Southern Shakopee Alternative Urban Areawide Review (AUAR)

Final AUAR

Prepared for the

City of Shakopee

By

Stantec

Adopted March 1, 2022

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ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form is being used to record the Alternative Urban Areawide Review (AUAR) for a proposed residential development in the City of Shakopee, MN. An AUAR is an alternative to an Environmental Impact Statement (EIS) that responds to the questions on the EAW form to the level of analysis similar to an EIS. This EAW form and AUAR Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm.

Minnesota Rules Chapter 4410.3610, subpart 4 states that "the content and format [of an AUAR document] must be similar to that of an EAW but must provide for a level of analysis comparable to that of an EIS for impacts typical of urban residential, commercial warehousing, and light industrial development and associated infrastructure." The EAW and AUAR Guidelines provide additional details and resources for completing the EAW form for an AUAR and conducting the AUAR review process. The following document follows the format of the July 2013 Environmental Assessment Worksheet Form.

PROJECT INTRODUCTION

The Southern Shakopee Alternative Urban Areawide Review (AUAR) study area is 435 acres, located approximately 1.5 miles south of Highway 169, between Marschall Road and Mystic Lake Drive in the southern part of the city of Shakopee, Scott County, MN (see Figures 1 and 2).

Figure 1. Project Location

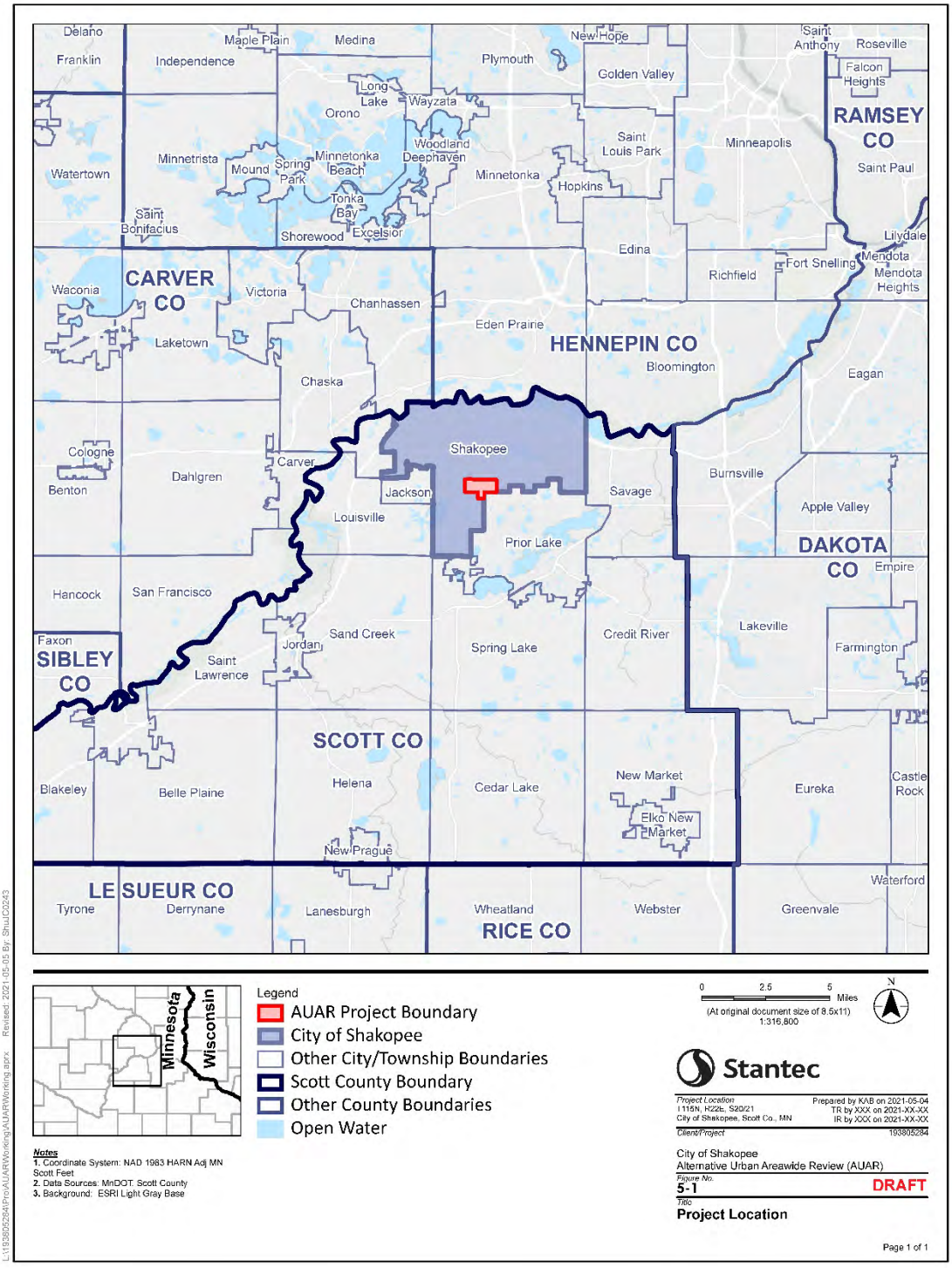
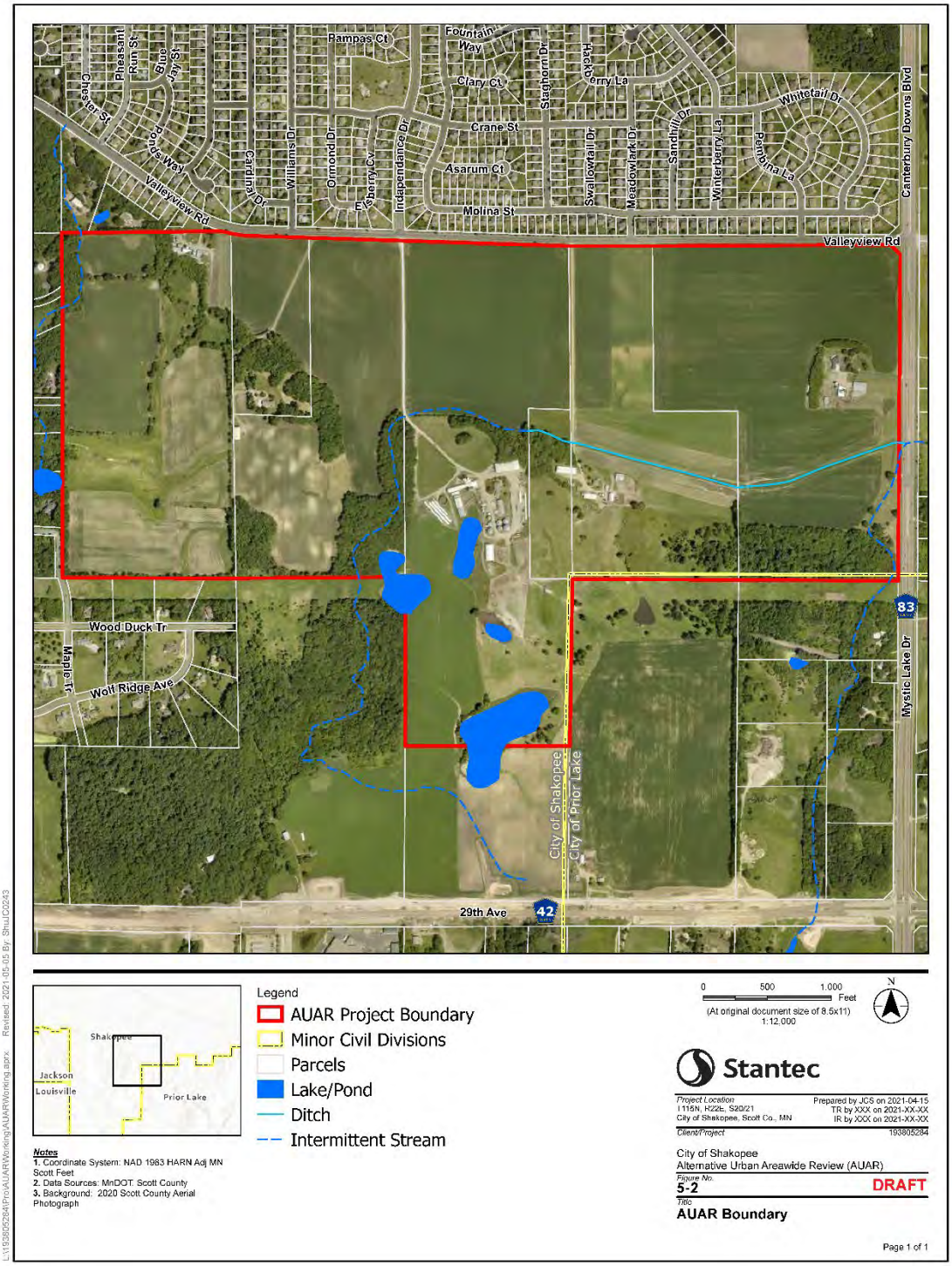


Figure 2. AUAR Boundary



1. Project Title

Southern Shakopee AUAR

2. Proposer

City of Shakopee
Contact person Michael Kerski
Title Community Development Director
Address 485 Gorman Street
City, State, Zip Shakopee, MN 55379
Phone 952-233-9346
E-mail mkerski@shakopeemn.gov

3. Responsible Governmental Unit (RGU)

City of Shakopee
Contact person Michael Kerski
Title Community Development Director
Address 485 Gorman Street
City, State, Zip Shakopee, MN 55379
Phone 952-233-9346
E-mail mkerski@shakopeemn.gov

4. Reason for AUAR Preparation

The City of Shakopee has initiated an Alternative Urban Areawide Review (AUAR) in the southern area of the city that mostly contains farmland. Residential developers are negotiating with existing property owners to construct single-family home developments as consistent with the comprehensive plan. The benefit of this AUAR is to evaluate the broader context related to a roadway network, municipal services, areawide stormwater management, and public amenities such as parks and trails.

5. Project Location

County: Scott
City: Shakopee
PLS Location: SENE2011522 (SE ¼ of NE ¼ of Section 20 of Township 115N Range 22W)
Watershed: Minnesota River (070200)
GPS Coordinates: Approx. center of site is Latitude 44.756907 degrees North, Longitude 93.482636 degrees West
Tax Parcel Number: 279200060, 279200051, 279200050, 279200090, 279200100, 279210010, 279210020

All required maps are found in Appendix A. Mitigation strategies can be found under each individual question.

6. Project Description

a. Provide the brief project summary to be published in the *EQB Monitor*.

The City of Shakopee is conducting an Alternative Urban Areawide Review (AUAR) for a portion of the city to be served with municipal infrastructure and is expected to develop rapidly. The AUAR area is approximately 435 acres south of Valley View Road and west of Mystic Lake Drive. Both development scenarios are consistent with the Comprehensive Plan designation of Suburban Residential.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal, or remodeling of existing structures, and 4) timing and duration of construction activities.

The City of Shakopee is conducting an Alternative Urban Areawide Review (AUAR) for a portion of the city that has been planned for urban development in the 2040 Comprehensive Plan. The AUAR area is approximately 435 acres located south of Valley View Road and west of Mystic Lake Drive with property owned by the Shakopee Mdewakanton Sioux Community (SMSC) to the south and east.

As part of the Draft AUAR comments, SMSC indicated recent acquisitions of land that are not reflected on the AUAR maps. Figure 6-1 identifies property owned by SMSC as of January 2022.

The purpose of the AUAR is to anticipate infrastructure and public realm needs that transcend individual property lines. The process of preparing the development scenarios included extensive collaboration with SMSC as well as input from Scott County and impacted watershed districts. The existing land uses are agriculture and undeveloped. Both development scenarios are consistent with the City's Comprehensive Plan future land use designation of Suburban Residential at 3-6 dwelling units per acre. The primary difference between the two development scenarios is the roadway network and resulting lot layout – primarily a cul-de-sac character in Development Scenario A and connected roadway network in Development Scenario B.

Currently, the AUAR area is not connected to municipal sanitary sewer. The City of Shakopee owns and operates their sanitary sewer collection system and conveys wastewater to the Metropolitan Council's Blue Lake Treatment Plant where it is treated and discharged. A gravity trunk system will be necessary to connect the AUAR area to the existing City of Shakopee sanitary sewer.

Development of the project area will increase runoff due to the increase in imperviousness and will require stormwater management to address local, state, and federal requirements. Under the proposed conditions, stormwater management on-site will generally consist of a series of open channels and detention basins.

Figure 6-1. SMSC Holdings

c. Project magnitude

Total AUAR Acreage: 435 acres

This environmental review analyzes two development scenarios within the 435-acre AUAR area. There is little difference between the two development scenarios as they both propose exclusively residential uses within the project area. The difference between scenarios is the layout, including the road network and size and number of lots. Each AUAR Development Scenario is described below, and Table 6-1 summarizes the project magnitude for each scenario.

Development Scenario A. Development Scenario A, depicted in Figure 6.1, proposes a total of 787 single-family residential lots arranged around a typical suburban cul-de-sac street network. This scenario makes six roadway connections outside the AUAR boundary, including two on the north that align with existing streets Independence Drive and Meadowlark Drive, two on the west that align with existing streets Peace Avenue and Leavitt Woods Lane, one on the south that would connect to existing Wood Duck Trail, and one access point on the eastern boundary along Mystic Lake Drive. There are a total of 32 cul-de-sacs. The remainder of the AUAR area is used for

stormwater / detention, flood storage, and open space. Table 6.1 provides a more detailed breakdown of the 787 lots based on size and number.

Development Scenario B. Development Scenario B, depicted in Figure 6.2, proposes a total of 885 single-family residential lots arranged around a more traditional and connected street network. This scenario makes seven roadway connections outside the AUAR boundary, with three on the north that align with existing streets Independence Drive, Meadowlark Drive, and Pembina Lane, two on the west that align with existing streets Peace Avenue and Leavitt Woods Lane, one on the south that would connect to existing Wood Duck Trail, and one access point on the eastern boundary along Mystic Lake Drive. There are four streets that dead end with a cul-de-sac, three of those located in the southernmost portion of the AUAR area. The remainder of the AUAR area is used for stormwater / detention, flood storage, and open space. Table 6.1 below provides a more detailed breakdown of the 885 lots based on size and number.

Figure 6-2. Development Scenario A

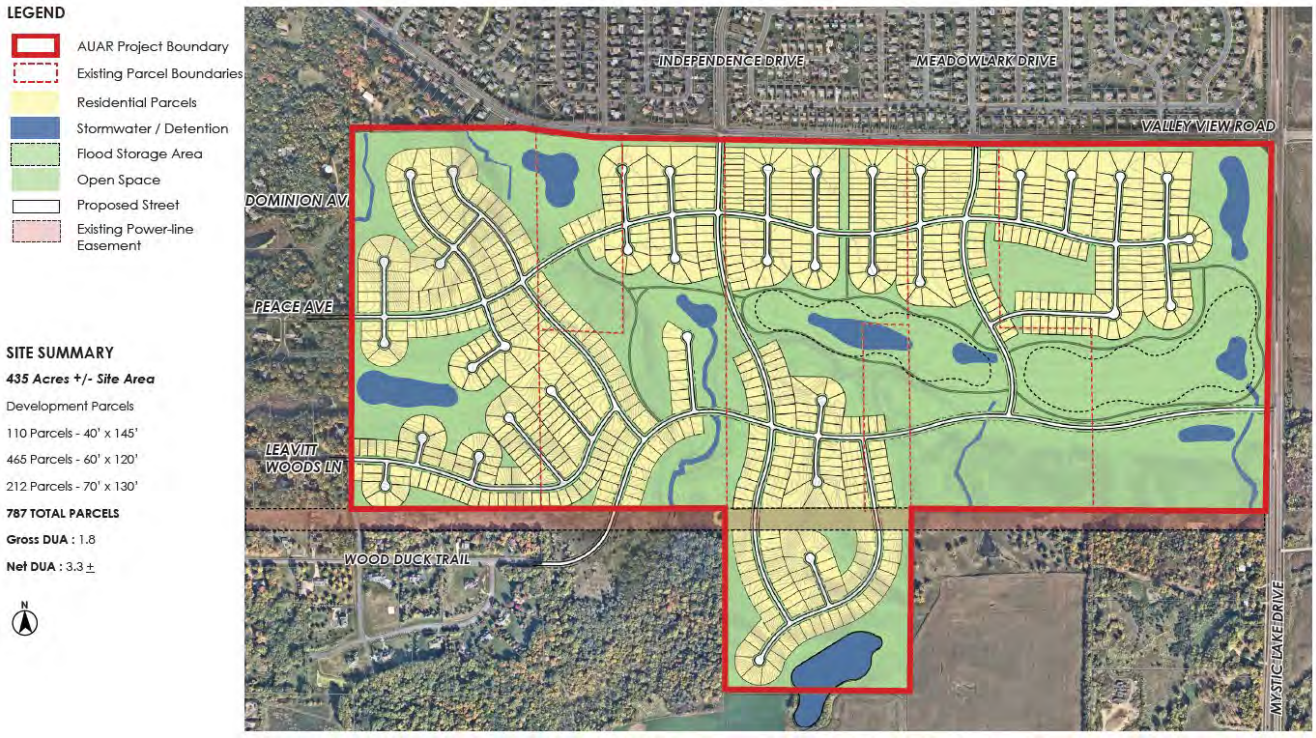


Figure 6-2. Development Scenario B

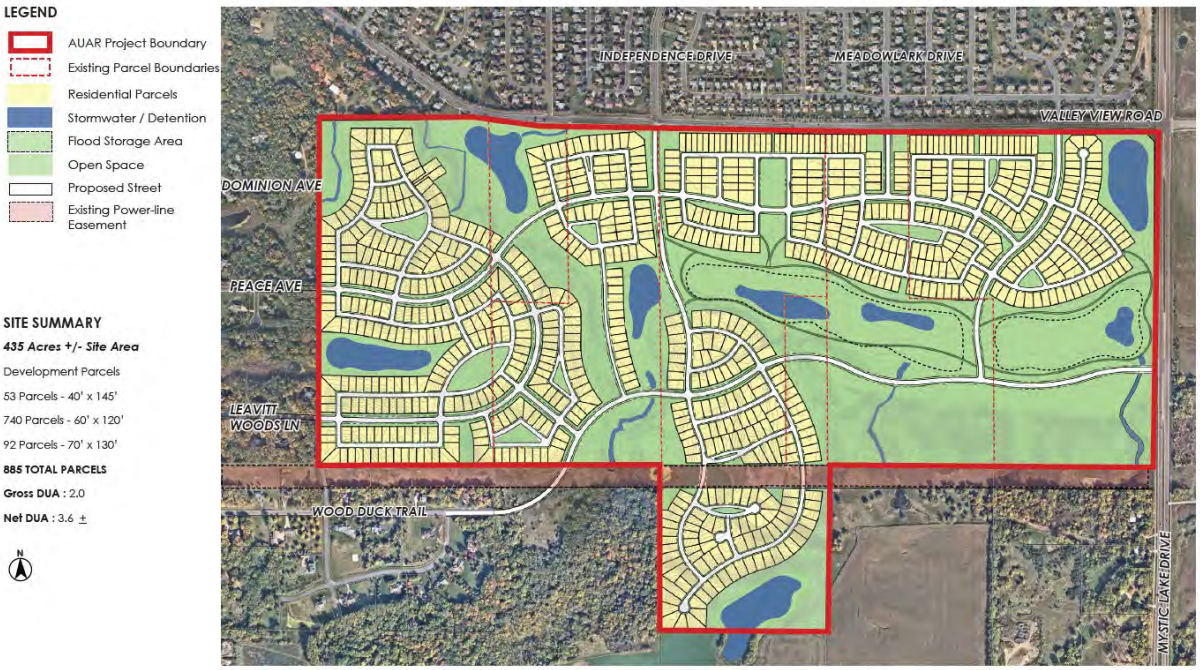


Table 6-1. Development Scenario Comparison

		Development Scenario A	Development Scenario B
Total Project Acreage		435 acres	435 acres
Linear project length (from western boundary to eastern boundary)		6,631 feet	6,631 feet
Size and number of residential units	40’ x 145’	110 units	53 units
	60’ x 120’	465 units	740 units
	70’ x 130’	212 units	92 units
	Total units	787 units	885 units
Commercial building area (square feet)		0	0
Industrial building area (square feet)		0	0
Institutional building area (square feet)		0	0
Other uses – specify (square feet)		0	0
Structure height(s)		35 feet	35 feet

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The City of Shakopee has reviewed preliminary development concepts for portions of the AUAR area. Developers will build the houses and private infrastructure and amenities. Developers may also build public streets and utilities under the oversight of the City of Shakopee.

e. Are future stages of this development including development on any other property planned or likely to happen? □Yes x No

f. Is this project a subsequent stage of an earlier project?
No.

QUESTION 6 MITIGATION STRATEGIES

- If either Scenario A or Scenario B is implemented, the City will contact the Metropolitan Council to increase the household and population allocations for Transportation Analysis Zone (TAZ) #2173 for 2030 and 2040.

7. Cover Types

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

The existing acreage of land cover type within the AUAR area was determined based on Geographic Information System (GIS) tools and supplemented with a forest resource study that was conducted on portions of the AUAR area with permission to access. Figure 7-2 shows the results of the forest resource study. Acreages for the proposed scenarios was estimated based on the prepared scenario plans.

Table 7-1. Existing and proposed land cover types

Land Cover Type	Existing	Proposed	
		Scenario A	*Scenario B*
Artificial Surface	23.9 acres	240.7 acres	240.7
Agricultural	303.2 acres	0 acres	0 acres
Forest and Woodland	38.4 acres	21.9	21.4
Grass and Shrubland	58.9 acres	151	150.6
Undeveloped / Open Space	---	--	--
Wetlands	2.2 acres	0 acres	0 acres
Lakes and Open Water	8.4 acres	0 acres	0 acres
Stormwater / Detention	---	21.4 acres	22.3 acres
TOTAL	435 acres	435 acres	435 acres

Figure 7-1. Land Cover Types

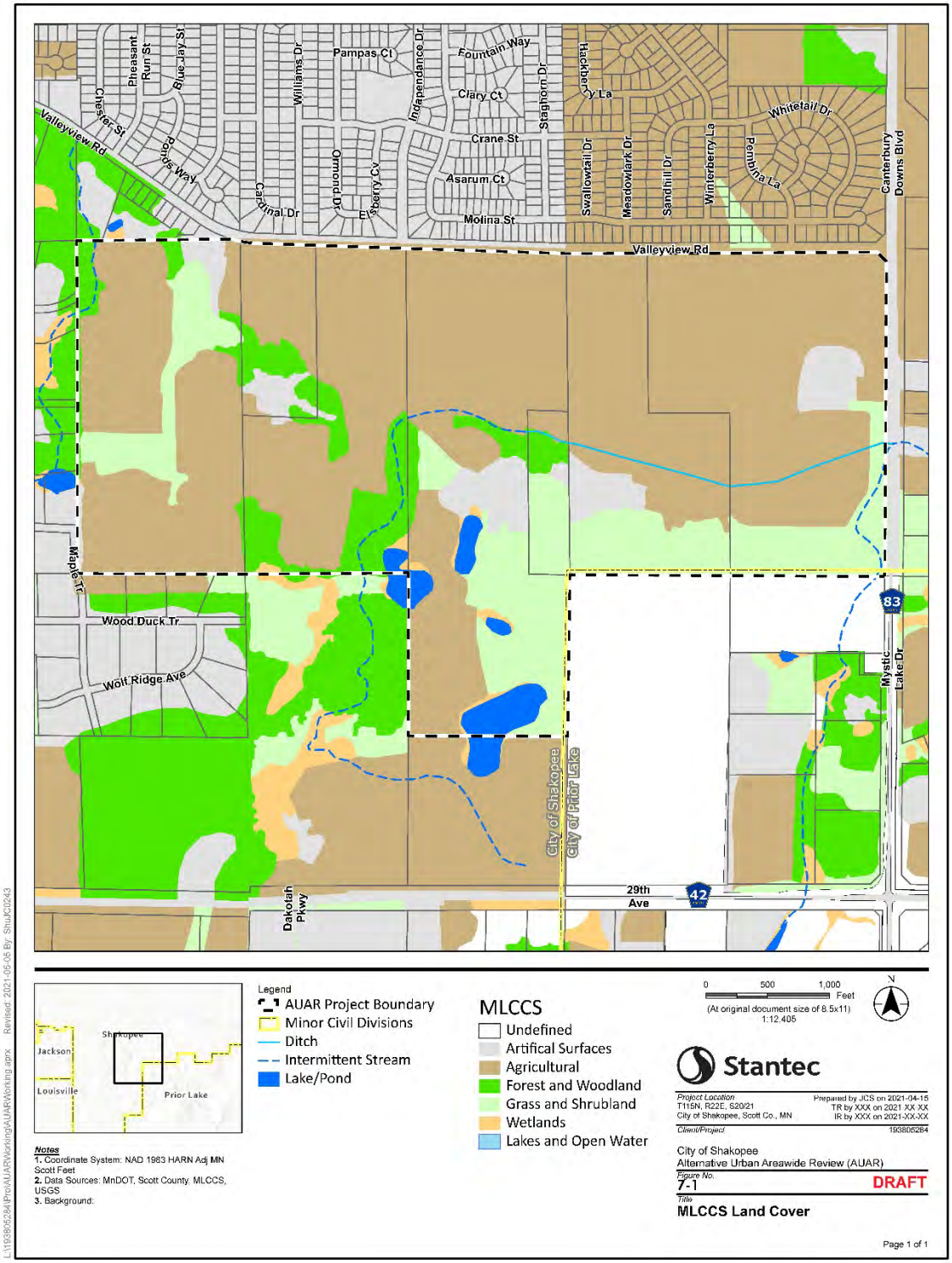
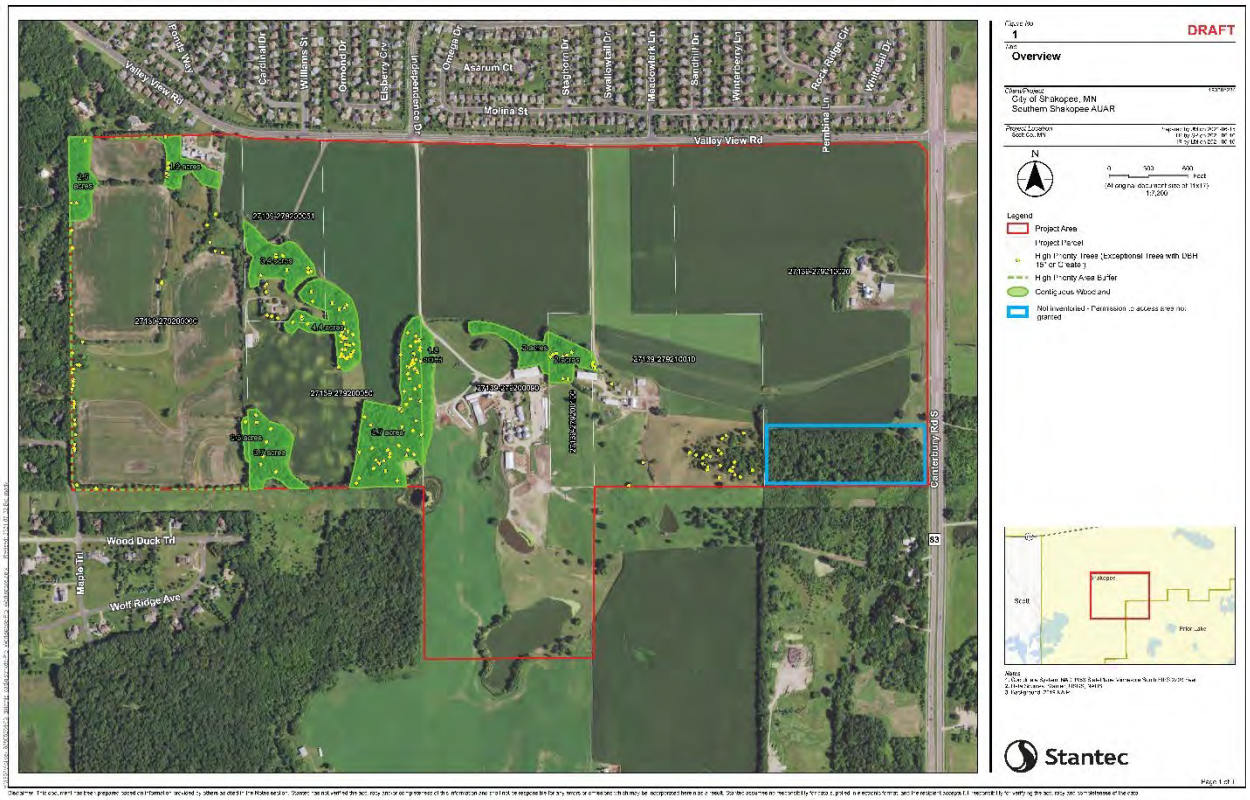


Figure 7-2. Forest Resource Study: Tree Inventory



8. Permits and approvals required.

List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure.

Table 8- 1. Permits and Approvals

Unit of Government	Type of Application	Status
City of Shakopee	AUAR Approval	To be applied for
	Approval of Master Plan	To be applied for
	Site Plan Review	To be applied for
	Rezone	To be applied for
	Preliminary Plat	To be applied for
	Development Agreements	To be applied for
	Final Plat	To be applied for

	Sign Permits	To be applied for
	Building Permits	To be applied for
	Excavation and Grading Permit	To be applied for
	Certification of Occupancy	To be applied for
	Parkland Dedication	To be applied for
	Construction Site Stormwater Permit	To be applied for
	Tree Preservation Plan	To be submitted
USACE	Clean Water Act Section 404	To be applied for
	Letter of No Wetland Jurisdiction, if applicable	To be applied for
MNDNR	Public Waters Work Permit	To be applied for
	Water Appropriation Permit for new municipal well, if needed	To be applied for
	Temporary Water Appropriation Permit for construction dewatering	To be applied for
	Pre-construction Permit	To be applied for
MPCA	NPDES MS4 Stormwater Permit	To be applied for
	SWPPP	To be prepared
	Construction Site Stormwater Permit	To be applied for
	Clean Water Act Section 401 Certification	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
	Response Action Plan (RAP)/CCP	To be submitted
Metropolitan Council	Sewer Extension Permit	To be applied for
	Sewer Permit to Connect	To be applied for
MN Dept. of Health	Well-sealing permit	To be applied for
	New municipal well design review	To be applied for
Minnesota State Historic Preservation Office	Phase 1 cultural resources survey, if USACE permit is required	To be applied for

9. Land Use

a. Describe:

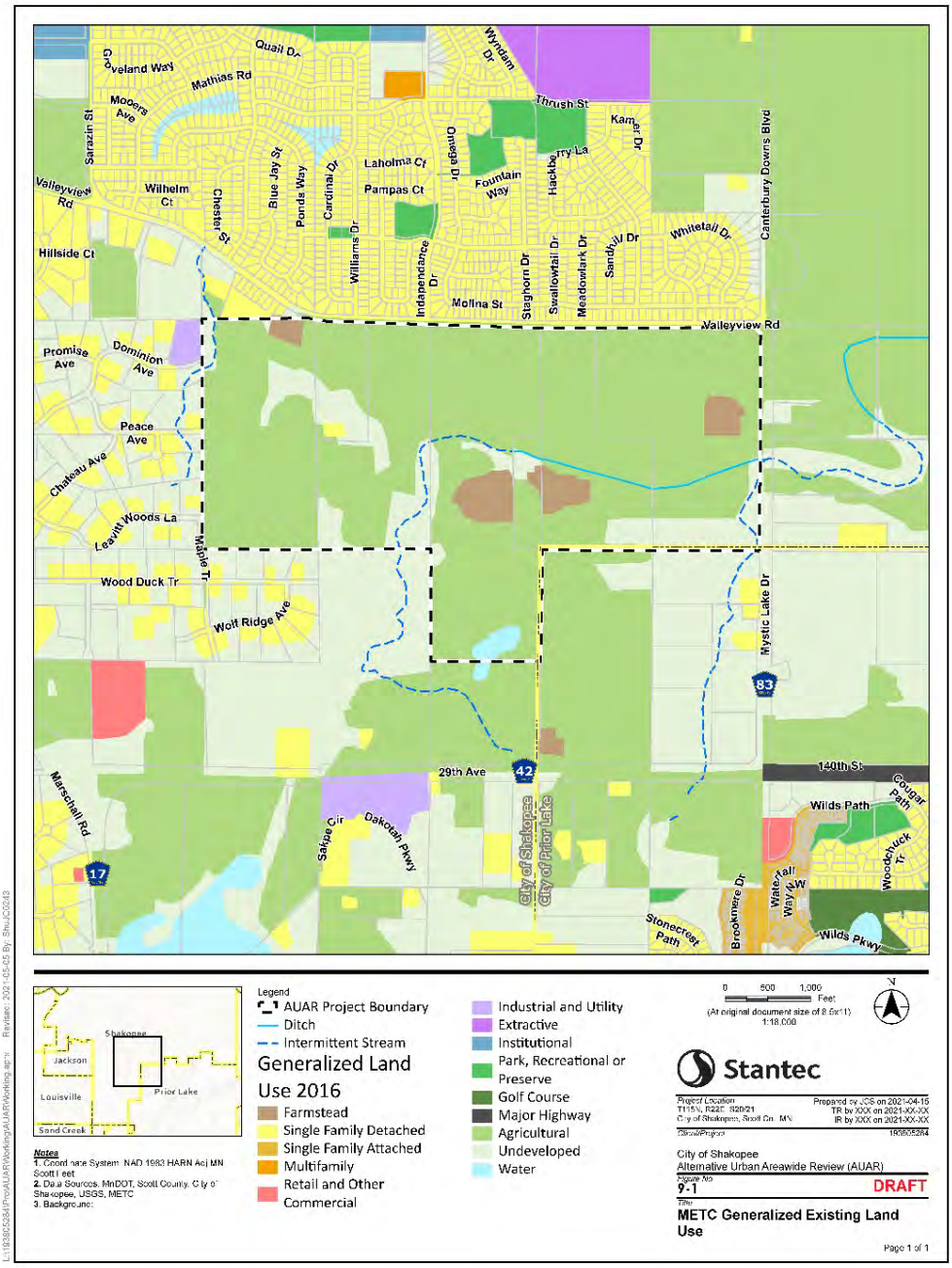
i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

Existing land use within the AUAR area consists predominantly of agriculture lands. The area is currently occupied by four farmsteads which are spread out within the AUAR area. There are also several pockets of undeveloped areas which consist mainly of wooded areas. The Generalized Existing Land Use map (Figure 9.1) shows a ditch and intermittent stream running through the project area.

There are several city parks (both City of Shakopee and City of Prior Lake) that are within proximity to the AUAR project boundary. City of Shakopee parks include Cloverleaf Park to the north and Timber Trails Park to the west. City of Prior Lake parks include Wilds North Park, Meadow View Park, and notably, Haas Lake Park which features trails along the lake. Spring Lake Regional Park is located approximately 3 miles south of the project area. City trails exist along some of the AUAR project boundaries, including along Valley View Road to the north and Mystic Lake Drive to the east. Scott West Regional Trail, also known as the Big Woods Regional Trail, a paved hike, bike, and on-leash dog trail is located just west of the AUAR project area along Marschall Road / County Road 17.

Existing land use is shown in Figure 9-1.

Figure 9-1. Existing Land Use



ii. Plans. Describe planned land use as identified in comprehensive plan and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

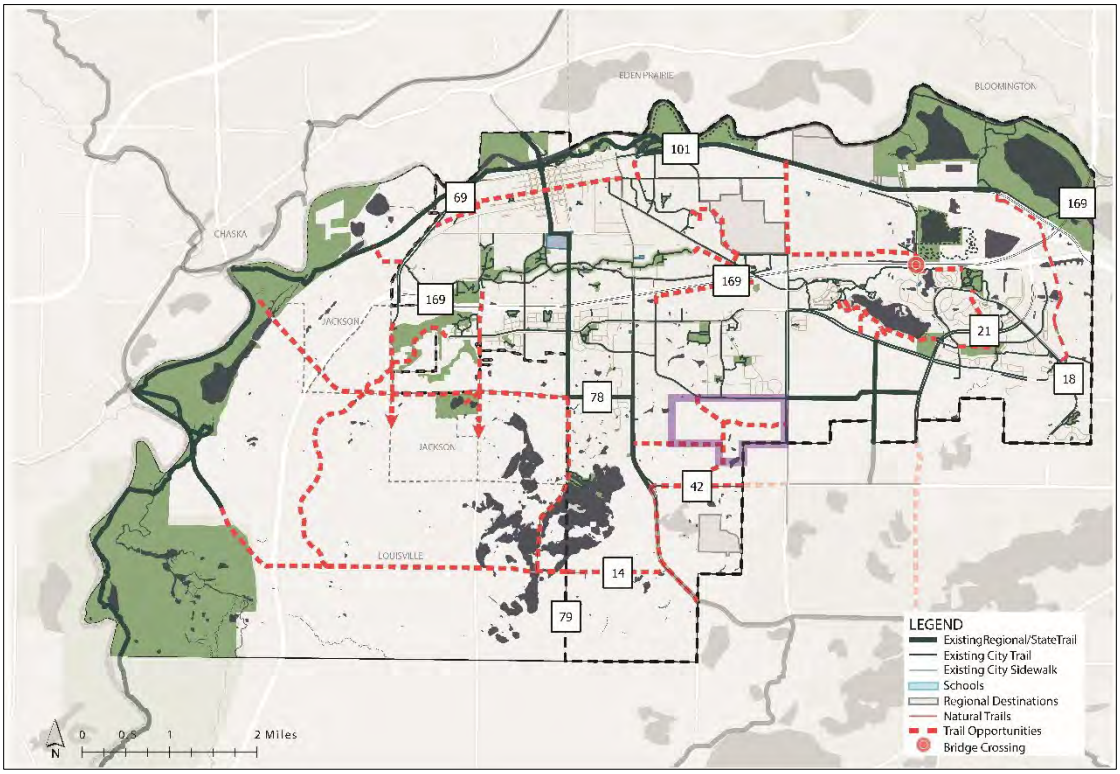
The City of Shakopee adopted their 2040 Comprehensive Plan in November 2019. The Comprehensive Plan guides the entire project area as suburban residential, which is described as “residential subdivisions of medium-lot neighborhoods with relatively uniform housing types

and densities. Homes include attached garages accessed from the street. Local streets are laid out in a curvilinear pattern with occasional cul-de-sacs. Streets may or may not include sidewalks. New single-family subdivisions should be designed with sidewalks, street trees, neighborhood parks and community open space connections."

Planned land use is illustrated in Figure 9.3.

Shakopee also adopted a Parks, Trails, and Recreation Master Plan in November 2019. The Master Plan identifies several trail opportunities through the AUAR project area, as shown in Figure 9-2 (light purple area highlights AUAR project area). Proposed trails originate from the north, east, west, and south boundaries of the AUAR area.

Figure 9-2. Shakopee Parks, Trails & Recreation Master Plan, Existing and Proposed Trails



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

As shown in the zoning map in Figure 9-4, the entirety of the land within the AUAR project boundary is zoned RR – Rural Residential, which is intended for low-density residential development in areas which are not served by municipal urban services. Design standards for parcels within the RR zoning district include a maximum density of 1 dwelling per 10 acres, a maximum impervious surface of 30 percent, and minimum lot area of 30,000 square feet (minimum lot width of 150 feet and minimum lot depth of 200 feet). Note that both development scenarios propose smaller lot areas and an overall higher density.

Based on an August 2021 map (Figure 9-5) from the Metropolitan Council, the entire AUAR project area is within the 2030 Municipal Urban Service Area (MUSA) boundary. The MUSA boundary ensures that regional infrastructure, particularly as it relates to wastewater, is available to support anticipated development.

No other significant overlays appear to be relevant to the AUAR project area.

Figure 9-3. Planned Land Use

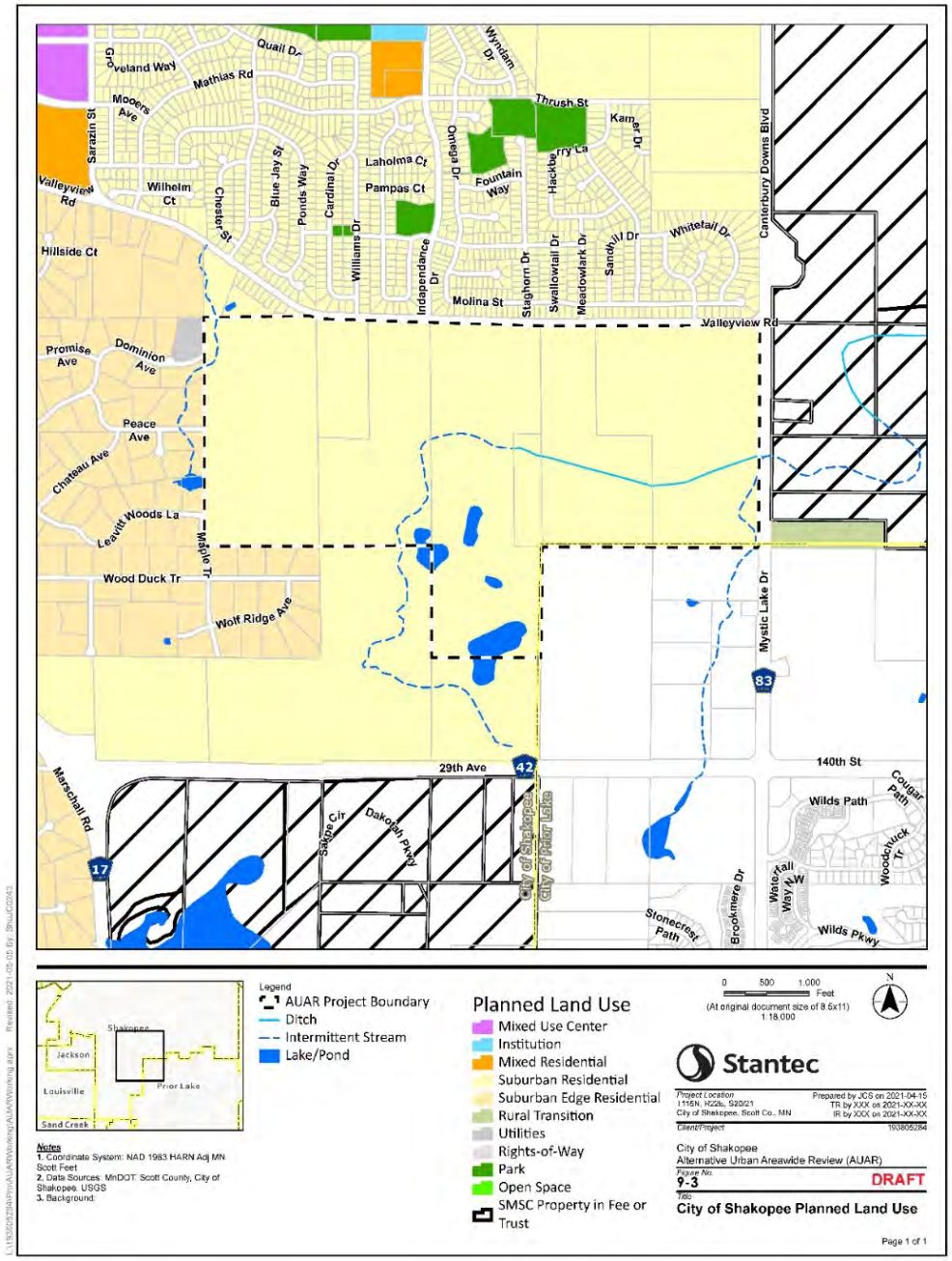


Figure 9-3. Zoning Map

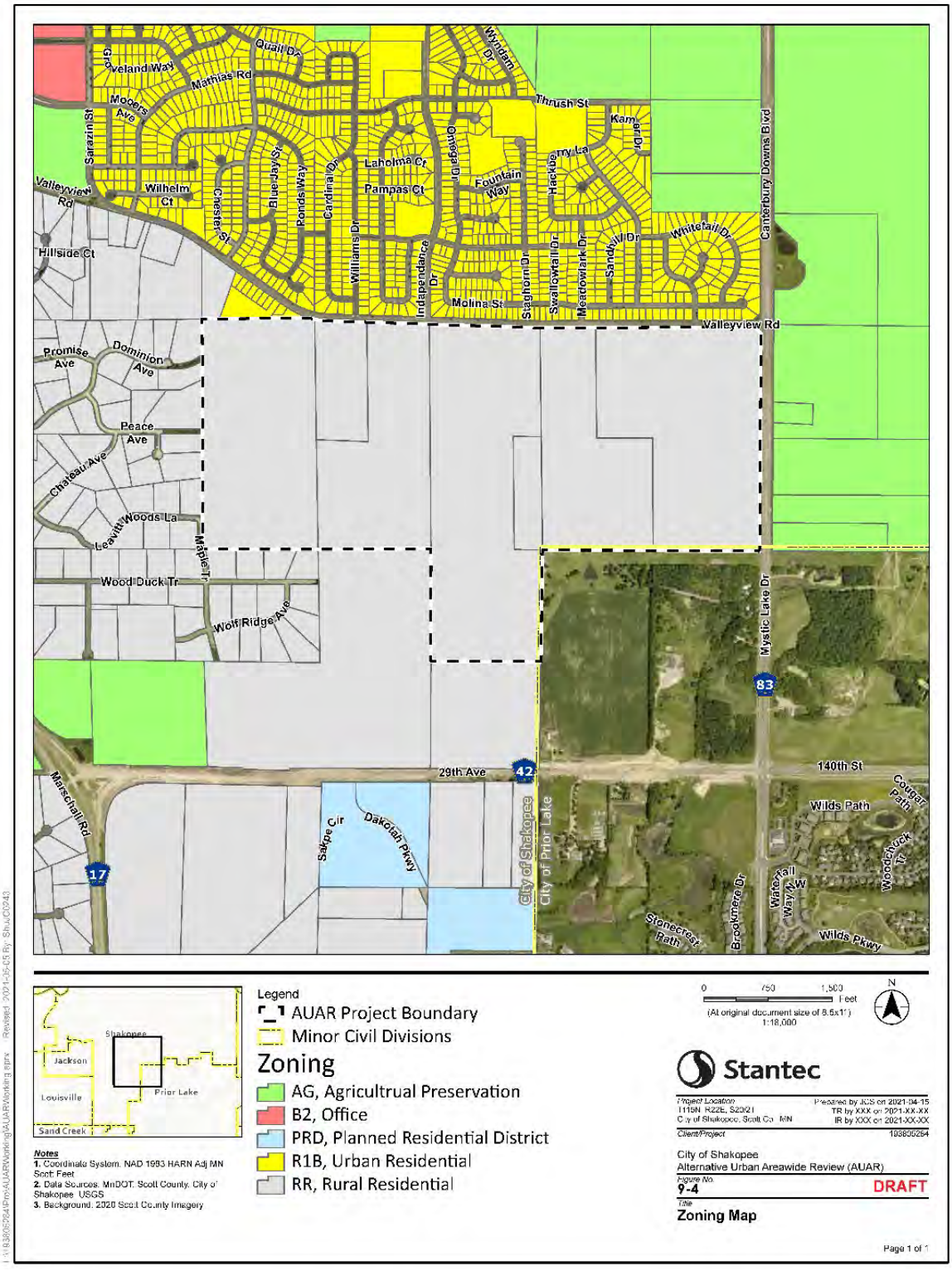
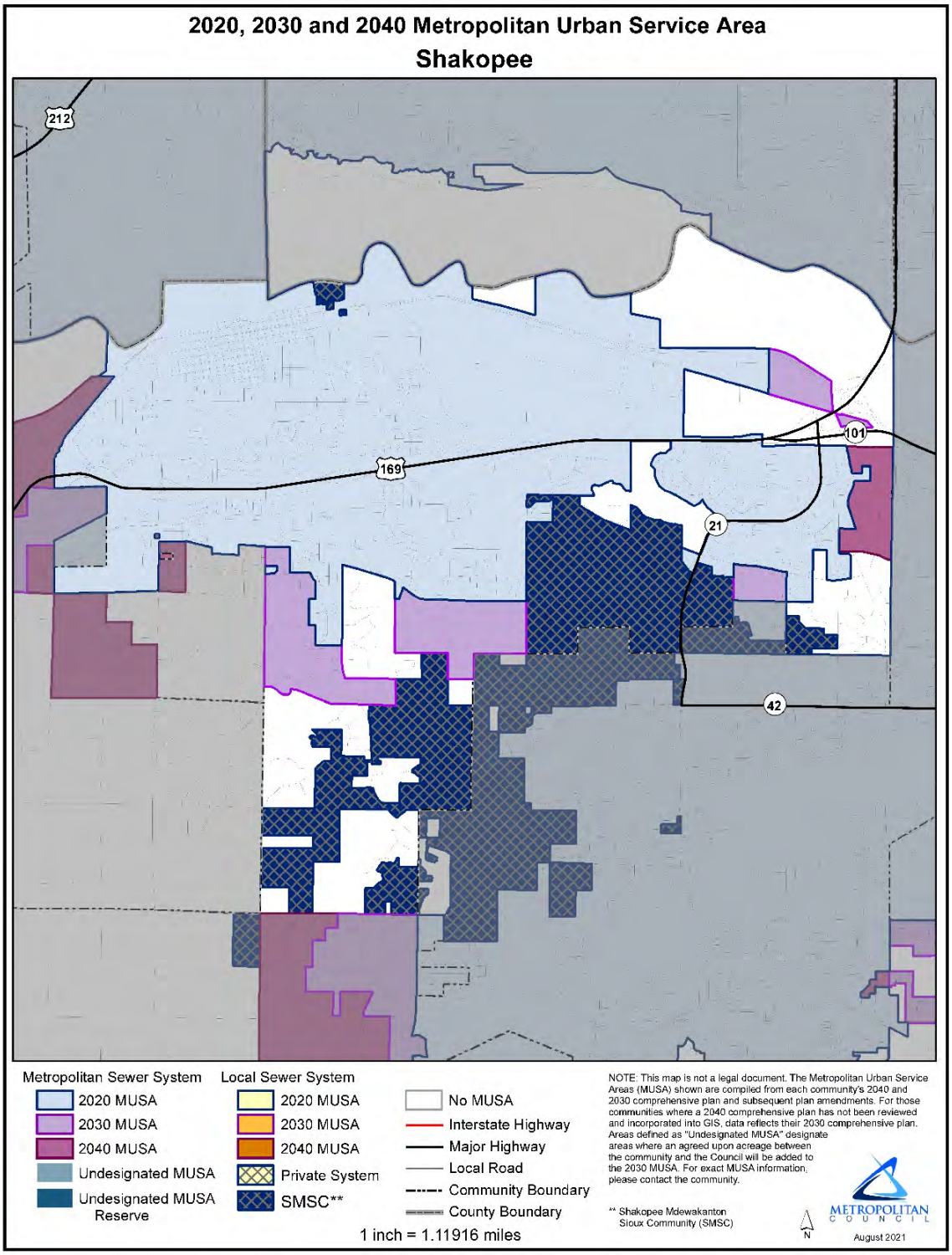


Figure 9-5. Shakopee MUSA



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

Existing nearby land includes uses that are residential, agriculture, or generally undeveloped in nature. Residential development exists to the north (smaller lot sizes, approximately 10,000 square feet) and west (larger lot sizes, approximately 2.5 acres). Agriculture or undeveloped land exists to the south and to the east. Also of significance, generally located to the east is the Shakopee Mdewakanton Sioux Off-Reservation Trust Land, which is mostly undeveloped land.

The City's current zoning of adjacent areas are consistent with the proposed project. Land to the north is zoned R1B, Urban Residential, land to the west and south is zoned RR, Rural Residential, and land within the City of Shakopee to the east is zoned AG, Agriculture Preservation. Descriptions of the zoning districts are included for reference:

- Agricultural Preservation - The purpose of the Agricultural Preservation Zone is to preserve and promote agriculture in the unsewered areas of the city which are suitable for such use, to prevent scattered and leap-frog non-farm growth, and to prevent premature expenditures for such public services as roads, sewer, water, and police and fire protection.
- Rural Residential - The purpose of the Rural Residential Zone is to allow low-density residential development in areas which are not served by municipal urban services.
- R-1B - The purpose of the Urban Residential Zone is to provide an area for residential development where public sanitary sewer and water are available.

Planned land uses surrounding the AUAR project boundary consist of Suburban Residential (north, south, and west), Suburban Edge Residential (west), and SMSC Property in Fee or Trust (Shakopee Mdewakanton Sioux lands, located generally south and east). The planned land uses around the project boundary are consistent with the proposed project.

In summary, the proposed residential development as outlined in both development scenarios is compatible with the existing land use, zoning, and planned land use for the surrounding area. There is little difference in land use between Development Scenario A and Development Scenario B aside from the proposed density of residential lots as outlined in Table 9-1 below.

Table 9-1. Development Scenario Comparison

		Development Scenario A	Development Scenario B
Number of Proposed Parcels	40' x 145'	110	53
	60' x 120'	465	740
	70' x 130'	212	92
Total Parcels		787	885
Gross DUA		1.8	2.0
Net DUA		3.3	3.6

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

Because the proposed project includes residential uses in an area already characterized by residential or other compatible uses, there is little to mitigate in terms of potential land use incompatibilities.

QUESTION 9 MITIGATION STRATEGIES

- Rezone project area to reflect the proposed residential density.

10. Geology, Soils, and Topography/Landforms[1]

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.

The surficial geology across the AUAR area has been mapped in the Minnesota Geological Survey's Geologic Atlas of Scott County (2006) as being sediments that were deposited by ice from the northeast (Superior Lobe) and the northwest (Des Moines lobe). Most of the soil was deposited by the Des Moines lobe or reworked Superior lobe deposits during the advance of the Des Moines lobe. The Superior lobe advanced from the northeast (Lake Superior), carrying characteristic red sandstone, among other rock types. Later the Des Moines lobe advanced from the northwest carrying sediment from southwestern Manitoba and North Dakota. The Des Moines lobe sediments include abundant, distinctive, gray siliceous shale fragments. The deposits in the AUAR area appear to be comprised of loam with pebbly, unsorted, with cobbles and boulders; generally, less than 25 percent shale in the very coarse (1 to 2 millimeter) sand fraction. Inclusions of reddish-brown sediment indicate mixing with Superior lobe sediment when advancing ice incorporated material from the underlying sediments. According to surrounding water well logs on the Minnesota Department of Health (MDH) Minnesota Well Index (MWI), it appears that the thickness of the surficial glacial deposits vary from around 100 feet thick east and west of the AUAR area to up to 150 feet thick south of the AUAR area. It would be anticipated that depth to bedrock would be approximately 100 feet below grade in the AUAR area.

The bedrock geology across the AUAR area has been mapped in the Minnesota Geological Survey's Geologic Atlas of Scott County (2006) as being composed of Prairie du Chien Group bedrock; this is mapped as the upper bedrock unit in the AUAR area. The water well logs indicate that the Prairie du Chien Group is approximately 120 to 160 feet thick and underlain by the Jordan Sandstone. The majority of the water wells are completed in the Jordan Sandstone, but the static water levels are near the contact of the glacial material and the Prairie du Chien Group. The Prairie du Chien Group bedrock is more susceptible to the formation of surface karst features. However, to have a higher likelihood of karst developing, the Prairie du Chien Group must usually be within 50 to 100 feet of the land surface and have the top of the water table within the Prairie du Chien Group. These conditions do not exist within the AUAR area, with the Prairie du Chien Group being located over 100 feet below the land surface and from the water well logs indicate that it is nearly fully saturated.

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 soils limitations, such as steep

[1] Geologic atlas of Scott County, Minnesota, C-17 Setterholm, D.R. (Minnesota Geological Survey, 2006).
Minnesota Well Index, Minnesota Department of Health, Version 2.0.62 (online).

slopes, 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.

Most of the soil and sediments in this area were deposited by the advancement of glacial ice from the northeast (Superior lobe) and the northwest (Des Moines lobe), mostly associated with the northwest. The Superior lobe advanced approximately 20,000 years ago from the northeast, through Lake Superior, carrying characteristic red sandstone, among other rock types. The glacial ice advanced from the northwest approximately 14,000 years ago carrying sediment from the southwestern Manitoba and from North Dakota. These sediments include abundant, distinctive, gray siliceous shale fragments. The Des Moines lobe incorporated debris left by the Superior lobe which is apparent in tills where a blend of the northwest and northeast source material which is reflected in the till being stratified with distinct brown and red layers. The current landscape records the most recent glacial events in the sediments but may also reflect the history of earlier glacial events in the landforms and sediments just beneath the surface.

Table 10-1 summarizes the soil types and acreages in the AUAR area.

Table 10-1. Soil Types and Acreages

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group	Aquifer Sensitivity	Acres in Area	Percent of Area
DaA	Dakota loam, 0 to 2 percent slopes	B	No	27.88	6.42%
DbA	Dickman sandy loam, 0 to 2 percent slopes	A	No	27.94	6.43%
DbB	Dickman sandy loam, 2 to 6 percent slopes	A	No	25.14	5.79%
EaB	Estherville sandy loam, 2 to 6 percent slopes	A	No	2.95	0.68%
Ga	Glencoe silty clay loam, 0 to 1 percent slopes	C/D	Yes	4.22	0.97%
HaB	Hayden loam, 2 to 6 percent slopes	C	No	0.84	0.19%
HaC	Hayden loam, 6 to 10 percent slopes	C	No	7.88	1.82%
HaC2	Hayden loam, 6 to 10 percent slopes, moderately eroded	C	No	6.31	1.45%
HaD	Hayden loam, 10 to 22 percent slopes	C	No	10.61	2.44%
HaD2	Hayden loam, 10 to 22 percent slopes, moderately eroded	C	No	4.78	1.10%
HaE2	Hayden loam, 18 to 25 percent slopes	B	No	48.51	11.17%
HbE2	Hayden sandy loam, 18 to 25 percent slopes	B	No	15.57	3.59%
HeA	Sparta loamy fine sand, 0 to 2 percent slopes	A	No	5.26	1.21%

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group	Aquifer Sensitivity	Acres in Area	Percent of Area
HeB	Sparta loamy fine sand, 2 to 6 percent slopes	A	No	9.88	2.27%
INT	Water, intermittent			3.45	0.80%
LaC	Estherville loam, 6 to 12 percent slopes	A	No	0.95	0.22%
LbC	Estherville-Burnsville complex, 6 to 12 percent slopes	A	No	3.39	0.78%
LbC2	Estherville-Burnsville complex, 6 to 12 percent slopes, moderately eroded	A	No	2.72	0.63%
LbD	Estherville-Burnsville complex, 12 to 50 percent slopes	A	No	7.94	1.83%
LcB	Lester loam, 2 to 6 percent slopes	C	No	14.06	3.24%
LcC	Lester loam, 6 to 10 percent slopes	C	No	8.23	1.90%
Map Unit Symbol	**Map Unit Name**	**Hydrologic Soil Group**	**Aquifer Sensitivity**	**Acres in Area**	**Percent of Area**
LcC2	Lester loam, 6 to 10 percent slopes, moderately eroded	C	No	30.38	7.00%
LcD	Lester loam, 10 to 16 percent slopes	C	No	6.08	1.40%
LcD2	Lester loam, 10 to 16 percent slopes, moderately eroded	C	No	7.85	1.81%
Sb	Steep land, Hayden-Lester materials		No	15.76	3.63%
TcA	Terril loam, 0 to 2 percent slopes	B	No	12.99	2.99%
TcB	Terril loam, 2 to 6 percent slopes	B	No	12.72	2.93%
W	Water			4.41	1.01%
WaA	Waukegan silt loam, 0 to 2 percent slopes	B	No	90.68	20.88%
Wb	Webster-Glencoe silty clay loams	B/D	Yes	14.95	3.44%
Total				434.32	**100.00%**

Drainage is to generally to the east with a topographic high in the southwest corner of the property. The topography of the AUAR area generally slopes to the center portion of the property to an intermittent stream. Soils permeability varies widely between soil types within the AUAR area; however, most soils generally have moderate permeability.

Hydrologic soil groups are listed in Table 10-1. The four hydrologic soil groups are:

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

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

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

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

QUESTION 10 MITIGATION STRATEGIES

- As development occurs excavation and grading activities should be limited in low elevation areas to allow at least 50 feet of overburden over the underlying bedrock to avoid elevating the potential for active karst.
- Sensitivity of the underlying aquifers to contamination can be mitigated by applying best management practices to reduce spills and leaks, complying with the City's Wellhead Protection Plan for aquifer management. Any storage tanks with hazardous substances should have secondary containment, along with monitoring devices to detect any leakage. Additionally, vehicles containing fuels and other hazardous substances should be parked over impervious surfaces whenever possible, with containment in place to prevent runoff of contamination.
- Any soils within the AUAR area not in wetlands and adjacent buffers that are unsuitable for support of buildings, roadways, and utilities shall be removed and replaced with suitable backfill.
- Due to the vast majority of soils in the area being hydrologic group A or B, infiltration will be used where feasible in design strategies.

11. Water Resources

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

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

The Project area contains stretches of intermittent streams, a ditch, and several NWI wetlands. Surface waters within the AUAR area, including intermittent streams, a ditch, and wetlands can be seen in Figure 11-1. No water bodies within the AUAR area are designated public waters by the DNR, and none have any special designations.

There are no MPCA 303d Impaired Waters within the AUAR area. Lake O'Dowd (70-0095-00) is within 1 mile of the AUAR AREA and is impaired for mercury and fish bioassessment impairment. Lake O'Dowd is approximately 0.74 miles southeast of the AUAR area. No other impaired or special designation water bodies are within 1 mile of the AUAR.

The proposed ponding and floodplain storage depicted on Figure 6-2 and Figure 6-3 are representative of approximate footprints based on preliminary calculations to accommodate the 100-year flood events in compliance with the requirements outlined in this section. The provided locations and sizes are expected to be modified by further analysis and calculations to accommodate final development plans.

In the northwest area of the study area there is a series of tiles and ditches that convey water from the bluff area, north to Valley View Road. The current conveyance is an ongoing issue resulting in flooding on Valley View Road. The development infrastructure should incorporate this drainage into BMPs within the proposed development to eliminate the current issues.

In the southeast area of the study area there are tributaries that drain north to the existing drainage channel within the study area. These tributaries present ongoing stabilization issues within the study area. The development infrastructure should incorporate the drainage from the tributary into BMPs within the proposed development. The proposed development will require additional study and associated improvements to incorporate adequate long-term stabilization of the tributary flow paths within the development boundary.

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

No springs or seeps have been identified within the AUAR area. The area falls within the Prairie du Chien-Jordan aquifer.

1) Depth to groundwater: Groundwater within the AUAR area ranges from approximately 125 feet to 200 feet below the land surface, as observed in records from on-site well records in the Minnesota County Well Index database. Given the range of measured groundwater depths on-site, shallow groundwater is not expected to be encountered at the site.

2) MDH wellhead protection area: The entire AUAR area falls within the Shakopee Wellhead Protection Area. The majority of the AUAR area is considered “low” vulnerability to contamination from spills occurring at or near the land surface. A small portion on the north side of the AUAR area is considered to be moderate vulnerability.

3) The following wells were identified on the property: Two existing wells were identified within the AUAR area, as shown in Figure 11-1 and mapped from the Minnesota County Well Index database. Both wells are listed as “active” domestic wells in the database. Wells within and near the AUAR area were field verified, so no unexpected wells should be located during the construction of any development. If additional wells are located and no longer in active use or are planned to be taken out of use, they will be required to be sealed according to the State’s Well Code. Table 11-1 lists the wells identified within the AUAR area.

Table 11-1. Minnesota County Well Index Records

Unique Number	Well Name	Depth (feet)	Well Type	Aquifer	Status
509197	Hauer, Terry	320	Domestic	Jordan	Active
211828	Weckman, Bob	260	Domestic	Jordan	Active

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

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

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

All the wastewater generated from development in the AUAR area will be residential and will discharge to the MCES Blue Lake Wastewater Treatment Facility (WWTF). No land uses that would generate wastewater requiring pretreatment are anticipated in the AUAR area.

The wastewater generated from any development has already been accounted for in the City of Shakopee 2018 Sanitary Sewer Master Plan (Master Plan) for the years 2020-2030. Development of the AUAR area should not require any upgrades to the Blue Lake WWTF or any municipal infrastructure.

The average flow rate planned for in the Master Plan was 152 gallons per minute (gpm), or 0.22 million gallons per day (MGD). The average flow rate calculated for the AUAR area in this study is:

i. Scenario A = 115 gpm (0.17 MGD)
ii. Scenario B = 130 gpm (0.19 MGD)

Since the calculated flow rate is less than the Master Plan flow rate, development within the AUAR should not have a negative impact on any municipal infrastructure or treatment facilities.

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

None of the wastewater generated from this project will discharge to a SSTS.

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

None of the wastewater generated from this project will discharge directly to surface water.

Currently, the AUAR area is undeveloped, and the site is not connected to municipal sanitary sewer. The nearest connection point to the existing system is located in the northeast just beyond the AUAR boundary. It is anticipated that any new sanitary sewer will connect at this point. The City of Shakopee owns and operates their sanitary sewer collection system and conveys wastewater to Metropolitan Council's Blue Lake Treatment Plant where it is treated and discharged. A gravity trunk system is proposed to connect the AUAR area to the existing City of Shakopee sanitary sewer.

ii. **Stormwater – Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site**

locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

The existing stormwater infrastructure in and around the AUAR area is illustrated in Figure 11-3. Under current conditions, stormwater runoff from the AUAR area generally flows northwest through an intermittent stream or east through an intermittent stream and ditched channel off-site. Runoff from the northwest is routed to existing City storm sewer where it ultimately discharges to the Minnesota River. Runoff from the rest of the site is routed east to the Prior Lake Outlet Channel. Existing land use within the AUAR area is largely agricultural with some undeveloped land and developed farmstead. An existing, open-water pond is on the south side of the project area. There is no current significant structural stormwater management on the site. During large storm events (greater than a 10-year event), flows exceed the banks of the main drainage ditch resulting in overland flooding to the north towards the intersection of Valley View Road and Independence Drive.

Development of the AUAR area will increase runoff due to the increase in imperviousness and will require stormwater management to address local, state, and federal requirements, as discussed below. Under the proposed conditions, stormwater management on-site will generally consist of a series of open channels and detention basins with infiltration benches or cells. The infiltration and detention basins will provide rate control and water quality treatment. Temporary erosion and sediment control measures such as rock construction entrances, silt fence, slope checks, and vegetative restoration will be required for all phases of the development. Soils on-site are well- to excessively drained according to NRCS soil survey data, indicating high infiltration capacity for stormwater infrastructure. See Section 10 for more information on soils within the AUAR area.

The AUAR area falls within the Scott Watershed Management Organization (Scott WMO) and is subject to the stormwater management regulations of the City of Shakopee, the permit authority for the area. The stormwater regulations for new development generally include water quantity, water quality, and rate control requirements. Sites must infiltrate one inch of runoff from all impervious surfaces to meet water quantity and quality standards. If infiltration is infeasible, total suspended solids (TSS) and total phosphorus (TP) export from the site must not exceed preconstruction conditions. Discharge rates shall not exceed the existing rates for the 2-, 10-, and 100-year events and that maximum allowable 100-year discharge rates fall below certain thresholds, depending on location within the city. For areas draining to the Prior Lake Outlet Channel (east), proposed stormwater basins will need to provide rate control limiting the 100-year rate to 0.1 cfs per acre. For areas draining to the north and west, proposed stormwater basins will need to provide rate control limiting the 100-year rate to 0.33 cfs per acre.

Additionally, stormwater from the site will need to be managed in accordance with the City's National Pollutant Discharge Elimination System (NPDES) MS4 stormwater permit and Stormwater Pollution Prevention Program (SWPPP), Construction Site Stormwater Permit, and (for industrial sites) Industrial Stormwater Permit. These plans, codes, and permits provide requirements for rate control, water quality treatment, and volume control. They address both temporary and permanent stormwater management.

iii. **Water appropriation – Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be**

used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

No surface water or groundwater appropriation is currently planned for the AUAR area.

There are currently two domestic wells within the AUAR area, as mapped in Figure 11-1. The County Well Index database lists the wells as "active", meaning they will need to be sealed before site development. Well sealing consists of filling the well with cement grout by a licensed well contractor. Though not expected, if shallow groundwater is encountered within the area during construction, a temporary dewatering permit from the Minnesota DNR will be required if dewatering exceeds 10,000 gallons per day or 1,000,000 gallons per year. Groundwater testing should be performed to determine if the groundwater is contaminated before dewatering activities begin. If groundwater is contaminated, State and local agency input will be required to select an appropriate discharge location and/or on-site treatment of contaminated water.

The AUAR area will be supplied with City of Shakopee municipal water. Shakopee Public Utilities Commission operates 18 high-capacity wells. According to the SPUC's Comprehensive Water System Plan and Water Supply plan, the City has planned water supply for an approximate 50 percent increase in population from 2010 to 2040 through use of current wells and drilling of new wells within City limits. No future wells are planned for within the AUAR site.

The higher elevation areas of the AUAR study are within the Schmitz and Hauer parcels on the west side and are located in our 2nd HES district. Consequently, to provide adequate water pressure for domestic service and fire protection, it requires the construction of an elevated 2nd HES district storage tank on Wood Duck Trail where our ground level storage tank #7 for the 1st HES district is located and a transmission water main running east to Maple Trail in the Xcel Energy high voltage transmission easement corridor parallel to Wood Duck Trail. At Maple Trail SPU would like to have the water main run north to south, so it can be connected into the AUAR parcels via the street connections shown on Wood Duck Trail and Leavitt Woods Lane/Maple Trail. It is anticipated that the city will re-construct those street segments in 2022 and the Utilities Commission has budgeted in our CIP to install water main within those street right of ways in 2022 and the elevated tank and transmission line as soon as in 2023 if necessary. The balance of the AUAR study area is located in our 1st HES district and can be served via the multiple existing water main stubs on the south side of Valley View Road.

If a new municipal water supply is required to serve the AUAR area, the following three permits must be obtained:

1. Minnesota DNR Pre-construction Permit – This permit application proposes a new well location to the Minnesota DNR so that any potential conflicts with existing wells or natural resources (such as calcareous fens) can be identified. If it is believed that no conflicts are expected, the City is then allowed to proceed with well construction. If potential impacts are identified, it will be necessary to work with MNDNR staff to ensure that any impacts are minimized. If the MNDNR does not approve of well construction at the proposed site, an alternative site (or water source) will need to be identified.

2. MDH Design Review – The plans and specifications for the new municipal well must be submitted to the Minnesota Department of Health (MDH) prior to drilling to ensure that the proposed well design meets Well Code requirements and will not negatively impact the aquifer(s) that the well intersects.

3. MNDNR Water Appropriation Permit – Once the well is constructed, the City will need to obtain an amendment to their existing Appropriation Permit in order to pump the new well. The MNDNR will outline any requirements necessary for amending the permit. These requirements may include aquifer testing and aquifer monitoring, to ensure that no negative impacts are occurring with other wells or natural resources.

iv. Surface waters

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

A desktop evaluation of available data including National Wetlands Inventory (NWI) data, aerial photography, and DNR Public Water data was completed. NWI wetlands are present within the AUAR area. No Public Waters are located within the AUAR area.

Both development scenarios may affect wetlands within the AUAR area. A Level 2 wetland field delineation would be completed in the future as part of the final design and permitting stages of the project. Wetland impacts would be determined during the permitting phase based on the Level 2 wetland delineation and final design project limits

Wetlands within the AUAR area may be subject to regulations by the following rules and agencies:

- Clean Water Act Section 404 - U.S. Army Corps of Engineers (USACE).
- Potential for Clean Water Act 401 certification from Minnesota Pollution Control Agency).
- Wetland Conservation Act (WCA) - City of Shakopee.
- Public Waters Work Permit - Minnesota Department of Natural Resources

WCA requires that impacts to wetlands be avoided and minimized to the greatest practicable extent and that alternatives to impacts are examined. Alternatives can include a ‘no build’ scenario, as well as examining other potential locations for development within the AUAR area. Should alternative locations not be feasible, then the proposer will design the area in a manner to minimize and avoid wetland impacts to the greatest practicable extent. The City of Shakopee as WCA local government unit (LGU), and other appropriate stakeholders, will be consulted during this process.

On-site wetland mitigation will be considered if there are wetland restoration opportunities located within the AUAR area that would yield wetland mitigation credit. Wetland banking will be used if on-site locations are not available and/or if agencies recommend the use of a wetland bank. The project wetlands are located within Wetland Bank Service Area 9 and a less than 50 percent Pre-Settlement Wetland Zone. Currently, there are six wetland

banks located within the same major watershed in Scott County which may be utilized for wetland credits. Any unavoidable wetland impacts that use wetland bank credit from the same Wetland Bank Service area can be replaced at a mitigation ration of 2:1 unless modified by the Wetland Conservation Act Technical Evaluation Panel.

Standard best management practices consistent with the City and NPDES permits will be used during construction to avoid and minimize turbidity, sedimentation, stormwater runoff and other potential effects to wetlands within the AUAR area. The City of Shakopee, under their stormwater management permitting, requires a 30-foot front and rear yard structure setback and a ten-foot side yard structure setback from wetland buffers for residential parcels, and a 10-foot structure setback for front, rear, and side yards for nonresidential parcels.

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

Under current development scenarios, existing intermittent streams, and ditch within the AUAR area will be used for stormwater conveyance and may require physical alteration.

QUESTION 11 MITIGATION STRATEGIES

- Dewatering will be required if shallow groundwater is discovered during construction, though it is not expected.
- Should any unused or unsealed wells be located during the construction of any development, those wells will need to be sealed by a licensed well contractor in accordance with the Minnesota Well Codes.
- Due to the area being within the City of Shakopee Wellhead Protection Area, the developer will take appropriate safety measures when handling materials that could pollute groundwater.
- Temporary erosion and sediment control measures such as rock construction entrances, silt fence, slope checks, and vegetative restoration will be required for all phases of the development.
- Any active wells will need to be sealed before any construction. Documentation of abandonment will need to be sent to Scott County Environmental Services.
- A temporary dewatering permit from the Minnesota DNR will be required if dewatering exceeds 10,000 gallons per day or 1,000,000 gallons per year.
- A Level 2 wetland field delineation shall be completed as part of the final design and permitting stages of the project.
- Any unavoidable wetland impacts that use wetland bank credit from the same Wetland Bank Service area shall be replaced at a mitigation ration of 2:1 unless modified by the Wetland Conservation Act Technical Panel.

- Where feasible, the developer should aim to preserve wetlands in order to maintain the existing hydrology of the site and sustain existing biodiversity.
- Standard best management practices (e.g., silt fence, sediment control logs, etc.) that are consistent with the requirements of the City and NPDES Permits will be utilized during construction to avoid and minimize turbidity, sedimentation, stormwater runoff and other potential effects.
- The Fish Bioassessment impairment for Lake O'Dowd requires additional Best Management Practices (BMP's) as described in the CSW permit that will be specified in the SWPPP for the Project.
- A drainage permit from MnDOT may be required. As per MnDOT, any proposed development will need to maintain existing drainage rates to any MnDOT Right-of-Way. As Plats, Site Plans, and specific project plans are completed, MnDOT will be consulted to determine whether a drainage permit would be required.
- Development infrastructure should incorporate current drainage issues in the northwest area into BMPs within the proposed development to eliminate the current flooding on Valley View Road.
- The proposed development will require additional study and associated improvements to incorporate adequate long-term stabilization of the tributary flow paths within the development boundary.
- If either Scenario A or B is implemented, the City will encourage the use of low impact development methods, where feasible.
- If either Scenario A or B is implemented, the City will encourage infiltration of the maximum amount of runoff, where feasible.
- Where feasible, water from stormwater ponds will be used for irrigating landscaping.

12. Contamination/Hazardous Materials/Wastes

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

The following databases were reviewed to evaluate on-site or nearby potential sources of contamination or environmental hazards: the MPCA "What's in My Neighborhood" (WIMN) online maps, the Minnesota Department of Agriculture (MDA) "County Spill Records," the MPCA Institutional Controls Interactive (IC) online maps, and the MPCA Petroleum Remediation Program (PRP) online maps.

A search of MPCA's WIMN database revealed the following sites within the AUAR area:

- John O'Loughlin Farm Section 20 – 2988 Valley View Road, Shakopee (central): Active Feedlot, MPCA ID 139-61680. A feedlot is a farm where livestock are confined in lots or buildings where manure may accumulate. Feedlots that have 10 or more animal units (AU) in shoreland and 50 AU or more outside of shoreland are required to register with the MPCA.
- Bob Weckman Farm – 2366 Canterbury Road (northeast): Active Feedlot, MPCA ID 139-65162.
- William Schmitz Farm – 2468 Valley View Road, Shakopee: Active Feedlot, MPCA ID 139-63162

The following sites were within 500 feet, outside of the AUAR area:

- John O'Loughlin Farm Section 20S – 2060 140th Street NW, Shakopee: Active Feedlot, MPCA ID 139-61678
- Elite Construction Services – 3000 County Road 42, Shakopee: Active; very small quantity generator of hazardous waste, MNR000106120
- SMSC Compost Facility PBR – 2260 140th Street NW, Prior Lake: Inactive, Solid waste facility, Permit by Rule PBR000519. A Permit-by-Rule facility does not need to obtain a solid waste permit since it meets certain eligibility criteria. It must comply with waste management regulations. It is small and/or operates for a short time (<15,000 cubic yards per 1 year).

The MDA County Spill Records, MPCA PRP, and MPCA IC online maps did not reveal any sites in the AUAR area or nearby with potential sources of contamination or environmental hazards.

Review of the National Pipeline Mapping System (NPMS) did not indicate the presence of buried pipelines within the AUAR area. The NPMS identified one pipeline transporting natural gas approximately 0.75- to 1.0-miles north-northeast of the AUAR area. CenterPoint Energy Resources operates the natural gas pipeline.

Drinking water to the AUAR area should be supplied by the Shakopee Public Utilities. According to the Minnesota Department of Health (MDH) online Well Index, at least two potable water wells are located within the AUAR area. Wells identified within the AUAR should be properly sealed if no longer required for the proposed development.

There are several structures within the AUAR area; therefore, the proposed development may require pre-demolition regulated waste surveys prior to demolition of existing structures.

Developers should prepare a Construction Contingency Plan (CCP) to address proper handling, treatment, storage, and disposal of solid wastes, hazardous materials, petroleum products, and other regulated materials/wastes that are used or generated during construction. The CCP should also establish protocols to minimize impacts to soil and groundwater in the event a release of hazardous substances or petroleum occurs during construction. Steps outlined in the CCP will be implemented in the event that previously unknown hazardous substances or petroleum products (i.e., releases not identified in presently available reports or databases) are encountered during construction activities.

If soil contamination is discovered through due diligence testing or during the course of development, the developer or other responsible party will be required to appropriately mitigate the contaminants according to the type of development planned and in compliance with MPCA rules.

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.

Construction

Construction wastes will be byproducts from the construction of utilities, roads, and residential and their supporting structures. Construction wastes will be primarily nonhazardous and can be managed as municipal solid waste (MSW) or construction/demolition debris. Through the development review process, the City will require that all MPCA and other applicable regulatory

requirements be met in the management and disposal of construction-related wastes. Recycling will be strongly encouraged, but this will be the responsibility of the developer and/or the construction contractor. There are several structures within the AUAR area; therefore, the proposed development within the AUAR area may require the demolition of existing buildings.

Hazardous waste is not anticipated to be generated during demolition, except for abatement and removal of regulated materials such as asbestos, lead-based paint, refrigeration equipment, lights, and other regulated wastes if they are encountered. A pre-demolition Hazardous Materials Survey of the existing buildings will be completed prior to the start of demolition activities. If any regulated materials such as asbestos-containing materials, lead-based paint, and other regulated materials/wastes are present, an Abatement Plan will be prepared to address removal and proper disposal of regulated materials identified in the Hazardous Materials Survey. Following abatement and demolition activities, a comprehensive Abatement Closeout Report will be prepared, which will document the removal, management, and disposal of the regulated materials.

Construction wastes will either be recycled or stored in approved containers and disposed of in the proper facilities. MSW will be managed according to MPCA and other regulatory requirements.

Post-Construction

Development Scenarios A and B were used as the basis for estimating MSW generation. Development Scenario A includes development of 787 residential single-family dwelling units and Development Scenario B the development of 885 residential single-family dwelling units. Scott County's 2018 Solid Waste Management Plan estimated that each individual generated between 0.7 and 1.2 tons of MSW per year. Assuming an average four-person household, Development Scenarios A and B would result in 3.2 to 4.8 tons per year of MSW. Development Scenario A would result in 2,518 to 3,777 tons per year and Development Scenario B would result in 2,832 to 4,248 tons per year. It is projected that 54% of all MSW will be recycled. Residents will need to have trash service from one of the City's licensed haulers. Trash and recycling containers will be provided by the hauler. Curb side recycling will be provided for the residential properties. The City has one hauler and residents do not get a choice.

Post-construction waste will be typical of residential land uses and would be primarily managed as MSW. Through the development review process, the City will require that all MPCA and other regulatory requirements be met. The County operates an "Household Hazardous Waste" facility located at 588 County Trail East in Jordan, Minnesota for the disposal of household hazardous wastes, electronics and recyclables.

Recycling for residential buildings in the AUAR area will be conducted in accordance with the 2016 Recycling Law (Minnesota Statutes Chapter 115A, Section 115A.151). Recycling for multi-unit dwellings will have a recycling service in accordance with Minnesota Statutes Chapter 115A, Section 115A.552.

c. Project related use/storage of hazardous materials – Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Hazardous materials in the form of used oils/lubricants, waste paints or other materials may be generated during construction. Through the development review process, the City will require that

all MPCA and other regulatory requirements be met. The County operates a Household Hazardous Waste facility located at 588 County Trail East in Jordan, Minnesota for the disposal of household hazardous wastes, electronics, and recyclables.

Based on our current understanding, the development will be residential and no above or below ground tanks will be installed within the AUAR area as part of post-construction operations. If above or below ground tanks are identified within the AUAR, prior to construction they should be removed in accordance with local, state, and federal requirements. Fueling activities during construction will comply with MPCA operating and containment requirements. Prior to construction activities a spill prevention plan will be prepared to provide best management plans to minimize and mitigated petroleum and hazardous materials spills.

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

Small quantities of hazardous wastes in the form of used oils/lubricants, waste paints or other materials may be generated during construction. Small quantities of household hazardous wastes may be generated post-construction. Through the development review process, the City will require that all MPCA and other regulatory requirements be met for the generation/storage of hazardous wastes. The County operates a Household Hazardous Waste facility located at 588 County Trail East in Jordan, Minnesota for the disposal of household hazardous wastes, electronics, and recyclables.

QUESTION 12 MITIGATION STRATEGIES

- At the time of development, a Construction Contingency Plan (CCP) shall be prepared to address proper handling, treatment, storage, and disposal of solid wastes, hazardous materials, petroleum products, and other regulated materials/wastes that are used or generated during construction. The CCP would also establish protocols to minimize impacts to soil and groundwater in the event a release of hazardous substances or petroleum occurs during construction.
- Completion of a Response Action Plan (RAP)/CCP that details appropriate methods to handle and dispose of any such materials that are encountered should be prepared and submitted to the MPCA for review and approval.
- If soil contamination is discovered through due diligence testing or during development, the developer or other responsible party will be required to appropriately mitigate the contaminants according to the type of development planned and in compliance with MPCA rules.
- Demolition and construction wastes shall either be recycled or disposed in the proper facilities. Manage MSW according to MPCA and other regulatory requirements.
- In the event demolition is required, complete a pre-demolition Hazardous Building Materials Survey of the existing buildings in accordance with Minnesota Department of Health (MDH) and MPCA requirements prior to the start of demolition activities to determine if any regulated materials are present. Demolition wastes will either be recycled or disposed in the proper facilities.
- If above or below ground tanks identified within the AUAR prior to or during construction should be removed in accordance with local, state, and federal requirements.
- Fueling activities during construction will comply with MPCA operating and containment requirements. Prior to construction activities a spill prevention plan will be prepared to provide best management plans to minimize and mitigated petroleum and hazardous materials spills.

- If agricultural chemicals are encountered near farmsteads within the AUAR boundary, the Minnesota Department of Agriculture (MDA) will be contacted as the regulatory agency charged with managing the response and cleanup of fertilizers and pesticides

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)[2]

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

The AUAR area is primarily composed of cultivated agricultural land, pasture, and hayfields. Mature deciduous woodland habitats, ranging in size from about 2 to 11 acres, are associated with steep slopes and three intermittent streams. Dense tree growth occurs along the fence lines associated with the west 160-acres of the AUAR area, including trees considered "High Priority" for preservation based upon the City of Shakopee Tree Preservation Regulations (151.113). Perennial grassland habitats occur on steep slopes that are grazed or along drainages and non-forested low-lying areas. The grasslands are dominated by nonnative, cool season grasses. Wetland habitats include freshwater forested/shrub wetlands along intermittent stream channels, freshwater emergent wetlands, and small ponds. Other habitats include maintained farmstead building sites with mowed lawn and landscape trees.

The habitats and vegetation cover present within and near the AUAR area provide habitat for urban wildlife species, such as songbirds, mice, rabbits, raccoons, deer, coyotes, fox, and squirrels, among others. The wetlands, ponds, and intermittent streams within the AUAR area may provide suitable habitat for some aquatic species, including fish, frogs, and toads. However, it is anticipated that the open water supports a limited diversity of aquatic species due to the isolation of these features. The open water located within and near the AUAR area may contain suitable summer habitat and drinking sources for bat species.

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

State-listed Species. Based upon a review of the MNDNR NHIS database under license agreement LA-971, there are no known records of state-listed species within the AUAR area or the project vicinity (within 1 mile). However, there is one record in the NHIS from 2018 for several individuals of the federally endangered Rusty Patched Bumble Bee (RPBB) (*Bombus affinis*) within 1 mile of the AUAR area. In addition, the AUAR area spans an RPBB High Potential Zone and Low Potential Zone, suggesting that where suitable habitat is present in the AUAR area, there is a high probability that the bee may be present.

Native Plant Communities and Sites of Biodiversity Significance. An analysis of Minnesota Biological Survey (MBS) data indicated there were no native plant communities (NPCs) mapped

[2] Pfannmuller, L., G. Niemi, J. Green, B. Sample, N. Walton, E. Zlonis, T. Brown, A. Bracey, G. Host, J. Reed, K. Rewinkel, and N. Will. 2017. The First Minnesota Breeding Bird Atlas (2009-2013).

Cornell Lab of Ornithology (CLO). 2019. All About Birds. Cornell Lab of Ornithology, Ithaca, New York. https://www.allaboutbirds.org. Accessed on November 19, 2021.

within the AUAR area. However, stands of Maple-Basswood Forest were mapped in the AUAR area in 2002 using the MLCCS. Tree inventories were conducted in May and June 2021 for select parcels in the AUAR where landowner permission was granted. Woodlands in those parcels were inventoried for high priority trees for preservation, and noted for overall composition, structure, quality and NPC classification. The woodlands were identified and confirmed as degraded Southern Mesic Maple-Basswood Forest (MHs39), which ranges in conservation significance rank from vulnerable to extinction (S3) to imperiled (S2) in MN, depending upon the specific NPC type.

An approximately 50-acre stand of Sugar Maple Forest (Big Woods) (MHs39c) is located southeast of the AUAR area in the project vicinity. The forest is located within a 65-acre MBS Site of Moderate Biodiversity Significance ("Shakopee Mdewankanton Woods") and also identified by the MNDNR as a Regionally Significant Ecological Area "Patch" (2011).

Federally listed Species. Based on a review of the USFWS Information for Planning and Consultation (IPaC) Database (accessed November 19, 2021), the following species may be potentially affected by development activities within the AUAR area:

- Rusty Patched Bumble Bee (RPBB) (*Bombus affinis*) – Federally Endangered
- Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*) – Federally Threatened

No field surveys for the potential presence of RPBB, NLEB, or suitable habitat for either species were conducted as part of this assessment. However, based on the NHIS record for RPBB in the vicinity and the AUAR location in the High Potential Zone, RPBB may be present. No NLEB maternity roost trees and/or hibernacula have been recorded in the NHIS database or listed as occurring in Shakopee Township as of June 7, 2021 (*MNDNR/USFWS List of Townships Containing Documented Northern Long-Eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota, 2021*).

There are no critical habitats for federally protected species that overlap with the AUAR area.

Migratory Birds. According to the USFWS Information for Planning and Conservation (IPaC) Database, there are five migratory birds of concern with the potential to be present within the AUAR area. These include bald eagle (*Haliaeetus leucocephalus*), lesser yellowlegs (*Tringa flavipes*), short-billed dowitcher (*Limnodromus griseus*), black tern (*Chlidonias niger*), and wood thrush (*Hylocichla mustelina*).

No bald eagle nests were observed during the forest resource studies in the AUAR area, but suitable foraging and scavenging habitat were present. The Cornell Lab of Ornithology (CLO) All About Birds website was consulted for species-specific information on foraging habitat use during migration for lesser yellowlegs and short-billed dowitcher, which do not breed in MN but may migrate through the AUAR area. Lesser yellowlegs may forage along pond edges and in emergent wetlands in the Minnesota River valley and within the AUAR as they migrate through Minnesota to breeding grounds in boreal Canada. Short-billed dowitchers, another migratory species, may also forage in wetlands, in addition to seasonally flooded fields in the AUAR area as they migrate to breeding grounds in the arctic tundra. Dowitchers are also known to forage in manmade impoundments and sewage ponds. Due to the lack of large wetlands with emergent vegetation that are typically used by black terns in MN, black terns are unlikely to use habitat for foraging or nesting within the AUAR. Wood thrush nests in deciduous forest habitats in Minnesota, with tall mature canopies and moderate densities of understory shrubs and saplings, along with plenty of shade and a well-developed leaf litter layer (Pfannmuller *et al.* 2017). As such, wood thrush could utilize the relatively small Sugar Maple Forest stands within the AUAR for foraging and nesting. However, the earthworm and common buckthorn infestations at the AUAR may have significantly diminished the quality of the forest habitat available for this species within the AUAR.

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.

Federally listed Species. The project has the potential to impact the RPBB during construction (e.g., habitat removal because of earth disturbing activities). However, development has the potential to positively impact RPBB populations through open space plantings and residential landscaping that incorporates native flowering plants, grasses, trees that provide foraging and nesting resources.

Direct NLEB mortality from collision with construction equipment is unlikely given that construction activities will occur during daylight hours when bats would not be active. Selective tree clearing because of the proposed development scenarios may affect potentially suitable NLEB summer habitat within the AUAR area. However, per a review of the USFWS White-Nose Syndrome (WNS) Zone map dated July 26, 2020, Scott County, Minnesota is within the WNS buffer zone per the Final 4(d) Rule under the Endangered Species Act (ESA). For areas within the WNS buffer zone, the incidental take (e.g., the harm, harassment or killing of a bat as a side effect of otherwise lawful actions, like tree clearing) from tree removal activities is not prohibited unless 1) it results in removing a known occupied maternity roost tree, 2) if tree removal activities occur within 150 feet of a known occupied maternity roost tree from June 1 through July 31, or 3) tree removal activities occur within 0.25 mile of a hibernaculum at any time. Tree removal activities may then proceed without a permit and there is no need to contact the USFWS.

Although the AUAR area may provide suitable summer habitat for the NLEB, under the Final 4(d) Rule of the ESA, tree clearing is not prohibited as there are no records of NLEB maternity roost trees or a hibernaculum within the AUAR area or a 0.25-mile buffer.

Migratory Birds of Concern. Construction activities and development within the AUAR area have the potential to impact birds protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it illegal for anyone to take (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations.

Under the MBTA, construction activities in grassland, roadsides, wetland, riparian (stream), shrubland, or woodland habitats that would otherwise result in the taking of migratory birds, eggs, young and/or active nests should be avoided. Although the provisions of the MBTA are applicable throughout the entire year, most migratory bird nesting activity in Minnesota occurs approximately from mid-March to August 15, per the MNDNR. Construction activities within vegetated habitats within the AUAR area may result in the taking of migratory birds, eggs, young and/or active nests, if present and conducted during the bird nesting timeframe in MN.

Wildlife. Urban wildlife may be impacted by the removal of woodland, hayfields, and wooded fence lines within the AUAR area; however, these habitat generalist species are typically adaptive to development activities and would likely relocate to undeveloped areas in the vicinity or continue to live in the remaining undeveloped woodland, wetland, and grassland habitats within the AUAR area.

Plant Communities. Native plant communities may be affected by the project through fragmentation that hinders natural dispersal mechanisms and edge disturbances during both construction and post-development that can promote establishment of invasive species or damage

critical rooting zones. In addition, surface water flow from adjacent residential lawns may be anticipated to promote invasive species growth through fertilizer runoff and to increase erosion on steep wooded slopes that are already susceptible to soil loss due to buckthorn and invasive earthworms. Runoff from developed parcels is also anticipated to impact the volume and quality of water flowing into remnant wetlands and intermittent streams, with increases in sediment and nutrient loads.

Both Development Scenarios would result in the removal of approximately 4 acres of contiguous woodland with high priority trees (oak, hackberry, basswood, sugar maple). Scenario A includes larger buffers between development parcels and woodland and wetland plant communities than Scenario B, which is anticipated to lessen potential invasive species and soil erosion impacts if the buffers are planted and maintained with native vegetation.

Invasive Species. Construction activities and development within the AUAR have the potential to spread terrestrial invasive species. Common buckthorn (*Rhamnus cathartica*) and tartarian honeysuckle (*Lonicera tatarica*) have potential to spread on site during activities that involve fenceline and woodland clearing where soil and vegetation removal and transport is likely to also move seeds. Ground disturbances adjacent to preserved woodland areas may facilitate invasive species spread into those woodlands as well. In addition, any equipment that arrives on site with vegetation or dirt clods and debris may potentially introduce invasive species to the AUAR area. Leafy spurge (*Euphorbia esula*) is common in pasture in the southeast portion of the AUAR. Though development is not planned for that area, any future project-related activities related to that open space should include efforts to prevent and control its spread into other open spaces.

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

- **Rusty Patched Bumble Bee.** Due to overlap of the AUAR area with a RPBB High Potential Zone, the USFWS may need to be consulted if the project uses federal funding or requires a federal permit. Using the Rusty Patch Bumble Bee Section 7 Guidance (2019)[3], the AUAR area will need to be further evaluated for RPBB suitable habitat. If suitable habitat is present, a survey for RPBB may be conducted in areas of suitable habitat. If the survey is negative, the results are documented, and no further action is required. If RPBB is assumed to be present, or is documented through a field survey, the development activities will need to be evaluated for potential direct or indirect effects. If potential adverse effects to RPBB cannot be avoided or minimized, a formal consultation with the USFWS may be necessary.

- **Northern Long-eared Bat.** Although there are no records of NLEB maternity roost trees or a hibernaculum within the AUAR area or a 0.25-mile buffer, tree clearing should occur outside of the NLEB pup season, June 1 through July 31. Field surveys by a qualified biologist are not required to determine the absence/presence of a maternity roost tree within the AUAR area per the Final 4(d) Rule of the Endangered Species Act.

- **Migratory and Breeding Birds.** Removal of vegetation should occur outside of the bird nesting window in MN to minimize potential take of migratory birds. If vegetation clearing cannot be avoided during the peak breeding season for migratory birds (approximately mid-March to August 15), a qualified biologist should conduct a pre-construction breeding bird survey within

[3] U.S. Fish and Wildlife Service (USFWS). 2019. Rusty Patched Bumble Bee (Bombus affinis) Endangered Species Act Section 7(a)(2) Voluntary Implementation Guidance. Version 2.0. USFWS, Bloomington, MN. 24 p.

the AUAR area to determine the absence or presence of breeding birds and their nests. Pre-construction breeding bird surveys may include the following:

1. Pre-construction surveys that occur no more than two weeks before tree and shrub clearing activities commence. The area surveyed will include the areas where potential suitable habitat has been identified and tree or shrub clearing has not been completed.
2. If an occupied nest is observed during the survey, tree and shrub clearing activities will not be permitted within a 0.12-mile buffer of the nest site during the breeding season or until the fledglings have left the area. Consult with the USFWS to avoid take of the species.
3. Upon completion, the survey results will be submitted to the USFWS, as appropriate. If breeding birds are not present, construction can proceed with no restrictions. If breeding birds or active nests are present, additional consultation will be required.

QUESTION 13 MITIGATION STRATEGIES

- The Minnesota B3 Guidelines identify strategies for developing bird-safe buildings and are required on all projects that receive general obligation bond funding from the State of Minnesota. These guidelines can also be used on a voluntary basis on any project.
- Best Management Practices (BMPs) and erosion and sediment control devices (ESCDs) shall be used during construction activities as required by the City's NPDES MS4 Permit, SWPPP and Construction Site Stormwater Permit to prevent sediment-laden stormwater runoff from the AUAR area into receiving wetlands and waterbodies, which could adversely impact habitats of aquatic and avian wildlife.
- Native plants shall be used for landscaping open spaces within the AUAR area, including stormwater basins, to enhance wildlife habitat, buffer native plant communities, and help prevent the establishment of invasive plants and noxious weeds. Where feasible, BWSR-approved, weed-free, native seed mixes will be used for stormwater features, parkland, and landscaping in order to provide habitat for the federally endangered rusty patched bumblebee and other pollinators.
- Invasive species prevention measures shall be implemented during construction to prevent the movement of invasive species on trucks, heavy equipment, off-highway vehicles, and equipment and tools and to reduce the likelihood of introducing invasive species from off site. Measures may include requiring contractors and others working on site to arrive and leave with clean equipment, free from visible plants, seeds, mud, and dirt clods. Other measures may include using weed-free seed and mulch products and avoiding the re-use of the top six inches of stockpiled materials (mulch, soil, gravel) that may contain more weed seeds.
- Tree inventories should be completed for the two remaining parcel ownerships in the AUAR to develop an overall tree preservation plan for the AUAR area per city code. The inventories will identify high priority trees for preservation and protection during construction activities.
- In addition to the tree inventories discussed above, efforts will be made to preserve mature tree stands on slopes to minimize erosion potential. Additionally, efforts will be made to preserve trees across property boundaries to maintain existing species migration patterns between the AUAR boundary and areas to the south.

14. Historic properties

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

No archaeological sites and no architectural resources are located within the AUAR area. An additional 12 archaeological sites and 18 architectural resources are located within one mile of the AUAR area. The archaeological sites represent seven single artifacts, two lithic scatters, two artifact scatters (one also includes structural remains), and a rock alignment. None of these resources have been evaluated for listing on the NRHP.

The architectural resources within the vicinity represent seven houses, eight farmsteads, one silo, one railroad bed, and one road. None of these resources have been evaluated for listing on the NRHP.

QUESTION 14 MITIGATION STRATEGIES

- No archaeological or architectural resources are located within the project area, and none of the resources within a mile of the project area have been evaluated for listing on the NRHP. Subsequently, there are no historic properties within the project area or within one mile of the project area. However, if a USACE wetland permit will be required for the proposed project, a Phase I cultural resources survey may be required as part of the USACE permit requirements.
- A Phase 1 Archaeological Survey shall be conducted before or at the time development is proposed. The survey must meet the requirements of the Secretary of Interior's Standards for Identification and Evaluation, and should include an evaluation of National Register eligibility for any properties that are identified. A survey may not be necessary if the project area can be documented as previous surveyed or disturbed. If historic, cultural or archaeologically significant features are uncovered in the Phase 1 Survey, a Phase II survey may be required. Coordination and consultation with the Minnesota State Historic Preservation Office will be necessary.

15. Visual

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

Scenic Views

The AUAR area is currently predominantly used as agriculture production, with farmsteads being the only existing structural development. Slopes in and around the AUAR area are relatively flat. There are some undeveloped pockets within the AUAR area that are characterized by forest and woodland with more varied topography. The AUAR area borders either residential, agricultural, or undeveloped land uses and therefore the views are generally consistent in and around the project. These views are summarized below.

North: North of the AUAR is bordered by Valley View Road and existing single family residential development on the north side of the 2-lane road. Two areas of trees help buffer the area between the houses and the street, trees within the boulevard between the trail and street, as well as coniferous trees and shrubs spaced closer together between the houses and trail.

West: Existing large-lot residences border the western side of the AUAR area. These homes are currently screened from the AUAR area by relatively dense (100 percent opaque along most of the boarder) vegetative screening including coniferous trees and shrubs.

South: Most of the southern border of the AUAR area is situated along an existing power line easement, approximately 150 feet in width, with trees and other natural vegetation bordering the easement. Most of the land between the AUAR southern boundary and CSAH 42 was purchased by SMSC for the purposes of conservation.

East: The eastern AUAR boundary generally follows Mystic Lake Drive, and the views beyond Mystic Lake Drive are characterized by an undeveloped area and existing grasslands. The only structure within this viewshed is the Hocokata Ti cultural center, which is visible from the road.

Visual Effects

While any type of development will change the visual character of the existing landscape, residential uses will have the least visual impacts on surrounding properties. If existing screening along the north and west boundaries of the AUAR area is left in place where there are existing neighborhoods, there will be no significant visual effects for the areas surrounding the AUAR area.

QUESTION 15 MITIGATION STRATEGIES

- Maintain a vegetative buffer along the north and west edges of the AUAR as a screen to existing residential neighborhoods.

16. Air

a. Stationary source emissions – Describe the type, sources, quantities, and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health, or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

This project will not have stationary source air emissions concerns because all the emissions sources are mobile.

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.

Motorized vehicles affect air quality by emitting airborne pollutants. The changes in traffic volumes, travel patterns, and roadway locations proposed by this project for either Development Scenario could affect air quality by changing the number of vehicles and the congestion levels in the AUAR area. The air quality impacts from any development will be analyzed by addressing criteria pollutants, a group of common air pollutants regulated by the EPA based on criteria (information on health and/or environmental effects of pollution). The criteria pollutants identified by the EPA are ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. Potential impacts resulting from these pollutants are assessed by comparing projected concentrations to National Ambient Air Quality Standards (NAAQS).

In addition to the criteria air pollutants, the EPA also regulates air toxics. The Federal Highway Administration (FHWA) provides guidance for the assessment of Mobile Source Air Toxic (MSAT) effects for transportation projects in the National Environmental Policy Act (NEPA) process. A qualitative evaluation of MSATs has been performed for this project, the scope, and methods of which have been developed in collaboration with MnDOT and the MPCA.

National Ambient Air Quality Standards (NAAQS) – Criteria Pollutants

Motorized vehicles affect air quality by emitting airborne pollutants. Changes in traffic volumes, travel patterns, and roadway locations affect air quality by changing the number of vehicles and the congestion levels in a given area. The air quality impacts from development are analyzed by addressing criteria pollutants, a group of common air pollutants regulated by the EPA based on criteria (information on health and/or environmental effects of pollution). The criteria pollutants identified by the EPA are ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. Potential impacts resulting from these pollutants are assessed by comparing projected concentrations to National Ambient Air Quality Standards (NAAQS).

In addition to the criteria air pollutants, the EPA also regulates air toxics. The FHWA provides guidance for the assessment of Mobile Source Air Toxic (MSAT) effects for transportation projects in the NEPA process. A qualitative evaluation of MSATs has been performed for this project as documented below. The scope and methods of the analysis performed were developed in collaboration with MnDOT and the MPCA.

Ozone

Ground-level ozone is a primary constituent of smog and is a pollution problem throughout many areas of the United States. Exposures to ozone can cause people to be more susceptible to respiratory infection, resulting in lung inflammation, and aggravating respiratory diseases, such as asthma. Ozone is not emitted directly from vehicles but is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Transportation sources emit NOx and VOCs and can, therefore, affect ozone concentrations. However, due to the phenomenon of atmospheric formation of ozone from chemical precursors, concentrations are not expected to be elevated near a particular roadway.

The MPCA, in cooperation with various other agencies, industries, and groups, has encouraged voluntary control measures for ozone and has begun developing a regional ozone modeling effort. Ozone concentrations in the lower atmosphere are influenced by a complex relationship of precursor concentrations, meteorological conditions, and regional influences on background concentrations. According to the MPCA in *The air we breathe: The state of Minnesota's air quality in 2021*[4], Minnesota is currently meeting federal standards for ground-level ozone of 70 parts per billion (ppb) but is within approximately 90% of the current standard in some parts of the state. While ozone emissions remain steady/decreasing, further reductions may be needed as standards become more protective over time.

All areas of the state currently meet the national health-based standards for ozone levels; therefore, this project is exempt from performing further ozone analyses.

Particulate Matter

Particulate matter (PM) is the term for particles and liquid droplets suspended in the air. Particles come in a wide variety of sizes and have been historically assessed based on size, typically measured by the diameter of the particle in micrometers. $PM_{2.5}$, or fine particulate matter, refers to particles that are 2.5 micrometers or less in diameter. PM_{10} refers to particulate matter that is 10 micrometers or less in diameter.

Motor vehicles (i.e., cars, trucks, and buses) emit direct PM from their tailpipes, as well as from normal brake and tire wear. Vehicle dust from paved and unpaved roads may be re-entrained, or re-suspended, in the atmosphere. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases

[4] Source: https://www.pca.state.mn.us/sites/default/files/lraq-2sy21.pdf

such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including[5]:

- Premature death in people with heart or lung disease.
- Nonfatal heart attacks.
- Irregular heartbeat.
- Aggravated asthma.
- Decreased lung function; and,
- Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing.

On December 14, 2012, the EPA issued a final rule revising the annual health NAAQS for fine particles ($PM_{2.5}$). The rule can be found in 40 CFR Parts 50, 51, 52, 53 and 58 of the Federal Register[6]:

> *With regard to primary (health-based) standards for fine particles (generally referring to particles less than or equal to 2.5 micrometers (mm) in diameter, $PM_{2.5}$), the EPA is strengthening the annual $PM_{2.5}$ standard by lowering the level to 12.0 micrograms per cubic meter ($\mu g/m^3$). The existing annual standard, 15.0 $\mu g/m^3$, was set in 1997. The EPA is revising the annual $PM_{2.5}$ standard to 12.0 $\mu g/m^3$ so as to provide increased protection against health effects associated with long- and short-term exposures (including premature mortality, increased hospital admissions and emergency department visits, and development of chronic respiratory disease), and to retain the 24-hour $PM_{2.5}$ standard at a level of 35 $\mu g/m^3$ (the EPA issued the 24-hour standard in 2006). The EPA is revising the Air Quality Index (AQI) for $PM_{2.5}$ to be consistent with the revised primary $PM_{2.5}$ standards.*

The EPA also retained the existing standards for coarse particle pollution (PM_{10}). The NAAQS 24-hour standard for PM_{10} is 150 $\mu g/m^3$ which is not to be exceeded more than once per year on average over three years.

The Clean Air Act conformity requirements include the assessment of localized air quality impacts of federally funded or federally approved transportation projects that are located within $PM_{2.5}$ nonattainment and maintenance areas and deemed to be projects of air quality concern. The AUAR is located in an area that has been designated as an unclassifiable/attainment area for PM. This means that the project area has been identified as a geographic area that meets the national health-based standards for PM levels, and therefore is exempt from performing PM analyses.

Nitrogen Dioxide (Nitrogen Oxides)

Nitrogen oxides, or NO_x, is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. In addition to being a precursor to ozone, NOx can worsen bronchitis, emphysema and asthma and increase risk of premature death from heart or lung disease.[7]

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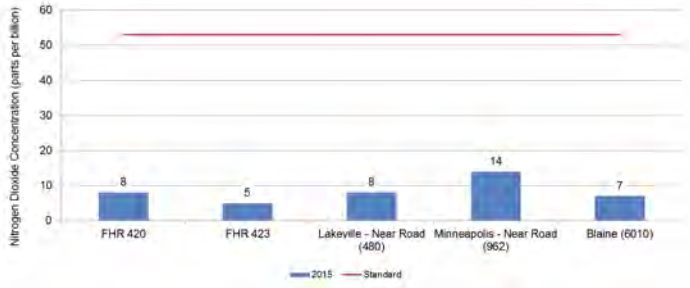
[5] Source: https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm
[6] Source: https://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf
[7] Source: The Air We Breathe: The State of Minnesota's Air Quality 2017, MPCA, January 2017

Minnesota currently meets federal nitrogen dioxide standards, as shown in Figure 16-1 from *Annual Air Monitoring Network Plan for Minnesota 2017* (August 2016)[8]. This document states:

> *A monitoring site meets the annual NAAQS for NO2 if the annual average is less than or equal to 53 ppb. Figure 3 shows the 2015 averages at Minnesota sites and compares them to the standard. Minnesota averages ranged from 5 ppb at Flint Hills Refinery 423 to 14 ppb at the Near Road I-35/I-94 site (962); therefore, Minnesota currently meets the annual NAAQS for NO2.*

Figure 16-1: Annual Average NO_2 Concentrations Compared to the NAAQs



In the Annual Air Monitoring Network Plan for Minnesota 2017 (August 2016), it states the following with regard to the 1-hour NO_2 standard:

> *On January 22, 2010, the EPA finalized revisions to the NO_2 NAAQS. As part of the standard review process, the EPA retained the existing annual NO_2 NAAQS, but also created a new 1-hour standard. This new 1-hour NAAQS will protect against adverse health effects associated with short term exposures to elevated NO_2. To meet this standard, the three-year average of the annual 98th percentile daily maximum 1-hour NO_2 concentration must not exceed 100 ppb. Figure 4 shows the 2013-2015 average of the annual 98th percentile daily maximum 1-hour NO_2 concentrations at Minnesota sites and compares them to the 1-hour standard. Minnesota averages ranged from 27 ppb at Flint Hills Refinery 423 to 46 ppb at Blaine (6010); therefore, all Minnesota sites currently meet the 1-hour NAAQS for NO_2.*

Figure 16-2 depicts the 2013-2015 1-hour NO_2 concentrations at Minnesota sites compared to the 1-hour NO_2 NAAQS.

Figure 16-2: 1-Hour NO_2 Concentrations Compared to the NAAQs[9]

[8] Source: Annual Air Monitoring Network Plan for Minnesota 2017, MPCA, August 2016.
[9] Source: Annual Air Monitoring Network Plan for Minnesota 2017, MPCA, August 2016.

The EPA's regulatory announcement, EPA420-F-99-051 (December 1999), describes the Tier 2 standards for tailpipe emissions, and states:

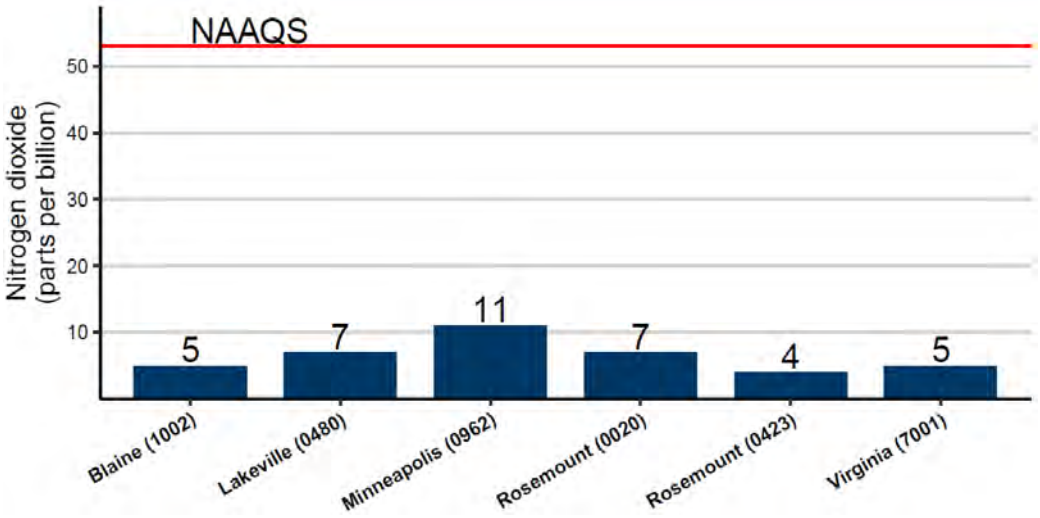
> *The new tailpipe standards are set at an average standard of 0.07 grams per mile for nitrogen oxides for all classes of passenger vehicles beginning in 2004. This includes all light-duty trucks, as well as the largest SUVs. Vehicles weighing less than 6,000 pounds will be phased-in to this standard between 2004 and 2007.*
>
> *As newer, cleaner cars enter the national fleet, the new tailpipe standards will significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent by 2030. The standards also will reduce emissions by more than 2 million tons per year by 2020 and nearly 3 million tons annually by 2030.*

Within the AUAR area, it is unlikely that NO_2 standards will be approached or exceeded based on the relatively low ambient concentrations of NO_2 in Minnesota and on the long-term trend toward reduction of NO_x emissions. Because of these factors, a specific analysis of NO_2 was not conducted for this project.

> Nitrogen dioxide (NO_2), which is a form of nitrogen oxide (NO_x), is regularly monitored. Minnesota currently meets federal nitrogen dioxide standards, according to the *2022 Air Monitoring Network Plan for Minnesota*[10]. A monitoring site meets the annual NAAQS for NO_2 if the annual average is less than or equal to 53 parts per billion (ppb). As shown in Chart 16-1, the 2020 Minnesota NO_2 monitoring site averages ranged from 4 ppb to 11 ppb; therefore, Minnesota currently meets the annual NAAQS for NO_2.

Figure 16-3: Annual Average NO_2 Concentrations Compared to the NAAQs

[10] Source: https://www.pca.state.mn.us/sites/default/files/aq10-20a.pdf



The EPA's December 1999 regulatory announcement, EPA420-F-99-051[11], describes the Tier 2 standards for tailpipe emissions, and states:

> *The new tailpipe standards are set at an average standard of 0.07 grams per mile for nitrogen oxides for all classes of passenger vehicles beginning in 2004. This includes all light-duty trucks, as well as the largest SUVs. Vehicles weighing less than 6000 pounds will be phased-in to this standard between 2004 and 2007.*
>
> *As newer, cleaner cars enter the national fleet, the new tailpipe standards will significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent by 2030. The standards also will reduce emissions by more than 2 million tons per year by 2020 and nearly 3 million tons annually by 2030.*

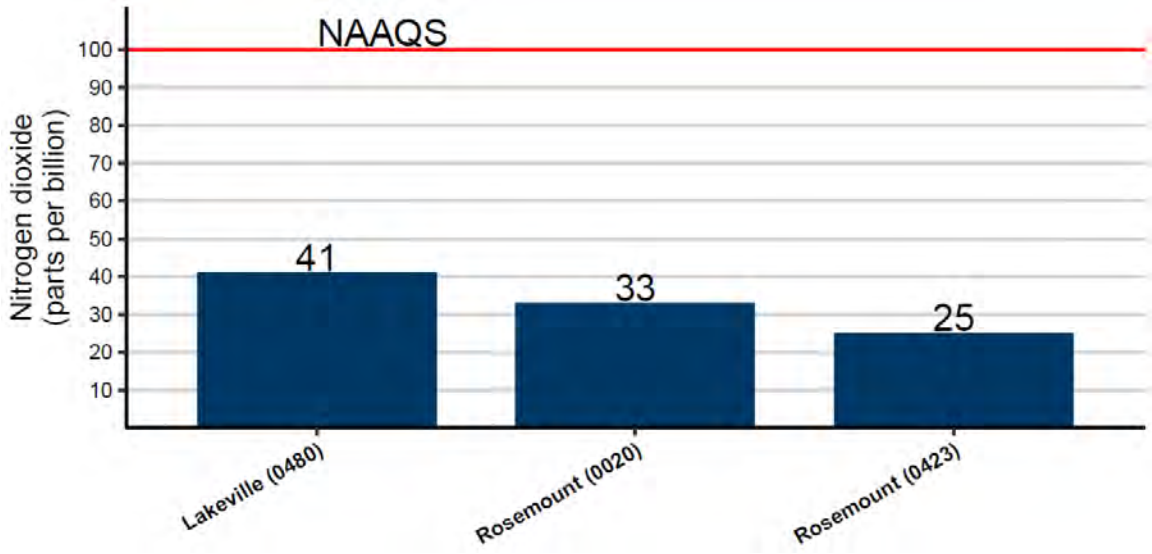
According to the MPCA's website, the level of the current primary and secondary annual nitrogen dioxide standard is 53 ppb[12]. Using the MPCA's Criterial Pollutant Data Explorer tool, area monitoring data shows ambient NO_2 concentrations at 7 ppb, which is 13% percent of the lowest primary standards in 2020[13], in other words consistently below state and federal standards. In the *2022 Air Monitoring Network Plan for Minnesota*[14], it states the following with regard to NO_2:

> *In addition to the annual standard, there is also a one-hour standard for NO_2. The one-hour NAAQS is intended to protect against adverse health effects associated with short-term exposures to elevated NO_2. To meet this standard, the three-year average of the annual 98th percentile daily maximum one-hour NO_2 concentration must not exceed 100 ppb. [As*

[11] Source: https://www3.epa.gov/tier2/documents/f99051.pdf
[12] Source: https://www.pca.state.mn.us/air/nitrogen-dioxide-no2
[13] Source: https://www.pca.state.mn.us/air/criteria-pollutant-data-explorer
[14] Source: https://www.pca.state.mn.us/sites/default/files/aq10-20a.pdf

shown in Chart 16-2,] Minnesota averages ranged from 25 ppb at Rosemount (0423) to 41 ppb at the Lakeville near-road site (0480); therefore, all Minnesota sites currently meet the one-hour NAAQS for NO_2.

Figure 16-4: 1-Hour NO_2 Concentrations Compared to the NAAQs



Within the project area, it is unlikely that NO_2 standards will be approached or exceeded based on the relatively low ambient concentrations of NO_2 in Minnesota and on the long-term trend toward reduction of NO_x emissions. Because of these factors, a specific analysis of NO_2 was not conducted for this project.

Sulfur Dioxide

Sulfur dioxide (SO_2) and other sulfur oxide gases (SO_x) are formed when fuel containing sulfur, such as coal, oil, and diesel fuel is burned. Sulfur dioxide is a heavy, pungent, colorless gas. Elevated levels can impair breathing, lead to other respiratory symptoms, and at very high levels aggravate heart disease. People with asthma are most at risk when SO_2 levels increase. Once emitted into the atmosphere, SO_2 can be further oxidized to sulfuric acid, a component of acid rain. Emissions of sulfur oxides from transportation sources are a small component of overall emissions and continue to decline due to the desulphurization of fuels.

According to *The air we breathe: The state of Minnesota's air quality in 2019*, MPCA monitoring shows ambient SO_2 concentrations at under 20 percent of federal standards in 2017[15], in other words consistently below state and federal standards. The MPCA has concluded that long-term trends in both ambient air concentrations and total SO_2 emissions in Minnesota indicate steady

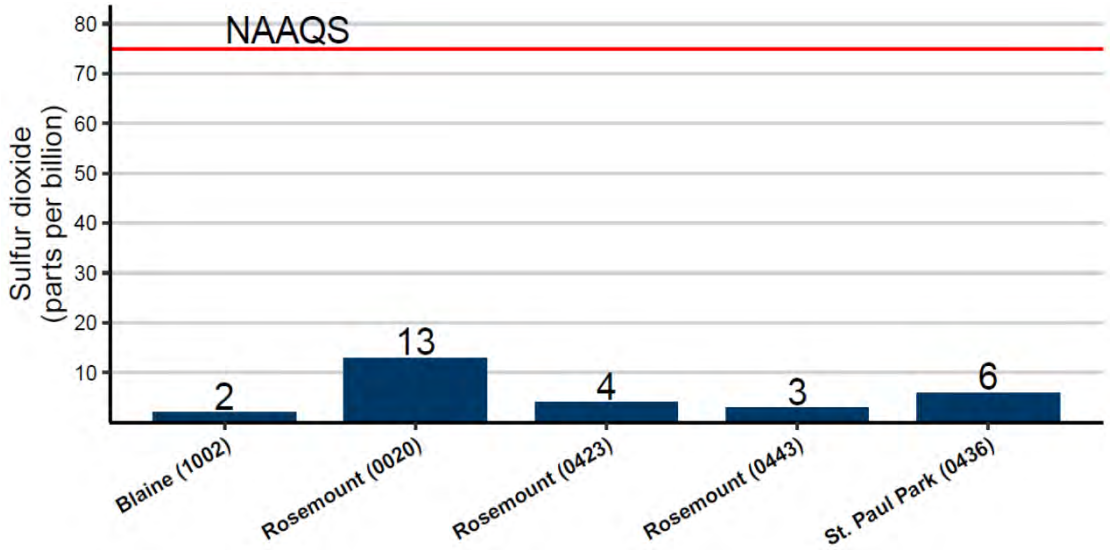
[15] Source: https://www.pca.state.mn.us/sites/default/files/lraq-1sy19.pdf

improvement. In the *2022 Air Monitoring Network Plan for Minnesota*[16], it states the following with regard to SO_2:

> *The primary SO_2 NAAQS is a one-hour standard; it is met if the three-year average of the annual 99th percentile daily maximum one-hour SO_2 concentration is less than 75 ppb. [As shown in Chart 16-3,] Minnesota averages from 2018-2020 ranged from 2 ppb at Blaine (1002) to 13 ppb at Rosemount (0020); therefore, all Minnesota sites currently meet the one-hour NAAQS for SO_2.*

Because of these factors, an analysis for sulfur dioxide was not conducted for this project.

Figure 16-5: 1-Hour SO_2 Concentrations Compared to the NAAQs



Lead

Due to the phase out of leaded gasoline, lead is no longer a pollutant associated with vehicular emissions.

Carbon Monoxide

Scott County was previously classified as a nonattainment area but has now been found to be in attainment. The 20-year maintenance period for this area ended in November 2019 and a CO maintenance plan/project-level conformity analysis is no longer required Additionally, the scope of the project does not indicate that air quality impacts would be expected. Furthermore, the EPA has approved a screening method to determine which intersections need a carbon monoxide (CO) hotspot analysis. The results of the screening procedure demonstrate that traffic volumes are below

[16] Source: https://www.pca.state.mn.us/sites/default/files/aq10-20a.pdf

the threshold of 82,300 ADT and do not require a detailed hotspot analysis. Therefore, no further air quality analysis is necessary.

Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources[17], and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS)[18].

In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 2011 National-Scale Air Toxics Assessment (NATA)[19]. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

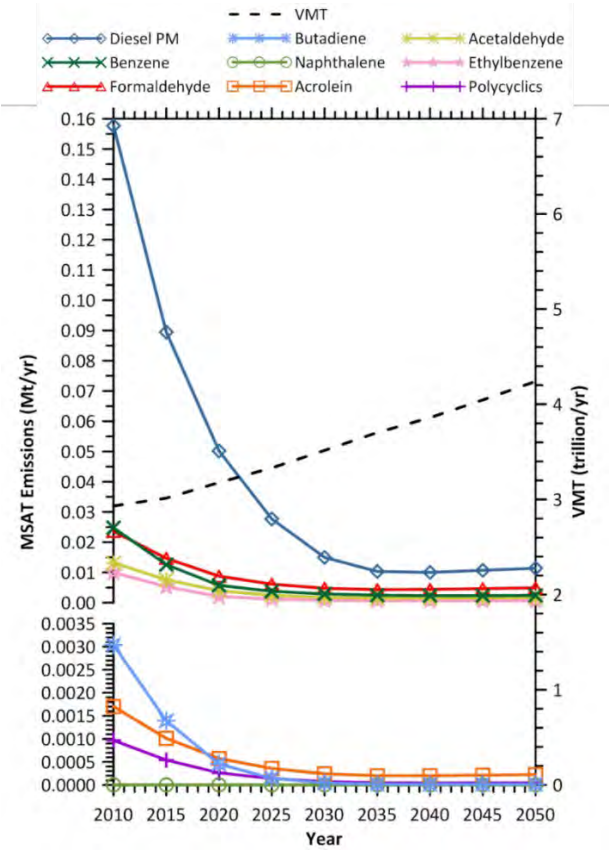
According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017, heavy-duty greenhouse gas regulations that phase in during model years 2014-2018, and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025. Since the release of MOVES2014, EPA has released MOVES2014a. For on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Based on an FHWA analysis using EPA's MOVES2014a model, as shown in Figure 16-6 below, even if vehicle-miles traveled (VMT) increases by 45 percent from 2010 to 2050 as forecast, a

[17] Source: Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007; https://www.govinfo.gov/content/pkg/FR-2007-02-26/pdf/E7-2667.pdf
[18] Source: https://www.epa.gov/iris
[19] Source: https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results

combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period[20].

Figure 16-6: National MSAT Emissions Trends 2010-2050 for Vehicles Operating on Roadways Using EPA's MOVES2014a Model[21]



Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest

[20] Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm
[21] Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends[22].

Qualitative MSAT Analysis

For either Development Scenario in this AUAR, the amount of MSAT emitted would be proportional to the average daily traffic, or ADT, assuming that other variables such as vehicle composition are the same.

The increase in ADT associated with the proposed development would lead to higher MSAT emissions in the vicinity of the AUAR area. The higher emissions could be offset somewhat by a decrease in regional traffic due to increased use of transit. The extent to which these emissions decreases will offset vehicle related emissions increases is not known.

However, regardless of which scenario is chosen, emissions will likely be lower than present levels in the design year as a result of EPA regulations for vehicle engines and fuels, which are expected to cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014a model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 18, 2016). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Local conditions may differ from these national projections in terms of vehicle composition, ADT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for ADT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional activity contemplated as part of the project scenarios could have the effect of increasing emissions in the vicinity of nearby homes and businesses; therefore, under both Development Scenario there may be localized areas where ambient concentrations of MSATs would be higher than under existing conditions. However, as discussed above, the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts. Even though there may be differences among the scenarios, on a region-wide basis, EPA's vehicle, and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today. There could be slightly higher differences in MSAT levels in a few localized areas where activity occurs closer to homes, and businesses, however under all scenarios, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

[22] Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

Potential Impacts

The increase in traffic associated with new development was considered in a qualitative evaluation of MSATs. The increased traffic could lead to higher MSAT emissions near the AUAR area. Therefore, under both Development Scenarios there may be localized areas where ambient concentrations of MSATs would be higher than under existing conditions. However, the magnitude and duration of these potential differences cannot be reliably quantified, due to incomplete or unavailable information in forecasting project-specific health impacts. On a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

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.

Neither Development Scenario would generate substantial odors during construction. Potential odors would include exhaust from diesel engines and fuel storage. Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions. Construction contractors will be required to control dust and other airborne particulates in accordance with MnDOT specifications. After construction is complete, dust levels are anticipated to be minimal because all soil surfaces exposed during construction would be in permanent cover (i.e., paved or revegetated areas).

QUESTION 16 MITIGATION STRATEGIES

- Best Management Practices (BMPs) shall be implemented during construction to control dust. This may include the following preventive and mitigative measures:
    - Minimization of land disturbance during site preparation
    - Use of watering trucks to minimize dust
    - Covering of trucks while hauling soil/debris off-site or transferring materials
    - Stabilization of dirt piles if they are not removed immediately
    - Use of dust suppressants on unpaved areas
    - Minimization of unnecessary vehicle and machinery idling
- Any proposed development large enough to merit its own environmental review process shall analyze stationary source air emissions in more detail consistent with their specific project details.
- Should it be necessary to take more than 10,000 gallons of water per day from the ground, or nearby surface waters, a DNR Water Appropriation Permit will be needed.

17. Noise

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

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

Noise is defined as any unwanted sound. Sound travels in a wave motion and is measured as a sound pressure level. This sound pressure level is commonly measured in decibels. Decibels (dB) represent the logarithm of the ratio of a sound energy relative to a reference sound energy. For highway traffic noise, an adjustment, or weighting, of the high-and low-pitched sound is made to approximate the way that an average person hears sound. The adjusted sound levels are stated in units of "A-weighted decibels" (dBA). 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 ten times, the resulting sound level will increase by about 10 dBA and be heard to be twice as loud.

Traffic noise impacts in Minnesota are evaluated by measuring and/or modeling the traffic noise levels during the loudest traffic hour of the day. This number is identified as the L_{eq} noise level for a one-hour period and is compared to the Federal Highways Administration (FHWA) noise abatement criteria.

Traffic volume, types of vehicles, operating speed, topography, and distance from the road to the receptor influences the traffic noise level at the receptor. The sound level decreases as distance from a source increases. A general rule regarding sound level decrease due to increasing distance from a line source (roadway) that is commonly used is: beyond approximately 50 feet from the sound source, each doubling of distance from the line source over hard ground (such as pavement or water) will reduce the sound level by 3 dBA, whereas each doubling of distance over soft ground (such as vegetated or grassy ground) results in a sound level decrease of 4.5 dBA.

Table 17-1 provides a rough comparison of the noise levels of some common noise sources.

Table 17-1: Decibel Level of Common Noise Sources

Sound Pressure Level (dBA)	Noise Source
140	Jet Engine (at 75 feet)
130	Jet Aircraft (at 300 feet)
120	Rock and Roll Concert
110	Pneumatic Chipper
100	Jointer/Planer
90	Chainsaw
80	Heavy Truck Traffic
70	Business Office
60	Conversational Speech
50	Library
40	Bedroom
30	Secluded Woods
20	Whisper
Sources: *"A Guide to Noise Control in Minnesota," Minnesota Pollution Control Agency,* http://www.pca.state.mn.us/programs/pubs/noise.pdf *"Highway Traffic Noise," FHWA,* http://www.fhwa.dot.gov/environment/htnoise.htm	

Minnesota state noise standards have been established by "noise area classifications" or NACs. According to the Minnesota Pollution Control Agency (MPCA)," *For residential locations (NAC 1) the limits are L10 = 65 dBA and L50 = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L10 = 55 dBA and L50 = 50 dBA during the nighttime (10 p.m. – 7 a.m.). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time (six minutes) and cannot exceed 60 dBA more than 50 percent of the time (30 minutes)."* (Minn. R. 7030: Noise pollution control)

Receptors Surrounding the AUAR Area

The eastern limit of the AUAR area is bounded by Mystic Lake Drive, a four-lane divided highway with separated multiuse trails on either side. The southern border of the AUAR area runs about halfway down to CSAH 42, a two-lane undivided roadway. Land use on the opposite side of CSAH 42 and Mystic Lake Drive is currently farmland.

Directly north of the AUAR area is bordered by Valley View Road, an undivided two-lane road with full shoulders and paved trail and sidewalk. North of Valley View Road is an existing single family home development.

The area south of the AUAR is Shakopee Mdewakanton Sioux Community (SMSC) land, currently utilized as farmland.

The west side of the AUAR area is currently large lot single family homes.

Potential Impacts

Within the AUAR area, an increase in traffic volumes, particularly from passenger vehicle traffic, will result over the existing condition. The project will need to comply with the State of Minnesota noise standards, which establish allowable noise levels to protect nearby receptors such as residences, commercial and industrial areas, parks and open space.

QUESTION 17 MITIGATION STRATEGIES

- The AUAR study area shall be developed such that where feasible, land use activities sensitive to noise will be suitably setback from existing noise sources such that the potential for noise impact is sufficiently reduced.
- If needed, a noise analysis shall be conducted to model the existing and build condition near the AUAR area. The traffic modeling will be completed using MINNOISEV31 (FHWA Stamina model adapted by MnDOT for use in Minnesota). Prior to beginning the noise analysis, the City will meet with MPCA staff to discuss the proposed traffic noise analysis methodology to ensure that State Standards will be met.
- The City should work with the MPCA and MnDOT during project development and planning, as needed, to ensure that road noise setbacks are appropriate. Noise modeling is an effective way to plan land use and development, but the state noise standards are based solely on monitored noise. Thus, conducting noise monitoring, in addition to modeling, would best ensure compliance with state noise standards, especially in areas where proposals include residential development.
- Where feasible, equipment used for any future construction-related activities should be fitted with the appropriate mufflers.

18. Transportation

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

i. Existing parking spaces: 0
Proposed parking spaces. Approximately 2 off-street parking stalls per dwelling unit. Therefore number of parking stalls = 885 x 2 = 1,770.

ii. Total average daily traffic generated – 8,354 trips per day.

iii. Maximum peak hour traffic generated and time of occurrence – 876 trips during p.m. peak hour (4:30-5:30 p.m.).

iv. Source of trip generation rates - Trip Generation, Tenth Edition, published by the Institute of Transportation Engineers.

v. Availability of transit and/or other alternative transportation modes.
- Minnesota Valley Transit Authority (MVTA) route 495 operates on CSAH 83 (Mystic Lake Drive).
- There are trails and/or sidewalk along Independence Drive, Meadowlark Lane, Pembina Lane, Valley View Road, CSAH 83 (Mystic Lake Drive), CSAH 42, and CSAH 17.

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.**

A complete Traffic Impact Study with existing and future volumes is included in the Appendix B. This appendix includes relevant figures including existing traffic volumes, future peak traffic volumes, proposed street layout, and sidewalk and trail locations.

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

The following mitigation measures are recommended at each intersection:

- Valley View Road/Independence Drive
  - Short term – Restripe southbound right turn lane to a through/right turn lane. Construct south leg to City street standards.
  - Long term – No additional improvements needed.
- Valley View Road/Meadowlark Drive
  - Short term – Construct south leg to City street standards.
  - Long term – No additional improvements needed.
- Valley View Road/Pembina Lane
  - Short term – Construct south leg to City street standards.
  - Long term – No additional improvements needed.
- CSAH 83 (Mystic Lake Drive) /Valley View Road
  - Short term – Install traffic signal control.
  - Long term – No additional improvements needed.
- CSAH 83 (Mystic Lake Drive)/CSAH 42
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 17/Wood Duck Trail
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 17/CSAH 78
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 83 (Mystic Lake Drive)/development access (future only)
  - Short term – Construct west leg to City street standards.
  - Long term – No additional improvements needed.

QUESTION 18 MITIGATION STRATEGIES

- Intersection Improvements:

- Valley View Road/Independence Drive: Restripe southbound right turn lane to a through/right turn lane. Construct south leg to City street standards.
- Valley View Road/Meadowlark Drive: Construct south leg to City street standards.
- Valley View Road/Pembina Lane: Construct south leg to City street standards.
- CSAH 83 (Mystic Lake Drive)/Valley View Road: Install traffic signal control.
- CSAH 83 (Mystic Lake Drive)/development access (future only): Construct west leg to City street standards.

19. Cumulative potential effects

The cumulative potential effects associated with the AUAR area are associated with normal growth and development over time. These have been identified in the responses to each of the relevant questions.

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.

This AUAR is being prepared to be able to accommodate a residential development. The area within a one-mile radius of the AUAR area has been considered for identifying potential cumulative impacts. No significant developments have been identified within this area and none were mentioned by any agency representatives who attended the scoping informational meeting. Anticipated cumulative impacts are associated with normal growth and development and they will be addressed in the 2040 Comprehensive Plan Update and the five-year updates of the AUAR.

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.

All cumulative impacts associated with anticipated development within the AUAR area have been accounted for within the responses to AUAR questions.

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.

All cumulative impacts associated with known proposed development within the AUAR area have been accounted for within the responses to the EAW questions contained in this AUAR. It is also notable that since the adoption of the City's 2040 Comprehensive Plan the SMSC has acquired significant adjacent acreage for the purpose of conservation and natural resource restoration. This will have the effect of reducing the total cumulative effects associated with the development originally anticipated, based on the comprehensive plan.

20. Other potential environmental effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

There are no other potential environmental effects known at this time.

APPENDIX A
FIGURES

Figure 1. Project Location

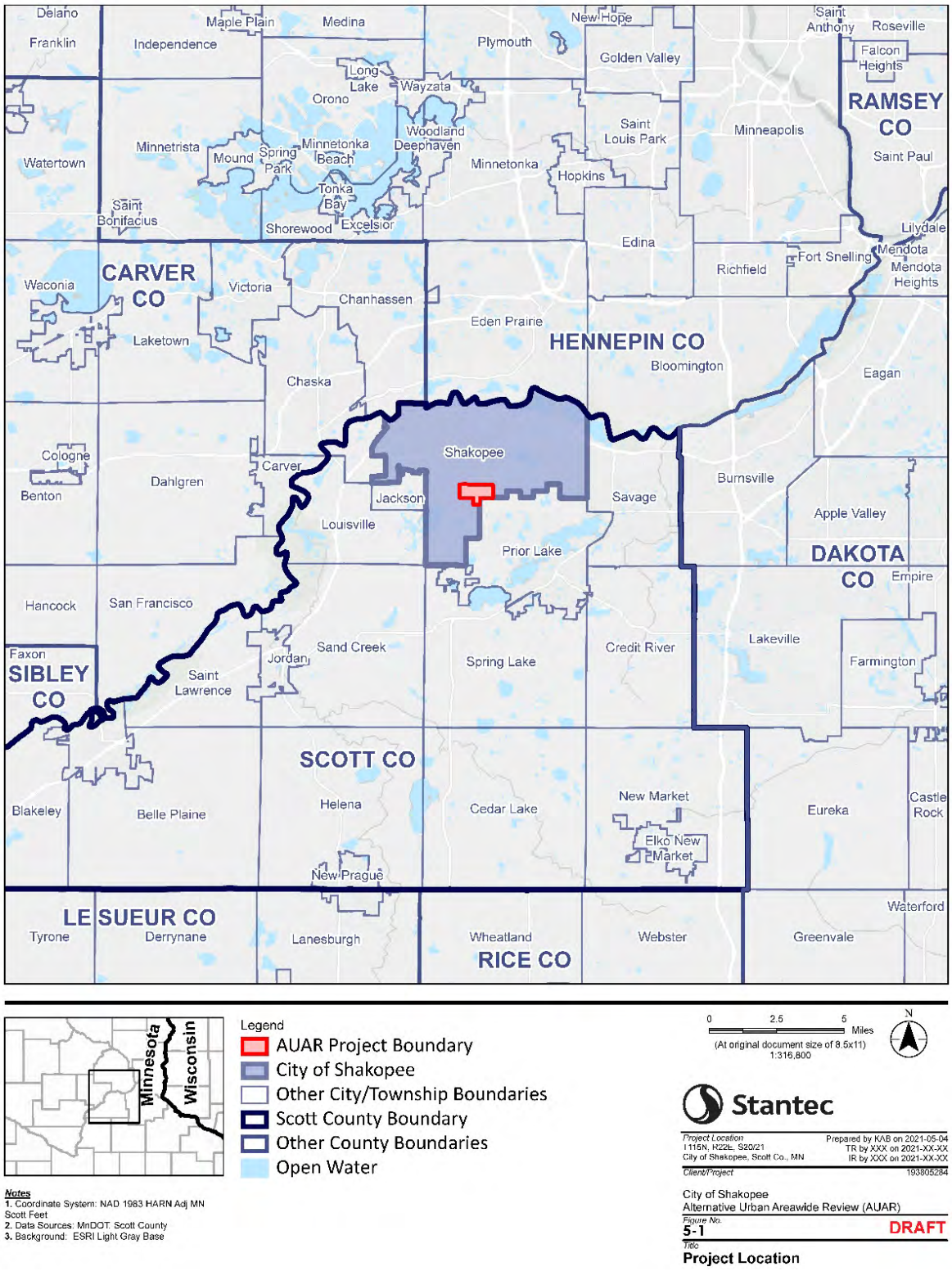


Figure 2. AUAR Boundary

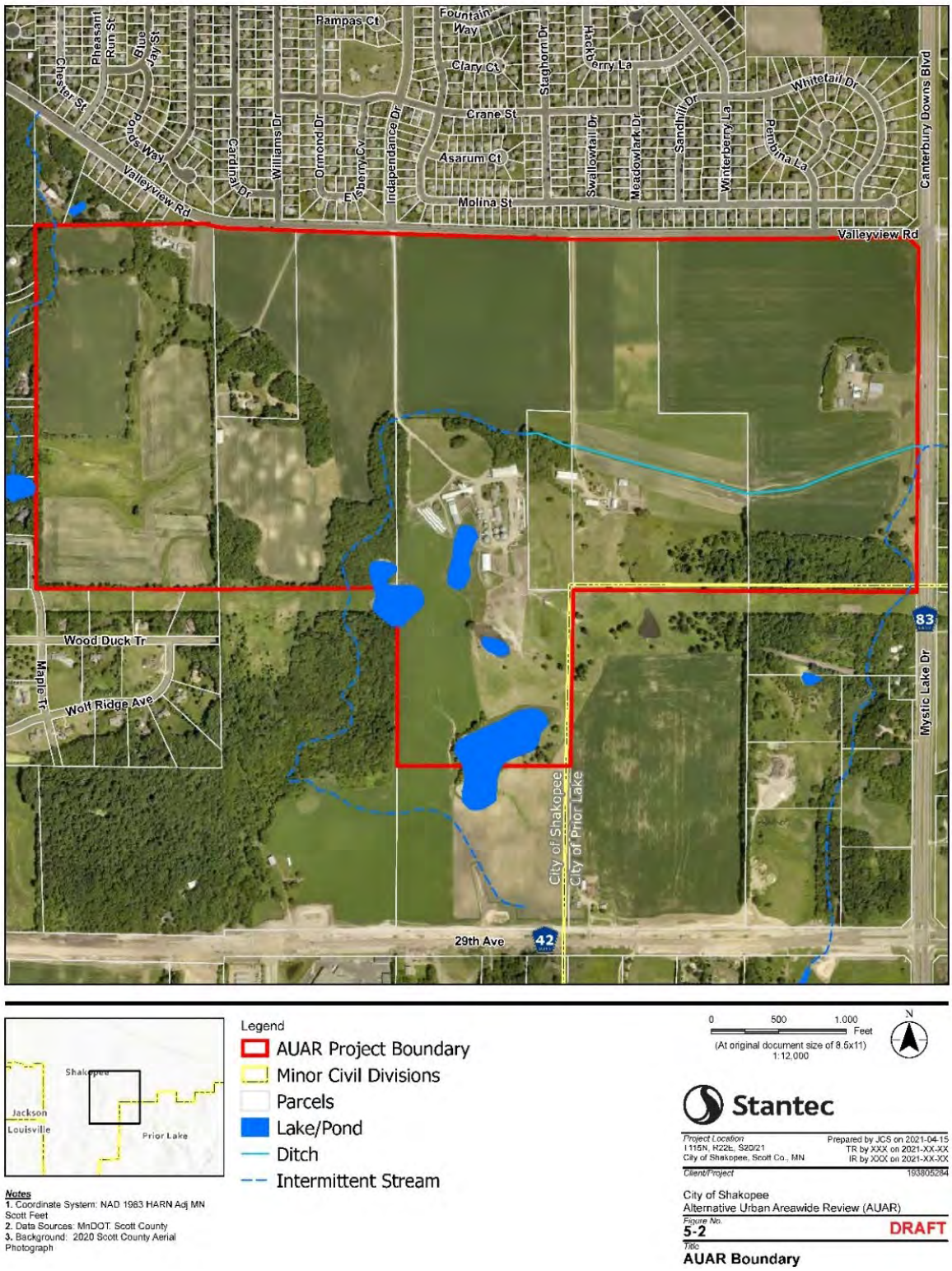


Figure 5-3. USGS Topographic Map

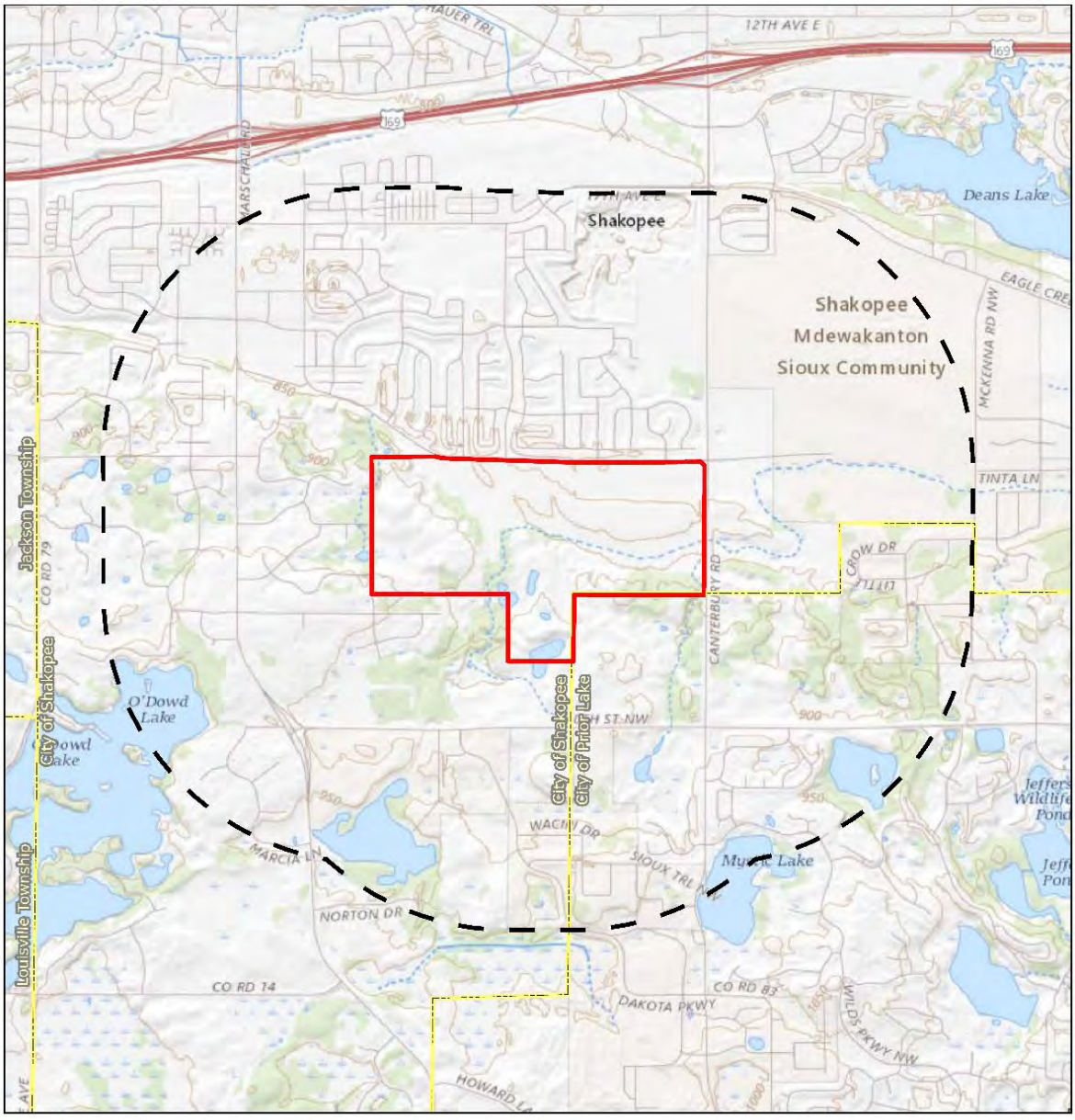


Figure 6-2. Development Scenario A

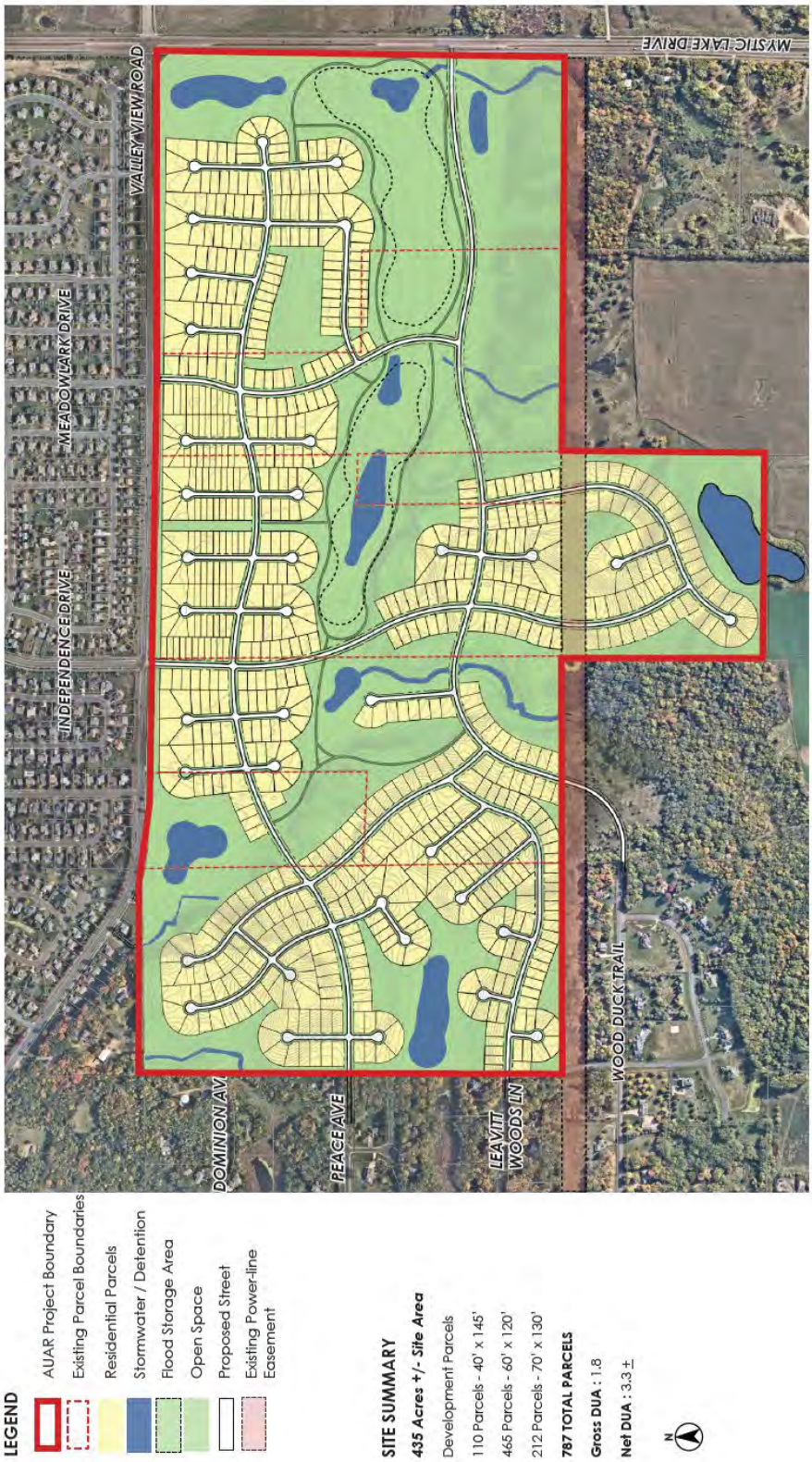


Figure 6-3. Development Scenario B

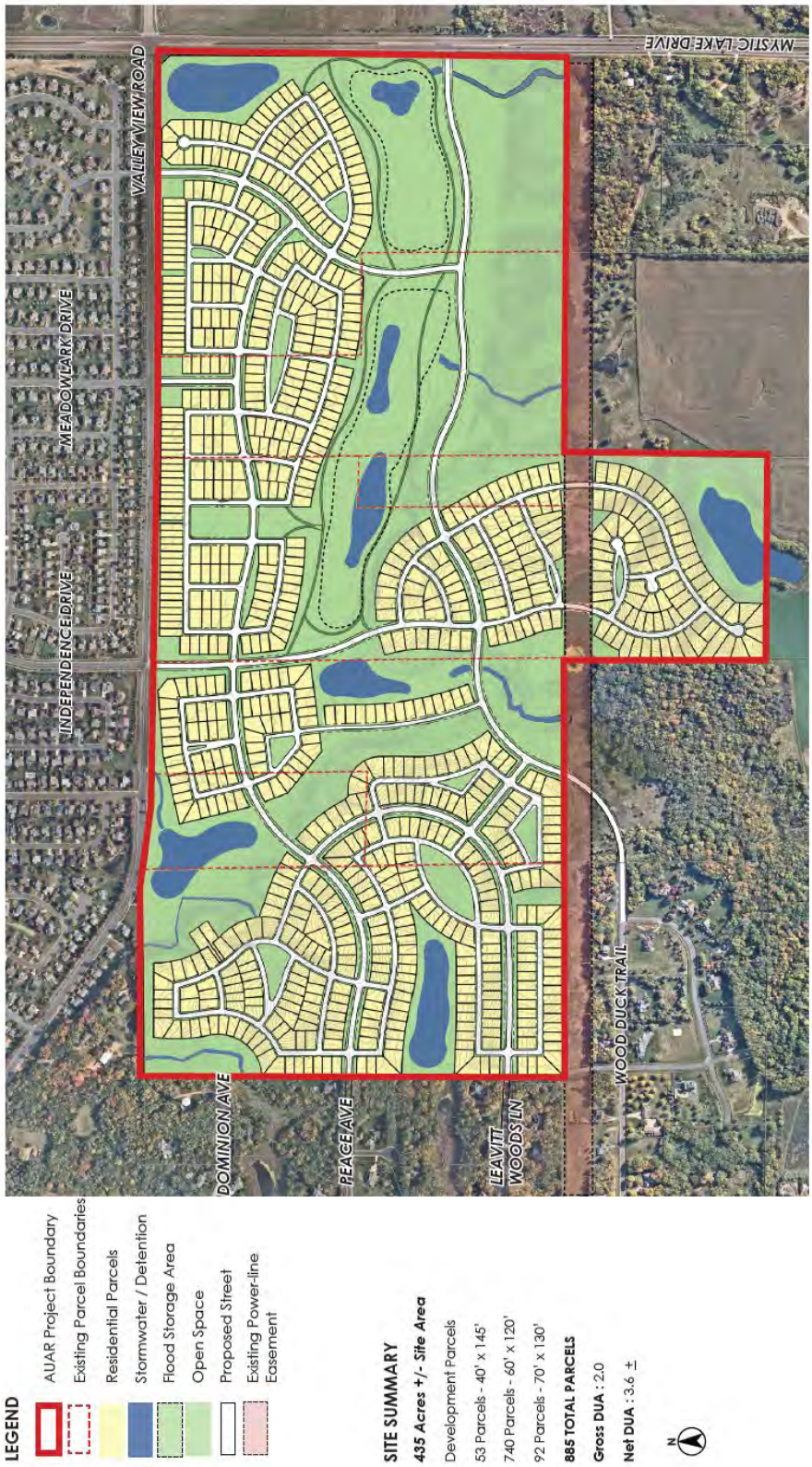


Figure 7-1. Land Cover Types

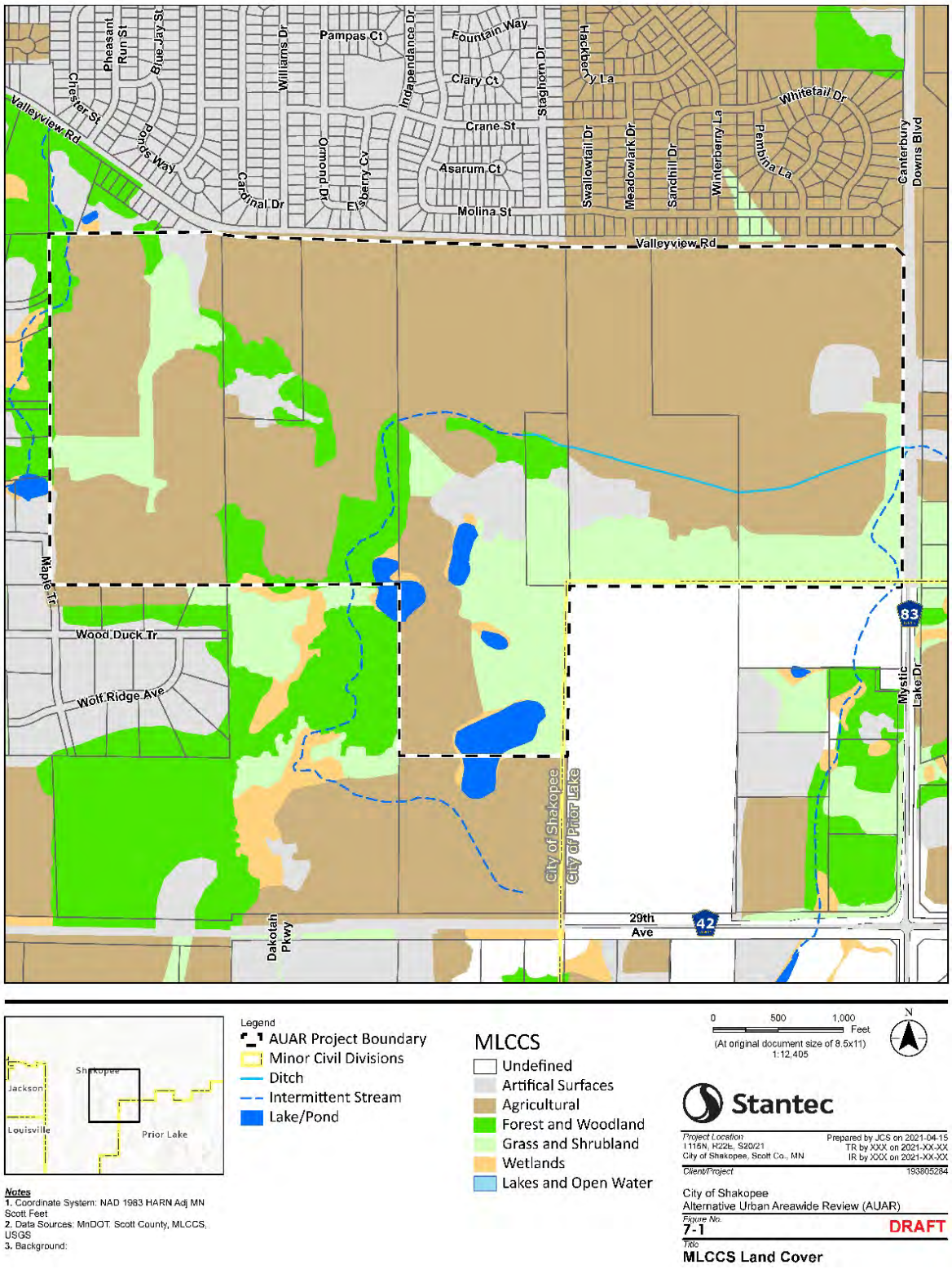


Figure 7-2. Forest Resource Study: Tree Inventory

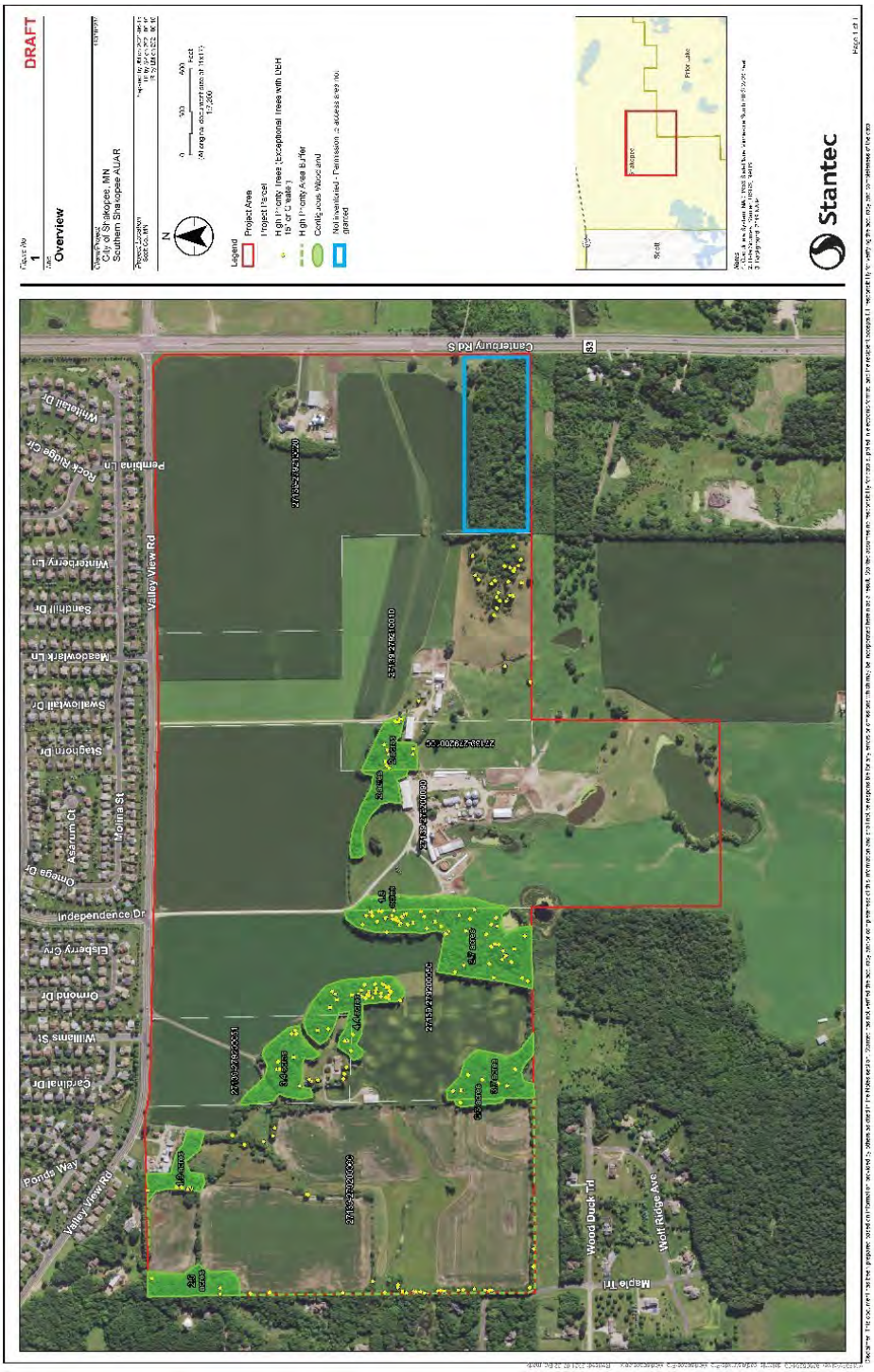


Figure 9-1. Existing Land Use

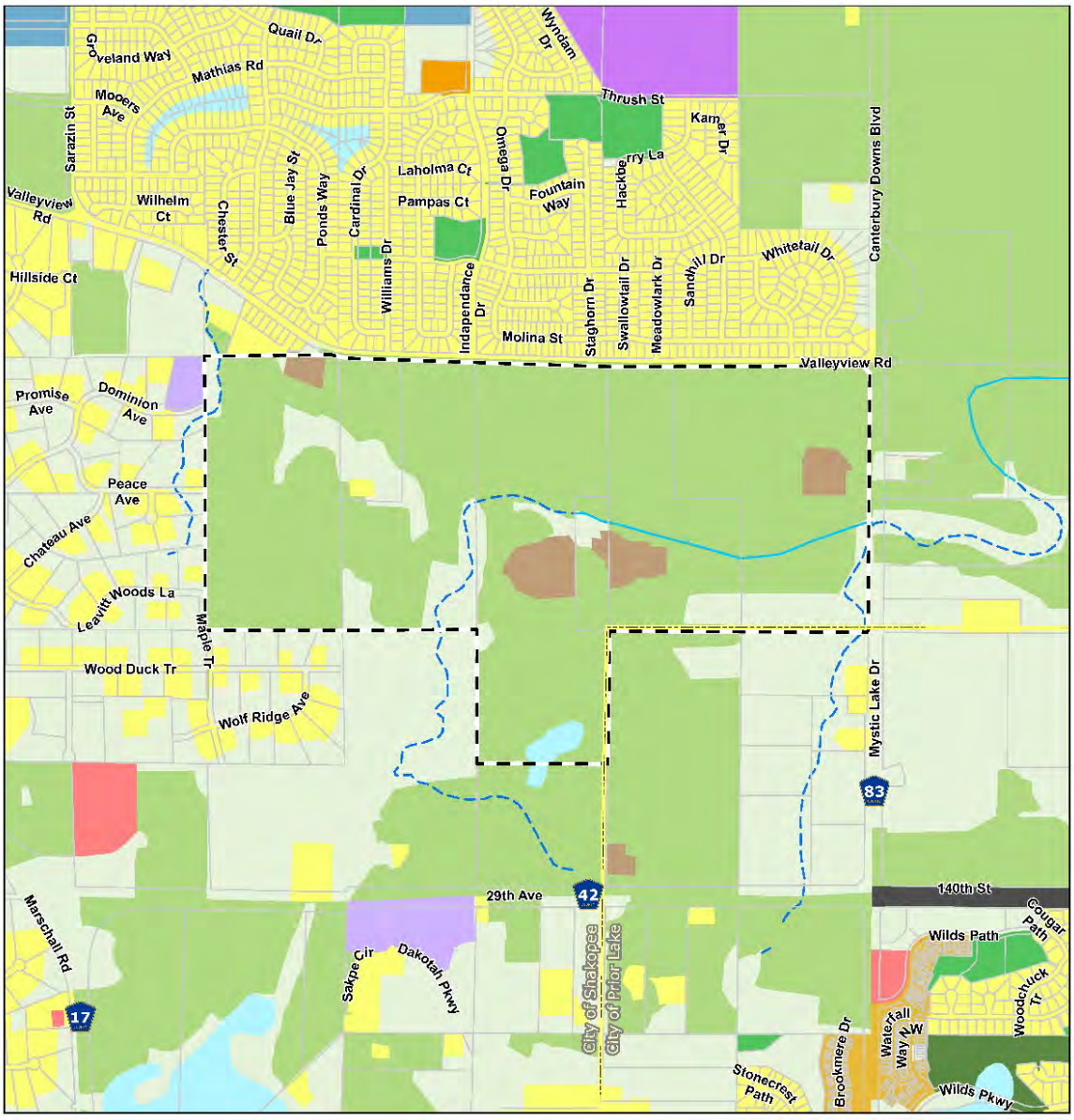


Figure 9-2. Shakopee Parks, Trails & Recreation Master Plan, Existing and Proposed Trails

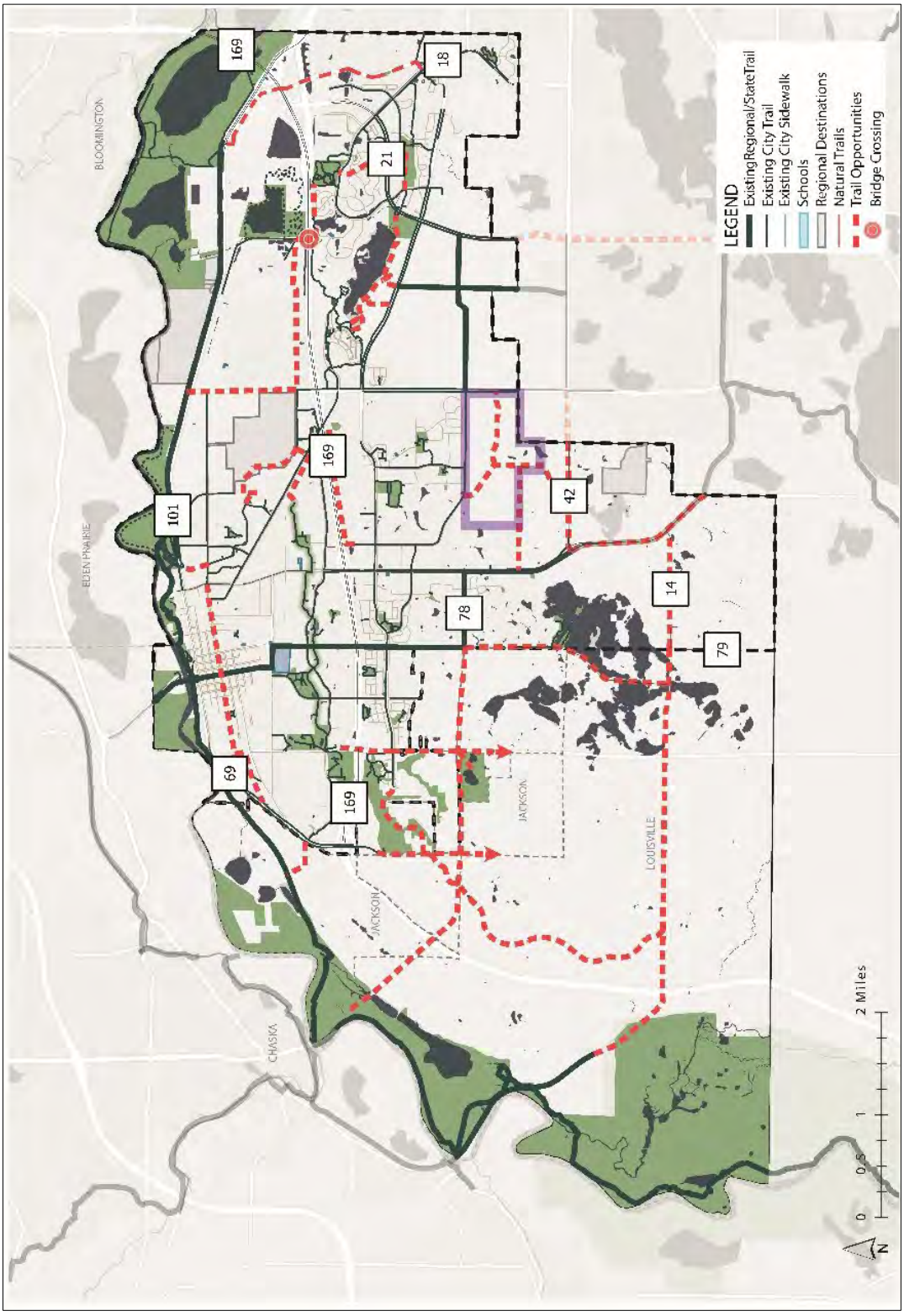


Figure 9-2 (B). FEMA Floodplains

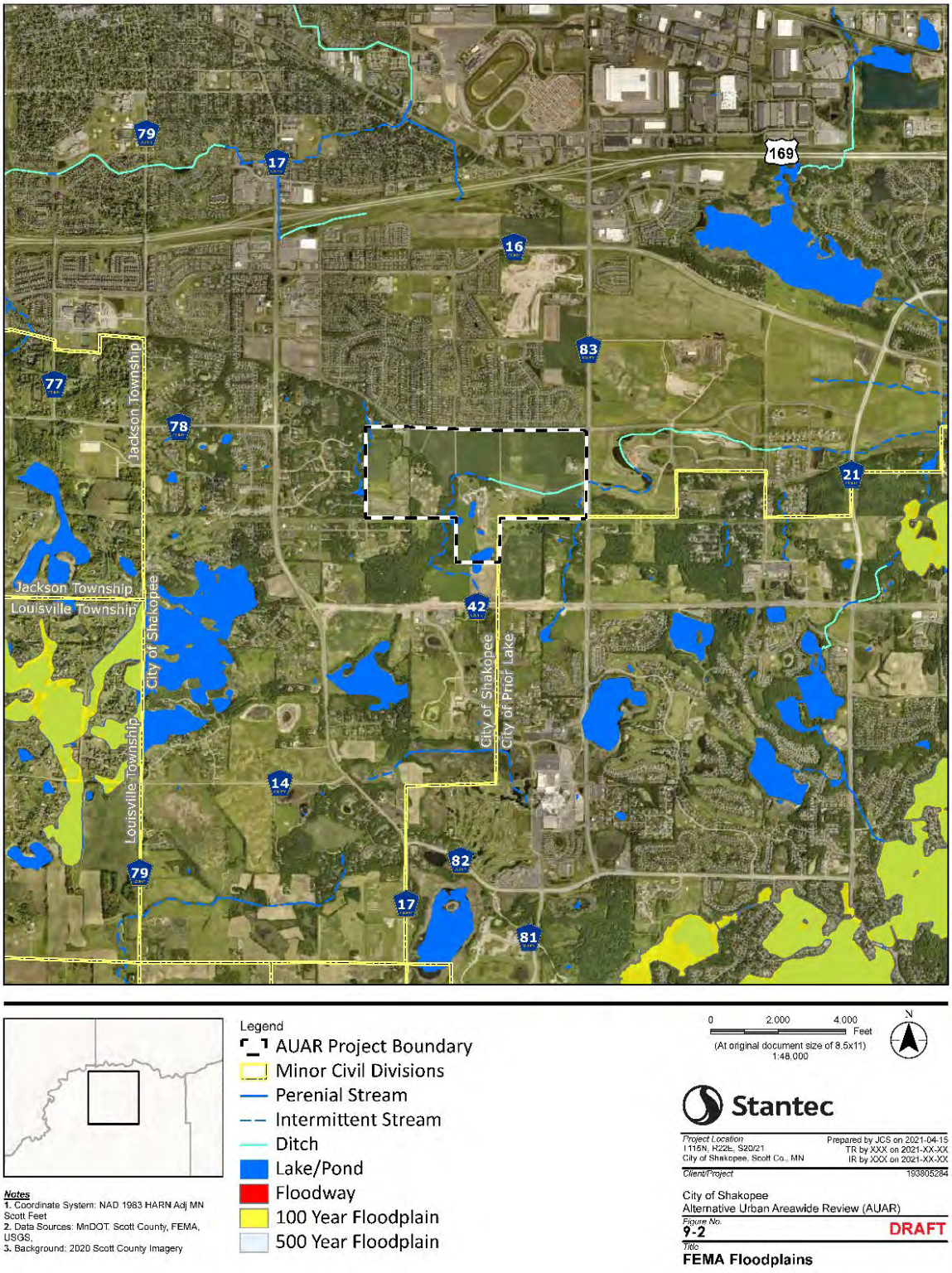


Figure 9-3. City of Shakopee Planned Land Use

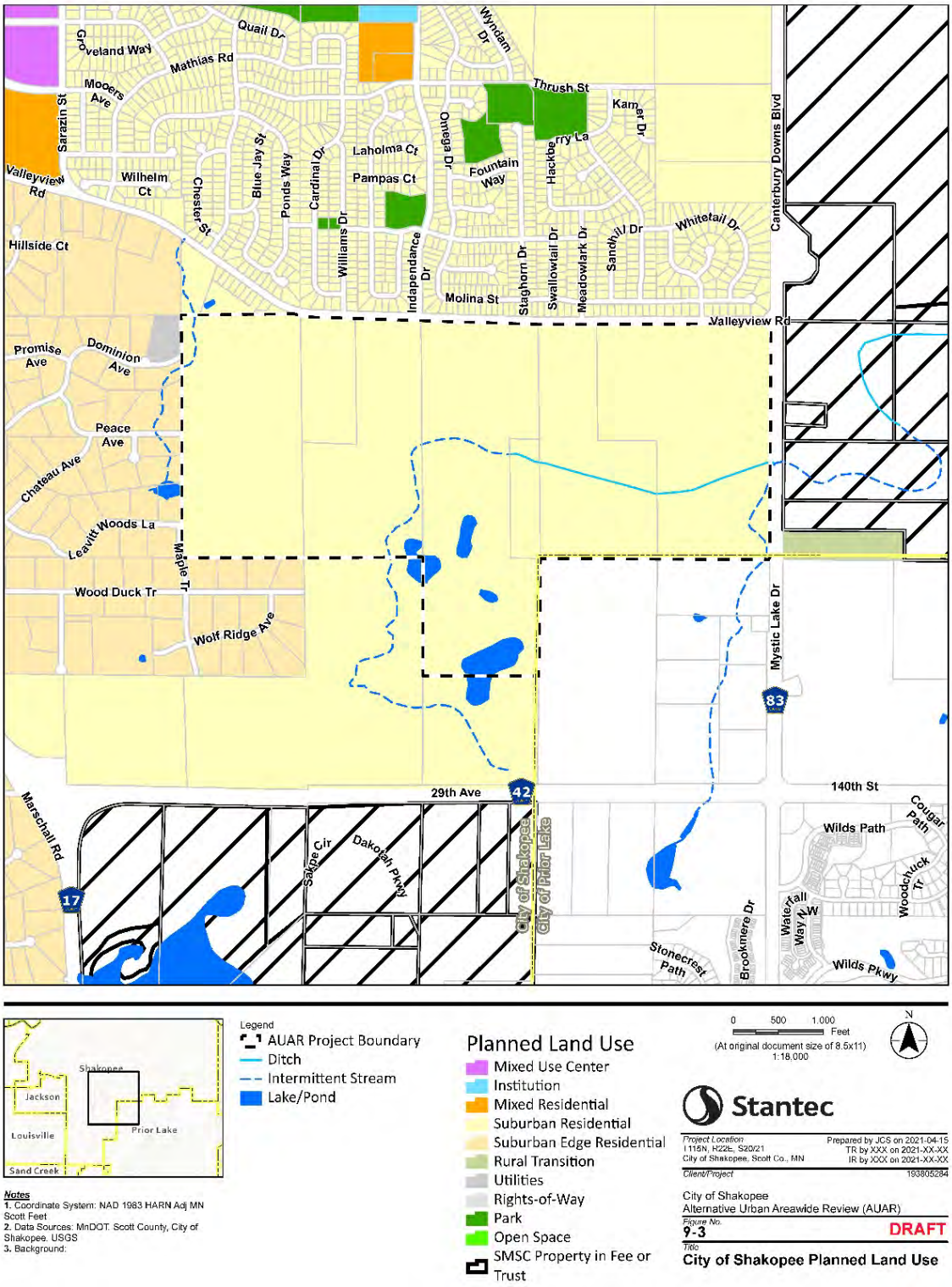


Figure 9-4. Zoning Map

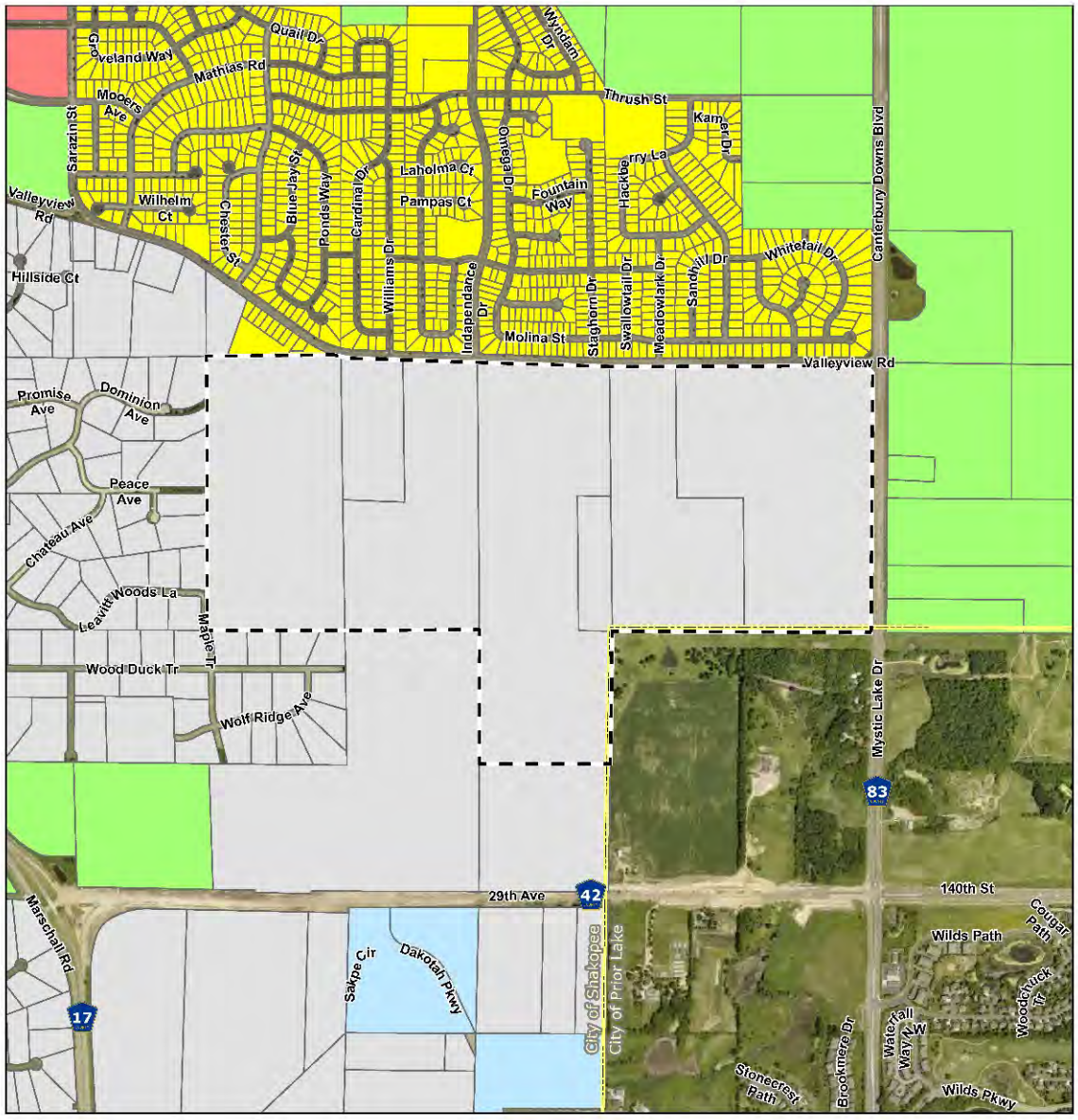


Figure 9-5. Shakopee MUSA

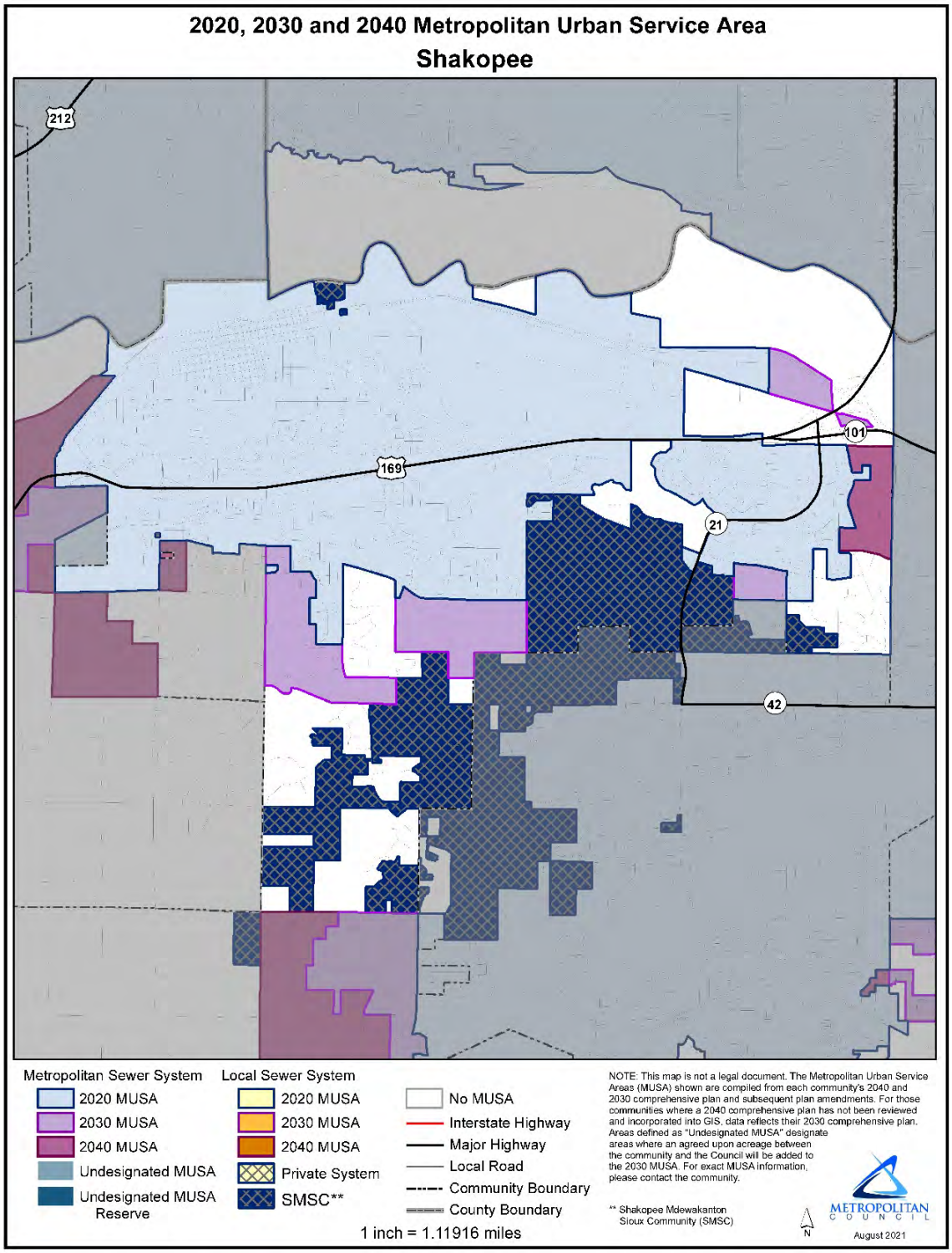


Figure 11-1. Well Locations

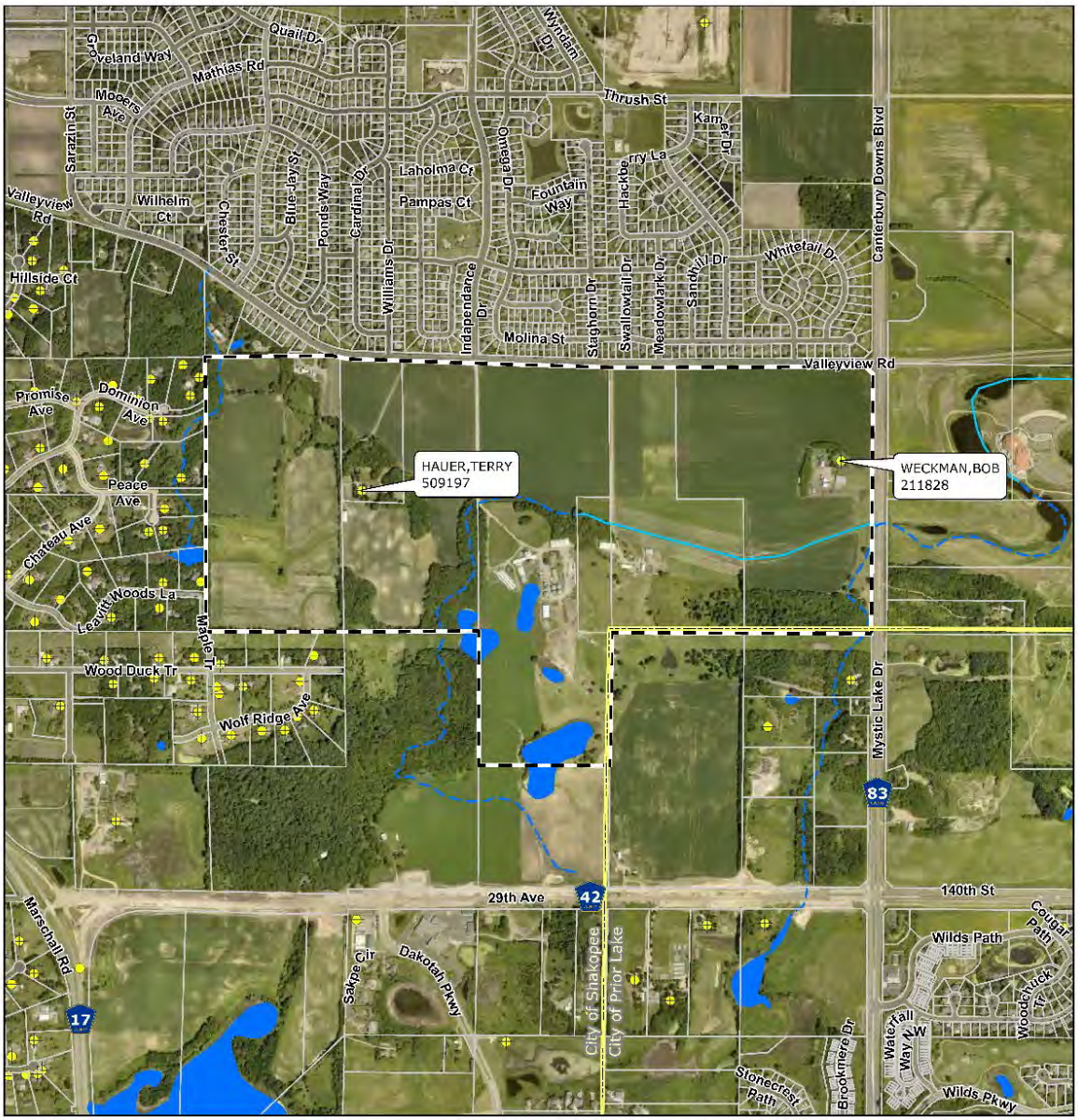


Figure 11-2. Sanitary Sewer Map

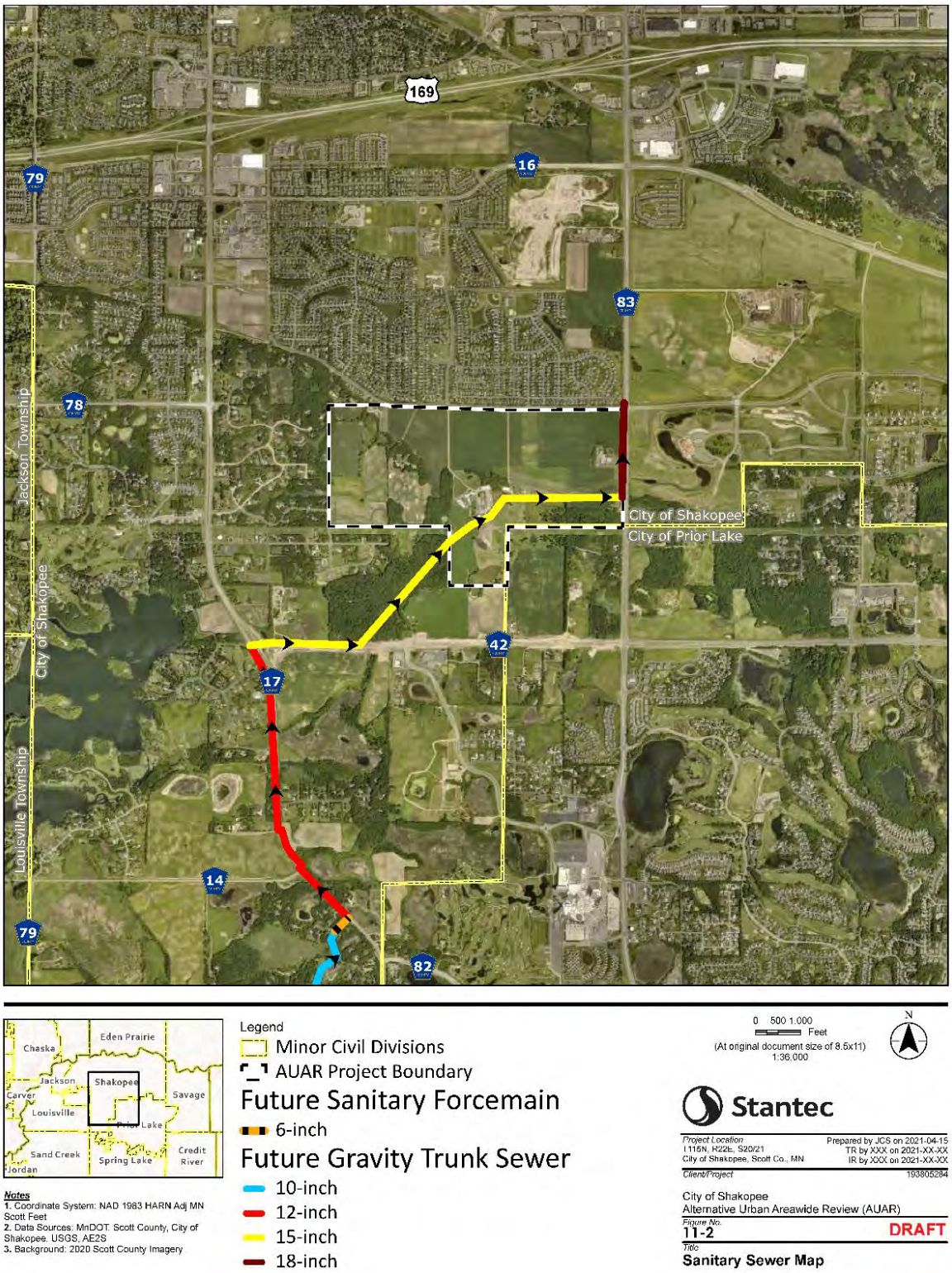
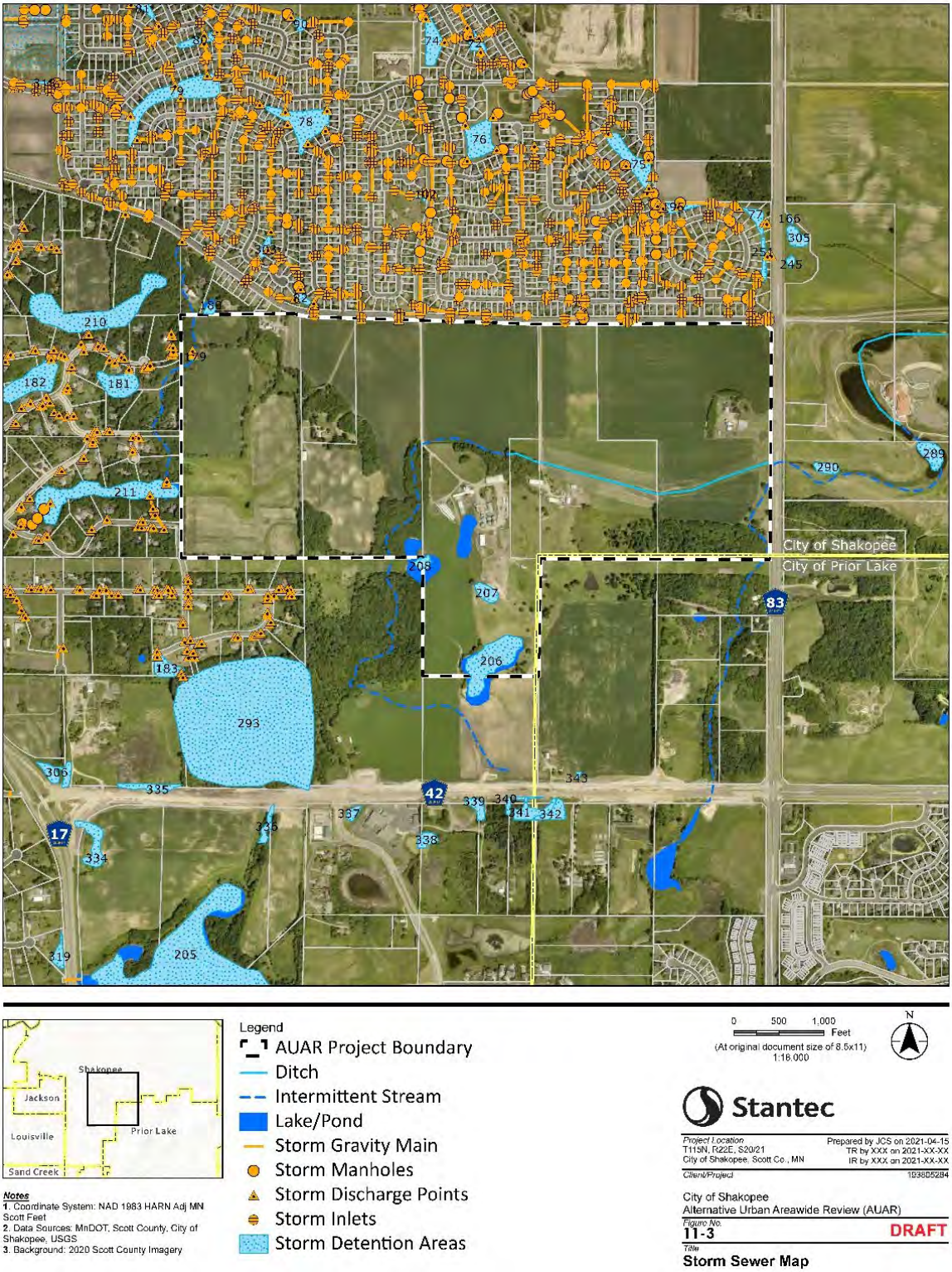


Figure 11-3. Storm Sewer Map



APPENDIX B

DRAFT AUAR RESPONSE TO COMMENTS

APPENDIX B – Response to Draft AUAR Comments

AUAR Guidelines: The final AUAR document must include a section specifically responding to each timely and substantive comment on the draft that indicates the way in which the comment has been addressed. Similar comments may be combined for purposes of responding.

The Southern Shakopee Draft Alternative Urban Areawide Review (Draft AUAR) was prepared for the City of Shakopee and distributed to the Environmental Quality Board (EQB) and persons and agencies on the official Environmental Quality Board (EQB) mailing list in accordance with EQB rules on December 14, 2021.

The 30-day comment period expired on January 13. 2022. Five agencies and one property owner submitted comments on the Draft AUAR. Copies of all comment letters submitted are included in Appendix C in the order shown below.

Agency/Organization/Citizen	Letter Dated	Signatory
Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer	January 11, 2022	Bryce D. Huemoeller
Metropolitan Council	January 12, 2022	Angela R. Torres
Minnesota State Historic Preservation Office	January 12, 2022	Sarah Beimers
Scott County Environmental Services	January 12, 2022	Jesse Krzenski
Minnesota Pollution Control Agency	January 13, 2022	Karen Kromar
Minnesota Department of Natural Resources	January 13, 2022	Melissa Collins
Scott County Transportation	January 13, 3022	Craig Jenson
Shakopee Mdewakanton Sioux Community	January 19. 2022	Keith Anderson

Responses are generally confined to substantive issues that "address the accuracy and completeness of the information provided in the draft analysis, potential impacts that may warrant further analysis, further information that may be required in order to secure permits for specific projects in the future, and mitigation measures or procedures necessary to prevent significant environmental impacts within the area when actual development occurs" (Minnesota Rules Part 4410.3610, Subp. 5). Although comments and recommendations that do not address these areas need not have a response, they have been duly noted for the record and are not necessarily specifically addressed in the responses. As required by MN Rules, the RGU has provided replies to comments that are *substantive* (involving matters with major or practical importance) and where necessary, note any correction(s) to be made to the appropriate sections of the AUAR or Mitigation Plan. Responses to comments are organized by AUAR Item number.

ITEM 6 PROJECT DESCRIPTION

1. **Comment:** The development layout in Scenario B (connected roadway network) represents a more compact, efficient use of land and infrastructure, therefore preserving areas of open space for wildlife habitat and recreation. The cul-de-sac development

layout in Scenario A creates more habitat fragmentation, higher VMT and emissions due to reduced traffic connectivity, and is less compact in terms of infrastructure provision and land use patterns. Scenario A is therefore likely to create a higher environmental impact than Scenario B.

Commenting Agency: Metropolitan Council

Response: While no changes were made to the AUAR document to address this comment, it has been noted for the public record.

2. **Comment:** The Draft AUAR discusses two development scenarios: Scenario A with 787 single-family lots and Scenario B with 885 single-family lots. The site is part of the Transportation Analysis Zone (TAZ) #2173. TAZ allocations for 2040 were prepared by the City in 2019 as part of its 2040 Comprehensive Plan (Plan). The City's Plan expects TAZ #2173 to grow by +695 households and +2,125 population during 2020-2040. If either scenario is implemented, the TAZ #2173 allocation should be increased for 2030 and 2040. City staff are invited to contact Council staff with any questions.

   Commenting Agency: Metropolitan Council

   Response: This comment has been added to the mitigation strategies for Question 6, should Scenario A or B be implemented.

3. **Comment:** Recent property acquisitions by the SMSC are not reflected accurately in the mapping. The SMSC can provide accurate updates of boundaries if required.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: A map has been added to the AUAR that reflects the most current SMSC boundaries in relation to the AUAR study area.

4. **Comment:** Development Scenario A is the preferred option, as it will have the least amount of impact on SMSC adjoining land to the west. Scenario A includes larger buffers between development parcels and woodland and wetland plant communities than Scenario B. This land is being preserved as a natural area, which may include hunting. A reduced buffer portrayed in Scenario B, will impact allowable space for usable hunting lands for tribal members. Higher density development has potential to result in increases in trespassing in the adjacent forested areas owned by the Tribe.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: While no changes were made to the AUAR document to address this comment, it has been noted for the public record.

5. **Comment:** The AUAR evaluates issues and impacts from the future development of six parcels that includes a 435-acre AUAR area, but excludes significant land to the south of

the AUAR area that is the critical source of many of the issues raised in the AUAR. By excluding the southerly land, the AUAR excessively restricts, limits and diminishes the value of the 435-acre AUAR area in a way that is inconsistent with existing Shakopee ordinances and historic and individual property rights.

Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

Response: SMSC has removed their land from the boundary of the AUAR with the intent to place their land into permanent conservation state. The conservation state would be prairie and grazing lands that would ultimately increase infiltration and provide a reduction in stormwater runoff to the study area. Therefore, the AUAR boundary is inclusive of proposed developable properties and studies the impacts of existing conditions from lands surrounding the study area in addition to two proposed developed scenarios.

ITEM 7 COVER TYPES

1. **Comment:** It is unclear in Table 7-1 how forests, grassland, wetlands, and lakes will be impacted by each development scenario. We recommend revising this table to reflect the final acreage of each land type under both scenarios rather than lumping these together as "Undeveloped/ Open Space".

   Commenting Agency: Minnesota Department of Natural Resources

   Response: The table has been modified to show the impact on forests and grasslands for each scenario, instead of grouping them all into undeveloped/open space.

2. **Comment:** This section of the EAW indicates the Project proposes 38 acres of tree removal. As you may be aware, trees store carbon and transform it into biomass, making them an excellent source of climate change mitigation. Leaving the forested area intact, and planning the developments around the forested area, would help to reduce the Project's greenhouse gas footprint, as well as make the Project site aesthetically more pleasing. In addition, trees can reduce urban heat island effects, energy usage of nearby buildings, noise impacts and flooding. Trees can also improve air quality. The MPCA encourages the city of Shakopee and future developers to rethink how to complete development of this area in a manner that is more environmentally beneficial.

   Commenting Agency: Minnesota Pollution Control Agency
   Response: There was an error in the table which has now been corrected. It is a priority with both Scenario A and B to preserve as much forested land as possible. Scenario A would preserve approximately 21.9 acres of forested land, while Scenario B would preserve roughly 21.4 acres of forested land.

3. **Comment:** The MPCA encourages the development of pollinator friendly plantings or habitat wherever possible.

Commenting Agency: Minnesota Pollution Control Agency

Response: Language was added to the mitigation strategies in question 13 stating that where feasible, pollinator friendly plantings will be used.

ITEM 8 PERMITS AND APPROVALS REQUIRED

1. **Comment:** The list of required permits under this section is incorrect. The City already has an MS4 Stormwater permit so application for this permit is not required for the new development area.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: The MS4 Stormwater permit has been deleted from the required permit table.

2. **Comment:** The Stormwater Pollution Prevention Plan (SWPPP) for the Project is not an application; rather Project developers prepare it prior to submitting an application for the MPCA National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit (CSW Permit).

   Commenting Agency: Minnesota Pollution Control Agency

   Response: Thank you for this comment, that was an error in the AUAR. The table has been corrected to state an SWPPP will be prepared, not applied for.

3. **Comment:** Because the Project appears to be only a residential development, an Industrial Stormwater Permit is not required from the MPCA.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: The Industrial Stormwater Permit has been removed from the permit table.

4. **Comment:** The Draft AUAR identifies the need for a comprehensive plan amendment. However, given that both scenarios are consistent with the City's 2040 Plan, a comprehensive plan amendment does not seem to be necessary. City staff can connect with Council staff to discuss this point further, if needed.

   Commenting Agency: Metropolitan Council

   Response: Thank you for this comment, the comprehensive plan amendment has been removed from the permit table.

ITEM 9 LAND USE

1. **Comment:** There are no existing or planned regional parks or trails within 0.5 mile of the project area. The Scott West Regional Trail, which includes both existing and planned segments, is approximately 0.6 mile to the west of the project area. The Draft AUAR refers to this regional trail as the "Big Woods Regional Trail" on page 12. While Council staff appreciate the City's acknowledgement of this regional trail and recognize regional park implementing agencies' authority to request a regional trail name change, the latest version of the 2040 Regional Parks Policy Plan does not include the "Big Woods Regional Trail." Therefore, Council staff encourage the City to refer to the "Scott West Regional Trail, also known as the Big Woods Regional Trail" in the Land use section on page 12.

   Commenting Agency: Metropolitan Council

   Response: The language on page 12 has been updated as requested in this comment.

2. **Comment:** The AUAR fails to consider the standards for approval of plats under the Shakopee Subdivision Ordinance ("SSO"), Chapter 150, in the Development Scenarios A and B described in the AUAR ("AUAR Scenarios"). The standards are stated in SSO Section 150.08C2b(2), of which the following factors are particularly relevant to the AUAR:
   (A) Whether the layout of streets, lots, utilities, and public improvements, and their relation to the topography of the land, reflect good planning and development for the city;
   (B) Whether the subdivision preserves the site's important existing natural features;
   (C) Whether the proposed plat will facilitate the use and future development of the adjoining lands; and
   (D) Whether the subdivision can be economically served with streets, public services, and utilities.

   Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

   Response: The development scenarios shown in the AUAR are conceptual in nature. However, scenarios that have been studied are consistent with the City's Comprehensive plan. Each development, when platted, will need to comply with the City's subdivision ordinance and other official controls.

3. **Comment:** The AUAR Scenarios purport to reduce the potential density of the Hauer Land by excessively increasing the ponding and green areas within the Hauer Land to establish collector streets, holding ponds, waterway and green areas to resolve or deal with issues that emanate from adjacent properties outside of the AUAR area and exceed the impact of the development of the Hauer and other AUAR Land on available or proposed public utility and street systems. The AUAR Scenarios would effectively reduce

the density of the Hauer Plan by approximately 25%, which does not promote "good" and "economical" planning consistent with the SSO, or the need for affordable housing within the City.

Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

Response: The purpose of an AUAR is to evaluate and plan for cumulative effects of anticipated development scenarios within a certain geographic boundary. The development scenarios shown in the AUAR are conceptual in nature. Each development, when platted, will need to comply with the City's subdivision ordinance and other official controls. Likewise, every subdivision that is approved within the AUAR area will need to be consistent with the City's surface water management plan and comply with the rules and standards contained in the City of Shakopee and Spring Lake/Prior Lake Watershed District rules. The City will analyze the storm water improvements needed to serve the proposed development and will require the necessary easements and improvements to accommodate runoff and avoid flooding to protect property and the environment. The existing flooding condition of the AUAR study area will only be become worse with the increase of impervious surface associated with urban development. The properties within the boundary cannot be developed without an effective regional solution. With this understanding, the AUAR has studied potential regional alternatives and the implementation of an equitable solution will follow through the development review and approval process.

ITEM 10 GEOLOGIC HAZARDS AND SOIL CONDITIONS

1. **Comment:** Please note that a portion of the project area is mapped as a region prone to surface karst feature development.

   Commenting Agency: Minnesota Department of Natural Resources

   Response: The potential presence of surface karst features is discussed in Item 10a, and this section has been expanded to specify "surface karst features." Avoiding the potential for active karst is also discussed in the first mitigation strategy under Item 10.

2. **Comment**: The vast majority of soils within this area are hydrologic group A and B so infiltration is warranted and should be promoted through design strategies.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: A mitigation strategy has been added to item 10 to state that infiltration will be used where feasible in design strategies.

ITEM 11 WATER RESOURCES

1. **Comment:** The AUAR does not discuss the Fish Bioassessment impairment for Lake O'Dowd located within one mile of the site. This impairment requires additional Best Management Practices (BMPs) as described in the CSW Permit that must be specified in the SWPPP for the Project. Because of this impairment, individual projects or Common Plans of Development that disturb 50 or more acres of land, require review and approval of the SWPPP by MPCA prior to obtaining CSW Permit coverage.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: The impairment of Lake O'Dowd is discussed in the first part of Item 11, Fish Bioassessment impairment has been spelled out specifically in this revision. A mitigation strategy has also been added to Item 11 to discuss this impairment and the appropriate steps as stated in the comment from MPCA.

2. **Comment:** Stream system shown is missing a section that goes under CR42 with a northern route through the AUAR area**.**

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: The AUAR maps were verified to include the identified missing streams.

3. **Comment:** The existing drainage ditch crossing the southeast corner of the Hauer Land and bending easterly through the adjacent O'Laughlin property to CSAH 83 (Mystic Lake Drive) is already overburdened by flowage from the land south of the AUAR area from as many as six existing culve1is under, and other sources north of, CSAH 42, as depicted on the attached sketch ("Hauer Sketch"). The volume of flowage into the ditch has already required the City of Shakopee (at its cost) to install two 42" culverts under the access to the O'Laughlin property to prevent flooding of the access, flooding a portion of the north Hauer fields, and water issues with some homes north of Valley View Road. The current flowage is not natural, but the result of projects or actions by local government and others. The ponding for the drainage ditch system shown on the AUAR Scenarios is not adequate, and will unreasonably, unnecessarily and illegally burden the Hauer and AUAR Land, particularly if drainage from the South Half of Section 20 continues to increase. The only realistic solution is to direct the flow unimpeded through the existing drainage ditch system. The attached representative example of a development plan for the Hauer Land that conforms to the SSO ("Hauer Plan") clearly shows the potential for development of the Hauer Land using diffused holding areas to handle internal runoff from the development while preserving the existing drainage ditch system to handle the impacts from pass-through offsite drainage that would otherwise illegally burden the Hauer and AUAR Land. To the extent that modifications (or ponding) to the drainage ditch system is required to manage the pass-through off site drainage shown on the Hauer Sketch, the cost of such management facilities (or ponding) will need to be borne by local governmental or others outside of the AUAR area. The failure of the AUAR to identify and quantify the various sources and impacts of offsite runoff that affects the AUAR area is a material and critical deficiency of the draft AUAR that could

lead to demands that the land within the AUAR area absorb a disproportionate share of the responsibility for the facilities and cost to manage the existing and future offsite runoff.

Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

Response: The evaluation of the existing conditions, including surface water drainage patterns, contributing to the development scenarios within the AUAR study area was completed to establish the current conditions. The anticipated development scenarios incorporate the existing drainage conditions and accommodate for future development stormwater management within the AUAR study area consistent with the City's surface water management plan and Spring Lake/Prior Lake Watershed District rules. The purpose of an AUAR is to evaluate the impacts of proposed development scenarios from existing conditions, not to evaluate previous land alterations that have resulted in the existing conditions. Each development, when platted, will need to comply with the City's stormwater management plan and watershed district rules.

4. **Comment:** The AUAR states detention ponds with an infiltration bench will be constructed to manage stormwater runoff from the site. The CSW Permit requires that a volume reduction method, such as infiltration, is considered before resorting to detention ponds unless prohibited as defined in the permit. Based on the presence of A and B soils on the site, it appears that infiltration may be possible. If detention ponds are constructed, they could discharge to an infiltration area. Note that wetlands at the site may not be utilized for stormwater treatment unless they have gone through the wetland mitigation process.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: The preference for infiltration has been addressed in the mitigation strategies for Item 11.

5. **Comment:** The City is also strongly encouraged to incentivize use of low impact development methods to increase resilience to heavier rainfall and potential flooding in the development. Reducing impervious areas by constructing narrower residential streets or using pervious pavements can help reduce stormwater runoff, as well as winter salting and chloride pollution. Maximizing open space and preserving mature trees at the site to help soak up rainwater and encourage individual property owners to plant native vegetation.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: A mitigation strategy has been added to Item 11 stating if either Scenario A or B is implemented, the City will encourage the use of low impact development methods, where feasible.

6. **Comment:** Please note that the need to conduct dewatering/diversion to allow the construction of bridges or culverts could need a DNR Water Appropriation Permit should the volumes of water exceed 10,000 gallons per day, or one million gallons per year.

   Commenting Agency: Minnesota Department of Natural Resources

   Response: The potential need for a DNR Water Appropriation Permit is discussed in the mitigation strategies under Item 11 and listed in the permits and approvals table under Item 8.

7. **Comment:** Given the presence of intermittent streams and an existing ditch on the site, stormwater management may be complex. The Draft AUAR lists requirements to meet for stormwater management but gives few additional details on how these requirements will be met. The City should require detailed calculations or modeling of the stormwater management practices for the entire site before proceeding with the project.

   Commenting Agency: Metropolitan Council

   Response: The City has completed detailed model calculations for the AUAR study area that will guide requirements of individual stormwater management calculations and designs to adhere to the regional requirements and calculations.

8. **Comment:** While piping stormwater through the study area to the 83 culvert will result in stable soils it will negate the beneficial effects of the preponderance of hydrologic group A and B soils. It should be a goal to infiltrate the maximum amount of runoff as possible.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: A mitigation strategy has been added to discuss that the City will encourage infiltration of runoff, where feasible.

9. **Comment:** The Draft AUAR identifies National Wetlands Inventory (NWI) designated wetlands are present within the AUAR area. The open space layout within both Scenarios A and B largely align with the location of NWI wetland features. In line with mitigation measures in Question 11, the developer should aim to preserve wetlands in order to maintain the existing hydrology of the site and sustain existing biodiversity.

   Commenting Agency: Metropolitan Council

   Response: A mitigation strategy has been added to Item 11 discussing that the developer should aim to preserve wetlands, where feasible. This is in line with other mitigation strategies in Item 11.

10. **Comment:** It is likely that there is a surficial water table near the surface as indicated by wetlands and streams in the development area.

    Commenting Agency: Minnesota Department of Natural Resources

Response: The mitigation strategies in Item 11 discuss the dewatering process that shall be followed if shallow groundwater is discovered during construction.

11. **Comment:** Due to the area being within the City of Shakopee Wellhead Protection Area, great care should be used in handling materials that could pollute groundwater.

    Commenting Agency: Minnesota Department of Natural Resources

    Response: A mitigation strategy has been added to Item 11 discussing that the developer will take appropriate safety measures when handling materials that could pollute groundwater.

12. **Comment:** While 0.1 cfs/acre and 0.33cfs/acre are the minimum requirements the goal should be to maximize infiltrate where feasible to prevent water quality and quantity issues downstream.

    Commenting Agency: Shakopee Mdewakanton Sioux Community

    Response: A mitigation strategy has been added to Item 11 to encourage the use of infiltration, where feasible.

13. **Comment:** The DNR recommends that water from the stormwater ponds be used for irrigating landscaping, as is commonly done in the Cities of Medina and Hugo.

    Commenting Agency: Minnesota Department of Natural Resources

    Response: A mitigation strategy has been added to Item 11 to state that stormwater ponds will be used for irrigating landscaping, where feasible.

14. **Comment:** The planned increase in impervious surfaces will also increase the amount of road salt used in the project area. Chloride released into local lakes and streams does not break down, and instead accumulates in the environment, potentially reaching levels that are toxic to aquatic wildlife and plants. Consider promoting local business and city participation in the Smart Salting Training offered through the Minnesota Pollution Control Agency.

    Commenting Agency: Minnesota Department of Natural Resources

    Response: The City of Shakopee has prioritized Level 1 and Level 2 training for their staff and is expanding their pretreatment program, including purchasing a brine machine.

15. **Comment:** The existing homes located within the project area are all on well and septic. According to the development plans it appears all the existing houses/structures will be demolished; at time of development the septic systems will need to be properly abandoned and documentation of abandonment sent to Scott County Environmental Services.

Commenting Agency: Scott County Environmental Services

Response: The mitigation strategy in Item 11 discussing sealing of active wells has been expanded to state documentation of abandonment will need to be sent to Scott County Environmental Services.

16. **Comment:** Figure 11-2, Sanitary Sewer Map illustrates a 15" gravity trunk sewer transecting south to north across a forested patch of SMSC land. This is in contrast to SMSC forest preservation goals. Please locate an alternate route of the gravity trunk sewer.

    Commenting Agency: Shakopee Mdewakanton Sioux Community:

    Response: The 15" gravity trunk sewer discussed was identified in the 2040 Comprehensive Plan. However, this sewer is no longer feasible and the City does not plan to construct the sewer as shown in Figure 11-2.

17. **Comment:** City Staff and the AUAR suggest that the development of the AUAR land, and specifically the Hauer Land, will require an easterly extension of a sanitary sewer line along the south side of Valley View Road for almost three-fourths of a mile. The Hauers have confirmed, through conversations with other developers and their engineers, that there is adequate sanitary sewer capacity to serve the Hauer Land in the 12" sewer line running north in the Independence Drive right-of-way from Valley View Drive to the main Interceptor that runs along STH 169 to the Blue Lake treatment facility. Historically, the Hauers were told that the 12" line was intended to serve their land and have recently been advised that the line has existing capacity to accommodate the flow from the Hauer Land. This information, which is accessible to the City, is not reflected in the AUAR.

    Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

    Response: The existing sanitary sewer collection system flowing north along Independence Drive serves a sewershed north and west of the AUAR study area with all current and future capacity allocated for within the sewershed. The AUAR study area, as identified in the 2018 Sanitary Sewer Masterplan developed by the City, is in the sewershed to be served by the sanitary sewer collection system located along Mystic Lake Drive South/CSAH 83.

18. **Comment:** The Shakopee Public Utilities Commission has confirmed with the Hauers that there is adequate capacity for water service to the Hauer Land; and the existing utility easement along the south boundary of the Hauer Land can be used to extend water service without the necessity of routing Wood Duck Trail southeasterly through the Hauer Land. This facilitates development of the Hauer Plan, or one similar to it, and requires material modifications to the AUAR Scenarios.

Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

Response: The roadway and utility alignments shown in the AUAR are conceptual in nature. Each development, when platted, will need to comply with the City's subdivision ordinance and other official controls. Any developer will need to work with Shakopee Public Utilities Commission on water service. The extension of Wood Duck Trail is an essential connection irrespective of water line locations.

ITEM 12 SOLID WASTES, HAZARDOUS WASTES, STORAGE TANKS

1. **Comment:** Please be aware that farmsteads have the potential for releases or threatened releases of agricultural chemicals. The Minnesota Department of Agriculture (MDA) is the regulatory agency charged with managing the response and cleanup of fertilizers and pesticides.

   Commenting Agency: Minnesota Pollution Control Agency

   Response: This information and the mitigation step of contacting the MDA has been added to Item 12 as a mitigation strategy.

ITEM 13 FISH, WILDLIFE, PLANT COMMUNITIES, AND SENSITIVE ECOLOGICAL RESOURCES (RARE FEATURES)

1. **Comment:** The Draft AUAR identifies mature deciduous woodland habitat on steep slopes within the site area. It also identifies tree growth along existing fence lines that is contiguous with the Shakopee Mdewakanton Sioux Community (SMSC) property to the south. In line with mitigation measures outlined in Question 13, efforts should be made to preserve mature tree stands on slopes to minimize erosion potential. Additionally, efforts should be made to preserve trees across property boundaries to maintain existing species migration patterns between the site and areas to the south.

   Commenting Agency: Minnesota Department of Natural Resources

   Response: The language requested in this comment has been added to Item 13 as a mitigation strategy.

2. **Comment:** We appreciate that native plantings will be utilized in landscaping. We recommend using BWSR-approved, weed-free, native seed mixes to the greatest degree possible in stormwater features, parkland, and landscaping in order to provide habitat for the federally endangered rusty patched bumblebee and other pollinators. Please also see this statewide Pollinator Plan and consider how the City of Shakopee can incorporate pollinator-friendly practices and ordinances into local projects.

   Commenting Agency: Minnesota Department of Natural Resources

Response: Language has been added to the mitigation strategies in this section to specify BWSR-approved seed mixes be used where appropriate to provide pollinator habitat.

3. **Comment:** SMSC supports preservation of significant forest land and natural spaces to support the native landscape. Forested land with large ash trees has been documented in the area with age estimates of 100+ years.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: As stated in the mitigation strategies for Item 13, the City plans to complete an overall tree preservation plan, identifying high priority trees for preservation and protection.

ITEM 14 HISTORIC PROPERTIES

1. **Comment:** Due to the nature and location of the proposed project, we recommend that a Phase 1 archaeological survey be completed. We will reconsider the need for survey if the project area can be documented as previously surveyed or disturbed.

   Commenting agency: Minnesota State Historic Preservation Office

   Response: Information has been added to the mitigation strategies that reflect this comment.

ITEM 16 AIR

1. **Comment**: Please note that taking more than 10,000 gallons of water per day from the ground, or from nearby surface waters, for dust control will need to be approved under a DNR Water Appropriation Permit.

   Commenting Agency: Minnesota Department of Natural Resources

   Response: Added language to this section about the requirement to apply for a DNR Water Appropriation Permit in the aforementioned circumstances. This permit is also listed in the required permit table in Item 8.

ITEM 18 TRANSPORTATION

1. **Comment:** The Draft AUAR states that "Metro Transit route 495 operates on CSAH 83 (Mystic Lake Drive)." The correct transit provider for this area is the Minnesota Valley Transit Authority.

   Commenting Agency: Metropolitan Council

Response: The transit provider has been updated to Minnesota Valley Transit Authority (MVTA).

2. **Comment:** SMSC agrees a traffic signal is warranted at CSAH 83/Valley View Road based on the impacts to the LOS of this intersection by development.

   Commenting Agency: Shakopee Mdewakanton Sioux Community

   Response: Noted for the public record.

3. **Comment:** The AUAR Scenarios would route collector streets, particularly the easterly extension of Wood Duck Trail, in a manner that reflects poor planning by the failure to follow existing natural features and at an unnecessarily excessive cost. The proposed route for Wood Duck Trail could and should run easterly (verses northeasterly) through a natural "cut" south of the O'Laughlin homestead and agricultural operation and preserve existing natural features and avoid expensive and unnecessary condemnation proceedings. This route is depicted on the attached Stantec drawing of the AUAR area. The easterly route from Wood Duck Trail minimizes conflict with Hauers over compensation for lost density and the cost of a collector street that raises a potential taking claim incidental to the development of the Hauer Land. Locating the collector street south of the O'Laughlin agricultural operation will facilitate earlier resolution of the looping issue with the water service and the earlier installation of the collector street. On balance, avoiding the economic, sequencing and other issues that arise from routing the Wood Duck Trail collector extension through the Hauer Land and O'Laughlin property will expedite the development of the AUAR area, and do so at a lower aggregate cost to the City, landowners, developers and ultimately homeowners.

   Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

   Response: The roadways shown in the development scenarios for the AUAR are conceptual in nature. If a better alignment for the roadways which preserves the natural features found on the site can be negotiated by the City and developers, that will be pursued at the time of development. The extension of Wood Duck Trail is an essential connection irrespective of water line locations.

4. **Comment:** We will need to work through timing and how development/AUAR area will pay for the future signal at 83 and Valley View described in the mitigation.

   Commenting Agency: Scott County Transportation

   Response: The City of Shakopee will build those costs into future development.

ITEM 19 CUMULATIVE POTENTIAL EFFECTS

1. **Comment:** The strategies proposed by the Hauers for changes to the draft AUAR are consistent with the factors in the SSO for approval of developments within the AUAR area, with sound financial management, and the avoidance or mitigation of potential environmental impacts noted in this letter consistent with Minn. Rule 4410.3600. It should also be noted that a further material and significant defect of the draft AUAR is (a) its failure to consider the impacts of the existing offsite storm water on the AUAR area and the use and ultimate development of the SMSC land in the South Half of Section 20, and (b) the presumption in the AUAR that the financial and other (such as lost development density) costs incidental to such use will be borne by the owners of the land within the 435-acre AUAR. The issues arising from the land adjacent to the AUAR area need to be faced and dealt with, by and at the cost of local government, and not ignored as is evident by the draft AUAR.

   Commenting Agency: Huemoeller, Gontarek & Cheskis, PLC on behalf of Terry and Kitty Hauer

   Response: See responses provided under previous comments.

APPENDIX C
TRAFFIC IMPACT STUDY

(Separate Document)

APPENDIX D
DRAFT AUAR COMMENT LETTERS

(Separate Document)