CITY OF INVER GROVE HEIGHTS
DAKOTA COUNTY, MINNESOTA

RESOLUTION NO. 2025-190

A RESOLUTION AUTHORIZING THE ADOPTION OF THE NORTHWEST EXPANSION AREA FINAL ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR) 2025 UPDATE

WHEREAS, an Alternative Urban Areawide ("AUAR") Update has been completed for the project pursuant to Minnesota Rules 4410, which identifies and assesses the environmental impacts and mitigation measures associated with the Northwest Expansion Area AUAR Study Area; and,

WHEREAS, development continues throughout the study area; and,

WHEREAS, an AUAR was completed in 2005, formally updated in 2007, 2014, 2019, and 2025 pursuant to Minnesota Rule 4410.3610; and,

WHEREAS, the AUAR Update was distributed for the required 10-day comment and objection period, and revised based on comments; and,

WHEREAS, comments received on the AUAR Update have generated information adequate to determine mitigation measures associated with the potential development in the area; and,

WHEREAS, the comments received and the City's responses to these comments are included in the public record for the AUAR Update; and,

WHEREAS, development of the Northwest Expansion Area AUAR Study Area is expected to comply with all Inver Grove Heights and review agency standards as well as the mitigation measures outlined in the AUAR Update.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF INVER GROVE HEIGHTS, MINNESOTA, that the Northwest Expansion Area AUAR Update is hereby adopted and dated August 2025.

Approved by the City Council of Inver Grove Heights this 25th day of August, 2025.

Brendia Dietrich, Mayor

ATTEST:

Rebecca Kiernan, City Clerk

Northwest Expansion Area

ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR) UPDATE

AUGUST 2025

PREPARED FOR:

PREPARED BY:

Table of Contents

List of Tables

List of Appendices

Inver Grove Heights Northwest Expansion Area Alternative Urban Areawide Review (AUAR)

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

1. PROJECT TITLE

Inver Grove Heights Northwest Expansion Area

2. PROPOSER

Proposer: City of Inver Grove Heights
Contact Person: Jason Ziemer
Title: Community Development Director
Address: 8150 Barbara Avenue
City, State, ZIP: Inver Grove Heights, MN, 55077-3410
Phone: (651) 450-2546
Email: jziemer@ighmn.gov

3. RGU

RGU: City of Inver Grove Heights
Contact Person: Jason Ziemer
Title: Community Development Director
Address: 8150 Barbara Avenue
City, State, ZIP: Inver Grove Heights, MN, 55077-3410
Phone: (651) 450-2546
Email: jziemer@ighmn.gov

4. REASON FOR PREPARATION

2005

Not applicable.

2007 Update

The City of Inver Grove Heights, in consultation with the Environmental Quality Board (EQB) and the City Attorney, have determined that a proposed Comprehensive Plan Amendment and proposed development application, warrant an Update to the Northwest Expansion Area AUAR per Minnesota Rules Chapter 4410.3610.

2014 Update

Not applicable.

2019 Update

The 2019 AUAR Update was completed to comply with Minnesota Rules Chapter 4410.3610 Subp 7A.

2025 Update

The 2025 AUAR Update was completed to comply with Minnesota Rules Chapter 4410.3610 Subp 7A and has been reformatted to align with the latest 2022 EAW template. Items 7 and 18 have been added in this update as they are new sections in the 2022 template.

5. PROJECT LOCATION

County: Dakota
City/Township: City of Inver Grove Heights
PLS Location (¼, ¼, Section, Township, Range): Sections 5, 6, 7, 8, 17, and 18 of T27N, R22W
Watershed (81 major watershed scale): Lower Minnesota River, Mississippi River, Mississippi River & Lake Pepin
Tax Parcel Numbers: Tax Parcel IDs are available in Appendix A.
At a minimum, attach each of the following to the AUAR:

- **US Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries** (see Figure 2 in Appendix B)
- **Map depicting the boundaries of the AUAR and any subdistricts used in the AUAR analysis** (see Figure 1 in Appendix B)
- List of data sources, models, and other resources (from the Item-by-Item Guidance: Climate Adaptation and Resilience or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in Item 7)
- **Cover type map as required for Item 8** (see Figure 5 in Appendix A)
- **Land use and planning and zoning maps as required in conjunction with Item 10** (see Figure 1 through 3 in Appendix A)

6. PROJECT DESCRIPTION

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

a) Anticipated types and intensity (density) of residential and commercial/warehouse/light industrial development throughout the AUAR area.

Table 1: Proposed Land Uses

Land Use Category	Existing Acres (2005)	Planned Acres				Existing Acres	Planned Acres
		2005	2007	2014	2019	2025	
Rural Residential	0	0	0	0	27	1,218	27
Vacant or Agricultural	1,684	0	0	0	0	783	0
Low Density Residential	404	820	820	818	1,079	89	1,058
Low/Mid Density Residential	96	743	747	614	465	12	456
Medium Density Residential	94	343	334	356	283	9	271
High Density Residential	0	65	65	20	40	9	48
Mixed Use (Residential)	0	46	46	51	76	0	76
Mixed Use (Commercial)	0	23	23	25	22	0	22
Commercial	26	59	59	147	89[1]	42	89
Office/Industrial	67	306	164	240	200[2]	21	109
Public/Institutional	11	11	11	56	48	44	48
Natural/Open Space/Golf	758	724	724	766	760[3]	862	885
Total Area	3,140	3,140	3,140	3,140	3,089[4]	3,089	3,089

STUDY AREA DESCRIPTION

2005

The AUAR study area is a 3,140-acre area in the northwest portion of the city of Inver Grove Heights. The location is shown on Figure 5-1 (2005 & 2007 AUAR). The area is bounded by Interstate 494 on the north, Babcock Trail on the east (approximately), the city's boundary with Eagan on the west, and includes an area just south of Highway 55 on the south. The site is currently occupied by rural and large-lot residential uses, wetlands and other natural areas, and a golf course.

2007 and 2014

No update.

2019

Some development has occurred within the Northwest Area since the original AUAR in 2005. Industrial, Commercial, low-and medium-density residential, and park areas have been

[1] This total includes Regional Commercial and Community Commercial land uses.
[2] This total includes General Industrial, Industrial Office Park, Light Industrial, and Office land uses.
[3] This total includes open space and right-of-way.
[4] This total is from the 2040 Comprehensive Plan.

established since 2005. A number of public infrastructure projects have been completed since 2014 and are included in the subsequent sections. See Figure 1 in Appendix B for project location.

2025

Low- and medium-density residential, mixed-use, and industrial office park development has occurred within the Northwest Area since the 2019 AUAR update.

DEVELOPMENT SCENARIOS

2005

One Development Scenario is proposed for this AUAR. The scenario represents the maximum amount of development that is predicted in the project area, based on the City's Comprehensive Plan, Natural Resource Management Plan, and Surface Water Management Plan. The actual level of development realized on the site may be less than this scenario, based on market conditions and development proposals received and approved by the City.

2007

An updated Development Scenario has been developed for this Update. A new land use category was created. The Office/Industrial/Commercial land use category was created for a portion of the Northwest Area that would give the City of Inver Grove Heights the greatest flexibility. The AUAR update will analyze this category as commercial—the most intensive land use.

2014

No change.

2019

A new development scenario has been created based on the 2040 Comprehensive Plan. The new scenario is depicted in Table 2.

2025

No change.

CUMULATIVE DEVELOPMENT TOTALS

Table 2 represents projected cumulative development totals for the project area. These totals are based on policies and standards as established within the City of Inver Grove Heights Comprehensive Plan and Zoning Ordinance.

Table 2: Cumulative Development Totals

Measure	2005	2007 & 2014	2019	2025
Total Project Acreage	3,140	3,140	3,089	3,089
Number of Residential Units (maximum)	Attached: 4,707 Detached: 2,383	Attached: 4,676 Detached: 2,378	Attached: 5,744 Detached: 2,163	Attached: 5,744 Detached: 2,163

Measure	2005	2007 & 2014	2019	2025
Units Per Building (maximum)	N/A	N/A	N/A	Single Family/Townhome: 4 units per building Multifamily Residential – apartment buildings: 12 units per building Multifamily Residential – large apartment buildings: No limit
Industrial and Related Office Uses (maximum)	Industrial & Office: 140 acres Office: 1,434,760 square feet Commercial: 1,674,215 square feet	Industrial & Office: 219 acres Office: 1,330,260 square feet Commercial: 2,214,625 square feet	Commercial: 362,637 square feet Office/Industrial: 784,080 square feet	Commercial: 362,637 square feet Office/Industrial: 784,080 square feet
Building Height (maximum)	Single Family/ Townhome: 35 feet Multifamily Residential: 70 feet Retail: 50 feet Industrial: 60 feet Office: 100 feet	Single Family/ Townhome: 35 feet Multifamily Residential: 70 feet Retail: 50 feet Industrial: 60 feet Office: 100 feet	Single Family/ Townhome: 35 feet Multifamily Residential: 70 feet Retail: 50 feet Industrial: 60 feet Office: 100 feet	Single Family/ Townhome: 35 feet Multifamily Residential: 70 feet Retail: 50 feet Industrial: 60 feet Office: 100 feet

b) **Infrastructure planned to serve development (roads, sewers, water, stormwater system, etc.). Roadways intended primarily to serve as adjoining land uses within an AUAR area are normally expected to be reviewed as part of an AUAR. More "arterial" types of roadways that would cross an AUAR area are an optional inclusion in the AUAR analysis; if they are included, a more intensive level of review, generally including an analysis of alternative routes, is necessary.**

ROADWAY NETWORK

2005

Based on the new traffic that will be generated by development of the Northwest Expansion Area, four primary roads will need to be improved to accommodate future growth. The Mitigation Plan recommends that CR 63 in the southbound direction be widened to a 5- or 6-lane roadway from north of I-494 to south of TH 55. TH 3 should also be widened from south of the interchange with TH 55 to the north of the Interstate 494. CR 73 will require the addition of lanes. CR 26 will need to be widened beginning to the east of CR 73 and continuing to the west of CR 63.

The AUAR analysis quantifies the impacts that the proposed development will have on the regional system, including Interstate 494 and TH 55. The analysis assumes a new interchange at I-494 and CR 63 and at the intersection of CR 63 and State Highway 55, as described in the City's Thoroughfare Plan.

2007

No change in the recommended mitigation due to the updated land uses.

2014

- The City of Inver Grove Heights, the City of Eagan, and Dakota County have completed and adopted the 2010 Regional Roadway System Visioning Study for northeast Eagan and northwest Inver Grove Heights.
- The City completed and adopted the Northwest Area Collector Street Plan, dated May 2012.
- The City and Dakota County are conducting a design study for County Road (CR) 28 and County State Aid Highway (CSAH) 63 from south of Trunk Highway (TH) 55 to south of CSAH 26 in advance of improving these roadways in 2016. A 2014 feasibility study for the future Argenta Trail Corridor from south of CSAH 26 to I-494 will also be conducted to consider the location of the future arterial connection to the potential future interchange along I-494 between TH 149 an TH 3.
- City Project No. 2009-01 Trunk Highway 3 and Amana Trail/proposed 80th Street Roundabout was completed.
- City Project No. 2010-41 Trunk Highway 3 Right Turn Lane—Argenta Hills 2nd Addition was completed.

2019

The City's guiding documents include:

- Northwest Area Collector Street Plan
- Regional Roadway Visioning Study to be updated in 2020 by Dakota County

See Appendix B for a list of street projects the city completed between 2014 and 2019.

2025

- MnDOT, Dakota County, and the cities of Inver Grove Heights, Eagan, Mendota Heights, and Sunfish Lake completed a Regional Roadway System Visioning Study (RRSVS) Update in 2022. The RRSVS recommended realigning Argenta Trail (CSAH 28 & 63) and constructing it as a four-lane divided highway. Construction of these improvements was completed in 2017. The study also determined that Argenta Trail would eventually need to be expanded into a six-lane divided highway, serving as a principal arterial.
- Dakota County and the cities of Inver Grove Heights and Eagan expanded County Road 26 from a two-lane roadway to a four-lane divided roadway

between Highway 55 in Eagan and South Robert Trail in Inver Grove Heights and construction was completed in 2024.

- The City of Inver Grove Heights completed the 65th Street Area Plan in 2023. The plan includes potential development scenarios with the transportation infrastructure needed to support potential future redevelopment of this area. The City of Inver Gove Heights completed the 65th Street Area Plan in 2023. The plan includes potential extension of 65th Street between Highway 3 and Babcock Trail (County Road 73) to support potential future redevelopment of this area.
- The City of Inver Grove Heights built 65th Street between Argenta Trail and Highway 3 in 2019 to facilitate development.
- The City of Inver Grove Heights completed Agate Trail (Community Collector) from Amana Trail to 70th Street with the Peltier Reserve Development
- The City of Inver Grove Heights completed local streets within the following Developer Projects: Settlers Ridge North, Settlers Ridge North 2nd, Highlands at Settlers Ridge, Peltier Reserve, and Scenic Hills

The following are active roadway projects:

- County Road 26 preliminary design from Hwy 3 to Hwy 52
    - 0.7 miles of County Road 26 (70th St W) (between Hwy 3 and Babcock Trail) is within the study area
- I-494 Argenta Trail interchange study

See Appendix A for a list of street projects the city completed between 2020 and 2025.

SANITARY SEWER SYSTEM

2005

The estimated sewer flow rate for the Northwest Expansion Area is 1,200 gallons per acre per day. All areas within the AUAR study area will be served by sanitary sewer, based on the City's Comprehensive Plan (1998). The proposed City trunk sewer system will connect to the Metropolitan Council Environmental Services (MCES) regional system. Proposed sewer system alignments have been routed to avoid impacts to proposed stormwater infiltration basins and areas of high-quality natural resources.

The City will construct sanitary sewer improvements to serve the AUAR area in general accordance with the 2020 Comprehensive Plan for the City. The sewer flows from this area will go to the MCES interceptor systems and Metropolitan Wastewater Treatment Facility, which has capacity available to serve this area.

2007

The City of Inver Grove Heights has completed a feasibility study of these improvements, called the Northwest Area Water and Sanitary Extensions Feasibility Report, dated May

2005. The City awarded the first phase of these improvements, Northwest Area Utility Improvements Lift Station R-9.1, in July 2007.

2014

- The City of Inver Grove Heights constructed trunk sanitary sewer and watermain facilities with the following projects: City Project No. 2003-15 NW Area Trunk Utility Improvements – located from TH 55/Babcock Trail, north along Babcock Trail to 80th Street, west to TH 3, north to 70th Street; Project No. 2003-15A NW Area Lift Station – located within the NW quadrant of Amana Trail and Trunk Highway 3; Argenta Hills/Amana Trail Trunk Utilities – located within the Target development and along newly constructed Amana Trail from TH 3 to Alverno Avenue; Argenta Hills 8th Addition – located along Alverno Avenue from Amana Trail to north terminus of Alverno Avenue; and Inver Glen Senior Housing Project – located from TH 3, along Allen Way to the developments easterly boundary.
- A Preliminary Engineering Report has been prepared for trunk sanitary sewer facilities in City Project No. 2014-13 NW Area Trunk Utilities – Argenta District, located between Amana Trail and proposed 65th Street within the Argenta District.

2019

The City of Inver Grove Heights constructed sanitary sewer facilities with the following projects: development projects in Blackstone Vista, Blackstone Vista 3rd, Blackstone Ponds, Blackstone Ponds 2nd, Blackstone Ponds 3rd, Blackstone Ridge, Windwood 2nd, Industrial Equites, Argenta Hills 8th, 9th, Scenic Hills; Holiday Station; City projects 2014-11 Argenta Trail and Highway 55, 2015-10 NWA Utilities Alverno Trail to Blackstone Vista, 2015-11 NWA Lift Station, 2015-13 NWA Trunk Utilities 70th Street LS to Blackstone Ridge, 2015-16 Trunk Utilities Argenta Trail to Blackstone Ridge, 2016-08 TH3 Roundabout 70th Street.

2025

The City of Inver Grove Heights constructed trunk sanitary sewer facilities with the following Development projects: Canvas at Inver Grove Heights, Settlers Ridge North, Settlers Ridge North 2nd , Highlands at Settlers Ridge, Peltier Reserve, Inverpoint Business Park Third Addition and Scenic Hills.

The City of Inver Grove Heights constructed sanitary sewer trunk facilities with the following City projects: 2021-01NWA Trunk Utility Improvements.

The City of Inver Grove Heights constructed sanitary sewer facilities with the following Development projects: Archer Trail, Canvas at Inver Grove Heights, Canvas at Inver Grove Heights 2nd, Settlers Ridge North, Settlers Ridge North 2nd , Highlands at Settlers Ridge, Peltier Reserve, and Scenic Hills. A figure showing the existing trunk sewer system is included in Appendix A.

MUNICIPAL WATER SYSTEM

2005

The City of Inver Grove Heights currently operates six municipal supply wells with a total groundwater appropriation of 1,250 million gallons per year (MGY) in 2003. The wells are used on a rotating schedule.

The project area will be served by expanding the existing municipal water supply system. Development of the project area will require additional appropriation of groundwater for municipal water supply. Five additional wells will likely be required to meet the ultimate system demand. The number of new wells required will depend on the capacities of the future wells. The ultimate projected municipal water system demand is 2,295 MGY (2005 estimate).

New wells will be completed in the Jordan Sandstone portion of the Prairie du Chien-Jordan aquifer system. Each new well is expected to have a capacity of 1,200 gallons per minute (gpm). While the City's current wells will experience a gradual increase in pumping and additional wells will be constructed, the aquifer is expected to be able to accommodate the additional withdrawals, based on recent tests.

2007

The City of Inver Grove Heights has completed a feasibility study of these improvements, called the Northwest Area Water and Sanitary Extensions Feasibility Report, dated May 2005. The City awarded the first phase of these improvements, Northwest Area Utility Improvements Lift Station R-9.1, in July 2007.

2014

- The City of Inver Grove Heights constructed trunk sanitary sewer and watermain facilities with the following projects: City Project No. 2003-15 NW Area Trunk Utility Improvements – located from TH 55/Babcock Trail, north along Babcock Trail to 80th Street, west to TH 3, north to 70th Street; Argenta Hills/Amana Trail Trunk Utilities – located within the Target development and along newly constructed Amana Trail from TH 3 to Alverno Avenue; Argenta Hills 8th Addition – located along Alverno Avenue from Amana Trail to north terminus of Alverno Avenue and Inver Glen Senior Housing project – located from TH 3, along Allen Way to the development's easterly boundary.
- A Preliminary Engineering Report has been prepared for trunk watermain facilities in City Project No. 2014-13 NW Area Truck Utilities – Argenta District, located from Amana Trail and proposed 65th Street within the Argenta District.
- In 2013, the City constructed Project No. 2006-18 Asher Water Tower Replacement.
- Well #9 (Well ID 759561) was constructed in 2008.

2019

The City prepared the following guidance documents between 2014 and 2019.

- Northwest Area Trunk Utilities North Robert District Alternative 2, Bolton and Menk, 2014
- Water Pressure Zone, 2015
- City of Inver Grove Heights wellhead protection Plan, Stantec, September 2016
- Trunk Watermain Model, 2017
- Third Generation of the Local Water Supply Plan was prepared and approved by the DNR in February 2020.

2025

The City of Inver Grove Heights constructed watermain trunk facilities with the following Development projects: Canvas at Inver Grove Heights, Settlers Ridge North, Settlers Ridge North 2nd, Highlands at Settlers Ridge, Peltier Reserve, Inverpoint Business Park Third Addition and Scenic Hills.

The City of Inver Grove Heights constructed watermain trunk facilities with the following City projects: 2021-01NWA Trunk Utility Improvements, and 2021-07 70th Street and Allen Way Improvements.

The City of Inver Grove Heights constructed watermain facilities with the following Development projects: Archer Trail, Canvas at Inver Grove Heights, Canvas at Inver Grove Heights 2nd, Settlers Ridge North, Settlers Ridge North 2nd , Highlands at Settlers Ridge, Peltier Reserve, and Scenic Hills.

STORMWATER SYSTEM

2005

The City's Surface Water Plan for the Northwest Expansion Area proposes an approach that minimizes connected impervious surfaces, increases flow path and time over previous surfaces, and decentralizes treatment in local and regional infiltration areas. The approach focuses on a variety of local Best Management Practices (BMPs), and collection and further treatment/infiltration of excess water in the numerous existing natural basins in the area. The plan includes a number of alternative practices with infiltration to provide for pretreatment before discharge to wetland basins and preserves the infiltration capacity of the natural basins.

The land use plan features relatively large green spaces and corridors to allow for stormwater infiltration and collection in the reginal basin areas. The areas are shown on Figures 17-1 to 17-3 (in Appendix D and E) and are located within the low to medium density residential areas and open space area shown on the land use plan.

2007

The City of Inver Grove Heights has adopted a stormwater manual for the Northwest Area on May 29, 2007.

2014

- The City of Inver Grove Heights has built stormwater management facilities and protected regional basins in the following projects: Inver Pointe Business Park

(United Properties), IGH Investments LLC – Argenta Hills Site Construction Plans (Amana Trail and Target Development), Argenta Hills 2nd through 8th Addition, 2009-01 Intersection (round-a-bout along TH 3), City Project No. 2013-03 SP-27 Stormwater Facilities Repairs, City Project No. 2010-41 Trunk Highway 3 Right Turn Lane – Argenta Hills 2nd Addition, Inver Glen Senior Housing projects.

- The City utilizes the following documents for stormwater guidance:
  - Northwest Area Stormwater Manual, adopted on May 29, 2007.
  - The Second-Generation Water Resources Management Plan adopted on December 8, 2008. The plan is being updated in 2014 to the 3rd Generation Plan.
  - The 3rd Generation Lower Mississippi River Watershed Management Plan prepared in August 2011.
  - The Northwest Area Regional Basin Map and Stormwater Model prepared on March 1, 2011. The map and stormwater model are being updated in 2014. Updates to the map and model will be a required condition of approval for developments.
  - Dakota County Soil and Water Conservation District (DCSWCD) Low Impact Design (LID) Standards are applicable for filtration and infiltration BMPs. The current LID standards may be found on the DCSWCD website.
- March 17, 2014, the City's MS4 General Permit coverage was extended, reauthorizing the new permit. The City will meet requirements of the new permit from the date permit coverage was extended.
- The Gun Club Lake Watershed Management Organization (GCLWMO) was disbanded and the Eagan-Inver Grove Heights Watershed Management Organization (EIGHWMO) was created in 2014.
- Atlas 14, published in 2013, is the most current frequency and duration stormwater information at the time of this AUAR update. The Northwest Area stormwater management plan will be updated to incorporate Atlas 14 data as published by the National Oceanic and Atmospheric Administration (NOAA) for the 2-, 10- and 100- year rainfall events and the 100-year critical volume (10-day snow melt) for development stormwater management plans and landlocked basins.

2019

The City of Inver Grove Heights constructed stormwater system facilities with the following projects: development projects in Blackstone Vista, Blackstone Vista 3rd, Blackstone Ponds, Blackstone Ponds 2nd, Blackstone Ridge, Windwood 2nd, Argenta Hills 8th and 9th, Scenic Hills; City Projects 2014-11 Argenta Trail and Highway 55, and 2016-08 TH 3 Roundabout at 70th Street.

- The City adopted the 3rd generation Water Resources Management Plan, December 2014
- The City adopted the 4th generation Water Resources Management Plan, December 2018

- The Stormwater Manual was updated to include the Atlas 14 data and this information will be used for future development stormwater management plans and landlocked basins.

2025

The City of Inver Grove Heights constructed stormwater facilities with the following Development projects: Archer Trail, Canvas at Inver Grove Heights, Settlers Ridge North, Settlers Ridge North 2nd , Highlands at Settlers Ridge, Peltier Reserve, and Scenic Hills.

The City of Inver Grove Heights constructed stormwater facilities with the following City projects: 2020-12 Argenta Trail Drainage Improvements and 2021-03 NWA Emergency Pumping and Forcemain System.

c) Information about the anticipated staging of various developments, to the extent known, and of the infrastructure, and how the infrastructure staging will influence the development schedule.

2005

The City of Inver Grove Heights has an approved Comprehensive Plan as required by the referenced rules. The Plan includes a Capital Improvement Program and plans for phasing infrastructure in the AUAR area. The City adopted the Comprehensive Plan on June 8, 1998. The Metropolitan Council approved the plan on March 25, 1999. The Inver Grove Heights City Council adopted an official resolution ordering the AUAR as required on September 27, 2004.

Development of the area will occur over the next 20 years. The pace of development will depend on market conditions and individual property owner decisions regarding development or redevelopment. Infrastructure will be staged so that necessary sewer, water, roadway, and other infrastructure is in place to accommodate proposed development. Some roadway infrastructure development will depend on the plans and schedule of the Minnesota Department of Transportation and Dakota County. Other infrastructure phasing will be determined by the City based on its Comprehensive Plan and Infrastructure Plans.

2007

No update.

2014

The Inver Grove Heights Northwest Expansion Area AUAR is located on 3,089 acres in the northwest portion of the city. The AUAR was completed in August 2005 and adopted by City Council in February 2006 with an update in 2007. An AUAR Update Addendum has been prepared to address updates in proposed land use and Development Scenario.

2019

The City of Inver Grove Heights updated their Comprehensive Plan for 2040, which includes updates to the Capital Improvement Program and plans for phasing infrastructure in the AUAR area.

2025

No update.

7. CLIMATE ADAPTION AND RESILIENCE

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

Historical trends and future projections in temperature, precipitation, flood risk, and cooling degree days are described below for Dakota County. Some of these climate predictions use specific scenarios called SSPs (Shared Socioeconomic Pathways) or RCPs (Representative Concentration Pathways) by the Intergovernmental Panel on Climate Change. SSP 245 and RCP 4.5 are intermediate scenarios where emissions peak around 2040 and then decrease. SSP 370 and RCP 8.5 are high-emissions scenarios where emissions continue to rise through the century.[5] In an intermediate scenario, greenhouse gas emissions stabilize, whereas in a high emissions scenario, they continue to increase significantly.

Temperature

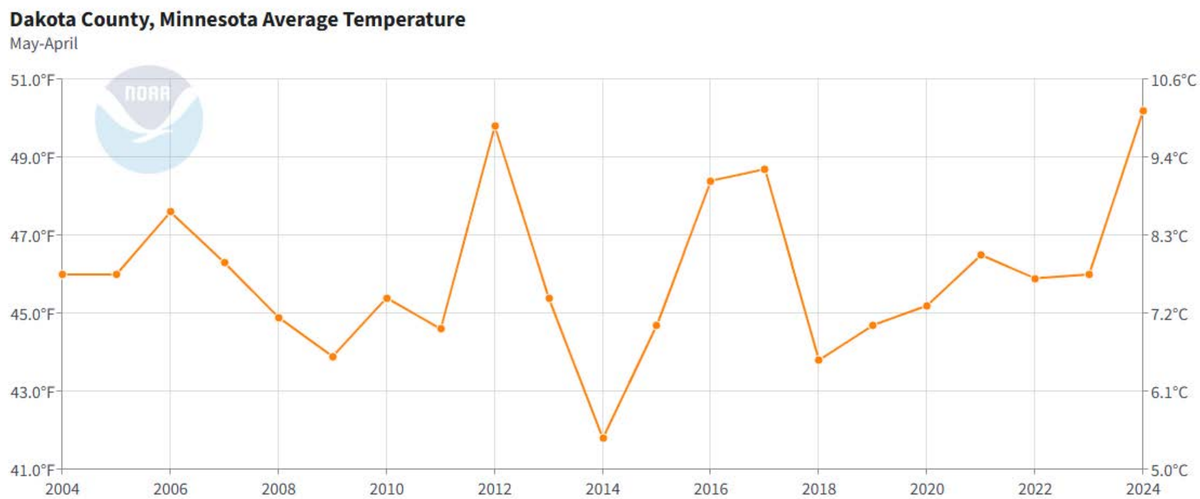
The National Centers for Environmental Information (NCEI) County Time Series tool uses historical data from nearby weather stations to provide county-level information. According to NCEI, the average temperature in Dakota County from 2004 and 2024 was around 46°F, ranging from a low of 41.8°F in 2014 to a high of 50.2°F in 2024.[6] The Minnesota Climate Mapping and Analysis Tool (CliMAT) provides future climate projections. According to CliMAT, the average annual temperature in Dakota County is projected to reach 49.6°F between 2040 to 2059 under an intermediate emissions pathway (SSP 245). Under a high emissions pathway (SSP 370), it could rise to 50.7°F. By the end of the century (2080-2099), the average annual temperature is expected to rise to 52.5°F under SSP 245 and 54.7°F under SSP 370. [7]

Exhibit 1. NCEI County Rime Series – Average Temperature Trends for Dakota County

[5] Climate Explorer Metadata. Available at https://climate.umn.edu/dnrs-climate-explorer-tool-cmip5

[6] NOAA National Centers for Environmental information, Climate at a Glance: County Time Series. Available at https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series

[7] Fine-scale Climate Projections over Minnesota for the 21st Century. Prepared for the University of Minnesota Climate Adaptation Partnership. V1 released October 2023. Available at: https://app.climate.umn.edu/



Urban Heat Island

Surfaces like roads, parking lots, and buildings absorb and release more heat from the sun compared to natural areas. This can make urban areas much hotter, a phenomenon called the urban heat island effect. This effect makes cities more vulnerable to extreme heat.

Extreme heat vulnerability means how likely people or communities are to suffer from health problems due to extreme heat. The University of Minnesota's Heat Vulnerability Tool creates a heat sensitivity score for counties (from 1-lowest to 4-highest) using factors like demographics, socio-economic status, health, and temperature-related variables. Based on population growth projections for 2018-2050 and the amount of hard surfaces like concrete, Dakota County has a high heat sensitivity score of 4[8].

Cooling Degree Days

The U.S. Energy Information Administration explains that degree days measure how cold or warm a place is by comparing the average outdoor temperature to a standard temperature, usually 65°F in the U.S. When temperatures are more extreme, there are more degree days, which typically means higher energy use for heating or cooling.[9] Cooling degree days help estimate how much cooling buildings will need.

The University of Minnesota's Heat Vulnerability Tool provides summaries and projections of cooling degree days for counties using data from nearby weather stations. According to the tool, Dakota County had 424 cooling degree days in 2019. By 2050, this number is expected to rise to 505 for RCP 4.5 and 652 for RCP 8.5.[10] This means buildings in the area will need more energy for cooling as the weather gets hotter.

Precipitation

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

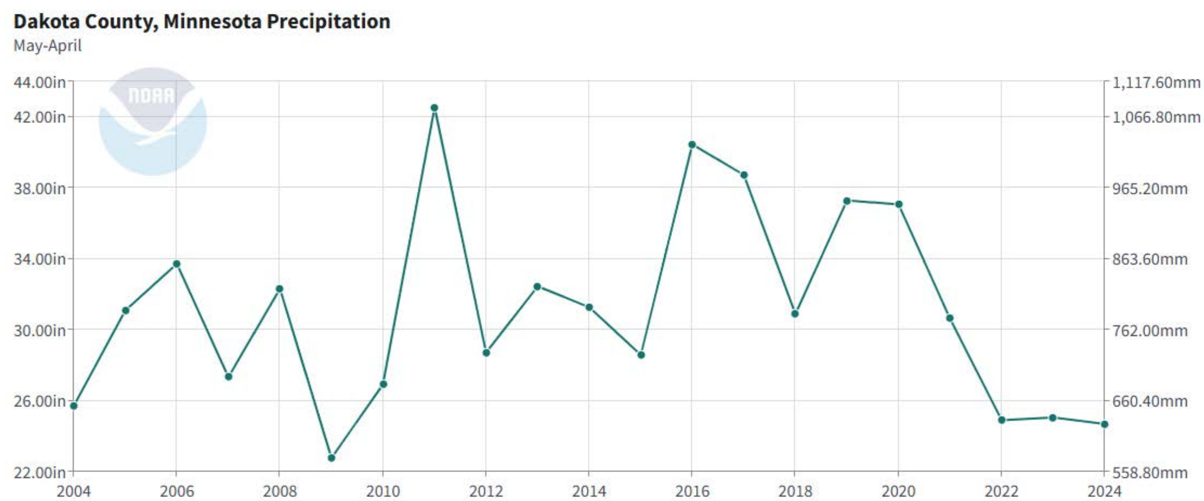
[9] "Degree Days," U.S. Energy Information Administration. Available at https://www.eia.gov/energyexplained/units-and-calculators/degree-days.php

[10] Heat Vulnerability in Minnesota. Minnesota Department of Health and the University of Minnesota. Available at https://maps.umn.edu/climatehealthtool/heat_app/.

The National Centers for Environmental Information (NCEI) County Time Series tool uses historical data from weather stations to provide county-level information. According to the NCEI, the average precipitation in Dakota County from 2004 to 2024 was about 31.1 inches, with the lowest average in 2009 (22.77 inches) and the highest average in 2011 (42.53 inches)[11].

The Minnesota Climate Mapping and Analysis Tool (CliMAT) provides future climate projections. According to CliMAT, the average yearly precipitation in Dakota County is projected to increase to 35.7 inches between 2040 and 2059 under an intermediate emissions pathway (SSP 245) and decrease to 30.2 inches under a high emissions scenario. By the end of the century (2080-2099), annual precipitation is expected to increase to 34 inches under SSP 245 and 34.6 inches under a high (SSP 370) emissions pathway.[12].

Exhibit 2. NCEI County Rime Series – Average Precipitation Trends for Dakota County



Localized Flood Risk

The FEMA National Flood Hazard Layer (NFHL) contains data about flood risks. According to this data, the study area is located in Zone X, which means the flood risk is moderate to minimal[13].

The Metropolitan Council's Localized Flood Map Screening Tool[14] identifies areas at risk from short-term, extreme rain events. These risky areas, called Bluespots, are categorized by the potential depth of floodwater.

- Primary Bluespots are shallow and the first areas to fill with water, making them higher risk.
- Tertiary areas are deeper and fill with water last
- Shallow Bluespots are separated, isolated low areas that are generally low risk.

[11] NOAA National Centers for Environmental information, Climate at a Glance: County Time Series. Available at https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series

[12] Fine-scale Climate Projections over Minnesota for the 21st Century. Prepared for the University of Minnesota Climate Adaptation Partnership. V1 released October 2023. Available at: https://app.climate.umn.edu/

[13] FEMA National Flood Hazard Layer. Available at: https://msc.fema.gov/portal

[14] Localized Flood Map Screening Tool. Metropolitan Council Available at https://metrocouncil.org/Communities/Planning/Local-Planning-Assistance/CVA/Tools-Resources.aspx.

The tool shows that most of the study area is free of BlueSpots. The primary, tertiary, and shallow Bluespots in the study area are around existing waterbodies and wetlands, with depths ranging from 0.25 feet to 59.94 feet.

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

Table 3: Climate Considerations and Adaptions

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptions
Project Design	Aspects of building architecture/material 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, climate projections reveal the location of the study area is anticipated to experience: • Increased annual temperatures • Increased annual precipitation and more frequent heavy rainfall events • Increased freeze thaw cycles • Low to high urban heat island effect	• Energy end-use efficient appliances and equipment and energy efficient lighting could be incorporated into building design. • Energy efficient building shells, such as insulation, high-performance windows and doors, and building materials with low thermal conductivity could regulate indoor temperature. • New trees and landscaping could reduce runoff and mitigate heat island effect. • Water-efficient design could be incorporated for landscape vegetation choices, landscape irrigation, appliance, and equipment).

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptions
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 study area are within FEMA 100-Year floodplains.	Portions of the proposed development may experience flooding during extreme rain events.	Design of future development and stormwater management facilities will be completed to reduce the risk of flooding in the AUAR study area. Infiltration areas will be used to improve water quality and reduce 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 increase 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.	• Developers could consider using native plants and perennials for landscaping and stormwater features will absorb water and reduce the water demand for irrigation. • Developers could use native plants and perennials for landscaping adjacent to water resource buffers. • Water reuse systems may be implemented to reduce water usage. • Stormwater BMP's shall be designed to meet City of Inver Grove Heights criteria for rate control and runoff volume reduction and criteria for MPCA water quality requirements. • Developers should consider planning and design to minimize impacts related to chloride runoff.

Resource Category	Climate Considerations	Project Information	
		Climate Change Risks and Vulnerabilities	Adaptions
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 increased runoff.	Developers could include climate-appropriate native plantings and stormwater BMPs to provide suitable habitat for small mammals, insects, and bird species.

8. COVER TYPES

AUAR Guidance: *The following information should be provided:*

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

2005

The generalized breakdown of cover types before and after development is shown on the chart that follows. The location of cover types is shown in Figure 10-1 (2005 & 2007 AUAR). The location of cover types in relationship to proposed development is shown in Figure 10-2 (2005 AUAR) and Figure 10-2A (2007 AUAR). The natural communities identified in the City's Natural Resource Inventory and their classifications based on ecological quality are shown on Figure 10-3 (in Appendix D and E).

2007

Note that Figure 10-2—Land Cover and Proposed Land Use (2007 AUAR) has been updated to reflect the updated proposed land uses. Refer to Figure 10-2A—Updated Land Cover and Proposed Land Use (2007 AUAR).

2019 and 2025

An update on cover types within the study area is shown on Table 4.

Table 4: Cover Types

Cover Type	Before (Acres)	After (Acres)			
		2005	2007 & 2014	2019	2025
Types 1 to 7 Wetlands	267	267	267	221	227
Woodlands/Brushland	652	359	359	496	464
Field/Grassland	1,523	98	98	1,100	910
Residential	594	2,017	2,012	861	1,027
Commercial/Industrial/Office	93	388	393	87	143
Institutional	11	11	11	20	20
Right-of-Way	N/A	N/A	N/A	304	298

Cover Type	Before (Acres)	After (Acres)			
		2005	2007 & 2014	2019	2025
Total	3,140[15]	3,140[16]	3,140	3,089[17]	3,089

Table 5: Trees

Trees	*Percent*
Percent of tree canopy removed	30%[18]

NORTHWEST EXPANSION AREA NATURAL RESOURCE INVENTORY

2005

The City of Inver Grove Heights completed a Natural Resource Inventory and Management Plan for the Northwest Expansion Area in 2004. The inventory included using existing natural resource data for the area, aerial photos, and field visits to identify natural areas by experienced ecologists. In a few cases, landowners did not give permission for ecologists to visit their properties, so that only aerial photos or views from adjacent areas were used to identify resources in these areas.

The field inventory was a qualitative assessment of wetland and upland communities. It included identification of major plant species in the canopy, subcanopy, shrub, and ground cover of forest and woodland natural communities. In non-forested natural communities, dominant grasses and forbs were identified. The field inventory emphasized gathering data on disturbance indicators of natural communities such as exotic species and erosion.

Classification of the natural areas to determine the natural community type was done using methodology outlined in Minnesota's Native Vegetation, a Key to Natural Communities (Minnesota DNR, 1993). Each community was assigned a qualitative rank, ranging from A to D, with "A" quality communities being the highest in ecological quality, and "D" communities being the lowest. Standard ecological criteria were used to evaluate the health of natural communities were used to determine the quality rankings. These criteria included degree of native species diversity, age of trees, and amount of disturbance, such as invasion by non-native plant species. The rankings reflect how closely the natural community area resembles an intact or "pristine" community of its type in the local area – "A" quality communities are most like intact natural areas, "D" quality communities have been highly altered from this standard.

The wetland field inventory included identification of plant species and a determination of predominant hydrology for each wetland basin. The Minnesota Routine Assessment Method

[15] Total is 2005 existing cover types
[16] 2005, 2007, and 2014 totals were calculated by subtracting future land use acreage by existing cover types from 2005.
[17] 2019 and 2025 totals calculated from the sum of existing cover types as of that year's GIS data available.
[18] This was estimated from the City's tree removal threshold

(MnRAM) Version 2.0 was used to assess wetland functions on a qualitative basis. Wetlands were evaluated for floristic quality, wildlife habitat value, aesthetic, recreational, educational, and cultural values, and stormwater susceptibility.

Table 6: Summary of Natural Areas and Semi-Natural Areas Inventoried

Land Cover Type	Number of Areas	Acres	Percent of Total	Percent of Land in Study Area
Wetland Natural Areas	184	267	21.1%	8.5%
Upland Natural Areas	43	452	35.7%	14.4%
Semi-natural Areas	25	547	43.2%	17.4%
Total	252	1,266	100.0%	

2007 and 2014

No update.

2019

Some impacts to areas identified in the natural resource inventory have occurred since 2005; however, no significant changes to the natural resource inventory have occurred. Impacts to “A” quality upland and wetland communities have been minimized to the extent practicable. See Figure 6 (Appendix B) for an updated figure of existing cover types.

2025

Some impacts to areas identified in the natural resource inventory have occurred since 2005; however, no significant changes to the natural resource inventory have occurred. See Figure 4 (Appendix A) for an updated figure of current cover types.

GREENWAY CORRIDORS

2005

A local advisory committee reviewed the upland and wetland ranking criteria and identified greenway corridors in the study area. Greenway corridors are corridors that are maintained for natural resource protection and/or recreation. Both Primary and Secondary Greenways are identified on the Natural Resource Inventory maps included in the Attachments of the 2005 AUAR. The Conceptual Greenway corridors that were developed during the Natural Resource Inventory are consistent with those developed later during the North Dakota County Greenway Planning project completed by the DCSWCD.

2007, 2014, and 2019

No update.

2025

There have been minimal impacts to the Primary Greenways since 2005.

UPLAND COMMUNITIES

2005

Table 7 shows a summary of Management Classification for upland natural communities identified in the Northwest Expansion Area. These areas are shown on Figure 10-3 (in Appendix D and E). The table indicates that only a fraction of the total number of natural communities identified fell into the highest quality categories of Manage 1 and Manage 2.

Although Oak Woodland-Brushland represents the vast majority of upland natural area occurrences in the study area, they are generally in moderate to poor conditions as a result of past grazing and subsequent lack of management. There is one area of Oak Woodland-Brushland classified as Manage 1 in the study area. The area also includes two Manage 1 Mesic Oak Forests, and one Manage 2 occurrence for each Dry Oak Forest and Dry Prairie.

Table 7: Upland Management Classification Summary

Community Type	Management Class	Number of Occurrences	Acres of Community Type
Dry Prairie (hill subtype)	3	2	5.0
Dry Prairie (sand-gravel subtype)	2	1	
Dry Oak Savanna	3	1	2.4
	4	6	
Oak Woodland-Brushland	3	18	340.8
	2	1	
	1	1	
Oak Forest, Dry	4	1	50.0
Oak Forest, Mesic	3	2	28.5
	1	2	
Lowland Hardwood Forest	4	4	24.8
	3	3	
Total		43	451.5

2007, 2014, and 2019

No update.

2025

While there have been some impacts to upland areas since 2005, there have been minimal impacts to highest quality upland areas (Manage 1 and Manage 2). There are Manage 1 and Manage 2 uplands currently located between Hwy 3 and Babcock Trail north of 70th Street E and South of Hwy 55 within the AUAR Study Area (See Figure 10-3 in Appendix E for a map of wetland and upland management areas). Some Manage 2 upland areas have been impacted by the residential development located at the intersection of Hwy 3 and 70th Street E.

9. PERMITS AND APPROVALS REQUIRED

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

Table 8: Required Permits and Approvals

Unit of Government	Type of Application	Type of Review
City of Inver Grove Heights	Preliminary Plat Approvals	Public hearing
	Sketch Plan Review	Administrative review
	Final Plat Approvals	Public hearing
	Rezoning Approvals	Public hearing
	Comprehensive Plan Amendment	Public hearing
	Planned Unit Development (PUD) Permits	Public hearing
	Conditional Use Permits	Public hearing
	Grading Permits	Administrative review
	Water Connection Permits	Administrative review
	Building Permits	Administrative review
	Wetland Conservation Act Permits and Approvals	Administrative review
	Road Right-of-Way Permits	Administrative review
	Approval of Sanitary Sewer and Municipal Water Extensions	Administrative review
	Final AUAR and Mitigation Plan Adoption	Public hearing
Dakota County	County Roadway Access Permits	Administrative review
	Contiguous Plat Review	Public hearing
Metropolitan Council/ Environmental Services	Tier 2 Sewer Plan	Administrative review
	Sanitary Sewer Extension Permit	Administrative review
	New Freeway Interchange Approvals	Administrative review
Minnesota Pollution Control Agency	Approval of Facility Plan and Construction	Administrative review
	Plans and Specifications (for Minnesota Public Facilities Authority Funding eligibility)	Administrative review
	Application for National Pollutant Discharge Elimination System (NPDES) General Permit for discharge of stormwater during construction activities	Administrative review
	Application for Sewer Extension Permit	Administrative review
	Section 401 Certification	Administrative review
Minnesota Department of Health	Water Main Plan Review	Administrative review
	Wellhead Protection Plan	Administrative review
	Water Well Permits	Administrative review
	Protected Water Permit	Administrative review

Unit of Government	Type of Application	Type of Review
Minnesota Department of Natural Resources	Water Appropriation Permit	Administrative review
Minnesota Department of Transportation	Utility Permit for Work in Right-of-Way of Trunk Highway	Administrative review
	New Freeway Interchange Approvals	Administrative review
	Access Permits	Administrative review
	Drainage Permits	Administrative review
	Plat Approval	Administrative review
US Army Corps of Engineers	Application for Wetland/Water Project—Public Linear Utility Project (GP/LOP-98-MN-Section 404 Activities in Minnesota)	Administrative review
Gun Club Lake & Lower Mississippi WMOs	Grading and Stormwater Permits Review	Administrative review
	Flow allocations when intercommunity determination is required	Administrative review

10. LAND USE

a) Describe:

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

AUAR study area is located in the northwest portion of the City of Inver Grove Hights, in Dakota County, Minnesota. As of 2025, the study area consists of 1,682 parcels. Current land use within the study area consists of low-density housing, rural residential housing, multi-family housing, commercial, industrial, public and institutional, and open space. The existing land uses within the study area are shown in Figure 1 of Appendix A.

PARKS AND TRAILS

2005

The Northwest Expansion Area includes a large open space area called Harmon Park and the Inverwood Hills Golf Course. These uses will remain in place as development occurs in the Northwest Expansion Area.

The land use plan for the area anticipates maintaining large areas of open space and greenway corridors in the Expansion Area as development occurs. The area also has a variety of good and high-quality upland and wetland natural resources that the City and its residents would like to protect for the long term. The City and its Northwest Area Task Force have determined that the development plan for the area will use a variety of low-impact development techniques and preservation of existing natural resources and regional basins to manage stormwater in the area. The land use plan therefore features relatively large green spaces and corridors to allow for stormwater infiltration and collection in the regional basin areas. These plans and strategies to achieve them are discussed in Sections 6, 10 and 17 of this AUAR.

The Task Force for the Natural Resources Inventory and Management Plan identified greenway corridors in the study area. Both Primary and Secondary Greenways are identified on Natural Resource Inventory maps. The Conceptual Greenway corridors that were developed during the Natural Resources Inventory are consistent with those developed later during the North Dakota County Greenway Planning project completed by the DCSWCD.

2007

The City of Inver Grove Heights adopted the Northwest Expansion Area Park System Plan, dated March 29, 2007. This plan identifies potential future park locations and trails throughout the Northwest Area.

2014

The City of Inver Grove Heights adopted the 2030 Comprehensive Plan, which includes the City's vision for parks and trails in the Northwest Area and throughout the community. Additional refinements to the Northwest Area Park and Trail plan are a part of the City's effort to update the entire park, recreation, and trail plan through an effort the City has called "Future of Our Parks – Park and Recreation System Plan." The plan is envisioned to determine the future needs of the community's park and recreation needs and provide for a specific 5-year plan and 10-15-year vision.

The City of Inver Grove Heights supports the Mendota to Lebanon Hills Master Plan.

2019

The City has drafted the 2040 Comprehensive Plan, which includes the City's vision for parks and trails in the Northwest Area. There are several new proposed trail connections, sidewalks, and parks within the AUAR study area.

2025

The City of Inver Grove Heights will continue to coordinate with Dakota County regarding the Lebanon Hills Greenway Regional Trail (formerly known as the Mendota-Lebanon Hills Greenway Regional Trail). Dakota County also adopted a new 2050 Vision Plan for Parks, Greenways and Natural Resources in July 2025. This new plan identifies a new greenway "search area" corridor that runs east/west through the AUAR area, making connections to the Minnesota River Greenway on the west, and the Mississippi River Greenway on the east. Dakota County does not have a specific greenway alignment identified for this corridor but will continue to coordinate with the City and landowners.

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

PROPOSED DEVELOPMENT

2005

The City of Inver Grove Heights has completed several significant planning studies in the Northwest Expansion Area. The City completed a Natural Resources Inventory and Management Plan for the area in 2004. This plan was used in developing the Hydrologic and Hydraulic Analysis for the area, also completed in 2004. Both of these plans have heavily influenced the land use plan proposed for the Northwest Area. The City also worked with a Task Force of local residents in developing all three plans.

The results of the Natural Resources Inventory and Hydrologic and Hydraulic Analysis were used extensively to shape the proposed land uses and patterns for the area, along with existing roadway infrastructure. The Northwest Expansion Area is an area of rolling topography, with closed basins that do not have outlets at normal water levels. The area also has a variety of good and high-quality upland and wetland natural resources that the City and its residents would like to protect for the long term. The City and its Northwest Area Task force have determined that the development plan for the area will use a variety of low-impact development techniques and preservation of existing natural resources and regional basins to manage stormwater in the area. The land use plan therefore features relatively large green spaces and corridors to allow for stormwater infiltration and collection in the regional basin areas. These areas are shown on Figures 17-1 to 17-3 (in Appendix D and E) and are located within the low to medium density residential areas and open space areas shown on the land use plan.

Proposed Industrial areas, Commercial areas, and higher-density Residential areas are associated with major transportation corridors within the study area, particularly Interstate 494 and State Highway 55. The City is also proposing an area of Mixed Use, which would include a mix of residential and commercial uses. This area is located around the intersection of State Highway 3 and 70th Street.

Proposed land uses and densities in the AUAR study area include the following:

- **Low Density Residential** – Densities within this area may vary from 1to 4 units per acre and are likely to average approximately 2.0 units per acre. Some existing residential areas included in this category are currently less than 1 unit per acre.
- **Low/Mid Density Residential** – Densities within this area may vary from 4 to 8 units per acre and are likely to average approximately 4.0 units per acre.
- **Medium Density Residential** – Densities within this area may vary from 8 to 12 units per acre and are likely to average approximately 8 units per acre.
- **High Density Residential** – Densities within this area may vary from 12.0 to 35 units per acre and are likely to average approximately 12.0 units per acre.
- **Mixed-Use Residential and Commercial** – This land use will include commercial uses mixed with residential uses on the same parcel. The City estimates that approximately 2/3 of each parcel will be residential in use and 1/3 commercial. Residential uses in the Mixed-Use areas will average 15.0 units/acre but may vary from 12 to 35 units per acre.
- **Commercial** – Floor area ratios for this land use are between 0.25 and 0.35 for retail uses and 0.25 and 0.5 for office uses. Impervious surface coverage is up to 70 percent.

- **Industrial** – Floor area ratios for this land use are between 0.25 and 0.35 for retail uses and 0.25 and 0.5 for office uses. Impervious surface coverage is up to 70 percent.
- **Institutional Land Uses** – Land use primarily for public lands and facilities such as City Hall, the community center, public works and schools. This category also includes religious institutions such as churches and cemeteries.

The topography and natural features of the AUAR area are likely to limit the density that may be achieved on many parcels in all of the proposed land use districts. Therefore, the densities that the City has assumed for each of the land use areas for the analysis in this AUAR is at the lower-end of the allowable densities in each land use classification.

2007

A new land category was created for the purpose of this update. Office/Industrial/ Commercial category was created for a portion of the site that would give the City of Inver Grove Heights the greatest flexibility. The AUAR update will analyze this category as commercial – the most intensive land use.

- **Office/Industrial/Commercial** – Floor area ratios for this land use are between 0.25 and 0.35, with impervious coverage up to 70 percent.

2014

No update.

2019 and 2025

The 2040 Comprehensive Plan designated the following proposed land uses within the AUAR study area:

- **Rural Residential** – Densities within this area are 0.4 residential units on 2.5 or larger acre parcels
- **Low Density Residential** – Densities within this area may vary from 1 to 4 units per acre and are likely to average approximately 2 units per acre. Some existing residential areas included in this category are currently less than 1 unit per acre.
- **Low-Medium Density Residential** - Densities within this area may vary from 4 to 8 units per acre and are likely to average approximately 4 units per acre.
- **Medium Density Residential** – Densities within this area may vary from 8 to 12 units per acre and are likely to average approximately 8 units per acre.
- **High Density Residential** – Densities within this area may vary from 12 to 35 units per acre and are likely to average approximately 12 units per acre.
- **Mixed-Use** – Mixed use areas are a combination of retail, commercial, office, institutional, residential, public, and recreational spaces designed for pedestrian accessibility. One-third of these areas are expected to develop as non-residential uses.
- **Regional Commercial** -Lots or parcels containing large-scale retail services along arterial roadways. Square feet would exceed 25,000

- **Community Commercial** – Retail sales or services along community collector and arterial roadways that serve the community. Unlike regional commercial areas that range in size from 20 to acres, community commercial areas are a maximum 5,7 acres
- **Office** – Lots or parcels that house professional offices and services, including medical, law, real estate, and financial businesses.
- **Industrial Office Park** – Lots or parcels for warehousing, storage, and light industrial uses, along with associated office functions. These developments are typically unified in design, featuring landscaped open areas, consistent lighting, roadway edges, and entry monumentation
- **Light Industrial** - Lots or parcels for light manufacturing, goods movement, and wholesale trade
- **General Industrial:** Lots or parcels for manufacturing, processing, and disposal facilities. Unlike light industrial, general industrial is comparable to "heavy" industrial uses, such as landfill operations.
- **Institutional Land Uses –** Land use primarily for public lands and facilities such as City Hall, the community center, public works and schools. This category also includes religious institutions such as churches and cemeteries.
- **Public Paks and Open Space** - Public parks and open spaces include the City's park system and publicly owned areas designated for open space use, such as stormwater storage and other public infrastructure, which are not considered developable.

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

CURRENT AND FUTURE ZONING

2005

The site is currently zoned for Agricultural and Residential uses, with small areas of Commercial uses near State Highway 3 (see Figure 5-4 in 2005 & 2007 AUAR). The long-term land use proposed for the area in the City's Comprehensive Plan includes a full range of residential uses from low to high density, mixed use commercial/residential, industrial, office, commercial, park, golf course, and institutional uses. The zoning for the area will reflect these uses. The proposed land uses are shown in Figure 5-5 (2005 & 2007 AUAR).

2007

The updated land uses summarized in Table 1 are shown on Figure 5-5A—Updated Proposed Land Use (2007 AUAR). The proposed land use has been updated in a portion of the Northwest Expansion Area, located in the northwest quadrant of the TH 55 and TH 3 interchange. The proposed land use update and updated Development Scenario that has been developed is consistent with the proposed Comprehensive Plan Amendment and proposed development application.

A new land use category was created for the purpose of this update. Office/Industrial/ Commercial category was created for a portion of the site that would give the City of Inver Grove Heights the greatest flexibility. The AUAR update will analyze this category as commercial – the most intensive use.

2014

No update. See Figure 5-5 (2014 AUAR) for existing land use.

2019

The land use categories remain relatively the same as the 2014 AUAR; however, some of the locations of the land uses have changed. The updated existing land uses are shown on Figure 3 (2019 AUAR).

2025

Zoning and future land use remains generally the same as the 2019 AUAR. Updated figures are shown in Figures 2 and 3 in Appendix A.

FLOODPLAINS

2005

The AUAR area does not include any floodplain areas.

The area does include several designated shoreland areas. These areas are delineated on the City's official Zoning Map. The City's Shoreland Ordinance regulates land uses, structures, and other requirements in these areas. The City will enforce the Shoreland Ordinance in the AUAR area, and no variances or deviations from the Shoreland Ordinance are envisioned for development in this area.

2007, 2014, 2019, and 2025

No update.

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

2005, 2007, 2014, 2019, and 2025

No critical facilities are proposed in floodplain areas. No hazardous materials are proposed to be stored in floodplain areas.

b) Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

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

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

The AUAR must include a statement of certification from the RGU that its comprehensive plan complies with the requirements set out at Minnesota Rules, part 4410.3610, subpart 1. The AUAR document should discuss the proposed AUAR area development in the context of the comprehensive plan. If this has not been done as part of the responses to Items 6, 9, 11, 18, and others, it must be addressed here; a brief synopsis should be presented here if the material has been presented in detail under other items. Necessary amendments to comprehensive plan elements to allow for any of the development scenarios should be noted. If there are any management plans of any other local, state, or federal agencies applicable to the AUAR area, the document must discuss the compatibility of the plan with the various development scenarios studied, with emphasis on any incompatible elements.

2025

EXISTING LAND USE

The existing vacant and rural residential land uses are expected to transition to different land uses as development occurs. Any new development, redevelopment, change in land use, or change in zoning is required to be consistent with the Comprehensive Plan. The 2040 Comprehensive Plan was adopted in 2019 and the update modifies some of the land uses for the Northwest Area. The Comprehensive Plan takes into account development that has occurred since the last update and adjusts land uses based on new insights into development constraints, property owner interests, capital improvement costs, and market conditions.

ZONING

The existing zoning of the study area is agricultural, residential, industrial, and institutional. Over the past 20+ years, the City of Inver Grove Heights has undertaken numerous planning, engineering, and financial analyses for this area to support future growth, emphasizing on-site stormwater management rather than conveying it to the Mississippi River. These efforts were outlined in the 1998 Comprehensive Plan. Consequently, the City established a zoning ordinance specific to the Northwest Area, requiring future developments to follow the Planned Unit Development (PUD) process to ensure guided growth and adequate infrastructure funding.

CONSISTENCY WITH INVER GROVE HEIGHT'S COMPREHENSIVE PLAN

2005

The City's Comprehensive Plan was adopted by the City Council on June 8, 1998, and by the Metropolitan Council on March 25, 1999. The land use plan for the Northwest Expansion Area has changed in some minor respects from the land use plan included in the City's Comprehensive Plan, but the overall residential density of approximately 3 units per acre remains the same for the area. The proposed land use plan is therefore consistent with the adopted Comprehensive Plan. This plan complies with the requirements set out in Minnesota Rules 4410.3610, subpart 1, which requires local comprehensive plans to address land use, transportation, and sanitary sewer systems.

The land use plan for the Northwest Expansion Area has changed in some respects from the land use plan included in the City's Comprehensive Plan, but the overall residential density of approximately 3 units per acre remains the same for the area. The proposed land use plan is therefore consistent with the adopted Comprehensive Plan. The protection of large open space and natural areas to implement the surface water plan has required the shifting of the proposed location of some residential units from areas to be preserved as open space and stormwater management areas, to developable areas, so that there is more medium-density residential use shown on the current plan than in the Comprehensive Plan. The location of proposed Commercial and Industrial land uses is consistent with the Comprehensive Plan.

2007

The City of Inver Grove Heights has proposed a Comprehensive Plan Amendment that is consistent with the updated Development Scenario as discussed above.

2014

No update.

2019

The City updated their Comprehensive Plan in October 2019 and the proposed land uses have been incorporated into the 2019 AUAR Update.

2025

Since 2019, two developments have included comprehensive plan amendments as part of their projects:

- **Development One:**
  - 2.49 acres from Office (O) to Low-Medium Density Residential (LMDR)
  - 12.7 acres from Medium Density Residential (MDR) to Low-Medium Density Residential (LMDR)
- **Development Two:**
  - 29 acres from Low Density Residential (LDR) to High Density Residential (HDR)

c) Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

Planned infrastructure improvements have been identified to support anticipated future development. These are detailed in Sections 6, 12, 20, and in the Mitigation Plan.

11. GEOLOGY, SOILS, AND TOPOGRAPHY/LAND FORMS

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

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

2005

Information from the *Geologic Atlas of Dakota County* (Minnesota Geological Survey, 1990), *Bedrock Geology and Structure of the Twin Cities Metropolitan Area* (Minnesota Geological Survey, 2000), US Geological Survey 7 ½ minute quadrangles, and well logs from the County Well Index (CWI) were used to determine depth to bedrock and depth to groundwater. A map of bedrock geologic units (MGS, 2000) is provided as Figure 19-2 (in Appendix D and E). A map of depth to bedrock (MGS, 1990) is provided as Figure 19-1 (in Appendix E).

A buried bedrock valley is mapped in the project area with branches entering from the northwest and northeast, converging and exiting along the southern boundary of the project area. The upper bedrock units (Decorah Formation, Platteville Formation, Glenwood Formation, and St. Peter Sandstone) have been completely eroded across most of the project area. The bedrock valley is eroded completely through the Prairie du Chien Group and into the underlying Jordan Sandstone in the southern part of the project area.

Based on the data presented in the geologic atlas, the minimum depth to bedrock within the project area is greater than 100 feet. Minimum depth to bedrock occurs where surficial depressions overlie relatively higher areas of St. Peter Sandstone. Bedrock is generally within 250 feet of the surface where the St. Peter Sandstone is present. Depth to bedrock is generally greater than 200 feet where the Prairie du Chien Group is the uppermost bedrock unit.

No sinkholes, shallow limestone formations, or karst conditions are present within the project area. Karst conditions are known to exist in the Prairie du Chien Group in southeastern Minnesota, but geologic hazards related to karst such as sinkholes occur where the Prairie du Chien Group is shallowly buried, and the water table occurs within the carbonate bedrock unit. The Platteville Formation limestone is likely the uppermost bedrock unit in a small area along the northeast boundary of the project area. The Platteville Formation is thin in this area, however, and is buried by a minimum of 150 feet of unconsolidated sediments.

Plate 5 of the *Geologic Atlas of Dakota County* maps the water table elevation in the project area to be between approximately 775 and 900 feet (25 feet contour intervals) with the lowest water table elevations occurring along the southern border of the project area. Few wells are open across or completed near the water table where it occurs in the till and other moraine deposits. Most water wells in the area are completed in buried Quaternary or bedrock aquifers, and water levels in those wells do not signify the position of the water table. The water table is expected to occur at or near the surface under most surface waterbodies. The water table map provided in the geologic atlas is based on surface water elevations, topography, and measurements made in a few selected shallow wells. More detailed information on the configuration of the water table is not available.

A perched water table occurs in some areas, and some ponds form water table mounds in which the water table slopes away from the pond in all directions. Groundwater is assumed to occur at or near the surface beneath and near surface waterbodies. Groundwater flow patterns are complex around some ponds and wetlands, with shallow groundwater flowing into and out of the waterbody and the waterbody also recharging water into deeper aquifers. Some ponds and wetlands may be perched above an unsaturated zone overlying the lower, regional water table. In general, hydraulic head decreases with depth below the water table. The glacial till in which the water table occurs across most of the project area is not typically used for water supply.

The depth to groundwater varies greatly across the AUAR area. Surface elevation within the project area ranges from approximately 800 feet to 990 feet. According to the geologic atlas, the water table elevation in the project area ranges from approximately 775 feet to 900 feet. As described above, groundwater occurs at or near the surface beneath and near ponds and wetlands. Poorly drained depressions and drainage ways on the site become seasonally saturated to a depth at or near the surface. In upland areas, the water table is generally greater than 20 feet below the land surface.

2007, 2014, and 2019

No update.

2025

The C-57, Geologic Atlas of Dakota County, Minnesota was published in 2023 and was reviewed for the 2025 AUAR Update. The analysis described in the 2005 AUAR remains valid.

b) Soils and Topography – Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability, or other soil limitations, such as steep slopes or highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections, or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

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

2005

Soils in the area are related to the glacial and post-glacial parent materials in which they formed. A soils map of the AUAR area is provided on Figure 19-3 (in Appendix D and E). Surficial geology is mapped on Plate 3 of the geologic atlas and in *Surficial Geology of the St Paul 30 X 60 Minute Quadrangle* (Meyer and Lusardi, 2000). A map of the surficial geology derived from Minnesota Geological Survey data is provided as Figure 19-4 (Appendix D and E). The project area is located on the St. Croix Moraine, a geomorphic feature of hummocky terrain marking the stable terminus of the Superior Lobe glacier during Late Wisconsinan time. Late Wisconsinan glacial, fluvial, and lacustrine sediments of Superior provenance belong to the Cromwell Formation. The moraine overlies older glaciofluvial outwash deposits, also derived from the Superior Lobe. The buried outwash overlies Superior Lobe till from an earlier glacial advance. Erosional remnants of Pre-Late Wisconsinan till and outwash deposits overlie bedrock in some areas.

The moraine is composed primarily of sandy loam-textured till. Till is unsorted sediment deposited by glacial ice. The moraine also includes stratified ice-contact and lake sediments. Ice-contact deposits consist of stratified sand, gravelly sand, and cobbly gravel, deposited by melt water flowing at or behind the ice margin, interbedded with unsorted sandy to loamy mudflow deposits and silty lake sediments.

Glacial melt water from the later Grantsburg Sublobe of the Des Moines Lobe cut through the St. Croix Moraine in the southwest corner of the project area. The melt water deposited sand and gravelly sand outwash of the New Ulm Formation. The outwash consists of a mixture of Des Moines Lobe sediments and reworked Superior Lobe sediments. Much of this area was covered by a thin mantle of loess (wind-blown silt and fine sand with some clay associated with glacial margins).

Soils are mapped in the *Soil Survey of Dakota County, Minnesota* (Hundley, 1983). A map of surficial soil texture is provided in Figure 19-3 (in Appendix D and E). Soils formed in the moraine belong to the Kingsley-Mahtomedi association of gently sloping to very steep, well drained and excessively drained soils. Soils in this association vary in texture from loamy sand to silty loam. Soils formed on the outwash plain belong to the Waukegan-Wadena-Hawick association of level to very steep, well drained and excessively drained soils formed in silty and loamy sediments over sandy sediments.

Most soils throughout the AUAR area are moderately permeable to moderately rapidly permeable. Soils formed in outwash and other sandy sediments are generally moderately permeable in the upper part and moderately rapid to rapidly permeable in the lower part. In most areas, there is not a near surface, laterally consistent low permeability layer restricting vertical infiltration to groundwater, and the groundwater is susceptible to contamination from wastes or chemicals spread or spilled on the surface. The time of travel to the water table for contaminants will vary from hours to years depending on the properties of the contaminant and site-specific conditions.

Groundwater is most susceptible beneath and near ponds and wetlands where the water table is near the surface.

Shallow groundwater near the water table is not generally used for water supply. Deeper aquifers are less sensitive to pollution than the water table system. A map of the sensitivity of the Prairie du Chien-Jordan aquifer system to pollution is provided in Plate 7 of the *Geologic Atlas of Dakota County* (MGS, 1990) and is duplicated for the AUAR area in Figure 19-5 (in Appendix D and E). The sensitivity ratings are based on a matrix of factors including the presence of bedrock confining layers and the composition and thickness of material overlying bedrock. Estimated travel times for conservative water-borne contaminants to reach the Prairie du Chien-Jordan aquifer are as follows: High – weeks to years, High-Moderate – years to a decade, Moderate – several years to decades, Low-Moderate – several decades, Low – several decades to a century.

The Quaternary aquifers are generally more susceptible to pollution because they occur at shallower depth and above bedrock confining units, where bedrock confining units are present. Sensitivity of the buried Quaternary aquifer(s) varies from high to moderate depending on thickness and composition of overlying deposits. In general, for the buried Quaternary aquifer(s), areas mapped as having Low-Moderate or Moderate sensitivity in Figure 19-5 (in Appendix D and E) will have Moderate to High-Moderate sensitivity, and areas mapped as having High-Moderate sensitivity will have High sensitivity.

2007, 2014, and 2019

No update.

2025

The Department of Natural Resources map titled *Pollution Sensitivity of Near-Surface Material*[19] published in 2022 maps pollution sensitivity estimated from the transmission time of water through 3 feet of soil and 7 feet of surficial geology to a depth of 10 feet from the land surface. This map shows the AUAR Area mapped as high, moderate and low sensitivity to pollution (see Appendix A).

TOPOGRAPHY

2005

Figure 16-1 (in Appendix D and E) indicates that scattered areas of slopes between 12-20 percent exist throughout the AUAR area.

The City's Subdivision Ordinance includes provisions for management of disturbance in Protected Areas such as steep slopes.

2007, 2014, 2019, and 2025

No update.

[19] Available at: https://mnatlas.org/resources/pollution-sensitivity-near-surface-materials/

12. WATER RESOURCES

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

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

i. Surface Water – lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, 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 one mile of the project. Include DNR Public Waters Inventory number(s), if any.

BACKGROUND

2005

Watershed Setting

The details of the stormwater management system proposed for the Northwest Expansion Area are best described by combining Section 17a and b into a single discussion. The Northwest Expansion Area is located within two watershed areas. Figure 17-1 (in Appendix D and E) illustrates the watershed divide between the Lower Mississippi River Water Management Organization (LMRWMO) and the Gun Club Lake Water Management Organization (GCLWMO). The approximate acreage of Northwest Expansion Area within the LMRWMO and GCLWMO is 2,650 acres and 760 acres, respectively.

The Northwest Expansion Area within the LMRWMO watershed can be sub-divided into a series of 115 subwatersheds, which are shown on Figure 17-2 (in Appendix D and E). Each of these subwatersheds was characterized for water quantity modeling under existing conditions and was subsequently modeled for developed conditions in detail as part of the City's *Northwest Expansion Area Hydrologic & Hydraulic Analysis* (February 2004). The Northwest Expansion Area within the GCLWMO watershed can be sub-divided into a series of 53 subwatersheds as delineated and modeled in the City's *2020 Comprehensive Plan,* also shown on Figure 17-2 (in Appendix D and E).

The Northwest Expansion Area does not contain or drain to a DNR designated trout stream or a priority lake as identified by the Metropolitan Council. Reference to Figure 17-3 (in Appendix D and E), however, shows that a fair number of these natural basins are delineated as wetlands and that three are lakes (Dickman, Hornbeam, and Rosenberger).

WETLANDS

2005

The most common wetland community types in the Northwest Expansion Area are Wet Meadow, Shallow Marsh, Shallow Open Water, and Deep Marsh. Roughly two-thirds of these community types are classified as Manage 3 or Manage 4. In a general sense, this would tend to indicate that many of these areas are of somewhat lower quality and adversely affected by runoff, surrounding land uses, and invasive species. Some wetland types that are uncommon in the Metro Area, but occur in the Northwest Expansion Area, are Shrub Carr and Alder Thicket. Table 9 summarizes the wetland types and their quality rankings in the study area.

Table 9: Wetland Management Classification Summary

Community Type	Management Class	Number of Occurrences	Acres of Community Type
Seasonally flooded basin	1	1	1.1
Sedge meadow	1	3	10.7
	2	1	
	3	2	
Wet meadow	1	7	68.7
	2	8	
	3	19	
	4	20	
Alder thicket	1	1	3.5
Shrub carr	1	1	6.0
	2	1	
	3	1	
Hardwood swamp	1	4	14.8
	3	7	
	4	6	
Shallow marsh	1	8	52.4
	2	7	
	3	15	
Shallow open water	1	2	51.5
	2	2	
	3	10	
	4	10	
Deep marsh	1	6	49.5
	2	4	
	3	10	
	4	9	
Other	1	1	8.6
	4	2	
Total		184	266.8

2007 and 2014

No update.

2019

Some wetland impacts have occurred within the AUAR study area since 2005. Those wetland impacts have been minimized to the extent practicable and have been mitigated. The wetland inventory and management plan has not been updated to reflect these minor changes to wetlands within the AUAR study area.

2025

Some wetland impacts have occurred within the AUAR study area since 2005. Those wetland impacts have been minimized to the extent practicable and have been mitigated. Figure 5 in Appendix A shows existing wetlands within the AUAR study area based on the 2024 National Wetland Inventory (NWI) data.

SURFACE WATER

2025

There are 63 DNR Public Water Basins within one mile of the study area and 18 within the AUAR study area. While there are no DNR Public Watercourses within one mile of the study area, the Mississippi River is approximately three miles away.

There is one Section 303d Impaired Water in the vicinity of the study area; an unnamed lake located approximately one mile west. There are no trout streams in the vicinity of the AUAR study area.

The AUAR study area is located within the Lower Mississippi River Watershed Management Organization (LMRWMO) area.

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

2005

A search of the Minnesota Geological Survey's County Well Index (CWI) was performed, and records were found for 176 wells in the project area. A majority of the wells are used for domestic water supply. Figure 13-2 (in Appendix D and E) shows the location of these wells. One of the wells is recorded in the database as being inactive. Just over half of the wells were located using the coordinates provided in database files distributed with the CWI. The remaining wells were located using the address and/or public land survey system data provided in CWI. Other wells recorded in the CWI database may be located within the project area, but the location information provided for these wells is either insufficient or inaccurate.

The CWI only identifies wells that have been assigned a unique identification number and only includes a minority of the wells in Minnesota. Aerial photographs and a USGS 7 ½ minute topographic map were used to identify properties not identified in the CWI database that are expected to contain or to have contained a water well. 118 properties were identified as probable well locations (see Figure 13-2 in Appendix D and E).

Since this area has historically been used for farming and rural residences, it is possible that there are other wells in this area that are not accounted for. The possibility exists that unsealed, abandoned wells may be encountered after construction begins. In that event, those wells will have to be properly sealed and abandoned to meet codes required by the Minnesota Department of Health.

The City's Comprehensive Plan calls for conversion/rezoning of portions of the area from low density residential to higher density residential, industrial, and commercial land uses. Existing wells on sites that are redeveloped will be sealed before construction begins in accordance with codes required by the Minnesota Department of Health. Municipal water service may be made available to residences and businesses currently served by private wells. City of Inver Grove Heights codes allow property owners to retain private wells after connecting to the municipal water supply, but no cross-connection between the municipal water system and other water supplies is permitted (City of Inver Grove Heights Ordinance 705.25).

2007 and 2014

No update.

2019

A search of the Minnesota Geological Survey's County Well Index (CWI) was performed, and records were found for 192 wells in the AUAR study area. Almost all of the wells are used for domestic water supply and several are abandoned. Existing wells on sites that are redeveloped will be sealed before construction begins in accordance with codes required by the Minnesota Department of Health. See Figure 7 (in Appendix B) for an updated figure of possible wells. The City completed a Wellhead Protection Plan in September 2016.

2025

All wells currently within the AUAR study area according to the Minnesota Well Index are listed in Appendix A. The AUAR study area is located within the Inver Grove Heights Wellhead Protection Area (WPA) and Drinking Water Supply Management Area (DWSMA). Existing wells, WPAs, and DWSMAs are shown in Figure 7 in Appendix A. Proposed stormwater infiltration within a current or possible future DWSMA should be consulted with the Minnesota Department of Health (MDH).

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

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

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

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

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

2005

Land uses within the AUAR study area are guided to be a combination of residential, commercial, industrial/office space, and public/institutional uses. While the majority of the study area is guided to be residential, the proposed land use is summarized in Table 1.

The estimated sewer flows for the non-residential land uses are as follows:

Table 10: Estimated Sewer Flows for Non-Residential Land Uses

Land Use	Area (acres)				Average Flow (gallons/acre/day)				Total Average Flow (MGD)			
	2005	2007	2019	2025	2005	2007	2019	2024	2005	2007	2019	2024
Comm	59	59	89	89	1,200	1,200			0.007	0.0708	0.1067	
I/O	306	264	200	109	1,200	1,200			0.367	0.3168	0.24	
P/I	11	11	48	48	1,200	1,200			0.013	0.0132	0.0576	
O/I/C	N/A	47	N/A	N/A	N/A	1,200	N/A	N/A	N/A	0.0564	N/A	N/A
TOTAL	--	--	--	--	--	--	--	--	0.387	0.457	0.40403	

The estimated overall sewer flow rate (1,200 gallons/acre/day) was estimated for this analysis to accommodate the need for flexibility in planning for services for this area. The Comprehensive Plan includes a range of proposed densities for each land use area. City staff identified a likely density at which each land use type is likely to develop for use in the AUAR analysis (discussed in Section 6). Most areas are unlikely to develop at the highest densities allowed in the Comprehensive Plan due to the physical constraints of the area and city requirements for dedication of open space. However, it is possible that some areas may develop at the maximum allowed in the Comprehensive Plan. Therefore, a conservative flow rate estimate was used in this analysis rather than the MCES standard sewer flow rate for planning purposes, which is 800 gallons/acre/day.

If a sewer flow rate of 1,200 gallons/acre/day is used for the AUAR area rather than 800 gallons/acre/day, the increased sewer rate requires a larger pipe size in only 1,400 feet of the total proposed alignment and increases the estimated infrastructure costs for the area by just $3,000. This nominal increase in pipe size and cost provides the desired flexibility in the development of this area that may be needed based on the Comprehensive Plan.

The City of Inver Grove Heights will construct sanitary sewer improvements to serve the AUAR study area in general accordance with the 2020 Comprehensive Plan for the city. The sewer flows from this area to the MCES interceptor systems and eventually to the MCES Metropolitan Wastewater Treatment Facility, which has capacity available to serve this area. The sewer system that will provide service to this area is a 24-inch reinforced concrete sewer with a capacity of approximately 9.25 MGD, more than suitable to handle the 6.44 MGD design flows.

Figure 18-1 (in Appendix E) identify preliminary alignments to serve the AUAR study area with sanitary sewer.

2007

See Table 10.

Note error in the original (2005) calculation of sewer flow for the commercial land. The original calculation was for 0.007 MGD, when it is actually 0.0708 MGD. The original sewer flow for non-residential land uses should have been 0.451 MGD compared to the Updated AUAR sewer flow for non-residential land uses of 0.457 MGD. This represents a 0.006 MGD increase.

With the exception of a minor increase in non-residential wastewater flow of 0.006 MGD, and an anticipated reduction in wastewater flow due to a reduction in the total number of dwelling units, wastewater does not change with this update.

The City of Inver Grove Heights has adopted the completed feasibility study of these improvements, called the Northwest Area Water and Sanitary Extensions Feasibility Report, dated May 2005. The City awarded the first phase of these improvements, Northwest Area Utility Improvements Lift Station R-9.1, in July 2007.

2014

A preliminary Engineering Report has been prepared for trunk sanitary sewer facilities in City Project No. 2014-13 Northwest Area Trunk Utilities—Argenta District.

2019

According to the 2040 Comprehensive Plan, there are five new lift stations and several sanitary sewer lines planned within the AUAR study area.

2025

See Appendix A for a list of utility projects completed from 2020 to 2025.

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

2025

No subsurface sewage treatment systems are anticipated within the AUAR study area for the 2025 development scenario.

3) **If the wastewater discharge is to surface water, identify the wastewater treatment methods, discharge points, and proposed effluent limitations to mitigation impacts. Discuss any effects to surface or groundwater from wastewater discharges.**

2025

No wastewater discharge to surface waters is anticipated for the 2025 development scenario.

ii. **Stormwater – Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post-construction, including how the project will affect runoff volume, discharge rate, and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the**

total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

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

- *It is expected that an AUAR will have a detailed analysis of stormwater issues*
- *A map of the proposed stormwater management system and of the water bodies that will receive stormwater should be provided*
- *The description of the stormwater systems would identify on-site and "regional" detention ponding and also indicate whether the various ponds will be new water bodies or converted existing ponds or wetlands. Where on-site ponds will be used but have not yet been designed, the discussion should indicate the design standards that will be followed.*
- *If present in or adjoining the AUAR area, the following types of water bodies must be given special analyses:*
  - *Lakes: Within the Twin Cities metro area, a nutrient budget analysis must be prepared for any "priority lake" identified by the Metropolitan Council. Outside of the metro area, lakes needing a nutrient budget analysis must be determined by consultation with the MPCA and DNR staffs.*
  - *Trout streams: If stormwater discharges will enter or affect a trout stream, an evaluation of the impacts on the chemical composition and temperature regime of the stream and the consequent impacts on the trout population (and other species of concern) must be included.*

2005

DISCHARGE FROM THE STUDY AREA

The LMRWMO and the GCLWMO are considered to be tributary to the Mississippi and Minnesota Rivers, respectively. However, the geologic history of the Northwest Expansion Area has resulted in closed basin drainage; that is, runoff discharges to existing natural basins that in most cases do not have outlets or overflows that operate, and thus are landlocked. Under existing conditions, water flows into these basins and leaves through a combination of seepage (infiltration) into the ground and evaporation.

As identified on Figure 17-2 (in Appendix D and E), the only stormwater discharge from the Northwest Expansion Area within the LMRWMO watershed under existing conditions occurs at two locations: Basin EP-080a (Rosenberger Lake) and Subwatershed BP-005 (to DNR Protected Wetland 241W). Stormwater discharge from the GCLWMO watershed under existing conditions occurs at five locations: Hornbeam Lake (Q-11) to the City of

Sunfish Lake and four stormwater management basins (F-25, W-2, W-4, and W-8) to the City of Eagan's stormwater management system.

ALTERNATIVE STORMWATER MANAGEMENT

In the past, the goal of an urban drainage system was to rush water away as fast as possible into a receiving stream or nearby lake or wetland. When it became evident that this was not a sustainable water management practice, the approach changed to the routing of water into detention ponds. Although many of these ponds were designed according to US Environmental Protection Agency's (EPA) Nationwide Urban Runoff Program (NURP) criteria based on 1980s studies, they too have some deficiencies in effective treatment and management of runoff.

Recently, communities have begun to employ a variety of strategies to treat runoff water by infiltrating it into the ground as close to its source as possible to mimic the natural hydrology of the system in the areas with permeable soils. This not only limits the volume and rate of runoff that occurs, it also eliminates the migration of polluting material that is picked up by runoff as it flows over urban surfaces. Infiltration also replenishes critical groundwater supplies that are used as drinking water sources. So called "alternative" runoff management practices merely seek to mimic the way precipitation would behave without human intervention; that is, it attempts to soak water into the ground as if the land's surface did not have impervious surfaces. Caution, however, must always be exercised so that a high concentration of polluting material is not introduced.

In this respect the stormwater management approach proposed for the Northwest Expansion Area is an alternative to the collect and concentrate approaches from the past. The environmental benefits of this approach include reduced wetland and open space impact, improved water quality, potential regulatory credits (suitable for NPDES Phase II, Total Maximum Daily Loads (TMDLs), and watershed/local stormwater planning), reduced runoff and erosion, closer to natural water infiltration/recharge, reduced runoff and erosion, reduced negative upland habitat impact, and enhanced public awareness.

Taking advantage of the good soils and geologic conditions in the Northwest Expansion Area, the City is proposing an approach that minimizes connected impervious surfaces, increases flow path and time over previous surfaces, and decentralizes treatment (smaller localized BMPs as opposed to large-scale facility development) as a first measure of control. With implementation of these measures as standard practice, collection and further treatment/infiltration of excess water in the numerous existing natural basins may occur. A carefully planned and engineered approach that combines a number of alternative practices with infiltration provides for pretreatment before discharge to wetland basins and preserves the infiltration capacity of the natural basins. This infiltration approach mimics the conditions of the existing landscape rather than simply collecting and disposing of runoff to downstream resources that do not currently receive runoff from the area.

While stormwater conveyance has already been planned for the GCLWMO watershed as outlined in the City's *2020 Comprehensive Plan,* the stormwater management approach outlined in this section of the report is intended to be utilized across the entire

Northwest Expansion Area. With implementation of this approach within the GCLWMO watershed, the rates and volumes of runoff previously planned for may be reduced. The City will continue to coordinate with the adjacent cities of Eagan and Sunfish Lake regarding stormwater management for runoff from the Northwest Expansion Area.

2007, 2014, 2019, and 2025

No update. See Figure 17-1 (in Appendix D and E) for watershed districts.

SURFACE WATER MODELING METHODOLOGY

2005

To adequately predict the impact that development of the Northwest Expansion Area will have on water resources, a tool is needed to incorporate development and infrastructure assumptions. The model used for this exercise is XP-SWMM 2000 (XP Software, Inc.). This model is used to contrast existing conditions with proposed changes associated with development within a watershed. The model looks at the change in land use and land cover and relates the change to runoff behavior. Runoff predictions can be made for variable frequency events and routed through the proposed drainage system to the existing natural basins. The model output and routing can then be used to determine areas where flooding or high water will occur, and then can be used to design a system of stormwater management facilities, which could include detention storage, diversion, infiltration, or any number of associated BMPs.

LAND USE & PERCENT IMPERVIOUS

Existing land use consists mainly of low to medium density residential, forest, tall grass, and agriculture. Percent imperviousness for existing conditions is based on Minnesota Land Cover Classification System (MCCLS) GIS data provided by the DCSWCD. Percent imperviousness for developed conditions is based on the upper range of density units/per acre proposed in Figure 5-5 – Future Land Use 2005 & 2007 AUAR) while taking into account preservation of wetlands, critical event floodplains, lakes, and other inherently unbuildable areas such as steep slopes.

RUNOFF METHODOLOGY

The Green-Ampt Infiltration methodology within the runoff mode of XP-SWMM was used to simulate the infiltration of rainfall since this method is set up to function with continuous simulations and because this method has physically-based parameters that can be predicted using existing data and previous studies. Application of the Green-Ampt equation within XP-SWMM requires definition of three parameters:

1. <u>Initial soil moisture deficit</u> – This parameter is an estimate of the antecedent soil moisture conditions, which affect the initial soil infiltration rate. This parameter becomes important for accurate estimation of infiltration during simulation of a single event or for initial storms of a continuous simulation.
2. <u>Soil capillary suction</u> – This parameter influences the movement of a wetting front through the soil profile. Estimation of this value influences the initial soil infiltration rate (during the early stage of a storm event) but loses impact over time.

3. Saturated hydraulic conductivity – This parameter estimates the rate of water movement through a saturated soil profile and represents the most variable component of the Green-Ampt equation. For this reason, it is also the best parameter to use for infiltration calibration. This is the most significant of the three parameters needed and ultimately drives the saturated infiltration rate. Estimation of this parameter is also (indirectly) responsible for the rate at which the soil moisture content is recovered after a storm event.

Initial values for these parameters were assigned to each of the three US Department of Agriculture Soil Conservation Service (USDA SCS) soil texture groups (Loamy Sand, Sandy Loam, and Silty Loam) within the Northwest Expansion Area based on values recommended by XP-SWMM. Unique composite values for these parameters were developed for each subwatershed based on soil type weighted average.

BASIN STORAGE

Existing basin stage-storage curves were developed from two-foot topographic mapping. Storage under proposed conditions is maintained as existing, except as discussed below, to take into account development grading activities. Shallow depressions that exist in rural areas (primarily occurring in the southwest portion of the Northwest Expansion Area) are assumed to be developed and no longer available for stormwater management under proposed conditions. It is unlikely that all of these basins will be eliminated during the development process. However, to be conservative, it is assumed that these areas will develop to the maximum extent possible with reliance only on local on-site BMPs and the remaining natural basins identified on Figure 17-2 (in Appendix D and E).

In addition, storage for Basins EP-036a, EP-059c, and EP-064 was modified from existing conditions to concentrate storage into a smaller surface area, thereby providing additional developable area. These basins should maintain at least 10.8 acre-feet, 3.4 acre-feet, and 7.8 acre-feet of infiltration storage, respectively.

BASIN INFILTRATION RATES

Rating curves were developed to simulate the infiltration capacity of the basins at different depths based on conservative soil infiltration rates assigned by subwatershed type. Previous studies on infiltration processes in similar geologic and topographic settings in the Metro Area have identified a range of infiltration rates between 0.02 and 0.32 inches per hour for less sandy soils and 0.12 and 0.60 inches per hour for sandy soils.

A single infiltration rate is assigned to dry basins, while two infiltration rates are assigned to wet basins. Wet basins are less permeable in the bottom, where water has ponded historically. Soils data supports that higher permeable materials typically surrounds the low permeability materials, forming an outer ring on the side slopes of the basin. A higher infiltration rate is applied to the outer ring, comparable to the infiltration rate applied over a dry basin with similar soil types.

Table 11 summarizes the assigned basin infiltration rates applied as a function of depth (for both existing and proposed condition models) for each subwatershed type.

Table 11: Natural Basin Infiltration Rates

Subwatershed Type	Depth in the Basin	Infiltration Rate
Type I: Wet basins in less sandy soils	0 to 4 feet	0.07 inches/hour
	4+ feet	0.30 inches/hour
Type II: Wet basins in sandy soils	0 to 4 feet	0.07 inches/hour
	4+ feet	0.50 inches/hour
Type III: Dry basins in less sandy soils	Any	0.30 inches/hour
Type IV: Dry basins in sandy soils	Any	0.50 inches/hour

EVAPORATION

To account for water budget losses due to evaporation, mean monthly evaporation (inches) was used from the USDA SCS (currently the Natural Resource Conservation Services) Hydrology Guide for Minnesota.

RAINFALL EVENTS

During this analysis it became evident that the development of a system that mimics existing conditions (by incorporating infiltration BMPs) requires an evaluation of multiple events. While the system should be designed for the worst-case scenario, it should also be designed and managed so that the BMPs will operate effectively for the smaller rainfall events (e.g., the 5-year 24-hour rainfall event) as well as the 100-year 24-hour rainfall event. As a result, this analysis looks at a number of rainfall events in evaluating the ability of BMPs to mimic the natural hydrology of the system. Modeled rainfall events fall under two major categories: 1) synthetic rainfall curves (SCS Type II) and 2) recorded rainfall.

Synthetic rainfall events modeled for the Northwest Expansion Area include the 1-year 24-hour rainfall event (2.4 inch), the 5-year 24-hour rainfall event (3.6 inch), the 100-year 24-hour rainfall event (6.0 inch), the back-to-back 100-year 24-hour rainfall event (12.0 inch), and the 100-year 10-day rainfall event (10.9 inch). Shorter duration events represent greater intensities but less rainfall amounts which would not typically be critical in a volume-sensitive system such as this area. Snowmelt is addressed in the next section.

Actual recorded rainfall data was obtained from the Minneapolis-St. Paul Airport and used to run a continuous rainfall simulation for a sub-area of the Northwest Expansion Area from 1982 to 1987. This sub-area bound by 70th Street on the north, Highway 55 of the south, Argenta on the west and Robert Trail on the east is representative of the overall Northwest Expansion Area's existing hydrologic and geomorphic setting and is also representative of the overall proposed land use plan. The time period of 1982 to 1987 was selected for continuous simulation from the last 30 years of rainfall record since this represents the longest period of above average annual rainfall and contains the largest single event of record (9.15 inches on July 23, 1987), which significantly exceeds the 100-year 10-day snowmelt event with 7.2 inches of rain. Review of the results for proposed conditions for this continuous event demonstrate that all the natural basins recover from the precipitation events and do not continue to have rising water levels through this period. This is significant since back-to-back storms and extended wet periods could be a concern in this type of drainage system. Given the observed recovery of the natural basins in this area, this continuous event was not run for the entire Northwest Expansion Area.

SNOWMELT RUNOFF EVENT

The 100-year snowmelt runoff event is simulated by a 7.2 inch, 10-day spring runoff event. During snowmelt simulations, it is often assumed that the ground is frozen solid and that no infiltration occurs. In reality, infiltration occurs to an extent (even on frozen ground). The soil's ability to infiltrate under frozen conditions is largely dependent upon the antecedent soil moisture conditions at the time of the initial freeze and the soil's texture. If soil moisture is low when freeze occurs, soil pore spaces can be preserved. The most restrictive conditions occur if the soils freeze while saturated, thereby forming a hardpan that does not allow infiltration. In either case, ground conditions are typically thawing over the 10-day simulation period with increasing infiltration rates over the period of the runoff simulation.

In evaluating the worst-case scenario for both existing and proposed conditions, the 100-year 10-day runoff/snowmelt event is modeled with no infiltration and no depressional storage (BMPs). This is a very conservative estimate of the volume of runoff being generated for the event and assumes that all of the 7.2 inches of runoff is completely delivered to the system. That is, all of the runoff is routed through the system without infiltration losses.

IDENTIFICATION OF WORST-CASE SCENARIO

A number of single larger events were modeled to determine the critical event for each subwatershed in the system. These events include the 100-year 24-hour rainfall event (6.0 inch), the 100-year 10-day rainfall event (10.9 inch), the 100-year 10-day runoff/snowmelt event (7.2 inch), and the back-to-back 100-year 24-hour rainfall events (12.0 inch).

Comparison of high-water levels indicates that the critical event for the majority of the subwatersheds under existing and proposed conditions is the 100-year snowmelt runoff event (7.2 inches in 10 days). In some cases where the 100-year 24-hour high water level is equal to or slightly above the high-water level for the 10-day runoff event, the difference is not considered to be significant enough to clearly demonstrate that the critical event is not the 10-day snowmelt event. Larger differences between these events are due to the inability of existing small culverts to handle the quick delivery of runoff produced by the 24-hour event. Conversely, the culverts are capable of handling the slow delivery of water in the 10-day event. Therefore, overall the system is "volume driven," and the critical flooding event is in almost all cases the 100-year 10-day snowmelt/runoff event.

PROPOSED CONDITIONS BEST MANAGEMENT PRACTICES

After identifying the worst-case scenario, the proposed conditions model was modified to evaluate the effect of infiltration BMPs on the critical high-water level for the basins. This scenario evaluated the construction of infiltration BMPs for volume control. By making some generalizations about the size and capacity of the BMPs, a simplified method for simulating the impact these practices would have on runoff was developed. It was assumed that a raingarden with the following maximum dimensions could be constructed to handle the runoff generated by two single family residential lots:

- Length = 50 feet
- Width = 10 feet
- Storage depth (at the surface) = 1 to 1.5 feet
- Storage depth (subsurface) = 4 feet

Figure 17-4 (in Appendix E) illustrates the concept design configuration for the raingardens. The construction of the perforated pipe is important since it serves as an observation well for future monitoring efforts as well as a conduit for runoff during frozen ground conditions. This design is based upon preliminary research results being developed by Dr. Kenneth Potter at the University of Wisconsin – Madison, who is generating optimal design configurations for raingardens. This design configuration is also based upon a size that will be non-intrusive yet effective given the development setting. The trench may be constructed to the specifications identified above or it may be split into multiple practices provided the overall storage volume and infiltration capacity is being maintained.

Of the four parameters identified above, storage depth at the surface and below the surface are the least flexible and should not be changed. Restricting the maximum ponding depth above ground to 1-1.5 feet reduces the time that there will be standing water in the raingarden, provides a suitable habitat for the vegetation, and allows for wet-dry cycling of the soils. Restricting the storage depth underground ensures that the storage volume will be available within a reasonable time period allowing for back-to-back rainfall events.

Given this design configuration, the amount of depressional storage to be incorporated in the model was determined (Table 12). This depressional storage (defined as a depth in inches) is effectively retained in the subwatershed simulating the storage capacity of the raingardens by reducing the total volume of runoff generated for the given event.

Note that the depressional storage identified in Table 12 for single events was applied based on land use intensity for the following land use categories: low density residential (less than 30% impervious) and medium to high density residential (greater than 30% impervious). This is a low or conservative estimate of the volume control that could be achieved in the system while also providing more volume control for land uses with more imperviousness. This amounts to an overall land dedication for raingardens of about 2 to 3%. The proposed design configuration would allow for a reasonable land dedication that would fit the overall objectives of Northwest Expansion Area as proposed in Figure 5-5 – Future Land Use (2005 & 2007 AUAR).

Table 12: Depressional Storage Values

Rainfall Event	Depressional Storage due to Best Management Practices (BMPs) [inches]	
	Low Density Residential (≤ 30% Impervious)	Medium to High Density Residential/Light Industrial/ Commercial (>30% Impervious)
1-year, 5-year, and 100-year 24-hour rainfall events	0.8	1.2
100-year 10-day rainfall event	2.6	3.9

The higher depressional storage associated with the 100-year, 10-day event is due to the fact that the infiltration rate in the raingardens occurs for the complete duration of the event (10-days) instead of only one day.

2007

No update.

2014

Atlas 14, published in 2013, is the most current frequency and duration stormwater information at the time of this AUAR update. The Northwest Area Stormwater Management Plan will be updated to incorporate Atlas 14 data as published by NOAA for the 2-, 10-, and 100-year rainfall events and the 100-year critical event (10-day snow melt) for development stormwater management plans and landlocked basins.

The Northwest Area Regional Basin Map and Stormwater Model was prepared on March 1, 2011 and includes mapping of the 100-year critical storm elevations for landlocked basins within the Northwest Area drainage. The map and stormwater model are being updated in 2014. Updates to the map and model will be a required condition of approval for future developments.

The 3rd Generation Lower Mississippi River Watershed Management Plan prepared in August 2011 requires a one-inch (1") impervious surface infiltration or filtration requirement depending on soil types and in-situ soil capacity to infiltrate.

2019

An ordinance update in 2016 requires infiltration of runoff per northwest area standards. Filtration for water quality may be allowed in tight soils.

The 4th Generation Water Resources Management Plan was prepared in December 2018 and includes the same requirements as what was established in the 3rd Generation Plan.

2025

The City is in the process of updating their stormwater management plan as of June 2025. The National Oceanic and Atmospheric Administration (NOAA) is also in the process of developing Atlas-15 and likely will be complete in 2026/2027. This update will include new precipitation values based on 10+ years of additional data in locations as well as a forward-looking climate prediction based on rainfall estimates that can be used for resiliency planning by municipalities[20].

STORMWATER MANAGEMENT APPROACH

2005

There are three essential elements of the stormwater management approach proposed for the Northwest Expansion Area including: 1) smart land use planning that promotes open space and limits imperviousness, 2) management of small storm event runoff via alternative BMPs, and 3) preservation of the numerous natural basins for management of large storm events.

SMART LAND USE PLANNING

Smart land use planning that integrates hydrologic function into site design and conserves natural resources and open space is critical to the success of the proposed stormwater management approach. This provides an ecologically friendly means to self-mitigate the impact that development brings to the water cycle. Development which provides diverse housing styles, minimizes impervious surface coverage, incorporates natural features as integral elements, and promotes cluster development or concentration of building pads to preserve open space will minimize runoff volume from the site and maximize the ability to infiltrate stormwater runoff in local BMPs and existing natural basin. Other specific benefits of this approach are:

- Preservation of open space;
- Minimization of land disturbance;
- Protection of natural systems and processes, and incorporation of natural site elements into the hydrologic design;
- Customization of infrastructure to each site rather than uniform design;
- Decentralization of runoff collection;
- Management of surface water
- at its source; and
- Groundwater/aquifer recharge.

Many of these smart land use planning elements are proposed in the *Draft Subd. 37. Northwest Area Planned Unit Development Overlay District* (Hoisington Koegler Group Inc. January 11, 2005) which, upon adoption, will guide development. Of special note, this draft ordinance currently specifies a minimum of 20% of the buildable development area shall be preserved as additional natural area/open space.

Development can also be designed to minimize or eliminate curbs, gutters, wide roadways, and the inlets/outlets and pipes that must accompany all of these features. Rather, this approach is flexible in its application from use on a lot-by-lot basis to entire portions of a community.

ALTERNATIVE BEST MANAGEMENT PRACTICES

Alternative stormwater management practices provide measures for the City to reduce the overall volume of water draining to existing natural basins. Alternative management

[20] Source: https://www.weather.gov/media/owp/hdsc_documents/NOAA_Atlas_15_Flyer.pdf

techniques typically do not use single-event designs (e.g., 100-year frequency) like traditional systems that handle big events while disregarding routine/frequent events. This approach means that routine small events will not be "over-drained" as they would be in a traditional big conveyance system.

The best potential for these practices is infiltration of water close to the location where the precipitation deposits it, mimicking the pre-development runoff condition. The list of practices included under the term "alternative" is extensive. Applications of special interest to the Northwest Expansion Area because of its need to reduce volume flowing to the existing natural basins should focus on infiltration. Infiltration practices could include but are not limited to raingardens, vegetated swales, parking lot bioretention, infiltration trenches/basins, and green roofs.

Disconnection of impervious surfaces is a simple, but commonly overlooked, BMP that can be used to reduce the amount of runoff volume discharged from a site. These methods can be incorporated into development design at the time of construction or retrofit into runoff improvement programs associated with redevelopment of existing areas. Examples of typical methods that can be used to disconnect impervious areas include:

- Routing roof leaders to a vegetated area or a rain barrel;
- Minimizing paved surfaces through such methods as using narrow streets in residential areas, limiting commercial parking space, joint or shared parking, and locating businesses and residences close to the street to minimize driveway length;
- Using permeable pavement or paving blocks for low traffic and overflow parking areas;
- Amending soil and/or loosening it after compaction to encourage infiltration; and
- Using vegetated swales or raingardens to accept runoff rather than pipes.

Modeling the post-development condition, BMPs were idealized as raingardens capable of fully retaining the 1- to 2-year event volume and limiting the 5-year event post development runoff volume to the existing condition volume. As development occurs it will be necessary to ensure that adequate onsite infiltration is provided, and site-specific characteristics should be assessed to determine the most appropriate type and location of BMPs. To this end, the City has proposed a companion document or stormwater design manual for the *Draft Subd. 37. Northwest Area Planned Unit Development Overlay District*. The stormwater design manual would be developed to provide guidance in the selection, design, and construction of site specific, alternative stormwater management BMPs and is intended to be a comprehensive manual which not only summarizes the requirements and design recommendations for the Northwest Expansion Area, but also details operation and maintenance requirements and specifications.[21]

It must always be kept in mind that these alternative BMPs are as well engineered as the more structural practices utilized in the water management system. Although concrete and conduit are not dominant features, the systems do have structure to them and have been sized to perform a specific function. Simply installing and ignoring them will result in

[21] The Northwest Area Stormwater Manual is available at https://www.ighmn.gov/62/Northwest-Area-Development-Initiatives

their demise over a relatively short period of time. If, however, they are installed properly, monitored for effectiveness and properly maintained, these alternative systems will provide decades of low maintenance service.

PRESERVATION OF EXISTING NATURAL BASINS

Although the land use planning and alternative stormwater management BMPs try to match the natural hydrologic function as close to normal as possible, it is important to keep in mind that storm and melt events sometimes occur in excess of the ability of any management practice to manage. Therefore, runoff will also be linked to the existing natural basins. Currently these areas function in most cases as infiltration basins without outlets under normal water levels. These basins would continue to function in this manner in post-development conditions. This will allow for routine treatment of small and moderate events, but also provides the added protection for large-scale flooding events. In addition to the preservation of the basin itself, emergency overflows to downstream basin (as identified on Figure 17.2 in Appendix D and E) must be preserved during development.

2007, 2014, 2019, 2025

No update.

SURFACE WATER MODELING RESULTS

2005

A comparison of the high-water levels for each rainfall event (see Table 17.3 in Appendix E) indicates that the stormwater management approach in most cases reduces or maintains the runoff volume from proposed conditions as compared to the existing conditions runoff for the 1-year 24-hour rainfall event.

The proposed stormwater management approach is also in most cases capable of retaining most of the increased runoff generated for the 5-year 24-hour rainfall event. This positive effect is even more pronounced in the case of the 100-year 24-hour rainfall event and in most cases the infiltration capacity of the downstream existing basin is capable of handling the increased runoff with little to no increase in high water level. In the case of the 100-year 10-day runoff event (worst-case scenario), the alternative stormwater BMPs are conservatively assumed ineffective and high-water levels remain unchanged except as a result of storage losses due to development.

As previously mentioned, stormwater discharges from the LMRWMO watershed are at two locations including: the Rosenberger Lake (EP-080a) and DNR Wetland 241W (BP-005). Table 13 compares peak discharge rates and volumes of runoff discharged from the Northwest Expansion Area under existing and proposed conditions.

Table 13: Discharge from the LMRWMO Watershed

Event	Land Use	Basin BP-005		Basin EP-080a	
		Peak Rate (cfs)	Total Volume (acre-feet)	Peak Rate (cfs)	Total Volume (acre-feet)
1-Year 24-hour rainfall	Existing	0	0	0.9	4.1

Event	Land Use	Basin BP-005		Basin EP-080a	
		Peak Rate (cfs)	Total Volume (acre-feet)	Peak Rate (cfs)	Total Volume (acre-feet)
	Proposed	0	0	0.2	1.1
	Change	0	0	-0.7	-3.0
5-year 24-hour rainfall	Existing	0	0	3.5	12.3
	Proposed	0	0	1.9	7.4
	Change	0.0	0.0	-1.6	-4.9
100-year 24-hour rainfall	Existing	6.5	4.0	8.7	35.4
	Proposed	5.4	3.5	8.7	32.9
	Change	-1.1	-0.5	0.0	-2.5
10-day snowmelt (worst-case scenario)	Existing	15.8	27.3	8.8	116.8
	Proposed	15.8	27.3	8.8	122.1
	Change	0.0	0.0	0.0	5.3

As can be seen from this table, the proposed stormwater management approach maintains or reduces the amount of discharge from the Northwest Expansion Area except in the case of Rosenberger Lake under the worst-case scenario. This is due to the development of smaller depressions in subwatersheds tributary to this basin. The increased volume is not expected to be problematic given the infrequency of this event and given that the increased volume of water translates to less than a 0.1-foot increase in surface water elevation.

The finalized modeling results indicate that implementation of the proposed alternative stormwater management plan and preliminary land use concept would allow the Northwest Quadrant to be developed as a closed system. As long as proper sequencing of construction and system monitoring is conducted, the cost of implementation and maintenance may be similar to conventional systems at the local scale. The City is planning for the additional maintenance that may be needed to maintain the functioning of the proposed system. At the regional scale, given that a conventional system would need a large outlet project, this proposed self-contained stormwater management system should be much more cost effective.

WATER QUALITY ASSESSMENT

Existing and proposed storm bounce for the 100-year 24-hour event was compared for the wetlands within the Northwest Expansion Area per the Natural Resource Inventory) Report (Bonestroo, October 2003, Page 4-15) recommended wetland management standards. Figure 17.3 (in Appendix D and E) identifies wetlands by management class. In this report, wetlands in the Northwest Expansion Area are assigned management classifications based on the susceptibility to adverse impact due to increased stormwater bounce ranging from 1 (high susceptibility to stormwater bounce) to 4 (low susceptibility to stormwater bounce). The management classifications are based on the Site Management Classification Flow Chart on page 4-11 of the Natural Resource Inventory. This report also provides recommended buffer widths and phosphorus pretreatment requirements based on the wetland classifications. Table 14 summarizes the recommended wetland management standards as proposed in the report.

Table 14: Recommended Wetland Management Standards

Management Classification	Buffer Strip (feet)		Structural Setback from Edge of Buffer (feet)	Stormwater Phosphorous Treatment Requirement	Stormwater Quantity Requirement
	Slopes <15%	Slopes >15%			
Manage 1	60	90	10	Limit loading to 2x predevelopment loadings	Storm bounce – Maintain high water level at or below existing conditions for 100-year storm
Manage 2	30	45	10	Limit concentration to 150 parts per billion (ppb)	Storm bounce – Maintain high water level at or below existing conditions plus 0.5 feet for 100-year storm
Manage 3	20	30	10	Limit concentration to predevelopment concentrations (200 ppb)	No requirement
Manage 4	15	20	10	No requirement – enhancement recommended	No requirement

Of all the wetlands delineated in the Northwest Expansion Area, only three would realize a storm bounce that exceeds the recommended bounce criteria according to the model. These wetlands are within Subwatersheds EP-073a, EP-071, and SP-23. In order to prevent this undesired bounce, a higher stormwater management standard (or additional stormwater management storage) is required within these subwatersheds upstream of the existing wetlands.

ADDITIONAL STORAGE REQUIREMENTS

The additional volume necessary for compliance with the proposed wetland storm bounce criteria and necessary in areas that high water levels would compromise developable land is identified in Table 15. This table also identifies other new basins previously planned for in the *Pilot Study Area H&H* (EOR, 2002). Alternatives to new basins that could be investigated include diversion of runoff to adjacent basins with excess storage.

Table 15: Additional Storage Requirements

Basin	Volume (acre-feet)	Comment
EP-073a	8.7	Additional storage necessary for compliance with wetland storm bounce criteria.
EP-071	10.6	Additional storage necessary for compliance with wetland storm bounce criteria.
EP-104	12.0	Enhancement of the existing basin to include an additional 12 acre-feet of storage, thereby reducing the floodplain footprint.
SP-9	0.9	Previously planned for the in the *Pilot Study Area H&H*. Basin SP-24 and SP-21 could accommodate this storage volume.

Basin	Volume (acre-feet)	Comment
SP-23	0.5	Additional storage necessary for compliance with wetland storm bounce criteria.
SP-25	4.0	Previously planned for in the *Pilot Study Area H&H*.
SP-28	0.5	Previously planned for in the *Pilot Study Area H&H*. Basin SP-24 and SP-21 could accommodate this storage volume.
SP-36	3.9	Previously planned for in the *Pilot Study Area H&H*.
SP-48	13.8	Previously planned for in the *Pilot Study Area H&H*.

Table 16 compares the existing and proposed 100-year, 24-hour storm bounce for all wetlands within the LMRWMO watershed, after the incorporation this additional stormwater management storage.

Table 16: Wetland Storm Bounce Assessment

Basin ID Proposed Conditions	Starting Water Level (feet)	Existing High-Water Level 100-year 24-hour Rainfall Event (6.0 inch) (feet)	Proposed High Water Level 100-year 24-hour Rainfall Event (6.0 inch) (feet)	Difference in Bounce Between Existing and Proposed (feet)	Natural Resource Inventory Management Classification
EP-018	935	935.5	935.5	0.0	1
EP-031b	901	901.7	901.6	-0.1	1
EP-071	831	844.9	845.1	0.2	1
EP-073a	840	842.3	842.4	0.1	1
EP-076	893	893.5	893.5	0.0	1
EP-080a	801	802.4	802.2	-0.1	1
EP-080b	901	903.0	903.0	0.0	1
SP-23	863	866.6	866.6	0.0	1
BP-032	891	895.5	895.4	-0.1	2
BP-049a	925	927.6	927.5	0.0	2
EP-010b	898	904.7	904.5	-0.1	2
EP-013	851	858.2	858.6	0.3	2
EP-016b	901	906.2	906.1	0.0	2
EP-016c	907	910.7	910.7	0.0	2
EP-027c	888	890.7	890.7	0.0	2
EP-027e	941	944.9	943.9	-1.0	2
EP-027f	849	851.2	851.3	0.1	2
EP-039	947	852.4	852.1	-0.3	2
EP-058a	877	881.8	881.8	0.0	2
EP-060b	897	902.4	902.6	0.1	2
EP-078	807	809.2	809.0	-0.1	2
EP-079a	807	809.3	809.0	-0.3	2
BP-036	923	931.1	931.1	0.0	3
BP-048b	925	927.9	927.9	0.0	3
EP-045	879	881.9	881.8	0.0	3
EP-059a	799	902.2	902.4	0.2	3
EP-074a	925	828.5	828.8	0.3	3
EP-074b	937	841.5	841.5	0.0	3
EP-102a	901	908.0	907.9	-0.1	3

Basin ID Proposed Conditions	Starting Water Level (feet)	Existing High-Water Level 100-year 24-hour Rainfall Event (6.0 inch) (feet)	Proposed High Water Level 100-year 24-hour Rainfall Event (6.0 inch) (feet)	Difference in Bounce Between Existing and Proposed (feet)	Natural Resource Inventory Management Classification
EP-104	891	897.6	894.0	-3.6	3
QP-5	923	926.1	926.4	0.3	3
SP-26	915	919.2	919.2	0.0	3
SP-10	935	939.1	938.7	-0.4	3
SP-29	957	959.1	959.7	0.6	3
SP-12	835	841.8	844.0	2.2	3
SP-32	923	928.1	927.7	-0.4	3
BP-038a	853	892.5	892.0	-0.5	4
BP-049b	943	945.4	945.4	0.0	4
EP-005d	953	955.8	955.8	0.0	4
EP-009	889	899.0	898.6	-0.3	4
EP-011	883	889.8	892.1	2.3	4
EP-016a	903	904.7	904.6	-0.1	4
EP-025b	897	900.0	900.2	0.2	4
EP-027a	847	853.6	855.3	1.7	4
EP-031a	875	881.0	881.2	0.2	4
EP-034	849	859.2	860.6	1.3	4
EP-035b	853	857.7	857.6	-0.1	4
EP-036a	861	866.1	867.7	1.5	4
EP-038a	867	872.0	871.7	-0.3	4
EP-044	885	890.5	890.4	-0.1	4
EP-106	859	864.9	865.0	0.2	4
EP-107a	855	858.4	858.4	0.0	4

2007 and 2014

No update.

2019

The 4th Generation Water Resources Management Plan was prepared in December 2018 includes updates to the stormwater management to comply with the MS4 permit requirements for the next 10 years. The plan identifies a revised program including implementation priorities.

2025

No update.

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. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

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

2005[22]

The City of Inver Grove Heights currently operates six municipal supply wells with a total groundwater appropriation of 1,250 million gallons per year (MGY) in 2003. The DNR water appropriations permit number for Inver Grove Heights is 806052. Two wells are located east of the project area along 75th Street. The other four wells are located further to the east, three wells in South Valley Park and one just east of North Valley Park. Raw water is pumped from the wells to the water treatment facility located just east of the AUAR area at the intersection of Babcock Trail and 75th Street.

Five of the six wells are completed in the Jordan Sandstone portion of the Prairie du Chien Jordan aquifer system and have capacities of 1,200 gallons per minute (gpm). One well is completed in the Mount Simon-Hinckley aquifer and has a capacity of 1,000 gpm. While each well may yield at least 1,000 gpm, the use of each well is not constant. The average daily discharge for each well is considerably less than the well capacity. A total of 1,116 million gallons were pumped from the wells in 2003. The water demand rarely requires that all wells be activated simultaneously. Therefore, the wells are used on a rotation schedule.

The project area will be served by expanding the existing municipal water supply system. Development of the project area will require additional appropriation of groundwater for municipal water supply. The City's capital improvement plan calls for an additional four wells to meet the ultimate system demand. An expansion of the water treatment plant is also planned. The ultimate projected municipal water system demand is 2,139 MGY (*Water Supply Plan, Inver Grove Heights, Minnesota*, 1996, prepared by Bonestroo Rosene Anderlik & Assoc.). Additional water appropriations permit requests will be staged with development to stay ahead of demand.

[22] Sources: Hundley, Steven J. (1983) Soil Survey of Dakota County, Minnesota. U. S. Department of Agriculture Soil Conservation Service.
Meyer, G. N. and Lusardi, B. A. (2000) Surficial Geology of the St. Paul 30 x 60 minute Quadrangle, Minnesota, Minnesota, Geological Survey M-Series Map M-106. Arc/Info export files and pdf file.
Minnesota Geological Survey (1990) Geologic Atlas of Dakaota County, Minnesota, N. H. Balaban and Howard C. Hobbs eds., University of Minnesota, St. Paul.
Minnesota Geological Survey (2000) Bedrock Geology and Structure of the Seven-County Twin Cities Metropolitan Area, Minnesota, Arc/Info export files.

Analysis of proposed land uses in the AUAR area has revealed that the projected total maximum day water demand will be approximately 1.3 million gallons per day greater than previously projected. Therefore, a fifth additional well will likely be required to meet the ultimate system demand. The number of new wells required will depend on the capacities of the future wells. The ultimate projected municipal water system demand is estimated to be 2,295 MGY (2005 estimate), including the fifth additional well proposed for the system. Additional water appropriations permit requests will be staged with development to stay ahead of demand.

New wells will be competed in the Jordan Sandstone portion of the Prairie du Chien-Jordan aquifer system. The City is currently seeking sites for at least two new wells. The most likely location for the new wells is the Inverwood Golf Course, located along the eastern boundary of the AUAR area. Each new well is expected to have a capacity of 1,200 gpm.

The effect of pumping generally results in a temporary lowering of groundwater levels in the aquifer while the wells are operating. The performance of the City’s current wells indicates that the aquifer is highly permeable and able to yield the additional water. Therefore, while the City’s current wells will experience a gradual increase in pumping and additional wells will be constructed, the aquifer is expected to be able to accommodate the additional withdrawals.

In recent aquifer-pumping tests of Wells 7 and 8, located along 75th Street east of the AUAR area, the water level in Well 8 dropped 38 feet after pumping the well at 1,400 gpm over an 8-hour period. Drawdown due to pumping Well 8 reached an equilibrium level after approximately four hours. Interference drawdown of 9 feet was measured at a distance of approximately 1,300 feet from Well 8 at Well 7. Well 7 was pumped at a rate of 1,300 gpm for a period of 24 hours. Maximum drawdown in Well 7 was approximately 32 feet, and interference drawdown in Well 8 was approximately 10 feet.

Pumping tests, borehold flow-meter logs, and other data collected in the Twin Cities and southeastern Minnesota have demonstrated that the lower part of the Prairie du Chien Group (Oneota Formation) acts as a regional semi-confirming layer between the upper part of the Prairie du Chien Group (Shakopee Formation) and the Jordan Sandstone. Groundwater extraction in one part of the aquifer system, either the Prairie du Chein Group or the Jordan Sandstone, is expected to influence hydraulic heads in the formation not being pumped, but to a much lesser degree than the pumped part of the aquifer system.

Most water wells in Inver Grove Heights and surrounding areas are completed in the Prairie du Chien Group portion of the Prairie du Chien-Jordan aquifer system, in the unconsolidated Quaternary aquifers, or in the St. Peter Sandstone. It is unlikely that pumping from current or proposed City wells will have a detrimental impact on domestic or non-community wells in or around the project area. New municipal wells will be constructed at a sufficient distance to prevent excessive interference between the municipal wells. Adequate well spacing will also limit the potential cumulative drawdown that could occur at the locations of other existing wells.

The Inverwood Golf Course operates irrigation wells completed at a depth of 422 feet. A geologic log is not available, but, given the well location and depth, the well is likely completed in the Jordan Sandstone. The DNR considers potential well interference problems before issuing water appropriation permits. The City of Inver Grove Heights will work with the golf course to locate new wells at a sufficient distance from the existing wells to avoid interference with operation of the existing wells.

2007

No update.

2014

- Well field development occurred in 2008, adding Well No. 9 at 7302 Babcock Avenue. The new well is in the Jordan Aquifer and has a capacity of 1,400 gpm.
- A Water System Model update and the Wellhead Protection Study will be completed in 2014.
- The Water Treatment Plant was expanded in 2007 to provide a treatment capacity of 12 million gallons per day (MGD).
- The Asher Tower Elevated Water Tank was reconstructed in 2013, providing one million gallons (1 MG) of storage capacity.
- A Northwest Area water model and pressure zone map was developed in 2008 and is being updated in 2014.

2019

The existing and future water system for the AUAR study area is shown in Chapter 8 of the 2040 Comprehensive Plan and was developed based on the northwest area water system improvements included in the May 2005 Northwest Area Feasibility Report and more recent Northwest Water System Study completed in January of 2017. The third generation of the Local Water Supply Plan was approved by the DNR in February 2020. A 12-inch and 16-inch water main is proposed within the AUAR study area to support existing and future development. As identified in the 2040 Comprehensive Plan and the Third Generation of the Local Water Supply Plan, one additional well may be needed by 2040 depending on future development. Existing well locations and probable well locations are listed in Appendix A.

The 16 new identified wells are all wells that have not had their locations field checked. The locations are calculated from the township-range-section-subsection provided by the submitter of the well log.

2025

A search of the Minnesota Geological Survey’s County Well Index (CWI) was performed, and records were found for 177 wells in the AUAR study area. Almost all of the wells are used for domestic water supply, and there are several environmental bore holes and one irrigation well. Existing wells on sites that are redeveloped will be sealed before construction begins in accordance with codes required by the

Minnesota Department of Health. See Figure 7 (in Appendix A) for an updated figure of possible wells. See Appendix A for a list of water resource related projects constructed from 2020 to 2025.

iv. Surface Waters

1) Wetlands – Describe any anticipated physical effects or alterations to wetland features, such as draining, filling, permanent inundation, dredging, and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

2005

Proposed development in the project area has the potential to impact the wetlands in the area. The potential impacts of development on these resources are detailed and quantified in Sections 10 and 17. The City's Natural Resource Inventory and Management Plan and Surface Water Management Plan have identified methods to avoid or minimize impacts to wetlands in the project area, and water resources downstream are summarized below.

2007

No update.

2014

- The City of Inver Grove Heights has built stormwater management facilities and protected regional basins in the following projects: Inver Pointe Business Park (United Properties), IGH Investments LLC—Argenta Hills Site Construction Plans (Amana Trail and Target Development), Argenta Hills 2nd through 8th Addition, 2009-01 Intersection (roundabout along TH 3), City Project No. 2013-03 SP-27 Stormwater Facilities Repairs, City Project No. 2010-41 Trunk Highway 3 Right Turn Lane—Argenta Hills 2nd Addition, Inver Glen Senior Housing projects.
- The City utilizes the following documents for stormwater guidance:
  - Northwest Area Stormwater Manual, adopted on May 29, 2007.
  - The Second-Generation Water Resources Management Plan adopted on December 8, 2008. The plan is being updated in 2014 to the 3rd Generation Plan.
  - The 3rd Generation Lower Mississippi River Watershed Management Plan prepared in August 2011.

  - The Northwest Area Regional Basin Map and Stormwater Model prepared on March 1, 2011. The map and stormwater model are being updated in 2014. Updates to the map and model will be a required condition of approval for developments.
  - DCSWCD Low Impact Design (LID) Standards are applicable for filtration and infiltration BMPs. The current LID standards may be found on the DCSWCD website.

- On March 17, 2014, the City's MS4 General Permit coverage was extended, reauthorizing the new permit. The City will meet requirements of the new permit from the date permit coverage was extended.

- The Gun Club Lake Watershed Management Organization (GCLWMO) was disbanded and the Eagan-Inver Grove Heights Watershed Management Organization (EIGHWMO) was created in 2014.

- Atlas 14, published in 2013, is the most current frequency and duration stormwater information at the time of this AUAR update. The Northwest Area stormwater management plan will be updated to incorporate Atlas 14 data as published by the National Oceanic and Atmospheric Administration (NOAA) for the 2-, 10- and 100- year rainfall events and the 100-year critical volume (10-day snow melt) for development stormwater management plans and landlocked basins.

2019

- Third generation Water Resources Management Plan adopted December 2014.

- Fourth generation Water Resource Management Plan adopted December 2018.

There are several goals and policies associated with surface water management for the Northwest Area in Chapter 3 and 10 of the 2040 Comprehensive Plan.

From Chapter 3:

- Goal 1: Conserve and enhance key natural resources to respect, reflect, and protect the natural environment of Inver Grove Heights
  - Policy 1: Emphasize proper management of open space areas in order to preserve the trees, steep slopes, water quality and similar significant features of these areas and protect the natural environment of Inver Grove Heights.

- Goal 2: Promote future urban development in Inver Grove Heights to sustain the character and function of essential natural resources.
  - Policy 4: Consider re-establishing a program of periodically testing water bodies within the community in order to assess the long-range effects that urbanization has on these water bodies and

correspondingly, in order to undertake any necessary protective measures that may be pointed out through this monitoring system.

  - Policy 8: Continue implementing the Northwest Area zoning ordinances as a model for innovative stormwater management and development patterns.

From Chapter 10:

- Water Quality of Lakes and Ponds
  - Policy1: Water bodies designated as lakes by the City will be managed to meet the City's water quality criteria for non-degradation of water quality, with allowance for natural variability.
- Goal: Stormwater Runoff Quality, Rates, and Volumes
  - Policy 1: Operate, manage, and maintain the City's stormwater system to ensure proper functioning of the system and to meet the requirements of the City's NPDES Phase II MS4 Permit and other agency requirements.
  - Policy 2: Improve the quality of stormwater runoff reaching the Mississippi River by reducing nonpoint source pollution (including sediment) carried as stormwater runoff.
  - Policy 3: Minimize flood damage to residential, business, commercial and public structures and property, and protect against increased flooding caused by land disturbing activities and other projects.
  - Policy 4: Reduce volumes of stormwater runoff and the amount of impervious surfaces in the developed parts of the City. Goal 5: In the Northwest Area - limit the rates and volumes, and increase the treatment of stormwater runoff, by managing stormwater runoff as close to its source as possible and mimicking the system's natural hydrology. Incorporate the "treatment train" approach with a goal to require that at least 50% of water quality treatment is provided my BMPs located in the upstream areas of the site.

The 2040 Comprehensive Plan also states that the city will continue implementing the NW Area PUD ordinance to protect natural resources and valued open space corridors.

2025

No update.

MITIGATION

2005

Wetlands in the project area are regulated by several agencies, including the US Army Corps of Engineers, Minnesota Board of Water and Soil Resources (BWSR), the Minnesota Pollution Control Agency (MPCA), and City of Inver Grove Heights. The City of Inver Grove Heights has accepted the responsibility for the administration of the Minnesota Wetland Conservation Act (WCA). The City uses the DCSWCD for technical assistance for WCA issues. Construction plans for the site that propose direct alteration of indirect impact to wetlands within the project area will require permits from the appropriate regulatory agencies.

Information about the types and acreage of wetlands in the project area are detailed in Section 10, above. Wetlands in the AUAR area were inventoried using the Minnesota Routine Assessment Methodology (MnRAM) and classified in four types based on their vegetation communities and susceptibility to stormwater impacts. The task force for the Natural Resource Inventory developed recommendations for management of the wetlands based on their classification, with the greatest protection begin given to the highest quality wetlands. Recommended Wetland Management Standards adopted the by the City are included in Table 17.

Table 17: Recommended Wetland Management Standards

Management Classification	Buffer Strip (slopes <15%)	Buffer Strip (slopes >15%)	Structural Setback from Edge of Buffer	Stormwater Phosphorus Pretreatment Required	Stormwater Quantity Required
Manage 1	60 feet	90 feet	10 feet	Limit loadings to 2x predevelopment loadings (0.25 lbs/ac/yr)	Storm bounce – maintain high water level (HWL) at or below existing conditions from 100-year storm
Manage 2	30 feet	45 feet	10 feet	Limit concentration to 150 parts per billion (ppb)	Storm bounce – maintain HWL bounce at or below existing conditions plus 0.5 feet for 100-year storm
Manage 3	20 feet	30 feet	10 feet	Limit concentration to predevelopment concentrations (200 ppb)	No requirement
Manage 4	15 feet	20 feet	10 feet	No requirement – enhancement recommended	No requirement

The City will implement these standards along with standards adopted in the Surface Water Management Plan (see Section 17) for waterbodies in the AUAR area. Section 17 provides detailed analysis of the potential stormwater impacts to wetlands and basins in the AUAR area and includes recommendations for management of surface water runoff to avoid or minimize potential impacts.

2007 and 2014

No update.

2019

Some wetland impacts have occurred within the AUAR study area since 2005. Those wetland impacts have been minimized to the extent practicable and have been mitigated. The wetland inventory and management plan has not been updated to reflect these minor changes to wetlands within the AUAR study area.

- June 2018 Northwest Area Regional Basin Map by EOR.
- June 2017 Robert District Basin Map update.

2025

Some wetland impacts have occurred within the AUAR study area since 2005. Those wetland impacts have been minimized to the extent practicable and have been mitigated. Figure 5 in Appendix A shows existing wetlands within the AUAR study area based on the 2024 NWI data..

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

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

2025

No alterations to other surface waters are anticipated as part of the 2025 development scenario. The AUAR study does not contain and is not adjacent to any recreational water bodies.

13. CONTAMINATION/HAZARDOUS MATERIALS/WASTES

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

2005

Information obtained from Environmental Data Resources, Incorporated (EDR) January 7, 2005 was used to assess the presence of registered underground and aboveground storage tanks (USTs and ASTs), hazardous waste generators currently existing within the study area, and the potential occurrence of past spills or releases. The EDR report identified numerous sites of potential concern within the study area (see attached map and table).

There were 18 areas of potential concern (30 addresses) identified in the report, corresponding to the numbers on the attached map. In some cases, more than one site is associated with the number. Sites identified included 17 where some type of release has occurred:

- 3 leaking underground storage tank (LUST) sites
- 10 spill sites
- 1 agricultural spill site
- 1 emergency response notification system site
- 1 leaking aboveground storage tank (LAST) site
- 1 unpermitted dump site (identified in the MN LS database)

Other sites where chemicals and/or petroleum products are used and stored included:

- 11 small quantity hazardous waste generator (SQG) sites
- 7 underground storage tank (UST) sites
- 1 aboveground storage tank (AST) site

Numerous additional sites of potential concern have also been identified near the study area.

Information has been requested from the Dakota County Environmental Management Office regarding sites of potential concern identified in Dakota County records. The County indicated that due to the large size of the AUAR area, the County could not provide this data, but has provided a link that the City can use to access this data as needed. The County's database is a "snapshot" in time, and sites may change over the course of development in the AUAR area. Given the size and changing nature of the database, it is recommended that the City work with potential developers to access the County's database as development is proposed to identify whether the development area includes a site of known contamination, hazardous waste storage, or other areas of potential concern. If problem areas are identified, a Phase I investigation could be initiated, and the site issues addressed prior to construction.

It should also be noted that disposals and releases could occur between the time of final AUAR approval and actual development plans for the site. In light of this reality, it seems prudent to revisit the issue of potential contamination during the site development process. Typically, a Phase I environmental site assessment (Phase I ESA) would be required by a lender in conjunction with a property transaction where some type of financial assistance (i.e., loan) is being sought. The Phase I ESA would presumably identify any potential site contamination concerns that exist at that time, allowing the issue to be resolved prior to construction.

Due to the past and current agricultural use of property within the study area, a variety of pesticides have likely been used and stored within the study area. Small storage tanks for petroleum products are also likely to have been or remain present at farmsteads within the study area. If contamination is discovered during the course of development, the developer or other responsible party will be required to address the situation in accordance with MPCA rules.

The temporary and potential future use of hazardous materials and petroleum products within the study area is addressed below in part c.

2007 and 2014

No update.

2019

The MPCA "What's in my Neighborhood" information was reviewed, and Figure 8 was created to identify the sites tracked by MPCA.

2025

The MPCA "What's in my Neighborhood" information was reviewed. Figure 8 in Appendix A shows the current sites tracked by the MPCA, and these sites are listed below in Table **18**. A Dakota County Environmental Information Request was submitted in January 2025. The environmental review report and map was received in March 2025 and is included in Appendix A.

Table 18: MPCA What's in my Neighborhood Sites

Site ID	Name	Active? Y or N	Address	Activity
234010	InverPointe Building 1	Y	Courthouse Boulevard	Construction Stormwater
245729	Simpson Strong-Tie	Y	8450 Courthouse Blvd	Industrial Stormwater
133929	Salem Hills St Recon Mill & Overlay - IGH	Y	See location description	Construction Stormwater
157445	Crosby Heights	Y	Crosby Avenue	Construction Stormwater
145229	2012-07 Bohrer Pond NW Pre Treatment Con	Y	Address Unknown	Construction Stormwater
154974	Browning Ferris Industries - Pine Bend	Y	Address unknown	Solid Waste
136615	South Grove St Reconstruction Area 4	Y	See location description	Construction Stormwater
119945	Courthouse Boulevard Court	Y	Address Unknown	Construction Stormwater
98481	CP 26-29 (CSAH 26)	N	See location description	Construction Stormwater

Site ID	Name	Active? Y or N	Address	Activity
155676	Inver Grove School District	Y	Address unknown	Solid Waste
122754	South Grove Street Reconstruction Area 2	Y	See location description	Construction Stormwater
156054	Jacob Holdings of Mendota Road LLC	Y	Address unknown	Solid Waste
2812	CP 1993-25, -26, -29, -31, 1992-0?	N	See location description	Construction Stormwater
98041	Phase 5 Cell B Construction	N	See location description	Construction Stormwater
155930	Miller Excavating	Y	Address unknown	Solid Waste
2810	CP 1992-04, -07A; 1993-28, -30, -31	N	See location description	Construction Stormwater
64476	Summer House of Inver Grove Heights	N	area bound by Upper 62nd St E, 65th St E & W of Cahill Ave	Construction Stormwater
98325	Inver Grove Heights Good Samaritan House	N	See location description	Construction Stormwater
65780	Inver Hills Ninth Addition	Y	See location description	Construction Stormwater
2813	City Project 1995-02	N	See location description	Construction Stormwater
63331	Cahill Ave Improvements - Phase 3	N	Btwn Concord & 80th St; 80th St. Btwn Boyd Ave & E of Cahill	Construction Stormwater
151130	2015-10 NWA Trunk Utility Improvement	Y	Address Unknown	Construction Stormwater
154827	Newell Abatement Services	Y	Address unknown	Hazardous Waste
128365	Clark Road Improvements - IGH	Y	See location description	Construction Stormwater
139908	2012 Urban Street Reconstruction 65th St	Y	Address Unknown	Construction Stormwater
226081	Inver Grove Fire Station #2	Y	9250 Courthouse Blvd	Construction Stormwater
252275	Inverpoint	Y	8360 Courthouse Blvd.	Construction Stormwater
247539	InverPoint Building 3	Y	8450 Courthouse Blvd	Construction Stormwater
213161	Scandia Compliance Inspections, LLC	Y	16115 Quality Trail N	SSTS
220638	Blackstone Ridge-Winwood Addition 2nd Addition	Y	Not Available	Construction Stormwater
199306	Inver Grove Heights, City Of	Y	8150 Barbara Ave	SSTS
156630	Wescott Multipurpose Shed	Y	10326 Robert Tr S	Construction Stormwater

Site ID	Name	Active? Y or N	Address	Activity
192982	Oren and Trog Property	Y	Highway 55 and Robert Trl S	Brownfields, Petroleum Brownfield; Petroleum Remediation, Leak Site
200919	Malm Septic	Y	10620 Courthouse Blvd	SSTS, Licensed Organization
213540	CVS Pharmacy 17549	Y	7841 Amana Trl Ste B	Hazardous Waste, Very small quantity generator
101751	Truck Repair & Equipment Co Inc	Y	8245 Argenta Trl	Hazardous Waste, Very small quantity generator; Underground Tanks
6100	Timber Ponds	N	Address Unknown	Construction Stormwater
5610	Inver Grove Heights Collection System	Y	8150 Barbara Ave	Wastewater, Municipal Collection System
122488	Wagner Sod	Y	8150 Courthouse Blvd Ct	Aboveground Tanks
236900	The Crossings at Inver Woods	Y	1462 80th St E	Construction Stormwater
29632	Inver Wood	Y	1597 80th St E	Hazardous Waste, Minimal quantity generator
231478	Scenic Hills	Y	1401-1407 80th Street East	Construction Stormwater
196746	CHS Inc Lubricents Plant	Y	1160 Courthouse Blvd	Petroleum Remediation, Leak Site
191039	Mn Dot (former Service Station)	Y	Robert St S & Th 55 (nw Corner)	Petroleum Remediation, Leak Site
246751	Scenic Hills Phase (2-4)	Y	Scenic Hills 1st Addition Blocks 2-8 67 Single Family Lots	Construction Stormwater
228970	Natural Landscape Minnesota, Inc.	Y	1215 80th St E	Hazardous Waste, Minimal quantity generator
123134	Argenta Hills	Y	7757 Robert Trl	Hazardous Waste
133464	SAP 178-010-008 TH3, IGH	N	See location description	Construction Stormwater
142738	TH3 erosion repair	N	Address Unknown	Construction Stormwater
139184	Argenta Hills 5th Addition	Y	Address Unknown	Construction Stormwater
215063	CP 63-25 Argenta Trail Realignment	Y	Not Available	Construction Stormwater
130652	Argenta Hills 2nd Addition	Y	Address Unknown	Construction Stormwater
121554	Argenta Hills	N	Address Unknown	Construction Stormwater
139551	SP 1908-85 TH 3 turn lanes at Autumn Way	N	Address Unknown	Construction Stormwater
255386	Peltier and Highlands Park Development	Y	Agate Trail	Construction Stormwater
249401	NW Area Neighborhood Park #1	Y	7500 Argenta Ct	Construction Stormwater

Site ID	Name	Active? Y or N	Address	Activity
251436	Highlands at Settlers Ridge	Y	Not Available	Construction Stormwater
248084	Peltier Reserve	Y	7250 Argenta Trl	Construction Stormwater
248791	Peltier Reserve	Y	7250 Argenta Trl	Construction Stormwater
147410	Povolny Specialties Addition	Y	7350 Courthouse Blvd.	Construction Stormwater
222886	Blackstone Vista 3rd Addition	Y	Not Available	Construction Stormwater
128692	Amazing Grace Lutheran Ch Parking Lot Im	Y	Address Unknown	Construction Stormwater
105333	Neil Stromme Residence	N	7185 Alta Ave	Petroleum Remediation, Leak Site; Underground Tanks
149247	Blackstone Vista	Y		Construction Stormwater
213427	Inverwood Golf Course Renovations	Y	1850 70th St. E	Construction Stormwater
157681	2015-13 & 2015-16 NWA Trunk Utility Improvement - Argenta District	Y	Not Available	Construction Stormwater
227771	Holiday Stationstore #3556	Y	7020 Robert Trl S	Construction Stormwater; Petroleum Remediation, Leak Site; Underground Tanks
141966	SP 1908-79 TH 3	N	Address Unknown	Construction Stormwater
246790	Canvas at Inver Grove Heights	Y	South Robert Trail 70th Street East	Construction Stormwater
225089	CSAH 26 (70th Street) at TH 3 (South Robert Trail)	Y	CSAH 26 (70th Street) at TH 3 (South Robert Trail)	Construction Stormwater
246506	CSAH 26 & CSAH 63 IMPROVEMENTS PROJECT	Y	Not Available	Construction Stormwater
95620	Kladek Irrigation Pond	Y	1401 70th St E	Construction Stormwater
256801	Falcon Property NWC TH3 Embankment	Y	Not Available	Construction Stormwater
149119	Blackstone Ponds	Y	Not Available	Construction Stormwater
117129	Vern Erickson	N	1658 69th St W	Underground Tanks
157749	Blackstone Ridge	Y	Not Available	Construction Stormwater
38243	Value Auto Repair	N	6889 S Robert Trl	Hazardous Waste
38242	Fischers Service	N	6889 S Robert Trl	Hazardous Waste
156874	Blackstone Ridge	Y	1285 70th Street	Construction Stormwater
130704	Inver Glen Senior Living	N	7260 S Robert Trl	Construction Stormwater; Hazardous Waste, Very small quantity generator

Site ID	Name	Active? Y or N	Address	Activity
199204	Demolition Fill - 2	Y	6760 Arkansas Ave	Site Assessment
222429	TH3 & 65th Street Improvements	Y	TH 3 & 65th Street	Construction Stormwater
34671	Premier Services	N	6520 S Robert Trl	Hazardous Waste
136262	International Wire Works	Y	6520 S Robert Trl	Industrial Stormwater
135414	South Grove S Reconstruction Area 5	Y	See location description	Construction Stormwater
233647	Settlers Ridge North	Y	Not Available	Construction Stormwater
195410	Min Argenta Property	Y	6261 Argenta Trl	Brownfields, Petroleum Brownfield
216030	NWA Trunk Watermain Improvements - 65th St Loop	Y	Not Available	Construction Stormwater
231242	1985-148 I-494 Mill and Overlay	Y	Not Available	Construction Stormwater
190796	Gerten Residence	Y	12 High Road	Petroleum Remediation, Leak Site
187087	Ebgers Residence	Y	2 High Rd	Petroleum Remediation, Leak Site

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

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

2005

A variety of waste is expected to be generated by the proposed development, as it will include residential, commercial and office, and industrial development.

As is currently the case in Inver Grove Heights, solid waste will be collected weekly by a licensed hauler and disposed of at a licensed landfill. Curbside collection of materials for recycling will also be available in the study area, as will collection of yard waste. Using statistical information collected by Dakota County, and the Development Scenario proposed for the study area, an estimate of total municipal solid waste generated under existing conditions and at build-out was prepared (see Table 20). In addition, volumes of existing and predicted recycling/source separation programs were calculated.

Existing land use in the study area is mainly agricultural, with undeveloped areas, a golf course, and scattered residential neighborhoods. Some commercial/industrial development is also present along the highway corridors. Because the bulk of the property is undeveloped or has been used agriculturally, current waste generation is much less than what will be generated after development. Future land uses designated for the study area are shown in Table 1. As the City of Inver Grove Heights does not track solid waste generation, statistics were derived using information from another city in Dakota County to estimate what could be expected after development of the project area.

Table 19: Waste Generation Per Household

Type	Calculation
Persons Per Household	2.6 persons/household
Waste generation per household	1.25 tons/household/year
Residential recycling, curbside	0.21 tons/household/year
Residential recycling, drop-off	0.05 tons/household/year
Yard waste, composed	0.10 tons/household/year
Non-Residential Waste Generation	33.44 tons/acre/year
Non-Residential Recycling	2.49 tons/acre/year

Calculations were completed using the above statistical information and the Development Scenario proposed for the study area. Comparisons of current and predicted potential waste generation quantities are presented in Table 20. Estimates related to recycling and yard waste composting are presented in the text following the table.

Table 20: Solid Waste Generation

Source	Existing Units		Under Existing Land Use		Potential Units				Under Proposed Development Scenario			
	2005	2007	2005	2007	2005	2007	2019	2025	2005	2007	2019	2025
Residential	300 households (estimated)		375 tons/year		7,715 households (max)	7,054 households (max)	7,097 households (max)	6,198 households (max)[23]	9,644 tons/ year	8,818 tons/ year	9,884 tons/ year	7,747 tons/ year
Non-Residential	123 acres		4,113 tons/year		398 acres	404 acres	359 acres	268 acres	13,309 tons/ year	13,510 tons/ year	12,005 tons/ year	8,962 tons/ year
Total Waste Generated	--		4,488 tons/year		--	--	--	--	22,953 tons/ year	22,328 tons/ year	21,889 tons/ year	16,709 tons/ year

Solid waste generated in the city of Inver Grove Heights is collected on a weekly basis. The waste is taken to a landfill licensed to accept such waste for disposal. Materials for recycling and composting are also collected. Collection service will be expanded to service the AUAR study area, after development.

Under current conditions, it is estimated that approximately 63 tons of residential solid waste is recycled via curbside pick-up per year in the study area, and approximately 15 tons is recycled via drop-off sites. After development, it is estimated that approximately 1,620 tons/year of residential solid waste would be recycled via curbside pick-up and 386 tons/year would be recycled via drop-off sites each year. Currently, the amount of

[23] Source of data: 2022 American Community Survey B09019 | Household Type for Census Tract 605.05 Block Group 2, Census Tract 605.08, Block Group 2 and 5.

recycling in the area associated with the existing non-residential development is estimated to be approximately 306 tons per year. Under proposed conditions, it is estimated to be approximately 991 tons per year.

It is estimated that approximately 0.10 tons of yard waste per household is composted each year. Under current conditions, yard waste composting is estimated to be 30 tons/year for the study area. Under potential development conditions, approximately 772 tons of yard waste from the study area would be composted per year.

2007

- Estimated Residential Curb-side Recycling: 1,481 tons/year
- Estimated Residential Drop-off Recycling: 353 tons/year
- Estimated Non-Residential Recycling: 1,006 tons/year

2014

No update.

2019

- Estimated Residential Curb-side Recycling: 1,660 tons/year
- Estimated Residential Drop-off Recycling: 395 tons/year
- Estimated Non-Residential Recycling: 894 tons/year

2025

- Estimated Residential Curb-side Recycling: 1,301 tons/year
- Estimated Residential Drop-off Recycling: 310 tons/year
- Estimated Non-Residential Recycling: 667 tons/year

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 spills or releases of hazardous materials. Identify measures to avoid, minimize, or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

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

2005

During construction activities, it is likely that portable storage tanks of fuel for construction vehicles and machinery may be temporarily located in various areas of the study area. For the purpose of minimizing impact due to potential spills, the re-fueling of vehicles and machinery will be conducted away from surface waters, wetlands, and other sensitive areas.

Approximately 296.1 acres of commercial and office/industrial development are proposed within the study area. In addition, 63.1 acres of mixed-use development are also proposed. A variety of businesses would be permitted under these land use designations and could include those types that use and store various amounts of chemicals or petroleum products; in addition, some may utilize aboveground or belowground tank systems. At this time, it is not known if or where these businesses would be located within the study area. Any business using or storing chemicals or petroleum products would be subject to local and state rules regulating such activity.

2007

The updated Development Scenario land uses have a total of 393 acres of commercial, office, industrial, or mixed-use development.

2014

No update.

2019

The updated Development Scenario land uses have a total of 387 acres of commercial, office, industrial, or mixed-use development.

2025

The updated Development Scenario land uses have a total of 296 acres of commercial, office, industrial, or mixed-use development (refer to Table 1 for future land uses).

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 wastes including source reduction and recycling.**

AUAR Guidance: Not required for an AUAR.

14. FISH, WILDLIFE, PLANT COMMUNITIES, AND SENSITIVE ECOLOGICAL RESOURCES (RARE FEATURES)

FISH RESOURCES

2005

There are no fishery resources within the project area. The City's Surface Water Management Plan for the Northwest Expansion Area is designed to control the quantity and quality of runoff from the AUAR area to avoid any negative impacts to downstream resources. The detailed analysis is included in Section 17 – Water Quality – Surface Water Runoff.

2007, 2014, 2019, and 2025

No update.

WILDLIFE AND PLANT SPECIES

2005

The Minnesota County Biological Survey did not identify any endangered, threatened, or special-concern wildlife species within the project area. Wildlife resources in the area are birds, mammals, amphibians, and reptiles that are common in suburban and exurban areas of the Twin Cities.

The Minnesota DNR's Natural Heritage Database identified two plant species that are present in the AUAR area that have no legal protection status but are tracked by the DNR database. These include *Liparis lilifolia* (Lila-leaved twayblade) and *Triodanis leptocarpa* (Venus' looking glass).

The DNR's database also identified an Oak Forest of sufficient size and quality to be included in state lists of significant natural communities identified by the County Biological Survey.

The database describes the locations and conditions of these communities. All are on privately-owned sites. The locations of these plants and communities have also been noted in the Inver Grove Heights Natural Resources Inventory and Management Plan. The Plan includes recommendations for restoration of the Oak Forest and the natural communities that include the identified plant species. Copies of the DNR Natural Heritage Database information are included in the Attachments of the 2005 AUAR.

The wildlife species currently using the AUAR area include a variety of animals that are common in suburban and exurban areas in the Twin Cities. Development of residential, commercial, and other land uses in the Northwest Area and the infrastructure to serve new land uses will result in loss or change of some habitat areas and movement of some animals to other locations. The protection of high-quality habitat areas in the Northwest Expansion Area, as specified in the City's Natural Resources Inventory and Management Plan, as well as management and restoration of other wetland and upland habitat areas and the connections among habitat areas will provide habitat for the wildlife species that are using the area. Since protection of wildlife resources is dependent on protection and restoration of habitat, the recommendations for protection of wildlife resources are the same as those listed in Section 10 – Cover Types.

The Minnesota DNR's Natural Heritage Database identified two plant species that are present in the AUAR area that have no legal protection status but are tracked by the DNR database. These include Liparis lilifolia (Lilia-leaved twayblade) and Triodanis leptocarpa (Venus' looking glass).

The DNR's database also identified an Oak Forest of sufficient size and quality to be included in state lists of significant natural communities identified by the County Biological Survey.

The database describes the locations and conditions of these communities. All are on privately-owned sites. The locations of these plants and communities have also been noted in the Inver Grove Heights Natural Resources Inventory and Management Plan. The Plan includes recommendations for restoration of the Oak Forest and the natural communities that include the identified plant species. Copies of the DNR Natural Heritage Database information are included in the Attachments.

2007 and 2014

No update.

2019

A review of the DNR Natural Heritage Inventory System (NHIS) database was conducted (LA-965) for the AUAR study area and the area within one mile of the AUAR study area. One state- and one federally-listed species were identified (see Table 21).

Additionally, ten mapped regionally significant ecological areas (RSEA) were identified and six of them are within the AUAR study area. Some of these areas are part of the Marcott Lakes Conservation Focus Area. Areas within Conservation Focus Areas may be eligible for Dakota County land protection funds.

Table 21: Species Within the AUAR Study Area (2019)

Species	Type	Status	Last Recorded Date	Habitat	In Study Area?	Potential Mitigation Measures
Loggerhead Shrike	Bird	Endangered (State-Listed)	1994	Grassy open areas with scattered trees and shrubs	Yes	Required tree removal within potentially suitable habitat areas or areas with known occurrences will take place outside breeding season (April – July).
Rusty patched bumble bee	Bee	Endangered (Federally-Listed)	2018	Grassland with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter	Yes	Mowing and vegetation disturbance to occur in early spring, prior to the active season. Disturbed areas will be reseeded using native seed mixes.

2025

An updated summary of species and habitats is provided in Sections A through D below.

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

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

2025

See Section 8 for a discussion of cover types within the AUAR study area. There is one Minnesota Site of Biodiversity and one native plant community approximately 0.1 and 0.4 miles away from the study area, respectively. There are ten mapped regionally significant ecological areas (RSEA) within one mile of the study area, with six of them located within the AUAR study area (See Figure 9 in Appendix A).

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 and/or correspondence number (ERDB) 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 results.

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

2025

State-Listed Species

A review of the DNR Natural Heritage Inventory System (NHIS) database was conducted (LA-2024-006) for the AUAR study area and the area within one mile of the AUAR study area. Table 22 shows the state-listed species within one mile of the AUAR study area. A Natural Heritage Review letter was received from the DNR in March 2025 and is included in Appendix A.

Table 22: State-Listed Species (2025)

Species	Status	Habitat	Potential Impact	Potential Mitigation Measures
Loggerhead shrike	Endangered	Grassy open areas with scattered trees and shrubs	Tree removal may have a negative impact on this species.	To mitigate impacts to the loggerhead shrike, tree and shrub removal is required to be avoided during the breeding season, April through July.
Least darter	Special concern	Clear, freshwater streams and lakes, with cool to warm waters. In Minnesota, Least Darters are usually found in low-velocity streams that are part of a connected lake or stream system.	Development of the study area is not anticipated to impact streams or lakes. No impacts to least darter are anticipated.	N/A

Federally-Listed Species

The U.S. Fish and Wildlife Service (IPaC) tool was accessed to obtain an official species list for the project. Table 23 shows the federally-listed species included on the IPaC species list.

Table 23: Federally-Listed Species (2025)

Species	Status	Habitat	Potential Impact	Potential Mitigation Measures
Northern long-eared bat (*Myotis septentrionalis*)	Endangered	During summer, these bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. This species roosts in trees and has also been found to roost in structures such as barns and sheds. NLEBs spend winter hibernating in caves and mines. Suitable summer habitat for the NLEB consists of a wide variety of forested/wooded habitats where they roost, forage, and travel. NLEB habitat may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures.	Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. On November 30, 2022, the USFWS published in the Federal Register (87 FR 73488) a final rule which reclassified this species as an endangered species. The rule went into effect March 31, 2023. The development of the study area may include the removal of trees.	Tree clearing activities should be restricted to when northern long-eared bats are not likely to be present, between November 1 to March 31. Coordination with USFWS before tree clearing is recommended.

Species	Status	Habitat	Potential Impact	Potential Mitigation Measures
Tricolored bat (*Perimyotis subflavus)*	Proposed Endangered	Tricolored bats, also known as the eastern pipistrelle, are known to colonize along the banks and caves of the Mississippi River. During the winter, tricolored bats hibernate in caves and mines, although in areas where caves are sparse, tricolored bats may hibernate in culverts, tree cavities, or abandoned water wells.	According to the USFWS, the tricolored bat uses forested areas for roosting and foraging during the spring, summer, and fall. The development of the study area may include the removal of trees.	To prevent impacts to bat species, tree trimming or removal should occur during the winter months (November 1 – March 31).
Whooping Crane *(Grus americana)*	Experimental	The Whooping Crane is designated as an experimental population, non-essential species by the USFWS. Non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land and as a proposed species on private land. The preferred habitat for the species includes shallow mashes and adjacent, open grasslands. Development would be completed on lands outside of a National Wildlife Refuge or National Park.	The development of the study area is not expected to diminish the quality or extent of whooping crane suitable habitat within the study area vicinity. Therefore, impacts to the whooping crane are not anticipated.	N/A

Species	Status	Habitat	Potential Impact	Potential Mitigation Measures
Higgins eye (*pearlymussel*)	Endangered	The Higgins eye is usually found in deep water with moderate currents and stable substrate that vary from sand to boulders.	The development of the study area is not anticipated to impact rivers or streams. Therefore, impacts to the Higgins eye are not anticipated.	N/A
Salamander Mussel (*Simpsonaias ambigua)*	Proposed endangered	The salamander mussel can be found in rocky rivers and streams where its host species, the mudpuppy salamander, is found. According to the USFWS, threats to the salamander mussel include contamination, landscape alteration, invasive species, and risks to its host species, the mudpuppy salamander.	The development of the study area is not anticipated to impact rivers or streams. Therefore, impacts to the salamander mussel are not anticipated.	N/A
Monarch butterfly (*Danaus plexippus)*	Proposed threatened	The monarch butterfly requires grassland habitats where milkweed and flowers are present.	The development of the study area may affect Monarch butterflies and/or suitable Monarch habitat; however, ground and vegetation disturbing activities are not expected to appreciably diminish the quality or extent of available suitable habitat in the vicinity of the study area.	The use of native plant species in seed mixes may be used to promote pollinator friendly habitat within the study area.

Species	Status	Habitat	Potential Impact	Potential Mitigation Measures
Rusty patched bumble bee (*Bombus affinis)*	Endangered	Grassland with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil and wooded areas for hibernating queens to overwinter.	The development of the study area may affect grassland habitat.	Mowing and vegetation disturbance to occur in early spring, prior to the active season. Disturbed areas will be reseeded using native seed mixes.
Western regal fritillary *(Argynnis idalia)*	Proposed threatened	Regal fritillary butterflies live in tall-grass prairies and other sunny and open locations such as damp meadows, marshes, wet fields, and mountain pastures that depend on periodic, natural disturbance. Regal fritillary butterflies depend on three main habitat components: violet hostplants for larvae, nectar plants for adults, and native warm-season bunch grasses that provide protective sites for all life stages.	The development of the study area may affect wetland habitats, however, ground and vegetation disturbing activities are not expected to appreciably diminish the quality or extent of available suitable habitat in the vicinity of the study area.	The use of native plant species in seed mixes may be used to promote pollinator friendly habitat within the study area.

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.

2025

Impacts to state-listed species are described in Table 22 and impacts to federally listed species are described in Table 23.

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

2025

Potential mitigation measures are identified for each state-listed species in Table 22 and each federally-listed species in Table 23.

15. HISTORIC PROPERTIES

a) 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 Minnesota State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

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

2005

Field work related to archaeological, historical, and architectural resources was preceded by a literature and records search which focused on inventory files maintained at the Minnesota Historical Society as well as references and reports compiled for previous cultural resource investigations in northern Dakota County and adjacent portions of Washington County.

As results of the literature and records search had been negative and as areas of proven archaeological potential -- uplands adjacent to streams and larger lakes -- are rare within the study area, the consultant ARS (Archaeological Research Services) in consultation with the State Historic Preservation Office (SHPO), decided to use a staged approach which would focus the initial field review on areas in a lacustrine setting and then expand survey coverage only if initial results had proven positive.

Many of the inspected uplands have been cultivated for decades and were so again in 1999. Others have been disturbed by recent residential development. In most cases, disturbance appeared to have been deep enough to have brought to the surface a sample of any archaeological evidence present in the soil. Consequently, close-interval visual inspection was often deemed to provide sufficient survey coverage.

Areas that appeared undisturbed or were too vegetated to offer adequate subsoil exposure were shovel tested. Tests were placed at approximate 10-meter intervals and measured 35-40 centimeters (cm) in diameter. They were taken out in 10 cm levels down into sterile mineral soil, with soil contents screened onto tarpaulins through quarter-inch hardware cloth. Once soil profiles had been noted, tests were immediately backfilled, and the sod replaced.

No area was surveyed without written or verbal approval by the property owner. Figure 25 (in Appendix D and E) shows the parcels where ARS staff was not granted entry for either archaeological survey or the review of historic structures.

It should be noted that an earlier archaeological survey conducted by ARS along TH 55 already had covered that segment of the corridor that traverses Section 7, including expanded coverage around the intersections with Argenta Trail and South Robert Trail -- areas that could be excluded from further review. Results of the corridor survey had proven negative (Harrison 1996).

2007, 2014, 201, and 2025

No update.

RESULTS

2005

The study area encompasses all or part of five lakes/lake clusters with a surface area of at least 30 acres. According to the 1993 USGS map, only three are named (Figure 25 in Appendix D and E). The others were informally named by ARS staff. Each will be described below along with a discussion of survey coverage. As results proved negative, more detailed survey records will be kept on file by ARS rather than included as attachments of the 2005 AUAR.

Robert Trail as well as a smaller access road flank the southern and southeastern shores of **Horseshoe Lake** which otherwise falls entirely outside the survey area. Neither shore segment has any archaeological potential. The southeastern has been completely modified by road construction, the southern is low and marshy.

A few hundred meters to the east, the enclosed basin of **Dickman Lake** is surrounded by a series of knolls. Those around the northern half all support fairly recent homes; those around the southern half are still mostly wooded except for the open, grassy yard of a large private residence.

Two property owners denied access, while the rest were cooperative. No one could remember finding any artifacts even though most appeared to be avid gardeners. ARS conducted a complete visual inspection of all existing disturbances: harvested and fall-cultivated gardens, animal burrows, shoreline bank erosion, graded access roads and areas around boat landings as well as trenches dug for utilities and fairly elaborate watering systems -- subsoil exposure more than equivalent to that provided by standard shovel testing and all of it negative.

On two larger properties that abut the southern third of the lake, ARS staff shovel-tested the narrow crests of wooded ridges that directly overlook the water. In addition, they examined a number of windfalls from recent windstorms. Tests were placed at approximate 10-meter intervals. Soil profiles were undisturbed and fairly consistent. Again, results were negative.

Two miles further south, the northernmost of the **Marcott Lakes** -- a landlocked chain of five small lakes -- extends into the study area and due north of that are two smaller ponds.

Permission was not granted to survey the properties around the ponds, nor to test the parcels on the narrow isthmus between the ponds and the northern shore of the lake. Instead, ARS staff completed a thorough visual inspection of numerous subsoil exposures on the isthmus (gardens, graded access roads and parking areas, recent construction sites). Similar exposure was abundant on properties east of the lake, all of them very sloping towards the shore and disturbed on the crest due to the need for extensive landscaping for building sites and driveways. Negative results indicated that these areas were totally lacking in archaeological potential.

The only parcel that appeared likely to have attracted historic Native American use was a small peninsula that trends north into Marcott Lake from the southern edge of the AUAR area. In 1999, because its owners were in the process of selling the property, they did not allow any testing. In 2004, ARS was again refused permission to conduct any testing. Construction of a sizeable modern residence would probably have disturbed any historic cultural evidence present on the southern half of the peninsula but the northern half, wooded and largely undisturbed, appears to have considerable archaeological potential.

In western Section 6, west of Argenta Trail, is a cluster of small, isolated lakes named by ARS the **Argenta Lakes**. As shown on Figure 25 (in Appendix D and E), access was denied to most of the uplands around them but where field inspections could be accomplished -- visual inspection of numerous deep disturbances around buildings, on cultivated fields and in gardens -- the negative results suggested a total lack of archaeological potential.

Half a mile further north is another unnamed lake by ARS referred to as **Section 6 Lake**. It is landlocked, in a long and narrow basin. Only its southeastern half falls within the study area.

The south/southwestern shore of this lake features a long steep northward slope all the way to the lake. Above that, the relatively level crest of the ridge has been disturbed by a couple of building sites as well as by grading and clearing and erosion along the upper edge of the slope. Visual inspection and shovel testing of less disturbed areas proved negative. The north/northeastern shore is even steeper: a wooded, fairly level-crested esker which was tested at five-meter intervals wherever the crest was wide enough to have invited historic use. Soil profiles were undisturbed and consistent, with approximately 15-20 cm of dark greyish brown sandy loam over a lighter greyish brown sandy loam mixed with dense gravel and numerous cobbles. All tests proved negative.

2007, 2014, 2019, and 2025

No update.

REVIEW OF HISTORIC STRUCTURES: METHODOLOGY AND RESULTS

Methodology

2005

In addition to the sources consulted about the general history of Dakota County and Inver Grove Heights (above, Section 2.2.2), a variety of documents were used to identify locations were historic structures would be likely to survive -- mostly 19th and early 20th century plat maps as well as aerial photographs taken in the 1930s - 1950s, and a 1967 USGS topographic quadrangle map for Inver Grove Heights -- all listed in Section 6.

In addition, the historic architecture inventory maintained by SHPO was consulted for information about properties listed for the AUAR area and its immediate vicinity. All locations of possible interest were numbered and marked on a topographic map (Figure 25 in Appendix D and E).

An effort was then made to visit all of these locations. Where possible, permission was asked to photograph the buildings and an interview conducted with the owner. Where permission was denied, ARS staff described and photographed what could be seen from the nearest public road. In a few cases, even that approach proved fruitless due to distance or the presence of dense woods.

At the time the above-mentioned archaeological survey was conducted by ARS along TH 55 through Section 7, a companion survey focused on standing structures was completed by Hess, Roise and Company of Minneapolis. Within that corridor segment are several historic properties which will only be described briefly below, with reference made to the final report for the TH 55 review (Roise 1996).

2007, 2014, 2019, and 2025

No update.

Results

2005

The locations of reviewed properties are shown in Figure 25 (in Appendix D and E), referenced by field numbers assigned by ARS staff and supplemented, as appropriate, with the official Minnesota Historical Society (MHS) historic structures inventory file number.

<u>ARS 1 = 6471 Argenta Trail</u>

A 1950s-1960s residence; a large newer-looking shed which may contain a modified older outbuilding; the lower portion of a brick silo.

<u>ARS 2 = 6659-6689 Argenta Trail</u>

A large modern rambler, a large barn which appears well preserved, a modified chicken coop, a granary.

ARS 3 = 6743 Argenta Trail

1 1/2 story older brick residence with a modern addition at the back.

ARS 4 = 6922 Argenta Trail

Modern residence and garage as well as two smaller, remodeled outbuildings. Another early homestead which once stood adjacent to this one, appears to be gone.

ARS 5 = 1165 70th Street West

Permission was not given to access the property which was photographed from South Robert Street. It appears to feature a remodeled older residence, a large gothic-roofed barn with a sagging roof, and a smaller, newer gambrel-roofed outbuilding on cement block foundation.

ARS 6 and 7 = 1200 60th Street West

Part of property once farmed by the Schindeldecker family.

Permission to access and photograph was denied by current owners.

No older buildings left -- a modern home appears to have replaced the original farm residence at ARS 6.

ARS 7a = 6321 South Robert Trail

Also once part of the Schindeldecker farm.

Occupied by a modern residence and garage but according to the owner, there is an old trash dump to the north of the house.

ARS 8 = 6308 South Robert Trail (MHS: DK-IVG-03)

Older buildings include a residence and a granary from the early 1880s, and a small shed (well house). A modern garage stands at the location of a barn which burned in the mid-1970s.

ARS 9 = 6180 South Robert Street

Formerly part of the Schindeldecker property. A modern residence on a heavily landscaped lot.

ARS 10 = 1401 70th Street East

A remodeled farm residence, a dilapidated older barn, a newer gambrel-roof barn, a brick silo and two smaller outbuildings.

ARS 11 = 6925 Athena

Features a newer residence. No trace of an older farm except for an old farm access road on north side of property.

ARS 12 = 1286 West 70th Street

An older, heavily remodeled residence, a barn with concrete silo, an older outbuilding modified into a garage, a cinder block well house.

ARS 13 = 1694 West 70th Street

All buildings have been removed -- the property is part of a golf course.

ARS 14a = Babcock Trail -- no address (MHS DK-IVG-06)

School No.8 -- building in good condition but integrity marred by a garage-style door cut into the southern wall. Also features a small storage shed and a collapsed outhouse.

ARS 14b = 7301 Babcock Trail

Part of the old Glassing farm, shown on an 1879 plat.

Currently a florist business, the property features a heavily remodeled farm residence, a well-preserved barn, some smaller out buildings as well as a newer greenhouse and modern shop buildings.

ARS 15 = 1714 West 80th Street

A much-remodeled older house, a well-preserved barn with brick silo, a small granary, a modern garage and metal shed.

ARS 16. No address

Nothing left of original farm -- part of a golf course.

ARS 17 = 1407 West 80th Street

Noted as Maple Lake Farm on 1896 plat. Replaced by a modern residence and garage.

ARS 18 = 1181 West 80th Street (MHS DK-IVG-20 (Cloverleaf Motel) and DK-IVG-21 (Older Barn))

Reviewed for MnDOT and found to be ineligible for the National Register of Historic Places (Nunnally 1993).

ARS 19 = 1462 West 80th Street

Older residence, barn, remnant of silo, wooden outbuilding.

ARS 20 = 7757 South Robert Trail

No access provided -- photographed from South Robert Street. A construction business, the property includes an older but remodeled residence as well as four new pole barns.

ARS 21 & 22. No address (MHS DK-IVG-04)

No access granted. From the road, the buildings appear to be completely gone.

ARS 23 = 7215 72nd Circle West

One of the first farms in Section 7 (Andreas 1874) and homesteaded by the Sach family. Still owned by members of that family in 2000 who then used the barn for livestock, the property has new owners. It includes an older residence, a gambrel-roof barn, a silo and a modern machine shed.

ARS 24 = 7260 South Robert Trail

Brick farm residence, well house and barn foundation observed in 2000 since obliterated after farm was destroyed by fire in 2004.

ARS 25 = 7101 Argenta Trail

Another Sach family farm: residence and garage modern built on location of old farm house. Still extant: a well house with wind mill remnant, a machine shed, a corn crib with attached but dilapidated shed, a granary with metal siding, an outhouse and a field stone barn foundation.

ARS 26 = 7312 Argenta Trail

Another Sach farm but no longer in the family.

Older residence, well house, small milking shed, fieldstone and concrete foundations for a large barn, a small barn and a silo.

ARS 27 = 7475 Argenta Trail

The former location of a school house, it features a quonset hut and some modern sheds, which serve as a maintenance area for Inver Grove Sanitation.

ARS 28 = 7482 Argenta Trail

All that remains of the farm is a remodeled brick residence and a barn foundation reused for a chicken coop.

ARS 29 = 7587 Argenta Trail

Old but remodeled residence, well preserved barn, large pole barn, two garages. No longer a residence but used by a construction business for storage.

ARS 30 = 7925 Argenta Trail ***

Older residence with added garage, a rather dilapidated gambrel-roof barn, and a granary remodeled into a second residence. *Too lacking in integrity to meet National Register of Historic Places (NRHP) criteria.*

ARS 31 = 6570 South Robert Trail

Used by Lakewinds Nursery. Permission not given to take photographs or inspect buildings. Property an older, resided residence, a Quonset-style barn, a granary, and two wooden outbuildings. May need further documentation.

ARS 32 = 8225 Argenta Trail***

Property is owned by Riverside Lutheran church. It includes a modern garage and an older farm house with original lap siding but also some altered windows. *Too lacking in integrity to meet NRHP criteria.*

ARS 32a. No address

Unmarked cemetery owned by the church, located south of the ARS 32 residence, in an open, grassy area.

ARS 33 = 8334 Argenta Trail

Shown as the J. Corrigan property in 1874 (Andreas) and 1896 (Union Publishing).

A home-based business. Permission to photograph denied.

Older residence has been remodeled and resided with a new addition. Barn, concrete silo, and several outbuildings appear to be in fair shape.

Although it appears too lacking in integrity to meet NRHP criteria, it still seems to be of considerable local historic significance. May need further review.

ARS 34 = 1712 West 82nd Street***

The CRM Ranch, a horse boarding business. Features an old residence with additions, a gambrel-roof barn with a concrete silo, a milk house and a chicken coop used for horses as well as five newer buildings added by the present owners. The rural setting is well-preserved. *Although the property appears too lacking in integrity to meet NRHP criteria, it still seems to be of considerable local historic interest.*

ARS 35 = 8420 Alverno Avenue West

Older farm house with small addition, granary, slightly remodeled milk house – all of them resided, as well as a well-preserved barn, a metal pole barn, and an executive-style new home. *Overall too lacking in integrity to meet NRHP criteria, but the barn is of very considerable interest.*

ARS 36 = 7940 Alberta Avenue West

A modern residence – no older structures

ARS 37 = 1354 Courthouse Boulevard

The original farm house has been replaced by a modern rambler. Adjacent to it is a second residence which, according to the owner, incorporates an older guest/summer house for the farm, none of it visible on the exterior.

ARS 38 = 8011 Courthouse Boulevard

Features an older house with an addition and a newer porch, a well house with windmill remnants, and a small garage with attached residence. The barn, still standing in 2000, has collapsed. The property appears to have been staked for development.

ARS 39 = 8152 82nd Street East***

Shown as “Lakeside Farm” on an 1896 plat, the property includes a wood-frame residence, a gothic-arch barn, a granary (or machine shed) converted into a garage, and a well house. Since it was photographed in 2000, the farm house has been remodeled with new dormers and a wrap-around porch.

ARS 40 = 8136 Alderbert

Photographed in 2000, the property included two buildings, which appeared to be summer homes: one older house and a cabin, both built with split log siding. One has been removed, the other one is heavily remodeled.

<u>ARS 41 & 42</u>

Within the TH 55/South Robert Trail interchange are two properties listed by MHS as DK-IVG-018 (Bridge No. 5820, built in 1940) and DK-IVG-019 (Clover-Leaf Intersection). Both are located within the highway corridor and their management is the responsibility of MnDOT.

2007, 2014, 2019, and 2025

No update.

16. VISUAL

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

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

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

2005

The rolling topography of the Northwest Expansion Area creates scenic views and vistas in many locations. These vistas include views of woodlands, wetlands, and natural areas. The City's land use plan and Natural Resources Management Plan seek to preserve a large portion of these natural areas as development occurs. The plans place particular emphasis on preserving high quality upland and wetland natural areas (Management Areas 1 and 2, shown on Figure 10-3 in Appendix D and E). Preservation of these natural areas should help to preserve the scenic character of the study area as development occurs. Higher-density development is proposed along major roadway corridors, where it will not impact the existing scenic views within the area.

2007, 2014, 2019, 2025

No update.

17. AIR

a) Stationary Source Emissions – Describe the type, sources, quantities, and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, 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 to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

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

Not applicable.

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

AUAR Guidance: Although the MPCA no longer issues Indirect Source Permits, traffic-related air quality may still be an issue if the analysis in Item 18 indicates that development would cause or worsen traffic congestion. The general guidance from the EAW form should still be followed. Questions about the details of air quality analysis should be directed to MPCA staff.

2005

Carbon monoxide (CO) levels are elevated near roadway intersections due to the emission of this pollutant from the vehicles idling and passing by. The State of Minnesota has ambient CO standards that are designed to protect human health and the environment. The standards are:

- 1-hour average: 30 parts per million (ppm); and
- 8-hour average: 9 ppm

Concentrations near or above these levels are most likely to occur near intersections that are severely congested (LOS D, E, or F). Bonestroo, Rosene, and Anderlik Associates (BRA) evaluated key intersections serving the project area and predicted that the intersection of TH 3 and CR 26 would have an LOS of D during the afternoon peak period. All other intersections would have an LOS of C or better during morning and afternoon peak-hour periods.

This report evaluates the impacts of vehicle CO emissions near the intersection of TH 3 and CR 26 using MPCA procedures. The procedure requires use of EPA models to evaluate the impact of traffic on ambient CO levels to compare with the Minnesota CO standards.

2007, 2014, 2019, and 2025

No update.

BACKGROUND CO LEVELS

2005

To demonstrate compliance with standards, the modeled impacts of the area vehicle traffic is added to the ambient background CO concentration in the project area. For this analysis, 1-hour and 8-hour background concentrations are conservatively assumed to be 3.0 parts per million (ppm).

2007, 2014, 2019, and 2025

No update.

VEHICLE EMISSIONS

2005

Motor vehicle tailpipe CO emission factors were estimated with the EPA Mobile 6.2 model. Year 2025 CO emission factors used in the modeling are as follows:

- Idle – 81.6 grams per hour
- 35 mph – 12.7 grams per mile

2007, 2014, 2019, and 2025

No update.

MODELED VEHICLE EMISSION IMPACTS

2005

The EPA CAL3QHC dispersion model is used to estimate CO concentrations at points near intersections.

Site-Specific Inputs

CAL3QHC model output files are provided in Attachment D of the 2005 AUAR. The model outputs provide details of all required site-specific model inputs, including:

- Site and roadway geometry,
- Vehicle emission rates for characteristic speeds along modeled roadways,
- Traffic signal cycle times,
- Traffic signal red light times, and
- Clearance lost time – used default time of 3.0 seconds.

Traffic signal information was provided by Bonestroo and Associates. The analysis uses year 2025 emission rates and traffic levels.

2007, 2014, 2019, and 2025

No update.

METEOROLOGICAL INPUTS

2005

Meteorological inputs to the CAL3QHC model included the following:

- Wind Speed: 1 meter/second
- Stability Class: D
- Mixing Height: 1000 meters
- Surface Roughness Length: 108 centimeters

180 wind directions, in increments of 2 degrees, were input to the model to determine worst-case direction.

Receptors

Three receptors were placed in each quadrant of the intersection, 10 feet from the edge of the nearest travel lane.

2007, 2014, 2019, and 2025

No update.

MODELED CONCENTRATIONS

2005

The following table presents the maximum predicted 1-hour and 8-hour CO concentrations at the modeled receptor locations. The 8-hour concentrations were calculated using a persistence factor of 0.7.

Table 24: Modeled CO Concentrations, TH 3 / CR 26 – PM Rush Hour

Receptor Quadrant	Maximum Concentration (ppm)		
	Background CO	1-hour Average	8-hour Average
SE	3.0	6.3	4.4
NE	3.0	6.2	4.3
NW	3.0	6.4	4.5
SW	3.0	6.0	4.2

All predicted values are within the Minnesota ambient standards. No mitigation for impacts is indicated based on this analysis.

2007

Traffic volumes have changed as a result of the project. However, as previously demonstrated, the maximum CO concentrations are well below the Minnesota ambient standards. The recent changes will not adversely impact the CO concentrations as to cause an exceedance of the ambient standards.

2014, 2019, and 2025

No update.

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.

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

2025

Development of the AUAR study area may generate temporary fugitive emissions during construction. Dust emissions will be regulated in accordance with the City of Inver Grove Heights City Code and MPCA standards. Dust emissions can be controlled by sweeping, watering, sprinkling, as appropriate or as prevailing weather and soil conditions dictate.

Dust emissions are not anticipated during operations as all ground surfaces will either be impervious or vegetated.

18. GREENHOUSE GAS (GHG) EMISSIONS/CARBON FOOTPRINT

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

ABOUT GREENHOUSE GASES (GHG)

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

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). However, it is noted that these gases are not associated with typical land use development. Human-caused emissions (such as from development[24]) of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming.[25]

PROJECT-RELATED GHG EMISSIONS

This section describes the GHG emissions from the existing buildings within the study area and include an estimated quantification of the following GHG emissions associated with future development.

- Carbon dioxide (CO_2)

[24] Greenhouse gas emissions from direct use of fuel from developments, such as providing heat to a building or fuel in a car, producing the goods or services necessary to complete a project, emissions from power plants that make electricity or factories that make the products used in the project and emissions associated with any involved products' disposal.
[25] Summarized from U.S. EPA, Overview of Greenhouse Gases: https://www.epa.gov/ghgemissions/overview-greenhouse-gases

- Nitrous oxide (N_2O)
- Methane (CH_4)

Table 25: Construction Emissions

Scope	Emission Type	Emission Sub-Type	Project-Related CO2e Emissions (total)
Scope 1	Combustion	Mobile equipment[26]	849,948
Total			**849,948**

Table 26: Operational Emissions

Scope	Emission Type	Emission Sub-Type	Proposed CO2e Emissions (tons/year)
Scope 1	Combustion	Stationary equipment[27]	39,819
Scope 2	Off-site electricity	Grid-based[28]	113,398
Scope 3	Off-site waste management	Area[29]	77,246
Total			**230,463**

b) GHG Assessment

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

While not required under MN Statutes, the following are potential design strategies and sustainability measures that developers could consider to reduce emissions for proposed development in the Northwest Area:

- Use energy efficient appliances, equipment, and lighting
- Energy efficient building shells
- Implement waste best management practices and recycle and compost appropriate material when applicable
- Trees and additional landscaping will be planted as part of the new development
- Provide electric vehicle-ready charging infrastructure
- Consider solar panels and water reuse systems

[26] This includes construction vehicles.
[27] This includes natural gas use based on land use.
[28] This includes generation of purchased electricity based on land use.
[29] This includes offsite provision of waste management services, including land disposal (landfilling), recycling, and solid waste composting based on land use.

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

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

- Future development would require new appliances, equipment, and lighting during operation. The use of energy efficient technologies would reduce the amount of electricity used per product. Collectively, the implementation of these technologies would reduce overall energy use and in-turn, GHG emissions.
- Future development would require heating and cooling during operation. One of the highest sources of energy use is energy spent heating and cooling buildings. The use of energy efficient building shells reduces the amount of energy needed for heating and cooling, therefore reducing energy use and GHG emissions
- Waste would be generated during operation of future development. By implementing waste best management practices and recycle and compost appropriate material when applicable, GHG emitted from wastes during operations can be reduced.
- Trees and additional landscaping can reduce the GHG footprint of the project by absorbing greenhouse gas emissions. Tree replacement should occur per city requirements.
- Conventional gas-powered vehicles emit harmful GHG's. Future developers could provide electric vehicle-ready charging infrastructure to encourage adoption of electric vehicles.

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

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

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

The expected lifetime of the project is 50 years; this equates to a total estimated 12,373,106 $CO2_e$ metric tons over the lifetime of the development (including construction and operations phases). The proposed project will be built in compliance with state regulations and city building codes.

19. NOISE

a) **Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area; 2) nearby sensitive receptors; 3) conformance to state noise standards; and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.**

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

If the area will include or adjoin major noise sources, a noise analysis is needed to determine if any noise levels in excess of standards would occur, and if so, to identify appropriate mitigation measures. With respect to traffic-generated noise, the noise analysis should be based on the traffic analysis of Item 18.

2005

Stephen B. Platisha Associates, Inc. (SBP) has conducted a traffic noise impact study for the proposed development. The modeling analysis used the MnDOT Minnoise computer model and traffic predictions prepared by BRA. Additionally, SBP conducted noise monitoring at two sites in the project area. The impact assessment is based on existing and 2025 peak-hour traffic levels. A copy of the full study including data appendices is available on request from the City of Inver Grove Heights.

MINNESOTA NOISE STANDARDS

2005

Minnesota Rules Chapter 7030 provide the Minnesota standards for noise. These standards describe the limiting levels of sound established on the basis of present knowledge for the preservation of health and welfare. These standards are designed to be consistent with sleep, speech, annoyance, and hearing conservation requirements for receivers within areas grouped according to land use activities. The Minnesota standards are as follows:

Table 27: Minnesota Noise Standards

	7:00 AM to 10:00 PM		10:00 PM to 7:00 AM	
	L_{10}	L_{50}	L_{10}	L_{50}
NAC-1 (Residential)	65	60	55	50
NAC-2 (Commercial)	70	65	70	65
NAC-3 (Industrial)	80	75	80	75

L10 means the sound level which is exceeded for 10 percent of the time for a one-hour period. L50 means the sound level which is exceeded 50 percent of the time for a one-hour period. Sound levels are expressed in dBA. A dBA is a unit of sound level expressed in decibels and weighted for the purpose of approximating the human response to sound.

Minnesota Statutes, Section 116.07, Subd. 2a, exempt noise from local and county roads from the requirements of these noise rules unless full control of access to the road has been acquired.

2007, 2014, 2019, and 2025

No update.

MINNOISE MODEL

2005

The Minnoise model is a modified (modified by the Minnesota Department of Transportation) version of the Federal Highway Administration's (FHWA) Optima/Stamina model that is used to predict noise levels from highway projects and to assist with the development of noise barriers.

Model Assumptions

Noise level predictions were based on the following data and assumptions:

- The noise analysis was completed for the peak afternoon rush hour and peak nighttime traffic noise hour (6:00 am to 7:00 am).
- Traffic data for existing and year 2025 for the study area was generated by BRA and is provided in 2005 AUAR.
- Shielding from natural or man-made barriers was not considered.
- The analysis assumed acoustically soft ground cover between the roadway and all receiver locations (alpha = 0.5).
- Vehicle mix was based on counts conducted during noise monitoring, with 6 percent heavy trucks and 4 percent medium trucks.
- Constant vehicle speeds of 40 mph on CR 63, 45 mph on CR 73, 50 mph on TH 3 and CR 26, and 65 mph on TH 55 and I-494 were assumed.

All noise modeling output files are provided in Attachment B in the full air and noise analysis report, available from the City of Inver Grove Heights.

Existing Noise Levels: Noise Modeling Locations

Using the Minnoise computer model and traffic and roadway information provided by BRA, SBP modeled existing noise levels generated by traffic on roadways serving the project area. Noise impacts were estimated for hypothetical receptor locations at various distances from the center of the median of the following roadways:

- Robert Street (TH 3)
- County Road 26
- County Road 63
- County Road 73

- TH 55
- I-494

Existing Noise Levels – Daytime Modeling Results

The results of the modeling for the daytime existing noise levels are provided in Table 28 and Tables 24-1, 24-3, and 24-4 (in Attachment D of the 2005 AUAR). The tables show the distance to which State noise standards are exceeded for NAC-1 ("residential") areas and the distance to which the FHWA noise abatement criteria are exceeded.

The State daytime standard is based on the suitability of an area for outdoor use. Certain highway expansion projects using federal funds must consider mitigation when the FHWA noise abatement criteria are approached.

Existing Noise Levels – Nighttime

Minnesota noise rules define nighttime as the hours between 10:00 p.m. and 7:00 a.m. Peak nighttime traffic noise levels typically occur during the 6:00 a.m. – 7:00 a.m. hour.

The nighttime NAC-1 ("residential") standards (L_{10} = 55 dBA, L_{50} = 50 dBA) are designed to prevent interference with sleep in a building with partially open windows. New residential developments are exempt from this standard if the buildings have year-round climate control and meet minimum construction standards for noise level attenuation.

Table 24-1 (in Attachment D of the 2005 AUAR) shows the approximate distance from the center of the State Highways and I-494 to which nighttime standards are exceeded.

Existing Noise Levels – Noise Monitoring Results

In addition to the modeling of project area noise levels, noise level monitoring was also conducted at locations within the project area to further define existing noise levels. The following table presents the results of monitoring conducted by SBP at two project area locations and the results of monitoring conducted by MnDOT in the project area as part of their metro wide monitoring program.

Table 28: Noise Monitoring Results

Location	Date	Time	L_{10}	L_{50}
R1 – TH 3	2/02/05	8:13 am – 9:13 am	61.0	55.0
R2 – TH 55	2/04/05	8:40 am – 9:40 am	76.0	71.0
R3 – TH 55/TH3[30]	N/A	N/A	69.0	N/A
R4 – I-494[29]	N/A	N/A	65.0	N/A

2007, 2014, 2019, and 2025

No update.

POST-DEVELOPMENT NOISE LEVELS

2005

Using the Minnoise computer model and traffic and roadway information provided by BRA, SBP estimated post-development noise levels generated by traffic on roadways

[30] Monitoring at locations R3 and R4 was conducted by MnDOT. Times and dates were not available. L50 was not determined.

serving the project area. Noise impacts were estimated for hypothetical receptor locations at various distances from the center of the median of the following roadways:

- Robert Street (TH 3)
- County Road 26
- County Road 63
- County Road 73
- TH 55
- I-494

Post-development Noise Levels – Daytime Modeling Results

The results of the modeling for the 2025 post-development daytime noise levels are provided in Tables 24-3 through 24-6 (in Attachment D of the 2005 AUAR). The tables show the distance to which State noise standards are exceeded for NAC-1 (“residential”) areas and the distance to which the FHWA noise abatement criteria are exceeded.

The State daytime NAC-1 standard is based on the suitability of an area for outdoor use. Certain highway expansion projects using federal funds must consider mitigation when the FHWA noise abatement criteria are approached.

Table 24-7 (in Attachment D of the 2005 AUAR) shows the distance to which Minnesota NAC-2 (“commercial”) standards are exceeded for each roadway.

Post Development Noise Levels – Nighttime

Minnesota noise rules define nighttime as the hours between 10:00 p.m. and 7:00 a.m. Peak nighttime traffic noise levels typically occur during the 6:00 a.m. – 7:00 a.m. hour.

The nighttime NAC-1 (“residential”) standards (L_{10} = 55 dBA, L_{50} = 50 dBA) are designed to prevent interference with sleep in a building with partially open windows. New residential developments are exempt from this standard if the buildings have year-round climate control and meet minimum construction standards for noise level attenuation.

Table 24-8 (in Attachment D of the 2005 AUAR) shows the approximate distance from the center of the roadways to which Minnesota nighttime standards are exceeded.

2007, 2014, and 2019

No update.

2025

Traffic Generated Noise

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

Unless traffic volumes exceed what was identified in Attachment D of the 2005 AUAR or propose increasing capacity to roads within the Northwest Area, traffic volumes are not anticipated to have the level of traffic that would be attributable to the project are well below the amount that would generate a sound increase that could be noticeable.

Operational Noise

The Inver Grove Heights Zoning Code regulates noise associated with building operation by the standards set by the MPCA. All future development will be required to comply with these requirements.

20. TRANSPORTATION

a) Describe traffic-related aspects of project construction and operation. Include 1) existing and proposed additional parking spaces; 2) estimated total average daily traffic generated; 3) estimated maximum peak hour traffic generated and time of occurrence; 4) source of trip generation rates used in the estimates; and 5) availability of transit and/or other alternative transportation modes.

Parking spaces added: *[2005]:* 21,207 *[2007]:* 23,170

Existing spaces (if project involves expansion): *[2005]:* 300

Estimated total Average Daily Traffic (ADT) generated: *[2005]:* 91,310 *[2007]:* 102,181

Estimated maximum peak hour traffic generated (if known) and its timing:

[2005]: P.M. Peak Hour: 3,583 trips in 4,468 trips out

[2007]: P.M. Peak Hour: 3,975 trips in 4,463 trips out

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

AUAR Guidance: For AUAR reviews, a detailed traffic analysis will be needed, conforming to the MnDOT guidance as listed on the EAW form. The results of the traffic analysis must be used in the response to Items 16 and 17.

INTRODUCTION

2005

The proposed development of the land uses assumed for this AUAR will increase the traffic volumes on roadways within the city. A traffic impact analysis of the assumed development has been conducted in order to identify whether roadway and/or other transportation improvements will need to be undertaken. The analysis was performed at a planning level and attempts to identify the traffic related impacts of the potential development. Identified impacts are then evaluated to determine what mitigation efforts need to be enacted so that transportation service can be provided at an acceptable level.

The project area is shown in Figure 21-1 (2005 AUAR). The roadways and intersections for analysis were determined in conjunction with the City of Inver Grove Heights staff.

There were four major roadways analyzed as part of this review.

- County Road 26 (70th Street) – east-west “A” Minor Arterial
- County Road 63 (Argenta Trail) – north-south Community Collector Road
- Trunk Highway 3 (South Robert Trail) – north-south “A” Minor Arterial
- County Road 73 (Babcock Trail) – north-south Community Collector Road

In addition to examining the corridors as a whole, the following intersections were also examined:

- CR 63 and CR 26
- TH 3 and CR 26
- CR 73 and CR 26
- TH 55 and TH 3 interchange ramps
- TH 55 and CR 63 proposed future interchange ramps

These intersections were analyzed for traffic volumes and approach geometry, both existing and proposed. The analysis also assumed an interchange at CR 63 and Interstate 494 would be constructed and in-place for the future condition. Traffic volumes are presented at this potential intersection of Interstate 494 and CR 63 without an attempt to determine lane geometry.

2007, 2014, 2019, 2025

No update.

EXISTING CONDITIONS

2005

The most recent daily traffic volume information for the primary roadways in the project area was obtained from 2003 Minnesota Department of Transportation (MnDOT) Average Annual Daily Traffic (AADT) maps. As a part of this study, turning movement counts were taken during the morning and afternoon peak traffic periods on Tuesday, November 9, 2004 at the following intersections:

- CR 26 and CR 63
- CR 26 and TH 3
- CR 26 and CR 73
- TH 3 and TH 55 eastbound and westbound ramp terminals

Currently, all four subject roads are two-lane roads, and their intersections are controlled with a four-way stop condition. The intersection at CR 26 and CR 63 has a single lane for all movements of traffic. The intersection of TH 3 and CR 26 has a single lane for all movements in addition to a designated right turn lane for the northbound and southbound directions.

The intersection of CR 73 and CR 26 has designated left turn lanes as well as one through lane and one through/right turn lane in the eastbound and westbound directions. The existing lane configurations with the existing traffic volumes are shown in Figure 21-2 (in Appendix D and E).

The daily capacity of any individual roadway is based upon many factors. These factors may include the number of lanes provided, number of access points per mile, number of signalized intersections per mile, percentage of truck traffic, and the physical grade of the roadway. However, for planning purposes, a generalized average daily traffic (ADT) threshold for the roadways is used. Table 29 shows the generalized ADT volume thresholds for a roadway type and number of lanes in terms of level of service. Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of service measures such as speed, freedom to maneuver, traffic interruptions, and comfort. A LOS A represents the best result with little or no delay. A LOS F represents the worst result with excessive delay and queues. A LOS D is usually the lowest accepted by most agencies within the metro area.

Table 29: Generalized Average Daily Traffic Volume Thresholds[31]

Facility Type	Number of Lanes	Maximum ADT Volume at Level of Service[32]				
		A	B	C	D[33]	E
Principal Arterial	5	11,400	18,200	29,100	32,600	36,300
	4	7,600	12,100	19,400	23,300	27,600
	3	4,900	7,900	12,700	17,000	21,100
	2	3,100	5,000	8,000	12,000	15,900
Minor Arterial	4/5	8,500	13,600	17,000	25,200	28,600
	3	4,300	6,900	11,100	14,800	18,500
	2	2,700	4,300	6,900	10,300	13,700
Collector	5	9,000	14,400	23,100	25,900	28,600
	4	6,100	9,800	15,700	19,100	22,500
	3	3,700	5,900	9,400	12,500	15,700
	2	2,200	3,600	5,800	8,800	11,700

Based on the information presented in both Table 29 and Figure 21-2 (in Appendix D and E), the LOS for each roadway can be determined. All roadways are currently operating acceptably with CR 26 at a LOS C between CR 63 and TH 3 and east of CR 73. CR 26 is operating at a LOS D between TH 3 and CR 73 and west of CR 63. North of CR 26, CR 63 is operating at a LOS A, while between CR 26 and TH 55 it is operating at a LOS B. South of TH 55, CR 63 is operating at a LOS D. TH 3 has a LOS D north of CR 26, a LOS C between CR 26 and TH 55, and a LOS D south of TH 55. CR 73 operates at a LOS B and C north and south of CR 26, respectively.

The AM and PM peak hour volumes of each intersection were analyzed using the Synchro/SimTraffic software package, which uses the methodology presented in the Highway Capacity Manual. These results are also presented in terms of LOS. Figure 21-3 (in

[31] Source: Florida DOT, MnDOT

[32] ADT Volumes above the LOS E maximum threshold would be considered LOS F.

[33] LOS D is usually the lowest acceptable LOS allowed by most agencies within the metro area.

Appendix D and E) shows the existing LOS for each movement and the overall intersection. More detailed LOS results and queue analyses are provided in Attachment D of the 2005 AUAR. Generally, the intersections within this project area are performing adequately. The lone exception is the intersection of TH 3 and CR 26, which currently has individual movements at a LOS E or LOS F and an overall intersection LOS E during the PM peak hour. This suggests some improvements are needed today.

2007 and 2014

No update.

2019

Traffic counts were completed for County Road (CR) 63, and CSAH 26 (Lone Oak Road) between 2014 and 2019. The counts have been used for the roadway reconstruction projects within the study area. The updated counts will be included in the Regional Roadway Visioning Study that will be updated in 2020. Appendix B for a list of street projects the City completed between 2014 and 2019.

2025

The Regional Roadway Visioning Study was updated in 2022. See Appendix A for a list of street projects the City completed between 2020 and 2025.

ASSUMED LAND USE

2005

To begin analyzing the project area, it was necessary to project the trips that would be generated as a result of the land use assumptions. The determination of the trip generation characteristics of the development begins with assumptions concerning the expected land use and densities of the development. Information provided by the City of Inver Grove Heights identified the land use characteristics of the area. The project area was broken down into nine transportation analysis zones (TAZ), shown in Figure 21-4 (in Appendix D and E). Land uses, and densities of each development were assumed for each TAZ. Table 30 shows the land use and size of each land use within each TAZ.

Table 30: Land Use Types and Sizes Per Zone

TAZ	Land Use Types	Size	
1	Medium Density Residential	545	DU
	Office	338,680	SF
2	High Density Residential	687	DU
	Medium Density Residential	320	DU
	Low/Mid Density Residential	352	DU
	Low Density Residential	168	DU
	Mixed Use—Residential	260	DU
	Mixed Use—Commercial	94,745	SF
	Office	892,980	SF
3	High Density Residential	96	DU
	Medium Density Residential	493	DU
	Low/Mid Density Residential	624	DU
	Low Density Residential	48	DU

TAZ	Land Use Types	Size	
	Mixed Use—Residential	290	DU
	Mixed Use—Commercial	105,635	SF
	Park	58	AC
4	Low/Mid Density Residential	271	DU
	Commercial	660,240	SF
5 [2005]	Medium Density Residential	166	DU
	Low/Mid Density Residential	282	DU
	Low Density Residential	163	DU
	Commercial	714,495	SF
	Office	203,100	SF
	Industrial	18.7	AC
5 [2007]	Medium Density Residential	114	DU
	Low/Mid Density Residential	298	DU
	Low Density Residential	163	DU
	Commercial	1,164,905	SF
	Office	95,600	SF
	Industrial	8.8	AC
6	Medium Density Residential	29	DU
	Low/Mid Density Residential	388	DU
	Low Density Residential	220	DU
	Mixed Use—Residential	135	DU
	Mixed Use—Commercial	49,005	SF
	Commercial	50,095	SF
	Industrial	40	AC
	Public/Institution—Church	24	AC
7	Low/Mid Density Residential	39	DU
	Low Density Residential	213	DU
8	Medium Density Residential	371	DU
	Low/Mid Density Residential	674	DU
	Low Density Residential	256	DU
9	Industrial	48	AC

AC = Acres DU = Dwelling Units SF = Square Feet of Gross Building Area
Note: Only the proposed future land uses are shown. Existing developments are not included in this summary.

Using the land use and density information, the projected trip generation was determined using the Institute of Transportation Engineers (ITE) report titled Trip Generation, 7th Edition, 2003. This industry standard document provides average rates of land uses based upon studies completed across the nation. Table 31 provides the estimated 2025 trip generation for each land use.

Table 31: Estimated 2025 Vehicle Trips

TAZ	Estimated 2025 Vehicle Trips[34]				
	AM Peak Hour		PM Peak Hour		Daily
	Entering	Exiting	Entering	Exiting	(2-Way)
1	503	262	276	512	6,923

[34] Trip generation before deductions for pass-by, multi-use, and diverted trips. This is not the expected new traffic on the roadway system.

TAZ	Estimated 2025 Vehicle Trips[34]				
	AM Peak Hour		PM Peak Hour		Daily
	Entering	Exiting	Entering	Exiting	(2-Way)
2	1,467	978	1,144	1,687	26,951
3	247	748	880	580	16,647
4	333	410	960	1,103	31,852
5 [2005]	795	603	1,274	1,636	40,096
5 [2007]	778	705	1,760	2,128	58,214
6	438	505	648	652	13,742
7	47	142	160	94	2,412
8	202	659	721	411	11,074
9	299	61	77	272	2,486
Subtotal34 [2005]	4,331	4,366	6,139	6,947	152,183
Subtotal34[2007]	4,314	4,470	6,626	7,439	170,301
New Vehicle Trips [2005]	2,598	2,620	3,683	4,168	91,310
New Vehicle Trips [2007]	2,587	2,682	3,975	4,463	102,181

Only the totals of 'New Vehicle Trips' shown in Table 31 represent new traffic on the roadway system in the study area. These trips are established by reducing the total development trip generation to account for the following factors:

- Pass-By – Pass-by trips account for trips that are already on the road but see something that sparks their interest and decide to stop. They would already be on the road and are not considered a new trip despite the new decision to stop.
- Multi-Use – Multi-use trips account for those that make multiple stops within the project area. An example of this behavior is a driver that makes several stops at various stores in different locations.
- Internal – Some of the trips generated do not use the primary roadways for their trip purpose.
- Other Modes – Other modes of transportation include the use of transit systems, bicyclists, pedestrians, and multi-modal transportation.

The total volume of new trips on the area roadways is estimated at approximately 91,310 following application of the reduction factors.

With the new traffic determined, these volumes were then distributed to the study area roadway system based upon knowledge of the area, the existing flow of traffic, and input from the City. Traffic distribution was adjusted to reflect new roadways and connections within the study area, including a proposed new interchange at I-494 and CR 63. Some trips generated were diverted onto the 'ring roads' surrounding a mixed-use commercial area in TAZ 2, 3, and 6. The 'ring road' surrounding the mixed land use area in TAZ 6 is currently available, while the 'ring roads' in TAZ 2 and 3 are proposed. The traffic flowing in this area was adjusted to reflect drivers using those roads to avoid the main intersection of TH 3 and CR 26. The City has also proposed the completion of a collector roadway connecting the city of Eagan to CR 73. This new east-west roadway would be established at approximately 65th Avenue. This new collector roadway would be expected act as a reliever to CR 26 and an alternate route across the northern portion of the study area. Another future connection would extend Yankee Doodle Road north through the new TH 55/CR 63 interchange and then east to an eventual intersection with TH 3. These roadways were all considered in the distribution of the projected development volumes. Figure 21-5 (in Appendix D and E) shows the projected development a.m. and p.m. peak hour volumes for the subject intersections.

With projected development volumes determined, the existing traffic was then increased to account for the following factors:

- Background Growth – Daily trips that increase as the population in this regional area increases.
- New Interchanges – As better access becomes available to drivers; their driving behavior and choices would change as well. For instance, motorists will likely shift from TH 3 to CR 63 if a new interchange at I-494 and CR 63 is built.
- New Traffic – With the addition of a new interchange, drivers from regions outside the project area may change their driving patterns and enter/exit the project area to use the new interchange

A new interchange was assumed at the juncture of I-494 and CR 63. While projected traffic volumes were determined for this new interchange, an interchange design, including the necessary approach lanes, was not examined. It is assumed that if a new interchange is determined for this location, the design will be established at that time. The interchange that drivers are currently using to access I-494 is by way of TH 3. This non-standard interchange may cause confusion to some drivers, causing them to change their routes to a simpler, more common intersection, if available. The trips associated with the new interchange were adjusted to account for both existing trips and new trips generated by the new intersection. The projected 2025 volumes are the combination of the development volumes added to the existing volumes with some additional changes.

The projected ADT was determined in the same manner as the peak hour volumes. New daily trips generated by the proposed development were distributed to the roadway system assuming the new roadway discussed earlier. The existing volumes were increased to account for background growth and traffic shifts of existing traffic were determined based upon the new roadways. The sum of the existing traffic, background growth and traffic shifts, and the new development traffic is the 2025 projected traffic. The projected ADT volumes are shown in Figure 21-6 (in Appendix D and E) along with the turning movement volumes at the study intersections.

Among regional roadways, the highest impacts of the proposed development will be to I-494 and TH 55 due to their proximity to the project location. However, no significant increase in congestion levels are anticipated due to the additional vehicle trips added to the regional roadway system. The 2003 AADT on I-494 is 83,000 according to MnDOT traffic volumes. The proposed development would increase traffic on I-494 west of CR 63 by approximately 15,550 vehicles. East of CR 63 traffic would be increased by less than 4,600 vehicles. The 2003 AADT on TH 55 is 19,000 and 18,100 east of TH 3 and west of CR 63, respectively. TH 55 west of CR 63 can expect to see an increase in traffic of less than 5,600 vehicles. East of TH 3, the highway can expect to see an increase in traffic of less than 2,500 vehicles. The TH 55 and I-494 corridors currently operate at satisfactory levels and are expected to continue to operate at satisfactory levels even after full development of the project area.

2007

The total volume of new daily trips on the area roadways is estimated at approximately 102,181 following application of reduction factors.

Figure 21-5A (in Appendix D) shows the updated project development a.m. and p.m. peak hour volumes for the subject intersections.

The updated projected ADT volumes are shown in Figure 21-6A (in Appendix D) along with the turning movement volumes at the study intersections.

2014, 2019, and 2025

No update.

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

2014

- The City of Inver Grove Heights, the City of Eagan, and Dakota County have completed and adopted the 2010 Regional Roadway System Visioning Study for northeast Eagan and northwest Inver Grove Heights.
- The City completed and adopted the Northwest Area Collector Street Plan, dated May 2012.
- The City and Dakota County are conducting a design study for CR 28 and CSAH 63 from south of TH 55 to south of CSAH 26 in advance of improving these roadways in 2016. A 2014 feasibility study for the Argenta Trail Corridor from south of CSAH 26 to I-494 will also be conducted to consider the location of the future arterial connection to the potential future interchange along I-494 between TH 149 and TH 3 which is currently unfunded
- City Project No. 2009-01 Trunk Highway 3 and Amana Trail/proposed 80th Street Roundabout was completed.
- City Project No. 2010-41 Trunk Highway 3 Right Turn Lane—Argenta Hills 2nd Addition was completed.

2019

The City has identified the following planned and programmed transportation improvements in the 2040 Comprehensive Plan for the Northwest Expansion Area:

- Construction of a 2-lane urban roadway on CR 28, 0.62 miles east from TH 3
- Expand CSAH 26 to a 4-lane roadway
- New interchange at I-494 and CSAH 63

2025

The following transportation-related plans and studies have been completed for the AUAR study area since 2020:

- Dakota County Principal Arterial Study
- Dakota County 2040 Transportation Plan

- Dakota County Regional Roadway System Visioning Study Update
- Dakota County Road 63 (Argenta Boulevard) & I-494 Interchange Footprint Study

Dakota County has identified the following planned transportation improvements within the Northwest Expansion Area in its 2022 Regional Roadway System Visioning Study:

- Extend 65th Street between Robert Trail and Babcock Trail
- Upgrade CR 63, between Amana Trail and I-494, and CR 28, between Dodd Road and Amana Trail, to principal arterials
- Roadway expansion of Hwy 3

The City has identified the following planned and programmed transportation improvements in the 2040 Comprehensive Plan for the Northwest Expansion Area:

- Construction of a 2-lane urban roadway on CR 28, 0.62 miles east of Hwy 3
- Expand CR 26 to a 4-lane roadway
- New interchange at I-494 and CR 63

Additionally, the City will be conducting a study in 2025 regarding the realignment of 80th Street between Highway 3 and Austin Way.

21. CUMULATIVE POTENTIAL EFFECTS

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

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

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

Cumulative effects are defined as the "effect on the environment that results from the incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects actually planned or for which a basis of expectation has been laid, regardless of what person undertakes the other projects or what jurisdictions have authority over the projects."[35] The geographic areas considered for cumulative effects are those areas adjacent to the AUAR study area, and the timeframe considered includes projects that would be constructed in the reasonably foreseeable future.

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

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

2005

Much of the area around the Northwest Expansion Area is already developed, including areas in Eagan to the west, Mendota Heights and Sunfish Lake to the north, and portions of Inver Grove Heights to the east. The difficult topography of the Expansion Area has contributed to delay of development in this area, so that it is a relatively large area of "infill" development within this part of the metro area. Therefore, cumulative impacts resulting from future projects in the area around the AUAR area are likely to be limited.

The City of Eagan is currently looking at a variety of options for additional development in the area to the west of the AUAR area, near I-494. Depending on the land use options identified for the future of this area, development here could result in traffic impacts that along with development in the AUAR area are significant for regional roadways. The Cities of Eagan and Inver Grove Heights have been working together and sharing traffic data from the AUAR study and studies in Eagan and will use this information to examine potential cumulative impacts on roadways in the area.

The traffic analysis section (Section 20) notes the need to expand several regional roadways to accommodate the traffic expected from development of the AUAR area. This includes expanding TH 3 to a 4-lane roadway within the project area. Other recent environmental review documents completed for communities in Dakota County (Farmington and Empire Township) have also indicated the need to expand the capacity of TH 3. This route is currently designated for "Preservation" by MnDOT. These issues have been discussed with MnDOT staff during other AUAR processes, and the agency is aware of these issues.

The stormwater management system proposed for the AUAR area is planned to avoid impacts to adjacent areas, and therefore no cumulative impacts are expected with projects in adjacent areas.

The Comprehensive Plan completed by the City of Inver Grove Heights, which includes proposed development in the AUAR area, addresses the growth planned for the community by the Metropolitan Council, and plans for the infrastructure needed to accommodate this growth, in light of growth expected in surrounding areas. The proposed infrastructure is consistent with the capacity of regional systems to serve this area. The City's Comprehensive Plan plus the special studies completed for the AUAR area, including the Natural Resources Inventory and Management Plan, sewer and water studies, stormwater studies, traffic management studies, and related plans along with this AUAR, have identified the potential impacts of development across the AUAR area, and have prepared strategies and approaches to avoid impacts where possible, and mitigate for other impacts, while maintaining the amount and types of growth proposed in the City's Comprehensive Plan.

2007

The City of Eagan completed the Northeast Land Use Study in June 2005. The result of that study was that the current Comprehensive Plan should continue to guide development in the northeast area of Eagan.

Dakota County, along with the City of Eagan, the City of Inver Grove Heights, FHWA, MnDOT, Metropolitan Council, the City of Mendota Heights, and the City of Sunfish Lake have completed the Dakota County North-South Corridor Study: Eagan-Inver Grove Heights Travel Demand Study. The objective of this study was to conduct a travel demand model study to forecast future traffic flow concentrations and patterns as a result of the increased future development identified by local plans in the northeast Eagan and northwest Inver Grove Heights area. The travel demand model study included forecasting travel demand on all major city, county, and state highways within the study area. Completion: The study was completed in July 2007. Dakota County, the City of Eagan, and the City of Inver Grove Heights are in the process of approval consideration at the Board/Council level.

2014

No update.

2019

The 2040 Comprehensive Plan was approved in 2019 and outlines the needed infrastructure and resources for the AUAR study area and surrounding communities to support the expected growth.

2025

One adjacent project is planned by MnDOT adjacent to the study area:

- Highway 52 Improvements: 1 mile north of the study area, MnDOT will be redecking bridges over I-494 in 2025.

The city of Inver Grove Heights has the following planned projects within or adjacent to the study area:

- CSAH 26 (70th Street): The City will be installing trunk watermain (16") from Angus Avenue to Babcock Trail.
- CSAH 28 (80th Street): IGH will be conducting a study later this year regarding the realignment of 80th Street between Highway 3 and Austin Way. Improvements will include trunk watermain and sewer. There is currently no expected year of construction, and this project will be dependent on development and realignment timing.

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

Future roadway and private development projects may result in impacts to transportation, water resources, and utilities. These impacts will be addressed via the regulatory permitting and approval processes and will be individually mitigated to ensure minimal cumulative impacts occur.

22. OTHER POTENTIAL ENVIRONMENTAL EFFECTS

AUAR Guidance: 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.

2005

None identified.

2007

The AUAR Update does not introduce any other adverse environmental impact that has not been addressed previously.

2014, 2019, and 2025

No update.

23. MITIGATION PLAN

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

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

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

Introduction (2005)

The Mitigation Plan is used by the City of Inver Grove Heights to guide development of the Northwest Expansion Area through avoidance, minimization, and/or mitigation of environmental impacts. The plan is not intended to modify the regulatory agencies' responsibilities for implementing their respective regulatory programs, or to create additional regulatory requirements. Elements of the 2005 Mitigation Plan that have been completed or updated to date include the following:

- Completed the 2010 Regional Roadway Visioning Study
- Complete the Northwest Area Collector Street Plan

- Asher Water Tower was reconstructed
- The City has built stormwater management facilities and protected regional basins with the approved developments
- Adopted Northwest Area Stormwater manual
- The Northwest Area Regional Basin map and Stormwater Model was prepared; this includes mapping of the 100-year critical storm elevations for the landlocked basins
- Well field development occurred adding Well No. 9 in the City
- Adopted the 2030 Comprehensive Plan, 2010

The City will continue to implement Mitigation Plan as the remaining portions of the Northwest Area are developed.

Cover Types

2005

The Natural Resources Inventory and Management Plan for the Northwest Expansion Area includes general recommendations for management and restoration of each natural community type, as well as specific recommendations for protection, management, and restoration of the natural areas in study area. This plan and its recommendations were accepted by the City of Inver Grove Heights in January 2004. These management recommendations have been incorporated into the Mitigation Plan for this AUAR.

MITIGATION PLAN RECOMMENDATIONS FOR NATURAL COMMUNITIES (ADDITIONAL RECOMMENDATIONS THAT APPLY SPECIFICALLY TO WETLAND COMMUNITIES ARE INCLUDED IN SECTION 12)

- <u>Implement the Land Use Plan and Surface Water Management Plan for the AUAR study area.</u> These plans recommend protection of large areas of the existing upland and wetland open spaces. The highest level of protection is proposed for the upland and wetland natural communities in the Manage 1 and Manage 2 Classes (Figure 10-3 in Appendix D and E), and areas identified for stormwater infiltration (Figure17.1 in Appendix D and E). The protection of infiltration areas is discussed in Section 17. Water Quality—Surface Water Runoff. The City anticipates adoption of ordinances to implement these plans before development occurs in the AUAR area.
- <u>Adopt a Zoning Ordinance that provides for protection of higher quality natural community areas.</u> The City is currently developing a new Zoning Ordinance, called Subdivision 37-Northwest Area Planned Unit Development Overlay District. The draft ordinance proposes the following:
  - 20% of each development area be set aside as permanent open space
    - Half of this open space area be left in its natural state
    - The remaining half of this open space area may be used for passive or active recreation, or the location of stormwater management facilities
  - Priorities for design of the remaining developable areas (80%) include

        - Avoiding impacts to areas identified as Manage 1 and Manage 2 communities in the Natural Resource Inventory and Management Plan
        - Avoiding impacts to identified corridors, buffers, and stormwater management areas
        - Avoiding impacts to identified park and trail areas
    - The ordinance will provide a "density bonus" on developable portions of the property, so that the landowner/developer can develop the total number of units within the developable portion of the site that would have been allowed on the property before exclusions for natural areas, corridors, and parks/trails.
    - Prior to adoption of the final zoning and subdivision ordinances for the area, the City will conduct public hearings, gather more information and seek input from the community, the landowners and potential developers. As a result of this investigative process, the ordinances as adopted may vary from the draft ordinance, and the City may also adopt alternate means to achieve the proposed mitigation. However, the goals and objectives relating to mitigation and the desired quality of development will remain substantially similar to those envisioned by the draft ordinance.
- <u>Implement the recommendations of the Natural Resource Inventory and Management Plan to protect and restore natural community areas in the Northwest Expansion Area.</u> This plan makes general and specific recommendations to reduce the impact of development in the Northwest Expansion Area, including the following:
    - Create and maintain buffer strips around natural resource areas
    - Avoid impacts to high quality sites (identified as Manage 1 and 2 areas in the Plan)—preserve these areas and if needed, redirect unavoidable impacts to lowest quality areas
    - Minimize the area of grading or clearing in natural communities to develop buildings, lots, and other structures
    - Implement techniques to reduce the amount of phosphorus entering wetlands and other waterbodies
    - Implement strategies to manage and restore natural community areas identified in the plan
    - Several sites within the City are well-suited for use as wetland restoration or banking sites. This includes sites containing degraded wetlands, or in some cases, sites with proper hydrology and soils for restoration as wetlands. These sites should be considered for wetland restoration or banking sites as the City implements its surface water management plan.
    - Many of the forest/woodland areas within the city lack sufficient groundcover to prevent sheet erosion. Actively eroding areas degrade the quality of the woodland as well as wetlands downstream. The City and prospective developers should identify areas of potential sheet erosion and restore groundcover in these areas to prevent erosion and sedimentation.

  - Harmon Park and the Inver Wood Golf Course represent opportunities to restore prairie and savanna. The City should seek grant funds or willing partners to restore natural communities on this site.
  - Protect the Greenway corridors identified in the Natural Resource Inventory and Management Plan and use the corridors to provide trails and to implement the Surface Water Management Plan where this is compatible with the natural resources in the corridors.
  - Identify and implement strategies to manage and restore some significant resources within the city, including the Argenta Trail wetlands, Marcott Chain of Lakes and associated upland areas, Nichols' Sedge Meadow, Kladek's Prairie, and several other natural areas identified in Section 7.4 of the Management Plan.
- Implement the City's Stormwater, Wetland, and Tree Preservation ordinances to protect natural communities in the Northwest Expansion Area. These ordinances are currently being revised by the City to reflect the Surface Water Management Plan and Natural Resources Inventory and Management Plan. The new ordinances are scheduled to be completed and adopted before development occurs in the Expansion Area.

2007

No change in the Natural Resources Inventory with this update. The City has implemented the following mitigation measures:

- The City of Inver Grove Heights adopted the Northwest Area Overlay Zoning Ordinance (Section 515.80, Subdivision 39) in May 2007. The Ordinance requires the preservation of significant natural resources through open space regulations.
- The City of Inver Grove Heights adopted a revised Tree Protection and Preservation Ordinance (Section 515.90, Subdivision 28) in June 2007.
- The City of Inver Grove Heights adopted the Northwest Area Stormwater Manual, dated May 29, 2007.

2014

The Northwest Area Regional Basin Map and Stormwater Model was prepared on March 1, 2011. The map and stormwater model are being updated in 2014. Updates to the map and model will be a required condition for approval of future developments.

2019

The City has drafted their 2040 Comprehensive Plan that outlines several goals and policies to address natural resource preservation and protection measures as outlined in Section 12 (Physical Impacts on Water Resources).

2025

Developers should look within the same watershed or sub watershed for wetland banking replacement if wetland impacts are unavoidable.

Fish, Wildlife, and Sensitive Resources

2005

The significant wildlife habitat in the AUAR study area includes the remaining woodland and wetlands on the site. These are identified in the City's Natural Resource Inventory and Management Plan.

- The City will implement the recommendations included in Section 10—Cover Types to protect Fish and Wildlife Habitat in the Northwest Expansion Area.

2007

No change to existing fish, wildlife, and sensitive resources or habitat with this update.

2014

No update.

2019

The City will implement the recommendations included in Section 8 (Cover Types) and Section 14 (Fish, Wildlife, and Sensitive Resources) to protect Fish and Wildlife Habitat in the Northwest Expansion Area.

2025

Future developers will implement the following recommendations included in Section 8 (Cover Types) and Section 14 (Fish, Wildlife, and Sensitive Resources) to protect Fish and Wildlife Habitat in the Northwest Expansion Area:

- To mitigate impacts to the loggerhead shrike, tree and shrub removal is required to be avoided during the breeding season, April through July.
- Tree clearing activities should be restricted to when bats are not likely to be present, between November 1 to March 31. Coordination with USFWS before tree clearing is recommended.
- Mowing and vegetation disturbance should occur in early spring, prior to the active season. Disturbed areas will be reseeded using native seed mixes.

Physical Impacts on Water Resources

2005

Protection measures for waterbodies in the AUAR area include the following:

- Implement the recommendations of the Surface Water Management Plan and *Subdivision 37- Northwest Area Planned Unit Development Overlay District* for the Northwest Expansion Area for managing development and the potential impacts of runoff quantity and quality to waterbodies in the AUAR area (additional discussion in Section 17 of this analysis and in Section 17 of the Mitigation Plan). Prior to adoption of the final zoning and subdivision ordinances for the area, the City will conduct public hearings, gather more information and seek input from the community, the landowners and potential developers. As a result of this investigative process, the ordinances as adopted may vary from the draft ordinance, and the City may also adopt alternate means to achieve the proposed mitigation. However, the goals and objectives relating to mitigation and the desired quality of development will remain substantially similar to those envisioned by the draft ordinance.

- Wetlands in Gun Club Lake Watershed (not included in the Surface Water Plan for the Northwest Expansion Area) that potentially need to be mitigated for stormwater bounce should be identified through hydrologic and hydraulic modeling. This could be completed on a site-by-site basis, or a comprehensive effort that includes the entire area. Protection requirements for wetlands in this watershed are those included in the Natural Resource Inventory and Management Plan. Combinations of conventional and alternative stormwater systems can be used to mitigate excessive stormwater bounce in wetlands in the Gun Club Lake Watershed, with an emphasis on alternative infiltration methods.
- Assure no net loss of wetlands in the study area as it develops by protecting existing wetlands or mitigating for wetland losses based on the requirements of the Wetland Conservation Act and the City's Wetland Ordinance.
- Implement the recommendations in the Natural Resource Inventory for management of wetlands, including vegetated buffer strips, structural setbacks, stormwater pretreatment requirements, and restoration and management recommendations for specific wetland included in Section 7.4 of the Natural Resources Inventory Management Plan.
- Update the City's Wetland Ordinance, including buffer requirements. This ordinance is scheduled to be updated and adopted before development occurs in the Northwest Expansion Area.
- Require the use, management, and enforcement of BMPs to control erosion and sedimentation during and after construction as required by the NPDES construction permit.

2007

No change in the physical impact in water resources with this update. The City has implemented the following mitigation measures:

- The City of Inver Grove Heights adopted the Northwest Area Overlay Zoning Ordinance (Section 515.80, Subdivision 39) in May 2007. The Ordinance requires the preservation of significant water resources through open space regulation.
- The City of Inver Grove Heights adopted the Northwest Area Stormwater Manual, dated May 29, 2007.
- The City of Inver Grove Heights adopted the Hydrologic & Hydraulic modeling study for the Gun Club Lake Watershed in 2007.

2014

No update.

2019

The City has drafted their 2040 Comprehensive Plan that outlines several goals and policies to address natural resource preservation and protection measures as outlined in Section 12 (Water Resources).

2025

Developers should look within the same watershed or sub watershed for wetland banking replacement if wetland impacts are unavoidable.

Water Use

2005

The Mitigation Plan includes the following protection strategies related to Water Supply:

- The City will require that unsealed, abandoned wells are properly sealed and abandoned to meet codes required by the Minnesota Department of Health.
- The City will work with the golf course to locate the new municipal supply wells at a sufficient distance from the irrigation well to not interfere with operation of the existing well.

2007

This update did not perform further research on either existing wells or probable wells. The City of Inver Grove Heights has adopted the completed feasibility study of these improvements, called the Northwest Area Water and Sanitary Extensions Feasibility Report, dated May 2005. The City awarded the first phase of these improvements, Northwest Area Utility Improvements Lift Station R-9.1, in July 2007.

- The City Council approved a consultant contract for the Well Field Development on August 31, 2007.

2014

No update.

2019

The City has drafted their 2040 Comprehensive Plan that outlines plans to add new water and sewer connections to support future growth in the Northwest Expansion Area.

2025

If any well compliance concerns arise with individual developments within the study area, developers should coordinate with the Dakota County Delegated Well Program.

Erosion and Sedimentation

2005:

- The developer will be required to submit a plan for soil erosion and sediment control during construction and after development as a part of the Preliminary Plat.
- The Mitigation Plan includes provisions in Sections 10 and 17 that require the developer to minimize erosion and sedimentation by identifying and protecting areas of existing native vegetation to minimize soil exposure and resulting erosion and sedimentation during development.

- The City will require the use, management, and enforcement of BMPs to control erosion and sedimentation during and after construction as required by the NPDES construction permit, the City's proposed Subdivision 37—Northwest Area Planned Unit Development Overlay District Ordinance, and its new Erosion and Sedimentation Control Ordinance. The new ordinance increases the size of vegetated buffers required in areas of steep slopes and includes other provisions to minimize erosion.

2007

No change to response with this update. The City has implemented the following mitigation measures:

- The City of Inver Grove Heights adopted the Northwest Area Overlay Zoning Ordinance (Section 515.80, Subdivision 39) in May 2007. This ordinance has provisions to identify, avoid and protect steep slopes
- The City of Inver Grove Heights adopted the Northwest Area Stormwater Manual, dated May 29, 2007.

2014

The City of Inver Grove Heights will be updating the erosion and sediment control ordinances to be in conformance with the MS4 reauthorization requirements.

2019

The City has drafted their 2040 Comprehensive Plan that addresses erosion and sediment control as part of future development. This includes an implementation plan for operating, managing, and maintaining the City's stormwater system to ensure proper functioning of the system and to meet the requirements of the City's NPDES Phase II MS4 Permit and other agency requirements.

2025

No update.

Water Quality – Surface Water Runoff

2005

The stormwater management approach laid-out earlier in this section describes an approach driven by the need to protect and preserve the infiltration capacity of the existing natural basins within the Northwest Expansion Area. These basins, identified in Figure 17-2 (in Appendix D and E), are the backbone of the proposed stormwater management system and provide the means to prevent degradation of downstream resources. This approach provides a preliminary framework to allow the City and developers to proceed with some knowledge of the design specifics that will be needed. The City will assure that the developers will design and build the final local drainage and stormwater management system within this overall framework. Tools to accomplish this include but are not limited to adoption of the Draft Subd. 37. Northwest Area Planned Unit Development Overlay District and development and implementation of the accompanying stormwater design manual to provide guidance in the selection, design, and construction of site specific, alternative stormwater management BMPs and operation and maintenance requirements.

Prior to adoption of the final zoning and subdivision ordinances for the area, the City will conduct public hearings, gather more information and seek input from the community, the landowners, and potential developers. As a result of this investigative process, the ordinances as adopted may vary from the draft ordinance, and the City may also adopt alternate means to achieve the proposed mitigation. However, the goals and objectives relating to mitigation and the desired quality of development will remain substantially similar to those envisioned by the draft ordinance.

In addition, the City of Inver Grove Heights acquired a Phase II NPDES permit in 2003. This federal permit is administrated by the MPCA. The City also adopted a Stormwater Pollution Prevention Program (SWPPP). The SWPPP includes controls including but not limited to:

- Public education and outreach;
- Public participation and involvement;
- Illicit discharge detection and elimination;
- Construction site runoff control;
- Post-construction site runoff control; and
- Pollution prevention/good housekeeping.

Wetlands in the Northwest Expansion Area are proposed to be regulated for stormwater discharge. Mitigation of runoff to wetlands that realize an increase in stormwater bounce in excess of the proposed wetland management class standard is proposed. Wetland storm bounce can be mitigated through a higher infiltration BMP standard for the contributing subwatershed or diversion of runoff to basins with excess storage can be considered.

As discussed previously in the water quality assessment in Section 17, initial modeling showed that only three basins within the Northwest Expansion Area require stormwater bounce mitigation in order to comply with the proposed wetland storm bounce standard. It should be noted that the smart land use planning, infiltration BMPs, and preservation of existing natural basins assumed in the future runoff condition modeling is not considered mitigation but are integral parts of the expected development.

Departure from this proposed stormwater management approach could result in additional wetland bounce and increased need for mitigation of runoff. Developers will be responsible for coordinating with the City to ensure that the final drainage and runoff management system is designed and constructed in accordance to the plan and its accompanying regulatory tools.

Wetlands in GCLWMO that potentially need to be mitigated for stormwater bounce should be identified through Hydrologic & Hydraulic modeling. This could be completed on a site-by-site basis, or a comprehensive effort that includes the entire area. As development impacts other high-quality wetlands, the mitigation approach should be the same. Combinations of conventional and alternative stormwater systems can be used to mitigate excessive stormwater bounce, with an emphasis on, and priority given to alternative infiltration methods.

Many alternative practices are installed because, once established, they may require less maintenance than traditional facilities. This does not mean, however, that alternative approaches can be installed and subsequently ignored. The City is planning to develop a maintenance program for stormwater facilities in the Northwest Expansion Area, and train City personnel or others charged with maintenance about the function and operational design of the particular practice so that they know what to look for in performance.

Formally establishing a City controlled operations and maintenance program is essential to effectively implementing alternative stormwater management. The following steps are adapted from EPA's recommended steps to establish such a program:

1. Establish a regulatory framework (ordinance or regulations) within which to formalize a cooperative agreement with a homeowner, developer, or any other entity, including the City, that will be maintaining an alternative system;
2. Incorporate maintenance into design and construction specifications, including pre-treatment;
3. Identify the mechanism for stable, long-term funding (even if it is the homeowner);
4. Formalize a regular inspection schedule, criteria for departing from the schedule (ex. after a large event or when a problem is evident) and keep a log of inspections;
5. Define triggers for action (ex. 5 inches of sediment accumulation will trigger action to clean a forebay);
6. Prevent sediment, debris, and litter from moving into and accumulating in the system;
7. Make provisions for monitoring (visual or actual sampling) of treatment criteria;
8. Develop a training and education program, possibly with a certification element;
9. If water is not draining down after 4 to 6 days, remove accumulated fine sediments until coarse soils are exposed and replant with raingarden vegetation; and
10. Develop an informational booklet for homeowners on need and role of infiltration raingardens in neighborhoods.

2007

No change to the stormwater plan is anticipated due to the change in land use. The hydrologic modeling completed for the AUAR used maximum impervious surface cover to account for different development densities. Section 6 of the AUAR defines maximum impervious surface coverage for both commercial and industrial as 70%.

At this time many of the stormwater recommendations set forth in the original document have passed in to city ordinance under Section 39 of the Inver Grove Heights Northwest Area Overlay Zoning Ordinance. The stormwater ordinance requires the preservation of ponding and infiltration areas through the open space regulation. Stormwater manual adopted May 29, 2007.

- The City of Inver Grove Heights adopted the Hydrologic & Hydraulic modeling study for the Gun Club Lake Watershed in 2007.

2014

No updates.

2019

The City's guiding documents for development projects include:

- June 2014, Northwest Area Regional Basin map by EOR
- June 2017, Robert District Basin Map update

See Appendix B for a list of projects the where the City constructed stormwater system facilities between 2014 and 2019.

The City's 2040 Comprehensive Plan also addresses goals for managing stormwater and providing cost effective municipal infrastructure for future growth.

2025

Proposed stormwater infiltration within a current or possible future DWSMA should be consulted with the Minnesota Department of Health (MDH).

Water Quality – Wastewaters

2005

Sanitary sewer and water system alignments are designed to avoid impacts to the regional infiltration areas identified in the City's Surface Water Management Plan. It is important to avoid disturbance and construction activities within these areas to preserve their function to infiltrate stormwater. Impacts to small, local infiltration areas have been avoided where possible as well. If sanitary sewer infrastructure must be constructed in or near these local basins, impacts will be limited to the smallest possible area, and to the sides of the basins, to preserve the infiltration capacity of the bottom areas of the basins.

The proposed alignments have also been routed to avoid impacts to the high-quality natural resource areas identified in the City's Natural Resource Inventory and Management Plan (the areas identified as Manage 1 and Manage 2 areas). Where Manage 3 and Manage 4 areas cannot be avoided, construction practices will minimize impacts to the Manage 3 and Manage 4 areas, and restore these areas as needed. These recommendations are consistent with the City's Natural Resources Inventory and Management Plan.

Trench excavation during the installation of both sanitary sewer and watermain will result in some impacts to the surrounding areas. Trench widths will only be as wide as they need to be to comply with the current safety regulations, and where necessary, trenches will be further minimized through the use of mechanical trench stabilization techniques. It is anticipated that trenchless construction techniques will be utilized to install utilities in areas of valuable natural resources. The installation of watermain generally requires minimal trench widths as the pipes are proposed to be installed with 7.5 feet of cover. Sanitary sewer installation will require additional trench width and depth due to the rolling topography of the Northwest Area. Trench depths as deep as 50 feet may be encountered, but these areas are anticipated to be limited and located away from areas containing natural resources in an effort to avoid impacts.

The recommendations to avoid impacts to natural resource areas and stormwater infiltration areas are included in the Mitigation Plan.

2007 and 2014

No updates.

2019

According to the 2040 Comprehensive Plan, there are five new lift stations and several sanitary sewer lines planned within the AUAR study area.

See Appendix B for a list of projects the where the City sanitary sewer system facilities between 2014 and 2019.

2025

See Appendix A for a list of projects the city completed between 2020 and 2025.

Solid Wastes; Hazardous Wastes; Storage Tanks

2005

1. Past and present land uses have resulted in disposals of solid and hazardous wastes and release of contaminants in the AUAR area that may impact public health and safety and the environment. The City will work with the project developers to identify sites of potential contamination and to develop a contingency plan in case contaminated soil and/or groundwater are encountered during site development.
2. It should be noted that additional disposals and releases could also occur between the time of final AUAR approval and actual development plans for the site. In light of this reality, the issue of potential contamination should be addressed during the site development process. Typically, a Phase I ESA would be required by a lender in conjunction with a property transaction where some type of financial assistance (i.e., loan) is being sought. The Phase I ESA would presumably identify any potential site contamination concerns that exist at that time, allowing the issue to be resolved prior to construction.

2007, 2014, 2019, and 2025

No changes to mitigation strategies are proposed with this update.

Traffic

2005

The corridors and intersections were re-examined with the projected traffic to determine infrastructure improvements that may be needed to maintain adequate traffic operations. Based on this analysis, it is recommended that the four primary roads be improved to accommodate future growth. Projected ADT volumes on CR 63 suggest a five- or six-lane roadway may be needed from the assumed I-494 interchange to the proposed TH 55 interchange. The exact number of lanes will depend upon the number and type of access provided along the corridor. South of TH 55, CR 63 is recommended to provide four lanes for through traffic. TH 3 should also be widened to provide four lanes along its entire length in the study area. The projected daily traffic volumes on CR 73 are at the edge of a LOS D for a two-lane collector roadway and may need to provide three lanes depending upon the number and type of access. If proper access control is maintained, it is likely that CR 73 could provide satisfactory traffic operations as a two-lane roadway. CR 26 is recommended to provide four lanes for through traffic, except between CR 63 and TH 3. In that section, projected ADT volumes suggest a five- or six-lane roadway will be required, depending upon the number and type of access along that roadway section. Table 32 shows the recommended number of lanes based on 2025 ADT volumes.

Table 32: 2025 Lane Recommendations

Road	Segment	2003 AADT Volume[36]	AADT Volume		Number of Lanes	
			2025	2007	Existing	Recommended
CR 63 (Argenta Trail)	North of CR 26, South of I-494	2,150	29,575	30,300	2	5/6[37]
	South of CR 26, North of TH 55	3,400	26,700	28,500	2	5/6[37]
	South of TH 55	6,500	20,950	21,500	2	4
TH 3 (S. Robert Trail)	North of CR 26	8,200	21,250	23,500	2	4
	South of CR 26	6,700	19,925	21,825	2	4
	South of TH 55	7,600	18,650	19,350	2	4
CR 73 (Babcock Trail)	North of CR 26	2,450	8,850	9,450	2	2/3[37]
	South of CR 26	2,220	9,200	9,950	2	2/3[37]
CR 26 (70th Street)	West of CR 63	6,000	20,850	21,950	2	4
	East of CR 63, West of TH 3	5,700	30,225	31,725	2	5/6[37]
	West of TH 3, East of CR 73	7,200	25,175	26,475	2 or 4	4
	East of CR 73	10,000	17,700	18,300	2	4

Analysis of the 2025 AM and PM peak hour projections at the study intersections determined recommendations for the lane geometry. Based upon those analyses, the following lane geometry at each intersection is recommended:

[36] Annual Average Daily Traffic from MnDOT flow maps

[37] Number of lanes will depend of number and type of roadway access points

Intersection of CR 26 and CR 63

- Signalized intersection.
- Potential for dual left turns in the southbound and westbound directions. For the purposes of this analysis, a third westbound through lane on CR 26 was assumed to terminate at this intersection as a westbound left turn lane.
- Single left turn lane in northbound and eastbound directions.
- Single right turn lane in all directions. For the purposes of this analysis, the northbound right turn lane was assumed to provide a free movement into a third westbound through lane on CR 26.
- Two through lanes for the eastbound and westbound approaches.
- Three through lanes for the northbound and southbound approaches.

Intersection of CR 26 and TH 3

- Signalized intersection.
- Potential for dual left turn lanes in the eastbound and westbound directions. For the purposes of this analysis, a third eastbound through lane on CR 26 was assumed to terminate at this intersection as an eastbound left turn lane.
- Single left turn lanes in northbound and southbound directions.
- Designated right turn lanes in all four directions. For the purposes of this analysis, the southbound right turn lane was assumed to provide a free movement into a third eastbound through lane on CR 26.
- Two through lanes for all four approaches.

Intersection of CR 26 and CR 73

- Signalized intersection.
- Single left turn lane in all four directions.
- Designated right turn lane in all four directions.
- Two through lanes in eastbound and westbound directions.
- One through lane for the northbound and southbound approaches.

Intersection of TH 3 and TH 55 Westbound

- Signalized intersection.
- Two through lanes in northbound and southbound directions.
- Single left turn lane in northbound direction.
- Single right turn lane for the southbound approach.
- Two approach lanes for the westbound movement on the exit ramp.

Intersection of TH 3 and TH 55 Eastbound

- Signalized intersection.

- Two through lanes in northbound and southbound directions.
- Single left turn lane in southbound direction.
- Single right turn lane for the northbound approach.
- Two approach lanes for the eastbound movement on the exit ramp.

Intersection of CR 63 and TH 55 Westbound

- Signalized intersection.
- Two through lanes in northbound and southbound directions.
- Single left turn lane in northbound direction.
- Single right turn lane in southbound direction. For the purposes of this analysis, a third southbound through lane on CR 63 was assumed to terminate at this intersection as this southbound right turn lane.
- Two approach lanes for the eastbound approach on the exit ramp.
- A third northbound through lane on CR 63 was not needed at this intersection but was assumed to be provided at some point to the north of this intersection.

Intersection of CR 63 and TH 55 Eastbound

- Signalized intersection.
- Two through lanes in northbound and southbound directions.
- Single left turn lane in northbound direction.
- Single right turn lane in southbound direction.
- Two approach lanes for the eastbound approach on the exit ramp.

A pictorial representation of the proposed geometry for the project area is shown along with the 2025 projected volumes in Figure 21-6 (in Appendix D and E). Although this report recommends signalized intersections, a Signal Justification Report will need to be completed for each intersection prior to the installation of any signal system.

A summary of the LOS for each intersection with the recommended lane geometry and projected AM and PM peak hour volumes is shown in Figure 21-7 (in Appendix D and E). More detailed LOS results and queue analyses are provided in 2005 document. As shown, each intersection is expected to provide acceptable traffic operations with a LOS D or better. Most individual movements also operate at a LOS D or better with four exceptions. During the PM peak hour, the left turn movement for the westbound, eastbound, and northbound approaches at the intersection of CR 63 and CR 26 are expected to operate at a LOS E. Similarly, the left turn movement for the eastbound approach on CR 26 at TH 3 is expected to operate at a LOS E during the PM peak hour. While these results are not desirable, it is likely the effect of a longer cycle length necessary to provide enough green time for other directions. Given the overall acceptable level of service for each intersection, additional capacity in the form of more approach lanes would not be cost effective. Thus, these movements will likely experience some added delay during the PM peak hour. At other times, these left turn movements are expected to provide satisfactory traffic operations.

The traffic analysis has been conducted assuming an interchange at I-494 and CR 63. Although projected volumes for a potential interchange are provided, the design and number of lanes was not. If an interchange is approved at this location, the design would be determined at that point.

This potential interchange is discussed in the City of Inver Grove Heights thoroughfare plan and is necessary to help serve the area traffic demands and the traffic generated by future development in the City's northwest area. The interchange proposal will need to undergo an analysis and approval process required by the Metropolitan Council, MnDOT, and FHWA. Since such approvals are complex and time consuming, this process should commence as early as possible. The interchange will help to reduce volumes on adjacent interchanges along I-494. Interchange spacing does not appear to be an issue. Pending approval of an interchange, programming and funding of an interchange would need to be accomplished by MnDOT.

2007

All of the previously recommended geometry and traffic control is sufficient with the new intersection turning movement volumes. All approaches and intersections operate at LOS D or better.

Figure 21-6A (in Appendix E) shows a pictorial representation of the proposed geometry and traffic control along with the updated 2025 volumes. The geometry and traffic control remain unchanged from Figure 21-6 (in Appendix D and E). An Intersection Control Evaluation (ICE) must now be performed prior to installing new forms of traffic control.

The updated LOS summary can be found in Figure 21-7A. The only change to intersection level of service is at the CR 26/CR 63 intersection, which changed from LOS C to D with updated land uses.

The City of Inver Grove Heights, City of Eagan, and Dakota County, in partnership with FHWA, MnDOT, and Metropolitan Council, completed the Dakota County North-South Corridor Travel Demand Study in July 2007. These agencies will complete a detailed study of the transportation system in the study area, the screening of alternatives, and a formal review and documentation within the next two years.

2014

No updates.

2019

The City has identified the following planned and programmed transportation improvements in the 2040 Comprehensive Plan:

- Construction of a 2-lane urban roadway on CR 28, 0.62 miles east from TH 3
- Expand CSAH 26 to a 4-lane roadway
- New interchange at I-494 and CSAH 63

See Appendix B for a list of street projects the City completed between 2014 and 2019.

2025

See Appendix A for a list of street projects the City completed between 2019 and 2025.

Dust, Odors, Noise

2005

The analyses of traffic noise impacts for this proposed development indicate that areas near the project area roadways will have noise levels above State noise standards for residential areas. Any site plan that proposes residential development in the impact areas should conduct a detailed noise study to define any required noise mitigation strategies. Potential mitigation strategies may include one or a combination of the following:

- Buffer zones
- Noise barriers
- Strategic building placement
- Building construction requirements

Buffer Zones

Table 3-1 of the 2005 document provides an assessment of the distance from the roadways that State daytime noise standards are exceeded. One potential strategy for mitigating the impact is to buffer the areas between the residences and the roadways with vegetation or a combination of vegetation and noise barriers. At least 100 feet of dense coniferous vegetation is recommended to provide reduction in noise volumes.

Noise Barriers

Noise barriers (e.g., walls or berms) between the roadways and the residential areas could also be constructed to reduce noise impacts. The effectiveness of barriers depends on the height and extent of the barriers and the specific location of the barriers relative to the roadways and the residential areas.

Strategic Building Placement

Buildings can act as barriers if located to protect areas for outdoor use or to protect residences.

Building Construction Requirements

Specifying noise mitigating construction materials and techniques can reduce the impact of traffic on indoor noise levels.

2007

Traffic volumes have changed as a result of the project, and noise levels may change accordingly. However, traffic volume changes would need to change by a factor of two to be perceptible. The traffic volume changes are well below changing by a factor of two, and noise level changes will be less than perceptible levels.

2014 and 2019

No updates.

2025

Developments will be required to meet applicable MPCA noise standards. A noise study will be completed if necessary on a case-by-case basis.

Nearby Resources

2005

The negative results of the archaeological suggest that the archaeological potential is minimal for small isolated lakes and wetlands in Dakota County. The results also indicate that additional survey further from water would be pointless.

Visual inspection of the farmsteads and schools shown on plats and maps published between 1874 and 1967 proved a few of them to be completely gone but in most cases, there are still older components mixed in with newer construction such as replaced or heavily remodeled residences and modern storage buildings such as garages and pole barns. Only a few retain enough integrity to warrant more intensive evaluation.

- When any of the properties that have been identified as having enough integrity to warrant more intensive evaluation is scheduled for development, federal law (i.e., Section 106 of the National Historic Preservation Act and guidelines issued by the Secretary of the Interior) should be followed. For further detail, refer to individual comments provided above with each of the entries in Section 4.2 for the 2005 AUAR.

2007, 2014, 2019, and 2025

No further archaeological, historical, or architectural investigation or research was conducted with this update.

Compatibility with Plans

2005

The City will be seeking approval of a Comprehensive Plan Amendment from the Metropolitan Council that includes the land use changes proposed for the Northwest Area since the adoption of the City's Comprehensive Plan.

2007 and 2014

No update.

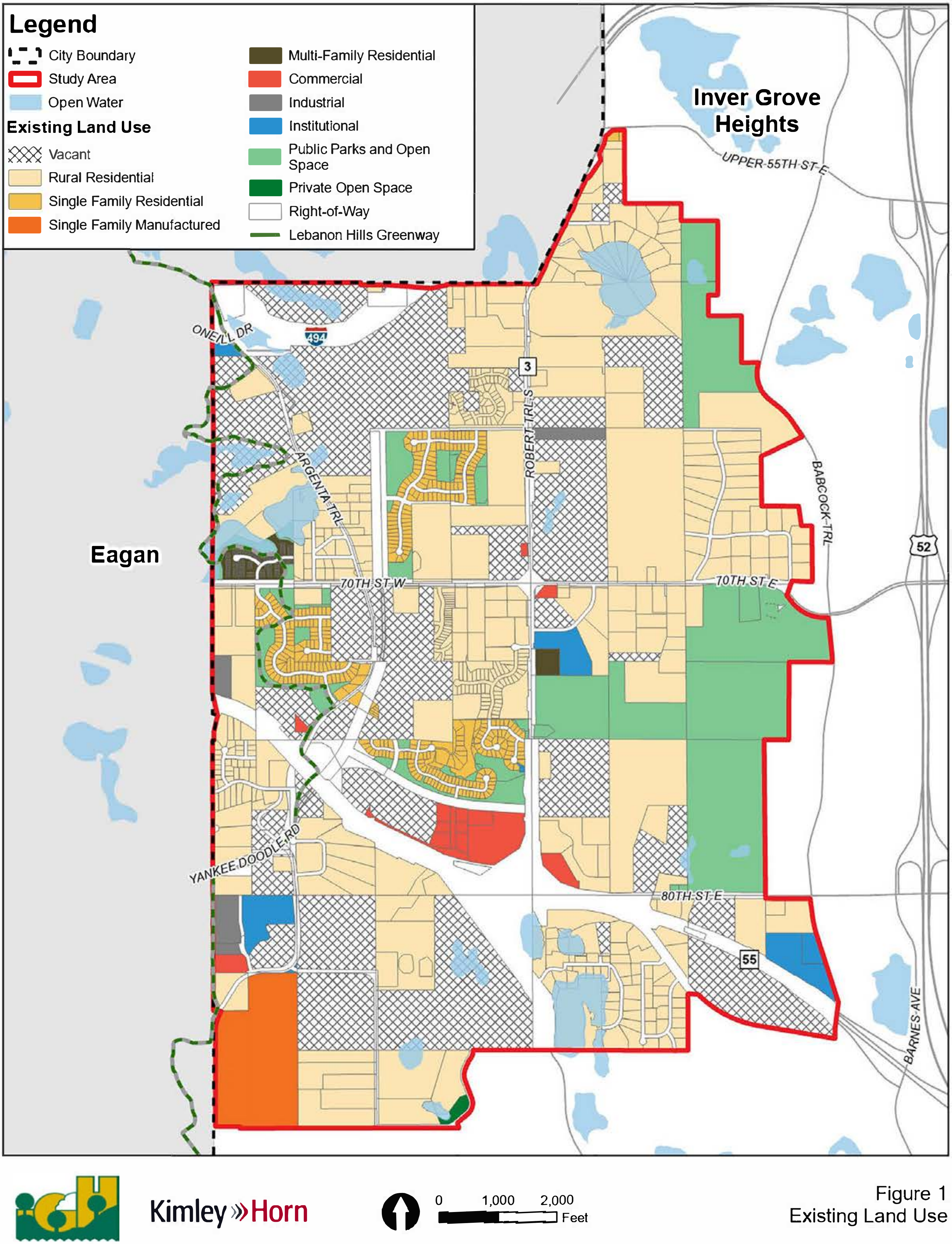
2019

The City of Inver Grove Heights has drafted its 2040 Comprehensive Plan and the AUAR Study area has been updated to reflect the land use changes as described in Section 6 (Project Description) and Section 9 (Land Use).

2025

No update.

Appendix A: 2025 AUAR Figures and Attachments



Kimley»Horn

Figure 1
Existing Land Use

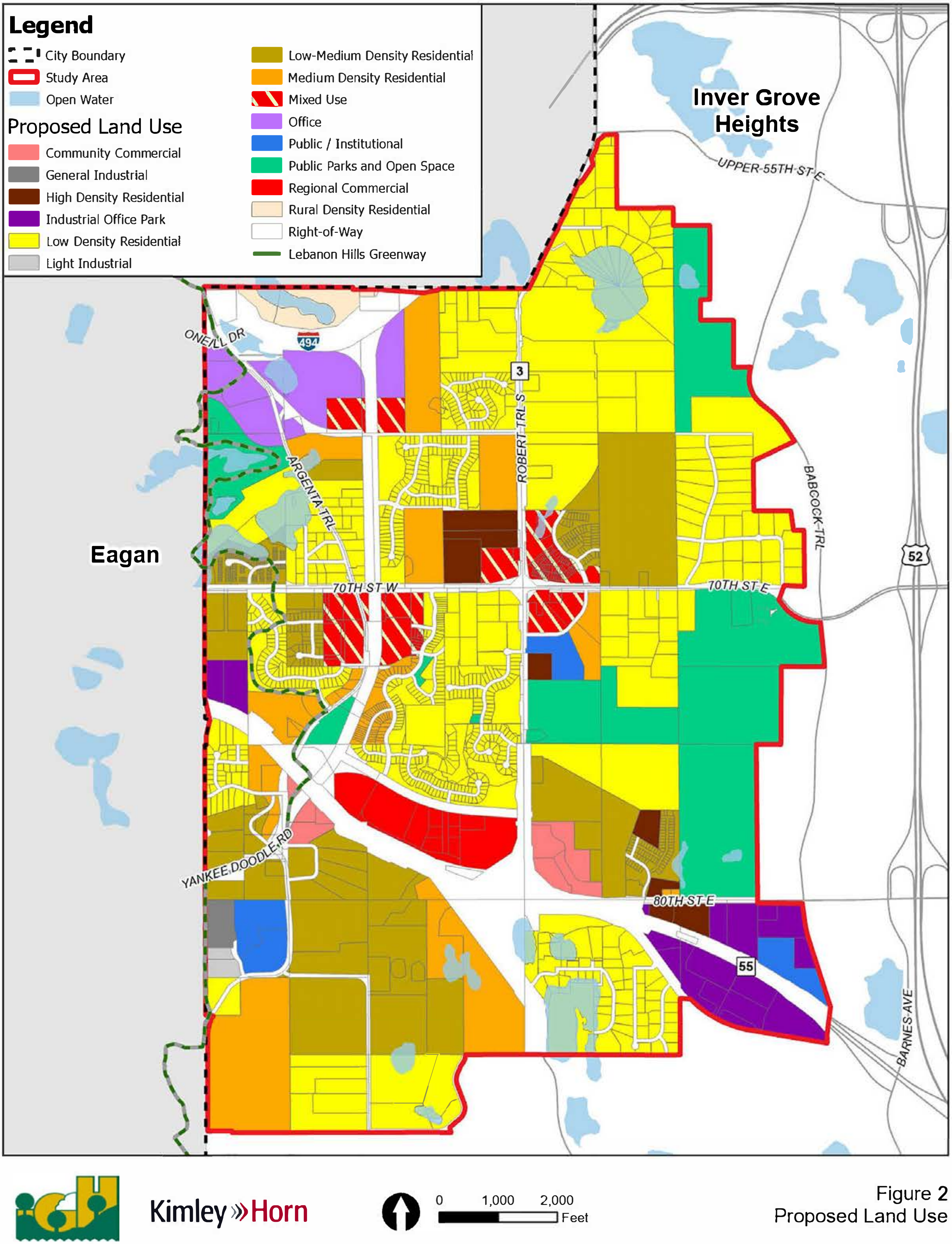


Figure 2
Proposed Land Use

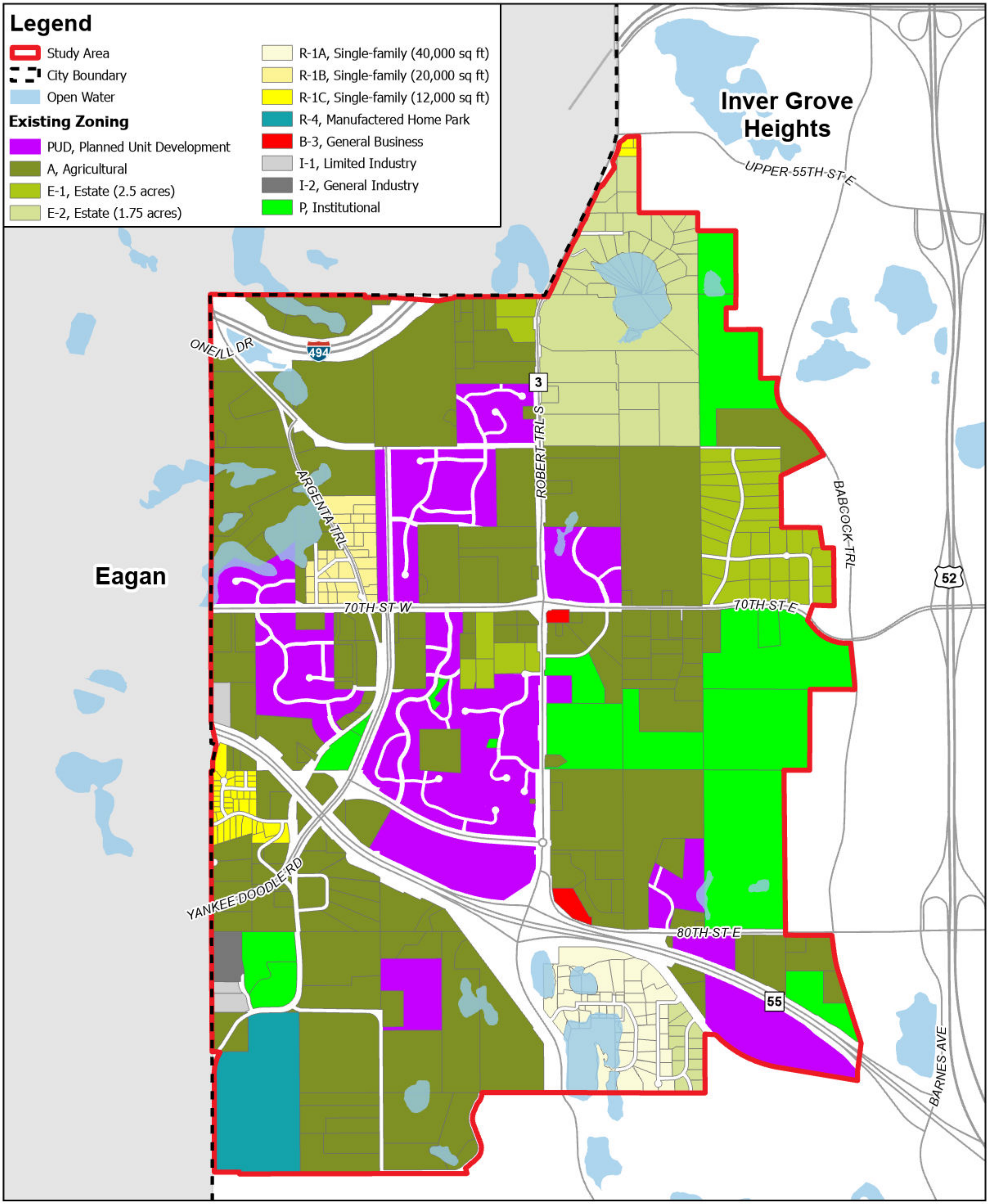


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Figure 3
Existing Zoning

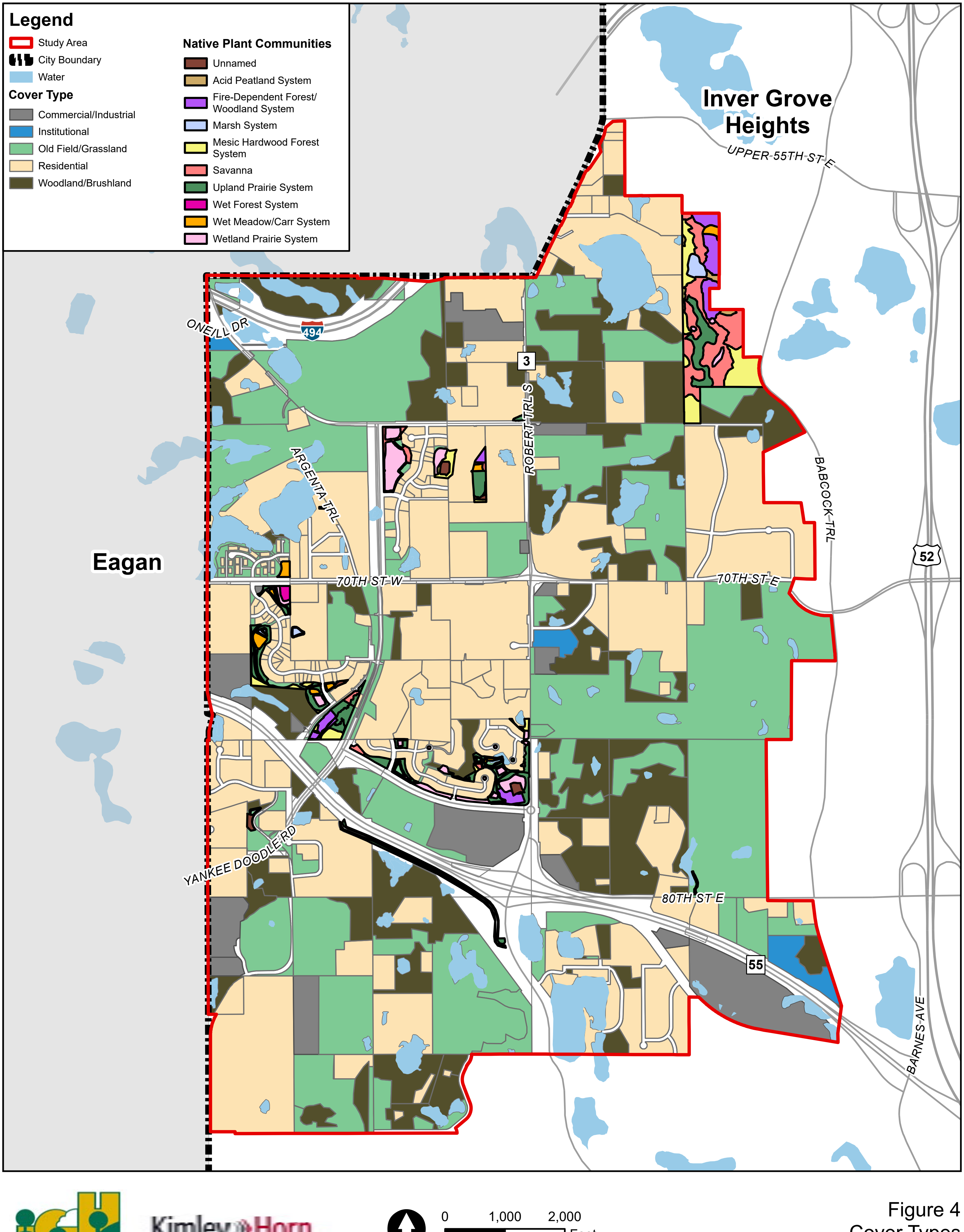

Figure 4
Cover Types

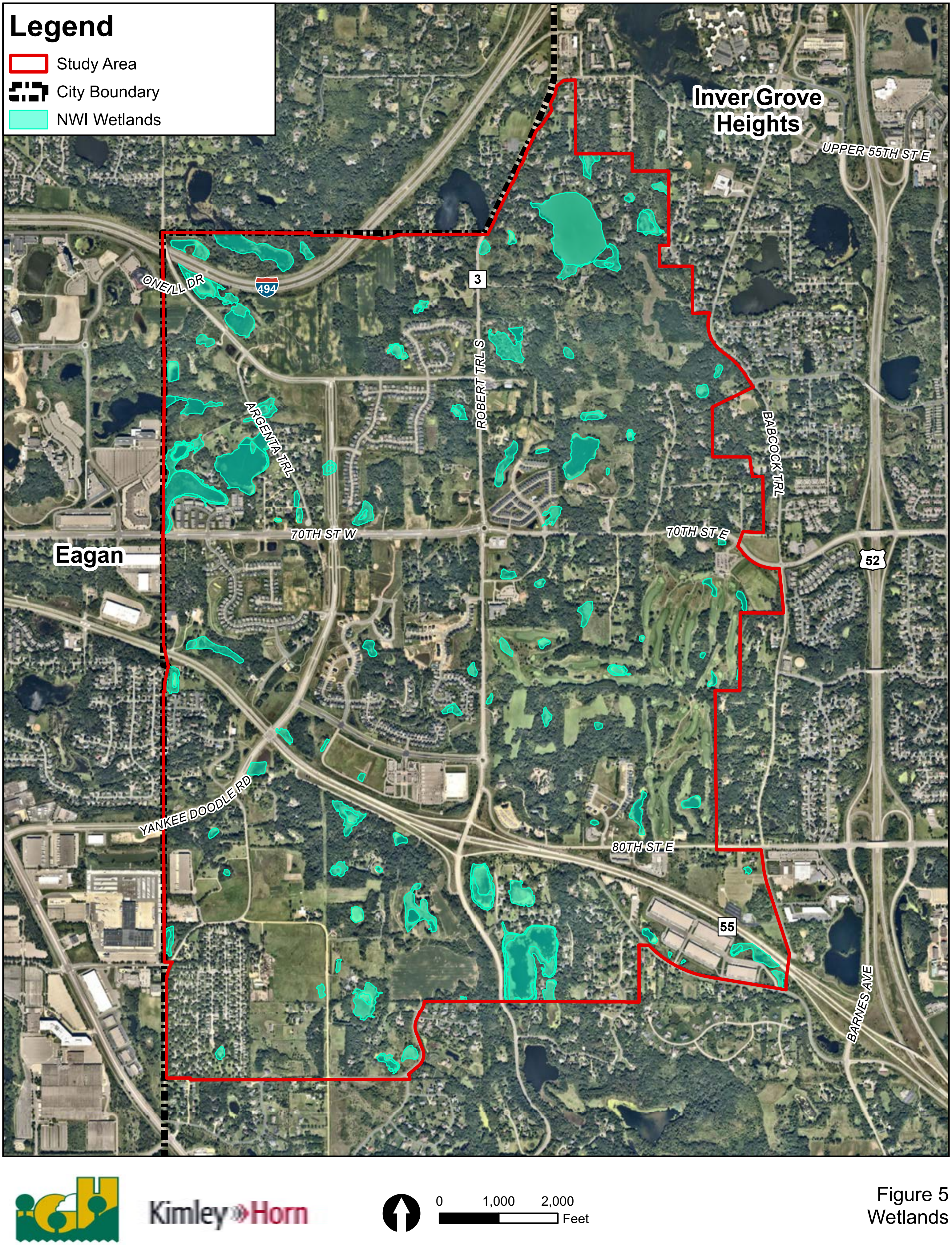

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Figure 5
Wetlands

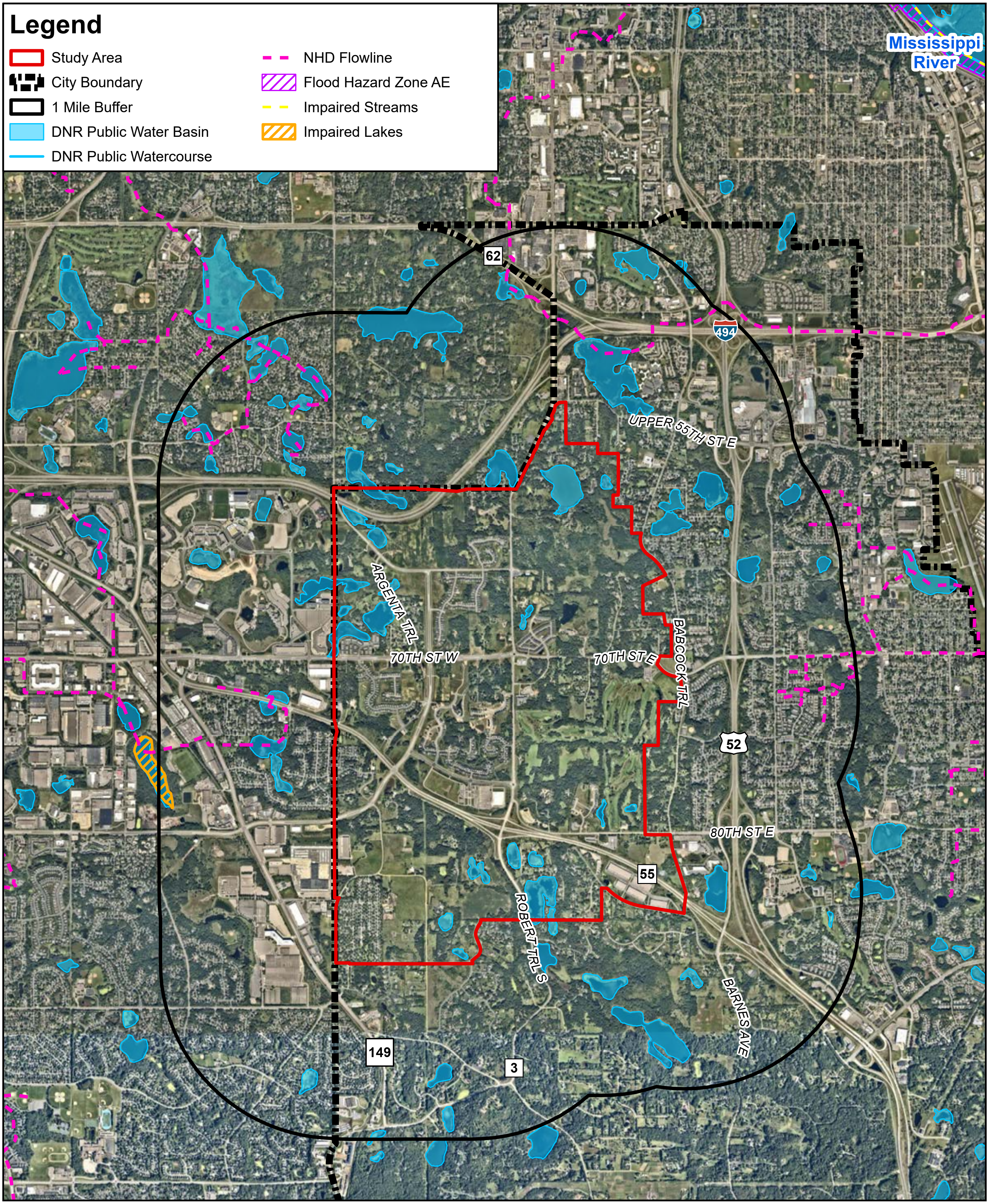

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Figure 6
Surface Water Resources

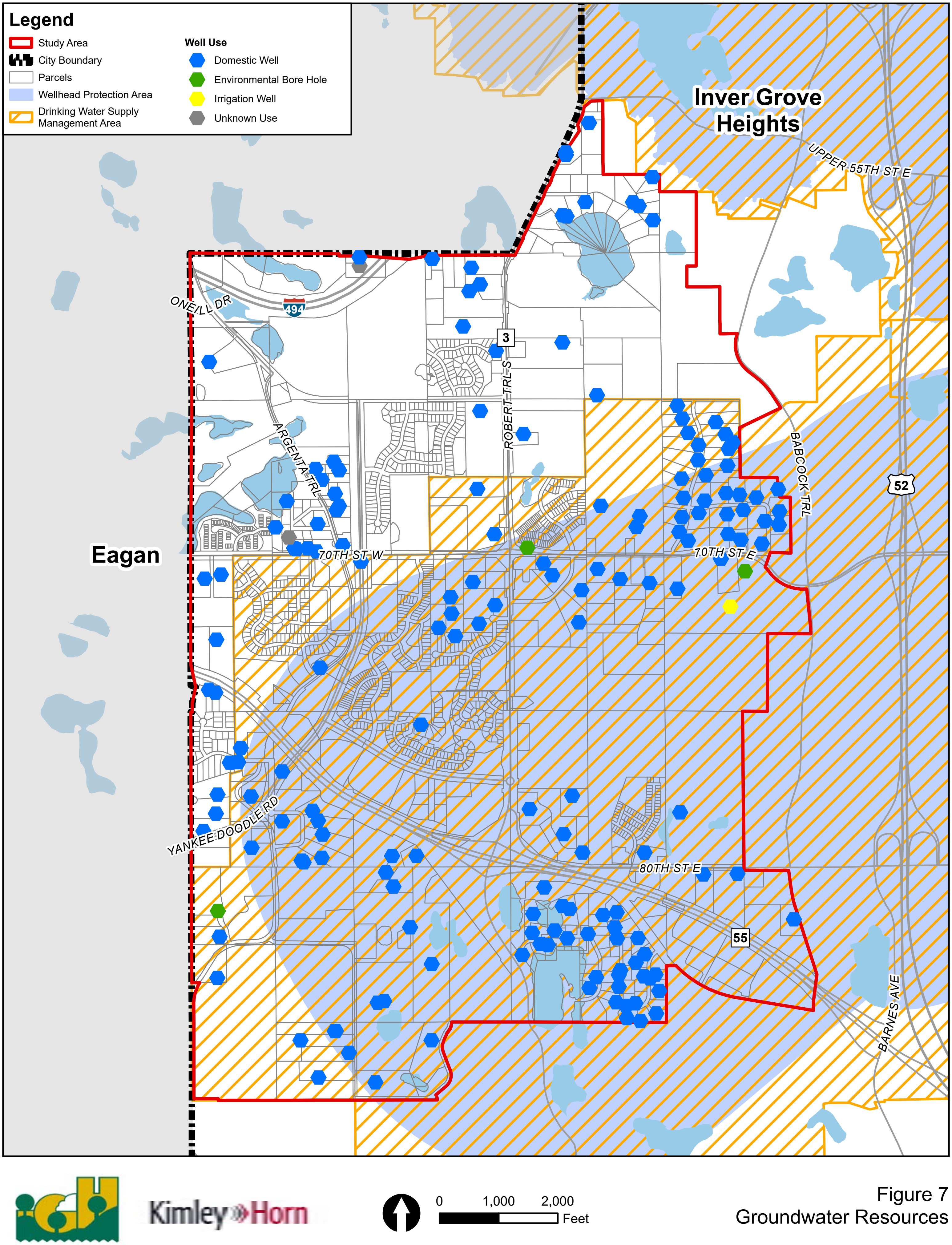


Figure 7
Groundwater Resources

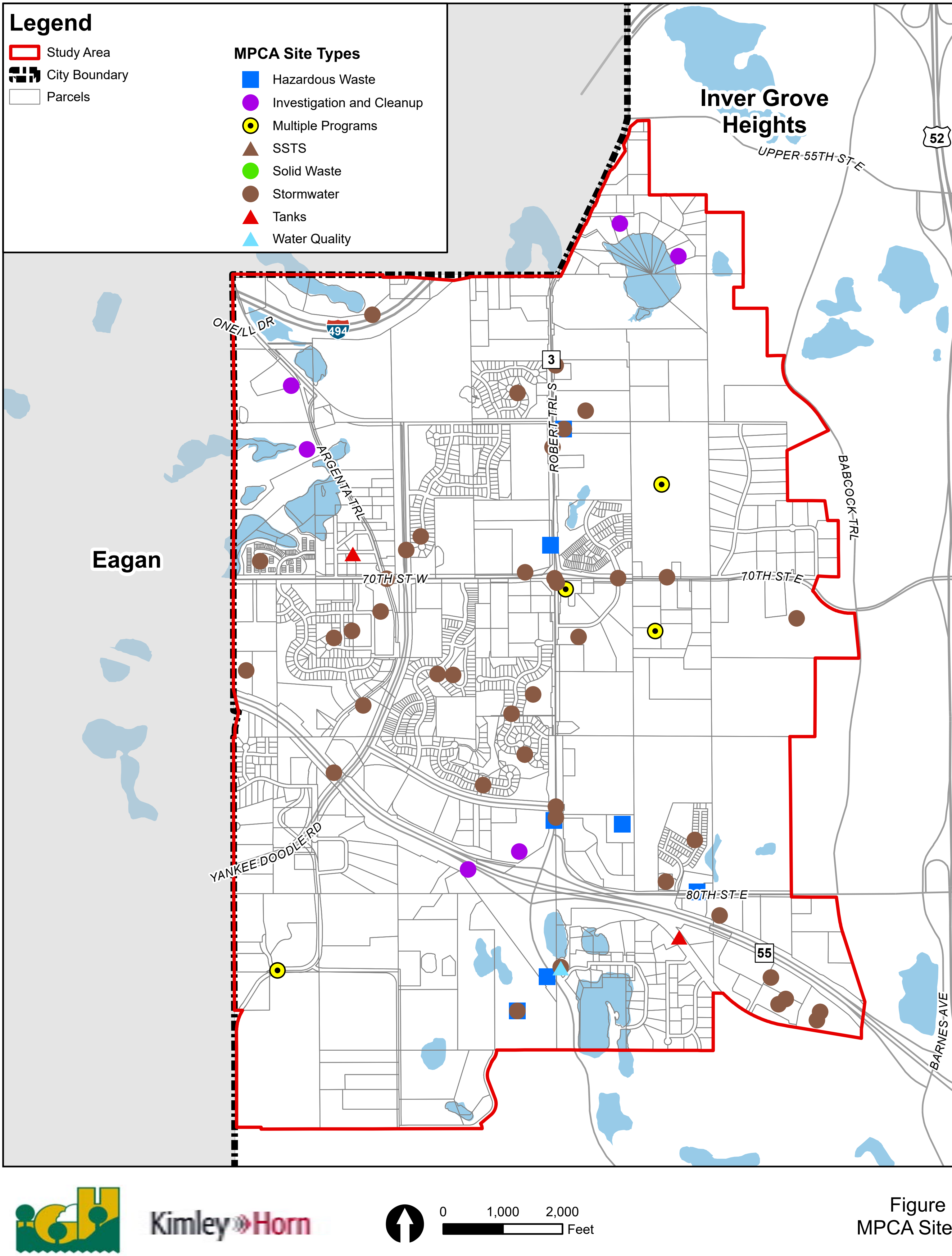
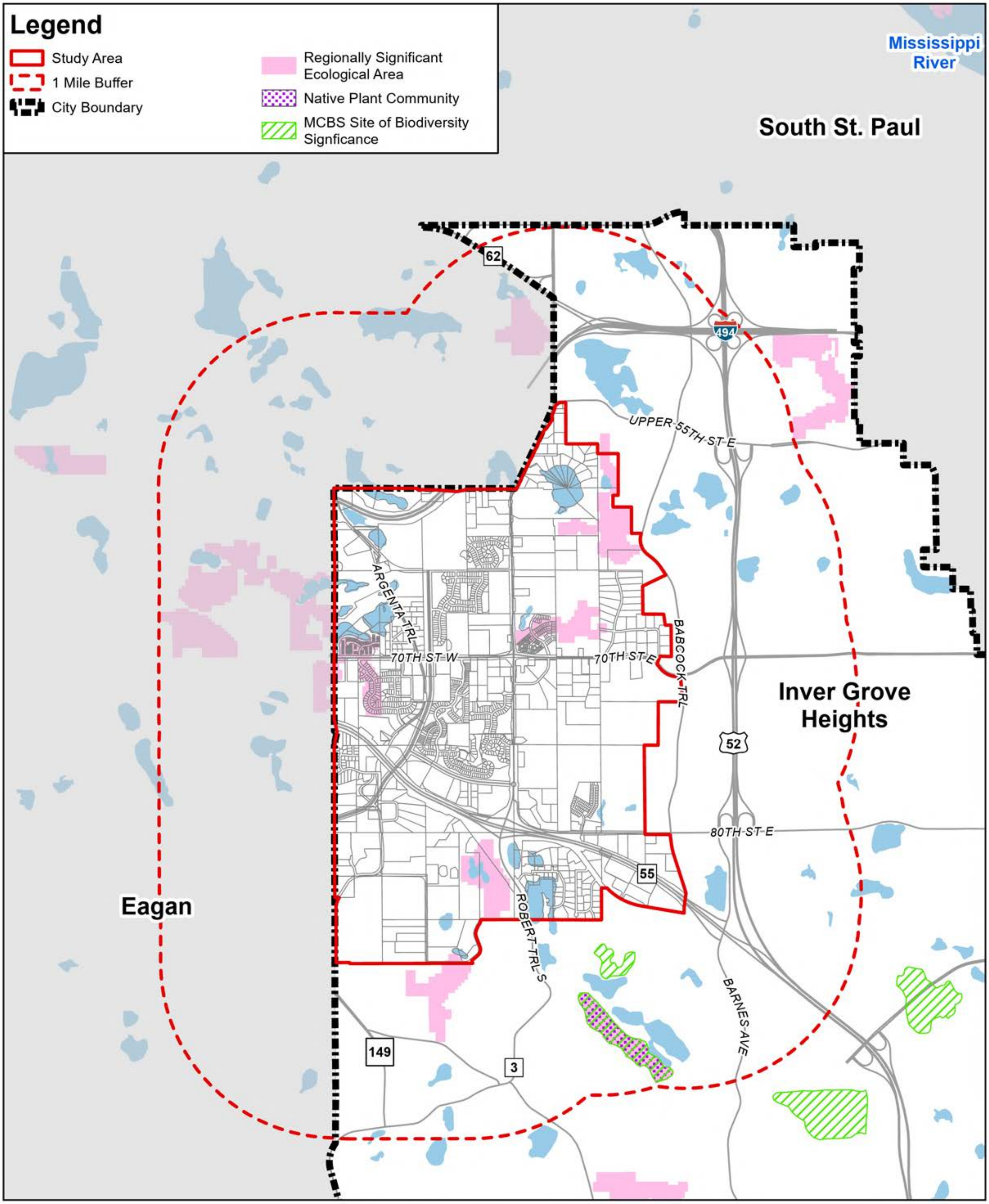


Figure 8
MPCA Sites



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0 0.35 0.7 Miles

Figure 9
Habitat Areas

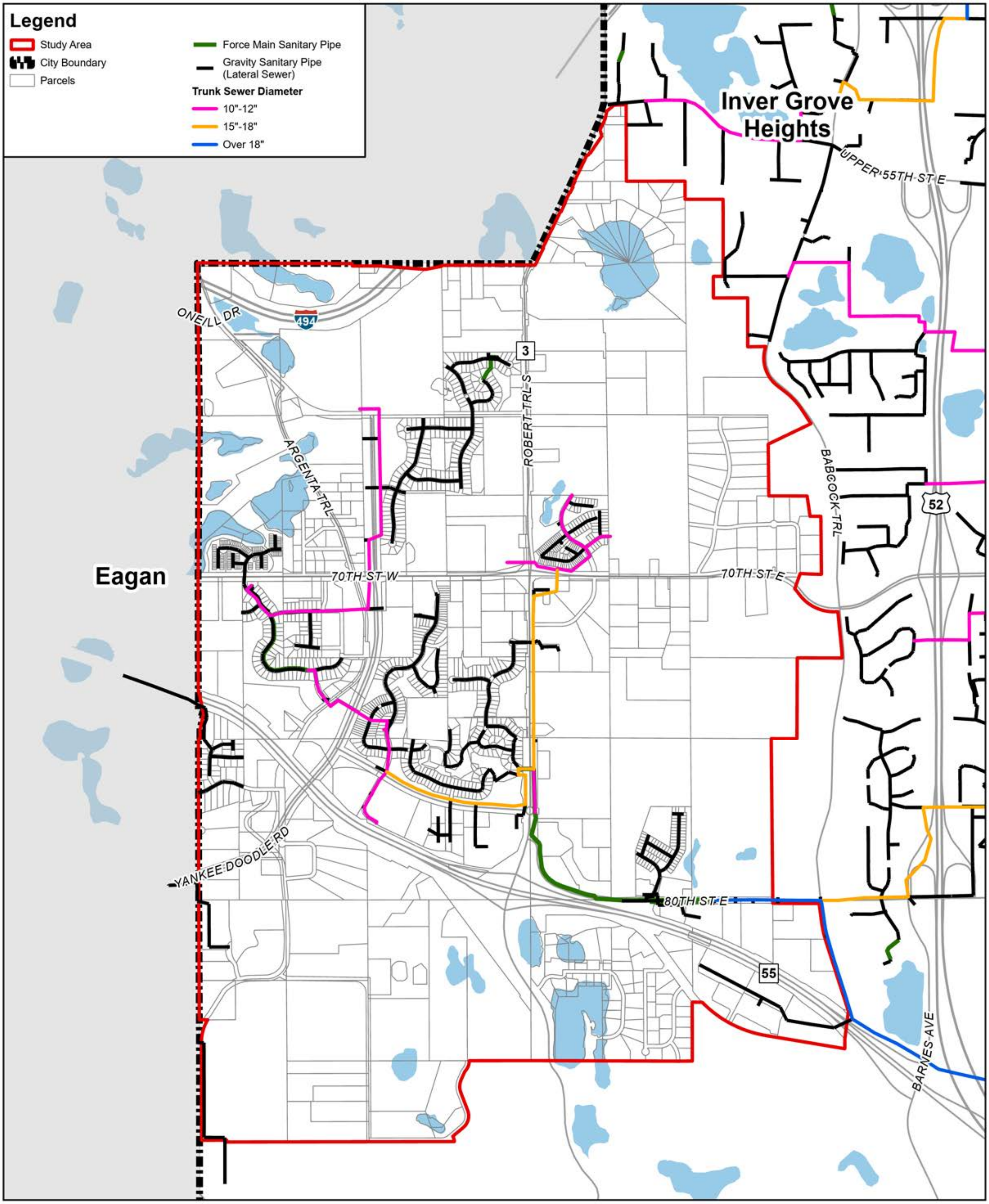

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Figure 9
Trunk Sanitary Sewer System

Parcel IDs within Study Area

Parcel ID
206285001020
206285001030
206648000010
206648000020
206648000030
206720101060
206720102020
206720102040
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Parcel IDs within Study Area

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Parcel IDs within Study Area

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Parcel IDs within Study Area

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Parcel IDs within Study Area

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Parcel IDs within Study Area

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Parcel IDs within Study Area

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205670101101

Existing Wells 2025

Unique No.	Well Use[1]	Depth Completed	Aquifer[2]
585173	DO	360	OPDC
443613	DO	231	QBAA
127196	DO	295	QBUA
800894	DO	278	QBUA
417573	DO	345	QBAA
679293	DO	390	OPDC
426377	DO	380	OPDC
437888	DO	340	OPDC
171835	DO	249	QBUA
129164	DO	239	QBAA
826030	DO	197	QBAA
136504	DO	212	QBAA
418663	DO	280	QBAA
636371	DO	323	QBAA
812919	DO	318	QBAA
441920	DO	307	OPDC
208379	DO	140	QBUA
466761	DO	330	OPDC
1000002209	DO	220	
107303	DO	178	QBAA
429893	DO	300	OPDC
765382	DO	125	QWTA
686596	DO	320	OPDC
146831	DO	303	OPDC
104188	DO	275	QBAA
427037	DO	212	QWTA
185277	DO	243	QWTA
684692	DO	230	MTPL
425219	DO	280	OPDC
790238	DO	195	QBUA
745841	DO	145	QBUA
498434	DO	300	OPDC
190477	DO	241	OPDC
194093	DO	280	OPDC
416017	DO	380	OPDC
696056	DO	148	QBAA
651961	DO	222	OPDC
104312	DO	155	QBAA
198340	DO	275	QBAA
642428	DO	330	OPDC
208378	DO	275	OPDC

795489	DO	258	QBAA
558267	DO	208	QBAA
198339	DO	300	OPDC
341133	EN	21	
756520	DO	220	OPDC
443885	DO	162	QBAA
506652	DO	210	OPDC
457160	DO	162	QBAA
460145	DO	215	QWTA
127186	DO	272	OPDC
457178	DO	216	QBUA
779042	DO	340	OPDC
186044	DO	175	QWTA
418646	DO	340	OPDC
768802	DO	320	OPDC
457166	DO	147	QBAA
127187	DO	276	OPDC
410991	DO	250	OPDC
597774	DO	345	OPDC
429860	DO	280	OPDC
190476	DO	326	OPDC
803264	DO	210	QWTA
198282	DO	278	QWTA
182969	DO	308	OPDC
1000002232	DO	160	
198345	DO	260	QBAA
182815	DO	292	OPDC
526974	DO	280	OPDC
569783	DO	250	OPDC
627065	DO	195	QBAA
416015	DO	173	QWTA
127188	DO	291	OPDC
408269	DO	325	OPDC
412468	DO	320	OPDC
405088	DO	317	OPDC
573827	DO	360	OPDC
179705	DO	125	QBAA
524250	DO	236	OPDC
761632	DO	260	QWTA
159489	DO	175	QBAA
494802	DO	333	OPDC
474305	DO	282	QBAA
466764	DO	275	OPDC

198350	DO	280	OPDC
124323	DO	255	QBAA
463545	IR	422	OPDC
498428	DO	240	OPDC
534326	DO	320	OPDC
426386	DO	240	OPDC
775979	DO	340	OPDC
136461	DO	295	OSPC
664148	DO	320	OPDC
208368	DO	300	OPDC
188208	DO	276	OPDC
460111	DO	230	OPDC
185937	DO	217	QWTA
341130	EN	26	
101043	DO	252	OPDC
129251	DO	260	OPDC
408263	DO	280	OPDC
1000002556	DO	350	
826047	DO	260	OPDC
412482	DO	123	QWTA
341378	EN	41	
835624	DO	260	OPDC
736059	DO	280	OPDC
127591	DO	302	QBAA
185980	DO	300	OPDC
424909	DO	300	OSPC
418626	DO	260	OSPC
280306	UN	175	QUUU
198297	DO	280	OPDC
451625	DO	252	OPDC
418664	DO	300	OSPC
207279	DO	294	OPDC
498421	DO	240	OSTP
418669	DO	320	OSPC
704963	DO	267	OPDC
412467	DO	320	OPDC
435200	DO	290	OPDC
629088	DO	240	OSPC
437918	DO	300	OPDC
418617	DO	300	OPDC
426363	DO	320	OPDC
460149	DO	315	OPDC
208367	DO	285	OPDC

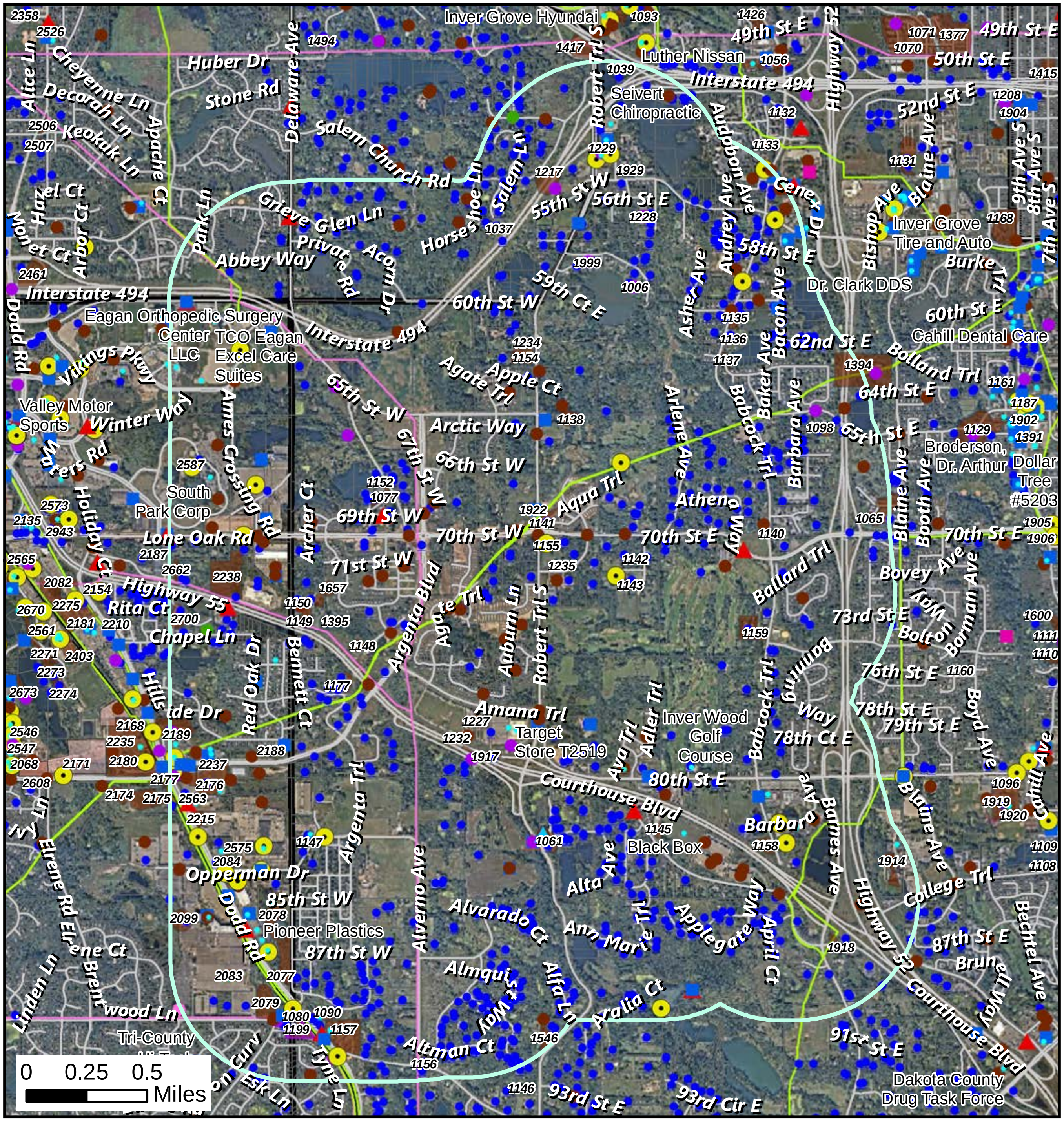
672585	DO	365	OPDC
675280	DO	278	OPDC
426923	DO	310	OPDC
401105	DO	306	OPDC
416018	DO	300	OPDC
429894	DO	300	OPDC
198328	DO	280	OPDC
418641	DO	320	OPDC
124349	DO	300	OPDC
418661	DO	280	OPDC
569761	DO	298	QBUA
404813	DO	320	OPDC
589981	DO	280	OPDC
451545	DO	320	OPDC
666267	DO	280	OPDC
104132	DO	260	OPDC
416023	DO	253	QBAA
127189	DO	271	OPDC
416049	DO	358	OPDC
546339	DO	295	OPDC
437920	DO	340	OPDC
416002	DO	320	OPDC
418660	DO	280	OPDC
208361	DO	290	OPDC
418655	DO	320	OSPC
437855	DO	260	OPDC
426353	DO	300	OPDC
614825	DO	312	OPDC
427141	DO	335	OPDC
506634	DO	340	OPDC
443922	DO	250	OPDC
642435	DO	300	OPDC
585164	DO	320	OPDC
739391	DO	300	OPDC
1000002431	DO	280	
712733	DO	280	OSPC
595063	DO	268	OSTP
235590	UN	177	
426908	DO	275	OSTP
208366	DO	175	QBUA
404811	DO	300	OPDC
247444	DO	273	OSTP
524113	DO	280	OPDC

185983	DO	290	OSPC
425266	DO	300	OSTP
107145	DO	291	OPDC
177070	DO	317	OSTP
756541	DO	340	OSPC
100994	DO	395	OPDC
435236	DO	360	OPDC

[1] Well use codes: DO—Domestic; IR—Irrigation; PN—Public supply, non-community, transient. This field is blank where the use is not provided in CWI.

[2] Aquifer codes: QBAA—Quatenary artesian, QBUA—buried Quaternary, QUUU—Unidentified Quaternary, QWTA—Water Table, OSTP—Saint Peter Sandstone, OPDC—Prairied du Chien, OPCJ—Prairie du Chien-Jordan, MTPL—multiple. This field is blank where geological and/or well construction information was not provided.

Environmental Review Map



Inver Grove Heights AUAR
Inver Grove Heights, MN
Review Date: March 21st, 2025

- Hazardous Waste Generators
- Wells

MPCA WIMN Sites

- Multiple Programs
- Air Quality
- Environmental Review
- Feedlots
- Hazardous Waste
- Investigation and Cleanup
- Pollution Prevention
- Solid Waste
- Stormwater
- SSTS
- Tanks
- Water Quality

DC Projects

- Projects
- DC Site Inventory
- DC Solid Waste Facilities
- NPMS Pipelines
- Electric Transmission Lines
- Railroads
- Parcels
- Municipal Boundary

Environmental Review Report

Haz Waste Generators

ID	Generator	Address	City	Waste Name	Size	Status
46	Gerke Cleaners	5464 S Robert Trl	Inver Grove Heights	Perc Sludge	VSQG	Out of Business
46	Gerke Cleaners	5464 S Robert Trl	Inver Grove Heights	Perc Filters	VSQG	Out of Business
46	Gerke Cleaners	5464 S Robert Trl	Inver Grove Heights	Perc contact water	VSQG	Out of Business
161	Thomson-Reuters	610 Opperman DR	Eagan	Paint Related Material	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Lead Acid Batteries	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Used Oil	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Non-Disposable Rags	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Dry Cell Batteries	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Cutting Fluid	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Fluorescent Lamps	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Lab Packs	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	PCB Ballasts & Capacitors	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	NiCad Batteries	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Oil Sorbents	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Oil Filters	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Magnesium Shavings	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Aerosol Cans	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Broken Fluorescent lamps	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	MEK/IPA Absorbents	VSQG	Generator
161	Thomson-Reuters	610 Opperman DR	Eagan	Lithium Batteries	VSQG	Generator
197	City of Inver Grove Heights	8168 Barbara AVE	Inver Grove Heights	Parts Washer Solvent	VSQG	Generator
197	City of Inver Grove Heights	8168 Barbara AVE	Inver Grove Heights	Lead Acid Batteries	VSQG	Generator
197	City of Inver Grove Heights	8168 Barbara AVE	Inver Grove Heights	Used Oil	VSQG	Generator
197	City of Inver Grove Heights	8168 Barbara AVE	Inver Grove Heights	Oil Filters	VSQG	Generator
197	City of Inver Grove Heights	8168 Barbara AVE	Inver Grove Heights	Fluorescent Lamps	VSQG	Generator
239	Unified Screening and Crushing	3350 Hwy 149 BOX 21068	Eagan	Parts Washer Solvent	MQG	Generator
239	Unified Screening and Crushing	3350 Hwy 149 BOX 21068	Eagan	Fluorescent Lamps	MQG	Generator
239	Unified Screening and Crushing	3350 Hwy 149 BOX 21068	Eagan	Floor Dry	MQG	Generator
239	Unified Screening and Crushing	3350 Hwy 149 BOX 21068	Eagan	Used Oil	MQG	Generator
281	JR's Appliance Disposal Inc.	8980 Jefferson TRL W	Inver Grove Heights	PCB	MQG	Non-Generator
281	JR's Appliance Disposal Inc.	8980 Jefferson TRL W	Inver Grove Heights	Mercury Switches	MQG	Non-Generator
281	JR's Appliance Disposal Inc.	8980 Jefferson TRL W	Inver Grove Heights	Chromate Solution	MQG	Non-Generator
281	JR's Appliance Disposal Inc.	8980 Jefferson TRL W	Inver Grove Heights	Fluorescent Lamps	MQG	Non-Generator
321	Micro Parts	3680 Dodd RD	Eagan	Metal Sludge	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Alcohol	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Fluorescent Lamps	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Corrosive Liquid	LQG	Generator

321	Micro Parts	3680 Dodd RD	Eagan	Corrosive liq-ferric chloride	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Nickel Plating Soln	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Diversey Solution	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Flammable Solid/Liquid	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Electronic Waste	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Burn Barrel Waste Solids	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Batteries	LQG	Generator
321	Micro Parts	3680 Dodd RD	Eagan	Corrosive Liquid-Nitric Acid,	LQG	Generator
455	Sir Speedy Printing Center	3670 Dodd RD	Eagan	Rags / Press Wash	MQG	Out of Business
455	Sir Speedy Printing Center	3670 Dodd RD	Eagan	Fixer Solution	MQG	Out of Business
485	Able Craft Fabrications, Inc.	3500 Dodd RD	Eagan	Parts Washer Solvent	VSQG	Out of Business
485	Able Craft Fabrications, Inc.	3500 Dodd RD	Eagan	Rags / Screen Wash	VSQG	Out of Business
485	Able Craft Fabrications, Inc.	3500 Dodd RD	Eagan	Fluorescent Lamps	VSQG	Out of Business
485	Able Craft Fabrications, Inc.	3500 Dodd RD	Eagan	Used Oil	VSQG	Out of Business
522	Park Dental Salem Square	5350 Robert TRL S	Inver Grove Heights	Amalgam	MQG	Generator
522	Park Dental Salem Square	5350 Robert TRL S	Inver Grove Heights	Pharmaceuticals (Not Acute)	MQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Lab Packs	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Used Oil	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Oil Filters	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Fluorescent Lamps	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Dry Cell Batteries	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Electronics	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	mercury thermometer	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Oil Based Paint	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Ballasts Containing PCBs	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Medical Waste n.o.s	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Propane Cylindars	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Lead Acid Batteries	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	NiCd Batteries	VSQG	Generator
529	Inver Hills Community Colleges	2500 80th St E	Inver Grove Heights	Lithium Batteries	VSQG	Generator
538	Truck Repair and Equipment Co., Inc.	8245 Argenta TRL	Inver Grove Heights	Parts Washer Solvent	MQG	Generator
538	Truck Repair and Equipment Co., Inc.	8245 Argenta TRL	Inver Grove Heights	Lead Acid Batteries	MQG	Generator
538	Truck Repair and Equipment Co., Inc.	8245 Argenta TRL	Inver Grove Heights	Used Oil	MQG	Generator
538	Truck Repair and Equipment Co., Inc.	8245 Argenta TRL	Inver Grove Heights	Fluorescent Lamps	MQG	Generator
538	Truck Repair and Equipment Co., Inc.	8245 Argenta TRL	Inver Grove Heights	Oil Filters	MQG	Generator
677	Seivert Chiropractic	5300 S Robert TRL STE 700	Inver Grove Heights	Fixer Solution	MQG	Out of Business
677	Seivert Chiropractic	5300 S Robert TRL STE 700	Inver Grove Heights	Scrap Film	MQG	Out of Business

677	Seivert Chiropractic	5300 S Robert TRL STE 700	Inver Grove Heights	Fluorescent Lamps	MQG	Out of Business
708	South Park Corp	655 E Lone Oak RD	Eagan	Parts Washer Solvent	VSQG	Out of Business
708	South Park Corp	655 E Lone Oak RD	Eagan	Fluorescent Lamps	VSQG	Out of Business
708	South Park Corp	655 E Lone Oak RD	Eagan	Lab Packs	VSQG	Out of Business
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Parts Washer Solvent	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Lead Acid Batteries	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Paint Thinner	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Antifreeze	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Used Oil	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Oil Filters	MQG	Generator
779	Inver Wood Golf Course	1597 80th ST E	Inver Grove Heights	Gasoline/Diesel Fuel	MQG	Generator
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Paint Thinner	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Paint Filters	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Rags / Solvent	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Hydraulic Oil	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Fluorescent Lamps	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Used Oil Filters	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Used Oil Absorbents	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Lead Acid Batteries	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Parts Washer Solvent	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Aerosols	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Lithium Batteries	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	NiCad Batteries	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Dry Cell Batteries	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	PCB	VSQG	Out of Business
802	Delta Airlines - Bldg. N	2600 Lone Oak PT	Eagan	Oil & water mixture	VSQG	Out of Business
826	Bituminous Roadways	9050 Jefferson TRL	Inver Grove Heights	Used Oil	VSQG	Out of Business
826	Bituminous Roadways	9050 Jefferson TRL	Inver Grove Heights	Oil Filters	VSQG	Out of Business
826	Bituminous Roadways	9050 Jefferson TRL	Inver Grove Heights	Lead Acid Batteries	VSQG	Out of Business
826	Bituminous Roadways	9050 Jefferson TRL	Inver Grove Heights	Fluorescent Lamps	VSQG	Out of Business
826	Bituminous Roadways	9050 Jefferson TRL	Inver Grove Heights	Parts Washer - System 1	VSQG	Out of Business
1022	United Parcel Service	555 Opperman DR	Eagan	Parts Washer Solvent	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Lead Acid Batteries	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Used Oil	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Unuseable Material/Spills	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Fluorescent Lamps	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Antifreeze	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Oil Filters	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Paint	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Aerosols	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Rechargeable Batteries	LQG	Generator

1022	United Parcel Service	555 Opperman DR	Eagan	Acute Pharmaceuticals (P-List)	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Oil Contaminated Debris	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Paint Contaminated Debris	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Parts Washer Solvent	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Smokeless Powder	LQG	Generator
1022	United Parcel Service	555 Opperman DR	Eagan	Air Bag Module	LQG	Generator
1153	Grease Monkeys Inc	3191 Red Oak DR	Eagan	Used Oil	VSQG	Out of Business
1153	Grease Monkeys Inc	3191 Red Oak DR	Eagan	Oil Filters	VSQG	Out of Business
1260	Value Auto Repair	6889 S Robert TRL	Inver Grove Heights	Used Oil	VSQG	Out of Business
1260	Value Auto Repair	6889 S Robert TRL	Inver Grove Heights	Oil Filters	VSQG	Out of Business
1260	Value Auto Repair	6889 S Robert TRL	Inver Grove Heights	Lead Acid Batteries	VSQG	Out of Business
1260	Value Auto Repair	6889 S Robert TRL	Inver Grove Heights	Parts Washer Solvent	VSQG	Out of Business
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	Alkaline Batteries	MQG	Generator
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	Lubricant and Preservative	MQG	Generator
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	Lithium Batteries	MQG	Generator
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	Magnesium Batteries	MQG	Generator
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	NiCad Batteries	MQG	Generator
1387	Inver Grove Heights Training and Community Center	8076 E Babcock TRL	Inver Grove Heights	Mercury Batteries	MQG	Generator
1413	Mendota Graphics	3670 Dodd RD	Eagan	Rags/Press Wash	VSQG	Former Generator
1413	Mendota Graphics	3670 Dodd RD	Eagan	Fixer Solution	VSQG	Former Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Flammable Liquids	VSQG	Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Waste Selenium Compound	VSQG	Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Waste Corrosive Liquid	VSQG	Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Conditioning Agent	VSQG	Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Waste Isocyanates	VSQG	Generator
1616	XPO Logistics Freight, Inc. - XEN	3450 Dodd RD	Eagan	Hazardous Waste Solid (Lead, S	VSQG	Generator
1626	Southwest YMCA	550 Opperman DR	Eagan	Waste Paint	MQG	Non-Generator
1945	PPG Aerospace/PRC - Desoto International Inc.	580 Yankee Doodle RD STE 1	Eagan	Flammable Liquid	MQG	Out of Business
1945	PPG Aerospace/PRC - Desoto International Inc.	580 Yankee Doodle RD STE 1	Eagan	Oils & Lubricants	MQG	Out of Business
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Fluorescent Lamps	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Used Oil	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Used Oil Filters	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Waste electronics	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Lab Packs	SQG	Generator

2034	Ecolab R & D	655 Lone Oak DR	Eagan	Waste Oxidizer	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Aerosols	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Waste Mercury	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Batteries	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Flammable Liquids	SQG	Generator
2034	Ecolab R & D	655 Lone Oak DR	Eagan	Toxic Liquids	SQG	Generator
2155	Roger Banks	6889 S Robert TRL	Inver Grove Heights	Paint / Thinner	MQG	Out of Business
2293	Road Ready Truck and Trailer Repair, LLC	9050 Jefferson Trail	Inver Grove Heights	Part Washer	MQG	Out of Business
2293	Road Ready Truck and Trailer Repair, LLC	9050 Jefferson Trail	Inver Grove Heights	Used Oil Filters	MQG	Out of Business
2293	Road Ready Truck and Trailer Repair, LLC	9050 Jefferson Trail	Inver Grove Heights	Used Oil	MQG	Out of Business
2293	Road Ready Truck and Trailer Repair, LLC	9050 Jefferson Trail	Inver Grove Heights	Lead Acid Batteries	MQG	Out of Business
2293	Road Ready Truck and Trailer Repair, LLC	9050 Jefferson Trail	Inver Grove Heights	Fluorescent Lamps	MQG	Out of Business
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Aerosols	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Aerosols	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Aerosols	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Flammable Liquids	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Oxidizing Liquid	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Toxic Liquids	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Corrosive Liquids - Basic	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Corrosive Liquids - Acidic	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Batteries, Wet	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Hazardous Waste, Solid	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Toxic Solids	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Batteries, Dry	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Compressed Gas, Flammable	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Universal Waste	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Aerosols	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Flammable Solids	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	OXIDIZING SOLID	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Aerosols	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Corrosive Liquids	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	EWaste for Recycle	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Lamps	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Lighters	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Lithium Ion Batteries	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Lithium Metal Batteries	VSQG	Generator
2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Lithium Batteries	VSQG	Generator

2438	Target Store T2519	7841 Amana Trail	Inver Grove Heights	Paint And/Or Paint Related Mat	VSQG	Generator
2313	Woodlyn Heights Health Care Center	2060 Upper 55th Street East	Inver Grove Heights	Pharmaceuticals (Not Acute)	MQG	Generator
2313	Woodlyn Heights Health Care Center	2060 Upper 55th Street East	Inver Grove Heights	Fluorescent Lamps	MQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Acute Toxic Solids	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Aerosols flammable	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Flammable Liqud	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Oxidizing Liquid	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Rx Toxic Liquids	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Rx Toxic Solids	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Consumer Electronics	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	RX Flammable Liquids	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	Universal Batteries	VSQG	Generator
2634	CVS Pharmacy #17549	7841 Amana Trail	Inver Grove Heights	RX Non Hazardous	VSQG	Generator
2903	Suite Living Memory Care & Assisted Living	7900 Austin Way	Inver Grove Heights	Acute Pharmaceuticals (P-List)	VSQG	Generator
2903	Suite Living Memory Care & Assisted Living	7900 Austin Way	Inver Grove Heights	Pharmaceuticals (Not Acute)	VSQG	Generator
2052	Pioneer Plastics	3660 Dodd RD	Eagan	Used Oil	MQG	Former Generator
2052	Pioneer Plastics	3660 Dodd RD	Eagan	Fluorescent Lamps	MQG	Former Generator
2874	TerraMax, Inc.	3650 Dodd Rd.	Eagan	Acetonitrile Mixture	VSQG	Generator
2874	TerraMax, Inc.	3650 Dodd Rd.	Eagan	Methanol Acid Waste	VSQG	Generator
2874	TerraMax, Inc.	3650 Dodd Rd.	Eagan	Lab Packs	VSQG	Generator
2874	TerraMax, Inc.	3650 Dodd Rd.	Eagan	Acidic Aqueous Solution	VSQG	Generator
2939	Aerospace Welding Minneapolis, Inc.	3344 Dodd Rd	Eagan	Paint/Thinner	VSQG	Generator
2939	Aerospace Welding Minneapolis, Inc.	3344 Dodd Rd	Eagan	Coolant	VSQG	Generator
2939	Aerospace Welding Minneapolis, Inc.	3344 Dodd Rd	Eagan	Aerosols	VSQG	Generator
2939	Aerospace Welding Minneapolis, Inc.	3344 Dodd Rd	Eagan	Used Oil	VSQG	Generator
2483	Dakota County Drug Task Force	Not Public Information	Eagan	Confiscated Pills	VSQG	Out of Business
2483	Dakota County Drug Task Force	Not Public Information	Eagan	Pharmaceuticals (Not Acute)	VSQG	Out of Business
2483	Dakota County Drug Task Force	Not Public Information	Eagan	Confiscated manufactured drugs	VSQG	Out of Business
2808	Eagan Orthopedic Surgery Center LLC	2700 Vikings Circle Suite 300	Eagan	Pharmaceuticals (Not Acute)	VSQG	Generator
2942	Valley Motor Sports	3380 Dodd Rd.	Eagan	Used Oil Filters	MQG	Generator
2942	Valley Motor Sports	3380 Dodd Rd.	Eagan	Used Oil	MQG	Generator
2942	Valley Motor Sports	3380 Dodd Rd.	Eagan	Lead Acid Batteries	MQG	Generator
2954	TCO Eagan Excel Care Suites	2611 Nordic Way Third Floor	Eagan	Pharmaceuticals (Not Acute)	VSQG	Generator

3011	Your Wellbeing Health Center	610 Opperman Dr	Eagan	Pharmaceuticals	MQG	Out of Business
3020	EnerSys Delaware Inc	625 Yankee Doddle Road	Eagan	Lead Acid Batteries	VSQG	Generator
3020	EnerSys Delaware Inc	625 Yankee Doddle Road	Eagan	Fluorecent bulbs	VSQG	Generator
3020	EnerSys Delaware Inc	625 Yankee Doddle Road	Eagan	Floor sweepings	VSQG	Generator
3020	EnerSys Delaware Inc	625 Yankee Doddle Road	Eagan	Sulfuric Acid / Wastewater	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Lead Solder Waste	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Paint Related Material	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Lead Contaminated Materials	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Lead Acid Batteries	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Electronics	VSQG	Generator
3067	Black Box	8210 Courthouse Blvd Ste 20(	Inver Grove Heights	Thinner Rags	VSQG	Generator

Dakota County Site Inventory

Site ID	MPCA Leak ID	MPCA_VICID	Site Name	Site Classification	Comments	File Status
1006	12802		Gerten Residence LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 2008 No GW Contamination. Cont Soil remain	Open
1037			Abandoned Farmstead Dump	Household or Farm Dump		Open
1039			MNDOT Highway 110 , Interstate 494 & Highway 3	Large, Unlimited Variety		Open
1061			Sibley Plaza Dump	Large, Unlimited Variety		Open
1065			6900 Blaine Demolition	Large, Unlimited Variety		Open
1075			Roberts Battery Disposal	Hazardous Waste Disposal		Open
1077			Eldrige Battery Disposal	Hazardous Waste Disposal		Open
1079			Geere Battery Disposal	Hazardous Waste Disposal		Open
1080			Starfire Dump & Disposals	Hazardous Waste Disposal	3 acre parking area filled with casings	Open
1090			JR's Appliance Salvage & Disposal	Industrial Waste Disposal	Alleged Unpermitted salvage/disposal	Open
1098	11112		Macks Excavating LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 2000 No GW Contamination. Soil unevaluated	Open
1107			Dakota County Highway Shop	Large, Unlimited Variety	Feature moved to topo low	Open
1135			Koehnen Waste Fill	Large, Unlimited Variety		Open
1136			Pickett Farm Dump	Household or Farm Dump		Open
1137			63rd Street & Babcock Trail Dump	Large, Unlimited Variety		Open
1138			Stassen Dump	Large, Unlimited Variety		Open
1140			70th Street & Babcock Trail Dump	Large, Unlimited Variety		Open
1141			Commercial 40 Inver Grove Heights Partnership Farm Dump	Household or Farm Dump		Closed
1142			Glewwe Battery Disposal	Hazardous Waste Disposal		Open
1143			Saad & Coury Battery Disposal	Hazardous Waste Disposal		Closed
1144			Peabody's Dump	Large, Unlimited Variety		Closed
1145			Wagner Sod Farm	Agricultural Disposal		Open
1147			Argenta Trail Dump	Large, Unlimited Variety		Open
1148			Triangle Refuse	Large, Unlimited Variety		Open
1149			Schaaf Driveway	Large, Unlimited Variety		Open
1150			Povolny Dump	Large, Unlimited Variety		Open

1151			Schaaf Dump	Large, Unlimited Variety		Open
1152			Leach Wetland Waste Fill	Large, Unlimited Variety		Open
1154			Rauchwarter Demolition Dump South	Large, Unlimited Variety		Closed
1155			Fuel Oil Service Demolition Fill North	Large, Unlimited Variety		Closed
1156			Finwall Dump	Large, Unlimited Variety		Open
1157			Alexander Construction Dump	Industrial Waste Disposal		Open
1158			Inver Hills Assembly of God Church Demolition Dump	Large, Unlimited Variety		Open
1159			Glassing Dump	Large, Unlimited Variety		Open
1176			McNeil & Povolny Dump	Large, Unlimited Variety		Open
1177			McNeil Demolition Dump	Large, Unlimited Variety		Open
1199	15515		Aconite LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 2008 Soil unevaluated	Open
1217			Sunfish Lake Tree Burn Site	Agricultural Disposal		Open
1227	16934		Oren and Trog Property Release	Spill, Leak, Leach or Inject Release	MPCA Closure 2009 Contaminated Soil Remain	Open
1228	17316		Dell Dahn Estate Release	Spill, Leak, Leach or Inject Release	MPCA Closure 2009 Contaminated Soil Remains	Open
1229	18247		PDQ Station #212 LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 2011 No Contamination Remaining	Closed
1232			Peabody's Dump NW	Large, Unlimited Variety	Relocated based on 2004 aerial photo disturbance	Closed
1233			MNDOT & Peabody's Disposal	Large, Unlimited Variety	Relocated based on historical photo building location	Closed
1234			Rauchwarter Demolition Dump North	Large, Unlimited Variety		Open
1235			Fuel Oil Service Demolition Fill South	Large, Unlimited Variety		Closed
1390	1553	SR0001553	Gerke Cleaners	Spill, Leak, Leach or Inject Release	9/20/22 Corrective Environmental Covenant recorded, document	Open
1394			Highway 103 Lead Site	Large, Unlimited Variety	MNDOT cleaned right-of-way	Closed
1395			Dakota 53 Property Disposal South	Large, Unlimited Variety		Open
1546			Inver Grove Heights Audit #46	Large, Unlimited Variety		Open
1657			Dakota 53 Property North	Household or Farm Dump		Open
1914	7850		Inver Hills Community College LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1995. GW Cont Suspected, Soil unevaluated	Open
1917	8224		MN DOT (Former Service Station) LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1999, GW Cont suspected. Soil unevaluated	Open
1918	1142		MNDOT Dakota County LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1994 No GW Contamination. Cont Soil suspected	Open
1922	1757		Speed Engineering Inc LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1994. No GW Cont.Soil ContaminationSuspected	Open
1928	1759		Wescott Station LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1995. Soil Contamination, GW Cont.suspected	Open
1929	3443		Salem Green Apartments LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1991 No Soil or GW Contamination Remaining	Closed
1999	14852		Ebgers Residence LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 2002 Soil unevaluated	Open
2077			YMCA Demo Dump	Large, Unlimited Variety		Open

2078		West Publishing Demolition Dump	Large, Unlimited Variety		Open
2079		Lemke's Trucking Dump	Industrial Waste Disposal		Open
2083		West Group Building #5 Sump Leak	Hazardous Waste Disposal		Open
2084		Schwermann Dump	Industrial Waste Disposal		Open
2099		West Group LUST	Spill, Leak, Leach or Inject Release		Open
2158	11149	United Parcel Service LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1999 GW and Soil unevaluated	Open
2172		Fee Farm Dump	Hazardous Waste Disposal	Limited No Further Action from MPCA in 2020.	Closed
2173		Gopher Smelting Battery Berm Disposal	Hazardous Waste Disposal		Open
2176		Schafer Contracting Demolition Fill	Industrial Waste Disposal		Open
2188		Johnson Farm Dump	Household or Farm Dump	Complete removal 1997 No residual testing conducted	Closed
2189		Gopher Smelting Battery Disposal	Hazardous Waste Disposal	Limited No Further Action from MPCA in 2020.	Closed
2215		Truck Repair Dump	Industrial Waste Disposal		Open
2237		Industrial Equities Demolition Dump	Industrial Waste Disposal		Open
2238		Cina Dump	Large, Unlimited Variety		Open
2563	7186	Northwest Transport LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 19994 No GW or soil Contamination remain	Open
2575	5466	United Parcel Service LUST	Spill, Leak, Leach or Inject Release	MPCA Closure 1997. No GW or Soil Contamination remains	Closed
2587		Cray Research Park Disposals	Hazardous Waste Disposal	Former Cray Research Facility	Open
2614		Schafer Contractor Demolition Dump	Industrial Waste Disposal		Open
2662		Effress Salvage Disposals	Industrial Waste Disposal		Open
2700		Piekarski Tip Dump	Large, Unlimited Variety		Open

Dakota County CSIR Projects

Project ID	Name	City	Comments	Project Status
2007002	Starfire Properties	Eagan	Battery casings in septic drainfields	Remediation/Cleanup

MPCA "What's In My Neighborhood" Site Data

Name	Active Flag	Address	City	MPCA Activities	MPCA IDs	Institutional Controls (Y or N)
Cahill Ave Improvements - Phase 3	N	Btwn Concord & 80th St; 80th St. Btwn Boyd Ave & E of Cahill	Inver Grove Heights	Construction Stormwater	C00007587	N
Concord Hills	Y	See location description	Inver Grove Heights	Construction Stormwater	C00021228	N
Kings Express Logistics Warehouse	Y	635 Yankee Doodle Rd	Eagan	Industrial Stormwater	MNRNE377B	N

Blackstone Ridge-Winwood Addition 2nd Addition	Y		Inver Grove Heights	Construction Stormwater	C00047557	N
Macks Excavating	Y	2168 65th St E	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0011112	N
Min Argenta Property	Y	6261 Argenta Trl	Inver Grove Heights	Brownfields, Petroleum Brownfield	PB3346	N
Your Wellbeing Health Center	Y	610 Opperman Drive Ste DN1000	Eagan	Hazardous Waste, Minimal quantity generator	MNS000310296	N
2000 Street Improvement Project	N	102nd St E & W, 105th St W from Akron Ave east, Adam Ave, Agat	Inver Grove Heights	Construction Stormwater	C00008308	N
King Express	Y	635 Yankee Doodle Rd	Eagan	Industrial Stormwater	MNRNE3CR3	N
Eagan Industrial Park 3rd Addition	Y	Highway 149 & Yankee Doodle Rd	Eagan	Brownfields, Voluntary Investigation and Cleanup	VP10870; VP10871; VP10872	N
Clark Road Office Warehouse	N	Clark Rd & Hwy 52	Inver Grove Heights	Construction Stormwater	C00008524	N
Old Dominion Freight Lines	N	3450 Dodd Rd	Eagan	Underground Tanks	TS0001372	N
Flynn Residence	Y	230 Salem Church Rd	Sunfish Lake	Construction Stormwater	C00022519	N
Inver Grove Fire Station #2	Y	9250 Courthouse Blvd	Inver Grove Heights	Construction Stormwater	C00051644	N
UPS Pavement Expansion	Y	555 Opperman Drive	Eagan	Construction Stormwater	C00067016	N
Surelock Storage - Inver Grove Hts	N	See location description	Inver Grove Heights	Construction Stormwater	C00024727	N
Inver Glen Senior Living	N	7260 S Robert Trl	Inver Grove Heights	Construction Stormwater; Hazardous Waste, Very small quantity generator	C00026891; MNS000327096	N
Home Depot - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00014818	N
2015-13 & 2015-16 NWA Trunk Utility Improvement - Argenta District	Y		Inver Grove Heights	Construction Stormwater	C00042619	N
TH3 & 65th Street Improvements	Y	TH 3 & 65th Street	Inver Grove Heights	Construction Stormwater	C00048876; SUB0054777	N
Peltier Reserve	Y	7250 Argenta Trl	Inver Grove Heights	Construction Stormwater	C00061565	N
State Special Waste Facility	Y	8150 Barbara Ave	Inver Grove Heights	Hazardous Waste	MND982067662	N
South Grove Street Recon Phase 3	N	See location description	Inver Grove Heights	Construction Stormwater	C00025667	N
Marianna Ranch	N	See location description	Inver Grove Heights	Construction Stormwater	C00005860	N
Dakota CP 14-12, 73-06 & 97-12	N	See location description	Inver Grove Heights	Construction Stormwater	C00007412	N
TH 52 & 117th Street Interchange	N	See location description	Inver Grove Heights	Construction Stormwater	C00009653	N

Cahill Avenue Extension - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00022698	N
Inver Grove Heights, City Of	Y	8150 Barbara Ave	Inver Grove Heights	SSTS	L1452	N
Natural Landscape Minnesota, Inc.	Y	1215 80th St E	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MNS000328552	N
Arbor Crest	N	E Side of Cahill Ave S of Concord Blvd	Inver Grove Heights	Construction Stormwater	C00006453	N
o'Leary Residence	N	10 Windy Hill Rd	Sunfish Lake	Construction Stormwater	C00016787	N
Thomson Data Center Expansion	N	610 Opperman Dr	Eagan	Construction Stormwater	C00022091	N
Wagner Sod	Y	8150 Courthouse Blvd Ct	Inver Grove Heights	Aboveground Tanks	TS0124912	N
Blackstone Vista	Y		Inver Grove Heights	Construction Stormwater	C00040368	N
Gateway Business Park - Lot 2	Y	500 Lone Oak Road	Eagan	Construction Stormwater	C00046379	N
Argenta Hills 2nd Addition	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00030784; SUB0031989	N
Crosby Heights	Y	Crosby Avenue	Inver Grove Heights	Construction Stormwater	C00042443	N
MCI #171111 - Pond GP-1.2 Improvements	Y			Construction Stormwater	C00046090	N
Inver Grove Heights Tacc	Y	8076 Babcock Trl	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MNR000058396	N
494 & Hwy 52 Commercial	N	See location description	Inver Grove Heights	Construction Stormwater	C00019829	N
InverPoint Business Park	Y	See location description	Inver Grove Heights	Construction Stormwater	C00025211	N
South Grove	Y		Inver Grove Heights	Construction Stormwater	C00060529	N
Forest Ridge	Y	NW of Co. Rd 71 & 102nd St. E	Inver Grove Heights	Construction Stormwater	C00009063	N
Vern Erickson	N	1658 69th St W	Inver Grove Heights	Underground Tanks	TS0015298	N
Windy Hills	Y	25 Windy Hills Rd	Sunfish Lake	Solid Waste	COM00162	N
Thomson Reuters	Y	610 Opperman Dr	Eagan	Aboveground Tanks; Brownfields, Voluntary Investigation and Cleanup; Industrial Stormwater; Site Assessment	MNRNE3FVM; SA0001897; TS0055446; VP10660	N
Salem Hills Elementary School	N	5899 Babcock Trl	Inver Grove Heights	Construction Stormwater; Underground Tanks	C00023420; TS0016082	N
Inverwood Golf Course Renovations	Y	1850 70th St. E	Inver Grove Heights	Construction Stormwater	C00043854	N
Ves Valley of Inver Grove Heights	N	NE Quad of Hwy 149 & Hwy 3	Inver Grove Heights	Construction Stormwater	C00007824	N
Flint Hills Resources Pine Bend LLC - Wescott Terminal	Y	10450 Robert Trail South	Inver Grove Heights	Air Quality; Hazardous Waste, Minimal quantity generator	03700389; MNS000329192	N

Scenic Hills Phase (2-4)	Y	Scenic Hills 1st Addition Blocks 2-8 67 Single Family Lots	Inver Grove Heights	Construction Stormwater	C00059630; SUB0071305; SUB0071306; SUB0071307; SUB0071308; SUB0071341; SUB0071342; SUB0071343; SUB0071344; SUB0071399; SUB0071400; SUB0071401; SUB0071402; SUB0071403	N
Carter Bob Ford	N	Highway 110 & 55	Inver Grove Heights	Aboveground Tanks	TS0052349	N
SAP 178-010-008 TH3, IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00027331	N
Argenta Trail	Y		Inver Grove Heights	Construction Stormwater	C00071179	N
Premier Services	N	6520 S Robert Trl	Inver Grove Heights	Hazardous Waste	MND982204380	N
2012-07 Bohrer Pond NW Pre Treatment Con	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00037437	N
Gramercy Park	N	Upper 55th St between Brent Ave & 9th Ave S	Inver Grove Heights	Construction Stormwater	C00004068	N
Parking Lot Expansion - Ecolab Schuman C	N	655 Lone Oak Road	Eagan	Construction Stormwater	C00036493	N
salem church sunfish lake	Y	Address Unknown	Sunfish Lake	Construction Stormwater	C00039525	N
CSAH 26 & CSAH 63 IMPROVEMENTS PROJECT	Y		Inver Grove Heights	Construction Stormwater	C00059441	N
Former Delta Airlines Building N	Y	2600 Lone Oak Point	Eagan	Underground Tanks	TS0016191	N
Amazing Grace Lutheran Ch Parking Lot Im	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00030408	N
I-35E Cayuga Soil Export Project	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00040096	N
Browning Ferris Industries - Pine Bend	Y	Address unknown	Inver Grove Heights	Solid Waste	SW-gen	N
Blaine Ridge - Quest Development	N	See location description	Inver Grove Heights	Construction Stormwater	C00001355	N
Truck Repair & Equipment Co Inc	Y	8245 Argenta Trl	Inver Grove Heights	Hazardous Waste, Very small quantity generator; Underground Tanks	MND057102246; TS0001256	N
Wescott Station	N	9028 Jefferson Trl	Inver Grove Heights	Underground Tanks	TS0013118	N
Blackstone Ridge	Y		Inver Grove Heights	Construction Stormwater	C00042704	N
Demolition Fill - 2	Y	6760 Arkansas Ave	Inver Grove Heights	Site Assessment	SA0007418	N
Gerten Residence	Y	12 High Road	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0012802	N
South Grove St Reconstruction Area 4	Y	See location description	Inver Grove Heights	Construction Stormwater	C00027725	N

2019 Street Improvements - 55th Street & Atwater Path	Y		Inver Grove Heights	Construction Stormwater	C00054166	N
EnerSys	Y	625 Yankee Doodle Rd Ste 100	Eagan	Hazardous Waste, Very small quantity generator	MNS000333992	N
Bridgewood Apartments	Y	3122 65th St E	Inver Grove Heights	Hazardous Waste	MNS000105726	N
Babcock Trail Rental Townhomes	N	See location description	Inver Grove Heights	Construction Stormwater	C00001905	N
Kaufman Enterprises Inc	Y	3401 Highway 55	Eagan	Underground Tanks	TS0001002	N
Marathon Health at MISO Eagan	Y	2985 Ames Crossing Rd	Eagan	Hazardous Waste, Very small quantity generator; Underground Tanks	MNS000347480; TS0125926	N
Mn Dot (former Service Station)	Y	Robert St S & Th 55 (nw Corner)	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0008224	N
Simpson Strong-Tie	Y	8450 Courthouse Blvd	Inver Grove Heights	Industrial Stormwater	MNRNE3F6Z	N
Woodview Ponds	N	See location description	Inver Grove Heights	Construction Stormwater	C00013163	N
Gateway Business Park	Y	520 Lone Oak	Eagan	Construction Stormwater	C00041547	N
XPO Logistics Freight, Inc. - XEN	Y	3450 Dodd Rd	Eagan	Hazardous Waste, Large quantity generator; Petroleum Remediation, Leak Site	LS0017588; MNR000077867	N
Tipperary	Y	Intersection of Wescott Rd and Dodd Rd	Eagan	Construction Stormwater	C00045637	N
JR's Appliance Disposal Inc	Y	8980 Jefferson Trl	Inver Grove Heights	Hazardous Waste, Small quantity generator	MND161032610	N
W. Villaume	Y	6180 RobertTrl S	Inver Grove Heights	Underground Tanks	TS0018605	N
The Crossings at Inver Woods	Y	1462 80th St E	Inver Grove Heights	Construction Stormwater	C00058430	N
Courthouse Boulevard Court	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00026526	N
Hidden Forest	N	See location description	Inver Grove Heights	Construction Stormwater	C00006429	N
CP 26-29 (CSAH 26)	N	See location description	Inver Grove Heights	Construction Stormwater	C00015132	N
Swift Transportation Facility	N	See location description	Inver Grove Heights	Construction Stormwater	C00015962	N
PDQ #212	Y	5440 S Roberts Trl	Inver Grove Heights	Petroleum Remediation, Leak Site; Underground Tanks	LS0018247; TS0001164	N
Argenta Hills	Y	7757 Robert Trl	Inver Grove Heights	Hazardous Waste	MNS000137489	N
Inver Grove School District	Y	Address unknown	Inver Grove Heights	Solid Waste	SW-gen	N
SP 1907-54 (TH 52-116)	N	See location description	Inver Grove Heights	Construction Stormwater	C00001540	N
CP 56-06 (CSAH 56 Phase II) - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00026030	N

Gerke Cleaners	Y	5464 S Robert Trl	Inver Grove Heights	Hazardous Waste	MND981092109	N
South Grove Street Reconstruction Area 2	Y	See location description	Inver Grove Heights	Construction Stormwater	C00022090	N
Fischers Service	N	6889 S Robert Trl	Inver Grove Heights	Hazardous Waste	MND985685098	N
Arbor Gables	N	Corner Brooks Blvd & Broderick Blvd	Inver Grove Heights	Construction Stormwater	C00007207	N
Staywell	Y	3000 Ames Crossing Rd Ste 100	Eagan	Hazardous Waste	MNS000305128	N
thomson Legal & Regulatory Building "E"	N	610 Opperman Dr	Eagan	Construction Stormwater	C00011708	N
Argenta Hills	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00030371	N
Thomson Reuters Campus Redevelopment - South	Y	610 Opperman Dr	Eagan	Construction Stormwater	C00071105	N
Bituminous Roadways Inc	Y	9050 Jefferson Trl W	Inver Grove Heights	Air Quality; Brownfields, Petroleum Brownfield; Hazardous Waste, Minimal quantity generator	03700269; MND982220436; PB3842	N
Metro DentalCare - Inver Grove Heights	Y	9042 Cahill Ave	Inver Grove Heights	Hazardous Waste, Very small quantity generator	MNS000124404	N
Arbor Pointe Water Tower	N	8815 Broderick Blvd	Inver Grove Heights	Construction Stormwater	C00011298	N
IGH Safety Addition and City Hall Remod	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00027633	N
CP 63-25 Argenta Trail Realignment	Y		Inver Grove Heights	Construction Stormwater	C00045123	N
60th Street E, 62nd Street E, and Bacon Avenue Improvements	Y		Inver Grove Heights	Construction Stormwater	C00057215	N
Southwest YMCA	Y	550 Opperman Dr	Eagan	Hazardous Waste, Very small quantity generator	MNR000078428	N
Boulder Lakes Office Building Core and Shell	Y	2900 Ames Crossing Road	Eagan	Brownfields, Petroleum Brownfield; Construction Stormwater	BF0000596; C00045625	N
Jerry's Tire Recycling	Y	535 Chapel Ln	Eagan	Solid Waste	SW-gen	N
Farmers Union Cntl Exch Inc Cenex	Y	5500 Babcock Trl	Inver Grove Heights	Hazardous Waste	MND006163067	N
Thomson Office-NE Parking Lot	N	610 Opperman Dr	Eagan	Construction Stormwater	C00023704	N
FHR Oxygen Pipeline Installation	N	Adjacent to Clark Rd & 117th St	Inver Grove Heights	Wastewater, Industrial SDS Permit	MN0068951	N
SP 1928-59 (TH 52)	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00031458	N
Jacob Holdings of Mendota Road LLC	Y	Address unknown	Inver Grove Heights	Solid Waste	SW-gen	N
Argenta Trail	Y		Inver Grove Heights	Construction Stormwater	C00071176	N
Orchard Trail	Y	8525 Courthouse Blvd Ct E	Inver Grove Heights	Construction Stormwater	C00012767	N

Inver Grove Market	N	5858 Blaine Ave	Inver Grove Heights	Construction Stormwater	C00010053	N
CP 1993-25, -26, -29, -31, 1992-0?	N	See location description	Inver Grove Heights	Construction Stormwater	C00001404	N
Falcon Berm - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00026087	N
J&B Importers Inc	Y	500 Lone Oak Rd Ste 100	Eagan	Hazardous Waste	MNS000349776	N
Inver Wood	Y	1597 80th St E	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MND985722412	N
Wescott Multipurpose Shed	Y	10326 Robert Tr S	Inver Grove Heights	Construction Stormwater	C00042088	N
Bancroft Way Reconstruction	Y	City of Inver Grove Heights		Construction Stormwater	C00051038	N
Southern Lakes	N	N of Cliff Rd & E of Highway 3	Inver Grove Heights	Construction Stormwater	C00004581; C00004969; C00005357	N
Koch Pipeline Co LP	Y	Highway 52 & Highway 55	Inver Grove Heights	Aboveground Tanks	TS0121975	N
Rosepost Station	N	11720 E 117th St	Inver Grove Heights	Underground Tanks	TS0021201	N
Boulder Lakes Business Campus	Y	565 Lone Oak Rd	Eagan	Construction Stormwater; Integrated Remediation	C00023128; LS0017097	N
People of Praise	Y	601 River Ridge Parkway	Eagan	Hazardous Waste, Minimal quantity generator	MNS000356192	N
Birchwood Ponds E at Arbor Pointe	N	College Trl E of Cahill & W of Sleepy Hollow Pk	Inver Grove Heights	Construction Stormwater	C00001229	N
General Pump	Y	3380 Dodd Rd	Eagan	Hazardous Waste; Petroleum Remediation, Leak Site; Underground Tanks	LS0017719; MND074075342; TS0125061	N
Summit Pines	Y	8635 Inver Grove Trl	Inver Grove Heights	Construction Stormwater	C00017784; SUB0026596; SUB0027089; SUB0035090	N
Inver Grove Honda	N	See location description	Inver Grove Heights	Construction Stormwater	C00021108	N
The First Impression Group Inc	Y	2999 Ames Crossing Rd Ste 100	Eagan	Industrial Stormwater	MNRNE3CXP	N
Able Craft Fabrications Inc	Y	3500 Dodd Rd	Eagan	Hazardous Waste, Minimal quantity generator	MND059032276	N
Park Dental - Salem Square	Y	5350 S Robert Trl	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MND985695030	N
Bohrer Pond Outlet	N	See location description	Inver Grove Heights	Construction Stormwater	C00016847	N
Settlers Ridge North	Y		Inver Grove Heights	Construction Stormwater	C00055992	N
Grease Monkeys Inc	Y	3191 Red Oak Dr	Eagan	Hazardous Waste, Minimal quantity generator	MN0001025626	N
Brentwood Village Apartments	N	See location description	Inver Grove Heights	Construction Stormwater	C00010673	N
Starfire Properties LLC	Y	3790 Dodd Rd	Eagan	Aboveground Tanks; Brownfields, Voluntary Investigation and Cleanup; Hazardous Waste; Petroleum Remediation, Leak Site; Site Assessment	BF0000466; LS0015515; MNS000122507; TS0123406; VP18680	N

Suite Living Memory Care & Assisted Living of Inver Grove Heights	Y	7900 Austin Way	Inver Grove Heights	Hazardous Waste, Very small quantity generator	MNS000338800	N
Value Auto Repair	N	6889 S Robert Trl	Inver Grove Heights	Hazardous Waste	MND985692953	N
Sunfish Lake Tree Burn/Disposal	Y	See location description	Sunfish Lake	Site Assessment	SA0007417	N
Timber Ponds	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00003019	N
TH3 erosion repair	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00036822	N
Inver Grove Heights-Arbor Point	N	See location description	Inver Grove Heights	Construction Stormwater	C00006292	N
Ecolab Building H Expansion	N	655 Lone Oak Drive	Eagan	Construction Stormwater	C00033062	N
Shafer Contracting Site	Y	Intersection of Yankee Doodle Road and Dodd Road	Eagan	Brownfields, Voluntary Investigation and Cleanup	BF0001709	N
SP 1908-79 TH 3	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00036400	N
Thomson Reuters Eagan Campus	Y	610 Opperman Dr	Eagan	Air Quality; Hazardous Waste; Industrial Stormwater	006158414; 03700093; MND981089790	N
Inver Grove Heights Professional Build	N	See location description	Inver Grove Heights	Construction Stormwater	C00017313	N
Parking Lot Improvements 2014	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00039101	N
Wescott Station	Y	9028 Jefferson Tr	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0001759	N
CP 2016-09D	Y	8150 Barbara Ave	Inver Grove Heights	Construction Stormwater	C00043483	N
Pioneer Plastics	Y	3660 Dodd Rd	Eagan	Aboveground Tanks	TS0124380	N
1985-148 I-494 Mill and Overlay	Y		Inver Grove Heights	Construction Stormwater	C00054238	N
Orchard Heights 2nd Addition	N	Btwn TH 55 & 77th St W & Btwn Argenta Tr & Black Oak Dr	Inver Grove Heights	Construction Stormwater	C00007892	N
Ecolab - Schuman Campus	Y	655 Lone Oak Dr	Eagan	Air Quality; Hazardous Waste; Wastewater	03700222; MND985710581; SIU000646	N
Phase 5 Cell B Construction	N	See location description	Inver Grove Heights	Construction Stormwater	C00018406	N
CP 2005-091	N	See location description	Inver Grove Heights	Construction Stormwater	C00015164	N
Blackstone Vista 3rd Addition	Y		Inver Grove Heights	Construction Stormwater	C00049135	N
Thomson Legal & Reg "Bld F" Expansion	N	610 Opperman Dr	Eagan	Construction Stormwater	C00009825	N

Khoury's Restaurant	N	See location description	Inver Grove Heights	Construction Stormwater	C00010630	N
Loon of MN LLC	Y	5465 E Babcock Trl	Inver Grove Heights	Petroleum Remediation, Leak Site; Underground Tanks	LS0018680; TS0004679	N
Povolny Specialties Addition	Y	7350 Courthouse Blvd.	Inver Grove Heights	Construction Stormwater	C00038727	N
Miller Excavating	Y	Address unknown	Inver Grove Heights	Solid Waste	SW-gen	N
Salem Heights Plaza	Y	5440 South Robert Trail	Inver Grove Heights	Brownfields, Voluntary Investigation and Cleanup; Superfund, Superfund Program Non-listed Sites	BF0001422; SR0001553	Y
Inver Hills Community College Technology and Business Center Renovation	Y			Construction Stormwater	C00068770	N
Delta Air Lines Inc - Bldg N	Y	2600 Lone Oak Point BLDG N1141	Eagan	Hazardous Waste	MND985737949	N
MSP SE Transportation & Distribution	N	See location description	Inver Grove Heights	Construction Stormwater	C00006135	N
Inver Grove Heights Collection System	Y	8150 Barbara Ave	Inver Grove Heights	Wastewater, Municipal Collection System	21059; 21164; 21165; 21261; 21341; 21359; 21514; 21620; 21643; 21651; 21740; 21943; 21948; 21994; 22067; 22408; 22409; 22755; 22759; 23074; 23275; 23276; 23351; 23960; 23961; 33230; 33955; 34464; 3465	N
Formerly Service Station	N	Robert Trl	Inver Grove Heights	Underground Tanks	TS0019049	N
SP 1908-85 TH 3 turn lanes at Autumn Way	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00033848	N
Protouch Painting	N	500 Rolling Hills Cir	Eagan	Hazardous Waste	MND985738541	N
Consolidated Freightways	Y	635 Yankee Doodle Rd	Eagan	Hazardous Waste, Very small quantity generator; Industrial Stormwater; Underground Tanks	A00002403; MNR000001412; TS0125060	N
Inver Wood Golf Course	N	1850 70th St E	Inver Grove Heights	Aboveground Tanks	TS0055944	N
Woodlyn Heights HCC	Y	2060 Upper 55th St E Ste B	Inver Grove Heights	Hazardous Waste, Very small quantity generator	MNS000327392	N
Annistone Ranch	N	89th St W	Inver Grove Heights	Construction Stormwater	C00008384	N
InverPoint Building 3	Y	8450 Courthouse Blvd	Inver Grove Heights	Construction Stormwater	C00060374	N
CP 1992-04, -07A; 1993-28, -30, -31	N	See location description	Inver Grove Heights	Construction Stormwater	C00001191	N
International Wire Works	Y	6520 S Robert Trl	Inver Grove Heights	Industrial Stormwater	MNRNE36ZR; MNRNE38NQ	N
3344 MN-149	Y	3344 Highway 149	Eagan	Brownfields, Voluntary Investigation and Cleanup	BF0001529	N

Summer House of Inver Grove Heights	N	area bound by Upper 62nd St E, 65th St E & W of Cahill Ave	Inver Grove Heights	Construction Stormwater	C00007580	N
Holiday Stationstore #3556	Y	7020 Robert Trl S	Inver Grove Heights	Construction Stormwater; Petroleum Remediation, Leak Site; Underground Tanks	C00052436; LS0021017; TS0012429; TS0130569	N
Micro Parts Inc	Y	3680 Dodd Rd	Eagan	Hazardous Waste, Large quantity generator; Industrial Stormwater; Wastewater	MND982643298; MNRNE34SP; MNRNE38ZQ; SIU000315	N
inver Grove Heights Office Condos	N	See location description	Inver Grove Heights	Construction Stormwater	C00015900	N
Argenta Trail	Y		Inver Grove Heights	Construction Stormwater	C00071180	N
CSAH 26 (70th Street) at TH 3 (South Robert Trail)	Y	CSAH 26 (70th Street) at TH 3 (South Robert Trail)	Inver Grove Heights	Construction Stormwater	C00050497	N
Concord Hills - Phase 1	N	Concord Blvd & 86th St	Inver Grove Heights	Construction Stormwater	C00007434	N
Inver Grove Heights Good Samaritan House	N	See location description	Inver Grove Heights	Construction Stormwater	C00019252	N
Dell Dahn Estate	Y	5645 Annette Ave E	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0017316	N
NWA Trunk Watermain Improvements - 65th St Loop	Y		Inver Grove Heights	Construction Stormwater	C00045746	N
Peltier Reserve	Y	7250 Argenta Trl	Inver Grove Heights	Construction Stormwater	C00060900	N
Yankee Doodle Self Storage	Y	540 Yankee Doolde Road	EAGAN	Construction Stormwater	C00057420	N
Inver Hills Ninth Addition	Y	See location description	Inver Grove Heights	Construction Stormwater	C00009050	N
City Project 1995-02	N	See location description	Inver Grove Heights	Construction Stormwater	C00001952	N
Clark Road Extension Project	N	See location description	Inver Grove Heights	Construction Stormwater	C00008675	N
Lafayette 2nd Addition	N	See location description	Inver Grove Heights	Construction Stormwater	C00009323	N
Pine Bend RNG LLC	Y	11300 Rich Valley Blvd	Inver Grove Heights	Hazardous Waste, Small quantity generator	MNS000347496	N
Travel Tags Expansion	N	5842 Carmon Ave	Inver Grove Heights	Construction Stormwater	C00009955	N
Southern Sanitary Sewer System - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00026210	N
Hoeft Site	Y	See location description	Eagan	Construction Stormwater	C00027496	N
Westview Park Apartments	Y	252 Marie Avenue East	West Saint Paul	Construction Stormwater	C00045519	N
Gainey Addition - IGH	Y	See location description	Inver Grove Heights	Construction Stormwater	C00025945	N
Blackstone Ridge	Y	1285 70th Street		Construction Stormwater	C00042204	N

Ashwood Ponds 2nd Addition	N	NE of the intersection of Concord Blvd & Cahill Ave	Inver Grove Heights	Construction Stormwater	C00004922	N
Gene Worrell's Church Acres	N	See location description	Inver Grove Heights	Construction Stormwater	C00008964	N
Coventry Pass	N	See location description	Inver Grove Heights	Construction Stormwater	C00003286; C00004333	N
Broadmoor	N	Address Unknown	Inver Grove Heights	Construction Stormwater	C00007949	N
Brentwood Village	N	See location description	Inver Grove Heights	Construction Stormwater	C00009604	N
Clark Road Improvements - IGH	Y	See location description	Inver Grove Heights	Construction Stormwater	C00027957	N
Ecolab - Vikings Lake Security	Y	655 Lone Oak Dr	Eagan	Construction Stormwater	C00070522	N
Marcott Woods 2nd Addition	N	See location description	Inver Grove Heights	Construction Stormwater	C00003754	N
Starfire R&F, Inc. #2	Y	See location description	Eagan	Brownfields, Voluntary Investigation and Cleanup	VP18681	N
Highlands at Settlers Ridge	Y		Inver Grove Heights	Construction Stormwater	C00063582	N
Ylinen	Y	114 Salem Church Road	Sunfish Lake	Construction Stormwater	C00068132	N
Sir Speedy Printing	N	3670 Dodd Rd	Eagan	Hazardous Waste	MND985763598	N
Neil Stromme Residence	N	7185 Alta Ave	Inver Grove Heights	Petroleum Remediation, Leak Site; Underground Tanks	LS0021608; TS0001145	N
Arbor Pointe 14th	Y	See location description	Inver Grove Heights	Construction Stormwater	C00011095; SUB0016387	N
494 & Highway 52 Commercial Site	N	See location description	Inver Grove Heights	Construction Stormwater	C00010668	N
Frederick M Owens Jr	N	2455 Delaware Ave	Mendota Heights	Underground Tanks	TS0004670	N
2015-10 NWA Trunk Utility Improvement	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00040377	N
Griefnow Auto Body	Y	5952 Bacon Ave	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MND985716562	N
Lafayette East	Y	See location description	Inver Grove Heights	Construction Stormwater	C00016243	N
Dodd Business Center	Y	580 Opperman Drive	Eagan	Construction Stormwater	C00054558	N
Stinski	N	See location description	Inver Grove Heights	Construction Stormwater	C00009442	N
Blackstone Ponds	Y		Inver Grove Heights	Construction Stormwater	C00041184	N
Tractor Supply Company - IGH	N	See location description	Inver Grove Heights	Construction Stormwater	C00017321	N
Gopher Resouces Rd Site Grading	N	625 Yankee Doodle Rd	Eagan	Construction Stormwater	C00027728	N
NW Area Neighborhood Park #1	Y	7500 Argenta Ct	Inver Grove Heights	Construction Stormwater	C00062081	N

Argenta Hills 5th Addition	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00034596; SUB0038942; SUB0038943	N
CHS Inc Lubricents Plant	Y	1160 Courthouse Blvd	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0010841	N
Salem Hills St Recon Mill & Overlay - IGH	Y	See location description	Inver Grove Heights	Construction Stormwater	C00028289	N
Scenic Hills	Y	1401-1407 80th Street East	Inver Grove Heights	Construction Stormwater	C00054406	N
Oren and Trog Property	Y	Highway 55 and Robert Trl S	Inver Grove Heights	Brownfields, Petroleum Brownfield; Petroleum Remediation, Leak Site	BF0000113; LS0016934	N
Palace Inn Extended Stay Hotel	Y	5492 South Robert Trail	Inver Grove Heights	Brownfields, Voluntary Investigation and Cleanup; Construction Stormwater	BF0000581; C00047087	N
Walmart - Inver Grove Heights	N	See location description	Inver Grove Heights	Construction Stormwater	C00010320	N
South Grove Street Recon Phase I	N	See location description	Inver Grove Heights	Construction Stormwater	C00018906	N
South Grove S Reconstruction Area 5	Y	See location description	Inver Grove Heights	Construction Stormwater	C00029812	N
Newell Abatement Services	Y	Address unknown	Inver Grove Heights	Hazardous Waste	HW-gen	N
Malm Septic	Y	10620 Courthouse Blvd	Inver Grove Heights	SSTS, Licensed Organization	L2414	N
Concord Commons 2nd Addition	N	See location description	Inver Grove Heights	Construction Stormwater	C00008673	N
Boyd Ave Improvement Project	N	See location description	Inver Grove Heights	Construction Stormwater	C00012806	N
Jackie and Mike Chase	N	Address Unknown	Sunfish Lake	Construction Stormwater	C00022036	N
Ames Crossing Road, CP 1016-R	N	Ames Crossing Road	Eagan	Construction Stormwater	C00031419	N
Prime Design	Y	580 Opperman Dr Ste 100	Eagan	Hazardous Waste, Very small quantity generator; Wastewater	MNS000354768; SIU000708	N
Inver Grove Heights city of	Y	8150 Barbara Ave	Inver Grove Heights	Construction Stormwater; Hazardous Waste; Industrial Stormwater; MS4	A00011628; C00025218; C00027238; MNS000189894; MS400096	N
Trident Welding & Fabrication Inc	N	10967 Clark Rd Ste B	Inver Grove Heights	Industrial Stormwater	A00022620	N
Waterproofing Inc	N	10967 Clark Rd Ste D	Inver Grove Heights	Hazardous Waste	MNS000177246	N
Lafayette Addition	N	NE Quad of TH 52 & I494	Inver Grove Heights	Construction Stormwater	C00008566	N
Scandia Compliance Inspections, LLC	Y	16115 Quality Trail N	Scandia	SSTS	L3911	N
West Publishing Co Parking Lot Expansion	N	610 Opperman Dr	Eagan	Construction Stormwater	C00001445	N
CVS Pharmacy 17549	Y	7841 Amana Trl Ste B	Inver Grove Heights	Hazardous Waste, Very small quantity generator	MNS000305888	N

Majestic Woodlands	N	E of Blackberry Trl 400' S of Upper 55th St	Inver Grove Heights	Construction Stormwater	C00003432	N
Shamrock Oaks	Y	See location description	Inver Grove Heights	Construction Stormwater	C00020001	N
Oshie/Cosgrove Residence	Y	116 Salem Church Road	Sunfish Lake	Construction Stormwater	C00039949	N
TH 3 Exten / 52/ 55 Interchange	N	See location description	Inver Grove Heights	Construction Stormwater	C00001040	N
2012 Urban Street Reconstruction 65th St	Y	Address Unknown	Inver Grove Heights	Construction Stormwater	C00033805	N
Canvas at Inver Grove Heights	Y	South Robert Trail 70th Street East	Inver Grove Heights	Construction Stormwater	C00059691	N
Woodhaven Ponds	N	See location description	Inver Grove Heights	Construction Stormwater	C00006251	N
Wildwood Ranch Estates	N	See location description	Inver Grove Heights	Construction Stormwater	C00010215	N
InverPointe Building 1	Y	Courthouse Boulevard	Inver Grove Heights	Construction Stormwater	C00056304	N
Babcock Crossing Apartments	Y	5590 Babcock Trl	Inver Grove Heights	Construction Stormwater	C00061588	N
Salem Hills Elementary School Parking Lot Improvements	Y	5899 Babcock Trl	Inver Grove Heights	Construction Stormwater	C00065905	N
Whistletree Woods	N	See location description	Inver Grove Heights	Construction Stormwater	C00009337	N
Pine Valley Estates	N	SW of 110th St W & Akron Ave	Inver Grove Heights	Construction Stormwater	C00001288; C00004179	N
PPG Aerospace/PRC Desoto International	N	580 Yankee Doodle Rd Ste 100	Eagan	Hazardous Waste	MNR000111575	N
Metropolitan Endodontics IGH	Y	2125 Upper 55th St E Ste 200	Inver Grove Heights	Hazardous Waste, Minimal quantity generator	MNS000156372	N
UPS - St Paul Hub	Y	555 Opperman Dr	Eagan	Aboveground Tanks; Hazardous Waste; Industrial Stormwater; Petroleum Remediation, Leak Site; Underground Tanks	LS0005466; LS0011149; LS0018599; MND981775349; MND985758630; MNR05365P; MNR053CD8; TS0014668	N
Dakota County Drug Task Force - Eagan	Y	625 Yankee Doodle Rd Ste 150	Eagan	Hazardous Waste	MNP200000873	N
Lafayette Ridge	N	SW of TH 52 & CSAH 26	Inver Grove Heights	Construction Stormwater	C00008575	N
Cobblestone Oaks III	N	See location description	Inver Grove Heights	Construction Stormwater	C00008719	N
Park Point - Inver Grove Heights	Y	See location description	Inver Grove Heights	Construction Stormwater	C00013244	N
Monument Ridge	N	8851 Broderick Blvd	Inver Grove Heights	Construction Stormwater	C00010958	N
Proposed KinderCare (Inver Grove Heights)	Y	7761 Amana Trail	Inver Grove Heights	Construction Stormwater	C00071416	N

Target Store T2519	Y	7481 Amana Trl	Inver Grove Heights	Hazardous Waste, Small quantity generator	MNS000179606	N
Gateway Business Park Lots 2 and 3	Y	510 Lone Oak Road	Eagan	Construction Stormwater	C00046841	N
Veit & Co Inc - IGH	N	6180 Claude Way	Inver Grove Heights	Hazardous Waste	MNS000104612	N
City Of Inver Grove Heights	Y	8168 Barbara Ave	Inver Grove Heights	Hazardous Waste, Very small quantity generator; Underground Tanks	MND007183841; TS0001066	N
TerraMax Inc	Y	3650 Dodd Rd	Eagan	Hazardous Waste, Very small quantity generator	MNS000332840	N
Owner upgrades	Y	6985 Babcock Trail	Inver Grove Heights	Construction Stormwater	C00052433	N
Inverpoint	Y	8360 Courthouse Blvd.	Inver Grove Heights	Construction Stormwater	C00064167	N
Thomson West Parking Lot	N	610 Opperman Dr	Eagan	Construction Stormwater	C00019504	N
Ebgers Residence	Y	2 High Rd	Inver Grove Heights	Petroleum Remediation, Leak Site	LS0014852	N
Falcon Property NWC TH3 Embankment	Y			Construction Stormwater	C00067693	N
Thomson Reuters	Y	2900 Ames Crossing Rd Ste 100	Eagan	Hazardous Waste, Minimal quantity generator	MNS000359272	N
Woodlyn Heights Health Care	Y	2060 Upper 55th St E	Inver Grove Heights	Hazardous Waste, Minimal quantity generator; Underground Tanks	MNS000162354; TS0020216	N
Blackberry Office Park	N	S of Upper 55th St & E of Blaine Av	Inver Grove Heights	Construction Stormwater	C00007309	N
Simon Delivers	N	See location description	Inver Grove Heights	Construction Stormwater	C00011241	N
Kladek Irrigation Pond	Y	1401 70th St E	Inver Grove Heights	Construction Stormwater	C00011466	N
Heartland	N	See location description	Inver Grove Heights	Construction Stormwater	C00020211	N
MISO Boulder Lakes V Outlot A	Y	Address Unknown	Eagan	Construction Stormwater	C00034587	N
Peltier and Highlands Park Development	Y	Agate Trail	Inver Grove Heights	Construction Stormwater	C00066597	N
Yankee Doodle Business Center	Y		Eagan	Construction Stormwater	C00059509	N

End of Report

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

March 11, 2025

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

RE: Natural Heritage Review of the proposed **Northwest Area AUAR Update (160509048.1)**,
T27N R22W Sections 5, 6, 7, 8, 17, and 18, T28N R22W Sections 28 and 32; Dakota County

Dear Twin Cities - Environmental (Kimley-Horn),

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2025-00018** in the email subject line.

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

Ecologically Significant Areas

- Calcareous fens (**Gun Club Lake North** (FenID#20941) and **Gun Club Lake South** (FenID#244)) with state-protected plants have been documented in the vicinity of the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota. The Wetlands Conservation Act (WCA), authorized by Minnesota Statutes, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the commissioner of the Department of Natural Resources. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet. To minimize stormwater impacts, please refer to the Minnesota Pollution Control Agency's General Principles for Erosion Prevention and Sediment Control in the Minnesota Stormwater Manual. Please note that calcareous fens are "Special Waters" and a buffer zone may be required.

  Calcareous fens may be impacted by activities within the fen, activities that affect surface water flows (e.g., stormwater flow, erosion), or activities that affect groundwater hydrology (e.g., groundwater pumping, contamination, discharge, or excavation). **To ensure compliance under WCA, please contact the Calcareous Fen Program Coordinator, Keylor Andrews (Keylor.Andrews@state.mn.us).**

Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of endangered or threatened plants or animals, including their parts or seeds, without a permit. **If it is determined the project will impact the fens in any way, including indirect impacts through the alteration of hydrological conditions, a rare plant survey will be required.** Surveys must be conducted by a qualified surveyor and follow the standards contained in the Rare Species Survey Process and Rare Plant Guidance. Visit the Natural Heritage Review page for a list of certified surveyors and more information on this process. Survey proposals should be submitted to Reports.NHIS@state.mn.us prior to initiating survey work. Project planning should take into account that any botanical survey needs to be conducted during the appropriate time of the year, which may be limited. Please consult Review.NHIS@state.mn.us if you have any questions regarding this process.

State-listed Species

- Loggerhead shrikes (*Lanius ludovicianus*), a state-listed endangered bird, have been documented in the vicinity of the project site. Loggerhead shrikes use grasslands that contain short grass and scattered perching sites such as hedgerows, shrubs, or small trees. They can be found in native prairie, pastures, shelterbelts, old fields or orchards, cemeteries, grassy roadsides, and farmyards. Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of endangered or threatened plants or animals, including their parts or seeds, without a permit. Given the potential for this species to be found in the vicinity of the project, **tree and shrub removal is required to be avoided during the breeding season, April through July.**

  Please contact Review.NHIS@state.mn.us **to confirm that the above avoidance measure will be implemented or to inform us that avoidance is not feasible.** If avoidance is not feasible, a qualified surveyor needs to conduct a survey for active nests before any trees or shrubs will be removed. Requirements for surveys and lists of DNR certified lists of surveyors can be found at the Natural Heritage Review website.

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

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

Federally Protected Species

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

  To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool. Please note that all projects, regardless of whether there is a federal nexus, are subject to federal take prohibitions. The IPaC review will determine if prohibited take is likely to occur and, if not, will generate an automated letter. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix.

Environmental Review and Permitting

- Given the potential presence of state protected species, we encourage submission of Natural Heritage Review requests to ensure avoidance of take for these species and to determine survey needs as individual projects are planned.

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a permit to take will be needed for any of the above protected species.

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

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

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. **If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.**

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

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

Sincerely,

Molly Barrett

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

Cc: Melissa Collins, Regional Environmental Assessment Ecologist, Central (Region 3)
Cc: Keylor Andrews, Calcareous Fen Program Coordinator

EPA Simplified GHG Emissions Calculator (SGEC)

Version 7 June 2021

The EPA Simplified GHG Emissions Calculator ("the Calculator") is designed as a simplified calculation tool to help organizations estimate and inventory their annual greenhouse gas (GHG) emissions for US-based operations. All methodologies and default values provided are based on the most current Center for Corporate Climate Leadership Greenhouse *Gas Inventory Guidance Documents* and the *Emission Factors Hub*. The Calculator will quantify the direct and indirect emissions from sources at an organization when activity data are entered into the various sections of the workbook for one annual period.

Before entering data, please: 1) Enable Macros and 2) Familiarize yourself with the *Guide to Greenhouse Gas Management for Small Business & Low Emitters.*

Download the guide: https://www.epa.gov/climateleadership/center-corporate-climate-leadership-small-business-and-low-emitters-guide

There are three primary steps in completing a GHG inventory. Each emissions source also has these three steps.

(1) **DEFINE**: The first step in completing a GHG inventory is to determine the boundaries and emissions sources included within those boundaries. After you have defined your organizational and operational boundaries, you can use the questions on the "Boundary Questions" worksheet to help you determine which emissions sources are relevant to your business.

Go to Boundary Questions

(2) **COLLECT**: The second step is to collect data for the defined annual period. This step is typically the most time consuming, since the data can be difficult to gather. This Calculator has help sheets with suggestions and guidance for each emissions source and a general help sheet for data management. **Click the drop down menu boxes below to navigate to these sheets**.

Help - Data Management

(3) **QUANTIFY**: The third step is to calculate emissions. This Calculator is designed to complete the emissions quantification step for you. Once the user enters data in this MS Excel spreadsheet, the emissions will be calculated and totaled on the "Summary" sheet.

Calculator Guidance - Important Information

(A) Navigate to the data entry sheets using the drop down menu in the dark grey cell below and then clicking on the "Go To Data Entry Sheet" button. On the data entry sheets enter data in ORANGE cells only.

(B) This Calculator has several "Tool Sheets" with useful reference data such as unit conversions, heat contents, and emission factors. Click on the buttons below to go to the appropriate Tool Sheet.

(C) Data must be entered in the units specified on the data entry sheets. Use the "Unit Conversions" or "Heat Content" sheets if unit conversion is necessary prior to entering data into the Calculator.

(D) If more guidance is needed, you can reference the emission factor data sources found on the "Emission Factors" sheet.

Tool Sheets	Quick Data Entry Navigation
Unit Conversions	Fire Suppression
Heat Content	
Emission Factors	

Calculator Notes

Emission sources of all seven major GHGs are accounted for in the inventory and in this Calculator: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). The Calculator allows the user to estimate GHG emissions from scope 1 (direct), scope 2 (indirect), and some scope 3 (other indirect) sources.

The Calculator uses U.S.-specific cross-sector emission factors from the *Emission Factors Hub*. Many industrial sectors also have process-related emissions sources that are specific to their sector. EPA's Greenhouse Gas Reporting Program provides guidance and tools that can aid in the calculation and reporting of these emissions:

https://www.epa.gov/ghgreporting

The GHG Protocol also provides guidance on calculating emissions from industrial processes.

Back to Intro

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U.S. Environmental Protection Agency

Emissions Summary

Guidance

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

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

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

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

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

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

Organizational Information:

Organization Name:	Existing Conditions
Organization Address:	
Inventory Reporting Period:	*2024*
	Start: *MM/DD/YY* End: *MM/DD/YY*
Name of Preparer:	
Phone Number of Preparer:	
Date Prepared:	

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	11,441	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	0	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	36,486	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	36,486	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

Total Scope 1 & Location-Based Scope 2	47,927	CO_2-e (metric tons)
Total Scope 1 & Market-Based Scope 2	47,927	CO_2-e (metric tons)

Reductions

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

Net Scope 1 and 2 Location-Based Emissions	47,927	CO_2-e (metric tons)
Net Scope 1 and 2 Market-Based Emissions	47,927	CO_2-e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO_2-e (metric tons)
Go To Sheet	Employee Commuting	0	CO_2-e (metric tons)
Go To Sheet	Product Transport	0	CO_2-e (metric tons)
Go To Sheet	Waste	29,420	CO_2-e (metric tons)

Required Supplemental Information

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

Scope 1 Emissions from Stationary Combustion Sources

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U.S. Environmental Protection Agency

Guidance

(A) Enter annual data for each combustion unit, facility, or site (by fuel type) in ORANGE cells on **Table 1**. Example entry is shown in first row (*GREEN Italics*).
- Select "Fuel Combusted" from drop down box.
- Enter "Quantity Combusted" and choose the appropriate units from the drop down box in the unit column. If it's necessary to convert units, common heat contents can be found on the "Heat Content" sheet and unit conversions on the "Unit Conversion" sheet.

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

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

Table 1. Stationary Source Fuel Combustion

Source ID	Source Description	Source Area (sq ft)	Fuel Combusted	Quantity Combusted	Units
BLR-012	*East Power Plant*	*12,517*	*Natural Gas*	*10,000*	*MMBtu*
Residential	Natural Gas Use	1,637	Natural Gas	94,442	MMBtu
Commercia	Natural Gas Use	1,829,520	Natural Gas	39,335	MMBtu
Office/Indus	Natural Gas Use	914,760	Natural Gas	24,516	MMBtu
Public/Instit	Natural Gas Use	1,916,640	Natural Gas	57,116	MMBtu

GHG Emissions

Total Organization-Wide Stationary Source Combustion by Fuel Type

Fuel Type	Quantity Combusted	Units
Anthracite Coal	0	short tons
Bituminous Coal	0	short tons
Sub-bituminous Coal	0	short tons
Lignite Coal	0	short tons
Natural Gas	209,949,735	scf
Distillate Fuel Oil No. 2	0	gallons
Residual Fuel Oil No. 6	0	gallons
Kerosene	0	gallons
Liquefied Petroleum Gases (LPG)	0	gallons
Wood and Wood Residuals	0	short tons
Landfill Gas	0	scf

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

Fuel Type	CO_2 (kg)	CH_4 (g)	N_2O (g)
Anthracite Coal	0.0	0.0	0.0
Bituminous Coal	0.0	0.0	0.0
Sub-bituminous Coal	0.0	0.0	0.0
Lignite Coal	0.0	0.0	0.0
Natural Gas	11,429,663.5	216,248.2	20,995.0
Distillate Fuel Oil No. 2	0.0	0.0	0.0
Residual Fuel Oil No. 6	0.0	0.0	0.0
Kerosene	0.0	0.0	0.0
Liquefied Petroleum Gases (LPG)	0.0	0.0	0.0
Total Fossil Fuel Emissions	**11,429,663.5**	**216,248.2**	**20,995.0**
Wood and Wood Residuals	0.0	0.0	0.0
Landfill Gas	0.0	0.0	0.0
Total Non-Fossil Fuel Emissions	**0.0**	**0.0**	**0.0**
Total Emissions for all Fuels	**11,429,663.5**	**216,248.2**	**20,995.0**

Total CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**11,441.3**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**0.0**

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

Scope 2 Emissions from Purchase of Electricity

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U.S. Environmental Protection Agency

Guidance

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

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

Help - Market-Based Method

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

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

					Market-Based *Use these cells to enter applicable market-based emission factors*						Location-Based		
					Emission Factors			Emissions			Emissions		
Source ID	Source Description	Source Area (sq ft)	eGRID Subregion *where electricity is consumed*	Electricity Purchased (kWh)	CO_2 Emissions (lb/MWh)	CH_4 Emissions (lb/MWh)	N_2O Emissions (lb/MWh)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)	CO_2 Emissions (lb)	CH_4 Emissions (lb)	N_2O Emissions (lb)
Bldg-012	*East Power Plant*	*12,517*	*HIMS (HICC Miscellaneous)*	*200,000*	*0*	*0*	*0*	*0.0*	*0.0*	*0.0*	*237,120.0*	*28.6*	*4.4*
Residential	Electricity Use	1,637	MROW (MRO West)	13,164,754	<enter factor>	<enter factor>	<enter factor>	14,460,165.8	1,566.6	223.8	14,460,165.8	1,566.6	223.8
Commercia	Electricity Use	1,829,520	MROW (MRO West)	25,796,232	<enter factor>	<enter factor>	<enter factor>	28,334,581.2	3,069.8	438.5	28,334,581.2	3,069.8	438.5
Office/Indus	Electricity Use	914,760	MROW (MRO West)	13,995,828	<enter factor>	<enter factor>	<enter factor>	15,373,017.5	1,665.5	237.9	15,373,017.5	1,665.5	237.9
Public/Instit	Electricity Use	1,916,640	MROW (MRO West)	19,741,392	<enter factor>	<enter factor>	<enter factor>	21,683,945.0	2,349.2	335.6	21,683,945.0	2,349.2	335.6
					<enter factor>	<enter factor>	<enter factor>						
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Total Emissions for All Sources				72,698,206				79,851,709.5	8,651.1	1,235.9	79,851,709.5	8,651.1	1,235.9

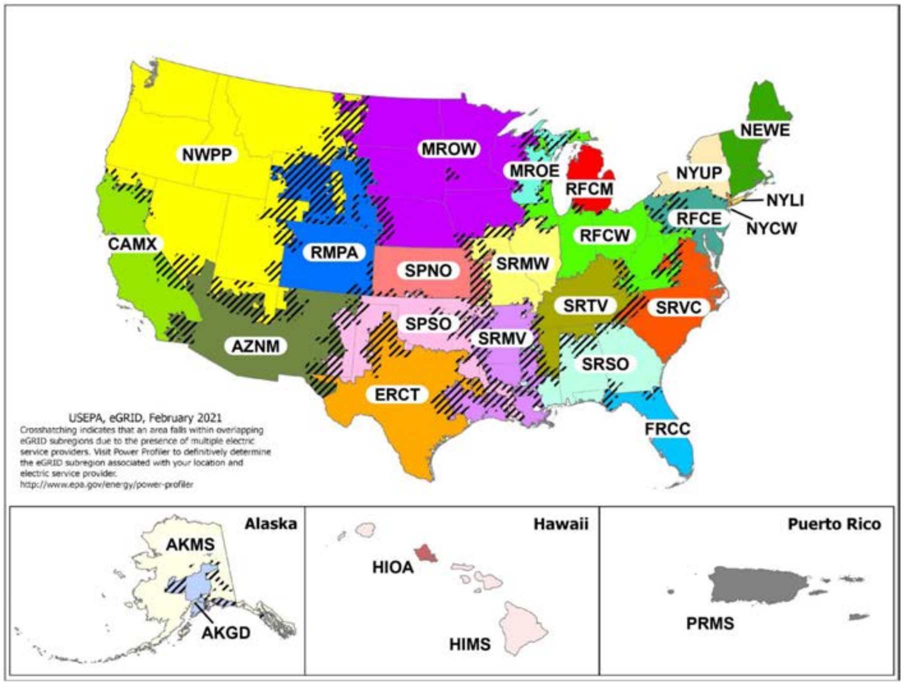
GHG Emissions

CO_2 Equivalent Emissions (metric tons)	
Location-Based Electricity Emissions	36,485.9
Market-Based Electricity Emissions	36,485.9

Notes:

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

Figure 1. EPA eGRID2019, February 2021.



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U.S. Environmental Protection Agency

Scope 3 Emissions from Waste

Guidance

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

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

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

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

Source ID	Source Description	Waste Material	Disposal Method	Weight	Unit	CO_2e Emissions (kg)
Bldg-012	*East Power Plant Finished Goods*	*Steel Cans*	*Landfilled*	*1,000*	*metric ton*	*22,040*
Nonresidential Buildings	Nonresidential Waste	Mixed MSW municipal solid waste	Combusted	55,931	metric ton	*26,503,483*
Residential	Residential Waste	Mixed MSW municipal solid waste	Combusted	3,068	metric ton	*1,453,948*
Nonresidential Buildings	Nonresidential Recycling	Mixed Recyclables	Recycled	13,983	metric ton	*1,386,810*
Residential	Residential Recycling	Mixed Recyclables	Recycled	767	metric ton	*76,079*

Total Emissions by Disposal Method

Waste Material	CO_2e (kg)
Recycled	1,462,889
Landfilled	-
Combusted	27,957,431
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO_2 Equivalent Emissions (metric tons) - Waste	**29,420.3**

EPA Simplified GHG Emissions Calculator (SGEC)

Version 7 June 2021

The EPA Simplified GHG Emissions Calculator ("the Calculator") is designed as a simplified calculation tool to help organizations estimate and inventory their annual greenhouse gas (GHG) emissions for US-based operations. All methodologies and default values provided are based on the most current Center for Corporate Climate Leadership Greenhouse *Gas Inventory Guidance Documents* and the *Emission Factors Hub*. The Calculator will quantify the direct and indirect emissions from sources at an organization when activity data are entered into the various sections of the workbook for one annual period.

Before entering data, please: 1) Enable Macros and 2) Familiarize yourself with the *Guide to Greenhouse Gas Management for Small Business & Low Emitters.*

Download the guide: https://www.epa.gov/climateleadership/center-corporate-climate-leadership-small-business-and-low-emitters-guide

There are three primary steps in completing a GHG inventory. Each emissions source also has these three steps.

(1) **DEFINE**: The first step in completing a GHG inventory is to determine the boundaries and emissions sources included within those boundaries. After you have defined your organizational and operational boundaries, you can use the questions on the "Boundary Questions" worksheet to help you determine which emissions sources are relevant to your business.

Go to Boundary Questions

(2) **COLLECT**: The second step is to collect data for the defined annual period. This step is typically the most time consuming, since the data can be difficult to gather. This Calculator has help sheets with suggestions and guidance for each emissions source and a general help sheet for data management. **Click the drop down menu boxes below to navigate to these sheets**.

Help - Data Management

(3) **QUANTIFY**: The third step is to calculate emissions. This Calculator is designed to complete the emissions quantification step for you. Once the user enters data in this MS Excel spreadsheet, the emissions will be calculated and totaled on the "Summary" sheet.

Calculator Guidance - Important Information

(A) Navigate to the data entry sheets using the drop down menu in the dark grey cell below and then clicking on the "Go To Data Entry Sheet" button. On the data entry sheets enter data in ORANGE cells only.

(B) This Calculator has several "Tool Sheets" with useful reference data such as unit conversions, heat contents, and emission factors. Click on the buttons below to go to the appropriate Tool Sheet.

(C) Data must be entered in the units specified on the data entry sheets. Use the "Unit Conversions" or "Heat Content" sheets if unit conversion is necessary prior to entering data into the Calculator.

(D) If more guidance is needed, you can reference the emission factor data sources found on the "Emission Factors" sheet.

Tool Sheets	Quick Data Entry Navigation
Unit Conversions	Fire Suppression
Heat Content	
Emission Factors	

Calculator Notes

Emission sources of all seven major GHGs are accounted for in the inventory and in this Calculator: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). The Calculator allows the user to estimate GHG emissions from scope 1 (direct), scope 2 (indirect), and some scope 3 (other indirect) sources.

The Calculator uses U.S.-specific cross-sector emission factors from the *Emission Factors Hub*. Many industrial sectors also have process-related emissions sources that are specific to their sector. EPA's Greenhouse Gas Reporting Program provides guidance and tools that can aid in the calculation and reporting of these emissions:

https://www.epa.gov/ghgreporting

The GHG Protocol also provides guidance on calculating emissions from industrial processes.

Back to Intro

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Emissions Summary

Guidance

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

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

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

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

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

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

Organizational Information:

Organization Name:	2025 Scenario
Organization Address:	
Inventory Reporting Period:	2024
	Start: MM/DD/YY End: MM/DD/YY
Name of Preparer:	
Phone Number of Preparer:	
Date Prepared:	

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	39,819	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	849,948	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	113,398	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	113,398	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

Total Scope 1 & Location-Based Scope 2	1,003,165	CO_2-e (metric tons)
Total Scope 1 & Market-Based Scope 2	1,003,165	CO_2-e (metric tons)

Reductions

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

Net Scope 1 and 2 Location-Based Emissions	1,003,165	CO_2-e (metric tons)
Net Scope 1 and 2 Market-Based Emissions	1,003,165	CO_2-e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO_2-e (metric tons)
Go To Sheet	Employee Commuting	0	CO_2-e (metric tons)
Go To Sheet	Product Transport	0	CO_2-e (metric tons)
Go To Sheet	Waste	77,246	CO_2-e (metric tons)

Required Supplemental Information

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

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

Scope 1 Emissions from Stationary Combustion Sources

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U.S. Environmental Protection Agency

Guidance

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

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

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

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

Table 1. Stationary Source Fuel Combustion

Source ID	Source Description	Source Area (sq ft)	Fuel Combusted	Quantity Combusted	Units
BLR-012	*East Power Plant*	*12,517*	*Natural Gas*	*10,000*	*MMBtu*
Residential	Natural Gas Use	7,907	Natural Gas	456,173	MMBtu
Commercia	Natural Gas Use	4,835,160	Natural Gas	103,956	MMBtu
Office/Indus	Natural Gas Use	4,748,040	Natural Gas	127,247	MMBtu
Public/Instit	Natural Gas Use	2,090,880	Natural Gas	62,308	MMBtu
					MMBtu

GHG Emissions

Total Organization-Wide Stationary Source Combustion by Fuel Type

Fuel Type	Quantity Combusted	Units
Anthracite Coal	0	short tons
Bituminous Coal	0	short tons
Sub-bituminous Coal	0	short tons
Lignite Coal	0	short tons
Natural Gas	730,686,854	scf
Distillate Fuel Oil No. 2	0	gallons
Residual Fuel Oil No. 6	0	gallons
Kerosene	0	gallons
Liquefied Petroleum Gases (LPG)	0	gallons
Wood and Wood Residuals	0	short tons
Landfill Gas	0	scf

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

Fuel Type	CO_2 (kg)	CH_4 (g)	N_2O (g)
Anthracite Coal	0.0	0.0	0.0
Bituminous Coal	0.0	0.0	0.0
Sub-bituminous Coal	0.0	0.0	0.0
Lignite Coal	0.0	0.0	0.0
Natural Gas	39,778,592.4	752,607.5	73,068.7
Distillate Fuel Oil No. 2	0.0	0.0	0.0
Residual Fuel Oil No. 6	0.0	0.0	0.0
Kerosene	0.0	0.0	0.0
Liquefied Petroleum Gases (LPG)	0.0	0.0	0.0
Total Fossil Fuel Emissions	**39,778,592.4**	**752,607.5**	**73,068.7**
Wood and Wood Residuals	0.0	0.0	0.0
Landfill Gas	0.0	0.0	0.0
Total Non-Fossil Fuel Emissions	**0.0**	**0.0**	**0.0**
Total Emissions for all Fuels	**39,778,592.4**	**752,607.5**	**73,068.7**

Total CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**39,819.2**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Stationary Combustion	**0.0**

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Scope 1 Emissions from Mobile Sources

Guidance

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

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

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

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

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

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
Fleet-012	*HQ Fleet*	*NonRoad*	*Ships and Boats - Diesel*	*1990*	*500*	*gal*	*3,670*
Construction Equipment (non-road g	Construction Equipment	NonRoad	Construction/Mining Equipment - Gasoline (2 stroke)	2007	18,375,251	gal	0
Passenger Cars	Construction Equipment	OnRoad	Passenger Cars - Gasoline	2007	62,489	gal	4,368
Construction Equipment (non-road d	Construction Equipment	NonRoad	Construction/Mining Equipment - Diesel	2007	65,625,896	gal	0
Medium- and Heavy- Duty Trucks	Construction Equipment	OnRoad	Medium- and Heavy-Duty Vehicles - Diesel	2007	131,252	gal	1,560
Light Trucks	Construction Equipment	OnRoad	Light-Duty Trucks - Gasoline	2007	122,502	gal	1,560

Reference Table: Average Fuel Economy by Vehicle Type

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

GHG Emissions

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

Fuel Type	Fuel Usage	Units	CO_2 (kg)	
Motor Gasoline	18,560,242	gallons	##########	
Diesel Fuel	65,757,148	gallons	##########	
Residual Fuel Oil	0	gallons	0.0	
Aviation Gasoline	0	gallons	0.0	
Kerosene-Type Jet Fuel	0	gallons	0.0	
Liquefied Petroleum Gas (LPG)	0	gallons	0.0	
Ethanol	0	gallons	0.0	*Note: emissions here are only for the g*
Biodiesel	0	gallons	0.0	*Note: emissions here are only for the d*
Liquefied Natural Gas (LNG)	0	gallons	0.0	
Compressed Natural Gas (CNG)	0	scf	0.0	

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

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	4,368	31.4	22.7
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Light-Duty Trucks - Gasoline	1987-93	0	0.0	0.0
(Vans, Pickup Trucks, SUVs)	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	1,560	16.1	9.5
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
Motorcycles - Gasoline	1960-1995	0	0.0	0.0
	1996-present	0	0.0	0.0

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

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0
Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-1995	0	0.0	0.0
		1996-2006	0	0.0	0.0
		2007-2018	0	0.0	0.0

Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0.0	0.0
		2007-2018	1,560	14.8	67.2
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

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

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	-	-	-
	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Locomotives	Diesel	-	-	-
Aircraft	Jet Fuel	-	-	-
	Aviation Gasoline	-	-	-
Agricultural Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Agricultural Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Construction/Mining Equipment	Gasoline (2 stroke)	18,375,251	228,220,616	1,286,268
	Gasoline (4 stroke)	-	-	-
	Diesel	65,625,896	13,125,179	30,844,171
	LPG	-	-	-
Construction/Mining Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Lawn and Garden Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Airport Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Industrial/Commercial Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Logging Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Railroad Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Recreational Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**849,947.9**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**0.0**

Notes:

1. Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2019 (Nov 2020), Table VM-1.

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

Scope 2 Emissions from Purchase of Electricity

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Guidance

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

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

Help - Market-Based Method

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

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

					Market-Based *Use these cells to enter applicable market-based emission factors*						**Location-Based**		
					Emission Factors			**Emissions**			**Emissions**		
Source ID	**Source Description**	**Source Area (sq ft)**	**eGRID Subregion** *where electricity is consumed*	**Electricity Purchased (kWh)**	**CO_2 Emissions (lb/MWh)**	**CH_4 Emissions (lb/MWh)**	**N_2O Emissions (lb/MWh)**	**CO_2 Emissions (lb)**	**CH_4 Emissions (lb)**	**N_2O Emissions (lb)**	**CO_2 Emissions (lb)**	**CH_4 Emissions (lb)**	**N_2O Emissions (lb)**
Bldg-012	*East Power Plant*	*12,517*	*HIMS (HICC Miscellaneous)*	*200,000*	*0*	*0*	*0*	*0.0*	*0.0*	*0.0*	*237,120.0*	*28.6*	*4.4*
Residential	Electricity Use	7,907	MROW (MRO West)	63,588,094	<enter factor>	<enter factor>	<enter factor>	69,845,162.4	7,567.0	1,081.0	69,845,162.4	7,567.0	1,081.0
Commercia	Electricity Use	4,835,160	MROW (MRO West)	68,175,756	<enter factor>	<enter factor>	<enter factor>	74,884,250.4	8,112.9	1,159.0	74,884,250.4	8,112.9	1,159.0
Office/Indus	Electricity Use	4,748,040	MROW (MRO West)	72,645,012	<enter factor>	<enter factor>	<enter factor>	79,793,281.2	8,644.8	1,235.0	79,793,281.2	8,644.8	1,235.0
Public/Instit	Electricity Use	2,090,880	MROW (MRO West)	21,536,064	<enter factor>	<enter factor>	<enter factor>	23,655,212.7	2,562.8	366.1	23,655,212.7	2,562.8	366.1
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
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					<enter factor>	<enter factor>	<enter factor>						
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					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
					<enter factor>	<enter factor>	<enter factor>						
Total Emissions for All Sources				225,944,926				248,177,906.7	26,887.4	3,841.1	248,177,906.7	26,887.4	3,841.1

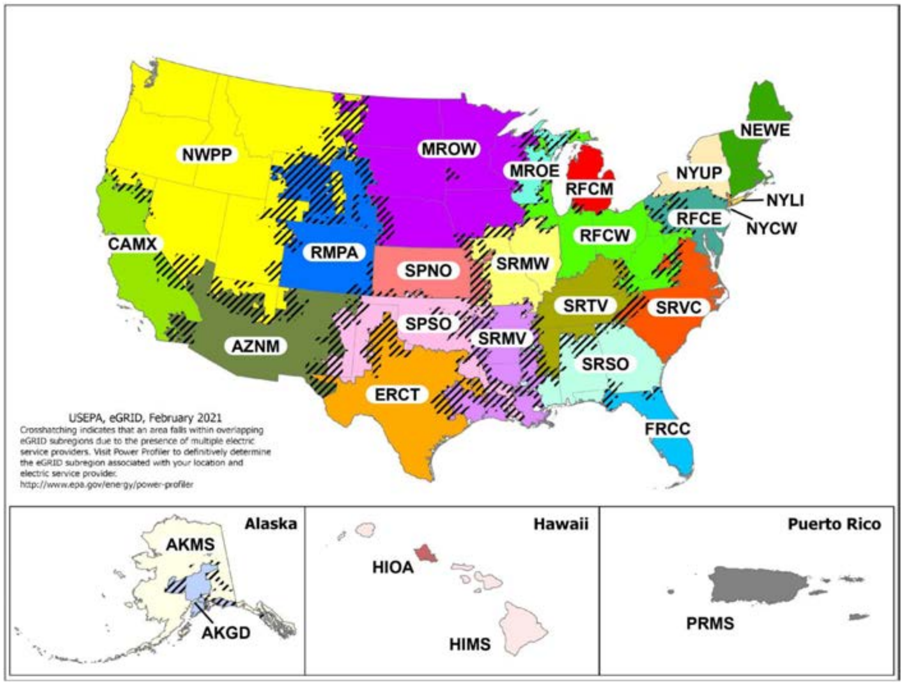
GHG Emissions

CO_2 Equivalent Emissions (metric tons)	
Location-Based Electricity Emissions	113,397.6
Market-Based Electricity Emissions	113,397.6

Notes:

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

Figure 1. EPA eGRID2019, February 2021.



EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Scope 3 Emissions from Waste

Guidance

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

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

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

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

Source ID	Source Description	Waste Material	Disposal Method	Weight	Unit	CO_2e Emissions (kg)
Bldg-012	*East Power Plant Finished Goods*	*Steel Cans*	*Landfilled*	*1,000*	*metric ton*	*22,040*
Nonresidential Buildings	Nonresidential Waste	Mixed MSW municipal solid waste	Combusted	140,089	metric ton	*66,382,555*
Residential	Residential Waste	Mixed MSW municipal solid waste	Combusted	14,820	metric ton	*7,022,828*
Nonresidential Buildings	Nonresidential Recycling	Mixed Recyclables	Recycled	35,022	metric ton	*3,473,506*
Residential	Residential Recycling	Mixed Recyclables	Recycled	3,705	metric ton	*367,474*

Total Emissions by Disposal Method

Waste Material	CO_2e (kg)
Recycled	3,840,979
Landfilled	-
Combusted	73,405,382
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO_2 Equivalent Emissions (metric tons) - Waste	**77,246.4**

2020-2025 New Construction Projects in the Northwest Area

New Public Street Projects constructed in the Northwest Area between 2020 and 2025:

- City Project No. 2021-07 70th Street and Allan Way Intersection Improvements.
- Canvas at Inver Grove Heights Collector Street and Internal Streets
- Peltier Reserve- Collector Street and Internal Streets
- Scenic Hills-Collector Streets
- Settlers Ridge North- Internal Streets
- Settlers Ridge North 2nd Addition-Internal Streets
- Highlands at Settlers Ridge-Internal Streets
- Archer Trail- Internal Streets

New Public Stormwater Facility Projects constructed in the Northwest Area between 2020 and 2025:

- City Project 2020-12 Argenta Trail Drainage
- City Project 2021-03 NWA Storm Sewer Force main
- City Project 2021-10 Schaaf Storm Sewer Improvements
- Archer Trail
- The Crossings at Inverwoods Second
- Canvas at Inver Grove Heights
- Highlands at Settlers Ridge
- Peltier Reserve
- Scenic Hills
- Settlers Ridge North
- Settlers Ridge North 2nd Addition

New Public Sanitary Sewer Facility Projects constructed in the Northwest area between 2020 and 2025:

- 2021-01 NWA Trunk Utility Improvements
- Archer Trail
- Canvas at Inver Grove Heights
- Canvas at Inver Grove Heights 2nd Addition
- The Crossings at Inverwoods
- The Crossings at Inverwoods Second
- Highlands at Settlers Ridge
- Inverpoint Business Park Third Addition

- Peltier Reserve
- Scenic Hills
- Settlers Ridge North
- Settlers Ridge North 2^{nd} Addition

New Public Water Facility Projects Constructed in the Northwest Area between 2020 and 2025:

- 2021-01 NWA Trunk Utility Improvements
- Archer Trail
- Canvas at Inver Grove Heights
- Canvas at Inver Grove Heights 2^{nd} Addition
- The Crossings at Inverwoods
- The Crossings at Inverwoods Second
- Highlands at Settlers Ridge
- Inverpoint Business Park Third Addition
- Peltier Reserve
- Scenic Hills
- Settlers Ridge North
- Settlers Ridge North 2^{nd} Addition

Introduction

The AUAR Update was revised based on comments received during the comment period. This section includes a response to each comment received during the comment period and indicates in what way the comment has been addressed. The 10-business day comment period began August 5, 2025, and comments were accepted through August 19, 2025. Four comment letters were received from government agencies.

Dakota County

Comment	Response
Figure 19-1 is a depth to bedrock map, but the text refers to it as a map of bedrock geologic units. Figure 19-2 the Bedrock Geology and Figure 19-5 Surficial Geology should be replaced with the new Geologic Atlas of Dakota County, Minnesota C-57 published in 2023.	The figure references have been corrected. The text has been updated to reflect that the new Geologic Atlas of Dakota County, Minnesota C-57 was reviewed.
The Department of Natural Resources map titled *Pollution Sensitivity of Near-Surface Material* published in 2022 has the AUAR Area is mapped as high, moderate and low sensitivity to pollution. This map which can be found at https://mnatlas.org/resources/pollution-sensitivity-near-surface-materials, is of the pollution sensitivity estimated from the transmission time of water through 3 feet of soil and 7 feet of surficial geology to a depth of 10 feet from the land surface, see attached map. This map should be included and referenced instead of the description provided in the second paragraph on page 35.	This information has been added to the AUAR Update.
Figure 19-5 Sensitivity to Aquifer maps the AUAR Area as the Prairie du Chien and Jordan Aquifers as high, moderate and low sensitivity to pollution. Due to the sensitivity of the groundwater to contamination, efforts should be made to minimize the use of chemicals on the AUAR Area. Lawn care fertilizers and herbicides can impact the groundwater and drinking water aquifers. Providing thick, quality topsoil and a subsequent inspection to verify that it was provided in areas for lawn and landscaping is recommended. To reduce the need for	Comment noted.

Comment	Response
chemicals and irrigation, plant native, drought tolerant landscape plants and tall fescue for lawn areas.	
Figure 13-2 shows possible well locations using the MN County Well Index (CWI). Dakota County has been granted the authority, under Minnesota Statutes 103I, and subsequent amendments, to regulate Well and Water Supplies. There are many wells with a variety of uses within the project area and CWI may be incomplete and/or out of date compared to Dakota County well records which contain much more site context. As individual projects unfold on parcels within Dakota County, project managers and constructions/demolition crews should work closely with the Dakota County Delegated Well Program to solve any well compliance concerns, including sealing unused wells, finding and sealing lost wells, and accounting properly for all known wells. Please contact WellPermits@CO.DAKOTA.MN.US with any questions or concerns regarding wells of any type. If any wells are discovered during site visits and/or during redevelopment, they should be examined by a licensed well contractor or a Dakota County well inspector to determine the status. A magnetometer is the best (sometimes only) way to locate wells that are below grade. Dakota County can help locate and mark wells using a magnetometer by calling 952-891-7537. Magnetometers work best on a clear site free from large metal obstructions. A Dakota County well inspector must be present during any well searches where wells are suspected to officially rule on the presence of a well. Information about property transfer requirements as they pertain to wells is on our webpage at https://www.co.dakota.mn.us/HomeProperty/SellingProperty/WellRequirements. During real estate sales, it is in the interest of both parties that a well disclosure be filed if appropriate and any well compliance issues be resolved. State Statute 103I Section 235 Subdivision 2 states, "Unless the buyer and seller agree to the contrary, in writing, before the closing of the sale, a seller who fails to disclose the existence or known status of a well at the time of sale and knew or had reason to know of the existence or known status of the well, is liable to the buyer for costs relating to sealing of the well and reasonable attorney fees for collection of costs from the seller, if the action is commenced within six years	Developers will coordinate with the Dakota County Delegated Well Program as needed. This has been added to the Mitigation Plan.

Comment	Response
after the date the buyer closed the purchase of the real property where the well is located."	
Alternative stormwater management is proposed, which includes infiltration to groundwater. Please note that the project area includes several high priority groundwater recharge areas for consideration, as identified in the Dakota County Groundwater Plan, Figure 7. Stormwater infiltration basins within the identified preferred recharge areas may present an opportunity to increase groundwater recharge. Proposed stormwater infiltration within a current or possible future DWSMA should be consulted with MDH. Development will increase the amount of impervious surface and increased winter maintenance deicing salt use on additional roads and parking lots. It is recommended that the city implement a chloride management plan for the AUAR Area. Consider requiring winter-smart design of parking lots to reduce deicing salt use and its impacts to aquatic life and water quality. Please keep the angle of the sun in mind to ensure it reaches and melts critical icy patches. Consider the direction of prevailing winter wind to prevent drifting snow, plant trees to create a living snow fence. Implement pavement alternatives such a permeable pavement. Minimize the flow of meltwater across roads and parking lots to mitigate refreezing across roads to reduce the need for deicing salt	Consultation with MDH has been noted and added to the Mitigation Plan. A chloride management plan has been added as a consideration to Table 3 in the AUAR Update.
An Environmental Information Request was submitted to Dakota County Environmental Resources in February 2025, and an Environmental Review was provided in March 2025, along with documents relating to identified sites from Dakota County's Site Inventory. This information is included in Appendix A, and the AUAR Table 18 also includes a listing of MPCA's What's in my Neighborhood sites. Please contact Environmental Resources at 952-891-7000 or environ@co.dakota.mn.us with questions or if additional information is needed.	Comment noted.
Please include all transportation-related plans, studies, and recommendations completed since the last update for the AUAR area, including:	These studies and plans have been added to the AUAR Update. The AUAR update

Comment	Response
• Dakota County Principal Arterial Study • Dakota County 2040 Transportation Plan • Dakota County Regional Roadway System Visioning Study Update • Dakota County Road 63 (Argenta Boulevard) & I-494 Interchange Footprint Study These documents contain recommendations relevant to the AUAR. Of particular importance is recognizing County Road 63 as a future Principal Arterial roadway.	notes that CR 63 will be upgraded to a principal arterial on Page 111.
There are several updates that should be made to the AUAR to be consistent with Dakota County's plans. • Please show the alignment of the Lebanon Hills Greenway that generally runs north/south through the east side of the AUAR. The Lebanon Hills Greenway master plan was adopted by Dakota County in 2013 and the alignment can be viewed at the following link: https://www.co.dakota.mn.us/parks/About/TrailPlanning/Documents/MendotaLebanonHillsGreenwayMasterPlan.pdf • Please reference that there are regionally significant forests and natural areas within the AUAR, as identified in the Dakota County Land Conservation Plan adopted in 2020. The regionally significant natural areas are identified as part of the Marcott Lakes Conservation Focus Area (CFA #13). Areas within Conservation Focus Areas may be eligible for Dakota County land protection funds. https://www.co.dakota.mn.us/Environment/LandConservation/Plan/Documents/LandConservationPlan.pdf • Just recently Dakota County adopted a new 2050 Vision Plan for Parks, Greenways and Natural Resources (July 9, 2025). This new plan identifies a new greenway "search area" corridor that runs east/west through the AUAR area, making connections to the Minnesota River Greenway on the west, and the Mississippi River Greenway on the east. Dakota County does not have a specific greenway alignment identified for this corridor but will work with the City of Inver Grove Heights and landowners when a long-range	The alignment of the Lebanon Hills Greenway has been added to the existing and proposed land use map. Information about the Marcott Lakes Conservation Focus Area has been added to the AUAR Update. Information about the Greenway Search Area has been added to the AUAR Update.

Comment	Response
plan for this corridor is prepared. In the meantime, the greenway search area should be identified in the AUAR update.	

Metropolitan Council

Comment	Response
Climate The discussion of anticipated climate trends and associated adaptations is adequate; however, additional adaptations such adopting a chloride management plan to mitigate the impact of the site on surface water resources should be considered.	A chloride management plan has been added as a consideration to Table 3 in the AUAR Update.
Land Use - Parks Existing and planned segments of the Lebanon Hills Greenway Regional Trail (formerly known as the Mendota-Lebanon Hills Greenway Regional Trail) is within the AUAR study area. Dakota County's Mendota-Lebanon Hills Greenway Master Plan was approved by the Metropolitan Council in 2013. The AUAR Update acknowledges the plan in Section 10. Land Use, noting "The City of Inver Grove Heights supports the Mendota to Lebanon Hills Master Plan." As the City continues to plan for and develop the Northwest Expansion Area, Met Council Parks staff encourage the City to coordinate with Dakota County to implement planned segments of the Lebanon Hills Greenway Regional Trail. A robust bicycle and pedestrian network benefits residents and businesses alike.	Future coordination between the City and Dakota County has been noted in Section 10 of the AUAR.
Land Use – TAZ Development expectations by Transportation Analysis Zone (TAZ) are discussed on pages 106-107. In total, AUAR table 30 counts 7,050 units at maximum capacity; this appears to reflect the 2005 and 2007 scenarios. (A different table,	The discussion of traffic modeling reflects the analysis completed for the 2005 AUAR. Table 30 does not report existing or updated conditions for the site. The AUAR Update does not update the

Comment	Response
table 20, provides a different and reduced capacity, 6,200, for the 2025 scenario.) Council staff find this is more development than is forecast to the year 2040. Actual development will likely be a fraction of the maximum capacity. Council staff recommend this clarification be included in the AUAR's discussion on traffic modeling. As the City prepares its next Plan Update, Council staff advise that the City consider TAZ distributions in the AUAR, table 30, and how this compares to the Council's forecast by TAZ. Please contact Council staff to discuss; this discussion can be separate from any action on the AUAR.	traffic analysis completed for the 2005 AUAR. Comment noted.
Water Resources Chloride management best practices should be considered and implemented during the winter months to limit impacts on surrounding water bodies, wetlands, and soils. Council staff encourages the developer to limit impacts to wetlands. If impacts must be made, we encourage the developer to look within the same watershed/sub watershed to do the wetland banking replacement.	A chloride management plan has been added as a consideration to Table 3 in the AUAR Update. An item to request that the developer look within the same watershed for wetland banking has been added to the Mitigation Plan.

Minnesota Department of Transportation

Comment	Response
Water Resources A MnDOT drainage permit is required before any development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The drainage permit application, including the information below, should be submitted online to: https://olpa.dot.state.mn.us/OLPA/. Please upload this letter with the drainage permit application.	Comment noted. MnDOT Drainage Permit is noted in Section 9, Table 8.

Comment	Response
The following information must be submitted with the drainage permit application: 1. Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced. 2. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations. 3. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events. Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested. Please contact Jason Swenson, Water Resources Engineering, at jason.swenson@state.mn.us or 651-234-7539 with any questions.	
Pedestrian and Bicycle MnDOT encourages the City of Inver Grove Heights to consider pedestrian/bicycle connectivity as part of the roadway network and intersection considerations, including to/from key destinations. In addition, we encourage consideration of the potential trail and pedestrian/bicycle network separate from the roadway network. Please contact Molly McCormick, Pedestrian and Bicycle Coordinator, at molly.mccormick@state.mn.us with any questions.	Comment noted.
Noise MnDOT's policy is to assist local governments in promoting compatibility between land use and highways. Residential uses adjacent to highways often result in complaints about traffic noise. Traffic noise from the highways within the AUAR area could exceed noise standards established by the Minnesota Pollution Control Agency (MPCA), the U.S. Department of Housing and Urban Development, and the U.S. Department of Transportation. Minnesota Rule	Developments will be required to meet applicable MPCA noise standards. A noise study will be completed if necessary on a case-by-case basis. This has been noted in the Mitigation Plan.

Comment	Response
7030.0030 states that municipalities with the authority to regulate land use shall take all reasonable measures to prevent the establishment of land use activities, listed in the MPCA's Noise Area Classification (NAC), anywhere that the establishment of the land use would result in immediate violations of established State noise standards. MnDOT policy regarding development adjacent to existing highways prohibits the expenditure of highway funds for noise mitigation measures in such developed areas. The project proposer is required to assess the existing noise situation and take the action deemed necessary to minimize the impact to any proposed development in this area from any highway noise. If you have any questions regarding MnDOT's noise policy, please contact Natalie Ries in Metro District's Noise and Air Quality Unit at natalie.ries@state.mn.us or 651-234-7681.	
Permits Any work that affects MnDOT right of way will require an appropriate permit. All permits are available and must be applied at: https://olpa.dot.state.mn.us/OLPA/. Upload this letter when applying for permits. For questions regarding permit submittal requirements, please contact Buck Craig of MnDOT's Metro District Permits Section at buck.craig@state.mn.us or 651-775-0405.	Comment noted. Permits are included in Section 9, Table 8.

Minnesota Pollution Control Agency

Comment	Response
Climate section: it is recommended that a longer period is included instead of just 2004-2024. • There have already been changes to the climate, but that is difficult to see in the documentation. • There are regional summaries that may be helpful when using the University of Minnesota (UMN) Climate information. • Climate change in Southeast Minnesota UMN Climate Adaptation Partnership. • With the BMP goals that are later In the document, acknowledging that there may be more intense rainfall events and higher chances of flooding, may help with deciding on BMP design.	Past data from 2004 to 2024, as well as future projections through the end of the century have been studied in Section 7. These data provide a picture of climate trends for the study area. On a case-by-case basis as developments are planned, larger rainfall events will be considered in BMP design.
With the expansion of impervious area, having a plan for snow and snow melt may use less salt and thereby protect waters from chloride impairment. • Design considerations could be taken to reduce salt usage. With several wetland areas where infiltration is likely, salting could contribute to increased chloride in drinking water. • Planning to store snow in areas that will not increase icy areas as the pile melts and plating trees in strategic places will be beneficial. • The goal is to develop with winter maintenance in mind and use less salt.	A chloride management plan has been added as a consideration to Table 3 in the AUAR Update.
Having a maintenance plan for the vegetated areas and stormwater BMPS areas will ensure the BMPs continue to provide benefit. • This includes assigning who will oversee maintenance and what is allowed. • Protecting the buffered areas from mowing and having a vegetation management plan could reduce future landowner conflicts.	The Northwest Area Stormwater Manual provides guidelines for maintenance of stormwater BMPs. Page 52 of the AUAR Update discusses the purpose of this manual. A footnote to the link to this manual has been added.

Comment	Response
The most recent figure for the trunk sanitary sewer system in the project area is from 2014. The AUAR identifies constriction of a significant number of developments with sanitary sewer improvements since 2014. An updated figure for the trunk sanitary sewer system in the project area should be provided in the AUAR.	An updated figure has been added to Appendix A.

August 19, 2025

Jason Ziemer
City of Inver Grove Heights
8150 Barbara Ave
Inver Grove Heights, MN 55077

Thank you for the opportunity to review Northwest Expansion Area Alternative Urban Area (AUAR). The AUAR study area is a 3,089-acre area in the northwest portion of the city of Inver Grove Heights. County Physical Development Staff reviewed the document and offer the following comments for consideration.

Environmental Resources

11.a. Geology
Figure 19-1 is a depth to bedrock map, but the text refers to it as a map of bedrock geologic units. Figure 19-2 the Bedrock Geology and Figure 19-5 Surficial Geology should be replaced with the new Geologic Atlas of Dakota County, Minnesota C-57 published in 2023.
The Department of Natural Resources map titled *Pollution Sensitivity of Near-Surface Material* published in 2022 has the AUAR Area is mapped as high, moderate and low sensitivity to pollution. This map which can be found at https://mnatlas.org/resources/pollution-sensitivity-near-surface-materials, is of the pollution sensitivity estimated from the transmission time of water through 3 feet of soil and 7 feet of surficial geology to a depth of 10 feet from the land surface, see attached map. This map should be included and referenced instead of the description provided in the second paragraph on page 35.

Figure 19-5 Sensitivity to Aquifer maps the AUAR Area as the Prairie du Chien and Jordan Aquifers as high, moderate and low sensitivity to pollution. Due to the sensitivity of the groundwater to contamination, efforts should be made to minimize the use of chemicals on the AUAR Area. Lawn care fertilizers and herbicides can impact the groundwater and drinking water aquifers. Providing thick, quality topsoil and a subsequent inspection to verify that it was provided in areas for lawn and landscaping is recommended. To reduce the need for chemicals and irrigation, plant native, drought tolerant landscape plants and tall fescue for lawn areas.

12.a.ii – Groundwater
Figure 13-2 shows possible well locations using the MN County Well Index (CWI). Dakota County has been granted the authority, under Minnesota Statutes 103I, and subsequent amendments, to regulate Well and Water Supplies. There are many wells with a variety of uses within the project area and CWI may be incomplete and/or out of date compared to Dakota County well records which contain much more site context. As individual projects unfold on parcels within Dakota County, project managers and constructions/demolition crews should work closely with the Dakota County Delegated Well Program to solve any well compliance concerns, including sealing unused wells, finding and sealing lost wells, and accounting properly for all known wells.

Please contact WellPermits@CO.DAKOTA.MN.US with any questions or concerns regarding wells of any type. If any wells are discovered during site visits and/or during redevelopment, they should be examined by a licensed well contractor or a Dakota County well inspector to determine the status. A magnetometer is the best (sometimes only) way to locate wells that are below grade. Dakota County can help locate and mark wells using a magnetometer by calling 952-891-7537. Magnetometers work best on a clear site free from large metal obstructions. A Dakota County well inspector must be present during any well searches where wells are suspected to officially rule on the presence of a well. Information about property transfer requirements as they pertain to wells is on our webpage at https://www.co.dakota.mn.us/HomeProperty/SellingProperty/WellRequirements. During real estate sales, it is in the interest of both parties that a well disclosure be filed if appropriate and any well compliance issues be resolved. State Statute 103I Section 235 Subdivision 2 states, "Unless the buyer and seller agree to the contrary, in writing, before the closing of the sale, a seller who fails to disclose the existence or known status of a well at the time of sale and knew or had reason to know of the existence or known status of the well, is liable to the buyer for costs relating to sealing of the well and reasonable attorney fees for collection of costs from the seller, if the action is commenced within six years after the date the buyer closed the purchase of the real property where the well is located."

12.b.ii – Stormwater
Alternative stormwater management is proposed, which includes infiltration to groundwater. Please note that the project area includes several high priority groundwater recharge areas for consideration, as identified in the Dakota County Groundwater Plan, Figure 7. Stormwater infiltration basins within the identified preferred recharge areas may present an opportunity to increase groundwater recharge. Proposed stormwater infiltration within a current or possible future DWSMA should be consulted with MDH.
Development will increase the amount of impervious surface and increased winter maintenance deicing salt use on additional roads and parking lots. It is recommended that the city implement a chloride management plan for the AUAR Area. Consider requiring winter-smart design of parking lots to reduce deicing salt use and its impacts to aquatic life and water quality. Please keep the angle of the sun in mind to ensure it reaches and melts critical icy patches. Consider the direction of prevailing winter wind to prevent drifting snow, plant trees to create a living snow fence. Implement pavement alternatives such a permeable pavement. Minimize the flow of meltwater across roads and parking lots to mitigate refreezing across roads to reduce the need for deicing salt

13 - Contamination/Hazardous Materials/Wastes:
An Environmental Information Request was submitted to Dakota County Environmental Resources in February 2025, and an Environmental Review was provided in March 2025, along with documents relating to identified sites from Dakota County's Site Inventory. This information is included in Appendix A, and the AUAR Table 18 also includes a listing of MPCA's What's in my Neighborhood sites.

Please contact Environmental Resources at 952-891-7000 or environ@co.dakota.mn.us with questions or if additional information is needed.

Transportation

Please include all transportation-related plans, studies, and recommendations completed since the last update for the AUAR area, including:

- Dakota County Principal Arterial Study
- Dakota County 2040 Transportation Plan
- Dakota County Regional Roadway System Visioning Study Update
- Dakota County Road 63 (Argenta Boulevard) & I-494 Interchange Footprint Study

These documents contain recommendations relevant to the AUAR. Of particular importance is recognizing County Road 63 as a future Principal Arterial roadway.

Parks, Greenways, and Natural Areas

There are several updates that should be made to the AUAR to be consistent with Dakota County's plans.

- Please show the alignment of the Lebanon Hills Greenway that generally runs north/south through the east side of the AUAR. The Lebanon Hills Greenway master plan was adopted by Dakota County in 2013 and the alignment can be viewed at the following link: https://www.co.dakota.mn.us/parks/About/TrailPlanning/Documents/MendotaLebanonHillsGreenwayMasterPlan.pdf
- Please reference that there are regionally significant forests and natural areas within the AUAR, as identified in the Dakota County Land Conservation Plan adopted in 2020. The regionally significant natural areas are identified as part of the Marcott Lakes Conservation Focus Area (CFA #13). Areas within Conservation Focus Areas may be eligible for Dakota County land protection funds. https://www.co.dakota.mn.us/Environment/LandConservation/Plan/Documents/LandConservationPlan.pdf
- Just recently Dakota County adopted a new 2050 Vision Plan for Parks, Greenways and Natural Resources (July 9, 2025). This new plan identifies a new greenway "search area" corridor that runs east/west through the AUAR area, making connections to the Minnesota River Greenway on the west, and the Mississippi River Greenway on the east. Dakota County does not have a specific greenway alignment identified for this corridor but will work with the City of Inver Grove Heights and landowners when a long-range plan for this corridor is prepared. In the meantime, the greenway search area should be identified in the AUAR update. https://www.co.dakota.mn.us/parks/About/VisionPlan/Documents/2050VisionPlanExecutiveSummary.pdf

Sincerely,

Georg T. Fischer, Director
Physical Development Division

cc: Commissioner William Droste, District 4
Heidi Welsch, County Manager

Physical Development Division

P 952-891-7000 **F** 952-891-7031 **W** www.dakotacounty.us
A Dakota County Western Service Center • 14955 Galaxie Ave. • Apple Valley • MN 55124

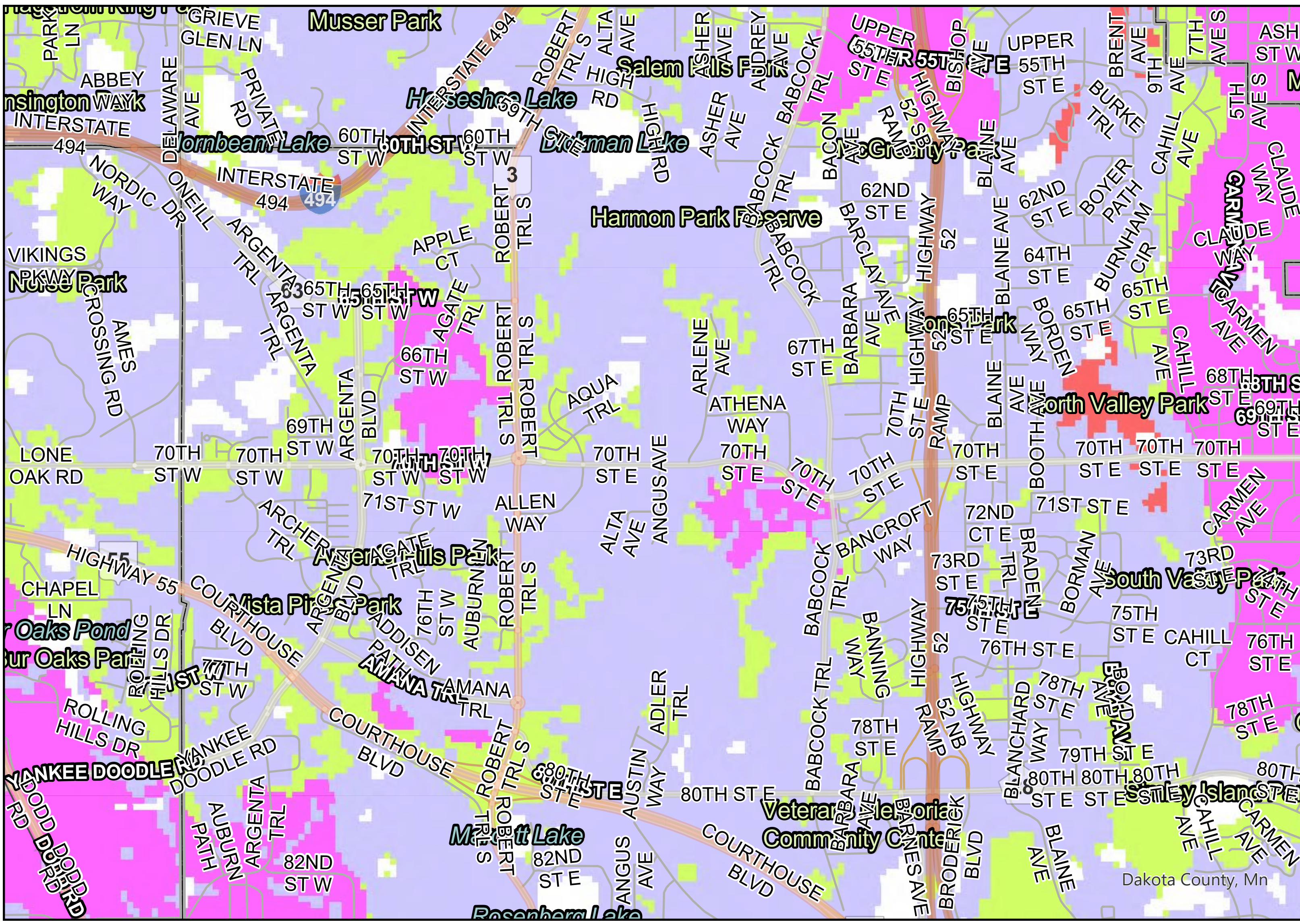
Pollution Sensitivity of Near-Surface Materials

RATING

- Karst
- High
- Moderate
- Low
- Very low
- Ultra low
- Peatlands
- Bedrock at or near surface
- Disturbed lands
- Water

Streets

Municipal Boundary



This dataset estimates the pollution sensitivity of near-surface materials from the transmission time of water through 3 feet of soil and 7 feet of surficial geology, to a depth of 10 feet from the land surface.
Source: Adams, R., 2016, Pollution sensitivity of near-surface materials: St. Paul,
Minnesota Department of Natural Resources, Minnesota Hydrogeology Atlas Series HG-02, report and plate, accessible at https://www.dnr.state.mn.us/waters/groundwater_section/mapping/mn-hydro-atlas.html

August 14, 2025

Jason Ziemer
City of Inver Grove Heights
8150 Barbara Avenue
Inver Grove Heights, MN 55077-3410

RE: City of Inver Grove Heights Northwest Expansion Area Alternative Urban Areawide Review (AUAR)
Metropolitan Council Review File No. 19529-7
Metropolitan Council District No. 15

Dear Jason Ziemer:

Metropolitan Council staff completed its review of the 2025 Update of the Northwest Expansion Area Alternative Urban Areawide Review (AUAR) to determine its accuracy and completeness in addressing regional concerns. The submission is an update to the 2005 Northwest Expansion Area AUAR, which is the fourth update since the final Northwest Expansion Area AUAR was originally reviewed.

Staff conclude that the AUAR is complete and accurate with respect to regional concerns and does not raise major issues of consistency with Council policies. However, staff offers the following comments for your consideration:

Item 7– Climate *(*MacKenzie Young Walters 651-602-1373*)*
The discussion of anticipated climate trends and associated adaptations is adequate; however, additional adaptations such adopting a chloride management plan to mitigate the impact of the site on surface water resources should be considered.

Item 10 – Land Use - Parks *(Colin Kelly, 651-602-1361)*
Existing and planned segments of the Lebanon Hills Greenway Regional Trail (formerly known as the Mendota-Lebanon Hills Greenway Regional Trail) is within the AUAR study area. Dakota County's Mendota-Lebanon Hills Greenway Master Plan was approved by the Metropolitan Council in 2013.

The AUAR Update acknowledges the plan in Section 10. Land Use, noting "The City of Inver Grove Heights supports the Mendota to Lebanon Hills Master Plan."

As the City continues to plan for and develop the Northwest Expansion Area, Met Council Parks staff encourage the City to coordinate with Dakota County to implement planned segments of the Lebanon Hills Greenway Regional Trail. A robust bicycle and pedestrian network benefits residents and businesses alike.

Item 10 Land Use – TAZ (*Todd Graham, 651-602-1322*)
Development expectations by Transportation Analysis Zone (TAZ) are discussed on pages 106-107. In total, AUAR table 30 counts 7,050 units at maximum capacity; this appears to reflect the 2005 and 2007 scenarios. (A different table, table 20, provides a different and reduced capacity, 6,200, for the

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390 Robert Street North, Saint Paul, MN 55101-1805
P 651.602.1000 | F 651.602.1550 | TTY 651.291.0904
metrocouncil.org

2025 scenario.) Council staff find this is more development than is forecast to the year 2040. Actual development will likely be a fraction of the maximum capacity. Council staff recommend this clarification be included in the AUAR's discussion on traffic modeling.

As the City prepares its next Plan Update, Council staff advise that the City consider TAZ distributions in the AUAR, table 30, and how this compares to the Council's forecast by TAZ. Please contact Council staff to discuss; this discussion can be separate from any action on the AUAR.

Item 12 Water Resources - Surface Water *(Steve Christopher 651-602-1033)*
Chloride management best practices should be considered and implemented during the winter months to limit impacts on surrounding water bodies, wetlands, and soils. Council staff encourages the developer to limit impacts to wetlands. If impacts must be made, we encourage the developer to look within the same watershed/sub watershed to do the wetland banking replacement.

The Council will not take formal action on the AUAR. If you have any questions or need further information, please contact Patrick Boylan, Sector Representative at 651-602-1438.

Sincerely,

Angela R. Torres

Angela R. Torres, AICP, Manager
Local Planning Assistance

CC: Tod Sherman, Development Reviews Coordinator, MnDOT - Metro Division
Victor Obisakin, Metropolitan Council District No.15
Judy Sventek, Water Resources Manager
Patrick Boylan, Sector Representative
Reviews Coordinator

N:\CommDev\LPA\Communities\Inver Grove Heights\Letters\Inver Grove Heights Northwest Expansion Area AUAR UPDATE 19529-7.docx

DEPARTMENT OF TRANSPORTATION

Metropolitan District
1500 County Road B-2 West
Roseville, MN 55113

August 18, 2025

Jason Ziemer
Community Development Director
City of Inver Grove Heights
8150 Barbara Avenue
Inver Grove Heights, MN 55077

SUBJECT: **Northwest Expansion Area AUAR Update**
MnDOT Review #AUAR25-006
Inver Grove Heights, Dakota County

Dear Jason Ziemer,

Thank you for the opportunity to review the Northwest Expansion Area AUAR Update. Please note that MnDOT's review of this AUAR does not constitute approval of a regional traffic analysis and is not a specific approval for access or new roadway improvements. As plans are refined, we would like the opportunity to coordinate with our partners and to review the updated information. MnDOT's staff has reviewed the document and has the following comments:

Water Resources
A MnDOT drainage permit is required before any development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The drainage permit application, including the information below, should be submitted online to: https://olpa.dot.state.mn.us/OLPA/. Please upload this letter with the drainage permit application.

The following information must be submitted with the drainage permit application:

1. Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced.
2. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations.
3. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events.

Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested. Please contact Jason Swenson, Water Resources Engineering, at jason.swenson@state.mn.us or 651-234-7539 with any questions.

Pedestrian and Bicycle
MnDOT encourages the City of Inver Grove Heights to consider pedestrian/bicycle connectivity as part of the roadway network and intersection considerations, including to/from key destinations. In addition, we encourage consideration of the potential trail and pedestrian/bicycle network separate from the roadway network.

Please contact Molly McCormick, Pedestrian and Bicycle Coordinator, at molly.mccormick@state.mn.us with any questions.

Noise
MnDOT's policy is to assist local governments in promoting compatibility between land use and highways. Residential uses adjacent to highways often result in complaints about traffic noise. Traffic noise from the highways within the AUAR area could exceed noise standards established by the Minnesota Pollution Control Agency (MPCA), the U.S. Department of Housing and Urban Development, and the U.S. Department of Transportation. Minnesota Rule 7030.0030 states that municipalities with the authority to regulate land use shall take all reasonable measures to prevent the establishment of land use activities, listed in the MPCA's Noise Area Classification (NAC), anywhere that the establishment of the land use would result in immediate violations of established State noise standards.

MnDOT policy regarding development adjacent to existing highways prohibits the expenditure of highway funds for noise mitigation measures in such developed areas. The project proposer is required to assess the existing noise situation and take the action deemed necessary to minimize the impact to any proposed development in this area from any highway noise.

If you have any questions regarding MnDOT's noise policy, please contact Natalie Ries in Metro District's Noise and Air Quality Unit at natalie.ries@state.mn.us or 651-234-7681.

Permits
Any work that affects MnDOT right of way will require an appropriate permit. All permits are available and must be applied at: https://olpa.dot.state.mn.us/OLPA/. Upload this letter when applying for permits.

For questions regarding permit submittal requirements, please contact Buck Craig of MnDOT's Metro District Permits Section at buck.craig@state.mn.us or 651-775-0405.

Review Submittal Options
MnDOT's goal is to complete reviews within 30 calendar days. Review materials received electronically can be processed more rapidly. Do not submit files via a cloud service or SharePoint link. In order of preference, review materials may be submitted as:

1. Email documents and plans to metrodevreviews.dot@state.mn.us. Attachments may not exceed 20 MB (megabytes) per email. Documents can be zipped as well. If multiple emails are necessary, number each email.
2. Files over 20 MB can also be uploaded to MnDOT's Web Transfer Client site: https://mft.dot.state.mn.us. Contact metrodevreviews.dot@state.mn.us, and staff will create a shared folder in which files can be uploaded to. Please send an accompanying email with a narrative for the development.

You are welcome to contact me at regina.burstein@state.mn.us with any questions.

Sincerely,

Regina Burstein
Senior Planner

Copy sent via email:

Jason Swenson, Water Resources
Buck Craig, Permits
Mark Lundquist, Right of Way
Almin Ramic, Traffic
Amrish Patel, Transit
Natalie Ries, Noise
Robert Jones, Area Manager
Mohammad Dehdashti, Design
Michael Kowski, Maintenance
Molly McCormick, Multimodal Planning
Brandon JB Nelson, Surveying
Tod Sherman, Planning
Cameron Muhic, Planning
Scott Shaffer, Planning
Joseph Widing, Metropolitan Council

MINNESOTA POLLUTION CONTROL AGENCY

Marshall Office | 504 Fairgrounds Road | Suite 200 | Marshall, MN 56258-1688 | 507-537-7146

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

August 18, 2025

VIA EMAIL

Jason Ziemer
City of Inver Grove Heights
8150 Barbara Avenue
Inver Grove Heights, Minnesota 55077-3410
jziemer@ighmn.gov

RE: Inver Grove Heights Northwest Expansion Area – Alternative Urban Areawide Review

Dear Jason Ziemer:

Thank you for the opportunity to review and comment on the Alternative Urban Areawide Review (AUAR) for the Inver Grove Heights Northwest Expansion Area project (Project) located in Dakota County, Minnesota. The AUAR study is a 3,140-acre area in the northwest portion of the City of Inver Grove Heights. The area is bounded by Interstate 494 on the north, Babcock Trail on the east (approximately), the city's boundary with Eagan on the west and includes an area just south of Highway 55 on the south. The site is currently occupied by rural and large-lot residential uses, wetlands and other natural areas and a golf course. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility and other interests, the MPCA staff has the following comments for your consideration.

Watershed

- Climate section: it is recommended that a longer period is included instead of just 2004-2024.
  - There have already been changes to the climate, but that is difficult to see in the documentation.
  - There are regional summaries that may be helpful when using the University of Minnesota (UMN) Climate information.
  - Climate change in Southeast Minnesota UMN Climate Adaptation Partnership.
  - With the BMP goals that are later In the document, acknowledging that there may be more intense rainfall events and higher chances of flooding, may help with deciding on BMP design.
- With the expansion of impervious area, having a plan for snow and snow melt may use less salt and thereby protect waters from chloride impairment.
  - Design considerations could be taken to reduce salt usage. With several wetland areas where infiltration is likely, salting could contribute to increased chloride in drinking water.
  - Planning to store snow in areas that will not increase icy areas as the pile melts and plating trees in strategic places will be beneficial.
  - The goal is to develop with winter maintenance in mind and use less salt.
- Having a maintenance plan for the vegetated areas and stormwater BMPS areas will ensure the BMPs continue to provide benefit.

- This includes assigning who will oversee maintenance and what is allowed.
- Protecting the buffered areas from mowing and having a vegetation management plan could reduce future landowner conflicts.

Wastewater

- The most recent figure for the trunk sanitary sewer system in the project area is from 2014. The AUAR identifies constriction of a significant number of developments with sanitary sewer improvements since 2014. An updated figure for the trunk sanitary sewer system in the project area should be provided in the AUAR.

We appreciate the opportunity to review this Project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit actions by the MPCA. Ultimately, it is the responsibility of the Project Proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this AUAR, please contact me by email at chris.green@state.mn.us or by telephone at 507-476-4258.

Sincerely,

Chris Green

This document has been electronically signed.

Chris Green, Project Manager
Environmental Review Unit
Resource Management and Assistance Division

CG:rs

Attachment

cc: Dan Card, MPCA
Amy Timm, MPCA
Nicole Peterson, MPCA
Matthew Moon, MPCA
Jeffrey Hedman, MPCA
Innocent Eyoh, MPCA
Deepa deAlwis, MPCA
David Sahli, MPCA
Julie Henderson, MPCA

Appendix B: 2019 AUAR Figures

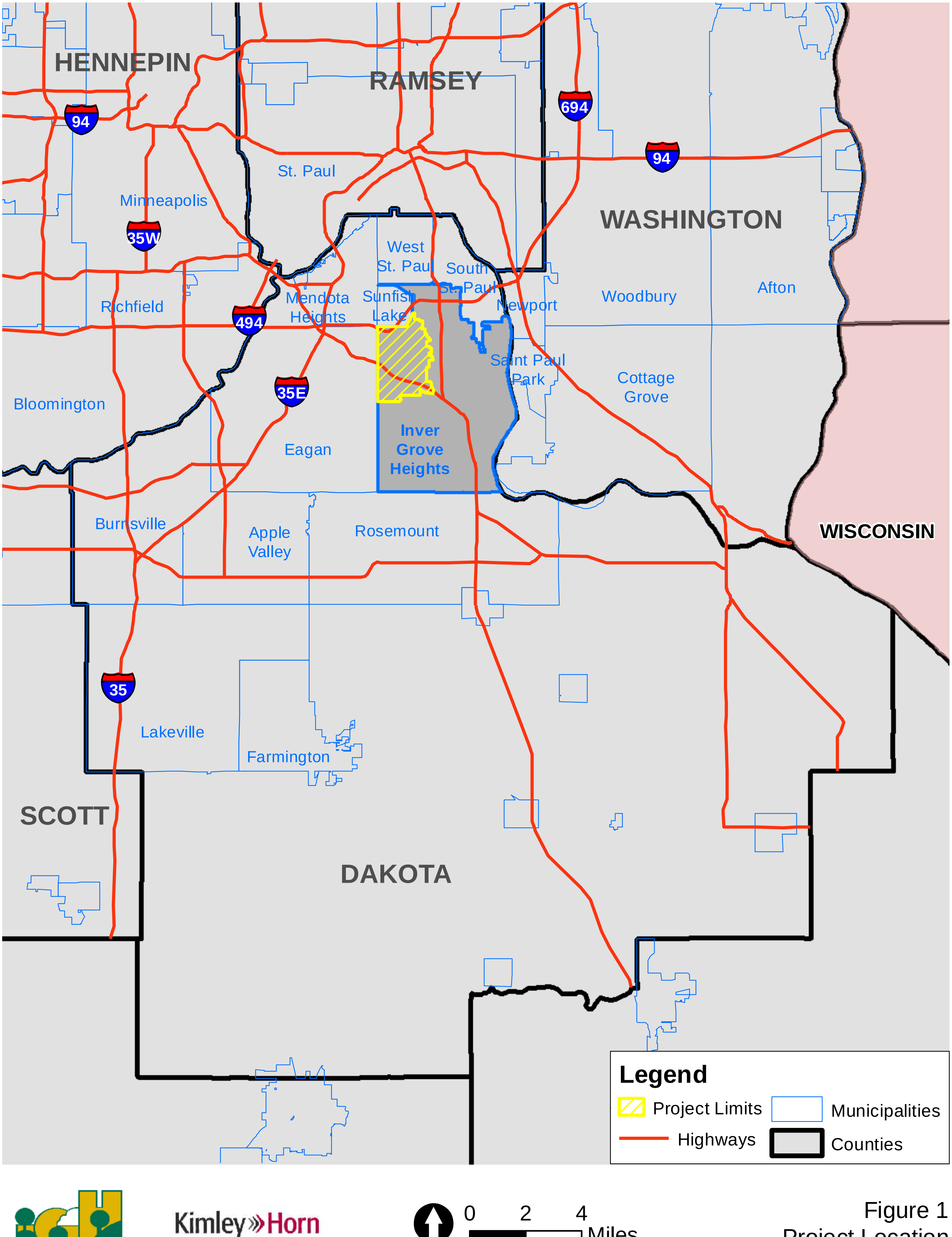
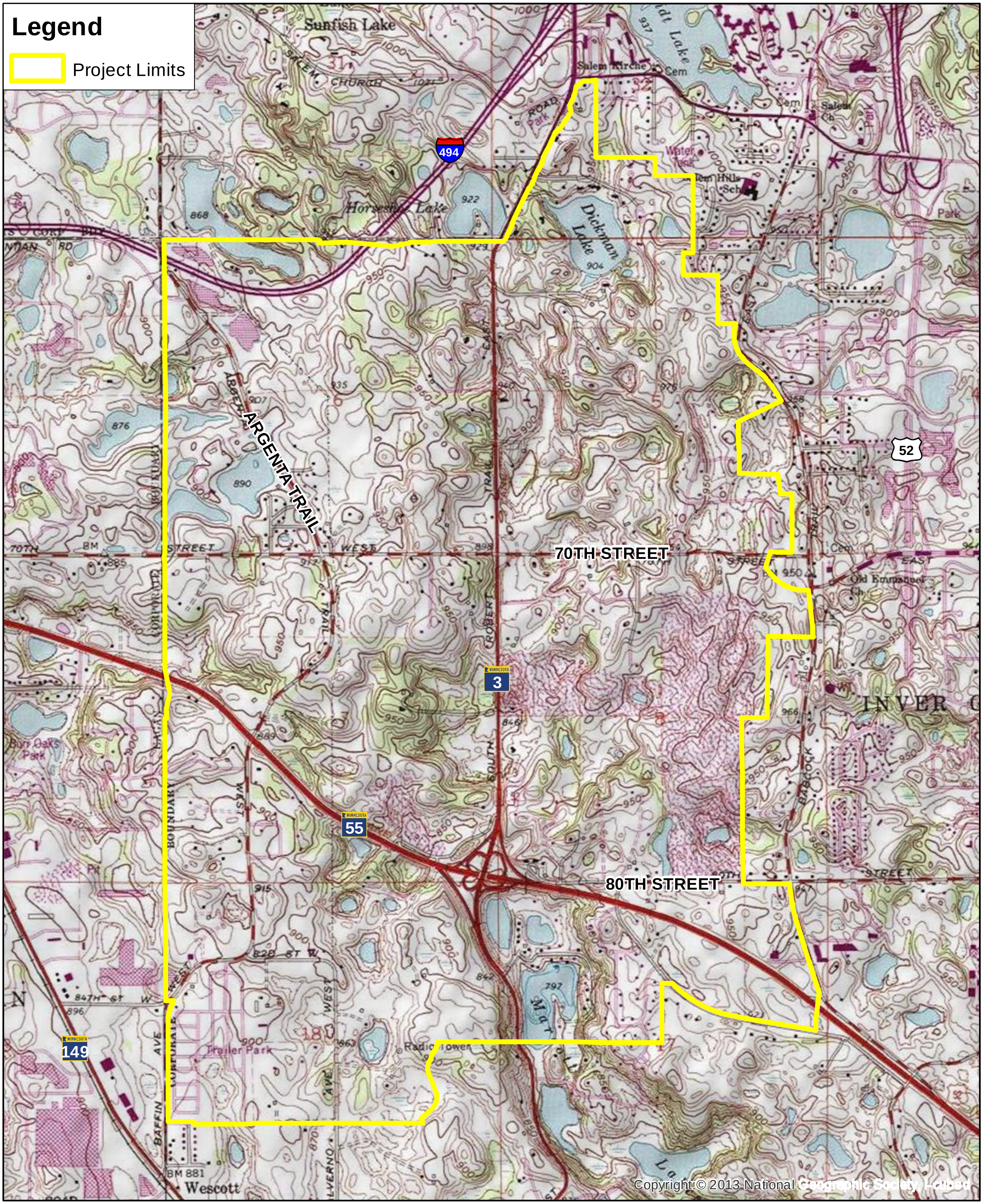


Figure 1
Project Location



Kimley»Horn

0 1,000 2,000 Feet

Figure 2
USGS Topographical Map

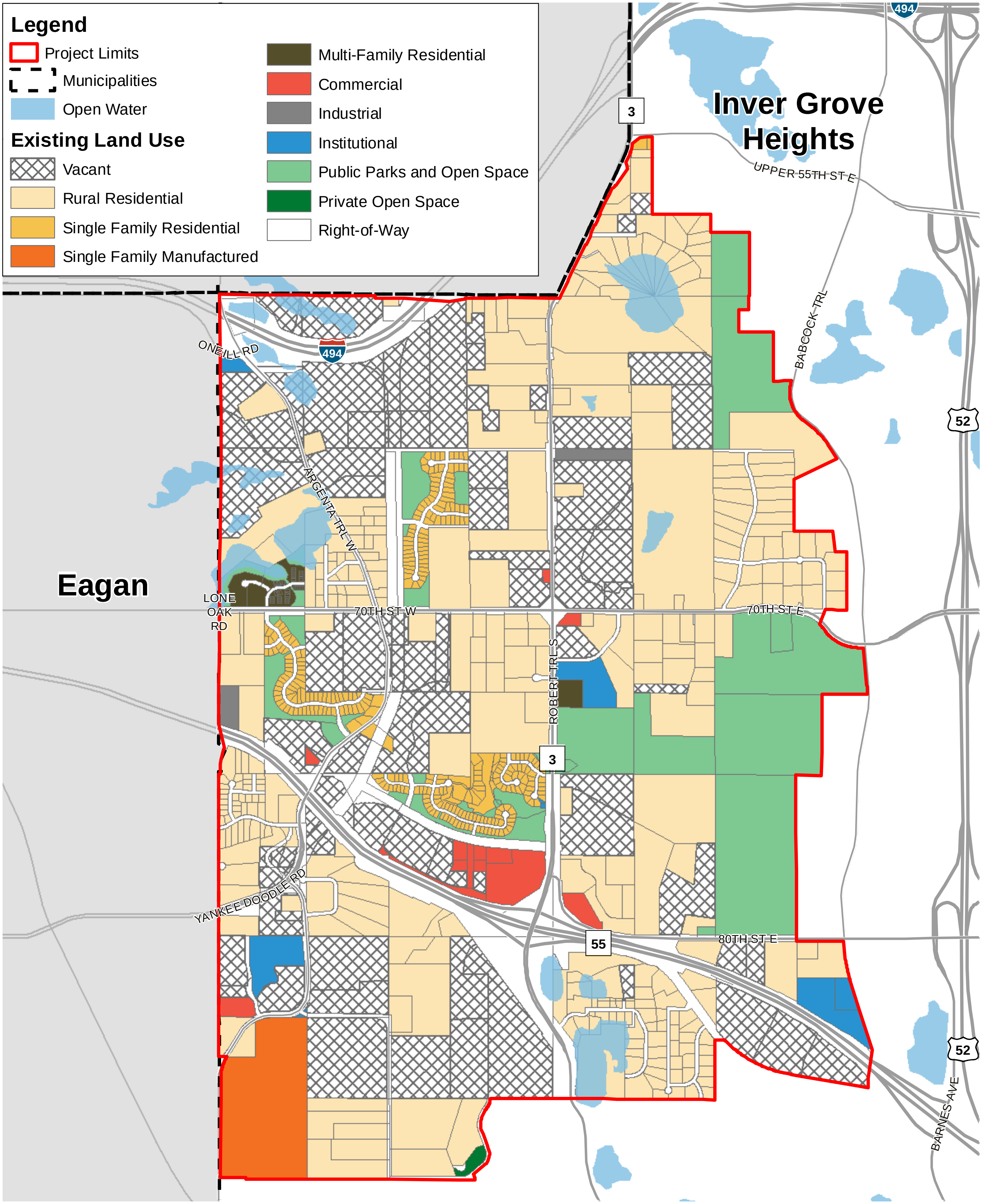


Figure 3
Existing Land Use

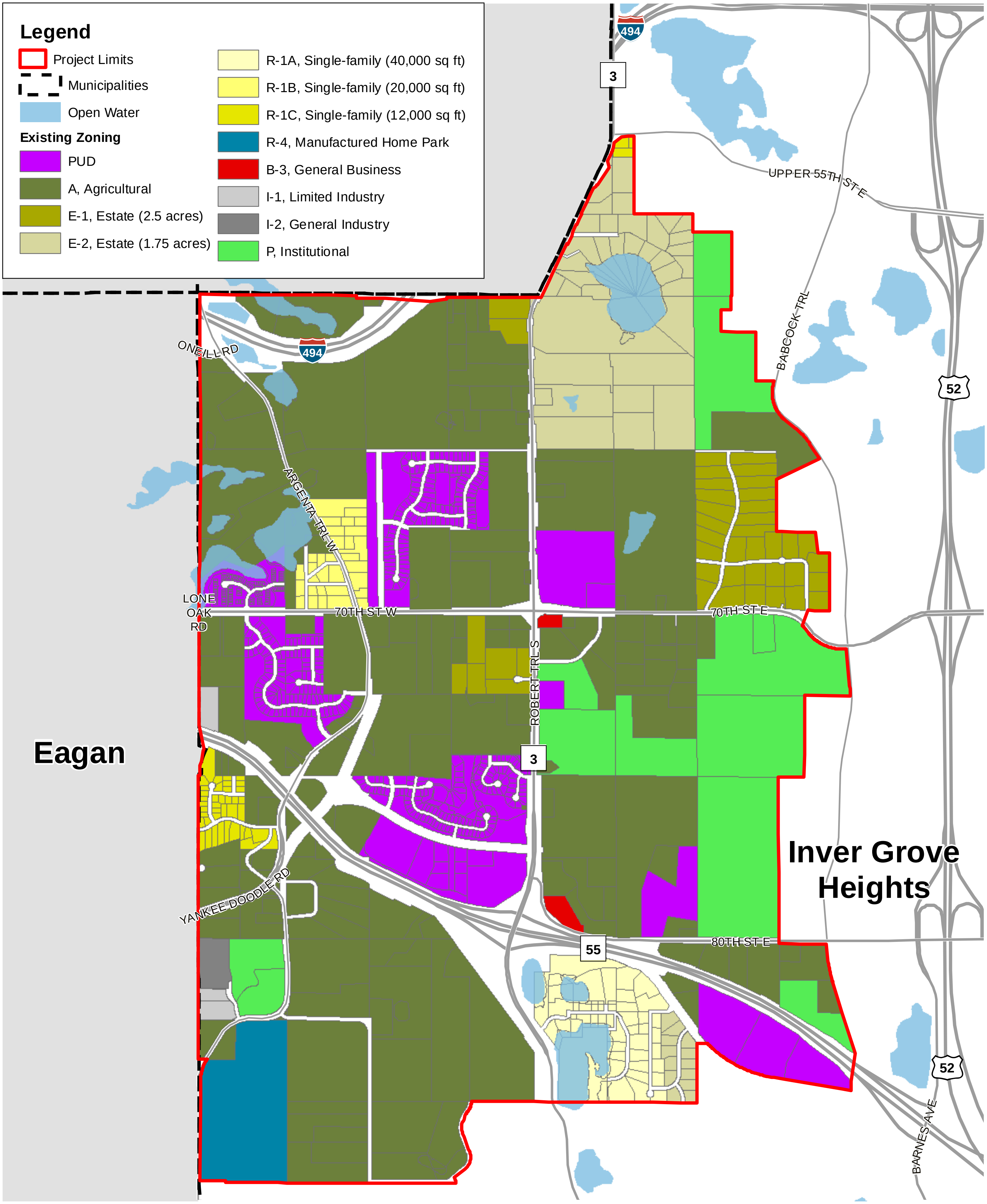


Figure 4
Existing Zoning

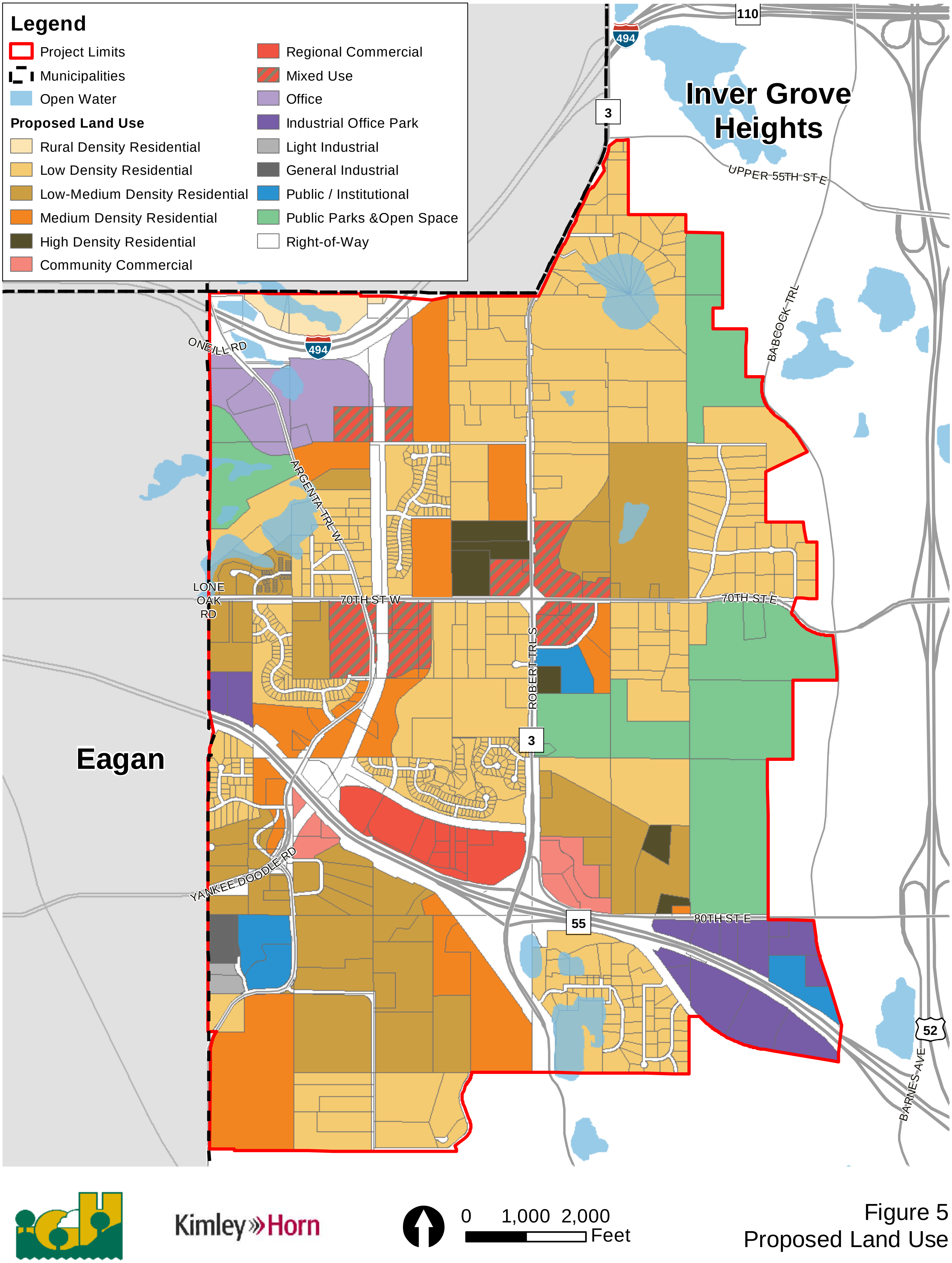
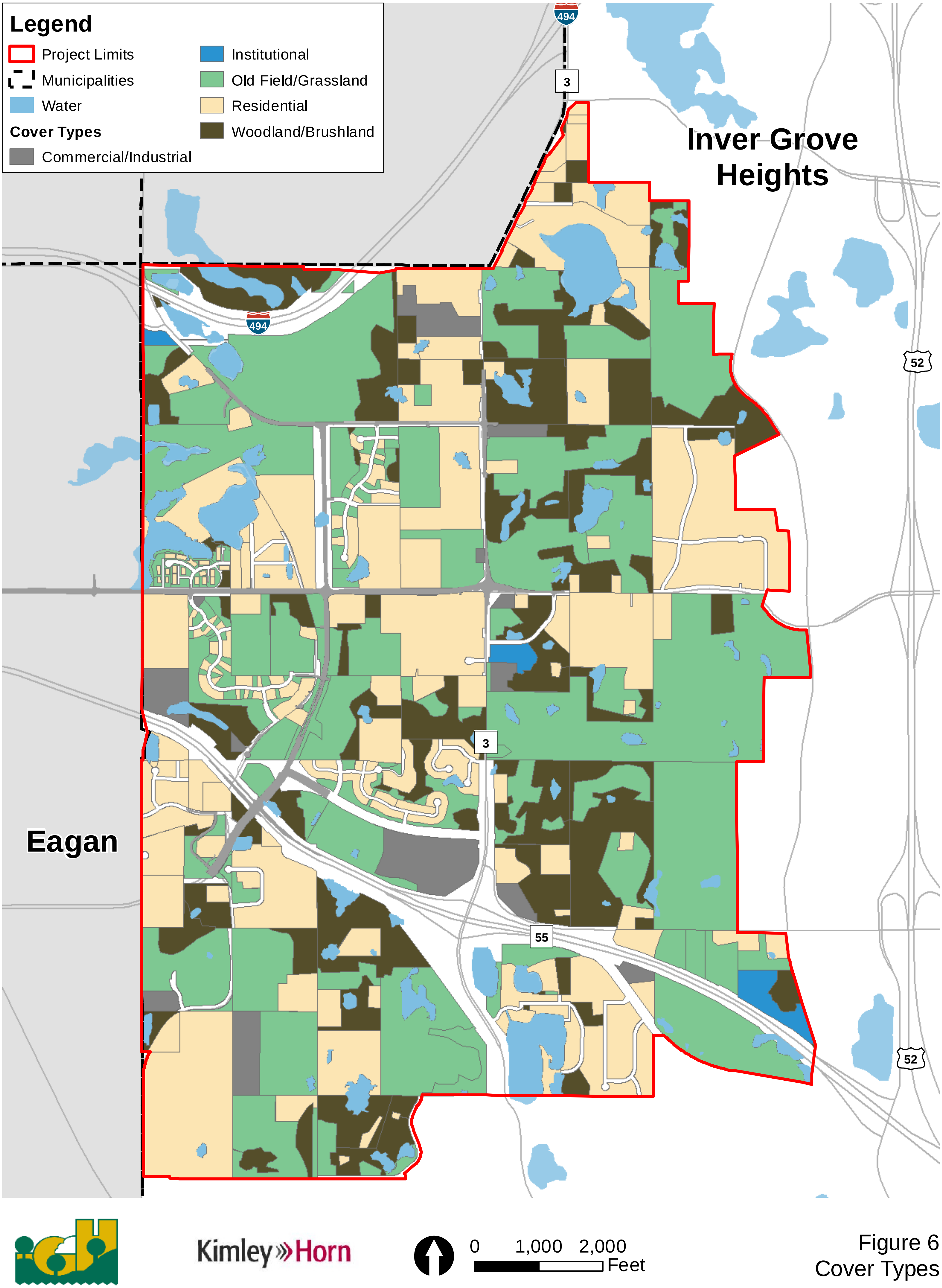


Figure 5
Proposed Land Use



Kimley»Horn

Figure 6
Cover Types

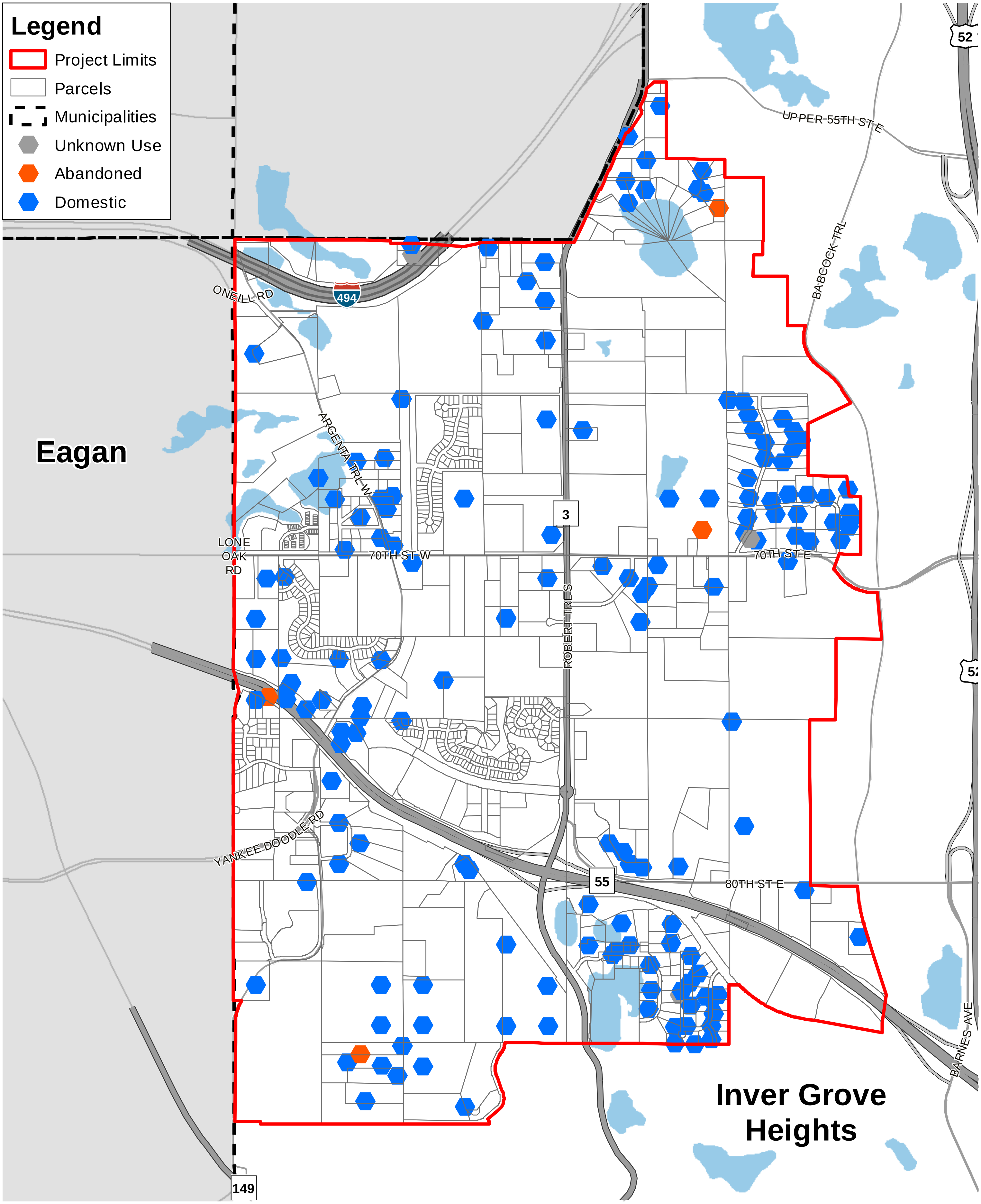


Figure 7
Possible Well Locations

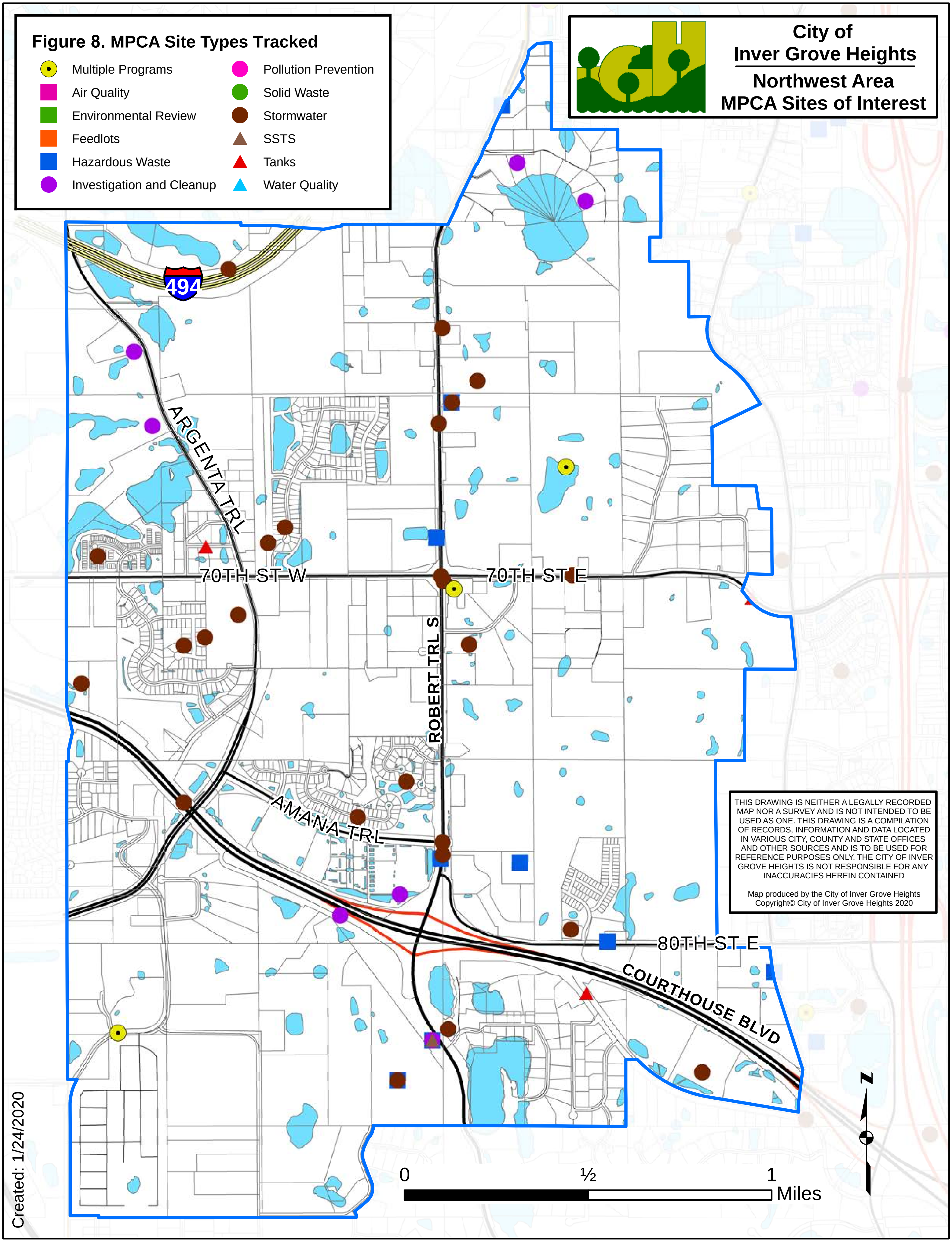


Figure 8. MPCA Site Types Tracked
Multiple Programs
Air Quality
Environmental Review
Feedlots
Hazardous Waste
Investigation and Cleanup
Pollution Prevention
Solid Waste
Stormwater
SSTS
Tanks
Water Quality
City of
Inver Grove Heights
Northwest Area
MPCA Sites of Interest
494
ARGENTA TRL
70TH ST W
70TH ST E
ROBERT TRL S
AMANA TRL
80TH ST E
COURTHOUSE BLVD
THIS DRAWING IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS ONE. THIS DRAWING IS A COMPILATION OF RECORDS, INFORMATION AND DATA LOCATED IN VARIOUS CITY, COUNTY AND STATE OFFICES AND OTHER SOURCES AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. THE CITY OF INVER GROVE HEIGHTS IS NOT RESPONSIBLE FOR ANY INACCURACIES HEREIN CONTAINED
Map produced by the City of Inver Grove Heights
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Created: 1/24/2020

NORTHWEST AREA INFRASTRUCTURE UPDATES (2014-2019)

SWD 1/10/2020

	PROJECT NO.	PROJECT NAME	FEDERAL	STATE	COUNTY	STREET	STORM	SEWER	WATER	NOTES
	A	B	C	D	E	F	G	H	I	J
3						CITY IMPROVEMENTS				
4	2013-04	Interchange at I-494 and re-aligned Argenta Trail (CSAH 63)	X	X	X					
5	2014-11	Argenta Trail/T.H. 55 Improvements		X	X	X	X			
6	2014-13	Northwest Area Utility Extension - Argenta Trail Alignment						X		
7	2015-03	65th Street Construction (between T.H. 3 and Argenta Trail)				X	X		X	
8	2015-08	70th Street (from Eagan border to T.H. 3)			X		X			16-04,16-05,18-19
9	2015-10	NWA Trunk Utility Improvements - Argenta District (Alverno Avenue to Blackstone Vista Development)						X	X	
10	2015-11	NWA 70th Street Lift Station - Argenta District						X		
11	2015-12	NWA Trunk Watermain Improvements - 65th Street Loop (Phase I) Argenta Trail to Babcock Trail							X	STUDY
12	2015-13	NWA Trunk Utility Improvements - Argenta District (70th Street Lift Station to Blackstone Ridge Development)						X	X	
13	2015-16	Trunk Utilities, Argenta Trail to Blackstone Ridge						X	X	
14	2015-19	NWA Robert Watershed Corridor					X			
15	2015-20	NWA Trunk Utility Improvements - Robert District						X	X	
16	2016-04	Argenta Trail (Amana Trail to 70th Street) - NWA				X	X			15-08
17	2016-05	Argenta Trail (70th Street to 65th Street) - NWA				X	X			15-08
18	2016-08	Trunk Highway 3 / 70th Street Intersection Improvements (Roundabout)		X	X		X	X	X	
19	2016-09D	60th Street Area Reconstruction				X	X			
20	2016-16	TH 55/Argenta Trail Interchange		X	X		X			
21	2016-19	65th Street Construction (between T.H. 3 and Babcock Trail)				X	X			STUDY
22	2016-21	Trail along Babcock Trail (between Upper 55th and Hwy 494)			X					
23	2017-02	NWA Trunk Watermain Improvements - 65th Street Loop (Phase II of 2015-12) Hwy 3 to Harmon Park							X	
24	2017-03	NWA Trunk Watermain Improvements - 65th Street Loop (Phase III of 2015-12) Hwy 3 to Blackstone Ridge							X	
25	2017-04	Water Resources Management Plan 4th Generation Update					X			
26	2017-24	T.H. 3 Intersection Improvements for the 65th Street Project		X		X	X		X	
27	2018-02	80th Street Sanitary Sewer Improvements (Robert District)							X	
28	2018-03	NWA Trunk Watermain Improvements - 65th Street Loop (Phase IV of 2015-12) from Agate Trail to Alverno Lane							X	
29	2018-16	Municipal Water Supply Well Field Analysis							X	STUDY
30	2018-17	Regional Road System Visioning Study Update				X				STUDY
31	2018-19	New Argenta Trail from Amana Trail to Existing Argenta Trail			X		X			15-08,16-04,16-05

Y:\Planning\AUAR update\2019 update\NWA AUAR_ProjectNumbers

Updated 1/15/2020 10:17 AM

Existing Wells 2019

Unique No.	Address	Well Use[1]	Depth Completed	Aquifer[2]	Notes
100994	5690 ROBERT TR S	DO	395	OPDC	
100994	5772 ROBERT TR S	DO	395	OPDC	
101043	1286 70TH ST E	DO	252	OPDC	
104132	6736 ARGENTA TR W	DO	260	OPDC	
104188	8305 ANGUS AVE E	DO	275	QBAA	
104312	1155 82ND ST E	DO	155	QUUU	
107145	4 HIGH RD	DO	291	OPDC	
107303	8329 ALTA AVE E	DO	178	QUUU	
107303	8375 ALTA AVE E	DO	178	QUUU	
124323	1224 70TH ST W	DO	255	QBAA	
124349	6780 W. ARGENTA TR.	DO	300	OPDC	
124349	6780 ARGENTA TR W	DO	300	OPDC	
127186	1714 80TH ST E	DO	272	OPDC	
127187	1407 80TH ST E	DO	276	OPDC	
127188	7660 ARGENTA TR W	DO	291	OPDC	
127189	6710 ARGENTA TR W	DO	271	OPDC	
127189	6714 ARGENTA TR W	DO	271	OPDC	
127196	8569 ALVERNA	DO	295	QBUA	
127591	6970 ARGENTA TR W	DO	302	QBAA	
129164	8475 ANN MARIE TR	DO	239	QBAA	
129251	1126 70TH ST E	DO	260	OPDC	
136461	7010 ANGUS AVE E	DO	295	MTPL	
136504	8485 ANNALISA PATH	DO	212	QBAA	
141811	1181 80TH ST E	PN	261	OPDC	Clover Leaf Motel well
146831	8350 ANNALISA PATH	DO	303	OPDC	
159489	7376 COURTHOUSE BLVD E	DO	175	QBAA	
171835	8505 ANGUS AVE E	DO	249	QBUA	
171835	8480 ANNALISA PATH	DO	249	QBUA	
177070	11 HIGH RD	DO	317	OSTP	
179705	1932 COURTHOUSE BLVD W	DO	125	QBAA	
182815	7834 ALBERTA WAY W	DO	292	OPDC	
182969	7840 ALBERTA WAY W	DO	308	OPDC	
185277	8315 ANNALISA PATH	DO	243	QWTA	
185937	1878 70TH ST W	DO	217	QWTA	
185980	6930 ATHENA WAY	DO	300	OPDC	
185983	15 HIGH RD	DO	290	OPDC	

186044	7940 ALBERTA WAY W	DO	175	QWTA	
188208	2000 70TH ST W	DO	276	OPDC	
190477	1162 82ND ST E	DO	241	OPDC	
190477	1186 82ND ST E	DO	241	OPDC	
194093	8240 ANGUS AVE E	DO	280	OPDC	
194197	7160 ROBERT TR S	PN	215	OSTP	
198282	7830 ALBERTA WAY W	DO	278	QWTA	
198297	1715 70TH ST E	DO	280	OPDC	
198328	6800 ATHENA WAY	DO	280	OPDC	
198339	8141 COURTHOUSE BLVD CT E	DO	300	OPDC	
198340	8185 COURTHOUSE BLVD CT	DO	275	QBAA	
198345	7929 ARGENTA TRL W	DO	260	QBAA	
198350	7120 ALLEN WAY	DO	280	OPDC	
207279	280 SMITH AVE N	DO	294	OPDC	
208361	6570 ROBERT TR S	DO	290	OPDC	
208366	1472 60TH ST W	DO	175	QUUU	
208367	6854 ARGENTA TR W	DO	285	OPDC	
208367	6770 ARGENTA TR	DO	285	OPDC	
208368	7115 ALTA AVE E	DO	300	OPDC	
208368	7075 ANGUS AVE E	DO	300	OPDC	
208378	8195 BABCOCK TR E	DO	275	OPDC	
208379	8373 ALTA AVE E	DO	140	QUUU	
235590	MNDOT 35E/494 PARCEL 14		177	QUUU	Status unknown
247444	5830 ROBERT TR S	DO	273	OSTP	Well is inactive
401105	6797 ARKANSAS AVE W	DO	306	OPDC	
404811	17 HIGH RD	DO	300	OPDC	
404813	6785 ARLENE AVE	DO	320	OPDC	
405088	1845 77TH ST W	DO	317	OPDC	
408263	1466 70TH ST W	DO	280	OPDC	
408269	501 ROLLING HILLS CIR	DO	325	OPDC	
410991	1225 80TH ST E	DO	250	OPDC	
412467	6875 ATHENA WAY	DO	320	OPDC	
412468	1805 BUR OAK DR	DO	320	OPDC	
412482	6980 ARKANSAS AVE W	DO	123	QWTA	
416002	6640 ARLENE AVE	DO	320	MTPL	
416015	500 ROLLING HILLS CIR	DO	173	QWTA	

416018	6855 ARLENE AVE	DO	300	OPDC	
416023	6680 ARLENE AVE	DO	253	QBAA	
416049	6705 ARLENE AVE	DO	358	OPDC	
417573	8561 ALVERNO AVE W	DO	345	QBAA	
418617	6785 ATHENA WAY	DO	300	OPDC	
418625	8265 BABCOCK TR	PN	280	OPDC	Inver Hills Assembly of God Church
418626	1795 70TH ST E	DO	260	MTPL	
418641	6790 ATHENA WAY	DO	320	OPDC	
418646	7920 ALBERTA WAY W	DO	340	OPDC	
418655	6605 ARLENE AVE	DO	320	MTPL	
418660	6600 ARLENE AVE	DO	280	OPDC	
418661	6860 ATHENA WAY	DO	280	OPDC	
418663	8505 ANGUS AVE E	DO	280	QBAA	
418664	6985 ARLENE AVE	DO	300	MTPL	
418669	6910 ATHENA WAY	DO	320	MTPL	
424909	6980 ARLENE AVE	DO	300	MTPL	
425219	8285 ANNALISA PATH	DO	280	OPDC	
425266	7 HIGH RD	DO	300	OSTP	
426353	6565 ARLENE AVE	DO	300	OPDC	
426363	6890 ATHENA WAY	DO	320	OPDC	
426377	8715 ALVERNO	DO	380	OPDC	
426386	7080 ALLEN WAY	DO	240	OPDC	
426908	1206 60TH ST W	DO	275	OSTP	
426923	6810 ARLENE AVE	DO	310	OPDC	
427037	8011 COURTHOUSE BLVD E	DO	212		
427141	6525 ARLENE AVE	DO	335	OPDC	
429860	1225 80TH ST E	DO	280	OPDC	
429893	8345 ANNALISA PATH	DO	300	OPDC	
429894	6830 ATHENA WAY	DO	300	OPDC	
435200	6925 ARLENE AVE	DO	290	OPDC	
435236	5580 ROBERT TR S	DO	360	OPDC	
437855	6560 ARLENE AVE	DO	260	OPDC	
437888	8480 ANNALISA PATH	DO	340	OPDC	
437918	6805 ATHENA WAY	DO	300	OPDC	
437920	6655 ARLENE AVE	DO	340	OPDC	
441920	8410 ANNALISA PATH	DO	307	OPDC	
443613	8665 ALVERNO AVE	DO	231	QBAA	
443885	1215 82ND ST E	DO	162	QBAA	
443922	6261 ARGENTA TR W	DO	250	OPDC	

451545	6710 ARLENE AVE	DO	320	OPDC	
451625	6815 ROBERT TR S	DO	252		
457160	8001 COURTHOUSE BLVD	DO	162	QBUA	
457166	1304 COURTHOUSE BLVD E	DO	147		
457178	8003 COURTHOUSE BLVD	DO	216		
460111	7085 ALLEN WAY	DO	230		
460145	1620 80TH ST E	DO	215		
460149	6835 ATHENA WAY	DO	315		
463545	INVERWOOD GOLF COURSE	IR	422	OPCJ?	DNR permit no. 926022
466761	8355 ANGUS AVE?	DO			
474305	1234 70TH AVE	DO	282		
474317	8450 ALTA AVE	DO	200		
479100	1597 80TH ST E	PN	280	OPDC?	Inverwood Golf Course
479118	1872 70TH ST W	DO	245		
481504	1285 70TH ST W	DO	312	OPDC?	
481510	7350 COURT HOUSE BL	DO	200		
494802	1202 70TH ST W	DO	333		
498421	1735 70TH ST W	DO	240		
498428	7161 ROBERT TR S	DO	240		
498434	8215 ANGUS AVE E	DO	300		
498439	1597 80TH ST E	PN	280	OPDC?	Inverwood Golf Course comfort station
506634	6190 ROBERT TR S	DO	340		
506652	8100 ADELBERT AVE E	DO	210		
524113	5830 ROBERT TR S	DO	280		
524250	1954 COURTHOUSE BLVD W	DO	236		
526974	1125 80TH ST E	DO	280		
534326	1180 70TH ST W	DO	320		
546339	6680 ARLENE AVE	DO	295		
554745	7250 ARGENTA TR	DO	260		
558267	8136 ADELBERT AV	DO	208		
562261	8308 ALVERNO AVE W	DO	257		
569783	1225 80TH ST E	DO	250		
573827	7465 ROBERT TR S	DO	360		
585164	6302 SOUTH ROBERT TR	DO	320		

585173	8670 ALVERNO AV	DO	360		
589981	6742 ARGENTA TR W	DO	280		
595063	1086 60TH ST	DO	268		
597774	7925 ARGENTA TR W	DO	345		
627065	7755 ARGENTA TR	DO	195		
629088	280 SMITH AVE N	DO	240		
636371	8420 ALVERNO AV W	DO	323		
642428	8308 ALVERNO AVE W	DO	330		
642435	6275 ROBERT TR S	DO	300		
651961	8152 ADELBERT AVE E	DO	222		
664148	1130 70TH ST W	DO	320		
666267	6712 ARGENTA TR	DO	280		
672585	280 SMITH AVE N	DO	365		
675280	6818 ARGENTA TR W	DO	278		
679293	8523 ALVERNO AVE W	DO	390		
686596	8385 ANGUS AVE	DO	320		
686648	280 SMITH AVE N	IR	360	OPDC	DNR permit no. 043087
704963	1603 69TH ST W	DO	267		
W0000010	6818 ARKANSAS AVE W	DO			
W0000203	8480 ANNALISA PATH	DO	220		
W0000232	1597 80TH ST E	DO	160		
W0000360	8201 ANGUS AVE E	DO			
W0000526	6155 ROBERT TR S	DO	280		
W0000526	1086 60 ST W	DO	280		
W0000737	NOT ASSIGNED	DO	350		City of Inver Grove Heights, PIN 20-00800-014-01
W0000737	1526 70TH ST E	DO	350		
W0000760	8290 ANGUS AVE E	DO			
W0000774	6760 ARKANSAS AVE W	DO			
W0000808	7985 ARGENTA TR	DO			
W0000996	1148 60TH ST W	DO			
Not Assigned	6180 ROBERT TR S	DO			

[1] Well use codes: DO—Domestic; IR—Irrigation; PN—Public supply, non-community, transient. This field is blank where the use is not provided in CWI.

[2] Aquifer codes: QBAA—Quatenary artesian, QBUA—buried Quaternary, QUUU—Unidentified Quaternary, QWTA—Water Table, OSTP—Saint Peter Sandstone, OPDC—Prairied du Chien, OPCJ—Prairie du Chien-Jordan, MTPL—multiple. This field is blank where geological and/or well construction information was not provided.

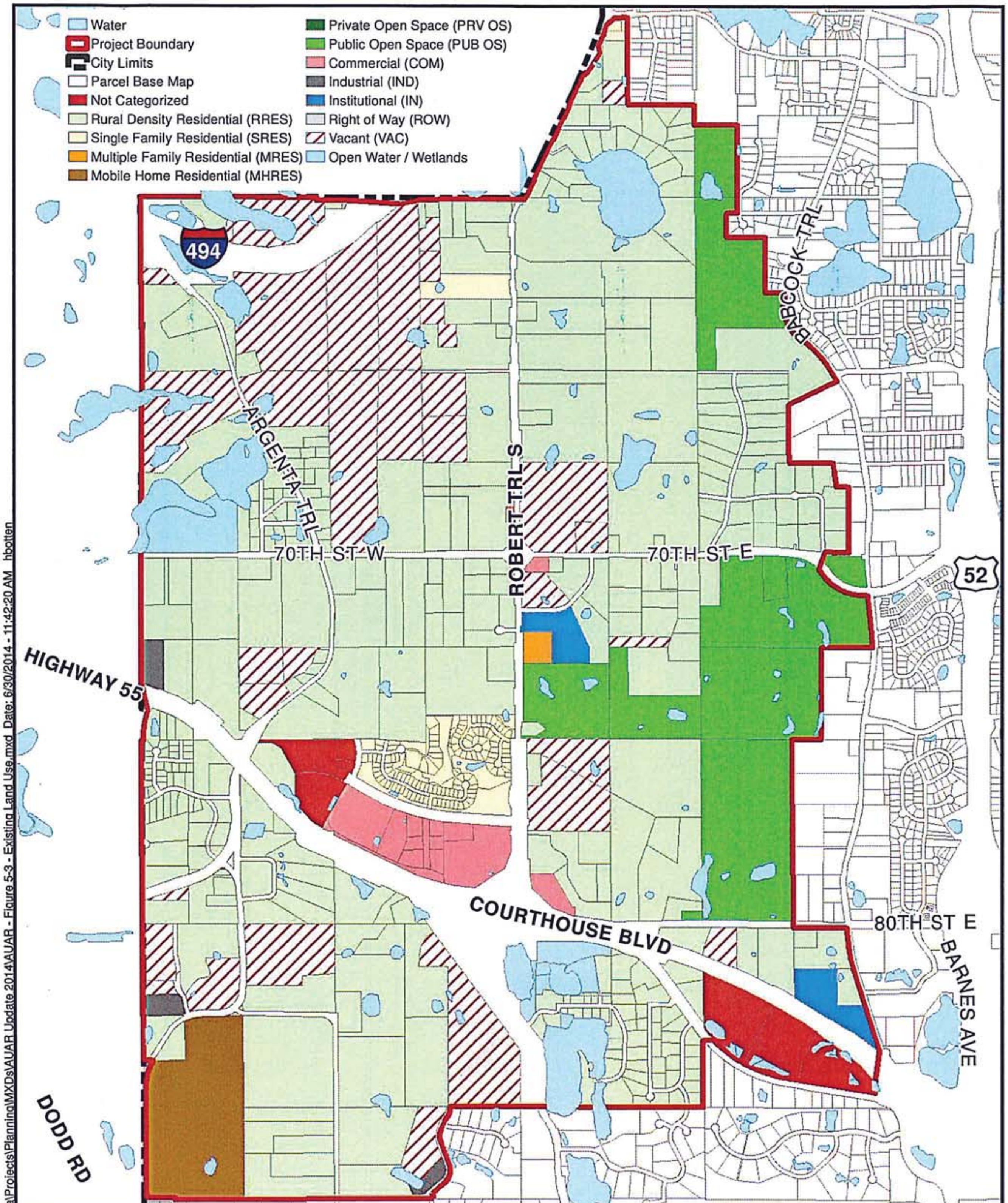
Probable Well Locations 2019

Address
6515 BABCOCK TR E
6308 ROBERT TR S
6184 ROBERT TR S
6520 ROBERT TR S
1271 70TH ST E
1415 70TH ST E
1184 60TH ST W
6321 ROBERT TR S
6385 ROBERT TR S
6351 ARGENTA TRL W
6480 ARGENTA TR W
6660 ARGENTA TR W
6720 ARGENTA TR W
6689 ARGENTA TR W
6659 ARGENTA TR W
6743 ARGENTA TR W
6912 ARGENTA TR W
6922 ARGENTA TR W
1605 68TH ST W
1633 68TH ST W
1655 68TH ST W
1630 68TH ST W
1654 68TH ST W
1636 69TH ST W
1658 69TH ST W
1600 69TH ST W
1601 70TH ST W
1629 70TH ST W
6963 ARKANSAS AVE W
6921 ARKANSAS AVE W
6863 ARKANSAS AVE W
6889 ROBERT TR S
1165 70TH ST W
7215 ROBERT TR S
1060 72ND CIR
1090 70TH ST W
1100 70TH ST W
1120 70TH ST W
1216 70TH ST W
1210 70TH ST W
1400 70TH ST W
1266 70TH ST W

7455 ROBERT TR S
7475 ROBERT TR S
1230 70TH ST W
7245 ROBERT TR S
1700 70TH ST W
7241 ARGENTA TR W
7278 ARGENTA TR W
7305 ARGENTA TR W
7333 ARGENTA TR W
7475 ARGENTA TR
7482 ARGENTA TR
1644 COURTHOUSE BLVD W
7587 ARGENTA TR
7923 ARGENTA TR W
7890 ALBERTA WAY W
7875 ALBERTA WAY W
7757 ROBERT TR S
7038 ANGUS AVE E
7182 ANGUS AVE E
7248 ANGUS AVE E
7175 ANGUS AVE E
7079 ANGUS AVE E
1418 70TH ST E
7185 ALTA AVE E
7260 ROBERT TR S
7456 ROBERT TR S
7340 ANGUS AVE
1183 80TH ST E
7884 ROBERT TR S
1375 80TH ST E
1401 80TH ST E
1467 80TH ST E
1760 80TH ST E
1850 80TH ST E
1462 80TH ST E
8140 COURTHOUSE BLVD E
8150 COURTHOUSE BLVD E
8115 COURTHOUSE BLVD E
8119 COURTHOUSE BLVD E
8112 ADELBERT AVE E
1227 82ND ST E
1191 82ND ST E
1129 82ND ST E

1204 82ND ST E
1240 82ND ST E
1090 82ND ST E
1102 82ND ST E
8415 ANGUS AVE
8315 ALTA AVE E
8350 ANGUS AVE E
8304 ANNALISA PATH
8380 ANNALISA PATH
8450 ANN MARIE TR E
8482 ANNE MARIE TR
8381 ANNALISA PATH
8380 ANGUS AVE E
8302 ALVERNO AVE W
1565 82ND ST
8334 ARGENTA TR W
HOLY TRINITY SERBIAN ORTHODOX CHURCH
8245 ARGENTA
1712 82ND ST W
8580 ALVERNO AVE W
5722 ROBERT TR S
5900 ROBERT TR S
5910 ROBERT TR S
5904 ROBERT TR S
5898 ROBERT TR S
2 HIGH RD
6 HIGH RD
8 HIGH RD
12 HIGH RD
10 HIGH RD
9 HIGH RD
5 HIGH RD

Appendix C: 2014 AUAR Figures



City of Inver Grove Heights

Northwest Expansion Area AUAR

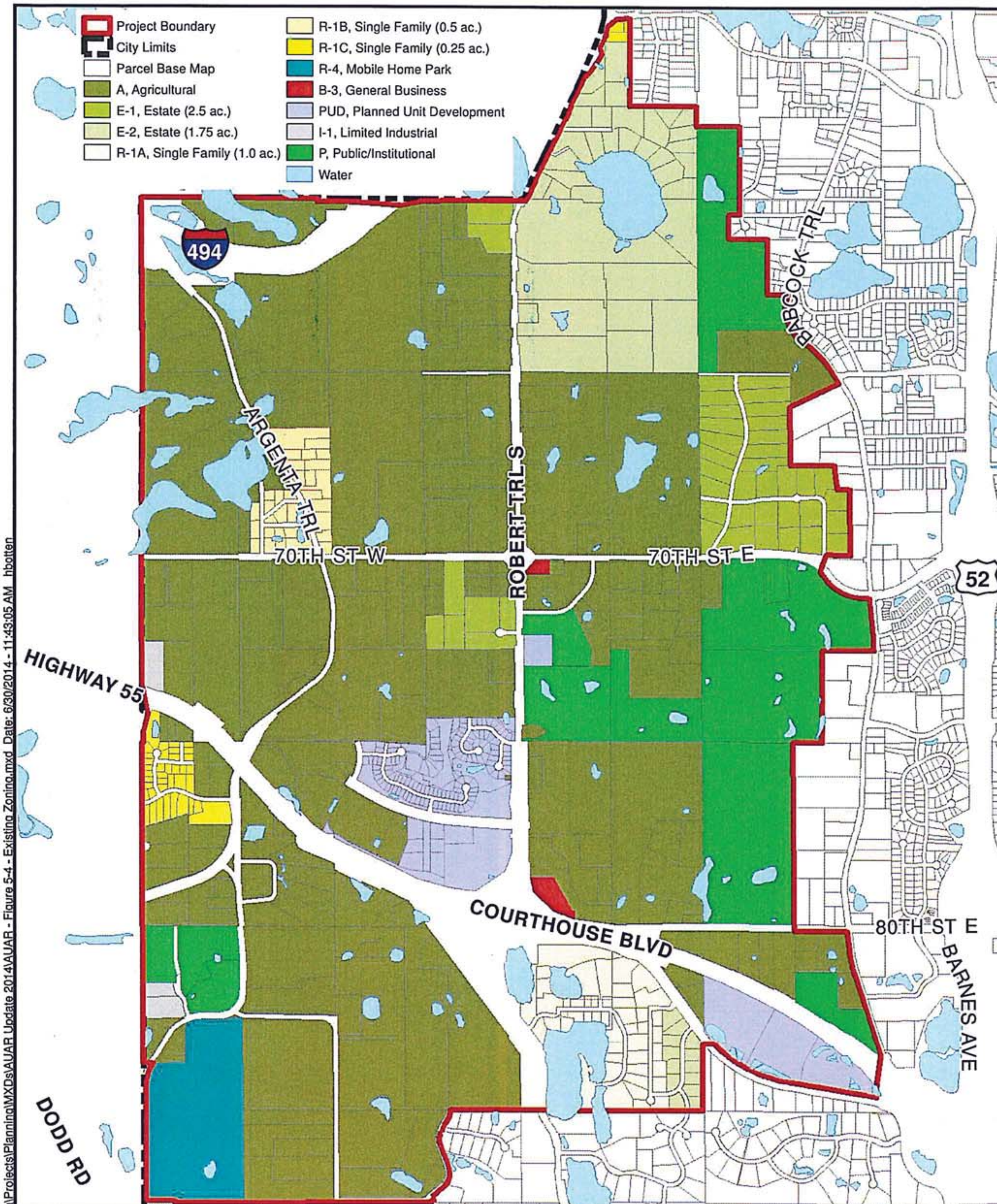
2014 Update

EXISTING LAND USE

Figure 5-3

Feet
0 2,000

THIS DRAWING IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS ONE. THIS DRAWING IS A COMPILATION OF RECORDS, INFORMATION AND DATA LOCATED IN VARIOUS CITY, COUNTY AND STATE OFFICES AND OTHER SOURCES AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. THE CITY OF INVER GROVE HEIGHTS IS NOT RESPONSIBLE FOR ANY INACCURACIES HEREIN CONTAINED.



City of Inver Grove Heights

Northwest Expansion Area AUAR

2014 Update

EXISTING ZONING

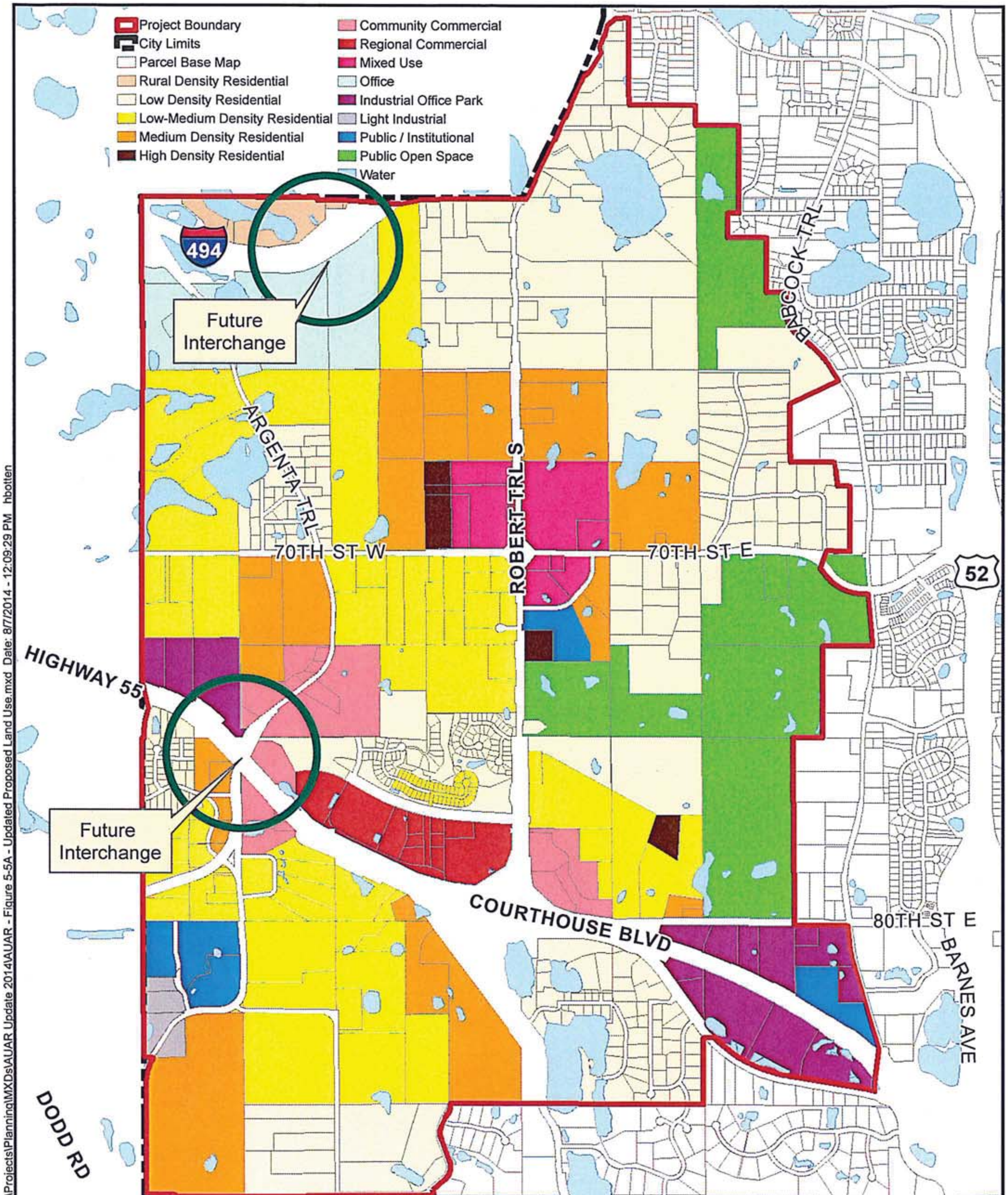
Figure 5-4

Feet
0 2,000

N W E S

THIS DRAWING IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS ONE. THIS DRAWING IS A COMPILATION OF RECORDS, INFORMATION AND DATA LOCATED IN VARIOUS CITY, COUNTY AND STATE OFFICES AND OTHER SOURCES AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. THE CITY OF INVER GROVE HEIGHTS IS NOT RESPONSIBLE FOR ANY INACCURACIES HEREIN CONTAINED.

Document Path: Z:\Gis_Data\Projects\Planning\MXDs\AUAR Update 2014\AUAR - Figure 5-4 - Existing Zoning.mxd Date: 6/30/2014 - 11:43:05 AM hbotten



City of Inver Grove Heights

Northwest Expansion Area AUAR

2014 Update

PROPOSED LAND USE

Figure 5-5

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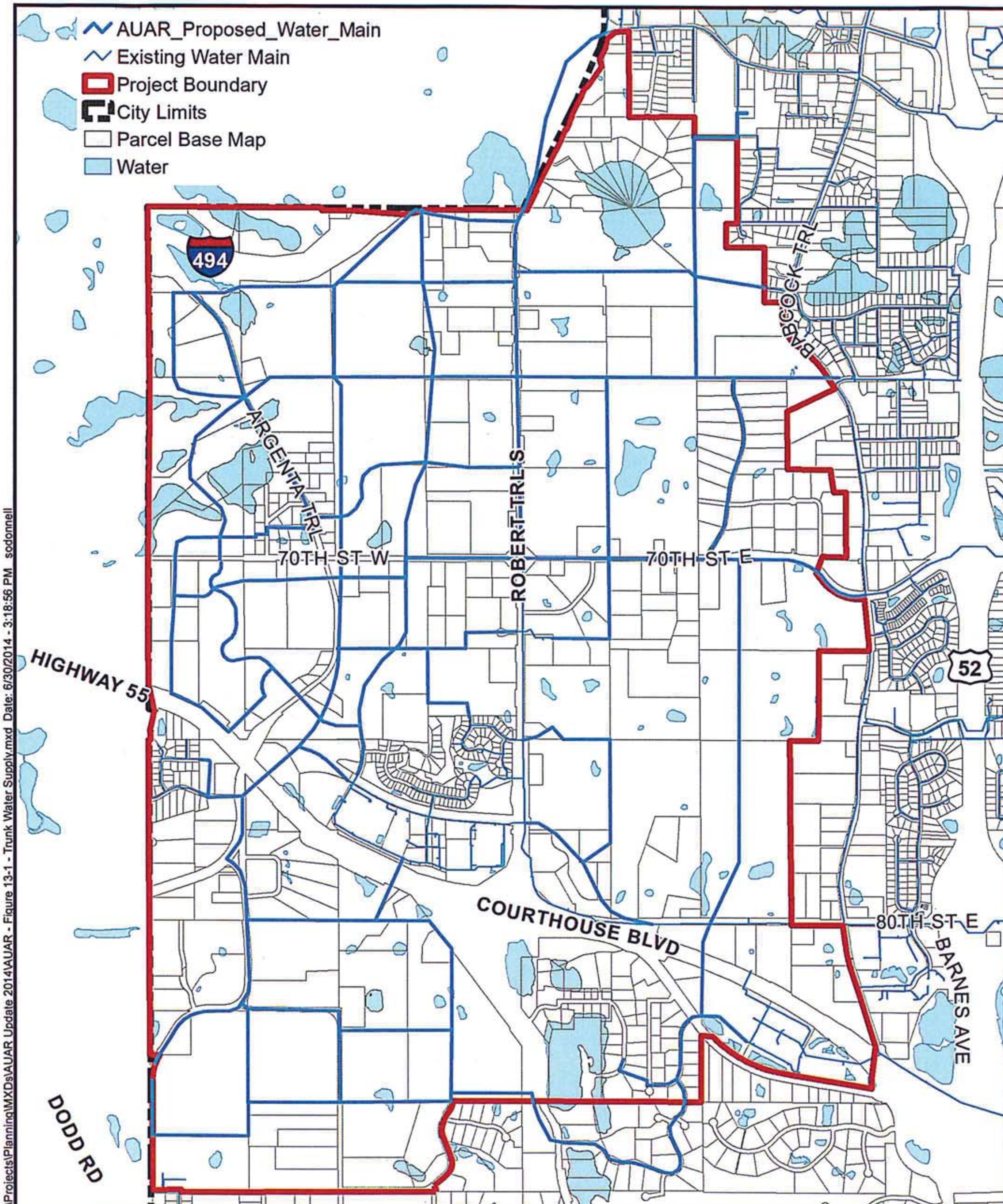
Document Path: Z:\Gis Data\Projects\Planning\MXDs\AUAR Update 2014\AUAR - Figure 5-5A - Updated Proposed Land Use.mxd Date: 8/7/2014 - 12:09:29 PM hbotten



City of Inver Grove Heights

Northwest Expansion Area AUAR

2014 Update

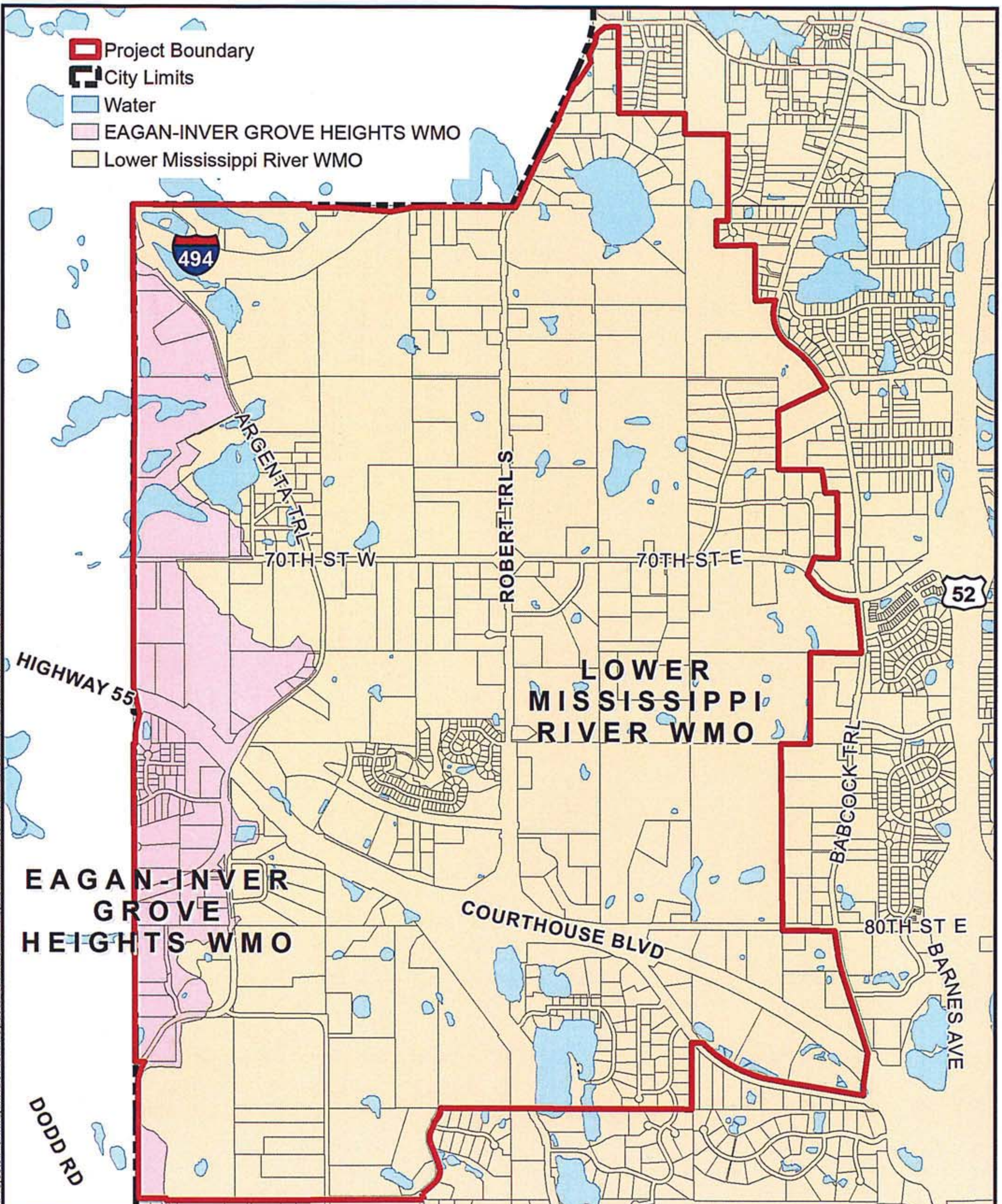
TRUNK WATER SUPPLY

Figure 13-1

Feet
0 2,000

THIS DRAWING IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS ONE. THIS DRAWING IS A COMPILATION OF RECORDS, INFORMATION AND DATA LOCATED IN VARIOUS CITY, COUNTY AND STATE OFFICES AND OTHER SOURCES AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. THE CITY OF INVER GROVE HEIGHTS IS NOT RESPONSIBLE FOR ANY INACCURACIES HEREIN CONTAINED.

Document Path: Z:\Gis_Data\Projects\Planning\MXDs\AUAR Update 2014\AUAR - Figure 13-1 - Trunk Water Supply.mxd Date: 6/30/2014 - 3:18:56 PM sodonnell



Document Path: Z:\Gis_Data\Projects\Planning\MXDs\AUAR Update 2014\AUAR - Figure 17-1 - Watershed Districts.mxd Date: 6/30/2014 - 3:55:16 PM sodonnell

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City of Inver Grove Heights

Northwest Expansion Area AUAR

2014 Update

WATERSHED DISTRICTS

Figure 17-1

N W E S

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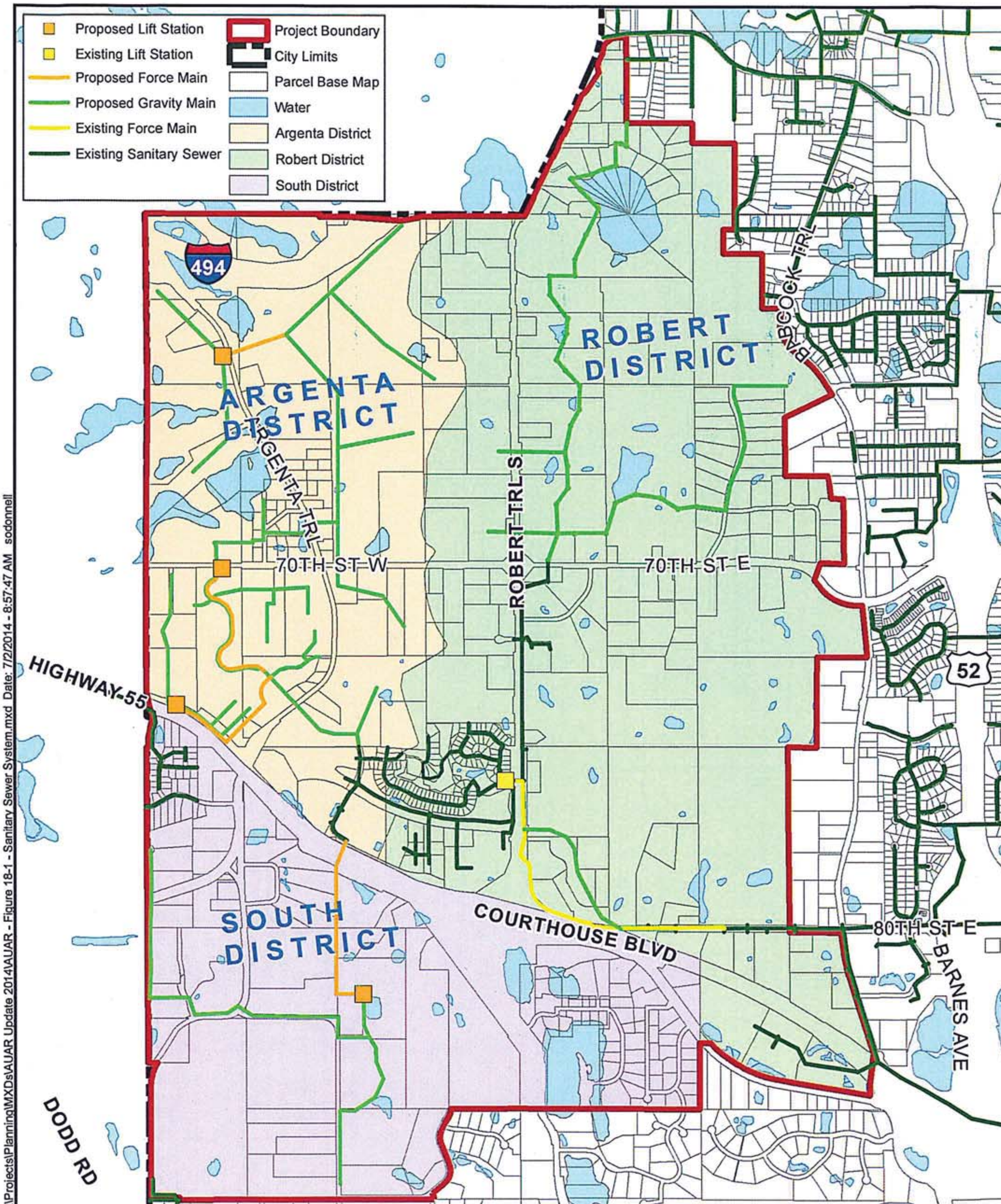

City of Inver Grove Heights

Northwest Expansion Area AUAR

2014 Update

TRUNK SANITARY SEWER SYSTEM

Figure 18-1

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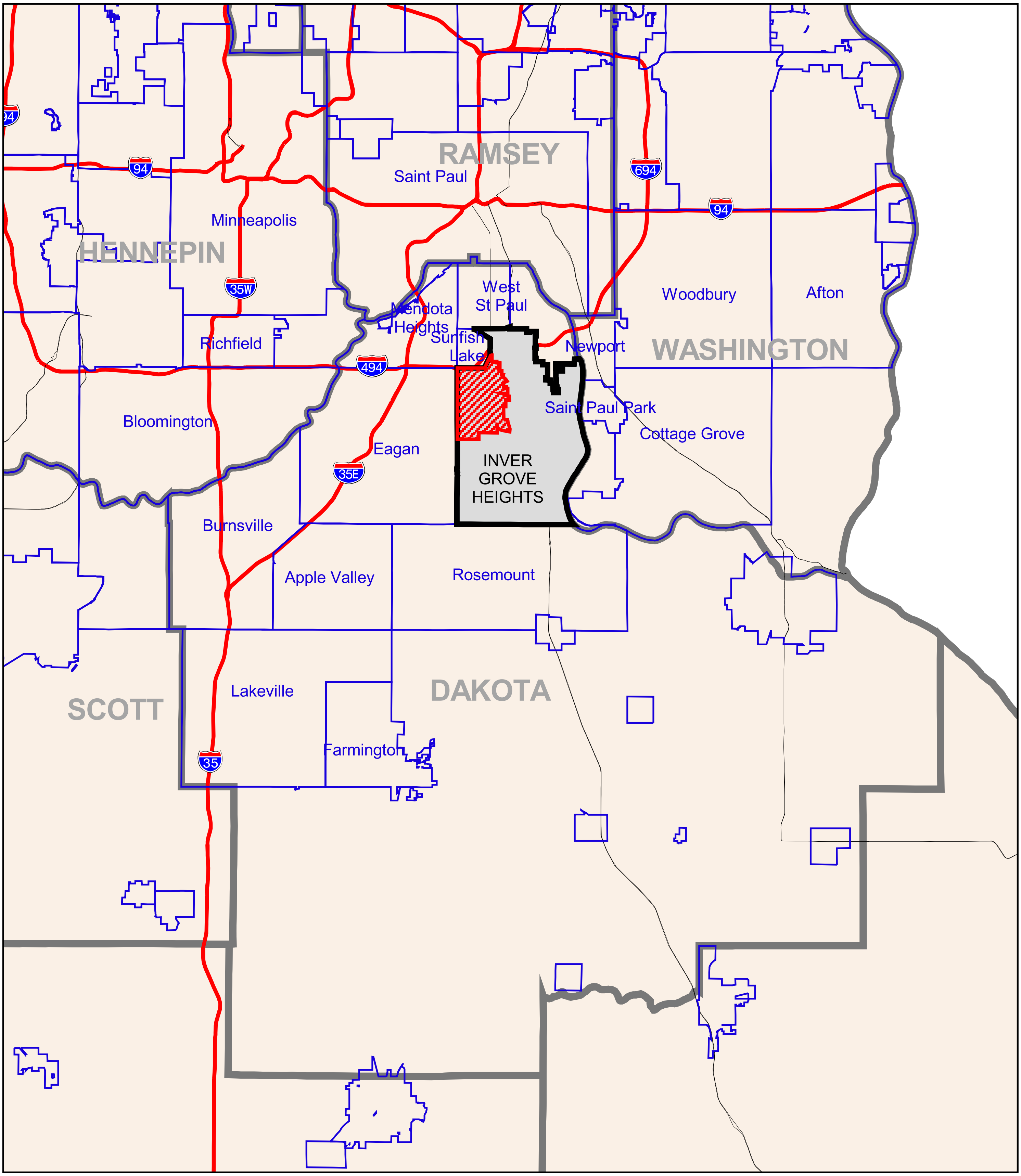
Appendix D: 2007 AUAR Figures and Attachments



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Engineers & Architects

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March 2005
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City of Inver Grove Heights

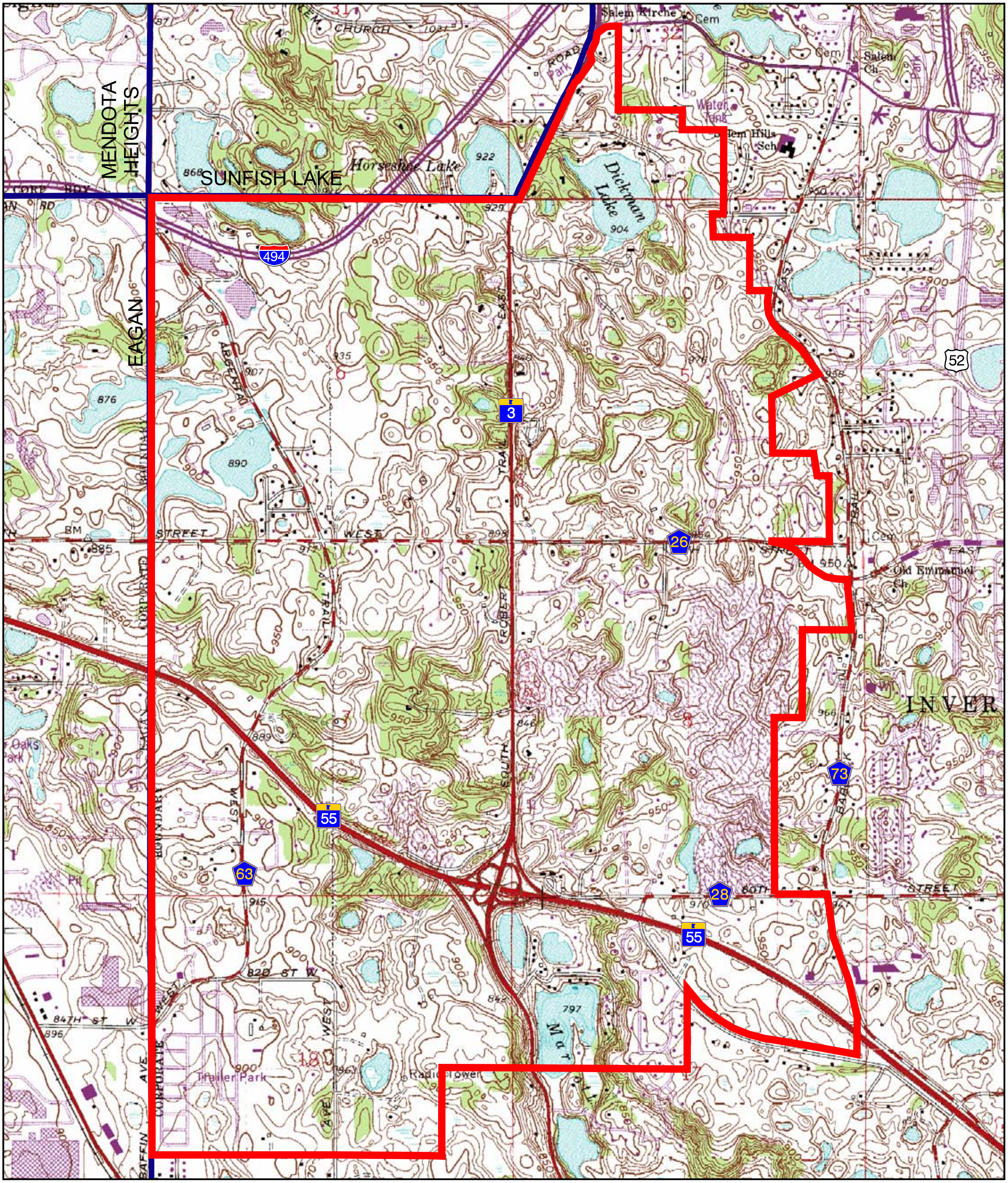
Northwest Expansion Area AUAR

PROJECT LOCATION

Figure 5-1

N
W E
S

	Project Boundary
	Inver Grove Heights
	County Boundaries



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Engineers & Architects

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City of Inver Grove Heights

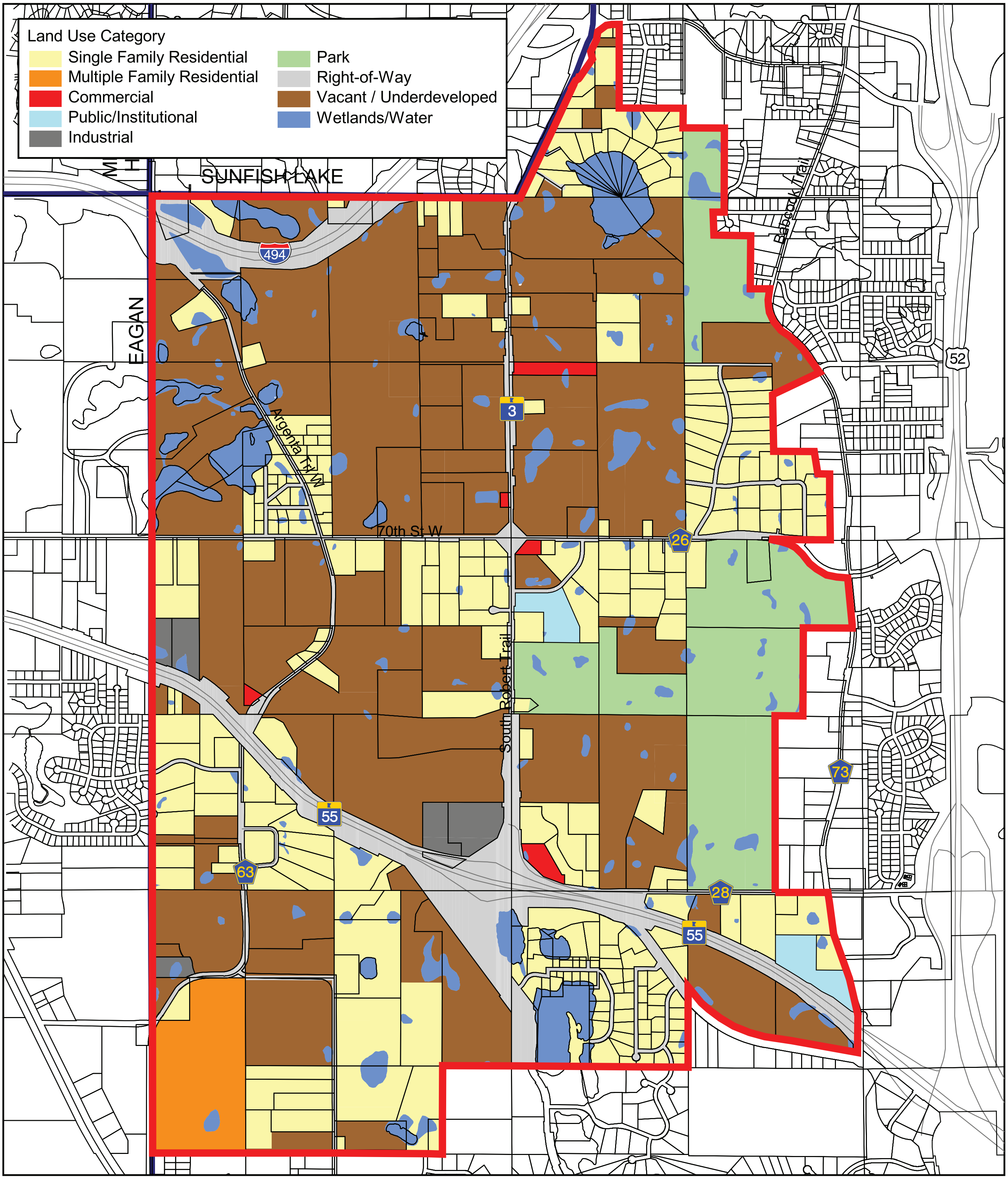
Northwest Expansion Area AUAR

PROJECT BOUNDARY

Figure 5-2

N W E S

Project Boundary
City Limits



Bonestroo Rosene Anderlik & Associates
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March 2005
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City of Inver Grove Heights

Northwest Expansion Area AUAR

EXISTING LAND USE

Figure 5-3

N
W E
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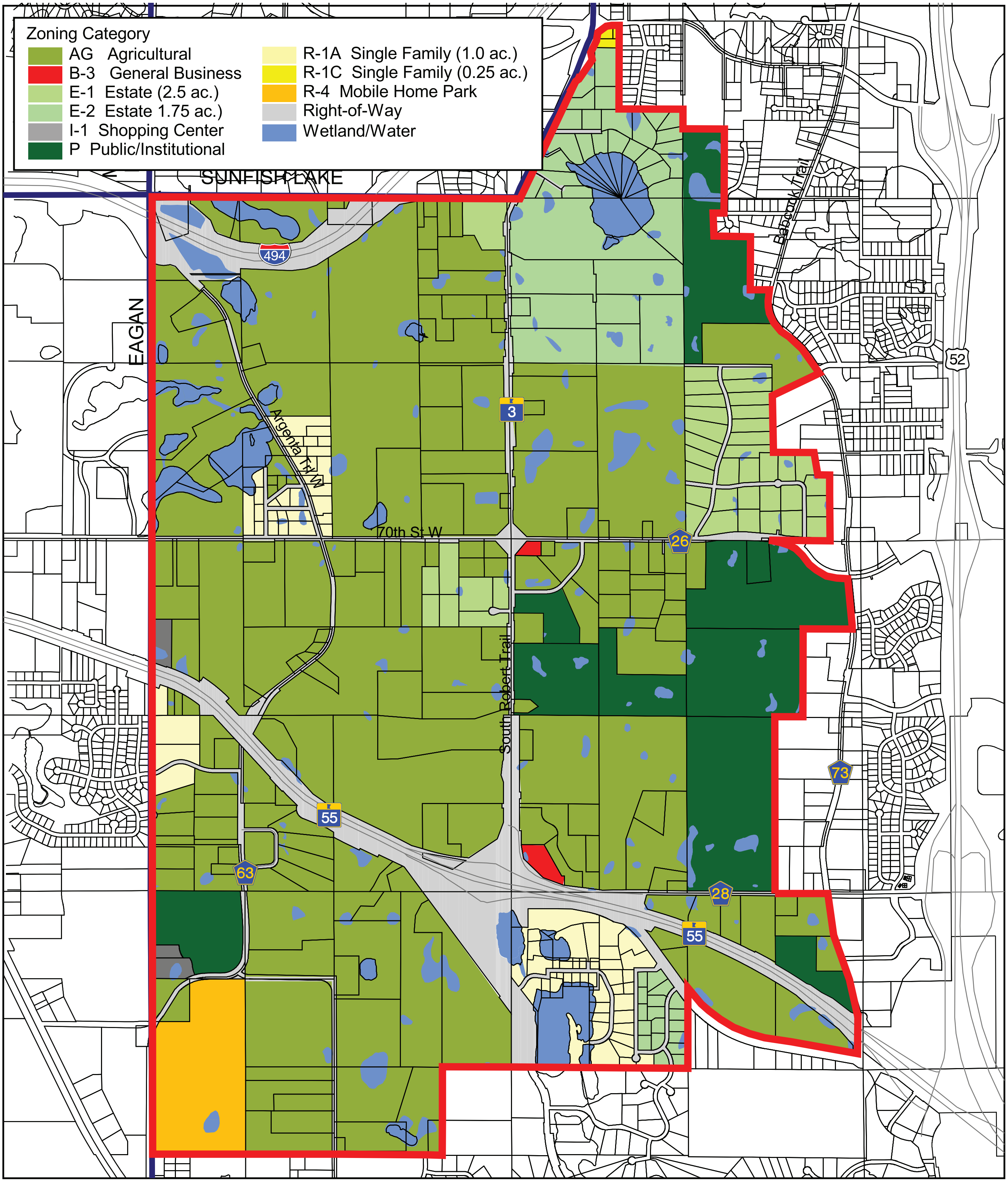
Project Boundary
City Limits
Parcel Base Map



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City of Inver Grove Heights

Northwest Expansion Area AUAR

EXISTING ZONING

Figure 5-4

March 2005
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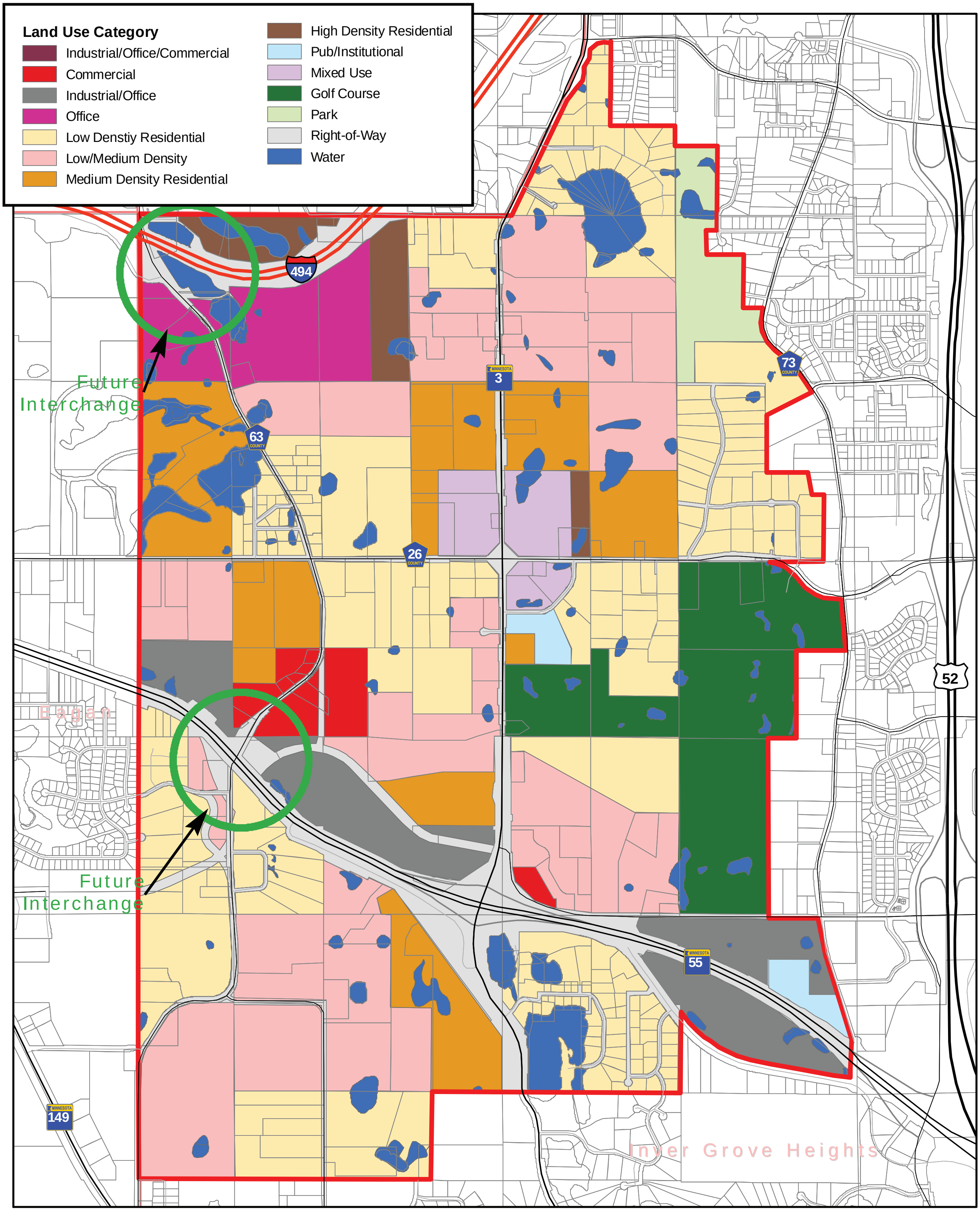


URS

City of Inver Grove Heights

Northwest Expansion Area AUAR

Feet

0 2,000 4,000

August 2007

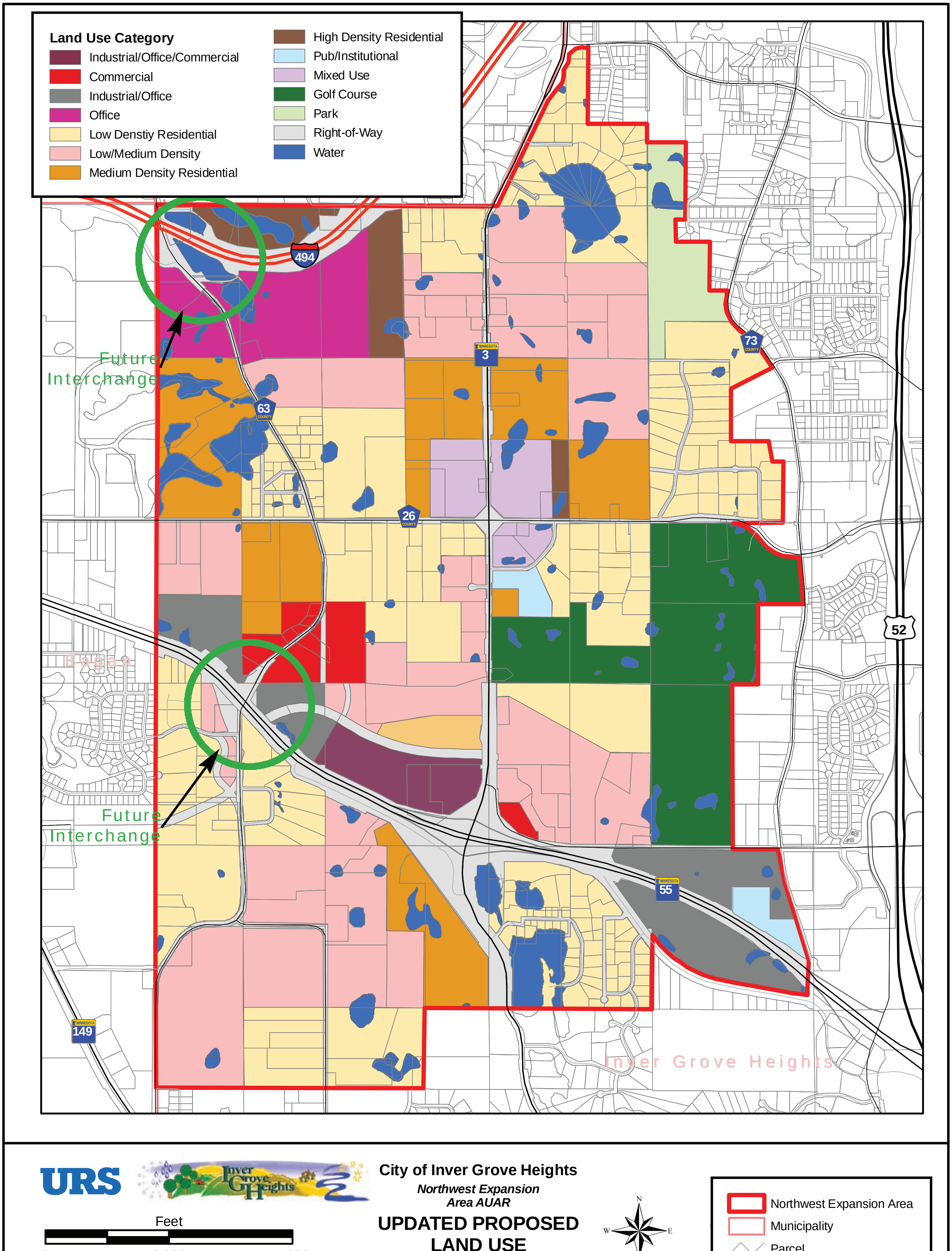
PROPOSED LAND USE

Figure 5-5

N W E S

Northwest Expansion Area
Municipality
Parcel

URS Corporation N:\31809970\projects\prop_LU.mxd Date: 8/9/2007 2:26:43 PM



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URS

Inver Grove Heights

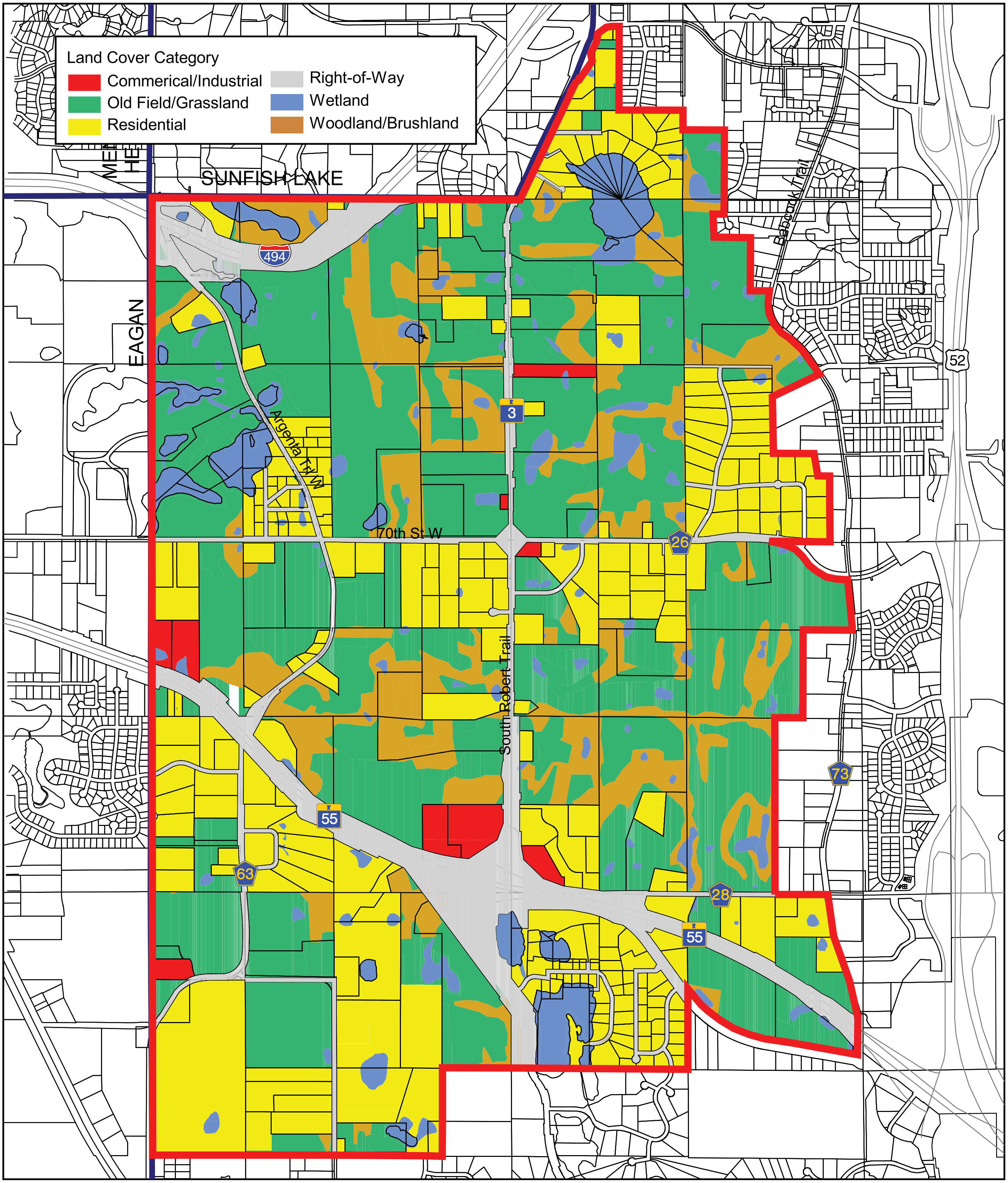
City of Inver Grove Heights

Northwest Expansion Area AUAR

UPDATED PROPOSED LAND USE

August 2007

Figure 5-5A



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Feet
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March 2005
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City of Inver Grove Heights

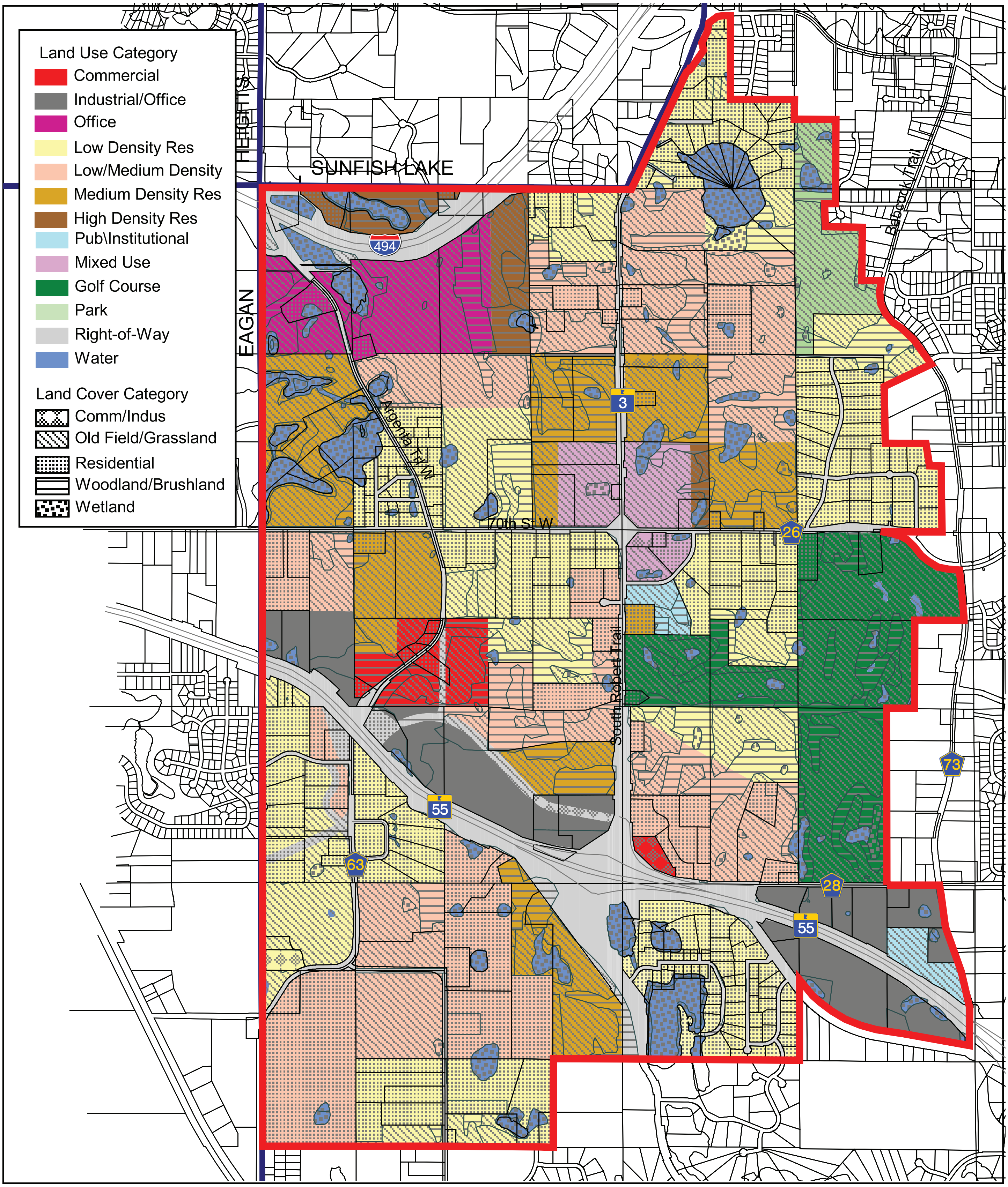
Northwest Expansion Area AUAR

LAND COVER

Figure 10-1

N
W E
S

Project Boundary
City Limits



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City of Inver Grove Heights

Northwest Expansion Area AUAR

LAND COVER AND PROPOSED LAND USE

Figure 10-2

Feet
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March 2005
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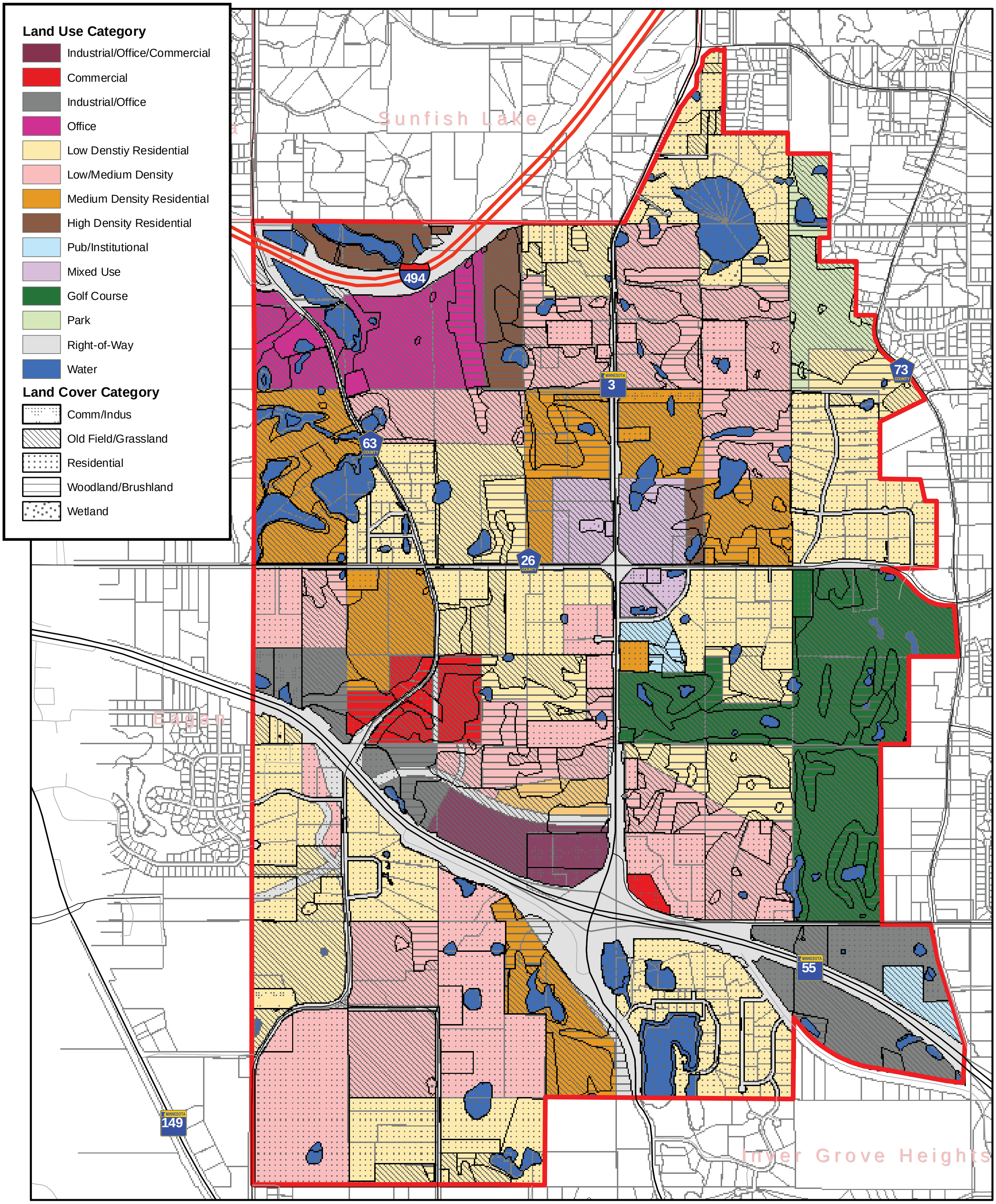
N W E S

Project Boundary
City Limits



URS

City of Inver Grove Heights

Northwest Expansion Area AUAR

LANDCOVER AND UPDATED PROPOSED LAND USE

Figure 10-2A

Feet

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August 2007

N
W E
S

Northwest Expansion Area
Municipality
Parcel

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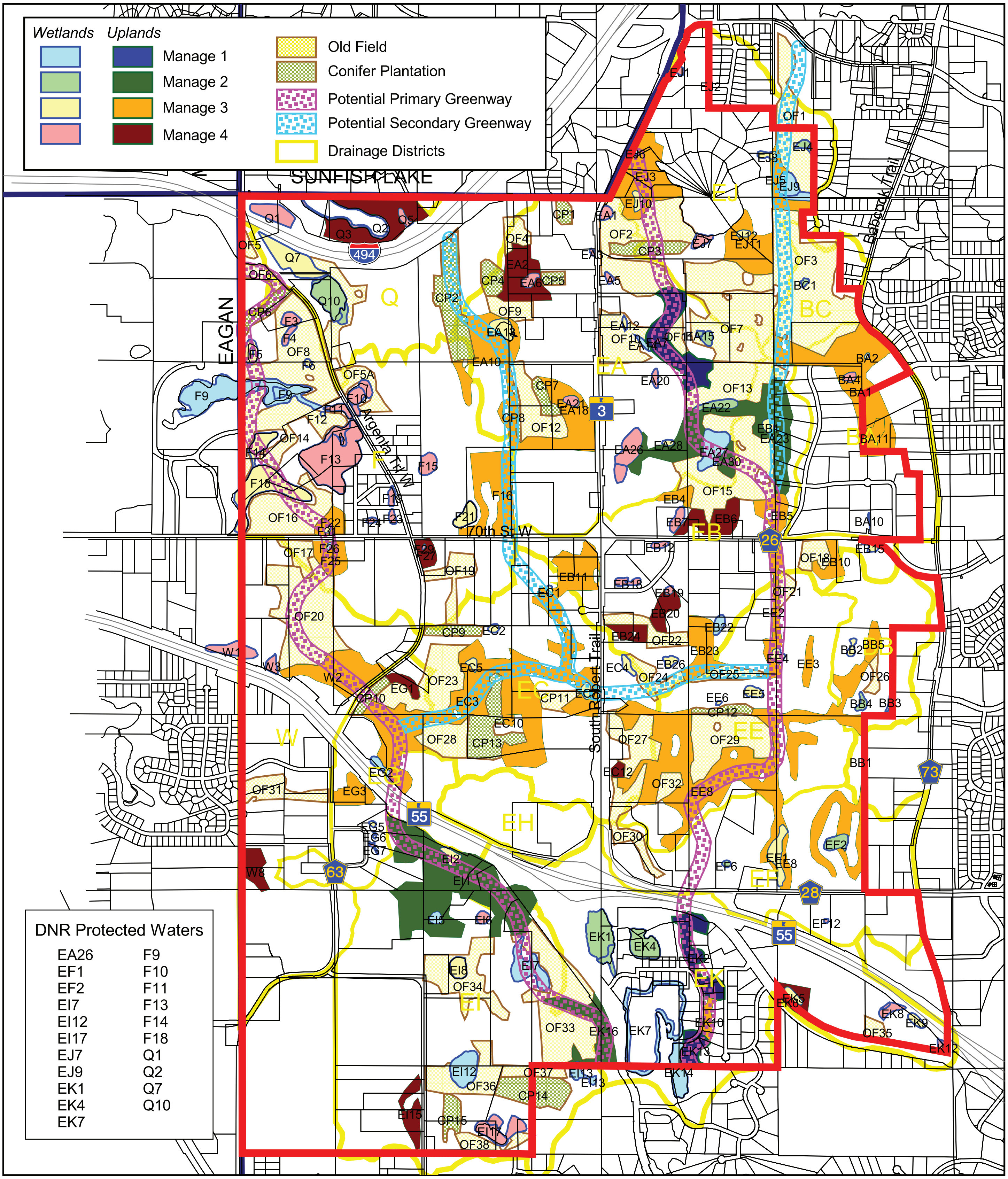

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City of Inver Grove Heights

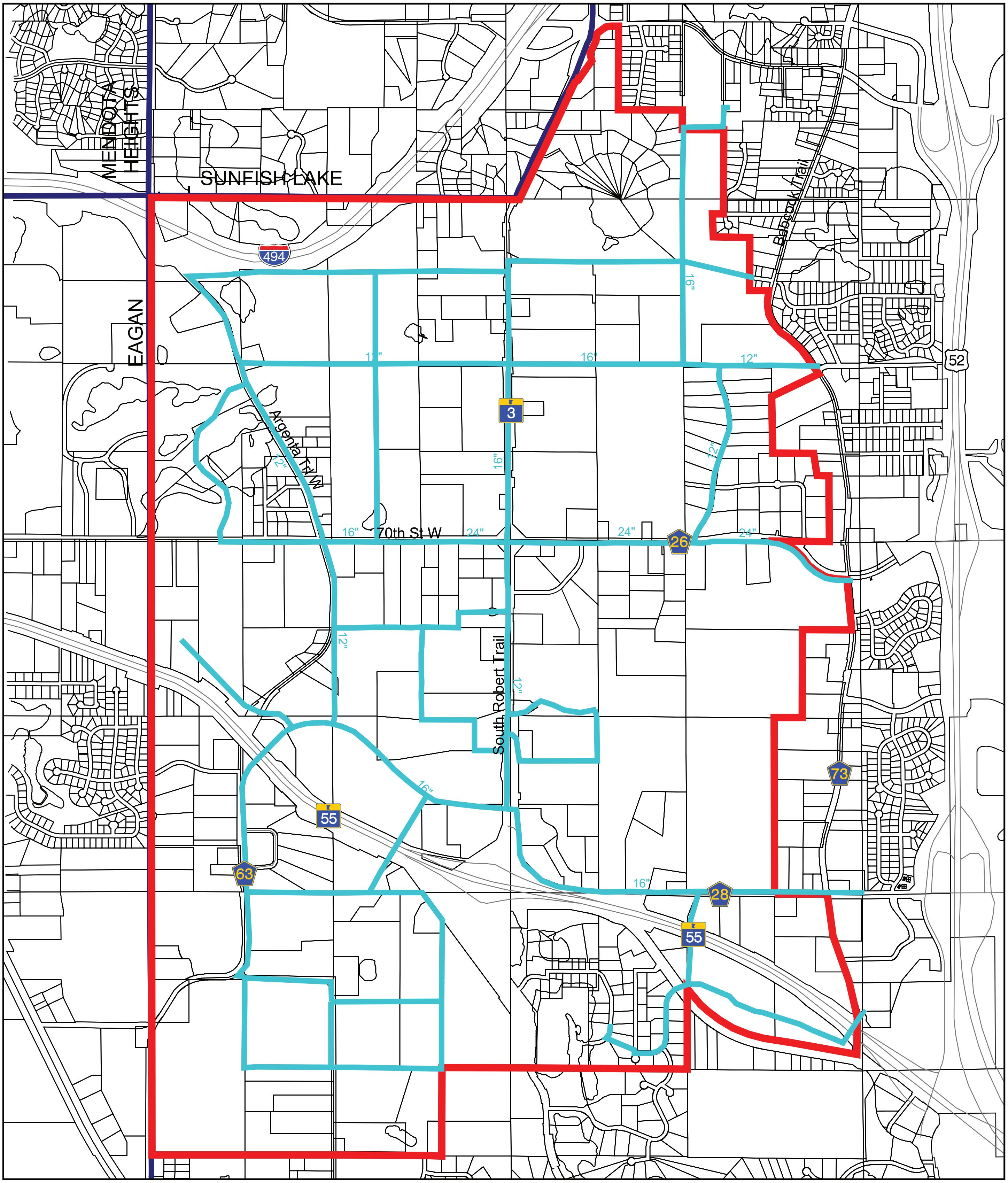
Northwest Expansion Area AUAR

Wetland and Upland Management Classification

Figure 10-3

N W E S

Project Boundary
City Limits
Parcel Base Map



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City of Inver Grove Heights

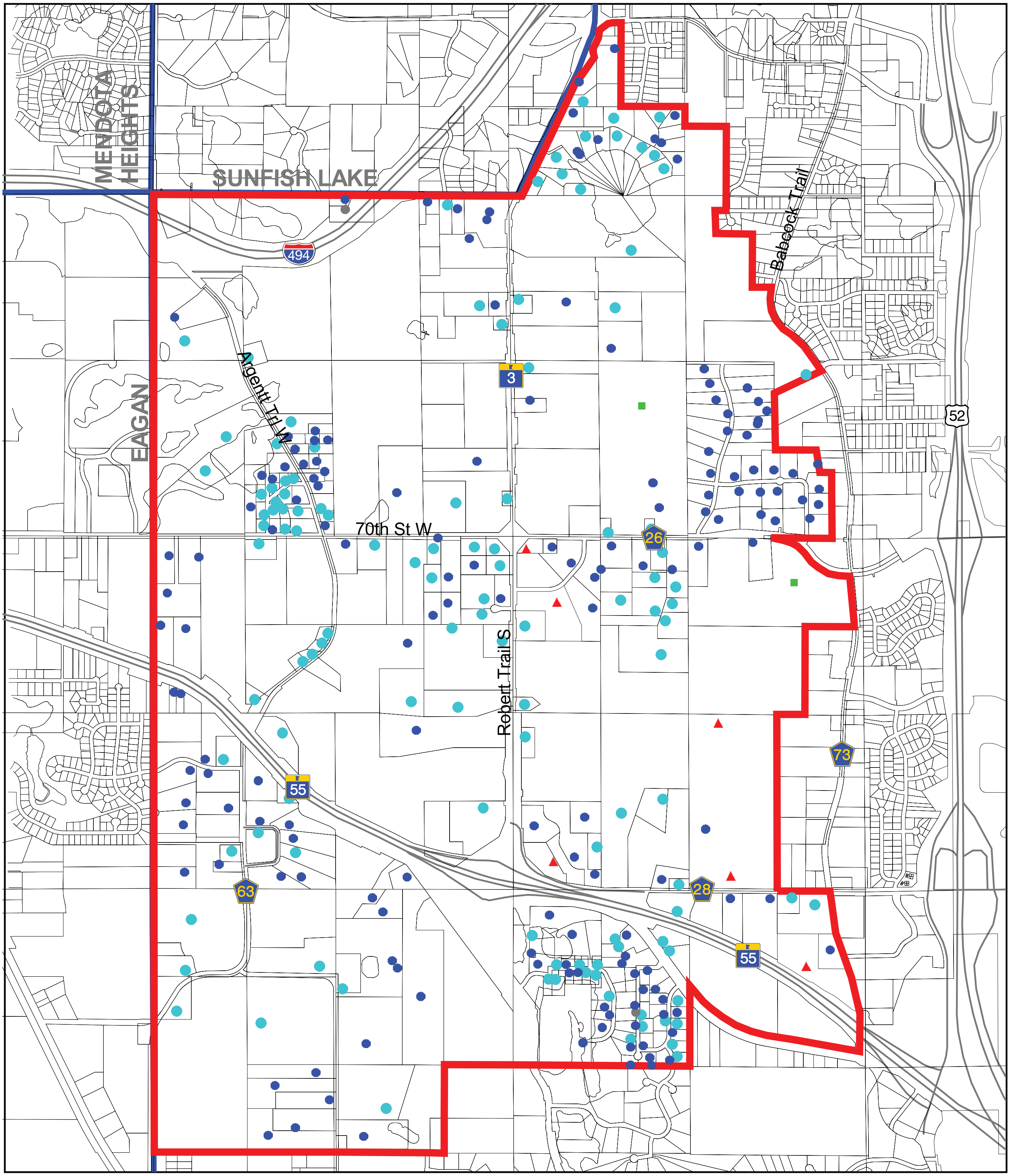
Northwest Expansion Area AUAR

TRUNK WATER SUPPLY

Figure 13-1

N W E S

Proposed Water Main
Project Boundary
City Limits



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Engineers & Architects

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City of Inver Grove Heights

Northwest Expansion Area AUAR

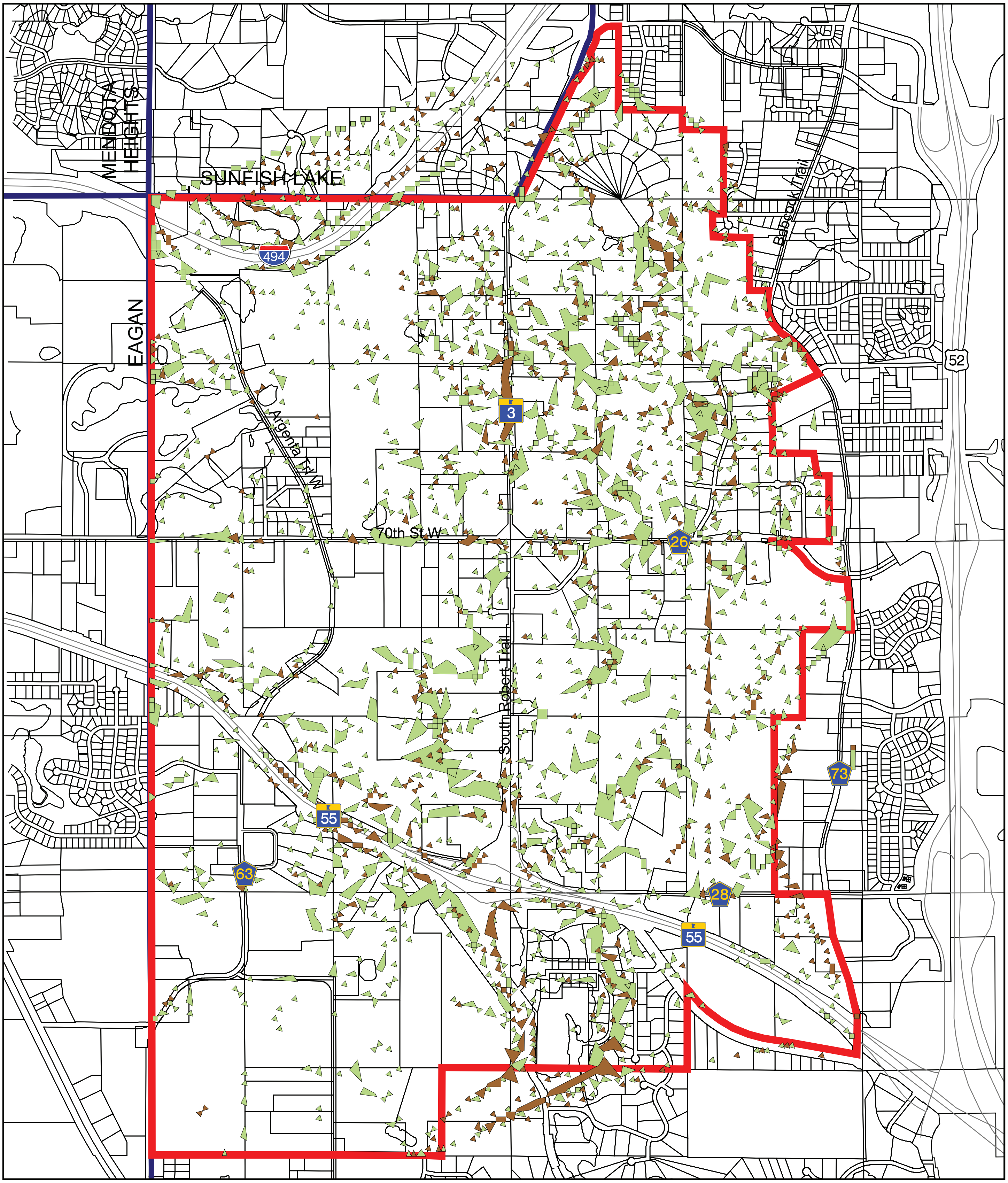
POSSIBLE WELL LOCATIONS

Figure 13-2

N W E S

County Well Index
- Domestic
- Irrigation
- Public supply, non-community, transient
- Unknown use
- Assumed Well Sites
- Project Boundary
- City Boundary
- Parcel Base Map

March 2005

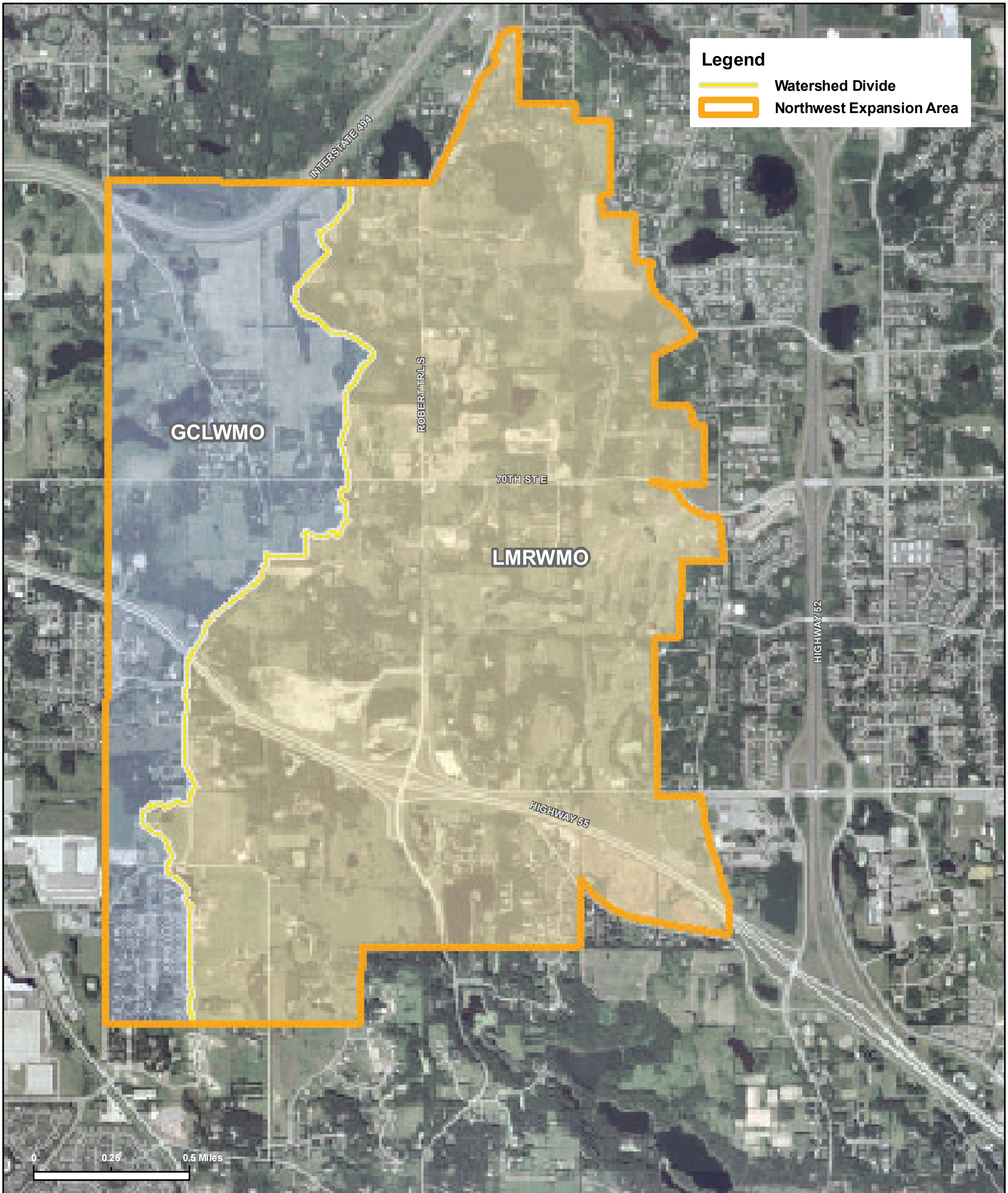


City of Inver Grove Heights

Northwest Expansion Area AUAR

STEEP SLOPES

Figure 16-1

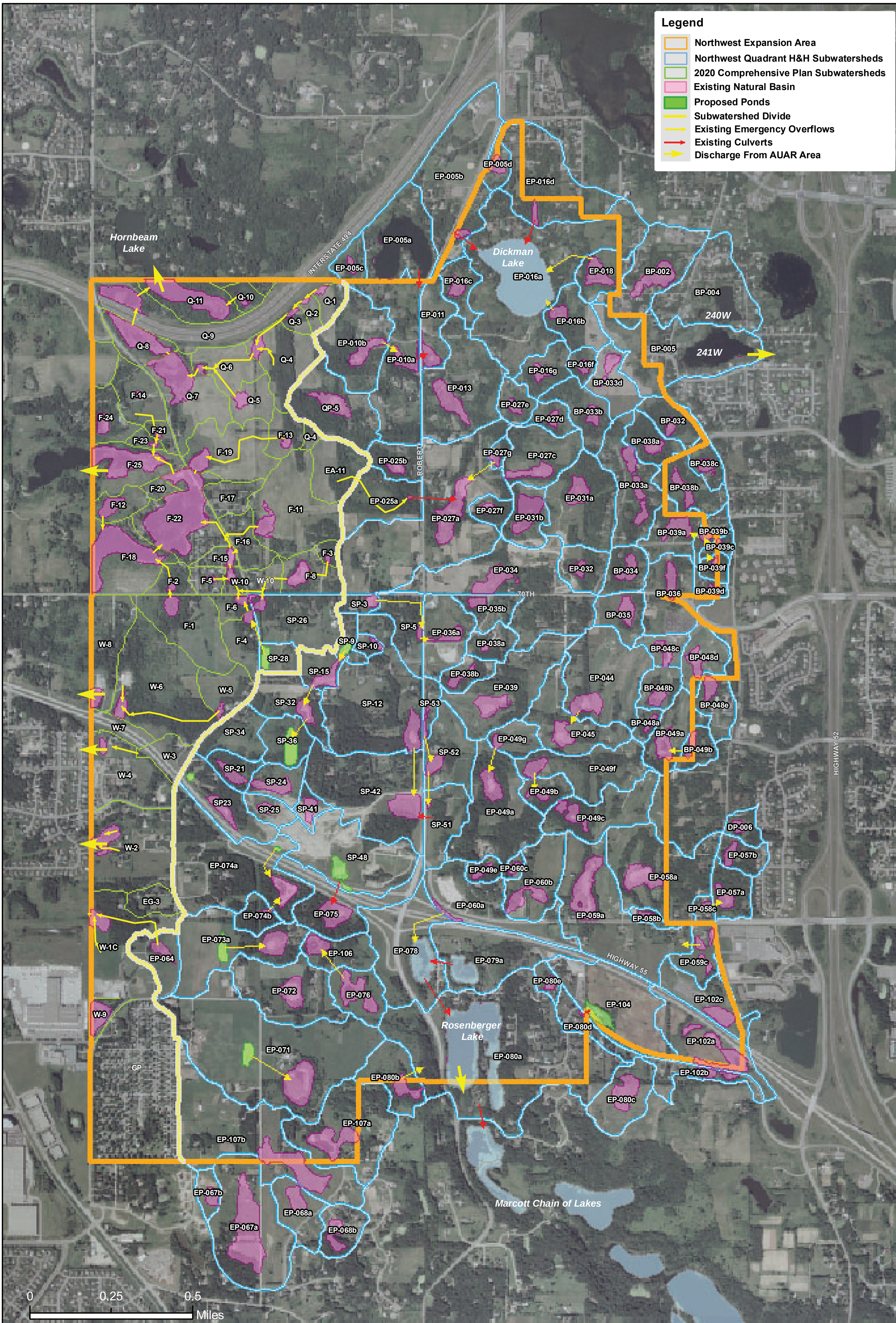


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area
Watershed Setting

N

Figure 17.1

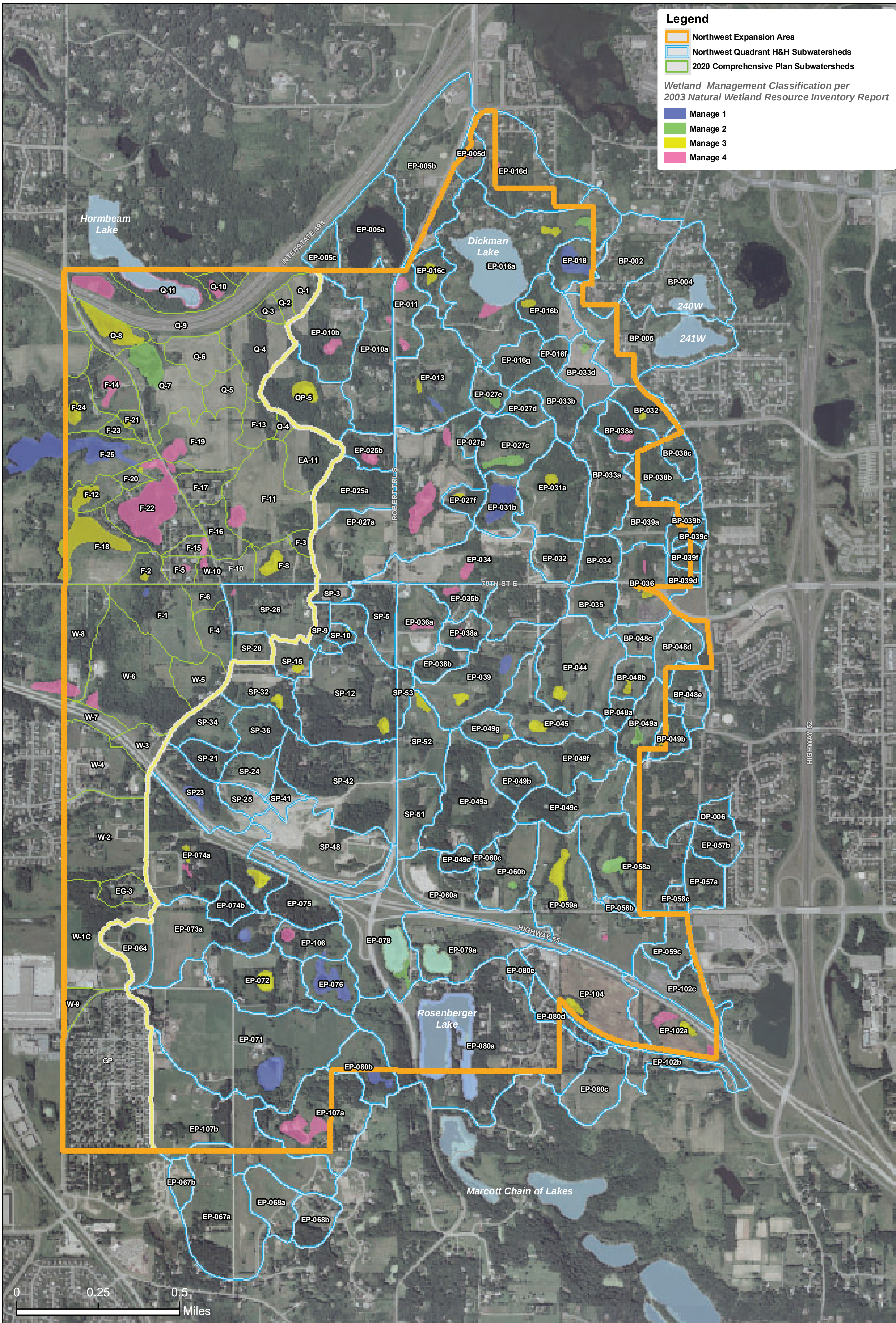


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area Subwatershed Boundary Map

N

Figure 17.2

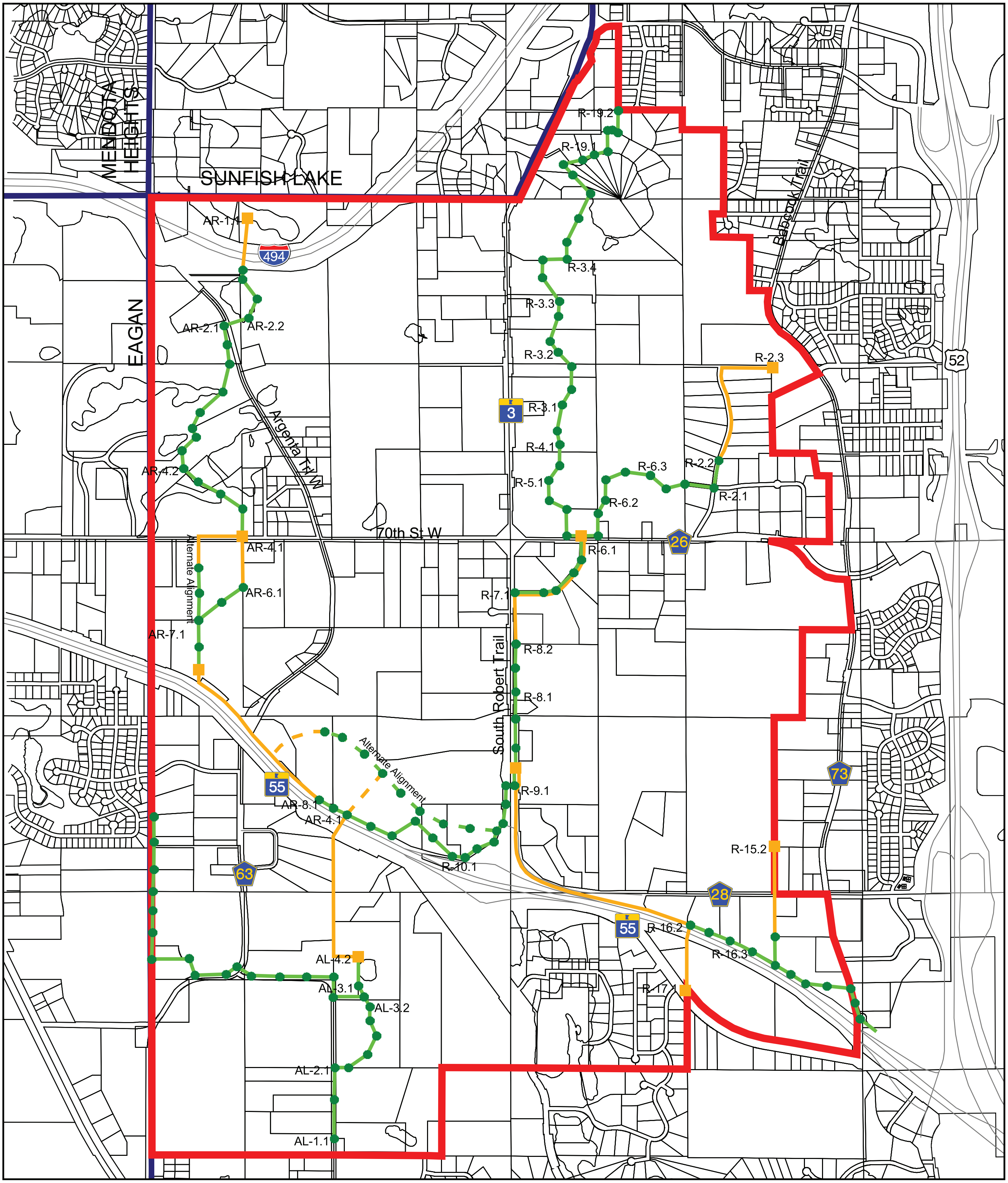


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area
Wetland Management Classification

N

Figure 17.3



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Engineers & Architects

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City of Inver Grove Heights

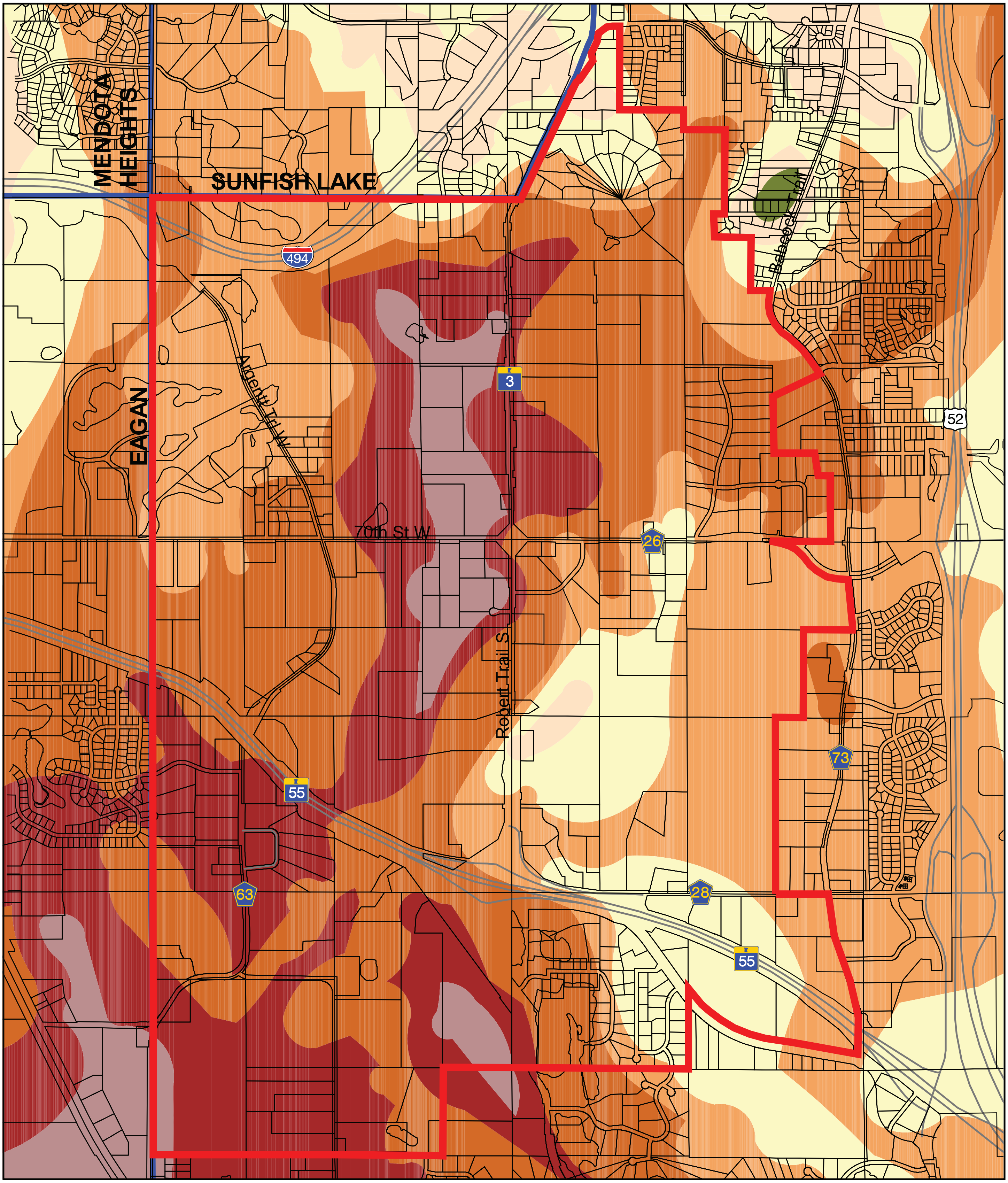
Northwest Expansion Area AUAR

SANITARY SEWER SYSTEM

Figure 18-1

N W E S

- Proposed Manhole
- Proposed Lift Station
- Proposed Sanitary Pipe
- Proposed Forcemain
- Project Boundary
- City Limits



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

N
W E
S

Feet

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Inver Grove Heights

Northwest Expansion Area AUAR

DEPTH TO BEDROCK

Figure 19-1

Depth to Bedrock

0-50	301-350	Study Area Boundary
101-150	351-400	City Boundary
151-200	401-500	Parcel Base Map
201-250	51-100	
251-300	Over_500	

March 2005
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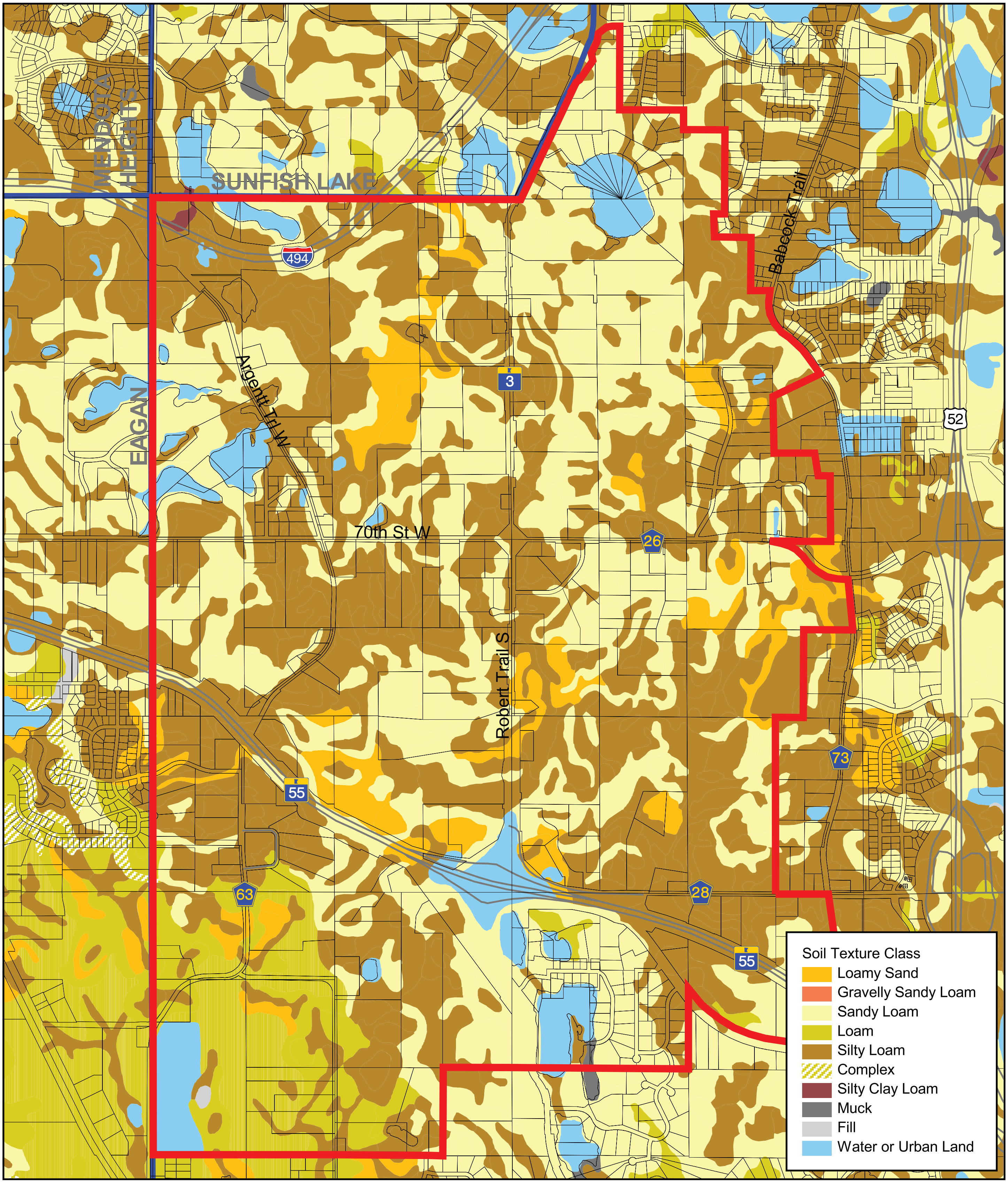

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Engineers & Architects

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March 2005
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City of Inver Grove Heights

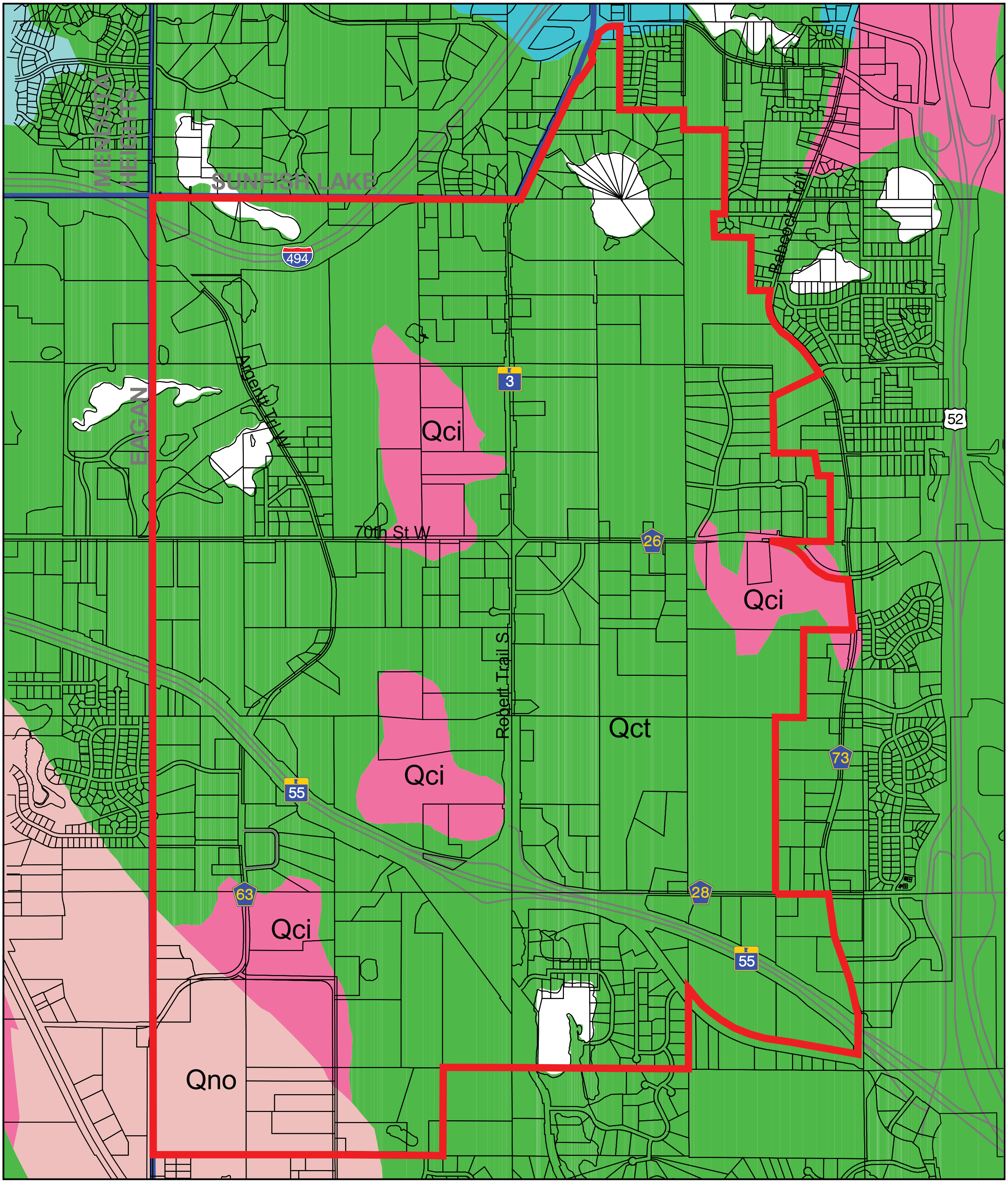
Northwest Expansion Area AUAR

SOILS

Figure 19-3

N W E S

Project Boundary
City Boundary
Parcel Base Map



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Engineers & Architects

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March 2005
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City of Inver Grove Heights

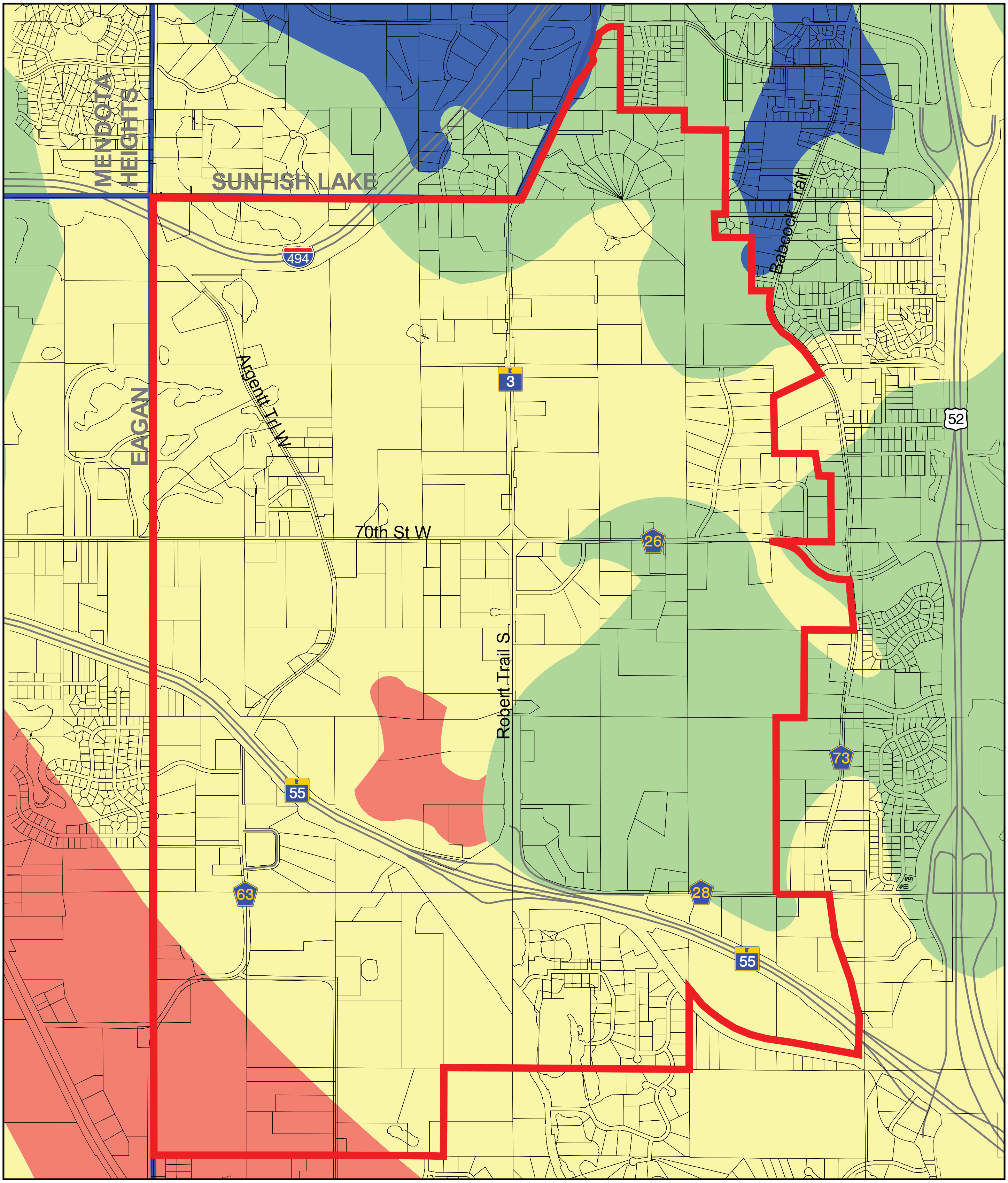
Northwest Expansion Area AUAR

SURFICIAL GEOLOGY

Figure 19-4

N
W E
S

Surficial Geology
- Qcl - Lake sand and silt, Cromwell Fm.
- Qco - Outwash, Cromwell Fm.
- Qci - Ice-contact deposits, Cromwell Fm.
- Qct - Till, Cromwell Fm.
- Project Boundary
- City Boundary
- Parcel Base Map



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

Feet

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March 2005

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City of Inver Grove Heights

Northwest Expansion Area AUAR

SENSITIVITY TO AQUIFER

Figure 19-5

N W E S

Sensitivity Ratings
- Moderate
- High/Moderate
- Low/Moderate
- Very Low

- Project Boundary
- City Boundary
- Parcel Base Map

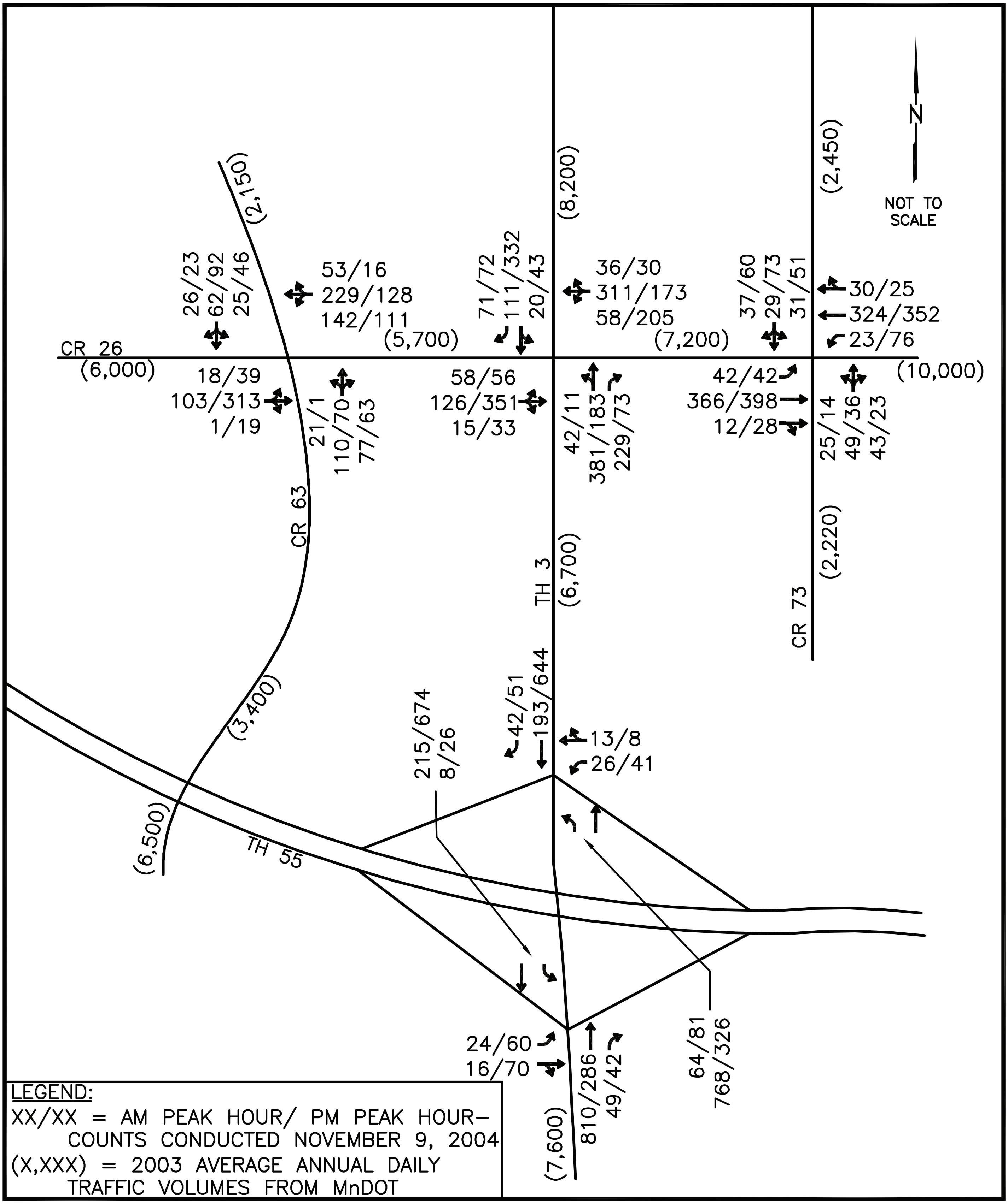

FIGURE 21–2

EXISTING GEOMETRY AND TRAFFIC VOLUMES
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

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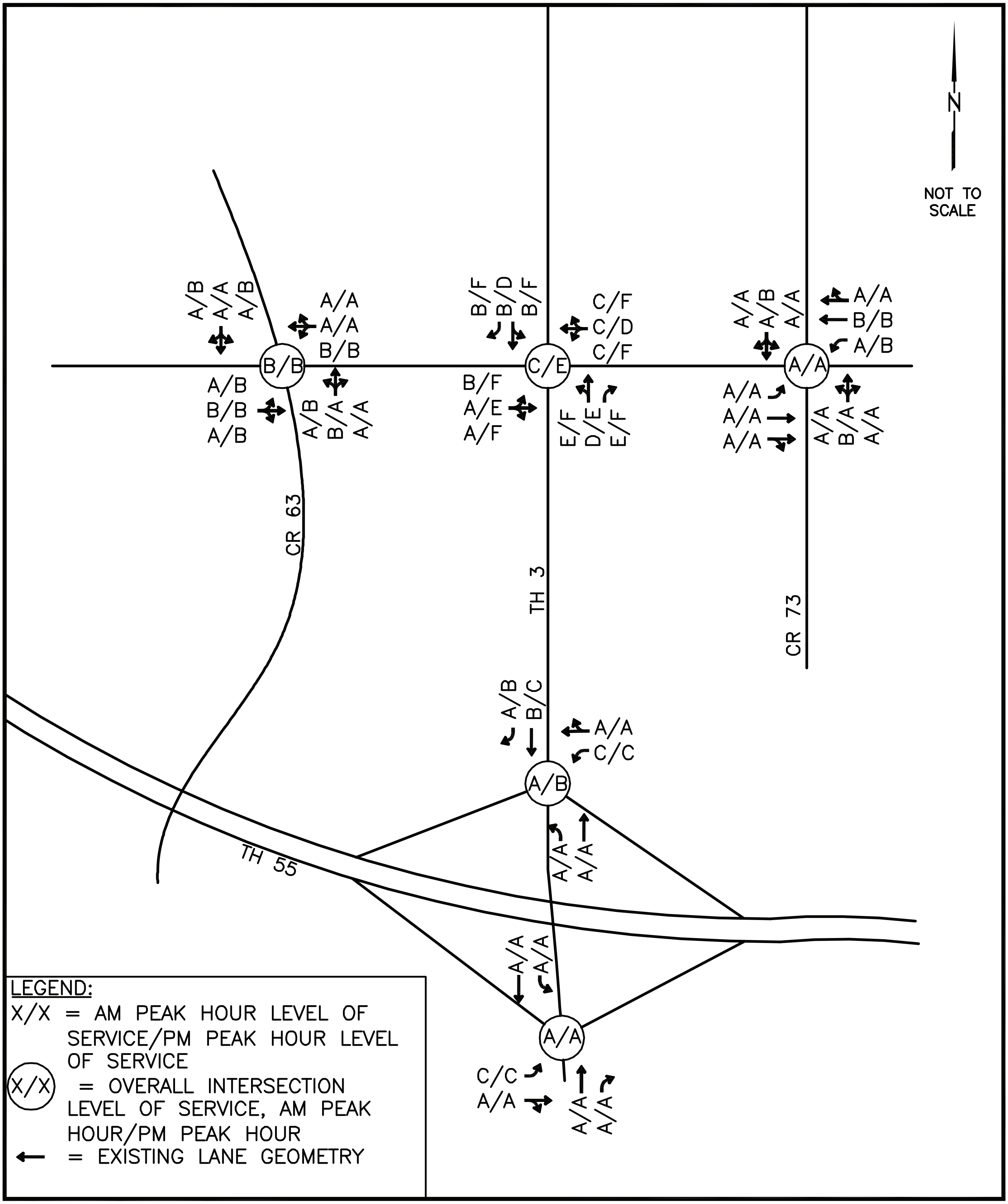

FIGURE 21–3

EXISTING CONDITIONS LEVEL OF SERVICE
INVER GROVE HEIGHTS AUAR

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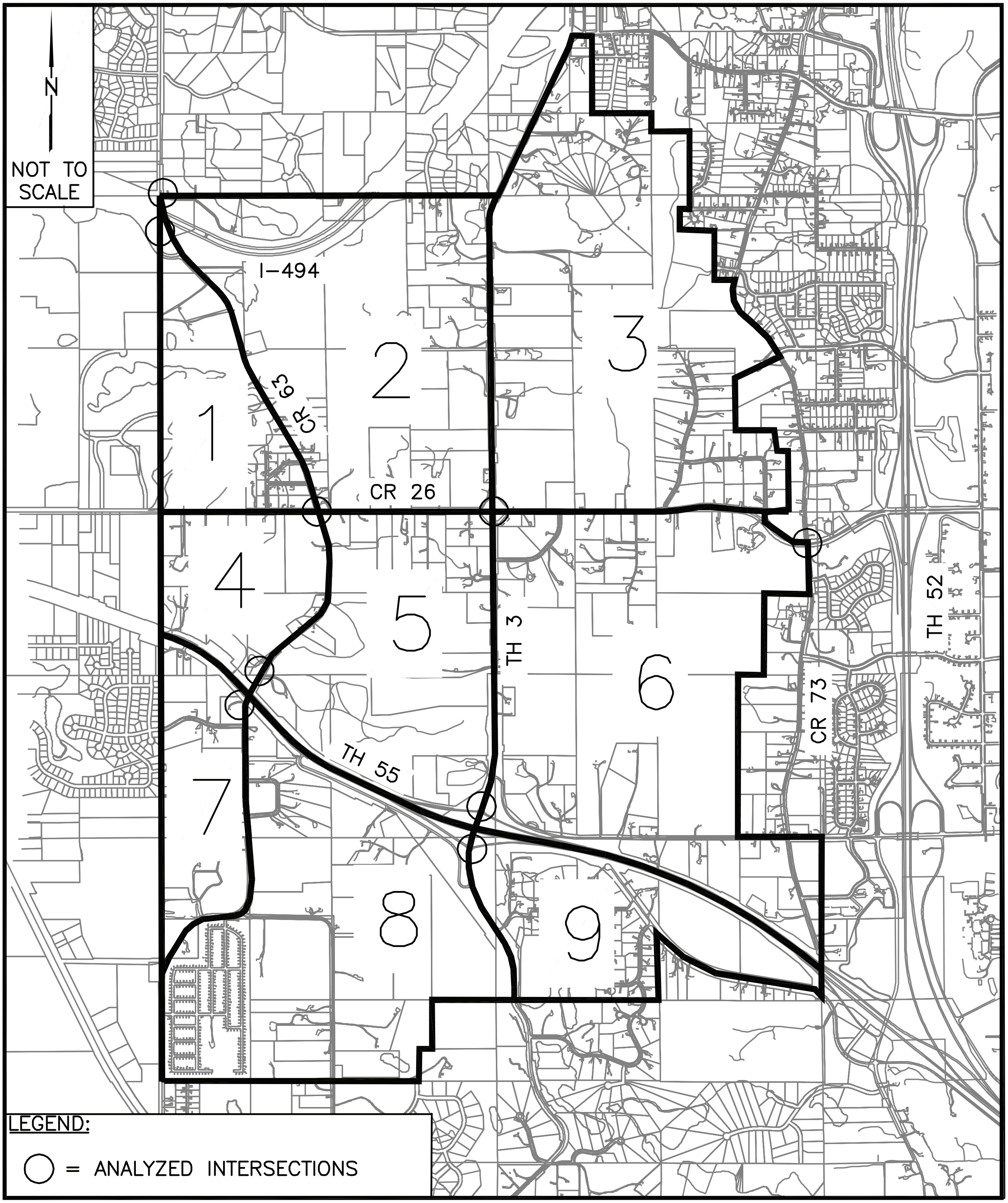

FIGURE 21-4

TRAFFIC ANALYSIS ZONES
INVER GROVE HEIGHTS AUAR

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Rosene
Anderlik &
Associates
Engineers & Architects

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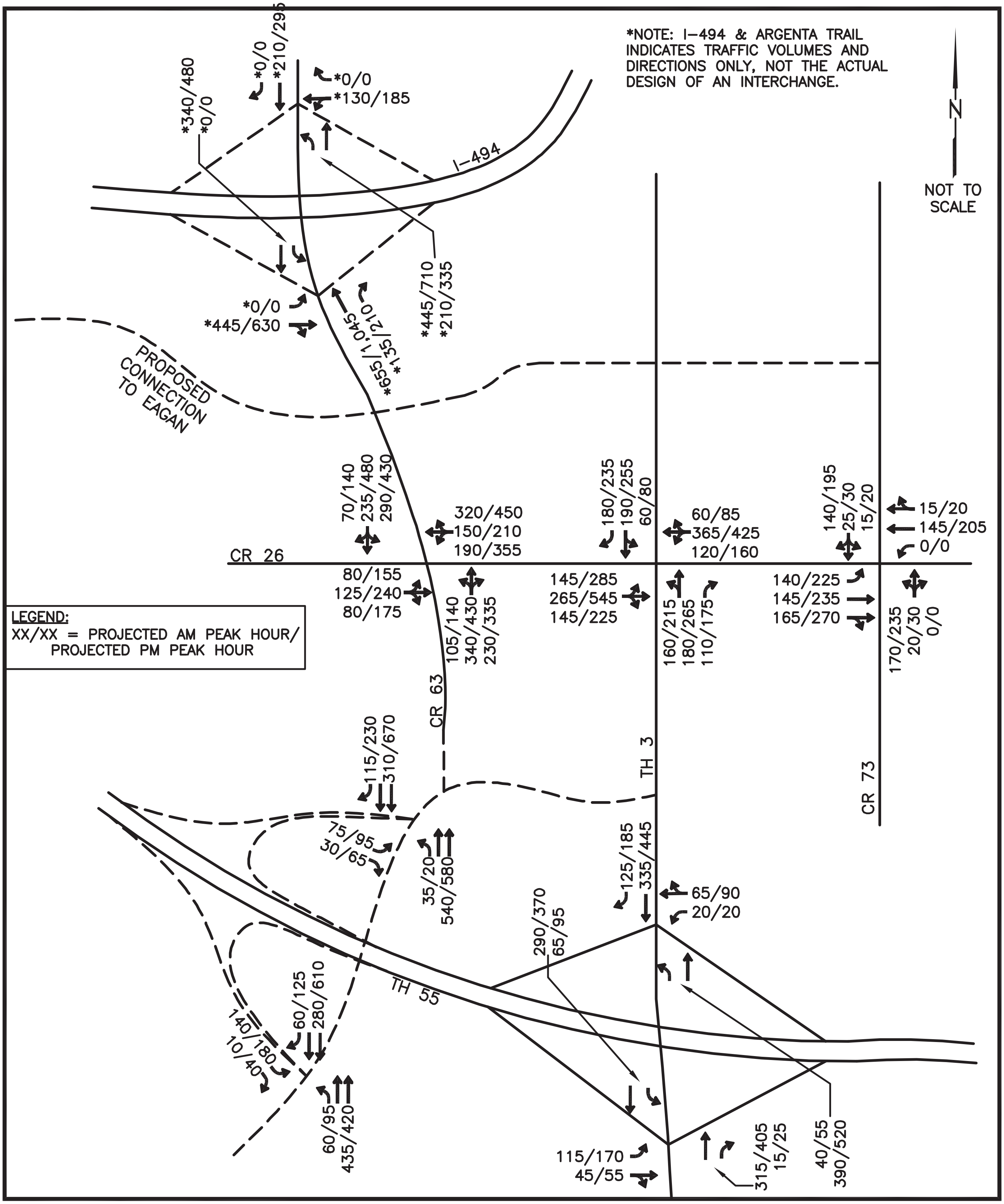

FIGURE 21-5

PROJECTED DEVELOPMENT VOLUMES
INVER GROVE HEIGHTS AUAR

Bonestroo
Rosene
Anderlik &
Associates
Engineers & Architects

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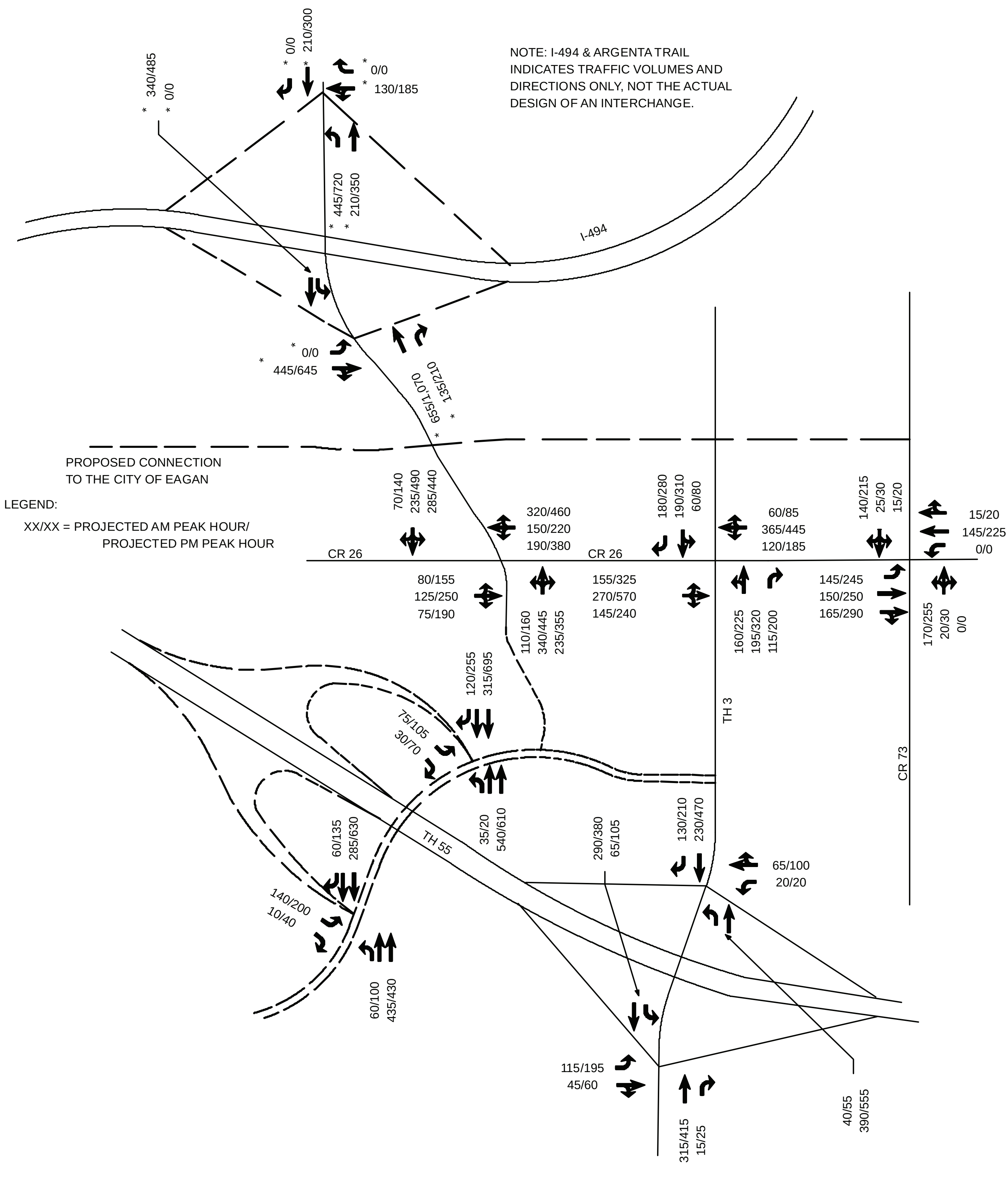

URS Corporation N:\31809970\projects\transportation_5A.mxd Date: 8/15/2007 3:26:55 PM

URS

City of Inver Grove Heights

Northwest Expansion Area AUAR

Updated Projected Development Volumes

Figure 21-5A

August 2007

NOT TO SCALE

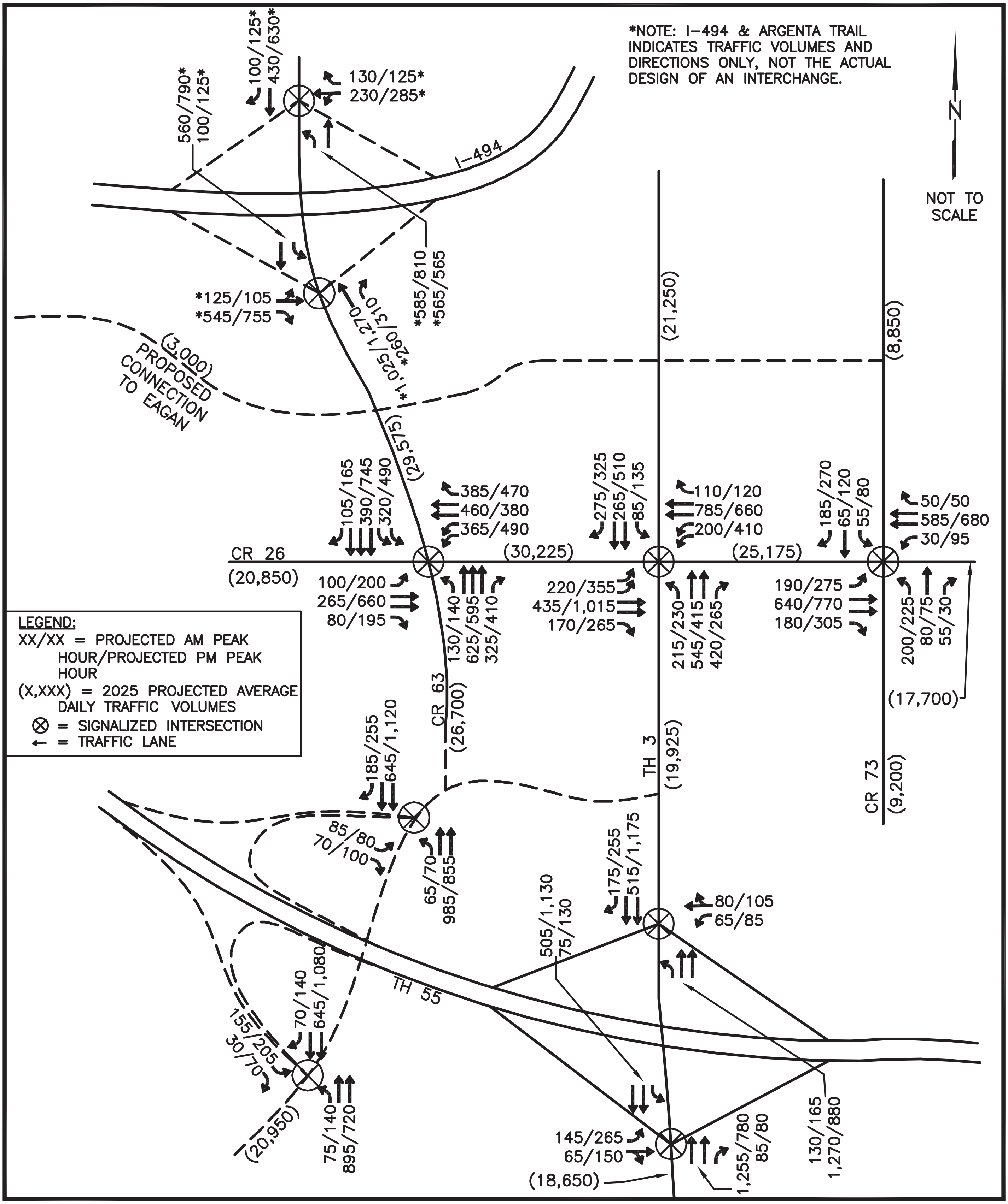

FIGURE 21–6

2025 VOLUMES AND PROPOSED GEOMETRY
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

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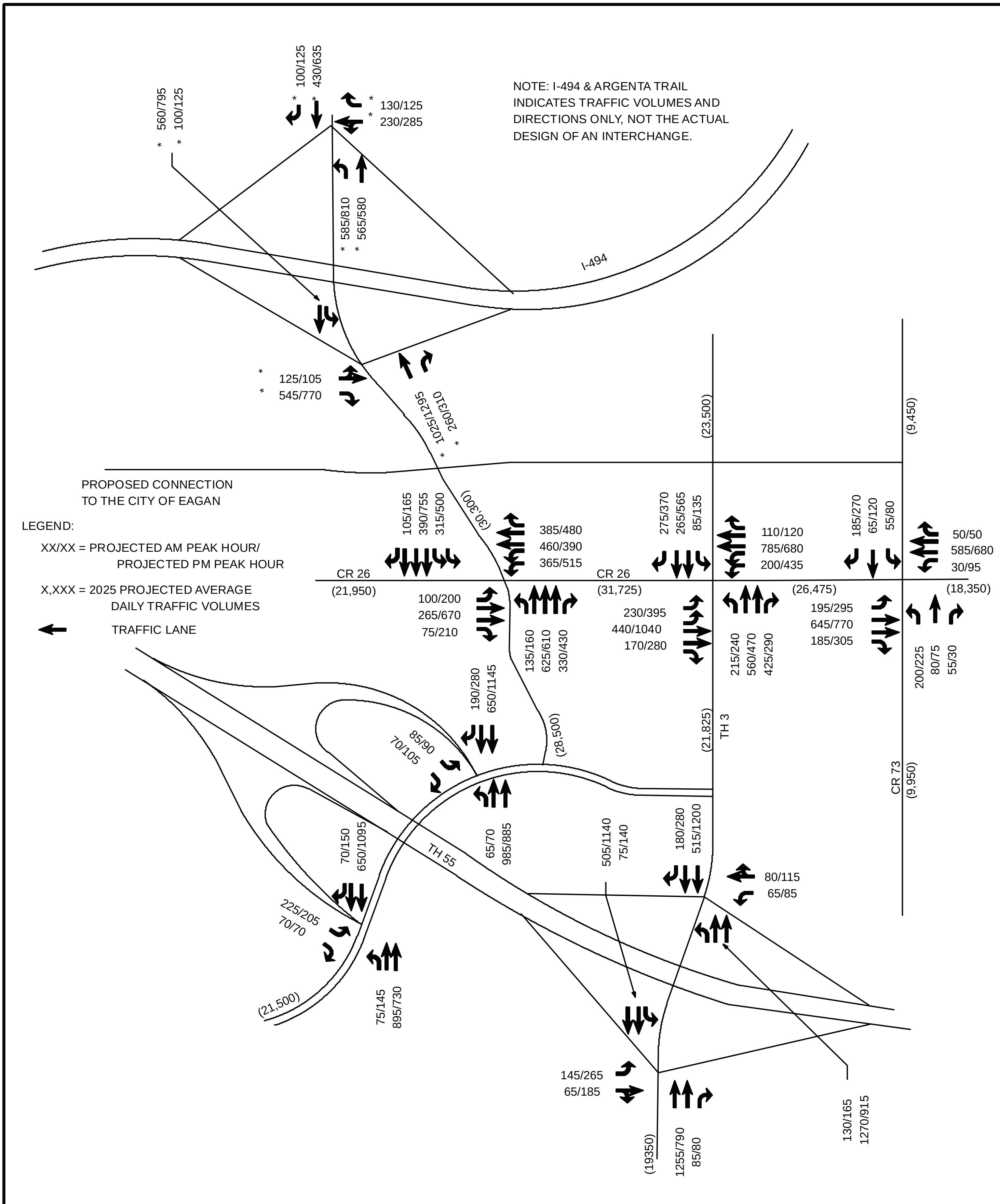


URS

City of Inver Grove Heights

Northwest Expansion Area AUAR

Updated 2025 Volumes & Proposed Geometry

Figure 21-6A

August 2007

NOT TO SCALE

URS Corporation N:\31809970\projects\transportation_6A.mxd Date: 8/15/2007 3:29:34 PM

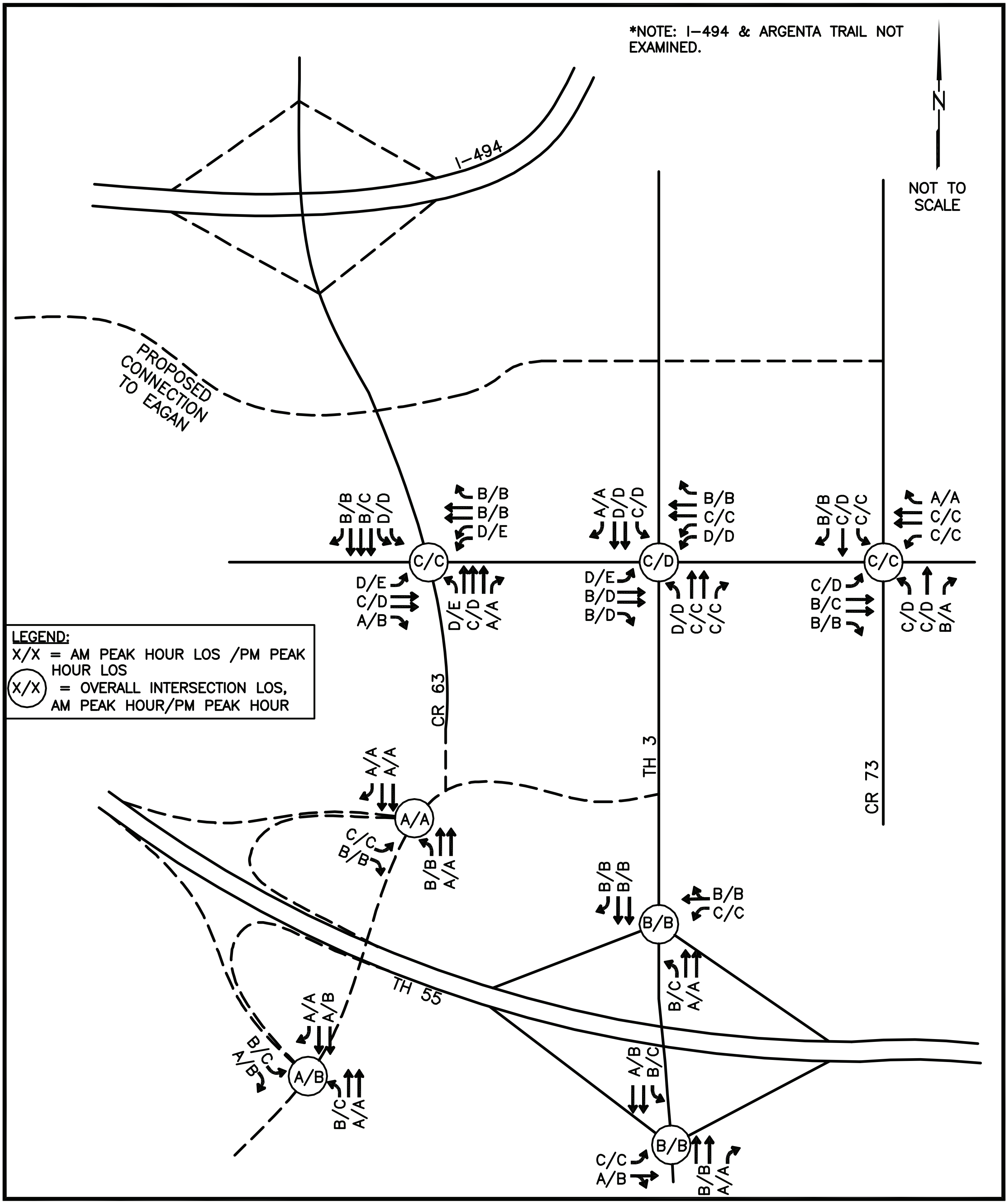


FIGURE 21-7

2025 PROPOSED LEVEL OF SERVICE
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

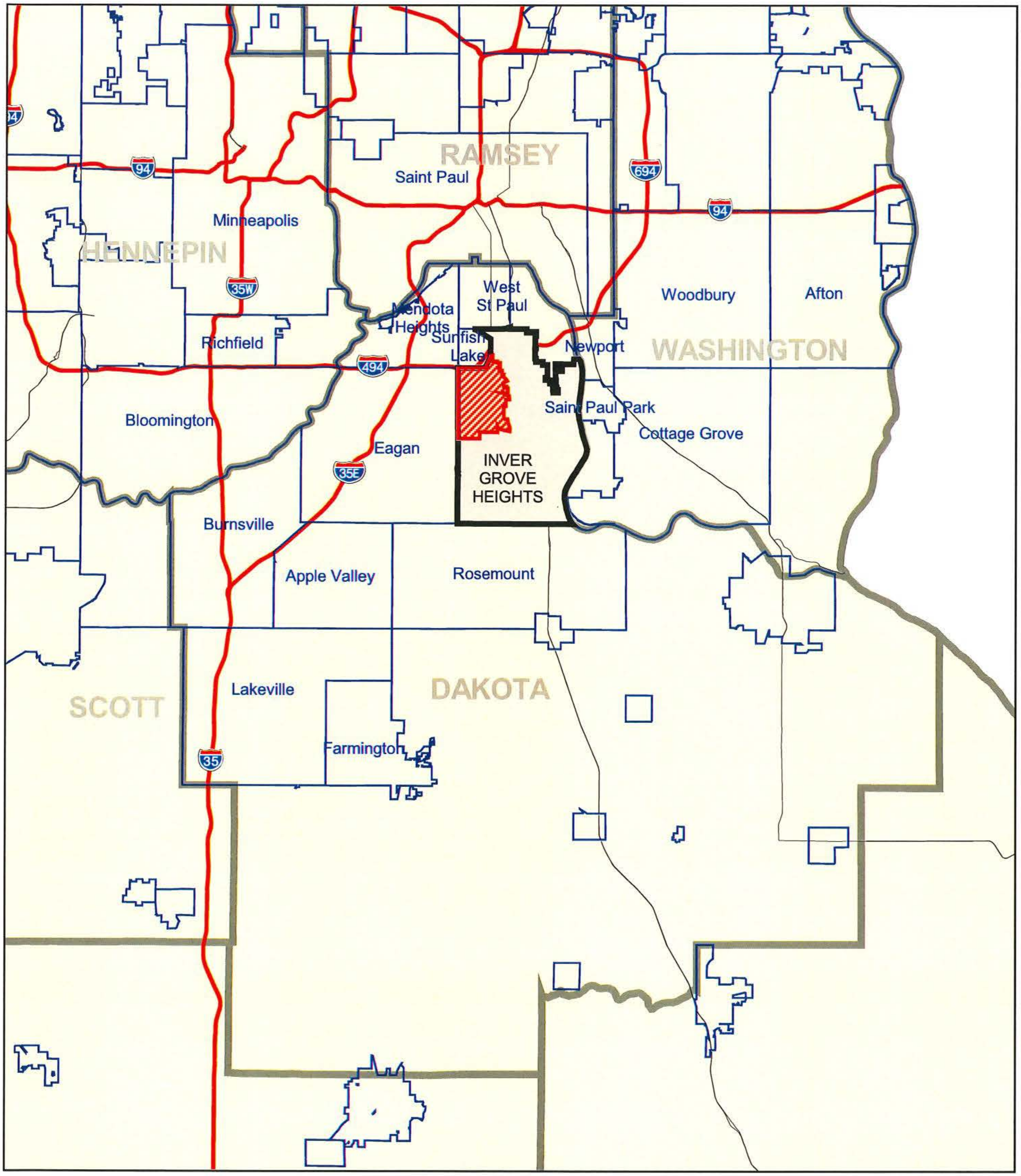
I:\476\47604116\CAD\DWG\REPORT FIGURES1_17_05

FIGURE 25

LOCATIONS INVENTORIED FOR HISTORIC STRUCTURES

(Excerpt from USGS Topographic Quadrangle for Inver Grove Heights, MN)

Appendix E: 2005 AUAR Figures and Attachments



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

Miles

0 5

March 2005

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City of Inver Grove Heights

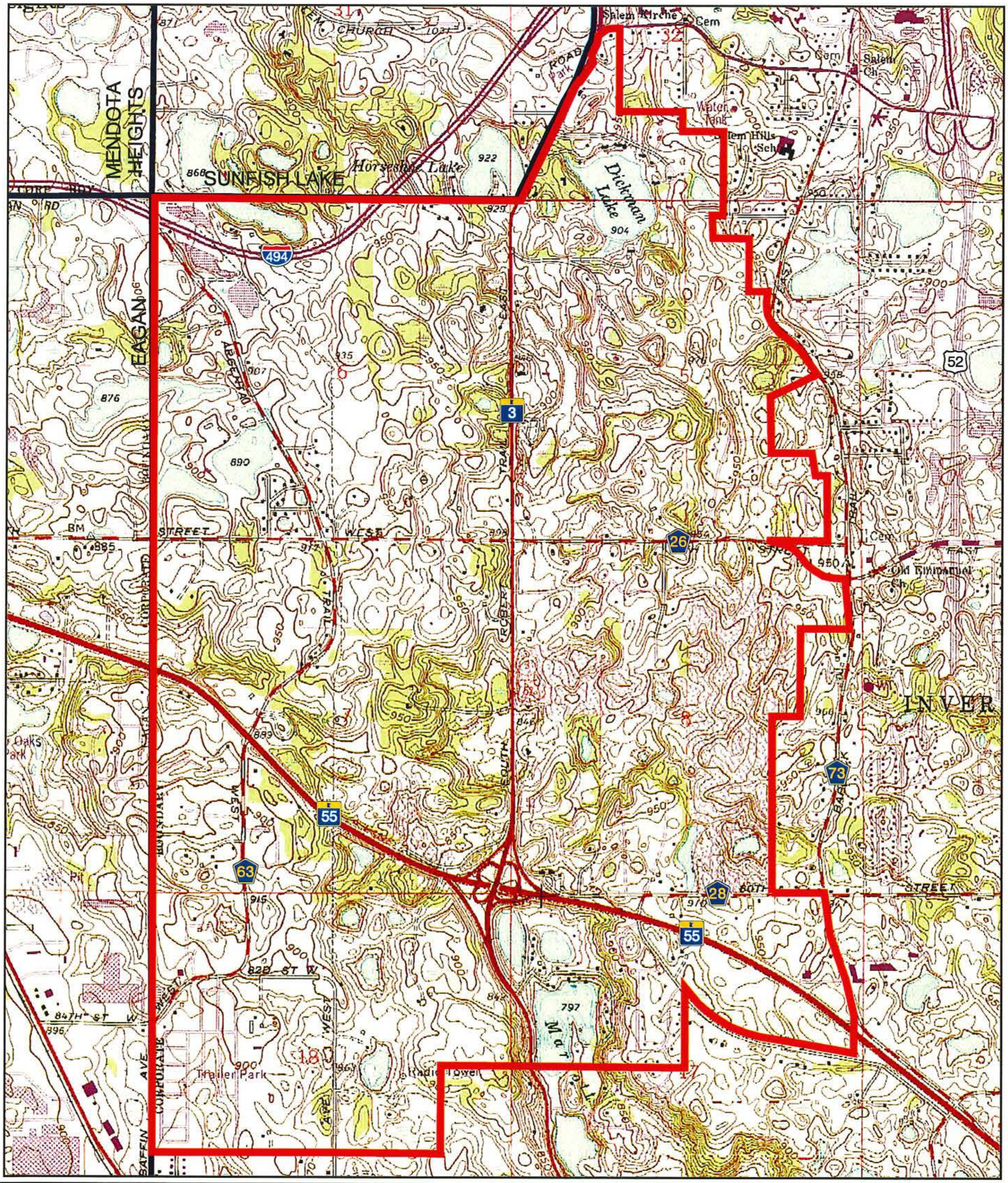
Northwest Expansion Area AUAR

PROJECT LOCATION

Figure 5-1

N W E S

- Project Boundary
- Inver Grove Heights
- County Boundaries



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

City of Inver Grove Heights

Northwest Expansion
Area AUAR

PROJECT BOUNDARY

Figure 5-2

N W E S

Project Boundary
City Limits

Feet
2000 0 2000

March 2005
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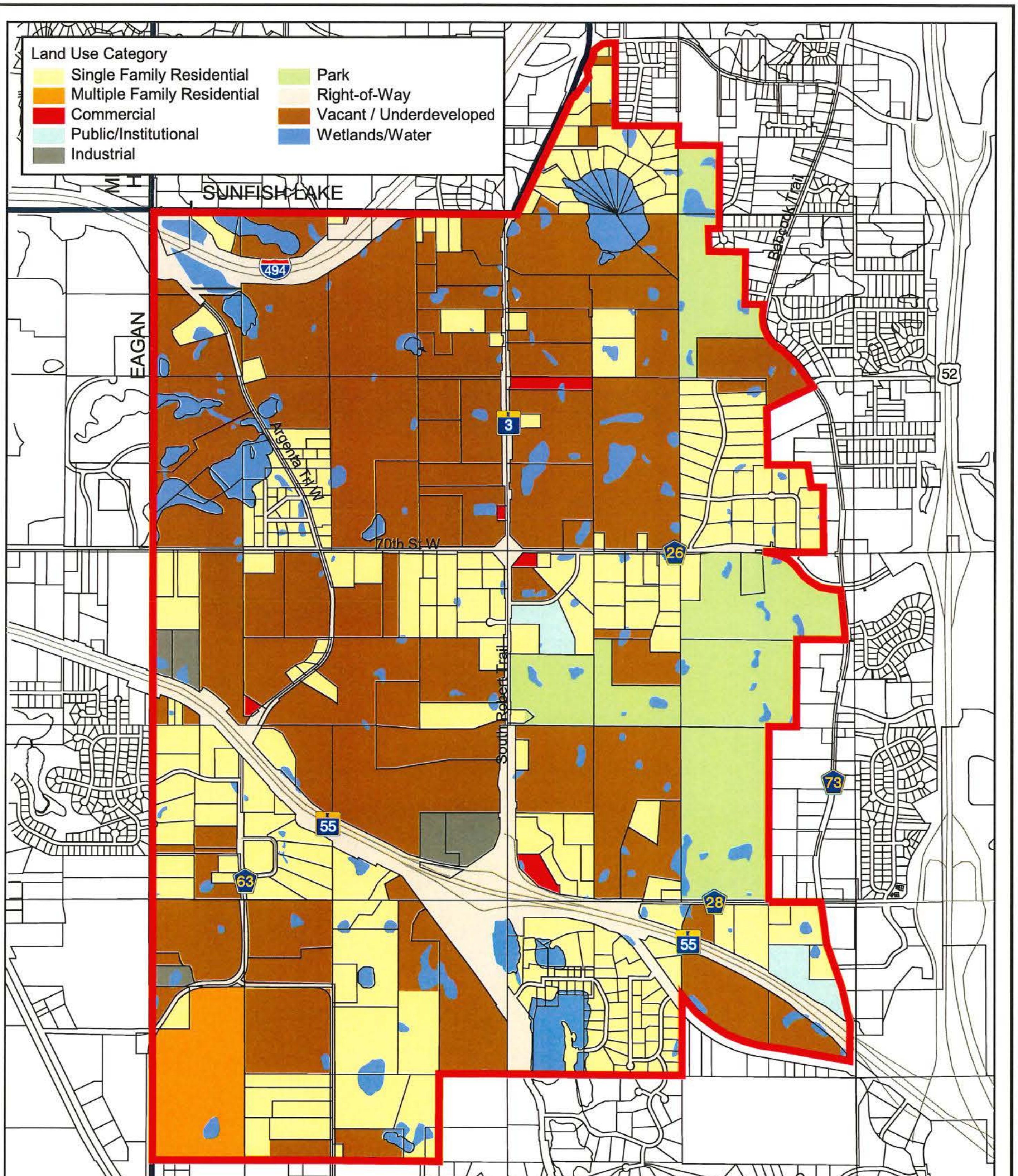

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Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

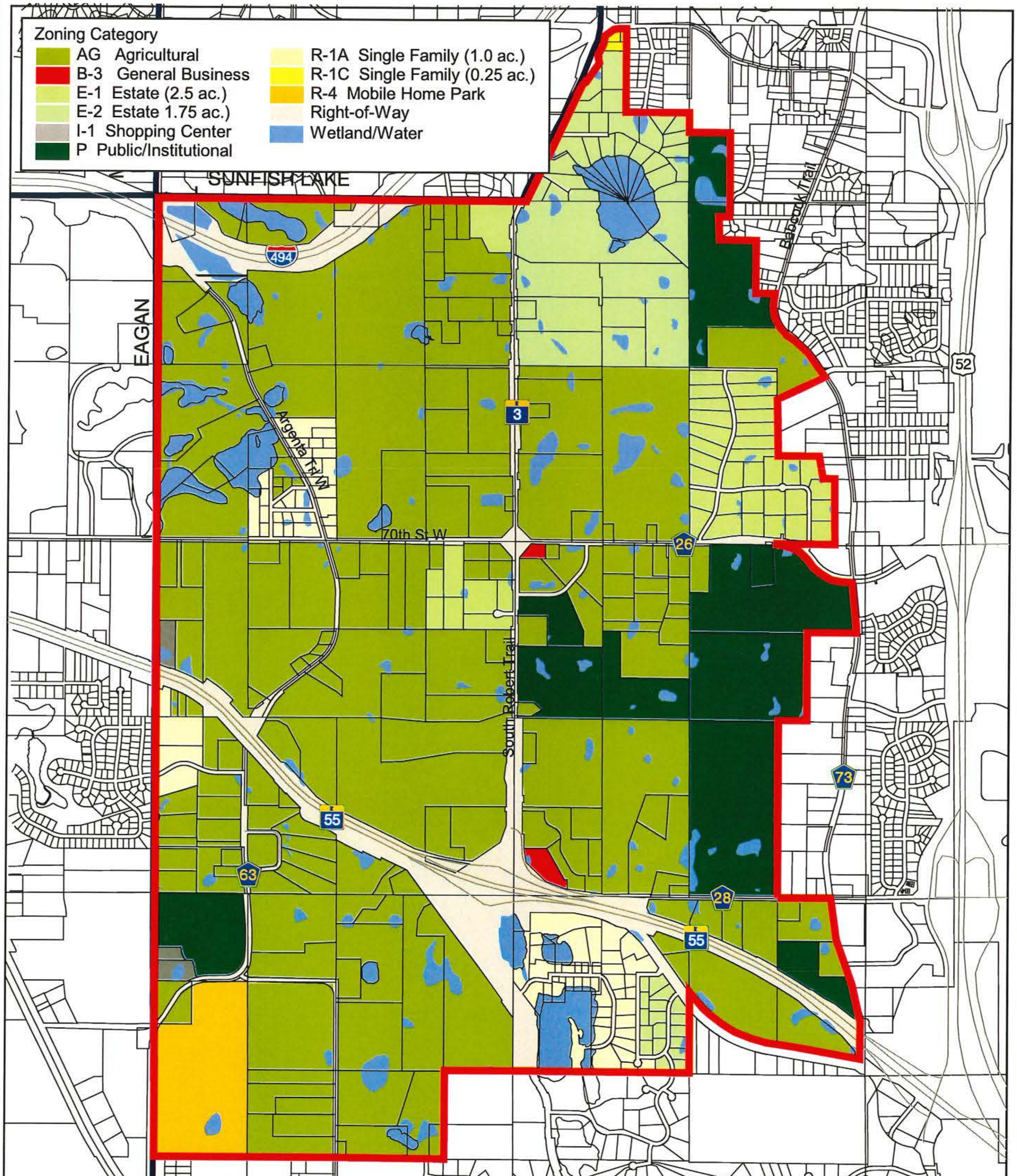
Northwest Expansion Area AUAR

EXISTING LAND USE

Figure 5-3

N W E S

Project Boundary
City Limits
Parcel Base Map



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Feet

2000 0 2000

March 2005

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City of Inver Grove Heights

Northwest Expansion Area AUAR

EXISTING ZONING

Figure 5-4

N
W E
S

Project Boundary
City Limits

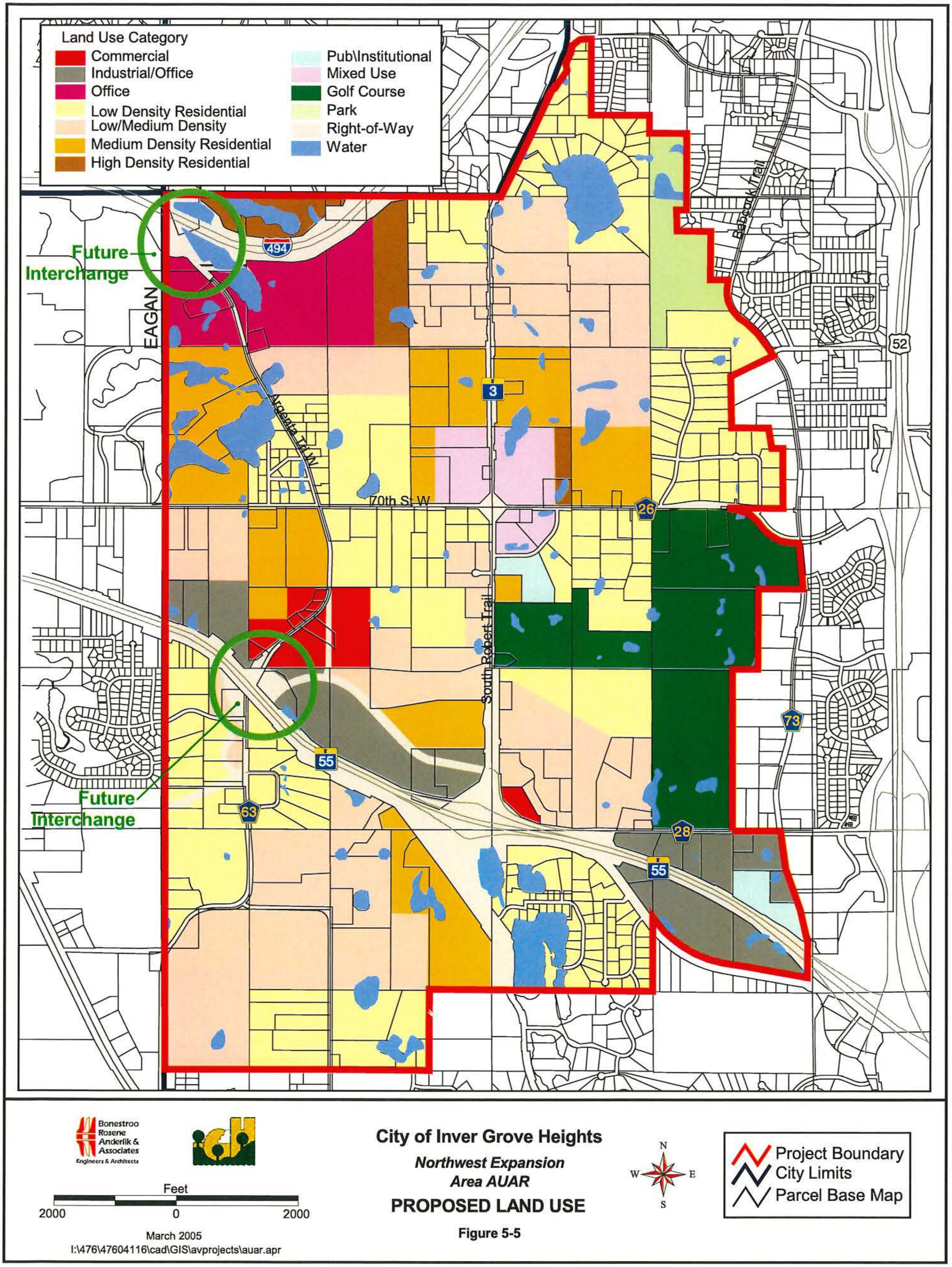
Land Use Category
Commercial
Industrial/Office
Office
Low Density Residential
Low/Medium Density
Medium Density Residential
High Density Residential
Pub\Institutional
Mixed Use
Golf Course
Park
Right-of-Way
Water
Future Interchange
Future Interchange
EAGAN
494
Argenta Trl W
3
70th St W
26
South Robert Trail
55
63
28
55
73
52
Babcock Trail
Bonestroo Rosene Anderlik & Associates
Engineers & Architects
City of Inver Grove Heights
Northwest Expansion Area AUAR
PROPOSED LAND USE
N
W
E
S
Project Boundary
City Limits
Parcel Base Map
Feet
2000
0
2000
March 2005
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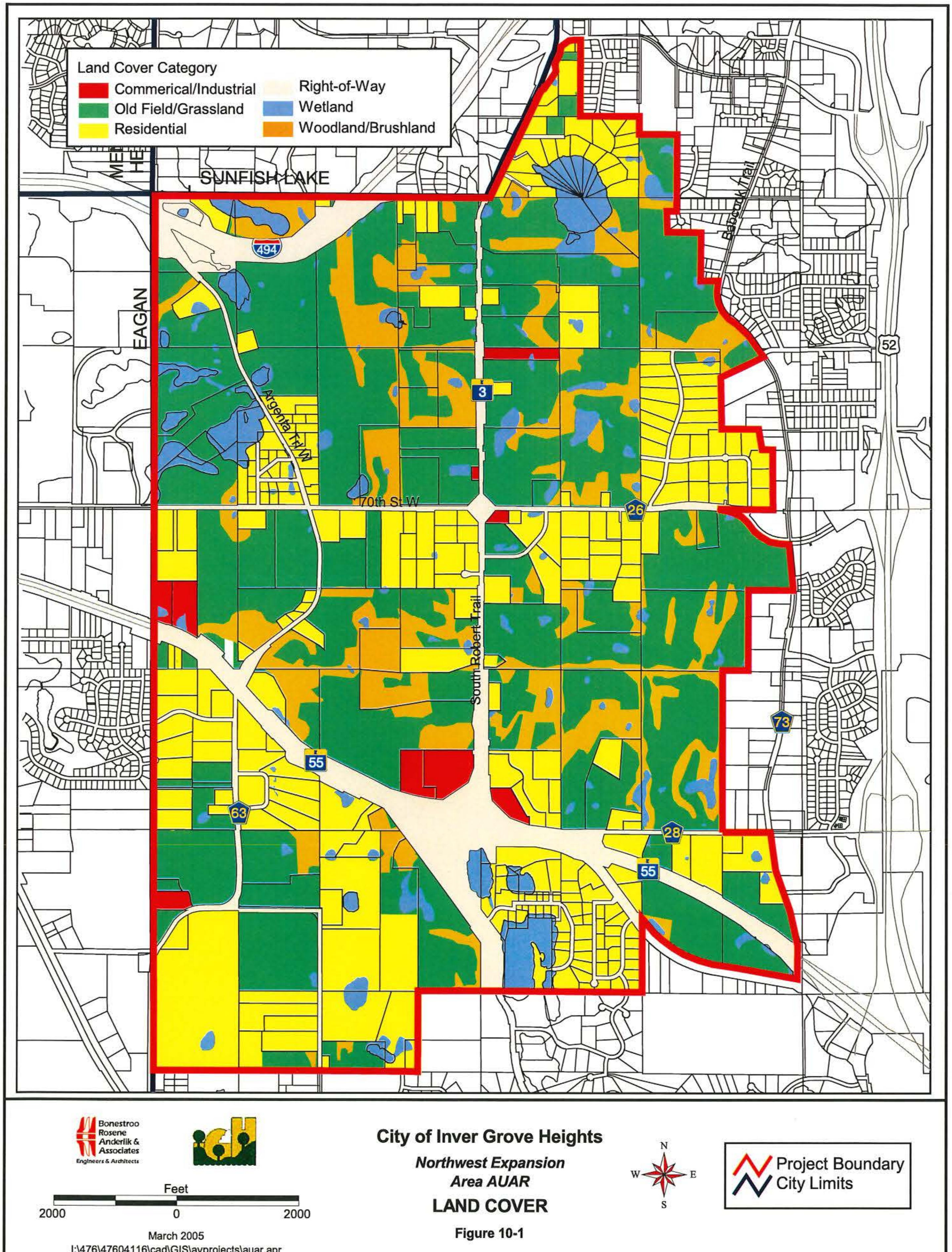
Figure 5-5

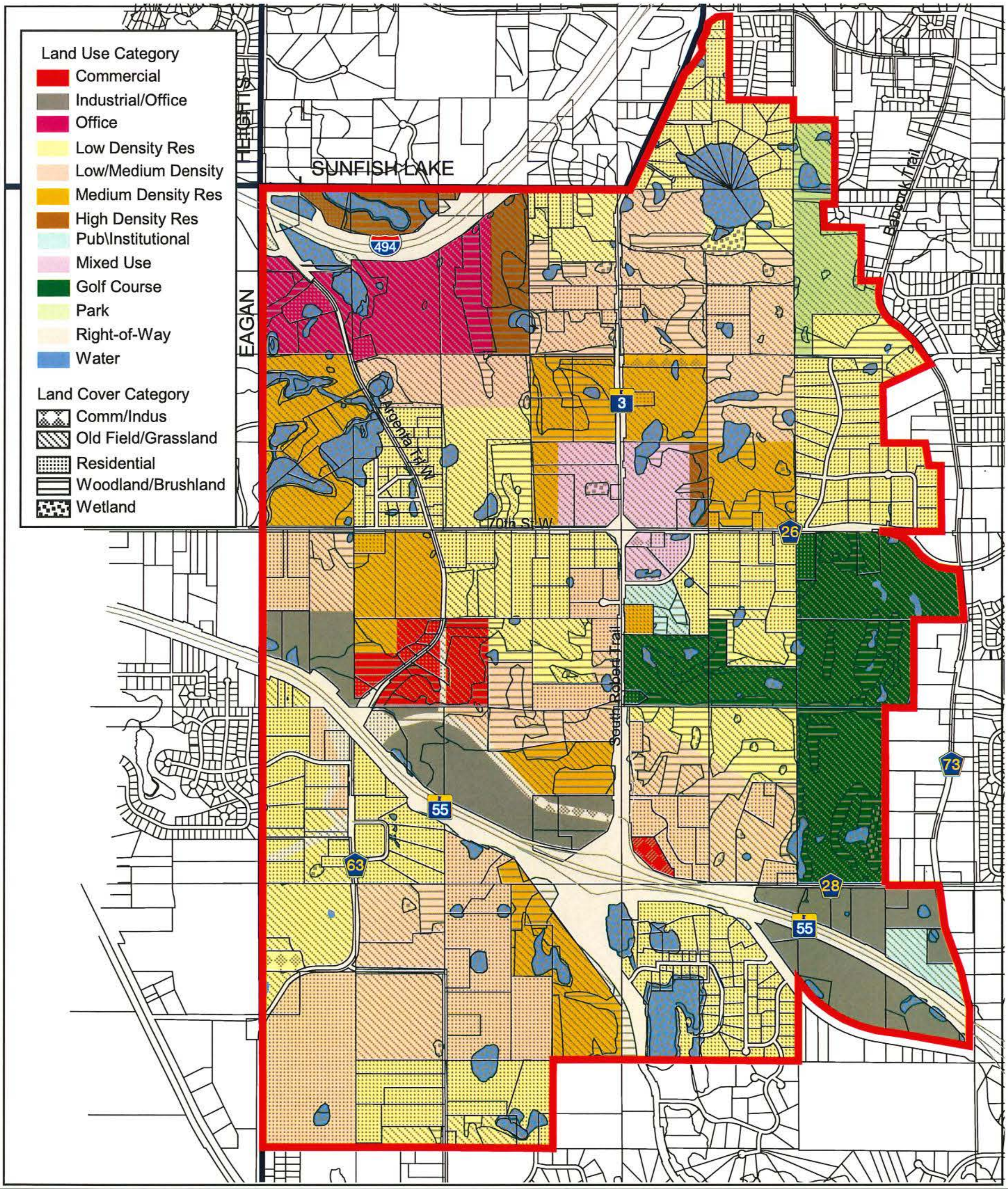


City of Inver Grove Heights

Northwest Expansion Area AUAR

LAND COVER

Figure 10-1



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

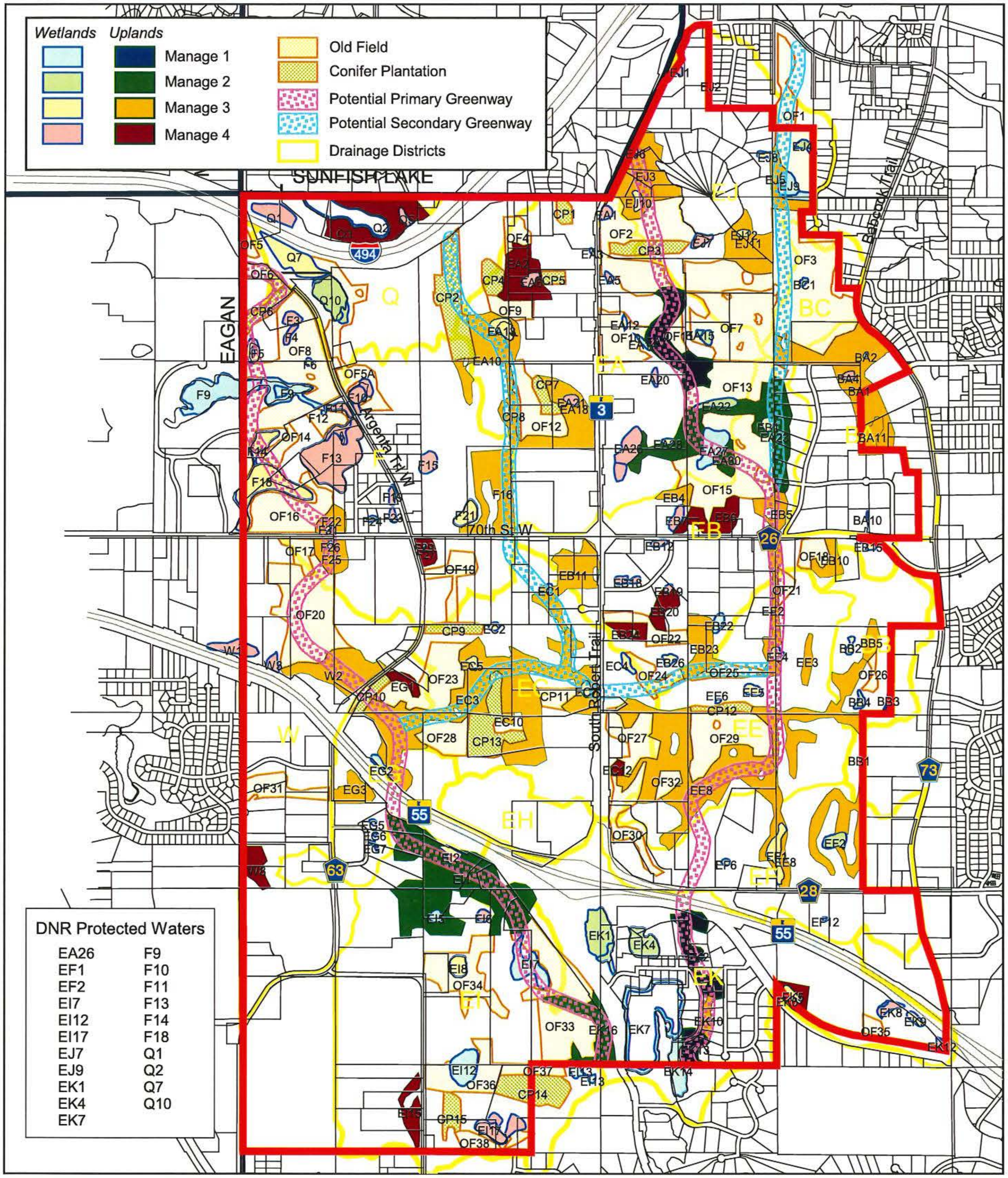
Northwest Expansion Area AUAR

LAND COVER AND PROPOSED LAND USE

Figure 10-2

N W E S

Project Boundary
City Limits



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Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

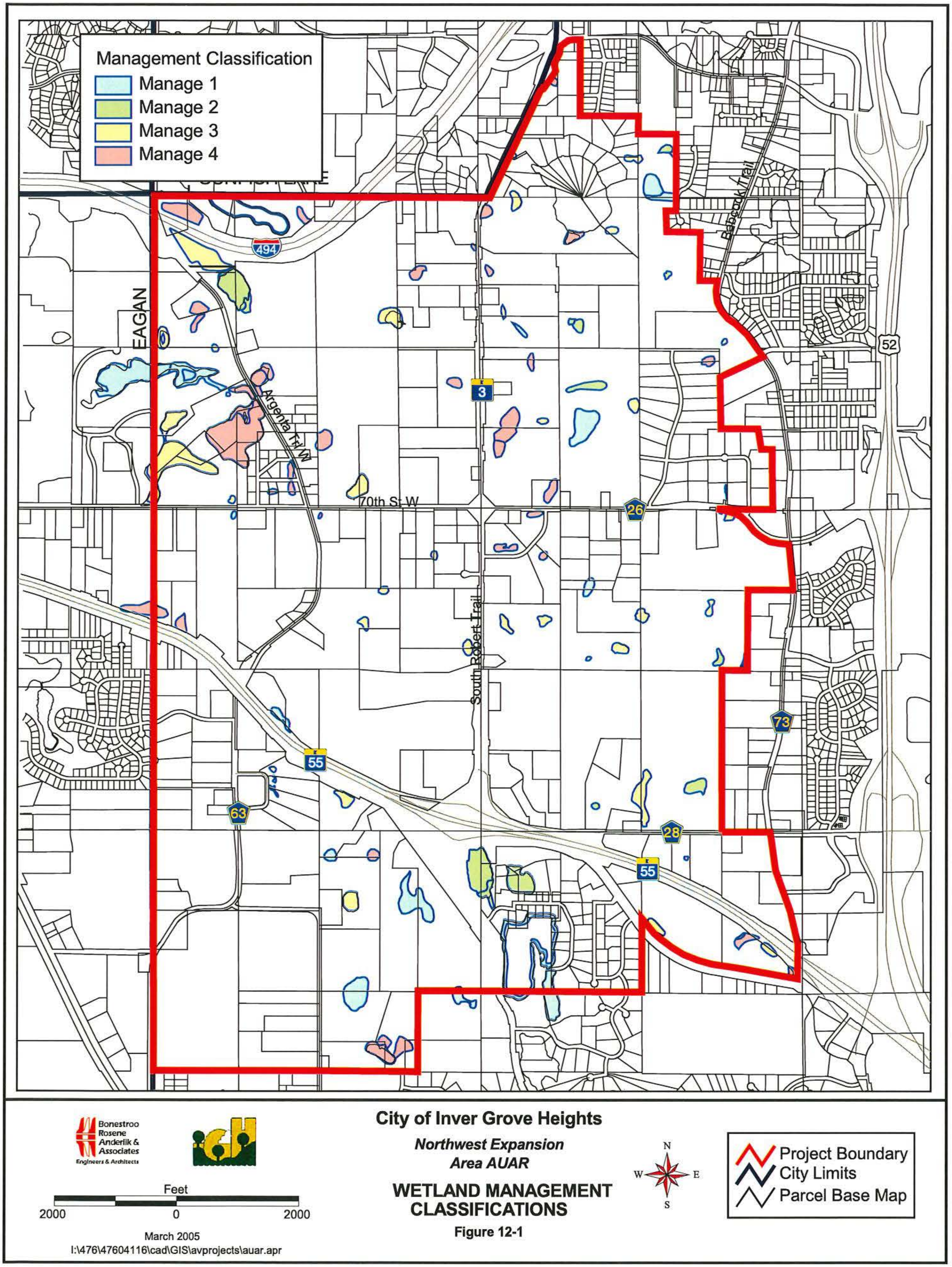
Northwest Expansion Area AUAR

Wetland and Upland Management Classification

Figure 10-3

N W E S

Project Boundary
City Limits
Parcel Base Map

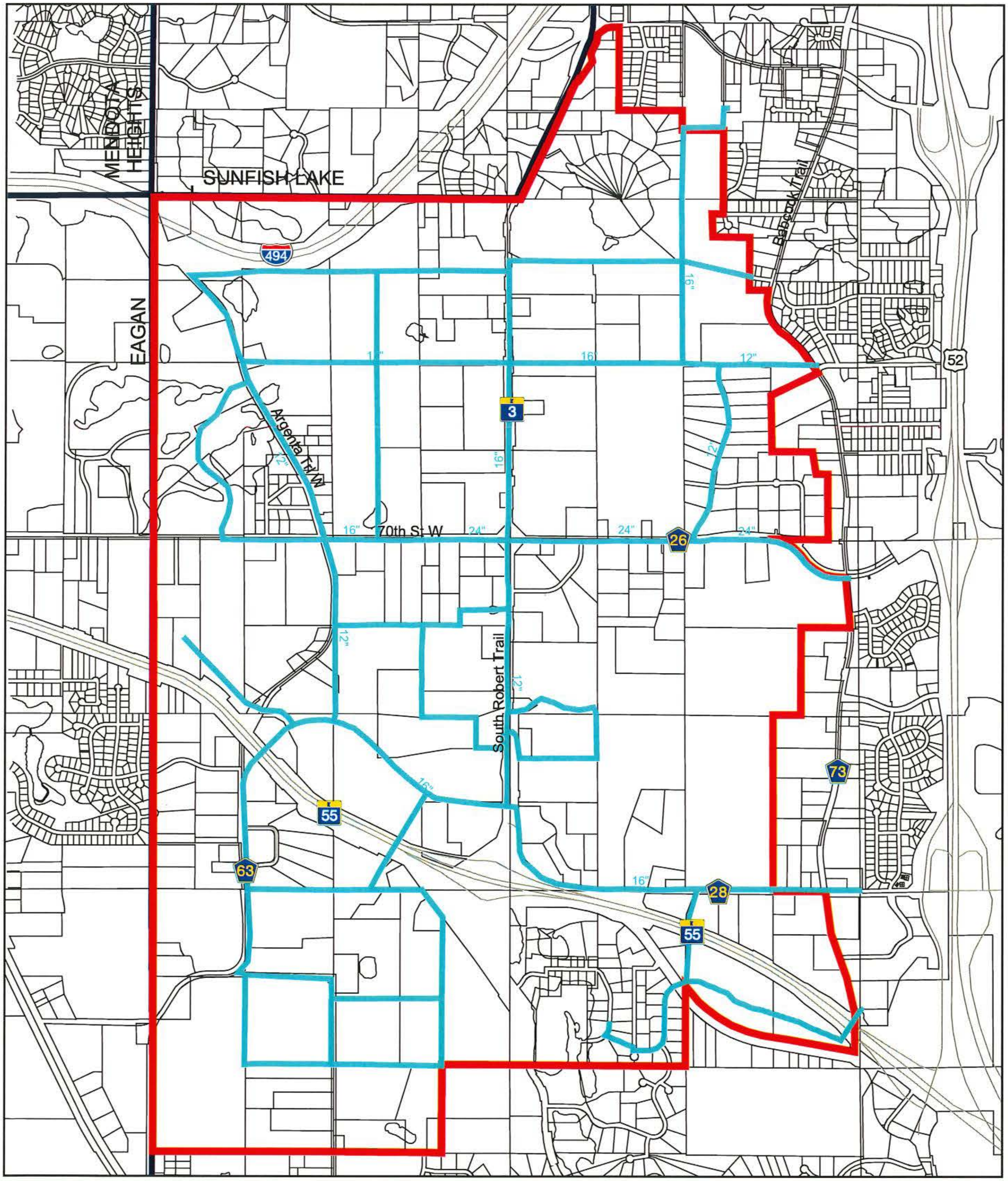


City of Inver Grove Heights

Northwest Expansion Area AUAR

WETLAND MANAGEMENT CLASSIFICATIONS

Figure 12-1



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City of Inver Grove Heights

Northwest Expansion Area AUAR

TRUNK WATER SUPPLY

Figure 13-1

March 2005

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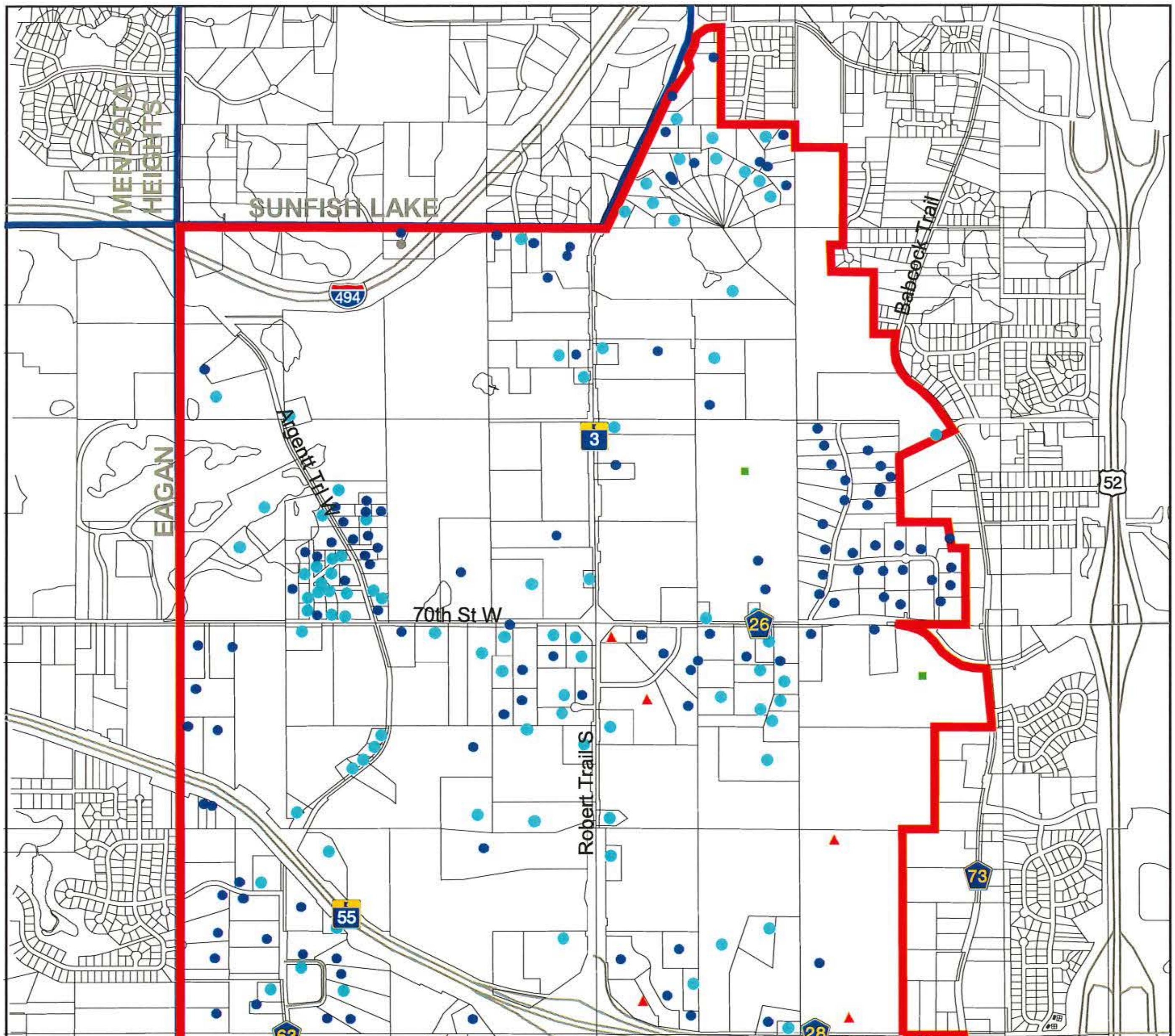

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Feet
2000 0 2000

City of Inver Grove Heights

Northwest Expansion Area AUAR

POSSIBLE WELL LOCATIONS

Figure 13-2

N W E S

County Well Index
- Domestic
- Irrigation
- Public supply, non-community, transient
- Unknown use
- Assumed Well Sites
- Project Boundary
- City Boundary
- Parcel Base Map

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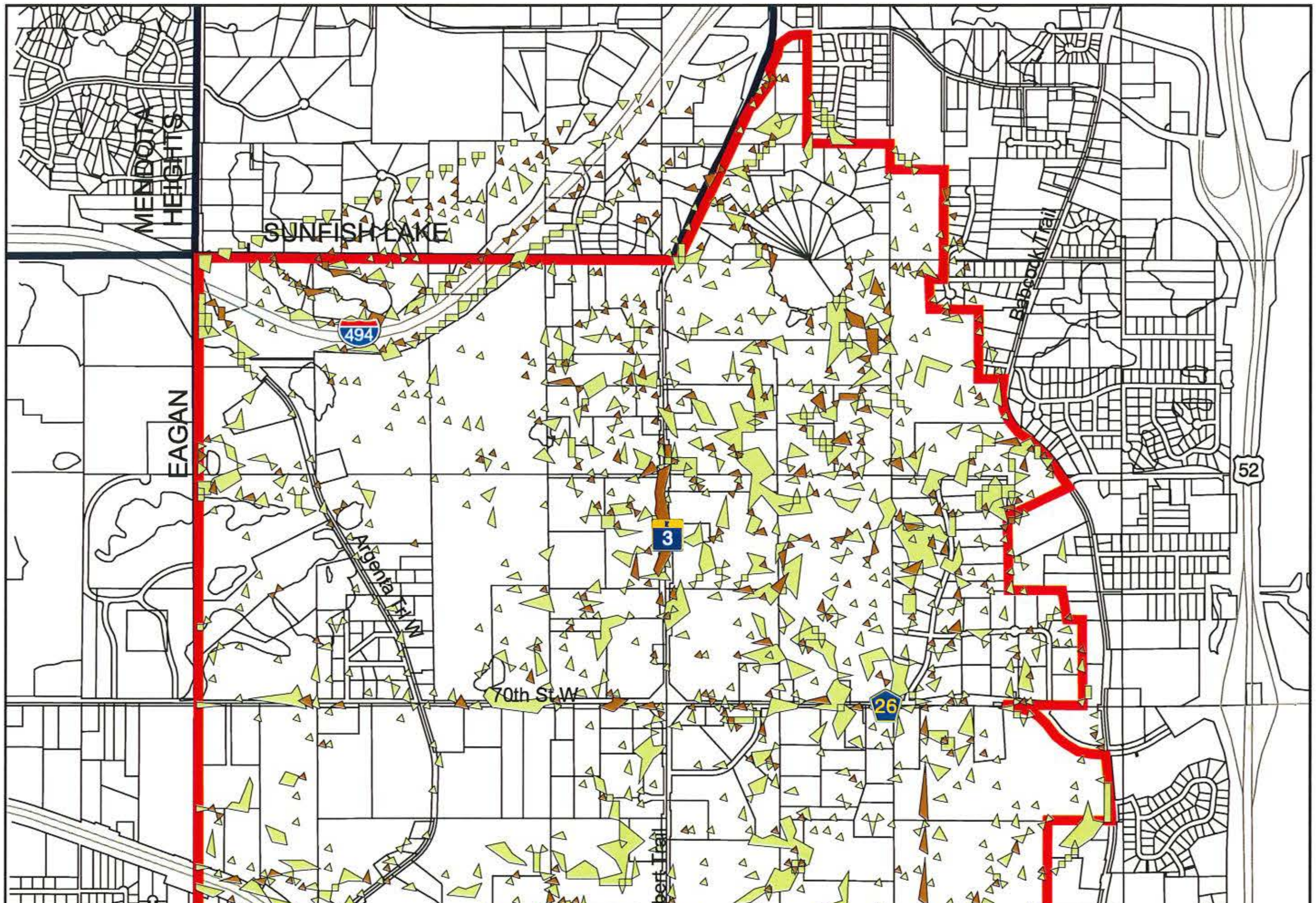
March 2005



Bonestroo Rosene Anderlik & Associates
Engineers & Architects

Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

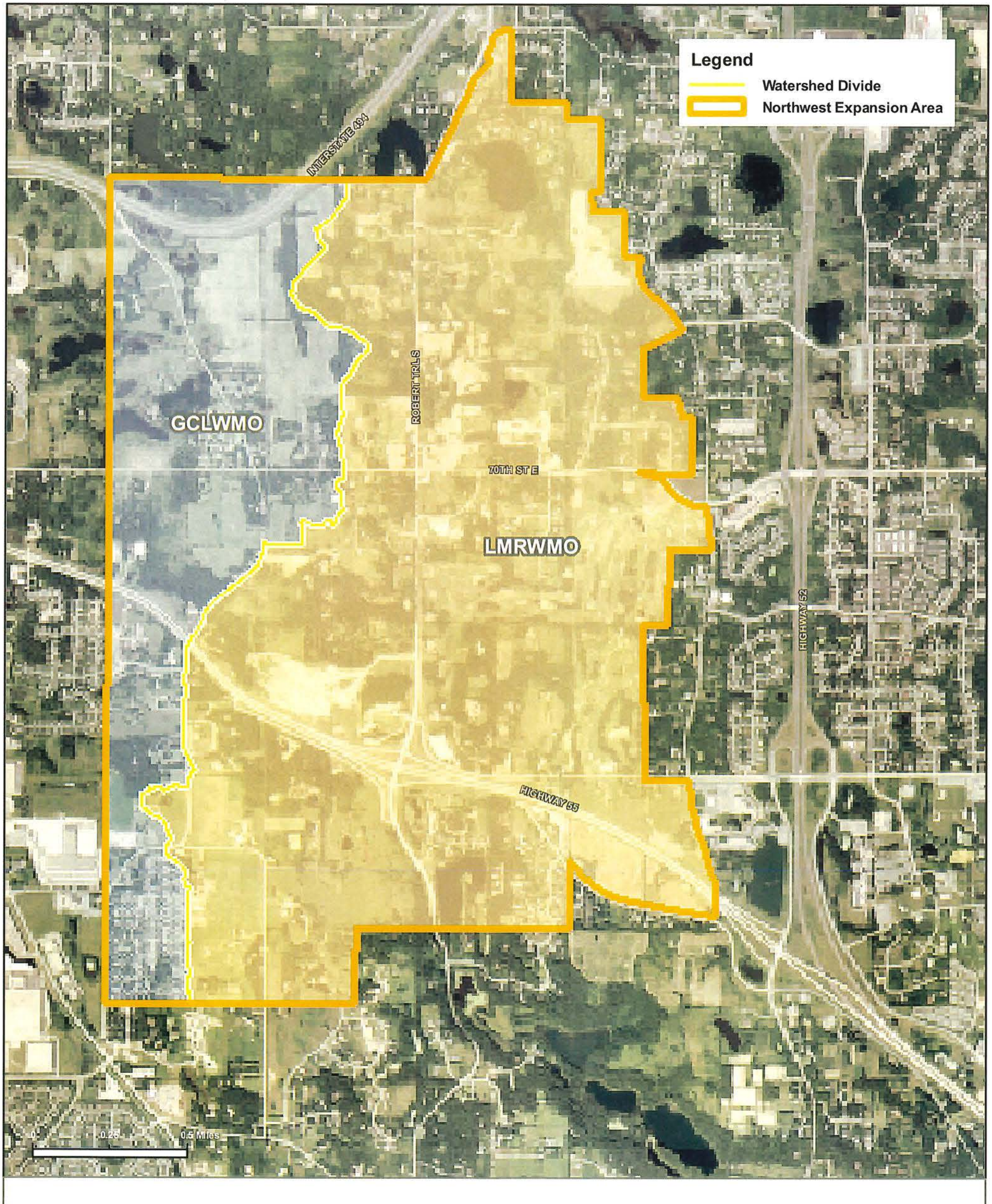
Northwest Expansion Area AUAR

STEEP SLOPES

Figure 16-1

N W E S

- Slope + 20%
- Slopes 12% - 20%
- Project Boundary
- City Limits
- Parcel Base Map

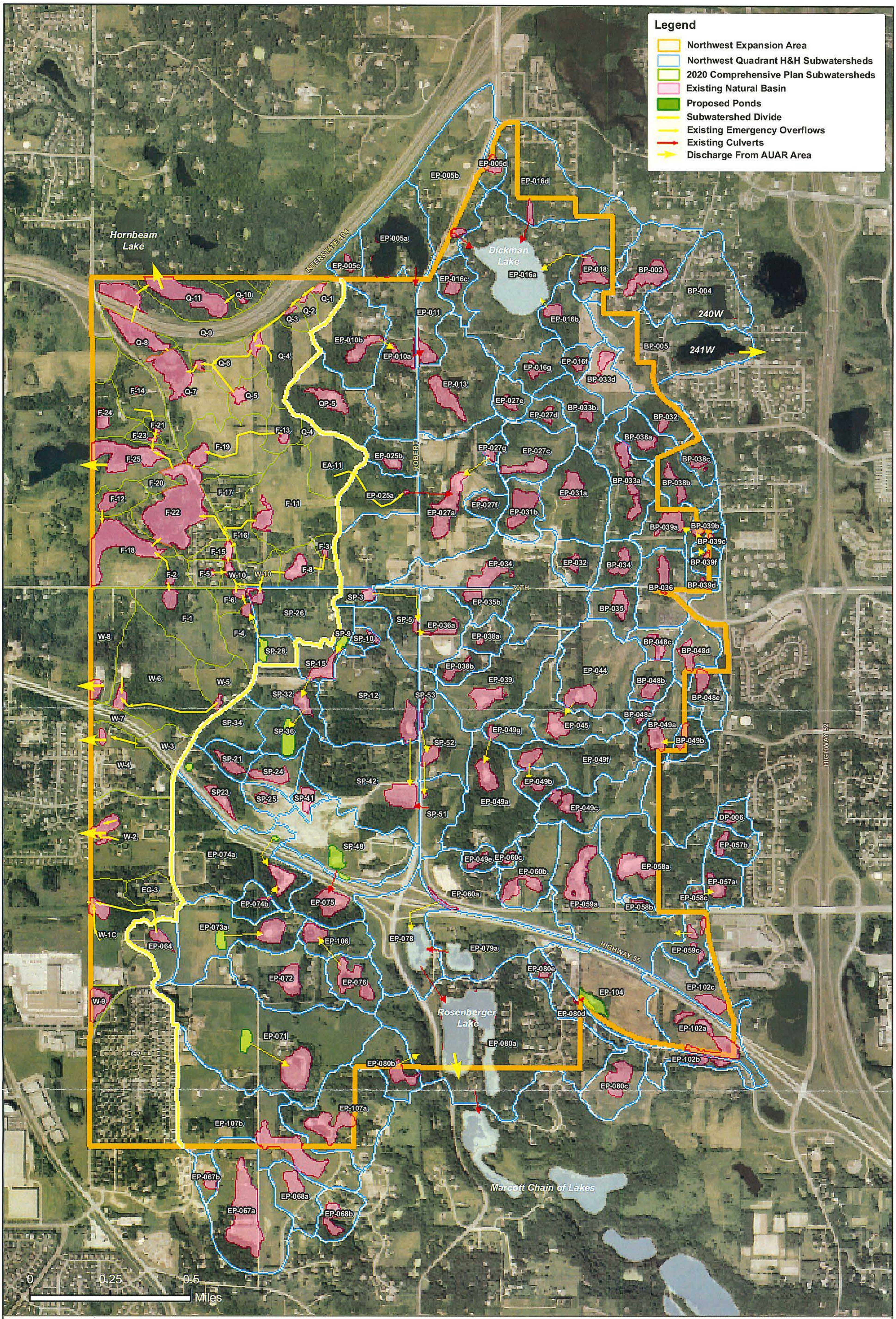


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area
Watershed Setting

N

Figure 17.1

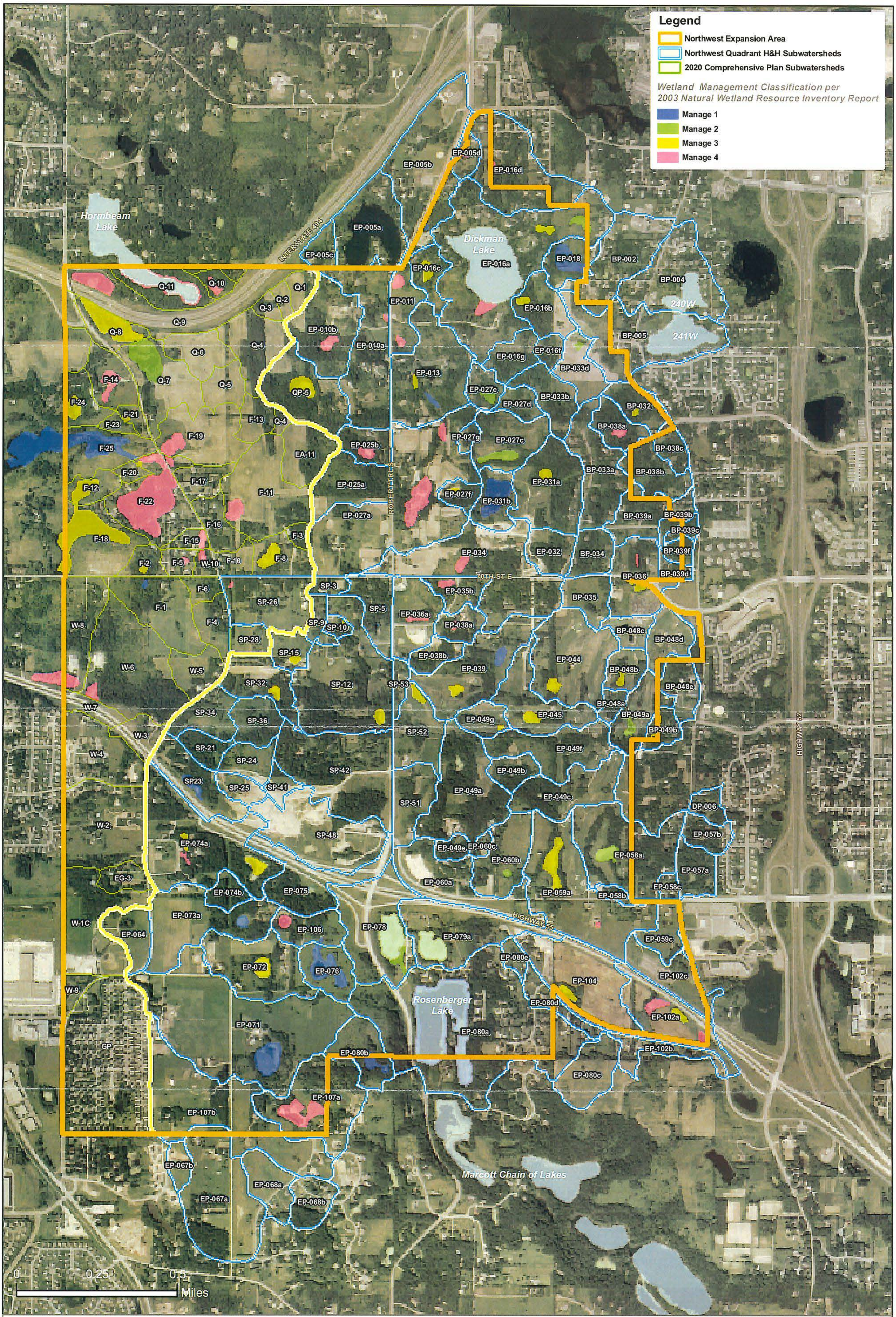


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area
Subwatershed Boundary Map

N

Figure 17.2

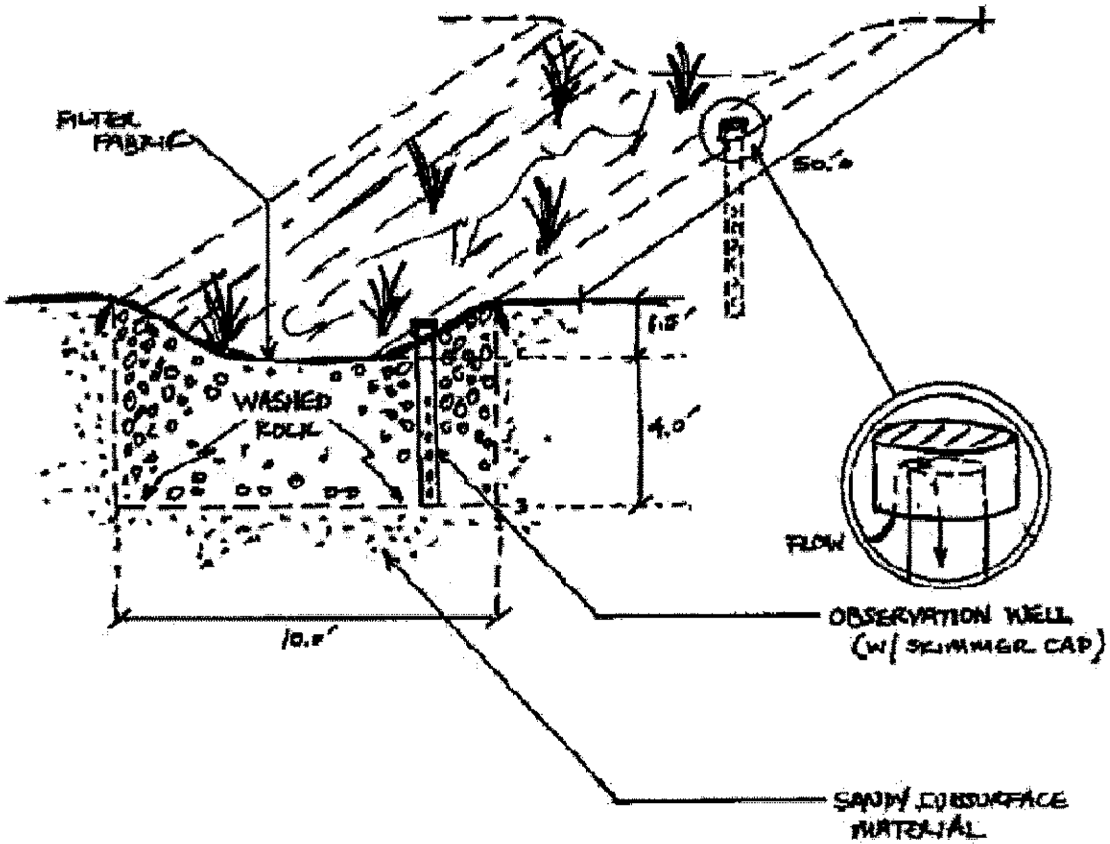


EMMONS & OLIVIER RESOURCES

Northwest Expansion Area
Wetland Management Classification

N

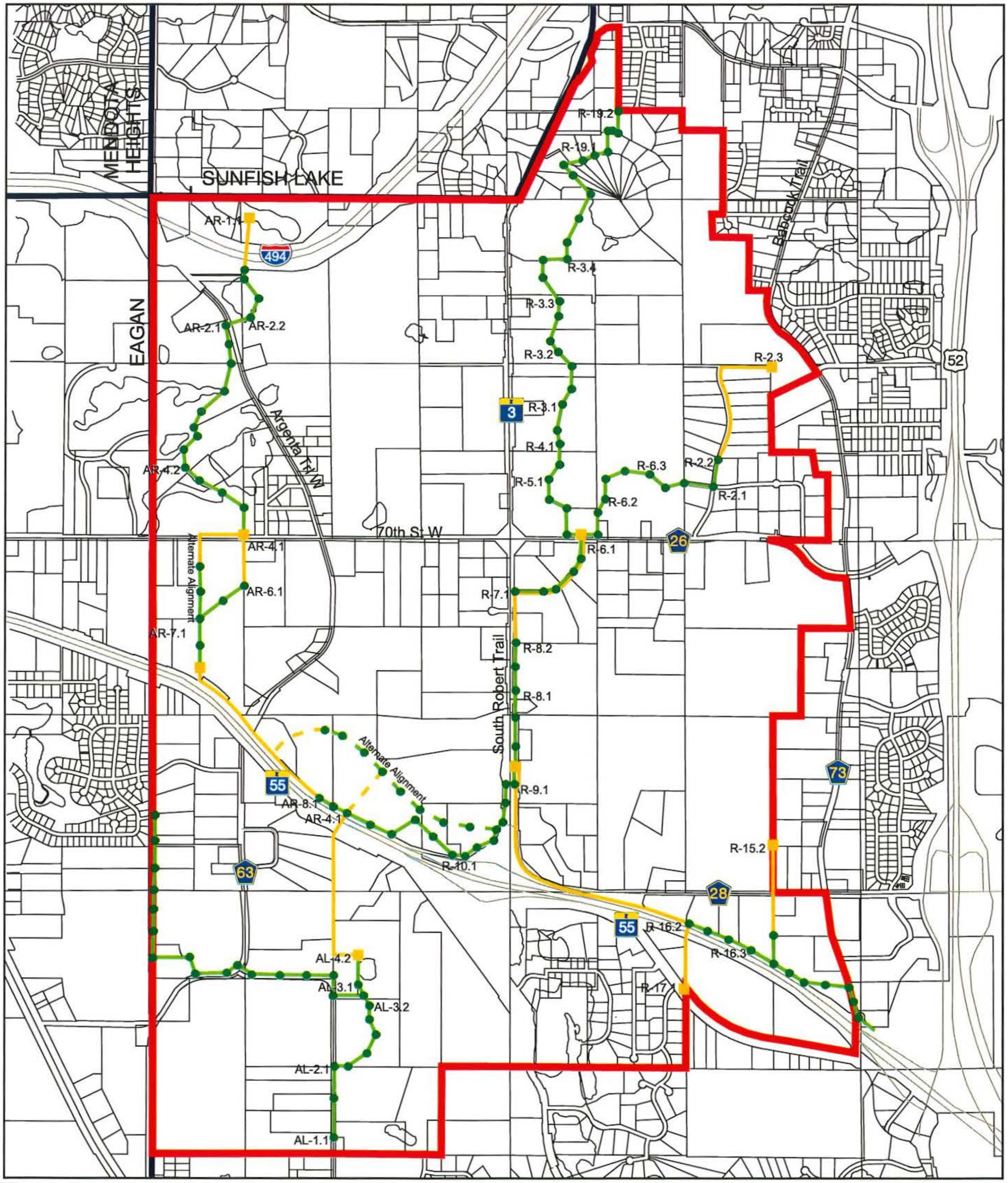
Figure 17.3



EMMONS & OLIVIER RESOURCES

Typical Rain Garden Design

Figure 17.4



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Engineers & Architects

Feet

2000 0 2000

March 2005
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City of Inver Grove Heights

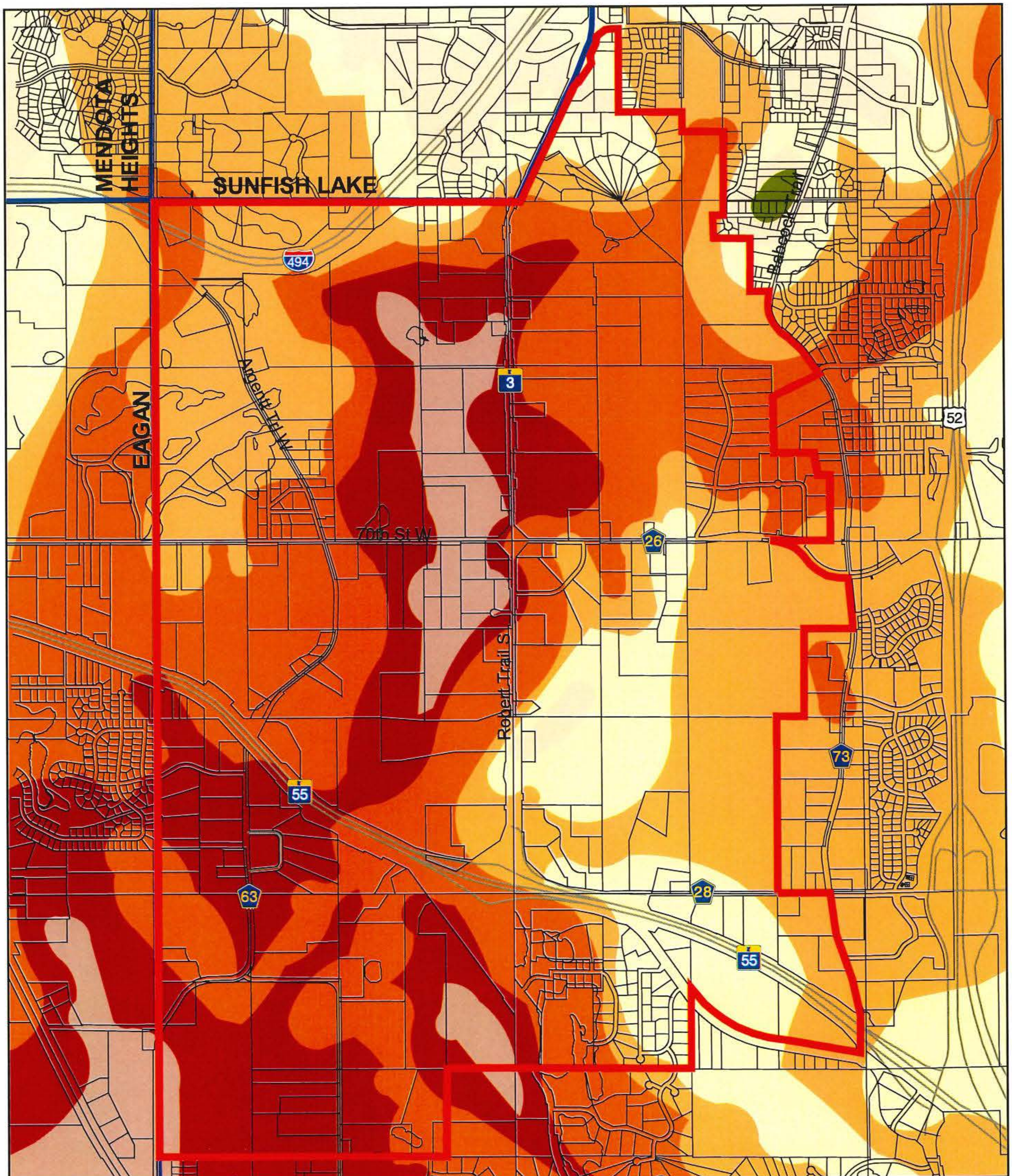
Northwest Expansion Area AUAR

SANITARY SEWER SYSTEM

Figure 18-1

N W E S

- Proposed Manhole
- Proposed Lift Station
- Proposed Sanitary Pipe
- Proposed Forcemain
- Project Boundary
- City Limits



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Engineers & Architects

N
W E
S

Feet
2000 0 2000

Inver Grove Heights

Northwest Expansion Area AUAR

DEPTH TO BEDROCK

Figure 19-1

Depth to Bedrock

0-50	301-350	Study Area Boundary
101-150	351-400	City Boundary
151-200	401-500	Parcel Base Map
201-250	51-100	
251-300	Over_500	

March 2005
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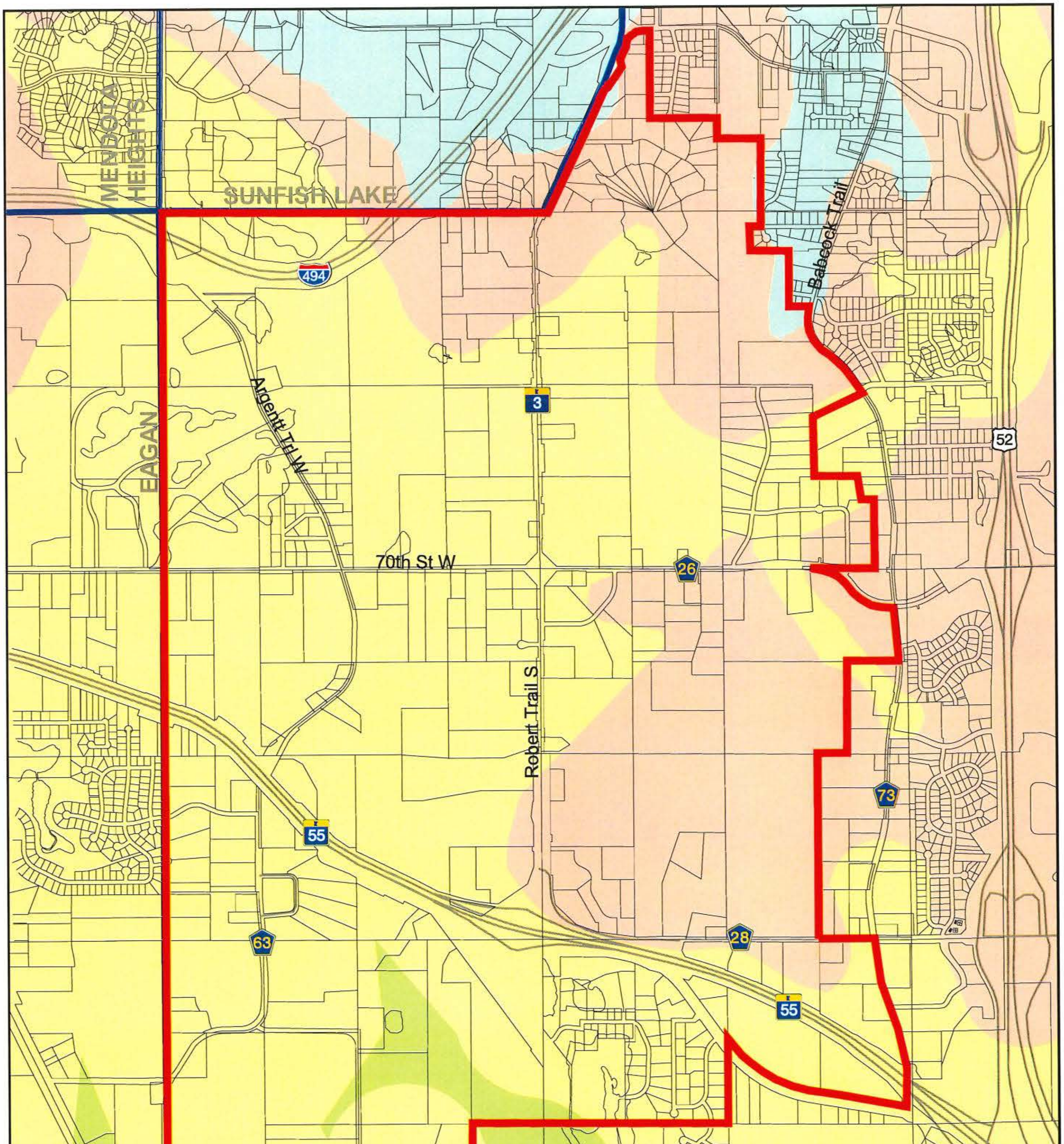

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Engineers & Architects

Feet
2000 0 2000

City of Inver Grove Heights

Northwest Expansion Area AUAR

BEDROCK GEOLOGY

Figure 19-2

N W E S

Bedrock Geology
- Platteville & Glenwood Fms.
- St. Peter Sandstone
- Prairie du Chien Group
- Jordan Sandstone
- Project Boundary
- City Boundary
- Parcel Base Map

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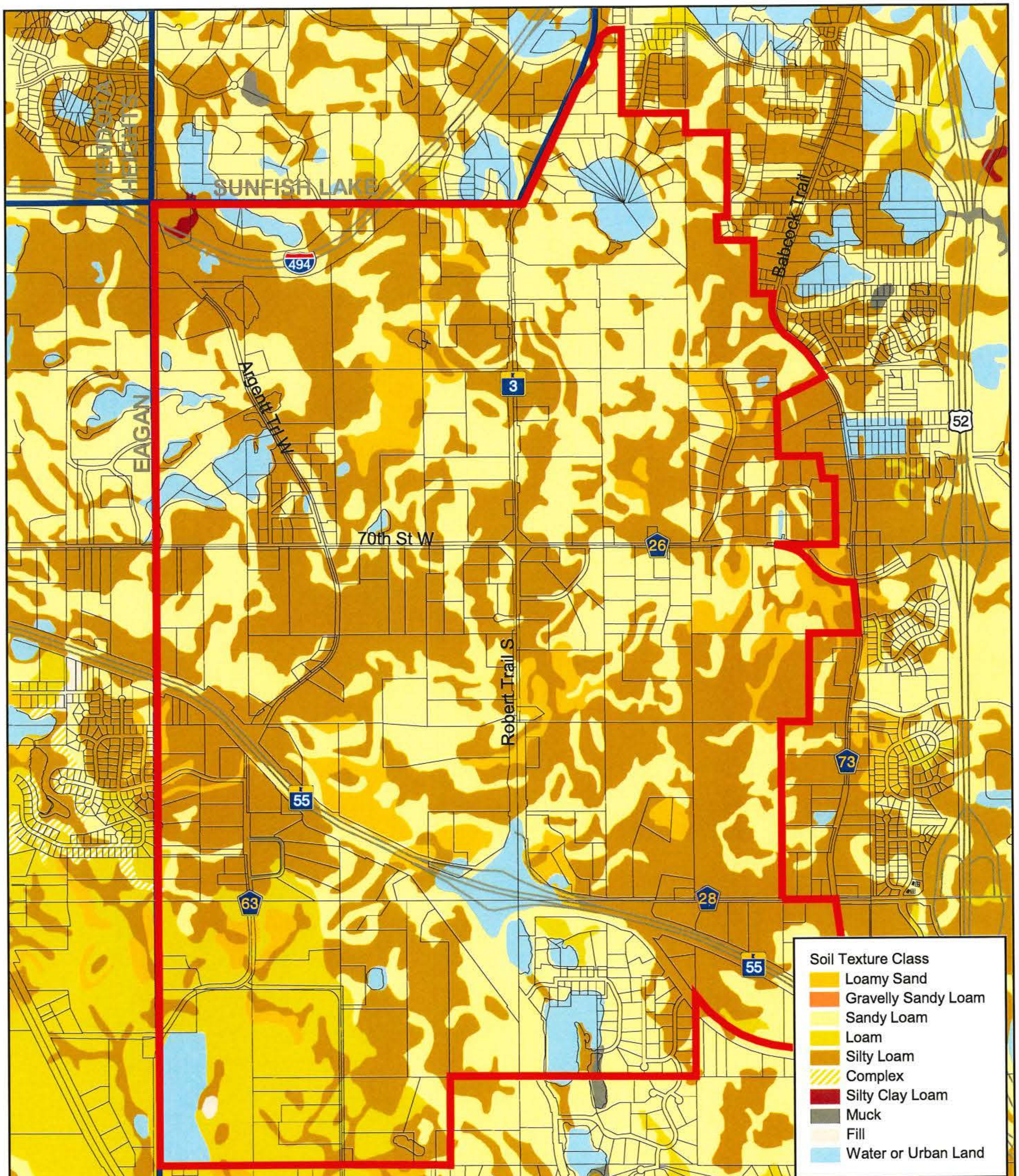
March 2005



Bonestroo Rosene Anderlik & Associates Engineers & Architects

City of Inver Grove Heights

Northwest Expansion Area AUAR

SOILS

Figure 19-3

Feet

2000 0 2000

N W E S

Project Boundary
City Boundary
Parcel Base Map

March 2005

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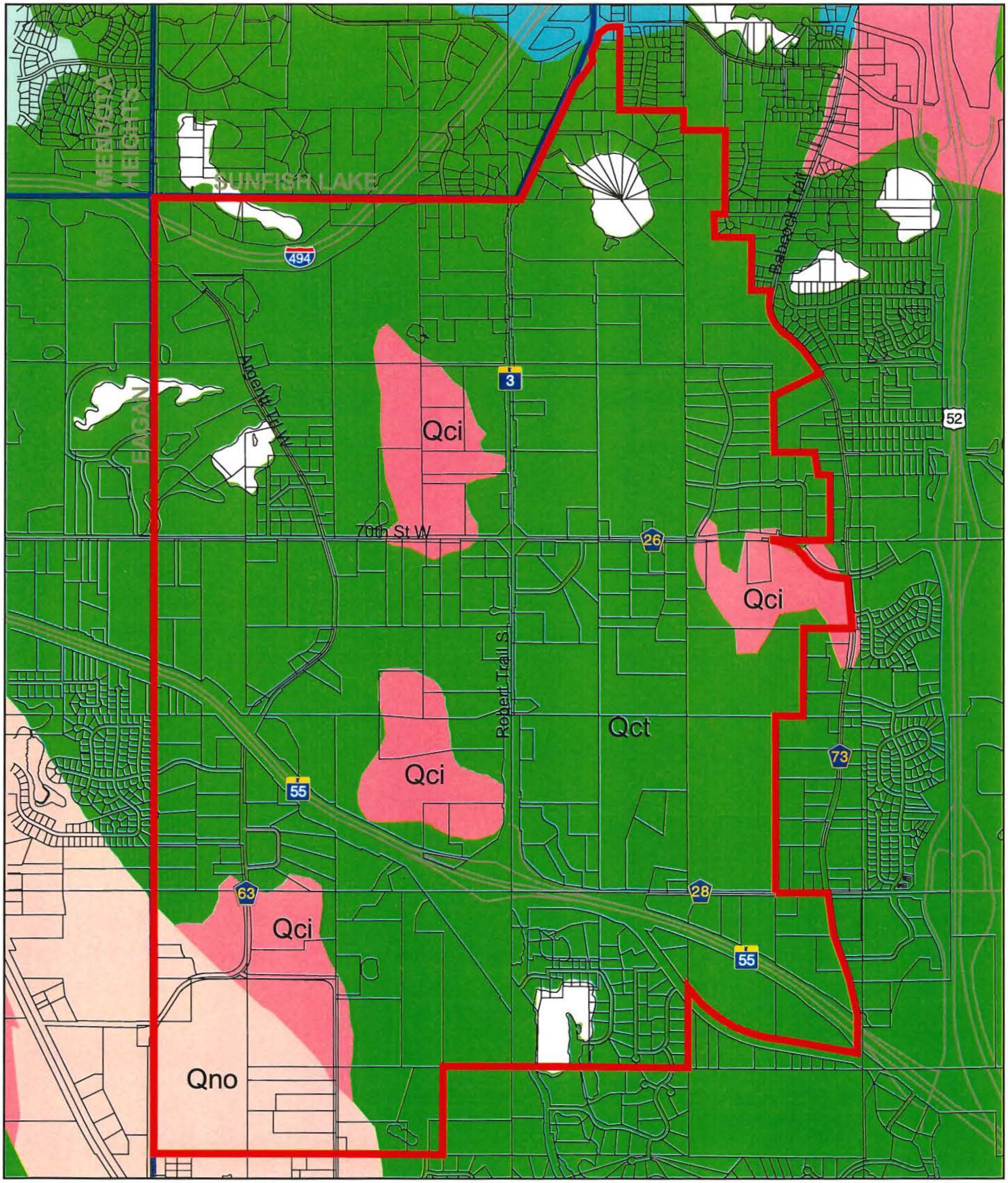

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Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

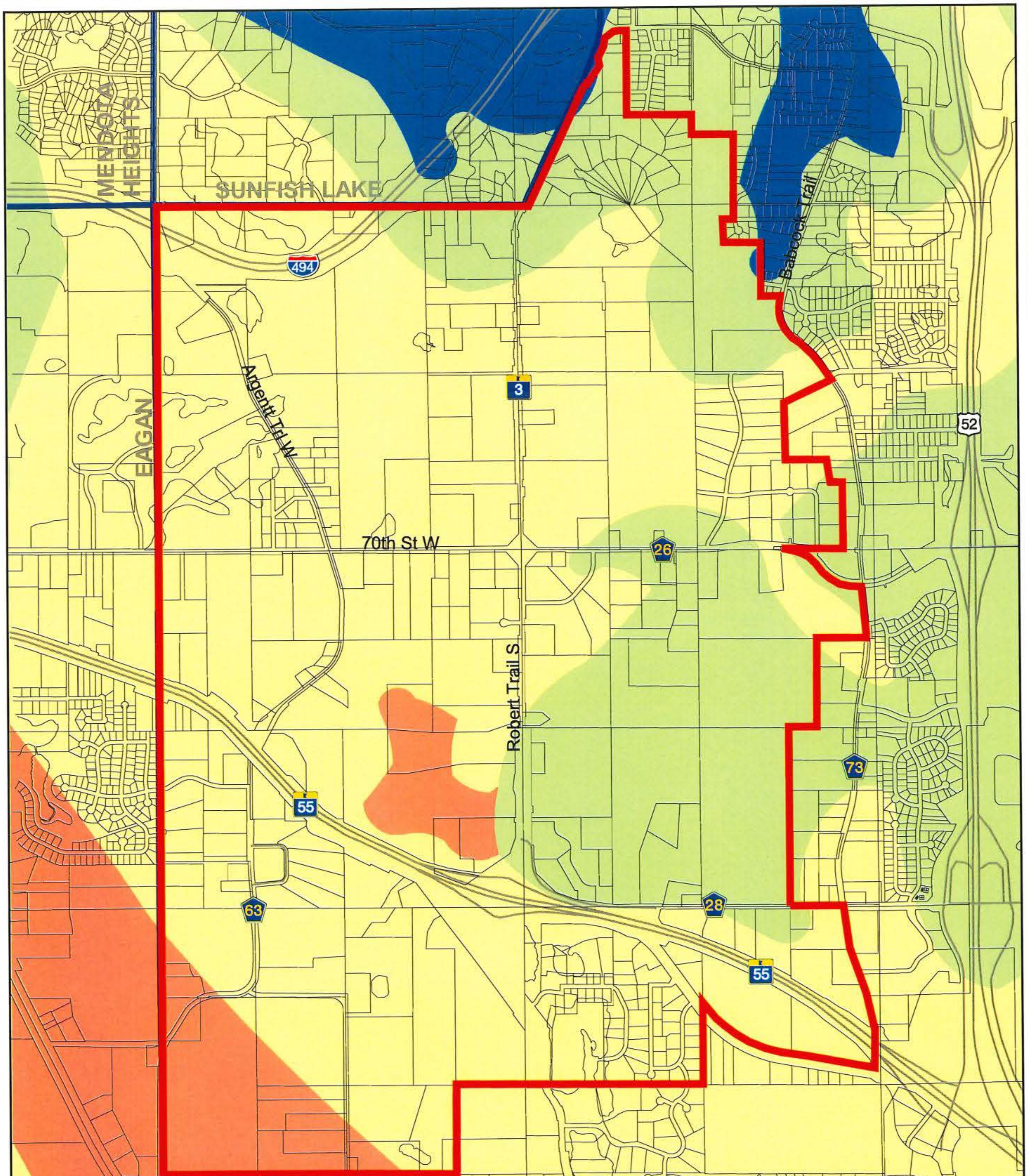
Northwest Expansion Area AUAR

SURFICIAL GEOLOGY

Figure 19-4

N
W E
S

Surficial Geology
- Qcl - Lake sand and silt, Cromwell Fm.
- Qco - Outwash, Cromwell Fm.
- Qci - Ice-contact deposits, Cromwell Fm.
- Qct - Till, Cromwell Fm.
- Project Boundary
- City Boundary
- Parcel Base Map



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Feet
2000 0 2000

March 2005
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City of Inver Grove Heights

Northwest Expansion Area AUAR

SENSITIVITY TO AQUIFER

Figure 19-5

N W E S

Sensitivity Ratings
- Moderate
- High/Moderate
- Low/Moderate
- Very Low

- Project Boundary
- City Boundary
- Parcel Base Map

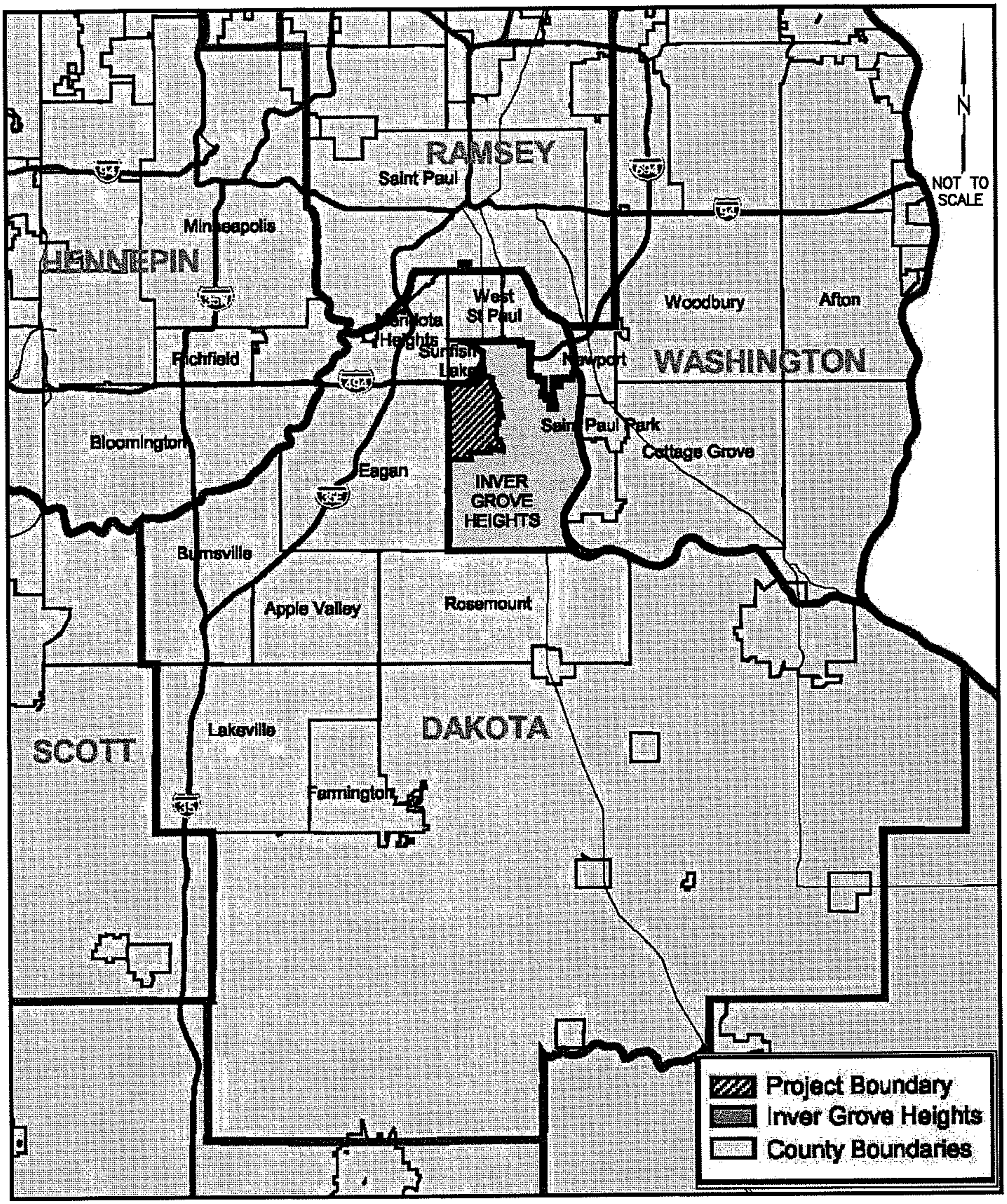

FIGURE 21-1

LOCATION MAP
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

I:\476\47604116\CAD\DWG\REPORT FIGURES1_17_05

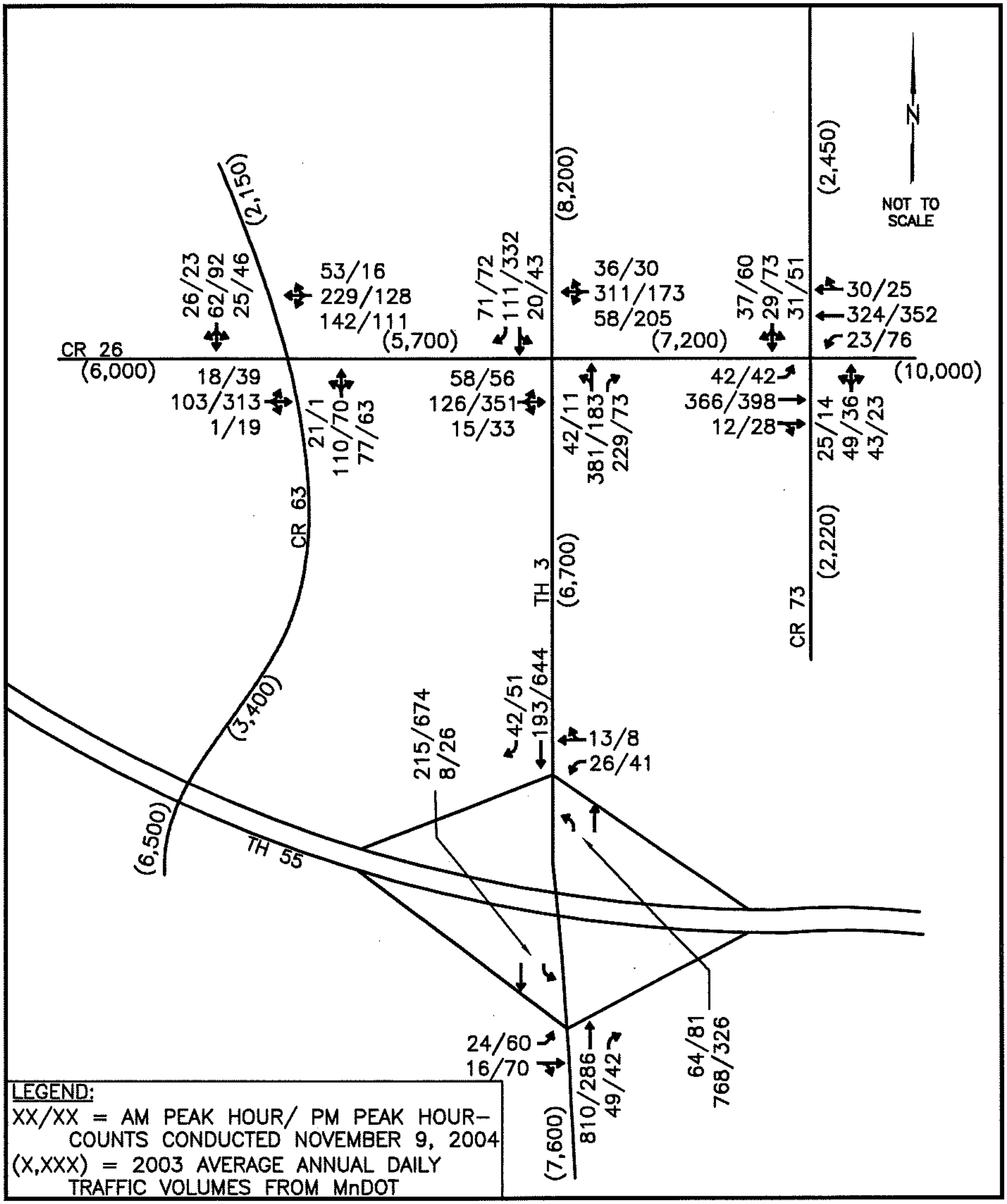

FIGURE 21-2

EXISTING GEOMETRY AND TRAFFIC VOLUMES
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

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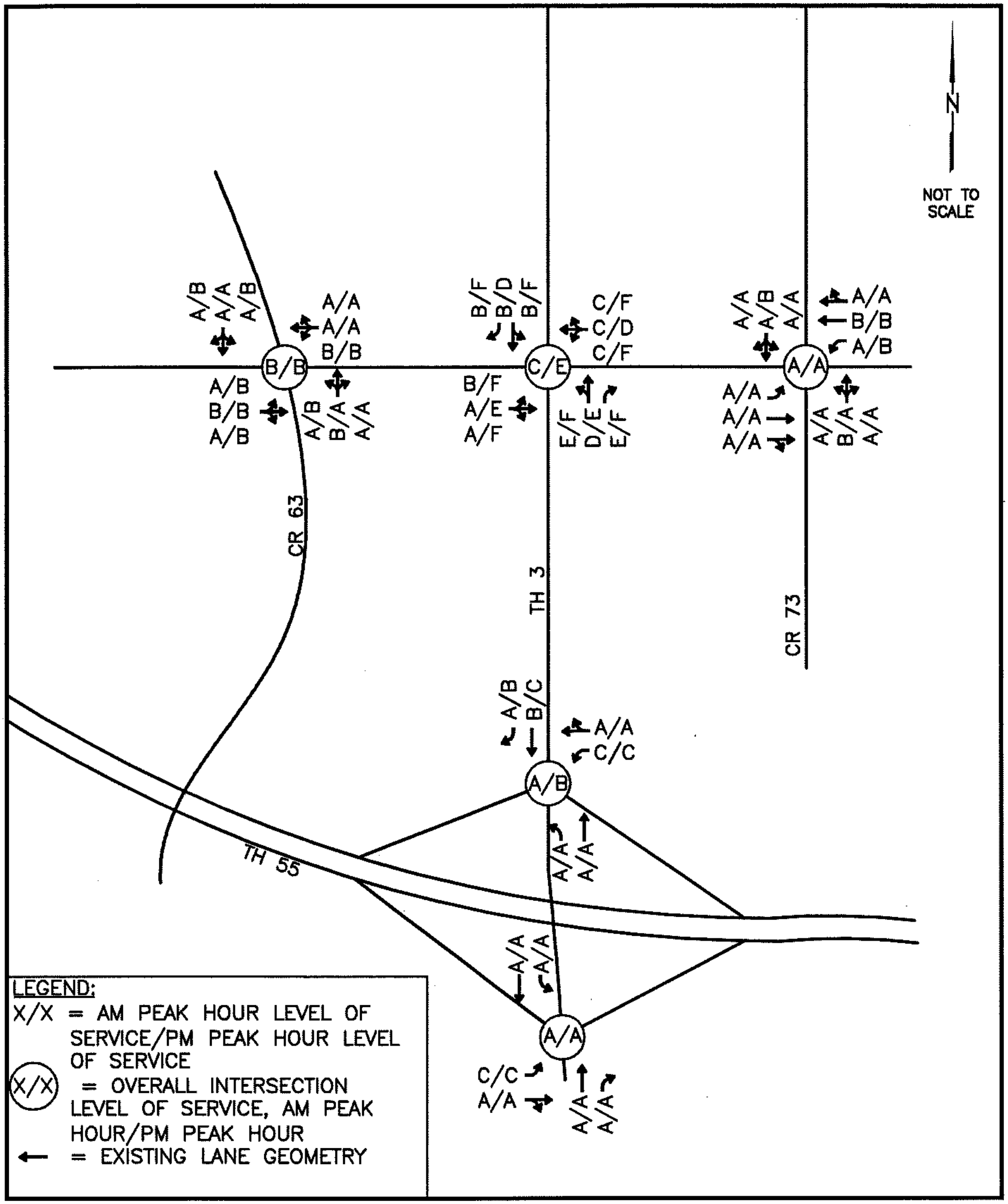

FIGURE 21–3

EXISTING CONDITIONS LEVEL OF SERVICE
INVER GROVE HEIGHTS AUAR

Bonestroo
Rosene
Anderlik &
Associates
Engineers & Architects

I:\476\47604116\CAD\DWG\REPORT FIGURES1_17_05

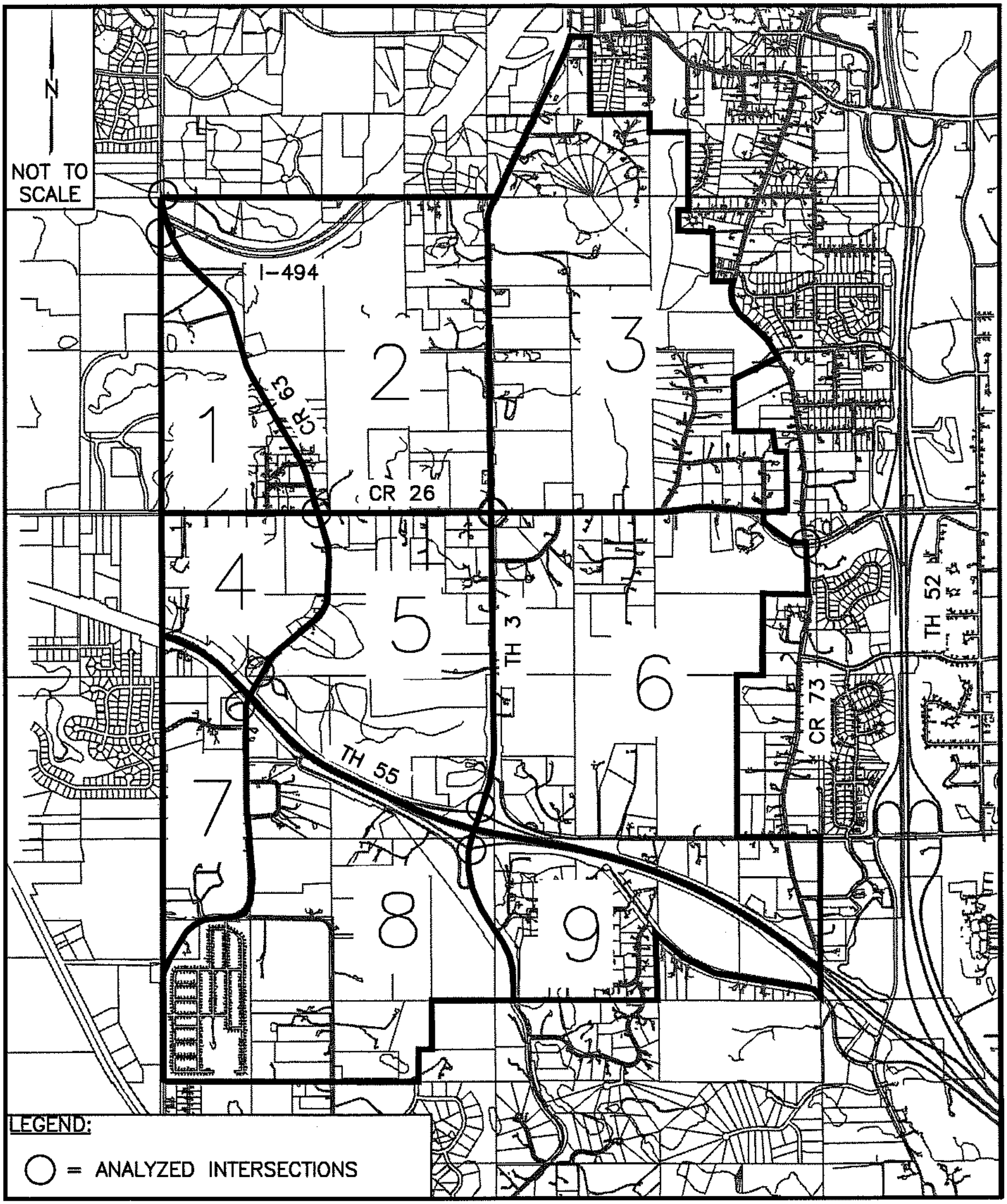

FIGURE 21-4

TRAFFIC ANALYSIS ZONES
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

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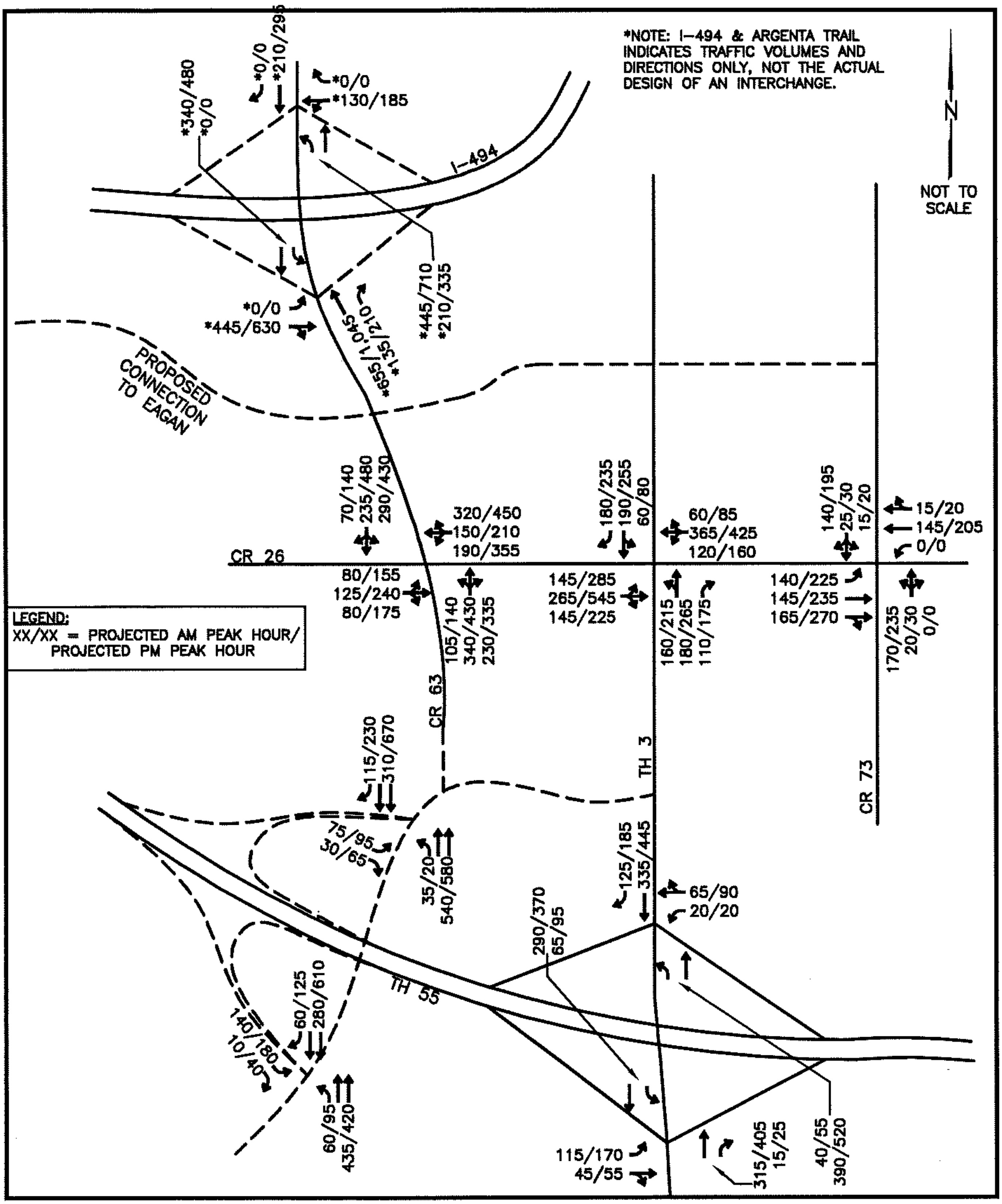

FIGURE 21-5

PROJECTED DEVELOPMENT VOLUMES
INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

I:\476\47604116\CAD\DWG\REPORT FIGURES1_17_05

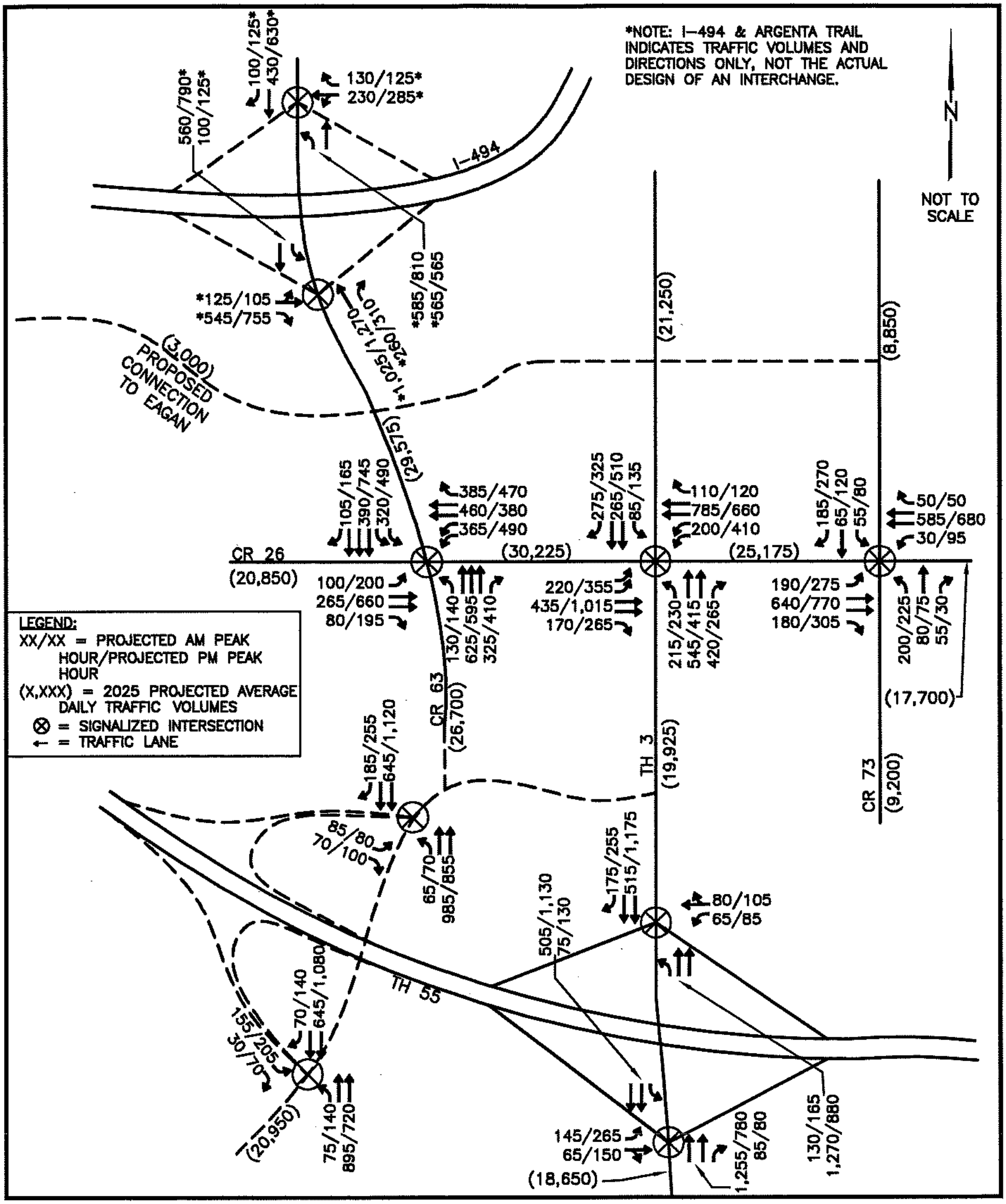

FIGURE 21-6

2025 VOLUMES AND PROPOSED GEOMETRY
INVER GROVE HEIGHTS AUAR

Bonestroo
Rosene
Anderlik &
Associates
Engineers & Architects

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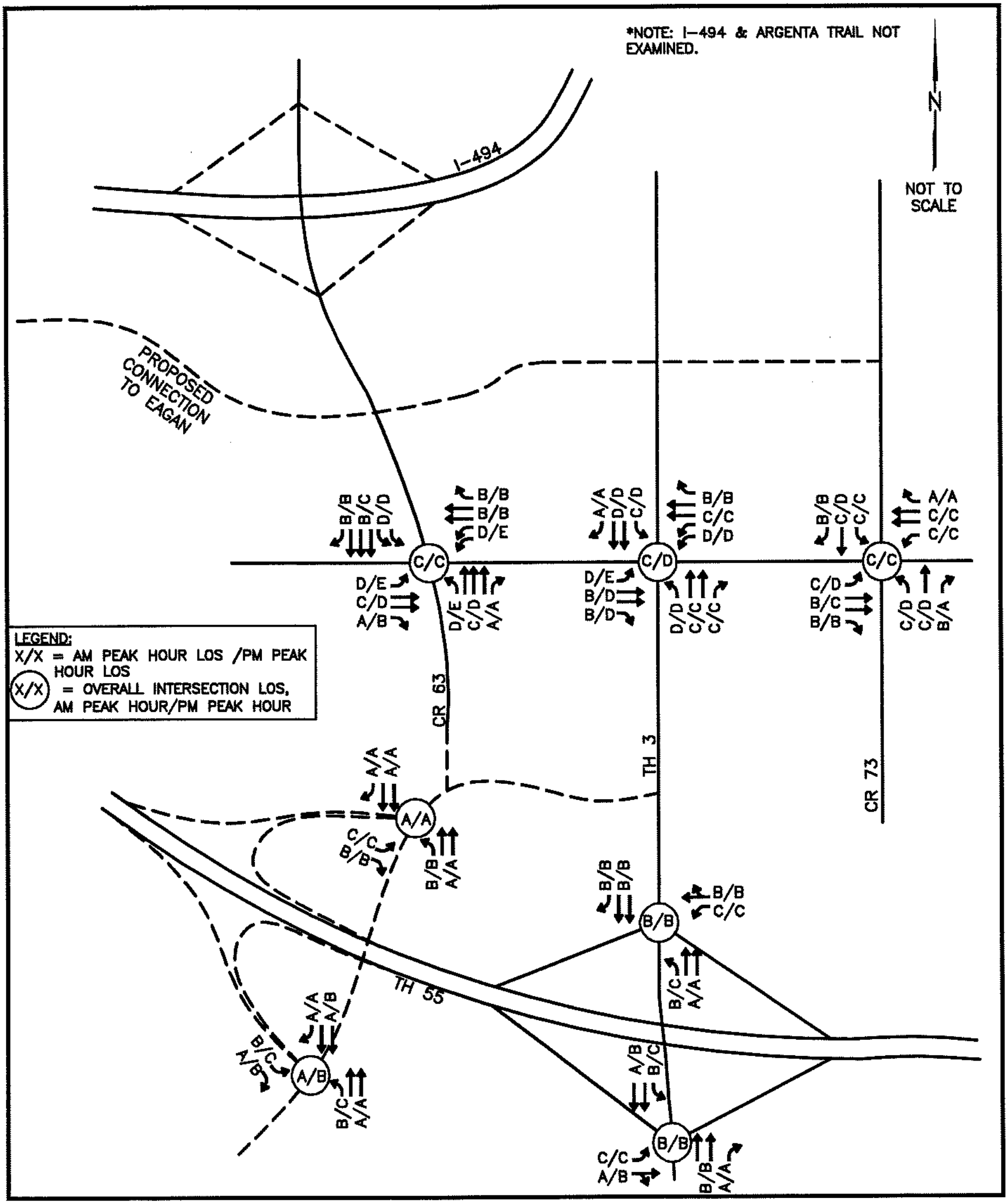

FIGURE 21-7

2025 PROPOSED LEVEL OF SERVICE INVER GROVE HEIGHTS AUAR

Bonestroo Rosene Anderlik & Associates
Engineers & Architects

I:\476\47604116\CAD\DWG\REPORT FIGURES1_17_05

FIGURE 25

LOCATIONS INVENTORIED FOR HISTORIC STRUCTURES

(Excerpt from USGS Topographic Quadrangle for Inver Grove Heights, MN)

	A	B	C	D	E	F	G	H	I	J
1	**NORTHWEST AREA INFRASTRUCTURE UPDATES (2014-2019)**									SWD 1/10/2020
2	PROJECT NO.	PROJECT NAME	FEDERAL	STATE	COUNTY	STREET	STORM	SEWER	WATER	NOTES
3						CITY IMPROVEMENTS				
4	2013-04	Interchange at I-494 and re-aligned Argenta Trail (CSAH 63)	X	X	X					
5	2014-11	Argenta Trail/T.H. 55 Improvements		X	X	X	X			
6	2014-13	Northwest Area Utility Extension - Argenta Trail Alignment						X		
7	2015-03	65th Street Construction (between T.H. 3 and Argenta Trail)				X	X		X	
8	2015-08	70th Street (from Eagan border to T.H. 3)			X		X			16-04,16-05,18-19
9	2015-10	NWA Trunk Utility Improvements - Argenta District (Alverno Avenue to Blackstone Vista Development)						X	X	
10	2015-11	NWA 70th Street Lift Station - Argenta District						X		
11	2015-12	NWA Trunk Watermain Improvements - 65th Street Loop (Phase I) Argenta Trail to Babcock Trail							X	STUDY
12	2015-13	NWA Trunk Utility Improvements - Argenta District (70th Street Lift Station to Blackstone Ridge Development)						X	X	
13	2015-16	Trunk Utilities, Argenta Trail to Blackstone Ridge						X	X	
14	2015-19	NWA Robert Watershed Corridor					X			
15	2015-20	NWA Trunk Utility Improvements - Robert District						X	X	
16	2016-04	Argenta Trail (Amana Trail to 70th Street) - NWA				X	X			15-08
17	2016-05	Argenta Trail (70th Street to 65th Street) - NWA				X	X			15-08
18	2016-08	Trunk Highway 3 / 70th Street Intersection Improvements (Roundabout)		X	X		X	X	X	
19	2016-09D	60th Street Area Reconstruction				X	X			
20	2016-16	TH 55/Argenta Trail Interchange		X	X		X			
21	2016-19	65th Street Construction (between T.H. 3 and Babcock Trail)				X	X			STUDY
22	2016-21	Trail along Babcock Trail (between Upper 55th and Hwy 494)			X					
23	2017-02	NWA Trunk Watermain Improvements - 65th Street Loop (Phase II of 2015-12) Hwy 3 to Harmon Park							X	
24	2017-03	NWA Trunk Watermain Improvements - 65th Street Loop (Phase III of 2015-12) Hwy 3 to Blackstone Ridge							X	
25	2017-04	Water Resources Management Plan 4th Generation Update					X			
26	2017-24	T.H. 3 Intersection Improvements for the 65th Street Project		X		X	X		X	
27	2018-02	80th Street Sanitary Sewer Improvements (Robert District)							X	
28	2018-03	NWA Trunk Watermain Improvements - 65th Street Loop (Phase IV of 2015-12) from Agate Trail to Alverno Lane							X	
29	2018-16	Municipal Water Supply Well Field Analysis							X	STUDY
30	2018-17	Regional Road System Visioning Study Update				X				STUDY
31	2018-19	New Argenta Trail from Amana Trail to Existing Argenta Trail			X		X			15-08,16-04,16-05

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