,837	sq. ft.			25,983	1.73	29%
Off-site waste management	3	2	19,332	tons of waste			4,787	0.37	5%
Total emissions (tonnes)							89,843	6.0	100%

***Scope:**

For an explanation of Emissions scopes, please reference the following:

- Scope 1: "Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles)." (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 2: "Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling." (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 3: "Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary. The scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization. Scope 3 emissions, also referred to as value chain emissions, often represent the majority of an organization's total GHG emissions." (EPA: <https://www.epa.gov/climateleadership/scope-3-inventory-guidance>)

** Data Source Notes:

- 1 EPA Simplified GHG Emissions Calculator ("the Calculator"), <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- 2 Refer to the sheet "Mobile Equipment." ADVMT = Average Daily Vehicle Miles Travelled.
- 3 Source (Zip Code: 55304): US EPA Energy Star Portfolio Manager Target Finder. Refer to Energy Finder sheet.
https://www.energystar.gov/buildings/resources_audience/service_product_providers/commercial_new_construction/target_finder

Existing Greenhouse Gas Emissions, 35e AUAR - Existing

Waste Generation

Solid Waste Generation	Data Source	Amount	Units	Emission Factor (tonnes/ton)	Waste Amounts	Waste (kg per sq. ft.)
New uses:						
Commercial (kg @ 0.921 kg/sq. ft./yr.)	2	93,748	sq. ft.		86,342	0.9
Dwelling units (kg @ 228 kg/unit/month)	3	1,764	units		4,826,304	2.3
Industrial (kg @ 0.985 kg/sq. ft./yr.)	7	12,817,289	sq. ft.		12,625,030	1.0
Subtotals		12,912,801			17,537,676	1.4
Waste (tons)					19,332	
Landfilled waste, 42% (tons) and emission factor	4, 5, 6	8,119		0.54	4,384	
Waste to energy, 4% (tons) and emission factor	4, 5, 6	773		0.52	402	
Subtotal emissions (tonnes)					4,787	

Notes:

2 Source: Table 21, "Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups , 2006. <https://www2.calrecycle.ca.gov/Publications/Details/1184>

3 Apartments: Assumes 1.5 cu. yd. of mixed trash per unit per month. Source: https://www.wastecare.com/usefulinfo/Waste_Generated_by_Industry_Cubic_Yards.htm. At 335 lbs. per cubic yard and 2.2 pounds per kg, the average is about 228 kg per month. Source: <https://www.solidwaste.com/doc/bolton-on-landfill-management-converting-cubi-0001>

4 Source: "2021 SCORE REPORT," Anoka County 2020 and 2021 average waste generation, MPCA Data Services, <https://data.pca.state.mn.us/#/views/SCOREreport2021/2021SCOREreport?%3Aembed=y&%3AisGuestRedirectFromVizportal=y>

5 Source for emission factor for landfilled waste: "Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM), Organic Materials Chapters," Exhibit 1-10, U.S. Environmental Protection Agency Office of Resource Conservation and Recovery, February 2016. <https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-energy-and-economic-factors-used-waste>

6 Source for emissions from the Hennepin Energy Recovery Center: <https://www.pca.state.mn.us/air/permitted-facility-air-emissions-data>. Source for tons processed by the HERC: <https://www.pca.state.mn.us/waste/report-2019-score-programs>

7 Industrial assumes industrial facilities generate approximately 0.006 pounds of waste/sq. ft./day. Source: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates?utm_source=chatgpt.com

Existing Greenhouse Gas Emissions, 35e AUAR - Existing Backup Generator Fuel Consumption

Building	Size	Generator Size (kW) ¹	Diesel Consumption (gal.) ²	GHG (kg)
Non-Residential Land Uses (sq. ft.)	93,748	519	11	120
Residential Building (sqft)	2,116,800	10,634	1,378	14,796
Industrial (sq. ft.)	583,000	2,965	384	4,125
Total			1,774	19,041

Notes:

- 1 Backup generator: Assume 50 kW + 5 W per sq. ft. (source: <https://woodstockpower.com/blog/how-to-size-a-generator-for-commercial-building/>).
- 2 Diesel consumption per hour from chart below. Monthly testing for 30 minutes (source: <https://www.health.state.mn.us/facilities/regulation/engineering/docs/lscgensets.pdf>)

Generator Size	1/4 Load (gal/hr)	1/2 Load (gal/hr)	3/4 Load (gal/hr)	Full Load (gal/hr)
20	0.6	0.9	1.3	1.6
30	1.3	1.8	2.4	2.9
40	1.6	2.3	3.2	4.0
60	1.8	2.9	3.8	4.8
75	2.4	3.4	4.6	6.1
100	2.6	4.1	5.8	7.4
125	3.1	5.0	7.1	9.1
135	3.3	5.4	7.6	9.8
150	3.6	5.9	8.4	10.9
175	4.1	6.8	9.7	12.1
200	4.7	7.7	11.0	14.4
230	5.3	8.8	12.5	16.6
250	5.7	9.5	13.6	18.0
300	6.8	11.3	16.1	21.5
350	7.9	13.1	18.7	25.1
400	8.9	14.9	21.3	28.6
500	11.0	18.5	26.4	35.7
600	13.2	22.0	31.5	42.8
750	16.3	27.4	39.3	53.4
1000	21.6	36.4	52.1	71.1
1250	26.9	45.3	65.0	88.8
1500	32.2	54.3	77.8	106.5
1750	37.5	63.2	90.7	124.2
2000	42.8	72.2	103.5	141.9
2250	48.1	81.1	116.4	159.6

Source: <https://www.uspeglobal.com/pages/resources>

Existing Greenhouse Gas Emissions, 35e AUAR - Existing

Average daily vehicle miles traveled (ADVMT) in the vicinity of the site

Category	ADVMT	GHG (kg)
Current ADVMT	329,273	53,090,648
Notes:		

Greenhouse Gas Emissions, 35e AUAR - SCENARIO 1

Project Components

Use	Size (sq ft)	Units
Uses:		
Commercial	5,084,819	
Residential:		4,888
Residential Building	5,865,600	
Average sq. ft. per unit	1,200	
Industrial	12,817,289	

Greenhouse Gas Emissions, 35e AUAR - SCENARIO 1

Emission Source	Scope*	Data Source Notes**	Amount	Units	Site Energy Use Index (kBtu/sq. ft.) ³	Emission Factors	GHG (tonnes)	GHG (kg/sq. ft.)	Percent of Total GHG
Uses and project average daily vehicle miles traveled (ADVMT):									
Operational emissions, mobile equipment, after project is operational	1	2	604,307	ADVMT		0.44	97,436	4.10	53%
Combustion, stationary equipment, natural gas (therms/sq. ft./yr.):	1			therms					
Commercial		3	5,084,819	sq. ft.	20.3	0.20	5,471	1.08	
Dwelling units (4888 units)		3	5,865,600	sq. ft.	48.4	0.48	15,064	2.57	
Industrial		3	12,817,289	sq. ft.	13.8	0.14	9,374	0.73	
Subtotal			23,767,708	sq. ft.			29,910	1.26	16%
Combustion area (diesel, back-up generators, GHG kg/gal.)	1	1 & 2	12,670	gallons		10.74	136		0.1%
Off-site electricity, Xcel 2021 (GHG kg/sq. ft.)	2			kWh					
Commercial		3	5,084,819	sq. ft.	35.3	10.35	15,074	2.96	
Dwelling units (4888 units)		3	5,865,600	sq. ft.	25.9	7.59	12,760	2.18	
Industrial		3	12,817,289	sq. ft.	19.6	5.75	21,100	1.65	
Subtotal			23,767,708	sq. ft.			48,934	2.06	26%
Off-site waste management	3	2	33,820	tons of waste			8,374	0.47	5%
Total emissions (tonnes)							184,790	7.8	100%

*Scope:

For an explanation of Emissions scopes, please reference the following:

- Scope 1: “Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles).” (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 2: “Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.” (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 3: “Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain. Scope 3 emissions include all sources not within an organization’s scope 1 and 2 boundary. The scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization. Scope 3 emissions, also referred to as value chain emissions, often represent the majority of an organization’s total GHG emissions.” (EPA: <https://www.epa.gov/climateleadership/scope-3-inventory-guidance>)

** Data Source Notes:

- 1
- EPA Simplified GHG Emissions Calculator ("the Calculator"), <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- 2
- Refer to the sheet "Mobile Equipment." ADVMT = Average Daily Vehicle Miles Travelled.
- 3
- Source (Zip Code: 55304): US EPA Energy Star Portfolio Manager Target Finder. Refer to Energy Finder sheet.
https://www.energystar.gov/buildings/resources_audience/service_product_providers/commercial_new_construction/target_finder

Greenhouse Gas Emissions, 35e AUAR - SCENARIO 1

Waste Generation

Solid Waste Generation	Data Source	Amount	Units	Emission Factor (tonnes/ton)	Waste Amounts	Waste (kg per sq. ft.)
New uses:						
Commercial (kg @ 0.921 kg/sq. ft./yr.)	2	5,084,819	sq. ft.		4,683,118	0.9
Dwelling units (kg @ 228 kg/unit/month)	3	4,888	units		13,373,568	2.3
Industrial (kg @ 0.985 kg/sq. ft./yr.)	7	12,817,289	sq. ft.		12,625,030	1.0
Subtotals		17,906,996			30,681,716	1.7
Waste (tons)					33,820	
Landfilled waste, 42% (tons) and emission factor	4, 5, 6	14,205		0.54	7,670	
Waste to energy, 4% (tons) and emission factor	4, 5, 6	1,353		0.52	703	
Subtotal emissions (tonnes)					8,374	

Notes:

2 Source: Table 21, "Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups , 2006. <https://www2.calrecycle.ca.gov/Publications/Details/1184>

3 Apartments: Assumes 1.5 cu. yd. of mixed trash per unit per month. Source: https://www.wastecare.com/usefulinfo/Waste_Generated_by_Industry_Cubic_Yards.htm. At 335 lbs. per cubic yard and 2.2 pounds per kg, the average is about 228 kg per month. Source: <https://www.solidwaste.com/doc/bolton-on-landfill-management-converting-cubi-0001>

4 Source: "2021 SCORE REPORT," Anoka County 2020 and 2021 average waste generation, MPCA Data Services, <https://data.pca.state.mn.us/#/views/SCOREreport2021/2021SCOREreport?%3Aembed=y&%3AisGuestRedirectFromVizportal=y>

5 Source for emission factor for landfilled waste: "Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM), Organic Materials Chapters," Exhibit 1-10, U.S. Environmental Protection Agency Office of Resource Conservation and Recovery, February 2016. <https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-energy-and-economic-factors-used-waste>

6 Source for emissions from the Hennepin Energy Recovery Center: <https://www.pca.state.mn.us/air/permitted-facility-air-emissions-data>. Source for tons processed by the HERC: <https://www.pca.state.mn.us/waste/report-2019-score-programs>

7 Industrial assumes industrial facilities generate approximately 0.006 pounds of waste/sq. ft./day. Source: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates?utm_source=chatgpt.com

Greenhouse Gas Emissions, 35e AUAR - SCENARIO 1

Backup Generator Fuel Consumption

Building	Size	Generator Size (kW) ¹	Diesel Consumption (gal.) ²	GHG (kg)
Non-Residential Land Uses (sq. ft.)	5,084,819	25,474	550	5,907
Residential Building (sqft)	5,865,600	29,378	3,807	40,875
Industrial (sq. ft.)	12,817,289	64,136	8,312	89,236
Total			12,670	136,018

Notes:

- 1 Backup generator: Assume 50 kW + 5 W per sq. ft. (source: <https://woodstockpower.com/blog/how-to-size-a-generator-for-commercial-building/>).
- 2 Diesel consumption per hour from chart below. Monthly testing for 30 minutes (source: <https://www.health.state.mn.us/facilities/regulation/engineering/docs/lscgensets.pdf>)

Generator Size	1/4 Load (gal/hr)	1/2 Load (gal/hr)	3/4 Load (gal/hr)	Full Load (gal/hr)
20	0.6	0.9	1.3	1.6
30	1.3	1.8	2.4	2.9
40	1.6	2.3	3.2	4.0
60	1.8	2.9	3.8	4.8
75	2.4	3.4	4.6	6.1
100	2.6	4.1	5.8	7.4
125	3.1	5.0	7.1	9.1
135	3.3	5.4	7.6	9.8
150	3.6	5.9	8.4	10.9
175	4.1	6.8	9.7	12.1
200	4.7	7.7	11.0	14.4
230	5.3	8.8	12.5	16.6
250	5.7	9.5	13.6	18.0
300	6.8	11.3	16.1	21.5
350	7.9	13.1	18.7	25.1
400	8.9	14.9	21.3	28.6
500	11.0	18.5	26.4	35.7
600	13.2	22.0	31.5	42.8
750	16.3	27.4	39.3	53.4
1000	21.6	36.4	52.1	71.1
1250	26.9	45.3	65.0	88.8
1500	32.2	54.3	77.8	106.5
1750	37.5	63.2	90.7	124.2
2000	42.8	72.2	103.5	141.9
2250	48.1	81.1	116.4	159.6

Source: <https://www.uspeglobal.com/pages/resources>

Greenhouse Gas Emissions, 35e AUAR - SCENARIO 1

Average daily vehicle miles traveled (ADVMT) in the vicinity of the site

Category	ADVMT	GHG (kg)
Current ADVMT	604,307	97,436,019
Notes:		

Greenhouse Gas Emissions, 35e AUAR - Scenario 2

Emission Source	Scope*	Data Source Notes**	Amount	Units	Site Energy Use Index (kBtu/sq. ft.) ³	Emission Factors	GHG (tonnes)	GHG (kg/sq. ft.)	Percent of Total GHG
Uses and project average daily vehicle miles traveled (ADVMT):									
Operational emissions, mobile equipment, after project is operational	1	2	686,884	ADVMT		0.44	110,750	4.57	52%
Combustion, stationary equipment, natural gas (therms/sq. ft./yr.):	1			therms					
Commercial		3	5,306,914	sq. ft.	20.3	0.20	5,710	1.08	
Dwelling units (7403 units)		3	8,883,600	sq. ft.	48.4	0.48	22,815	2.57	
Industrial		3	10,053,499	sq. ft.	14.5	0.14	7,727	0.77	
Subtotal			24,244,013	sq. ft.			36,253	1.50	17%
Combustion area (diesel, back-up generators, GHG kg/gal.)	1	1 & 2	12,858	gallons		10.74	138		0.1%
Off-site electricity, Xcel 2021 (GHG kg/sq. ft.)	2			kWh					
Commercial		3	5,306,914	sq. ft.	35.3	10.35	15,732	2.96	
Dwelling units (7403 units)		3	8,883,600	sq. ft.	25.9	7.59	19,326	2.18	
Industrial		3	12,817,289	sq. ft.	20.6	6.04	22,174	1.73	
Subtotal			27,007,803	sq. ft.			57,232	2.12	27%
Off-site waste management	3	2	38,630	tons of waste			9,565	0.62	4%
Total emissions (tonnes)							213,938	7.9	100%

*Scope:

For an explanation of Emissions scopes, please reference the following:

- Scope 1: "Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles)." (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 2: "Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling." (EPA, <http://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)
- Scope 3: "Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary. The scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization. Scope 3 emissions, also referred to as value chain emissions, often represent the majority of an organization's total GHG emissions." (EPA: <https://www.epa.gov/climateleadership/scope-3-inventory-guidance>)

** Data Source Notes:

- 1 EPA Simplified GHG Emissions Calculator ("the Calculator"), <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- 2 Refer to the sheet "Mobile Equipment." ADVMT = Average Daily Vehicle Miles Travelled.
- 3 Source (Zip Code: 55304): US EPA Energy Star Portfolio Manager Target Finder. Refer to Energy Finder sheet.
https://www.energystar.gov/buildings/resources_audience/service_product_providers/commercial_new_construction/target_finder

Greenhouse Gas Emissions, 35e AUAR - Scenario 2

Waste Generation

Solid Waste Generation	Data Source	Amount	Units	Emission Factor (tonnes/ton)	Waste Amounts	Waste (kg per sq. ft.)
New uses:						
Commercial (kg @ 0.921 kg/sq. ft./yr.)	2	5,306,914	sq. ft.		4,887,668	0.9
Dwelling units (kg @ 228 kg/unit/month)	3	7,403	units		20,254,608	2.3
Industrial (kg @ 0.985 kg/sq. ft./yr.)	7	10,053,499	sq. ft.		9,902,697	1.0
Subtotals		15,367,816			35,044,972	2.3
Waste (tons)					38,630	
Landfilled waste, 42% (tons) and emission factor	4, 5, 6	16,225		0.54	8,761	
Waste to energy, 4% (tons) and emission factor	4, 5, 6	1,545		0.52	804	
Subtotal emissions (tonnes)					9,565	

Notes:

- 2 Source: Table 21, "Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups , 2006. <https://www2.calrecycle.ca.gov/Publications/Details/1184>
- 3 Apartments: Assumes 1.5 cu. yd. of mixed trash per unit per month. Source: https://www.wastecare.com/usefulinfo/Waste_Generated_by_Industry_Cubic_Yards.htm. At 335 lbs. per cubic yard and 2.2 pounds per kg, the average is about 228 kg per month. Source: <https://www.solidwaste.com/doc/bolton-on-landfill-management-converting-cubi-0001>
- 4 Source: "2021 SCORE REPORT," Anoka County 2020 and 2021 average waste generation, MPCA Data Services, <https://data.pca.state.mn.us/#/views/SCOREreport2021/2021SCOREreport?%3Aembed=y&%3AisGuestRedirectFromVizportal=y>
- 5 Source for emission factor for landfilled waste: "Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM), Organic Materials Chapters," Exhibit 1-10, U.S. Environmental Protection Agency Office of Resource Conservation and Recovery, February 2016. <https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-energy-and-economic-factors-used-waste>
- 6 Source for emissions from the Hennepin Energy Recovery Center: <https://www.pca.state.mn.us/air/permitted-facility-air-emissions-data>. Source for tons processed by the HERC: <https://www.pca.state.mn.us/waste/report-2019-score-programs>
- 7 Industrial assumes industrial facilities generate approximately 0.006 pounds of waste/sq. ft./day. Source: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates?utm_source=chatgpt.com

Greenhouse Gas Emissions, 35e AUAR - Scenario 2

Backup Generator Fuel Consumption

Building	Size	Generator Size (kW) ¹	Diesel Consumption (gal.) ²	GHG (kg)
Non-Residential Land Uses (sq. ft.)	5,306,914	26,585	574	6,165
Residential Building (sqft)	8,883,600	44,468	5,763	61,870
Industrial (sq. ft.)	10,053,499	50,317	6,521	70,009
Total			12,858	138,044

Notes:

- 1 Backup generator: Assume 50 kW + 5 W per sq. ft. (source: <https://woodstockpower.com/blog/how-to-size-a-generator-for-commercial-building/>).
- 2 Diesel consumption per hour from chart below. Monthly testing for 30 minutes (source: <https://www.health.state.mn.us/facilities/regulation/engineering/docs/lscgensets.pdf>)

Generator Size	1/4 Load (gal/hr)	1/2 Load (gal/hr)	3/4 Load (gal/hr)	Full Load (gal/hr)
20	0.6	0.9	1.3	1.6
30	1.3	1.8	2.4	2.9
40	1.6	2.3	3.2	4.0
60	1.8	2.9	3.8	4.8
75	2.4	3.4	4.6	6.1
100	2.6	4.1	5.8	7.4
125	3.1	5.0	7.1	9.1
135	3.3	5.4	7.6	9.8
150	3.6	5.9	8.4	10.9
175	4.1	6.8	9.7	12.1
200	4.7	7.7	11.0	14.4
230	5.3	8.8	12.5	16.6
250	5.7	9.5	13.6	18.0
300	6.8	11.3	16.1	21.5
350	7.9	13.1	18.7	25.1
400	8.9	14.9	21.3	28.6
500	11.0	18.5	26.4	35.7
600	13.2	22.0	31.5	42.8
750	16.3	27.4	39.3	53.4
1000	21.6	36.4	52.1	71.1
1250	26.9	45.3	65.0	88.8
1500	32.2	54.3	77.8	106.5
1750	37.5	63.2	90.7	124.2
2000	42.8	72.2	103.5	141.9
2250	48.1	81.1	116.4	159.6

Source: <https://www.uspeglobal.com/pages/resources>

Greenhouse Gas Emissions, 35e AUAR - Scenario 2

Average daily vehicle miles traveled (ADVMT) in the vicinity of the site

Category	ADVMT	GHG (kg)
Current ADVMT	686,884	110,750,401

Notes:

Appendix K

Mitigation Plan

MITIGATION PLAN

The AUAR Mitigation Plan is outlined below.

ITEM 7. CLIMATE ADAPTATION AND RESILIENCE

Item No.	Mitigation Description	Update
7.1	Proposed climate smart tree plantings and landscaping will reduce runoff and mitigate urban heat island effect.	This mitigation measure is ongoing.
7.2	Design of the site and stormwater management facilities will be completed to reduce the risk of flooding in the AUAR study area.	This mitigation measure is ongoing.
7.3	Developer will consider using native plants and perennials for landscaping and stormwater features will absorb water and reduce the water demand for irrigation.	This mitigation measure is ongoing.

ITEM 8. PERMITS AND APPROVALS REQUIRED

As projects are proposed, the project proposer will be required to obtain permits and approvals. Projects proposed since the original AUAR have obtained proper approvals. Additional permits that may not be listed here may also be required.

Unit of Government	Type of Application	Status
Federal		
Army Corps of Engineers	Section 404 Permit	To be Applied for
Federal Highway Administration	Interchange Access Request	To be Applied for
State		
Minnesota Environmental Quality Board	Environmental Assessment (AUAR)	In progress
Minnesota Pollution Control Agency	Section 401 Water Quality Certificate	To be Applied for
	NPDES/SDS General Permit	To be Applied for
	Sanitary Sewer Extension Permit	To be Applied for
State Historic Preservation Office	Cultural Resources Review	To be Applied for

Unit of Government	Type of Application	Status
Minnesota Department of Transportation	Use of or Work within MnDOT right of way	To be Applied for
	Drainage Permit	To be Applied for
Minnesota Department of Natural Resources	Water Appropriations Permit	To be Applied for
	Preliminary Well Construction Assessment	To be Applied for
	Public Waters Work Permit	To be Applied for
	General Permit 97-0005 for Temporary Water Appropriations (need if more than 10,000 gpd of water is appropriated)	To be applied for, if necessary
Minnesota Department of Health	Watermain Extension Approval	To be Applied for
	Sanitary Sewer Extension Permit Approval	To be Applied for
	Well Location and Construction Approval	To be Applied for
Regional		
Rice Creek Watershed District	Erosion and Sediment Control Plan Approval	To be Applied for
	Stormwater Management Plan Approval	To be Applied for
	Wetland Delineation Boundary Confirmation	To be approved upon completion of wetland delineation
	Certificate of Wetland Exemption	To be Applied for
	Wetland Impact/Replacement Application	To be approved upon completion of wetland delineation
Metropolitan Council	Sanitary Sewer Service Connection Approval	To be Applied for
County		
Anoka County	County Roadway Access Permits	To be Applied for
	Roadway Plan Approval on County Roads	To be Applied for
Local		
City of Lino Lakes	Site Plan Approval	To be Applied for
	AUAR and Mitigation Plan Approval	Ongoing
	Planned Unit Development Approval	To be Applied for

Unit of Government	Type of Application	Status
	Preliminary Plat Approval	To be Applied for
	Final Plat (multiple) Approval	To be Applied for
	Grading, Excavation and Foundation Permits (multiple)	To be Applied for
	Building Permits (multiple)	To be Applied for
	Sanitary Sewer Connection Permit (multiple)	To be Applied for
	Municipal Water Connection Permit (multiple)	To be Applied for
	Use Permit – Floodplain District	To be Applied for
	City Roadway Access/Crossing Permits	To be Applied for
	Comprehensive Plan Amendment(s)	To be Applied for

ITEM 11. FISH, WILDLIFE, ECOLOGICALLY SENSITIVE RESOURCES

Item No.	Mitigation Description	Update
11.1	Implement the Conservation Design Framework (CDF, see Figure 10-3), which includes conservation of “Core” and “Outlier” habitat areas, 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.	This mitigation measure is ongoing.
11.2	Add the “Core” and “Outlier” habitat areas to the City’s <i>Parks, Natural Open Space/Greenways, and Trail System Plan</i> map.	This has been added to Fig 2-9 in the Comprehensive Plan.
11.3	Require public land dedication of priority natural open space areas through the subdivision process.	This mitigation measure is ongoing.
11.4	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.	This mitigation measure is ongoing.
11.5	Consider provisions for conserving “Other” habitat areas (see Figure 10-2) during the development review process.	This mitigation measure is ongoing.
11.6	Establish mechanisms for ecological restoration, management, stewardship, and education.	This mitigation measure is ongoing and implemented through the Comprehensive Wetland Protection and Management Plan.
11.7	Provide for turtle and other wildlife passage by continuing to require surmountable curbing in new residential developments and encouraging ecologically sensitive site design.	This mitigation measure is ongoing. Residential developments that have occurred within the study area have all incorporated surmountable curbs.
11.8	Consult with the DNR and/or US Fish and Wildlife Service 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.	This mitigation measure is ongoing.
11.9	Continue to enforce the Peltier Lake No-Wake Zone ordinance and establish buffers to protect the Peltier Lake Heron Rookery.	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
11.9A	The City will limit development within 300 meters of the edge of a heron colony and not allow disturbance in or near colonies from March to August.	Measure was included in original AUAR within the text.
11.10	Require rare plant surveys, by qualified personnel, prior to development in wetland areas and of areas of banded soils between muck soils and adjacent Isanti, Soderville, or Zimmerman soil map units. These surveys shall be conducted by qualified professionals at an appropriate time of year to identify the rare plants.	This mitigation measure is ongoing.
11.11	Encourage ecologically sensitive design and construction practices for the proposed northerly bypass that would connect I-35W and I-35E.	This mitigation measure is ongoing.
11.12	Implement the Conservation Design Framework (CDF) of the AUAR (Figure 10-3 and 10-2). The CDF includes consideration of: • Conservation of the most ecologically significant natural resources within the AUAR area (in particular, the “Core” and “Outlier” habitats as shown in Figure 10-2 of the original AUAR). • Protection of ecologically significant natural resources from adjacent land uses by implementing buffering. • Connection of ecologically significant natural resources via multi-functional greenway corridors.	Measure was included in original AUAR within the text.

ITEM 12. WATER RESOURCES: WETLANDS

Item No.	Mitigation Description	Update
12.1	Delineate wetlands in accordance with the 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.	This mitigation measure is ongoing.
12.2	Follow sequencing process of wetland avoidance, minimization, rectification, and mitigation as outlined in the Wetland Conservation Act (WCA) if wetlands area altered.	This mitigation measure is ongoing.
12.3	Apply for applicable wetland permits to obtain authorization for wetland alterations under WCA and Section 404 prior to project construction if development activities will impact a jurisdictional wetland.	This mitigation measure is ongoing.
12.4	Mitigate areas of wetland impacts according to the requirements of the Wetland Conservation Act, US Army Corps of Engineers and the Minnesota Department of Natural Resources as applicable	This mitigation measure is ongoing.
12.5	Submit wetland permit applications and replacement plans, as appropriate, to the Minnesota Board of Water and Soil Resources, Rice Creek Watershed District, and the City of Lino Lakes.	This mitigation measure is ongoing.
12.6	Follow the requirements for wetland alterations delineated by the Rice Creek Watershed District (RCWD).	This mitigation measure is ongoing.
12.7	Minimize or avoid totally any filling of public waters through careful design.	This mitigation measure is ongoing.

ITEM 13. WATER USE

Item No.	Mitigation Description	Update
13.1	Monitor water usage and do not permit new development to proceed if it exceeds the capacity of the water supply and distribution system.	This mitigation measure is ongoing.
13.2	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 Supply Plan.	This mitigation measure is ongoing.
13.3	As necessary, amend the City's Comprehensive Water Supply Plan and Capital Improvement Plan to be consistent with any future amendments or updates to the Comprehensive Plan that would necessitate expansions or alterations to the water system.	This mitigation measure is ongoing. No updates have been needed to date for the study area.
13.4	Follow the adopted Wellhead Protection Plans for Lino Lakes and Centerville. As necessary, amend the City's Wellhead Protection Plan for new wells.	This mitigation measure is ongoing.
13.5	Require abandoned private wells to be sealed in compliance with the Minnesota Department of Health regulations.	This mitigation measure is ongoing.
13.6	Require that the installation of any private individual wells be constructed and installed in accordance with the Minnesota Department of Health regulations (Minnesota Well Code).	This mitigation measure is ongoing.
13.7	Continue to implement the City's adopted water conservation policies which are intended to attenuate peak water demands throughout the City.	This mitigation measure is ongoing.
13.8	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.	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
13.9	Evaluate the use of alternative water sources such as stormwater reuse for irrigation in conjunction with development and implement where feasible, sustainable, and cost-effective.	This mitigation measure is ongoing.

ITEM 15. WATER SURFACE USE

Item No.	Mitigation Description	Update
15.1	Consider restricting individual lake access and dock construction along public and private shorelands by encouraging the use of clustered access and dock facilities.	This mitigation measure is ongoing.

ITEM 16. EROSION AND SEDIMENTATION

Item No.	Mitigation Description	Update
16.1	Require project proposers to acquire NPDES/SDS General Stormwater Permit for Construction Activity from the MPCA prior to initiating earthwork.	This mitigation measure is ongoing.
16.2	Require project proposers to meet the erosion and sediment control regulations in all applicable regulations, ordinances and rules of the City, MPCA, and Rice Creek Watershed District.	This mitigation measure is ongoing.
16.3	Require project proposers to minimize runoff, improve the quality of runoff, and provide erosion control through BMPs and other low impact development techniques.	This mitigation measure is ongoing.
16.4	Provide construction oversight to ensure designed sediment and erosion control measures are being implemented.	This mitigation measure is ongoing.
16.5	Implement the Conservation Design Framework (CDF, Figure 10-3).	This mitigation measure is ongoing.

ITEM 17. WATER QUALITY: SURFACE WATER RUNOFF

Item No.	Mitigation Description	Update
17.3	Require stormwater management systems to be developed in accordance with the current version of the <i>Rice Creek Watershed District Rules</i> (these rules assist in achieving the goals of the Resource Management Plan – 3) and all other local, state, and federal stormwater management requirements.	This mitigation measure is ongoing. Requirements have changed slightly with local and state rule changes.

ITEM 18. WATER QUALITY: WASTEWATER

Item No.	Mitigation Description	Update
18.1	Monitor wastewater flows and not permit new development to proceed if it exceeds the capacity of the wastewater system.	This mitigation measure is ongoing.
18.2	Construct 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.	This mitigation measure is ongoing.
18.3	Adequately phase capacity improvements.	This mitigation measure is ongoing.
18.4	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.	This mitigation measure is ongoing. No updates have been needed to date for the study area.
18.5	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.	This mitigation measure is ongoing.
18.6	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.	This mitigation measure is ongoing.

ITEM 19. SOIL AND GROUNDWATER CONTAMINATION

Item No.	Mitigation Description	Update
19.1	Require the removal of all tanks and associated underground piping in accordance with applicable state and federal laws.	This mitigation measure is ongoing.
19.2	Require that any party that may discover residual petroleum contamination shall follow state law and report the information to the MPCA for further investigation and potential remediation.	This mitigation measure is ongoing.

ITEM 21. TRANSPORTATION

Item No.	Mitigation Description	Update
21.1	Create a monitoring program that closely evaluates traffic impacts from proposed developments within the AUAR area.	Traffic Impact Studies are required for proposed developments showing the impact on the transportation system and consistency with the AUAR.
21.2	Implement traffic mitigation measures as development occurs within the AUAR area. Specific mitigation measures for the three development scenarios are discussed in Item 21 and depicted on Figures 21-8, 21-9, and 21-10. These mitigation measures improve overall traffic operations for the respective development scenarios. 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: 21.2.1 Develop frontage road system in compliance with local, county, and state access management guidelines to serve local and regional traffic. 21.2.2 Work with appropriate road authorities to reconstruct and provide additional capacity for CSAH 21.	CSAH 14 improvement was completed in 2009 and noted in the 2010 AUAR Update CSAH 54 (formerly CSAH 21) 20th Avenue North intersection improvements were completed and noted in the 2010 AUAR Update. I-35E Interchange reconstruction was completed in 2011. This mitigation measure is complete.

Item No.	Mitigation Description	Update
	21.2.3 Work with appropriate road authorities to construct Northerly Bypass with new interchanges at I-35W and I-35E (80th Street East) to improve traffic operations and access to and within the AUAR area. As recommended by FHWA and Mn/DOT, a phasing plan should be established to construct each piece of the Northerly Connector as it becomes necessary to maintain the serviceability of the transportation system. <u>Phase Improvement</u> 1. CSAH 14, I-35W to I-35E (funded and programmed for construction) 2. CSAH 14, I-35E Interchange 3. CR 140 (80th Street)/I-35E Interchange 4. CSAH 14 across Peltier Lake (Northerly Bypass/Connector) 5. CSAH 14/I-35W Interchange As part of these improvements, the following steps should be taken as the opportunity is presented: • Inclusion of the northerly bypass and proposed interchanges in future transportation and comprehensive plans • Preservation of right of way through official mapping or other process • Right of way dedication through the platting process	
21.3	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.	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
21.4	Work with appropriate road authorities to mitigate the impact of the additional traffic on the on the regional system, specifically Interstates 35W and 35E, by reconstructing each to provide a six-lane cross-section consistent with the recommendations outlined in the I-35 IRC . It should be noted that it was determined that an expansion will be necessary even without the development scenarios used in this analysis. As the interstates serve a much larger area, the projected growth of the entire Twin Cities region should warrant expansion by the year 2030.	This mitigation measure is ongoing.
21.5	Prioritize alternative travel modes within the AUAR study area and require project proposers to address alternative travel modes (e.g., buses, bicyclists, and pedestrians) by identifying appropriate accommodations.	This mitigation measure is ongoing.
21.6	Consider the need for additional infrastructure improvements (see item #21.2) in future updates or amendments to the Comprehensive Plan. Submit the plan update to the appropriate agencies (i.e., FHWA, MnDOT, Met Council, etc.).	This mitigation measure is ongoing.
21.7	Require project proposers to follow all appropriate guidelines and policies related to traffic nose and noise walls.	This mitigation measure is ongoing.
21.8	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.	This mitigation measure is ongoing.
21.9	Continue to require the implementation of the conditions of approval for the Eagle Brook Church relating to mitigating traffic impacts.	This mitigation measure is ongoing.
21.10	Achieve effective traffic operations within the city by requiring that site plans make use of access management practices to promote safe, effective traffic flow.	This mitigation measure is ongoing.
21.11	Require project proposers to follow the Anoka County Highway Department Development Review Process Manual (updated June 2013).	This mitigation measure is ongoing and has been updated to reflect the newest manual.
21.12	Continue to coordinate capital improvement programming with applicable transportation authorities.	This mitigation measure is ongoing.

ITEM 25. CULTURAL RESOURCES / FARMLANDS

Item No.	Mitigation Description	Update
25.1	Consult the map that shows areas with a high potential for archaeological sites when development applications are submitted for review. Given the sensitive nature of this information, this map cannot be included in the AUAR document, nor can it be made available to the public. If a development application falls within an area that is considered to have a high potential for archaeological sites, the City will require that the following steps and procedures involved in the identification and analysis of any archaeological sites is followed prior to development: ▪ Conduct a Phase I archaeological survey within the area of potential effect (APE). The objective of the archaeological fieldwork is to determine if there are archaeological sites in the areas identified as having high potential for such and define the extent of those sites that may be impacted by development plans. ▪ Conduct a Phase II archaeological survey. If archaeological resources are uncovered within the APE that may be eligible for listing on the National Register of Historic Places (NRHP) a Phase II survey should be conducted. The objective of the investigation is to determine whether archaeological resources are eligible for listing on the NRHP. ▪ Plan for avoidance or conduct Phase III data recovery. If a significant archaeological site is identified that will be impacted by development, avoidance is recommended. If this is not possible, then a data recovery of the site should occur. ▪ 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.	This mitigation measure is ongoing.

Item No.	Mitigation Description	Update
25.2	Consider preservation of agricultural heritage sites by implementing thoughtful interpretive planning. As development plans for the two Century Farms come to fruition, the City can encourage landscaping and other amenities that reflect the agricultural heritage of this city. In addition, the City can continue to reflect the agricultural heritage of the community in public buildings and gathering places (for example, City Hall reflects elements of the community's agricultural heritage).	This mitigation measure is ongoing.

ITEM 27. COMPATIBILITY WITH PLANS

Item No.	Mitigation Description	Update
27.1	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.	The City has completed the 2040 Comprehensive Plan.
27.2	Require that tools such as clustering, buffering, and/or screening be incorporated into future development plans to mitigate potential land use conflicts.	This mitigation measure is ongoing.

ITEM 28. GREENHOUSE GAS (GHG) EMISSION/CARBON FOOTPRINT

Item No.	Mitigation Description	Update
28.2	Developers will consider design strategies and sustainability measures that could reduce emissions.	This mitigation measure is ongoing.
28.3	On-site native landscaping to reduce potable water and pesticide use, along with the inclusion of trees and tree trenches to improve local air quality, absorb greenhouse gas emissions, and reduce local urban heat island effect.	This mitigation measure is ongoing.

28.4	Consider providing on-site electric vehicle charging infrastructure.	This mitigation measure is ongoing.
28.5	Buildings could be designed with energy efficient appliances, equipment, and lighting.	This mitigation measure is ongoing.